CONSTRUCTION DOCUMENTS
PROJECT MANUAL

FOR

Tipp City Seniors New Addition
528 North Hyatt Street
Tipp City, Ohio 45371

OWNER

Tipp City Seniors, Inc
528 North Hyatt Street
Tipp City, Ohio 45371

Book 1 of 1

GARMANN MILLER

Minster, OH | Columbus, OH | Indianapolis, IN | Fort Wayne, IN

January 13, 2026

Project Number: 25059.00

TABLE OF CONTENTS

DIVISION 00 - PROCUREMENT AND CONTRACTING REQUIREMENTS

00 11 13	ADVERTISEMENT FOR BIDS
00 21 13	AIA A701 INSTRUCTIONS TO BIDDERS
00 22 13	SUPPLEMENTARY INSTRUCTIONS TO BIDDERS
00 31 19	EXISTING CONDITION INFORMATION
00 31 19.01	GEOTECHNICAL REPORT
00 41 13	BID FORM
00 45 19	NON-COLLUSION AFFIDAVIT
00 45 21	CONTRACTOR'S AFFIDAVIT
00 50 00	CONTRACTING FORMS AND SUPPLEMENTS
00 52 13	AIA A101 STANDARD FORM OF AGREEMENT
00 61 16	CONDITIONAL LIEN WAIVER AND RELEASE UPON PROGRESS PAYMENT
00 63 13	GM REQUEST FOR INFORMATION
00 72 13	AIA A201 GENERAL CONDITIONS
00 73 00	SUPPLEMENTARY CONDITIONS

DIVISION 01 - GENERAL REQUIREMENTS

01 11 00	SUMMARY OF WORK
01 20 00	PRICE AND PAYMENT PROCEDURES
01 21 00	ALLOWANCES
01 30 00	ADMINISTRATIVE REQUIREMENTS
01 33 23	CONTRACTOR SUBMITTAL PAGE
01 43 00	QUALITY ASSURANCE
01 50 00	TEMPORARY FACILITIES AND CONTROLS
01 51 00	TEMPORARY UTILITIES
01 60 00	PRODUCT REQUIREMENTS
01 60 00.01	SUBSTITUTION REQUEST FORM
01 70 00	EXECUTION AND CLOSEOUT REQUIREMENTS
01 78 00	CLOSEOUT SUBMITTALS
01 79 00	DEMONSTRATION AND TRAINING

DIVISION 02 - EXISTING CONDITIONS

02 41 00	DEMOLITION

DIVISION 03 - CONCRETE

03 15 21	UNDER SLAB VAPOR/TERMITE/GAS BARRIER
03 30 00	CAST-IN-PLACE CONCRETE

DIVISION 04 - MASONRY

04 05 13 MASONRY MORTARING
04 05 19 MASONRY ANCHORAGE & REINFORCING
04 05 23 MASONRY ACCESSORIES
04 20 00 UNIT MASONRY

DIVISION 05 - METALS

05 50 00 METAL FABRICATIONS

DIVISION 06 - WOOD, PLASTICS, AND COMPOSITES

06 10 00 ROUGH CARPENTRY
06 20 00 FINISH CARPENTRY

DIVISION 07 - THERMAL AND MOISTURE PROTECTION

07 21 13 BOARD INSULATION
07 21 16 BLANKET INSULATION
07 31 13 ASPHALT SHINGLES
07 46 26 HARDBOARD SIDING
07 62 00 SHEET METAL FLASHING AND TRIM
07 71 23 MANUFACTURED GUTTERS, DOWNSPOUTS AND BOOTS
07 92 00 JOINT SEALANTS

DIVISION 08 - OPENINGS

08 11 13 HOLLOW METAL DOORS AND FRAMES
08 14 16 FLUSH WOOD DOORS
08 43 13 ALUMINUM-FRAMED STOREFRONTS
08 80 00 GLAZING

DIVISION 09 - FINISHES

09 21 16 GYPSUM BOARD ASSEMBLIES
09 51 00 ACOUSTICAL CEILINGS
09 65 00 RESILIENT FLOORING
09 65 13 RESILIENT BASE & ACCESSORIES
09 91 13 EXTERIOR PAINTING
09 91 23 INTERIOR PAINTING

DIVISION 10 - SPECIALTIES

10 14 26 POST & PANEL SIGNAGE
10 22 33 ACCORDION FOLDING PARTITIONS
10 26 00 WALL AND DOOR PROTECTION

DIVISION 12 - FURNISHINGS

12 36 00 COUNTERTOPS

DIVISION 21 - FIRE SUPPRESSION

21 05 01 FIRE PROTECTION MATERIALS/METHODS
21 05 03 WORK IN EXISTING BUILDING
21 05 48 VIBRATION AND SEISMIC CONTROL
21 05 53 FIRE SUPPRESSION IDENTIFICATION
21 13 00 FIRE PROTECTION SYSTEMS

DIVISION 22 - PLUMBING

22 05 01 PLUMBING MATERIALS & METHODS
22 05 03 WORK IN EXISTING BUILDING
22 10 05 PLUMBING PIPING
22 10 06 PLUMBING PIPING SPECIALTIES

DIVISION 23 - HEATING, VENTILATING, AND AIR-CONDITIONING (HVAC)

23 05 01 MECHANICAL MATERIALS & METHODS
23 05 03 WORK IN EXISTING BUILDING
23 07 13 DUCT INSULATION
23 31 00 HVAC DUCTS AND CASINGS
23 33 00 AIR DUCT ACCESSORIES
23 37 00 AIR OUTLETS AND INLETS
23 81 26.13 SPLIT-SYSTEM HEATING AND COOLING

DIVISION 26 - ELECTRICAL

26 01 01 GENERAL PROVISIONS
26 05 03 WORK IN EXISTING BUILDINGS
26 05 05 MINOR ELECTRICAL DEMOLITION
26 05 06 TEMPORARY WORK
26 05 19 CONDUCTORS
26 05 26 GROUNDING AND BONDING
26 05 29 HANGERS AND SUPPORTS
26 05 33.13 CONDUIT
26 05 33.16 BOXES
26 05 50 BASIC MATERIALS AND METHODS
26 05 53 IDENTIFICATION
26 05 55 CONNECTORS
26 05 83 EQUIPMENT WIRING
26 24 16 PANELBOARDS
26 27 26 WIRING DEVICES

26 28 13 FUSES
26 28 16.16 ENCLOSED SWITCHES
26 43 01 SURGE PROTECTIVE DEVICES AND POWER QUALITY
26 51 00 INTERIOR LIGHTING
26 56 00 EXTERIOR LIGHTING

DIVISION 28 - ELECTRONIC SAFETY AND SECURITY
28 31 01 FIRE ALARM - DETECTION SYSTEM

DIVISION 31 - EARTHWORK
31 10 00 SITE CLEARING
31 22 00 GRADING
31 23 16 EXCAVATION
31 23 23 FILL

DIVISION 32 - EXTERIOR IMPROVEMENTS
32 11 23 AGGREGATE BASE AND SURFACING
32 12 16 ASPHALT PAVING
32 13 13 CONCRETE PAVING
32 33 00 SITE FURNISHINGS
32 92 19 SEEDING

GARMANN MILLER

Division 00

Procurement Requirements

AIA® Document A701® – 2018

Instructions to Bidders

for the following Project:
(Name, location, and detailed description)

Tipp City Seniors New Addition
528 N. Hyatt Street P.O. Box 376
Tipp City , OH 453471

THE OWNER:
(Name, legal status, address, and other information)

Tipp Ciy Seniors, Inc
528 North Hyatt Street
Tipp City, OH 45371

THE ARCHITECT:
(Name, legal status, address, and other information)

Garmann/Miller & Associates, In
38 S. Lincoln Drive, P.O. Box 71
Minster, OH 45865

TABLE OF ARTICLES

1 DEFINITIONS

2 BIDDER'S REPRESENTATIONS

3 BIDDING DOCUMENTS

4 BIDDING PROCEDURES

5 CONSIDERATION OF BIDS

6 POST-BID INFORMATION

7 PERFORMANCE BOND AND PAYMENT BOND

8 ENUMERATION OF THE PROPOSED CONTRACT DOCUMENTS

ADDITIONS AND DELETIONS:
The author of this document may have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

FEDERAL, STATE, AND LOCAL LAWS MAY IMPOSE REQUIREMENTS ON PUBLIC PROCUREMENT CONTRACTS. CONSULT LOCAL AUTHORITIES OR AN ATTORNEY TO VERIFY REQUIREMENTS APPLICABLE TO THIS PROCUREMENT BEFORE COMPLETING THIS FORM.

It is intended that AIA Document G612™–2017, Owner's Instructions to the Architect, Parts A and B will be completed prior to using this document.

AIA Document A701 – 2018. Copyright © 1970, 1974, 1978, 1987, 1997 and 2018. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:01:47 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (69668864af564537371cdf14)

ARTICLE 1 DEFINITIONS

§ 1.1 Bidding Documents include the Bidding Requirements and the Proposed Contract Documents. The Bidding Requirements consist of the advertisement or invitation to bid, Instructions to Bidders, supplementary instructions to bidders, the bid form, and any other bidding forms. The Proposed Contract Documents consist of the unexecuted form of Agreement between the Owner and Contractor and that Agreement's Exhibits, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, all Addenda, and all other documents enumerated in Article 8 of these Instructions.

§ 1.2 Definitions set forth in the General Conditions of the Contract for Construction, or in other Proposed Contract Documents apply to the Bidding Documents.

§ 1.3 Addenda are written or graphic instruments issued by the Architect, which, by additions, deletions, clarifications, or corrections, modify or interpret the Bidding Documents.

§ 1.4 A Bid is a complete and properly executed proposal to do the Work for the sums stipulated therein, submitted in accordance with the Bidding Documents.

§ 1.5 The Base Bid is the sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents, to which Work may be added or deleted by sums stated in Alternate Bids.

§ 1.6 An Alternate Bid (or Alternate) is an amount stated in the Bid to be added to or deducted from, or that does not change, the Base Bid if the corresponding change in the Work, as described in the Bidding Documents, is accepted.

§ 1.7 A Unit Price is an amount stated in the Bid as a price per unit of measurement for materials, equipment, or services, or a portion of the Work, as described in the Bidding Documents.

§ 1.8 A Bidder is a person or entity who submits a Bid and who meets the requirements set forth in the Bidding Documents.

§ 1.9 A Sub-bidder is a person or entity who submits a bid to a Bidder for materials, equipment, or labor for a portion of the Work.

ARTICLE 2 BIDDER'S REPRESENTATIONS

§ 2.1 By submitting a Bid, the Bidder represents that:

- **.1** the Bidder has read and understands the Bidding Documents;
- **.2** the Bidder understands how the Bidding Documents relate to other portions of the Project, if any, being bid concurrently or presently under construction;
- **.3** the Bid complies with the Bidding Documents;
- **.4** the Bidder has visited the site, become familiar with local conditions under which the Work is to be performed, and has correlated the Bidder's observations with the requirements of the Proposed Contract Documents;
- **.5** the Bid is based upon the materials, equipment, and systems required by the Bidding Documents without exception; and
- **.6** the Bidder has read and understands the provisions for liquidated damages, if any, set forth in the form of Agreement between the Owner and Contractor.

ARTICLE 3 BIDDING DOCUMENTS

§ 3.1 Distribution

§ 3.1.1 Bidders shall obtain complete Bidding Documents, as indicated below, from the issuing office designated in the advertisement or invitation to bid, for the deposit sum, if any, stated therein.
(Indicate how, such as by email, website, host site/platform, paper copy, or other method Bidders shall obtain Bidding Documents.)

§ 3.1.2 Any required deposit shall be refunded to Bidders who submit a bona fide Bid and return the paper Bidding Documents in good condition within ten days after receipt of Bids. The cost to replace missing or damaged paper documents will be deducted from the deposit. A Bidder receiving a Contract award may retain the paper Bidding Documents, and the Bidder's deposit will be refunded.

AIA Document A701 – 2018. Copyright © 1970, 1974, 1978, 1987, 1997 and 2018. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:01:47 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (69668864af564537371cdf14)

§ 3.1.3 Bidding Documents will not be issued directly to Sub-bidders unless specifically offered in the advertisement or invitation to bid, or in supplementary instructions to bidders.

§ 3.1.4 Bidders shall use complete Bidding Documents in preparing Bids. Neither the Owner nor Architect assumes responsibility for errors or misinterpretations resulting from the use of incomplete Bidding Documents.

§ 3.1.5 The Bidding Documents will be available for the sole purpose of obtaining Bids on the Work. No license or grant of use is conferred by distribution of the Bidding Documents.

§ 3.2 Modification or Interpretation of Bidding Documents

§ 3.2.1 The Bidder shall carefully study the Bidding Documents, shall examine the site and local conditions, and shall notify the Architect of errors, inconsistencies, or ambiguities discovered and request clarification or interpretation pursuant to Section 3.2.2.

§ 3.2.2 Requests for clarification or interpretation of the Bidding Documents shall be submitted by the Bidder in writing and shall be received by the Architect at least seven days prior to the date for receipt of Bids.
(Indicate how, such as by email, website, host site/platform, paper copy, or other method Bidders shall submit requests for clarification and interpretation.)

§ 3.2.3 Modifications and interpretations of the Bidding Documents shall be made by Addendum. Modifications and interpretations of the Bidding Documents made in any other manner shall not be binding, and Bidders shall not rely upon them.

§ 3.3 Substitutions

§ 3.3.1 The materials, products, and equipment described in the Bidding Documents establish a standard of required function, dimension, appearance, and quality to be met by any proposed substitution.

§ 3.3.2 Substitution Process

§ 3.3.2.1 Written requests for substitutions shall be received by the Architect at least ten days prior to the date for receipt of Bids. Requests shall be submitted in the same manner as that established for submitting clarifications and interpretations in Section 3.2.2.

§ 3.3.2.2 Bidders shall submit substitution requests on a Substitution Request Form if one is provided in the Bidding Documents.

§ 3.3.2.3 If a Substitution Request Form is not provided, requests shall include (1) the name of the material or equipment specified in the Bidding Documents; (2) the reason for the requested substitution; (3) a complete description of the proposed substitution including the name of the material or equipment proposed as the substitute, performance and test data, and relevant drawings; and (4) any other information necessary for an evaluation. The request shall include a statement setting forth changes in other materials, equipment, or other portions of the Work, including changes in the work of other contracts or the impact on any Project Certifications (such as LEED), that will result from incorporation of the proposed substitution.

§ 3.3.3 The burden of proof of the merit of the proposed substitution is upon the proposer. The Architect's decision of approval or disapproval of a proposed substitution shall be final.

§ 3.3.4 If the Architect approves a proposed substitution prior to receipt of Bids, such approval shall be set forth in an Addendum. Approvals made in any other manner shall not be binding, and Bidders shall not rely upon them.

§ 3.3.5 No substitutions will be considered after the Contract award unless specifically provided for in the Contract Documents.

§ 3.4 Addenda

§ 3.4.1 Addenda will be transmitted to Bidders known by the issuing office to have received complete Bidding Documents.
(Indicate how, such as by email, website, host site/platform, paper copy, or other method Addenda will be transmitted.)

AIA Document A701 – 2018. Copyright © 1970, 1974, 1978, 1987, 1997 and 2018. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:01:47 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (69668864af564537371cdf14)

§ 3.4.2 Addenda will be available where Bidding Documents are on file.

§ 3.4.3 Addenda will be issued no later than four days prior to the date for receipt of Bids, except an Addendum withdrawing the request for Bids or one which includes postponement of the date for receipt of Bids.

§ 3.4.4 Prior to submitting a Bid, each Bidder shall ascertain that the Bidder has received all Addenda issued, and the Bidder shall acknowledge their receipt in the Bid.

ARTICLE 4 BIDDING PROCEDURES

§ 4.1 Preparation of Bids

§ 4.1.1 Bids shall be submitted on the forms included with or identified in the Bidding Documents.

§ 4.1.2 All blanks on the bid form shall be legibly executed. Paper bid forms shall be executed in a non-erasable medium.

§ 4.1.3 Sums shall be expressed in both words and numbers, unless noted otherwise on the bid form. In case of discrepancy, the amount entered in words shall govern.

§ 4.1.4 Edits to entries made on paper bid forms must be initialed by the signer of the Bid.

§ 4.1.5 All requested Alternates shall be bid. If no change in the Base Bid is required, enter "No Change" or as required by the bid form.

§ 4.1.6 Where two or more Bids for designated portions of the Work have been requested, the Bidder may, without forfeiture of the bid security, state the Bidder's refusal to accept award of less than the combination of Bids stipulated by the Bidder. The Bidder shall neither make additional stipulations on the bid form nor qualify the Bid in any other manner.

§ 4.1.7 Each copy of the Bid shall state the legal name and legal status of the Bidder. As part of the documentation submitted with the Bid, the Bidder shall provide evidence of its legal authority to perform the Work in the jurisdiction where the Project is located. Each copy of the Bid shall be signed by the person or persons legally authorized to bind the Bidder to a contract. A Bid by a corporation shall further name the state of incorporation and have the corporate seal affixed. A Bid submitted by an agent shall have a current power of attorney attached, certifying the agent's authority to bind the Bidder.

§ 4.1.8 A Bidder shall incur all costs associated with the preparation of its Bid.

§ 4.2 Bid Security

§ 4.2.1 Each Bid shall be accompanied by the following bid security:
(Insert the form and amount of bid security.)

§ 4.2.2 The Bidder pledges to enter into a Contract with the Owner on the terms stated in the Bid and shall, if required, furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder. Should the Bidder refuse to enter into such Contract or fail to furnish such bonds if required, the amount of the bid security shall be forfeited to the Owner as liquidated damages, not as a penalty. In the event the Owner fails to comply with Section 6.2, the amount of the bid security shall not be forfeited to the Owner.

§ 4.2.3 If a surety bond is required as bid security, it shall be written on AIA Document A310™, Bid Bond, unless otherwise provided in the Bidding Documents. The attorney-in-fact who executes the bond on behalf of the surety shall affix to the bond a certified and current copy of an acceptable power of attorney. The Bidder shall provide surety bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 4.2.4 The Owner will have the right to retain the bid security of Bidders to whom an award is being considered until (a) the Contract has been executed and bonds, if required, have been furnished; (b) the specified time has elapsed so that Bids may be withdrawn; or (c) all Bids have been rejected. However, if no Contract has been awarded or a Bidder has not been notified of the acceptance of its Bid, a Bidder may, beginningdays after the opening of Bids, withdraw its Bid and request the return of its bid security.

§ 4.3 Submission of Bids

§ 4.3.1 A Bidder shall submit its Bid as indicated below:

AIA Document A701 – 2018. Copyright © 1970, 1974, 1978, 1987, 1997 and 2018. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:01:47 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (69668864af564537371cdf14)

(Indicate how, such as by website, host site/platform, paper copy, or other method Bidders shall submit their Bid.)

§ 4.3.2 Paper copies of the Bid, the bid security, and any other documents required to be submitted with the Bid shall be enclosed in a sealed opaque envelope. The envelope shall be addressed to the party receiving the Bids and shall be identified with the Project name, the Bidder's name and address, and, if applicable, the designated portion of the Work for which the Bid is submitted. If the Bid is sent by mail, the sealed envelope shall be enclosed in a separate mailing envelope with the notation "SEALED BID ENCLOSED" on the face thereof.

§ 4.3.3 Bids shall be submitted by the date and time and at the place indicated in the invitation to bid. Bids submitted after the date and time for receipt of Bids, or at an incorrect place, will not be accepted.

§ 4.3.4 The Bidder shall assume full responsibility for timely delivery at the location designated for receipt of Bids.

§ 4.3.5 A Bid submitted by any method other than as provided in this Section 4.3 will not be accepted.

§ 4.4 Modification or Withdrawal of Bid

§ 4.4.1 Prior to the date and time designated for receipt of Bids, a Bidder may submit a new Bid to replace a Bid previously submitted, or withdraw its Bid entirely, by notice to the party designated to receive the Bids. Such notice shall be received and duly recorded by the receiving party on or before the date and time set for receipt of Bids. The receiving party shall verify that replaced or withdrawn Bids are removed from the other submitted Bids and not considered. Notice of submission of a replacement Bid or withdrawal of a Bid shall be worded so as not to reveal the amount of the original Bid.

§ 4.4.2 Withdrawn Bids may be resubmitted up to the date and time designated for the receipt of Bids in the same format as that established in Section 4.3, provided they fully conform with these Instructions to Bidders. Bid security shall be in an amount sufficient for the Bid as resubmitted.

§ 4.4.3 After the date and time designated for receipt of Bids, a Bidder who discovers that it made a clerical error in its Bid shall notify the Architect of such error within two days, or pursuant to a timeframe specified by the law of the jurisdiction where the Project is located, requesting withdrawal of its Bid. Upon providing evidence of such error to the reasonable satisfaction of the Architect, the Bid shall be withdrawn and not resubmitted. If a Bid is withdrawn pursuant to this Section 4.4.3, the bid security will be attended to as follows:
(State the terms and conditions, such as Bid rank, for returning or retaining the bid security.)

ARTICLE 5 CONSIDERATION OF BIDS

§ 5.1 Opening of Bids

If stipulated in an advertisement or invitation to bid, or when otherwise required by law, Bids properly identified and received within the specified time limits will be publicly opened and read aloud. A summary of the Bids may be made available to Bidders.

§ 5.2 Rejection of Bids

Unless otherwise prohibited by law, the Owner shall have the right to reject any or all Bids.

§ 5.3 Acceptance of Bid (Award)

§ 5.3.1 It is the intent of the Owner to award a Contract to the lowest responsive and responsible Bidder, provided the Bid has been submitted in accordance with the requirements of the Bidding Documents. Unless otherwise prohibited by law, the Owner shall have the right to waive informalities and irregularities in a Bid received and to accept the Bid which, in the Owner's judgment, is in the Owner's best interests.

§ 5.3.2 Unless otherwise prohibited by law, the Owner shall have the right to accept Alternates in any order or combination, unless otherwise specifically provided in the Bidding Documents, and to determine the lowest responsive and responsible Bidder on the basis of the sum of the Base Bid and Alternates accepted.

ARTICLE 6 POST-BID INFORMATION

§ 6.1 Contractor's Qualification Statement

Bidders to whom award of a Contract is under consideration shall submit to the Architect, upon request and within the timeframe specified by the Architect, a properly executed AIA Document A305™, Contractor's Qualification Statement,

AIA Document A701 – 2018. Copyright © 1970, 1974, 1978, 1987, 1997 and 2018. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:01:47 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (69668864af564537371cdf14)

unless such a Statement has been previously required and submitted for this Bid.

§ 6.2 Owner's Financial Capability

A Bidder to whom award of a Contract is under consideration may request in writing, fourteen days prior to the expiration of the time for withdrawal of Bids, that the Owner furnish to the Bidder reasonable evidence that financial arrangements have been made to fulfill the Owner's obligations under the Contract. The Owner shall then furnish such reasonable evidence to the Bidder no later than seven days prior to the expiration of the time for withdrawal of Bids. Unless such reasonable evidence is furnished within the allotted time, the Bidder will not be required to execute the Agreement between the Owner and Contractor.

§ 6.3 Submittals

§ 6.3.1 After notification of selection for the award of the Contract, the Bidder shall, as soon as practicable or as stipulated in the Bidding Documents, submit in writing to the Owner through the Architect:

- **.1** a designation of the Work to be performed with the Bidder's own forces;
- **.2** names of the principal products and systems proposed for the Work and the manufacturers and suppliers of each; and
- **.3** names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for the principal portions of the Work.

§ 6.3.2 The Bidder will be required to establish to the satisfaction of the Architect and Owner the reliability and responsibility of the persons or entities proposed to furnish and perform the Work described in the Bidding Documents.

§ 6.3.3 Prior to the execution of the Contract, the Architect will notify the Bidder if either the Owner or Architect, after due investigation, has reasonable objection to a person or entity proposed by the Bidder. If the Owner or Architect has reasonable objection to a proposed person or entity, the Bidder may, at the Bidder's option, withdraw the Bid or submit an acceptable substitute person or entity. The Bidder may also submit any required adjustment in the Base Bid or Alternate Bid to account for the difference in cost occasioned by such substitution. The Owner may accept the adjusted bid price or disqualify the Bidder. In the event of either withdrawal or disqualification, bid security will not be forfeited.

§ 6.3.4 Persons and entities proposed by the Bidder and to whom the Owner and Architect have made no reasonable objection must be used on the Work for which they were proposed and shall not be changed except with the written consent of the Owner and Architect.

ARTICLE 7 PERFORMANCE BOND AND PAYMENT BOND

§ 7.1 Bond Requirements

§ 7.1.1 If stipulated in the Bidding Documents, the Bidder shall furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder.

§ 7.1.2 If the furnishing of such bonds is stipulated in the Bidding Documents, the cost shall be included in the Bid. If the furnishing of such bonds is required after receipt of bids and before execution of the Contract, the cost of such bonds shall be added to the Bid in determining the Contract Sum.

§ 7.1.3 The Bidder shall provide surety bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 7.1.4 Unless otherwise indicated below, the Penal Sum of the Payment and Performance Bonds shall be the amount of the Contract Sum.
(If Payment or Performance Bonds are to be in an amount other than 100% of the Contract Sum, indicate the dollar amount or percentage of the Contract Sum.)

§ 7.2 Time of Delivery and Form of Bonds

§ 7.2.1 The Bidder shall deliver the required bonds to the Owner not later than three days following the date of execution of the Contract. If the Work is to commence sooner in response to a letter of intent, the Bidder shall, prior to commencement of the Work, submit evidence satisfactory to the Owner that such bonds will be furnished and delivered in accordance with this Section 7.2.1.

§ 7.2.2 Unless otherwise provided, the bonds shall be written on AIA Document A312, Performance Bond and Payment Bond.

AIA Document A701 – 2018. Copyright © 1970, 1974, 1978, 1987, 1997 and 2018. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:01:47 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (69668864af564537371cdf14)

§ 7.2.3 The bonds shall be dated on or after the date of the Contract.

§ 7.2.4 The Bidder shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix to the bond a certified and current copy of the power of attorney.

ARTICLE 8 ENUMERATION OF THE PROPOSED CONTRACT DOCUMENTS

§ 8.1 Copies of the proposed Contract Documents have been made available to the Bidder and consist of the following documents:

.1 AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor, unless otherwise stated below.
(Insert the complete AIA Document number, including year, and Document title.)

.2 AIA Document A101™–2017, Exhibit A, Insurance and Bonds, unless otherwise stated below.
(Insert the complete AIA Document number, including year, and Document title.)

.3 AIA Document A201™–2017, General Conditions of the Contract for Construction, unless otherwise stated below.
(Insert the complete AIA Document number, including year, and Document title.)

.4 Building Information Modeling Exhibit, if completed:

.5 Drawings

Number	Title	Date

.6 Specifications

Section	Title	Date	Pages

.7 Addenda:

Number	Date	Pages

.8 Other Exhibits:
(Check all boxes that apply and include appropriate information identifying the exhibit where required.)

[ ] AIA Document E204™–2017, Sustainable Projects Exhibit, dated as indicated below:
(Insert the date of the E204-2017.)

[ ] The Sustainability Plan:

Title	Date	Pages

[ ] Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages

AIA Document A701 – 2018. Copyright © 1970, 1974, 1978, 1987, 1997 and 2018. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:01:47 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (69668864af564537371cdf14)

.9 Other documents listed below:
(List here any additional documents that are intended to form part of the Proposed Contract Documents.)

AIA Document A701 – 2018. Copyright © 1970, 1974, 1978, 1987, 1997 and 2018. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:01:47 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (69668864af564537371cdf14)

Soil Study for Proposed Building Addition, N. Hyatt Street, Tipp City, Ohio

Submitted To:

Garmann Miller
Attn: Mr. Andrew Huelsman
38 South Lincoln Drive
Minster, Ohio 45865

Report No. 20006020-0126-001
January 6, 2026

BOWSER MORNER®

4518 Taylorsville Road—Dayton, Ohio 45424—937.236.8805
www.bowser-morner.com

BOWSER MORNER

DAYTON ENGINEERING SERVICES
P.O. Box 51
Dayton, Ohio 45401-0051
P. 937.236.8805 F. 937.233.2016
www.bowser-morner.com

January 6, 2026

Garmann Miller
Attention: Mr. Andrew Huelsman, P.E., CEM
38 South Lincoln Drive
Minster, Ohio 45865

Re: Report No. 20006020-0126-001; Soil Study for Proposed Building Addition, N. Hyatt Street, Tipp City, Ohio

Dear Mr. Huelsman:

Bowser-Morner, Inc. is pleased to submit our report of the soil study for the above-referenced project. The purpose of this study is to determine the physical characteristics of the soil strata and allowable bearing capacity for the proposed building addition. Also noted are other conditions that could affect the design and/or construction of the structure.

The samples collected that were not used to perform the laboratory tests will be kept in our laboratory for 30 days unless you advise us otherwise. If you have any questions or if we can help you in any way on this project or future work, please call us.

Respectfully submitted,
BOWSER-MORNER, INC.

Daniel M. Otieno
Geotechnical Engineer

Chris R. Ryan, M.S.C.E., P.E.
Geotechnical Engineer

DO/CRR/an
3-Client
2-File

TABLE OF CONTENTS

SECTION		PAGE NO.
I	**TEXT**	
1.0	INTRODUCTION	1
2.0	WORK PERFORMED	1
2.1	FIELD WORK	1
2.2	LABORATORY WORK	1
3.0	SOIL AND GROUNDWATER CONDITIONS	2
3.1	GEOLOGIC SOIL PROFILE	2
3.2	SUBSURFACE CONDITIONS	4
4.0	DISCUSSION AND RECOMMENDATIONS	5
4.1	PROJECT DESCRIPTION	5
4.2	FOUNDATION RECOMMENDATIONS	6
4.3	FLOOR SLABS ON-GRADE	10
4.4	COMPACTION REQUIREMENTS	10
4.5	FOUNDATION EXCAVATIONS	11
4.6	CONSTRUCTION DEWATERING	12
4.7	DRAINAGE	12
5.0	CLOSURE	12
5.1	BASIS OF RECOMMENDATIONS	12
5.2	LIMITATIONS AND ADDITIONAL SERVICES	13
5.3	WARRANTY	14
II	**SUGGESTED SPECIFICATIONS**	
	CLEARING AND GRADING	
III	**BORING LOG TERMINOLOGY, BORING LOGS, LABORATORY DATA, AND PRINTS**	



Section I

Text

1.0 INTRODUCTION

A proposed building addition will be constructed onto the east side of the Tipp City Seniors building at 528 N. Hyatt Street in Tipp City, Ohio. A vicinity map (Figure 1) is included in Section III of this report. Our findings on the soil conditions and groundwater levels with respect to the potential construction problems, and recommendations for the allowable bearing capacity for the construction of the building addition are given in this report.

Authorization to proceed with this soil study was given by Garmann Miller in a signed proposal acceptance sheet dated September 23, 2025. The work was to proceed in accordance with our proposal and agreement, Quotation No. 25-312-083 dated September 9, 2025.

The draft soil boring logs and preliminary foundation recommendations were emailed to Mr. Andrew Huelsman on November 18, 2025.

2.0 WORK PERFORMED

2.1 Field Work

Four (4) soil borings were made at the locations shown on the boring location plan, Figure 2 in Section III. The boring logs and boring location plan are included in Section III. The borings were made with an ATV boring rig using hollow-stem augers and standard penetration resistance methods. The standard penetration tests were performed in accordance with ASTM D1586, which includes a 140-pound hammer, 30-inch drops, and two-inch-O.D. split-spoon samplers driven at maximum depth intervals of five feet or at major changes in stratum, whichever occurred first. The disturbed split-spoon samples were visually classified, logged, sealed in moisture-proof jars, and taken to the Bowser-Morner, Inc. laboratory for study. The depths where these "SS"-type split-spoon samples were collected are noted on the corresponding boring logs.

2.2 Laboratory Work

Plasticity Testing: One (1) Atterberg limits test was performed in accordance with ASTM D4318 to determine the liquid and plastic limits on the most visibly plastic cohesive soil or as needed for soil classification. Plasticity testing is commonly performed to assess seasonal volume change potential of subsurface cohesive materials for use as structural fill and foundation support materials.

Moisture Contents: In addition, 13 moisture content determinations were made in accordance with ASTM D2216. The results of the laboratory tests are summarized in Table 2-1 and included in Section III of this report.

Table 2-1. Summary of Laboratory Test Results

Boring No.	Depth (ft.)	Moisture Content (%)	Atterberg Limits LL	PL	PI
1	1.0 – 2.5	16.1			
	3.5 – 5.0	9.8	18	13	5
	6.0 – 7.5	10.5			
	8.5 – 10.0	9.1			
2	1.0 – 2.5	21.5			
	3.5 – 5.0	14.1			
	6.0 – 7.5	9.1			
3	1.0 – 2.5	18.1			
	3.5 – 5.0	25.1			
	6.0 – 7.5	10.5			
4	1.0 – 2.5	22.9			
	3.5 – 5.0	9.8			
	6.0 – 7.5	9.2			

3.0 SOIL AND GROUNDWATER CONDITIONS

3.1 Geologic Soil Profile

Geologically, the sites are situated in Miami County which consists of Wisconsin Age glacial deposits which include glacial till, outwash, associated loess or silty windblown deposits, and lacustrine clays and silts. The bedrock in Miami County include the Dayton and Brassfield limestones of Silurian age and the Richmond group of Ordovician age.

The glacial soils in the vicinity of the site are what is known as glacial till (both clayey and loamy Wisconsin till), which tend to be fairly strong deposits consisting of mixtures of silt, clay, sand, gravel and coarser particles that were left behind once the glaciers retreated from the region. For the clayey till, the mix is dominated by clay, whereas for the loamy till, the mix is more balanced between the various particles. The clayey Wisconsinan aged glacial tills are shaded dark brown in the diagram below, whereas the loamy till are shaded tan.



(References: Soil Explorer. Online at http://SoilExplorer.net. Accessed 12/11/2025.)

The U.S. Department of Agriculture Soil Survey mapping of this site indicates that the variations of glacial drift on the property include MoA (Millsdale silty clay loam, 0 to 2 percent slopes), and MkB (Miamian Silt loam, limestone substratum, 2 to 6 percent slopes). According to the USDA mapping, the MoA and MkB surface deposit variations at the site tend to be the mostly silty.



3.2 Subsurface Conditions

Based on the information from the four borings made for this study, the subgrade soil conditions are described in descending order below:

STRATUM 1: TOPSOIL: Encountered from Surface to depths of ±4 inches.

Topsoil extending to a depth of approximately four inches. Topsoil consists of the semi-organic surface layer of soil that is often mixed with root matter and vegetative materials. Because the organic matter in this soil layer has a high potential for degradation and future volume change, it is not considered to be a reliable stratum for support of buildings or structures. Any surface layer with more than 4% organics (as a percentage of the total dry weight of the soil) should be considered topsoil and should be removed from use for structural fill purposes.

STRATUM 2: GLACIAL DRIFT: Encountered below stratum 1 to a depth of ±8.0 feet or to Bottom of Borings.

Medium stiff-to-hard, brown-to-dark brown silty lean clay. The layer extends to a depth of approximately 8.0 feet in Boring 2, and to the bottom of boring, upon auger refusal, at depths of 14.4, 19.0, and 13.7 feet in Borings 1, 3, and 4 respectively.

STRATUM 3: Weathered DOLOMITE: Encountered below stratum 2 to Bottom of Boring.

In Boring 2 and below Stratum 2, highly weathered dolomite rock extending to the bottom the borings, upon auger refusal, at a depth of 11.0 feet.

Free groundwater was encountered during the advancement of the borings at the depths and elevations summarized in Table 3-1.

Table 3-1. Summary of Groundwater Observations

Boring No.	Depth Groundwater First Observed (ft)		Groundwater Observations at Completion of Boring	
	Depth	Elevation*	Depth	Elevation*
1	3.5	864.7	8.0	860.2
2	8.5	859.5	6.0	862.0
3	No Water		19.9	847.5
4	6.0	860.4	5.0	861.4

* In reference to surface elevation based on Ohio South State Plane Coordinate System.

Free groundwater is defined as water that seeps into an open borehole before it is backfilled. Groundwater observations were made during the boring operations by noting the depth of water on the boring tools and in the open boreholes following withdrawal of the boring augers. However, it should be noted that short-term water level readings are not necessarily a reliable indication of the groundwater level and that significant fluctuations may occur due to variations in rainfall and other factors. For specific questions on the soil conditions, please refer to the individual boring logs in Section III.

4.0 DISCUSSION AND RECOMMENDATIONS

4.1 Project Description

A proposed building addition will be constructed onto the east side of the Tipp City Seniors building at 528 N. Hyatt Street in Tipp City, Ohio. The proposed addition will be approximately 32 feet wide and 58 feet long. No design or loading information was provided for this report.

The following recommendations are based on this information. If the above statements are incorrect or changes are made, Bowser-Morner, Inc. should be notified so that the new data can be reviewed and additional recommendations and services can be given if required to meet the needs of your project.

4.2 Foundation Recommendations

4.2.1 Foundation Subgrade Preparation

Based on the subgrade soil conditions indicated in the four (4) borings made in the proposed building addition areas, the site is covered with topsoil, and/or weaker soil that extends to the approximate depths outlined in Table 4-1. Based on the results of the standard penetration tests (SPT) in the borings, the recommended net allowable bearing capacities and the depths to bearing strata at each boring are also tabulated in Table 4-1.

Table 4-1. Depths to Bottoms of Unreliable Soils

Boring No.	Depth to Bottom of Bearing Strata (ft)	Elevation* of Bearing Strata (ft)	Fill, and/or Weak Soil	Recommended Net Allowable Bearing Capacity (psf)
1	0.4	867.8	Topsoil	1,500
	3.5	864.7	Topsoil and Weak Soil	4,000
2	0.4	867.6	Topsoil	1,500
	3.5	864.5	Topsoil and Weak Soil	3,000
	6.0	862.0	Topsoil and Weak Soil	4,000
3	0.4	867.0	Topsoil	2,000
	3.5	863.9	Topsoil and Weak Soil	3,000
	6.0	861.4	Topsoil and Weak Soil	4,000
4	0.4	866.0	Topsoil	2,000
	3.5	862.9	Topsoil and Weak Soil	3,000
	6.0	860.4	Topsoil and Weak Soil	4,000

*In reference to surface elevation based on Ohio South State Plane Coordinate System.

The topsoil is unreliable to support the building addition foundations and floor slab on-grade and should be removed and wasted, or stockpiled for landscaping purposes. Within the building addition construction limits, the topsoil and the weaker soil can be removed to the suitable depths with the desired allowable bearing capacities as outlined in Table 4-1 and replaced with compacted backfill.

The bottoms of the foundation excavations should extend to the suitable depths with the desired allowable bearing capacities as outlined in Table 4-1. After the foundation excavations extend to the suitable depths, the over-excavation can be filled with compacted backfill. The bottoms of exterior footing foundations should be placed at least 32 inches below the final adjacent grades to protect against frost penetration and heaving. Interior footings not subject to frost action may bear at a minimum depth of 18 inches below the floor slab if they are supported on original materials or compacted fill placed in accordance with our recommendations.

Since the foundation excavation for the proposed additions will be next to an existing building, any existing foundations that are exposed during the excavation should be examined and evaluated by a geotechnical engineer to determine the need for any shoring or underpinning. Excavations should not extend into the stress influence zone of the existing foundations without prior evaluation by a geotechnical engineer. The stress

influence zone is defined as the area below a line projected down at a 1 (h) to 1 (v) slope from the bottom edge of the existing foundation. Excavations within the influence zone of existing foundations can result in loss of support, and can create settlement or failure of the existing foundations. While the evaluation of existing foundations and the design of a shoring system are beyond the scope of this study, we can perform these tasks as a separate study.

The base of each excavation should extend one lateral foot for every foot of excavation below the bottom of the footing foundation as shown in Figure 3 in Section III. If an excavation will extend more than five feet below the existing grade, a maximum allowable side slope of 1 (horizontal) to 1 (vertical) should be maintained in any excavation for stability and for the safety of the workers.

After the foundation excavations extend to the desired grade, the top foot at the bottom of each excavation should be compacted to at least 90% of the maximum dry-unit weight as determined by the modified Proctor test (ASTM D1557) before any new fill or foundation is placed. Any soft soil pockets should be undercut and replaced with newly compacted fill. Any lean clay soils to be imported as backfill or removed from the project site probably will have significantly different Proctor values. Consequently, samples to be tested by the Proctor method should be obtained from a representative area and from the same elevation as the design subgrade.

After the bottoms of the excavations have been compacted, structural fill can be placed to bring the bottoms of the excavations to reach the desired final grade. The fill placed below the bottom of the footing foundations should be placed in eight-inch-thick lifts and compacted to at least 95% of the maximum dry-unit weight as determined by the modified Proctor test (ASTM D1557). Fill placed above the bottom of the footing foundations to serve as the subgrade for the floor slab should be compacted to at least 90% of the maximum dry-unit weight as determined by the modified Proctor test (ASTM D1557). Structural fill should be placed in accordance with the recommendations given in Section 4.4.

The footing foundations for the building addition can be supported on the original subgrade soil or newly compacted backfill extending to the depths and elevations outlined in Table 4-1. The foundations can be designed with the corresponding net allowable bearing capacities outlined in Table 4-1. For these recommended allowable bearing capacities outlined in Table 4-1 for the original soil layer or for the newly compacted backfill, the total estimated amount of settlement of the foundations will be about one inch with differential settlement of about 3/4 inch over a distance of 40 feet.

The soil removed from this site that is free of organic or objectionable materials as defined by a field technician who is qualified in soil material identification and compaction procedures can be reused as fill. Objectionable or undesirable soils are defined as those materials that cannot meet design placement specifications or materials that will deteriorate with time.

When determining the geometric size (the "footprint") of the footing foundation, the total system loads applied to the tops of the foundations should be considered in the bearing pressure calculations.

The bearing capacities recommended in Table 4-1 for foundations supported on structural fill applies to well-graded granular soils, low-to-medium plastic clays, clayey sands, and some silty sands that are placed and compacted in accordance with the recommendations given in this report. However, uniformly graded or gap-graded granular soils (GP or SP), silts (ML), silty fine sands (SM), and high plasticity clays (CH) will be difficult to place and compact, and may result in a reduced bearing capacity. If these soils will be used as backfill, Bowser-Morner should be notified before the soils are placed so that the proposed placement methods and bearing capacity recommendations can be reviewed.

The bearing capacity of a soil is not a unique physical property of the soil. Instead, it depends explicitly on several factors including the footing type, size, and shape; the depth of embedment; the eccentricity and inclination of the applied load; the footing base inclination; the stiffness of the footing; the proximity of the footing to open cuts or slopes; the relative distance between the bottom of the footing and the water table; and the allowable amounts of settlement. The recommended allowable bearing capacity is based on the foundation design parameters given above and the assumptions that the applied load is vertical with no eccentricity, the base is horizontal and level, the footing is rigid, the footing is not close to an open cut or slope, and the water table is below the bottom of footing. If the actual conditions vary from the parameters and assumptions stated above, Bowser-Morner should be notified so that the new information can be reviewed and additional recommendations and services can be given to meet the needs of your project.

Foundations supported on soil settle as the result of externally applied loads. While the foundations should be expected to settle, the amount of settlement should be within the tolerable limits for the structure.

Apparent shale or dolomite bedrock was encountered in all four of the building addition borings performed for this study. Based on the shale or dolomite samples obtained in the borings and the depths where auger refusal occurred, the depths to apparent bedrock are also tabulated in Table 4-2.

Table 4-2. Depth to Bedrock

Boring No.	Depth to Top of Bedrock (ft)	Elevation* at Top of Bedrock (ft)	Depth to Auger Refusal (ft)	Elevation* at Auger Refusal (ft)
1	14.4	853.8	14.4	853.8
2	8.5	859.5	11.0	857.0
3	19.9	847.5	19.9	847.5
4	13.7	852.7	13.7	852.7

*In reference to surface elevation based on Ohio South State Plane Coordinate System.

To avoid differential settlement, if any foundations for an addition will be supported on bedrock, all of the foundations for the addition should be supported on bedrock. Alternatively, the bedrock can be over-excavated to at least one foot below the bottoms of the foundations. One foot of compacted backfill should be placed over the bedrock surface, and the foundations for the additions should be supported on the overburden soil layer or on the newly compacted backfill layer. Alternatively, all of the foundation excavations can extend to bedrock. The over-excavation should be backfilled with lean concrete. The foundations can be partially supported on bedrock and partially supported on cured, lean concrete fill. The footing foundations for the building addition can be supported on the shale bedrock extending to the depths and elevations outlined in Table 4-2 and can be designed with a net allowable bearing capacity of 8,000 psf. Foundations supported on more than 3 feet of compacted backfill should be limited to 4,000 psf.

4.2.2 General Recommendations for Subgrade Preparation

The soil removed from this site that is free of organic or objectionable materials as defined by a field technician who is qualified in soil material identification and compaction procedures can be reused as fill. Objectionable or undesirable soils and removed asphalt pavement are defined as those materials that cannot meet design placement specifications or materials that will deteriorate with time.

After the excavation extends to the desired grade, the top foot at the bottom of the excavation should be compacted to at least 90% of the maximum dry-unit weight as defined by the modified Proctor test (ASTM D1557) before any new fill or foundation is placed. Any soft soil pockets should be undercut and replaced with compacted fill. After the bottoms of the excavations have been compacted, structural fill, if needed, can be placed to bring the bottom of the excavations to the desired grade. The fill placed below the bottoms of the foundations should be placed in eight-inch-thick horizontal lifts and compacted to at least 95% of the maximum dry-unit weight with moisture contents within 2% of the optimum moisture content as determined by the modified Proctor test (ASTM D1557). Fill placed above the bottoms of the foundations as the subgrade for floor slabs on-grade or for the support of the pavement should be compacted to at least 90% of the maximum dry-unit weight with moisture contents within 2% of the optimum moisture content as determined by the modified Proctor test (ASTM D1557).

Again, the bottoms of exterior footing foundations for heated structures should be placed at least 32 inches below the final adjacent grades to protect against frost penetration and heaving. Interior footings not subject to frost action may bear at a minimum depth of 18 inches below the floor slab if they are supported on original materials or compacted fill placed in accordance with our recommendations. If the proposed addition buildings will not be heated, the bottoms of exterior footing foundations should be placed at least 36 inches below the final adjacent grades to protect against frost penetration and heaving.

4.2.3 Site Classification For Seismic Design

Based on the results of the standard penetration tests (SPT) in the borings made in the proposed addition building areas, the average "N" values range from 21 to 32 blows per foot for the soil layer within 11 to 19.9 feet of the existing grade. Based on the results of the average "N" value, it is our opinion that the site will be classified as a "D" type in accordance with the *Ohio Building Code*.

4.3 Floor Slabs On-Grade

Based on information from the borings performed, the proposed building addition areas are covered by a layer of topsoil and weak soil that extends to the depths outlined in Table 4-1.

The topsoil layer extending to the depths outlined in Table 4-1 are also not reliable to support the floor slab due to the potential for settlement. The bottoms of the floor slab on-grade excavations should extend to the suitable depths with the desired allowable bearing capacities as outlined in Table 4-1. The building addition floor slab on-grade can be constructed over the newly compacted backfill. The upper one foot of compacted fill should be a well-graded, granular material such as crushed sand and gravel or crushed stone. To help distribute concentrated loads and equalize moisture conditions under the slab, this granular material should contain less than 5% of fines or particles that can pass through a No. 200 sieve.

We also recommend that slabs on-grade "float" by being fully supported on the ground and not structurally connected to the walls or foundations. Floating will minimize the possibility of cracking and displacement of the slabs on-grade as a result of differential movements between the slabs and the foundations. Although the movements should be within the tolerable limits for structural safety, such movements could be detrimental to the slabs if they were rigidly connected to the foundations.

4.4 Compaction Requirements

Structural fill placed below the foundation bearing elevation should be compacted to at least 95% of the maximum dry unit weight with moisture contents within 2% of the optimum moisture content as determined by the modified Proctor test (ASTM D1557). Fill placed above the bottoms of the foundations or under pavement areas should be compacted to at least 90% of the maximum dry unit weight with moisture contents within 2% of the optimum moisture content as determined by the modified Proctor test (ASTM D1557). The compaction should be accomplished by placing the fill in successive, horizontal, approximately six- to eight-inch-thick loose lifts and mechanically compacting each lift to at least the specified minimum dry density. Field density tests should be performed at a minimum rate of one per 2,500 square feet of fill area and for each lift to verify that adequate compaction is achieved. Backfill for utility trenches, foundation excavations, etc., within structures or paved areas, is considered structural fill and should be placed in accordance with these recommendations.

It must be emphasized that the excavation and compaction of soil fill are highly influenced by weather conditions. Performing the earthwork under wet and frozen conditions is generally very difficult. As a result, compaction of wet silty and clayey soil should be avoided during wet and frozen conditions because the wet soil cannot be compacted to the required unit weight without

drying or other soil stabilization methods. Alternatively, granular soil can be used as backfill to facilitate the backfill and compaction work during winter and wet weather conditions. The construction cost during the winter and wet weather conditions will be higher by the purchase of granular soil from the sand and gravel pits.

Puddling or jetting of the backfill material, including the utility trenches, should not be allowed as a compaction method. Silty or clayey soils encountered above foundation depth will often soften, and the bearing capacity may be reduced if water ponds in the excavation.

Lean concrete that is placed below the bottom of foundation should have a minimum 28-day compressive strength of 2,000 pounds per square inch (psi).

4.5 Foundation Excavations

During the foundation excavations, the subsurface conditions should be verified. Changes in subsurface conditions other than what are shown on the boring logs warrant additional subsurface investigation before the building addition foundations are constructed.

The foundation excavations should be observed to ensure that the loose, soft, or otherwise undesirable materials are removed and that the foundations will be supported directly on an acceptable surface. At the time of this observation, it may be necessary to use a hand penetration device in the base of the foundation excavation to ensure that the soils immediately below the foundation base are satisfactorily prepared to support the foundations. Please note that such shallow observations do not replace an adequate deep-boring program and structural fill compaction QA/QC records. The overall performance of the foundations is governed by the soils below the bottom of the footing foundation.

If pockets of soft, loose, or otherwise unsuitable materials are encountered in the footing excavations and it is inconvenient to lower the footings, the proposed footing elevations may be reestablished by backfilling after the undesirable materials have been removed. The excavation under each footing should extend to suitable soils, and the base of the excavation should extend one lateral foot for every foot of excavation below the bottom of the footing foundation as shown in Figure 3 in Section III. The entire excavation should then be refilled with well-compacted, engineered fill. Special care should be taken to remove the sloughed, loose, or soft materials near the base of the excavation slopes. Extra care should also be taken to tie-in the compacted fill with the excavation slopes, with benches as necessary, to ensure that no pockets of loose or soft materials are left along the excavation slopes below the foundation bearing level. The contractor should maintain temporary cut slopes in accordance with the current OSHA regulations governing trenching and slope stability.

Soils exposed at the bases of satisfactory foundation excavations should be protected against any detrimental change in condition such as from construction disturbances, rain, and freezing. Surface runoff should be drained away from the excavation and not allowed to pond. If possible, foundation concrete should be placed the same day the excavation is made. If this is not practical, the foundation excavations should be adequately protected. Also, for this reason, proper drainage should be maintained after construction. It must be emphasized that all excavations must conform to all state, federal, and local regulations relative to slope geometry.

4.6 Construction Dewatering

At the time of our study, free groundwater was encountered in all four borings at depths of 3.5 to 19.9 feet below the existing grade as outlined in Table 3-1. Any groundwater and surface water infiltration encountered in the excavations during construction should be lowered to the bottom of the excavation in silt and clay soils and should be lowered to at least three feet below the bottom of the maximum excavation in the sand and gravel layers using sumps and pumps. Sumps can consist of perforated pipes or drums installed vertically in the relatively permeable granular soils and surrounded with free-draining sand and gravel. The perforations of the pipe should be covered with a layer of filter fabric to keep silt and fine sand from pumping through the sumps. Care must be exercised when pumping from sumps that extend into silts or other granular soils since general deterioration of the bearing soils and a localized "quick" condition could result. The groundwater should be kept at a level below the fill operation during the placement and compaction of the backfill materials during the construction of the building foundation.

The amount and type of dewatering required during construction will depend on groundwater levels at the time of construction. Typically, groundwater levels are highest during winter and spring, and lower in summer and early fall.

4.7 Drainage

Adequate drainage should be provided at the site to minimize any increase in moisture content of the foundation soils during and after construction. The exterior grade including all pavements or parking areas should be sloped away from the new building addition foundations to keep water from ponding. All permanent foundation, wall, and below-grade floor drains should provide positive discharge away from the building addition.

5.0 CLOSURE

5.1 Basis of Recommendations

The evaluations, conclusions, and recommendations in this report are based on our interpretation of the field and laboratory data obtained during the exploration, our understanding of the project and our experience with similar sites and subsurface conditions. Data used during this exploration included, but were not necessarily limited to:

- Four exploratory borings performed during this study.
- Observations of the project site by our staff.
- The results of the laboratory soil tests.
- The site plan provided by Garmann Miller.
- Limited interaction with Mr. Andrew Huelsman, P.E., CEM of Garmann Miller.
- Published soil or geologic data of this area.

In the event that changes in the project characteristics are planned, or if additional information or differences from the conditions anticipated in this report become apparent, Bowser-Morner, Inc. should be notified so that the conclusions and recommendations contained in this report can be reviewed and, if necessary, modified or verified in writing.

5.2 Limitations and Additional Services

The subsurface conditions discussed in this report and those shown on the boring logs represent an estimate of the subsurface conditions based on interpretation of the boring data using normally accepted geotechnical engineering judgments. Although individual test borings are representative of the subsurface conditions at the boring locations on the dates shown, they are not necessarily indicative of subsurface conditions at other locations or at other times.

Regardless of the thoroughness of a subsurface exploration, there is the possibility that conditions between borings will differ from those at the boring locations, that conditions are not as anticipated by designers, or that the construction process has altered the soil conditions. As variations in the soil profile are encountered, additional subsurface sampling and testing may be necessary to provide data required to reevaluate the recommendations of this report. Consequently, after submission of this report, it is recommended that Bowser-Morner, Inc. be authorized to perform additional services to work with the designer(s) to minimize errors and omissions regarding the interpretation and implementation of this report.

Before construction begins, we recommend that Bowser-Morner, Inc.:

- Work with the designers to implement the recommended geotechnical design parameters into plans and specifications.
- Consult with the design team regarding interpretation of this report.
- Establish criteria for the construction observation and testing for the soil conditions encountered at this site.
- Review final plans and specifications pertaining to geotechnical aspects of design.

During construction, we recommend that Bowser-Morner, Inc.:

- Observe the construction, particularly the site preparation, fill placement, and foundation excavation or installation.
- Perform in-place density testing of all compacted fill.
- Perform materials testing of soil and other materials as required.
- Consult with the design team to make design changes in the event that differing subsurface conditions are encountered.

If Bowser-Morner, Inc. is not retained for these services, we shall assume no responsibility for construction compliance with the design concepts, specifications or recommendations.

5.3 Warranty

Our professional services have been performed, our findings obtained and our recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices. No other warranty, express or implied, is made.

The scope of this study did not include an environmental assessment for the presence or absence of hazardous or toxic materials in the soil, surface water, groundwater or air, on, within or beyond the site studied. Any statements in the report or on the boring logs regarding odors, staining of soils or other unusual items or conditions observed are strictly for the information of our client.

To evaluate the site for possible environmental liabilities, we recommend an environmental assessment, consisting of a detailed site reconnaissance, a record review, and report of findings. Additional subsurface drilling and sampling, including groundwater sampling, may be required. Bowser-Morner, Inc. can provide this service and would be pleased to provide a cost proposal to perform such a study, if requested.

This report has been prepared for the exclusive use of Garmann Miller for specific application to the building addition on N. Hyatt Street in Tipp City, Ohio (see Figure 1 in Section III of this report). Specific design and construction recommendations have been provided in the various sections of the report. The report shall therefore, be used in its entirety. This report is not a bidding document and shall not be used for that purpose. Anyone reviewing this report must interpret and draw their own conclusions regarding specific construction techniques and methods chosen. Bowser-Morner, Inc. is not responsible for the independent conclusions, opinions or recommendations made by others based on the field exploration and laboratory test data presented in this report.



Section II

Specifications

CLEARING AND GRADING SPECIFICATIONS

I. GENERAL CONDITIONS

The contractor shall furnish all labor, materials, and equipment, and perform all work and services necessary to complete in a satisfactory manner the site preparation, excavation, filling, compaction and grading as shown on the plans and as described therein.

This work shall consist of all clearing and grading, removal of existing structures unless otherwise stated, preparation of the land to be filled, filling of the land, spreading and compaction of the fill, and all subsidiary work necessary to complete the grading of the cut and fill areas to conform with the lines, grades, slopes, and specifications.

This work is to be accomplished under the constant and continuous supervision of the Owner or his designated representative.

In these specifications the terms "approved" and "as directed" shall refer to directions to the Contractor from the Owner or his designated representative.

II. SUBSURFACE CONDITIONS

Prior to bidding the work, the Contractor shall examine, investigate and inspect the construction site as to the nature and location of the work, and the general and local conditions at the construction site, including, without limitation, the character of surface or subsurface conditions and obstacles to be encountered on and around the construction site; and shall make such additional investigation as he may deem necessary for the planning and proper execution of the work. Borings and/or soil investigations shall have been made. Results of these borings and studies will be made available by the Owner to the Contractor upon his request, but the Owner is not responsible for any interpretations or conclusions with respect thereto made by the Contractor on the basis of such information, and the Owner further has no responsibility for the accuracy of the borings and the soil investigations.

If conditions other than those indicated are discovered by the Contractor, the Owner should be notified immediately. The material which the Contractor believes to be a changed condition should not be disturbed so that the Owner can investigate the condition.

III. SITE PREPARATION

Within the specified areas, all trees, brush, stumps, logs, tree roots, and structures scheduled for demolition shall be removed and disposed of.

All cut and fill areas shall be properly stripped. Topsoil will be removed to its full depth and stockpiled for use in finish grading. Any rubbish, organic and other objectionable soils, and other deleterious material, shall be disposed of off the site, or as directed by the Owner or his designated representative if on site disposal is provided. In no case shall such objectionable material be allowed in or under the fill unless specifically authorized in writing.

Prior to the addition of fill, the original ground shall be compacted to job specifications as outlined below. Special notice shall be given to the proposed fill area at this time. If wet spots, spongy conditions, or ground water seepage is found, corrective measures must be taken before the placement of fill.

IV. FORMATION OF FILL AREAS

Fills shall be formed of satisfactory materials placed in successive horizontal layers of not more than eight (8) inches in loose depth for the full width of the cross section. The depth of lift may be increased if the Contractor can demonstrate the ability to compact a larger lift. If compaction is accomplished using hand-tamping equipment, lifts will be limited to 4-inch lose lifts.

All material entering the fill shall be free of organic matter such as leaves, grass, roots, and other objectionable material.

The operations on earth work shall be suspended at any time when satisfactory results cannot be obtained because of rain, freezing weather, or other unsatisfactory conditions. The Contractor shall keep the work areas graded to provide the drainage at all times.

The fill material shall be of the proper moisture content before compaction efforts are started. Wetting or drying of the material and manipulation to secure a uniform moisture content throughout the layer shall be required. Should the material be too wet to permit proper compaction or rolling, all work on all portions of the embankment thus affected shall be delayed until the material has dried to the required moisture content. The moisture content of the fill material should be no more than two (2) percentage points higher or lower than optimum unless otherwise authorized. Sprinkling shall be done with equipment that will satisfactorily distribute the water over the disced area.

Compaction operations shall be continued until the fill is compacted to not less than 90% above foundation elevation and 95% below foundation elevation, of the maximum density as determined in accordance with the latest ASTM D-1557 (Modified). Any areas inaccessible to a roller shall be consolidated and compacted by mechanical tampers. The equipment shall be operated in such a manner that hardpan, cemented gravel, clay or other chunky soil material will be broken up into small particles and become incorporated with the other material in the layer.

In the construction of filled areas, starting layers shall be placed in the deepest portion of the fill, and as placement progresses, additional layers shall be constructed in horizontal planes. If directed, original slopes shall be continuously, vertically benched to provide horizontal fill planes. The size of the benches shall be formed so that the base of the bench is horizontal and the back of the bench is vertical. As many benches as are necessary to bring the site to final grade shall be constructed. Filling operations shall begin on the lowest bench, with the fill being placed in horizontal eight (8) inch loose lifts unless otherwise authorized. The filling shall progress in this manner until the entire first bench has been filled, before any fill is placed on the succeeding benches. Proper

drainage shall be maintained at all times during benching and filling of the benches, to insure that all water is drained away from the fill area.

When rock and other embankment material are excavated at approximately the same time, the rock shall be incorporated into the outer portion of the areas. Stones or fragmentary rock larger than four (4) inches in their greatest dimensions will not be allowed in the fill unless specifically authorized in writing. Rock fill shall be brought up in layers as specified or as directed, and every effort shall be exerted to fill the voids with the finer material to form a dense, compact mass. Rock or boulders shall be disposed of as deleterious material per Item III.

Frozen material shall not be placed in the fill nor shall the fill be placed upon frozen material.

The Contractor shall be responsible for the stability of all fills made under the contract, and shall replace any portion, which in the opinion of the Owner or his designated representative, has become displaced due to carelessness or negligence on the part of the Contractor. Fill damaged by inclement weather shall be repaired at the Contractor's expense.

V. SLOPE RATIO AND STORM WATER RUN-OFF

Slopes shall not be greater than 2 (horizontal) to 1 (vertical) in both cut and fill, and storm water shall not be drained over the slopes.

VI. GRADING

The Contractor shall furnish, operate, and maintain such equipment as is necessary to construct uniform layers, and control smoothness of grade for maximum compaction and drainage.

VII. COMPACTING

The compaction equipment shall be approved equipment of such design, weight, and quantity to obtain the required density in accordance with these specifications.

VIII. TESTING AND INSPECTION SERVICES

Testing and inspection services will be provided by the Owner.

IX. SPECIAL CONDITIONS

Section III

Boring Log Terminology, Boring Logs, Laboratory Data, And Prints

BORING LOG TERMINOLOGY

Stratum Depth:

Distance in feet and/or inches below ground surface.

Stratum Elevation:

Elevation in feet below ground surface elevation.

Description of Materials:

Major types of soil material existing at boring location. Soil classification based on one of the following systems: Unified Soil Classification System., Ohio State Highway Classification System, Highway Research Board Classification System, Federal Aviation Authority Classification System, Visual Classification.

Sample No.:

Sample numbers are designated consecutively, increasing with depth for each boring.

Sample Type:

"A" Split spoon, 2" O.D., 1-3/8" I.D., 18" in length.

"B" Rock Core

"C" Shelby Tube 3" O.D. except where noted

"D" Soil Probe

"E" Auger Cuttings

"F" Sonic

Sample Depth:

Depth below top of ground at which appropriate sample was taken.

Blows per 6" on Sampler:

The number of blows required to drive a 2" O.D., 1-3/8" I.D., split spoon sampler, using a 140 pound hammer with a 30-inch free fall, is recorded for 6" drive increments. (Example: 3/8/9).

"N" Blows/Ft.:

Standard penetration resistance. This value is based on the total number of blows required for the last 12" of penetration. (Example: 3/8/9: N = 8 + 9 = 17)

BOWSER MORNER

Water Observations:

Depth of water recorded in test boring is measured from top of ground to top of water level. Initial depth indicates water level during boring, completion depth indicates water level immediately after boring, and depth after "X" number hours indicates water level after letting water rise or fall over a time period. Water observations in pervious soil are considered reliable ground water levels for that date. Water observations in impervious soils can not be considered accurate ground water measurements for that date unless records are made over several days' time. Factors such as weather, soil porosity, etc., will cause the ground water level to fluctuate for both pervious and impervious soils.

SOIL DESCRIPTION

Color:

When the color of the soil is uniform throughout, the color recorded will be such as brown, gray, or black and may be modified by adjectives such as light and dark. If the soil's predominant color is shaded by a secondary color, the secondary color precedes the primary color, such as: gray-brown, yellow-brown. If two major and distinct colors are swirled throughout the soil, the colors will be modified by the term mottled, such as: mottled brown and gray.

Particle Size	Visual
Boulders	Larger than 8"
Cobbles	8" to 3"
Gravel – Coarse	3" to 3/4"
– Fine	2 mm. To 3/4"
Sand – Coarse	2 mm. – 0.6 mm. (Pencil lead size)
– Medium	0.6 mm. – 0.2mm. Table sugar and salt size)
– Fine	0.2 mm. – 0.06 mm. (Powdered sugar and human hair size)
Silt	0.06 mm. – 0.002 mm.
Clay	0.002 and smaller (Particle size of both Silt and Clay not visible To naked eye

Soil Components

Major Component:	Minor Component Term
Gravel	Trace 1-10%
Sand	Some 11-35%
Silt	And 36-50%
Clay	

Moisture Content

Term	Relative Moisture
Dry	Powdery
Damp	Moisture content below plastic limit
Moist	Moisture content above plastic limit but below liquid limit
Wet	Moisture content Above liquid limit

Condition of Soil Relative to Compactness Granular Material

Very Loose	5 blows/ft. or less
Loose	6 to 10 blows/ft.
Medium Dense	11 to 30 blows/ft.
Dense	30 to 50 blows/ft.
Very Dense	51 blows/ft. or more

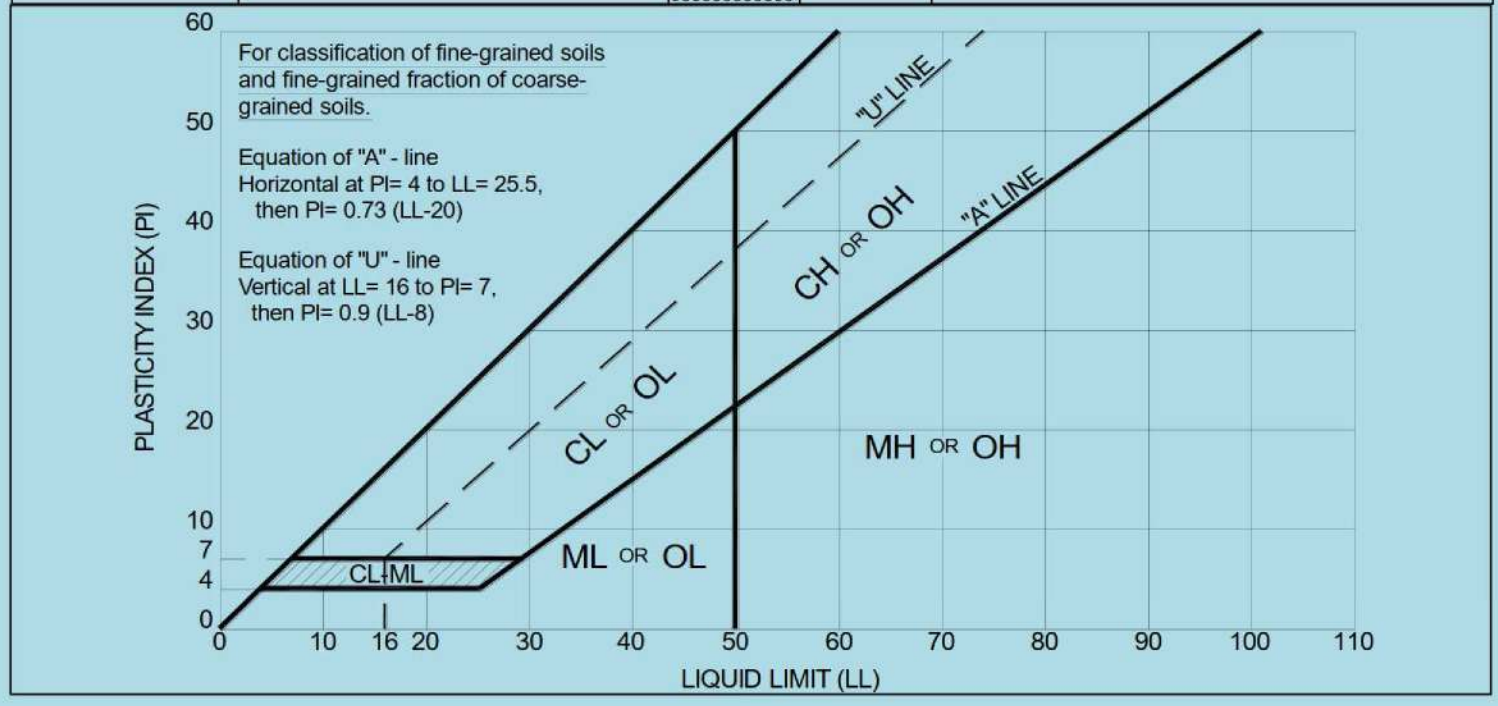
Condition of Soil Relative to Consistency Cohesive Material

Very Soft	3 blows/ft. or less
Soft	4 to 5 blows/ft.
Medium Stiff	6 to 10 blows/ft.
Stiff	11 to 15 blows/ft.
Very stiff	16 to 30 blows/ft.
Hard	31 blows/ft. or more

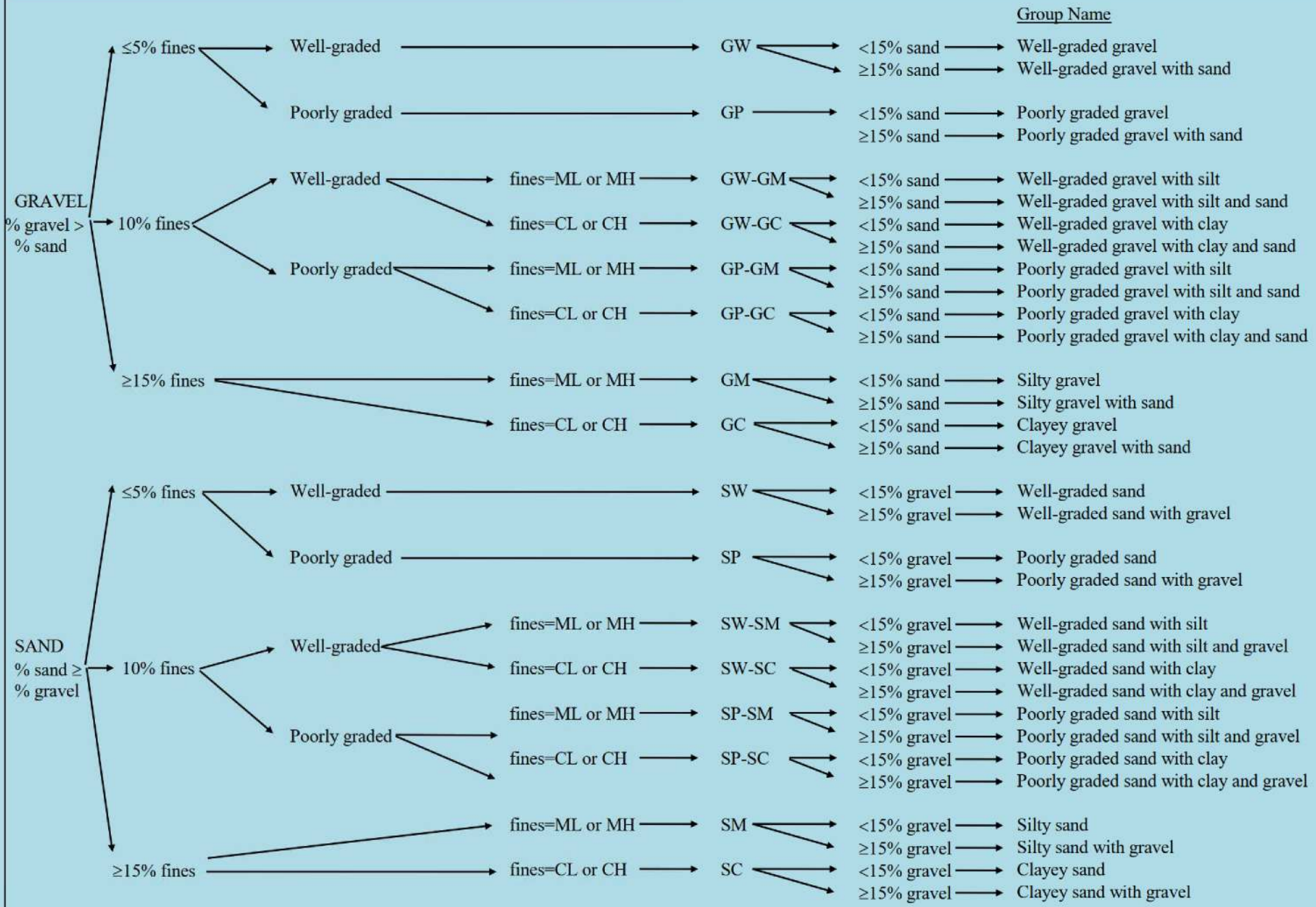
BOWSER MORNER

UNIFIED CLASSIFICATION SYSTEM

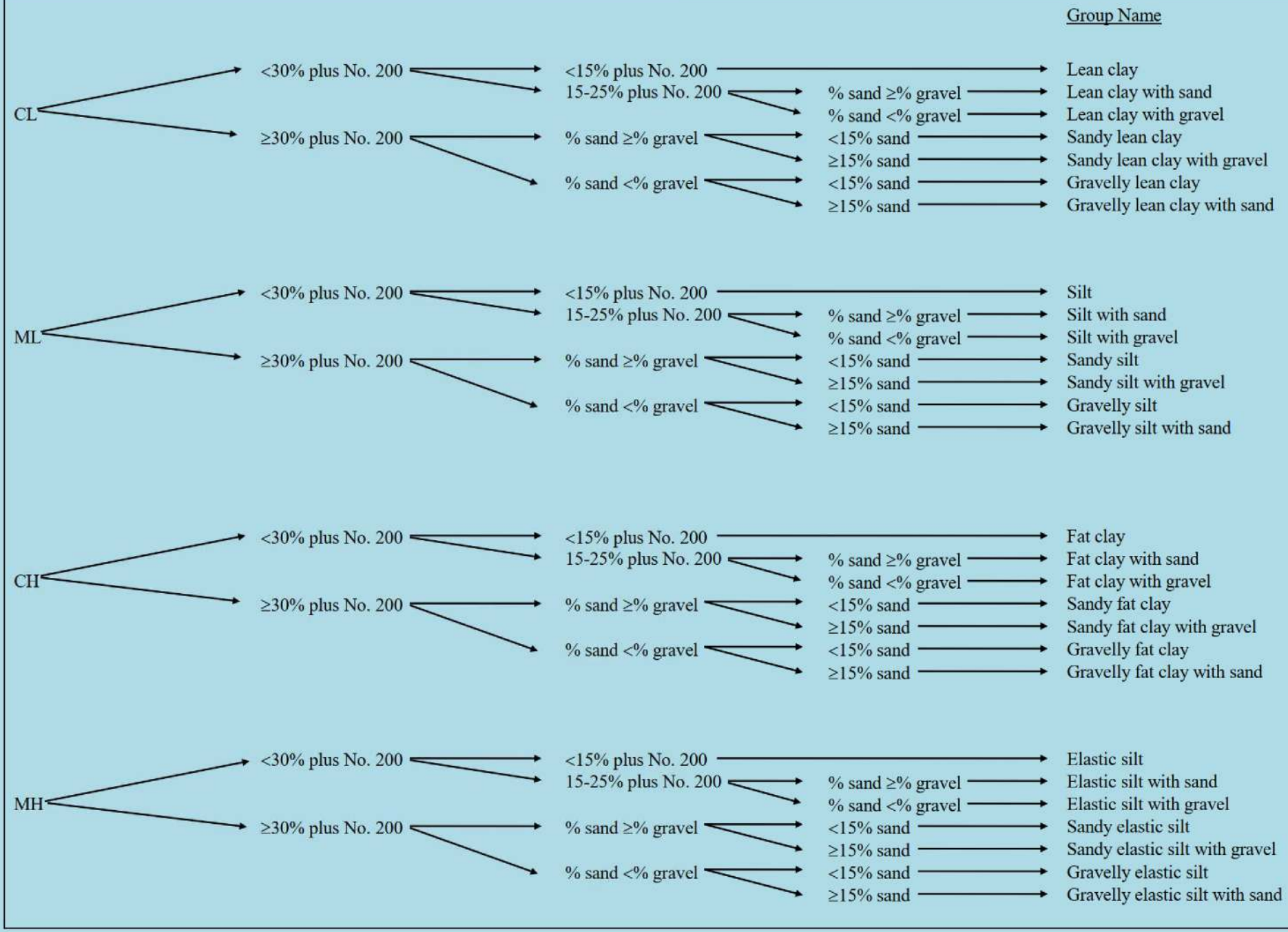
MAJOR DIVISIONS			GRAPH SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVEL WELL-GRADED GRAVEL WITH SAND
				GP	POORLY GRADED GRAVEL POORLY GRADED GRAVEL WITH SAND
		GRAVELS WITH FINES APPRECIABLE AMT. OF FINES)		GM	SILTY GRAVEL SILTY GRAVEL WITH SAND
				GC	CLAYEY GRAVEL CLAYEY GRAVEL WITH SAND
	SAND AND SANDY SOILS	CLEAN SAND (LITTLE OR NO FINES)		SW	WELL-GRADED SAND WELL-GRADED SAND WITH GRAVEL
				SP	POORLY GRADED SAND POORLY GRADED SAND WITH GRAVEL
	MORE THAN 50% OF COARSE FRACTION PASSING NO. 4 SIEVE	SANDS WITH FINES (APPRECIABLE AMT. OF FINES)		SM	SILTY SAND SILTY SAND WITH GRAVEL
				SC	CLAYEY SAND CLAYEY SAND WITH GRAVEL
FINE GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILT AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	SILT, SILT WITH SAND, SANDY SILT GRAVELLY SILT, GRAVELLY SILT WITH SAND
				CL	LEAN CLAY WITH SAND, SANDY LEAN CLAY GRAVELLY LEAN CLAY WITH SAND
				OL	ORGANIC CLAY, SANDY ORGANIC CLAY ORGANIC SILT, SANDY ORGANIC SILT WITH GRAVEL
	SILT AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	ELASTIC SILT WITH SAND, SANDY ELASTIC SILT GRAVELLY ELASTIC SILT WITH SAND
				CH	FAT CLAY WITH SAND, SANDY FAT CLAY GRAVELLY FAT CLAY WITH SAND
				OH	ORGANIC CLAY WITH SAND, SANDY ORGANIC CLAY, ORGANIC SILT, SANDY ORGANIC SILT
	HIGHLY ORGANIC SOILS			PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS



Flow Chart for Visually Identifying Soils Based on ASTM D-2488



Flow Chart for Visually Identifying Soils Based on ASTM D-2488



STANDARD PENETRATION RESISTANCE (ASTM D1586)

The purpose of this test is to determine the relative consistency of the soils in a boring, or from boring over the site. This method consists of making a hole in the ground and driving a 2-inch O.D. split spoon sampler into the soil with a 140-pound hammer dropped from a height of 30 inches. The sampler is driven 18 inches and the number of blows recorded for each 6 inches of penetration. Values of standard penetration (N) are determined in blows per foot, summarizing the flows required for the last two 6-inche increments of penetration.

Example : 2-6-8; N = 14

THIN-WALLED SAMPLER (ASTM D1587)

The purpose of the thin-walled sampler is to recover a relatively undisturbed soil sample for laboratory tests. The sampler is a thin-walled seamless tube with a 3-inch outside diameter, which is hydraulically pressed into the ground, at a constant rate. The ends are then sealed to prevent soil moisture loss, and the tube is returned to the laboratory for tests.



BOWSER MORNER

UNCONFINED COMPRESSION OR TRIAXIAL TESTS (ASTM D 2166)



The unconfined compression test and the triaxial tests are performed to determine the shearing strength of the soil, to use in establishing its safe bearing capacity. In order to perform the unconfined compression test, it is necessary that the soil exhibit sufficient cohesion to stand in an unsupported cylinder. These tests are normally performed on samples which are 6.0 inches in height and 2.85 inches in diameter. In the triaxial test, various lateral stresses can be applied to more closely simulate the actual field conditions. There are several different types of triaxial tests. These are, however, normally performed on constant strain apparatus with a deformation rate of 0.05 inches per minute.

CONSOLIDATION TEST (ASTM D 2435)



The purpose of this test is to determine the compressibility of the soil. This test is performed on a sample of soil which is 2.5 inches in diameter and 1.0 inch in height, and has been trimmed from relatively "undisturbed" samples. The test is performed with a lever system or an air activated piston for applying load. The loads are applied in increments and allowed to remain on the sample for a period of 24 hours. The consolidation of the sample under each individual load is measured and a curve of void ratio vs. Pressure is obtained. From the information obtained in this manner and the column loads of the structure, it is possible to calculate the settlement of each individual building column. This information, together with the shearing strength of the soil, is used to determine the safe bearing capacity for a particular structure.

BOWSER MORNER

REVISED TO ASTM D4318

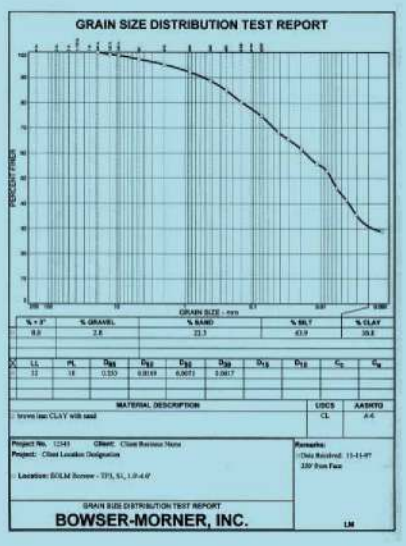
ATTERBERG LIMITS (ASTM D423 AND D424)

These tests determine the liquid and plastic limits of soils having a predominant percentage of fine particle (silt and clay) sizes. The liquid limit of a soil is the moisture content expressed as a percent at which the soil changes from a liquid to a plastic state, and the plastic limit is the moisture content at which the soil changes from a plastic to a semi-solid state. Their difference is defined as the plasticity index (P.I. = L.L. - P.L.), which is the change in moisture content required to change the soil from a "semi-solid" to a liquid. These tests furnish information about the soil properties which is important in determining their relative swelling potential and their classifications.



MECHANICAL ANALYSIS (ASTM D422)

This test determines the percent of each particle size of a soil. A sieve analysis is conducted on particle sizes greater than a No. 200 sieve (0.074 mm), and a hydrometer test on particles smaller than the No.200 sieve. The gradation curve is drawn through the points of cumulative percent of particle size, and plotted on semi-logarithmic paper for the combined sieve and hydrometer analysis. This test, together with the Atterberg Limits tests, is used to classify a soil.





BOWSER MORNER

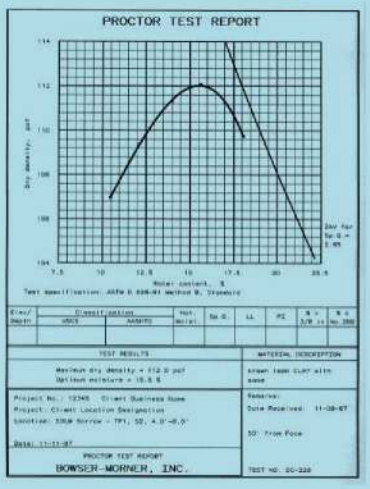
NATURAL MOISTURE CONTENT (ASTM D2216)

The purpose of this test is to indicate the range of moisture contents present in the soil. A wet sample is weighed, placed in the constant temperature oven at 105° for 24 hours, and re-weighed. The moisture content is the change in weight divided by the dry weight.



PROCTOR TESTS

The purpose of these tests is to determine the maximum density and optimum moisture content of a soil. The Modified Proctor test is performed in accordance with ASTM D1557. The test is performed by dropping a 10-pound hammer 25 times from an 18-inch height on each of 5 equal layers of soil in a 1/30 cubic foot mold, which represents a compaction effort of 56,250 foot pounds per cubic foot. The moisture content is then raised, and this procedure is repeated. A moisture density curve is then plotted, with the density on the ordinate axis and the moisture on the abscissa axis. The moisture content at which the maximum density requirement can be achieved with a minimum compactive effort is designated as the optimum moisture content (O.M.C.). The Standard Proctor test is performed in accordance with ASTM D698. This test is similar to the Modified Proctor test and is performed by dropping a 5.5 pound hammer 25 times from a height of 12 inches on 3 equal layers of soil in a 1/30 cubic foot mold, which represents a compaction effort of 12,375 foot pounds per cubic foot. This test gives proportionately lower results than the Modified Proctor test.


PROCTOR TEST REPORT

BOWSER-MORNER, INC.



CLIENT
Garmann Miller

PROJECT
Soil Study for Proposed Building Addition, N. Hyatt Street, Tipp City, Ohio

JOB NO.
20006020

BORING STARTED **11/14/25** BORING COMPLETED **11/14/25**

DRILLER **Central Star** METHOD **2 1/4" HSA**

TYPED BY **dmo**

1 Boring No.

Sheet 1 of 1

PROJECT LOCATION
LAT. **39°58'06.4"N** LONG. **84°10'49.7"W**

SURFACE ELEVATION **868.2***

BORING LOCATION
As shown on Boring Location Plan.

It has been necessary to interpolate between samples. Therefore, the contacts between the various soil strata should not be taken as absolute.

COMMENTS
***Surface elevation based on Ohio South State Plane Coordinate System.**

DEPTH (ft. BGL)	SAMPLE NO.	SAMPLER TYPE / RECOVERY	GRAPHIC LOG	VISUAL CLASSIFICATION OF THE MATERIAL	BLOW COUNTS	N VALUE, blows/ft. (10 20 30 40 50 60 70 80 90)	REMARKS
0.0				TOPSOIL (4")			
1.0	SS1			Medium stiff, brown silty lean CLAY (trace sand) - moist	3 3 4	7	
2.0							
3.0							▽
4.0	SS2			(Trace water encountered. Stiff at 3.5')	4 7 8	15	
5.0							
6.0				(Some gravel encountered. Very stiff at 6.0')	8 10 9	19	
7.0	SS3						
8.0							▽
9.0	SS4				6 7 9	16	
10.0							
11.0							
12.0							
13.0							
14.0	SS5			Hard, brown silty lean CLAY (shale like layers) - moist (Auger refusal at 14.4')	41 50/5"	50	
				Bottom of boring at 14.4 feet			
15.0							
16.0							
17.0							
18.0							
19.0							
20.0							
21.0							
22.0							

WATER LEVEL MEASUREMENTS

	DEPTH	DATE
INITIAL	3.5	11/14/2025
AT COMPLETION	8.0	11/14/2025
OTHER	N/A	N/A

SS — SPLIT SPOON
SL — SPLIT SPOON W/SOIL LINER
NQ — ROCK CORE
ST — SHELBY TUBE
AS — AUGER CUTTINGS
SC — SONIC

BOWSER MORNER

GINT Report Used: NEWLOGIN Report No.: 20006020.GPJ GINT Template Used: OH DOT.GDT Date Printed: 12/18/25

CLIENT
Garmann Miller

PROJECT
Soil Study for Proposed Building Addition, N. Hyatt Street, Tipp City, Ohio

JOB NO.
20006020

BORING STARTED **11/14/25** BORING COMPLETED **11/14/25**

DRILLER **Central Star** METHOD **2 1/4" HSA**

TYPED BY **dmo**

2 Boring No.

Sheet 1 of 1

PROJECT LOCATION
LAT. **39°58'06.4"N** LONG. **84°10'49.7"W**

SURFACE ELEVATION **868.0***

BORING LOCATION
As shown on Boring Location Plan.

It has been necessary to interpolate between samples. Therefore, the contacts between the various soil strata should not be taken as absolute.

COMMENTS
***Surface elevation based on Ohio South State Plane Coordinate System.**

DEPTH (ft. BGL)	SAMPLE NO.	SAMPLER TYPE / RECOVERY	GRAPHIC LOG	VISUAL CLASSIFICATION OF THE MATERIAL	BLOW COUNTS	N VALUE, blows/ft. (10 20 30 40 50 60 70 80 90)	REMARKS
0.0				TOPSOIL (4")			
1.0	SS1			Medium stiff, dark brown, silty lean CLAY (trace organics) - moist	2 2 4	◇ 6	
4.0	SS2			Stiff, brown silty lean CLAY (trace sand, some gravel, trace cobbles) - moist (Thin sand seam encountered at approx. 3.7')	6 7 7	◇ 14	
6.0	SS3				5 7 8	◇ 15	▽
8.0							▽
9.0	SS4			Highly weathered DOLOMITE- wet	20 32 50/4"	◇ 82	
11.0				(Auger refusal at 11.0') Bottom of boring at 11.0 feet			

WATER LEVEL MEASUREMENTS

	DEPTH	DATE
INITIAL	8.5	11/14/2025
AT COMPLETION	6.0	11/14/2025
OTHER	N/A	N/A

SS — SPLIT SPOON
SL — SPLIT SPOON W/SOIL LINER
NQ — ROCK CORE
ST — SHELBY TUBE
AS — AUGER CUTTINGS
SC — SONIC

BOWSER MORNER

GINT Report Used: NEWLOGIN Report No.: 20006020.GPJ GINT Template Used: OH DOT.GDT Date Printed: 12/18/25

CLIENT
Garmann Miller

PROJECT
Soil Study for Proposed Building Addition, N. Hyatt Street, Tipp City, Ohio

JOB NO.
20006020

BORING STARTED **11/14/25** BORING COMPLETED **11/14/25**

DRILLER **Central Star** METHOD **2 1/4" HSA**

TYPED BY **dmo**

3 Boring No.

Sheet 1 of 1

PROJECT LOCATION
LAT. **39°58'06.4"N** LONG. **84°10'49.7"W**

SURFACE ELEVATION **867.4***

BORING LOCATION
As shown on Boring Location Plan.

It has been necessary to interpolate between samples. Therefore, the contacts between the various soil strata should not be taken as absolute.

COMMENTS
***Surface elevation based on Ohio South State Plane Coordinate System.**

DEPTH (ft. BGL)	SAMPLE NO.	SAMPLER TYPE / RECOVERY	GRAPHIC LOG	VISUAL CLASSIFICATION OF THE MATERIAL	BLOW COUNTS	N VALUE, blows/ft. (10 20 30 40 50 60 70 80 90)	REMARKS
0.0				TOPSOIL (4")			
1.0	SS1			Medium stiff, dark brown, silty lean CLAY (trace organics) - moist	3 4 5	9	
3.0				(Stiff at 3.5')			
4.0	SS2				3 4 7	11	
6.0				Very stiff, brown silty lean CLAY (trace sand, some gravel) - moist			
7.0	SS3				10 10 14	24	
9.0	SS4				5 7 10	17	
13.0				Hard, brown, silty lean CLAY (shale-like layers) - moist			
14.0	SS5				28 50/6"	50	
19.0	SS6			(Becomes gray at 18.5')	28 32 50/5"	82	
20.0				(Auger refusal at 19.9') Bottom of boring at 19.9 feet			
22.0							

WATER LEVEL MEASUREMENTS

	DEPTH	DATE
INITIAL	NONE	11/14/2025
AT COMPLETION	19.9	11/14/2025
OTHER	N/A	N/A

SS — SPLIT SPOON
SL — SPLIT SPOON W/SOIL LINER
NQ — ROCK CORE
ST — SHELBY TUBE
AS — AUGER CUTTINGS
SC — SONIC

BOWSER MORNER

GINT Report Used: NEWLOGIN Report No.: 20006020.GPJ GINT Template Used: OH DOT.GDT Date Printed: 12/18/25

CLIENT
Garmann Miller

PROJECT
Soil Study for Proposed Building Addition, N. Hyatt Street, Tipp City, Ohio

JOB NO.
20006020

BORING STARTED **11/14/25** BORING COMPLETED **11/14/25**

DRILLER **Central Star** METHOD **2 1/4" HSA**

TYPED BY **dmo**

4 Boring No.

Sheet 1 of 1

PROJECT LOCATION
LAT. **39°58'06.4"N** LONG. **84°10'49.7"W**

SURFACE ELEVATION **866.4***

BORING LOCATION
As shown on Boring Location Plan.

It has been necessary to interpolate between samples. Therefore, the contacts between the various soil strata should not be taken as absolute.

COMMENTS
***Surface elevation based on Ohio South State Plane Coordinate System.**

VISUAL CLASSIFICATION OF THE MATERIAL

DEPTH (ft. BGL)	SAMPLE NO.	BLOW COUNTS	N VALUE, blows/ft.	REMARKS
0.0				
			TOPSOIL (4")	
1.0	SS1	2 4 5	9	
2.0				
3.0			Medium stiff, dark brown, silty lean CLAY (trace organics) - moist	
4.0	SS2	6 6 7	13	
5.0			Stiff, brown silty lean CLAY (trace sand, some gravel) - moist	
6.0			(Water encountered. Very stiff at 6.0')	
7.0	SS3	6 7 9	16	
8.0				
9.0	SS4	7 33 26	59	
10.0			Hard, brown, silty lean CLAY (shale-like layers) - moist	
11.0				
12.0				
13.0	SS5	50/2"	50	
14.0			(Auger refusal at 13.7')	
			Bottom of boring at 13.7 feet	
15.0				
16.0				
17.0				
18.0				
19.0				
20.0				
21.0				
22.0				

WATER LEVEL MEASUREMENTS

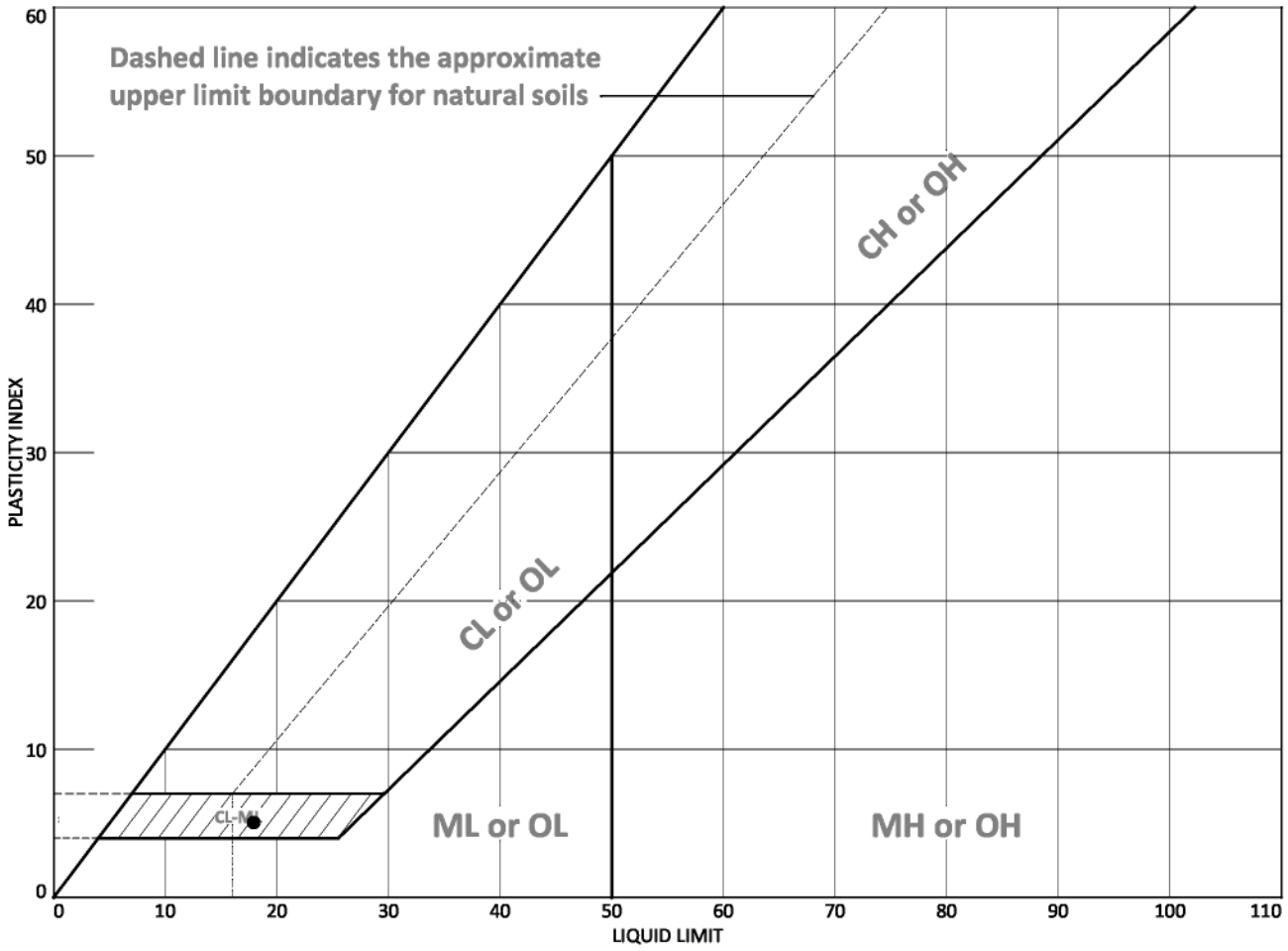
	DEPTH	DATE
INITIAL	6.0	11/14/2025
AT COMPLETION	5.0	11/14/2025
OTHER	N/A	N/A

SS — SPLIT SPOON
SL — SPLIT SPOON W/SOIL LINER
NQ — ROCK CORE
ST — SHELBY TUBE
AS — AUGER CUTTINGS
SC — SONIC

BOWSER MORNER

GINT Report Used: NEWLOGIN Report No.: 20006020.GPJ GINT Template Used: OH DOT.GDT Date Printed: 12/18/25

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	brown silty clay (visual)	18	13	5			

Project No. 20006020 **Client:** Garmann Miller

Project: Building Addition

●**Location:** B-1 **Depth:** 3.5'-5.0' **Sample Number:** SS-2

Remarks:

●As Received Moisture Content: 9.8%

BOWSER-MORNER, INC.

Dayton, Ohio

Tested By: DF **Checked By:** MR

Moisture Content of Soil

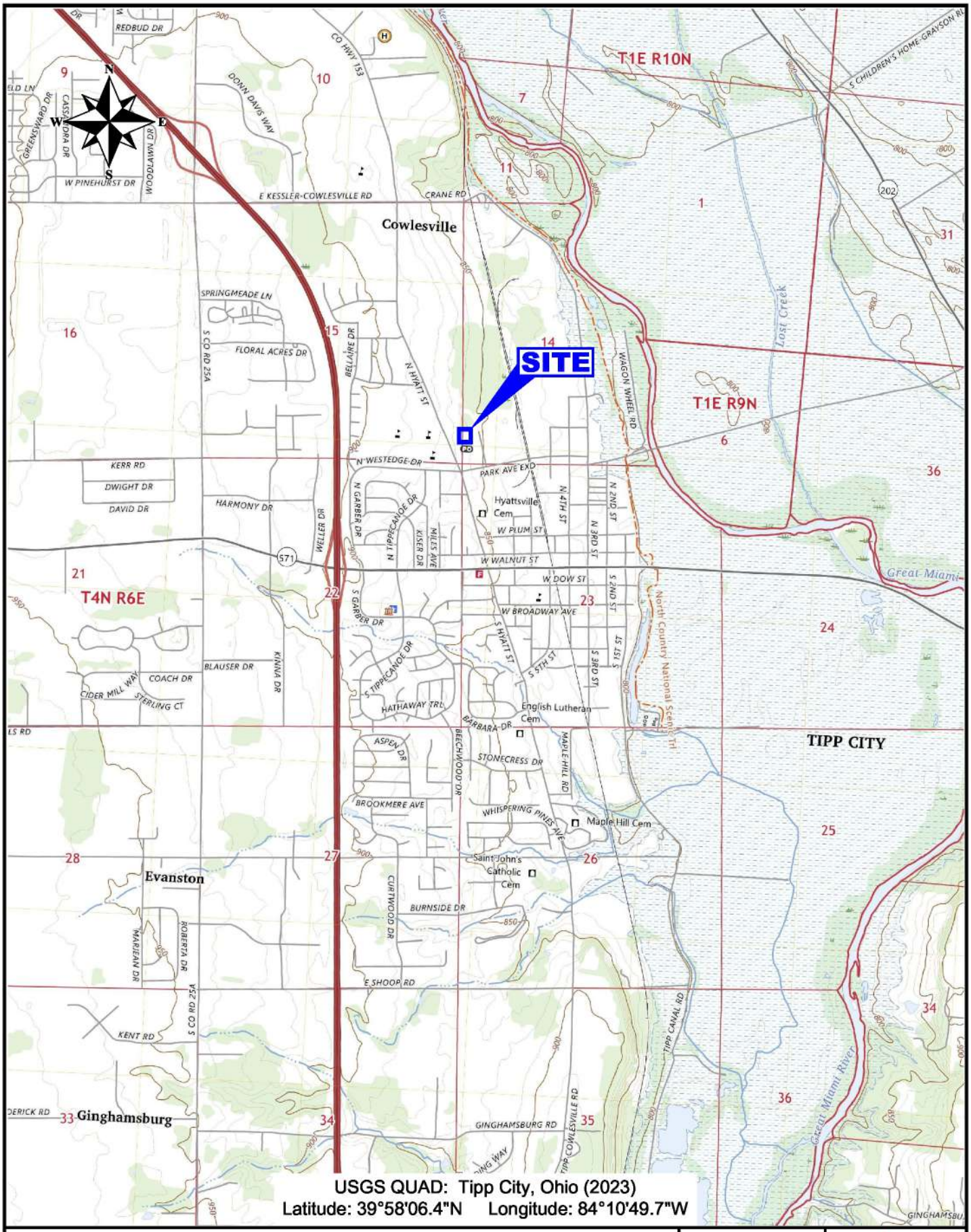
ASTM (D-2216)

BOWSER MORNER

Client: Garmann Miller
Project: Building Addition

Work Order No.: 20006020
Date: 12/23/25

Boring Number	Sample Number	Depth, (ft)	Depth, (m)	Moisture Content, (%)
B-1	SS 1	1.0 - 2.5	0.3 - 0.8	16.1
	SS 2	3.5 - 5.0	1.1 - 1.5	9.8
	SS 3	6.0 - 7.5	1.8 - 2.3	10.5
	SS 4	8.5 - 10.0	2.6 - 3.0	9.1
	SS 5	13.5 - 15.0	4.1 - 4.6	Not Tested
B-2	SS 1	1.0 - 2.5	0.3 - 0.8	21.5
	SS 2	3.5 - 5.0	1.1 - 1.5	14.1
	SS 3	6.0 - 7.5	1.8 - 2.3	9.1
	SS 4	8.5 - 10.0	2.6 - 3.0	Not Tested
B-3	SS 1	1.0 - 2.5	0.3 - 0.8	18.1
	SS 2	3.5 - 5.0	1.1 - 1.5	25.1
	SS 3	6.0 - 7.5	1.8 - 2.3	10.5
	SS 4	8.5 - 10.0	2.6 - 3.0	Not Tested
	SS 5	13.5 - 15.0	4.1 - 4.6	Not Tested
	SS 6	18.5 - 20.0	5.6 - 6.1	Not Tested
B-4	SS 1	1.0 - 2.5	0.3 - 0.8	22.9
	SS 2	3.5 - 5.0	1.1 - 1.5	9.8
	SS 3	6.0 - 7.5	1.8 - 2.3	9.2
	SS 4	8.5 - 10.0	2.6 - 3.0	Not Tested



VICINITY MAP

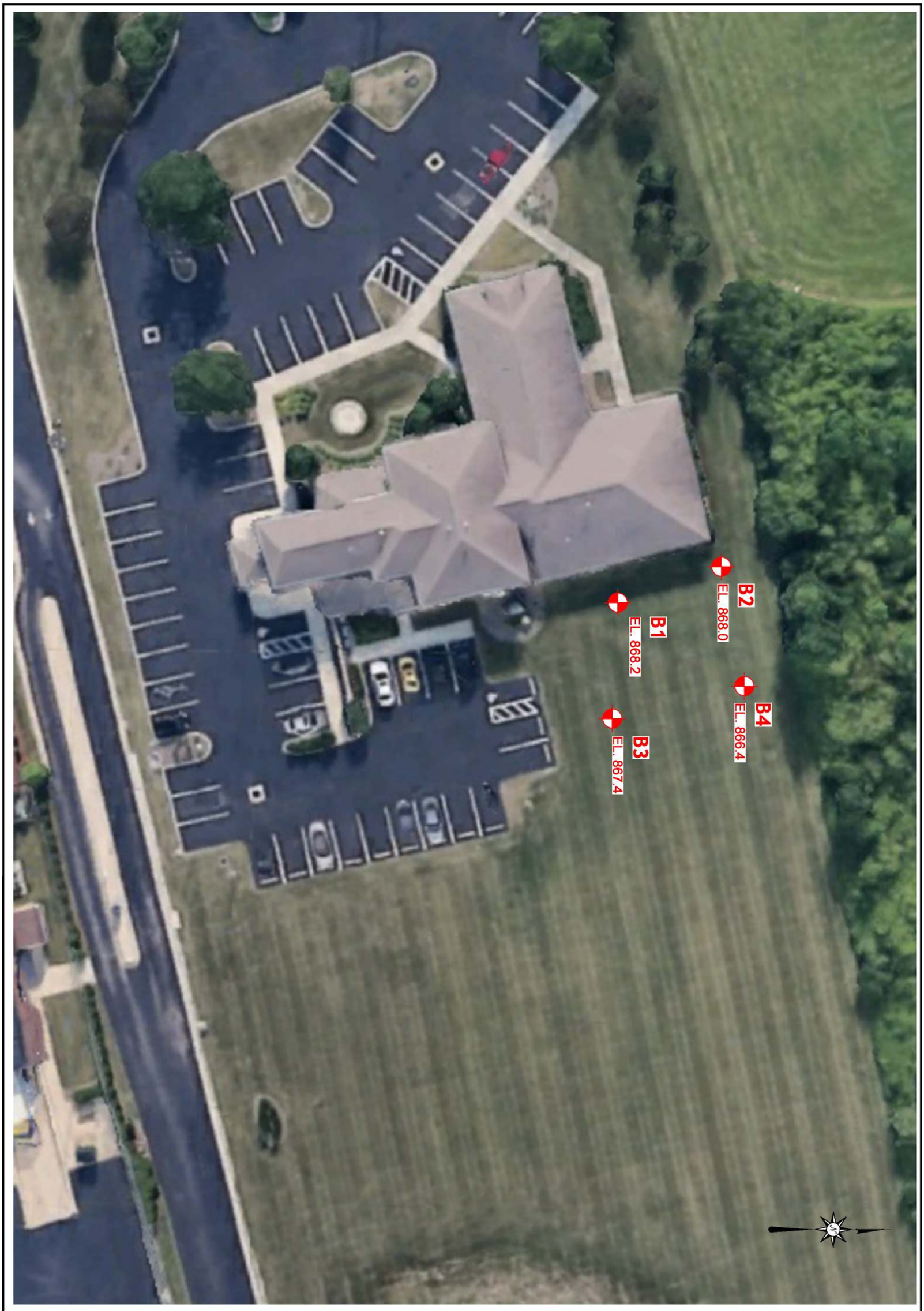
Soil Study for Proposed Building Addition
528 N Hyatt Street,
Tipp City, Miami County, Ohio

For: Garmann Miller

01-2026 JER

PROJECT NO.	20006020
SCALE	1" = 1/2 Mile
FIGURE NO.	1

BOWSER MORNER



BORING LOCATION PLAN

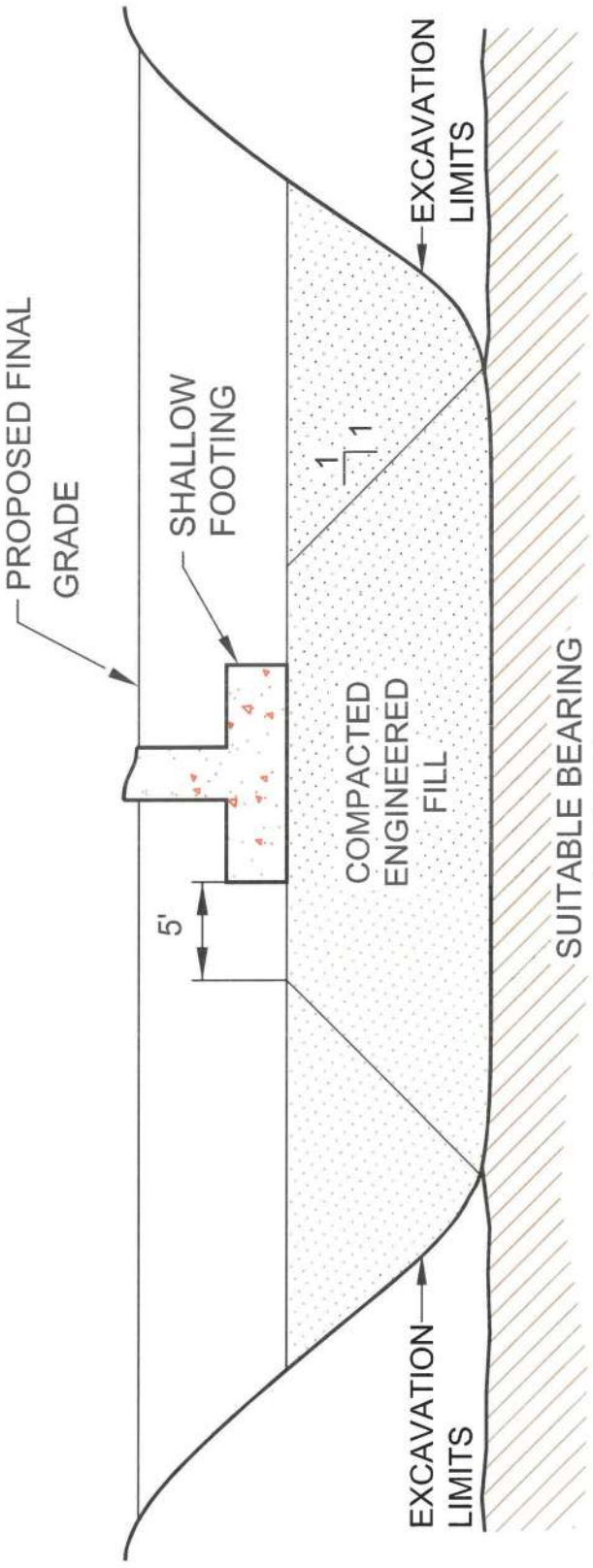
Soil Study for Proposed Building Addition
528 N Hyatt Street,
Tipp City, Miami County, Ohio

For: Garmann Miller

01-2026 JER

PROJECT NO.	20006020
SCALE	1" = 30'
FIGURE	2

BOWSER MORNER



DESIGN ILLUSTRATION SHALLOW FOOTINGS IN AN UNDERCUT AREA

SCALE
NONE

FIGURE NO.
3

BOWSER MORNER

ENGINEERING & ENVIRONMENTAL SERVICES:

- Geotechnical Engineering
- Subsurface Exploration
- Civil Engineering
- Environmental Services
- Due Diligence
- Permitting

LABORATORY SERVICES:

- Geotechnical Laboratories
- Construction Materials Laboratories
- Mineral Aggregates
- Concrete
- Stone & Masonry
- Asphalt
- Analytical Services Laboratories
- Industrial Minerals
- Product Testing
- Mechanical/Metallurgical Testing
- Calibration Services
- Chemistry Laboratory
- Consulting Geology
- Radon Reference Laboratory

CONSTRUCTION SUPPORT SERVICES:

- General Construction
- Construction Quality Assurance
- Building Code Special Inspections
- Transportation Projects:
  - Contractor QA/QC
  - Material Supplier QA/QC
  - Owner Quality Assurance
- Materials Consulting:
  - Construction Engineering



Dayton, OH • Toledo, OH
Springfield, IL
www.bowser-morner.com

AIA® Document A101® – 2017

Standard Form of Agreement Between Owner and Contractor *where the basis of payment is a Stipulated Sum*

AGREEMENT made as of the Thirteenth day of January in the year Two Thousand Twenty-Six
(In words, indicate day, month and year.)

BETWEEN the Owner:
(Name, legal status, address and other information)

Tipp City Seniors, Inc
528 North Hyatt Street
Tipp City, OH 45371

and the Contractor:
(Name, legal status, address and other information)

for the following Project:
(Name, location and detailed description)

Tipp City Seniors New Addition
528 N. Hyatt Street P.O. Box 376
Tipp City , OH 453471

The Architect:
(Name, legal status, address and other information)

Garmann/Miller & Associates, Inc.
38 S. Lincoln Drive, P.O. Box 71
Minster, OH 45865

The Owner and Contractor agree as follows.

ADDITIONS AND DELETIONS:
The author of this document may have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

The parties should complete A101®–2017, Exhibit A, Insurance and Bonds, contemporaneously with this Agreement. AIA Document A201®–2017, General Conditions of the Contract for Construction, is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

ELECTRONIC COPYING of any portion of this AIA® Document to another electronic file is prohibited and constitutes a violation of copyright laws as set forth in the footer of this document.

AIA Document A101 – 2017. Copyright © 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1967, 1974, 1977, 1987, 1991, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This draft was produced at 12:59:25 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (6966877aaf564537371cdef9)

TABLE OF ARTICLES

1 THE CONTRACT DOCUMENTS

2 THE WORK OF THIS CONTRACT

3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

4 CONTRACT SUM

5 PAYMENTS

6 DISPUTE RESOLUTION

7 TERMINATION OR SUSPENSION

8 MISCELLANEOUS PROVISIONS

9 ENUMERATION OF CONTRACT DOCUMENTS

EXHIBIT A INSURANCE AND BONDS

ARTICLE 1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary, and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement, and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. An enumeration of the Contract Documents, other than a Modification, appears in Article 9.

ARTICLE 2 THE WORK OF THIS CONTRACT

The Contractor shall fully execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others.

ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be:
(Check one of the following boxes.)

[ ] The date of this Agreement.

[ ] A date set forth in a notice to proceed issued by the Owner.

[ ] Established as follows:
(Insert a date or a means to determine the date of commencement of the Work.)

If a date of commencement of the Work is not selected, then the date of commencement shall be the date of this Agreement.

§ 3.2 The Contract Time shall be measured from the date of commencement of the Work.

§ 3.3 Substantial Completion

§ 3.3.1 Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall achieve Substantial Completion of the entire Work:
(Check one of the following boxes and complete the necessary information.)

AIA Document A101 – 2017. Copyright © 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1967, 1974, 1977, 1987, 1991, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This draft was produced at 12:59:25 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (6966877aaf564537371cdef9)

[ ] Not later than ( ) calendar days from the date of commencement of the Work.

[ ] By the following date:

§ 3.3.2 Subject to adjustments of the Contract Time as provided in the Contract Documents, if portions of the Work are to be completed prior to Substantial Completion of the entire Work, the Contractor shall achieve Substantial Completion of such portions by the following dates:

Portion of Work	Substantial Completion Date

§ 3.3.3 If the Contractor fails to achieve Substantial Completion as provided in this Section 3.3, liquidated damages, if any, shall be assessed as set forth in Section 4.5.

ARTICLE 4 CONTRACT SUM

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be ($), subject to additions and deductions as provided in the Contract Documents.

§ 4.2 Alternates

§ 4.2.1 Alternates, if any, included in the Contract Sum:

Item	Price

§ 4.2.2 Subject to the conditions noted below, the following alternates may be accepted by the Owner following execution of this Agreement. Upon acceptance, the Owner shall issue a Modification to this Agreement.
(Insert below each alternate and the conditions that must be met for the Owner to accept the alternate.)

Item	Price	Conditions for Acceptance

§ 4.3 Allowances, if any, included in the Contract Sum:
(Identify each allowance.)

Item	Price

§ 4.4 Unit prices, if any:
(Identify the item and state the unit price and quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price per Unit ($0.00)

§ 4.5 Liquidated damages, if any:
(Insert terms and conditions for liquidated damages, if any.)

§ 4.6 Other:
(Insert provisions for bonus or other incentives, if any, that might result in a change to the Contract Sum.)

AIA Document A101 – 2017. Copyright © 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1967, 1974, 1977, 1987, 1991, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This draft was produced at 12:59:25 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (6966877aaf564537371cdef9)

ARTICLE 5 PAYMENTS

§ 5.1 Progress Payments

§ 5.1.1 Based upon Applications for Payment submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

§ 5.1.3 Provided that an Application for Payment is received by the Architect not later than the day of a month, the Owner shall make payment of the amount certified to the Contractor not later than the day of the month. If an Application for Payment is received by the Architect after the application date fixed above, payment of the amount certified shall be made by the Owner not later than ( ) days after the Architect receives the Application for Payment.
(Federal, state or local laws may require payment within a certain period of time.)

§ 5.1.4 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form, and supported by such data to substantiate its accuracy, as the Architect may require. This schedule of values shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 5.1.5 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

§ 5.1.6 In accordance with AIA Document A201™–2017, General Conditions of the Contract for Construction, and subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

§ 5.1.6.1 The amount of each progress payment shall first include:

- **.1** That portion of the Contract Sum properly allocable to completed Work;
- **.2** That portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction, or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing; and
- **.3** That portion of Construction Change Directives that the Architect determines, in the Architect's professional judgment, to be reasonably justified.

§ 5.1.6.2 The amount of each progress payment shall then be reduced by:

- **.1** The aggregate of any amounts previously paid by the Owner;
- **.2** The amount, if any, for Work that remains uncorrected and for which the Architect has previously withheld a Certificate for Payment as provided in Article 9 of AIA Document A201–2017;
- **.3** Any amount for which the Contractor does not intend to pay a Subcontractor or material supplier, unless the Work has been performed by others the Contractor intends to pay;
- **.4** For Work performed or defects discovered since the last payment application, any amount for which the Architect may withhold payment, or nullify a Certificate of Payment in whole or in part, as provided in Article 9 of AIA Document A201–2017; and
- **.5** Retainage withheld pursuant to Section 5.1.7.

§ 5.1.7 Retainage

§ 5.1.7.1 For each progress payment made prior to Substantial Completion of the Work, the Owner may withhold the following amount, as retainage, from the payment otherwise due:
(Insert a percentage or amount to be withheld as retainage from each Application for Payment. The amount of retainage may be limited by governing law.)

AIA Document A101 – 2017. Copyright © 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1967, 1974, 1977, 1987, 1991, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This draft was produced at 12:59:25 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (6966877aaf564537371cdef9)

§ 5.1.7.1.1 The following items are not subject to retainage:
(Insert any items not subject to the withholding of retainage, such as general conditions, insurance, etc.)

§ 5.1.7.2 Reduction or limitation of retainage, if any, shall be as follows:
(If the retainage established in Section 5.1.7.1 is to be modified prior to Substantial Completion of the entire Work, including modifications for Substantial Completion of portions of the Work as provided in Section 3.3.2, insert provisions for such modifications.)

§ 5.1.7.3 Except as set forth in this Section 5.1.7.3, upon Substantial Completion of the Work, the Contractor may submit an Application for Payment that includes the retainage withheld from prior Applications for Payment pursuant to this Section 5.1.7. The Application for Payment submitted at Substantial Completion shall not include retainage as follows:
(Insert any other conditions for release of retainage upon Substantial Completion.)

§ 5.1.8 If final completion of the Work is materially delayed through no fault of the Contractor, the Owner shall pay the Contractor any additional amounts in accordance with Article 9 of AIA Document A201–2017.

§ 5.1.9 Except with the Owner's prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

§ 5.2 Final Payment

§ 5.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

.1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Article 12 of AIA Document A201–2017, and to satisfy other requirements, if any, which extend beyond final payment; and

.2 a final Certificate for Payment has been issued by the Architect.

§ 5.2.2 The Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the Architect's final Certificate for Payment, or as follows:

§ 5.3 Interest

Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.
(Insert rate of interest agreed upon, if any.)

%

ARTICLE 6 DISPUTE RESOLUTION

§ 6.1 Initial Decision Maker

The Architect will serve as the Initial Decision Maker pursuant to Article 15 of AIA Document A201–2017, unless the parties appoint below another individual, not a party to this Agreement, to serve as the Initial Decision Maker.
(If the parties mutually agree, insert the name, address and other contact information of the Initial Decision Maker, if other than the Architect.)

AIA Document A101 – 2017. Copyright © 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1967, 1974, 1977, 1987, 1991, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This draft was produced at 12:59:25 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (6966877aaf564537371cdef9)

§ 6.2 Binding Dispute Resolution
For any Claim subject to, but not resolved by, mediation pursuant to Article 15 of AIA Document A201–2017, the method of binding dispute resolution shall be as follows:
(Check the appropriate box.)

[ ] Arbitration pursuant to Section 15.4 of AIA Document A201–2017

[ ] Litigation in a court of competent jurisdiction

[ ] Other *(Specify)*

If the Owner and Contractor do not select a method of binding dispute resolution, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, Claims will be resolved by litigation in a court of competent jurisdiction.

ARTICLE 7 TERMINATION OR SUSPENSION
§ 7.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A201–2017.

§ 7.1.1 If the Contract is terminated for the Owner's convenience in accordance with Article 14 of AIA Document A201–2017, then the Owner shall pay the Contractor a termination fee as follows:
(Insert the amount of, or method for determining, the fee, if any, payable to the Contractor following a termination for the Owner's convenience.)

§ 7.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A201–2017.

ARTICLE 8 MISCELLANEOUS PROVISIONS
§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A201–2017 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 The Owner's representative:
(Name, address, email address, and other information)

§ 8.3 The Contractor's representative:
(Name, address, email address, and other information)

AIA Document A101 – 2017. Copyright © 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1967, 1974, 1977, 1987, 1991, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This draft was produced at 12:59:25 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (6966877aaf564537371cdef9)

§ 8.4 Neither the Owner's nor the Contractor's representative shall be changed without ten days' prior notice to the other party.

§ 8.5 Insurance and Bonds

§ 8.5.1 The Owner and the Contractor shall purchase and maintain insurance as set forth in AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum, Exhibit A, Insurance and Bonds, and elsewhere in the Contract Documents.

§ 8.5.2 The Contractor shall provide bonds as set forth in AIA Document A101™–2017 Exhibit A, and elsewhere in the Contract Documents.

§ 8.6 Notice in electronic format, pursuant to Article 1 of AIA Document A201–2017, may be given in accordance with a building information modeling exhibit, if completed, or as otherwise set forth below:
(If other than in accordance with a building information modeling exhibit, insert requirements for delivering notice in electronic format such as name, title, and email address of the recipient and whether and how the system will be required to generate a read receipt for the transmission.)

§ 8.7 Other provisions:

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 This Agreement is comprised of the following documents:

.1 AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor

.2 AIA Document A101™–2017, Exhibit A, Insurance and Bonds

.3 AIA Document A201™–2017, General Conditions of the Contract for Construction

.4 Building information modeling exhibit, dated as indicated below:
(Insert the date of the building information modeling exhibit incorporated into this Agreement.)

.5 Drawings

Number	Title	Date

.6 Specifications

Section	Title	Date	Pages

.7 Addenda, if any:

Number	Date	Pages

Portions of Addenda relating to bidding or proposal requirements are not part of the Contract Documents unless the bidding or proposal requirements are also enumerated in this Article 9.

.8 Other Exhibits:
(Check all boxes that apply and include appropriate information identifying the exhibit where required.)

[ ] AIA Document E204™–2017, Sustainable Projects Exhibit, dated as indicated below:
(Insert the date of the E204-2017 incorporated into this Agreement.)

AIA Document A101 – 2017. Copyright © 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1967, 1974, 1977, 1987, 1991, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This draft was produced at 12:59:25 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (6966877aaf564537371cdef9)

[ ] The Sustainability Plan:

Title	Date	Pages

[ ] Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages

.9 Other documents, if any, listed below:
(List here any additional documents that are intended to form part of the Contract Documents. AIA Document A201™–2017 provides that the advertisement or invitation to bid, Instructions to Bidders, sample forms, the Contractor's bid or proposal, portions of Addenda relating to bidding or proposal requirements, and other information furnished by the Owner in anticipation of receiving bids or proposals, are not part of the Contract Documents unless enumerated in this Agreement. Any such documents should be listed here only if intended to be part of the Contract Documents.)

This Agreement entered into as of the day and year first written above.

OWNER *(Signature)*	**CONTRACTOR** *(Signature)*
(Printed name and title)	*(Printed name and title)*

AIA Document A101 – 2017. Copyright © 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1967, 1974, 1977, 1987, 1991, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This draft was produced at 12:59:25 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (6966877aaf564537371cdef9)

GARMANN MILLER

Request for Information

FORM 00 63 13

RFI no. _____

Project name _____ GM project no. _____

Project location _____ Drawing sheet no. _____

Contractor _____ Specification section _____

A/E contact _____ Date answer requested _____

Description of interpretation or clarification needed

Date received _____

Name _____ Phone number _____

Signature _____ Date released _____

A/E Response

Date received _____

Name _____ Phone number _____

Signature _____ Date released _____

Contractor receipt

Upon review of the A/E's response we anticipate the potential contract adjustments indicated to the right:

Date in _____ Date out _____

Name _____

Signature _____ Date _____

- ☐ No change in cost or time
- ☐ Decrease in cost of approx. $_____
- ☐ Increase in cost of approx. $_____
- ☐ Decrease in time of _____ days
- ☐ Increase in time of _____ days

@ creategm.com
Minster, OH | Columbus, OH | Indianapolis, IN | Fort Wayne, IN

AIA® Document A201® – 2017

General Conditions of the Contract for Construction

for the following PROJECT:
(Name and location or address)

Tipp City Seniors New Addition
528 N. Hyatt Street P.O. Box 376
Tipp City , OH 453471

THE OWNER:
(Name, legal status and address)

Tipp City Seniors, Inc
528 North Hyatt Street
Tipp City, OH 45371

THE ARCHITECT:
(Name, legal status and address)

Garmann/Miller & Associates, In
38 S. Lincoln Drive, P.O. Box 71
Minster, OH 45865

TABLE OF ARTICLES

1 GENERAL PROVISIONS

2 OWNER

3 CONTRACTOR

4 ARCHITECT

5 SUBCONTRACTORS

6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

7 CHANGES IN THE WORK

8 TIME

9 PAYMENTS AND COMPLETION

10 PROTECTION OF PERSONS AND PROPERTY

11 INSURANCE AND BONDS

12 UNCOVERING AND CORRECTION OF WORK

13 MISCELLANEOUS PROVISIONS

ADDITIONS AND DELETIONS:
The author of this document may have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

For guidance in modifying this document to include supplementary conditions, see AIA Document A503™–2017, Guide for Supplementary Conditions.

AIA Document A201 – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:03:53 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (696688eb6a446cd0f3688af0)

14 TERMINATION OR SUSPENSION OF THE CONTRACT

15 CLAIMS AND DISPUTES

AIA Document A201 – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017. All rights reserved. “The American Institute of Architects,” “American Institute of Architects,” “AIA,” the AIA Logo, and “AIA Contract Documents” are trademarks of The American Institute of Architects. This document was produced at 13:03:53 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (696688eb6a446cd0f3688af0)

INDEX
(Topics and numbers in bold are Section headings.)

Acceptance of Nonconforming Work
9.6.6, 9.9.3, **12.3**
Acceptance of Work
9.6.6, 9.8.2, 9.9.3, 9.10.1, 9.10.3, 12.3
Access to Work
3.16, 6.2.1, 12.1
Accident Prevention
10
Acts and Omissions
3.2, 3.3.2, 3.12.8, 3.18, 4.2.3, 8.3.1, 9.5.1, 10.2.5, 10.2.8, 13.3.2, 14.1, 15.1.2, 15.2
Addenda
1.1.1
Additional Costs, Claims for
3.7.4, 3.7.5, 10.3.2, 15.1.5
Additional Inspections and Testing
9.4.2, 9.8.3, 12.2.1, **13.4**
Additional Time, Claims for
3.2.4, 3.7.4, 3.7.5, 3.10.2, 8.3.2, **15.1.6**
Administration of the Contract
3.1.3, **4.2**, 9.4, 9.5
Advertisement or Invitation to Bid
1.1.1
Aesthetic Effect
4.2.13
Allowances
3.8
Applications for Payment
4.2.5, 7.3.9, 9.2, **9.3**, 9.4, 9.5.1, 9.5.4, 9.6.3, 9.7, 9.10
Approvals
2.1.1, 2.3.1, 2.5, 3.1.3, 3.10.2, 3.12.8, 3.12.9, 3.12.10.1, 4.2.7, 9.3.2, 13.4.1
Arbitration
8.3.1, 15.3.2, **15.4**
ARCHITECT
4
Architect, Definition of
4.1.1
Architect, Extent of Authority
2.5, 3.12.7, 4.1.2, 4.2, 5.2, 6.3, 7.1.2, 7.3.4, 7.4, 9.2, 9.3.1, 9.4, 9.5, 9.6.3, 9.8, 9.10.1, 9.10.3, 12.1, 12.2.1, 13.4.1, 13.4.2, 14.2.2, 14.2.4, 15.1.4, 15.2.1
Architect, Limitations of Authority and Responsibility
2.1.1, 3.12.4, 3.12.8, 3.12.10, 4.1.2, 4.2.1, 4.2.2, 4.2.3, 4.2.6, 4.2.7, 4.2.10, 4.2.12, 4.2.13, 5.2.1, 7.4, 9.4.2, 9.5.4, 9.6.4, 15.1.4, 15.2
Architect's Additional Services and Expenses
2.5, 12.2.1, 13.4.2, 13.4.3, 14.2.4
Architect's Administration of the Contract
3.1.3, 3.7.4, 15.2, 9.4.1, 9.5
Architect's Approvals
2.5, 3.1.3, 3.5, 3.10.2, 4.2.7
Architect's Authority to Reject Work
3.5, 4.2.6, 12.1.2, 12.2.1
Architect's Copyright
1.1.7, 1.5
Architect's Decisions
3.7.4, 4.2.6, 4.2.7, 4.2.11, 4.2.12, 4.2.13, 4.2.14, 6.3, 7.3.4, 7.3.9, 8.1.3, 8.3.1, 9.2, 9.4.1, 9.5, 9.8.4, 9.9.1, 13.4.2, 15.2
Architect's Inspections
3.7.4, 4.2.2, 4.2.9, 9.4.2, 9.8.3, 9.9.2, 9.10.1, 13.4
Architect's Instructions
3.2.4, 3.3.1, 4.2.6, 4.2.7, 13.4.2
Architect's Interpretations
4.2.11, 4.2.12
Architect's Project Representative
4.2.10
Architect's Relationship with Contractor
1.1.2, 1.5, 2.3.3, 3.1.3, 3.2.2, 3.2.3, 3.2.4, 3.3.1, 3.4.2, 3.5, 3.7.4, 3.7.5, 3.9.2, 3.9.3, 3.10, 3.11, 3.12, 3.16, 3.18, 4.1.2, 4.2, 5.2, 6.2.2, 7, 8.3.1, 9.2, 9.3, 9.4, 9.5, 9.7, 9.8, 9.9, 10.2.6, 10.3, 11.3, 12, 13.3.2, 13.4, 15.2
Architect's Relationship with Subcontractors
1.1.2, 4.2.3, 4.2.4, 4.2.6, 9.6.3, 9.6.4, 11.3
Architect's Representations
9.4.2, 9.5.1, 9.10.1
Architect's Site Visits
3.7.4, 4.2.2, 4.2.9, 9.4.2, 9.5.1, 9.9.2, 9.10.1, 13.4
Asbestos
10.3.1
Attorneys' Fees
3.18.1, 9.6.8, 9.10.2, 10.3.3
Award of Separate Contracts
6.1.1, 6.1.2
Award of Subcontracts and Other Contracts for Portions of the Work
5.2
Basic Definitions
1.1
Bidding Requirements
1.1.1
Binding Dispute Resolution
8.3.1, 9.7, 11.5, 13.1, 15.1.2, 15.1.3, 15.2.1, 15.2.5, 15.2.6.1, 15.3.1, 15.3.2, 15.3.3, 15.4.1
Bonds, Lien
7.3.4.4, 9.6.8, 9.10.2, 9.10.3
Bonds, Performance, and Payment
7.3.4.4, 9.6.7, 9.10.3, **11.1.2**, 11.1.3, **11.5**
Building Information Models Use and Reliance
1.8
Building Permit
3.7.1
Capitalization
1.3
Certificate of Substantial Completion
9.8.3, 9.8.4, 9.8.5
Certificates for Payment
4.2.1, 4.2.5, 4.2.9, 9.3.3, **9.4**, 9.5, 9.6.1, 9.6.6, 9.7, 9.10.1, 9.10.3, 14.1.1.3, 14.2.4, 15.1.4
Certificates of Inspection, Testing or Approval
13.4.4
Certificates of Insurance
9.10.2
Change Orders

AIA Document A201 – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:03:53 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (696688eb6a446cd0f3688af0)

1.1.1, 3.4.2, 3.7.4, 3.8.2.3, 3.11, 3.12.8, 4.2.8, 5.2.3, 7.1.2, 7.1.3, **7.2**, 7.3.2, 7.3.7, 7.3.9, 7.3.10, 8.3.1, 9.3.1.1, 9.10.3, 10.3.2, 11.2, 11.5, 12.1.2
Change Orders, Definition of
7.2.1
CHANGES IN THE WORK
2.2.2, 3.11, 4.2.8, **7**, 7.2.1, 7.3.1, 7.4, 8.3.1, 9.3.1.1, 11.5
Claims, Definition of
15.1.1
Claims, Notice of
1.6.2, 15.1.3
CLAIMS AND DISPUTES
3.2.4, 6.1.1, 6.3, 7.3.9, 9.3.3, 9.10.4, 10.3.3, **15**, 15.4
Claims and Timely Assertion of Claims
15.4.1
Claims for Additional Cost
3.2.4, 3.3.1, 3.7.4, 7.3.9, 9.5.2, 10.2.5, 10.3.2, **15.1.5**
Claims for Additional Time
3.2.4, 3.3.1, 3.7.4, 6.1.1, 8.3.2, 9.5.2, 10.3.2, **15.1.6**
Concealed or Unknown Conditions, Claims for
3.7.4
Claims for Damages
3.2.4, 3.18, 8.3.3, 9.5.1, 9.6.7, 10.2.5, 10.3.3, 11.3, 11.3.2, 14.2.4, 15.1.7
Claims Subject to Arbitration
15.4.1
Cleaning Up
3.15, 6.3
Commencement of the Work, Conditions Relating to
2.2.1, 3.2.2, 3.4.1, 3.7.1, 3.10.1, 3.12.6, 5.2.1, 5.2.3, 6.2.2, 8.1.2, 8.2.2, 8.3.1, 11.1, 11.2, **15.1.5**
Commencement of the Work, Definition of
8.1.2
Communications
3.9.1, **4.2.4**
Completion, Conditions Relating to
3.4.1, 3.11, 3.15, 4.2.2, 4.2.9, 8.2, 9.4.2, 9.8, 9.9.1, 9.10, 12.2, 14.1.2, 15.1.2
COMPLETION, PAYMENTS AND
9
Completion, Substantial
3.10.1, 4.2.9, 8.1.1, 8.1.3, 8.2.3, 9.4.2, 9.8, 9.9.1, 9.10.3, 12.2, 15.1.2
Compliance with Laws
2.3.2, 3.2.3, 3.6, 3.7, 3.12.10, 3.13, 9.6.4, 10.2.2, 13.1, 13.3, 13.4.1, 13.4.2, 13.5, 14.1.1, 14.2.1.3, 15.2.8, 15.4.2, 15.4.3
Concealed or Unknown Conditions
3.7.4, 4.2.8, 8.3.1, 10.3
Conditions of the Contract
1.1.1, 6.1.1, 6.1.4
Consent, Written
3.4.2, 3.14.2, 4.1.2, 9.8.5, 9.9.1, 9.10.2, 9.10.3, 13.2, 15.4.4.2
Consolidation or Joinder
15.4.4
CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS
1.1.4, **6**
Construction Change Directive, Definition of
7.3.1
Construction Change Directives
1.1.1, 3.4.2, 3.11, 3.12.8, 4.2.8, 7.1.1, 7.1.2, 7.1.3, **7.3**, 9.3.1.1
Construction Schedules, Contractor's
3.10, 3.11, 3.12.1, 3.12.2, 6.1.3, 15.1.6.2
Contingent Assignment of Subcontracts
5.4, 14.2.2.2
Continuing Contract Performance
15.1.4
Contract, Definition of
1.1.2
CONTRACT, TERMINATION OR SUSPENSION OF THE
5.4.1.1, 5.4.2, 11.5, **14**
Contract Administration
3.1.3, 4, 9.4, 9.5
Contract Award and Execution, Conditions Relating to
3.7.1, 3.10, 5.2, 6.1
Contract Documents, Copies Furnished and Use of
1.5.2, 2.3.6, 5.3
Contract Documents, Definition of
1.1.1
Contract Sum
2.2.2, 2.2.4, 3.7.4, 3.7.5, 3.8, 3.10.2, 5.2.3, 7.3, 7.4, **9.1**, 9.2, 9.4.2, 9.5.1.4, 9.6.7, 9.7, 10.3.2, 11.5, 12.1.2, 12.3, 14.2.4, 14.3.2, 15.1.4.2, **15.1.5, 15.2.5**
Contract Sum, Definition of
9.1
Contract Time
1.1.4, 2.2.1, 2.2.2, 3.7.4, 3.7.5, 3.10.2, 5.2.3, 6.1.5, 7.2.1.3, 7.3.1, 7.3.5, 7.3.6, 7, 7, 7.3.10, 7.4, 8.1.1, 8.2.1, 8.2.3, 8.3.1, 9.5.1, 9.7, 10.3.2, 12.1.1, 12.1.2, 14.3.2, 15.1.4.2, 15.1.6.1, 15.2.5
Contract Time, Definition of
8.1.1
CONTRACTOR
3
Contractor, Definition of
3.1, 6.1.2
Contractor's Construction and Submittal Schedules
3.10, 3.12.1, 3.12.2, 4.2.3, 6.1.3, 15.1.6.2
Contractor's Employees
2.2.4, 3.3.2, 3.4.3, 3.8.1, 3.9, 3.18.2, 4.2.3, 4.2.6, 10.2, 10.3, 11.3, 14.1, 14.2.1.1
Contractor's Liability Insurance
11.1
Contractor's Relationship with Separate Contractors and Owner's Forces
3.12.5, 3.14.2, 4.2.4, 6, 11.3, 12.2.4
Contractor's Relationship with Subcontractors
1.2.2, 2.2.4, 3.3.2, 3.18.1, 3.18.2, 4.2.4, 5, 9.6.2, 9.6.7, 9.10.2, 11.2, 11.3, 11.4
Contractor's Relationship with the Architect
1.1.2, 1.5, 2.3.3, 3.1.3, 3.2.2, 3.2.3, 3.2.4, 3.3.1, 3.4.2, 3.5.1, 3.7.4, 3.10, 3.11, 3.12, 3.16, 3.18, 4.2, 5.2, 6.2.2, 7, 8.3.1, 9.2, 9.3, 9.4, 9.5, 9.7, 9.8, 9.9, 10.2.6,

AIA Document A201 – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:03:53 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (696688eb6a446cd0f3688af0)

10.3, 11.3, 12, 13.4, 15.1.3, 15.2.1
Contractor's Representations
3.2.1, 3.2.2, 3.5, 3.12.6, 6.2.2, 8.2.1, 9.3.3, 9.8.2
Contractor's Responsibility for Those Performing the Work
3.3.2, 3.18, 5.3, 6.1.3, 6.2, 9.5.1, 10.2.8
Contractor's Review of Contract Documents
3.2
Contractor's Right to Stop the Work
2.2.2, 9.7
Contractor's Right to Terminate the Contract
14.1
Contractor's Submittals
3.10, 3.11, 3.12, 4.2.7, 5.2.1, 5.2.3, 9.2, 9.3, 9.8.2, 9.8.3, 9.9.1, 9.10.2, 9.10.3
Contractor's Superintendent
3.9, 10.2.6
Contractor's Supervision and Construction Procedures
1.2.2, 3.3, 3.4, 3.12.10, 4.2.2, 4.2.7, 6.1.3, 6.2.4, 7.1.3, 7.3.4, 7.3.6, 8.2, 10, 12, 14, 15.1.4
Coordination and Correlation
1.2, 3.2.1, 3.3.1, 3.10, 3.12.6, 6.1.3, 6.2.1
Copies Furnished of Drawings and Specifications
1.5, 2.3.6, 3.11
Copyrights
1.5, **3.17**
Correction of Work
2.5, 3.7.3, 9.4.2, 9.8.2, 9.8.3, 9.9.1, 12.1.2, **12.2**, 12.3, 15.1.3.1, 15.1.3.2, 15.2.1
Correlation and Intent of the Contract Documents
1.2
Cost, Definition of
7.3.4
Costs
2.5, 3.2.4, 3.7.3, 3.8.2, 3.15.2, 5.4.2, 6.1.1, 6.2.3, 7.3.3.3, 7.3.4, 7.3.8, 7.3.9, 9.10.2, 10.3.2, 10.3.6, 11.2, 12.1.2, 12.2.1, 12.2.4, 13.4, 14
Cutting and Patching
3.14, 6.2.5
Damage to Construction of Owner or Separate Contractors
3.14.2, 6.2.4, 10.2.1.2, 10.2.5, 10.4, 12.2.4
Damage to the Work
3.14.2, 9.9.1, 10.2.1.2, 10.2.5, 10.4, 12.2.4
Damages, Claims for
3.2.4, 3.18, 6.1.1, 8.3.3, 9.5.1, 9.6.7, 10.3.3, 11.3.2, 11.3, 14.2.4, 15.1.7
Damages for Delay
6.2.3, 8.3.3, 9.5.1.6, 9.7, 10.3.2, 14.3.2
Date of Commencement of the Work, Definition of
8.1.2
Date of Substantial Completion, Definition of
8.1.3
Day, Definition of
8.1.4
Decisions of the Architect
3.7.4, 4.2.6, 4.2.7, 4.2.11, 4.2.12, 4.2.13, 6.3, 7.3.4, 7.3.9, 8.1.3, 8.3.1, 9.2, 9.4, 9.5.1, 9.8.4, 9.9.1, 13.4.2, 14.2.2, 14.2.4, 15.1, 15.2
Decisions to Withhold Certification
9.4.1, **9.5**, 9.7, 14.1.1.3
Defective or Nonconforming Work, Acceptance, Rejection and Correction of
2.5, 3.5, 4.2.6, 6.2.3, 9.5.1, 9.5.3, 9.6.6, 9.8.2, 9.9.3, 9.10.4, 12.2.1
Definitions
1.1, 2.1.1, 3.1.1, 3.5, 3.12.1, 3.12.2, 3.12.3, 4.1.1, 5.1, 6.1.2, 7.2.1, 7.3.1, 8.1, 9.1, 9.8.1, 15.1.1
Delays and Extensions of Time
3.2, **3.7.4**, 5.2.3, 7.2.1, 7.3.1, **7.4**, **8.3**, 9.5.1, **9.7**, 10.3.2, **10.4**, 14.3.2, **15.1.6**, 15.2.5
Digital Data Use and Transmission
1.7
Disputes
6.3, 7.3.9, 15.1, 15.2
Documents and Samples at the Site
3.11
Drawings, Definition of
1.1.5
Drawings and Specifications, Use and Ownership of
3.11
Effective Date of Insurance
8.2.2
Emergencies
10.4, 14.1.1.2, **15.1.5**
Employees, Contractor's
3.3.2, 3.4.3, 3.8.1, 3.9, 3.18.2, 4.2.3, 4.2.6, 10.2, 10.3.3, 11.3, 14.1, 14.2.1.1
Equipment, Labor, or Materials
1.1.3, 1.1.6, 3.4, 3.5, 3.8.2, 3.8.3, 3.12, 3.13, 3.15.1, 4.2.6, 4.2.7, 5.2.1, 6.2.1, 7.3.4, 9.3.2, 9.3.3, 9.5.1.3, 9.10.2, 10.2.1, 10.2.4, 14.2.1.1, 14.2.1.2
Execution and Progress of the Work
1.1.3, 1.2.1, 1.2.2, 2.3.4, 2.3.6, 3.1, 3.3.1, 3.4.1, 3.7.1, 3.10.1, 3.12, 3.14, 4.2, 6.2.2, 7.1.3, 7.3.6, 8.2, 9.5.1, 9.9.1, 10.2, 10.3, 12.1, 12.2, 14.2, 14.3.1, 15.1.4
Extensions of Time
3.2.4, 3.7.4, 5.2.3, 7.2.1, 7.3, 7.4, 9.5.1, 9.7, 10.3.2, 10.4, 14.3, 15.1.6, **15.2.5**
Failure of Payment
9.5.1.3, **9.7**, 9.10.2, 13.5, 14.1.1.3, 14.2.1.2
Faulty Work
(See Defective or Nonconforming Work)
Final Completion and Final Payment
4.2.1, 4.2.9, 9.8.2, **9.10**, 12.3, 14.2.4, 14.4.3
Financial Arrangements, Owner's
2.2.1, 13.2.2, 14.1.1.4
GENERAL PROVISIONS
1
Governing Law
13.1
Guarantees (See Warranty)
Hazardous Materials and Substances
10.2.4, **10.3**
Identification of Subcontractors and Suppliers
5.2.1
Indemnification
3.17, **3.18**, 9.6.8, 9.10.2, 10.3.3, 11.3
Information and Services Required of the Owner

AIA Document A201 – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:03:53 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (696688eb6a446cd0f3688af0)

2.1.2, **2.2**, 2.3, 3.2.2, 3.12.10.1, 6.1.3, 6.1.4, 6.2.5, 9.6.1, 9.9.2, 9.10.3, 10.3.3, 11.2, 13.4.1, 13.4.2, 14.1.1.4, 14.1.4, 15.1.4
Initial Decision
15.2
Initial Decision Maker, Definition of
1.1.8
Initial Decision Maker, Decisions
14.2.4, 15.1.4.2, 15.2.1, 15.2.2, 15.2.3, 15.2.4, 15.2.5
Initial Decision Maker, Extent of Authority
14.2.4, 15.1.4.2, 15.2.1, 15.2.2, 15.2.3, 15.2.4, 15.2.5
Injury or Damage to Person or Property
10.2.8, 10.4
Inspections
3.1.3, 3.3.3, 3.7.1, 4.2.2, 4.2.6, 4.2.9, 9.4.2, 9.8.3, 9.9.2, 9.10.1, 12.2.1, 13.4
Instructions to Bidders
1.1.1
Instructions to the Contractor
3.2.4, 3.3.1, 3.8.1, 5.2.1, 7, 8.2.2, 12, 13.4.2
Instruments of Service, Definition of
1.1.7
Insurance
6.1.1, 7.3.4, 8.2.2, 9.3.2, 9.8.4, 9.9.1, 9.10.2, 10.2.5, **11**
Insurance, Notice of Cancellation or Expiration
11.1.4, 11.2.3
Insurance, Contractor's Liability
11.1
Insurance, Effective Date of
8.2.2, 14.4.2
Insurance, Owner's Liability
11.2
Insurance, Property
10.2.5, 11.2, 11.4, 11.5
Insurance, Stored Materials
9.3.2
INSURANCE AND BONDS
11
Insurance Companies, Consent to Partial Occupancy
9.9.1
Insured loss, Adjustment and Settlement of
11.5
Intent of the Contract Documents
1.2.1, 4.2.7, 4.2.12, 4.2.13
Interest
13.5
Interpretation
1.1.8, 1.2.3, **1.4**, 4.1.1, 5.1, 6.1.2, 15.1.1
Interpretations, Written
4.2.11, 4.2.12
Judgment on Final Award
15.4.2
Labor and Materials, Equipment
1.1.3, 1.1.6, **3.4**, 3.5, 3.8.2, 3.8.3, 3.12, 3.13, 3.15.1, 5.2.1, 6.2.1, 7.3.4, 9.3.2, 9.3.3, 9.5.1.3, 9.10.2, 10.2.1, 10.2.4, 14.2.1.1, 14.2.1.2
Labor Disputes
8.3.1
Laws and Regulations
1.5, 2.3.2, 3.2.3, 3.2.4, 3.6, 3.7, 3.12.10, 3.13, 9.6.4, 9.9.1, 10.2.2, 13.1, 13.3.1, 13.4.2, 13.5, 14, 15.2.8, 15.4
Liens
2.1.2, 9.3.1, 9.3.3, 9.6.8, 9.10.2, 9.10.4, 15.2.8
Limitations, Statutes of
12.2.5, 15.1.2, 15.4.1.1
Limitations of Liability
3.2.2, 3.5, 3.12.10, 3.12.10.1, 3.17, 3.18.1, 4.2.6, 4.2.7, 6.2.2, 9.4.2, 9.6.4, 9.6.7, 9.6.8, 10.2.5, 10.3.3, 11.3, 12.2.5, 13.3.1
Limitations of Time
2.1.2, 2.2, 2.5, 3.2.2, 3.10, 3.11, 3.12.5, 3.15.1, 4.2.7, 5.2, 5.3, 5.4.1, 6.2.4, 7.3, 7.4, 8.2, 9.2, 9.3.1, 9.3.3, 9.4.1, 9.5, 9.6, 9.7, 9.8, 9.9, 9.10, 12.2, 13.4, 14, 15, 15.1.2, 15.1.3, 15.1.5
Materials, Hazardous
10.2.4, **10.3**
Materials, Labor, Equipment and
1.1.3, 1.1.6, 3.4.1, 3.5, 3.8.2, 3.8.3, 3.12, 3.13, 3.15.1, 5.2.1, 6.2.1, 7.3.4, 9.3.2, 9.3.3, 9.5.1.3, 9.10.2, 10.2.1.2, 10.2.4, 14.2.1.1, 14.2.1.2
Means, Methods, Techniques, Sequences and Procedures of Construction
3.3.1, 3.12.10, 4.2.2, 4.2.7, 9.4.2
Mechanic's Lien
2.1.2, 9.3.1, 9.3.3, 9.6.8, 9.10.2, 9.10.4, 15.2.8
Mediation
8.3.1, 15.1.3.2, 15.2.1, 15.2.5, 15.2.6, **15.3**, 15.4.1, 15.4.1.1
Minor Changes in the Work
1.1.1, 3.4.2, 3.12.8, 4.2.8, 7.1, **7.4**
MISCELLANEOUS PROVISIONS
13
Modifications, Definition of
1.1.1
Modifications to the Contract
1.1.1, 1.1.2, 2.5, 3.11, 4.1.2, 4.2.1, 5.2.3, 7, 8.3.1, 9.7, 10.3.2
Mutual Responsibility
6.2
Nonconforming Work, Acceptance of
9.6.6, 9.9.3, **12.3**
Nonconforming Work, Rejection and Correction of
2.4, 2.5, 3.5, 4.2.6, 6.2.4, 9.5.1, 9.8.2, 9.9.3, 9.10.4, 12.2
Notice
1.6, 1.6.1, 1.6.2, 2.1.2, 2.2.2., 2.2.3, 2.2.4, 2.5, 3.2.4, 3.3.1, 3.7.4, 3.7.5, 3.9.2, 3.12.9, 3.12.10, 5.2.1, 7.4, 8.2.2 9.6.8, 9.7, 9.10.1, 10.2.8, 10.3.2, 11.5, 12.2.2.1, 13.4.1, 13.4.2, 14.1, 14.2.2, 14.4.2, 15.1.3, 15.1.5, 15.1.6, 15.4.1
Notice of Cancellation or Expiration of Insurance
11.1.4, 11.2.3
Notice of Claims
1.6.2, 2.1.2, 3.7.4, 9.6.8, 10.2.8, **15.1.3**, 15.1.5, 15.1.6, 15.2.8, 15.3.2, 15.4.1
Notice of Testing and Inspections
13.4.1, 13.4.2
Observations, Contractor's

AIA Document A201 – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:03:53 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (696688eb6a446cd0f3688af0)

3.2, 3.7.4
Occupancy
2.3.1, 9.6.6, 9.8
Orders, Written
1.1.1, 2.4, 3.9.2, 7, 8.2.2, 11.5, 12.1, 12.2.2.1, 13.4.2, 14.3.1
OWNER
2
Owner, Definition of
2.1.1
Owner, Evidence of Financial Arrangements
2.2, 13.2.2, 14.1.1.4
Owner, Information and Services Required of the
2.1.2, **2.2**, 2.3, 3.2.2, 3.12.10, 6.1.3, 6.1.4, 6.2.5, 9.3.2, 9.6.1, 9.6.4, 9.9.2, 9.10.3, 10.3.3, 11.2, 13.4.1, 13.4.2, 14.1.1.4, 14.1.4, 15.1.4
Owner's Authority
1.5, 2.1.1, 2.3.32.4, 2.5, 3.4.2, 3.8.1, 3.12.10, 3.14.2, 4.1.2, 4.2.4, 4.2.9, 5.2.1, 5.2.4, 5.4.1, 6.1, 6.3, 7.2.1, 7.3.1, 8.2.2, 8.3.1, 9.3.2, 9.5.1, 9.6.4, 9.9.1, 9.10.2, 10.3.2, 11.4, 11.5, 12.2.2, 12.3, 13.2.2, 14.3, 14.4, 15.2.7
Owner's Insurance
11.2
Owner's Relationship with Subcontractors
1.1.2, 5.2, 5.3, 5.4, 9.6.4, 9.10.2, 14.2.2
Owner's Right to Carry Out the Work
2.5, 14.2.2
Owner's Right to Clean Up
6.3
Owner's Right to Perform Construction and to Award Separate Contracts
6.1
Owner's Right to Stop the Work
2.4
Owner's Right to Suspend the Work
14.3
Owner's Right to Terminate the Contract
14.2, 14.4
Ownership and Use of Drawings, Specifications and Other Instruments of Service
1.1.1, 1.1.6, 1.1.7, **1.5**, 2.3.6, 3.2.2, 3.11, 3.17, 4.2.12, 5.3
Partial Occupancy or Use
9.6.6, **9.9**
Patching, Cutting and
3.14, 6.2.5
Patents
3.17
Payment, Applications for
4.2.5, 7.3.9, 9.2, **9.3**, 9.4, 9.5, 9.6.3, 9.7, 9.8.5, 9.10.1, 14.2.3, 14.2.4, 14.4.3
Payment, Certificates for
4.2.5, 4.2.9, 9.3.3, **9.4**, 9.5, 9.6.1, 9.6.6, 9.7, 9.10.1, 9.10.3, 14.1.1.3, 14.2.4
Payment, Failure of
9.5.1.3, **9.7**, 9.10.2, 13.5, 14.1.1.3, 14.2.1.2
Payment, Final
4.2.1, 4.2.9, **9.10**, 12.3, 14.2.4, 14.4.3
Payment Bond, Performance Bond and
7.3.4.4, 9.6.7, 9.10.3, **11.1.2**
Payments, Progress
9.3, **9.6**, 9.8.5, 9.10.3, 14.2.3, 15.1.4
PAYMENTS AND COMPLETION
9
Payments to Subcontractors
5.4.2, 9.5.1.3, 9.6.2, 9.6.3, 9.6.4, 9.6.7, 14.2.1.2
PCB
10.3.1
Performance Bond and Payment Bond
7.3.4.4, 9.6.7, 9.10.3, **11.1.2**
Permits, Fees, Notices and Compliance with Laws
2.3.1, **3.7**, 3.13, 7.3.4.4, 10.2.2
PERSONS AND PROPERTY, PROTECTION OF
10
Polychlorinated Biphenyl
10.3.1
Product Data, Definition of
3.12.2
Product Data and Samples, Shop Drawings
3.11, **3.12**, 4.2.7
Progress and Completion
4.2.2, **8.2**, 9.8, 9.9.1, 14.1.4, 15.1.4
Progress Payments
9.3, **9.6**, 9.8.5, 9.10.3, 14.2.3, 15.1.4
Project, Definition of
1.1.4
Project Representatives
4.2.10
Property Insurance
10.2.5, **11.2**
Proposal Requirements
1.1.1
PROTECTION OF PERSONS AND PROPERTY
10
Regulations and Laws
1.5, 2.3.2, 3.2.3, 3.6, 3.7, 3.12.10, 3.13, 9.6.4, 9.9.1, 10.2.2, 13.1, 13.3, 13.4.1, 13.4.2, 13.5, 14, 15.2.8, 15.4
Rejection of Work
4.2.6, 12.2.1
Releases and Waivers of Liens
9.3.1, 9.10.2
Representations
3.2.1, 3.5, 3.12.6, 8.2.1, 9.3.3, 9.4.2, 9.5.1, 9.10.1
Representatives
2.1.1, 3.1.1, 3.9, 4.1.1, 4.2.10, 13.2.1
Responsibility for Those Performing the Work
3.3.2, 3.18, 4.2.2, 4.2.3, 5.3, 6.1.3, 6.2, 6.3, 9.5.1, 10
Retainage
9.3.1, 9.6.2, 9.8.5, 9.9.1, 9.10.2, 9.10.3
Review of Contract Documents and Field Conditions by Contractor
3.2, 3.12.7, 6.1.3
Review of Contractor's Submittals by Owner and Architect
3.10.1, 3.10.2, 3.11, 3.12, 4.2, 5.2, 6.1.3, 9.2, 9.8.2
Review of Shop Drawings, Product Data and Samples by Contractor

AIA Document A201 – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:03:53 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (696688eb6a446cd0f3688af0)

3.12
Rights and Remedies
1.1.2, 2.4, 2.5, 3.5, 3.7.4, 3.15.2, 4.2.6, 5.3, 5.4, 6.1, 6.3, 7.3.1, 8.3, 9.5.1, 9.7, 10.2.5, 10.3, 12.2.1, 12.2.2, 12.2.4, **13.3**, 14, 15.4
Royalties, Patents and Copyrights
3.17
Rules and Notices for Arbitration
15.4.1
Safety of Persons and Property
10.2, 10.4
Safety Precautions and Programs
3.3.1, 4.2.2, 4.2.7, 5.3, **10.1**, 10.2, 10.4
Samples, Definition of
3.12.3
Samples, Shop Drawings, Product Data and
3.11, **3.12**, 4.2.7
Samples at the Site, Documents and
3.11
Schedule of Values
9.2, 9.3.1
Schedules, Construction
3.10, 3.12.1, 3.12.2, 6.1.3, 15.1.6.2
Separate Contracts and Contractors
1.1.4, 3.12.5, 3.14.2, 4.2.4, 4.2.7, 6, 8.3.1, 12.1.2
Separate Contractors, Definition of
6.1.1
Shop Drawings, Definition of
3.12.1
Shop Drawings, Product Data and Samples
3.11, **3.12**, 4.2.7
Site, Use of
3.13, 6.1.1, 6.2.1
Site Inspections
3.2.2, 3.3.3, 3.7.1, 3.7.4, 4.2, 9.9.2, 9.4.2, 9.10.1, 13.4
Site Visits, Architect's
3.7.4, 4.2.2, 4.2.9, 9.4.2, 9.5.1, 9.9.2, 9.10.1, 13.4
Special Inspections and Testing
4.2.6, 12.2.1, 13.4
Specifications, Definition of
1.1.6
Specifications
1.1.1, **1.1.6**, 1.2.2, 1.5, 3.12.10, 3.17, 4.2.14
Statute of Limitations
15.1.2, 15.4.1.1
Stopping the Work
2.2.2, 2.4, 9.7, 10.3, 14.1
Stored Materials
6.2.1, 9.3.2, 10.2.1.2, 10.2.4
Subcontractor, Definition of
5.1.1
SUBCONTRACTORS
5
Subcontractors, Work by
1.2.2, 3.3.2, 3.12.1, 3.18, 4.2.3, 5.2.3, 5.3, 5.4, 9.3.1.2, 9.6.7
Subcontractual Relations
5.3, 5.4, 9.3.1.2, 9.6, 9.10, 10.2.1, 14.1, 14.2.1
Submittals
3.10, 3.11, 3.12, 4.2.7, 5.2.1, 5.2.3, 7.3.4, 9.2, 9.3, 9.8, 9.9.1, 9.10.2, 9.10.3
Submittal Schedule
3.10.2, 3.12.5, 4.2.7
Subrogation, Waivers of
6.1.1, **11.3**
Substances, Hazardous
10.3
Substantial Completion
4.2.9, 8.1.1, 8.1.3, 8.2.3, 9.4.2, **9.8**, 9.9.1, 9.10.3, 12.2, 15.1.2
Substantial Completion, Definition of
9.8.1
Substitution of Subcontractors
5.2.3, 5.2.4
Substitution of Architect
2.3.3
Substitutions of Materials
3.4.2, 3.5, 7.3.8
Sub-subcontractor, Definition of
5.1.2
Subsurface Conditions
3.7.4
Successors and Assigns
13.2
Superintendent
3.9, 10.2.6
Supervision and Construction Procedures
1.2.2, **3.3**, 3.4, 3.12.10, 4.2.2, 4.2.7, 6.1.3, 6.2.4, 7.1.3, 7.3.4, 8.2, 8.3.1, 9.4.2, 10, 12, 14, 15.1.4
Suppliers
1.5, 3.12.1, 4.2.4, 4.2.6, 5.2.1, 9.3, 9.4.2, 9.5.4, 9.6, 9.10.5, 14.2.1
Surety
5.4.1.2, 9.6.8, 9.8.5, 9.10.2, 9.10.3, 11.1.2, 14.2.2, 15.2.7
Surety, Consent of
9.8.5, 9.10.2, 9.10.3
Surveys
1.1.7, 2.3.4
Suspension by the Owner for Convenience
14.3
Suspension of the Work
3.7.5, 5.4.2, 14.3
Suspension or Termination of the Contract
5.4.1.1, 14
Taxes
3.6, 3.8.2.1, 7.3.4.4
Termination by the Contractor
14.1, 15.1.7
Termination by the Owner for Cause
5.4.1.1, **14.2,** 15.1.7
Termination by the Owner for Convenience
14.4
Termination of the Architect
2.3.3
Termination of the Contractor Employment
14.2.2

AIA Document A201 – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:03:53 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (696688eb6a446cd0f3688af0)

TERMINATION OR SUSPENSION OF THE CONTRACT
14
Tests and Inspections
3.1.3, 3.3.3, 3.7.1, 4.2.2, 4.2.6, 4.2.9, 9.4.2, 9.8.3, 9.9.2, 9.10.1, 10.3.2, 12.2.1, **13.4**
TIME
8
Time, Delays and Extensions of
3.2.4, 3.7.4, 5.2.3, 7.2.1, 7.3.1, 7.4, **8.3**, 9.5.1, 9.7, 10.3.2, 10.4, 14.3.2, 15.1.6, 15.2.5
Time Limits
2.1.2, 2.2, 2.5, 3.2.2, 3.10, 3.11, 3.12.5, 3.15.1, 4.2, 5.2, 5.3, 5.4, 6.2.4, 7.3, 7.4, 8.2, 9.2, 9.3.1, 9.3.3, 9.4.1, 9.5, 9.6, 9.7, 9.8, 9.9, 9.10, 12.2, 13.4, 14, 15.1.2, 15.1.3, 15.4
Time Limits on Claims
3.7.4, 10.2.8, 15.1.2, 15.1.3
Title to Work
9.3.2, 9.3.3
UNCOVERING AND CORRECTION OF WORK
12
Uncovering of Work
12.1
Unforeseen Conditions, Concealed or Unknown
3.7.4, 8.3.1, 10.3
Unit Prices
7.3.3.2, 9.1.2
Use of Documents
1.1.1, 1.5, 2.3.6, 3.12.6, 5.3
Use of Site
3.13, 6.1.1, 6.2.1
Values, Schedule of
9.2, 9.3.1
Waiver of Claims by the Architect
13.3.2
Waiver of Claims by the Contractor
9.10.5, 13.3.2, **15.1.7**
Waiver of Claims by the Owner
9.9.3, 9.10.3, 9.10.4, 12.2.2.1, 13.3.2, 14.2.4, **15.1.7**
Waiver of Consequential Damages
14.2.4, 15.1.7
Waiver of Liens
9.3, 9.10.2, 9.10.4
Waivers of Subrogation
6.1.1, **11.3**
Warranty
3.5, 4.2.9, 9.3.3, 9.8.4, 9.9.1, 9.10.2, 9.10.4, 12.2.2, 15.1.2
Weather Delays
8.3, 15.1.6.2
Work, Definition of
1.1.3
Written Consent
1.5.2, 3.4.2, 3.7.4, 3.12.8, 3.14.2, 4.1.2, 9.3.2, 9.10.3, 13.2, 13.3.2, 15.4.4.2
Written Interpretations
4.2.11, 4.2.12
Written Orders
1.1.1, 2.4, 3.9, 7, 8.2.2, 12.1, 12.2, 13.4.2, 14.3.1

AIA Document A201 – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:03:53 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (696688eb6a446cd0f3688af0)

ARTICLE 1 GENERAL PROVISIONS

§ 1.1 Basic Definitions

§ 1.1.1 The Contract Documents

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement, and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding or proposal requirements.

§ 1.1.2 The Contract

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants, or (4) between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

§ 1.1.3 The Work

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment, and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

§ 1.1.4 The Project

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner and by Separate Contractors.

§ 1.1.5 The Drawings

The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams.

§ 1.1.6 The Specifications

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

§ 1.1.7 Instruments of Service

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 1.1.8 Initial Decision Maker

The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2. The Initial Decision Maker shall not show partiality to the Owner or Contractor and shall not be liable for results of interpretations or decisions rendered in good faith.

§ 1.2 Correlation and Intent of the Contract Documents

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

AIA Document A201 – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:03:53 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (696688eb6a446cd0f3688af0)

§ 1.2.1.1 The invalidity of any provision of the Contract Documents shall not invalidate the Contract or its remaining provisions. If it is determined that any provision of the Contract Documents violates any law, or is otherwise invalid or unenforceable, then that provision shall be revised to the extent necessary to make that provision legal and enforceable. In such case the Contract Documents shall be construed, to the fullest extent permitted by law, to give effect to the parties' intentions and purposes in executing the Contract.

§ 1.2.2 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

§ 1.2.3 Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

§ 1.3 Capitalization

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles, or (3) the titles of other documents published by the American Institute of Architects.

§ 1.4 Interpretation

In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

§ 1.5 Ownership and Use of Drawings, Specifications, and Other Instruments of Service

§ 1.5.1 The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and retain all common law, statutory, and other reserved rights in their Instruments of Service, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors, and suppliers are authorized to use and reproduce the Instruments of Service provided to them, subject to any protocols established pursuant to Sections 1.7 and 1.8, solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and suppliers may not use the Instruments of Service on other projects or for additions to the Project outside the scope of the Work without the specific written consent of the Owner, Architect, and the Architect's consultants.

§ 1.6 Notice

§ 1.6.1 Except as otherwise provided in Section 1.6.2, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing to the designated representative of the party to whom the notice is addressed and shall be deemed to have been duly served if delivered in person, by mail, by courier, or by electronic transmission if a method for electronic transmission is set forth in the Agreement.

§ 1.6.2 Notice of Claims as provided in Section 15.1.3 shall be provided in writing and shall be deemed to have been duly served only if delivered to the designated representative of the party to whom the notice is addressed by certified or registered mail, or by courier providing proof of delivery.

§ 1.7 Digital Data Use and Transmission

The parties shall agree upon written protocols governing the transmission and use of, and reliance on, Instruments of Service or any other information or documentation in digital form.

§ 1.8 Building Information Models Use and Reliance

Any use of, or reliance on, all or a portion of a building information model without agreement to written protocols governing the use of, and reliance on, the information contained in the model shall be at the using or relying party's sole risk and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building information model, and each of their agents and employees.

AIA Document A201 – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:03:53 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (696688eb6a446cd0f3688af0)

ARTICLE 2 OWNER

§ 2.1 General

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

§ 2.1.2 The Owner shall furnish to the Contractor, within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of, or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

§ 2.2 Evidence of the Owner's Financial Arrangements

§ 2.2.1 Prior to commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. The Contractor shall have no obligation to commence the Work until the Owner provides such evidence. If commencement of the Work is delayed under this Section 2.2.1, the Contract Time shall be extended appropriately.

§ 2.2.2 Following commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract only if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due; or (3) a change in the Work materially changes the Contract Sum. If the Owner fails to provide such evidence, as required, within fourteen days of the Contractor's request, the Contractor may immediately stop the Work and, in that event, shall notify the Owner that the Work has stopped. However, if the request is made because a change in the Work materially changes the Contract Sum under (3) above, the Contractor may immediately stop only that portion of the Work affected by the change until reasonable evidence is provided. If the Work is stopped under this Section 2.2.2, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided in the Contract Documents.

§ 2.2.3 After the Owner furnishes evidence of financial arrangements under this Section 2.2, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

§ 2.2.4 Where the Owner has designated information furnished under this Section 2.2 as "confidential," the Contractor shall keep the information confidential and shall not disclose it to any other person. However, the Contractor may disclose "confidential" information, after seven (7) days' notice to the Owner, where disclosure is required by law, including a subpoena or other form of compulsory legal process issued by a court or governmental entity, or by court or arbitrator(s) order. The Contractor may also disclose "confidential" information to its employees, consultants, sureties, Subcontractors and their employees, Sub-subcontractors, and others who need to know the content of such information solely and exclusively for the Project and who agree to maintain the confidentiality of such information.

§ 2.3 Information and Services Required of the Owner

§ 2.3.1 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

§ 2.3.2 The Owner shall retain an architect lawfully licensed to practice architecture, or an entity lawfully practicing architecture, in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 2.3.3 If the employment of the Architect terminates, the Owner shall employ a successor to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Architect.

AIA Document A201 – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:03:53 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (696688eb6a446cd0f3688af0)

§ 2.3.4 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 2.3.5 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

§ 2.3.6 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.

§ 2.4 Owner's Right to Stop the Work

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

§ 2.5 Owner's Right to Carry Out the Work

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such default or neglect. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect and the Architect may, pursuant to Section 9.5.1, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect, or failure. If current and future payments are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. If the Contractor disagrees with the actions of the Owner or the Architect, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15.

ARTICLE 3 CONTRACTOR

§ 3.1 General

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.3 The Contractor shall not be relieved of its obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

§ 3.2 Review of Contract Documents and Field Conditions by Contractor

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed, and correlated personal observations with requirements of the Contract Documents.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.3.4, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the

AIA Document A201 – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:03:53 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (696688eb6a446cd0f3688af0)

purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall submit Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner, subject to Section 15.1.7, as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.3 Supervision and Construction Procedures

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work under the Contract. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences, or procedures, the Contractor shall evaluate the jobsite safety thereof and shall be solely responsible for the jobsite safety of such means, methods, techniques, sequences, or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely notice to the Owner and Architect, and shall propose alternative means, methods, techniques, sequences, or procedures. The Architect shall evaluate the proposed alternative solely for conformance with the design intent for the completed construction. Unless the Architect objects to the Contractor's proposed alternative, the Contractor shall perform the Work using its alternative means, methods, techniques, sequences, or procedures.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

§ 3.4 Labor and Materials

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

§ 3.4.2 Except in the case of minor changes in the Work approved by the Architect in accordance with Section 3.12.8 or ordered by the Architect in accordance with Section 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order or Construction Change Directive.

§ 3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

AIA Document A201 – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:03:53 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (696688eb6a446cd0f3688af0)

§ 3.5 Warranty

§ 3.5.1 The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

§ 3.5.2 All material, equipment, or other special warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 9.8.4.

§ 3.6 Taxes

The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

§ 3.7 Permits, Fees, Notices and Compliance with Laws

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

§ 3.7.3 If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 3.7.4 Concealed or Unknown Conditions

If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Architect before conditions are disturbed and in no event later than 14 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend that an equitable adjustment be made in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner and Contractor, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may submit a Claim as provided in Article 15.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

§ 3.8 Allowances

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct,

AIA Document A201 – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:03:53 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (696688eb6a446cd0f3688af0)

but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents,

.1 allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;

.2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit, and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and

.3 whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

§ 3.9 Superintendent

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the name and qualifications of a proposed superintendent. Within 14 days of receipt of the information, the Architect may notify the Contractor, stating whether the Owner or the Architect (1) has reasonable objection to the proposed superintendent or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

§ 3.10 Contractor's Construction and Submittal Schedules

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall contain detail appropriate for the Project, including (1) the date of commencement of the Work, interim schedule milestone dates, and the date of Substantial Completion; (2) an apportionment of the Work by construction activity; and (3) the time required for completion of each portion of the Work. The schedule shall provide for the orderly progression of the Work to completion and shall not exceed time limits current under the Contract Documents. The schedule shall be revised at appropriate intervals as required by the conditions of the Work and Project.

§ 3.10.2 The Contractor, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, shall submit a submittal schedule for the Architect's approval. The Architect's approval shall not be unreasonably delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, or fails to provide submittals in accordance with the approved submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.10.3 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect.

§ 3.11 Documents and Samples at the Site

The Contractor shall make available, at the Project site, the Contract Documents, including Change Orders, Construction Change Directives, and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and the approved Shop Drawings, Product Data, Samples, and similar required submittals. These shall be in electronic form or paper copy, available to the Architect and Owner, and delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as

AIA Document A201 – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:03:53 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (696688eb6a446cd0f3688af0)

constructed.

§ 3.12 Shop Drawings, Product Data and Samples

§ 3.12.1 Shop Drawings are drawings, diagrams, schedules, and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier, or distributor to illustrate some portion of the Work.

§ 3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

§ 3.12.3 Samples are physical examples that illustrate materials, equipment, or workmanship, and establish standards by which the Work will be judged.

§ 3.12.4 Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. Their purpose is to demonstrate how the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve, and submit to the Architect, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents, in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of Separate Contractors.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples, or similar submittals, until the respective submittal has been approved by the Architect.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from the requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples, or similar submittals, unless the Contractor has specifically notified the Architect of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals, by the Architect's approval thereof.

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples, or similar submittals, to revisions other than those requested by the Architect on previous submittals. In the absence of such notice, the Architect's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures. The Contractor shall not be required to provide professional services in violation of applicable law.

§ 3.12.10.1 If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall be entitled to rely upon the adequacy and accuracy of the performance and design criteria provided in the Contract Documents. The

AIA Document A201 – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:03:53 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (696688eb6a446cd0f3688af0)

Contractor shall cause such services or certifications to be provided by an appropriately licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings, and other submittals prepared by such professional. Shop Drawings, and other submittals related to the Work, designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy and accuracy of the services, certifications, and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor the performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review and approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

§ 3.12.10.2 If the Contract Documents require the Contractor's design professional to certify that the Work has been performed in accordance with the design criteria, the Contractor shall furnish such certifications to the Architect at the time and in the form specified by the Architect.

§ 3.13 Use of Site

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 3.14 Cutting and Patching

§ 3.14.1 The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting, or patching shall be restored to the condition existing prior to the cutting, fitting, or patching, unless otherwise required by the Contract Documents.

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or Separate Contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter construction by the Owner or a Separate Contractor except with written consent of the Owner and of the Separate Contractor. Consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold, from the Owner or a Separate Contractor, its consent to cutting or otherwise altering the Work.

§ 3.15 Cleaning Up

§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials and rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus materials from and about the Project.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the Owner shall be entitled to reimbursement from the Contractor.

§ 3.16 Access to Work

The Contractor shall provide the Owner and Architect with access to the Work in preparation and progress wherever located.

§ 3.17 Royalties, Patents and Copyrights

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for defense or loss when a particular design, process, or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications, or other documents prepared by the Owner or Architect. However, if an infringement of a copyright or patent is discovered by, or made known to, the Contractor, the Contractor shall be responsible for the loss unless the information is promptly furnished to the Architect.

§ 3.18 Indemnification

§ 3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the

AIA Document A201 – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:03:53 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (696688eb6a446cd0f3688af0)

Work, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation, or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts.

ARTICLE 4 ARCHITECT

§ 4.1 General

§ 4.1.1 The Architect is the person or entity retained by the Owner pursuant to Section 2.3.2 and identified as such in the Agreement.

§ 4.1.2 Duties, responsibilities, and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified, or extended without written consent of the Owner, Contractor, and Architect. Consent shall not be unreasonably withheld.

§ 4.2 Administration of the Contract

§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the date the Architect issues the final Certificate for Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents.

§ 4.2.3 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and promptly report to the Owner (1) known deviations from the Contract Documents, (2) known deviations from the most recent construction schedule submitted by the Contractor, and (3) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of, and will not be responsible for acts or omissions of, the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

§ 4.2.4 Communications

The Owner and Contractor shall include the Architect in all communications that relate to or affect the Architect's services or professional responsibilities. The Owner shall promptly notify the Architect of the substance of any direct communications between the Owner and the Contractor otherwise relating to the Project. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and suppliers shall be through the Contractor. Communications by and with Separate Contractors shall be through the Owner. The Contract Documents may specify other communication protocols.

§ 4.2.5 Based on the Architect's evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

AIA Document A201 – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:03:53 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (696688eb6a446cd0f3688af0)

§ 4.2.6 The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections 13.4.2 and 13.4.3, whether or not the Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ 4.2.7 The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data, and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5, and 3.12. The Architect's review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences, or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.8 The Architect will prepare Change Orders and Construction Change Directives, and may order minor changes in the Work as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.9 The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

§ 4.2.10 If the Owner and Architect agree, the Architect will provide one or more Project representatives to assist in carrying out the Architect's responsibilities at the site. The Owner shall notify the Contractor of any change in the duties, responsibilities and limitations of authority of the Project representatives.

§ 4.2.11 The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.12 Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either, and will not be liable for results of interpretations or decisions rendered in good faith.

§ 4.2.13 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 4.2.14 The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

ARTICLE 5 SUBCONTRACTORS

§ 5.1 Definitions

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a Separate Contractor or the subcontractors of a Separate Contractor.

AIA Document A201 – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:03:53 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (696688eb6a446cd0f3688af0)

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

§ 5.2 Award of Subcontracts and Other Contracts for Portions of the Work

§ 5.2.1 Unless otherwise stated in the Contract Documents, the Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the persons or entities proposed for each principal portion of the Work, including those who are to furnish materials or equipment fabricated to a special design. Within 14 days of receipt of the information, the Architect may notify the Contractor whether the Owner or the Architect (1) has reasonable objection to any such proposed person or entity or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 5.2.3 If the Owner or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Architect has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person, or entity for one previously selected if the Owner or Architect makes reasonable objection to such substitution.

§ 5.3 Subcontractual Relations

By appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work that the Contractor, by these Contract Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies, and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

§ 5.4 Contingent Assignment of Subcontracts

§ 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

- **.1** assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor; and
- **.2** assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

AIA Document A201 – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:03:53 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (696688eb6a446cd0f3688af0)

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

§ 5.4.3 Upon assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity. If the Owner assigns the subcontract to a successor contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor contractor's obligations under the subcontract.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 6.1 Owner's Right to Perform Construction and to Award Separate Contracts

§ 6.1.1 The term "Separate Contractor(s)" shall mean other contractors retained by the Owner under separate agreements. The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and with Separate Contractors retained under Conditions of the Contract substantially similar to those of this Contract, including those provisions of the Conditions of the Contract related to insurance and waiver of subrogation.

§ 6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

§ 6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each Separate Contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with any Separate Contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to its construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, Separate Contractors, and the Owner until subsequently revised.

§ 6.1.4 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces or with Separate Contractors, the Owner or its Separate Contractors shall have the same obligations and rights that the Contractor has under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6, and Articles 10, 11, and 12.

§ 6.2 Mutual Responsibility

§ 6.2.1 The Contractor shall afford the Owner and Separate Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a Separate Contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly notify the Architect of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor that would render it unsuitable for proper execution and results of the Contractor's Work. Failure of the Contractor to notify the Architect of apparent discrepancies or defects prior to proceeding with the Work shall constitute an acknowledgment that the Owner's or Separate Contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work. The Contractor shall not be responsible for discrepancies or defects in the construction or operations by the Owner or Separate Contractor that are not apparent.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a Separate Contractor because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a Separate Contractor's delays, improperly timed activities, damage to the Work or defective construction.

§ 6.2.4 The Contractor shall promptly remedy damage that the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or Separate Contractor as provided in Section 10.2.5.

§ 6.2.5 The Owner and each Separate Contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

AIA Document A201 – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:03:53 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (696688eb6a446cd0f3688af0)

§ 6.3 Owner's Right to Clean Up

If a dispute arises among the Contractor, Separate Contractors, and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Architect will allocate the cost among those responsible.

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 General

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor, and Architect. A Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor. An order for a minor change in the Work may be issued by the Architect alone.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents. The Contractor shall proceed promptly with changes in the Work, unless otherwise provided in the Change Order, Construction Change Directive, or order for a minor change in the Work.

§ 7.2 Change Orders

§ 7.2.1 A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor, and Architect stating their agreement upon all of the following:

- **.1** The change in the Work;
- **.2** The amount of the adjustment, if any, in the Contract Sum; and
- **.3** The extent of the adjustment, if any, in the Contract Time.

§ 7.3 Construction Change Directives

§ 7.3.1 A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

- **.1** Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
- **.2** Unit prices stated in the Contract Documents or subsequently agreed upon;
- **.3** Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
- **.4** As provided in Section 7.3.4.

§ 7.3.4 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.4 shall be limited to the following:

- **.1** Costs of labor, including applicable payroll taxes, fringe benefits required by agreement or custom, workers' compensation insurance, and other employee costs approved by the Architect;
- **.2** Costs of materials, supplies, and equipment, including cost of transportation, whether incorporated or consumed;

AIA Document A201 – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:03:53 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (696688eb6a446cd0f3688af0)

.3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;

.4 Costs of premiums for all bonds and insurance, permit fees, and sales, use, or similar taxes, directly related to the change; and

.5 Costs of supervision and field office personnel directly attributable to the change.

§ 7.3.5 If the Contractor disagrees with the adjustment in the Contract Time, the Contractor may make a Claim in accordance with applicable provisions of Article 15.

§ 7.3.6 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.7 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Architect will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.4 Minor Changes in the Work

The Architect may order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. The Architect's order for minor changes shall be in writing. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Architect and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Architect's order for a minor change without prior notice to the Architect that such change will affect the Contract Sum or Contract Time, the Contractor waives any adjustment to the Contract Sum or extension of the Contract Time.

ARTICLE 8 TIME

§ 8.1 Definitions

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

AIA Document A201 – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:03:53 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (696688eb6a446cd0f3688af0)

§ 8.2 Progress and Completion

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, commence the Work prior to the effective date of insurance required to be furnished by the Contractor and Owner.

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

§ 8.3 Delays and Extensions of Time

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by (1) an act or neglect of the Owner or Architect, of an employee of either, or of a Separate Contractor; (2) by changes ordered in the Work; (3) by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, adverse weather conditions documented in accordance with Section 15.1.6.2, or other causes beyond the Contractor's control; (4) by delay authorized by the Owner pending mediation and binding dispute resolution; or (5) by other causes that the Contractor asserts, and the Architect determines, justify delay, then the Contract Time shall be extended for such reasonable time as the Architect may determine.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 Contract Sum

§ 9.1.1 The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 9.1.2 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed so that application of such unit prices to the actual quantities causes substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

§ 9.2 Schedule of Values

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit a schedule of values to the Architect before the first Application for Payment, allocating the entire Contract Sum to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy, required by the Architect. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. Any changes to the schedule of values shall be submitted to the Architect and supported by such data to substantiate its accuracy as the Architect may require, and unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's subsequent Applications for Payment.

§ 9.3 Applications for Payment

§ 9.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. The application shall be notarized, if required, and supported by all data substantiating the Contractor's right to payment that the Owner or Architect require, such as copies of requisitions, and releases and waivers of liens from Subcontractors and suppliers, and shall reflect retainage if provided for in the Contract Documents.

§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Architect, but not yet included in Change Orders.

§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or supplier, unless such Work has been performed by others

AIA Document A201 – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:03:53 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (696688eb6a446cd0f3688af0)

whom the Contractor intends to pay.

§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage, and transportation to the site, for such materials and equipment stored off the site.

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information, and belief, be free and clear of liens, claims, security interests, or encumbrances, in favor of the Contractor, Subcontractors, suppliers, or other persons or entities that provided labor, materials, and equipment relating to the Work.

§ 9.4 Certificates for Payment

§ 9.4.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either (1) issue to the Owner a Certificate for Payment in the full amount of the Application for Payment, with a copy to the Contractor; or (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Contractor and Owner of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; or (3) withhold certification of the entire Application for Payment, and notify the Contractor and Owner of the Architect's reason for withholding certification in whole as provided in Section 9.5.1.

§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data in the Application for Payment, that, to the best of the Architect's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is entitled to payment in the amount certified. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion, and to specific qualifications expressed by the Architect. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work; (2) reviewed construction means, methods, techniques, sequences, or procedures; (3) reviewed copies of requisitions received from Subcontractors and suppliers and other data requested by the Owner to substantiate the Contractor's right to payment; or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 9.5 Decisions to Withhold Certification

§ 9.5.1 The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of

- **.1** defective Work not remedied;
- **.2** third party claims filed or reasonable evidence indicating probable filing of such claims, unless security acceptable to the Owner is provided by the Contractor;
- **.3** failure of the Contractor to make payments properly to Subcontractors or suppliers for labor, materials or equipment;
- **.4** reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- **.5** damage to the Owner or a Separate Contractor;
- **.6** reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay;

AIA Document A201 – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:03:53 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (696688eb6a446cd0f3688af0)

or

.7 repeated failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 When either party disputes the Architect's decision regarding a Certificate for Payment under Section 9.5.1, in whole or in part, that party may submit a Claim in accordance with Article 15.

§ 9.5.3 When the reasons for withholding certification are removed, certification will be made for amounts previously withheld.

§ 9.5.4 If the Architect withholds certification for payment under Section 9.5.1.3, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or supplier to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Contractor shall reflect such payment on its next Application for Payment.

§ 9.6 Progress Payments

§ 9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Architect.

§ 9.6.2 The Contractor shall pay each Subcontractor, no later than seven days after receipt of payment from the Owner, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

§ 9.6.3 The Architect will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Architect and Owner on account of portions of the Work done by such Subcontractor.

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors and suppliers to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay, or to see to the payment of money to, a Subcontractor or supplier, except as may otherwise be required by law.

§ 9.6.5 The Contractor's payments to suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors or provided by suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, create any fiduciary liability or tort liability on the part of the Contractor for breach of trust, or entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.6.8 Provided the Owner has fulfilled its payment obligations under the Contract Documents, the Contractor shall defend and indemnify the Owner from all loss, liability, damage or expense, including reasonable attorney's fees and litigation expenses, arising out of any lien claim or other claim for payment by any Subcontractor or supplier of any tier. Upon receipt of notice of a lien claim or other claim for payment, the Owner shall notify the Contractor. If approved by the applicable court, when required, the Contractor may substitute a surety bond for the property against which the lien or other claim for payment has been asserted.

AIA Document A201 – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:03:53 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (696688eb6a446cd0f3688af0)

§ 9.7 Failure of Payment

If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents, the amount certified by the Architect or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided for in the Contract Documents.

§ 9.8 Substantial Completion

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion.

§ 9.8.4 When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion; establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance; and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in the Certificate. Upon such acceptance, and consent of surety if any, the Owner shall make payment of retainage applying to the Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

§ 9.9 Partial Occupancy or Use

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor, and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

AIA Document A201 – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:03:53 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (696688eb6a446cd0f3688af0)

§ 9.10 Final Completion and Final Payment

§ 9.10.1 Upon receipt of the Contractor's notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection. When the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect, (3) a written statement that the Contractor knows of no reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment, (5) documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and (6) if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts and releases and waivers of liens, claims, security interests, or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien, claim, security interest, or encumbrance. If a lien, claim, security interest, or encumbrance remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging the lien, claim, security interest, or encumbrance, including all costs and reasonable attorneys' fees.

§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed, corrected, and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of the surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

§ 9.10.4 The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

- **.1** liens, Claims, security interests, or encumbrances arising out of the Contract and unsettled;
- **.2** failure of the Work to comply with the requirements of the Contract Documents;
- **.3** terms of special warranties required by the Contract Documents; or
- **.4** audits performed by the Owner, if permitted by the Contract Documents, after final payment.

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor, or a supplier, shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 Safety Precautions and Programs

The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract.

§ 10.2 Safety of Persons and Property

§ 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury, or loss to

- **.1** employees on the Work and other persons who may be affected thereby;

AIA Document A201 – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:03:53 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (696688eb6a446cd0f3688af0)

.2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody, or control of the Contractor, a Subcontractor, or a Sub-subcontractor; and

.3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

§ 10.2.2 The Contractor shall comply with, and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities, bearing on safety of persons or property or their protection from damage, injury, or loss.

§ 10.2.3 The Contractor shall implement, erect, and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards; promulgating safety regulations; and notifying the owners and users of adjacent sites and utilities of the safeguards.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment, or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2 and 10.2.1.3. The Contractor may make a Claim for the cost to remedy the damage or loss to the extent such damage or loss is attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

§ 10.2.8 Injury or Damage to Person or Property

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, notice of the injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

§ 10.3 Hazardous Materials and Substances

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials or substances. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and notify the Owner and Architect of the condition.

§ 10.3.2 Upon receipt of the Contractor's notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of the material or substance or who are to perform the task of removal or safe containment of the material or substance. The Contractor and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed

AIA Document A201 – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:03:53 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (696688eb6a446cd0f3688af0)

by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss, or expense is due to the fault or negligence of the party seeking indemnity.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for hazardous materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for hazardous materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

§ 10.3.5 The Contractor shall reimburse the Owner for the cost and expense the Owner incurs (1) for remediation of hazardous materials or substances the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall reimburse the Contractor for all cost and expense thereby incurred.

§ 10.4 Emergencies

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury, or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 Contractor's Insurance and Bonds

§ 11.1.1 The Contractor shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Contractor shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Owner, Architect, and Architect's consultants shall be named as additional insureds under the Contractor's commercial general liability policy or as otherwise described in the Contract Documents.

§ 11.1.2 The Contractor shall provide surety bonds of the types, for such penal sums, and subject to such terms and conditions as required by the Contract Documents. The Contractor shall purchase and maintain the required bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 11.1.3 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

§ 11.1.4 Notice of Cancellation or Expiration of Contractor's Required Insurance. Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by the Contract Documents, the Contractor shall provide notice to the Owner of such impending or actual cancellation or expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve

AIA Document A201 – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:03:53 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (696688eb6a446cd0f3688af0)

the Contractor of any contractual obligation to provide any required coverage.

§ 11.2 Owner's Insurance

§ 11.2.1 The Owner shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Owner shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located.

§ 11.2.2 Failure to Purchase Required Property Insurance. If the Owner fails to purchase and maintain the required property insurance, with all of the coverages and in the amounts described in the Agreement or elsewhere in the Contract Documents, the Owner shall inform the Contractor in writing prior to commencement of the Work. Upon receipt of notice from the Owner, the Contractor may delay commencement of the Work and may obtain insurance that will protect the interests of the Contractor, Subcontractors, and Sub-Subcontractors in the Work. When the failure to provide coverage has been cured or resolved, the Contract Sum and Contract Time shall be equitably adjusted. In the event the Owner fails to procure coverage, the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent the loss to the Owner would have been covered by the insurance to have been procured by the Owner. The cost of the insurance shall be charged to the Owner by a Change Order. If the Owner does not provide written notice, and the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain the required insurance, the Owner shall reimburse the Contractor for all reasonable costs and damages attributable thereto.

§ 11.2.3 Notice of Cancellation or Expiration of Owner's Required Property Insurance. Within three (3) business days of the date the Owner becomes aware of an impending or actual cancellation or expiration of any property insurance required by the Contract Documents, the Owner shall provide notice to the Contractor of such impending or actual cancellation or expiration. Unless the lapse in coverage arises from an act or omission of the Contractor: (1) the Contractor, upon receipt of notice from the Owner, shall have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by either the Owner or the Contractor; (2) the Contract Time and Contract Sum shall be equitably adjusted; and (3) the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent any loss to the Owner would have been covered by the insurance had it not expired or been cancelled. If the Contractor purchases replacement coverage, the cost of the insurance shall be charged to the Owner by an appropriate Change Order. The furnishing of notice by the Owner shall not relieve the Owner of any contractual obligation to provide required insurance.

§ 11.3 Waivers of Subrogation

§ 11.3.1 The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents, and employees, each of the other; (2) the Architect and Architect's consultants; and (3) Separate Contractors, if any, and any of their subcontractors, sub-subcontractors, agents, and employees, for damages caused by fire, or other causes of loss, to the extent those losses are covered by property insurance required by the Agreement or other property insurance applicable to the Project, except such rights as they have to proceeds of such insurance. The Owner or Contractor, as appropriate, shall require similar written waivers in favor of the individuals and entities identified above from the Architect, Architect's consultants, Separate Contractors, subcontractors, and sub-subcontractors. The policies of insurance purchased and maintained by each person or entity agreeing to waive claims pursuant to this section 11.3.1 shall not prohibit this waiver of subrogation. This waiver of subrogation shall be effective as to a person or entity (1) even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, (2) even though that person or entity did not pay the insurance premium directly or indirectly, or (3) whether or not the person or entity had an insurable interest in the damaged property.

§ 11.3.2 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, to the extent permissible by such policies, the Owner waives all rights in accordance with the terms of Section 11.3.1 for damages caused by fire or other causes of loss covered by this separate property insurance.

§ 11.4 Loss of Use, Business Interruption, and Delay in Completion Insurance

The Owner, at the Owner's option, may purchase and maintain insurance that will protect the Owner against loss of use of the Owner's property, or the inability to conduct normal operations, due to fire or other causes of loss. The Owner waives all rights of action against the Contractor and Architect for loss of use of the Owner's property, due to

AIA Document A201 – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:03:53 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (696688eb6a446cd0f3688af0)

fire or other hazards however caused.

§11.5 Adjustment and Settlement of Insured Loss

§ 11.5.1 A loss insured under the property insurance required by the Agreement shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.5.2. The Owner shall pay the Architect and Contractor their just shares of insurance proceeds received by the Owner, and by appropriate agreements the Architect and Contractor shall make payments to their consultants and Subcontractors in similar manner.

§ 11.5.2 Prior to settlement of an insured loss, the Owner shall notify the Contractor of the terms of the proposed settlement as well as the proposed allocation of the insurance proceeds. The Contractor shall have 14 days from receipt of notice to object to the proposed settlement or allocation of the proceeds. If the Contractor does not object, the Owner shall settle the loss and the Contractor shall be bound by the settlement and allocation. Upon receipt, the Owner shall deposit the insurance proceeds in a separate account and make the appropriate distributions. Thereafter, if no other agreement is made or the Owner does not terminate the Contract for convenience, the Owner and Contractor shall execute a Change Order for reconstruction of the damaged or destroyed Work in the amount allocated for that purpose. If the Contractor timely objects to either the terms of the proposed settlement or the allocation of the proceeds, the Owner may proceed to settle the insured loss, and any dispute between the Owner and Contractor arising out of the settlement or allocation of the proceeds shall be resolved pursuant to Article 15. Pending resolution of any dispute, the Owner may issue a Construction Change Directive for the reconstruction of the damaged or destroyed Work.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 Uncovering of Work

§ 12.1.1 If a portion of the Work is covered contrary to the Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Architect, be uncovered for the Architect's examination and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be entitled to an equitable adjustment to the Contract Sum and Contract Time as may be appropriate. If such Work is not in accordance with the Contract Documents, the costs of uncovering the Work, and the cost of correction, shall be at the Contractor's expense.

§ 12.2 Correction of Work

§ 12.2.1 Before Substantial Completion

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, discovered before Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

§ 12.2.2 After Substantial Completion

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of notice from the Owner to do so, unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.5.

§ 12.2.2.2 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

AIA Document A201 – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:03:53 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (696688eb6a446cd0f3688af0)

§ 12.2.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

§ 12.2.3 The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction of the Owner or Separate Contractors, whether completed or partially completed, caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

§ 12.3 Acceptance of Nonconforming Work

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 Governing Law

The Contract shall be governed by the law of the place where the Project is located, excluding that jurisdiction's choice of law rules. If the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

§ 13.2 Successors and Assigns

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to covenants, agreements, and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate the assignment.

§ 13.3 Rights and Remedies

§ 13.3.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law.

§ 13.3.2 No action or failure to act by the Owner, Architect, or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed upon in writing.

§ 13.4 Tests and Inspections

§ 13.4.1 Tests, inspections, and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules, and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections, and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of tests, inspections, or approvals that do not become requirements until after bids are received or negotiations concluded. The Owner shall directly arrange and pay for tests, inspections, or

AIA Document A201 – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:03:53 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (696688eb6a446cd0f3688af0)

approvals where building codes or applicable laws or regulations so require.

§ 13.4.2 If the Architect, Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under Section 13.4.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection, or approval, by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.4.3, shall be at the Owner's expense.

§ 13.4.3 If procedures for testing, inspection, or approval under Sections 13.4.1 and 13.4.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure, including those of repeated procedures and compensation for the Architect's services and expenses, shall be at the Contractor's expense.

§ 13.4.4 Required certificates of testing, inspection, or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

§ 13.4.5 If the Architect is to observe tests, inspections, or approvals required by the Contract Documents, the Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.4.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

§ 13.5 Interest

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at the rate the parties agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 Termination by the Contractor

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, for any of the following reasons:

- **.1** Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
- **.2** An act of government, such as a declaration of national emergency, that requires all Work to be stopped;
- **.3** Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or
- **.4** The Owner has failed to furnish to the Contractor reasonable evidence as required by Section 2.2.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, repeated suspensions, delays, or interruptions of the entire Work by the Owner as described in Section 14.3, constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, as well as reasonable overhead and profit on Work not executed, and costs incurred by reason of such termination.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, or their agents or employees or any other persons or entities performing portions of the Work because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in

AIA Document A201 – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:03:53 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (696688eb6a446cd0f3688af0)

Section 14.1.3.

§ 14.2 Termination by the Owner for Cause

§ 14.2.1 The Owner may terminate the Contract if the Contractor

.1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;

.2 fails to make payment to Subcontractors or suppliers in accordance with the respective agreements between the Contractor and the Subcontractors or suppliers;

.3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or

.4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the reasons described in Section 14.2.1 exist, and upon certification by the Architect that sufficient cause exists to justify such action, the Owner may, without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

.1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;

.2 Accept assignment of subcontracts pursuant to Section 5.4; and

.3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Initial Decision Maker, upon application, and this obligation for payment shall survive termination of the Contract.

§ 14.3 Suspension by the Owner for Convenience

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work, in whole or in part for such period of time as the Owner may determine.

§ 14.3.2 The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay, or interruption under Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent

.1 that performance is, was, or would have been, so suspended, delayed, or interrupted, by another cause for which the Contractor is responsible; or

.2 that an equitable adjustment is made or denied under another provision of the Contract.

§ 14.4 Termination by the Owner for Convenience

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ 14.4.2 Upon receipt of notice from the Owner of such termination for the Owner's convenience, the Contractor shall

.1 cease operations as directed by the Owner in the notice;

.2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and

.3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

AIA Document A201 – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:03:53 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (696688eb6a446cd0f3688af0)

§ 14.4.3 In case of such termination for the Owner's convenience, the Owner shall pay the Contractor for Work properly executed; costs incurred by reason of the termination, including costs attributable to termination of Subcontracts; and the termination fee, if any, set forth in the Agreement.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 Claims

§ 15.1.1 Definition

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, a change in the Contract Time, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim. This Section 15.1.1 does not require the Owner to file a Claim in order to impose liquidated damages in accordance with the Contract Documents.

§ 15.1.2 Time Limits on Claims

The Owner and Contractor shall commence all Claims and causes of action against the other and arising out of or related to the Contract, whether in contract, tort, breach of warranty or otherwise, in accordance with the requirements of the binding dispute resolution method selected in the Agreement and within the period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all Claims and causes of action not commenced in accordance with this Section 15.1.2.

§ 15.1.3 Notice of Claims

§ 15.1.3.1 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered prior to expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker. Claims by either party under this Section 15.1.3.1 shall be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 15.1.3.2 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party. In such event, no decision by the Initial Decision Maker is required.

§ 15.1.4 Continuing Contract Performance

§ 15.1.4.1 Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

§ 15.1.4.2 The Contract Sum and Contract Time shall be adjusted in accordance with the Initial Decision Maker's decision, subject to the right of either party to proceed in accordance with this Article 15. The Architect will issue Certificates for Payment in accordance with the decision of the Initial Decision Maker.

§ 15.1.5 Claims for Additional Cost

If the Contractor wishes to make a Claim for an increase in the Contract Sum, notice as provided in Section 15.1.3 shall be given before proceeding to execute the portion of the Work that is the subject of the Claim. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

§ 15.1.6 Claims for Additional Time

§ 15.1.6.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, notice as provided in Section 15.1.3 shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary.

§ 15.1.6.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated, and had an adverse effect on the scheduled construction.

§ 15.1.7 Waiver of Claims for Consequential Damages

The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

AIA Document A201 – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:03:53 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (696688eb6a446cd0f3688af0)

.1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and

.2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit, except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.7 shall be deemed to preclude assessment of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 Initial Decision

§ 15.2.1 Claims, excluding those where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2 or arising under Sections 10.3, 10.4, and 11.5, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim. If an initial decision has not been rendered within 30 days after the Claim has been referred to the Initial Decision Maker, the party asserting the Claim may demand mediation and binding dispute resolution without a decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

§ 15.2.2 The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of the request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished, or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.

§ 15.2.6 Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

§ 15.2.6.1 Either party may, within 30 days from the date of receipt of an initial decision, demand in writing that the other party file for mediation. If such a demand is made and the party receiving the demand fails to file for mediation within 30 days after receipt thereof, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

§ 15.2.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner

AIA Document A201 – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:03:53 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (696688eb6a446cd0f3688af0)

may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 15.2.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

§ 15.3 Mediation

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract, except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.7, shall be subject to mediation as a condition precedent to binding dispute resolution.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 15.3.3 Either party may, within 30 days from the date that mediation has been concluded without resolution of the dispute or 60 days after mediation has been demanded without resolution of the dispute, demand in writing that the other party file for binding dispute resolution. If such a demand is made and the party receiving the demand fails to file for binding dispute resolution within 60 days after receipt thereof, then both parties waive their rights to binding dispute resolution proceedings with respect to the initial decision.

§ 15.3.4 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

§ 15.4 Arbitration

§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. The Arbitration shall be conducted in the place where the Project is located, unless another location is mutually agreed upon. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

§ 15.4.2 The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

§ 15.4.3 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement, shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

§ 15.4.4 Consolidation or Joinder

§ 15.4.4.1 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially

AIA Document A201 – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:03:53 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (696688eb6a446cd0f3688af0)

similar procedural rules and methods for selecting arbitrator(s).

§ 15.4.4.2 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

§ 15.4.4.3 The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as those of the Owner and Contractor under this Agreement.

AIA Document A201 – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:03:53 EST on 01/13/2026 under Subscription No.20250100228 which expires on 02/08/2026, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.
User Notes: (696688eb6a446cd0f3688af0)

| Submittal Stamp Area |

Contractor stamp

GARMANN MILLER

38 South Lincoln Drive
P.O. Box 71
Minster, Ohio 45865

1156 Dublin Road
Suite 102
Columbus, Ohio 43215

275 Veterans Way
Suite 200
Carmel, Indiana 46032

1690 Broadway
Suite 19-455
Ft. Wayne, Indiana 46802

createm.com

Project name : _____

Contractor name : _____

Contact name : _____

Phone : _____

Architect stamp

Subcontractor

Company : _____

Contact name : _____

Phone number : _____

Submittal # : _____

Date : _____

Description : _____

Consultant stamp

Specification section(s) : _____

- ☐ Product data
- ☐ Shop drawings
- ☐ VOC compliance form
- ☐ Maintenance data
- ☐ LEED MR form
- ☐ Samples
- ☐ Warranty
- ☐ Other : _____

SECTION 00 11 13 - ADVERTISEMENT FOR BIDS

Sealed proposals will be received by Tipp City Seniors, Inc at, 528 North Hyatt Street, Tipp City, Ohio 45371, until February 5, 2026 2:00.00 PM, at which time and place proposals will be opened publicly and read aloud. Proposals received after February 5, 2026 2:00.00 PM will be returned unopened. Proposals shall be for the furnishing of materials and the performance of labor necessary for the:

Tipp City Seniors New Addition

528 North Hyatt Street

Tipp City, Ohio, 45371

All in accordance with the Contract Documents prepared by Garmann/Miller & Associates, Inc., Minster, OH | Columbus, OH | Indianapolis, IN | Ft. Wayne, IN

A Lump Sum bid for the project will be received.

A prebid meeting will be held at 10:00 AM on 1/22/2026 at 528 North Hyatt Street. The pre-bid meeting is not mandatory but bidders are strongly encouraged to attend. The facility will be open for inspection at this time.

A Bid Security in the form of a certified check, cashier's check, irrevocable letter of credit, or surety company bond pursuant to Chapter 1305 of the Ohio Revised code in the amount of 10% of the total bid shall accompany each bid; or a bid guaranty bond in accordance with Chapter 153.571 of the Ohio Revised Code in the amount of 100% of the total bid shall accompany each bid.

Successful Bidders shall conform to the Ohio "Schedule of Prevailing Wages". The bidder may access the Ohio Department of Commerce, Wage & Hour Bureau at its website for current edition of wage rates.

The Contract Documents, including Drawings and Specifications, are on file for public inspection at the office of the Architect: Garmann/Miller & Associates Inc., Phone 419-628-4240: the office of the Tipp City Seniors, Inc; Construction News Corporation, the McGraw Hill-Dodge Plan Room, the Builders Exchange and iSqFt.

Contract Documents may be purchased from DC Reprographics, 1254 Courtland Ave, Columbus, Ohio 43201; www.DCplanroom.com; Phone 614-297-1200. Each Bidder is responsible for shipping cost or providing a shipping number for billing to the bidders account.

Each bid must be submitted in duplicate on a blank form furnished by the Architect, in a sealed envelope. Mark plainly on the outside of the envelope, the project you are bidding on. No bidder may withdraw their bid for a period of sixty (60) days after the bid opening

The Owner reserves the right to reject any or all bids and to waive informalities, irregularities and/or errors in the bids to the extent permitted by law. This includes the right to extend the date and time for receipt of bids.

This notice is posted on the Tipp City Seniors, Inc web site.

Notice can be accessed at: www.tippcityseniors.org.

The Date of this notice: January 14, 2026

By: Tipp City Seniors, Inc

528 North Hyatt Street

Tipp City, Ohio 45371

SECTION 00 31 19
EXISTING CONDITION INFORMATION

PART 1 GENERAL

1.01 EXISTING CONDITIONS

A. Certain information relating to existing surface and subsurface conditions and structures is available to bidders but will not be part of Contract Documents, as follows:

B. Site and Utility Survey: Sheet 1 OF 1 dated 10-07-2024 included in the Drawing set for reference.

C. Geotechnical Report: Entitled, Soil Study for Proposed Building Addition, N. Hyatt Street, Tipp City, Ohio, dated January 6, 2026.
   1. Copy of this report attached following this Section.
   2. This report identifies properties of below grade conditions and offers recommendations for the design of foundations, prepared primarily for the use of Architect.
   3. The recommendations described shall not be construed as a requirement of this Contract, unless specifically referenced in Contract Documents.
   4. This report, by its nature, cannot reveal all conditions that exist on the site. Should subsurface conditions be found to vary substantially from this report, changes in the design and construction of foundations will be made, with resulting credits or expenditures to the Contract Price accruing to Owner.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 00 41 13 - BID FORM

THE PROJECT AND THE PARTIES

TO:

Tipp City Seniors, Inc
528 North Hyatt Street
Tipp City, Ohio 45371

FOR:

Project: Tipp City Seniors New Addition

Project Number: 25059.00
528 North Hyatt Street
Tipp City, Ohio 45371

DATE: _____ (Bidder to enter date)

SUBMITTED BY:

Bidder's Full Name: _____

Address: _____

City, State, Zip: _____

Telephone:_____

Fax No.: _____

E-mail: _____

OFFER

Having examined the Place of The Work and all matters referred to in the Instructions to Bidders and the Contract Documents prepared by Garmann/Miller & Associates Inc. for the above mentioned project, we, the undersigned, hereby offer to enter into a Contract to perform the Work for the Sum of:

Item 1 - Contract A, General Construction - Base Bid:

_____

_____ dollars

All Cash and Contingency Allowances described in Section 01 21 00 are included in the Bid Sum.

We have included the Bid Bond or security deposit as required by the Advertisement, Notice to Bidders, Instructions to Bidders.

This is a Tax Exempt Project.

Builders Risk Insurance is to be furnished by the Owner.

State of Ohio Prevailing Wage Rates, have been included.

ACCEPTANCE

This offer shall be open to acceptance and is irrevocable for sixty days from the bid closing date.

If this bid is accepted by Owner within the time period stated above, we will:

Execute the Agreement within ten (10) days of receipt of Notice of Award.
Commence work within ten (10) days after written Notice to Proceed of this bid.

If this bid is accepted within the time stated, and we fail to commence the Work or we fail to provide the required Bond(s), the security deposit shall be forfeited as damages to Owner by reason of our failure, limited in amount to the lesser of the face value of the security deposit or the difference between this bid and the bid upon which a Contract is signed.

In the event our bid is not accepted within the time stated above, the required security deposit shall be returned to the undersigned, in accordance with the provisions of the Instructions to Bidders; unless a mutually satisfactory arrangement is made for its retention and validity for an extended period of time.

CONTRACT TIME

Owners desired start date: March 1, 2026

Owners desired completion date: October 15, 2026

If this Bid is accepted, we will:

Complete the Work by Date or at an earlier date of _____ (Bidder to enter completion date or time frame prior to completion date listed.)

ADDENDA

The following Addenda have been received. The modifications to the Bid Documents noted below have been considered and all costs are included in the Bid Sum.

Addendum # _____ Dated _____.
Addendum # _____ Dated _____.
Addendum # _____ Dated _____.
Addendum # _____ Dated _____.

BID FORM SUPPLEMENTS

Bid Bond

Noncollusion Affidavit

Contractor's Affidavit

BID FORM SIGNATURE(S)

_____

(Bidder - print the full name of your firm)

was hereunto affixed in the presence of:

_____

(Authorized signing officer)

_____

(Authorized signing officer, Title)

SEALED SUBMISSION:

Bid is to be submitted in Duplicate.

Bid is to be submitted in a sealed envelope containing bid and bid form supplements and addressed as follows:

Prime Contract Bid for:
Tipp City Seniors, Inc
528 North Hyatt Street
Tipp City, Ohio 45371

END OF BID FORM

SECTION 00 45 19 - NON-COLLUSION AFFIDAVIT

STATE OF _____

_____

BID Identification

_____

CONTRACTOR

_____, being first duly sworn, deposes and says that they are _____ (sole owner, a partner, president, secretary, etc.) of

_____, the party making the foregoing BID; that such BID is not made in the interest of or on behalf of any undisclosed person, partnership, company, association, organization, or corporation; that such BID is genuine and not collusive or sham: that said BIDDER to put in a false or sham BID, and has not directly or indirectly colluded, conspired, connived, or agreed with any BIDDER or any one else to put in a sham BID, or that any one shall refrain from bidding; that said BIDDER has not in any manner, directly or indirectly, sought by agreement, communication or conference with any one to fix the BID price of said BIDDER or of any other BIDDER, or to fix any overhead, profit, or cost element of such BID price, or of that of any other BIDDER, or to secure any advantage against the OWNER awarding the contract or anyone interested in the proposed contract; that all statements contained in such BID are true; and, further, that said BIDDER has not, directly or indirectly, submitted his BID price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid and will not pay any fee in connection therewith, to any corporation, partnership, company, association, organization, BID depository, or to any member or agent thereof, or to any other individual except to such person or persons as have a partnership or other financial interest with said BIDDER in his general business.

Signed:

_____

(Bidder - print the full name of your firm)
was hereunto affixed in the presence of:

_____

(Authorized signing officer)

_____

(Authorized signing officer, Title)

Subscribed and sworn to before me this _____ day of _____, 20___.

Seal of Notary

SECTION 00 45 21 - CONTRACTOR'S AFFIDAVIT

State of Ohio

County of _____ , ss:

_____(Name) being first duly sworn, deposes and says that he/she is

the _____(Title) of _____(Name of Contractor)

with offices located at _____(Address of Contractor),

and its duly authorized representative, states that effective

the _____ day of _____ 20__ , (date of submission of bid)

_____ (Name of Contractor):

( ) is charged with delinquent personal property taxes on the general list of personal property as set forth below:

County	Amount (include total amount, penalties and interest)
	$
	$
	$
	$

( ) is not charged with delinquent personal property taxes on the general list of personal property in any Ohio county

_____ (Affiant)

Subscribed and sworn to before me this _____ day of _____, 20___.

Seal of Notary

SECTION 00 50 00
CONTRACTING FORMS AND SUPPLEMENTS

PART 1 GENERAL

1.01 CONTRACTOR IS RESPONSIBLE FOR OBTAINING A VALID LICENSE TO USE ALL COPYRIGHTED DOCUMENTS SPECIFIED BUT NOT INCLUDED IN THE PROJECT MANUAL.

1.02 AGREEMENT AND CONDITIONS OF THE CONTRACT

A. See Section 00 73 00 - SUPPLEMENTARY CONDITIONS for the Supplementary Conditions.

B. The Agreement is based on AIA A101.

C. The General Conditions are based on AIA A201.

D. See Section 00 73 00 AIA A201 - SUPPLEMENTARY CONDITIONS

1.03 FORMS

A. Use the following forms for the specified purposes unless otherwise indicated elsewhere in Contract Documents.

B. Bond Forms:
   1. Performance and Payment Bond Form: In Compliance with the Ohio Revised Code.

C. Contractors Bidding Information Form: 00 41 13.01 Contractor Bidding Information

D. Non-Collusion Affidavit: 00 45 19 Non-Collusion Affidavit

E. Contractor's Affidavit: 00 45 21 Contractor's Affidavit

F. Post-Award Certificates and Other Forms:
   1. Contracting Submittal Form: 01 33 23 Contractor Submittal Form.
   2. Application for Payment Forms: AIA G702 with AIA G703 (for Contractors).

G. Clarification and Modification Forms:
   1. Request for Information Form: Garmann/Miller Architect and Engineers, Request for Information Form attached as Section 00 63 13.
   2. Architect's Supplemental Instructions Form: AIA G710.
   3. Construction Change Directive Form: AIA G714.
   4. Request for Proposal Form: AIA G709.
   5. Change Order Form: AIA G701.

H. Closeout Forms:
   1. Certificate of Substantial Completion Form: AIA G704.
   2. Conditional Lien Waiver and Release Upon Progress Payment form: Section 00 61 16.

1.04 REFERENCE STANDARDS

A. AIA A101 - Standard Form of Agreement Between Owner and Contractor where the basis of Payment is a Stipulated Sum; 2007.

B. AIA A201 - General Conditions of the Contract for Construction; 2007.

C. AIA G701 - Change Order; 2001.

D. AIA G702 - Application and Certificate for Payment; 1992.

E. AIA G703 - Continuation Sheet; 1992.

F. AIA G704 - Certificate of Substantial Completion; 2000.

G. AIA G710 - Architect's Supplemental Instructions; 1992.

H. AIA G714 - Construction Change Directive; 2007.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 00 61 16 - CONDITIONAL LIEN WAIVER AND RELEASE UPON PROGRESS PAYMENT

Known by all those present:

Upon receipt by the undersigned of a check from the Contractor in the amount of:
$_____

Payable to: _____,

and when the check has been properly endorsed and had been paid by the bank upon which it is drawn, document becomes effective to release and satisfy all lien rights, claims, or demands of any kind whatsoever.

Which the undersigned now has against, Tipp City Seniors, Inc, its successors and assigns on the job site located at: 528 North Hyatt Street, Tipp City, Ohio 45371.

This release covers a progress payment for labor, material, and equipment furnished on the Tipp City Seniors New Addition.

This release is valid through _____ (date of submittal) and does not cover retainage.

The undersigned warrants that they either have already paid or will use the monies they receive from the progress payment, to promptly pay in full for all of the labor, subcontractors, and suppliers for all their work, material, equipment or services provided for or to the: Tipp City Seniors New Addition, up to the date of this waiver.

Date: _____

Company: _____

Signature: _____

By (name & title): _____

Sworn before me in the State of Ohio, in the County of _____,

subscribed and sworn before me this _____ Day of _____, 20_____.

Notary Republic Signature: _____

Notary Republic Name: _____

My commission expires on: _____

(seal & stamp)

END OF SECTION

SECTION 00 73 00 - SUPPLEMENTARY CONDITIONS

MODIFICATIONS TO AIA

These Supplementary Conditions amend or supplement the General conditions of the Contract for Construction (AIA Document A201, 2017 edition) and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemental remain in full force and effect.

The terms used in these Supplementary Conditions which are defined in the General Conditions of the Contract of Construction (AIA Document A201, 2017 Edition) have the meanings assigned to them in the General Conditions.

ARTICLE 1 - GENERAL PROVISIONS

Paragraph 1.1 Basic Definitions: Add the following paragraphs

1.1.9 Furnish: The term 'furnish' shall mean to purchase and deliver product to the site ready for installation.

1.1.10 Install: The term 'install' shall mean to take furnished product and assemble, erect, secure in place, connect in operation as applicable.

1.1.11 Provide: The term 'provide' shall mean to furnish and install.

Paragraph 1.2 Correlation and Intent of the Contract Documents:

Add the following paragraph 1.2.1.1

1.2.1.1 In the event of inconsistencies within or between the Contract Documents, the Contractor shall provide the better quality or greater quantity of Work and shall comply with the stricter requirements.

ARTICLE 2 - OWNER

Paragraph 2.1.2.1; Add the following:

The Owner shall prepare a Notice of Commencement for the Project as required by the Ohio Revised Code and provide a copy to the Contractor.

Add paragraph 2.1.3

2.1.3 The Owner shall mean:

Tipp City Seniors, Inc
528 North Hyatt Street
Tipp City, Ohio 45371

Paragraph 2.3.4: Modify to read

2.3.4 The owner shall not be responsible for furnishing surveys or other information as to the physical characteristics, legal limitations, or utility locations for the Project site, except as included in the Contract Documents. The Contractor shall confirm the location of each utility.

ARTICLE 3 - CONTRACTOR

Article 3.2 Review of Contract Documents and Field Conditions by Contractor.

Add the following paragraph 3.2.2.1

3.2.2.1 If the contractor finds any perceived conflict, error, omission or discrepancy on, or between the drawings, specifications, or any of the contract documents, the contractors, before proceeding with the work, shall submit a request to the architect for an interpretation or clarification, the contractor shall be responsible for the prompt delivery of such request.

The architect shall respond to the requests for interpretation of the contract documents within three (3) business days.

3.2.2.2 Any interpretation of the Contract Documents made by any party other than the architect or in any manner other than writing, shall not be binding and the contractor shall not rely upon any such interpretation.

Article 3.4 Labor and Material

Paragraph 3.4.2 add the following at the end of the paragraph:

See Substitution Procedures in Section 01 60 00 - Product Requirements for additional requirements.

Article 3.5 Warranty

Add the following to paragraph 3.5.1

The contractor shall warranty and guarantee that all work is in conformity with the Contract Documents and free from defects in workmanship, materials and equipment for a period of one (1) year in addition to other warranties and guarantees specified in the Contract Documents. The performance bond will remain in effect during the warranty period

The warranty and guarantee time period shall commence on the date that the Certificate of Substantial Completion is issued by the architect unless otherwise provided in writing.

The warranty and guarantee provided in this article shall be in addition to and not limitation of any other warranty and guarantee or remedy provided by law or by the Contract Documents.

Should defects in the work become apparent within the warranty and guarantee period, the owner shall promptly notify the contractor in writing and provide a copy of the notice to the architect. Within ten (10) days of receipt of the notice, the contractor shall visit the project in the company of the owner to determine the extent of the defects and shall promptly repair or replace the defective work, including adjacent work damaged as a result of such defects and as a result of remedying the defects whether or not such adjacent work was originally provided by the contractor. The contractor shall be responsible for the cost of temporary materials or equipment required during the repair or replacement of the defective work.

If the defective work is considered by the Owner to be an emergency, the owner may require the contractor to visit the project within one (1) day of receipt of the notice.

Work which is repaired or replaced by the contractor shall be inspected and accepted by the Owner. The repaired and replaced work shall be guaranteed by the contractor for one (1) year from the date of acceptance by the owner.

Article 3.6 Taxes

Add the following:

The Contractor acknowledges that the Owner is a political subdivision of the State of Ohio or tax exempt organization and is exempt from state sales, use and commercial activity taxes. Upon written request, the Owner will provide the Contractor with an applicable certificate of exemption.

Article 3.7 Permits, Fees and Notices

Omit paragraph 3.7.1 and add the following:

3.7.1 The Owner shall secure and pay for the Certificate of Plan Approval and Plumbing Approval as required by the Ohio Building Code. The owner will pay for the sprinkler and fire alarm fees as required by the Ohio Building Code with the sprinkler contractor and the fire alarm contractor submitting drawings and calculations required (seven sets minimum) to the architect. The contractor shall secure and pay for all other building permits, tap fees, user fees, and governmental fees, licenses and inspections. The contractor is to verify the exact cost of permits, fees, licenses and inspections. No additional cost or change orders will be permitted because of causal or approximated fees or escalation of fees occurring after award of contract.

Article 3.11 Documents and Samples at the Site

Add the following paragraph 3.11.1

3.11.1 The Contractor shall maintain readily accessible to the authorities having jurisdiction, the Architect, and the Owner drawings, project manual and related documents approved by appropriate building departments and authorities having jurisdiction.

Article 3.12 Shop Drawings, Product Data and Samples

Add the following paragraph 3.12.11

3.12.11 Refer to Section 01 30 00 Administrative Requirements for additional requirements.

Article 3.13 Use of the Site

Add the following paragraphs

3.13.1 Damage to road, features, or the grounds, resulting from hauling, storage of materials, or other activities connected with the work shall be repaired by the contractor at his expense to the satisfaction of the Architect.

3.13.2 The contractor and any entity for whom the contractor is responsible shall not erect any sign at the project site without the consent of the owner.

Article 3.16 Access to Work

Add the following to paragraph 3.16

The contractor shall provide proper facilities for such access and observation.

Add the following paragraph 3.16.1

3.16.1 The Contractor shall provide access to the work in preparation and progress as required for special inspection required by the building department or authority having jurisdiction.

ARTICLE 4 - ARCHITECT

Article 4.1.1

Add the following paragraph 4.1.1.1

4.1.1.1 Architect shall mean: Garmann/Miller and Associates, Inc., 38 South Lincoln Drive, Minster, Ohio 45865

ARTICLE 8 - TIME

Add the following to Article 8.4

8.4.Liquidated Damages

8.4.1 Upon Failure to have all work substantially completed within the time period stated, or failure to have the applicable portion of the work substantially complete upon any milestone date, the Owner shall be entitled to retain or recover from the Contractor, as Liquidated Damages, and not as a penalty, the applicable amount set forth in the following table for each and every calendar day thereafter until Contract Completion, unless an extension of time is granted in accordance with the Contract Documents.

Contract Amount	Dollars per Day
less than $50,000.00	$300.00
More than $50,000.00 to $150,000.00	$500.00
More than $150,000.00 to $500,000.00	$1000,00
More than $500,000.00 to $2,000,000.00	$2,000.00
More than $2,000,000.00 to $5,000,000.00	$3,000.00
More than $5,000,000.00	$4,000.00

8.4.2 The amount of Liquidated Damages is agreed upon by and between the Contractor and the Owner because of the impracticality and extreme difficulty of ascertaining the actual amount of damage the Owner would sustain.

ARTICLE 9 PAYMENT AND COMPLETION

ARTICLE 9.3 - **Applications for Payment**

Add the following to Article 9.3.1

9.3.1.3 The form of Application for Payment will be a notarized AIA Document G702, Application and Certificate for Payment with AIA Document G703, Continuation Sheet. Applications for payment shall be made at approximately 30 day intervals. The contractor shall submit in triplicate the Application for Payment and Continuation Sheet. The Continuation Sheet (G703) shall be prepared the same as the Schedule of Values.

9.3.1.4 Contractor shall submit with each Application for Payment a notarized affidavit that payroll, bills for equipment, material and any other indebtedness connected with the work for which the previous Applications for Payment submitted and the owner might any way be responsible, have been paid. Also, submit release of liens arising out of the contract from each subcontractor, supplier, material person and laborer of the contract.

9.3.1.5 Schedule of Values (AIA Form G703 - Application and Certificate for Payment Continuation Sheet) shall utilize the table of contents of the Project Manual to identify each line item with title and number of the specification Section. Each line item including subcontracted work shall be shown with separate amounts for labor and material.

9.3.1.5.1 Identify on separate line items; Bonds, Insurance, Permits, Allowances, Site Mobilization, and Project Closeout (punch list, attic stock, project record drawings, training, final cleaning).

9.3.1.5.2 If the project is of sufficient size or nature, the Schedule of Values various items shall be subdivided into areas or units when requested by the Architect.

9.3.1.5.3 The architect reserves the right to use the approved Schedule of Values to determine the cost or credit resulting from any changes to the Work.

9.3.1.6 Labor Payments - Partial payments for labor performed under lump sum contract shall be made at the rate of 92 percent of the amount invoiced through the Application for Payment which shows the total contract completion at 50 percent or greater. After the contract is 50 percent complete, as evidenced by payments in the amount at least 50 percent of the labor contract price to the contractor, no additional funds will be retained. Retained funds will be deposited accordance to Paragraph 9.3.1.8

9.3.1.7 Material Payments - Partial payments for materials delivered on the site, or other point in the vicinity of the Project, or otherwise stored, as approved by the Architect, under lump sum contract shall be made at the rate of 92 percent of the amount invoiced. Payment for material incorporated into the project shall be made at the rate of 100 percent of scheduled value. Retained funds will be deposited accordance to Paragraph 9.3.1.8. The balance such invoiced cost shall be paid when such material is incorporated into and becomes part of the Project.

9.3.1.8 All funds retained shall be deposited in an escrow account with a bank in the state in accordance with the term as, and conditions provided in an escrow agreement executed by the contractor, the Owner and the applicable bank.

9.3.1.9 When the project is complete and there exists no other reason to withhold retainage, the retained percentages held in connection with such portions shall, upon request of the contractor, be released from escrow and paid to the contractor, withholding that amount necessary to assure completion. The amount of fund retained to assure completion of the work shall not be less than two (2) times the value of the work as determined by the Architect and Owner.

Add the following to paragraph 9.3.2

9.3.2.1 Where it is to the owner's best interest, materials stored off site will receive payment provided the contractor furnished to the owner with the monthly application for payment the following:

A list of the materials consigned to the project giving the place of storage, together with copies of invoices and reasons why materials cannot be delivered to the site.

Certification that all items are tagged for delivery to the project and that they will not be used for any other purpose.

Evidence of adequate insurance covering the material stored naming the owner as additionally insured.

The owner and architect shall have the right to inspect all materials stored.

When payment is allowed on account of material delivered on the site of the work or in the vicinity thereof or under the possession and control of the contractor but not yet incorporated therein, such material shall become the property of the owner, but if such material is stolen, destroyed, or damaged by casualty before being used, the contractor will be required to replace it at the contractor's expense

Add the following to paragraph 9.3.3

9.3.3.1 No materials or supplies for the work shall be purchased by the contractor or any subcontractor subject to any chattel mortgage, under conditional sale contract or other agreement by which an interest is retained by the seller.

ARTICLE 11 INSURANCE AND BONDS

11.1 - Contractor's Insurance and Bonds

Add the following to Article 11.1.1:

11.1.1.1 A commercial general liability policy and business automobile liability policy, separately or combined, shall be maintained to provide insurance as set forth in paragraph 11.1.1.

11.1.1.2 Such commercial general liability and business automobile liability insurance may be either combined single limits or split limits as provided below. An umbrella or excess liability policy may be used in combination with the commercial general liability and business automobile insurance to meet such limits:

Contracts in the maximum of $100,000 or less shall require coverage in the amount of not less than $1 million general aggregate and per occurrence.

Contracts in excess of $100,000 but not more than $5 million shall require coverage in the amount of not less than $3 million general aggregate and per occurrence.

Such policies shall be endorsed to provide that the general aggregate limit applies separately to each of the insured contractor's projects.

11.1.1.3 If commercial general liability and business automobile liability insurance is written with split limits, the following minimum limits shall be provided:

Contracts in the amount of $100,000 or less shall require coverage in the amount of not less than $500,000 for injuries, including death, to one person, and $1 million per occurrence and $500,000 property damage.

Contracts in excess of $100,000 but not more than $5 million shall require coverage in the amount of not less than $1 million for injuries, including death, to one person, and $1 million per occurrence and $1 million property damage, together with an umbrella or excess liability policy of not less than $2 million per occurrence.

11.1.1.4 For any demolition, blasting, excavating, tunneling, shoring or similar operations, the contractor shall provide and maintain property damage liability

insurance with a limit of liability equal to such limit as specified in the application sections of paragraphs 11.1.1.2 and 11.1.1.3.

11.1.1.5 Insurance polices shall be written on an occurrence basis only.

11.1.1.6 Products and completed operation coverage shall commence with the certification of final Certificate of Payment to the Contractor and extend for not less than two years beyond that date.

11.1.1.7 The Owner shall be provided a copy of the policy and named as a certificate holder on the policies of insurance which are maintained by the Contractor. The Owner shall be notified of any change in policy coverage.

Omit paragraph 11.1.2 and substitute the following:

11.1.2 The contractor shall furnish surety bonds covering faithful performance of the contract and payment of obligations arising there under. Cost of surety bonds shall be included in contract sum. The amount of each bond shall be equal to one hundred percent (100%) of the contract sum. Bond shall be in a form in compliance with the Ohio Revised Code 153.57.

11.1.2.1 If at any time the owner for justifiable cause shall be dissatisfied with a surety, or sureties, the contractor shall within five (5) days after notice from the owner, substitute an acceptable bond (or bonds) in such form and sum by another surety or sureties as may be satisfactory to the owner. The premiums on such bond shall be paid by the contractor. No further payments shall be deemed due nor shall be made until the new surety or sureties shall have furnished a acceptable bond to the owner.

11.2 Owners Insurance

11.2.1.1 - Owners Property Insurance Policy (Builders Risk): The Owner shall provide and maintain, during the progress of the work and until the execution of the certificate of substantial completion by the architect, a Property (builder's risk) Insurance Policy to cover all work in the course of construction including falsework, temporary buildings and structures, and materials used in the construction process that are stored on site. Such insurance shall be on a "Risk of Direct Physical Loss" form policy and shall insure against the perils of fire and extended coverage and physical loss or damage including, but not limited to, theft, vandalism, malicious mischief, earthquake, tornado, lightning, explosion, breakage of glass, flood, collapse and water damage. It shall also include debris removal, demolition occasioned by enforcement of an applicable legal requirement, and shall cover reasonable compensation for the state's services and expenses required to limit further loss.

11.2.1.2 - Coverage must include provision to pay the reasonable extra costs of expediting temporary and/or permanent repairs to, or permanent replacement of damaged property. This shall include overtime wages and the extra cost of "express" or other means for rapidly transporting materials and supplies necessary to such repair or replacement.

11.2.1.4 - Coverage for other perils may be required if specified in the special conditions.

Unless otherwise specified in the contract documents, the builder's risk policy shall be written in the amount equal to 100 percent of the contract price, including landscaping, paving and other site work.

11.2.1.5 - The builder's risk policy shall specifically permit and allow for partial occupancy by the owner prior to acceptance of the project by the architect.

11.2.1.6 Property insurance provided by the Owner shall not cover any tools, apparatus machinery, scaffolding, hoist, forms, staging, shoring, and other similar items commonly referred to construction equipment that may be on site and the capital value of which is not included in the Work, nor shall such insurance cover any material or equipment before these materials and equipment are incorporated into the Work. The

contractor shall make its own arrangements for any insurance it may require for such construction equipment, materials, and equipment.

ARTICLE 15 - ARBITRATION

15.4 Arbitration: Delete this article. Arbitration is not an acceptable form of binding disputeresolution for this project.

ARTICLE 16 PAYROLL AND WAGE DETERMINATION

Add the following

16.1 State of Ohio Prevailing Wage Determination

16.1.1 The Ohio Prevailing Wage Rates may be accessed from the Ohio Department of Commerce, Wage & Hour Bureau, at its website for current edition of wage rates.

16.2 The following wage information shall be furnished to the prevailing wage coordinator, as designated by the owner.

16.2.1 Every contractor and/or subcontractor as soon as they begin work under this contract shall furnish to the prevailing wage coordinator, a schedule of dates during the life of the contract for which they will pay wage to employees of the project. They shall also deliver to the prevailing wage coordinator monthly two (2) certified copies of his payroll for the project.

16.2.2 Each report (monthly) shall state the period covered and exhibit for each employee paid on the project, their name, current address, social security number, number of hours worked each day on the project during the reporting period, the total hours each week on the project as well as the total work on other projects, their hourly rate, his job classification, fringe payment, all deductions from their wages and net pay.

16.2.3 Each report shall also have certification executed by the contractor, subcontractor, or duly appointed age thereof. It shall recite that the payroll is correct and complete and that the rate rates shown are not less than those required by the contract. It shall also state the name of the union or plan to whom the withheld or unpaid fringes are to be paid. The first report shall also list each fringe and state if it is paid as cash to the employee or to named plan.

16.2.4 Upon final completion and prior to final payment, the contractor will execute, deliver, and require its subcontractors to execute and deliver to the prevailing wage coordinator an affidavit stating that the contractor/subcontractor has fully complied with Section 4115.03 to 4115.16 Ohio Revised Code. The contract sum will not be increased because of increases in the prevailing wages or wage rates.

GENERAL NOTES

CONDITIONS PRECEDENT FOR EXECUTION OF AGREEMENT

THE FOLLOWING ITEMS SHALL BE FURNISHED ELECTRONICALLY:

Declaration of Insurance, including property insurance (builders risk)

Ohio Workers Compensation Certificate

A Contract Cost Breakdown Showing itemized Labor & Material amounts for the Total Contract Price

Performance and Payment Bond, Power of Attorney for the bonding agent.

A Certificate of Compliance issued by the Department of Insurance showing the Bonding Co. is licensed to do business in the State of Ohio.

Financial Statement of Bonding Co.

DOCUMENTS REQUIRED AFTER ISSUANCE OF NOTICE TO PROCEED

The architect shall issue a notice to proceed which shall establish the date for commencement of the project time. The contractor will, within 10 days of the date of the Notice to Proceed, furnish the architect ELECTRONICALLY:

A Schedule of Values (AIA Document G703, Continuation Sheet)

A Time Schedule of the Work.

A list of proposed Sub-contractors.
A list of Material Suppliers.
An estimated schedule of monthly payments.

DISCRIMINATION AND INTIMIDATION

The prohibition against discrimination and intimidation on account of race, creed, or color, and the provisions as to forfeitures to be applied in the event of violation of contract regarding same, as contained in sections 153.59 and 153.60, and sections 4112.01 through 4112.99, inclusive, of the Revised Code of Ohio, shall apply to all contracts entered into in conjunction with the work.

END OF SECTION

GARMANN MILLER

Division 01

General Requirements

SECTION 00 22 13 - SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

MODIFICATIONS TO AIA A701

Article 2 Bidder's Representations

Add the following to Article 2

2.2 A prebid meeting will be held at 10:00 AM on 1/22/2026 at 528 North Hyatt Street. The pre-bid meeting is not mandatory but bidders are strongly encouraged to attend. The facility will be open for inspection at this time.

Article 3 Bidding Documents

3.1 Distribution

Change Paragraphh 3.1.3 as follows

Bidding documents will be issued directly to sub-bidders as offered in the Notice to Bidders.

3.2 Modification or Interpretation of Bidding Documents

Add Paragraph 3.2.1.1 as follows

3.2.1.1 Each Bidder is responsible for calling to the attention of the Architect any ambiguities, inconsistencies, errors, or omissions which may occur in the documents for their part of the Work. If Bidder fails to request clarification, the bidder will be expected to overcome such conditions without additions to the bid amount.

Add Paragraph 3.2.2.1 as follows

3.2.2.1 Clarification or interpretation can be made via fax, 419-628-4299 or telephone, 419-628-4240 or email to Project Manager; Email

3.4 Addenda

Delete paragraph 3.4.3 and substitute the following

3.4.3 If an addendum is issued within 72 hours prior to the published time for the opening of bids (excluding Saturdays, Sundays, and legal holidays), the the time for opening of bids shall be extended one (1) week with no further advertising required.

Article 4 Bidding Procedures

4.1 Preparation of Bids

Add Paragraph 4.1.1.1

Any substantial change, alteration or wording of the bid form may cause a bid to be rejected as not responsive.

Change Paragraph 4.1.3 as follows

4.1.3 Sum shall be expressed in both words and numbers and in numbers only where no space is provided for words. In case of discrepancy, the amount written in words shall govern.

Add paragraph 4.1.5.1 and 4.1.5.2 as follows

4.1.5.1 A blank entry or an entry of "No Bid", "N/A" or similar entry on any alternate will cause a bid to be rejected as non responsive if that alternate is selected.

4.1.5.2 If an alternate is not selected and an entry of "No Bid", "N/A" or similar entry for the alternative is listed, this action, by itself, will not render the bid as non responsive.

Add Paragraph 4.1.8 as follows

4.1.8 The bidder shall include a signed copy of the Non-Collusion Affidavit and Contractor's Affidavit with their bid, a copy is included in the Project Manual.

4.2 Bid Security

Delete paragraphs 4.2.1, 4.2.2, 4.2.3, and 4.2.4 and substitute the following:

4.2.1 Each bid will be accompanied by a bid security in accordance with Section 153.54 (B), Ohio Revised Code, in the amount of the base bid plus add alternates or:

4.2.2 A signed bond in the form of a certified check, cashier's check or letter of credit, as provided in Section 153.54 (C), ORC. The amount of the certified check, cashier's check or letter of credit shall be equal to ten (10) percent of the base bid plus add alternates or:

4.2.3 Bid guaranty and contract bond in accordance with Chapter 153.571 of the ORC in the amount of 100 percent of the total base bid plus add alternates. If the dollar space on the bid guaranty is left blank, the penal sum will be the full amount of the base bid plus add alternates, stated in dollars and cents. A percentage is not acceptable, pursuant to Section 153.571, ORC.

4.2.4 The bond shall serve as an assurance that the bidder will, upon acceptance of the bid, comply with all conditions precedent for contract execution, within the time specified.

4.2.5 The bond must be issued by a surety authorized by the Department of Insurance to transact business in Ohio. The bond must be issued by a surety capable of demonstrating a record of competent underwriting, efficient management, adequate reserves, and sound investments. These criteria will be met if the surety currently has an A.M. Best Company Policy Holders Rating of "A+", "A" or "A-" or better and has or exceeds the Best Financial Size Category of Class VII. The bond must be signed by an authorized agent, with Power of Attorney, from a surety.

4.2.6 Bond will be returned to all unsuccessful bidders after contract is awarded. If used, a certified check, cashier's check or letter of credit will be returned to the successful bidder upon providing the bond required by Section 153.54 (C), ORC.

4.2.7 If for any reason, other than as authorized by Article 4.4, Modifications or Withdrawal of Bid, the bidder fails to enter into a contract, and the owner awards the contract to the next lowest responsive and responsible bidder, the bidder who failed to enter into a contract shall be liable to the owner for the difference between the bidder's bid and the bid of the next lowest responsive and responsible bidder, or for a penal sum not to exceed (10) percent of the bid amount, whichever is less, pursuant to Section 153.54 ORC.

4.3 Submission of Bids

Add Paragraph 4.3.1.1 as follows

4.3.1.1 Bids shall be submitted on Bid Form included in Project Manual. Submit paper copies of bid(s) in duplicate.

Add Paragraph 4.3.6 as follows

4.3.6 All bids are valid for (60) days after the opening of bids. A bid may be extended thereafter upon mutual agreement, in writing, between the owner and contractor. Awards beyond the sixty (60) day period shall be reviewed for increased cost of the contract only if the cause for delay is no fault of the contractor and substantiated.

4.4 Modification or Withdrawal of Bid

Delete paragraph 4.4.3 and substitute the following:

4.4.3 A bidder may withdraw a bid from consideration after the bid opening if the bid amount was substantially lower than the amounts of other bids, providing the bid was submitted in good faith, and the reason for the bid amount being substantially lower was a clerical mistake as opposed to a judgement mistake, and was actually due to an unintentional and substantial arithmetic error or an unintentional omission of a substantial quantity of work, labor or material made directly in the compilation of the bid amount. Request to withdrawal bid must be made in writing filed with the owner and architect within two business days after conclusion of the bid opening.

Article 5 Consideration of Bids

5.2 Rejection of Bids

Add paragraphs 5.2.1, 5.2.2 and 5.2.3 as follows

5.2.1 If the lowest Bidder is not responsive or responsible, the Owner shall reject such bid and shall notify the Bidder the reasons for the finding.

5.2.2 A Bidder notified that he is not responsive or responsible may object to the Owner's decision by filing a written request for reconsideration, which must be received by the Owner within five (5) days of the date of the notice from the Owner.

5.2.3 Upon receipt of a timely request, the Owner shall meet with the Bidder to listen to the Bidder's objections.

a) No award of contract shall become final until the Owner has met with all Bidders who have filed timely request for reconsideration.

b) If all request for reconsideration are rejected in the Owner's discretion, the award of contract shall become final, or the Owner, in its discretion, may reject all bids.

c) If a request for reconsideration is not rejected, any procedures for the determination of the lowest responsible Bidder that have not already been completed concerning the applicable Bidder shall be completed. Following the completed procedures and evaluation of the Bidder, the Bidder will be notified of the findings.

5.3 Acceptance of Bid (Award)

Add paragraphs 5.3.1.1, 5.3.1.2 and 5.3.1.3

5.3.1.1 Pursuant to Section 153.08, ORC, the contract will be awarded to the lowest responsive and responsible bidder.

5.3.1.2 In determining the lowest Bidder, the owner shall consider the base bid and any selected alternates which the owner determines to accept. The Owner shall have the right to select alternates in any combinations. The lowest bidder will be based on the lowest base bid plus selected alternates, and may result in an award to a Bidder other than the Bidder that submitted the lowest base bid. Voluntary alternates will not be considered in determining the lowest amount.

5.3.1.3 The Bidder acknowledges that although there is an estimate for the cost of the Project, the market conditions may and frequently do result in the estimate being different from the sum of the bids received, either higher or lower. The Bidder understands that the Owner has included alternates, which include deduct and add alternates, to give flexibility in building the Project with funds available. The Bidder further understands and acknowledges that the use of add and deduct alternates is a long held customary practice in the construction industry in the State of Ohio. The Bidder also acknowledges that the Owner will not make a decision about what alternates on which to base the award of contracts until the bids are received, and the Owner can compare its available funds with the base bids and the cost or savings from selecting different alternates.

Delete paragraph 5.3.2 and substitute the following

5.3.2 Subject to the right of the owner to reject each and every bid, the owner will determine the lowest responsive bid by taking into consideration not only the amount of the bid but such of the following criteria as it, in its discretion, deems appropriate and may give such weight thereto as it deems appropriate in determining the responsibility of the bidder:

The bidder's financial ability to complete the contract.

The bidder's experience with projects of similar size and scope and more complex projects.

The conduct and performance of the bidder on previous contracts completed in a timely manner.

The bidders facilities and equipment.

The adequacy, in numbers and experience, of the bidders work force to complete the contract successfully on time and on budget.

The ability of the bidder to execute the contract properly.

The evaluation of the bid substantially below the median of other bids.

Add paragraphs 5.3.3, 5.3.4 and 5.3.5

5.3.3 The Owner shall obtain from the lowest Bidder any information the owner deems appropriate to the consideration of factors showing responsibility. The failure to submit requested information on a timely basis may result in the determination that the bidder is not responsible.

5.3.4 The Bidder authorizes the Owner and its representatives to contact owners, construction managers, contractors, and design professionals on projects on which the Bidder has worked and authorizes and requests such owners, construction managers, contractors, and design professionals to provide a candid evaluation of Bidder's performance. By submitting a bid, the Bidder agrees that if he or any person at his urging, directly or indirectly, brings action against any of such owners, construction managers, contractors, and design professionals or their employees as a result of or related to such candid evaluation and such action is not successful, the Bidder will reimburse such owners, design professionals and/or their employees for all legal fees and expenses incurred by them that are related to such legal action, including the cost of collection. This obligation is expressly intended for the benefit of such owners, construction managers, contractors, design professionals and their employees.

5.3.5 The number of consecutive calendar days required to complete the work shall be considered by the owner in determining the lowest and responsive bidder.

Article 7 Performance Bond and Payment Bond

7.1 Bond Requirements

Delete paragraphs 7.1.1, 7.1.2, 7.1.3, 7.1.4 and substitute the following:

7.1.1 The bidder shall furnish bonds covering the faithful performance of the contract and payment of all obligations arising thereunder.

7.1.2 Prior to award of contract, successful bidders who provided a cashier's check, certified check or letter of credit as bid security shall submit a contract bond in the form of a performance and payment bond in an amount equal to 100% of the contract sum. The performance and payment bond must be signed by an authorized agent of an acceptable surety bonding company and by the bidder. Bond must be issued by a surety company authorized by Ohio Department of Insurance to transact business in the State of Ohio. The bond shall be issued by a surety company which can adequately demonstrate a record of competent underwriting, efficient management, adequate reserves and soundness of investments. These criteria will be met if the surety currently has an A.M. Best Company Policyholder Rating of "A+", "A", or "A-" or better and has or exceeds the Best Financial Size Category of Class VII.

7.1.4 Bond must be countersigned by an Ohio resident agent if bond is issued by an out-of-state agent.

7.1.5 Performance and payment bond must be supported by credentials showing power of attorney and corporate seals to each copy.

Bonds shall remain in effect for 12 months after date of substantial completion is issued by the owner. Certificate by bonding company of compliance is required prior to final acceptance of project.

END OF SECTION

SECTION 01 11 00
SUMMARY OF WORK

PART 1 GENERAL

1.01 PROJECT

A. Project Name: Tipp City Seniors New Addition

B. Owner's Name: Tipp City Seniors, Inc

C. Architect's Name: Garmann/Miller & Associates Inc.

D. The Project consists of the construction of a single story, slab on grade, wood framed addition to the Tipp City Seniors Center. Work includes extension of existing sprinkler system, new floor drains with sanitary and vent system, gas piping for mechanical equipment, new condensing units and furnaces, ductwork, refrigerant piping and electrical work.

E. The project is a signature project for the Owner and construction of the highest quality facility is vitally important in this respect, each contractor assumes a position of trust confidence in the performance of its duties to the Owner and shall perform its work on the project with the highest degree of competence, diligence, cooperation and workmanship.

1.02 CONTRACT DESCRIPTION

A. Contract Type: A single prime contract based on a Stipulated Price as described in Document 00 50 00 - Contracting Forms and Supplements.

1.03 WORK BY OWNER

A. Owner will supply the following for installation by Contractor:
   1. Soap Dispensers.
   2. Paper Towel Dispensers.
   3. Toilet Paper Dispensers.

1.04 SALVAGE BY CONTRACTOR

A. Contractor shall remove and store the following, for later reinstallation by Contractor:
   1. Existing windows noted on demolition plan.

1.05 OWNER OCCUPANCY

A. Owner intends to occupy the Project upon Substantial Completion.

B. Schedule the Work to accommodate Owner occupancy.

1.06 CONTRACTOR USE OF SITE AND PREMISES

A. Provide access to and from site as required by law and by Owner:

B. Keep all exits required by code open during construction period; provide temporary exit signs if exit routes are temporarily altered.

C. Existing building spaces may not be used for storage.

D. Limit disruption of utility services to hours the building is unoccupied.

1.07 WORK SEQUENCE

A. The Owner intends to award contracts soon after the receipt of bids.

B. Coordinate construction schedule and operations with Owner.

1.08 CONTRACT NO. A - GENERAL CONSTRUCTION

A. Provide all Work except Work specifically assigned to other contractors in this Section.

THIS IS A TAX EXEMPT PROJECT.

1.09 ESTIMATE OF CONSTRUCTION COST

A. The total estimate of construction cost is Eight Hundred Fifty Five Thousand Dollars ($855,000)

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 20 00
PRICE AND PAYMENT PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Procedures for preparation and submittal of applications for progress payments.

B. Documentation of changes in Contract Sum and Contract Time.

C. Change procedures.

D. Procedures for preparation and submittal of application for final payment.

1.02 RELATED REQUIREMENTS

A. Section 00 50 00 - Contracting Forms and Supplements: Forms to be used.

B. Section 00 52 13 - AIA A101 Standard Form Of Agreement: Contract Sum, retainages, payment period, monetary values of unit prices.

C. Section 00 72 13 - AIA A201 General Conditions: Additional requirements for progress payments, final payment, changes in the Work.

D. Section 00 73 00 - Supplementary Conditions: Percentage allowances for Contractor's overhead and profit.

E. Section 01 21 00 - Allowances: Payment procedures relating to allowances.

1.03 SCHEDULE OF VALUES

A. Submit a printed schedule on AIA Form G703 - Application and Certificate for Payment Continuation Sheet.

B. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit draft to Architect for approval.

C. Forms filled out by hand will not be accepted.

D. Submit Schedule of Values electronically within 15 days after date of Owner-Contractor Agreement.

E. Format: Utilize the Table of Contents of this Project Manual. Identify each line item with number and title of the specification Section. Including:
   1. Bonds
   2. Insurances
   3. Permits
   4. Allowances
   5. Mobilization
   6. Project Closeout (punch lists, attic stock, project record drawings, training. final cleaning).

F. Each line item number shall list the material and labor cost.

G. Include within each line item, a direct proportional amount of Contractor's overhead and profit.

H. Revise schedule to list approved Change Orders, with each Application For Payment.

1.04 APPLICATIONS FOR PROGRESS PAYMENTS

A. Payment Period: Submit at intervals stipulated in the Agreement.

B. Form: AIA G702 Application and Certificate for Payment and AIA G703 - Continuation Sheet including continuation sheets when required.
   1. AIA G702 shall be an original and the most recent version of the form issued by the American Institute of Architects.

2. AIA G703 - Continuation Sheet: Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit sample to Architect for approval.

C. Forms filled out by hand will not be accepted.

D. Present required information on electronic media printout or in typewritten form.

E. Execute certification by signature of authorized officer.

F. Use data from approved Schedule of Values. Provide dollar value in each column for each line item for portion of work performed and for stored products.

G. List each authorized Change Order as a separate line item, listing Change Order number and dollar amount as for an original item of work.

H. Submit electronic copy of each Application for Payment.

I. Include the following with the application:
   1. Transmittal letter as specified for submittals in Section 01 30 00.
   2. Partial release of liens from major subcontractors and vendors.
   3. Affidavits attesting to off-site stored products.

1.05 MODIFICATION PROCEDURES

A. Submit name of the individual authorized to receive change documents and who will be responsible for informing others in Contractor's employ or subcontractors of changes to Contract Documents.

B. For minor changes not involving an adjustment to the Contract Sum or Contract Time, Architect will issue instructions directly to Contractor.
   1. Architect will advise of minor changes in the Work not involving an adjustment to Contract Sum or Contract Time as authorized by the Conditions of the Contract by issuing supplemental instructions on AIA Form G710 or written form.

C. For other required changes, Architect will issue a document signed by Owner instructing Contractor to proceed with the change, for subsequent inclusion in a Change Order.
   1. The document will describe the required changes and will designate method of determining any change in Contract Sum or Contract Time.
   2. Promptly execute the change.

D. For changes for which advance pricing is desired, Architect will issue a document that includes a detailed description of a proposed change with supplementary or revised drawings and specifications, a change in Contract Time for executing the change with a stipulation of any overtime work required and the period of time during which the requested price will be considered valid . Contractor shall prepare and submit a fixed price quotation within 15 days.

E. Computation of Change in Contract Amount: As specified in the Agreement and Conditions of the Contract.
   1. For change requested by Architect for work falling under a fixed price contract, the amount will be based on Contractor's price quotation.
   2. For change ordered by Architect without a quotation from Contractor, the amount will be determined by Architect based on the Contractor's substantiation of costs as specified for Time and Material work.

F. Formula for Changes in the Contract Sum
   1. Definitions
      a. Labor - All field labor shall be priced at the current base rate, excluding fringe benefits. The payroll is based on straight time only and is to include number of hours as rate of pay for each classification of worker.

b. Fringes - All established payroll taxes, assessment of fringe benefits labor. This may include, but is not limited to. FICA, Federal and State Unemployment, Health and Welfare, Pension Funds, Worker's Compensation and Apprentice Funds.
c. Equipment Rentals - All charges for certain non-owned heavy or specialized equipment at up to 100 percent of the documented rental cost. No rental charges will be allowed for hand tools, minor equipment, simple scaffold, etc.
d. Owned Equipment - All charges for certain owned, heavy or Specialized equipment at up to 100 percent of the cost listed by the Associated Equipment Dealers Blue Book. No recovery will be allowed for hand tools, minor equipment, simple scaffold etc.
e. Trucking - A reasonable delivery charge or per mile trucking charges for delivery of require materials or equipment. Charges for use of a pickup truck will not be allowed.
f. Materials
    1) All materials purchased by the contractor and incorporated into the changed Work, showing costs, quantities, or Unit Prices of all items. Reimbursement of material cost shall only be allowed in the amount the Contractor's actual cost, including any and all discounts, rebates or related credits.
    2) One third (33 percent) of the cost of reusable materials for each use, such as formwork lumber, shoring or temporary enclosures.
g. Overhead - Includes, but not limited to, telephone, telephone charges, facsimile, telegrams, postage, photos, photocopying, hand tools, simple scaffold, tool breakage, tool repair, tool replacement, tool blades, tool bits, home office estimating and expediting, home office clerical and accounting support, home office labor, legal services, supervision, travel and parking expenses.
h. Subcontractor - The reasonable cost for all labor and material provided by a Subcontractor whose pricing is included and complies with these pricing guidelines.

2. The cost of Change Orders shall be:
    a. For each change over $ 500.00, the contractor shall furnish a detailed, written proposal itemized according to these pricing guidelines. Any subcontractor or material supplier pricing shall be itemized according to these pricing guidelines.
    b. For extra work completed by the contractor with his own forces: The sum of Labor, Fringes, Equipment Rentals, Owned Equipment, Trucking and Material plus 15 percent of the sum for overhead and profit.
    c. For extra work completed by Subcontractor of the Contractor: The Subcontractor cost plus 10 percent of the Subcontractor cost for overhead and profit.
3. Miscellaneous:
    a. The following items are allowable at the cost of the Work with no overhead and profit:
        1) The cost of extending the Bond and the cost of extending liability, property damage, builder's risk or specialty coverage insurance
        2) Fees for permits, licenses, inspection, test, etc.
    b. Cost which will not be reimbursed for Change Order Work include the following:
        1) Employee Profit Sharing Plans - regardless of how defined or described, the Contractor will pay these charges from Contractor profit.
        2) Voluntary Employee - examples are United Way and U.S. Bonds, etc.

G. Execution of Change Orders: Architect will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.

H. After execution of Change Order, promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Sum.

I. Promptly revise progress schedules to reflect any change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.

J. Promptly enter changes in Project Record Documents.

1.06 APPLICATION FOR FINAL PAYMENT

A. Prepare Application for Final Payment as specified for progress payments, identifying total adjusted Contract Sum, previous payments, and sum remaining due.

B. Application for Final Payment will not be considered until the following have been accomplished:
   1. All closeout procedures specified in Section 01 70 00.
   2. Closeout submittals in Section 01 78 00 including but not limited to:
      a. Wavier of Liens
      b. Record Drawings
      c. Operation and Maintenance Data
      d. Warranties and Bonds
      e. Certifications indicating no asbestos and lead solder in potable water systems have been incorporated into the work.
      f. Sign in sheet for Demonstrations and Instructions
      g. Signed receipt for Maintenence Materials (attic stock)
      h. Complete items of work determined by Garmann/Miller & Associates Inc.'s final inspection (completed punch list)

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 21 00
ALLOWANCES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Contingency allowance.

B. Payment and modification procedures relating to allowances.

1.02 RELATED REQUIREMENTS

A. Section 01 20 00 - Price and Payment Procedures: Additional payment and modification procedures.

1.03 CONTINGENCY ALLOWANCE

A. Contractor's costs for products, delivery, installation, labor, insurance, payroll, taxes, bonding, equipment rental, will be included in Change Orders authorizing expenditure of funds from this Contingency Allowance.

1. All overhead and profit contemplated for the Work performed under each Allowance is to be included in the Base Bid.

B. Funds will be drawn from the Contingency Allowance by Change Order.

C. At closeout of Contract, funds remaining in Contingency Allowance will be credited to Owner by Change Order.

1.04 ALLOWANCES SCHEDULE

A. Contingency Allowance: General Contract - A; Include the stipulated sum/price of $40,000.00 for use upon Owner's instructions.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 30 00
ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. General administrative requirements.

B. Preconstruction meeting.

C. Site mobilization meeting.

D. Progress meetings.

E. Preinstallation meetings.

F. Construction progress schedule.

G. Coordination drawings.

H. Submittal schedule.

I. Submittals for review, information, and project closeout.

J. Number of copies of submittals.

K. Submittal procedures.

1.02 RELATED REQUIREMENTS

A. Section 01 33 23 - Contractor Submittal Form

B. Section 01 70 00 - Execution and Closeout Requirements: Additional coordination requirements.

C. Section 01 78 00 - Closeout Submittals: Project record documents; operation and maintenance data; warranties and bonds.

1.03 GENERAL ADMINISTRATIVE REQUIREMENTS

A. Comply with requirements of Section 01 70 00 - Execution and Closeout Requirements for coordination of execution of administrative tasks with timing of construction activities.

B. Make the following types of submittals to Architect:
   1. Requests for Interpretation (RFI).
   2. Requests for substitution.
   3. Shop drawings, product data, and samples.
   4. Test and inspection reports.
   5. Design data.
   6. Manufacturer's instructions and field reports.
   7. Applications for payment and change order requests.
   8. Progress schedules.
   9. Coordination drawings.
   10. Correction Punch List and Final Correction Punch List for Substantial Completion.
   11. Closeout submittals.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PRECONSTRUCTION MEETING

A. Architect will schedule a meeting after Notice of Award.

B. Attendance Required:
   1. Owner.
   2. Architect.

3. Contractor.
4. All Major Subcontractors.

C. Agenda:
1. Execution of Owner-Contractor Agreement.
2. Submission of executed bonds and insurance certificates.
3. Distribution of Contract Documents.
4. Submission of list of subcontractors, list of products, schedule of values, and progress schedule.
5. Designation of personnel representing the parties to Contract.
6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, change orders, and contract closeout procedures.
7. Scheduling.
8. Scheduling activities of Special Inspector required by the Authority having Jurisdiction.

D. Record minutes and distribute electronic copies within two days after meeting to participants, with an electronic copy to Architect, Owner, participants, and those affected by decisions made.

3.02 SITE MOBILIZATION MEETING

A. Attendance Required:
1. Contractor.
2. Owner.
3. Architect.
4. Contractor's superintendent.
5. Major subcontractors.

B. Agenda:
1. Use of premises by Owner and Contractor.
2. Owner's requirements.
3. Construction facilities and controls provided by Owner.
4. Temporary utilities provided by Owner.
5. Survey and building layout.
6. Security and housekeeping procedures.
7. Schedules.
8. Demolition and/or construction waste management and disposal procedures.
9. Application for payment procedures.
10. Procedures for testing.
11. Procedures for maintaining record documents.
12. Requirements for start-up of equipment.
13. Inspection and acceptance of equipment put into service during construction period.

C. Record minutes and distribute electronic copies within two days after meeting to participants, with an electronic copy to Architect, Owner, participants, and those affected by decisions made.

3.03 PROGRESS MEETINGS

A. Make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.

B. Attendance Required:
1. Contractor.
2. Owner.
3. Architect.
4. Contractor's superintendent.
5. Major subcontractors.

C. Agenda:
   1. Review minutes of previous meetings.
   2. Review of work progress.
   3. Field observations, problems, and decisions.
   4. Identification of problems that impede, or will impede, planned progress.
   5. Review of submittals schedule and status of submittals.
   6. Review of RFIs log and status of responses.
   7. Review of off-site fabrication and delivery schedules.
   8. Maintenance of progress schedule.
   9. Corrective measures to regain projected schedules.
   10. Planned progress during succeeding work period.
   11. Coordination of projected progress.
   12. Maintenance of quality and work standards.
   13. Effect of proposed changes on progress schedule and coordination.
   14. Scheduling activities of Special Inspector required by the Authority having Jurisdiction
   15. Other business relating to work.

D. Record minutes and distribute electronic copies within 5 days after meeting to participants, with an electronic copy to Architect, Owner, participants, and those affected by decisions made.

3.04 PRE-INSTALLATION MEETINGS (CONFERENCE)

A. A pre-installation meeting will be schedule at Project Site before construction activity that requires coordination with other construction and as indicated in the Contract Documents.

B. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting.

C. Review conditions of installation, preparation and installation procedures and coordination of related work including:
   1. Review of scope of work
   2. Review of approved submittals
   3. Manufacturers installation recommendations
   4. Deliveries
   5. Possible conflicts
   6. Compatibility problems
   7. Time schedules
   8. Environmental considerations
      a. Implementation of indoor air quality management plan procedures (LEED)
   9. Warranty requirements
   10. Acceptability of substrates
   11. Inspections and testing requirements
   12. Mockup Review

D. Do not proceed with installation if the conference cannot be successfully concluded. Resolve impediments to performance of the work and reconvene the conference at the earliest feasible date

3.05 CONSTRUCTION PROGRESS SCHEDULE

A. Within 10 days after date of the Agreement, submit preliminary schedule defining planned operations for the first 60 days of work, with a general outline for remainder of work.

B. Within 10 days after joint review, submit complete schedule.

C. Submit updated schedule with each Application for Payment.

3.06 COORDINATION DRAWINGS

A. Review drawings prior to submission to Architect.

B. As-Built Site Survey is required and all as-built notes shall be assembled in electronic form and turned into the Architect so that they are able to combine all changes into one set of documents for the Owner and the County.

3.07 SUBMITTAL SCHEDULE

A. Submit to Architect for review a schedule for submittals in tabular format.
   1. Arrange information to include scheduled date for initial submittal, specification number and title, submittal category (for review or for information), description of item of work covered, and role and name of subcontractor.
   2. Account for time required for preparation, review, manufacturing, fabrication and delivery when establishing submittal delivery and review deadline dates.

3.08 NUMBER OF COPIES OF SUBMITTALS

A. Electronic Documents: Submit one electronic copy in PDF format; an electronically-marked up file will be returned. Create PDFs at native size and right-side up; illegible files will be rejected.

3.09 ELECTRONIC FILES

A. Architects' Electronic Digital Files: Electronic copies of CAD Drawings of the Contract Drawings will be provided by the Architect for Contractor's use in preparing submittals. The Architect will furnish Contractor one set of digital data drawing files of the Contract Drawings for use in preparing Shop Drawings and Project record drawings through an electronic digital file agreement.
   1. Electronic Digital Agreement: Electronic Digital files will be distributed to Contractors upon completion of AIA Document C106 - 2022, Digital Data Licensing Agreement as modified by the Architect for this project.

END OF SECTION

SECTION 01 43 00
QUALITY ASSURANCE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Submittals.

B. Quality assurance.

C. References and standards.

D. Testing and inspection agencies and services.

E. Control of installation.

F. Mock-ups.

G. Manufacturers' field services.

H. Defect Assessment.

1.02 RELATED REQUIREMENTS

A. Section 00 31 19 - Existing Condition Information: Soil investigation data.

B. Section 01 30 00 - Administrative Requirements: Submittal procedures.

C. Section 01 60 00 - Product Requirements: Requirements for material and product quality.

1.03 REFERENCE STANDARDS

A. ASTM C1021 - Standard Practice for Laboratories Engaged in Testing of Building Sealants; 2008 (Reapproved 2023).

B. ASTM C1077 - Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation; 2025a.

C. ASTM C1093 - Standard Practice for Accreditation of Testing Agencies for Masonry; 2023.

D. ASTM D3740 - Standard Practice for Minimum Requirements for Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction; 2023.

E. ASTM E329 - Standard Specification for Agencies Engaged in Construction Inspection and/or Testing; 2014a.

F. ASTM E543 - Standard Specification for Agencies Performing Nondestructive Testing; 2021.

G. ASTM E699 - Standard Specification for Agencies Involved in Testing, Quality Assurance, and Evaluating of Manufactured Building Components; 2016.

H. IAS AC89 - Accreditation Criteria for Testing Laboratories; 2010.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Test Reports: After each test/inspection, promptly submit two copies of report to Architect and to Contractor.
   1. Include:
      a. Date issued.
      b. Project title and number.
      c. Name of inspector.
      d. Date and time of sampling or inspection.
      e. Identification of product and specifications section.
      f. Location in the Project.
      g. Type of test/inspection.
      h. Date of test/inspection.

i. Results of test/inspection.
j. Compliance with Contract Documents.
k. When requested by Architect, provide interpretation of results.

C. Certificates: When specified in individual specification sections, submit certification by the manufacturer and Contractor or installation/application subcontractor to Architect, in quantities specified for Product Data.
1. Indicate material or product complies with or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
2. Certificates may be recent or previous test results on material or product, but must be acceptable to Architect.

D. Manufacturer's Instructions: When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, for the Owner's information. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

E. Manufacturer's Field Reports: Submit reports for Architect's benefit as contract administrator or for Owner.
1. Submit report in duplicate within 30 days of observation to Architect for information.

F. Erection Drawings: Submit drawings for Architect's benefit as contract administrator or for Owner.

1.05 QUALITY ASSURANCE

A. Testing Agency Qualifications:
1. Prior to start of work, submit agency name, address, and telephone number, and names of full time registered Engineer and responsible officer.
2. Submit copy of report of laboratory facilities inspection made by NIST Construction Materials Reference Laboratory during most recent inspection, with memorandum of remedies of any deficiencies reported by the inspection.
3. Qualification Statement: Provide documentation showing testing laboratory is accredited under IAS AC89.

1.06 REFERENCES AND STANDARDS

A. For products and workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

B. Comply with reference standard of date of issue current on date of Contract Documents, except where a specific date is established by applicable code.

C. Obtain copies of standards where required by product specification sections.

D. Maintain copy at project site during submittals, planning, and progress of the specific work, until Substantial Completion.

E. Should specified reference standards conflict with Contract Documents, request clarification from Architect before proceeding.

F. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of Architect shall be altered from Contract Documents by mention or inference otherwise in any reference document.

1.07 TESTING AND INSPECTION AGENCIES AND SERVICES

A. Owner will employ and pay for services of an independent testing agency to perform other specified testing.

B. Employment of agency in no way relieves Contractor of obligation to perform Work in accordance with requirements of Contract Documents.

C. Testing and Inspection Agency:
   1. Testing agency: Comply with requirements of ASTM E329, ASTM E543, ASTM E699, ASTM C1021, ASTM C1077, ASTM C1093, and ASTM D3740.
   2. Laboratory: Authorized to operate in State in which Project is located.
   3. Laboratory Staff: Maintain a full time registered Engineer on staff to review services.
   4. Testing Equipment: Calibrated at reasonable intervals either by NIST or using an NIST established Measurement Assurance Program, under a laboratory measurement quality assurance program.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 CONTROL OF INSTALLATION

A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.

B. Comply with manufacturers' instructions, including each step in sequence.

C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Architect before proceeding.

D. Comply with specified standards as minimum quality for the work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Have work performed by persons qualified to produce required and specified quality.

F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.

G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

3.02 MOCK-UPS

A. Before installing portions of the Work where mock-ups are required, construct mock-ups in location and size indicated for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work. The purpose of mock-up is to demonstrate the proposed range of aesthetic effects and workmanship.

B. Accepted mock-ups establish the standard of quality the Architect will use to judge the Work.

C. General:
   1. Tests shall be performed under provisions identified in this section and identified in the respective product specification sections.
   2. Assemble and erect specified items with specified attachment and anchorage devices, flashings, seals, and finishes.
   3. Accepted mock-ups shall be a comparison standard for the remaining Work.
   4. Where mock-up has been accepted by Architect and is specified in product specification sections to be removed, protect mock-up throughout construction, remove mock-up and clear area when directed to do so by Architect.

D. Primer, Painting, and Coatings
   1. Provide mock-up , ____ feet long by ____ feet wide, illustrating coating , for each specified coating.
   2. Locate where directed.
   3. Mock-up may remain as part of the work.

3.03 TESTING AND INSPECTION

A. See individual specification sections for testing and inspection required.

B. Testing Agency Duties:
   1. Provide qualified personnel at site. Cooperate with Architect and Contractor in performance of services.
   2. Perform specified sampling and testing of products in accordance with specified standards.
   3. Ascertain compliance of materials and mixes with requirements of Contract Documents.
   4. Promptly notify Architect and Contractor of observed irregularities or non-compliance of Work or products.
   5. Perform additional tests and inspections required by Architect.
   6. Submit reports of all tests/inspections specified.

C. Limits on Testing/Inspection Agency Authority:
   1. Agency may not release, revoke, alter, or enlarge on requirements of Contract Documents.
   2. Agency may not approve or accept any portion of the Work.
   3. Agency may not assume any duties of Contractor.
   4. Agency has no authority to stop the Work.

D. Contractor Responsibilities:
   1. Deliver to agency at designated location, adequate samples of materials proposed to be used that require testing, along with proposed mix designs.
   2. Cooperate with laboratory personnel, and provide access to the Work and to manufacturers' facilities.
   3. Provide incidental labor and facilities:
      a. To provide access to Work to be tested/inspected.
      b. To obtain and handle samples at the site or at source of Products to be tested/inspected.
      c. To facilitate tests/inspections.
      d. To provide storage and curing of test samples.
   4. Notify Architect and laboratory 24 hours prior to expected time for operations requiring testing/inspection services.
   5. Employ services of an independent qualified testing laboratory and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
   6. Arrange with Owner's agency and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.

E. Re-testing required because of non-compliance with specified requirements shall be performed by the same agency on instructions by Architect.

F. Re-testing required because of non-compliance with specified requirements shall be paid for by Contractor.

3.04 MANUFACTURERS' FIELD SERVICES

A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust, and balance equipment as applicable, and to initiate instructions when necessary.

B. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

3.05 DEFECT ASSESSMENT

A. Replace Work or portions of the Work not complying with specified requirements.

END OF SECTION

SECTION 01 50 00
TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Temporary telecommunications services.

B. Temporary sanitary facilities.

C. Temporary Controls: Barriers.

D. Security requirements.

E. Vehicular access and parking.

F. Waste removal facilities and services.

G. Field offices.

1.02 TELECOMMUNICATIONS SERVICES

A. Job Superintendent to be on site and available via cell phone when work is performed.

1.03 TEMPORARY SANITARY FACILITIES

A. Provide and maintain required facilities and enclosures. Provide at time of project mobilization.

1.04 BARRIERS

A. Provide barriers to prevent unauthorized entry to construction areas, to prevent access to areas that could be hazardous to workers or the public, to allow for owner's use of site and to protect existing facilities and adjacent properties from damage from construction operations and demolition.

B. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

1.05 SECURITY

A. Provide security and facilities to protect Work, existing facilities, and Owner's operations from unauthorized entry, vandalism, or theft.

1.06 VEHICULAR ACCESS AND PARKING

A. Coordinate access and haul routes with governing authorities and Owner.

B. Provide and maintain access to fire hydrants, free of obstructions.

C. Provide means of removing mud from vehicle wheels before entering streets.

D. Coordinate allowed locations for construction parking with owner.

1.07 WASTE REMOVAL

A. Provide waste removal facilities and services as required to maintain the site in clean and orderly condition.

B. Provide containers with lids. Remove trash from site when containers are full.

C. If materials to be recycled or re-used on the project must be stored on-site, provide suitable non-combustible containers; locate containers holding flammable material outside the structure unless otherwise approved by the authorities having jurisdiction.

1.08 FIELD OFFICES

A. Coordinate location with owner.

1.09 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

A. Remove temporary utilities, equipment, facilities, materials, prior to Date of Substantial Completion inspection.

B. Remove underground installations to a minimum depth of 2 feet. Grade site as indicated.

C. Clean and repair damage caused by installation or use of temporary work.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 51 00
TEMPORARY UTILITIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Temporary Utilities: Electricity, lighting, heat, ventilation, water, and dehumidification.

1.02 RELATED REQUIREMENTS

A. Section 01 50 00 - Temporary Facilities and Controls:
   1. Temporary telecommunications services for administrative purposes.
   2. Temporary sanitary facilities required by law.

1.03 TEMPORARY ELECTRICITY

A. Cost:
   1. Electrical Contractor to pay to connect and disconnect to the utilities service, provide temporary lighting and power distribution system for each area and/or floor of the project, and service to General Contractor field office.
   2. General Contractor to pay for cost of energy used.

B. Cost of electricity used: By Owner.

C. Connect to Owner's existing power service.
   1. Do not disrupt Owner's need for continuous service.
   2. Exercise measures to conserve energy.

D. Provide temporary electric feeder from existing building electrical service at location as directed.

E. Complement existing power service capacity and characteristics as required.

F. Provide power outlets for construction operations, with branch wiring and distribution boxes located as required. Provide flexible power cords as required.

G. Permanent convenience receptacles may be utilized during construction.

H. With the exception of General Contractor field office, wiring of Contractor's offices, trailers, storage facilities and the like used during construction shall be the responsibility of the individual contractor requiring the same.

1.04 TEMPORARY HEATING

A. Prior to building enclosure:
   1. The Building shall not be considered enclosed until the permanent building shell is essentially completed with exterior openings, windows, and doors closed by permanent or temporary closures.
   2. Each contractor is to provide and pay for temporary heat required for their branch of work prior to building enclosure.

B. After building enclosure:
   1. The Building shall be considered enclosed after the permanent building shell is essentially completed with exterior openings, windows, and doors closed by permanent or temporary closures.
   2. After building enclosure, the Heating Ventilating and Air Conditioning (HVAC) Contractor shall provide heating systems for temporary heat. The heating system shall permit construction to continue and progress uninterrupted. The HVAC Contractor shall maintain such systems until they are no longer required to maintain specified conditions for construction operations.
   3. The HVAC Contractor shall provide temporary heat using one or both of the following methods.

a. Method A: Use of permanent system.
    1) Prior to operation of permanent equipment for temporary heating purposes, verify that installation is approved for operation, equipment is lubricated and temporary filters are in place. Provide and pay for operation, maintenance, and regular replacement of filters and worn or consumed parts. Effective date of warranties and guarantees for permanent equipment is the date of substantial completion.
    2) If permanent system is not fully operable or does not have sufficient controls to maintain the necessary heat, the HVAC Contractor shall provide temporary controls to maintain the necessary heat requirements.
    3) Equipment used shall be cleaned and restored to new condition, except for ordinary wear, prior to final acceptance.
    4) Cost of filters consumed is the responsibility of the HVAC Contractor.
b. Method B: Use of Individual Portable Units
    1) Provide, maintain, and supervise the operation of temporary portable units, such as gas fired unit heaters, furnaces direct fired make-up air units or similar equipment. Unit shall be properly vented, piped and wired and shall be provided with a thermostat for control. Provide required safety controls.
    2) Cost filters consumed is the responsibility of the HVAC Contractor.

C. After building enclosure:
    1. Cost of Energy: By General Contractor.

D. Provide heating devices and heat as needed to maintain specified conditions for construction operations.

E. Maintain minimum ambient temperature of 50 degrees F in areas where construction is in progress, unless indicated otherwise in specifications.

F. Owner's existing heat plant may be used.
    1. Exercise measures to conserve energy.
    2. Enclose building prior to activating temporary heat.

1.05 TEMPORARY VENTILATION

A. Prior to building enclosure:
    1. Each contractor is to provide and pay for temporary ventilation required for their branch of work prior to building enclosure.

B. After building enclosure:
    1. The Building shall be considered enclosed after the permanent building shell is essentially completed with exterior openings, windows, and doors closed by permanent or temporary closures.
    2. After building enclosure, the Heating Ventilating and Air Conditioning (HVAC) Contractor shall provide systems for ventilation. The ventilation system shall permit construction to continue and progress uninterrupted. The HVAC Contractor shall maintain such systems until they are no longer required to maintain specified conditions for construction operations.
    3. The HVAC Contractor shall provide temporary ventilation using one or both of the following methods.
        a. Method A: Use of permanent system.
            1) Prior to operation of permanent equipment for temporary ventilation purposes, verify that installation is approved for operation, equipment is lubricated and temporary filters are in place. Provide and pay for operation, maintenance, and regular replacement of filters and worn or consumed parts. Effective date of warranties and guarantees for permanent equipment is the date of substantial completion.

2) If permanent system is not fully operable or does not have sufficient controls to maintain the necessary ventilation, the HVAC Contractor shall provide temporary controls to maintain the necessary ventilation requirements.
3) Equipment used shall be cleaned and restored to new condition, except for ordinary wear, prior to final acceptance.

b. Cost of filters consumed is the responsibility of the General Contractor.
c. Method B: Use of Individual Portable Units
1) Provide, maintain, and supervise the operation of temporary portable units. Provide required safety controls.

4. Cost of energy consumed and filters consumed is the responsibility of the General Contractor.

1.06 DEHUMIDIFICATION

A. Prior to building enclosure:
1. Each contractor is to provide and pay for temporary dehumidification required for their branch of work prior to building enclosure.

B. After building enclosure:
1. The Building shall be considered enclosed after the permanent building shell is essentially completed with exterior openings, windows, and doors closed by permanent or temporary closures.
2. After building enclosure, the General Contractor shall provide systems for dehumidification The dehumidification system shall permit construction to continue and progress uninterrupted. The General Contractor shall maintain such systems until they are no longer required to maintain specified conditions for construction operations.
3. Dehumidification system shall be of sufficient size to lower the humidity of the air to permit the installation and application of finish material according to manufacturer's recommendations i.e. wood flooring, casework, ceiling panels, paint etc.
4. Dehumidification systems shall be of sufficient size to lower the moisture or water content of the substrate to allow for installation or application of finish materials according to manufacturer's recommendations i.e. wood flooring, carpet resilient flooring,epoxy terrazzo etc.
5. Cost of energy consumed and associated work is the responsibility of the General Contractor.

C. Prior to operation of permanent equipment for temporary ventilation purposes, verify that installation is approved for operation, equipment is lubricated and filters are in place. Provide and pay for operation, maintenance, and regular replacement of filters and worn or consumed parts. Effective date of warranties and guarantees for permanent equipment is the date of substantial completion.

1.07 TEMPORARY WATER SERVICE

A. Cost of Water Used: By Owner.

B. Connect to existing water source.
1. Exercise measures to conserve water.

C. Extend branch piping with outlets located so water is available by hoses with threaded connections. Provide temporary pipe insulation to prevent freezing.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 60 00
PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. General product requirements.

B. Transportation, handling, storage and protection.

C. Product option requirements.

D. Substitution limitations.

E. Procedures for Owner-supplied products.

F. Maintenance materials, including extra materials, spare parts, tools, and software.

1.02 RELATED REQUIREMENTS

A. Section 01 11 00 - Summary of Work: Identification of Owner-supplied products.

B. Section 01 30 00 - Administrative Requirements

C. Section 01 43 00 - Quality Assurance: Product quality monitoring.

D. Section 01 60 00.01 - Substitution Request Form.

E. Section 22 05 13 - Common Motor Requirements for Plumbing Equipment: Motors for plumbing equipment.

1.03 REFERENCE STANDARDS

A. NEMA MG 00001 - Motors and Generators; 2024.

B. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.04 SUBMITTALS

A. Proposed Products List: Submit list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.
   1. Submit within 15 days after date of Agreement.
   2. For products specified only by reference standards, list applicable reference standards.

B. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.

C. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

D. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
   1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.

E. Indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

PART 2 PRODUCTS

2.01 GENERAL

A. The Specifications and Drawings are complementary, and what is required by one shall be as if required by all.

B. The Drawings govern dimensions, details and location of Work. The Drawings shall not be scaled.

C. Specifications govern quality of materials and workmanship.

D. In an event of inconsistencies within or between the Drawings and Specifications, the Contractor shall provide the better quality or greater quantity of Work and shall comply with the stricter requirements.

2.02 NEW PRODUCTS

A. Provide new products unless specifically required or permitted by Contract Documents.

B. Use of products having any of the following characteristics is not permitted:
   1. Made outside the United States, its territories, Canada, or Mexico.
   2. Made using or containing CFC's or HCFC's.
   3. Made of wood from newly cut old growth timber.
   4. Containing lead, cadmium, or asbestos.

C. Where other criteria are met, Contractor shall give preference to products that:
   1. If used on interior, have lower emissions.
   2. If wet-applied, have lower VOC content.
   3. Are extracted, harvested, and/or manufactured closer to the location of the project.
   4. Have longer documented life span under normal use.

D. Provide interchangeable components by the same manufacture for components being replaced.

E. Motors: Refer to Section 22 05 13 - Common Motor Requirements for Plumbing Equipment, NEMA MG 00001 Type. Specific motor type is specified in individual specification sections.

F. Wiring Terminations: Provide terminal lugs to match branch circuit conductor quantities, sizes, and materials indicated. Size terminal lugs to NFPA 70, include lugs for terminal box.

G. Cord and Plug: Provide minimum 6 foot cord and plug including grounding connector for connection to electric wiring system. Cord of longer length is specified in individual specification sections.

2.03 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.

B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.

C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

2.04 MAINTENANCE MATERIALS

A. Furnish extra materials, spare parts, tools, and software of types and in quantities specified in individual specification sections.

B. Deliver to Project site; obtain receipt prior to final payment.

PART 3 EXECUTION

3.01 SUBSTITUTION LIMITATIONS

A. Garmann/Miller & Associates Inc. will consider request for substitutions up to ten (10) calendar days prior to bid opening.

B. Proposed substitutions received by Garmann/Miller & Associates Inc., less than ten (10) days to the bid opening, may not be considered.

C. Submit request using Section 01 60 00.01 - Substitution Request Form.
   1. Submit one copy of request for substitution for consideration. Limit each request to one proposed substitution.
   2. Hard Copy Submission: Deliver submittal to Garmann/Miller & Associates Inc. business office.
   3. Electronic Submission: Forward via email to Garmann/Miller & Associates Inc.'s Project Manager, Project Manager; Email and Project Coordinator; coordinator@creategm.com.

D. Substitutions will be considered after bid opening when a product, through no fault of the Contractor, becomes unavailable or unsuitable due to regulatory change.

E. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents.

F. A request for substitution constitutes that the submitter:
   1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
   2. Agrees to provide the same or better warranty for the substitution product as there is for the specified product.
   3. Agrees to coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to Owner.
   4. Waives claims for additional costs or time extension that may subsequently become apparent.
   5. Agrees to reimburse Owner and Architect for review or redesign services associated with re-approval by authorities.

G. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.

H. Time Frame for Request. When a Substitution Request is received by the office of Garmann / Miller & Associates, Inc, during a normal business day, Architect will have a maximum of three (3) working days to respond to the Substitution Request.
   1. Weekends and holidays are not included in the three (3) day response period.
   2. Normal working day is considered between 8 AM and 5 PM.
   3. Request received between 5 PM and 8 AM may be considered received on the following business day.

3.02 OWNER-SUPPLIED PRODUCTS

A. Owner's Responsibilities:
   1. Arrange for and deliver Owner reviewed shop drawings, product data, and samples, to Contractor.
   2. Arrange and pay for product delivery to site.
   3. On delivery, inspect products jointly with Contractor.
   4. Submit claims for transportation damage and replace damaged, defective, or deficient items.
   5. Arrange for manufacturers' warranties, inspections, and service.

B. Contractor's Responsibilities:
   1. Review Owner reviewed shop drawings, product data, and samples.
   2. Receive and unload products at site; inspect for completeness or damage jointly with Owner.
   3. Handle, store, install and finish products.
   4. Repair or replace items damaged after receipt.

3.03 TRANSPORTATION AND HANDLING

A. Package products for shipment in manner to prevent damage; for equipment, package to avoid loss of factory calibration.

B. If special precautions are required, attach instructions prominently and legibly on outside of packaging.

C. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.

D. Transport and handle products in accordance with manufacturer's instructions.

E. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.

F. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.

G. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage, and to minimize handling.

H. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

3.04 STORAGE AND PROTECTION

A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication. See Section 01 74 19.

B. Store and protect products in accordance with manufacturers' instructions.

C. Store with seals and labels intact and legible.

D. Store sensitive products in weathertight, climate-controlled enclosures in an environment favorable to product.

E. For exterior storage of fabricated products, place on sloped supports above ground.

F. Provide off-site storage and protection when site does not permit on-site storage or protection.

G. Protect products from damage or deterioration due to construction operations, weather, precipitation, humidity, temperature, sunlight and ultraviolet light, dirt, dust, and other contaminants.

H. Comply with manufacturer's warranty conditions, if any.

I. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.

J. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.

K. Prevent contact with material that may cause corrosion, discoloration, or staining.

L. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

M. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

END OF SECTION

SECTION 01 70 00
EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Examination, preparation, and general installation procedures.

B. Requirements for alterations work, including selective demolition.

C. Cutting and patching.

D. Surveying for laying out the work.

E. Cleaning and protection.

F. Demonstration and instruction of Owner personnel.

G. Closeout procedures, including Contractor's Correction Punch List, except payment procedures.

H. General requirements for maintenance service.

1.02 RELATED REQUIREMENTS

A. Section 01 30 00 - Administrative Requirements: Submittals procedures, Electronic document submittal service.

B. Section 01 43 00 - Quality Assurance: Testing and inspection procedures.

C. Section 01 78 00 - Closeout Submittals: Project record documents, operation and maintenance data, warranties, and bonds.

D. Section 01 79 00 - Demonstration and Training: Demonstration of products and systems to be commissioned and where indicated in specific specification sections

E. Section 02 41 00 - Demolition: Demolition of whole structures and parts thereof; site utility demolition.

F. Individual Product Specification Sections:
   1. Advance notification to other sections of openings required in work of those sections.

1.03 REFERENCE STANDARDS

A. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2022, with Errata (2021).

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Survey work: Submit name, address, and telephone number of Surveyor before starting survey work.
   1. On request, submit documentation verifying accuracy of survey work.
   2. Submit a copy of site drawing signed by the Land Surveyor, that the elevations and locations of the work are in compliance with Contract Documents.
   3. Submit surveys and survey logs for the project record.

C. Cutting and Patching: Submit written request in advance of cutting or alteration that affects:
   1. Structural integrity of any element of Project.
   2. Integrity of weather exposed or moisture resistant element.
   3. Efficiency, maintenance, or safety of any operational element.
   4. Visual qualities of sight exposed elements.
   5. Work of Owner or separate Contractor.

D. Project Record Documents: Accurately record actual locations of capped and active utilities.

1.05 QUALIFICATIONS

A. For surveying work, employ a land surveyor registered in Ohio and acceptable to Architect. Submit evidence of surveyor's Errors and Omissions insurance coverage in the form of an Insurance Certificate. Employ only individual(s) trained and experienced in collecting and recording accurate data relevant to ongoing construction activities,

1.06 PROJECT CONDITIONS

A. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.

B. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.

C. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

D. Dust Control: Execute work by methods to minimize raising dust from construction operations. Provide positive means to prevent air-borne dust from dispersing into atmosphere and over adjacent property.
   1. Provide dust-proof barriers between construction areas and areas continuing to be occupied by Owner.

E. Erosion and Sediment Control: Plan and execute work by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.
   1. Minimize amount of bare soil exposed at one time.
   2. Provide temporary measures such as berms, dikes, and drains, to prevent water flow.
   3. Construct fill and waste areas by selective placement to avoid erosive surface silts or clays.
   4. Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.

F. Pollution Control: Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations. Comply with federal, state, and local regulations.

1.07 COORDINATION

A. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements.

B. Notify affected utility companies and comply with their requirements.

C. Verify that utility requirements and characteristics of new operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.

D. Coordinate space requirements, supports, and installation of mechanical and electrical work that are indicated diagrammatically on drawings. Follow routing indicated for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

E. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.

F. Coordinate completion and clean-up of work of separate sections.

G. After Owner occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

1.08 PROHIBITED MATERIAL AND PRACTICES

A. Contractors are advised that the following materials and practices are prohibited in this project. Each Prime Contractor will be held responsible for compliance by his personnel and the personnel of each of his subcontractors.
   1. Use of tobaco products on school property is strictly prohibited.
   2. Use of marking pens of any type on surfaces to remain exposed to view in finished building.
   3. Penetrations of roof membrane without prior coordination with Roofing Contractor.
   4. Burning of any trash or rubbish is prohibited.
   5. Use of cabinetry countertops or other equipment as a work surface, walking surface or any other purpose which could result in damage to countertops or equipment.
   6. Suspension of systems (acoustical ceilings, piping, ductwork, conduits etc) from joist bridging and deck. Each system shall be supported from the building structure (beams, joist, etc).

PART 2 PRODUCTS

2.01 PATCHING MATERIALS

A. New Materials: As specified in product sections; match existing products and work for patching and extending work.

B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.

C. Product Substitution: For any proposed change in materials, submit request for substitution described in Section 01 60 00 - Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.

B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.

C. Examine and verify specific conditions described in individual specification sections.

D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.

E. Verify that utility services are available, of the correct characteristics, and in the correct locations.

F. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

3.02 PREPARATION

A. Cut, move, or remove items as necessary for access to alterations and renovation work. Replace and restore at completion.

B. Remove unsuitable material not marked for salvage, such as rotted wood, corroded metals, and deteriorated masonry and concrete. Replace materials as specified for finished work.

C. Remove debris and abandoned items from area and from concealed spaces.

D. Close openings in exterior surfaces to protect existing work and salvage items from weather and extremes of temperature and humidity. Insulate ducts and piping to prevent condensation in exposed areas.

E. Prepare surfaces and remove surface finishes to provide for proper installation of new work and finishes.

F. Clean substrate surfaces prior to applying next material or substance.

G. Seal cracks or openings of substrate prior to applying next material or substance.

H. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

3.03 LAYING OUT THE WORK

A. Verify locations of survey control points prior to starting work.

B. Promptly notify Architect of any discrepancies discovered.

C. Protect survey control points prior to starting site work; preserve permanent reference points during construction.

D. Promptly report to Architect the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.

E. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Architect.

F. Utilize recognized engineering survey practices.

G. Establish elevations, lines and levels. Locate and lay out by instrumentation and similar appropriate means:
   1. Site improvements including pavements; stakes for grading, fill and topsoil placement; utility locations, slopes, and invert elevations.
   2. Grid or axis for structures.
   3. Building foundation, column locations, ground floor elevations.

H. Periodically verify layouts by same means.

I. Maintain a complete and accurate log of control and survey work as it progresses.

3.04 GENERAL INSTALLATION REQUIREMENTS

A. In addition to compliance with regulatory requirements, conduct construction operations in compliance with NFPA 241, including applicable recommendations in Appendix A.

B. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.

C. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.

D. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.

E. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.

F. Make neat transitions between different surfaces, maintaining texture and appearance.

3.05 ALTERATIONS

A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
   1. Verify that construction and utility arrangements are as indicated.
   2. Report discrepancies to Architect before disturbing existing installation.
   3. Beginning of alterations work constitutes acceptance of existing conditions.

B. Remove existing work as indicated and as required to accomplish new work.
   1. Remove items indicated on drawings.
   2. Relocate items indicated on drawings.

3. Where new surface finishes are to be applied to existing work, perform removals, patch, and prepare existing surfaces as required to receive new finish; remove existing finish if necessary for successful application of new finish.
4. Where new surface finishes are not specified or indicated, patch holes and damaged surfaces to match adjacent finished surfaces as closely as possible.

C. Services (Including but not limited to HVAC, Plumbing, Fire Protection, Electrical, and Telecommunications): Remove, relocate, and extend existing systems to accommodate new construction.
1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components; if necessary, modify installation to allow access or provide access panel.
2. Where existing systems or equipment are not active and Contract Documents require reactivation, put back into operational condition; repair supply, distribution, and equipment as required.
3. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
   a. Disable existing systems only to make switchovers and connections; minimize duration of outages.
   b. Provide temporary connections as required to maintain existing systems in service.
4. Verify that abandoned services serve only abandoned facilities.
5. Remove abandoned pipe, ducts, conduits, and equipment , including those above accessible ceilings; remove back to source of supply where possible, otherwise cap stub and tag with identification; patch holes left by removal using materials specified for new construction.

D. Protect existing work to remain.
1. Prevent movement of structure; provide shoring and bracing if necessary.
2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
3. Repair adjacent construction and finishes damaged during removal work.

E. Adapt existing work to fit new work: Make as neat and smooth transition as possible.

F. Patching: Where the existing surface is not indicated to be refinished, patch to match the surface finish that existed prior to cutting. Where the surface is indicated to be refinished, patch so that the substrate is ready for the new finish.

G. Refinish existing surfaces as indicated:

H. Where rooms or spaces are indicated to be refinished, refinish all visible existing surfaces to remain to the specified condition for each material, with a neat transition to adjacent finishes.

I. If mechanical or electrical work is exposed accidentally during the work, re-cover and refinish to match.

J. Clean existing systems and equipment.

K. Remove demolition debris and abandoned items from alterations areas and dispose of off-site; do not burn or bury.

L. Do not begin new construction in alterations areas before demolition is complete.

M. Comply with all other applicable requirements of this section.

3.06 CUTTING AND PATCHING

A. Whenever possible, execute the work by methods that avoid cutting or patching.

B. See Alterations article above for additional requirements.

C. Perform whatever cutting and patching is necessary to:

1. Complete the work.
2. Fit products together to integrate with other work.
3. Provide openings for penetration of mechanical, electrical, and other services.
4. Match work that has been cut to adjacent work.
5. Repair areas adjacent to cuts to required condition.
6. Repair new work damaged by subsequent work.
7. Remove samples of installed work for testing when requested.
8. Remove and replace defective and non-complying work.

D. Each trade is responsible for cutting and patching for their work unless otherwise noted.

E. Execute cutting and patching including excavation and fill to complete the work, to uncover work in order to install improperly sequenced work, to remove and replace defective or non-conforming work, to remove samples of installed work for testing when requested, to provide openings in the work for penetration of mechanical and electrical work, to execute patching to complement adjacent work, and to fit products together to integrate with other work.

F. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.

G. Employ skilled and experienced installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.

H. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.

I. Restore work with new products in accordance with requirements of Contract Documents.

J. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

K. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material, to full thickness of the penetrated element.

L. Patching:
1. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
2. Match color, texture, and appearance.
3. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair substrate prior to repairing finish.

M. Refinish surfaces to match adjacent finish. For continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.

N. Make neat transitions. Patch work to match adjacent work in texture and appearance. Where new work abuts or aligns with existing, perform a smooth and even transition.

3.07 PROGRESS CLEANING BY EACH CONTRACTOR

A. Contractors shall provide daily cleanup and removal of rubbish/refuse resulting from their operations including but not limited to bulky debris, packaging, containers, unused material.

B. Remove pile of debris from the building daily. No pile of debris shall be left in the building overnight.

C. At reasonable intervals during the progress of Work, not less than once a week, perform a cleaning of dirt, dust and debris. Broom clean floor and paved surfaces and raked clean other surfaces of ground.

D. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.

1. Do not burn or bury rubbish and waste material on project site.
2. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.

E. Roadway shall remain clear.

3.08 PROTECTION OF INSTALLED WORK

A. Protect installed work from damage by construction operations.

B. Provide special protection where specified in individual specification sections.

C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.

D. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.

E. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

F. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.

G. Remove protective coverings when no longer needed; reuse or recycle coverings if possible.

3.09 DEMONSTRATION AND INSTRUCTION

A. See Section 01 79 00 - Demonstration and Training.

B. See Individual Specification Sections for demonstrations required.

C. The Owner reserves the right to record (electronically on audio tape, video tape or compact disc) any or all of each demonstration. The recordings are intended to be used by the Owner in maintaining the equipment or material installed.

3.10 ADJUSTING

A. Adjust operating products and equipment to ensure smooth and unhindered operation.

3.11 FINAL CLEANING

A. Each Contractor shall perform his respective final clean up and shall leave the Work of the completed project in a clean neat condition.

B. Execute final cleaning prior to final project assessment.
1. Clean areas to be occupied by Owner prior to final completion before Owner occupancy.

C. Each Contractor shall perform shall perform his respective final clean up and shall leave the Work of the completed project in a clean neat condition including the following:
1. Conduct an inspection of sight-exposed interior and exterior surfaces and work areas, to verify that the entire Work is left in broom clean condition.
2. Tunnels and closed off spaces shall be cleaned of packing boxes, wood frame members and other waste materials used in the construction.
3. The entire system of piping and equipment shall be cleaned internally. The Contractor installing those item shall open all direct pockets and strainers, completely blowing down as required and clean strainer screens of all accumulated debris
4. Tanks, fixtures and pumps shall be drained and proved free of sludge and accumulated matter.
5. Temporary labels, stickers etc., shall be removed from fixtures and equipment (Do not remove permanent nameplates, equipment model numbers, rating etc.)
6. Use cleaning materials that are nonhazardous.
7. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.

8. Remove all labels that are not permanent. Do not paint or otherwise cover fire test labels or nameplates on mechanical and electrical equipment.
9. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.
10. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

D. The General Contractor will do final cleaning which will consist of the following to a degree acceptable to the Architect.
1. Remove grease, mastic, adhesives, dust, dirt, stains, fingerprints, labels and other foreign material from sight-exposed interior and exterior surfaces.
2. Vacuum all carpeting. Clean and wax VCT floors including a minimum of three (3) coats of wax or the number of coats specified by the manufacturers which ever is greater. Wax to be approved by the Owner prior to waxing.
3. Wash and shine glazing and mirrors.
4. Polish glossy surfaces to a clear shine.
5. Dust cabinets work and remove markings
6. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.
7. Clean debris from roofs, gutters, downspouts, scuppers, overflow drains, area drains, and drainage systems.
8. Clean site; sweep paved areas, rake clean landscaped surfaces.
9. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

3.12 CLOSEOUT PROCEDURES

A. Make submittals that are required by governing or other authorities.
1. Provide copies to Architect.

B. Notify Architect when work is considered ready for Architect's Substantial Completion inspection.

C. Submit written certification containing Contractor's Correction Punch List, that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for Architect's Substantial Completion inspection.

D. Conduct Substantial Completion inspection and create Final Correction Punch List containing Architect's and Contractor's comprehensive list of items identified to be completed or corrected and submit to Architect.

E. Correct items of work listed in Final Correction Punch List and comply with requirements for access to Owner-occupied areas.

F. Notify Architect when work is considered finally complete and ready for Architect's Substantial Completion final inspection.

G. Complete items of work determined by Architect listed in executed Certificate of Substantial Completion.

3.13 MAINTENANCE

A. Provide service and maintenance of components indicated in specification sections.

B. Maintenance Period: As indicated in specification sections or, if not indicated, not less than one year from the Date of Substantial Completion or the length of the specified warranty, whichever is longer.

C. Examine system components at a frequency consistent with reliable operation. Clean, adjust, and lubricate as required.

D. Include systematic examination, adjustment, and lubrication of components. Repair or replace parts whenever required. Use parts produced by the manufacturer of the original component.

E. Maintenance service shall not be assigned or transferred to any agent or subcontractor without prior written consent of the Owner.

END OF SECTION

SECTION 01 78 00
CLOSEOUT SUBMITTALS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Project Record Documents.

B. Operation and Maintenance Data.

C. Warranties and bonds.

1.02 RELATED REQUIREMENTS

A. Section 01 30 00 - Administrative Requirements: Submittals procedures, shop drawings, product data, and samples.

B. Section 01 70 00 - Execution and Closeout Requirements: Contract closeout procedures.

C. Individual Product Sections: Specific requirements for operation and maintenance data.

D. Individual Product Sections: Warranties required for specific products or Work.

1.03 SUBMITTALS

A. Project Record Documents: Submit documents to Architect with claim for final Application for Payment.

B. Operation and Maintenance Data:
   1. Submit two copies of preliminary draft or proposed formats and outlines of contents before start of Work. Architect will review draft and return one copy with comments.
   2. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit completed documents within ten days after acceptance.
   3. Submit one copy of completed documents 15 days prior to final inspection. This copy will be reviewed and returned after final inspection, with Architect comments. Revise content of all document sets as required prior to final submission.
   4. Submit two sets of revised final documents in final form within 10 days after final inspection.
   5. Submit two electronic sets of final documents in final form within 10 days after final inspection. Electronic format shall be PDF's on CD's or USB flash drives.

C. Warranties and Bonds:
   1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within 10 days after acceptance.
   2. Make other submittals within 10 days after Date of Substantial Completion, prior to final Application for Payment.
   3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within 10 days after acceptance, listing the date of acceptance as the beginning of the warranty period.

D. Certifications:
   1. Submit copies of the certifications listed in this section:
      a. Certification stating that no flux or solder used for drinking water piping .
      b. Certification stating that asbestos containing material was not incorporated into the Work.

E. Receipts:
   1. Submit copies of the receipt signed by owner for completed training sessions.
      a. See individual specifications sections for training required.
   2. Submit copies of the receipt signed by owner for maintenance material (attic stock).
      a. See individual specifications sections for maintenance material (attic stock) required.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PROJECT RECORD DOCUMENTS

A. Maintain on site one set of the following record documents; record actual revisions to the Work:
   1. Drawings.
   2. Addenda.
   3. Change Orders and other modifications to the Contract.

B. Ensure entries are complete and accurate, enabling future reference by Owner.

C. Store record documents separate from documents used for construction.

D. Record information concurrent with construction progress.

E. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
   1. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
   2. Field changes of dimension and detail.
   3. Details not on original Contract drawings.

3.02 OPERATION AND MAINTENANCE DATA

A. Source Data: For each product or system, list names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.

B. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.

C. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawings.

D. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

3.03 OPERATION AND MAINTENANCE DATA FOR MATERIALS AND FINISHES

A. For Each Product, Applied Material, and Finish:
   1. Product data, with catalog number, size, composition, and color and texture designations.

B. Instructions for Care and Maintenance: Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental cleaning agents and methods, and recommended schedule for cleaning and maintenance.

C. Additional information as specified in individual product specification sections.

D. Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specific products.

3.04 OPERATION AND MAINTENANCE DATA FOR EQUIPMENT AND SYSTEMS

A. For Each Item of Equipment and Each System:
   1. Description of unit or system, and component parts.
   2. Identify function, normal operating characteristics, and limiting conditions.
   3. Include performance curves, with engineering data and tests.
   4. Complete nomenclature and model number of replaceable parts.

B. Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specific products.

C. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.

D. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and trouble shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

E. Provide servicing and lubrication schedule, and list of lubricants required.

F. Include manufacturer's printed operation and maintenance instructions.

G. Include sequence of operation by controls manufacturer.

H. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

I. Additional Requirements: As specified in individual product specification sections.

3.05 ASSEMBLY OF OPERATION AND MAINTENANCE MANUALS

A. Assemble operation and maintenance data into durable manuals for Owner's personnel use, with data arranged in the same sequence as, and identified by, the specification sections.

B. Where systems involve more than one specification section, provide separate tabbed divider for each system.

C. Binders: Commercial quality, 8-1/2 by 11 inch three D side ring binders with durable plastic covers; 3 inch maximum ring size. When multiple binders are used, correlate data into related consistent groupings.

D. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; identify title of Project; identify subject matter of contents.

E. Project Directory: Title and address of Project; names, addresses, and telephone numbers of Architect, Consultants, Contractor and subcontractors, with names of responsible parties.

F. Tables of Contents: List every item separated by a divider, using the same identification as on the divider tab; where multiple volumes are required, include all volumes Tables of Contents in each volume, with the current volume clearly identified.

G. Dividers: Provide tabbed dividers for each separate product and system; identify the contents on the divider tab; immediately following the divider tab include a description of product and major component parts of equipment.

H. Text: Manufacturer's printed data, or typewritten data on 24 pound paper.

I. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

J. Arrangement of Contents: Organize each volume in parts as follows:
   1. Project Directory.
   2. Table of Contents, of all volumes, and of this volume.
   3. Operation and Maintenance Data: Arranged by system, then by product category.
      a. Source data.
      b. Product data, shop drawings, and other submittals.
      c. Operation and maintenance data.
      d. Field quality control data.
      e. Photocopies of warranties and bonds.
   4. Design Data: To allow for addition of design data furnished by Architect or others, provide a tab labeled "Design Data" and provide a binder large enough to allow for insertion of at least 20 pages of typed text.

K. One (1) electronic copy of the Operation and Maintenance Manuals shall be placed on a CD, Thumb Drive, or other form of Mass Storage Device, for the Owners use. Files must be in a PDF format or format approved by the Owner.

3.06 WARRANTIES AND BONDS

A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within 10 days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial completion is determined.

B. Verify that documents are in proper form, contain full information, and are notarized.

C. Co-execute submittals when required.

D. Retain warranties and bonds until time specified for submittal.

E. Manual: Bind in commercial quality 8-1/2 by 11 inch three D side ring binders with durable plastic covers.

F. Cover: Identify each binder with typed or printed title WARRANTIES AND BONDS, with title of Project; name, address and telephone number of Contractor and equipment supplier; and name of responsible company principal.

G. Table of Contents: Neatly typed, in the sequence of the Table of Contents of the Project Manual, with each item identified with the number and title of the specification section in which specified, and the name of product or work item.

H. Separate each warranty or bond with index tab sheets keyed to the Table of Contents listing. Provide full information, using separate typed sheets as necessary. List Subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

END OF SECTION

SECTION 01 79 00
DEMONSTRATION AND TRAINING

PART 1 GENERAL

1.01 SUMMARY

A. Training of Owner personnel in operation and maintenance is required for:
   1. Technology Systems.
   2. Items specified in individual product Sections.

B. Training of Owner personnel in care, cleaning, maintenance, and repair is required for:
   1. Finishes, including flooring, wall finishes, ceiling finishes.
   2. Items specified in individual product Sections.

1.02 RELATED REQUIREMENTS

A. Section 01 78 00 - Closeout Submittals: Operation and maintenance manuals.

B. Other Specification Sections: Additional requirements for demonstration and training.

1.03 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Draft Training Plans: Owner will designate personnel to be trained; tailor training to needs and skill-level of attendees.
   1. Submit to Commissioning Authority for review and inclusion in overall training plan.
   2. Submit not less than four weeks prior to start of training.
   3. Revise and resubmit until acceptable.
   4. Provide an overall schedule showing all training sessions.
   5. Include at least the following for each training session:
      a. Identification, date, time, and duration.
      b. Description of products and/or systems to be covered.
      c. Name of firm and person conducting training; include qualifications.
      d. Intended audience, such as job description.
      e. Objectives of training and suggested methods of ensuring adequate training.
      f. Methods to be used, such as classroom lecture, live demonstrations, hands-on, etc.
      g. Media to be used, such a slides, hand-outs, etc.
      h. Training equipment required, such as projector, projection screen, etc., to be provided by Contractor.

C. Training Manuals: Provide training manual for each attendee; allow for minimum of two attendees per training session.
   1. Include applicable portion of O&M manuals.
   2. Include copies of all hand-outs, slides, overheads, video presentations, etc., that are not included in O&M manuals.
   3. Provide one extra copy of each training manual to be included with operation and maintenance data.

D. Training Reports:
   1. Identification of each training session, date, time, and duration.
   2. Sign-in sheet showing names and job titles of attendees.
   3. Include Commissioning Authority's formal acceptance of training session.

E. Video Recordings: Submit digital video recording of each demonstration and training session for Owner's subsequent use.
   1. Format: DVD Disc.
   2. Label each disc and container with session identification and date.

1.04 QUALITY ASSURANCE

A. Instructor Qualifications: Familiar with design, operation, maintenance and troubleshooting of the relevant products and systems.
   1. Provide as instructors the most qualified trainer of those contractors and/or installers who actually supplied and installed the systems and equipment.
   2. Where a single person is not familiar with all aspects, provide specialists with necessary qualifications.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 TRAINING - GENERAL

A. Commissioning Authority will prepare the Training Plan based on draft plans submitted.

B. Conduct training on-site unless otherwise indicated.

C. Owner will provide classroom and seating at no cost to Contractor.

D. Do not start training until Functional Testing is complete, unless otherwise specified or approved by the Commissioning Authority.

E. Provide training in minimum two hour segments.

F. The Commissioning Authority is responsible for determining that the training was satisfactorily completed and will provide approval forms.

G. Training schedule will be subject to availability of Owner's personnel to be trained; re-schedule training sessions as required by Owner; once schedule has been approved by Owner failure to conduct sessions according to schedule will be cause for Owner to charge Contractor for personnel "show-up" time.

H. Review of Facility Policy on Operation and Maintenance Data: During training discuss:
   1. The location of the O&M manuals and procedures for use and preservation; backup copies.
   2. Typical contents and organization of all manuals, including explanatory information, system narratives, and product specific information.
   3. Typical uses of the O&M manuals.

I. Product- and System-Specific Training:
   1. Review the applicable O&M manuals.
   2. For systems, provide an overview of system operation, design parameters and constraints, and operational strategies.
   3. Review instructions for proper operation in all modes, including start-up, shut-down, seasonal changeover and emergency procedures, and for maintenance, including preventative maintenance.
   4. Provide hands-on training on all operational modes possible and preventive maintenance.
   5. Emphasize safe and proper operating requirements; discuss relevant health and safety issues and emergency procedures.
   6. Discuss common troubleshooting problems and solutions.
   7. Discuss any peculiarities of equipment installation or operation.
   8. Discuss warranties and guarantees, including procedures necessary to avoid voiding coverage.
   9. Review recommended tools and spare parts inventory suggestions of manufacturers.
   10. Review spare parts and tools required to be furnished by Contractor.
   11. Review spare parts suppliers and sources and procurement procedures.

J. Be prepared to answer questions raised by training attendees; if unable to answer during training session, provide written response within three days.

END OF SECTION

GARMANN MILLER

Division 02

Existing Conditions

SECTION 01 60 00.01 - SUBSTITUTION REQUEST FORM
(DURING BIDDING PHASE)

To: Garmann Miller Date:_____

Project: Tipp City Seniors New Addition

We hereby submit for your consideration the following product instead of the specified item for the above project:

Section	Section Name	Article/Paragraph	Specified Item

Proposed Substitution: _____

Manufacturer: _____ Model: _____

Submit with request all necessary samples and substantiating data to prove equal quality and performance to that which is specified. Clearly mark manufacturer's literature to indicate equality in performance.

Does the Substitution affect the dimensions shown on the drawings?

Yes _____No _____If yes, clearly indicate changes:

_____

Will the undersigned pay for changes to the building design, including engineering and detailing costs caused by the requested substitution?

Yes _____No _____If no, fully explain:

What effect does substitution have on other Contracts or other trades?

_____

What effect does substitution have on the delivery and construction schedule?

_____

Differences between proposed substitution and specified item.

_____

Manufacturer's warranties of the proposed and specified items are:

Same: _____ Different: _____ Explain on an Attachment

The undersigned states that the function, appearance and quality are equivalent or superior to the specified item.

Submitted by		For use by Garmann Miller	
Signature		Accepted	
Title		Not Accepted	
Firm		Accepted as Noted	
Address		Received Too Late	
email		Insufficient Data	
Telephone		By	
Fax		Date	

END OF SECTION

SECTION 02 41 00
DEMOLITION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Selective demolition of built site elements.

B. Selective demolition of building elements for alteration purposes.

C. Abandonment and removal of existing utilities and utility structures.

D. Protection of designated vegetation.

1.02 RELATED REQUIREMENTS

A. Section 01 11 00 - Summary of Work: Limitations on Contractor's use of site and premises.

B. Section 01 50 00 - Temporary Facilities and Controls: Site fences, security, protective barriers, and waste removal.

C. Section 01 70 00 - Execution and Closeout Requirements: Project conditions; protection of bench marks, survey control points, and existing construction to remain; reinstallation of removed products; temporary bracing and shoring.

D. Section 31 10 00 - Site Clearing: Vegetation and existing debris removal.

E. Section 31 22 00 - Grading: Fill material for filling holes, pits, and excavations generated as a result of removal operations.

F. Section 31 23 23 - Fill: Fill material for filling holes, pits, and excavations generated as a result of removal operations.

1.03 REFERENCE STANDARDS

A. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2022, with Errata (2021).

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Site Plan: Showing:
   1. Vegetation to be protected.
   2. Areas for temporary construction and field offices.

C. Project Record Documents: Accurately record actual locations of capped and active utilities and subsurface construction.

PART 2 PRODUCTS

2.01 MATERIALS

A. Fill Material: As specified in Section 31 23 23 - Fill.
   1. Recyclable Fill: Concrete and masonry products from on site demolition:
      a. Remove reinforcing and separate to salvaged metals.
      b. Remove brick and clay masonry.
      c. Crush concrete and masonry waste to less than 3 inch in each direction.
      d. Material subject to the approval by representative of the testing agency.

B. Aggregates: As specified in Section 32 11 23 Aggregate Base and Surfacing
   1. Recyclable Aggregate: Concrete and masonry products from on site demolition:
      a. Remove reinforcing and separate to salvaged metals.
      b. Remove brick and clay masonry.
      c. Crush concrete and masonry waste to less than 1 1/2 inch in each direction.

d. Crush concrete and masonry waste with at least four (4) parts of specified aggregate for each part of concrete waste.
e. Material subject to the approval by representative of the testing agency.

2. Use of Reclaimed Base:
   a. Contractor may use a blend of new material in combination with reclaimed aggregate material.
   b. Material subject to the approval by representative of the testing agency.

PART 3 EXECUTION

3.01 SCOPE

A. Remove portions of existing building.

B. Remove paving and curbs as required to accomplish new work.

C. Within area of new construction, remove foundation walls and footings in their entirety.

D. Outside area of new construction, remove foundation walls and footings to a minimum of 2 feet below finished grade.

E. Remove concrete slabs on grade within site boundaries.

F. Remove manholes and manhole covers, curb inlets and catch basins.

3.02 GENERAL PROCEDURES AND PROJECT CONDITIONS

A. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
   1. Obtain required permits.
   2. Comply with applicable requirements of NFPA 241.
   3. Use of explosives is not permitted.
   4. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
   5. Provide, erect, and maintain temporary barriers and security devices.
   6. Use physical barriers to prevent access to areas that could be hazardous to workers or the public.
   7. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
   8. Do not close or obstruct roadways or sidewalks without permit.
   9. Conduct operations to minimize obstruction of public and private entrances and exits; do not obstruct required exits at any time; protect persons using entrances and exits from removal operations.
   10. Obtain written permission from owners of adjacent properties when demolition equipment will traverse, infringe upon or limit access to their property.

B. Do not begin removal until receipt of notification to proceed from Owner.

C. Protect existing structures and other elements that are not to be removed.
   1. Provide bracing and shoring.
   2. Prevent movement or settlement of adjacent structures.
   3. Stop work immediately if adjacent structures appear to be in danger.

D. Dust Control: Execute work by methods to minimize raising dust from construction operations. Provide positive means to prevent air-borne dust from dispersing into atmosphere and over adjacent property.

E. Minimize production of dust due to demolition operations; do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.

F. If hazardous materials are discovered during removal operations, stop work and notify Architect and Owner; hazardous materials include regulated asbestos containing materials, lead, PCB's, and mercury.

G. Perform demolition in a manner that maximizes salvage and recycling of materials.
   1. Dismantle existing construction and separate materials.
   2. Set aside reusable, recyclable, and salvageable materials; store and deliver to collection point or point of reuse.

H. Partial Removal of Paving and Curbs: Neatly saw cut at right angle to surface.

3.03 EXISTING UTILITIES

A. Coordinate work with utility companies; notify before starting work and comply with their requirements; obtain required permits.

B. Protect existing utilities to remain from damage.

C. Do not disrupt public utilities without permit from authority having jurisdiction.

D. Do not close, shut off, or disrupt existing life safety systems that are in use without at least 7 days prior written notification to Owner.

E. Do not close, shut off, or disrupt existing utility branches or take-offs that are in use without at least 3 days prior written notification to Owner.

F. Locate and mark utilities to remain; mark using highly visible tags or flags, with identification of utility type; protect from damage due to subsequent construction, using substantial barricades if necessary.

G. Remove exposed piping, valves, meters, equipment, supports, and foundations of disconnected and abandoned utilities.

H. Prepare building demolition areas by disconnecting and capping utilities outside the demolition zone; identify and mark utilities to be subsequently reconnected, in same manner as other utilities to remain.

3.04 SELECTIVE DEMOLITION FOR ALTERATIONS

A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
   1. Verify that construction and utility arrangements are as indicated.
   2. Report discrepancies to Architect before disturbing existing installation.
   3. Beginning of demolition work constitutes acceptance of existing conditions that would be apparent upon examination prior to starting demolition.

B. Separate areas in which demolition is being conducted from other areas that are still occupied.
   1. Provide, erect, and maintain temporary dustproof partitions of construction specified in Section 01 50 00 .

C. Maintain weatherproof exterior building enclosure except for interruptions required for replacement or modifications; take care to prevent water and humidity damage.

D. Remove existing work as indicated and as required to accomplish new work.
   1. Remove items indicated on drawings.

E. Services (Including but not limited to HVAC, Plumbing, Fire Protection, Electrical, and Telecommunications): Remove existing systems and equipment as indicated.
   1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components.
   2. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.

3. Verify that abandoned services serve only abandoned facilities before removal.
4. Remove abandoned pipe, ducts, conduits, and equipment, including those above accessible ceilings; remove back to source of supply where possible, otherwise cap stub and tag with identification.

F. Protect existing work to remain.
1. Prevent movement of structure; provide shoring and bracing if necessary.
2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
3. Repair adjacent construction and finishes damaged during removal work.
4. Patch as specified for patching new work.

3.05 PROTECTION OF EXISTING TO REMAIN

A. Protect designated items to remain as indicated on the drawings.

B. Protect vegetation including trees and shrubbery as indicated on the drawings.

C. Perform cutting to accomplish removals neatly.

3.06 DAMAGED WORK

A. Restoration: If work to remain is damaged or destroyed due to subsequent construction/demolition operations, compensate or replace at no cost to Owner.

B. Vegetation Restoration: If vegetation outside removal limits or within specified protective fences is damaged or destroyed due to subsequent construction/demolition operations, compensate or replace at no cost to Owner.
1. Trees and vegetation will be considered dead when main leader has died back or when 25 percent or more of crown has died .
2. If a tree is deemed damaged or dead by the owner's representative, $500 per caliper inch of tree will be assessed.

3.07 DEBRIS AND WASTE REMOVAL

A. Remove debris, junk, and trash from site.

B. Remove from site all materials not to be reused on site; do not burn or bury.

C. Recycling, Salvage, and Reuse:
1. Minimize trash/waste disposal in landfills; reuse, salvage, or recycle as much waste as economically feasible.
2. Recyclable Fill: Concrete and masonry products from on site demolition:
   a. As specified in Section 31 23 23 Fill
   b. Remove reinforcing and separate to salvaged metals.
   c. Remove brick and clay masonry.
   d. Crush concrete and masonry waste to less than 3 inch in each direction.
   e. Material subject to the approval by representative of the testing agency.
3. Recyclable Aggregate: Concrete and masonry products from on site demolition:
   a. As specified in Section 32 11 23 Aggregate Base and Surfacing
   b. Remove reinforcing and separate to salvaged metals.
   c. Remove brick and clay masonry.
   d. Crush concrete and masonry waste to less than 1 1/2 inch in each direction.
   e. Material subject to the approval by representative of the testing agency.
4. Use of Reclaimed Asphalt Base:
   a. As specified in Section 32 11 23 Aggregate Base and Surfacing
   b. Material subject to the approval by representative of the testing agency.
5. Reclaimed Pavement:
   a. As specified in Section 32 12 16 Asphalt Paving

D. Leave site in clean condition, ready for subsequent work.

E. Clean up spillage and wind-blown debris from public and private lands.

END OF SECTION

GARMANN MILLER

Division 03

Concrete

SECTION 03 15 21
UNDER SLAB VAPOR/TERMITE/GAS BARRIER

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Water Vapor barrier sheet.

1.02 RELATED REQUIREMENTS

A. Section 03 30 00 - Cast-in-Place Concrete: Vapor barrier placement under concrete slab-on-grade.

B. Section 32 11 23 - Aggregate and Base Surfacing: Aggregate base preparation.

1.03 REFERENCE STANDARDS

A. ASTM E1643 - Standard Practice for Selection, Design, Installation and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs; 2018a.

B. ASTM E1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs; 2017.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Submit manufacturers' data on manufactured products showing compliance with specified requirements.

C. Manufacturer's Installation Instructions.

D. Warranty: Submit warranty and ensure that forms have been completed in Owner's name.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing this type of work and having minimum of five (5) years documented experience.

B. Pre-pour inspection: Complete by a representative of the manufactured material prior to placing of concrete. If time does not allow, representative from Architects office shall be on site to inspect prior to placing concrete.

1.06 WARRANTY

A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.

PART 2 PRODUCTS

2.01 MANFACTURER

A. Basis of Design:
   1. Stego Wrap Vapor Barrier (15 mil); Stego Industries, LLC; www.stegoindustries.com.

B. Other Approved Manufacturer's
   1. Viper II Under Slab Vapor Barrier (15 mil); ISI Building Products; www.isibp.com
   2. Viaflex Vaporblock VB15 (15 mil); Viaflex Inc; www.viaflex.com
   3. Moistop Ultra Under Slab Vapor Barrier (15 mil); Henry; www.henry.com
   4. Yellow Guard Under Slab Vapor Barrier (15 mil); Husky Yellow Guard; www.yellowguard.com
   5. Substitutions: Not permitted.

2.02 MATERIALS

A. Vapor barrier sheet: ASTM E1745,Class A

B. Water vapor permeance: 0.010 perms, maximum.

C. Thickness: 15 mils.

2.03 ACCESSORIES

A. Vapor retarder manufacturer's recommended tape, adhesive, mastic, prefabricated boots, etc., for sealing seams and penetrations.
   1. Seams: Stego Tape
   2. Sealing Penetrations of Vapor Barrier: Stego Mastic & Stego Tape
   3. Perimeter Edge seal:
      a. Stego Crete Claw
      b. Stego Term Bar
      c. Stego Tack Tape, double sided tack tape
   4. Penetration Prevention: Beast Foot by Stego Industries, LLC.
   5. Vapor Barrier Safe Screed System; Beast Screed by Stego Industries, LLC.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that soil surfaces are unfrozen.

B. Verify final grading is complete.

C. Pre-pour inspection shall be completed by a representative of the manufactured material prior to placing of concrete. If time does not allow, representative from Architects office shall be on site to inspect and sign-off on installation prior to placing concrete.

3.02 INSTALLATION

A. Install vapor barrier in accordance with manufacturer's instructions and ASTM E1643.

B. Install vapor barrier under interior slabs on grade; lap sheet over footings and seal to foundation walls.

C. Lap joints minimum 6 inches.

D. Seal joints, seams and penetrations watertight with manufacturer's recommended products and follow manufacturer's written instructions.

E. No penetration of vapor barrier is allowed except for reinforcing steel and permanent utilities.

F. Repair damaged vapor retarder before covering with other materials.

3.03 PROTECTION

A. Protect sheet materials from damage after completed installation.

B. Repair damage to installed sheet materials with manufacturer's recommended products and according to the manufacturer's written instructions.

END OF SECTION

SECTION 03 30 00
CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Concrete formwork.

B. Concrete foundation walls.

C. Concrete paving: Sidewalks, integral curb and approaches

D. Concrete reinforcement.

E. Joint devices associated with concrete work.

F. Miscellaneous concrete elements, including equipment pads and light pole bases.

G. Concrete finishing

H. Concrete curing.

1.02 RELATED REQUIREMENTS

A. Section 03 15 21 - Under Slab Vapor/Termite/Gas Barrier: Vapor barrier and accessories.

B. Section 07 92 00 - Joint Sealants: Products and installation for sealants and joint fillers for saw cut joints and isolation joints in slabs.

C. Section 31 23 23 - Fill: Aggregate base.

1.03 REFERENCE STANDARDS

A. ACI 117 - Specification for Tolerances for Concrete Construction and Materials; 2010 (Reapproved 2015).

B. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete; 1991 (Reapproved 2009).

C. ACI 301 - Specifications for Concrete Construction; 2020.

D. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; 2000.

E. ACI 305R - Hot Weather Concreting; 2010.

F. ACI 308R - Guide to External Curing of Concrete; 2016.

G. ACI 318 - Building Code Requirements for Structural Concrete; 2019, with Errata (2021).

H. ACI 347R - Guide to Formwork for Concrete; 2014 (Reapproved 2021).

I. ACI SPEC-301 - Specifications for Concrete Construction; 2020.

J. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement; 2020.

K. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete; 2015.

L. ASTM C1602/C1602M - Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete; 2018.

M. ASTM C33/C33M - Standard Specification for Concrete Aggregates; 2018.

N. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; 2021.

O. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete; 2021b.

P. ASTM C109/C109M - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or (50-mm) Cube Specimens); 2013.

Q. ASTM C143/C143M - Standard Test Method for Slump of Hydraulic-Cement Concrete; 2020.

R. ASTM C150/C150M - Standard Specification for Portland Cement; 2020.

S. ASTM C260/C260M - Standard Specification for Air-Entraining Admixtures for Concrete; 2010a.

T. ASTM C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete; 2019.

U. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete; 2013.

V. ASTM C881/C881M - Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete; 2014.

W. ASTM C1059/C1059M - Standard Specification for Latex Agents for Bonding Fresh to Hardened Concrete; 2013.

X. ASTM C1107/C1107M - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink); 2017.

Y. ASTM C1116/C1116M - Standard Specification for Fiber-Reinforced Concrete; 2010a (Reapproved 2015).

Z. ASTM C1315 - Standard Specification for Liquid Membrane-Forming Compounds Having Special Properties for Curing and Sealing Concrete; 2019.

AA. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types); 2004 (Reapproved 2013).

BB. NSF 61 - Drinking Water System Components - Health Effects; 2022, with Errata.

CC. NSF 372 - Drinking Water System Components - Lead Content; 2022.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Submit manufacturers' data on manufactured products showing compliance with specified requirements and installation instructions.

C. Mix Design: Submit proposed concrete mix design.
   1. Indicate proposed mix design complies with requirements of ACI 301, Section 4 - Concrete Mixtures.
   2. Indicate proposed mix design complies with requirements of ACI SPEC-301 ACI 318, Chapter 5 - Concrete Quality, Mixing and Placing.
   3. Indicate proposed mix design complies with fiber reinforcing manufacturer's written recommendations.

D. Samples: Submit samples of underslab vapor retarder to be used.
   1. Submit manufacturer's data on manufactured products.

E. Test Reports: Submit report for each test or series of tests specified.

F. Manufacturer's Installation Instructions: For concrete accessories, indicate installation procedures and interface required with adjacent construction.

G. Project Record Documents: Accurately record actual locations of embedded utilities and components that will be concealed from view upon completion of concrete work.

H. Contractor to submit 'Cold Weather Concrete Procedures; prior to start of cold weather.

1.05 QUALITY ASSURANCE

A. Perform work of this section in accordance with ACI 301 and ACI 318.

B. Follow recommendations of ACI 305R when concreting during hot weather.

C. Follow recommendations of ACI 306R when concreting during cold weather.

D. Acquire cement from same source and aggregate from same source for the entire project.

PART 2 PRODUCTS

2.01 FORMWORK

A. Formwork Design and Construction: Comply with guidelines of ACI 347R to provide formwork that will produce concrete complying with tolerances of ACI 117.

B. Form Materials: Contractor's choice of standard products with sufficient strength to withstand hydrostatic head without distortion in excess of permitted tolerances.
   1. Form Facing for Exposed Finish Concrete: Contractor's choice of materials that will provide smooth, stain-free final appearance.
   2. Form Coating: Release agent that will not adversely affect concrete or interfere with application of coatings.
   3. Form Ties: Snap Tie type that will leave no metal within 1 inches of concrete surface.1

C. Earth Forms
   1. Side forms of footings may be omitted and concrete placed directly against excavations only when requested by the contractor and accepted by the Architect. When omission of forms is accepted, provide additional concrete required beyond the minimum design profiles and dimensions of footings as detailed.
      a. Hand trim sides and bottom of earth forms. Remove loose soil prior to placing concrete.
   2. Side forms are not required at sides of trench footings or other footings where specifically indicated in the plans and details.

2.02 REINFORCEMENT MATERIALS

A. Reinforcing Steel: ASTM A615/A615M, Grade 60 (60,000 psi).
   1. Type: Deformed billet-steel bars.
   2. Finish: Unfinished, unless otherwise indicated.

B. Smooth Joint Dowel: AST A36. Plain steel bars, cut true to length with square ends.

C. Steel Welded Wire Reinforcement (WWR): Galvanized, plain type, ASTM A1064/A1064M.
   1. Form: Flat Sheets.
   2. WWR Style: As indicated on drawings.
   3. Minimum yield strength: 65ksi.

D. Reinforcement Accessories:
   1. Tie Wire: Annealed, minimum 16 gage, 0.0508 inch.
   2. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement.
   3. Provide galvanized or plastic coated steel components for placement within 1-1/2 inches of weathering surfaces.

2.03 CONCRETE MATERIALS

A. Cement: ASTM C150/C150M, Type I - Normal Portland type LH or GU.
   1. Acquire cement for entire project from same source.

B. Supplementary Cementitious Materials:
   1. Fly Ash: ASTM C618, Type C or F may be used up to a maximum of 25% of the total cementitious materials content in all concrete mixes, unless otherwise noted.
   2. Ground Granulated Blast-Furnace Slag: ASTM C989, Grade 100 or 120 maybe used up to a maximum of 35% of the total cementitious material content in all concrete mixes, unless otherwise noted.
   3. SIlica Fume, Microsilica: ASTM C1240
   4. The exact percentages shall be used on a successful test placement on the project site

C. Fine and Coarse Aggregates: ASTM C33/C33M.
   1. Acquire all aggregates for entire project from same source to maintain uniformity of color size and shape.
   2. ASTM C33, Class 3S, normal weight aggregates, uniformly graded, non-exceeding 1 inch nominal size.
   3. Aggregates
      a. Course aggregrate
         1) Fill in stair pans: Gradation #8.
         2) All other classes: Gradation #57

D. Water: ASTM C1602/C1602M; clean, potable, and not detrimental to concrete.

E. Structural Fiber Reinforcement: ASTM C1116/C1116M.
   1. Acceptable Fibrous Reinforcement Materials: Polypropylene fiber or antimicrobial fiber
      a. Polypropylene Fiber type: 100 percent collated fibrillated polypropylene fibers with an average length of 3/4 inch, a minimum specific gravity of 0.9, and a minimum tensile strength of 80 ksi. Polypropylene fibers shall be added to the concrete mix at a rate of 1-1/2 pounds per cubic yard.
      b. Antimicrobial Fibers: 100 percent virgin homopolymer polypropylene fibers containing no reprocessed olefin materials. Fibers shall be added to the concrete at a rate of 1-1/2 pounds per cubic yard.
   2. Fiber reinforcement requires Architect's approval for sealed concrete finish locations, for horizontal slab on grade, and toppings over structural elevated slabs only. Not be be used for structural, elevated structural, or sloping slabs.
   3. Manufacturers:
      a. Euclid Chemical Company: www.euclidchemical.com.
      b. Fibermesh: www.fibermesh.com.
      c. Forta Corporation: www.forta-ferro.com.
      d. GCP Applied Technologies: www.gcpat.com.
      e. Substitutions: See Section 01 60 00 - Product Requirements.

2.04 ADMIXTURES

A. Use of admixtures, except air entraining admixture, water reducing admixture and shrinkage reducing admixture are not permitted unless approved by Architect in writing.

B. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.

C. Air Entrainment Admixture: ASTM C260/C260M.
   1. Application: Exterior exposed concrete and foundations exposed to freeze - thaw
   2. Manufacturers:
      a. Air-mix or Perma-Air Euclid Chemical Company.
      b. Sealtight AEA W.R. Meadows Inc..
      c. Axim Italcementi Group
      d. Promix, www.promixadmix.com
      e. Substitutions: See Section 01 60 00 - Product Requirements.

D. High Range Water Reducing Admixture: (Superplasticizer) ASTM C494/C494M Type F or G

E. Water Reducing Admixture: ASTM C494/C494M Type A.
   1. Manufacturers:
      a. Catexol 900N; Axim Italcementi Group.
      b. Building Systems, Polyheed 1020; BASF Construction Chemicals.
      c. ADVA 190; Grace Construction Products, W.R. Grace & Co.
      d. Sidaplast 500; Sika Corporation;

e. Substitutions: See Section 01 60 00 - Product Requirements.

F. Shrinking Reducing Admixture:
1. Admixture not permitted if Moisture Vapor Reduction Admixture is used
2. Use in gymnasium slab on grade
3. Application rate should be between 0.5 and 2.0 gallons per cubic yard. The mix design should provide a slab that requires no joints in gymnasium.
4. Acceptable Manufacturers:
a. Eclipse Floor: Grace Construction Products
b. Peramin SRA110 and SRA220: Perstorp Polyois Inc.; Toledo, Ohio
c. Tetraguard AS20 by Master Builders/Nihon Cement Company
d. Axim Italcementi Group
e. Promix, www.promixadmix.com
f. Substitutions: See Section 01 6000 Product Requirements.

2.05 ACCESSORIES

A. Non-Shrink Cementitious Grout: Premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents.
1. Grout: Comply with ASTM C1107/C1107M.
2. Minimum Compressive Strength at 48 Hours, ASTM C109/C109M: 2,000 pounds per square inch.
3. Minimum Compressive Strength at 28 Days, ASTM C109/C109M: 7,000 pounds per square inch.
4. Flowable Products:
a. BASF Construction Chemicals
b. Dayton Superior Corporation: www.daytonsuperior.com/#sle.
c. Euclid Chemical Company; NS GROUT: www.euclidchemical.com/#sle.
d. Kaufman Products Inc; SureGrout: www.kaufmanproducts.net/#sle.
e. Substitutions: See Section 01 60 00 - Product Requirements.

B. Truncated ADA Paving Units
1. Size: 11 3/4 x 11 3/4 x 2 inches
2. Color: as selected by the Architect
3. Standard: ASTM C935 with 800 psi compressive strength, maximum water absorption of 5%
4. Manufacturer:
a. Hanover Architectural Products, Hanover PA
1) Product: Hanover Detectable Warning Pavers
b. Acceptable Manufacturers:
1) Tile Tech Pavers
2) Stepstone Inc.
3) Substitutions: See Section 01 60 00 - Product Requirements.

2.06 BONDING AND JOINTING PRODUCTS

A. Latex Bonding Agent: Non-redispersable acrylic latex, complying with ASTM C1059/C1059M, Type II.

B. Epoxy Bonding System:
1. Complying with ASTM C881/C881M and of Type required for specific application.

C. Waterstops: Bentonite and butyl rubber, complying with NSF 61 and NSF 372.
1. Configuration: As indicated on drawings.
2. Size: As indicated on drawings.
3. Manufacturers:

a. Swellstop: Greenstreak Inc.
b. Hydro-flex; BoMetals Inc.
c. Substitutions: See Section 01 60 00 - Product Requirements.

D. Slab Isolation Joint Filler: 1/2 inch thick, height equal to slab thickness, with removable top section that will form 1/2 inch deep sealant pocket after removal.
1. Material: ASTM D1751, cellulose fiber.
2. Manufacturers:
a. W. R. Meadows, Inc; Fiber Expansion Joint Filler with Snap-Cap: www.wrmeadows.com/#sle.
b. Substitutions: See Section 01 60 00 - Product Requirements.

E. Slab Construction Joint Devices: Combination keyed joint form and screed, galvanized steel, with rectangular or round knockout holes for conduit or rebar to pass through joint form at 6 inches on center; ribbed steel stakes for setting.
1. Provide removable plastic cap strip that forms wedge-shaped joint for sealant installation.
2. Height: To suit slab thickness.
3. Manufacturers:
a. Pro-Key System; BoMetals Inc.
b. No 95 Heavy Duty Tongue and Groove Joint; Heckman Products.
c. Substitutions: See Section 01 60 00 - Product Requirements.

2.07 CURING MATERIALS

A. Curing and Sealing Compound, Moisture Emission Reducing, Membrane-Forming: Liquid, membrane-forming, clear sealer, for application to newly-placed concrete; capable of providing adequate bond for flooring adhesives, initially and over the long term; with sufficient moisture vapor impermeability to prevent deterioration of flooring adhesives due to moisture emission.
1. Use this product to cure and seal all slabs to receive adhesively applied flooring or roofing.
2. Comply with ASTM C309 and ASTM C1315 Type I Class B.
3. VOC Content: Less than 350 g/L.
4. Solids Content: 25 percent, minimum.
5. Application: Use at slabs to recieve subsequent appplied finishes.
6. Manufacturers:
a. Floor Seal Technology, Inc; VaporSeal 309 System: www.floorseal.com.
b. BASF Construction Chemicals
c. Sinak Corporation; VC5: www.sinak.com.
d. Euclid Chemical Company
e. W.R. Meadows
f. Substitutions: See Section 01 60 00 - Product Requirements.

B. Curing Compound: ASTM C 309, Type 1, Class A.
1. Application: Use at exterior walks, pavement. curbs, approaches etc.
2. Clear waterborne membrane-forming curing compound.
a. Day Chem Rez Cure: Dayton Superior Corporation
b. Diamond Clear Vox: Euclid Chemical Co.
c. Safe-Cure Clear; Chem Masters
d. Substitutions: See Section 01 60 00 - Product Requirements.

C. Water: Potable, not detrimental to concrete.

2.08 CONCRETE MIX DESIGN

A. Proportioning Normal Weight Concrete: Comply with ACI 211.1 recommendations.

B. Concrete Strength: Establish required average strength for each type of concrete on the basis of field experience or trial mixtures, as specified in ACI 301.

1. For trial mixtures method, employ independent testing agency acceptable to Architect for preparing and reporting proposed mix designs.

C. Proportioning and Design of Mixes
   1. Prepare design mixes for each type and strength of concrete by either laboratory trail batch of field experience methods as specified in AC1 301 using material to be employed on the project for each class of concrete.
   2. Submit written reports of the Architect of each proposed mix for each class of concrete at least 15 days prior to start of work. Do not begin concrete production until proposed mix designs have been reviewed by Architect.

D. Design mixes to provide normal weight concrete with the following properties as indicated on the drawings and schedules.

CONCRETE SCHEDULE ITEM OR STRUCTURE	FINISH	COMPRESSIVE STRENGTH AND OTHER REQUIREMENTS
Suspended slabs and concrete not otherwise indicated	RfFm-Fn SmFm-Fn, if exposed	3,500 P.S.I. at 28 days Normal Weight Concrete: Maximum W/C Ratio = 0.45
Trench footings, footings, and interior foundations and retaining walls	RfFm-Fn SmFm-Fn, if exposed	3,500 P.S.I. at 28 days Maximum W/C Ratio = 0.50
Foundation and retaining walls exposed to exterior	RfFm-Fn SmFm-Fn, if exposed, Unless otherwise noted A6-Fn, where noted.	4,500 P.S.I. at 28 days 4.5% - 7.5% air entrainment Maximum W/C Ratio = 0.45 Mid-Range Water Reducer Required
Interior formed concrete exposed to view	SmFm-Fn	4,000 P.S.I. at 28 days Maximum W/C Ratio = 0.55
Interior floor slabs scheduled to receive mud-set mosaic and quarry tile	Flt-Fn	4,000 P.S.I. at 28 days Maximum W/C Ratio = 0.45 Mid-Range Water Reducer Required
Exposed interior floor slabs and interior slabs scheduled to receive carpet	Tr-Fn1	4,000 P.S.I. at 28 days Maximum W/C Ratio = 0.45 Mid-Range Water Reducer Required
Interior floor slabs scheduled to receive thin-set flooring, resilient flooring and other flooring types, unless otherwise noted	Tr-Fn2	4,000 P.S.I. at 28 days Maximum W/C Ratio = 0.45 Mid-Range Water Reducer Required
Interior floor slabs scheduled to receive a polished surface, and where indicated	Tr-Fn3	4,000 P.S.I. at 28 days Maximum W/C Ratio = 0.45 Mid-Range Water Reducer Required
Interior floor slabs scheduled to receive wood flooring, and where indicated	Tr-Fn4	4,000 P.S.I. at 28 days Maximum W/C Ratio = 0.45 Mid-Range Water Reducer Required
Exterior walks, stoops, steps, aprons, and curbs; exterior formed	NsBrm-Fn Grt-Cl-Fn	4,500 P.S.I. at 28 days 4.5% - 7.5% entrainment

CONCRETE SCHEDULE ITEM OR STRUCTURE	FINISH	COMPRESSIVE STRENGTH AND OTHER REQUIREMENTS
concrete exposed to view; exterior concrete not otherwise indicated		Maximum W/C Ratio = 0.45
Metal stair pan fill, toppings over precast deck	---	3,500 P.S.I. at 28 days #8 Aggregate (maximum)
Flowable fill - Type I Utility Trench Backfill	---	50-100 PSI at 28 days Unconfined compression strength per ASTM D4832
Flowable fill - Type II (option) Under Foundations	---	85 PSI at 28 days Unconfined compression strength per ASTM D4832
Lean concrete fill at soft soils or over excavations (option)	---	1,500 P.S.I. at 28 days

E. Adjustment to Concrete Mixes: Mix design adjustments may be requested by the contractor when characteristics of material, job conditions, weather, test results of other circumstances warrant, as accepted by the Architect. Laboratory test data for revised mix design and strength results must be submitted to the Architect before using in the work.

F. Admixtures:
   1. Use of admixtures: Admixtures, except air entraining mixture, are not allowed except with permission of Architect.
   2. Use air-entraining admixture in exterior exposed concrete unless otherwise indicated. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having total air content with a tolerance of plus 1 - 1/2 percent with the following limits:
      a. Concrete structures and slabs exposed to freezing and thawing, deicer chemicals, or hydraulic pressure (all above grade):
         1) 6.0 percent(severe exposure) 3/4 inch max. aggregate
         2) Other concrete (not exposed to freezing, thawing, or hydraulic pressure or to receive a surface hardener): 2 percent to 4 percent air
   3. NO calcium chloride will be permitted.

G. Water-Cement Ratios: Provide concrete for the following with maximum water-cement (W/C) ratios as follows:
   1. Subjected to deicers/watertight and freezing and thawing: W/C 0.45
   2. Subjected to Brackish water, salt spray, or deicers: W/C 0.40
   3. Slumps Limits: Proportion and design mixes to result in concrete slump at point of placement as follows:
      a. Ramps, slabs and sloping surfaces: Not more than 4 inches.
      b. Reinforced foundation systems: Not less than 1 inch and not more than 4 inches.
      c. Other concrete: Not less than 1 inch and not more than 4 inches.

H. Fiber Reinforcement: Add to mix at rate of 1.5 pounds per cubic yard, or as recommended by manufacturer for specific project conditions.

2.09 MIXING

A. Transit Mixers: Comply with ASTM C94/C94M.
   1. When air temperature is between 85 degrees F and 90 degrees F, reduce mixing and delivery time from 1 1/2 hour to 75 minutes, and when air temperature is above 90 degrees F, reduce mixing and delivery time to 60 minutes.

2. Use set retarding admixtures during hot weather only when approved by Architect/Engineer.
3. Additional Water: Adding water to the batch will be permitted only to replace water lost due to evaporation and only under the direct control of the concrete testing agency field representative.

B. Adding Water: If concrete arrives on-site with slump less than suitable for placement, do not add water that exceeds the maximum water-cement ratio or exceeds the maximum permissible slump.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify lines, levels, and dimensions before proceeding with work of this section.

B. Verify that anchors, seats, plates, reinforcing and other items to be cast into concrete are accurately placed, positioned securely and will not cause hardship in placing concrete.

3.02 PREPARATION

A. Formwork: Comply with requirements of ACI 301. Design and fabricate forms to support all applied loads until concrete is cured, and for easy removal without damage to concrete.

B. Verify that forms are clean and free of rust before applying release agent.

C. Coordinate placement of embedded items with erection of concrete formwork and placement of form accessories.

D. Where new concrete is to be bonded to previously placed concrete, prepare existing surface by cleaning and applying bonding agent in according to bonding agent manufacturer's instructions.
1. Use epoxy bonding system for bonding to damp surfaces, for structural load-bearing applications, and where curing under humid conditions is required.
2. Use latex bonding agent only for non-load-bearing applications.

3.03 INSTALLING REINFORCEMENT AND OTHER EMBEDDED ITEMS

A. Comply with requirements of ACI 301. Clean reinforcement of loose rust and mill scale, and accurately position, support, and secure in place to achieve not less than minimum concrete coverage required for protection.

B. Install welded wire reinforcement in maximum possible lengths, and offset end laps in both directions. Splice laps with tie wire.

3.04 PLACING CONCRETE

A. Place concrete in accordance with ACI 304R.

B. Place concrete for floor slabs in accordance with ACI 302.1R.

C. Cold Weather Placing: Protect concrete work from physical damage or reduced strength which could be caused by frost, freezing actions, or low temperatures, in compliance with ACI 306.

D. Hot Weather Placing: When hot weather conditions exist that would seriously impair the quality and strength of concrete, place concrete in compliance with ACI 305.

E. Ensure reinforcement, inserts, waterstops, embedded parts, and formed construction joint devices will not be disturbed during concrete placement.

3.05 SEPARATE FLOOR TOPPINGS

A. Prior to placing floor topping, roughen substrate concrete surface and remove deleterious material. Broom and vacuum clean.

B. Place required dividers, edge strips, reinforcing, and other items to be cast in.

C. Apply bonding agent to substrate in accordance with manufacturer's instructions.

3.06 ADA PAVING UNITS

A. Set paver units in full mortar bed of minimum 3/4 inch thickness, to support pavers over full bearing surface.

B. Place half units, special shaped units, and curbs at edges and interruptions. Machine saw partial units.

C. Maintain tight joints between paves and abutting vertical surfaces and protrusions.

3.07 CONCRETE FINISHING

A. Repair surface defects, including tie holes, immediately after removing formwork.

B. Finishing Formed Surfaces
   1. Unexposed Rough Form Finish (Rf Fm-Fn): Rub down or chip off fins or other raised areas 1/4 inch or more in height. Repair and patch tie holes and defects.
      a. Apply to concrete surfaces not exposed to public view.

C. Exposed Form Finish: Rub down or chip off and smooth fins or other raised areas 1/4 inch or more in height. Provide finish as follows:
   1. Smooth-Formed Finish (Sm Fm-Fn): Concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
      a. Apply to concrete surfaces exposed to public view and to be covered with a coating or covering material applied directly to concrete.
   2. Grout Cleaned Finish (Grt Cl-Fn): Wet areas to be cleaned and apply grout mixture by brush or spray; scrub immediately to remove excess grout. After drying, rub vigorously with clean burlap, and keep moist for 36 hours.
      a. Apply to concrete surfaces exposed to public view.

D. In areas with floor drains, maintain floor elevation at walls; pitch surfaces uniformly to drains as indicated on drawings.

3.08 CURING AND PROTECTION

A. Comply with requirements of ACI 308R. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.

B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.
   1. Normal concrete: Not less than seven days.

C. Formed Surfaces: Cure by moist curing with forms in place for full curing period.

D. Surfaces Not in Contact with Forms:
   1. Initial Curing: Start as soon as free water has disappeared and before surface is dry. Keep continuously moist for not less than three days by water-fog spray or saturated burlap.
      a. Spraying: Spray water over floor slab areas and maintain wet.
      b. Saturated Burlap: Saturate burlap-polyethylene and place burlap-side down over floor slab areas, lapping ends and sides; maintain in place.
   2. Final Curing: Begin after initial curing but before surface is dry.
      a. Moisture-Retaining Sheet: Lap strips not less than 3 inches and seal with waterproof tape or adhesive; secure at edges.

3.09 FIELD QUALITY CONTROL

A. An independent testing agency will perform field quality control tests, as specified in Section 01 43 00 - Quality Assurance.

B. The owner will engage and compensate on site testing agency.

C. Provide free access to concrete operations at project site and cooperate with appointed firm.

D. Submit proposed mix design of each class of concrete to inspection and testing firm for review prior to commencement of concrete operations.

E. Tests of concrete and concrete materials may be performed at any time to ensure compliance with specified requirements.

F. Compressive Strength Tests: ASTM C39/C39M. For each test, mold and cure three concrete test cylinders. Obtain test samples for every 30 cu yd or less of each class of concrete placed in a day or for each 5000 square feet of surface area placed.
   1. Cure specimens on job site under same conditions at concrete it represents
   2. Test one specimen at 28 days
   3. Test one specimen at 7 days
   4. Retain one specimen in reserve for later testing if required.

G. Slump Test
   1. Perform one slump test for each set of test cylinders taken, following procedures of ASTM C143/C143M.
   2. Perform one slump test for each concrete load at the point of discharge, following procedures of ASTM C143

H. Floor Tolerance Measurements:
   1. Floor flatness and levelness test on floor slabs shall be conducted within 3 days of final troweling and before forms have been removed. Testing shall be performed utilizing the 'Dipstick' method in accordance to ASTM.
   2. Exceptions: Where room size are smaller due to bearing walls, existing construction, etc., the Architect may reduce the number of test or waive the testing. In such cases the Architect will determine the acceptability of the floor flatness and level.

3.10 DEFECTIVE CONCRETE

A. Test Results: The testing agency shall report test results in writing to Architect and Contractor within 24 hours of test.

B. Defective Concrete: Concrete not complying with required lines, details, dimensions, tolerances or specified requirements.

C. Repair or replacement of defective concrete will be determined by the Architect. The cost of additional testing shall be borne by Contractor when defective concrete is identified.

D. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Architect for each individual area.

3.11 PROTECTION

A. Do not permit traffic over unprotected concrete floor surface until fully cured.

3.12 CONCRETE WASTE DISPOSAL

A. Comply with waste Management requirements of Division 01, Construction Waste Management and Disposal

B. Waste Disposal as Aggregate Material: Dispose of clean hardened concrete waste by crushing and mixing with fill material as fill is placed. Comply with the requirements of the testing agency.
   1. Remove reinforcing and separate to salvaged metals
   2. Crush concrete waste to less than 1 1/2 inch in each direction.
   3. Crush concrete waste with at least four (4) parts of specified aggregate for each part of concrete aggregate. Aggregate material is specified in Section 32 1123.

4. Do not dispose of concrete waste as fill within 24 inches of finished grade.

C. Excess Concrete Waste: Remove excess clean concrete waste that cannot be used as fill as described above and other concreting operations waste, and legally dispose of off site.

END OF SECTION

GARMANN MILLER

Division 04

Masonry

SECTION 04 05 13
MASONRY MORTARING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Mortar for masonry.

1.02 RELATED REQUIREMENTS

A. Section 04 05 19 - Masonry Anchorage & Reinforcing

B. Section 04 05 23 - Masonry Accessories

C. Section 04 20 00 - Unit Masonry

1.03 REFERENCE STANDARDS

A. TMS 402/602 - Building Code Requirements and Specification for Masonry Structures; 2016.

B. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete; 2021b.

C. ASTM C150/C150M - Standard Specification for Portland Cement; 2020.

D. ASTM C270 - Standard Specification for Mortar for Unit Masonry; 2014a.

E. ASTM C387/C387M - Standard Specification for Packaged, Dry, Combined Materials for Concrete and High Strength Mortar; 2017.

F. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete; 2013.

G. ASTM C780 - Standard Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry; 2020.

H. ASTM C1072 - Standard Test Methods for Measurement of Masonry Flexural Bond Strength; 2019.

I. ASTM C1142 - Standard Specification for Extended Life Mortar for Unit Masonry; 1995 (Reapproved 2013).

J. ASTM C1148 - Standard Test Method for Measuring the Drying Shrinkage of Masonry Mortar; 1992a (Reapproved 2014).

K. ASTM C1314 - Standard Test Method for Compressive Strength of Masonry Prisms; 2021.

L. ASTM C1357 - Standard Test Methods for Evaluating Masonry Bond Strength; 2009.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Include design mix and indicate whether the Proportion or Property specification of ASTM C270 is to be used. Also include required environmental conditions and admixture limitations.

C. Samples: Submit two samples of mortar, illustrating mortar color and color range.

D. Reports: Submit reports on mortar indicating compliance of mortar to property requirements of ASTM C270 and test and evaluation reports per ASTM C780.

E. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

F. Cold Weather Plan: Submit procedures for installing and protecting masonry when ambient temperatures fall below 40 degrees Fahrenheit.

1.05 QUALITY ASSURANCE

A. Comply with provisions of TMS 402/602, except where exceeded by requirements of Contract Documents.

1.06 PRECONSTRUCTION TESTING

A. Testing will be conducted by an independent test agency, in accordance with provisions of Section 01 43 00 - Quality Assurance.

B. Mortar Mixes: Test mortars prebatched by weight in accordance with ASTM C780 recommendations for preconstruction testing.
   1. Test results will be used to establish optimum mortar proportions and establish quality control values for construction testing.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Maintain packaged materials clean, dry, and protected against dampness, freezing, and foreign matter.

1.08 FIELD CONDITIONS

A. Cold and Hot Weather Requirements: Comply with requirements of TMS 402/602 or applicable building code, whichever is more stringent.

PART 2 PRODUCTS

2.01 MORTAR APPLICATIONS

A. At Contractor's option, mortar may be field-mixed from packaged dry materials or made from factory premixed dry materials with addition of water only.

B. Mortar Color: Natural gray unless otherwise indicated.

C. Mortar Mix Designs: ASTM C270, Proportion Specification.
   1. Masonry below grade and in contact with earth: Type S.
      a. Color: Natural gray color for non colored block
   2. Exterior Cavity Walls: Type S mortar with Type N pointing mortar.
      a. Color: Natural Gray
   3. Exterior, Loadbearing Masonry: Type S.
      a. Color: Natural Gray
   4. Exterior, Non-loadbearing Masonry: Type N.
      a. Color: Natural Gray
   5. Interior, Loadbearing Masonry: Type S.
      a. Color: Natural Gray
   6. Interior, Non-loadbearing Masonry: Type N.
      a. Color: Natural Gray

2.02 MATERIALS

A. Packaged Dry Material for Mortar for Unit Masonry: Premixed Portland cement, hydrated lime, and sand; complying with ASTM C387/C387M and capable of producing mortar of the specified strength in accordance with ASTM C270 with the addition of water only.
   1. Type: Types as scheduled in this section.
   2. Color:
      a. Natural gray, unless otherwise indicated.

B. Portland Cement: ASTM C150/C150M.
   1. Type: Type I - Normal; ASTM C150/C150M.
   2. Color: Standard gray.

C. Mortar Materials:
   1. Portland Cement: ASTM C150, Type I or III, nonstaining, without air entrainment ; standard gray color.
   2. Hydrated Lime: ASTM C 207, Type S
   3. Quicklime: ASTM C5, non-hydraulic type.

4. Portland Cement-Lime Mix: Packaged blend of portland cement complying with ASTM C150, Type I or III, and hydrated lime complying with ASTM C207.
    a. For pigmented mortars, use colored portland cement lime mix of formulation required to produce color required. Pigment shall not exceed 10 percent of portland cement by weight for mineral oxides no 2 percent for carbon black.
    b. Color as selected by the Architect.
5. Mortar Aggregate: ASTM C 144. Except for joints less than 1/4 inch, use aggregate graded with 100 percent passing the No. 16 sieve.
6. Mortar Pigments:
    a. Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes. Use pigments with a record of satisfactory performance in masonry mortars.

D. Water: Clean and potable.

E. Cold Weather Admixture: Non chloride, noncorrosive, accelerating admixture complying withASTM C494/C494M Type C.
1. Acceptable Manufacturers:
    a. Euclid Chemical; ACCELGUARD 80: www.euclidchemical.com.
    b. Sika; SikaSet NC: www.usa.sika.com.
    c. Master Builders Solutions; MasterSet FP 20: www.master-builders-solutions.com.
    d. Substitutions: See Section 01 60 00 - Product Requirements.

F. Bonding Agent: Latex type.

2.03 MORTAR MIXING

A. Thoroughly mix mortar ingredients using mechanical batch mixer, in accordance with ASTM C270 and in quantities needed for immediate use.

B. Maintain sand uniformly damp immediately before the mixing process.

C. Add admixtures in accordance with manufacturer's instructions; mix uniformly.

D. Do not use anti-freeze compounds to lower the freezing point of mortar.

E. If water is lost by evaporation, re-temper only within two hours of mixing.

F. Use mortar within two hours after mixing at temperatures of 90 degrees F, or two-and-one-half hours at temperatures under 40 degrees F.

G. Do not use calcium chloride in mortar.

2.04 PRECONSTRUCTION TESTING

A. Testing will be conducted by an independent test agency, in accordance with provisions of Section 01 43 00 - Quality Assurance.

B. Mortar Mixes: Test mortars prebatched by weight in accordance with ASTM C780 recommendations for preconstruction testing.
1. Test results will be used to establish optimum mortar proportions and establish quality control values for construction testing.

PART 3 EXECUTION

3.01 PREPARATION

A. Apply bonding agent to existing concrete surfaces.

3.02 INSTALLATION

A. Install mortar to requirements of section(s) in which masonry is specified.

B. Remove excess mortar from grout spaces.

3.03 FIELD QUALITY CONTROL

A. An independent testing agency will perform field tests, in accordance with provisions of Section 01 43 00 - Quality Assurance.

B. The owner will employ services of an independent testing agency to perform specified testing and inspections

C. All mortar shall meet the "proportion specification" of ASTM C-270 and be made with portland cement/lime (non air-entrained). The use of masonry cement mortar is strictly prohibited. Use Type 'S' for walls below grade and Type 'N' for all other walls.

END OF SECTION

SECTION 04 05 19
MASONRY ANCHORAGE & REINFORCING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Masonry Reinforcement and Anchorage.

1.02 RELATED REQUIREMENTS

A. Section 04 05 13 - Masonry Mortaring

B. Section 04 05 23 - Masonry Accessories

C. Section 04 20 00 - Unit Masonry

D. Section 05 50 00 - Metal Fabrications: Loose steel lintels.

E. Section 06 10 00 - Rough Carpentry: Nailing strips built into masonry.

1.03 REFERENCE STANDARDS

A. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2023.

B. ASTM A580/A580M - Standard Specification for Stainless Steel Wire; 2018.

C. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete; 2015.

D. TMS 402/602 - Building Code Requirements and Specification for Masonry Structures; 2016.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data for specified items.

1.05 QUALITY ASSURANCE

A. Comply with provisions of TMS 402/602, except where exceeded by requirements of Contract Documents.

PART 2 PRODUCTS

2.01 MORTAR MATERIALS

A. Masonry Mortaring as specified in Section 04 05 13.

2.02 REINFORCEMENT AND ANCHORAGE

A. Masonry Veneer Anchors: 2-piece anchors that permit differential movement between masonry veneer and structural backup, hot dip galvanized to ASTM A 153/A 153M, Class B.
   1. Wire ties: Manufacturer's standard shape, 0.1875 inch thick.
   2. Vertical adjustment: Not less than 2 inches.
   3. Manufacturers:
      a. Hohmann & Barnard, Inc (Dur-O-Wall); 2-Seal Tie.
      b. Masonry Reinforcing Corporation of America (Wire Bond); Sure Tie Anchoring System: www.wirebond.com.
      c. Heckmann Building Products, Inc; The Original Pos-I-Tie Brick Veneer Anchoring System (75).
      d. Trufast; Thermal-Grip Masonry Veneer Anchor; www.trufastwalls.com.
      e. Substitutions: See Section 01 60 00 - Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field conditions are acceptable and are ready to receive anchorages and reinforcing.

B. Verify that related items provided under other sections are properly sized and located.

C. Verify that built-in items are in proper location, and ready for roughing into masonry work.

3.02 PREPARATION

A. Direct and coordinate placement of metal anchors supplied for installation under other sections.

B. Clean reinforcement of loose rust

C. Provide temporary bracing during installation of masonry work. Maintain in place until building structure provides permanent bracing.

3.03 INSTALLATION GENERAL

A. Layout walls in advance for accurate spacing of surface bond patterns with uniform joint widths and to properly locate openings, movement type joints, returns, and offsets.

B. Thickness: Build masonry walls to the full thickness shown except single width walls to be nominal unit thickness.

C. Cut masonry units with motor driven saw designed to cut masonry with clean sharp unchipped edges.

3.04 REINFORCEMENT AND ANCHORAGE - MASONRY VENEER

A. Stud Back-Up: Secure veneer anchors to stud framed back-up and embed into masonry veneer at maximum 16 inches on center vertically and 24 inches on center horizontally. Place additional anchors at perimeter of openings and ends of panels, so maximum spacing of anchors is 8 inches on center.

3.05 BUILT-IN WORK

A. As work progresses, install built-in metal door frames and glazed frames and other items to be built into the work and furnished under other sections.

B. Install built-in items plumb, level, and true to line.

C. Bed anchors of metal door and glazed frames in adjacent mortar joints. Fill frame voids solid with grout.

1. Fill adjacent masonry cores with grout minimum 12 inches from framed openings.

D. Do not build into masonry construction organic materials that are subject to deterioration.

END OF SECTION

SECTION 04 05 23
MASONRY ACCESSORIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Masonry Accessories

B. Flashings

1.02 RELATED REQUIREMENTS

A. Section 04 05 13 - Masonry Mortaring

B. Section 04 05 19 - Masonry Anchorage & Reinforcing

C. Section 06 10 00 - Rough Carpentry: Nailing strips built into masonry.

1.03 REFERENCE STANDARDS

A. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2023.

B. ASTM A240/A240M - Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications; 2015b.

C. ASTM A580/A580M - Standard Specification for Stainless Steel Wire; 2018.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene a preinstallation meeting two weeks before starting work of this section; require attendance by all relevant installers, architect and structural engineer.

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data for specified items.

1.06 QUALITY ASSURANCE

A. Comply with provisions of TMS 402/602, except where exceeded by requirements of Contract Documents.

B. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section with minimum three years of documented experience.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver, handle, and store accessories by means that will prevent mechanical damage and contamination by other materials.

PART 2 PRODUCTS

2.01 MORTAR MATERIALS

A. Masonry Mortaring as specified in Section 04 05 13

2.02 FLASHINGS

A. Stainless Steel Flashing - Self-Adhering: ASTM A240/A240M; 2 mil type 304 stainless steel sheet with butyl adhesive and a removable release liner.

1. Manufacturers:
    a. York Flashings; York 304 SA: www.yorkflashings.com.
    b. Wire-Bond; Bond-N-Flash SA: www.wirebond.com.
    c. Homann & Barnard; Mighty-Flash-SA: www.h-b.com.
    d. Substitutions: See Section 01 60 00 - Product Requirements.

B. Transition Flashing

1. Multipurpose, modified butyl, self-adhered flashing
2. Thickness: 45 mils
3. Basis of Design: DuPont DuraGard CM Transition Flashing
4. Applications:
    a. Rough window and door openings

C. Flashing Termination Bar: Stainless Steel 1/8 inch thick x 1 inch wide with holes at 16 inches on center. Hole size is 5/16 inch (8mm) diameter
1. Manufacturers:
    a. Advanced Building Products Inc: Stainless Steel Termination Bar
    b. Hohmann and Barnard Inc.: T1
    c. Heckmann Building Products: Termination Bar
    d. Masonry Reinforcing Corporation of America, Wire Bond: Termination Bar
    e. Substitutions: See Section 01 60 00 - Product Requirements

D. Flashing End Dams and Corners:
1. Stainless Steel Flashing: ASTM A 666, Type 304, soft temper; 26 gauge thick; finish 2B to 2D.
2. Solder joints to ensure seal.

E. Sheet Metal Drip Edge:
1. Stainless Steel Flashing: ASTM A666/A666M, Type 304, soft temper; 26 gage, 0.0187 inch thick; finish 2B to 2D.
2. Width: 3 inch.
3. Application: Where drip edge is required per recommendations of NCMA-Tek 19-4
4. Manufacturers:
    a. Heckmann Building Products, Inc; Hemmed Drip-Edge Flashing: www.heckmannbuildingprods.com.
    b. Mortar Net Solutions; Drip Edge: www.mortarnet.com.
    c. Wire-Bond; Drip Edge Flashing: www.wirebond.com.
    d. York Flashing; Drip Edge: www.yorkbuilding.com.

F. Flashing Sealant/Adhesives: Silicone, polyurethane, or silyl-terminated polyether/polyurethane or other type required or recommended by flashing manufacturer; type capable of adhering to type of flashing used.

2.03 ACCESSORIES

A. Joint Filler: Closed cell neoprene sponge; oversized 50 percent to joint width; self expanding; 3/8 inch thick x width of brick x by maximum lengths available.
1. Manufacturers:
    a. Hohmann & Barnard, Inc; NS Close Cell Neoprene Sponge: www.h-b.com.
    b. Masonry Reinforcing Corporation of America, Wire Bond; Product Vertical Expansion Joint: www.wirebond.com.
    c. BoMetals Inc. Closed Dell Neoprene Sponge Rubber Joint Filler, www.bometals.com
    d. Substitutions: See Section 01 60 00 - Product Requirements.

B. Cavity Mortar Control (Cavity Mortar Diverter): Semi-rigid polyethylene or polyester mesh panels, sized to thickness of wall cavity, and designed to prevent mortar droppings from clogging weeps and cavity vents and allow proper cavity drainage.
1. Mortar Diverter: Semi-rigid mesh designed for installation at flashing locations.
2. Thickness: The same thickness of the air space in the cavity. Material should touch both sides of air space (insulation and masonry)
3. Height: The minimum height is 10 inches.
4. Manufacturers:

a. Advanced Building Products, Inc; Mortar Break DT: www.advancedbuildingproducts.com.
b. Mortar Net USA Limited; Mortar Net
c. Hohman & Barnard, Inc.; Mortar Trap: www.h-b.com.
d. Advanced Building Products Inc; Mortar Break: www.advancedflashing.com/

C. Nailing Strips: Softwood lumber, preservative treated; as specified in Section 06 10 00.

D. Cavity Vents (Weeps): Molded PVC grilles, insect resistant.
1. Size: 3/8 inch by 3 5/8 inch by height of masonry unit
2. Color(: As selected by Architect from manufacturer's full range.
3. Manufacturers:
a. Advanced Building Products, Inc: Mortar Maze Weep Vents: www.advancedbuildingproducts.com.
b. Hohmann & Barnard, Inc; QV - Quadro-Vent: www.h-b.com.
c. Mortar Net Solutions; CellVent: www.mortarnet.com.
d. WIRE-BOND; Cell Vent: www.wirebond.com.
e. Substitutions: See Section 01 60 00 - Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field conditions are acceptable and are ready to receive masonry.

B. Verify that related items provided under other sections are properly sized and located.

C. Verify that built-in items are in proper location, and ready for roughing into masonry work.

3.02 PREPARATION

A. Direct and coordinate placement of metal anchors supplied for installation under other sections.

B. Clean reinforcement of loose rust

C. Provide temporary bracing during installation of masonry work. Maintain in place until building structure provides permanent bracing.

3.03 WEEPS/CAVITY VENTS

A. Install weeps in veneer and cavity walls at 24 inches on center horizontally on top of through-wall flashing above shelf angles and lintels and at bottom of walls.

B. Install cavity vents in veneer and cavity walls at 32 inches on center horizontally below shelf angles and lintels and near top of walls.

3.04 CAVITY MORTAR CONTROL

A. Do not permit mortar to drop or accumulate into cavity air space or to plug weep/cavity vents.

B. For cavity walls, build inner wythe ahead of outer wythe to accommodate accessories.

C. Install cavity mortar diverter at base of cavity and at other flashing locations as recommended by manufacturer to prevent mortar droppings from blocking weep/cavity vents.

3.05 MASONRY FLASHINGS

A. General: Installed embedded flashing and weep holes in masonry at shelf angles, lintels, ledges, other obstructions to downward flow of water in wall, and where indicated.
1. Install concealed through-wall flashing in accordance with SMACNA Architectural Sheet Metal Manual" Chapter 4 Flashing and with NCMA TEK Bulletins 19-4 and 19-5 details to ensure water resistant masonry construction.

B. Installed preformed corners and end dams, under flexible flashing membrane, bedded in sealant (as approved by manufacturer of preformed corner, end dams, and flexible flashing for compatibility) in appropriate locations along wall.

C. Remove or cover protrusions or sharp edges that could puncture flashings.

D. Extend metal flashings through exterior face of masonry and terminate in an angled drip with hemmed edge. Install joint sealer below drip edge to prevent moisture migration under flashing.

E. Install flashing over metal flashing. Roll flashing into place. Ensure continuous and direct with substrate. Avoid trapping air and forming wrinkles.

F. Extend flashing to the face of the exterior wall.

G. Lap end joints of flashings at least 6 inches, minimum, and seal watertight with flashing sealant/adhesive.

H. Terminate flashing on vertical wall with termination bar and seal top of bar to the vertical wall.

I. Seal lapped ends and penetrations of flashing before covering with mortar.

3.06 EXPANSION JOINTS

A. Install expansion joints
   1. Where shown on the drawings
   2. In accordance with the Brick Industry Association (BIA) recommendations.

B. Do not continue horizontal joint reinforcement through expansion joints.

END OF SECTION

SECTION 04 20 00
UNIT MASONRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Clay facing brick.

1.02 RELATED REQUIREMENTS

A. Section 04 05 13 - Masonry Mortaring

B. Section 04 05 19 - Masonry Anchorage & Reinforcing

C. Section 04 05 23 - Masonry Accessories

D. Section 05 50 00 - Metal Fabrications: Steel lintels.

E. Section 06 10 00 - Rough Carpentry: Nailing strips built into masonry.

F. Section 07 92 00 - Joint Sealants: Sealing control and expansion joints.

1.03 REFERENCE STANDARDS

A. ASTM C67/C67M - Standard Test Methods for Sampling and Testing Brick and Structural Clay Tile; 2021.

B. ASTM C67 - Standard Test Methods for Sampling and Testing Brick and Structural Clay Tile; 2014.

C. ASTM C140/C140M - Standard Test Methods of Sampling and Testing Concrete Masonry Units and Related Units; 2014.

D. ASTM C216 - Standard Specification for Facing Brick (Solid Masonry Units Made From Clay or Shale); 2021.

E. ASTM C270 - Standard Specification for Mortar for Unit Masonry; 2014a.

F. ASTM C1148 - Standard Test Method for Measuring the Drying Shrinkage of Masonry Mortar; 1992a (Reapproved 2014).

G. TMS 402/602 - Building Code Requirements and Specification for Masonry Structures; 2016.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene a preinstallation meeting two weeks before starting work of this section; require attendance by all relevant installers, architect and structural engineer.

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data for specified items.

C. Samples: Submit four samples of facing brick units to illustrate color, texture, and extremes of color range.

D. Manufacturer's Certificate: Certify that masonry units meet or exceed specified requirements.

1.06 QUALITY ASSURANCE

A. Comply with provisions of TMS 402/602, except where exceeded by requirements of Contract Documents.

B. Protection of Masonry: During erection, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.

1. Extend cover a minimum of 24 inches down both sides and hold cover securely in place.

2. Where one wythe of multi wythe masonry walls is completed in advance of other wythes, secure cover a minimum of 24 inches down face next to unconstructed wythe and hold cover in place

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver, handle, and store masonry units by means that will prevent mechanical damage and contamination by other materials.

1.08 ENVIRONMENTAL REQUIREMENTS

A. Maintain materials and surrounding air temperature to minimum 40 degrees F prior to, during, and 48 hours after completion of masonry work.

B. Hot Weather Requirements: Comply with IMIAWC (HW).

PART 2 PRODUCTS

2.01 BRICK UNITS

A. Manufacturers:

B. Facing Brick: ASTM C216, Type FBS Smooth, Grade SW.
   1. Efflorescence: ASTM C67, "non effloresced"
   2. Color and texture to match existing adjacent brick.
   3. Special shapes: Molded units as required by conditions indicated, unless standard units can be sawn to produce equivalent effect.
   4. Compressive strength: As indicated on drawings, measured in accordance with ASTM C67/C67M.

2.02 MORTAR MATERIALS

A. Masonry Mortaring: Refer to Section 04 05 13

2.03 MORTAR MIXING

A. Mortar for Unit Masonry: ASTM C270, using the Proportion Specification.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field conditions are acceptable and are ready to receive masonry.

B. Verify that related items provided under other sections are properly sized and located.

C. Verify that built-in items are in proper location, and ready for roughing into masonry work.

3.02 PREPARATION

A. Direct and coordinate placement of metal anchors supplied for installation under other sections.

B. Clean reinforcement of loose rust

C. Provide temporary bracing during installation of masonry work. Maintain in place until building structure provides permanent bracing.

3.03 COLD AND HOT WEATHER REQUIREMENTS

A. Cold Weather Construction: Comply with whichever is the more stringent:
   1. The cold weather construction provisions of TMS 602/ACI 530.1/ASCE 6, Article 1.8 C, shall be implemented when the ambient temperature falls below 40 degrees F (4 degrees C)
   2. Maintain materials and surrounding air temperature to minimum 40 degrees F prior to, during, and 48 hours after completion of masonry work.
   3. Frozen Materials and Work:
      a. Do not use frozen materials mixed or coated with ice or frost.
      b. Do not build on frozen work.

c. Remove and replace masonry work damaged by frost or freezing.

B. Hot Weather Construction: Comply with whichever is the more stringent:
   1. Hot Weather Construction: The cold weather construction provisions of TMS 602/ACI 530.1/ASCE 6, Article 1.8 C, shall be implemented when the ambient temperature exceeds 100 degrees F (37.8 degrees C), or 90 degrees F (32.2 degrees C) with a wind velocity greater than 8 mph (3.58 m/s).
   2. Maintain materials and surrounding air temperature to maximum 90 degrees F prior to, during, and 48 hours after completion of masonry work.

3.04 INSTALLATION GENERAL

A. Layout walls in advance for accurate spacing of surface bond patterns with uniform joint widths and to properly locate openings, movement type joints, returns, and offsets.
   1. Avoid the use of less than half size units at corners, jambs, returns, offsets and where ever possible.

B. Thickness: Build masonry walls to the full thickness shown except single width walls to be nominal unit thickness.

C. Cut masonry units with motor driven saw designed to cut masonry with clean sharp unchipped edges.

3.05 COURSING

A. Establish lines, levels, and coursing indicated. Protect from displacement.

B. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.

C. Brick Units:
   1. Bond: Running.
   2. Coursing: three units and three mortar joints to equal 8 inches.
   3. Mortar Joints: Concave.

3.06 PLACING AND BONDING

A. Lay solid masonry units in full bed of mortar, with full head joints, uniformly jointed with other work.

B. Lay hollow masonry units with face shell bedding on head and bed joints.

C. Buttering corners of joints or excessive furrowing of mortar joints is not permitted.

D. Remove excess mortar and mortar smears as work progresses.

E. Interlock intersections and external corners.

F. Do not shift or tap masonry units after mortar has achieved initial set. Where adjustment must be made, remove mortar and replace.

G. Perform job site cutting of masonry units with proper tools to provide straight, clean, unchipped edges. Prevent broken masonry unit corners or edges.
   1. Cut masonry units with a motor -driven saw designed to cut masonry.

H. Cut mortar joints flush where wall tile is scheduled, resilient base is scheduled, or cavity insulation vapor barrier adhesive is applied.

I. Isolate masonry partitions from vertical structural framing members with a control joint as indicated.

J. Isolate top joint of masonry partitions from horizontal structural framing members and slabs or decks with compressible joint filler.

3.07 EXPANSION JOINTS

A. Install expansion joints

1. Where shown on the drawings
2. In accordance with the Brick Industry Association (BIA) recommendations.

B. Size expansion joints as indicated on drawings; if not shown, 3/8 inch wide.

C. Form expansion joint as detailed on drawings.

3.08 BUILT-IN WORK

A. As work progresses, install built-in metal door frames and glazed frames and other items to be built into the work and furnished under other sections.

B. Install built-in items plumb, level, and true to line.

C. Bed anchors of metal door and glazed frames in adjacent mortar joints. Fill frame voids solid with grout.
1. Fill adjacent masonry cores with grout minimum 12 inches from framed openings.

D. Do not build into masonry construction organic materials that are subject to deterioration.

3.09 TOLERANCES

A. Maximum Variation From Unit to Adjacent Unit: 1/16 inch.

B. Maximum Variation from Plumb: 1/4 inch per story non-cumulative; 1/2 inch in two stories or more.

C. Maximum Variation from Level Coursing: 1/8 inch in 3 ft and 1/4 inch in 10 ft; 1/2 inch in 30 ft.

D. Maximum Variation of Mortar Joint Thickness: Head joint, minus 1/4 inch, plus 3/8 inch.

3.10 CUTTING AND FITTING

A. Cut and fit for built in items and built in items. Coordinate with other sections of work to provide correct size, shape, and location.

B. Obtain approval prior to cutting or fitting masonry work not indicated or where appearance or strength of masonry work may be impaired.

3.11 SOURCE QUALITY CONTROL

A. Masonry Contractor shall water test cavity to verify all water is draining to the exterior through the weeps before continuing with exterior wythe before capping wall.
1. Contractor shall perform tests in the presence of, A/E, testing lab representative, and General Contractor.
a. Do not proceed more than 3 veneer courses above flashing without testing, observation, and picture documentation by testing lab representative.
2. Contractor shall hold water hose and with standard water pressure force water into the cavity at a cell vent so water can be observed coming out adjacent weeps for a period of at least 5 minutes. Contractor shall continue down the wall to the next cell vent where a weep did not indicate water wicking out and continue this process until the entire length of flashing is tested.
3. Where water is observed inside the building or outside the building away from the weeps, masonry units shall be removed and flashing re-inspected and repaired.
4. Water test shall be re-performed where flashing was repaired.

3.12 FIELD QUALITY CONTROL

A. An independent testing agency will perform field quality control tests, as specified in Section 01 43 00 - Quality Assurance.
1. The owner is to engage and compensate the on site testing agency.

B. Concrete Masonry Unit Tests: Test each variety of concrete unit masonry in accordance with ASTM C140/C140M for compliance with requirements of this specification.

C. Masonry Inspection

1. Provide masonry inspection of concrete or brick masonry walls as required to insure that masonry construction is in conformance with the Contract Documents.
2. The masonry inspector shall prepare a written report or reports for each day of inspection. Masonry Inspection report that follows Section 01 45 25 shall be used for the reports.
3. The masonry inspector shall be present and observe all grouting operations in wall requiring inspection. The masonry inspector shall be present at the project site with in sufficient time, in advance of grouting operations, to inspect the construction to insure its conformance to the Contract Documents and that grouting may proceed. Periodically the masonry inspector shall be present during the placement of masonry units and reinforcement.
4. No grouting shall be permitted unless the masonry inspector is present and has indicated that the masonry construction is properly prepared for grouting operation.

3.13 CLEANING

A. Remove excess mortar and mortar droppings.

B. Replace defective mortar. Match adjacent work.

C. Clean soiled surfaces with cleaning solution.

D. Use non-metallic tools in cleaning operations.

3.14 PROTECTION

A. Protect installed units from splashing, stains, mortar, and other damage.

B. Without damaging completed work, provide protective boards at exposed external corners that are subject to damage by construction activities.

END OF SECTION

GARMANN MILLER

Division 05

Metals

SECTION 05 50 00
METAL FABRICATIONS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Shop fabricated steel items including:
   1. Loose steel lintels

1.02 RELATED REQUIREMENTS

A. Section 04 20 00 - Unit Masonry: Placement of lintels in masonry.

B. Section 09 91 13 - Exterior Painting: Paint finish.

1.03 REFERENCE STANDARDS

A. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2024.

B. ASTM F3125/F3125M - Standard Specification for High Strength Structural Bolts and Assemblies, Steel and Alloy Steel, Heat Treated, Inch Dimensions 120 ksi and 150 ksi Minimum Tensile Strength, and Metric Dimensions 830 MPa and 1040 MPa Minimum Tensile Strength; 2022.

C. AWS D1.1/D1.1M - Structural Welding Code - Steel; 2020, with Errata (2022).

D. SSPC-Paint 15 - Steel Joist Shop Primer/Metal Building Primer; 1999 (Ed. 2004).

E. SSPC-Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic"); 2002 (Ed. 2004).

F. SSPC-SP 2 - Hand Tool Cleaning; 2018.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable.

C. Samples
   1. Submit samples as requested by the Architect during the course of construction.

1.05 QUALITY ASSURANCE

A. The work of this section shall be coordinated with the work of other Sections.
   1. Verify the dimensions and work of other trades adjoining items of this Section before fabrication and installation.

B. Furnish to the pertinent trades items included in this Section that are built into the work of other Sections.

C. Welding shall be performed by qualified welders and shall conform to the applicable AWS welding code.

1.06 DELIVERY, STORAGE AND HANDLING

A. Deliver items to be incorporated into the work of other trades in sufficient time to be checked prior to installation

B. Repair items which have become damaged to the satisfaction of the Architect prior to incorporating them into the work. Replace damaged items if repair cannot be done to the satisfaction of the Architect.

1.07 PROJECT SITE REQUIREMENTS

A. Field measurements shall be taken at the job site, prior to fabrication of items, to verify or supplement indicated dimensions and to ensure proper fitting of all items.

PART 2 PRODUCTS

2.01 MATERIALS - STEEL

A. Steel Angles, Channels, and S Shapes: ASTM A 36/A 36M - ASTM 992 (FY = 50ksi)

B. Steel W Shapes: ASTM A 992/A 992M (FY = 50ksi).

C. Rolled Steel Structural Shapes: ASTM A 992/A 992M (FY = 50ksi).

D. Plates and Bar: ASTM A 36, unless otherwise noted.

E. Bolts, Nuts, and Washers: ASTM F3125/F3125M, Type 1, plain.

F. Welding Materials: AWS D1.1/D1.1M; type required for materials being welded.

G. Shop and Touch-Up Primer: SSPC-Paint 15, complying with VOC limitations of authorities having jurisdiction.

H. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, Type I - Inorganic, complying with VOC limitations of authorities having jurisdiction.

2.02 FABRICATION

A. Fit and shop assemble items in largest practical sections, for delivery to site.
   1. Properly mark and match mark materials for field assembly
   2. Use connections that maintain structural values of joined pieces

B. Fabricate items with joints tightly fitted and secured.
   1. Ease exposed edges to a radius of approximately 1/32 inch, unless otherwise shown.
   2. Form bent-metal corners to smallest radius possible without causing grain separation of otherwise impairing work.

C. Continuously seal joined members by continuous welds.

D. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.

E. Exposed Mechanical Fastenings: Flush countersunk screws or bolts; unobtrusively located; consistent with design of component, except where specifically noted otherwise.

F. Furnish components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

G. Cut, reinforce, drill and tap miscellaneous metal work as required to receive finish hardware, screws, and similar items.

2.03 FABRICATED ITEMS

A. Lintels: As detailed; prime paint finish unless otherwise noted/scheduled.
   1. Fabricate loose structural-steel from steel angles and shapes indicated on the drawings.
   2. Weld adjoining members together to form a single unit.
   3. Size loose lintels to provide bearing at each side of opening equal to one-twelfth of the clear span, but not less than 8 inches.
   4. Galvanize after fabrication for use in exterior walls.

2.04 FINISHES - STEEL

A. Prime paint steel items.
   1. Exceptions: Galvanize items to be embedded in concrete, items to be embedded in masonry, and items specified for galvanized finish.

2. Exceptions: Do not prime surfaces in direct contact with concrete, where field welding is required, and items to be covered with sprayed fireproofing.
3. Exception: Galvanized items to be embedded in exterior walls or surfaces

B. Prepare surfaces to be primed in accordance with SSPC-SP2.

C. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.

D. Prime Painting: One coat.

E. Galvanizing of Structural Steel Members: Galvanize after fabrication to ASTM A123/A123M requirements. Provide minimum 1.7 oz/sq ft galvanized coating.

F. Galvanizing of Non-structural Items: Galvanize after fabrication to ASTM A123/A123M requirements.

2.05 FABRICATION TOLERANCES

A. Squareness: 1/8 inch maximum difference in diagonal measurements.

B. Maximum Offset Between Faces: 1/16 inch.

C. Maximum Misalignment of Adjacent Members: 1/16 inch.

D. Maximum Bow: 1/8 inch in 48 inches.

E. Maximum Deviation From Plane: 1/16 inch in 48 inches.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field conditions are acceptable and are ready to receive work.

3.02 PREPARATION

A. Clean and strip primed steel items to bare metal where site welding is required.

B. Furnish setting templates to the appropriate entities for steel items required to be cast into concrete or embedded in masonry.

3.03 INSTALLATION

A. Install items plumb and level, accurately fitted, free from distortion or defects.

B. Provide for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.

C. Field weld components as indicated on drawings.

D. Perform field welding in accordance with AWS D1.1/D1.1M.

E. Obtain approval prior to site cutting or making adjustments not scheduled.

F. After erection, prime welds, abrasionsand surfaces not shop primed or galvanized , except surfaces to be in contact with concrete.

END OF SECTION

GARMANN MILLER

Division 06

Woods, Plastics and Composites

SECTION 06 10 00
ROUGH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Structural dimension lumber framing.

B. Nonstructural dimension lumber framing.

C. Rough opening framing for doors, windows, and roof openings.

D. Roofing nailers.

E. Preservative treated wood materials.

F. Miscellaneous framing and sheathing.

G. Concealed wood blocking, nailers, and supports.

H. Wall sheathing with factory applied water-resistive and air barrier sheet.

1.02 RELATED REQUIREMENTS

A. Section 06 20 00 - Finished Carpentry

B. Section 07 62 00 - Sheet Metal Flashing and Trim

C. Section 09 21 16 - Gypsum Board Assemblies: Gypsum-based sheathing.

1.03 REFERENCE STANDARDS

A. ANSI A208.1 - American National Standard for Particleboard; 2022.

B. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2023.

C. ASTM C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board; 2025.

D. ASTM E2357 - Standard Test Method for Determining Air Leakage Rate of Air Barrier Assemblies; 2024.

E. ASTM E96/E96M - Standard Test Methods for Gravimetric Determination of Water Vapor Transmission Rate of Materials; 2024a.

F. AWC (WFCM) - Wood Frame Construction Manual for One- and Two-Family Dwellings; 2024, with Errata.

G. AWPA M4 - Standard for the Handling, Storage, Field Fabrication and Field Treatment of Preservative-Treated Wood Products; 2021.

H. AWPA U1 - Use Category System: User Specification for Treated Wood; 2025.

I. ICC (IBC) - International Building Code; 2015.

J. ICC-ES AC310 - Acceptance Criteria for Water-Resistive Membranes Factory-Bonded to Wood-Based Structural Sheathing, Used as Water-Resistive Barriers; 2008, with Editorial Revision (2021).

K. PS 1 - Structural Plywood; 2023.

L. PS 2 - Performance Standard for Wood Structural Panels; 2019.

M. PS 20 - American Softwood Lumber Standard; 2025.

N. SPIB (GR) - Standard Grading Rules; 2021.

O. WCLIB (GR) - WCLB Standard Grading Rules for West Coast & Imported Softwood Lumber No.18; 2024.

P. WWPA G-5 - Western Lumber Grading Rules; 2025.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Product Data: Provide technical data on insulated sheathing, wood preservative materials, and application instructions.

C. Product Data: Submit technical data on wood treatment.

1.05 DELIVERY, STORAGE, AND HANDLING

A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.

1.06 WARRANTY

A. See Section 01 78 00 - Closeout Submittals for additional warranty requirements.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
   1. If no species is specified, provide species graded by the agency specified; if no grading agency is specified, provide lumber graded by grading agency meeting the specified requirements.
   2. Grading Agency: Grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee at www.alsc.org, and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.

B. Lumber fabricated from old growth timber is not permitted.

2.02 DIMENSION LUMBER FOR CONCEALED APPLICATIONS

A. Sizes: Nominal sizes as indicated on drawings, S4S.

B. Moisture Content: S-dry or moisture content less than 19 percent..

C. Stud Framing (2 by 2 through 2 by 6):
   1. Species: Spruce, Pine, Fir.
   2. Grade: No. 1 / No. 2.

D. Joist, Rafter, and Small Beam Framing (2 by 6 through 4 by 16):
   1. Machine stress-rated (MSR) as follows:
      a. Fb-single; minimum extreme fiber stress in bending: 1350 psi.
      b. E; minimum modulus of elasticity: 1,300,000 psi.
   2. Species: Allowed under grading rules.

E. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:
   1. Lumber: S4S, No. 2 or Standard Grade.
   2. Boards: Standard or No. 3.

2.03 CONSTRUCTION PANELS

A. Roof Sheathing: APA PRP-108, APA Rated Sheathing, Exterior Exposure Class 1, and as follows:
   1. Grade: APA Rated Sheathing.
   2. Bond Classification: Exposure 1.
   3. Performance Category: 19/32 PERF CAT.
   4. Span Rating: 40/20.
   5. Edges: Square.

6. Trademark: Furnish construction panels factory-marked with a certification mark evidencing compliance with grade requirements

B. Wall Sheathing: Oriented strand board structural wood panel with factory laminated rigid plastic insulation board, and water-resistive barrier layer.
   1. Sheathing Panel: PS 2, Exposure 1.
   2. Thickness: 1-1/2 inches.
   3. Thermal Resistance, R-Value: 6.6, minimum.
   4. Insulation Board: Polyisocyanurate (ISO) insulation board; comply with ASTM C1289, Type II, Class 2 - Faced with coated polymer-bonded glass fiber mat facers on both major surfaces of the core foam.
   5. Integral Water-Resistive Barrier: Sheet material qualifying as a Grade D water-resistive barrier; complying with ICC-ES AC310.
   6. Water Vapor Permeance of Water-Resistive Barrier: 12 to 16 perms, minimum, when tested in accordance with ASTM E96/E96M Procedure B.
   7. Maximum Allowable Air Leakage of Assembly: Complying with ASTM E2357, 0.04 cfm/sq ft at a pressure differential of 1.57 psf.
   8. Provide fastening guide on top panel surface with separate markings indicating fastener spacing for 16 inches and 24 inches on center, respectively.
   9. Edge Profile: Square.
   10. Seam Tape: Manufacturer's standard pressure-sensitive, self-adhering, cold-applied, seam tape.
   11. Warranty: Manufacturer's standard 30 year limited system warranty.
      a. Performance: Panel and tape resistance to water penetration; tape adhesion.
      b. Material: Free from manufacturing defects and panel delamination.
   12. Products:
      a. Huber Engineered Woods, LLC; ZIP System R-Sheathing: www.huberwood.com.
      b. Substitutions: See Section 01 60 00 - Product Requirements.

C. Other Applications:
   1. Plywood Concealed From View But Located Within Exterior Enclosure: PS 1, C-C Plugged or better, Exterior grade.
   2. Plywood Exposed to View But Not Exposed to Weather: PS 1, A-D, or better.
   3. Other Locations: PS 1, C-D Plugged or better.

2.04 PRESSURE-PRESERVATIVE TREATMENT (PPT)

A. Factory-treat wood members in accordance with AWPA U1 and use category indicated.

B. Kiln-dry wood after treatment with waterborne preservative to maximum moisture content of 19 percent for lumber and 15 percent for plywood.

C. Fabricate to maximum extent possible before treatment.

D. Label preservative-treated wood with marking as required by AWPA U1 and ICC (IBC). Unless otherwise permitted by standard U1 and building code, include the following markings: AWPA U1, accredited inspection agency mark, treating plant identification, type of preservative, preservative retention, and permitted end use.

E. Field Treatment for Cuts and Holes in Preservative-Treated Wood: Comply with AWPA M4.

2.05 ACCESSORIES

A. Metal and Finish of Fasteners:
   1. Preservative-Treated Wood:
      a. Nails, timber rivets, wood screws, and lag screws - general use: Hot-dip galvanized steel complying with ASTM A153/A153M Class D.
      b. Staples: Type 304 stainless steel.

2. Untreated Wood: Unfinished steel.

B. Sill Gasket on Top of Foundation Wall: 3/8 inch thick, closed-cell plastic foam.
   1. Width: 5-1/2 inches.
   2. Ultraviolet (UV) and Weathering Resistance: Approved in writing by manufacturer for up to 30 days of weather exposure.
   3. Products:
      a. Protecto Wrap Company: www.protectowrap.com.
      b. Substitutions: See Section 01 60 00 - Product Requirements.

C. Liquid Flashing: One-part, fast-curing, nonsag, elastomeric, gun grade, trowelable liquid flashing.
   1. Products:
      a. Huber Engineered Woods, LLC; ZIP System Liquid Flash: www.huberwood.com/#sle.
      b. Substitutions: See Section 01 60 00 - Product Requirements.

PART 3 EXECUTION

3.01 PREPARATION

A. Where wood framing bears on cementitious foundations, install full width sill flashing continuous over top of foundation, lap ends of flashing minimum of 4 inches and seal.

B. Install sill gasket under sill plate of framed walls bearing on foundations; puncture gasket cleanly to fit tightly around protruding anchor bolts.

C. Coordinate installation of rough carpentry members specified in other sections.

3.02 INSTALLATION - GENERAL

A. Select material sizes to minimize waste.

B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.

3.03 FRAMING INSTALLATION

A. Set structural members level, plumb, and true to line. Discard pieces with defects that would lower required strength or result in unacceptable appearance of exposed members.

B. Make provisions for temporary construction loads, and provide temporary bracing sufficient to maintain structure in true alignment and safe condition until completion of erection and installation of permanent bracing.

C. Install structural members full length without splices unless otherwise specifically detailed.

D. Comply with member sizes, spacing, and configurations indicated, and fastener size and spacing indicated, but not less than required by applicable codes and AWC (WFCM) Wood Frame Construction Manual.

E. Install horizontal spanning members with crown edge up and not less than 1-1/2 inches of bearing at each end.

F. Construct double joist headers at floor and ceiling openings and under wall stud partitions that are parallel to floor joists; use metal joist hangers unless otherwise detailed.

G. Provide bridging at joists in excess of 8 feet span as detailed. Fit solid blocking at ends of members.

H. Frame wall openings with two or more studs at each jamb; support headers on cripple studs.

3.04 BLOCKING, NAILERS, AND SUPPORTS

A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.

B. In framed assemblies that have concealed spaces, provide solid wood fireblocking as required by applicable local code, to close concealed draft openings between floors and between top story and roof/attic space; other material acceptable to authorities having jurisdiction may be used in lieu of solid wood blocking.

C. In walls, provide blocking attached to studs as backing and support for wall-mounted items, unless item can be securely fastened to two or more studs or other method of support is explicitly indicated.

D. Where ceiling-mounting is indicated, provide blocking and supplementary supports above ceiling, unless other method of support is explicitly indicated.

E. Provide nonstructural framing and blocking to support the following:
   1. Cabinets and shelf supports.
   2. Wall brackets.
   3. Handrails.
   4. Grab bars.
   5. Towel and bath accessories.
   6. Wall-mounted door stops.
   7. Chalkboards and marker boards.
   8. Wall paneling and trim.
   9. Joints of rigid wall coverings that occur between studs.
   10. Other wall- or ceiling-mounted items indicated on drawings.

3.05 ROOF-RELATED CARPENTRY

A. Coordinate installation of roofing carpentry with deck construction, framing of roof openings, and roofing assembly installation.

B. Provide wood curb at each roof opening except where prefabricated curbs are specified and where specifically indicated otherwise; form corners by alternating lapping side members.

3.06 INSTALLATION OF CONSTRUCTION PANELS

A. Roof Sheathing: Secure panels with long dimension perpendicular to framing members, with ends staggered and over firm bearing.
   1. At long edges use sheathing clips where joints occur between roof framing members.
   2. Nail panels to framing; staples are not permitted.

B. Wall Sheathing and Roof Sheathing with Laminated Water-Resistive Barrier and Air Barrier: Secure to studs in accordance with manufacturer's installation instructions.
   1. Install with laminated water-resistive and air barrier on exterior side of sheathing.
   2. Do not bridge building expansion joints; cut and space edges of panels to match spacing of structural support elements.
   3. Use only mechanically attached and drainable EIFS and exterior insulation with wall sheathing with laminated water-resistive and air barrier.
   4. Apply manufacturer's standard seam tape to joints between sheathing panels; use tape gun or hard rubber roller in accordance with manufacturer's installation instructions.

3.07 SITE-APPLIED WOOD TREATMENT

A. Apply preservative treatment compatible with factory applied treatment at site-sawn cuts, complying with manufacturer's instructions.

B. Allow preservative to dry prior to erecting members.

3.08 TOLERANCES

A. Framing Members: 1/4 inch from true position, maximum.

B. Surface Flatness of Floor: 1/8 inch in 10 feet maximum, and 1/4 inch in 30 feet maximum.

C. Variation from Plane, Other than Floors: 1/4 inch in 10 feet maximum, and 1/4 inch in 30 feet maximum.

3.09 CLEANING

A. Waste Disposal:
   1. Comply with applicable regulations.
   2. Do not burn scrap on project site.
   3. Do not burn scraps that have been pressure treated.
   4. Do not send materials treated with pentachlorophenol, CCA, or ACA to co-generation facilities or "waste-to-energy" facilities.

B. Do not leave wood, shavings, sawdust, etc. on the ground or buried in fill.

C. Prevent sawdust and wood shavings from entering the storm drainage system.

END OF SECTION

SECTION 06 20 00
FINISH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Finish carpentry items.

B. Wood casings and moldings.

1.02 RELATED REQUIREMENTS

A. Section 06 10 00 - Rough Carpentry: Support framing, grounds, and concealed blocking.

B. Section 08 14 16 - Flush Wood Doors.

1.03 REFERENCE STANDARDS

A. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards; 2014, with Errata (2018).

B. AWMAC/WI (NAAWS) - North American Architectural Woodwork Standards; 2021, with Errata.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Shop Drawings: Indicate materials, component profiles, fastening methods, jointing details, and accessories.
   1. Scale of Drawings: 1-1/2 inch to 1 foot, minimum.

1.05 QUALITY ASSURANCE

A. Fabricator Qualifications: Company specializing in fabricating the products specified in this section with minimum five years of documented experience.
   1. Company with at least one project within the past 5 years with value of woodwork within 20 percent of cost of woodwork for this project.
   2. Single Source Responsibility: Provide and install this work from single fabricator.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Store finish carpentry items under cover, elevated above grade, and in a dry, well-ventilated area not exposed to heat or sunlight.

B. Protect from moisture damage.

PART 2 PRODUCTS

2.01 FINISH CARPENTRY ITEMS

A. Quality Grade: Unless otherwise indicated provide products of quality specified by AWI/AWMAC/WI (AWS) for Custom Grade.

B. Interior Woodwork Items:
   1. Moldings, Bases, Casings, and Miscellaneous Trim: Clear white maple; prepare for transparent finish.

2.02 LUMBER MATERIALS

A. Hardwood Lumber: White Maple species, plain sawn, maximum moisture content of 6 percent ; with vertical grain of quality suitable for opaque finish..
   1. Standing and Running Trim for Opaque (painted) Finish: Conforming to AWI Section 300. Blackout or groove backs of flat trim members and kerf backs of other wide flat members, except for members with ends exposed in finished work

2.03 FASTENINGS

A. Fasteners: Of size and type to suit application; zinc coated finish in concealed locations and stainless steel finish in exposed locations.

B. Concealed Joint Fasteners: Threaded steel.

2.04 ACCESSORIES

A. Lumber for Shimming and Blocking: Softwood lumber of pine species.

B. Primer: Alkyd primer sealer.

C. Wood Filler: Solvent base, tinted to match surface finish color.

2.05 SHOP FINISHING

A. General: The prefinishing of interior architectural woodwork is required to be performed at factory as specified in this section

B. Sand work smooth and set exposed nails and screws.

C. Apply wood filler in exposed nail and screw indentations.

D. On items to receive transparent finishes, use wood filler that matches surrounding surfaces and is of type recommended for the applicable finish.

E. Finish work in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), Section 5 - Finishing for grade specified in Section 09 91 23 - Interior Painting:

F. Back prime woodwork items to be field finished, prior to installation.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify adequacy of backing and support framing.

B. Verify mechanical, electrical, and building items affecting work of this section are placed and ready to receive this work.

3.02 INSTALLATION

A. Install custom fabrications in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS) requirements for grade indicated.

B. Set and secure materials and components in place, plumb and level.

C. Carefully scribe work abutting other components, with maximum gaps of 1/32 inch. Do not use additional overlay trim to conceal larger gaps.

3.03 PREPARATION FOR SITE FINISHING

A. Set exposed fasteners. Apply wood filler in exposed fastener indentations. Sand work smooth.

B. Before installation, prime paint surfaces of items or assemblies to be in contact with cementitious materials.

END OF SECTION

GARMANN MILLER

Division 07

Thermal and Moisture Protection

SECTION 07 21 13
BOARD INSULATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Board insulation at foundation perimeter.

1.02 RELATED REQUIREMENTS

A. Section 03 30 00 - Cast-in-Place Concrete

B. Section 07 21 19 - Foamed-In-Place Insulation: Plastic foam insulation other than boards.

1.03 REFERENCE STANDARDS

A. ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation; 2023.

B. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2024.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on product characteristics, performance criteria, and product limitations.

1.05 FIELD CONDITIONS

A. Do not install insulation adhesives when temperature or weather conditions are detrimental to successful installation.

PART 2 PRODUCTS

2.01 APPLICATIONS

A. Insulation at Perimeter of Foundation: Extruded polystyrene (XPS) board.

2.02 FOAM BOARD INSULATION MATERIALS

A. Extruded Polystyrene (XPS) Board Insulation: Complies with ASTM C578 with either natural skin or cut cell surfaces.
   1. Application: Perimeter foundation insulation.
   2. Flame Spread Index (FSI): Class A - 0 to 25, when tested in accordance with ASTM E84.
   3. Smoke Developed Index (SDI): 450 or less, when tested in accordance with ASTM E84.
   4. Type and Thermal Resistance, R-value: Type IV, 5.0 (0.88) per 1 inch thickness at 75 degrees F mean temperature.
   5. Board Size: 24 x 96 inch.
   6. Board Thickness: 2 inches.
   7. Board Edges: Square.
   8. Thermal Resistance: R-value of 5.0 per 1 inch at 75 degrees F mean temperature.
   9. Compressive Resistance: 25 psi.
   10. Water Absorption, Maximum: 0.3 percent, by volume.
   11. Manufacturers:
      a. DuPont: Styrofoam Brand Square Edge XPS; www.dupont.com.
      b. Kingspan Insulation LLC: GreenGuard XPS Type IV, 25 psi; www.kingspan.com.
      c. Owens Corning Corporation: FOAMULAR 250 Extruded Polystyrene (XPS) Insulation; www.ocbuildingspec.com.
      d. Substitutions: See Section 01 60 00 - Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that substrate, adjacent materials, and insulation materials are dry and that substrates are ready to receive insulation.

B. Verify substrate surfaces are flat, free of honeycomb, fins, irregularities, or materials or substances that may impede adhesive bond.

3.02 BOARD INSTALLATION AT FOUNDATION PERIMETER

A. Apply adhesive to back of boards:
   1. Three continuous beads per board length.

B. Install boards vertically on foundation perimeter.
   1. Place boards to maximize adhesive contact.
   2. Butt edges and ends tightly to adjacent boards and to protrusions.

C. Extend boards over expansion joints, unbonded to foundation on one side of joint.

D. Cut and fit insulation tightly to protrusions or interruptions to the insulation plane.

3.03 BOARD INSTALLATION AT EXTERIOR WALLS

A. Apply adhesive to back of boards:
   1. Three continuous beads per board length.

B. Install boards horizontally on walls.
   1. Place boards to maximize adhesive contact.
   2. Butt edges and ends tightly to adjacent boards and to protrusions.
      a. Place a continuous bead of adhesive between boards

C. Extend boards over expansion joints, unbonded to wall on one side of joint.

D. Cut and fit insulation tightly to protrusions or interruptions to the insulation plane.

3.04 PROTECTION

A. Do not permit installed insulation to be damaged prior to its concealment.

END OF SECTION

SECTION 07 21 16
BLANKET INSULATION

PART 1GENERAL

1.01 SUMMARY OF WORK

A. Section includes acoustic and thermal batt insulation.

1.02 RELATED REQUIREMENTS

A. Section 06 10 00 - Rough Carpentry

B. Section 07 92 00 - Joint Sealants

C. Section 09 21 16 - Gypsum Board Assemblies

1.03 REFERENCE STANDARDS

A. ASTM C167 - Standard Test Methods for Thickness and Density of Blanket or Batt Thermal Insulations; 2018 Edition.

B. ASTM C423 - Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method; 2009a.

C. ASTM C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus; 2021.

D. ASTM C553 - Standard Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications; 2013 (Reapproved 2019).

E. ASTM C612 - Standard Specification for Mineral Fiber Block and Board Thermal Insulation; 2014 (Reapproved 2019).

F. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2012.

G. ASTM C795 - Standard Specification for Thermal Insulation for Use in Contact with Austenitic Stainless Steel; 2008 (Reapproved 2018).

H. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2024.

I. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2023.

J. ASTM E136 - Standard Test Method for Assessing Combustibility of Materials Using a Vertical Tube Furnace at 750 Degrees C; 2024c.

K. ASTM E413 - Classification for Rating Sound Insulation; 2022.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordinate work of this Section with work of other trades for proper time and sequence to avoid construction delays.

1.05 SUBMITTALS

A. See Section 01 30 00-Administrative Requirements, for submittal procedures.

B. Product Data: Submit product data including manufacturer's literature for insulation materials and accessories, indicating compliance with specified requirements and material characteristics.

PART 2PRODUCTS

2.01 MANUFACTURERS

A. At Contractor's option, provide either glass fiber or mineral fiber thermal or acoustic batt insulation where acoustic batt insulation is indicated.

B. Mineral Wool Sound Attenuation Insulation:
   1. RockWool; Safe n Sound.
   2. Johns Manville; MinWool SAFB
   3. Owens Corning Fiberglass Corporation; Thermafiber SAFB
   4. Substitutions: See Section 01 60 00 - Product Requirements.

C. Fiberglass Sound Attenuation Insulation:
   1. CertainTeed/Saint Gobain; Noise Reducer Sound Attenuation Batts; www.certainteed.com
   2. Johns Manville: Cavity-SHIELD Fiberglass Insulation; www.johnsmanville.com
   3. Owens Corning Fiberglass Corporation; Sound Attenuation Batt Insulation (SAB) Fiberglass Insulation; www.owenscorning.com
   4. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 DESCRIPTION

A. Non-combustible, lightweight, semi-rigid mineral fiber batt insulation to, ASTM C665, Type 1, that provides fire resistance to ASTM E136 and sound control to ASTM C423.

2.03 INSULATION TYPES AND PERFORMANCE CRITERIA

A. Batt Insulation for exterior stud walls: To ASTM C665.
   1. Fire performance
      a. Non-Combustibility: To ASTM E136
      b. Surface Burning Characteristics: To ASTM E84
         1) Flame Spread: 0
         2) Smoke Developed: 0
   2. Thermal Resistance: To ASTM C518.
   3. Density: 2 pounds per cubic foot, to ASTM C167.

B. Acoustical batt insulation for walls and floors to ASTM C665, Type 1.
   1. Fire performance:
      a. Non-combustibility: To ASTM E136 .
      b. Surface Burning Characteristics: To ASTM E84.
         1) Flame spread: 0.
         2) Smoke developed: 0.
      c. Acoustical Performance:
         1) Airborne sound transmission loss: To ASTM E90.
         2) Rating sound insulation: To ASTM E413.
         3) Sound absorption coefficients: To ASTM C423 .
      d. Thermal resistance: To ASTM C518.
      e. Corrosive resistance: To ASTM C665, Corrosive to steel - Pass.
      f. Stainless steel stress corrosion: To ASTM C795.
      g. Density: To ASTM C612 , 2.5 lb/ft3.
      h. Recycled Content: 16 percent minimum

2.04 MATERIALS

A. Non-combustible, lightweight, mineral fiber or glass fiber batt insulation to ASTM C665, Type 1, that provides fire resistance to ASTM E136 and a sound control to ASTM E90 and ASTM C423 .
   1. Size: 16 x 48 inches, or size to fit in designed wall as shown on drawings.
   2. Thickness: As shown on drawings.

2.05 ACCESSORIES

A. Mechanical fasteners in accordance with insulation manufacturer's written recommendations.

B. Acoustical sealant in accordance.

2.06 SOURCE QUALITY CONTROL

A. Ensure insulation components and accessories are supplied or approved in writing by single manufacturer.

PART 3EXECUTION

3.01 INSTALLERS

A. Use only installers with minimum of 5 years experience with the work similar to work of this section.

3.02 EXAMINATION

A. Verification of Conditions: Verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for insulation installation in accordance with manufacturer's written recommendations.
   1. Visually inspect substrate in presence of Consultant.
   2. Ensure surfaces are free of snow, ice, frost, grease and other deleterious materials.
   3. Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Consultant.
   4. Start of insulation installation indicates installer's acceptance of substrate installation conditions.

3.03 INSTALLATION

A. Install insulation in accordance with manufacturer's written recommendations and guidelines.

B. Install insulation to maintain continuity of thermal protection to building elements and spaces.

C. Do not compress insulation to fit into spaces.

D. Fit insulation closely around electrical boxes, pipes, ducts, frames and other objects in or passing through insulation.

E. Keep insulation minimum 3 inches from heat emitting devices such as recessed light fixtures, and minimum 2 inches from sidewalls of chimneys and vents.

F. Seal joints with acoustical joint sealant.

G. Do not enclose insulation until before inspection and receipt of Consultant's written approval.

3.04 FIELD QUALITY CONTROL

A. Field Inspection: Coordinate field inspection in accordance with Section 01 43 00 - Quality Assurance.

3.05 CLEANING

A. Progress Cleaning: Perform cleanup as work progresses.
   1. Leave work area clean at end of each day.

B. Final Cleaning: Upon completion, remove surplus materials, rubbish, tools, and equipment.

3.06 PROTECTION

A. Store the material to protect against weathering and physical damage, including humidity.

B. Protect installed products and accessories from damage during construction.

C. Repair damage to adjacent materials caused by insulation installation.

END OF SECTION

SECTION 07 31 13
ASPHALT SHINGLES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Asphalt shingle roofing.

B. Flexible sheet membranes for eave protection, underlayment, and valley protection.

C. Associated metal flashings and accessories.

1.02 RELATED REQUIREMENTS

A. Section 06 10 00 - Rough Carpentry: Roof sheathing and framed openings.

B. Section 07 62 00 - Sheet Metal Flashing and Trim: Edge flashings.

C. Section 07 71 23 - Manufactured Gutters, Downspouts and Boots.

1.03 REFERENCE STANDARDS

A. ASTM D1970/D1970M - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection; 2013.

B. ASTM D3161/D3161M - Standard Test Method for Wind-Resistance of Steep Slope Roofing Products (Fan-Induced Method); 2020.

C. ASTM D3462/D3462M - Standard Specification for Asphalt Shingles Made From Glass Felt and Surfaced with Mineral Granules; 2019.

D. ASTM D4586/D4586M - Standard Specification for Asphalt Roof Cement, Asbestos-Free; 2007 (Reapproved 2012).

E. ASTM E108 - Standard Test Methods for Fire Tests of Roof Coverings; 2020a.

F. ASTM F1667 - Standard Specification for Driven Fasteners: Nails, Spikes, and Staples; 2021.

G. ICC-ES AC188 - Acceptance Criteria for Roof Underlayments; 2012.

H. NRCA (RM) - The NRCA Roofing Manual; 2017.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data indicating material characteristics.

C. Shop Drawings: For metal flashings, indicate specially configured metal flashings.

D. Samples: Submit two samples of each shingle color indicating color range and finish texture/pattern ; for color selection.

E. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

F. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.05 QUALITY ASSURANCE

A. Perform Work in accordance with the recommendations of {\rs\#1}.

1.06 FIELD CONDITIONS

A. Do not install shingles or eave protection membrane when surface temperatures are below 45 degrees F.

1.07 WARRANTY

A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.

B. Correct defective Work within a five year period after Date of Substantial Completion.

C. Provide 15 year manufacturer's warranty for wind damage.

1.08 EXTRA MATERIALS

A. See Section 01 60 00 - Product Requirements, for additional provisions.

B. Provide 100 sq ft of extra shingles of each color selected.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Basis of Design:
   1. Certainteed; Landmark Pro: www.certainteed.com

B. Other Acceptable Manufacturers:
   1. Atlas Roofing Corporation: www.atlasroofing.com.
   2. GAF: www.gaf.com.
   3. Owens Corning Corp: www.owenscorning.com.
   4. Tamko; Heritage: www.tamko.com.
   5. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 ASPHALT SHINGLES

A. Asphalt Shingles: Asphalt-coated glass felt, mineral granule surfaced, complying with ASTM D3462/D3462M.
   1. Fire Resistance: Class A, complying with ASTM E108.
   2. Wind Resistance: Class F, when tested in accordance with ASTM D3161/D3161M.
   3. Warranted Wind Speed: Not greater than 110 mph.
   4. Self-sealing type.
   5. Style: Laminated overlay.
   6. Color: As selected by Architect.

2.03 SHEET MATERIALS

A. Eave Protection Membrane: Self-adhering polymer-modified asphalt sheet complying with ASTM D1970/D1970M; 40 mil total thickness; with strippable treated release paper and polyethylene sheet top surface.

B. Underlayment: Self-adhering rubber-modified asphalt sheet complying with ASTM D1970/D1970M; 22 mil total thickness, minimum; with strippable release film and woven polypropylene sheet or polyolefin top surface.
   1. Minimum Requirements: Comply with requirements of ICC-ES AC188 for non-self-adhesive sheet.
   2. Self Sealability: Passing nail sealability test specified in ASTM D1970/D1970M.
   3. Low Temperature Flexibility: Passing test specified in ASTM D1970/D1970M.

C. Flexible Flashing: Self-adhering polymer-modified asphalt sheet complying with ASTM D1970/D1970M; 40 mil total thickness; with strippable treated release paper and polyethylene sheet top surface.

2.04 ACCESSORIES

A. Roofing Nails: Standard round wire shingle type, galvanized steel or aluminum roofing nails, minimum 3/8 inch head diameter, 12 gage, 0.109 inch nail shank diameter, 1-1/2 inch long and complying with ASTM F1667.

B. Plastic Cement: ASTM D4586/D4586M, asphalt roof cement.

C. Plastic Ridge Vents: Extruded plastic with vent openings that do not permit direct water or weather entry; flanged to receive shingles.

2.05 MISC. METAL FLASHINGS

A. Metal Flashings: Provide sheet metal eave edge, gable edge, open valley flashing, and other flashing indicated.
   1. Form flashings to protect roofing materials from physical damage and shed water.
   2. Form sections square and accurate to profile, in maximum possible lengths, free from distortion or defects detrimental to appearance or performance.
   3. Hem exposed edges of flashings minimum 1/4 inch on underside.
   4. Coat concealed surfaces of flashings with bituminous paint.

B. Aluminum Sheet Metal: Prefinished aluminum, 26 gage, 0.017 inch minimum thickness; PVC coating, manufacturers standard color.

C. Bituminous Paint: Acid and alkali resistant type; black color.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions prior to beginning work.

B. Verify that roof deck is of sufficient thickness to accept fasteners.

C. Verify that roof penetrations and plumbing stacks are in place and flashed to deck surface.

D. Verify roof openings are correctly framed.

E. Verify deck surfaces are dry, free of ridges, warps, or voids.

3.02 PREPARATION

A. Seal roof deck joints wider than 1/16 inch as recommended by shingle manufacturer.

B. At areas where eave protection membrane is to be adhered to substrate, fill knot holes and surface cracks with latex filler.

C. Broom clean deck surfaces before installing underlayment or eave protection.

D. Install eave edge flashings tight with fascia boards, weather lap joints 2 inches and seal with plastic cement, and secure flange with nails spaced 12 inches on center.

3.03 INSTALLATION - EAVE PROTECTION MEMBRANE

A. Install eave protection membrane from eave edge to minimum 4 ft up-slope beyond interior face of exterior wall.

B. Install eave protection membrane in accordance with manufacturer's instructions and NRCA (RM) applicable requirements.

3.04 INSTALLATION - UNDERLAYMENT

A. Underlayment At Roof Slopes Greater Than 4:12: Install underlayment perpendicular to slope of roof, with ends and edges weather lapped minimum 4 inches, stagger end laps of each consecutive layer, nail in place, and weather lap minimum 4 inches over eave protection.

B. Weather lap and seal watertight with plastic cement any items projecting through or mounted on roof.

3.05 INSTALLATION - VALLEY PROTECTION

A. Install one ply of flexible flashing, minimum 18 inches wide, centered over valleys.

B. Install flexible flashing in accordance with manufacturer's instructions and NRCA (RM) applicable requirements.

C. Weather lap joints minimum 2 inches.

D. Nail in place minimum 18 inches on center, 1 inch from edges.

3.06 INSTALLATION - METAL FLASHING AND ACCESSORIES

A. Weather lap joints minimum 2 inches and seal weather tight with plastic cement.

B. Items Projecting Through or Mounted on Roofing: Flash and seal weather tight with plastic cement.

3.07 INSTALLATION - SHINGLES

A. Install shingles in accordance with manufacturer's instructions manufacturer's instructions and NRCA (RM) applicable requirements.
   1. Fasten individual shingles using two nails per shingle, or as required by manufacturer and local building code, whichever is greater.
   2. Fasten strip shingles using four nails per strip, or as required by manufacturer and local building code, whichever is greater.

B. Place shingles in straight coursing pattern with 5 inch weather exposure to produce double thickness over full roof area, and provide double course of shingles at eaves.

C. Project first course of shingles 3/4 inch beyond fascia boards.

D. Extend shingles 1/2 inch beyond face of gable edge fascia boards.

E. Cap hips with individual shingles, maintaining 5 inch weather exposure, and place to avoid exposed nails.

F. After installation, place one daub of plastic cement, one inch diameter under each individual shingle tab exposed to weather, to prevent lifting.

G. Coordinate installation of roof mounted components or work projecting through roof with weather tight placement of counter flashings.

H. Complete installation to provide weather tight service.

3.08 PROTECTION

A. Do not permit traffic over finished roof surface.

END OF SECTION

SECTION 07 46 26
HARDBOARD SIDING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Primed hardboard siding.

B. Matching soffit panels and trim.

C. Sealing panel joints and penetrations.

D. Flashings within siding installation.

1.02 REFERENCE STANDARDS

A. ANSI A135.6 - Engineered Wood Siding; 2012 (Reaffirmed 2020).

B. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2024.

1.03 RELATED SECTIONS

A. Section 06 10 00 - Rough Carpentry: Stud wall framing and sheathing.

B. Section 09 91 13 - Exterior Painting.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation methods, including nailing patterns.

C. Siding manufacturer's requirements for products to be installed by others.

D. Maintenance and periodic inspection recommendations.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Store products off the ground, on a flat surface, and under a roof or separate waterproof covering.

1.06 WARRANTY

A. Manufacturer's Standard Warranty: 50 year transferable limited warranty with 5 year 100 percent repair and replacement warranty.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. LP Building Solutions; SmartSide Trim and Siding: www.lpcorp.com.

B. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 MATERIALS

A. Lap Siding:
   1. Hardboard complying with ANSI A135.6, with resin and linseed oil impregnated surface; primed finish.
   2. ASTM E84 Class C flamespread.
   3. APA-certified lap siding
   4. Style: Brushed smooth.
   5. Width: 6 inch nominal, 4 7/8" inch exposure.
   6. Thickness: 3/8 inch nominal.

B. Soffit Panels:
   1. Hardboard complying with ANSI A135.6, with resin and linseed oil impregnated surface; vented; primed finish; no grooves, square edges.
   2. ASTM E84 Class C flamespread.
   3. Style: Brushed smooth, vented.
   4. Width: 24 inch nominal.
   5. Thickness: 3/8 inch nominal.

C. Trim and Fascia:
   1. Hardboard complying with ANSI A135.6, with resin and linseed oil impregnated surface; primed finish.
   2. ASTM E84 Class C flamespread.
   3. Style: Brushed smooth.
   4. Width: Varies; reference drawings.
   5. Thickness: 1 inch nominal.

PART 3 EXECUTION

3.01 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

3.02 INSTALLATION

A. Install in accordance with manufacturer's instructions and drawing details.
   1. Read warranty and comply with terms necessary to maintain warranty coverage.
   2. Install in accordance with conditions stated in model code evaluation service report.
   3. Properly space joints to allow for equilibration.

B. Allow products to adjust to ambient conditions before starting installation.

C. Over Insulated Wood Sheathing: Fasten siding through sheathing into studs.

D. Install sheet metal flashing at masonry wall transition.

E. Do not install siding less than 6 inches from ground nor closer than 1 inch to roofs and other surfaces where water may collect.

F. Do not cut siding to fabricate trim; use trim components manufactured for the purpose.

G. After installation, seal joints except lap joints of lap siding. Seal around penetrations. Paint exposed cut edges

3.03 PROTECTION

A. Protect installed products until completion of project.

END OF SECTION

SECTION 07 62 00
SHEET METAL FLASHING AND TRIM

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Fabricated sheet metal items, including flashings.

1.02 RELATED REQUIREMENTS

A. Section 06 10 00 - Rough Carpentry: Wood nailers for sheet metal work.

B. Section 07 46 26 - Hardboard Siding.

C. Section 07 71 23 - Manufactured Gutters, Downspouts and Boots.

D. Section 07 92 00 - Joint Sealants: Sealing non-lap joints between sheet metal fabrications and adjacent construction.

1.03 REFERENCE STANDARDS

A. AAMA 2604 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix); 2022.

B. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2014.

C. ASTM B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate (Metric); 2014.

D. SMACNA (ASMM) - Architectural Sheet Metal Manual; 2012.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene one week before starting work of this section.

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Indicate material profile, jointing pattern, jointing details, fastening methods, flashings, terminations, and installation details.

1.06 QUALITY ASSURANCE

A. Perform work in accordance with SMACNA (ASMM) requirements and standard details, except as otherwise indicated.

B. Fabricator and Installer Qualifications: Company specializing in sheet metal work with 5 years of documented experience.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Stack material to prevent twisting, bending, and abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.

B. Prevent contact with materials that could cause discoloration or staining.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Sheet Metal Flashing and Trim Manufacturers:
   1. Fairview Architectural LLC: www.fairview-na.com.
   2. OMG Roofing Products: www.omgroofing.com.
   3. Petersen Aluminum Corporation: www.pac-clad.com.
   4. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 SHEET MATERIALS

A. Pre-Finished Aluminum: ASTM B209 (ASTM B209M); 20 gage, (0.032 inch) thick; plain finish shop pre-coated with fluoropolymer coating.
   1. Fluoropolymer Coating: High Performance Organic Finish, AAMA 2604; multiple coat, thermally cured fluoropolymer finish system.
   2. Color: As selected by Architect from manufacturer's standard colors.

2.03 FABRICATION

A. Form sections true to shape, accurate in size, square, and free from distortion or defects.

B. Form pieces in longest possible lengths.

C. Hem exposed edges on underside 1/2 inch; miter and seam corners.

D. Form material with flat lock seams, except where otherwise indicated; at moving joints, use sealed lapped, bayonet-type or interlocking hooked seams.

E. Fabricate corners from one piece with minimum 18 inch long legs; seam for rigidity, seal with sealant.

F. Fabricate flashings to allow toe to extend 2 inches over roofing gravel. Return and brake edges.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify roof openings, curbs, pipes, sleeves, ducts, and vents through roof are solidly set, reglets in place, and nailing strips located.

B. Verify roofing termination and base flashings are in place, sealed, and secure.

3.02 PREPARATION

A. Install starter and edge strips, and cleats before starting installation.

B. Install surface mounted reglets true to lines and levels, and seal top of reglets with sealant.

C. Back paint concealed metal surfaces with protective backing paint to a minimum dry film thickness of 15 mil.

3.03 INSTALLATION

A. Secure flashings in place using concealed fasteners, and use exposed fasteners only where permitted..

B. Apply plastic cement compound between metal flashings and felt flashings.

C. Fit flashings tight in place; make corners square, surfaces true and straight in planes, and lines accurate to profiles.

3.04 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

3.05 FIELD QUALITY CONTROL

A. See Section 01 43 00 - Quality Assurance, for field inspection requirements.

END OF SECTION

SECTION 07 71 23
MANUFACTURED GUTTERS, DOWNSPOUTS AND BOOTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Pre-finished aluminum gutters and downspouts.

B. PVC downspout boots

1.02 RELATED REQUIREMENTS

A. Section 07 31 13 - Asphalt Shingle Roofing

B. Section 07 62 00 - Sheet Metal Flashing and Trim.

1.03 REFERENCE STANDARDS

A. AAMA 2604 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix); 2022.

B. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2014.

C. ASTM B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate (Metric); 2014.

D. SMACNA (ASMM) - Architectural Sheet Metal Manual; 2012.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Comply with SMACNA (ASMM) for sizing components for rainfall intensity determined by a storm occurrence of 1 in 5 years.

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on prefabricated components.

C. Shop Drawings: Indicate locations, configurations, jointing methods, fastening methods, locations, and installation details.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Stack material to prevent twisting, bending, or abrasion, and to provide ventilation. Slope to drain.

B. Prevent contact with materials that could cause discoloration, staining, or damage.

1.07 PROJECT CONDITIONS

A. Coordinate the work with downspout discharge pipe inlet.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Gutters and Downspouts:
   1. Metal Era
   2. Dimensional Metal Inc, 58 Kelma Drive, Reynoldsburg, Ohio 43068
   3. Exceptional Metals
   4. ATAS International, Inc
   5. MM Systems Company, Tucker, Georgia
   6. Architectural Products Co
   7. Cheney Flashing Company: www.cheneyflashing.com
   8. SAF Perimeter Systems, a division of Southern Aluminum Finishing Company, Inc: www.saf.com/persys

9. W.P. Hickman Company: www.wph.com.
10. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 MATERIALS

A. Pre-Finished Aluminum Sheet: ASTM B209 (ASTM B209M); 0.032 inch thick.
1. Finish: Plain, shop pre-coated with PVDF (polyvinylidene fluoride) coating.
2. Color: As selected from manufacturer's standard colors.

2.03 COMPONENTS

A. Gutters: SMACNA rectangular style profile.
1. Match existing profile and finish.

B. Downspouts: SMACNA Rectangular profile. Locations as indicated on the drawings.

C. Anchors and Supports: Profiled to suit gutters and downspouts.
1. Anchoring Devices: In accordance with SMACNA requirements.
2. Gutter Supports: Brackets.
3. Downspout Supports: Straps.

D. Fasteners: Aluminum, with soft neoprene washers.

2.04 ACCESSORIES

A. Corners, end caps, expansion joints shall be fabricated by manufacturer. Factory fabricated, mitered corners shall have 17 1/2 inch nominal leg lengths.

B. Provide matching ledge caps, downspouts, etc.

C. Downspout Boots: PVC
1. Manufacturers:
a. Downspoutboots.com, a division of J. R. Hoe & Sons
b. www.downspoutboots.com
c. Substitutions: See Section 01 60 00 - Product Requirements.
2. Configuration; N-Series - Ninety Downspout Boot
3. Color: To be selected by Architect from manufacturer's standard range.
4. Top bell to match downspout

2.05 FABRICATION

A. Form gutters and downspouts of profiles and size indicated.

B. Fabricate with required connection pieces.

C. Form sections square, true, and accurate in size, in maximum possible lengths, free of distortion or defects detrimental to appearance or performance. Allow for expansion at joints.

D. Hem exposed edges of metal.

E. Fabricate gutter and downspout accessories; seal watertight.

2.06 FINISHES

A. Fluoropolymer Coating: High Performance Organic Finish, AAMA 2604; multiple coat, thermally cured fluoropolymer finish system; color as indicated.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that surfaces are ready to receive work.

3.02 PREPARATION

A. Paint concealed metal surfaces and surfaces in contact with dissimilar metals with protective backing paint to a minimum dry film thickness of 15 mil.

3.03 INSTALLATION

A. Install gutters, downspouts, and accessories in accordance with manufacturer's instructions.

B. Slope gutters 1/8 inch per foot or as required for project.

C. Provide elbows in the downspout to ensure that the offset to building veneer is no greater than 3 inches on average. Review lengths and elbows with Architect prior to installation.

D. Connect downspouts to downspout boots at approximately 4 inches above grade. Grout connection watertight.

E. Field paint pvc downspout boot to match downspout color.

F. Field paint exposed storm pipe

END OF SECTION

SECTION 07 92 00
JOINT SEALANTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Provide labor, materials and equipment necessary to complete sealant work, both interior and exterior of the Project.

B. Nonsag gunnable joint sealants.

C. Self-leveling pourable joint sealants.

D. Joint backings and accessories.

1.02 RELATED REQUIREMENTS

A. Section 23 31 00 - HVAC Ducts and Casings: Duct sealants.

1.03 REFERENCE STANDARDS

A. ASTM C661 - Standard Test Method for Indentation Hardness of Elastomeric-Type Sealants by Means of a Durometer; 2015 (Reapproved 2022).

B. ASTM C834 - Standard Specification for Latex Sealants; 2017 (Reapproved 2023).

C. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2014.

D. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2016 (Reapproved 2023).

E. ASTM C1248 - Standard Test Method for Staining of Porous Substrate by Joint Sealants; 2022.

F. ASTM D2240 - Standard Test Method for Rubber Property--Durometer Hardness; 2015 (Reapproved 2021).

G. SCAQMD 1168 - Adhesive and Sealant Applications; 1989, with Amendment (2022).

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordinate the work with other sections referencing this section.

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data for Sealants: Submit manufacturer's technical data sheets for each product to be used, that includes the following.
   1. Physical characteristics, including movement capability, VOC content, hardness, service temperature range, cure time, and color availability.
   2. List of backing materials approved for use with the specific product.
   3. Substrates that product is known to satisfactorily adhere to and with which it is compatible.
   4. Substrates the product should not be used on.
   5. Substrates for which use of primer is required.

C. Color Cards for Selection: Where sealant color is not specified, submit manufacturer's color cards showing standard colors available for selection.

D. Samples for Verification: Where custom sealant color is specified, obtain directions from Architect and submit at least two physical samples for verification of color of each required sealant.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

B. Installer Qualifications: Company specializing in performing the work of this section and with at least three years of documented experience.

1.07 FIELD CONDITIONS

A. Do not install sealants when ambient temperature is less than 40 degrees F.

B. Maintain this minimum temperature during and 24 hours after installation of sealants.

C. Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.

1.08 WARRANTY

A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.

B. Correct defective work within a two (2) year period after Date of Substantial Completion.

C. Warranty: Include coverage for installed sealants and accessories that fail to achieve watertight seal, exhibit loss of adhesion or cohesion, or do not cure.

PART 2 PRODUCTS

2.01 JOINT SEALANT APPLICATIONS

A. Scope:
   1. Exterior Joints: Seal open joints, whether or not the joint is indicated on drawings, unless specifically indicated not to be sealed. Exterior joints to be sealed include, but are not limited to, the following items.
      a. Wall expansion and control joints.
      b. Joints between door, window, and other frames and adjacent construction.
      c. Joints between different exposed materials.
      d. Openings below ledge angles in masonry.
      e. Joints and intersections in concrete paving.
      f. Joints and intersections between dissimilar materials that do not fit together with a hairline joint.
      g. Intersections of equipment that do not fit together or against adjoining material with a hairline joint.
      h. Other joints indicated below.
   2. Interior Joints: Do not seal interior joints unless specifically indicated to be sealed. Interior joints to be sealed include, but are not limited to, the following items.
      a. Joints between door, window, and other frames and adjacent construction.
      b. Joints and intersections between dissimilar materials that do not fit together with a hariline joint.
      c. Intersections of equipment that do not fit together or against adjoining material with a hairline joint.
      d. Other joints indicated below.
   3. Do not seal the following types of joints.
      a. Intentional weepholes in masonry.
      b. Joints indicated to be treated with manufactured expansion joint cover or some other type of sealing device.
      c. Joints where sealant is specified to be provided by manufacturer of product to be sealed.
      d. Joints where installation of sealant is specified in another section.
      e. Joints between suspended panel ceilings/grid and walls.

B. General Project Recomendations
   1. Type 1 - Exterior Joints: Use non-sag non-staining silicone sealant, unless otherwise indicated.
   2. Type 2 - Lap Joints in Sheet Metal Fabrications: Butyl rubber, non-curing.
   3. Type 4 - Interior Joints: Use non-sag polyurethane sealant, unless otherwise indicated.

4. Type 5 - Joints between Fixtures in Wet Areas and Floors, Walls, and Ceilings: Mildew-resistant silicone sealant; white.

C. Interior Wet Areas: Bathrooms, restrooms, and food service areas; fixtures in wet areas include plumbing fixtures, food service equipment, countertops, cabinets, and other similar items.

2.02 JOINT SEALANTS - GENERAL

A. Sealants and Primers: Provide products having lower volatile organic compound (VOC) content than indicated in SCAQMD 1168.

B. Single source responsibility for joint sealant materials: Obtain joint sealant materials from a single manufacturer.

C. Compatibility: Provide joint sealant, joint fillers and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer based on testing and experience.

2.03 NONSAG JOINT SEALANTS

A. Non-Staining Silicone Sealant: ASTM C920, Grade NS, Uses M and A; not expected to withstand continuous water immersion or traffic.
   1. Movement Capability: Plus and minus 50 percent, minimum.
   2. Non-Staining To Porous Stone: Non-staining to light-colored natural stone when tested in accordance with ASTM C1248.
   3. Dirt Pick-Up: Reduced dirt pick-up compared to other silicone sealants.
   4. Hardness Range: 15 to 35, Shore A, when tested in accordance with ASTM C661.
   5. Color: To be selected by Architect from manufacturer's standard range.
   6. Service Temperature Range: Minus 20 to 180 degrees F.
   7. Applications: Use for:
      a. Metal to metal joint.
      b. Glass to glass joints.
      c. Sheet metal flashing, coping, preformed metal caps, fascia, extenders trim and panels.
      d. Glass to metal joints.
      e. Concrete to concrete, including precast panels
   8. Manufacturers:
      a. Dow Chemical Company; DOWSIL 795 Silicone Building Sealant: www.dow.com.
      b. Pecora Corporation; Pecora 864 NST (Non-Staining Technology): www.pecora.com.
      c. Sika Corporation; Sikasil WS-290: www.usa-sika.com.
      d. Tremco, Inc.; Product Spectrum 2: www.tremcosealants.com.
      e. Substitutions: See Section 01 60 00 - Product Requirements.

B. Mildew-Resistant Silicone Sealant: ASTM C920, Grade NS, Uses M and A; single component, mildew resistant; not expected to withstand continuous water immersion or traffic.
   1. Color: White or as selected by Architect
   2. Applications: Use for:
      a. Around countertops, backsplashes and other wet interior locations.
   3. Manufacturers:
      a. Dow Chemical Company; DOWSIL 791 Silicone Weatherproofing Sealant: www.dow.com.
      b. Pecora Corporation; Pecora 898 NST (Non-Staining Technology): www.pecora.com.
      c. Sika Corporation; Sikasil GP: www.usa-sika.com.
      d. Tremco, Inc; Tremsil 200: www.tremcosealants.com.
      e. Substitutions: See Section 01 60 00 - Product Requirements.

C. Polyurethane Sealant: ASTM C920, Grade NS, Uses M and A; single or multi-component; not expected to withstand continuous water immersion or traffic.
   1. Movement Capability: Plus and minus 50 percent, minimum.
   2. Hardness Range: 20 to 35, Shore A, when tested in accordance with ASTM C661.
   3. Color: To be selected by Architect from manufacturer's standard range.
   4. Service Temperature Range: Minus 40 to 180 degrees F.
   5. Manufacturers:
      a. Pecora Corporation; DynaTrol II: www.pecora.com.
      b. Sika Corporation; Sikaflex-1a: www.usa-sika.com.
      c. Sika Corporation; Sikaflex-2c NS: www.usa-sika.com.
      d. Tremco Commercial Sealants & Waterproofing; Dymonic 100: www.tremcosealants.com.
      e. W. R. Meadows, Inc; POURTHANE NS: www.wrmeadows.com.
      f. Substitutions: See Section 01 60 00 - Product Requirements.

D. Acrylic Emulsion Latex: Water-based; ASTM C834, single component, non-staining, non-bleeding, non-sagging; not intended for exterior use.
   1. Color: To be selected by Architect from manufacturer's standard range.
   2. Grade: ASTM C834; Grade Minus 18 Degrees C (0 Degrees F).
   3. Applications: Use for:
      a. Interior wall and ceiling control joints.
      b. Joints between door and window frames and wall surfaces.
      c. Other interior joints for which no other type of sealant is indicated.
   4. Manufacturers:
      a. Everkem Diversified Products, Inc; EcoTex 25: www.everkemproducts.com.
      b. Pecora Corporation; AC-20 +Silicone: www.pecora.com.
      c. Sherwin-Williams Company; 950A Siliconized Acrylic Latex Caulk: www.sherwin-williams.com.
      d. Tremco Commercial Sealants & Waterproofing; Tremflex 834: www.tremcosealants.com.
      e. Substitutions: See Section 01 60 00 - Product Requirements.

2.04 SELF-LEVELING SEALANTS

A. Self-Leveling Polyurethane Sealant: ASTM C920, Grade P, Uses M and A; single or multi-component; explicitly approved by manufacturer for traffic exposure; not expected to withstand continuous water immersion .
   1. Movement Capability: Plus and minus 50 percent, minimum.
   2. Hardness Range: 35 to 55, Shore A, when tested in accordance with ASTM C661.
   3. Color: To be selected by Architect from manufacturer's standard range.
   4. Service Temperature Range: Minus 40 to 180 degrees F.
   5. Applications: Use for:
      a. Joints in sidewalks and vehicular paving.
   6. Manufacturers:
      a. Pecora Corporation; Dynatrol II-SL: www.pecora.com.
      b. The QUIKRETE Companies; QUIKRETE® Polyurethane Self-Leveling Sealant: www.quikrete.com.
      c. Sika Corporation; Sikaflex-1c SL: www.usa-sika.com.
      d. W. R. Meadows, Inc; POURTHANE SL: www.wrmeadows.com.
      e. Substitutions: See Section 01 60 00 - Product Requirements.

B. Semi-Rigid Self-Leveling Polyurea Joint Filler: Two-component, 100 percent solids; intended for filling cracks and control joints not subject to significant movement; rigid enough to support concrete edges under traffic.

1. Durometer Hardness, Type A: 75, minimum, after seven days when tested in accordance with ASTM D2240.
2. Color: Concrete gray.
3. Joint Width, Minimum: 1/8 inch.
4. Joint Width, Maximum: 3/4 inch.
5. Joint Depth: Provide product suitable for joints from 1/8 inch to 1 inch in depth excluding space for backer rod.
6. Application: Use for
   a. Joint filler for concrete slab saw cuts and narrow cracks.
7. Manufacturers:
   a. Adhesives Technology Corporation; Crackbond JF-311: www.atcepoxy.com.
   b. ARDEX Engineered Cements; ARDEX ArdiSeal: www.ardexamericas.com.
   c. Nox-Crete; DynaFlex JF-85: www.nox-crete.com.
   d. Sika Corporation - Sika Loadflex - Load Bearing Semi Rigid Polyurea Joint Filler; www.sika-usa.com.
   e. Substitutions: See Section 01 60 00 - Product Requirements.

2.05 ACCESSORIES

A. Backer Rod: Cylindrical cellular foam rod with surface that sealant will not adhere to, compatible with specific sealant used, and recommended by backing and sealant manufacturers for specific application.

B. Backing Tape: Self-adhesive polyethylene tape with surface that sealant will not adhere to and recommended by tape and sealant manufacturers for specific application.

C. Masking Tape: Self-adhesive, nonabsorbent, non-staining, removable without adhesive residue, and compatible with surfaces adjacent to joints and sealants.

D. Joint Cleaner: Non-corrosive and non-staining type, type recommended by sealant manufacturer; compatible with joint forming materials.

E. Primers: Type recommended by sealant manufacturer to suit application; non-staining.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that joints are ready to receive work.

B. Verify that backing materials are compatible with sealants.

C. Verify that backer rods are of the correct size.

3.02 PREPARATION

A. Remove loose materials and foreign matter that could impair adhesion of sealant.

B. Clean joints, and prime as necessary, in accordance with manufacturer's instructions.

C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.

D. Mask elements and surfaces adjacent to joints from damage and disfigurement due to sealant work; be aware that sealant drips and smears may not be completely removable.

E. Concrete Floor Joints That Will Be Exposed in Completed Work: Test joint filler in inconspicuous area to verify that it does not stain or discolor slab.

3.03 INSTALLATION

A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.

B. Perform installation in accordance with ASTM C1193.

C. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer.

D. Install bond breaker backing tape where backer rod cannot be used.

E. Install sealant free of air pockets, foreign embedded matter, ridges, and sags, and without getting sealant on adjacent surfaces.

F. Do not install sealant when ambient temperature is outside manufacturer's recommended temperature range, or will be outside that range during the entire curing period, unless manufacturer's approval is obtained and instructions are followed.

G. Nonsag Sealants: Tool surface concave, unless otherwise indicated; remove masking tape immediately after tooling sealant surface.

H. Concrete Floor Joint Filler: After full cure, shave joint filler flush with top of concrete slab.

3.04 CLEANING

A. Clean adjacent soiled surfaces.

3.05 PROTECTION

A. Protect sealants until cured.

END OF SECTION

GARMANN MILLER

Division 08

Openings

SECTION 08 11 13
HOLLOW METAL DOORS AND FRAMES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Non-fire-rated hollow metal doors and frames.

B. Hollow metal frames for wood doors.

1.02 RELATED REQUIREMENTS

A. Section 08 14 16 - Flush Wood Doors

B. Section 08 71 00 - Door Hardware.

C. Section 08 80 00 - Glazing: Glass for doors and borrowed lites.

D. Section 09 91 23 - Interior Painting: Field painting.

1.03 REFERENCE STANDARDS

A. ADA Standards - 2010 ADA Standards for Accessible Design; 2010.

B. ANSI/SDI A250.3 - Test Procedure and Acceptance Criteria for Factory Applied Finish Coatings for Steel Doors and Frames; 2007 (R2011).

C. ANSI/SDI A250.8 - Specifications for Standard Steel Doors and Frames (SDI-100); 2014.

D. ANSI/SDI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames; 2011.

E. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2025.

F. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable; 2015.

G. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength; 2014.

H. BHMA A156.115 - American National Standard for Hardware Preparation in Steel Doors and Steel Frames; 2014.

I. ICC A117.1 - Accessible and Usable Buildings and Facilities; 2017.

J. DHI A115 Series - Specifications for Steel Doors and Frame Preparation for Hardware; Door and Hardware Institute; 2000 (ANSI/DHI A115 Series).

K. NAAMM HMMA 830 - Hardware Selection for Hollow Metal Doors and Frames; 2002.

L. NAAMM HMMA 831 - Hardware Locations for Hollow Metal Doors and Frames; 2011.

M. NAAMM HMMA 840 - Guide Specifications for Installation and Storage of Hollow Metal Doors and Frames; 2007.

N. NAAMM HMMA 861 - Guide Specifications for Commercial Hollow Metal Doors and Frames; 2006.

O. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies; 2022.

P. SDI 117 - Manufacturing Tolerances for Standard Steel Doors and Frames; 2013.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Materials and details of design and construction, hardware locations, reinforcement type and locations, anchorage and fastening methods, and finishes.

C. Shop Drawings: Details of each opening, showing elevations, glazing, frame profiles, and any indicated finish requirements.

D. Installation Instructions: Manufacturer's published instructions, including any special installation instructions relating to this project.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years documented experience.
   1. Provide hollow metal frames from SDI Certified manufacturer.

B. Maintain at project site copies of reference standards relating to installation of products specified.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Comply with NAAMM HMMA 840 or ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.

B. Protect with resilient packaging; avoid humidity build-up under coverings; prevent corrosion and adverse effects on factory applied painted finish.

1.07 PROJECT CONDITIONS

A. Coordinate the work with door opening construction, door frame and door hardware installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Hollow Metal Doors and Frames:
   1. Ceco Door, an Assa Abloy Group company: www.assaabloydss.com
   2. Curries, an Assa Abloy Group company: www.assaabloydss.com
   3. Mesker, dormakaba Group: www.meskeropeningsgroup.com
   4. Republic Doors, an Allegion brand: www.republicdoor.com.
   5. MPI Custom Steel Doors and Frames: www.metalproductsinc.com
   6. Steelcraft, an Allegion brand: www.allegion.com
   7. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 PERFORMANCE REQUIREMENTS

A. Requirements for Hollow Metal Doors and Frames:
   1. Steel Sheet: Comply with one or more of the following requirements; galvannealed steel complying with ASTM A653/A653M, cold-rolled steel complying with ASTM A1008/A1008M, or hot-rolled pickled and oiled (HRPO) steel complying with ASTM A1011/A1011M, commercial steel (CS) Type B, for each.
   2. Accessibility: Comply with ICC A117.1 and ADA Standards.
   3. Hardware Preparations, Selections and Locations: Comply with NAAMM HMMA 830 and NAAMM HMMA 831 or BHMA A156.115 and ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.
      a. Prepare doors and frames to receive mortised and concealed door hardware, including cutouts, reinforcing, drilling, and tapping, in accordance with final door hardware and templates provided by hardware supplier. Comply with ANSI A115 Specifications for door and frame preparation".
   4. Zinc Coating for Typical Interior and/or Exterior Locations: Provide metal components zinc-coated (galvanized) and/or zinc-iron alloy-coated (galvannealed) by the hot-dip process in accordance with ASTM A653/A653M, with manufacturer's standard coating thickness, unless noted otherwise for specific hollow metal doors and frames.

a. Based on SDI Standards: Provide at least A40/ZF120 (galvannealed) when necessary, coating not required for typical interior door applications, and at least A60/ZF180 (galvannealed) for corrosive locations.

B. Combined Requirements: If a particular door and frame unit is indicated to comply with more than one type of requirement, comply with the specified requirements for each type; for instance, an exterior door that is also indicated as being sound-rated must comply with the requirements specified for exterior doors and for sound-rated doors; where two requirements conflict, comply with the most stringent.

2.03 HOLLOW METAL FRAMES

A. Comply with standards and/or custom guidelines as indicated for corresponding door in accordance with applicable door frame requirements.

B. Frame Finish: Factory primed and field finished.

C. General:
1. Comply with the requirements of grade specified for corresponding door, except:
a. Frames for interior openings: ANSI A250.8 Level 3 Doors: 16 gage frames.

D. Interior Door Frames, Non-Fire Rated: Full profile/continuously welded type.
1. Frame Metal Thickness: 16 gage, 0.053 inch, minimum.

E. Frames for Wood Doors: Comply with frame requirements in accordance with corresponding door.

F. Frames Wider than 48 inches: Reinforce with steel channel fitted tightly into frame head, flush with top.

2.04 FINISHES

A. Primer: Rust-inhibiting, complying with ANSI/SDI A250.10, door manufacturer's standard.

B. Factory Prime Finish: Complying with ANSI/SDI A250.3, manufacturer's standard coating.
1. Color: Manufacturers standard color.

C. Bituminous Coating: Asphalt emulsion or other high-build, water-resistant, resilient coating.

2.05 ACCESSORIES

A. Removable Stops: Formed sheet steel, shape as indicated on drawings, mitered or butted corners; prepared for countersink style tamper proof screws.

B. Silencers: Resilient rubber, fitted into drilled hole; provide three on strike side of single door, three on center mullion of pairs, and two on head of pairs without center mullions.

C. Temporary Frame Spreaders: Provide for factory- or shop-assembled frames.

D. Closed-cell polyurethane spray foam insulation:
1. Foam Sealant: A one-component, minimal expanding, low pressure-build, flexible polyurethane foam formulated to seal the air gap around door frame and the rough opening. The foam is to expand and generate an effective seal, and will not distort or bow door frames.
2. Foam insulation required in exterior applications between all door head, and jamb.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that opening sizes and tolerances are acceptable.

C. Verify that finished walls are in plane to ensure proper door alignment.

3.02 PREPARATION

A. Coat inside of frames to be installed in masonry or to be grouted, with bituminous coating, prior to installation.

3.03 INSTALLATION

A. Install doors and frames in accordance with manufacturer's instructions and related requirements of specified door and frame standards or custom guidelines indicated.

B. Coordinate frame anchor placement with wall construction.

C. Foam insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.

D. Install door hardware as specified in Section 08 71 00.

E. Coordinate installation of electrical connections to electrical hardware items.

F. Install magnetic hold open devices on doors supplied by Division 28.

G. Touch up damaged factory finishes.

3.04 TOLERANCES

A. Clearances Between Door and Frame: Comply with related requirements of specified frame standards or custom guidelines indicated in accordance with SDI 117 or NAAMM HMMA 861.

B. Maximum Diagonal Distortion: 1/16 inch measured with straight edge, corner to corner.

3.05 ADJUSTING AND CLEANING

A. Adjust for smooth and balanced door movement.

B. Test sound control doors for force to close, latch, and unlatch; adjust as necessary in compliance with requirements.

C. Clean and restore soiled surfaces. Remove scraps and debris and leave site in a clean condition.

END OF SECTION

SECTION 08 14 16
FLUSH WOOD DOORS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Flush wood doors; flush and flush glazed configuration; non-rated.

1.02 RELATED REQUIREMENTS

A. Section 08 11 13 - Hollow Metal Doors and Frames.

B. Section 08 80 00 - Glazing: Glazing for vision lites.

1.03 REFERENCE STANDARDS

A. WDMA I.S. 1A - Interior Architectural Wood Flush Doors; 2013.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Indicate door core materials and construction; veneer species, type and characteristics.

C. Shop Drawings: Show doors and frames, elevations, sizes, types, swings, undercuts, beveling, blocking for hardware, factory machining, factory finishing, cutouts for glazing and other details.
   1. Provide information as required by AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS).

D. Specimen warranty.

E. Samples: Submit two samples of door veneer, 12 x 12 inch in size illustrating wood grain, stain color, and sheen.

F. Warranty, executed in Owner's name.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Package, deliver and store doors in accordance with specified quality standard.

B. Accept doors on site in manufacturer's packaging. Inspect for damage.

C. Protect doors with resilient packaging sealed with heat shrunk plastic. Do not store in damp or wet areas; or in areas where sunlight might bleach veneer. Seal top and bottom edges with tinted sealer if stored more than one week. Break seal on site to permit ventilation.

1.06 PROJECT CONDITIONS

A. Coordinate the work with door opening construction, door frame and door hardware installation.

1.07 COORDINATION

A. Contractor shall be responsible for coordinating and obtaining necessary information from hardware and frame manufacturers to provide door supplier with approved hardware and frame schedules with templates.

1.08 WARRANTY

A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.

B. Interior Doors: Provide manufacturer's warranty for the life of the installation.

C. Include coverage for delamination of veneer and defective materials.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Wood Veneer Faced Doors:

1. Forte Opening Solutions (formerly Masonite Architectural); Aspiro Select Wood Veneer Doors: forteopenings.com.
2. Oregon Door; Architectural Series: www.oregondoor.com.
3. Oshkosh: www.oshkosh.com
4. VT Industries, Inc: www.vtindustires.com
5. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 DOORS

A. Doors: Refer to drawings for locations and additional requirements.
   1. Quality Standard: Custom Grade, Extra Heavy Duty performance, in accordance with WDMA I.S. 1A.
   2. Wood Veneer Faced Doors: 5-ply unless otherwise indicated.
   3. Doors have no added urea-formaldehyde resins.

B. Interior Doors: 1-3/4 inches thick unless otherwise indicated; flush construction.
   1. Provide solid core doors at each location.
   2. Wood veneer facing with factory transparent finish.

2.03 DOOR AND PANEL CORES

A. Non-Rated Solid Core and 20 Minute Rated Doors: AWI P-200, Section 1300, Type particleboard core (PC) (PC-5; PC-7 not acceptable).

2.04 DOOR FACINGS

A. Veneer Facing for Transparent Finish: White Oak, veneer grade in accordance with quality standard indicated, plain sliced (flat cut), with book match between leaves of veneer, running match of spliced veneer leaves assembled on door or panel face.
   1. Grade: Custom grade with 'A' faces
   2. WDMA I.S. 1-A Performance Grade: Extra Heavy Duty
   3. Vertical Edges: Same species as face veneer.
   4. "Pair Match" each pair of doors; "Set Match" pairs of doors within 10 feet of each other when doors are closed.
   5. Transoms: Continuous match to doors.

B. Facing Adhesive: Type I - waterproof.

2.05 DOOR CONSTRUCTION

A. Fabricate doors in accordance with door quality standard specified.

B. Fabricate fire rated doors in accordance with UL requirements. Attach fire rating label to door.

C. Provide solid blocks at lock edge and top of door for closer for hardware reinforcement.
   1. Provide solid blocking for other throughbolted hardware.

D. Vertical Exposed Edge of Stiles - Veneer Faces: Of same species as veneer facing.

E. Fit door edge trim to edge of stiles after applying veneer facing.

F. Glazed Openings: Non-removable stops on non-secure side; sizes and configurations as indicated on drawings.

G. Factory machine doors for hardware other than surface-mounted hardware, in accordance with hardware requirements and dimensions.

H. Factory fit doors for frame opening dimensions identified on shop drawings, with edge clearances in accordance with specified quality standard.

I. Provide edge clearances in accordance with the quality standard specified.

2.06 FACTORY FINISHING - WOOD VENEER DOORS

A. Finish work in accordance with WDMA I.S. 1A for grade specified and as follows:

1. Transparent:
    a. System - TR-8, UV Cured Acrylated Polyester/Urethane.
    b. Stain: As selected by Architect.
    c. Sheen: Satin.

B. Factory finish doors in accordance with approved sample.

C. Seal door top edge with color sealer to match door facing.

2.07 ACCESSORIES

A. Glazing Stops: Wood, of same species as door facing, butted corners; prepared for countersink style tamper proof screws.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that opening sizes and tolerances are acceptable.

C. Do not install doors in frame openings that are not plumb or are out-of-tolerance for size or alignment.

3.02 INSTALLATION

A. Install doors in accordance with manufacturer's instructions and specified quality standard.

B. Trim door height by cutting bottom edges to a maximum of 3/4 inch (19 mm).

C. Use machine tools to cut or drill for hardware.

D. Coordinate installation of doors with installation of frames and hardware.

E. Coordinate installation of glazing.

3.03 TOLERANCES

A. Comply with specified quality standard for fit and clearance tolerances.

B. Comply with specified quality standard for telegraphing, warp, and squareness.

3.04 ADJUSTING

A. Adjust doors for smooth and balanced door movement.

B. Adjust closers for full closure.

END OF SECTION

SECTION 08 43 13
ALUMINUM-FRAMED STOREFRONTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Aluminum-framed storefront, with vision glass.

B. Aluminum doors .

C. Weatherstripping.

D. Door hardware.

1.02 RELATED REQUIREMENTS

A. Section 06 20 00 - Finish Carpentry: Wood casing.

B. Section 07 92 00 - Joint Sealants: Sealing joints between frames and adjacent construction.

C. Section 08 80 00 - Glazing: Glass and glazing accessories.

1.03 REFERENCE STANDARDS

A. AAMA CW-10 - Care and Handling of Architectural Aluminum from Shop to Site; 2015.

B. AAMA 503 - Voluntary Specification for Field Testing of Newly Installed Storefronts, Curtain Walls and Sloped Glazing Systems; 2014.

C. AAMA 609 & 610 - Cleaning and Maintenance Guide for Architecturally Finished Aluminum (Combined Document); 2015.

D. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix); 2022.

E. ASTM B209/B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2021a.

F. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2021.

G. ASTM B221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric); 2021.

H. ASTM E1105 - Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls, by Uniform or Cyclic Static Air Pressure Difference; 2015 (Reapproved 2023).

I. SSPC-Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic"); 2002 (Ed. 2004).

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordinate with installation of other components that comprise the exterior enclosure.

B. Preinstallation Meeting: Conduct a preinstallation meeting two weeks before starting work of this section; require attendance by all affected installers.
   1. Coordinate power and security requirements.
   2. Review preparation and installation procedures and coordinating and scheduling required with related work.
   3. Sequence installation to ensure utility connections are achieved in an orderly and expeditious manner.

1.05 SUBMITTALS

A. General Requirements

1. Provide all submittals in a timely manner to meet the required construction completion schedule.
2. Shop drawings must be prepared wholly by the manufacturer or authorized representative of the manufacture.
    a. Provide documentation of authorization if shop drawing are not prepared by manufacturer.

B. See Section 01 30 00 - Administrative Requirements for submittal procedures.

C. Product Data: Provide component dimensions, describe components within assembly, anchorage and fasteners, glass and infill, and internal drainage details.

D. Shop Drawings: Indicate system dimensions, framed opening requirements and tolerances, affected related Work, expansion and contraction joint location and details, and field welding required. Provide 3D isometric drawings with submittals. All submittal drawings are required to be kept on site for review by contractors, A/E team, CM, and Commissioning team members.

E. Samples: Submit two samples 12 x 4 inches in size illustrating finished aluminum surface, glass, and glazing materials.

F. Manufacturer's Certificate: Certify that the products supplied meet or exceed the specified requirements.

G. Design Data: Provide framing member structural and physical characteristics, engineering calculations, and dimensional limitations.

H. Test Results: Provide test results for performance requirements from an independent testing agency for standard systems being used.

I. Hardware Schedule: Complete itemization of each item of hardware to be provided for each door, cross-referenced to door identification numbers in Contract Documents.

J. Field Quality Control Submittals: Report of field testing for water penetration and air leakage.

K. Specimen warranty.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in performing work of type specified and with at least three years of documented experience.

B. Installer Qualifications: Company specializing in performing work of type specified and with at least three years of documented experience.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Handle products of this section in accordance with AAMA CW-10.

B. Protect finished aluminum surfaces with wrapping. Do not use adhesive papers or sprayed coatings that bond to aluminum when exposed to sunlight or weather.

1.08 COORDINATION

A. Contractor shall be responsible for coordinating and obtaining necessary information from Hardware and Frame manufacturers to provide door supplier with approved hardware and frame schedules with templates.

1.09 WARRANTY

A. See Section 01 78 00 - Closeout Submittals for additional warranty requirements.

B. Products: Submit a written warranty, executed by the manufacturer, for a period of 5 years years from the date of substantial completion, against defective materials or workmanship, including substantial non-compliance with applicable specification requirements and industry standards, which results in premature failure of the storefront system, finish, factory-glazed glass, or parts, outside of normal wear.

1. In the event that storefront system or components are found defective, manufacturer will repair or provide replacements without charge.
2. Warranty for all components must be direct from the manufacturer (non pass-through) and non pro-rated for the entire term. Warranty must be assignable to the non-residential owner, and transferable to subsequent owners though its length.

C. Installation: Submit a written warranty, executed by the storefront installer, for a period of 2 years from the date of substantial completion, against defective materials or workmanship, including substantial non-compliance with applicable specification requirements, which result in premature failure.
1. In the event that installation of storefront system or components is found to be defective, installer will repair or provide replacements without charge.

D. Provide 10 year manufacturer warranty against failure of glass seal on insulating glass units, including interpane dusting or misting. Include provision for replacement of failed units.

PART 2 PRODUCTS

2.01 BASIS OF DESIGN -- FRAMING FOR INSULATING GLAZING

A. Application:
1. Exterior door frame with multiple sidelights or transoms
2. Exterior storefront

B. Center-Set Style, Thermally-Broken:
1. Basis of Design: Kawneer Trifab VG 451T.
2. Acceptable Manufacturers
   a. YKK AP America Inc; YES 45 TU: www.ykkap.com.
   b. Oldcastle BuildingEnvelope; Series 3000 MultiPlane: www.obe.com.
   c. Tubelite Inc.; Product 14000 Series: www.tubeliteinc.com
   d. Substitution Procedures: See Section 01 6000 - Product Requirements.
3. Vertical Mullion Dimensions: 2 inches wide by 4-1/2 inches deep.

2.02 BASIS OF DESIGN -- SWINGING DOORS

A. Manufacturer
1. Cross Aluminum Products Inc.: www.crossaluminum.com
2. Other Acceptable Manufacturers.
   a. Oldcastle Building Envelope: www.obe.com
   b. Tubelite, Inc.: www.tubeliteusa.com
   c. Substitutions: See Section 01 60 00 - Product Requirements

B. Aluminum doors
1. Product: WST-500T Series, Thermal Aluminum Stile and Rail Doors
2. Wide Style.
3. Door Opening Size: refer to drawings
4. Door Assembly:
   a. Door Assembly:
      1) Door Stile: To be aluminum alloy 6063; temper to be T5 with a minimum 3/16" wall thickness.
      2) Stile and Rail Thickness: To be 2" thick tubular extrusion with minimum 3/16" wall thickness.
   b. Stile Width: As shown on the drawings
   c. Rail Widths: As shown the drawings
   d. Pattern: To be smooth.
5. Insulation: Polyisocyanurate Rigid Foam

2.03 COMPONENTS

A. Glazing: See Section 08 80 00.

B. Swing Doors: Glazed aluminum.

2.04 MATERIALS

A. Extruded Aluminum: ASTM B221 (ASTM B221M).

B. Sheet Aluminum: ASTM B209/B209M.

C. Structural Supporting Anchors Attached to Structural Steel: Design for bolted attachment.

D. Exposed Flashings: Aluminum sheet, 20 gauge, 0.032 inch minimum thickness; finish to match framing members.

E. Concealed Flashings: Galvanized steel, 26 gauge, 0.0179 inch minimum base metal thickness.

F. Sill Flashing Sealant: Elastomeric, silicone or polyurethane, compatible with flashing material.

G. Glazing Gaskets: Type to suit application to achieve weather, moisture, and air infiltration requirements.

2.05 FINISHES

A. Superior Performing Organic Coatings System: Manufacturer's standard multi-coat superior performing organic coatings system complying with AAMA 2605, including at least 70 percent polyvinylidene fluoride (PVDF) resin, and at least 80 percent of aluminum extrusion and panels surfaces having minimum total dry film thickness (DFT) of 1.2 mils, 0.0012 inch.

B. Color: As selected by Architect from manufacturer's standard range.

2.06 HARDWARE

A. For each door, include weatherstripping and sill sweep strip.

B. Weatherstripping: Wool pile, continuous and replaceable; provide on all doors.

C. Sill Sweep Strips: Resilient seal type, retracting, of neoprene; provide on all doors.

D. Threshold: Extruded aluminum, one piece per door opening, non-slip surface; provide on all exterior doors.

E. Hinges: Butt type, swing clear; top and bottom.

F. Exit Devices: Panic type.

G. Door Closers: Concealed overhead.

H. Handle Latch:.

I. Locks: Dead latch with thumbturn inside; keyed cylinder outside.

2.07 ACCESSORIES

A. Closed-cell polyurethane spray foam insulation: ASTM C 1029, Type II, 1.5 lb.cu.ft.
   1. Foam insulation required between all windows and doors at head, jamb, and sill

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify dimensions, tolerances, and method of attachment with other work.

B. Verify that storefront wall openings and adjoining water-resistive and/or air barrier seal materials are ready to receive work of this section.

3.02 INSTALLATION

A. Install wall system in accordance with manufacturer's instructions.

B. Attach to structure to permit sufficient adjustment to accommodate construction tolerances and other irregularities.

C. Provide alignment attachments and shims to permanently fasten system to building structure.

D. Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional tolerances, aligning with adjacent work.

E. Provide thermal isolation where components penetrate or disrupt building insulation.

F. Install sill flashings. Turn up ends and edges; seal to adjacent work to form water tight dam.

G. Where fasteners penetrate sill flashings, make watertight by seating and sealing fastener heads to sill flashing.

H. Install foam insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.

I. Set thresholds in bed of sealant and secure.

J. Install hardware using templates provided.

K. Install glass and infill panels using glazing method required to achieve performance criteria; see Section 08 80 00.

L. Touch-up minor damage to factory applied finish; replace components that cannot be satisfactorily repaired.

3.03 TOLERANCES

A. Maximum Variation from Plumb: 0.06 inch per 3 feet non-cumulative or 0.06 inch per 10 feet, whichever is less.

B. Maximum Misalignment of Two Adjoining Members Abutting in Plane: 1/32 inch.

3.04 FIELD QUALITY CONTROL

A. The right is reserved by the Owner/Architect to have the installation tested. The cost of this test is at the Owner's expense.

1. Provide field testing of installed storefront system by independent laboratory in accordance with AAMA 503 during construction process and before installation of interior finishes.
    a. Perform a minimum of two tests in each designated area as directed by Architect.
    b. Conduct tests in each area prior to 10 percent and 50 percent completion of this work.
    c. Field test for water penetration in accordance with ASTM E1105 with uniform static air pressure difference (Procedure A) not less than 4.18 psf.
        1) Maximum allowable rate of water penetration in 15-minute test is 0.5 ounce that is not contained in an area with provisions to drain to exterior, or collected on surface of interior horizontal framing member.
2. Replace units that have failed field testing and retest until performance is satisfactory.

3.05 ADJUSTING

A. Adjust operating hardware for smooth operation.

3.06 CLEANING

A. Remove protective material from pre-finished aluminum surfaces.

B. Wash down surfaces with a solution of mild detergent in warm water, applied with soft, clean wiping cloths, and take care to remove dirt from corners and to wipe surfaces clean.

C. Upon completion of installation, thoroughly clean aluminum surfaces in accordance with AAMA 609 & 610.

3.07 PROTECTION

A. Protect installed products from damage until Date of Substantial Completion.

B. Touch-up minor damage to factory applied finish; replace components that cannot be satisfactorily repaired.

C. Protect finished work from damage.

END OF SECTION

SECTION 08 80 00
GLAZING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Insulating glass units.

B. Glazing units.

C. Glazing compounds.

1.02 RELATED REQUIREMENTS

A. Section 07 92 00 - Joint Sealants: Sealants for other than glazing purposes.

B. Section 08 11 13 - Hollow Metal Doors and Frames: Glazed lites in doors and borrowed lites.

C. Section 08 14 16 - Flush Wood Doors: Glazed lites in doors.

D. Section 08 43 13 - Aluminum-Framed Storefronts: Glazing provided as part of storefront assembly.

E. Section 08 51 13 - Aluminum Windows: Glazing furnished by window manufacturer.

1.03 REFERENCE STANDARDS

A. 16 CFR 1201 - Safety Standard for Architectural Glazing Materials; Current Edition.

B. ANSI Z97.1 - American National Standard for Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test; 2015 (Reaffirmed 2020).

C. ASTM C864 - Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers; 2005 (Reapproved 2019).

D. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2016 (Reapproved 2023).

E. ASTM C1376 - Standard Specification for Pyrolytic and Vacuum Deposition Coatings on Flat Glass; 2021a.

F. ASTM E1300 - Standard Practice for Determining Load Resistance of Glass in Buildings; 2016.

G. ASTM E2190 - Standard Specification for Insulating Glass Unit Performance and Evaluation; 2019.

H. GANA (GM) - GANA Glazing Manual; 2022.

I. GANA (SM) - GANA Sealant Manual; 2008.

J. GANA (LGRM) - Laminated Glazing Reference Manual; 2009.

K. NFRC 100 - Procedure for Determining Fenestration Product U-factors; 2023.

L. NFRC 200 - Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence; 2023.

M. NFRC 300 - Test Method for Determining the Solar Optical Properties of Glazing Materials and Systems; 2023.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene a preinstallation meeting two weeks before starting work of this section; require attendance by each of the affected installers.

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Product Data on Insulating Glass Unit and Glazing Unit Glazing Types: Provide structural, physical and environmental characteristics, size limitations, special handling and installation requirements.

C. Product Data on Glazing Compounds and Accessories: Provide chemical, functional, and environmental characteristics, limitations, special application requirements, and identify available colors.

D. Samples: Submit two samples 12 by 12 inch in size of glass units.

E. Certificates: Certify that products meet or exceed specified requirements.

F. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.06 QUALITY ASSURANCE

A. Perform Work in accordance with GANA (GM), GANA (SM), and GANA (LGRM) for glazing installation methods. Maintain one copy on site.

B. Provide labels showing glass manufacturer's type of glass, thickness, and quality. Labels shall remain on glass until it has been seen and approved by the Architect.

C. Thermal Performance Properties:
   1. Solar Heat Gain Coefficient : NFCR 200 less than or equal to 0.40.

D. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years documented experience.

1.07 FIELD CONDITIONS

A. Do not install glazing when ambient temperature is less than 40 degrees F.

B. Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

1.08 WARRANTY

A. See Section 01 78 00 - Closeout Submittals for additional warranty requirements.

B. Insulating Glass Units: Provide a ten (10) year manufacturer warranty to include coverage for seal failure, interpane dusting or misting, including providing products to replace failed units.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Glass Fabricators:
   1. Cardinal Glass Industries, www.cardinalcorp.com
   2. GGI - General Glass International: www.generalglass.com.
   3. Guardian Glass, LLC, www.guardianglass.com
   4. Pilkington North America, www.pilkington.com
   5. Standard Bent Glass Corp: www.standardbent.com.
   6. Trulite Glass & Aluminum Solutions, LLC: www.trulite.com.
   7. Viracon, Inc: www.viracon.com.
   8. Vitro Architectural Glass, www.vitroglazing.com

2.02 PERFORMANCE REQUIREMENTS - EXTERIOR GLAZING ASSEMBLIES

A. Provide type and thickness of exterior glazing assemblies to support assembly dead loads, and to withstand live loads caused by positive and negative wind pressure acting normal to plane of glass.
   1. Comply with ASTM E1300 for design load resistance of glass type, thickness, dimensions, and maximum lateral deflection of supported glass.
   2. Provide glass edge support system sufficiently stiff to limit the lateral deflection of supported glass edges to less than 1/175 of their lengths under specified design load.
   3. Glass thicknesses listed are minimum.

B. Weather-Resistive Barrier Seals: Provide completed assemblies that maintain continuity of building enclosure water-resistive barrier, vapor retarder, and/or air barrier.
   1. In conjunction with weather barrier related materials described in other sections, as follows:

C. Thermal and Optical Performance: Provide exterior glazing products with performance properties as indicated. Performance properties are in accordance with manufacturer's published data as determined with the following procedures and/or test methods:
   1. Center of Glass U-Value: Comply with NFRC 100 using Lawrence Berkeley National Laboratory (LBNL) WINDOW 6.3 computer program.
   2. Center of Glass Solar Heat Gain Coefficient (SHGC): Comply with NFRC 200 using Lawrence Berkeley National Laboratory (LBNL) WINDOW 6.3 computer program.
   3. Solar Optical Properties: Comply with NFRC 300 test method.

2.03 GLASS MATERIALS

A. Float Glass: Provide float glass based glazing unless otherwise indicated.
   1. Fully Tempered Safety Glass: Complies with ANSI Z97.1 or 16 CFR 1201 criteria for safety glazing used in hazardous locations.

2.04 INSULATING / EXTERIOR GLASS UNITS

A. Insulating Glass Units: Types as indicated.
   1. Durability: Certified by an independent testing agency to comply with ASTM E2190.
   2. Coated Glass: Comply with requirements of ASTM C1376 for pyrolytic (hard-coat) or magnetic sputter vapor deposition (soft-coat) type coatings on flat glass; coated vision glass, Kind CV; coated overhead glass, Kind CO; or coated spandrel glass, Kind CS.
   3. Warm-Edge Spacers: Low-conductivity thermoplastic with desiccant warm-edge technology design.
      a. Spacer Width: As required for specified insulating glass unit.
      b. Spacer Height: Manufacturer's standard.
      c. Products:
         1) H.B. Fuller Construction Products Inc; Kodispace 4SG: www.hbfuller.com.
         2) Quanex IG Systems, Inc; Super Spacer TriSeal: www.quanex.com.
         3) Technoform Glass Insulation; TGI-Spacer: www.glassinsulation.us.
         4) Substitutions: See Section 01 60 00 - Product Requirements.
   4. Spacer Color: Black.
   5. Edge Seal:
      a. Dual-Sealed System: Provide polyisobutylene sealant as primary seal applied between spacer and glass panes, and silicone, polysulfide, or polyurethane sealant as secondary seal applied around perimeter.
      b. Color: Black.
   6. Purge interpane space with dry air, hermetically sealed.

B. EG-1: Insulating Glass Units: Vision glass, double glazed.
   1. Applications: Exterior glazing unless otherwise indicated.
   2. Space between lites filled with argon.
   3. Outboard Lite: Fully tempered float glass, 1/4 inch thick, minimum.
      a. Tint: Clear.
      b. Coating: Low-E (solar control type), on #2 surface.
         1) Vitro Architectural Glass: Solarban 70
         2) Substitutions; See Section 01 60 00 - Product Requirements
   4. Warm-edge spacer.
   5. Inboard Lite: Fully tempered float glass, 1/4 inch thick, minimum.
      a. Tint: Clear.

6. Total Thickness: 1 inch.
7. Thermal Transmittance (U-Value), Winter - Center of Glass: 0.29, nominal.
8. Visible Light Transmittance (VLT): 42 percent, nominal.
9. Solar Heat Gain Coefficient (SHGC): 28 percent, nominal.
10. Glazing Method: Dry glazing method, gasket glazing.

2.05 GLAZING UNITS

A. G-1 - Monolithic Interior Vision Glazing:
   1. Applications: Interior glazing unless otherwise indicated.
   2. Glass Type: Fully tempered float glass.
   3. Tint: Clear.
   4. Thickness: 1/4 inch, nominal.

2.06 ACCESSORIES

A. Setting Blocks: Silicone, with 80 to 90 Shore A durometer hardness; ASTM C864 Option II. Length of 0.1 inch for each square foot of glazing or minimum 4 inch by width of glazing rabbet space minus 1/16 inch by height to suit glazing method and pane weight and area.

B. Glazing Splines: Resilient silicone extruded shape to suit glazing channel retaining slot; ASTM C864 Option II; color black.

PART 3 EXECUTION

3.01 VERIFICATION OF CONDITIONS

A. Verify that openings for glazing are correctly sized and within tolerances, including those for size, squareness, and offsets at corners.

B. Verify that the minimum required face and edge clearances are being provided.

C. Verify that surfaces of glazing channels or recesses are clean, free of obstructions that may impede moisture movement, weeps are clear, and support framing is ready to receive glazing system.

D. Verify that sealing between joints of glass framing members has been completed effectively.

E. Proceed with glazing system installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Clean contact surfaces with appropriate solvent and wipe dry within maximum of 24 hours before glazing. Remove coatings that are not tightly bonded to substrates.

B. Seal porous glazing channels or recesses with substrate compatible primer or sealer.

C. Prime surfaces scheduled to receive sealant where required for proper sealant adhesion.

3.03 INSTALLATION, GENERAL

A. Install glazing in compliance with written instructions of glass, gaskets, and other glazing material manufacturers, unless more stringent requirements are indicated, including those in glazing referenced standards.

B. Install glazing sealants in accordance with ASTM C1193, GANA (SM), and manufacturer's instructions.

3.04 INSTALLATION - DRY GLAZING METHOD (GASKET GLAZING)

A. Application - Exterior and/or Interior Glazed: Set glazing infills from either the exterior or the interior of the building.

B. Place setting blocks at 1/4 points with edge block no more than 6 inch from corners.

C. Rest glazing on setting blocks and push against fixed stop with sufficient pressure on gasket to attain full contact.

D. Install removable stops without displacing glazing gasket; exert pressure for full continuous contact.

3.05 INSTALLATION - PRESSURE GLAZED SYSTEMS

A. Application - Exterior Glazed: Set glazing infills from exterior side of building.

B. Place setting blocks at 1/4 points with edge block no more than 6 inch from corners.

C. Rest glazing on setting blocks and push against fixed stop with sufficient pressure on gasket to attain full contact.

D. Install pressure plates without displacing glazing gasket; exert pressure for full continuous contact.

3.06 FIELD QUALITY CONTROL

A. Glass and Glazing product manufacturers to provide field surveillance of the installation of their products.

B. Monitor and report installation procedures and unacceptable conditions.

3.07 CLEANING

A. See Section 01 74 19 - Construction Waste Management and Disposal, for additional requirements.

B. Remove excess glazing materials from finish surfaces immediately after application using solvents or cleaners recommended by manufacturers.

C. Remove nonpermanent labels immediately after glazing installation is complete.

D. Clean glass and adjacent surfaces after sealants are fully cured.

E. Clean glass on both exposed surfaces not more than 4 days prior to Date of Substantial Completion in accordance with glass manufacturer's written recommendations.

3.08 PROTECTION

A. After installation, mark pane with an 'X' by using removable plastic tape or paste; do not mark heat absorbing or reflective glass units.

B. Remove and replace glass that is damaged during construction period prior to Date of Substantial Completion.

END OF SECTION

GARMANN MILLER

Division 09

Finishes

SECTION 09 21 16
GYPSUM BOARD ASSEMBLIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Gypsum wallboard.

B. Joint treatment and accessories.

1.02 RELATED REQUIREMENTS

A. Section 06 10 00 - Rough Carpentry: Building framing.

B. Section 07 21 16 - Blanket Insulation: Acoustical Insulation.

C. Section 07 92 00 - Joint Sealants: Sealing acoustical gaps.

D. Section 09 91 23 - Interior Painting: Field painting.

1.03 REFERENCE STANDARDS

A. ASTM C475/C475M - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board; 2017.

B. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2012.

C. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board; 2013.

D. ASTM C1396/C1396M - Standard Specification for Gypsum Board; 2024.

E. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber; 2016.

F. GA-216 - Application and Finishing of Gypsum Panel Products; 2016, with Errata.

G. GA-600 - Fire Resistance Design Manual; 2015.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on gypsum board, accessories, and joint finishing system.

1.05 QUALITY ASSURANCE

A. Perform in accordance with ASTM C840. Comply with requirements of GA-600 for fire-rated assemblies.

B. Refer to "Recommended Specification on Levels of Gypsum Board Finish" as published by the Gypsum Association (and AWCI/CISCA/PDCA) for finish levels required.

C. Recommended deflection limit for gypsum board assemblies is L/240.
   1. Tile finishes applied to cementitious backer units will require deflection limits of L/360 or less.

1.06 PROJECT CONDITIONS

A. Environmental Conditions, General: Establish and maintain environmental conditions for applying and finishing gypsum board with ASTM C 840 requirements or gypsum board manufacturer's recommendations, whichever is more stringent.

B. Room Temperatures: For nonadhesive attachment of gypsum board to framing, maintain not less than 40 deg F. For adhesive attachment and finishing of gypsum board, maintain not less than 50 deg F for 48 hours before application and continuously after until dry. Do not exceed 95 deg F when using temporary heat sources.

C. Ventilation: Ventilate building spaces as required to dry joint treatment materials.

D. Do not install paper-faced gypsum panels until installation areas are enclosed and conditioned.

E. If the application of gypsum board and gypsum shaft wall liner starts prior to the building being made weather-tight, the gypsum wallboard and/ or shaft wall liner specified shall be changed to glass-mat interior gypsum board and/ or glass mat gypsum shaft wall liner

PART 2 PRODUCTS

2.01 GYPSUM BOARD ASSEMBLIES

A. Provide completed assemblies complying with ASTM C840 and GA-216.
   1. See PART 3 for finishing requirements.

2.02 BOARD MATERIALS

A. Manufacturers - Gypsum-Based Board:
   1. American Gypsum Company: www.americangypsum.com.
   2. CertainTeed Corporation: www.certainteed.com.
   3. Georgia-Pacific Gypsum: www.gpgypsum.com.
   4. National Gypsum Company: www.nationalgypsum.com.
   5. PABCO Gypsum: www.pabcogypsum.com.
   6. USG Corporation: www.usg.com.
   7. Substitutions: See Section 01 60 00 - Product Requirements.

B. Gypsum Wallboard: Paper-faced gypsum panels as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
   1. Application: Use for vertical surfaces and ceilings, unless otherwise indicated.
   2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
      a. Mold resistant board is required at all locations.
   3. At Assemblies Indicated with Fire-Rating: Use type required by indicated tested assembly; if no tested assembly is indicated, use Type X board, UL or WH listed.
   4. Thickness:
      a. Vertical Surfaces: 5/8 inch.
      b. Ceilings: 5/8 inch.
      c. Edges: Tapered
      d. Multi-Layer Assemblies: Thicknesses as indicated on drawings.
   5. Mold Resistant Paper Faced Products:
      a. American Gypsum Company; M-Bloc Type X.
      b. CertainTeed Corporation; M2Tech 5/8" Type X Moisture & Mold Resistant Drywall.
      c. Georgia-Pacific Gypsum; ToughRock Fireguard X Mold-Guard.
      d. National Gypsum Company; Gold Bond XP Fire-Shield Gypsum Board.
      e. PABCO Gypsum; Mold Curb Plus Type X.
      f. USG Corporation; USG Sheetrock Brand Mold Tough Panels Firecode X.

2.03 GYPSUM WALLBOARD ACCESSORIES

A. Acoustic Insulation: ASTM C665; friction fit type, unfaced.
   1. Refer to Section 07 21 16.

B. Reveal Moldings:
   1. Reference drawings for indicated locations.
   2. Manufacturer: Fry Reglet Corporation, Alpharetta, GA
      a. Products:
         1) “L” Trim Moldings
            (a) Size: 2" - DRML-200
            (b) Size: 1" - DRML-100
         2) "F" Reveal

(a) Size: 1/2" width - DRMF-625-50

3) Reveal

(a) Size: 1/2" width - DRM-625-50

3. Acceptable Manufacturers
   a. Gordon Inc, Shreveport, LA
   b. Flannery Inc.; Specialty Aluminum Trim
   c. Substitutions: See Section 01 6000 - Product Requirements.

C. Corner Beads: Zinc alloy. Products shall be similar to the following:
   1. Marino-Ware; Product CB Corner Bead: www.marinoware.com.
   2. Phillips Manufacturing Co; Product Everlast Corner Bead: www.phillipsmfg.com.
   3. 103 Deluxe Bead by Clark Dietrich Building Systems
   4. Substitutions: See Section 01 60 00 - Product Requirements.

D. Edge Trim: L bead, as defined in ASTM C840. Products shall be similar to the following:
   1. Marino-Ware; Product L Trim: www.marinoware.com.
   2. Phillips Manufacturing Co; Product L-200 Trim: www.phillipsmfg.com.
   3. Clark Dietrich Building Systems; Product Metal Trim M20B
   4. Substitutions: See Section 01 60 00 - Product Requirements.

E. Expansion and Control Joints: Galvanized steel one piece with V-shaped slot and removable strip covering opening. Products shall be similar to the following:
   1. Phillips Manufacturing Co; Product 093 Expansion Joint: www.phillipsmfg.com.
   2. Clark Dietrich Building Systems; Product 093 Control Joining
   3. Alabama Metal Industries Corporation (AMICO); Product No. 093 Drywall Control Joint
   4. Substitutions: See Section 01 60 00 - Product Requirements.

F. Joint Materials: ASTM C475/C475M and as recommended by gypsum board manufacturer for project conditions.
   1. Paper Tape: 2 inch wide, creased paper tape for joints and corners, except as otherwise indicated.
   2. Ready-mixed vinyl-based joint compound.
   3. Chemical hardening type compound.

G. Screws: ASTM C 1002; self-drilling type; cadmium-plated for exterior locations.

H. Anchorage to Substrate: Tie wire, nails, screws, and other metal supports, of type and size to suit application; to rigidly secure materials in place.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that project conditions are appropriate for work of this section to commence.

3.02 ACOUSTIC ACCESSORIES INSTALLATION

A. Acoustic Insulation: Place tightly within spaces, around cut openings, behind and around electrical and mechanical items within partitions, and tight to items passing through partitions.

B. Acoustic Sealant: Install in accordance with manufacturer's instructions.
   1. Place one bead continuously on substrate before installation of perimeter framing members.
   2. Place continuous bead at perimeter of each layer of gypsum board.
   3. Seal around all penetrations by conduit, pipe, ducts, and rough-in boxes, except where firestopping is provided.

3.03 BOARD INSTALLATION

A. Comply with ASTM C840, GA-216, and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.

B. Single-Layer Non-Rated: Install gypsum board in most economical direction, with ends and edges occurring over firm bearing.

C. Fire-Rated Construction: Install gypsum board in strict compliance with requirements of assembly listing.

D. Installation on Metal Framing: Use screws for attachment of gypsum board except face layer of non-rated double-layer assemblies, which may be installed by means of adhesive lamination.

3.04 INSTALLATION OF TRIM AND ACCESSORIES

A. Control Joints: Place control joints consistent with lines of building spaces and as follows:
   1. Provide framing immediately on both sides of joint and back with 2 inches of gypsum board strips to maintain fire resistance rating.
   2. Attach to framing with screws.
   3. Use longest practical lengths.
   4. Not more than 30 feet apart on walls and ceilings over 50 feet long.
   5. Partition, furring or column fireproofing abuts a structural element (except floor) or dissimilar wall or ceiling.
   6. Ceiling abuts a structural element, dissimilar wall or partition or other vertical penetration.
   7. Construction changes within the plane of the partition or ceiling.
   8. Wings of L, U, and T shaped ceiling area are joined.

B. Corner Beads: Install at external corners, using longest practical lengths.
   1. Attach to framing with screws.

C. Edge Trim (Casing Bead): Install at locations where gypsum board abuts dissimilar materials and as indicated.

3.05 JOINT TREATMENT

A. Paper Faced Gypsum Board: Use paper joint tape, bedded with ready-mixed vinyl-based joint compound and finished with ready-mixed vinyl-based joint compound.

B. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
   1. Feather coats of joint compound so that camber is maximum 1/32 inch.
   2. Taping, filling, and sanding is not required at surfaces behind adhesive applied ceramic tile.
   3. Taping, filling and sanding is not required at base layer of double layer applications.

3.06 TOLERANCES

A. Maximum Variation of Finished Gypsum Board Surface from True Flatness: 1/8 inch in 10 feet in any direction.

3.07 FINISH LEVEL SCHEDULE

A. Level 1: Above finished ceilings concealed from view.
   1. All joints and interior angles shall have tape set in joint compound. Surface is to be free of excess joint compound. Tool marks and ridges acceptable.

B. Level 2: Utility areas and areas behind cabinetry.
   1. All joints and interior angles shall have tape embedded in joint compound and wiped with a joint knife leaving a thin coating of joint compound over all joints and interior angles. Fastener heads and accessories shall be covered with a coat of joint compound. Surfaces shall be be free of excess joint compound. Tool marks and ridges acceptable.

Joint compound applied over the body of the tape at the time of tape embedment shall be considered a separate coat of joint compound.

C. Level 3: Walls scheduled to receive textured wall finish.
   1. All joints and interior angles shall have tape embedded in joint compound and one additional coat of joint compound applied over all joints and interior angles. Fasteners heads and accessories shall be covered with two separate coats of joint compound. All joint compound shall be smooth and free of tool marks and ridges.

D. Level 4: Walls and ceilings scheduled to receive flat or eggshell paint finish of wall coverings.
   1. All joints and interior angles shall have tape embedded in joint compound and two additional coats of joint compound applied over all flat joints and one separate coat of joint compound applied over interior angles. Fasteners heads and accessories shall be covered with three separate coats of joint compound. The surface shall be smooth and free of tool marks and ridges.

E. Level 5: Walls and ceilings scheduled to receive semi-gloss or gloss paint finish or in areas where severe or critical lighting conditions occur.
   1. All joints and interior angles shall have tape embedded in joint compound and two additional coats of joint compound applied over all flat joints and one separate coat of joint compound applied over interior angles. Fasteners heads and accessories shall be covered with three separate coats of joint compound. A thin coat (skim coat) of joint compound or a material manufactured especially for this purpose, shall be applied to the entire surface. The surface shall be smooth and free of tool marks and ridges.
      a. Skim Coat: a thin coat of joint compound or a material manufactured especially for this purpose, applied over the entire surface to fill imperfections in the joint work. smooth the pater texture, and provide a uniform surface. Excess compound is immediately sheared off, leaving a film of skim coating compound completely covering the paper.

END OF SECTION

SECTION 09 51 00
ACOUSTICAL CEILINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Suspended metal grid ceiling system.

B. Acoustical units.

1.02 RELATED REQUIREMENTS

A. Division 21 - Fire Suppression Sprinklers: Sprinkler heads in ceiling system.

B. Division 23 - Air Outlets and Inlets: Air diffusion devices in ceiling.

C. Division 26 - Interior Luminaires: Light fixtures in ceiling system.

D. Division 27 - Public Address and Music Equipment: Speakers in ceiling system.

E. Division 28 - Fire Alarm System: Fire alarm components in ceiling system.

1.03 REFERENCE STANDARDS

A. ASTM C635/C635M - Standard Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings; 2013a.

B. ASTM C636/C636M - Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels; 2013.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Sequence work to ensure acoustical ceilings are not installed until building is enclosed, sufficient heat is provided, dust generating activities have terminated, and overhead work is completed, tested, and approved.

B. Do not install acoustical units until after interior wet work is dry.

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on suspension system components and acoustical units.

C. Samples: Submit two samples 4 by 4 inch in size illustrating material and finish of acoustical units.

1.06 QUALITY ASSURANCE

A. Suspension System Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

B. Acoustical Unit Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

1.07 FIELD CONDITIONS

A. Maintain uniform temperature of minimum 60 degrees F, and maximum humidity of 40 percent prior to, during, and after acoustical unit installation.

1.08 EXTRA MATERIALS

A. See Section 01 60 00 - Product Requirements, for additional provisions.

B. Maintenance Stock: Provide 1 (one) percent of total acoustical unit area of each type of acoustical unit for Owner's use in maintenance of project. This extra material is NOT to be used for any repair or replacement required during the construction period.

C. Replacement Stock: In addition to the maintenance stock, provide 1 (one) percent replacement stock of total acoustical unit area of each type of acoustical unit. Replacement Stock is to be

used to replace damaged materials during a 60 (sixty) day period following Substantial Completion when the responsible party for the damage cannot be determined. Remaining replacement stock is to turn over to the owner.

D. Obtain Owner's signature acknowledging receipt of extra stock.

PART 2 PRODUCTS

2.01 REFER TO "FINISH MATERIAL SCHEDULE" ON SHEET A8.1 FOR MANUFACTURER INFORMATION AND MATERIAL SELECTIONS. ALSO REFERENCE OTHER A7 AND A8 SERIES DRAWINGS (FINISH PLANS) FOR ADDITIONAL INFORMATION, LOCATIONS AND EXTENT OF MATERIALS.

2.02 ACOUSTICAL UNITS

A. Manufacturers:
   1. Armstrong World Industries, Inc: www.armstrong.com.
   2. CertainTeed Corporation: www.certainteed.com.
   3. USG: www.usg.com.
   4. Substitutions: See Section 01 60 00 - Product Requirements.

2.03 SUSPENSION SYSTEM(S)

A. Manufacturers:
   1. Armstrong World Industries, Inc: www.armstrong.com.
   2. CertainTeed Corporation: www.certainteed.com.
   3. Chicago Metallic Corporation: www.chicagometallic.com.
   4. USG: www.usg.com.
   5. Substitutions: See Section 01 60 00 - Product Requirements.

B. Metal Suspension Systems - General: Complying with ASTM C635/C635M; die cut and interlocking components, with perimeter moldings, hold down clips, stabilizer bars, clips, and splices as required.

C. Exposed Steel Suspension System: Formed steel, commercial quality cold rolled; heavy-duty.
   1. Profile: Tee; 15/16 inch wide face.
   2. Construction: Double web.
   3. Wire: ASTM A641, Class 1 zinc coating, soft temper 0.162 inch (8 gauge)
   4. Finish: White painted, or as noted on A8.1 - Material Finish Schedule.

2.04 ACCESSORIES

A. Support Channels and Hangers: Galvanized steel; size and type to suit application, seismic requirements, and ceiling system flatness requirement specified.

B. Hanger Wire: 12-gage 0.08 inch galvanized steel wire.

C. Perimeter Moldings: Same metal and finish as grid.
   1. At Exposed Grid: Provide L-shaped molding for mounting at same elevation as face of grid.
   2. At concrete masonry bullnose corners: Provide bullnose corner cover at same elevation as face of grid.
   3. Vertical Moldings: Provide 'F' molding at top and bottom edges of ceiling tile. Anchor molding to ceiling suspension system.

D. Hold Down Clips: Compatible with ceiling grid
   1. Provide hold-down clips within 20 feet of the exterior door(s).
   2. Vestibules
   3. Toilet Rooms.
   4. Locker Rooms.
   5. In other spaces as shown on the drawings.

E. Rough Suspension Material
   1. Metal Channel Runners: 1 1/2 inch and 3/4 inch
   2. Hanger Wire: #12 galvanized soft anneal steel or 3/16 inch diameter threaded rod
   3. Tie Wire: #18 galvanized anneal steel.

F. Touch-up Paint: Type and color to match acoustical and grid units.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that layout of hangers will not interfere with other work.

3.02 PREPARATION

A. Install after major above-ceiling work is complete.

B. Coordinate the location of hangers with other work.

3.03 INSTALLATION - SUSPENSION SYSTEM

A. Install suspension system in accordance with ASTM C636/C636M and as supplemented in this section.

B. Rigidly secure system, including integral mechanical and electrical components, for maximum deflection of 1:360.

C. Lay out system to a balanced grid design with edge units no less than 50 percent of acoustical unit size.

D. Perimeter Molding: Install at intersection of ceiling and vertical surfaces and at junctions with other interruptions.
   1. Use longest practical lengths.

E. Install after major above-ceiling work is complete. Coordinate the location of hangers with other work.

F. Suspension System, Non-Seismic: Hang suspension system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.

G. Hang suspension system from the building structure (structural steel and joist).
   1. Do not hang suspension system from metal deck.
   2. Do not hang suspension system from joist bridging.

H. Where ducts or other equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers and related carrying channels to span the extra distance.

I. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability.

J. Support fixture loads using supplementary hangers located within 6 inches of each corner, or support components independently.

K. Do not eccentrically load system or induce rotation of runners.

L. Perimeter Molding: Install at intersection of ceiling and vertical surfaces and at junctions with other interruptions.
   1. Use longest practical lengths.
   2. Overlap corners.

3.04 INSTALLATION - ACOUSTICAL UNITS

A. Install acoustical units in accordance with manufacturer's instructions.

B. Fit acoustical units in place, free from damaged edges or other defects detrimental to appearance and function.

C. Fit border trim neatly against abutting surfaces.

D. Install units after above-ceiling work is complete.

E. Install acoustical units level, in uniform plane, and free from twist, warp, and dents.

F. Cutting Acoustical Units:
   1. Make field cut edges of same profile as factory edges.
   2. Double cut and field paint exposed reveal edges.

G. Where round obstructions occur, provide preformed closures to match perimeter molding.

H. Install hold-down clips on panels within 20 feet of exterior doors.

END OF SECTION

SECTION 09 65 00
RESILIENT FLOORING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Resilient sheet flooring.

B. Resilient vinyl tile flooring.

C. Installation accessories.

D. Adhesives

E. Preparation for use (clean and polishing)

1.02 RELATED REQUIREMENTS

A. Section 03 30 00 - Cast-in-Place Concrete: Restrictions on curing compounds for concrete slabs and floors to receive adhesive-applied resilient flooring.

1.03 REFERENCE STANDARDS

A. ASTM E648 - Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source; 2014c.

B. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring; 2011.

C. ASTM E 662 - Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials; 1995.

D. ASTM F1066 - Standard Specification for Vinyl Composition Floor Tile; 2004 (Reapproved 2018).

E. ASTM F2034 - Standard Specification for Sheet Linoleum Floor Covering; 2018.

F. NFPA 253 - Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source; 2015.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Conduct a preinstallation meeting at least two (2) weeks prior to the start of the work of this section; require attendance by all affected installers.

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on specified products, describing physical and performance characteristics; including sizes, patterns and colors available; and installation instructions.

C. Shop Drawings: Indicate seaming plans and floor patterns.

D. Selection Samples: Submit manufacturer's complete set of color samples for Architect's initial selection.

E. Certification: Prior to installation of flooring, submit written certification by flooring manufacturer and adhesive manufacturer that condition of subfloor is acceptable.

F. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning, stripping, and re-waxing.

G. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 01 60 00 - Product Requirements, for additional provisions.
   2. Extra Flooring Material: 50 square feet of each type and color.
   3. Extra Wall Base: 25 linear feet of each type and color.
   4. Extra Stair Materials: Quantity equivalent to 5 percent of each type and color.

5. Obtain Owner's signature acknowledging receipt of extra stock.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing specified flooring with minimum five years documented experience.

B. Installer Qualifications: Company specializing in installing specified flooring with minimum five years documented experience.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Upon receipt, immediately remove any shrink-wrap and check materials for damage and the correct style, color, quantity and run numbers.

B. Store all materials off of the floor in an acclimatized, weather-tight space.

C. Maintain temperature in storage area between 55 degrees F and 90 degrees F.

D. Protect roll materials from damage by storing on end.

1.08 FIELD CONDITIONS

A. Store materials for not less than 48 hours prior to installation in area of installation at a temperature of 70 degrees F to achieve temperature stability. Thereafter, maintain conditions above 55 degrees F.

1.09 WARRANTY

A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.

B. Manufacturer's standard warranty to repair or replace installation that fails in material and workmanship.
   1. Warranty Period: 10 years from the date of Substantial Completion

PART 2 PRODUCTS

2.01 REFER TO "FINISH MATERIAL SCHEDULE" ON SHEET A8.1 FOR MANUFACTURER INFORMATION AND MATERIAL SELECTIONS. ALSO REFERENCE OTHER A7 SERIES DRAWINGS (FINISH PLANS) FOR ADDITIONAL INFORMATION, LOCATIONS AND EXTENT OF MATERIALS.

2.02 SHEET FLOORING

A. Linoleum Sheet Flooring: Homogeneous wear layer bonded to backing, with color and pattern through wear layer thickness.
   1. Minimum Requirements: Comply with ASTM F2034, Type corresponding to type specified.
   2. Critical Radiant Flux (CRF): Minimum 0.45 watt per square centimeter, when tested in accordance with ASTM E 648 or ASTM E 648.
   3. VOC Content Limits: As specified in Section 01 61 16.
   4. Backing: Jute fabric.
   5. Thickness: 0.100 inch, minimum, excluding backing.
   6. Sheet Width: 79 inch, minimum.
   7. Seams: Chemically bonded using seam sealer.
   8. Pattern: Marbleized.
   9. Color: To be selected from manufacturer's full color range.
   10. Manufacturers:
      a. Armstrong World Industries, Inc: www.armstrong.com.
      b. Acceptable Manufacturers:
         1) Forbo Flooring, Inc: www.forboflooringna.com.
         2) Johnsonite; Product Vento.www,johnsonite.com

2.03 TILE FLOORING

A. Vinyl Tile: Homogeneous, with color extending throughout thickness, and:
   1. Minimum Requirements: Comply with ASTM F 1066, Class II Tile.
   2. Critical Radiant Flux (CRF): Minimum 0.45 watt per square centimeter, when tested in accordance with ASTM E 648 or NFPA 253.
   3. Static Load limit (ASTM F 970): 125 psi (0.000 inch indentation).
   4. VOC Content: As specified in Section 01 61 16.
   5. Size: 9.8"x9.8" inch.
   6. Thickness: 1/10" inch.
   7. Pattern: Marbleized.
   8. Manufacturers:
      a. Armstrong World Industries, Inc.; Product Arteffects: www.armstrong.com.
      b. Acceptable Manufacturers
         1) Mannington Mills, Inc; Product Solid Point: www.mannington.com.
         2) Tarkett Inc; Product Cortina Granda: www.tarkett.com.
         3) Substitutions: See Section 01 60 00 - Product Requirements.
         4) Forbo Flooring, Inc[<>]: www.forboflooringna.com.
         5)

2.04 ACCESSORIES

A. Subfloor Filler: White premix latex; type recommended by adhesive material manufacturer.

B. Primers, Adhesives, and Seam Sealer: Waterproof; types recommended by flooring manufacturer.
   1. Adhesives: Type to allow installation of flooring with a concrete floor slab of up to an RH of 85% as tested by ASTM F 2170 or provide penetrating moisture barrier and compatible adhesive as recommended by the flooring manufacturer.

C. Adhesive for Vinyl Flooring:

D. Moldings, Transition and Edge Strips: Refer to "Finish Material Schedule" on drawing A8.1. Refer to A8 series drawings for more information and further detail drawings for flooring transitions.

E. Sealer and Wax:
   1. Commercial grade products recommended by flooring manufacturer.

F. At movable partitions, install flooring under partitions without interrupting floor pattern.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that surfaces are flat to tolerances acceptable to flooring manufacturer, free of cracks that might telegraph through flooring, clean, dry, and free of curing compounds, surface hardeners, and other chemicals that might interfere with bonding of flooring to substrate.

B. Verify that sub-floor surfaces are smooth and flat within the tolerances specified for that type of work and are ready to receive resilient flooring.

C. Verify that sub-floor surfaces are dust-free and free of substances that could impair bonding of adhesive materials to sub-floor surfaces.

D. Verify subfloors are free of cracks, ridges, depressions, scale, and foreign deposits of any kind.

E. Verify that required floor-mounted utilities are in correct location.

3.02 PREPARATION

A. Prepare floor substrates as recommended by flooring and adhesive manufacturers.

B. Verify that concrete sub-floor surfaces are dry enough and ready for resilient flooring installation by testing for moisture emission rate and alkalinity in accordance with ASTM F710; obtain instructions if test results are not within limits recommended by resilient flooring manufacturer and adhesive materials manufacturer.

C. Clean substrate by sweeping, washing or other methods to remove any loose material which may show through installed tile.

D. Apply primer as required to prevent "bleed-through" or interference with adhesion by substances that cannot be removed.

3.03 INSTALLATION - GENERAL

A. Starting installation constitutes acceptance of subfloor conditions.

B. Install in accordance with manufacturer's written instructions.

C. Adhesive-Applied Installation:
   1. Fit joints and butt seams tightly.
   2. Set flooring in place, press with heavy roller to attain full adhesion.

D. Spread only enough adhesive to permit installation of materials before initial set.

E. Fit joints and butt seams tightly.

F. Set flooring in place, press with heavy roller to attain full adhesion.

G. Where type of floor finish, pattern, or color are different on opposite sides of door, terminate flooring under centerline of door.

H. Install edge strips at unprotected or exposed edges, where flooring terminates, and where indicated.
   1. Resilient Strips: Attach to substrate using adhesive.

I. Scribe flooring to walls, columns, cabinets, floor outlets, and other appurtenances to produce tight joints.

J. Install flooring in recessed floor access covers, maintaining floor pattern.

K. Trowel marks and other imperfections showing through installed tile shall be reason to, remove tile, sand out trowel marks, remove or correct imperfections and reinstall tile.

3.04 INSTALLATION - SHEET FLOORING

A. Lay flooring with joints and seams parallel to longer room dimensions, to produce minimum number of seams. Lay out seams to avoid widths less than 1/3 of roll width; match patterns at seams.

B. Chemically bond seams using seam sealer where indicated.

C. Double cut sheet at seams.

D. Lay flooring with tightly butted seams, without any seam sealerunless otherwise indicated.

E. Double cut sheet; provide heat welded seams.

F. Coved Base: Install as detailed on drawings, using coved base filler as backing at floor to wall junction. Extend sheet flooring vertically to height indicated, and cover top edge with metal cap strip.

3.05 INSTALLATION - TILE FLOORING

A. Install in accordance with manufacturer's instructions.

B. Mix tile from container to ensure shade variations are consistent when tile is placed, unless otherwise indicated in manufacturer's installation instructions.

C. Spread only enough adhesive to permit installation of materials before initial set.

D. Set flooring in place, press with heavy roller to attain full adhesion.

E. Lay flooring with joints and seams parallel to building lines to produce symmetrical pattern.

F. Install square tile to ashlar pattern. Allow minimum 1/2 full size tile width at room or area perimeter.

G. Install edge strips at unprotected or exposed edges, where flooring terminates, and where indicated.

H. Scribe flooring to walls, columns, cabinets, floor outlets, and other appurtenances to produce tight joints.

I. Install flooring in recessed floor access covers. Maintain floor pattern.

J. At movable partitions, install flooring under partitions without interrupting floor pattern.

3.06 INSTALLATION - RESILIENT BASE

A. Fit joints tightly and make vertical. Maintain minimum dimension of 18 inches between joints.

B. Miter internal corners. At external corners, use premolded units. At exposed ends, use premolded units.

C. Install base on solid backing. Bond tightly to wall and floor surfaces.

D. Install base on casework base. Bond tightly to casework and floor.

E. Scribe and fit to door frames and other interruptions.

3.07 INSTALLATION - STAIR COVERINGS

A. Install stair coverings in one piece for full width and depth of tread.

B. Install stair landing tile the full width and depth of landing

C. Adhere over entire surface. Fit accurately and securely.

3.08 CLEANING AND POLISHING

A. Remove excess adhesive from floor, base, and wall surfaces without damage.

B. Clean in accordance with manufacturer's written instructions.

C. Clean, seal, and wax resilient flooring products in accordance with manufacturer's instructions (preparation for commercial traffic).
   1. Scrub the floor with a neutral detergent and scrubbing pad
   2. Thoroughly rinse floor and allow it to dry.
   3. Apply manufacturers recommended amount of wax or polish when floors are complete.

3.09 PROTECTION

A. Prohibit traffic on resilient flooring for 48 hours after installation.

B. Contractor is to protect flooring from time of installation to final completion of project.

C. If flooring protection is damaged, contractor shall replace it to ensure full protection.

END OF SECTION

SECTION 09 65 13
RESILIENT BASE & ACCESSORIES

PART 1 GENERAL

1.01 SECTION INCLUDE

A. Resilient Wall Base

B. Adhesives

1.02 RELATED REQUIREMENTS

A. Section 09 65 00 - Resilient Flooring

1.03 REFERENCED DOCUMENTS

A. ASTM F 1861 Standard Specification for Resilient Wall base

B. ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials

C. ASTM F 386 Standard Test Method for Thickness of Resilient Flooring Materials Having Flat Surfaces

D. ASTM E 648 Standard Test Method for Critical Radiant Flux of Flooring systems Using a Radiant Energy Source.

E. ASTM E 662 Test Method for Specific Density of Smoke Generated by Solid Materials.

F. ASTM F 925 Standard Test Method for Resistance to Chemicals of Resilient Flooring.

G. ASTM F 137 Standard Test Method for Flexibility of Resilient Flooring Materials with Cylindrical Mandrel Apparatus

H. ASTM F 1515 Standard Test Method for Measuring Light Stability of Resilient Vinyl Flooring by Color Change

I. National Fire Protection Association (NFPA): NFPA 255, Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Energy Source

J. National Fire Protection Association (NFPA) 258 Test Method for Specific Density of Smoke Generated by Solid Materials.

K. California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65).

L. The Collaborative for High Performance Schools (CHPS)

1.04 SUBMITTALS

A. Product Data: Submit product data, including manufacturer's specification summary sheet for specified products

B. Shop Drawings: Submit shop drawings showing layout, finish colors, patterns and textures.

C. Samples: Submit selection and verification samples for finishes, colors, and textures.

D. Quality Assurance Submittals: Submit the following:
   1. Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.
   2. Manufacturer's Instructions: Manufacturer's installation and maintenance instructions.

E. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning, stripping, and re-waxing.

F. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: Installer experienced in performing work of this section who has specialized in installing work similar to that required for this project.

B. Regulatory Requirements
   1. Fire Performance characteristics: Provide resilient sheet vinyl floor covering with the following fire performance characteristics as determined by testing products in accordance with ASTM method (and) NFPA method) indicated below by a certified testing laboratory or another testing and inspecting agency acceptable to authorities having jurisdiction.
      a. ASTM E 648 (NFPA 253), Critical Radiant Flux of Floor Covering Systems: Class 1, > 1.0 W/cm2
      b. ASTM E 662 (NFPA 258), Specific Optical Density of Smoke Generated by Solid Materials: Passes, <450
      c. ASTM E 84 (NFPA 255), Surface Building Characteristics of Building Materials: Class C

C. Single-Source Responsibility: Obtain resilient wall base and manufacturer's recommended adhesive from a single supplier.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

B. Storage and Protection: Store materials protected from exposure to harmful weather conditions and acclimated to site conditions at temperature and humidity conditions recommended by manufacturer.

C. Store materials for not less than 48 hours prior to installation in area of installation at a temperature of 70 degrees F to achieve temperature stability. Thereafter, maintain conditions above 55 degrees F.

1.07 WARRANTY

A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.

B. Manufacturer's standard warranty to repair or replace installation that fails in material and workmanship.
   1. Warranty Period: 3 years form the date of Substantial Completion

PART 2 PRODUCTS

2.01 REFER TO "FINISH MATERIAL SCHEDULE" ON SHEET A8.1 FOR MANUFACTURER INFORMATION AND MATERIAL SELECTIONS. ALSO REFERENCE OTHER A8 SERIES DRAWINGS (FINISH PLANS) FOR ADDITIONAL INFORMATION, LOCATIONS AND EXTENT OF MATERIALS.

2.02 MANUFACTURER:

A. Roppe Corporation: www.roppe.com

B. Acceptable Manufacturers:
   1. Burke Flooring: www.burkemercer.com.
   2. Johnsonite, a Tarkett Company: www.johnsonite.com.
   3. Substitutions: See Section 01 60 00 - Product Requirements.

2.03 RESILIENT WALL BASE

A. Minimum Requirements:
   1. Thickness tolerance: Complies with ASTM F-386
   2. Flexibility: Complies with ASTM F-137
   3. Resistance to Heat Aging: Complies with ASTM F-1515
   4. Resistance to Detergents: Complies with ASTM F-925
   5. Resistance to Alkalis: No fading or softening
   6. Dimensional Stability: Complies with ASTM F 1861
   7. Squareness: 90 degrees +/- 0.5 degrees

B. Product:
   1. Refer to A8.1, Material Finish Schedule for product information and details.(RB)
   2. Roppe Pinnacle Rubber Base
      a. a. Complies with ASTM F-1861 Type TS (Thermoset Vulcanized Rubber), Group 1 (Solid)
      b. Contains 10% natural rubber
      c. Thickness: 1/8" (3.175 mm) nominal
      d. Color as selected by Architect from manufacturer's standard colors.
      e. Profile:
         1) Standard toe (cove) for resilient installations
      f. Nominal Height: 4" and 6"
      g. Lengths: rolls (coil)
      h. Corners
         1) Formed by installer on site

2.04 ACCESSORIES

A. Primers, Adhesives, and Seaming Materials: Waterproof; types recommended by flooring manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

A. Site Verification of Conditions: Verify substrate conditions are acceptable for installing product in accordance with manufacturer's instructions.

B. Material Inspection: In accordance with manufacturer's installing requirements, visually inspect materials prior to installing. Material with visual defects shall not be installed.

3.02 PREPARATION

A. Prepare substrate in accordance with manufacturer's instructions.

B. Prepare manufacturer's recommended substrates to be smooth, rigid, flat, level, permanently dry, clean and free of foreign materials such as paint, dust, grease, oils, solvent, old adhesive residue, vinyl wall coverings, non-porous surfaces and all other contaminants that may interfere with adhesive bond.

3.03 INSTALLATION

A. Starting installation constitutes acceptance of conditions.

B. Install in accordance with manufacturer's instructions.

C. Spread only enough adhesive to permit installation of materials before initial set.

D. Fit joints tightly and make vertical. Maintain minimum dimension of 18 inches between joints.

E. Miter internal corners. At external corners, 'V' cut back of base strip to 2/3 of its thickness and fold.

F. Install base on solid backing. Bond tightly to wall and floor surfaces.

G. Install base on casework base. Bond tightly to casework and floor.

H. Scribe and fit to door frames and other interruptions.

I. Trowel marks and other imperfections showing through installed base shall be reason to, remove base, sand out trowel marks, remove or correct imperfections and reinstall base.

3.04 CLEANING

A. Remove excess adhesive from floor, base, and wall surfaces without damage.

B. Repair or replace damaged installed products.

C. Clean installed products in accordance with manufacturer's instructions prior to owner's acceptance.

D. Remove construction debris from project site and legally dispose of debris.

END OF SECTION

SECTION 09 91 23
INTERIOR PAINTING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Surface preparation.

B. Field application of paints.

C. Scope: Finish interior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated, including the following:
   1. Both sides and edges of plywood backboards for electrical and telecom equipment before installing equipment.
   2. Elevator pit ladders.
   3. Mechanical and Electrical:
      a. In finished areas, paint insulated and exposed pipes, conduit, boxes, insulated and exposed ducts, hangers, brackets, collars and supports, mechanical equipment, and electrical equipment, unless otherwise indicated.

D. Do Not Paint or Finish the Following Items:
   1. Items factory-finished unless otherwise indicated; materials and products having factory-applied primers are not considered factory finished.
   2. Items indicated to receive other finishes.
   3. Items indicated to remain unfinished.
   4. Fire rating labels, equipment serial number and capacity labels, bar code labels, and operating parts of equipment.
   5. Floors, unless specifically indicated.
   6. Ceramic and other tiles.
   7. Glass.
   8. Concealed pipes, ducts, and conduits.

1.02 RELATED REQUIREMENTS

A. Section 05 50 00 - Metal Fabrications: Shop-primed items.

B. Section 09 91 13 - Exterior Painting.

C. Division 23 - Mechanical

D. Section 23 37 00 - Air Outlets and Inlets

E. Section 23 37 10 - Exterior Wall Louvers

1.03 REFERENCE STANDARDS

A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; Current Edition.

B. ASTM D4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials; 2007.

C. MPI (APSM) - Master Painters Institute Architectural Painting Specification Manual; Current Edition, www.paintinfo.com.

D. SSPC-SP 1 - Solvent Cleaning; 2015.

E. SSPC-SP 6 - Commercial Blast Cleaning; 2007.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide complete list of products to be used, with the following information for each:
   1. Manufacturer's name, product name and/or catalog number, and general product category (e.g., "alkyd enamel").
   2. MPI product number (e.g., MPI #47).
   3. Cross-reference to specified paint system products to be used in project; include description of each system.

C. Maintenance Data: Submit data including finish schedule showing where each product/color/finish was used, product technical data sheets, material safety data sheets (MSDS), care and cleaning instructions, touch-up procedures, repair of painted and finished surfaces, and color samples of each color and finish used.

D. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 01 60 00 - Product Requirements, for additional provisions.
   2. Extra Paint and Finish Materials: 1 gal of each color; from the same product run, store where directed.
   3. Label each container with color in addition to the manufacturer's label.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum five yearsdocumented experience.

B. Applicator Qualifications: Company specializing in performing the type of work specified with minimum five years documented experience.

1.06 MOCK-UP

A. See Section 01 43 00 - Quality Assurance, for general requirements for mock-up.

B. Mock-up may remain as part of the work.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.

B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.

C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

1.08 FIELD CONDITIONS

A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.

B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.

C. Do not apply materials when relative humidity exceeds 85 percent, at temperatures less than 5 degrees F above the dew point, or to damp or wet surfaces.

D. Minimum Application Temperatures for Paints: 50 degrees F for interiors unless required otherwise by manufacturer's instructions.

E. Minimum Application Temperature for Varnish Finishes: 65 degrees F for interior, unless required otherwise by manufacturer's instructions.

F. Provide lighting level of 80 fc measured mid-height at substrate surface.

PART 2 PRODUCTS

2.01 REFER TO "FINISH MATERIAL SCHEDULE" ON SHEET A8.1 FOR MANUFACTURER INFORMATION AND MATERIAL SELECTIONS. ALSO REFERENCE OTHER A8 SERIES DRAWINGS (FINISH PLANS) FOR ADDITIONAL INFORMATION, LOCATIONS AND EXTENT OF MATERIALS.

2.02 MANUFACTURERS

A. Provide paints and finishes from the same manufacturer to the greatest extent possible.
   1. If a single manufacturer cannot provide specified products; minor exceptions will be permitted provided approval by Architect is obtained using the specified procedures for substitutions.
   2. Substitution of MPI-approved products by a different manufacturer is preferred over substitution of unapproved products by the same manufacturer.
   3. Substitution of other products by the same manufacturer is preferred over substitution of products by a different manufacturer.

B. Paints:
   1. Behr Process Corporation: www.behr.com.
   2. PPG Paints: www.ppgpaints.com.
   3. Pratt & Lambert Paints: www.prattandlambert.com.
   4. Sherwin-Williams Company: www.sherwin-williams.com.
   5. Valspar Corporation: www.valsparpaint.com.

C. Primer Sealers: Same manufacturer as top coats.

D. Substitutions: See Section 01 60 00 - Product Requirements.

2.03 PAINTS AND FINISHES - GENERAL

A. Paints and Finishes: Ready-mixed, unless intended to be a field-catalyzed paint.
   1. Provide paints and finishes of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
   2. Provide materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
   3. For opaque finishes, tint each coat including primer coat and intermediate coats, one-half shade lighter than succeeding coat, with final finish coat as base color.
   4. Supply each paint material in quantity required to complete entire project's work from a single production run.
   5. Do not reduce, thin, or dilute paint or finishes or add materials unless such procedure is specifically described in manufacturer's product instructions.

B. Volatile Organic Compound (VOC) Content:
   1. Provide paints and finishes that comply with the most stringent requirements specified in the following:
      a. 40 CFR 59, Subpart D--National Volatile Organic Compound Emission Standards for Architectural Coatings.
      b. USGBC LEED Rating System for interior wall and ceiling finishes (all coats), anti-corrosive paints on interior ferrous metal, sanding sealers, other sealers, and floor coatings.
   2. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.

C. Sheens: Provide the sheens specified; where sheen is not specified, sheen will be selected later by Architect from the manufacturer's full line.

2.04 PAINT SYSTEMS - INTERIOR

A. Paint I-OP - Interior Surfaces to be Painted, Unless Otherwise Indicated: Including gypsum board, concrete masonry units, wood, uncoated steel, shop primed steel, and galvanized steel.

B. Sheen: Eggshell / Satin
   1. Two top coats and one coat primer.
   2. Top Coat(s): High Performance Architectural Interior Latex; MPI #138, 139, 140, 141, or 142.
   3. Top Coat(s): Institutional Low Odor/VOC Interior Latex; MPI #143, 144, 145, 146, 147, or 148.
      a. Products:
         1) Behr Premium Plus Interior Flat [No.1050]. (MPI #143)
         2) Behr Premium Plus Interior Satin Enamel [No.7050]. (MPI #146)
         3) Behr Premium Plus Interior Semi-Gloss Enamel [No.3050]. (MPI #147)
         4) Pittsburgh Paints Speedhide Zero Interior Latex, 6-5110 Series, Flat. (MPI #143)
         5) Pittsburgh Paints Speedhide Zero Interior Latex, 6-5310 Series, Eggshell.
         6) Pittsburgh Paints Speedhide Zero Interior Latex, 6-5510 Series, Semi-Gloss. (MPI #147)
         7) Sherwin-Williams ProMar 200 Zero VOC Interior Latex, Flat.
         8) Sherwin-Williams ProMar 200 Zero VOC Interior Latex, Low Sheen. (MPI #144)
         9) Sherwin-Williams ProMar 200 Zero VOC Interior Latex, Semi-Gloss.
   4. Top Coat Sheen:
      a. Flat: MPI gloss level 1; use this sheen for ceilings and other overhead surfaces.
      b. Eggshell: MPI gloss level 3; use this sheen at all locations unless otherwise noted.

C. Paint I-OP-MD-DT - Medium Duty Door/Trim: For surfaces subject to frequent contact by occupants, including metals and wood:
   1. Medium duty applications include doors, door frames, railings, handrails, and guardrails.
   2. Sheen: Semi-gloss
   3. Two top coats and one coat primer.
   4. Top Coat(s): Interior Light Industrial Coating, Water Based; MPI #151, 153, or 154.
      a. Products:
         1) Pittsburgh Paints Pitt-Tech Plus EP WB DTM Industrial Enamel. 90-1610 Series, Semi-Gloss. (MPI #153)
         2) Sherwin-Williams Pro Industrial Acrylic Coating, Semi-Gloss. (MPI #153)
         3) Substitutions: See Section 01 60 00 - Product Requirements
   5. Top Coat Sheen:
      a. Semi-Gloss: MPI gloss level 5; use this sheen at all locations unless otherwise noted.
   6. Primer: As recommended by top coat manufacturer for specific substrate.

D. Paint WI-OP-3L - Wood, Opaque, Latex, 3 Coat:
   1. One coat of latex primer sealer.
   2. Semi-gloss: Two coats of latex enamel.

2.05 PRIMERS

A. Primers: Provide the following unless other primer is required or recommended by manufacturer of top coats.
   1. Interior Drywall Primer Sealer.

2.06 ACCESSORY MATERIALS

A. Accessory Materials: Provide primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials as required for final completion of painted surfaces.

B. Patching Material: Latex filler.

C. Fastener Head Cover Material: Latex filler.

PART 3 EXECUTION

3.01 EXAMINATION

A. Do not begin application of paints and finishes until substrates have been adequately prepared.

B. Verify that surfaces are ready to receive work as instructed by the product manufacturer.

C. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.

D. Test shop-applied primer for compatibility with subsequent cover materials.

E. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces is below the following maximums:
   1. Gypsum Wallboard: 12 percent.
   2. Plaster and Stucco: 12 percent.
   3. Masonry, Concrete, and Concrete Masonry Units: 12 percent.
   4. Interior Wood: 15 percent, measured in accordance with ASTM D4442.

3.02 PREPARATION

A. Clean surfaces thoroughly and correct defects prior to application.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces or finishing.

D. Seal surfaces that might cause bleed through or staining of topcoat.

E. Gypsum Board: Fill minor defects with filler compound. Spot prime defects after repair.

F. Plaster: Fill hairline cracks, small holes, and imperfections with latex patching plaster. Make smooth and flush with adjacent surfaces. Wash and neutralize high-alkali surfaces.

G. Galvanized Surfaces:
   1. Remove surface contamination and oils and wash with solvent according to SSPC-SP 1.

H. Ferrous Metal:
   1. Solvent clean according to SSPC-SP 1.
   2. Shop-Primed Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces. Re-prime entire shop-primed item.
   3. Remove rust, loose mill scale, and other foreign substances using methods recommended in writing by paint manufacturer and blast cleaning according to SSPC-SP 6 Commercial Blast Cleaning. Protect from corrosion until coated.

I. Wood Surfaces to Receive Opaque Finish: Wipe off dust and grit prior to priming. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried; sand between coats. Back prime concealed surfaces before installation.

3.03 APPLICATION

A. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.

B. Apply products in accordance with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual".

C. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.

D. Apply each coat to uniform appearance in thicknesses specified by manufacturer.

E. Sand wood and metal surfaces lightly between coats to achieve required finish.

F. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.

G. Wood to Receive Transparent Finishes: See Section 09 93 00.

H. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.04 CLEANING

A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

3.05 PROTECTION

A. Protect finishes until completion of project.

B. Touch-up damaged finishes after Substantial Completion.

END OF SECTION

GARMANN MILLER

Division 10

Specialties

SECTION 09 91 13
EXTERIOR PAINTING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Surface preparation.

B. Field application of paints.

C. Scope: Finish exterior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated.

D. Do Not Paint or Finish the Following Items:
   1. Items factory-finished unless otherwise indicated; materials and products having factory-applied primers are not considered factory finished.
   2. Items indicated to receive other finishes.
   3. Items indicated to remain unfinished.
   4. Fire rating labels, equipment serial number and capacity labels, and operating parts of equipment.
   5. Floors, unless specifically indicated.
   6. Glass.
   7. Concealed pipes, ducts, and conduits.

1.02 RELATED REQUIREMENTS

A. Section 05 50 00 - Metal Fabrications: Shop-primed items.

B. Section 09 91 23 - Interior Painting.

C. Section 23 37 00 - Air Outlets and Inlets

D. Section 23 37 10 - Exterior Wall Louvers

1.03 REFERENCE STANDARDS

A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; Current Edition.

B. ASTM D4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials; 2007.

C. MPI (APL) - Master Painters Institute Approved Products List; Master Painters and Decorators Association; current edition, www.paintinfo.com.

D. MPI (APSM) - Master Painters Institute Architectural Painting Specification Manual; Current Edition, www.paintinfo.com.

E. SSPC-SP 1 - Solvent Cleaning; 2015.

F. SSPC-SP 2 - Hand Tool Cleaning; 2018.

G. SSPC-SP 6 - Commercial Blast Cleaning; 2007.

H. SSPC-SP 13 - Surface Preparation of Concrete; 2018.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide complete list of products to be used, with the following information for each:
   1. Manufacturer's name, product name and/or catalog number, and general product category (e.g. "alkyd enamel").
   2. MPI product number (e.g. MPI #47).

3. Cross-reference to specified paint system(s) product is to be used in; include description of each system.

C. Samples: Submit three paper samples, 8-1/2 by 11 inches in size, illustrating range of colors available for each finishing product specified.
   1. Where sheen is specified, submit samples in only that sheen.
   2. Where sheen is not specified, discuss sheen options with Architect before preparing samples, to eliminate sheens not required.
   3. Allow 30 days for approval process, after receipt of complete samples by Architect.

D. Maintenance Data: Submit data including finish schedule showing where each product/color/finish was used, product technical data sheets, material safety data sheets (MSDS), care and cleaning instructions, touch-up procedures, repair of painted and finished surfaces, and color samples of each color and finish used.

E. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 01 60 00 - Product Requirements, for additional provisions.
   2. Extra Paint and Finish Materials: 1 gallon of each color; from the same product run, store where directed.
   3. Label each container with color in addition to the manufacturer's label.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum five yearsdocumented experience.

B. Applicator Qualifications: Company specializing in performing the type of work specified with minimum five years experience and approved by manufacturer.

1.06 FIELD CONDITIONS

A. Do not apply materials when surface and ambient temperatures are outside the paint product manufacturer's temperature ranges.

B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.

C. Do not apply exterior paint and finishes during rain or snow, or when relative humidity is outside the humidity ranges required by the paint product manufacturer.

D. Minimum Application Temperatures for Latex Paints: 50 degrees F for exterior; unless required otherwise by manufacturer's instructions.

PART 2 PRODUCTS

2.01 REFER TO "FINISH MATERIAL SCHEDULE" ON SHEET A9 FOR MANUFACTURER INFORMATION AND MATERIAL SELECTIONS. ALSO REFERENCE OTHER SERIES DRAWINGS (FINISH PLANS) FOR ADDITIONAL INFORMATION, LOCATIONS, AND EXTENT OF MATERIALS.

2.02 MANUFACTURERS

A. Provide paints and finishes from the same manufacturer to the greatest extent possible.
   1. If a single manufacturer cannot provide specified products, minor exceptions will be permitted provided approval by Architect is obtained using the specified procedures for substitutions.
   2. Substitution of MPI-approved products by a different manufacturer is preferred over substitution of unapproved products by the same manufacturer.
   3. Substitution of other products by the same manufacturer is preferred over substitution of products by a different manufacturer.

B. Paints:
   1. Behr Paint Company: www.behr.com.

2. Pittsburgh Paints: www.ppgpaints.com.
3. Pratt & Lambert Paints: www.prattandlambert.com.
4. Sherwin-Williams Company: www.sherwin-williams.com/.

C. Substitutions: See Section 01 60 00 - Product Requirements.

2.03 PAINTS AND FINISHES - GENERAL

A. Paints and Finishes: Ready-mixed, unless required to be a field-catalyzed paint.
1. Where MPI paint numbers are specified, provide products listed in Master Painters Institute Approved Product List, current edition available at www.paintinfo.com, for specified MPI categories, except as otherwise indicated.
2. Provide paints and finishes of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
3. Provide materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
4. Supply each paint material in quantity required to complete entire project's work from a single production run.
5. Do not reduce, thin, or dilute paint or finishes or add materials unless such procedure is described explicitly in manufacturer's product instructions.

B. Volatile Organic Compound (VOC) Content:
1. Provide paints and finishes that comply with the most stringent requirements specified in the following:
a. 40 CFR 59, Subpart D--National Volatile Organic Compound Emission Standards for Architectural Coatings.
2. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.

C. Sheens: Provide the sheens specified; where sheen is not specified, sheen will be selected later by Architect from the manufacturer's full line.

2.04 PAINT SYSTEMS - EXTERIOR

A. Paint E-OP - Exterior Surfaces to be Painted, Unless Otherwise Indicated: Including concrete, concrete masonry units, brick, fiber cement siding, primed wood, and primed metal.
1. Two top coats and one coat primer.
2. Top Coat(s): Exterior Latex; MPI #10, 11, 15, 119, or 214.
a. Products:
1) Behr Marquee Exterior Satin Enamel [No. 9450]. (MPI #15)
2) Pittsburgh Paints Acri-Shield Max Exterior Latex, 739-10 Series, Satin.
3) Sherwin-Williams Latitude Exterior Acrylic Satin, K62-650 Series. (MPI #15)
3. Top Coat(s): Exterior Light Industrial Coating, Water Based; MPI #161, 163, or 164.
a. Products:
1) Behr Premium Interior/Exterior Direct-To-Metal Paint Semi-Gloss [No. 3200]. (MPI #163)
2) Pittsburgh Paints Pitt-Tech Plus EP DTM Industrial Enamel, 90-1610 Series, Semi-Gloss. (MPI #163)
3) Sherwin-Williams Pro Industrial DTM Acrylic, Semi-Gloss. (MPI #163)

B. Paint ME-OP-2L - Ferrous Metals, Primed, Latex, 2 Coat:
1. Touch-up with rust-inhibitive primer recommended by top coat manufacturer.
2. Semi-gloss: Two coats of latex enamel.

2.05 PRIMERS

A. Primers: Provide the primer as required or recommended by manufacturer of top coats.

2.06 ACCESSORY MATERIALS

A. Accessory Materials: Provide primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials as required for final completion of painted surfaces.

B. Patching Material: Latex filler.

C. Fastener Head Cover Material: Latex filler.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that surfaces are ready to receive work as instructed by the product manufacturer.

B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially effect proper application.

C. Test shop-applied primer for compatibility with subsequent cover materials.

D. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
   1. Masonry, Concrete, and Concrete Masonry Units: 12 percent.
   2. Exterior Wood: 15 percent, measured in accordance with ASTM D4442.

3.02 PREPARATION

A. Clean surfaces thoroughly and correct defects prior to application.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces for finishing.

D. Seal surfaces that might cause bleed through or staining of topcoat.

E. Remove mildew from impervious surfaces by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.

F. Galvanized Surfaces:
   1. Remove surface contamination and oils and wash with solvent according to SSPC-SP 1.
   2. Prepare surface according to SSPC-SP 2.

G. Ferrous Metal:
   1. Solvent clean according to SSPC-SP 1.
   2. Shop-Primed Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces.
   3. Remove rust, loose mill scale, and other foreign substances using using methods recommended in writing by paint manufacturer and blast cleaning according to SSPC-SP 6 "Commercial Blast Cleaning". Protect from corrosion until coated.

H. Exterior Wood / Composite Surfaces to Receive Opaque Finish: Remove dust, grit, and foreign matter. Seal knots, pitch streaks, and sappy sections. Fill nail holes with tinted exterior calking compound after prime coat has been applied. Back prime concealed surfaces before installation.

3.03 APPLICATION

A. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.

B. Exterior Wood to Receive Opaque Finish: If final painting must be delayed more than 2 weeks after installation of woodwork, apply primer within 2 weeks and final coating within 4 weeks.

C. Apply products in accordance with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual".

D. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.

E. Apply each coat to uniform appearance.

F. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.

G. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.04 CLEANING

A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

3.05 PROTECTION

A. Protect finishes until completion of project.

B. Touch-up damaged finishes after Substantial Completion.

END OF SECTION

SECTION 10 14 26
POST & PANEL SIGNAGE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Exterior Post and Panel signage

1.02 RELATED SECTIONS

A. Section 01 60 00 - Products Requirements

1.03 REFERENCES

A. ANSI A117.1 - Specifications for Making Buildings and Facilities Accessible To and Usable By Physically Handicapped People.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Manufacturer's printed product literature for each type of sign, indicating sign styles, font, foreground and background colors, locations, overall dimensions of each sign.

C. Signage Schedule: Provide information sufficient to completely define each sign for fabrication, including room number, room name, other text to be applied, sign and letter sizes, fonts, and colors.
   1. Submit for approval by Owner through Architect prior to fabrication.

D. Selection Samples: Where colors are not specified, submit two sets of color selection charts or chips.

E. Verification Samples: Submit samples showing colors specified not less than 10 inches by 12 inches.

F. Manufacturer's Installation Instructions: Include installation templates and attachment devices.

G. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 01 60 00 - Product Requirements, for additional provisions.

1.05 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.

1.06 REGULATORY REQUIREMENTS

A. Conform to OBBC code and ANSI A117.1 for requirements for the physically handicapped.

B. Signage shall conform to with the Americans with Disabilities Act Accessibility Guidelines (ADAAG). These requirements supersede Technical Specifications in this Section.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, protect and handle products to site under provisions of Section 01 6000 - Product Requirements.

B. Store adhesive attachment tape at ambient room temperatures.

PART 2 PRODUCTS

2.01 TRAFFIC SIGNS

A. Manufacturer
   1. Sign International, Inc. www.signinternational.com

B. Acceptable Manufacturers
   1. Ara Signs www.arasigns.com

2. Ellet Sign Company: www.elletneon.com
3. Grimco Inc. www.grimco.com
4. Interwest Safety Supply Inc.
5. Substitutions: See Section 01 60 00 - Product Requirements

C. Regulatory: Signs to meet the Ohio Department of Transportation standards.

D. Signs
1. Accessible Parking: As detailed on the drawings

E. Materials
1. 0.080 Aluminum
2. Engineer Grade Reflective Sheeting
3. Non Corrosive 3/8" Machine Bolts with washers (2) per sign.

F. Mounting Post
1. U-Channel

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that substrate surfaces are ready to receive work.

3.02 GENERAL INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install signs and letters level and plumb.

C. Install product in locations indicated using mounting methods recommended by sign manufacturer and free from distortion, warp, or defect adversely affecting appearance

D. Install product at heights to conform to Americans with Disabilities Act Accessibility Guidelines (ADAAG) and applicable local amendments and regulations.

3.03 TRAFFIC SIGNS

A. Install signs in accordance with manufacturer's instructions.

B. Install signs horizontal, level, and plumb.

3.04 CLEANING AND PROTECTION

A. Clean exposed surfaces. Remove construction and installation marks.

B. Remove temporary coverings.

C. Protect installed signs from subsequent construction operations.

END OF SECTION

SECTION 10 22 33
ACCORDION FOLDING PARTITIONS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Acoustical accordion folding partitions.

1.02 RELATED REQUIREMENTS

1.03 REFERENCE STANDARDS

A. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2024.

B. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2023.

C. ASTM F793/F793M - Standard Classification of Wall Coverings by Use Characteristics; 2025.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Shop Drawings: Indicate opening sizes, track layout, details of track and required supports, static and dynamic loads, adjacent construction and finish trim, and stacking sizes.

C. Samples: Submit two samples of manufacturer's selection of colors.

D. Manufacturer's Installation Instructions: Indicate applicable installation procedures and procedures for perimeter conditions requiring special attention.

E. Maintenance Data: Describe cleaning materials detrimental to partition facings and hardware finish. Include recommended cleaning methods, cleaning materials, and stain removal methods.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum three years documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to project site in original packaging.

B. Store products under cover and elevated above grade.

1.07 WARRANTY

A. See Section 01 78 00 - Closeout Submittals for additional warranty requirements.

B. Manufacturer Warranty: Provide 2-year manufacturer warranty against manufacturing defects. Complete forms in Owner's name and register with manufacturer.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Accordion Folding Partitions:
   1. Kwik-Wall Company: www.kwik-wall.com.
   2. Modernfold, dormakaba Group: www.modernfold.com.
   3. Woodfold Manufacturing, Inc.: www.woodfold.com.
   4. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 ACCORDION FOLDING PARTITIONS, GENERAL

A. Description: Assembly of hinged panels; assembly opens and closes in accordion-folding manner; provides partitioning between two spaces when fully expanded across framed opening.

2.03 ACOUSTICAL ACCORDION FOLDING PARTITIONS

A. Description: Accordion folding partitions with components controlling sound transmission through partition.

B. Configuration: As indicated on drawings.

C. Opening Size: As indicated on drawings.

D. Partition Storage Area: Size as indicated on drawings.

E. Operation: Manual.

F. Acoustical Criteria: Partitions tested in accordance with ASTM E90.
   1. Panel Facing: Manufacturer's vinyl fabric with steel strips laminated within each fold.
      a. Finish: As selected by Architect from manufacturer's standard selection.
   2. Sound Seals: Manufacturer's standard sound seals for specified door.
   3. Sound Transmission Class (STC) Minimum Rating: STC 38.
   4. Product:
      a. Modernfold; Soundmaster 8: www.modernfold.com.
      b. Quik-Wall; VL-6 Accordian Partition: www.kwik-wall.com.
      c. Woodfold Manufacturing, Inc; H4100 Accordion Partition: www.woodfold.com.
   5. Sound Transmission Class (STC) Minimum Rating: STC 38.

2.04 SUSPENSION SYSTEMS

A. Manufacturer's standard suspension system, applicable for specified partition system and configuration indicated on drawings; capable of supporting imposed loads and with stiffness limiting deflection to 1/360 of span.

B. Material and Color: Manufacturer's standard.

C. Mounting Application: Recessed-mounted.

D. Support and Mounting Surface for Tracks: As indicated on drawings.

2.05 FRAMED OPENING COMPONENTS

A. Fixed Components:
   1. Manufacturer's standard full-height jamb units and interlocking jamb units.
   2. Finish: Aluminum, clear anodized.

B. Movable Components:
   1. Manufacturer's standard sliding jamb panels.

C. Framed Opening Trim:
   1. Fabricated from aluminum sheet.
   2. Finish: Aluminum, clear anodized.

2.06 PARTITION HARDWARE

A. Panel-to-Panel Hinge Assembly: Manufacturer's standard hinge assembly for specified partition.

B. Securing Devices:
   1. Latching Devices:
      a. Type: Manufacturer's standard for specified partition.
      b. Finish: Manufacturer's standard for specified partition.

C. Operating Trim:
   1. Type: Manufacturer's standard for specified partition.

2. Finish: Manufacturer's standard for specified partition.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that field measurements are as indicated on drawings.

C. Verify suspension system support structure permits track leveled within 1/4 inch of required position and parallel to floor surface.

3.02 INSTALLATION

A. Install partitions in accordance with manufacturer's instructions.

B. Install partitions level and plumb.

3.03 ADJUSTING

A. Adjust partition assembly to provide smooth operation from stacked to full open position.

B. Visually inspect fully expanded partition for light leaks; identify potential acoustical leaks; adjust to achieve light-tight seals.

3.04 CLEANING

A. Clean surfaces of partitions and other partition components in accordance with manufacturer's written cleaning instructions.

3.05 CLOSEOUT ACTIVITIES

END OF SECTION

SECTION 10 26 00
WALL AND DOOR PROTECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Corner guards.

1.02 RELATED REQUIREMENTS

A. Section 09 21 16 - Gypsum Board Assemblies: Placement of supports in stud wall construction.

1.03 REFERENCE STANDARDS

A. ASTM D543 - Standard Practices for Evaluating the Resistance of Plastics to Chemical Reagents; 2014.

B. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2024.

C. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials; 2024.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Indicate physical dimensions, features, wall mounting brackets with mounted measurements, anchorage details, and rough-in measurements.

C. Shop Drawings: Include plans, elevation, sections, and attachment details. Show design and spacing of supports for protective corridor handrails, required to withstand structural loads.

D. Samples: Submit samples illustrating component design, configurations, joinery, color and finish.
   1. Submit two sections of corner guards, bumper rails, and protective corridor handrails, 24 inches long.

E. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

F. Maintenance Materials: Furnish the following for Owner's use in maintenance of project:
   1. See Section 01 60 00 - Product Requirements, for additional provisions.
   2. Extra Stock Materials: One package(s) of minimum 96 inches long unit of each kind of covers for corner guards, bumper rails, and protective corridor handrails.

G. Maintenance Data: For each type of product . Include information regarding recommended and potentially detrimental cleaning materials and methods.

1.05 WARRANTY

A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.

B. Correct defective Work within a one year period after Date of Substantial Completion.

C. Provide five year manufacturer and installer warranty for metal crash rails.

PART 2 PRODUCTS

2.01 MANUFACTURERS

2.02 PRODUCT TYPES

A. Corner Guards - Surface Mounted:
   1. Material: High impact vinyl with full height extruded aluminum retainer.
   2. Width of Wings: 2 inches.

3. Corner: Square.
4. Color: As selected from manufacturer's standard colors.
5. Length: One piece. 8' tall, as indicated on drawings.
6. Preformed end caps.

2.03 FABRICATION

A. Fabricate components with tight joints, corners and seams.

B. Pre-drill holes for attachment.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that rough openings, concealed blocking, and anchors are correctly sized and located.

B. Verify that field measurements are as indicated on drawings.

3.02 INSTALLATION

A. Install components in accordance with manufacturer's instructions, level and plumb, secured rigidly in position to supporting construction.

B. Position corner guard 4 inches above finished floor to 5'-0" to top of piece.

3.03 TOLERANCES

A. Maximum Variation From Required Height: 1/4 inch.

3.04 CLEANING

A. Clean wall and door protection items of excess adhesive, dust, dirt, and other contaminants.

END OF SECTION

GARMANN MILLER

Division 12

Furnishings

SECTION 12 36 00
COUNTERTOPS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Wall-hung countertops.

1.02 RELATED REQUIREMENTS

A. Section 06 10 00 - Rough Carpentry

1.03 REFERENCE STANDARDS

A. ANSI A208.1 - American National Standard for Particleboard; 2022.

B. ANSI A208.2 - Medium Density Fiberboard (MDF) for Interior Applications; 2022.

C. ASTM D635 - Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position; 2022.

D. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards; 2014, with Errata (2018).

E. AWMAC/WI (NAAWS) - North American Architectural Woodwork Standards; 2021, with Errata.

F. ISFA 2-01 - Classification and Standards for Solid Surfacing Material; 2013.

G. NEMA LD 3 - High-Pressure Decorative Laminates; 2005.

H. PS 1 - Structural Plywood; 2023.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Verification Samples: For each finish product specified, minimum size 6 inches square, representing actual product, color, and patterns.

C. Test Reports: Chemical resistance testing, showing compliance with specified requirements.

D. Certificate: Submit labels and certificates required by quality assurance and quality control programs.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing work of the type specified in this section, with not less than Five years of documented experience.

B. Quality Certification:
   1. Provide labels or certificates indicating that the installed work complies with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS) requirements for grade or grades specified.
   2. Provide designated labels on shop drawings as required by certification program.
   3. Provide designated labels on installed products as required by certification program.
   4. Submit certifications upon completion of installation that verifies this work is in compliance with specified requirements.
   5. Replace, repair, or rework all work for which certification is refused.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.07 FIELD CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

PART 2 PRODUCTS

2.01 COUNTERTOPS

A. Solid Surfacing Window Sills: Solid surfacing sheet or plastic resin casting over continuous substrate.
   1. Flat Sheet Thickness: 1/2 inch, minimum.
   2. Solid Surfacing Sheet and Plastic Resin Castings: Complying with ISFA 2-01 and NEMA LD 3; acrylic or polyester resin, mineral filler, and pigments; homogenous, non-porous and capable of being worked and repaired using standard woodworking tools; no surface coating; color and pattern consistent throughout thickness.
      a. Manufacturers:
         1) Avonite Surfaces: www.avonitesurfaces.com.
         2) Dupont: www.corian.com.
         3) Formica Corporation: www.formica.com.
         4) Meganite, Inc: www.meganite.com.
         5) Wilsonart: www.wilsonart.com.
         6) Corian: https://www.corian.com/-colors-of-corian-r-
         7) Formica.
         8) Substitutions: See Section 01 60 00 - Product Requirements.
      b. Finish on Exposed Surfaces: Matte, gloss rating of 5 to 20.
      c. Color and Pattern: As indicated on Sheet A8.1 Material Finish Schedule

2.02 MATERIALS

A. Plywood for Supporting Substrate: PS 1 Exterior Grade, A-C veneer grade, minimum 5-ply; minimum 3/4 inch thick; join lengths using metal splines.

B. Adhesives: Chemical resistant waterproof adhesive as recommended by manufacturer of materials being joined.

C. Joint Sealant: Mildew-resistant silicone sealant, color to be coordinated in field.

2.03 FABRICATION

A. Fabricate tops and splashes in the largest sections practicable, with top surface of joints flush.
   1. Join lengths of tops using best method recommended by manufacturer.
   2. Fabricate to overhang fronts and ends of cabinets 1 inch except where top butts against cabinet or wall.
   3. Prepare all cutouts accurately to size; replace tops having improperly dimensioned or unnecessary cutouts or fixture holes.

B. Provide back/end splash wherever counter edge abuts vertical surface unless otherwise indicated.
   1. Secure to countertop with concealed fasteners and with contact surfaces set in waterproof glue.
   2. Height: 4 inches, unless otherwise indicated.

PART 3 EXECUTION

3.01 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

C. Verify that wall surfaces have been finished and mechanical and electrical services and outlets are installed in proper locations.

3.02 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.03 INSTALLATION

A. Securely attach countertops to cabinets using concealed fasteners. Make flat surfaces level; shim where required.

B. Seal joint between back/end splashes and vertical surfaces.

3.04 TOLERANCES

A. Variation From Horizontal: 1/8 inch in 10 feet, maximum.

B. Offset From Wall, Countertops: 1/8 inch maximum; 1/16 inch minimum.

C. Field Joints: 1/8 inch wide, maximum.

3.05 CLEANING

3.06 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Date of Substantial Completion.

END OF SECTION

GARMANN MILLER

Division 21

Fire Suppression

SECTION 21 05 01
FIRE PROTECTION MATERIALS/METHODS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Piping specialties

B. Installation requirements common to piping systems and equipment specification sections

C. Emergency repairs or operation

D. Provisions for later installations

E. Final completion

F. Project Conditions

G. Quality Assurance

H. Warranty

I. Supervision and cooperation

J. Maintenance and operating manuals

K. Record drawings

1.02 RELATED REQUIREMENTS

A. The provisions of the General Conditions, Supplementary Conditions, and the Sections included under Division 1 and 2, General Requirements, are included as a part of this Section as though bound herein.

B. Refer to section 01 6000 - Product Requirements

C. Refer to Division 26, Electrical Specifications, and to the requirements stated therein applicable to the Mechanical Work, where coordination of trades is covered.

D. The Drawings prepared for this Project are an outline to show where pipes, and apparatus must go in order to harmonize with the building and installations of the various trades. Work must be installed in accordance with the Drawings insofar as possible. Drawings shall be carefully checked during the course of bidding and construction. If discrepancies, errors, or omissions are discovered prior to or during the construction phase, notify the Engineer immediately for interpretation or correction. Take necessary measurements and be responsible for same, including clearances for equipment that is to be furnished. The Architect/Engineer shall reserve the right to make minor location changes of piping and equipment where such adjustments are deemed desirable from an appearance or operational standpoint. Such changes will be anticipated sufficiently in advance to avoid extra work or unduly delay progress on the Project.

E. The general building drawings shall be used to obtain dimensions and exact locations and as a check with other Contractors to avoid interferences with their Work. Refer to applicable Drawings on branches of the Work where other trades are involved on the Project so that added field work and job delays resulting from conflicts between crafts can be avoided. Piping that is prefabricated before coordinating with the other trades may have to be redone at no additional cost if conflicts are encountered.

1.03 SUMMARY

A. The Contractor(s) shall provide the labor, materials, equipment, appliances, services and transportation, and perform the operations in connection with the construction and installation of the Work. Work shall be as herein specified and as denoted on the accompanying Drawings.

B. The Contractor(s) shall arrange and pay for permits and inspections required in connection with the Work. The Contractor shall apply for and pay for meters, regulators, recorders, and gauges required. The Contractor must present to the Owner through the Architect/Engineer, properly signed certificates of final inspection by the governing authorities when they become due and shall not cover up Work until approved by those authorities.
   1. The owner will pay for the approval as required by the Ohio Basic Building Code. The Sprinkler contractor shall submit hydraulic calculations and drawings to the architect/engineer for state approval. Three sets required for state approval. The contractor shall secure and pay for all other building permits and governmental fees, licenses and inspections.

C. Materials or labor obviously required to fully complete the Work shall be included, even though each item necessarily involved is not specifically mentioned or shown. Such Work and materials shall be furnished and shall be of the same grade or quality as the parts actually specified and shown. Should there be a conflict between the plans and Specifications, the greater quantity and better quality shall be furnished.

D. Should an overlap of Work between the various trades become evident, the Engineer shall be notified. Such an event shall not relieve the Contractor of the responsibility for the Work called for under his branch of the Specifications until a written clarification or directive is issued concerning the matter.

E. Related Work Specified Elsewhere
   1. Firestopping is Work of this Section though fire barrier sealants (firestopping) for walls and floors are specified in Section 07 8400. Contractors are responsible for proper sizing of their sleeves and core-drilled holes so that they are at least 1-1/2 inches larger in diameter than the penetrating items. Schedule 40 steel sleeves and core-drilled holes made excessively large or made and not used, will be firestopped and charged to the Contractor who was responsible.

F. Related Work by Others
   1. All electrical wiring, and fire alarm wiring to be done under Division 26, Electrical.

G. Cutting of water lines, electric conduit, or similar service lines in the course of Work performed under this Section shall be immediately repaired as part of the Work of this Section.

1.04 REFERENCE STANDARDS

A. Standards are described by reference to various associations. These are in addition, but not limited to, to those listed in:
   1. AGA American Gas Association
   2. ANSI American National Standards Institute
   3. ASHRAE American Society of Heating, Refrigeration, and
   4. Air Conditioning Engineers
   5. ASME American Society of Mechanical Engineers
   6. AWS American Welding Society
   7. AWWA American Water Works Association
   8. CISPI Cast Iron Soil Pipe Institute
   9. NFPA National Fire Protection Association
   10. OSHA Occupational Safety and Health Act
   11. SMACNA Sheet Metal and Air Conditioning Contractors National Association
   12. UL Underwriters' Laboratories, Inc.

B. Work shall be in complete accordance with codes, rules, and ordinances, regulations of authorities, bodies, associations, and governments, having proper or legal jurisdiction. Specifically, the following requirements shall be met in their entirety.
   1. State and Local Rules, Regulations, Codes, Statutes, and Ordinances

2. NFPA 70 - National Electrical Code; National Fire Protection Association; 1999 appicable requirements.
3. National Board of Fire Underwriters
4. NEMA MG 1 - Motors and Generators; National Electrical Manufacturers Association; 1993 (and Revision 1,2,3).
5. Other Codes and Standards as specifically noted in each Section of the Specifications.
6. Americans with Disabilities Act (ADA)

C. References made to codes and standards, in these Specifications or on the Drawings, shall be taken to mean the latest edition, amendment, or revision of such reference in effect as of the date indicated on the Bid Documents unless otherwise noted.

1.05 SUBMITTALS

A. Submit capacity requirements, hydraulic calculations, catalog cuts, and illustrations in accordance with requirements of specifications and as required by specific Sections of this Specification.

B. Provide required LEED submittals and documentation per Section 01 3000.

C. Shop Drawings shall be prepared by the Contractor or supplier.
1. Where limited space is available due to the nature of the Work, the requirements for shop and working drawings will apply, and the Contractor is required to prepare complete shop drawings showing the exact disposition of apparatus, equipment, piping, ductwork, and the like, and its relation to the building so there will be no irregularities or interferences. Shop drawings shall be prepared in coordination with other Contractors and other trades.
2. Electronic drawing files can be obtained from Garmann/Miller & Associates Inc.

D. Warranty: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.06 QUALITY ASSURANCE

A. Instruments used by the Contractor shall be accurately calibrated and maintained in good working condition.

B. Products and test instruments used shall be subject to approval of Architect/Engineer.

C. Products and test instruments used shall be provided by each respective Contractor.

D. Note that systems involved under this Contract heading shall be in accordance with applicable requirements listed in NFPA Standards.

E. Materials used in this Contract shall be those specified herein unless proposals for the use of alternate materials have been submitted and accepted in writing, as provided hereinbefore. Materials shall be strictly first grade of their kind and shall be new and in first-class condition when installed. Damaged materials will be rejected and must be replaced by proper and acceptable materials. Materials shall be similar and in accordance with the provisions of this Specification.

F. No materials or equipment may be installed under this contract heading which do not meet the approval of the authorities having jurisdiction. Specific materials may have certain restrictions or exclusions as to their usage, including where they may not be located. Such regulations shall be adhered to where applicable. The requirements and regulations of the local and state building codes and regulations currently adopted shall be adhered to.

G. Piping systems shall be installed by workmen having skills acquired by working at the trade which is recognized as necessary for competency.

H. Pressure piping systems installed shall conform to the requirements of the State piping and welding codes where applicable.

1.07 PROJECT CONDITIONS

A. Unless otherwise stipulated under a particular heading, the following rules relative to responsibilities of the several Contractors and subcontractors will apply.
   1. Each Contractor shall install roughing-in work pertaining to his trade for connection of Work performed under other Sections of these Specifications.

B. Certain areas will be designated for the storage of materials and equipment and cooperation with the Owner in minimizing interference with existing operations will be mandatory.
   1. Where possible, store materials inside and protected from weather. Where necessary to store outside, elevate above grade and enclose with durable, waterproof wrapping.
   2. Follow manufacturer's instructions for receiving, inspecting, handling, storage, and protection of products prior to final installation

C. Equipment Clearances and Requirements
   1. For many items of equipment described in these Specifications, several manufacturers are listed. The manufacturer listed on the drawings is the make on which the layout was based and on which clearances, service required electrical, and plumbing characteristics, etc., have been checked. Additional manufacturers listed are considered acceptable.
   2. Due to the possibility of restrictions imposed by space limitations, the responsibility for resolving conflicts resulting from the use of equipment other than first named shall rest with the equipment supplier and the Contractor. Submittals for this equipment will be considered as a statement that clearances for access, service, maintenance, etc., have been checked and found adequate.
   3. Alternate equipment or the equipment of additional manufacturers named in these documents shall meet Base Bid Specifications. In the event such equipment or any equipment which the bidder proposes to furnish, deviates from the requirements of equipment first named regarding electric service, power wiring, control wiring, plumbing or piping, sound attenuation, or vibration damping, it shall be the responsibility of the bidder to include in his price a sufficient sum to cover additional costs or charges resulting therefrom.

D. In general, the piping shown on the Drawings shall be considered as diagrammatic for clearness in indicating the general run and connections required, and may not be shown in its true position. The piping and equipment may have to be offset, lowered or raised, as required, or as directed at the site in order to accommodate field conditions.

E. The fire protection contractor shall not install any piping, ductwork, equipment supported from the structure, conduit, etc. in the mechanical or electrical rooms until all walls and roof structure has been painted.

1.08 SUPERVISION AND COOPERATION

A. Work done by the Contractor under this Division shall include the services of an experienced superintendent, who shall be constantly in charge of the work, together with the qualified journeymen, helpers, and laborers required to properly unload, install, connect, adjust, start, and operate, and test the Work involved, including related equipment and materials furnished under other contracts or by the Owner.

B. A Pre-Installation meeting shall convene one week before starting work of this section.

1.09 WARRANTY

A. See Section 01 7000 - Closeout Procedures, for additional warranty requirements.

B. Correct defective Work within a one year period after Date of Substantial Completion.

PART 2 PRODUCTS

2.01 MATERIALS

2.02 ESCUTCHEONS AND PLATES

A. Provide approved plates around each pipe passing through walls, floors, partitions, and ceilings when piping is exposed to view and on exterior of building. Plates shall be chrome-plated metal and sized to cover exposed ends of pipe insulation and pipe sleeves.

B. Floor plates shall be split-type, heavy chrome-plated and securely attached to the pipe.

2.03 PIPE SLEEVES

A. Steel pipe sleeves shall be fabricated from Schedule 40 galvanized steel pipe.

B. Sleeves for copper piping shall be of compatible material to prevent interaction of piping materials.

PART 3 EXECUTION

3.01 INSTALLATION

A. Cutting and Patching
   1. Cutting and drilling of walls, slabs, and structural members, required in conjunction with Work under this Section, shall be done under the supervision of the Architect/Engineer. Work shall be neatly done, removing no unnecessary material. Holes, openings, etc., shall be located where they will not weaken the structure. No beams, joists, etc., shall be cut without the written consent of the Architect/Engineer.
   2. Cutting of holes in masonry and concrete shall be performed with a core drill to minimize spalling, and limit damage to wall. Locations shall be accurately determined and checked, and the appropriate drill bit shall be used to minimize hole size.
   3. Sleeves or thimbles for holes as well as escutcheons and trim plates shall be provided. Installation shall permit free movement of pipe.
   4. Patching of work, where necessary, is to be done by a mechanic of the appropriate trade. Unless otherwise noted, patching for Work performed under this Section shall be immediately repaired as part of the Work of this Section.

B. Pipe Sleeves: Install pipe sleeves where piping passes through walls, floors, ceilings, and roofs.
   1. Do not install sleeves through structural members of work, except as detailed on Drawings, or as reviewed and approved by Architect/Engineer.
   2. Install sleeves accurately centered on pipe runs.
   3. Size sleeves so that piping and insulation (if any) will have free movement in sleeve, including allowance for thermal expansion; but not less than 2 pipe sizes larger than piping run.
   4. Where insulation includes vapor barrier jacket, provide sleeve with sufficient clearance for installation.
   5. Install length of sleeve equal to thickness of construction penetrated, and finish flush to surface; except floor sleeves.
   6. Extend floor sleeves 1/4 inch above level floor finish, and 3/4 inch above floor finish sloped to drain unless otherwise noted.
   7. Provide temporary support of sleeves during placement of concrete and other work around sleeves, and provide temporary closure to prevent concrete and other materials from entering sleeves.
   8. Where insulated piping passes through fire barriers, stop insulation at barrier for fire barrier penetration seal.
   9. Where piping passes through nonfire rated, or nonwaterproof, partitions, floors, and walls, apply pipe insulation continuous through pipe sleeves.

10. Do not install sleeves through suspended ceilings.
11. Caulk nonfire rated sleeves with sealant.

C. Protection
1. Provide proper protection to the building during the execution of Work involved under this contract heading.
2. This protection shall include covering apparatus, building surfaces, and other materials to protect same from dirt; adequate temporary connections to protect apparatus from damage and required shielding to protect finished parts of the building. The following shall apply where applicable:
   a. Protect finished floors from chips and cutting oil by the use of metal chip receiving pans and oilproof floor covers.
   b. Protect equipment and finished surfaces from welding and cutting spatters with baffles and spatter blankets.
   c. Protect equipment and finished surfaces from paint droppings, insulation adhesive, and sizing droppings, etc., by use of drop cloths.
3. Pumps, motors, fans, and other rotating/reciprocating equipment stored for this Project shall be adequately protected with openings, bearings, etc., covered to exclude dust and moisture. Stock piled pipe, valves, fittings, ductwork, etc., shall be placed on dunnage and protected from weather and from entry of foreign material.
4. During installation and until final connections are made, piping and ductwork shall be protected against entry of foreign matter. Equipment connections shall be carefully sealed until the actual time of system tie-in.

D. Accessibility
1. Provide a union or flange in the piping at each screwed or welded valve, device, or item of equipment, and elsewhere as required for accessibility of repair. Each union shall be so installed as to permit the removal of item without disconnection of any piping except at the union.

3.02 TESTING AND REPAIR

A. Upon completion of each respective piping system, but prior to insulating, covering, or backfilling, each system shall be thoroughly cleaned and flushed to remove construction dirt and foreign matter.

B. Test Piping as Specified Herein
1. No piping work shall be concealed or covered until it has been inspected and approved by the project inspector, who shall be notified when the Work is ready for inspection. Work shall be completely installed and tested as required by this Contract and Ordinances of the local Municipality and shall be leaktight to the satisfaction of those making the inspection and the Architect/ Engineer.
2. In general, pressure tests shall be applied to piping. In no case shall piping be subject to pressure exceeding its rating. Defective work shall be promptly repaired or replaced and test shall be repeated until the particular system and component parts thereof receive approval of the Architect/Engineer.
3. Provide temporary equipment for testing, including pump, blower, and gauges. Test piping system before insulation is installed and remove control devices before testing. Test each natural section of each piping system independently, but do not use piping system valves or to isolate sections where test pressure exceeds valve pressure rating.
4. Repair piping system sections which fail required piping test by disassembly and reinstallation, using new materials to extent required to overcome leakage. Do not use chemicals, stopleak compounds, mastics, or other temporary repair methods.
5. Drain test water from piping systems after testing and repair work has been completed.
6. Pressure for Testing of Piping Systems shall be as follows:

a. Fire Protection Piping System (Interior)
1) Per NFPA #13, state and local codes.

7. Accurately record and report methods of testing, times, and dates of test, witnesses to the test, and the results of the test. Test reports shall be neatly typewritten on standard 8-1/2 inch by 11 inch sheets and submitted in 5 copies to Architect/Engineer for approval within 5 days after test has been performed.

C. Damage resulting from tests shall be repaired or damaged materials replaced, to satisfaction of Architect/Engineer, and at no cost to Owner.

3.03 EMERGENCY REPAIRS OR OPERATION

A. The Owner reserves the right to make emergency repairs and protection of the equipment and systems in operation without voiding the Contractor's guarantee bond or relieving the Contractor of his responsibility during the bonding period.

3.04 PROVISIONS FOR LATER INSTALLATIONS

A. Where work cannot be installed as the structure is being erected, the Contractor for such work shall provide and arrange for the building-in of boxes, sleeves, inserts, fixtures, and devices necessary to permit installation of the omitted work during later phases of construction. The Contractor shall arrange for layout, chases, holes, and other openings which must be provided in masonry, concrete, and other work.

B. The Contractor shall be responsible for becoming informed of the nature and arrangement of the materials and construction to which his work attached or passes through.

3.05 FINAL COMPLETION

A. Work shall be cleaned prior to Substantial Completion of the Work.

B. Retouch or repaint factory painted prime and finish coats where scratched or damaged. Whenever retouching will not be satisfactory, in the opinion of the Architect/Engineer, the Architect/Engineer has the option to require complete repainting until the desired appearance is obtained.

C. The Contractor shall clean equipment; restore damaged materials, remove grease, oil chemical, paint spots, and stains; and leave the Work in condition acceptable to Owner and Architect/Engineer.

D. On completion of his Work, the Contractor shall remove and see that each of his subcontractors removes from the site tools, equipment, surplus materials, and rubbish pertaining to his operations, and pay cost for such removal and disposition.

E. Contractor shall explain all components of the fire protection system and demonstrate their operation and maintenance to the owner's representative.
1. All demonstrations and training shall be video-taped by the Fire Protection Contractor. Two copies shall be turned over to the owner's representative.

3.06 MAINTENANCE AND OPERATING MANUALS AND INSTRUCTIONS

A. Comply with Section 01 7800 and the following:

B. Bind the written operating instructions, shop drawings, equipment catalog cuts, and manufacturer's instructions into the binder with each section seperated by tabbed dividers. Material to be assembled as follows:
1. First Page --Title of Job, Owner, Address, Date of submittal, Name of Contractor, and Name of Architect/Engineer. Emergency operating instructions and/or list of service organizations (including address and telephone numbers) capable of rendering emergency service on 24 hour calls.
2. Second page--Index

3. Sections--Each section shall include a subsection with a tab divider. The tab shall list the contents of the the divided section. There shall be a subsection that contains the following information:
    a. Written list of items requiring service and either state the service needed or refer to the manufacturer's data in the binder that described the proper service.
    b. A copy of the approved shop drawing for all systems, equipment, and components (clearly marked for item furnished).
    c. A copy of each manufacturer's operating instructions with an index at the beginning of the section.
    d. A list of equipment used on the job, Contractor's purchase order numbers, supplier's name, and address.
    e. A copy of the drawings and calculations.
4. Maintenance and operating manuals, instructions and calculations shall be also forwarded in electronic format via USB flash drive. Folders shall be created for each section and subfolder for each fixture and/or equipment required for the project.

3.07 RECORD DRAWINGS

A. The Contractor shall keep a running record of each change and deviation from the Drawings. Record shall be kept clean and undamaged upon a set of Drawings used for no other purpose. Upon completion of the Project, the Contractor shall submit to the Architect/Engineer one complete set of drawings which have been corrected to show deviations plus "Project Record Drawing" and the Contractor's letterhead type information. With the submittal shall be 2 sets of prints made from the corrected drawings.
    1. CADD drawing option may be used by Contractor. Disks with specific Drawings are available from Architect/Engineer at a nominal charge. Contact Architect/Engineer for current fee.

B. Record Drawings shall show:
    1. Size, type, and capacity of materials, devices, or pieces of equipment.
    2. Location of devices or pieces of equipment.
    3. Routing of piping (above and below grade), or other building services.

C. These drawings shall also record the location of concealed piping by indication of measured dimensions to each such line from readily identifiable and accessible walls or corners of the building.

D. Record drawings must be complete and accurate with regard to concealed piping, like equipment, or devices. Unless record drawings are sufficiently accurate to permit immediate location and identification of concealed work with a minimum of cutting, record drawings will be considered inadequate and the contract work deemed incomplete.

END OF SECTION

SECTION 21 05 03
WORK IN EXISTING BUILDING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Cutting and patching of existing material

B. Protection of existing conditions

C. Demolition work

D. Existing facility operation

1.02 RELATED SECTIONS

A. Section 02 4100 - Demolition

B. Section 21 0501 - Fire Suppression Materials and Methods

C. Section 21 1300 - Fire Protection Systems

1.03 QUALITY ASSURANCE

A. This Contractor shall be responsible for cutting and patching of existing walls, roofs, floors, and ceilings required for the installation of new plumbing work. Openings shall be neatly drilled or cut.

B. Patching shall be performed by a workman skilled in the trade involved, and patch work shall match the existing surface and finished in a manner completely acceptable to the Architect.

C. New Work in finished spaces of existing buildings shall be installed concealed unless directed by Architect/Engineer to run exposed.

D. Contractor shall visit the Project and verify existing conditions prior to bidding.

E. Protect existing work, equipment, fixtures, and systems from damage.

F. Contractor shall take necessary steps to protect the building and all interior finishes from damage during the installation of his work.

G. The Contractor(s) shall perform demolition work as shown on the Drawings and as specified herein or as may otherwise be required.
   1. Plumbing items to be removed shall be as indicated on drawings.
   2. The Owner may select items of equipment and material he wishes to retain and these items shall be moved to the location he designates. Other items shall be removed from the premises. Contractor shall verify with owner before any equipment is removed from the premises.

H. The continuity of operation of existing facilities during construction of the new Work shall be required. The actual length of time for an interruption shall be held to an absolute minimum. At least 48 hours in advance of an installation of new services, submit a specific plan to the Engineer and the Owner detailing the nature and estimated duration of the interruption and the method of procedure. Do not proceed with an interruption of service without the Owner's authorization.

PART 2 PRODUCTS

2.01 MATERIAL

A. Not Applicable.

PART 3 EXECUTION

3.01 CLEANING

A. The contractors shall clean all areas of debris and items to be disposed of in all areas where work in performed under each contract.

B. Do not permit traffic over unprotected floor surface.

END OF SECTION

SECTION 21 05 48
VIBRATION AND SEISMIC CONTROL

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Vibration isolators.

1.02 REFERENCE STANDARDS

A. NFPA 13 - Standard for the Installation of Sprinkler Systems; 2016.

1.03 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Isolation Technology, Inc: www.isolationtech.com.

B. Kinetics Noise Control, Inc: www.kineticsnoise.com.

C. Mason Industries: www.mason-ind.com.

D. Substitutions: See Section 01 60 00 - Product Requirements.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Install anchors and fasteners in accordance with ICC Evaluation Services, LLC (ICC-ES) evaluation report conditions of use where applicable.

C. Secure fasteners according to manufacturer's recommended torque settings.

D. Install flexible piping connections to provide sufficient slack for vibration isolation and/or seismic relative displacements as indicated or as required.

3.02 INSTALLATION - GENERAL

A. Install in accordance with manufacturer's instructions.

B. Comply with the requirements of NFPA 13.

3.03 SCHEDULES

A. Pipe Isolation Schedule.

1. 1 Inch Pipe Size: Isolate 120 diameters from equipment.
2. 2 Inch Pipe Size: Isolate 90 diameters from equipment.
3. 3 Inch Pipe Size: Isolate 80 diameters from equipment.
4. 4 Inch Pipe Size: Isolate 75 diameters from equipment.
5. 6 Inch Pipe Size: Isolate 60 diameters from equipment.

END OF SECTION

SECTION 21 05 53
FIRE SUPPRESSION IDENTIFICATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Nameplates.

B. Tags.

C. Pipe markers.

D. Ceiling tacks.

1.02 RELATED REQUIREMENTS

A. Section 09 91 23 - Interior Painting: Stencil paint.

1.03 REFERENCE STANDARDS

A. ASME A13.1 - Scheme for the Identification of Piping Systems; 2007.

1.04 SUBMITTALS

A. List: Submit list of wording, symbols, letter size, and color coding for mechanical identification.

B. Chart and Schedule: Submit valve chart and schedule, including valve tag number, location, function, and valve manufacturer's name and model number.

C. Product Data: Provide manufacturers catalog literature for each product required.

D. Manufacturer's Installation Instructions: Indicate special procedures, and installation instructions.

E. Project Record Documents: Record actual locations of tagged valves.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Brady Corporation: www.bradycorp.com.

B. Champion America, Inc: www.Champion-America.com.

C. Seton Identification Products: www.seton.com/aec.

D. Fire Protection Products, Inc.: www.fppi.com

E. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 NAMEPLATES

A. Description: Laminated three-layer plastic with engraved letters.
   1. Letter Color: White.
   2. Letter Height: 1/4 inch.
   3. Background Color: Black.

2.03 TAGS

A. Metal Tags: Brass with Stamped letters; letters to be filled with black ink; tag size minimum 1-1/2 inch diameter with smooth edges.

B. Chart: Typewritten letter size list in anodized aluminum frame. Five copies (or sets) of valve tag charts of valves shall be furnished; said charts shall include the following items:
   1. Valve Identification
   2. Locations
   3. Purpose

C. Mount one set of valve tag charts in an anodized aluminum frame with plastic and secured on a wall in the mechanical room or as otherwise directed. Second set of charts to be prepared for

"trouble shooting". The third, fourth, and fifth charts shall be bound into the operating and maintenance manuals.

2.04 FIRE PROTECTION RISER ROOM SIGN

A. Plastic Nameplate: Laminated three-layer plastic with engraved letters.
   1. Color: Red with white lettering. Lettering height shall be minimum 3".
   2. Information on Tag: Sign shall read "FIRE SUPPRESSION RISER ROOM".

B. Location: Mount on outside of exterior door to Riser Room.

2.05 PIPE MARKERS

A. Color: Comply with ASME A13.1.

B. Plastic Pipe Markers: Factory fabricated, flexible, semi- rigid plastic, preformed to fit around pipe or pipe covering; minimum information indicating flow direction arrow and identification of fluid being conveyed.

C. Plastic Tape Pipe Markers: Flexible, vinyl film tape with pressure sensitive adhesive backing and printed markings.

D. Underground Plastic Pipe Markers: Bright colored continuously printed plastic ribbon tape, minimum 6 inches wide by 4 mil thick, manufactured for direct burial service.

2.06 CEILING TACKS

A. Description: Steel with 3/4 inch diameter colored, pressure-sensitive adhesive paper circles. Apply circles to ceiling grid below location of system equipment per following code.

B. Color code as follows:
   1. Sprinkler Valves: Orange.

PART 3 EXECUTION

3.01 PREPARATION

A. Degrease and clean surfaces to receive adhesive for identification materials.

B. Prepare surfaces in accordance with Section 09 91 23 for stencil painting.

3.02 INSTALLATION

A. Install nameplates with corrosive-resistant mechanical fasteners, or adhesive. Apply with sufficient adhesive to ensure permanent adhesion and seal with clear lacquer.

B. Install tags with corrosion resistant chain.

C. Install plastic pipe markers in accordance with manufacturer's instructions.

D. Install plastic tape pipe markers complete around pipe in accordance with manufacturer's instructions.

E. Identify valves in main and branch piping with tags.

F. Identify piping, concealed or exposed, with plastic pipe markers. Use tags on piping 3/4 inch diameter and smaller. Identify service, flow direction, and pressure. Install in clear view and align with axis of piping. Locate identification not to exceed 20 feet on straight runs including risers and drops, adjacent to each valve and Tee, at each side of penetration of structure or enclosure, and at each obstruction.

G. Locate ceiling tacks to locate valves above T-bar type panel ceilings. Locate in corner of panel closest to equipment.

END OF SECTION

SECTION 21 13 00
FIRE PROTECTION SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Wet-pipe sprinkler system.

B. Dry-pipe sprinkler system.

C. System design, installation, and certification.

D. Pipe, fittings, valves, and connections for sprinkler, standpipe, and fire hose connections.

1.02 RELATED REQUIREMENTS

A. Section 21 0501 - Fire Suppression Materials and Methods

B. Section 21 0503 - Work in Existing Building

C. Section 21 05 48 - Vibration and Seismic Control.

D. Section 21 05 53 - Fire Suppression Identification.

1.03 REFERENCE STANDARDS

A. AWWA C104/A21.4 - Cement-Mortar Lining for Ductile-Iron Pipe and Fittings; 2022.

B. AWWA C111/A21.11 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings; 2017.

C. Comply with state and Local Fire Codes

D. FM (AG) - FM Approval Guide; Factory Mutual Research Corporation; current edition.

E. NFPA 13 - Standard for the Installation of Sprinkler Systems; 2016.

F. UL (DIR) - Online Certifications Directory; Current Edition.

G. ASTM A 53/A 53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped Zinc-Coated, Welded and Seamless.

H. ASTM A 795 - Standard Specification for Black and Hot-Dipped Zinc-Coated (Galvanized) Welded and Seamless Steel Pipe for Fire Protection use.

I. UL 312 - Check Valves for Fire Protection Service; Underwriters Laboratories, Inc.

J. Comply with Factory Mutual Global "Approval Guide".

K. ASTM A234 - Standard Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel.

L. ASTM A536 - Standard Specification for Ductile Iron Castings.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on sprinklers, valves, and specialties, including manufacturers catalog information. Submit performance ratings, rough-in details, weights, support requirements, and piping connections.

C. Shop Drawings:
   1. Submit preliminary layout of finished ceiling areas indicating only sprinkler locations coordinated with ceiling installation.
   2. Indicate hydraulic calculations, detailed pipe layout, hangers and supports, sprinklers, components and accessories. Indicate system controls.
   3. The owner will pay for the approval as required by the Ohio Basic Building Code with the sprinkler contractor submitting hydraulic calculations and drawings to the

architect/engineer for state plan approval. The contractor shall secure and pay for all other building permits and governmental fees, licenses and inspections.

4. Grooved joint couplings and fittings shall be shown on drawings and product submittals, and be specifically identified with applicable Victaulic style number.
5. Sprinkler heads shall be referred to on drawings, submittals, and other documentation, by the sprinkler identification or Model number as specifically published in the appropriate agency listing or approval. Trade names or other abbreviated designations shall not be allowed.

D. Project Record Documents: Record actual locations of sprinklers and deviations of piping from drawings. Indicate drain and test locations.

E. Manufacturer's Certificate: Certify that system has been tested and meets or exceeds specified requirements and code requirements.

F. Operation and Maintenance Data: Include components of system, servicing requirements, record drawings, inspection data, replacement part numbers and availability, and location and numbers of service depot.

G. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
1. See Section 01 60 00 - Product Requirements, for additional provisions.
2. Extra Sprinklers: Type and size matching those installed, in quantity required by referenced NFPA design and installation standard.
3. Sprinkler Wrenches: For each sprinkler type.

1.05 QUALITY ASSURANCE

A. Conform to UL and FM requirements.

B. Designer Qualifications: Fire supression system is a delgated design. Design system under direct supervision of a Professional Engineer with NICET Level III Ceexperienced in design of this type of work and licensed in Ohio.

C. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.

D. Equipment and Components: Provide products that bear UL and FM label or marking. Provide manufacturer's name and pressure rating marked on valve body.

E. Products Requiring Electrical Connection: Listed and classified by UL (DIR) as suitable for the purpose specified and indicated.

F. Piping shall be installed per NFPA 13, state and local fire codes.

G. All grooved couplings, fittings, valves, and specialties shall be the products of a single manufacturer.

H. Testing of piping shall be per NFPA 13.

I. Sprinkler heads shall be UL and FM labeled and shall be located on spacing requirements as noted in NFPA 13 according to the hazard designation. Extended coverage sprinkler heads are acceptable.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Store products in shipping containers and maintain in place until installation.

B. Provide temporary inlet and outlet caps. Maintain caps in place until installation.

1.07 MAINTENANCE SERVICE

A. Provide service and maintenance of fire protection system for one year from date of Substantial Completion.

B. Contractor shall explain all components of the fire protection system and demonstrate their operation and maintenance to the owner's representative.
   1. All demonstrations and training shall be video-taped by the Fire Protection Contractor. Two copies shall be turned over to the owner's representative.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Sprinklers, Valves, and Equipment:
   1. Victaulic Corp.
   2. Viking Corp.
   3. Grinnell Corp.
   4. Globe Fire Sprinkler Co.
   5. Reliable Automatic Sprinkler Co., Inc.
   6. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 GENERAL SYSTEM AND PRODUCT REQUIREMENTS

A. Sprinkler System: Conform to NFPA 13.

B. Welding Materials and Procedures: Conform to ASME Code.

2.03 SPRINKLER SYSTEM

A. Sprinkler System: Provide coverage for building areas noted.

B. Occupancy: Light hazard; comply with NFPA 13. Provide ordinary hazard in spaces where required and/or noted.

C. Water Supply: Determine volume and pressure from water flow test data.
   1. Contractor shall perform their own flow test before submission of submittal drawings. Design shall be revised to reflect contractor's flow test.
   2. The contractor shall perform a flow test during construction and a final flow test before startup to verify design conditions.

D. Interface system with building fire and smoke alarm system.

E. Storage Cabinet for Spare Sprinklers and Tools: Steel, located adjacent to alarm valve.

2.04 SPRINKLERS

A. Provide automatic sprinklers as listed by UL and F.M. Global
   1. Sprinkler heads shall be fusible solder link or glass bulb type. Body shall be die cast brass, with hex-shaped wrench boss cast into body to facilitate installation and reduce the risk of damage during installation.
   2. Provide brass upright pendant and side wall sprinklers as required on exposed piping in unfinished spaces.
   3. Provide white exposed pendant sprinkler heads in finished areas such as storage rooms and janitors closets.
   4. Provide white semi-recessed pendant heads with matching escutcheon in all finished areas except as noted.
   5. Provide concealed ceiling sprinklers with cover plate to match ceiling color in the corridors, restrooms, hard surface ceiling, bulkheads and locker/shower rooms.
   6. Center heads in ceiling tile in corridors. All other heads in lay-in ceiling areas shall be in tile not within 4 inches of grid.
   7. Escutcheons and guards shall be listed, supplied and approved for use with the sprinkler piping by the sprinkler manufacturer.

B. Suspended Ceiling Type: Semi-recessed pendant type with matching push on escutcheon plate.
   1. Response Type: Quick.

2. Coverage Type: Standard.
3. Finish: Brass.
4. Fusible Element: Solder link or glass bulb type temperature rated for specific area hazard.
5. Connection type: NPT or Grooved

C. Suspended Ceiling Type: Concealed pendant type with matching push on escutcheon plate.
1. Response Type: Quick
2. Coverage Type: Standard or Extended.
3. Finish: Enamel, color White except for other spaces that have different colored ceilings, which shall be color as selected by Architect.
4. Escutcheon Plate Finish: Enamel, color White except for other spaces that have different colored ceilings, which shall be color as selected by Architect.
5. Glass bulb type temperature rated for specific area hazard.
6. Connection type: NPT or Grooved

D. Exposed Area Type: Pendant type with guard.
1. Response Type: Quick.
2. Coverage Type: Standard
3. Finish: Brass.
4. Fusible Element: Solder link or glass bulb type temperature rated for specific area hazard.
5. Connection type: NPT or Grooved

E. Sidewall Type: Semi-recessed horizontal sidewall type with matching push on escutcheon plate.
1. Response Type: Quick.
2. Coverage Type: Standard or Extended .
3. Finish: Brass.
4. Fusible Element: Solder link or glass bulb type temperature rated for specific area hazard.
5. Connection type: NPT

F. Dry Sprinklers: Concealed pendant type with matching push on escutcheon plate.
1. Response Type: Quick.
2. Coverage Type: Standard
3. Finish: Brass.
4. Cover Plate Finish: Brass.
5. Fusible Element: Solder link or glass bulb type temperature rated for specific area hazard.
6. Connection type: NPT or Grooved

G. Storage Sprinklers: Pendant type with guard.
1. Response Type: Standard.
2. Coverage Type: Standard or Extended.
3. Fusible Element: Solder link or glass bulb type temperature rated for specific area hazard.

H. Guards: Finish to match sprinkler finish.

2.05 PIPING SPECIALTIES

A. Dry Pipe Sprinkler Alarm Valve: Check type valve with divided seat ring, rubber faced clapper to automatically actuate water motor alarm, accelerator, and with the following additional capabilities and features:

B. Electric Alarm: Provide 120V, electrically operated, 8" chrome plated gong with pressure alarm switch. Gong shall be installed by the electrical contractor. Coordinate the exact location with the electrical contractor.

2.06 BURIED PIPING

A. Steel Pipe: ASTM A 53/A 53M Schedule 40, ASTM A 135 Schedule 10, ASTM A 795 Standard Weight, or ASME B36.10M Schedule 40, black, with AWWA C105 polyethylene jacket, or double layer, half-lapped polyethylene tape.
   1. Steel Fittings: ASME B16.9, wrought steel, buttwelded; with double layer, half-lapped polyethylene tape.
   2. Cast Iron Fittings: ASME B16.1, flanges and flanged fittings.
   3. Joints: Welded in accordance with AWS D1.1.

B. Ductile Iron Pipe: AWWA C151/A21.51, AWWA C104/A21.4 cement mortar lining.
   1. Ductile Iron Fittings: flanged or mechanical joint ends complying with AWWA C153/A21.53, AWWA C104/A21.4 cement mortar lining. Include AWWA C111/A21.11 ductile iron glands, rubber gaskets and stainless steel bolts, with AWWA C105 polyethylene jacket, or double layer, half-lapped polyethylene tape
   2. Ductile Iron Joints: flanged or mechanical joint ends complying with AWWA C153/A21.53, AWWA C104/A21.4 cement mortar lining. Include AWWA C111/A21.11 ductile iron glands, rubber gaskets and stainless steel bolts, with AWWA C105 polyethylene jacket, or double layer, half-lapped polyethylene tape
   3. Pressure rating for 250 psig minimum.

C. PVC Pipe: AWWA C900, CL 150, DR-18.
   1. Fittings: Cement Lined ductile iron mechanical joint type.

2.07 ABOVE GROUND PIPING

A. Steel Pipe: ASTM A 795 Schedule 10, ASTM A 53 Schedule 40, or ASTM A 135/795 Schedule 40, black.
   1. Steel Fittings: ASME B16.9, wrought steel, buttwelded.
   2. Cast Iron Fittings: ASME B16.1, flanges and flanged fittings and ASME B16.4, threaded fittings.
   3. Mechanical Grooved Fittings: Ductile iron, conforming to ASTM A 536; forged steel, conforming to ASTM A 234; or factory-fabricated from carbon steel pipe, conforming to ASTM A 53; with grooved ends conforming to ANSI/AWWA C606.
   4. Mechanical Grooved Couplings: Ductile iron housing clamps to engage and lock, "C" shaped elastomeric sealing gasket, steel bolts, nuts, and washers; galvanized for galvanized pipe.
      a. Rigid Type: Coupling housings cast with offsetting, angle-pattern bolt pads shall be used to provide system rigidity and support and hanging in accordance with NFPA 13. Tongue and recess rigid type couplings shall only be used if the contractor uses a torque wrench for installation. Required torque shall be in accordance with the manufacturer's latest recommendations. This shall be field verified by the engineer's field representative.
         1) 1-1/4" through 12" rigid coupling shall be "Installation Ready" stab-on type coupling, designed for direct "stab" onto grooved end pipe without prior field disassembly and no loose parts.
         2) Center-leg gasket with pipe stop to ensure proper groove engagement, alignment, and piping insertion depth.
      b. Flexible Type: Use in locations where vibration attenuation and stress relief are required.
      c. Flange Adapter: Flat face, for direct connection to ANSI Class 125/150 flanged components.
   5. Installation-Ready fittings for schedule 40 and schedule 10 grooved end steel piping in fire protection application sizes NPS 1 1/4" thru 2 1/2". Fittings shall be equal to Victaulic Firelock.

6. Installation ready fittings for schedule 40 and schedule 10 fittings and couplings may be used for 1" NPS carbon steel piping. Fittings shall be equal to Victaulic Firelock IGS.

B. Flexible Hose Sprinkler Head Connection: Flexible sprinkler connection assemblies shall be fully welded, non-mechanical fitting type, with minimum 1 inch internal diameter corrugated type 304 stainless steel hose, type 304 stainless steel braided outer cover and collar, 1 inch NPT male inlet and stainless steel or carbon steel 1 inch x 1/2 inch or 1 inch x 3/4 inch NPT female reducer outlet. Seals, when utilized shall be EPDM. Open gate ceiling bracket shall be direct attachment type having integrated snap-on clip ends positively attached to the ceiling using tamper-resistant screws and a removable attachment hub with a set screw. Ceiling attachment shall incorporate a tamper resistant label for visual verification of inappropriate removal or relocation. The flexible sprinkler connection assembly shall be UL listed and FM global approved for fire protection service, and seismically qualified pursuant to ICCESAC-156. Assembly shall be equal to Victaulic AH2 or AH2-CC series. Sprinkler heads shall be equal to Victaulic VicFlex with Victaulic Firelock IGS grooved style 108 fitting.

C. In lieu of dry type rigid sprinkler heads, a flexible hose sprinkler head connection equal to Victaulic VicFlex dryer sprinkler model VS1. The sprinkler shall provide a vertical or horizontal flexible connection with a bend radius to 2" and allow for up to four bends. Provide bracket equal to Victaulic AB6 bracket.

2.08 PIPE HANGERS AND SUPPORTS

A. Provide hangers and supports per NFPA 14 requirements.

B. Hangers for Pipe Sizes 1/2 to 1-1/2 inch: Malleable iron, adjustable swivel, split ring.

C. Hangers for Pipe Sizes 2 inches and Over: Carbon steel, adjustable, clevis, or malleable iron, adjustable swivel, split ring.

D. Multiple or Trapeze Hangers: Steel channels with welded spacers and hanger rods.

E. Wall Support for Pipe Sizes to 3 inches: Cast iron hook.

F. Wall Support for Pipe Sizes 4 inches and Over: Welded steel bracket and wrought steel clamp.

G. Structural Supports shall be beam clamps, sloped beam clamps, or strap in strut mount hangers.
   1. Arrange all mechanical supports to prevent eccentric loading of joists and joist girders. Locate supports at joist panel points.
   2. If support must occur between panel joints, then threaded rods shall be dropped from both panel points, an adequate angle to both, and then the support attached to the angle is required.
   3. Unless specifically indicated or approved by Garmann Miller & Associates Inc. do not provide support from roof decks or floor decks.

H. Vertical Support: Steel riser clamp.

2.09 GLOBE OR ANGLE VALVES

A. Up to and including 2 inches:
   1. Bronze body, bronze trim, rising stem and handwheel, inside screw, renewable rubber disc, threaded ends, with backseating capacity repackable under pressure.

B. Over 2 inches:
   1. Iron body, bronze trim, rising stem, handwheel, OS&Y, plug-type disc, flanged ends, renewable seat and disc.

2.10 BALL VALVES

A. Up to and including 2 inches:
   1. Bronze two piece body, chrome plated brass, or stainless steel ball, teflon seats and stuffing box ring, lever handle and balancing stops, threaded ends with union.

2. Brass two piece body, chrome plated brass, or stainless steel ball, Teflon seats, weatherproof actuator housing, worm gear operated, threaded or grooved ends.

B. Over 2 inches:
1. Cast steel body, chrome plated steel ball, teflon seat and stuffing box seals, lever handle or gear drive hand wheel for sizes 10 inches and over, flanged.
2. Ductile iron body, chrome plated carbon steel ball and stem, Teflon seats, lever handle and grooved ends.

2.11 BUTTERFLY VALVES

A. Bronze Body:
1. Stainless steel disc, resilient replaceable seat, threaded or grooved ends, extended neck, handwheel and gear drive and integral indicating device, and built-in tamper proof switch rated 10 amp at 115 volt AC.

B. Cast or Ductile Iron Body
1. Electroless-nickel coated ductile iron disc, stem offset from the disc centerline to provide a complete 360 degree circumferential seating, grooved ends, weatherproof actuator housing with handwheel and gear drive, and integral indicating device, and built-in tamper proof switch rated 10 amp at 125 volt AC. Valve shall be equal to Victaulic Series 705.

2.12 CHECK VALVES

A. Up to and including 2 inches:
1. Bronze body and swing disc, rubber seat, threaded ends.

B. Over 2 inches:
1. Iron body, bronze trim, swing check with rubber disc, renewable disc and seat, flanged ends with automatic ball check.
2. Ductile iron body, stainless steel trim, spring-assisted check for vertical or horizontal installation, with aluminum bronze or elastomer encapsulated ductile iron disc; grooved ends. Valve shall be equal to Victaulic Series 717.

C. 4 inches and Over:
1. Iron body, bronze disc, stainless steel spring, resilient seal, threaded, wafer, or flanged ends.

2.13 DRAIN VALVES

A. Compression Stop:
1. Bronze with hose thread nipple and cap.

B. Ball Valve:
1. Brass with cap and chain, 3/4 inch hose thread.

PART 3 EXECUTION

3.01 PREPARATION

A. Ream pipe and tube ends. Remove burrs. Bevel or groove plain end ferrous pipe.

B. Prepare piping connections to equipment with grooved joint couplings, flanges or unions.

C. Clean pipe to prevent MIC (Microbially Influenced Corrosion).

D. Remove scale and foreign material, from inside and outside, before assembly.

3.02 INSTALLATION

A. Install sprinkler system and service main piping, hangers, and supports in accordance with NFPA 13.

B. Prepare piping connections to equipment with grooved joint couplings, flanges, or unions.

C. Install standpipe piping, hangers, and supports in accordance with NFPA 14.

D. Route piping in orderly manner, plumb and parallel to building structure. Maintain gradient.

E. Install piping to conserve building space, to not interfere with use of space and other work.

F. Group piping whenever practical at common elevations.

G. Sleeve pipes passing through partitions, walls, and floors.

H. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.

I. Pipe Hangers and Supports:
   1. Install hangers to provide minimum 1/2 inch space between finished covering and adjacent work.
   2. Place hangers within 12 inches of each horizontal elbow.
   3. Use hangers with 1-1/2 inch minimum vertical adjustment. Design hangers for pipe movement without disengagement of supported pipe.
   4. Support vertical piping at every other floor. Support riser piping independently of connected horizontal piping.
   5. Where several pipes can be installed in parallel and at same elevation, provide multiple or trapeze hangers.
   6. All hangers shall be located at steel joists panel points.

J. Slope piping and arrange systems to drain at low points. Use eccentric reducers to maintain top of pipe level.

K. Prepare pipe, fittings, supports, and accessories for finish painting. Where pipe support members are welded to structural building framing, scrape, brush clean, and apply one coat of zinc rich primer to welding. Refer to Section 09 9000.

L. Do not penetrate building structural members unless indicated.

M. Provide sleeves when penetrating footings, floors, and walls. Seal pipe and sleeve penetrations to achieve fire resistance equivalent to fire separation required.

N. When installing more than one piping system material, ensure system components are compatible and joined to ensure the integrity of the system. Provide necessary joining fittings. Ensure flanges, union, and couplings for servicing are consistently provided. Unions or flanges for servicing and disconnect are not required in installations using grooved joint couplings.

O. Install valves with stems upright or horizontal, not inverted. Remove protective coatings prior to installation.

P. Provide drain valves at main shut-off valves, low points of piping and apparatus.

Q. Install equipment in accordance with manufacturer's instructions.

R. Locate fire department connection with sufficient clearance from walls, obstructions, or adjacent siamese connectors to allow full swing of fire department wrench handle.

S. Locate outside alarm gong on building wall as required by NFPA and local authority having jurisdication. Coordinate exact location with electrical contractor.

T. Place pipe runs to minimize obstruction to other work.

U. Place piping in concealed spaces above finished ceilings.

V. Center sprinklers in two directions in ceiling tile and provide piping offsets as required. All other sprinkler heads in lay-in ceiling areas shall be in tile to within 4 inches of grid.

W. Do not install sprinklers that have been dropped, damaged, show a visible loss of fluid, or a cracked bulb.

X. The sprinkler bulb protector shall be removable by hand, without tools or devices that may damage the bulb.

Y. Apply masking tape or paper cover to ensure concealed sprinklers, cover plates, and sprinkler escutcheons do not receive field paint finish. Remove after painting. Replace painted sprinklers.

Z. Flush entire piping system of foreign matter.

AA. Install guards on sprinklers where indicated.

BB. Hydrostatically test entire system.

CC. Require test be witnessed by Fire Marshal.

DD. Grooved Joints: All grooved couplings, fittings, valves and specialties shall be the products of a single manufacturer. Grooving tools shall be of the same manufacturer as the grooved components. The gasket style and elastomeric material (grade) shall be verified as suitable for the intended service as specified. Gaskets shall be molded and produced by the grooved coupling manufacturer. Grooved ends shall be clean and free from indentations, projections and roll marks in the area from the pipe end to groove. Grooved coupling manufacturer's factory trained field representative shall provide on-site training for contractor's field personnel in the proper use of grooving tools, application of groove, and installation of grooved piping products. Factory trained representative shall periodically inspect the product installation. Contractor shall remove and replace any improperly installed products.

EE. Locking Lug (FIT®) Joints: Pipe ends shall be square cut and thoroughly clean on the OD, for 1" from the pipe end to remove pipe coatings, mill scale, rust and raised weld beads. OD burrs and sharp edges shall be removed. Pipe shall be marked 1-1/2" from the end and pipe end configuration shall be in conformance with manufacturer specifications.

FF. Vic-Press® Joints: Pipe shall be square cut, +/- 0.030", properly deburred and cleaned. Pipe ends shall be marked at the required location, using a manufacturer-supplied gauge, to ensure full insertion into the coupling or fitting during assembly. Use a manufacturer approved tool with the proper sized jaw for pressing.

3.03 TESTING AND REPAIR

A. Upon completion of each respective piping/ductwork system, but prior to insulating, covering, or backfilling, each system shall be thoroughly cleaned and flushed to remove construction dirt and foreign matter.

B. Test Piping per the NFPA and as Specified Herein
   1. No piping work shall be concealed or covered until it has been inspected and approved by the project inspector, who shall be notified when the Work is ready for inspection. Work shall be completely installed and tested as required by this Contract and Ordinances of the local Municipality and shall be leaktight to the satisfaction of those making the inspection and the Architect/ Engineer.
   2. In general, pressure tests shall be applied to piping. In no case shall piping be subject to pressure exceeding its rating. Defective work shall be promptly repaired or replaced and test shall be repeated until the particular system and component parts thereof receive approval of the Architect/Engineer.
   3. Provide temporary equipment for testing, including pump, blower, and gauges. Test piping system before insulation is installed and remove control devices before testing. Test each natural section of each piping system independently, but do not use piping system valves or to isolate sections where test pressure exceeds valve pressure rating.
   4. Repair piping system sections which fail required piping test by disassembly and reinstallation, using new materials to extent required to overcome leakage. Do not use chemicals, stopleak compounds, mastics, or other temporary repair methods.
   5. Drain test water from piping systems after testing and repair work has been completed.
   6. Pressure for Testing of Piping Systems shall be as follows:
      a. Fire Protection Piping System (Interior)

1) Per NFPA #13, state and local codes.

7. Accurately record and report methods of testing, times, and dates of test, witnesses to the test, and the results of the test. Test reports shall be neatly typewritten on standard 8-1/2 inch by 11 inch sheets and submitted in 5 copies to Architect/Engineer for approval within 5 days after test has been performed.

C. Damage resulting from tests shall be repaired or damaged materials replaced, to satisfaction of Architect/Engineer, and at no cost to Owner.

END OF SECTION

GARMANN MILLER

Division 22

Plumbing

SECTION 22 05 01
PLUMBING MATERIALS & METHODS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Piping specialties

B. Installation requirements common to piping systems and equipment specification sections

C. Emergency repairs or operation

D. Provisions for later installations

E. Final completion

F. Project Conditions

G. Quality Assurance

H. Warranty

I. Supervision and cooperation

J. Maintenance and operating manuals

K. Record drawings

1.02 RELATED REQUIREMENTS

A. The provisions of the General Conditions, Supplementary Conditions, and the Sections included under Division 1 and 2, General Requirements, are included as a part of this Section as though bound herein.

B. The Drawings prepared for this Project are an outline to show where pipes, and apparatus must go in order to harmonize with the building and installations of the various trades. Work must be installed in accordance with the Drawings insofar as possible. Drawings shall be carefully checked during the course of bidding and construction. If discrepancies, errors, or omissions are discovered prior to or during the construction phase, notify the Engineer immediately for interpretation or correction. Take necessary measurements and be responsible for same, including clearances for equipment that is to be furnished. The Architect/Engineer shall reserve the right to make minor location changes of piping and equipment where such adjustments are deemed desirable from an appearance or operational standpoint. Such changes will be anticipated sufficiently in advance to avoid extra work or unduly delay progress on the Project.

C. The general building drawings shall be used to obtain dimensions and exact locations and as a check with other Contractors to avoid interferences with their Work. Refer to applicable Drawings on branches of the Work where other trades are involved on the Project so that added field work and job delays resulting from conflicts between crafts can be avoided. Piping that is prefabricated before coordinating with the other trades may have to be redone at no additional cost if conflicts are encountered.

1.03 SUMMARY

A. The Contractor(s) shall provide the labor, materials, equipment, appliances, services and transportation, and perform the operations in connection with the construction and installation of the Work. Work shall be as herein specified and as denoted on the accompanying Drawings.

B. The Contractor(s) shall arrange and pay for permits and inspections required in connection with the Work. The Contractor shall apply for and pay for meters, regulators, recorders, and gauges required. The Contractor must present to the Owner through the Architect/Engineer, properly signed certificates of final inspection by the governing authorities when they become due and shall not cover up Work until approved by those authorities.

C. The Contractor(s) shall make arrangements for connection of the permanent utilities (gas); include connection costs as part of the Work under this Contract. Verify exact requirements of the utility with regard to such service; and include in the Work costs related to same.

D. Materials or labor obviously required to fully complete the Work shall be included, even though each item necessarily involved is not specifically mentioned or shown. Such Work and materials shall be furnished and shall be of the same grade or quality as the parts actually specified and shown. Should there be a conflict between the plans and Specifications, the greater quantity and better quality shall be furnished.

E. Should an overlap of Work between the various trades become evident, the Engineer shall be notified. Such an event shall not relieve the Contractor of the responsibility for the Work called for under his branch of the Specifications until a written clarification or directive is issued concerning the matter.

F. Cutting of water lines, electric conduit, or similar service lines in the course of Work performed under this Section shall be immediately repaired as part of the Work of this Section.

1.04 REFERENCE STANDARDS

A. Standards are described by reference to various associations. These are in addition, but not limited to, to those listed in:
   1. AGA American Gas Association
   2. ANSI American National Standards Institute
   3. ASHRAE American Society of Heating, Refrigeration, and Air Conditioning Engineers
   4. ASME American Society of Mechanical Engineers
   5. ASPE American Society of Plumbing Engineers
   6. AWWA American Water Works Association
   7. CISPI Cast Iron Soil Pipe Institute
   8. NFPA National Fire Protection Association
   9. OSHA Occupational Safety and Health Act
   10. SMACNA Sheet Metal and Air Conditioning Contractors National Association
   11. UL Underwriters' Laboratories, Inc.

B. Work shall be in complete accordance with codes, rules, and ordinances, regulations of authorities, bodies, associations, and governments, having proper or legal jurisdiction. Specifically, the following requirements shall be met in their entirety.
   1. State and Local Rules, Regulations, Codes, Statutes, and Ordinances
   2. Ohio Plumbing Code, 20 Edition
   3. ASHRAE 90.1-2010; Energy Standard for Buildings Except Low Rise Residential Buildings
   4. NFPA 54 - National Fuel Gas Code
   5. NFPA 70 - National Electrical Code; National Fire Protection Association; 2017 applicable requirements.
   6. National Board of Fire Underwriters
   7. NEMA MG 1 - Motors and Generators; National Electrical Manufacturers Association; 1993 (and Revision 1,2,3).
   8. Other Codes and Standards as specifically noted in each Section of the Specifications.
   9. Americans with Disabilities Act (ADA)

C. References made to codes and standards, in these Specifications or on the Drawings, shall be taken to mean the latest edition, amendment, or revision of such reference in effect as of the date indicated on the Bid Documents unless otherwise noted.

1.05 SUBMITTALS

A. Submit capacity requirements, catalog cuts, and illustrations in accordance with requirements of specifications and as required by specific Sections of this Specification.

B. Shop Drawings shall be prepared by the Contractor or supplier.
   1. Where limited space is available due to the nature of the Work, the requirements for shop and working drawings will apply, and the Contractor is required to prepare complete shop drawings showing the exact disposition of apparatus, equipment, piping, ductwork, and the like, and its relation to the building so there will be no irregularities or interferences. Shop drawings shall be prepared in coordination with other Contractors and other trades.

C. Warranty: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.06 QUALITY ASSURANCE

A. Instruments used by the Contractor shall be accurately calibrated and maintained in good working condition.

B. Products and test instruments used shall be subject to approval of Architect/Engineer.

C. Products and test instruments used shall be provided by each respective Contractor.

D. Note that systems involved under this Contract heading shall be in accordance with applicable requirements listed in NFPA Standard 90A.

E. Materials used in this Contract shall be those specified herein unless proposals for the use of alternate materials have been submitted and accepted in writing, as provided hereinbefore. Materials shall be strictly first grade of their kind and shall be new and in first-class condition when installed. Damaged materials will be rejected and must be replaced by proper and acceptable materials. Materials shall be similar and in accordance with the provisions of this Specification.

F. No materials or equipment may be installed under this contract heading which do not meet the approval of the authorities having jurisdiction. Specific materials may have certain restrictions or exclusions as to their usage, including where they may not be located. Such regulations shall be adhered to where applicable. The requirements and regulations of the local and state building codes and regulations currently adopted shall be adhered to.

G. Piping systems shall be installed by workmen having skills acquired by working at the trade which is recognized as necessary for competency.

H. Pressure piping systems installed shall conform to the requirements of the State piping and welding codes where applicable.

1.07 PROJECT CONDITIONS

A. Unless otherwise stipulated under a particular heading, the following rules relative to responsibilities of the several Contractors and subcontractors will apply.
   1. Each Contractor shall install roughing-in work pertaining to his trade for connection of Work performed under other Sections of these Specifications.

B. Certain areas will be designated for the storage of materials and equipment and cooperation with the Owner in minimizing interference with existing operations will be mandatory.
   1. Where possible, store materials inside and protected from weather. Where necessary to store outside, elevate above grade and enclose with durable, waterproof wrapping.
   2. Follow manufacturer's instructions for receiving, inspecting, handling, storage, and protection of products prior to final installation

C. Equipment Clearances and Requirements
   1. For many items of equipment described in these Specifications, several manufacturers are listed. The manufacturer listed on the drawings is the make on which the layout was based and on which clearances, service required electrical, and plumbing characteristics, etc., have been checked. Additional manufacturers listed are considered acceptable.
   2. Due to the possibility of restrictions imposed by space limitations, the responsibility for resolving conflicts resulting from the use of equipment other than first named shall rest

with the equipment supplier and the Contractor. Submittals for this equipment will be considered as a statement that clearances for access, service, maintenance, etc., have been checked and found adequate.

3. Alternate equipment or the equipment of additional manufacturers named in these documents shall meet Base Bid Specifications. In the event such equipment or any equipment which the bidder proposes to furnish, deviates from the requirements of equipment first named regarding electric service, power wiring, control wiring, plumbing or piping, sound attenuation, or vibration damping, it shall be the responsibility of the bidder to include in his price a sufficient sum to cover additional costs or charges resulting therefrom.

D. In general, the piping shown on the Drawings shall be considered as diagrammatic for clearness in indicating the general run and connections required, and may not be shown in its true position. The piping and equipment may have to be offset, lowered or raised, as required, or as directed at the site in order to accommodate field conditions.

1.08 SUPERVISION AND COOPERATION

A. Work done by the Contractor under this Division shall include the services of an experienced superintendent, who shall be constantly in charge of the work, together with the qualified journeymen, helpers, and laborers required to properly unload, install, connect, adjust, start, and operate, and test the Work involved, including related equipment and materials furnished under other contracts or by the Owner.

B. A Pre-Installation meeting shall convene one week before starting work of this section.

1.09 WARRANTY

A. See Section 01 7000 - Closeout Procedures, for additional warranty requirements.

B. Correct defective Work within a one year period after Date of Substantial Completion.

PART 2 PRODUCTS

2.01 ESCUTCHEONS AND PLATES

A. Provide approved plates around each pipe passing through walls, floors, partitions, and ceilings when piping is exposed to view and on exterior of building. Plates shall be chrome-plated metal and sized to cover exposed ends of pipe insulation and pipe sleeves.

B. Floor plates shall be split-type, heavy chrome-plated and securely attached to the pipe.

2.02 PIPE SLEEVES

A. Steel pipe sleeves shall be fabricated from Schedule 40 galvanized steel pipe.

B. Sleeves for copper piping shall be of compatible material to prevent interaction of piping materials.

PART 3 EXECUTION

3.01 INSTALLATION

A. Cutting and Patching

1. Cutting and drilling of walls, slabs, and structural members, required in conjunction with Work under this Section, shall be done under the supervision of the Architect/Engineer. Work shall be neatly done, removing no unnecessary material. Holes, openings, etc., shall be located where they will not weaken the structure. No beams, joists, etc., shall be cut without the written consent of the Architect/Engineer.
2. Cutting of holes in masonry and concrete shall be performed with a core drill to minimize spalling, and limit damage to wall. Locations shall be accurately determined and checked, and the appropriate drill bit shall be used to minimize hole size.
3. Sleeves or thimbles for holes as well as escutcheons and trim plates shall be provided. Installation shall permit free movement of pipe.

4. Patching of work, where necessary, is to be done by a mechanic of the appropriate trade. Unless otherwise noted, patching for Work performed under this Section shall be immediately repaired as part of the Work of this Section.

B. Pipe Sleeves: Install pipe sleeves where piping passes through walls, floors, ceilings, and roofs.
   1. Do not install sleeves through structural members of work, except as detailed on Drawings, or as reviewed and approved by Architect/Engineer.
   2. Install sleeves accurately centered on pipe runs.
   3. Size sleeves so that piping and insulation (if any) will have free movement in sleeve, including allowance for thermal expansion; but not less than 2 pipe sizes larger than piping run.
   4. Install length of sleeve equal to thickness of construction penetrated, and finish flush to surface; except floor sleeves.
   5. Extend floor sleeves 1/4 inch above level floor finish, and 3/4 inch above floor finish sloped to drain unless otherwise noted.
   6. Provide temporary support of sleeves during placement of concrete and other work around sleeves, and provide temporary closure to prevent concrete and other materials from entering sleeves.
   7. Where piping passes through non-fire rated, or non-waterproof, partitions, floors, and walls, apply pipe insulation continuous through pipe sleeves.
   8. Do not install sleeves through suspended ceilings.
   9. Caulk non-fire rated sleeves with sealant.

C. Protection
   1. Provide proper protection to the building during the execution of Work involved under this contract heading.
   2. This protection shall include covering apparatus, building surfaces, and other materials to protect same from dirt; adequate temporary connections to protect apparatus from damage and required shielding to protect finished parts of the building. The following shall apply where applicable:
      a. Protect finished floors from chips and cutting oil by the use of metal chip receiving pans and oilproof floor covers.
      b. Protect equipment and finished surfaces from welding and cutting spatters with baffles and spatter blankets.
      c. Protect equipment and finished surfaces from paint droppings, insulation adhesive, and sizing droppings, etc., by use of drop cloths.
   3. During installation and until final connections are made, piping and ductwork shall be protected against entry of foreign matter. Equipment connections shall be carefully sealed until the actual time of system tie-in.

D. Accessibility
   1. Provide a union or flange in the piping at each screwed or welded valve, device, or item of equipment, and elsewhere as required for accessibility of repair. Each union shall be so installed as to permit the removal of item without disconnection of any piping except at the union.

3.02 EMERGENCY REPAIRS OR OPERATION

A. The Owner reserves the right to make emergency repairs and protection of the equipment and systems in operation without voiding the Contractor's guarantee bond or relieving the Contractor of his responsibility during the bonding period.

3.03 PROVISIONS FOR LATER INSTALLATIONS

A. Where work cannot be installed as the structure is being erected, the Contractor for such work shall provide and arrange for the building-in of boxes, sleeves, inserts, fixtures, and devices

necessary to permit installation of the omitted work during later phases of construction. The Contractor shall arrange for layout, chases, holes, and other openings which must be provided in masonry, concrete, and other work.

B. The Contractor shall be responsible for becoming informed of the nature and arrangement of the materials and construction to which his work attached or passes through.

3.04 FINAL COMPLETION

A. Work shall be cleaned prior to Substantial Completion of the Work.

B. Retouch or repaint factory painted prime and finish coats where scratched or damaged. Whenever retouching will not be satisfactory, in the opinion of the Architect/Engineer, the Architect/Engineer has the option to require complete repainting until the desired appearance is obtained.

C. The Contractor shall clean equipment; restore damaged materials, remove grease, oil chemical, paint spots, and stains; and leave the Work in condition acceptable to Owner and Architect/Engineer.

D. On completion of his Work, the Contractor shall remove and see that each of his subcontractors removes from the site tools, equipment, surplus materials, and rubbish pertaining to his operations, and pay cost for such removal and disposition.

3.05 MAINTENANCE AND OPERATING MANUALS AND INSTRUCTIONS

A. Comply with Section 01 7800 and the following:

B. Bind the written operating instructions, shop drawings, equipment catalog cuts, and manufacturer's instructions into the binder with each section separated by tabbed dividers. Material to be assembled as follows:

1. First Page --Title of Job, Owner, Address, Date of submittal, Name of Contractor, and Name of Architect/Engineer. Emergency operating instructions and/or list of service organizations (including address and telephone numbers) capable of rendering emergency service on 24 hour calls.
2. Second page--Index
3. Sections--Each section shall include a subsection with a tab divider. The tab shall list the contents of the the divided section. There shall be a subsection that contains the following information:
    a. Written list of items requiring service and either state the service needed or refer to the manufacturer's data in the binder that described the proper service.
    b. A copy of the approved shop drawing for all systems, equipment, and components (clearly marked for item furnished).
    c. A copy of each manufacturer's operating instructions with an index at the beginning of the section.
    d. A list of equipment used on the job, Contractor's purchase order numbers, supplier's name, and address.
4. Maintenance and operating manuals and instructions shall be also forwarded in electronic format via USB flash drive. Folders shall be created for each section and subfolder for each fixture and/or equipment required for the project.

3.06 RECORD DRAWINGS

A. The Contractor shall keep a running record of each change and deviation from the Drawings. Record shall be kept clean and undamaged upon a set of Drawings used for no other purpose. Upon completion of the Project, the Contractor shall submit to the Architect/Engineer one complete set of drawings which have been corrected to show deviations plus "Project Record Drawing" and the Contractor's letterhead type information. With the submittal shall be 2 sets of prints made from the corrected drawings.

1. CADD drawing option may be used by Contractor. Disks with specific Drawings are available from Architect/Engineer.

B. Record Drawings shall show:
   1. Size, type, and capacity of materials, devices, or pieces of equipment.
   2. Location of devices or pieces of equipment.
   3. Routing of piping (above and below grade), or other building services.

C. These drawings shall also record the location of concealed piping by indication of measured dimensions to each such line from readily identifiable and accessible walls or corners of the building.

D. Record drawings must be complete and accurate with regard to concealed piping, like equipment, or devices. Unless record drawings are sufficiently accurate to permit immediate location and identification of concealed work with a minimum of cutting, record drawings will be considered inadequate and the contract work deemed incomplete.

END OF SECTION

SECTION 22 05 03
WORK IN EXISTING BUILDING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Cutting and patching of existing material

B. Protection of existing conditions

C. Demolition work

D. Existing facility operation

1.02 RELATED REQUIREMENTS

A. Section 01 3329 - Sustainable Design Reporting

B. Section 02 4100 - Demolition.

C. Section 22 0501- Plumbing Materials and Methods.

1.03 QUALITY ASSURANCE

A. This Contractor shall be responsible for cutting and patching of existing walls, roofs, floors, and ceilings required for the installation of new plumbing work. Openings shall be neatly drilled or cut.

B. Patching shall be performed by a workman skilled in the trade involved, and patch work shall match the existing surface and finished in a manner completely acceptable to the Architect.

C. New Work in finished spaces of existing buildings shall be installed concealed unless directed by Architect/Engineer to run exposed.

D. Contractor shall visit the Project and verify existing conditions prior to bidding.

E. Protect existing work, equipment, fixtures, and systems from damage.

F. Contractor shall take necessary steps to protect the building and all interior finishes from damage during the installation of his work.

G. The Contractor(s) shall perform demolition work as shown on the Drawings and as specified herein or as may otherwise be required.
   1. Plumbing items to be removed shall be as indicated on Drawings.
   2. The Owner may select items of equipment and material he wishes to retain and these items shall be moved to the location he designates. Other items shall be removed from the premises. Contractor shall verify with owner before any equipment is removed from the premises.

H. The continuity of operation of existing facilities during construction of the new Work shall be required. The actual length of time for an interruption shall be held to an absolute minimum. At least 48 hours in advance of an installation of new services, submit a specific plan to the Engineer and the Owner detailing the nature and estimated duration of the interruption and the method of procedure. Do not proceed with an interruption of service without the Owner's authorization.

PART 2 PRODUCTS

2.01 MATERIAL

A. Not Applicable.

PART 3 EXECUTION

3.01 CLEANING

A. The contractors shall clean all areas of debris and items to be disposed of in all areas where work in performed under each contract.

END OF SECTION

SECTION 22 10 05
PLUMBING PIPING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Pipe, pipe fittings, specialties, and connections for piping systems.
   1. Sanitary sewer.
   2. Natural Gas.
   3. Flanges, unions, and couplings.
   4. Pipe hangers and supports.
   5. Valves.

B. Testing and Repair

C. Service Connections

1.02 RELATED REQUIREMENTS

A. Section 31 23 16 - Excavation.

B. Section 31 23 23 - Fill.

C. Section 31 23 16.13 - Trenching.

D. Section 33 13 00 - Disinfecting of Water Utility Distribution.

E. Section 07 84 00 - Firestopping.

F. Section 08 31 00 - Access Doors and Panels.

G. Section 09 91 23 - Interior Painting.

H. Section 22 05 53 - Plumbing Identification.

I. Section 31 23 16 - Excavation.

1.03 REFERENCE STANDARDS

A. AGA/ANSI B109 Set - INCLUDES ANSI B109.1, ANSI B109.2, ANSI B109.3, ANSI B109.4; 2000.

B. ANSI Z223.1 - National Fuel Gas Code; 2021.

C. AGA/ANSI B109 Set - Gas displacement meters and service regulators.

D. ASME B31.2 - Fuel Gas Piping; The American Society of Mechanical Engineers; 1968.

E. ASME BPVC-IX - Qualification Standard for Welding, Brazing, and Fuzing Procedures; Welders; Brazers; and Welding, Brazing, and Fusing Operators - Welding Brazing and Fusing Qualifications; 2019.

F. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2022.

G. ASTM D1785 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120; 2015, with Editorial Revision (2018).

H. ASTM D2680 - Standard Specification for Acrylonitrile-Butadiene-Styrene (ABS) and Poly(Vinyl Chloride) (PVC) Composite Sewer Piping; 2001 (Reapproved 2014).

I. CISPI 301 - Standard Specification for Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste and Vent Piping Applications; 2017 (Revised 2018).

J. MSS SP-58 - Pipe Hangers and Supports - Materials, Design, Manufacture, Selection, Application, and Installation; 2018, with Amendment (2019).

K. MSS SP-89 - Pipe Hangers and Supports - Fabrication and Installation Practices; Manufacturers Standardization Society of the Valve and Fittings Industry, Inc.; 2003.

L. ANSI/ASME Section 9, AWS D10.9 and D1.1 National Certified Pipe Welding Bureau.

M. ANSI B16.18 - Soldering Procedures.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on pipe materials, pipe fittings, valves, and accessories. Provide manufacturers catalog information. Indicate valve data and ratings.

C. Project Record Documents: Record actual locations of valves and pipe routings above ceiling and below floor.

1.05 QUALITY ASSURANCE

A. Maintain one copy of drawings on project site to mark pipe routings and valve locations.

B. Valves: Manufacturer's name and pressure rating marked on valve body.

C. Welding Materials and Procedures: Comply with ASME BPVC-IX and applicable state labor regulations.

D. Identify pipe with marking including size, ASTM material classification, ASTM specification, potable water certification, water pressure rating.

E. All piping shall be American made and shall comply with the Buy American Provision of the ARRA.

1.06 REGULATORY REQUIREMENTS

A. Perform Work in accordance with State of Ohio plumbing code.

B. Conform to applicable code for installation of backflow prevention devices.

C. Provide certificate of compliance from authority having jurisdiction indicating approval of installation of backflow prevention devices.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Accept valves on site in shipping containers with labeling in place. Inspect for damage.

B. Provide temporary protective coating on cast iron and steel valves.

C. Provide temporary end caps and closures on piping and fittings. Maintain in place until installation.

D. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the work, and isolating parts of completed system.

1.08 FIELD CONDITIONS

A. Do not install underground piping when bedding is wet or frozen.

PART 2 PRODUCTS

2.01 SANITARY SEWER AND VENT PIPING

A. Cast Iron Pipe: CISPI 310, hubless. Piping shall be marked with the collective trademark of the Cast Iron Soil Pipe Institute (CISPI) and be listed by NSF International.
   1. Fittings: Cast iron Hubless, CISPI 310
   2. Joints: CISPI 310, ASTM D 1247 Standard Duty, neoprene gasket and stainless steel clamp and shield assemblies.

B. PVC Pipe: Schedule 40 solid wall, ASTM D1785, ASTM D2665 or ASTM D3034.
   1. Fittings: PVC.
   2. Joints: Solvent welded, with ASTM D2564 solvent cement.

3. Joints: No Hub, CISPI-310 compression type with ASTM C 564 neoprene gaskets and stainless steel clamp and shield assembly.

C. Sanitary and vent piping in return air plenums, chases exposed to plenums and through fire walls shall be cast iron no hub and no hub fittings. ABS, CPVC and PVC piping will not be allowed in any of the spaces noted.

D. PVC, CPVC and ABS piping shall only be used in under ground applications. All plumbing chases shall be cast iron unless completely sealed off to the plenum space.

2.02 NATURAL GAS PIPING

A. Steel Pipe: ASTM A 53/A 53M Schedule 40 black. Piping smaller than 1/2 inch NPS will not be allowed.
   1. Pipe size 2" and above: Fittings: ASME B16.3, malleable iron, or ASTM A234/A234M , wrought steel welding type.
   2. Pipe size 1-1/2" and below: Joints: NFPA 54, threaded or welded to ASME B31.1.

B. Arc-Resistant CSST Pipe: Sizes 1/2"-1-1/4" ANSI Z223.1, Type 304 stainless steel ASTM A240/A240M-95A, with Black UV /Ozone/ Arc-Resistant Polyethylene
   1. Fittings: ASTM B16, ASME B1.20.1
   2. Pipe shall only be used in utility trenches for the science rooms if applicable.
   3. Max pressure = 25 psi, Max test pressure = 150 psi

C. Provide 1/2 inch elastomeric insulation around all gas piping in walls and through floors.

D. All gas piping shall be accessible.

2.03 FLANGES, UNIONS, AND COUPLINGS

A. Unions for Pipe Sizes 3 Inches and Under:
   1. Ferrous pipe: Class 150 malleable iron threaded unions.
   2. Copper tube and pipe: Class 150 bronze unions with soldered joints.

B. Flanges for Pipe Size Over 1 Inch:
   1. Ferrous Pipe: Class 150 malleable iron threaded or forged steel slip-on flanges; preformed neoprene gaskets.
   2. Copper Tube and Pipe: Class 150 slip-on bronze flanges; preformed neoprene gaskets.

C. Grooved and Shouldered Pipe End Couplings:
   1. Housing: Malleable iron clamps to engage and lock, designed to permit some angular deflection, contraction, and expansion; steel bolts, nuts, and washers; galvanized for galvanized pipe.
   2. Sealing gasket: "C" shape composition sealing gasket.

D. Dielectric Connections: Union with galvanized or plated steel threaded end, copper solder end, water impervious isolation barrier.

2.04 PIPE HANGERS AND SUPPORTS

A. Plumbing Piping - Drain, Waste, Storm, and Vent:
   1. Conform to ASME B31.9.
   2. Hangers for Pipe Sizes 1/2 Inch to 1-1/2 Inches: Malleable iron, adjustable swivel, split ring.
   3. Hangers for Pipe Sizes 2 Inches and Over: Carbon steel, adjustable swivel, clevis.
   4. Multiple or Trapeze Hangers: Steel channels with welded spacers and hanger rods.
   5. Wall Support for Pipe Sizes to 3 Inches: Cast iron hook.
   6. Wall Support for Pipe Sizes 4 Inches and Over: Welded steel bracket and wrought steel clamp.
   7. Vertical Support: Steel riser clamp.

8. Floor Support: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.
9. Copper Pipe Support: Carbon steel ring, adjustable, copper plated.

B. Plumbing Piping - Water, Gas, Compressed Air:
1. Conform to ASME B31.9.
2. Hangers for Pipe Sizes 1/2 Inch to 1-1/2 Inches: Malleable iron, adjustable swivel, split ring.
3. Hangers for Pipe Sizes 2 Inches and Over: Carbon steel, adjustable swivel, clevis.
4. Multiple or Trapeze Hangers: Steel channels with welded supports or spacers and hanger rods.
5. Wall Support for Pipe Sizes to 3 Inches: Cast iron hook.
6. Wall Support for Pipe Sizes 4 Inches and Over: Welded steel bracket and wrought steel clamp.
7. Structural Supports shall be beam clamps, sloped beam clamps, or strap in strut mount hangers.
   a. Arrange all mechanical supports to prevent eccentric loading of joists and joist girders. Locate supports at joist panel points.
   b. If support must occur between panel joints, then threaded rods shall be dropped from both panel points, an adequate angle to both, and then the support attached to the angle is required.
   c. Unless specifically indicated or approved by Garmann Miller & Associates Inc. do not provide support from roof decks or floor decks.
8. Vertical Support: Steel riser clamp.
9. Floor Support for Cold Pipe: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.
10. Floor Support for Hot Pipe Sizes to 4 Inches: Cast iron adjustable pipe saddle, locknut, nipple, floor flange, and concrete pier or steel support.
11. Copper Pipe Support: Carbon steel ring, adjustable, copper plated.

2.05 BALL VALVES

A. Manufacturers:
1. Apollo Valves; _____: www.apollovalves.com/#sle.
2. Conbraco Industries / Apollo Valves.
3. Crane Co. - Valve Division.
4. Hammond.
5. Watts.
6. Milwaukee Valve Company.
7. Jomar Valve
8. Kitz.
9. Red-White Valve Corp.
10. Substitutions: See Section 01 60 00 - Product Requirements.

B. Construction, 4 Inches and Smaller: MSS SP-110, Class 150, 400 psi CWP, bronze or ductile iron body, 304 stainless steel or chrome plated brass ball, regular port, teflon seats and stuffing box ring, blow-out proof stem, lever handle with balancing stops, threaded or grooved ends with union.

C. Valves shall be rated 150 psi CWP and 600 psi non-shock WOG and will have 2 piece cast bronze lead free bodies conforming to NSF-61-G and ISO 6509, TFE seats, full port, separate packnut with adjustable stem packing, anti-blowout stems and chrome plated bronze ball. Valve ends shall have full depth ANSI threads or extended solder connections and be manufactured to comply with MSS SP-110.

1. Valves shall have a permanent marking on valve body identifying valve as lead free in conformance with NSF-61-G.

D. Valve handles shall be lever type, metal handle with epoxy coated finish. Plastic handles will not be approved.
   1. Where piping is insulated, ball valves shall be equipped with 2" extended handles of non-thermal conductive material. Also provide a protective sleeve that allows operation of the valve without breaking the vapor seal or disturbing the insulation. Memory stops, which are fully adjustable after insulation is applied, shall be included.

2.06 PLUG VALVES

A. Manufacturers:
   1. Conbraco Industries / Apollo Valves.
   2. Crane Co. - Valve Division.
   3. Hammond.
   4. Watts.
   5. Milwaukee Valve Company.
   6. Kitz.
   7. Homestead
   8. Nordstrom
   9. Substitutions: See Section 01 60 00 - Product Requirements.

B. Construction 2-1/2 Inches and Larger: ANSI B16.1, 175 psi CWP, cast iron body and plug, pressure lubricated, teflon or Buna N packing, flanged or grooved ends. Provide lever operator with set screw.

2.07 GAS PRESSURE REGULATOR

A. Manufacturers:
   1. Sensus
   2. Fisher
   3. Equimeter (Invensys).
   4. Rockwell.
   5. Maxitrol.
   6. Substitutions: See Section 01600 - Product Requirements.

B. All gas pressure regulators shall be installed to meet or exceed the requirements of NFPA 54.

C. Gas regulators shall be die cast steel diaphragm, stainless steel interchangeable orifices, cast iron body, Buna-N with nylon fabric insert diaphragm.

D. Main control gas pressure regulators shall provide gas at maximum and minimum capacities indicated to reduce gas line pressure from 2 psi to 7 inch W.C. Refer to Drawings for additional requirements.

E. Monitoring gas pressure regulator to be same model and construction as Main control gas regulator.

F. All gas pressure regulators shall be valved to allow for service.

G. See drawings for Building Gas Regulator installation detail.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that excavations are to required grade, dry, and not over-excavated.

3.02 PREPARATION

A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.

B. Remove scale and dirt, on inside and outside, before assembly.

C. Prepare piping connections to equipment with flanges or unions.

3.03 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Sanitary, storm, and vent piping in return air plenums, chases exposed to plenums and through fire walls shall be cast iron. PVC piping will not be allowed in any of the plenum spaces noted.

C. Provide non-conducting dielectric connections wherever jointing dissimilar metals.

D. Route piping in orderly manner and maintain gradient. Route parallel and perpendicular to walls.

E. Install piping to maintain headroom, conserve space, and not interfere with use of space. Coordinate all installation with all other trades.

F. Group piping whenever practical at common elevations.

G. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.

H. Establish elevations of buried piping outside the building to ensure not less than 4 ft of cover for domestic water piping.

I. Install vent piping penetrating roofed areas to maintain integrity of roof assemblyand insulate roof penetration with spray foam. Vent piping termination through the roof to be cast iron no-hub. Paint vent through roof to color as selected by Architect/Engineer.

J. Provide support for utility meters in accordance with requirements of utility companies.

K. Excavate in accordance with Section 31 23 16.

L. Install valves with stems upright or horizontal, not inverted. All valve handles shall be easily accessible.

M. Pipe vents from gas pressure reducing valves to outdoors and terminate in weather proof hood or turn down elbow with insect screen.

N. Test all gas piping per NFPA 54.

O. All exposed gas piping located below the ceiling in kitchen and in other exposed areas shall be painted yellow or painted grey when exposed on the exterior of the building and properly identified. Minimum of three coats of paint is required. Refer to section 22 0553 for proper identification.

P. Unions and valves are not permitted in the gas piping in a return air plenum.

Q. Provide 1/2" elastomeric insulation around all piping in walls and through floors.

R. PVC Pipe: Make solvent-welded joints in accordance with ASTM D2855.

S. Sleeve pipes passing through partitions, walls and floors.

T. Inserts:
   1. Provide inserts for placement in concrete formwork.
   2. Provide inserts for suspending hangers from reinforced concrete slabs and sides of reinforced concrete beams.
   3. Where inserts are omitted, drill through concrete slab from below and provide through-bolt with recessed square steel plate and nut above slab.

U. Pipe Hangers and Supports:
   1. Install in accordance with ASME B31.9.
   2. Bent hanger rods will not be allowed. Provide swivel type clamps to avoid bent hanger rods.

3. Support horizontal piping as scheduled. No pipe or duct shall be hung from another pipe, pipes or electrical conduit.
4. Install hangers to provide minimum 1/2 inch space between finished covering and adjacent work.
5. Place hangers within 12 inches of each horizontal elbow.
6. Use hangers with 1-1/2 inch minimum vertical adjustment. Design hangers for pipe movement without disengagement of supported pipe.
7. Support vertical piping at every other floor. Support riser piping independently of connected horizontal piping.
8. Where several pipes can be installed in parallel and at same elevation, provide multiple or trapeze hangers.
9. Prime coat exposed steel hangers and supports. Hangers and supports located in crawl spaces, pipe shafts, and suspended ceiling spaces are not considered exposed.
10. Support cast iron drainage piping at every joint.

3.04 APPLICATION

A. Use grooved mechanical couplings and fasteners only in accessible locations.

B. Install press fittings using only the manufacturers approved press fitting equipment.

C. Install unions downstream of valves and at equipment or apparatus connections.

D. Install ball valves for shut-off and to isolate equipment, part of systems, or vertical risers. Gate valves will not be allowed on this project.

E. Provide plug valves in natural gas systems for shut-off service. Gas valves 2" and smaller may be 1/4 turn ball valves.

3.05 TOLERANCES

A. Drainage Piping: Establish invert elevations within 1/2 inch vertically of location indicated and slope to drain at minimum of 1/8 inch per foot slope.

3.06 TESTING AND REPAIR

A. Upon completion of each respective piping/ductwork system, but prior to insulating, covering, or backfilling, each system shall be thoroughly cleaned and flushed to remove construction dirt and foreign matter.

B. Test Piping as Specified Herein
1. No piping work shall be concealed or covered until it has been inspected and approved by the project inspector, who shall be notified when the Work is ready for inspection. Work shall be completely installed and tested as required by this Contract and Ordinances of the local Municipality and shall be leaktight to the satisfaction of those making the inspection and the Architect/ Engineer.
2. In general, pressure tests shall be applied to piping. In no case shall piping be subject to pressure exceeding its rating. Defective work shall be promptly repaired or replaced and test shall be repeated until the particular system and component parts thereof receive approval of the Architect/Engineer.
3. Provide temporary equipment for testing, including pump, blower, and gauges. Test piping system before insulation is installed and remove control devices before testing. Test each natural section of each piping system independently, but do not use piping system valves or to isolate sections where test pressure exceeds valve pressure rating.
4. Repair piping system sections which fail required piping test by disassembly and reinstallation, using new materials to extent required to overcome leakage. Do not use chemicals, stopleak compounds, mastics, or other temporary repair methods.
5. Drain test water from piping systems after testing and repair work has been completed.
6. Pressure for Testing of Piping Systems shall be as follows:

a. Sewer, Soil, and Waste Piping
    1) Soil and waste piping shall be plugged and subjected to not less than a 10 foot head of water. Water column shall be maintained for 2 hours with no leaks.
    2) Where subject to freezing, use air or smoke test for not less than 30 minutes and as required by code.
b. Natural Gas Piping
    1) Per NFPA #54, state and local utility codes.

7. Accurately record and report methods of testing, times, and dates of test, witnesses to the test, and the results of the test. Test reports shall be neatly typewritten on standard 8-1/2 inch by 11 inch sheets and submitted in 5 copies to Architect/Engineer for approval within 5 days after test has been performed.

C. Damage resulting from tests shall be repaired or damaged materials replaced, to satisfaction of Architect/Engineer, and at no cost to Owner.

3.07 SCHEDULES

A. Pipe Hanger Spacing:
1. Metal Piping:
    a. Pipe Size: 1/2 inches to 1-1/4 inches:
        1) Maximum Hanger Spacing: 6.5 ft.
        2) Hanger Rod Diameter: 3/8 inches.
    b. Pipe Size: 1-1/2 inches to 2 inches:
        1) Maximum Hanger Spacing: 10 ft.
        2) Hanger Rod Diameter: 3/8 inch.
    c. Pipe Size: 2-1/2 inches to 3 inches:
        1) Maximum Hanger Spacing: 10 ft.
        2) Hanger Rod Diameter: 1/2 inch.
2. Plastic Piping:
    a. All Sizes:
        1) Maximum Hanger Spacing: 6 ft.
        2) Hanger Rod Diameter: 3/8 inch.

END OF SECTION

SECTION 22 10 06
PLUMBING PIPING SPECIALTIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Floor drains.

B. Cleanouts.

C. Hydrants.

D. Water hammer arrestors / Shock Absorbers.

E. Trap Seal Protection Devices

1.02 RELATED REQUIREMENTS

A. Section 22 10 05 - Plumbing Piping.

B. Section 22 40 00 - Plumbing Fixtures.

1.03 REFERENCE STANDARDS

A. ASME A112.6.3 - Floor and Trench Drains; 2019.

B. ASSE 1011 - Performance Requirements for Hose Connection Vacuum Breakers; 2017.

C. ASSE 1019 - Performance Requirements for Wall Hydrant with Backflow Protection and Freeze Resistance; 2011 (Reaffirmed 2016).

D. NSF 61 - Drinking Water System Components - Health Effects; 2022, with Errata.

E. NSF 372 - Drinking Water System Components - Lead Content; 2022.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide component sizes, rough-in requirements, service sizes, and finishes.

C. Shop Drawings: Indicate dimensions, weights, and placement of openings and holes.

D. Maintenance Data: Include installation instructions, spare parts lists, exploded assembly views.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with not less than three years documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Accept specialties on site in original factory packaging. Inspect for damage.

1.07 EXTRA MATERIALS

A. Supply for Owner's use in maintenance of project:
   1. Two loose keys for each outside wall hydrants and indoor hose bibbs.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Specialties in Potable Water Supply Systems: Provide products that comply with NSF 61 and NSF 372 for maximum lead content.

2.02 DRAINS

A. Manufacturers:
   1. Zurn Industries, Inc.
   2. Wade.
   3. Josam Company.

4. Jay R. Smith Manufacturing Company.
5. Watts Regulator Company.
6. MIFAB
7. Sioux Chief
8. ABT, Inc
9. Hubell, Inc.
10. Froet Industries
11. Eric'sons Dura Trech
12. ACO, Inc
13. Substitutions: See Section 01 60 00 - Product Requirements.

B. Downspout Nozzles:
1. Bronze round with straight bottom section.
2. Alternate: Corrosion resistant aluminum alloy, round, powder coated. Color to be selected by architect.

C. Floor Drain (FD-1):
1. ASME A112.21.1; cast iron two piece body with double drainage flange, weep holes, and round, adjustable nickel-bronze strainer.

2.03 CLEANOUTS

A. Manufacturers:
1. Wade
2. Jay R. Smith Manufacturing Company
3. Josam Company
4. Zurn Industries, Inc
5. Watts Regulator Company.
6. MIFAB
7. Sioux Chief
8. Neenah
9. Substitutions: See Section 01 60 00 - Product Requirements.

B. Cleanouts at Exterior Surfaced Areas (RH):
1. Round cast nickel bronze access frame and non-skid cover.

C. Cleanouts at Interior Finished Floor Areas (CO):
1. Cast iron, inside caulking, with adjustable nickel-bronze round tops. Provide "72" carpet marker in carpeted areas. Review Finish Schedule for locations.
2. PVC, inside caulking, with adjustable nickel-bronze round tops. Provide "72" carpet marker in carpeted areas. Review Finish Schedule for locations.

D. Cleanouts at Interior Finished Wall Areas (WCO):
1. Concealed screw plug with countersunk wrench hole and stainless steel screwed flush cover.

2.04 HYDRANTS

A. Manufacturers:
1. Zurn Industries, Inc
2. Woodford.
3. Acorn Engineering Company.
4. Wade.
5. Josam.
6. Jay R. Smith Manufacturing Company.
7. Watts Regulator Company.
8. MIFAB

9. Substitutions: See Section 01 60 00 - Product Requirements.

B. Wall Hydrants:
   1. ASSE 1019; freeze resistant, self-draining type with chrome plated wall plate lockable recessed box hose thread spout, lockshield and removable key, andintegral vacuum breaker.
   2. Refer to fixture schedule on drawings for additional requirements.
   3. Seal recessed box wall penetration air and water tight with clear silicone caulk on top and sides. Do not seal the bottom edge. It should be left open to allow for draining.

2.05 TRAP SEAL PROTECTION DEVICES

A. As an alternate to the trap primers for floor drains, a trap seal protection device can be used as allowed per the OBC, section 106.7.1

B. Manufacturers:
   1. Sureseal
   2. Mifab
   3. Oatey
   4. Green Drain, Inc.
   5. Zurn
   6. Mainline
   7. Substitutions: See section 01 6000 - Product Requirements

C. Construction: Mechanical device shall be an inline floor drain trap sealer, ASSE 1072 or IPC 09.1 listed. Body shall be constructed of ABS plastic. Diaphragm and sealing gasket to be constructed of neoprene rubber. Compression fitting sealing gasket 80 durometer.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Extend cleanouts to finished floor or wall surface. Lubricate threaded cleanout plugs with mixture of graphite and linseed oil. Ensure clearance at cleanout for rodding of drainage system.

C. Encase exterior cleanouts in concrete flush with grade.

D. Install floor cleanouts at elevation to accommodate finished floor.

E. Carpet markers must be installed for cleanouts in all carpeted areas.

F. Install all drains at 99'-11-1/2" elevation (Finish Floor = 100'-0") unless noted otherwise on drawings. Install floor drains in shower areas to accommodate a floor slope of 1:48. The minimum height of the floor drain shall be 99'-11-1/2".

END OF SECTION

GARMANN MILLER

Division 23

Heating, Ventilating and
Air-Conditioning (HVAC)

SECTION 23 05 01
MECHANICAL MATERIALS & METHODS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Piping specialties

B. Installation requirements common to piping systems and equipment specification sections

C. Emergency repairs or operation

D. Provisions for later installations

E. Final completion

F. Project Conditions

G. Quality Assurance

H. Supervision and cooperation

I. Maintenance and operating manuals

J. Record drawings

1.02 RELATED REQUIREMENTS

A. The provisions of the General Conditions, Supplementary Conditions, and the Sections included under Division 1 and 2, General Requirements, are included as a part of this Section as though bound herein.

B. Refer to Section 01 1200 - Multiple Contract Summary for Work under other contracts.

C. Refer to Division 26, Electrical Specifications, and to the requirements stated therein applicable to the Mechanical Work, where coordination of trades is covered.

D. The Drawings prepared for this Project are an outline to show where pipes, ducts, and apparatus must go in order to harmonize with the building and installations of the various trades. Work must be installed in accordance with the Drawings insofar as possible. Drawings shall be carefully checked during the course of bidding and construction. If discrepancies, errors, or omissions are discovered prior to or during the construction phase, notify the Engineer immediately for interpretation or correction. Take necessary measurements and be responsible for same, including clearances for equipment that is to be furnished. The Architect/Engineer shall reserve the right to make minor location changes of piping and equipment where such adjustments are deemed desirable from an appearance or operational standpoint. Such changes will be anticipated sufficiently in advance to avoid extra work or unduly delay progress on the Project.

E. The general building drawings shall be used to obtain dimensions and exact locations and as a check with other Contractors to avoid interferences with their Work. Refer to applicable Drawings on branches of the Work where other trades are involved on the Project so that added field work and job delays resulting from conflicts between crafts can be avoided. Piping or ductwork that is prefabricated before coordinating with the other trades may have to be redone at no additional cost if conflicts are encountered.

1.03 SUMMARY

A. The Contractor(s) shall provide the labor, materials, equipment, appliances, services and transportation, and perform the operations in connection with the construction and installation of the Work. Work shall be as herein specified and as denoted on the accompanying Drawings.

B. The Contractor(s) shall arrange and pay for permits and inspections required in connection with the Work. The Contractor shall apply for and pay for meters, regulators, recorders, and gauges

required. The Contractor must present to the Owner through the Architect/Engineer, properly signed certificates of final inspection by the governing authorities when they become due and shall not cover up Work until approved by those authorities.

C. Materials or labor obviously required to fully complete the Work shall be included, even though each item necessarily involved is not specifically mentioned or shown. Such Work and materials shall be furnished and shall be of the same grade or quality as the parts actually specified and shown. Should there be a conflict between the plans and Specifications, the greater quantity and better quality shall be furnished.

D. Should an overlap of Work between the various trades become evident, the Engineer shall be notified. Such an event shall not relieve the Contractor of the responsibility for the Work called for under his branch of the Specifications until a written clarification or directive is issued concerning the matter.

E. Arrange all mechanical supports to prevent eccentric loading of joists and joist girders. Locate supports at joist panel points.
   1. If support must occur between panel joints, then threaded rods shall be dropped from both panel points, an adequate angle to both, and then the support attached to the angle is required.
   2. Unless specifically indicated or approved by Garmann Miller & Associates Inc. do not provide support from roof decks.

F. Related Work Specified Elsewhere
   1. Firestopping is Work of this Section though fire barrier sealants (firestopping) for walls and floors are specified in Section 07 8400. Contractors are responsible for proper sizing of their sleeves and core-drilled holes so that they are at least 1-1/2 inches larger in diameter than the penetrating items. Schedule 40 steel sleeves and core-drilled holes made excessively large or made and not used, will be firestopped and charged to the Contractor who was responsible.

G. Related Work by Others
   1. Motors which are shipped loose from the mechanical equipment shall be installed as Work under Division 26, Electrical, or other trades as may be required, at the expense of the Contractor furnishing the loose motor(s).
   2. Unless otherwise stipulated under a specific Section of this Division, motor disconnects and starters shall be provided as Work under Division 26, Electrical.
   3. Electric power wiring shall be included as Work under the electrical wiring section of Division 26, Electrical, except as follows:
      a. Control wiring regardless of voltage shall be included as Work under specific Sections of Division 23.
      b. Internal package type wiring as specified under specific Sections of Division 23.

H. Cutting of water lines, electric conduit, or similar service lines in the course of Work performed under this Section shall be immediately repaired as part of the Work of this Section.

1.04 REFERENCE STANDARDS

A. Standards are described by reference to various associations. These are in addition, but not limited to, to those listed in:
   1. AGA American Gas Association
   2. ANSI American National Standards Institute
   3. ASHRAE American Society of Heating, Refrigeration, and Air Conditioning Engineers
   4. ASME American Society of Mechanical Engineers
   5. AWS American Welding Society
   6. AWWA American Water Works Association
   7. CISPI Cast Iron Soil Pipe Institute

8. NFPA National Fire Protection Association
9. OSHA Occupational Safety and Health Act
10. SMACNA Sheet Metal and Air Conditioning Contractors National Association
11. UL Underwriters' Laboratories, Inc.

B. Work shall be in complete accordance with codes, rules, and ordinances, regulations of authorities, bodies, associations, and governments, having proper or legal jurisdiction. Specifically, the following requirements shall be met in their entirety.
1. State and Local Rules, Regulations, Codes, Statutes, and Ordinances
2. Ohio Mechanical Code, 2017 Edition.
3. ASHRAE 90.1-2010; Energy Standard for Buildings Except Low Rise Residential Buildings.
4. ASHRAE 62.1-2016; Ventilation for Acceptable Indoor Air Quality.
5. NFPA 70 - National Electrical Code; National Fire Protection Association; 2017 applicable requirements.
6. NFPA 54 - National Fuel Gas Code.
7. National Board of Fire Underwriters
8. NEMA MG 1 - Motors and Generators; National Electrical Manufacturers Association; 1993 (and Revision 1,2,3).
9. Other Codes and Standards as specifically noted in each Section of the Specifications.
10. Americans with Disabilities Act (ADA)

C. References made to codes and standards, in these Specifications or on the Drawings, shall be taken to mean the latest edition, amendment, or revision of such reference in effect as of the date indicated on the Bid Documents unless otherwise noted.

1.05 SUBMITTALS

A. Submit capacity requirements, catalog cuts, and illustrations in accordance with requirements of specifications and as required by specific Sections of this Specification.

B. Shop Drawings shall be prepared by the Contractor or supplier.
1. Where limited space is available due to the nature of the Work, the requirements for shop and working drawings will apply, and the Contractor is required to prepare complete shop drawings showing the exact disposition of apparatus, equipment, piping, ductwork, and the like, and its relation to the building so there will be no irregularities or interferences. Shop drawings shall be prepared in coordination with other Contractors and other trades.

C. Warranty: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.06 QUALITY ASSURANCE

A. Instruments used by the Contractor shall be accurately calibrated and maintained in good working condition.

B. Products and test instruments used shall be subject to approval of Architect/Engineer.

C. Products and test instruments used shall be provided by each respective Contractor.

D. Note that systems involved under this Contract heading shall be in accordance with applicable requirements listed in NFPA Standard 90A.

E. Materials used in this Contract shall be those specified herein unless proposals for the use of alternate materials have been submitted and accepted in writing, as provided herein before. Materials shall be strictly first grade of their kind and shall be new and in first-class condition when installed. Damaged materials will be rejected and must be replaced by proper and acceptable materials. Materials shall be similar and in accordance with the provisions of this Specification.

F. No materials or equipment may be installed under this contract heading which do not meet the approval of the authorities having jurisdiction. Specific materials may have certain restrictions or exclusions as to their usage, including where they may not be located. Such regulations shall be adhered to where applicable. The requirements and regulations of the local and state building codes and regulations currently adopted shall be adhered to.

G. Piping systems shall be installed by workmen having skills acquired by working at the trade which is recognized as necessary for competency.

H. Pressure piping systems installed shall conform to the requirements of the State piping and welding codes where applicable.

1.07 PROJECT CONDITIONS

A. Unless otherwise stipulated under a particular heading, the following rules relative to responsibilities of the several Contractors and subcontractors will apply.
   1. Each Contractor shall install roughing-in work pertaining to his trade for connection of Work performed under other Sections of these Specifications.

B. Certain areas will be designated for the storage of materials and equipment and cooperation with the Owner in minimizing interference with existing operations will be mandatory.
   1. Where possible, store materials inside and protected from weather. Where necessary to store outside, elevate above grade and enclose with durable, waterproof wrapping.
   2. Follow manufacturer's instructions for receiving, inspecting, handling, storage, and protection of products prior to final installation

C. Equipment Clearances and Requirements
   1. For many items of equipment described in these Specifications, several manufacturers are listed. The manufacturer listed on the drawings is the make on which the layout was based and on which clearances, service required electrical, and plumbing characteristics, etc., have been checked. Additional manufacturers listed are considered acceptable.
   2. Due to the possibility of restrictions imposed by space limitations, the responsibility for resolving conflicts resulting from the use of equipment other than first named shall rest with the equipment supplier and the Contractor. Submittals for this equipment will be considered as a statement that clearances for access, service, maintenance, etc., have been checked and found adequate.
   3. Alternate equipment or the equipment of additional manufacturers named in these documents shall meet Base Bid Specifications. In the event such equipment or any equipment which the bidder proposes to furnish, deviates from the requirements of equipment first named regarding electric service, power wiring, control wiring, plumbing or piping, sound attenuation, or vibration damping, it shall be the responsibility of the bidder to include in his price a sufficient sum to cover additional costs or charges resulting therefrom.

D. In general, the piping and ductwork shown on the Drawings shall be considered as diagrammatic for clearness in indicating the general run and connections required, and may not be shown in its true position. The piping and ductwork and equipment may have to be offset, lowered or raised, as required, or as directed at the site in order to accommodate field conditions.

1.08 SUPERVISION AND COOPERATION

A. Work done by the Contractor under this Division shall include the services of an experienced superintendent, who shall be constantly in charge of the work, together with the qualified journeymen, helpers, and laborers required to properly unload, install, connect, adjust, start, and operate, and test the Work involved, including related equipment and materials furnished under other contracts or by the Owner.

B. A Pre-Installation meeting shall convene one week before starting work of this section.

PART 2 PRODUCTS

2.01 MATERIALS

A. Provide motors and starter/disconnect switches having the voltage and electrical characteristics of the service available and where denoted on Drawings or as required.
   1. All motors shall be high efficiency type.

2.02 ESCUTCHEONS AND PLATES

A. Provide approved plates around each pipe passing through walls, floors, partitions, and ceilings when piping is exposed to view and on exterior of building. Plates shall be chrome-plated metal and sized to cover exposed ends of pipe insulation and pipe sleeves.

B. Floor plates shall be split-type, heavy chrome-plated and securely attached to the pipe.

2.03 PIPE SLEEVES

A. Sheet metal sleeves shall be fabricated from galvanized sheet metal and shall be of no less than 18 gauge metal for 3 inch diameter and smaller, 16 gauge metal for 4 inch to 6 inch diameter, and 14 gauge metal for 6 inch diameter and larger.

B. Steel pipe sleeves shall be fabricated from Schedule 40 galvanized steel pipe.

C. Sleeves for copper piping shall be of compatible material to prevent interaction of piping materials.

PART 3 EXECUTION

3.01 INSTALLATION

A. Motors, Starters, Controls, and Wiring
   1. Alignment of motors, that are factory coupled or mounted and field coupled and mounted, shall be performed by the equipment manufacturer and shall be rechecked after connections have been made and after 48 hours of operation in designed service.
   2. Starter/disconnects, controls, and wiring shall be coordinated with the appropriate Contractors and completed as required by these Documents.

B. Cutting and Patching
   1. Cutting and drilling of walls, slabs, and structural members, required in conjunction with Work under this Section, shall be done under the supervision of the Architect/Engineer. Work shall be neatly done, removing no unnecessary material. Holes, openings, etc., shall be located where they will not weaken the structure. No beams, joists, etc., shall be cut without the written consent of the Architect/Engineer.
   2. Cutting of holes in masonry and concrete shall be performed with a core drill to minimize spalling, and limit damage to wall. Locations shall be accurately determined and checked, and the appropriate drill bit shall be used to minimize hole size.
   3. Sleeves or thimbles for holes as well as escutcheons and trim plates shall be provided. Installation shall permit free movement of pipe.
   4. Patching of work, where necessary, is to be done by a mechanic of the appropriate trade. Unless otherwise noted, patching for Work performed under this Section shall be immediately repaired as part of the Work of this Section.

C. Pipe Sleeves: Install pipe sleeves where piping passes through walls, floors, ceilings, and roofs.
   1. Do not install sleeves through structural members of work, except as detailed on Drawings, or as reviewed and approved by Architect/Engineer.
   2. Install sleeves accurately centered on pipe runs.
   3. Size sleeves so that piping and insulation (if any) will have free movement in sleeve, including allowance for thermal expansion; but not less than 2 pipe sizes larger than piping run.

4. Where insulation includes vapor barrier jacket, provide sleeve with sufficient clearance for installation.
5. Install length of sleeve equal to thickness of construction penetrated, and finish flush to surface; except floor sleeves.
6. Extend floor sleeves 1/4 inch above level floor finish, and 3/4 inch above floor finish sloped to drain unless otherwise noted.
7. Provide temporary support of sleeves during placement of concrete and other work around sleeves, and provide temporary closure to prevent concrete and other materials from entering sleeves.
8. Where insulated piping passes through fire barriers, stop insulation at barrier for fire barrier penetration seal.
9. Where piping passes through non-fire rated, or non waterproof, partitions, floors, and walls, apply pipe insulation continuous through pipe sleeves.
10. Do not install sleeves through suspended ceilings.
11. Caulk non-fire rated sleeves with sealant.

D. Protection
1. Provide proper protection to the building during the execution of Work involved under this contract heading.
2. This protection shall include covering apparatus, building surfaces, and other materials to protect same from dirt; adequate temporary connections to protect apparatus from damage and required shielding to protect finished parts of the building. The following shall apply where applicable:
   a. Protect finished floors from chips and cutting oil by the use of metal chip receiving pans and oil proof floor covers.
   b. Protect equipment and finished surfaces from welding and cutting spatters with baffles and spatter blankets.
   c. Protect equipment and finished surfaces from paint droppings, insulation adhesive, and sizing droppings, etc., by use of drop cloths.
3. Pumps, motors, fans, and other rotating/reciprocating equipment stored for this Project shall be adequately protected with openings, bearings, etc., covered to exclude dust and moisture. Stock piled pipe, valves, fittings, ductwork, etc., shall be placed on dunnage and protected from weather and from entry of foreign material.
4. During installation and until final connections are made, piping and ductwork shall be protected against entry of foreign matter. Equipment connections shall be carefully sealed until the actual time of system tie-in.
5. During construction, all air intake openings on variable frequency drives, control panels, and other electronic equipment shall be protected with a temporary filter. At completion of project, filters shall be removed.

E. Accessibility
1. Provide a union or flange in the piping at each screwed or welded valve, device, or item of equipment, and elsewhere as required for accessibility of repair. Each union shall be so installed as to permit the removal of item without disconnection of any piping except at the union.

3.02 EMERGENCY REPAIRS OR OPERATION

A. The Owner reserves the right to make emergency repairs and protection of the equipment and systems in operation without voiding the Contractor's guarantee bond or relieving the Contractor of his responsibility during the bonding period.

B. The air handling units may be used for temporary heating. If units are used for temporary heating the heat wheel section shall be completely blanked off on both the supply and exhaust side to prevent any air, dust, etc. from passing through heat wheel. Any damage to the heat

wheel due to unit use for temporary heating shall be replaced at no additional cost to the owner.

3.03 PROVISIONS FOR LATER INSTALLATIONS

A. Where work cannot be installed as the structure is being erected, the Contractor for such work shall provide and arrange for the building-in of boxes, sleeves, inserts, fixtures, and devices necessary to permit installation of the omitted work during later phases of construction. The Contractor shall arrange for layout, chases, holes, and other openings which must be provided in masonry, concrete, and other work.

B. The Contractor shall be responsible for becoming informed of the nature and arrangement of the materials and construction to which his work attached or passes through.

3.04 FINAL COMPLETION

A. Work shall be cleaned prior to Substantial Completion of the Work.

B. Retouch or repaint factory painted prime and finish coats where scratched or damaged. Whenever retouching will not be satisfactory, in the opinion of the Architect/Engineer, the Architect/Engineer has the option to require complete repainting until the desired appearance is obtained.

C. Deliver filters, belts, and equipment, as required by this Specification, to Owner for Division 23 - HVAC Systems and obtained signed receipts of delivery.

D. The Contractor shall clean equipment; restore damaged materials, remove grease, oil chemical, paint spots, and stains; and leave the Work in condition acceptable to Owner and Architect/Engineer.

E. On completion of his Work, the Contractor shall remove and see that each of his subcontractors removes from the site tools, equipment, surplus materials, and rubbish pertaining to his operations, and pay cost for such removal and disposition.

F. Contractor shall explain all components of the HVAC System and demonstrate their operation and maintenance to the owner's representative.
   1. All demonstration and training shall be video-taped by the HVAC Contractor. Two copies shall be turned over to the owner's maintenance staff.

3.05 MAINTENANCE AND OPERATING MANUALS AND INSTRUCTIONS

A. Comply with Section 01 7800 and the following:

B. Bind the written operating instructions, shop drawings, equipment catalog cuts, and manufacturer's instructions into the binder with each section separated by tabbed dividers. Material to be assembled as follows:
   1. First Page --Title of Job, Owner, Address, Date of submittal, Name of Contractor, and Name of Architect/Engineer. Emergency operating instructions and/or list of service organizations (including address and telephone numbers) capable of rendering emergency service on 24 hour calls.
   2. Second page--Index
   3. Sections--Each section shall include a subsection with a tab divider. The tab shall list the contents of the the divided section. There shall be a subsection that contains the following information:
      a. Written list of items requiring service and either state the service needed or refer to the manufacturer's data in the binder that described the proper service.
      b. A copy of the approved shop drawing for all systems, equipment, and components (clearly marked for item furnished).
      c. A copy of each manufacturer's operating instructions with an index at the beginning of the section.

d. A list of equipment used on the job, Contractor's purchase order numbers, supplier's name, and address.

C. Submit electronic sets of final documents in final form. Electronic format shall be PDF's on CD's or USB flash drives.

3.06 RECORD DRAWINGS

A. The Contractor shall keep a running record of each change and deviation from the Drawings. Record shall be kept clean and undamaged upon a set of Drawings used for no other purpose. Upon completion of the Project, the Contractor shall submit to the Architect/Engineer one complete set of drawings which have been corrected to show deviations plus "Project Record Drawing" and the Contractor's letterhead type information. With the submittal shall be 2 sets of prints made from the corrected drawings.

B. Record Drawings shall show:
   1. Size, type, and capacity of materials, devices, or pieces of equipment.
   2. Location of devices or pieces of equipment.
   3. Location of diffusers, volume dampers, fire dampers, smoke dampers, and related devices of the building systems.
   4. Routing of piping (above and below grade), ductwork, or other building services.

C. These drawings shall also record the location of concealed ductwork and piping by indication of measured dimensions to each such line from readily identifiable and accessible walls or corners of the building.

D. Record drawings must be complete and accurate with regard to concealed piping, ductwork, like equipment, or devices. Unless record drawings are sufficiently accurate to permit immediate location and identification of concealed work with a minimum of cutting, record drawings will be considered inadequate and the contract work deemed incomplete.

END OF SECTION

SECTION 23 05 03
WORK IN EXISTING BUILDING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Cutting and patching of existing material

B. Protection of existing conditions

C. Demolition work

D. Existing facility operation

1.02 RELATED REQUIREMENTS

A. Section 01 3329 - Sustainable Design Reporting

B. Section 02 4100 - Demolition

C. Section 23 0501- Mechanical Materials and Methods.

1.03 QUALITY ASSURANCE

A. This Contractor shall be responsible for cutting and patching of existing walls, roofs, floors, and ceilings required for the installation of new HVAC work. Openings shall be neatly drilled or cut.

B. Patching shall be performed by a workman skilled in the trade involved, and patch work shall match the existing surface and finished in a manner completely acceptable to the Architect.

C. New Work in finished spaces of existing buildings shall be installed concealed unless directed by Architect/Engineer to run exposed.

D. Contractor shall visit the Project and verify existing conditions prior to bidding.

E. Protect existing work, equipment, fixtures, and systems from damage.

F. Contractor shall take necessary steps to protect the building and all interior finishes from damage during the installation of his work.

G. The Contractor(s) shall perform demolition work as shown on the Drawings and as specified herein or as may otherwise be required.
   1. HVAC items to be removed shall be as indicated on Drawings.
   2. The Owner may select items of equipment and material he wishes to retain and these items shall be moved to the location he designates. Other items shall be removed from the premises. Contractor shall verify with owner before any equipment is removed from the premises.

H. The continuity of operation of existing facilities during construction of the new Work shall be required. The actual length of time for an interruption shall be held to an absolute minimum. At least 48 hours in advance of an installation of new services, submit a specific plan to the Engineer and the Owner detailing the nature and estimated duration of the interruption and the method of procedure. Do not proceed with an interruption of service without the Owner's authorization.

PART 2 PRODUCTS

2.01 MATERIAL

A. Not Applicable.

PART 3 EXECUTION

3.01 CLEANING

A. The contractors shall clean all areas of debris and items to be disposed of in all areas where work in performed under each contract.

END OF SECTION

SECTION 23 07 13
DUCT INSULATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Duct insulation.

B. Duct liner.

C. Insulation jackets.

1.02 RELATED REQUIREMENTS

A. Section 07 84 00 - Firestopping.

B. Section 23 05 53 - HVAC Identification.

C. Section 23 31 00 - HVAC Ducts and Casings: Glass fiber ducts.

1.03 REFERENCE STANDARDS

A. ASTM C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus; 2021.

B. ASTM C534/C534M - Standard Specification for Preformed Flexible Elastomeric Cellular Thermal Insulation in Sheet and Tubular Form; 2020a.

C. ASTM C553 - Standard Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications; 2013 (Reapproved 2019).

D. ASTM C612 - Standard Specification for Mineral Fiber Block and Board Thermal Insulation; 2014 (Reapproved 2019).

E. ASTM C1071 - Standard Specification for Fibrous Glass Duct Lining Insulation (Thermal and Sound Absorbing Material); 2012.

F. ASTM C1338 - Standard Test Method for Determining Fungi Resistance of Insulation Materials and Facings; 2008.

G. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2024.

H. SMACNA (DCS) - HVAC Duct Construction Standards Metal and Flexible; 2005.

I. ASTM E 119 (UL 263) - Standard Test Methods for Fire Tests of Building Construction and Materials.

J. UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials; Current Edition, Including All Revisions.

K. ASHRAE Standard 90.1 - Energy Standard for Buildings Except Low-Rise Residential Buildings.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide product description, thermal characteristics, list of materials and thickness for each service, and locations.

C. Manufacturer's Instructions: Indicate installation procedures necessary to ensure acceptable workmanship and that installation standards will be achieved.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products of the type specified in this section with not less than three years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Accept materials on site in original factory packaging, labelled with manufacturer's identification, including product density and thickness.

B. Protect insulation from weather and construction traffic, dirt, water, chemical, and mechanical damage, by storing in original wrapping.

PART 2 PRODUCTS

2.01 REGULATORY REQUIREMENTS

A. Surface Burning Characteristics: Flame spread index/Smoke developed index of 25/50, maximum, when tested in accordance with ASTM E84 or ASTM E84.

2.02 GLASS FIBER, FLEXIBLE

A. Manufacturer:
   1. Knauf Fiber Glass
   2. Johns Manville Corporation
   3. Owens Corning Corp
   4. CertainTeed Corporation; ____
   5. Manson
   6. Substitutions: See Section 01 60 00 - Product Requirements.

B. Insulation: ASTM C553; glass fiber flexible, limited combustibility blanket.
   1. 'K' value: 0.27 at 75 degrees F, when tested in accordance with ASTM C518.
   2. Minimum 1.0 PCF Density
   3. Maximum Water Vapor Absorption: 5.0 percent by weight.

C. Vapor Barrier Jacket:
   1. Kraft paper with glass fiber yarn and bonded to aluminized film.
   2. Moisture Vapor Permeability: 0.029 ng/Pa s m (0.02 perm inch), when tested in accordance with ASTM E96/E96M.
   3. Secure with UL listed pressure sensitive tape.

D. Vapor Barrier Tape:
   1. Kraft paper reinforced with glass fiber yarn and bonded to aluminized film, with pressure sensitive rubber based adhesive.

E. Tie Wire: Annealed steel, 16 gage, 0.0508 inch diameter.

2.03 GLASS FIBER, RIGID

A. Manufacturer:
   1. Knauf Fiber Glass
   2. Johns Manville Corporation
   3. Owens Corning Corp
   4. CertainTeed Corporation; ____
   5. Manson
   6. Substitutions: See Section 01 60 00 - Product Requirements.

B. Insulation: ASTM C 612; rigid, board.
   1. 'K' Value: 0.27 at 75 degrees F, when tested in accordance with ASTM C518.
   2. Minimum 3.0 PCF Density
   3. Maximum Service Temperature: 450 degrees F.
   4. Maximum Water Vapor Absorption: 5.0 percent.

C. Vapor Barrier Jacket:
   1. Kraft paper with glass fiber yarn and bonded to aluminized film.

2. Moisture Vapor Permeability: 0.029 ng/Pa s m (0.02 perm inch), when tested in accordance with ASTM E96/E96M.
3. Secure with UL listed pressure sensitive tape.

D. Vapor Barrier Tape:
1. Kraft paper reinforced with glass fiber yarn and bonded to aluminized film, with pressure sensitive rubber based adhesive.

2.04 DUCT LINER

A. Manufacturers:
1. Knauf Insulation; Model Atmospheric Duct Liner
2. Johns Manville Corporation; Model Linacoustic RC
3. Owens Corning Corp
4. CertainTeed Corporation;: www.certainteed.com/#sle.
5. Manson
6. Substitutions: See Section 01 60 00 - Product Requirements.

B. Note: Choose the liner type - Elastomeric Foam or Glass Fiber.

C. Elastomeric Foam Insulation: Preformed flexible elastomeric cellular rubber insulation complying with ASTM C534/C534M Grade 1, in sheet form.
1. Minimum Service Temperature: Minus 40 degrees F.
2. Maximum Service Temperature: 180 degrees F.
3. Apparent Thermal Conductivity: Maximum of 0.28 at 75 degrees F.
4. Connection: Waterproof vapor barrier adhesive.

D. Insulation: Non-corrosive, limited combustibility glass fiber complying with ASTM C1071; flexible blanket, rigid board, and preformed round liner board; impregnated surface and edges coated with poly vinyl acetate polymer or acrylic polymer.
1. Fungal Resistance: No growth when tested according to ASTM G21.
2. Apparent Thermal Conductivity: Maximum of 0.31 at 75 degrees F.
3. Service Temperature: Up to 250 degrees F.
4. Rated Velocity on Coated Air Side for Air Erosion: 5,000 fpm, minimum.
5. Minimum Noise Reduction Coefficients:
a. 1 inch Thickness: 0.45.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that ducts have been tested before applying insulation materials.

B. Verify that surfaces are clean, foreign material removed, and dry.

3.02 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install in accordance with NAIMA National Insulation Standards.

C. All insulation shall be applied so that there is no fiberglass exposed to the air stream without filters downstream. All fiberglass insulation, including all exposed edges, shall be coated, or mylar or other suitable material shall be provided between fiberglass and the air stream.

D. Insulate ducts conveying air below ambient temperature:
1. Provide insulation with vapor barrier jackets.
2. Finish with tape and vapor barrier jacket.
3. Continue insulation through walls, sleeves, hangers, and other duct penetrations.
4. Insulate entire system including fittings, joints, flanges, fire dampers, flexible connections, and expansion joints except where prohibited by code.

E. Insulate ducts conveying air above ambient temperature:
   1. Provide with standard vapor barrier jacket.
   2. Insulate fittings and joints. Where service access is required, bevel and seal ends of insulation.

F. Duct and Plenum Liner Application:
   1. Adhere insulation with adhesive for 90 percent coverage.
   2. Secure insulation with mechanical liner fasteners. Refer to SMACNA (DCS) for spacing.
   3. Seal and smooth joints. Seal and coat transverse joints.
   4. Seal liner surface penetrations with adhesive.
   5. Duct dimensions indicated are net inside dimensions required for air flow. Increase duct size to allow for insulation thickness.

3.03 SCHEDULES

A. Outside Air Intake Ducts:
   1. Flexible Glass Fiber Duct Insulation: 1-1/2 inches thick.
   2. Rigid Glass Fiber Duct Insulation: 1-1/2 inches thick.

B. Plenums/Air Transfers:
   1. Flexible Glass Fiber Duct Insulation: 1-1/2 inches thick.
   2. Rigid Glass Fiber Duct Insulation: 1-1/2 inches thick.
   3. Flexible Glass Fiber Duct Liner Insulation: 1 inches thick, where denoted on drawings.
   4. Rigid Glass Fiber Duct Liner Insulation: 1 inches thick, where denoted on drawings.

C. Supply Ducts in Conditioned Space, Including Return Air Plenums:
   1. Flexible Glass Fiber Duct Insulation: 1 inches thick.
   2. Rigid Glass Fiber Duct Insulation: 1 inches thick.
   3. Flexible Glass Fiber Duct Liner Insulation: 1 inches thick, where noted on the drawings.
   4. Rigid Glass Fiber Duct Liner Insulation: 1 inches thick, where noted on the drawings.

D. Supply Ducts in Unconditioned Space:
   1. Flexible Glass Fiber Duct Insulation: 2 inches thick.
   2. Flexible Glass Fiber Duct Insulation: 2 inches thick.
   3. Flexible Glass Fiber Duct Liner Insulation: 2 inches thick, where noted on the drawings.
   4. Rigid Glass Fiber Duct Liner Insulation: 2 inches thick, where noted on the drawings.

E. Supply and Return Ducts in Attic Space Above Insulation:
   1. Flexible Glass Fiber Duct Insulation: 4 inches thick.
   2. Rigid Glass Fiber Duct Insulation: 3 inches thick.

END OF SECTION

SECTION 23 33 00
AIR DUCT ACCESSORIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Air turning devices

B. Flexible duct connections.

C. Volume control dampers.

1.02 RELATED REQUIREMENTS

A. Refer to Section 01 6000 - Product Requirements

B. Section 23 31 00 - HVAC Ducts and Casings.

C. Section 26 05 83 - EQUIPMENT WIRING: Electrical characteristics and wiring connections.

1.03 REFERENCE STANDARDS

A. NFPA 90A - Standard for the Installation of Air-Conditioning and Ventilating Systems; 2015.

B. SMACNA (DCS) - HVAC Duct Construction Standards Metal and Flexible; 2005.

1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of documented experience.

B. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories Inc. as suitable for the purpose specified and indicated.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Protect dampers from damage to operating linkages and blades.

B. All ductwork accessories kept on site shall be wrapped and protected from dirt. All ductwork and duct accessories shall be kept off floor.

PART 2 PRODUCTS

2.01 AIR TURNING DEVICES/EXTRACTORS

A. Air turning vanes/extractors shall be installer fabricated or manufactured.

B. Air turning vanes/extractors shall be provided where denoted on drawing and in all square elbows of low pressure supply, return, and exhaust ducts for sizes above 12"x12". Air turning vanes/extracotrs shall be designed to carry the air around the 90 degree bend without eddying or pressure fluctuation in the turn. Vanes shall be formed blade type and of standard catalog product of a reputable manufacturer. Manufacturer of air turns and extractors shall recommend the number and size of vanes. Air turning vanes shall be the complete unit type installed along the diagonals of each square elbow.

C. Vanes shall be constructed and installed to limit pressure loss to not more then 20 percent of velocity pressure.

2.02 FLEXIBLE DUCT CONNECTIONS

A. Fabricate in accordance with SMACNA (DCS) and as indicated.

B. Flexible Duct Connections: Fabric crimped into metal edging strip.
   1. Fabric: UL listed fire-retardant neoprene coated woven glass fiber fabric to NFPA 90A, minimum density 30 oz per sq yd.
      a. Net Fabric Width: Approximately 2 inches wide.
   2. Metal: 3 inches wide, 24 gage, 0.0239 inch thick galvanized steel.

2.03 VOLUME CONTROL DAMPERS

A. Manufacturers:
   1. Louvers & Dampers, Inc
   2. Nailor Industries Inc
   3. Ruskin Company
   4. Greenheck
   5. Air Balance, Inc.
   6. Vent Products
   7. United Enertech
   8. Pottorff.
   9. Substitutions: See Section 01 60 00 - Product Requirements.

B. Fabricate in accordance with SMACNA (DCS) and as indicated.

C. Round
   1. Dampers shall be of the butterfly type consisting of a circular blade mounted to the shaft.
   2. Frames shall be 20 gauge galvanized steel up to 20 inches diameter, 7 inches long.
   3. Blades shall be 20 gauge galvanized steel.
   4. Control shaft/hand quadrant shall be located on a square shaft and shall be lockable.
   5. Bearings shall be molded synthetic or bronze.
   6. Provide a minimum 1 1/2" shaft extension on manual dampers located in supply ductwork, to accomodate exterior ductwork insulation, to allow manual damper handle to be clear of supply ductwork.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install accessories in accordance with manufacturer's instructions, NFPA 90A, and follow SMACNA (DCS). Refer to Section 23 31 00 for duct construction and pressure class.

B. At fans and motorized equipment associated with ducts, provide flexible duct connections immediately adjacent to the equipment.

C. At equipment supported by vibration isolators, provide flexible duct connections immediately adjacent to the equipment.

D. Provide balancing dampers on duct take-off to diffusers, grilles, and registers, regardless of whether dampers are specified as part of the diffuser, grille, or register assembly.

E. Air turning vanes shall be provided where denoted on drawings and in square elbows of low pressure ducts.

END OF SECTION

SECTION 23 31 00
HVAC DUCTS AND CASINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Metal ductwork.

B. Flexible Duct Liner

C. Duct cleaning.

D. Testing and Repair

1.02 RELATED REQUIREMENTS

A. Section 09 91 13 - Exterior Painting: Weld priming, weather resistant, paint or coating.

B. Section 23 0593 - Testing, Adjusting, and Balancing for HVAC.

C. Section 23 07 13 - DUCT INSULATION: External insulation and duct liner.

D. Section 23 33 00 - Air Duct Accessories.

E. Section 23 37 00 - Air Outlets and Inlets.

1.03 REFERENCE STANDARDS

A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2025.

B. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2024.

C. NFPA 90A - Standard for the Installation of Air-Conditioning and Ventilating Systems; 2015.

D. NFPA 90B - Standard for the Installation of Warm Air Heating and Air-Conditioning Systems; 2015.

E. SMACNA (DCS) - HVAC Duct Construction Standards Metal and Flexible; 2005.

F. SMACNA (KVS) - Kitchen Ventilation Systems and Food Service Equipment Fabrication and Installation Guidelines; 2001.

G. SMACNA (LEAK) - HVAC Air Duct Leakage Test Manual; 2012, 2nd Edition.

H. ASHRAE Standard 90.1 - Energy Standard for Buildings Except Low-Rise Residential Buildings.

I. UL 181 - Standard for Factory-Made Air Ducts and Air Connectors; current edition, including all revisions.

1.04 PERFORMANCE REQUIREMENTS

A. No variation of duct configuration or sizes permitted except by written permission. Size round ducts installed in place of rectangular ducts in accordance with ASHRAE table of equivalent rectangular and round ducts.

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Provide required LEED submittals and documentation per Section 01 3000.

C. Product Data: Provide data for duct materials.

D. Shop Drawings: Indicate duct fittings, particulars such as gages, sizes, welds, and configuration prior to start of work for systems.

E. Test Reports: Indicate pressure tests performed. Include date, section tested, test pressure, and leakage rate, following SMACNA (LEAK).

F. Project Record Documents: Record actual locations of ducts and duct fittings. Record changes in fitting location and type. Show additional fittings used.

1.06 QUALITY ASSURANCE

A. Construction of ductwork shall be in accordance with the recommendation of the latest edition of ASHRAE Handbook, HVAC Systems and Equipment, Chapter titled "Duct Construction"; Sheet Metal and Air Conditioning Contractor's National Association, Inc. (SMACNA) Manual.

B. Duct coverings, duct linings, tapes, and core materials in panels used in duct systems shall have a flame spread rating not over 25, without evidence of continued progressive combustion and a smoke developed rating no higher than 50. If coverings and linings are to be applied with adhesives, they shall be tested as applied with such adhesives, or the adhesives used shall have a flame spread rating not over 25 and a smoke developed rating no higher than 50 when in the final dry state.

C. Ductwork, shall be constructed of new prime grade galvanized sheet steel, manufactured in accordance with ASTM A924 standards for hot dip galvanized sheet and ASTM A653 quality.

D. Installer Qualifications: Company specializing in performing the type of work specified in this section, with minimum 2 years ofdocumented experience.

1.07 REGULATORY REQUIREMENTS

A. Construct ductwork to NFPA 90A standards.

1.08 DELIVERY, STORAGE, AND HANDLING

A. All ductwork kept on site shall have open ends wrapped and protected from dirt entering inside of duct. All ductwork and duct accessories shall be kept off floor.

1.09 FIELD CONDITIONS

A. Do not install duct sealants when temperatures are less than those recommended by sealant manufacturers.

B. Maintain temperatures within acceptable range during and after installation of duct sealants.

C. Refer to section 01 5721 - IAQ Construction and Preoccupancy for additional requirements.

PART 2 PRODUCTS

2.01 DUCT ASSEMBLIES

A. Regulatory Requirements: Construct ductwork to comply with NFPA 90A standards.

2.02 MATERIALS

A. Galvanized Steel for Ducts: Hot-dipped galvanized steel sheet, ASTM A653/A653M FS Type B, with G90/Z275 coating, unless otherwise noted. Refer to schedule in this specification section.
   1. All sheetmetal ductwork in areas with exposed ductwork shall have paint grip type construction. All ductwork to be painted shall have the exterior wiped down after installation with proper cleaning solution to remove any oils, grease, etc. that would prohibit paint from sticking to ductwork. Painting of ductwork shall be by General Contractor.

B. Joint Sealers and Sealants: Non-hardening, water resistant, mildew and mold resistant.
   1. Type: Heavy mastic or liquid used alone or with tape, suitable for joint configuration and compatible with substrates, and recommended by manufacturer for pressure class of ducts.
   2. Surface Burning Characteristics: Flame spread index of zero and smoke developed index of zero, when tested in accordance with ASTM E84.

C. Low Pressure Insulated Flexible Ducts:
   1. Manufacturers:

a. Flexmaster Model 5M.
b. Thermaflex, Model M-KC
c. Buckley, Model Type 2.
d. Substitutions: See Section 01 6000 - Product Requirements.

2. Three ply aluminum/fiberglass/aluminized polyester film supported by helically wound spring steel wire; 1 inch thick, 3/4 lb. density, fiberglass insulation; air tight aluminized fire retardant vapor barrier film.
   a. Pressure Rating: 5 inches WG positive and 5 inches WG negative.
   b. Maximum Velocity: 4000 fpm.
   c. Temperature Range: -10 degrees F to 160 degrees F.

D. Ducts: Galvanized steel, unless otherwise indicated.

E. Joint Sealers and Sealants: Non-hardening, water resistant, mildew and mold resistant.
   1. Type: Heavy mastic or liquid used alone or with tape, suitable for joint configuration and compatible with substrates, and recommended by manufacturer for pressure class of ducts.
      a. All sealers and sealants shall meet the low VOC requirements for LEED. Refer to Division 01 of the specifications for additional information.

F. Hanger Rod: ASTM A 36/A 36M; steel, galvanized; threaded both ends, threaded one end, or continuously threaded.

G. A maximum length of 12" of flexible ductwork will be allowed in the exhaust and return air ductwork systems. Contractor shall ensure that flexible ductwork used in these systems are sealed air tight to the sheet metal duct.

2.03 DUCTWORK FABRICATION

A. Fabricate and support in accordance with SMACNA (DCS) and as indicated.

DUCT CONSTRUCTION			
DUCT SYSTEM	**MATERIAL**	**DUCT CONSTRUCTION PRESSURE CLASS**	**SEAL CLASS**
SUPPLY DUCT UPSTREAM OF VARs	Galvanized	+3"	B
SUPPLY DUCT DOWNSTREAM OF VARs	Galvanized	+1"	C
SUPPLY DUCT FOR SINGLE ZONE SYSTEMS	Galvanized	+3"	B
RETURN DUCT	Galvanized	-2"	C
TRANSFER AIR DUCT	Galvanized	-1/2"	C
OUTSIDE AIR DUCT AND PLENUMS	Galvanized	-1"	B
RELIEF AIR DUCT AND PLENUMS	Galvanized	+2"	B
GENERAL EXHAUST	Galvanized	-1"	C
BOILER COMBUSTION AIR	Galvanized	-1"	C

DUCT CONSTRUCTION			
DUCT			
DUST COLLECTOR SYSTEM DUCT	See 23 3513.		
FUME HOOD EXHAUST DUCT	See spec section 2.02	-1"	B
SHOWER/LOCKER ROOM EXHAUST DUCT	See spec section 2.02		
KITCHEN HOOD EXHAUST DUCT	See spec section 2.02		
DISHWASHER EXHAUST DUCT	See spec section 2.02		

B. Provide duct material, gages, reinforcing, and sealing for operating pressures indicated.

C. Construct T's, bends, and elbows with radius of not less than 1-1/2 times width of duct on centerline. Where not possible and where rectangular elbows must be used, provide air foil turning vanes of perforated metal with glass fiber insulation.

D. Provide air foil turning vanes of performated metal with glass fiber insulation in all rectangular elbows in the supply air stream, return air stream, and exhaust air stream for all duct sizes with a width greater then 12" and a height greater then 12" (12"x12").

E. Increase duct sizes gradually, not exceeding 15 degrees divergence wherever possible; maximum 30 degrees divergence upstream of equipment and 45 degrees convergence downstream.

F. Fabricate continuously welded round and oval duct fittings in accordance with SMACNA (DCS).

G. Fabricate continuously welded round and oval duct fittings two gages heavier than duct gages indicated in SMACNA Standard. Joints shall be minimum 4 inch cemented slip joint, brazed or electric welded. Prime coat welded joints.

2.04 MANUFACTURED DUCTWORK AND FITTINGS

A. Manufacture in accordance with current SMACNA HVAC Duct Construction Standards - Metal and Flexible, and as indicated. Provide duct material, gages,reinforcing, and sealing for operating pressures indicated.

B. Construct ductwork of new prime grade galvanized sheet steel, unless otherwise noted, manufactured in accordance with ASTM A525 standards for hot dip galvanized sheet. Coating weight shall not be less than 0.90 oz. per sq.ft. where used in normal applications. Sheets having coating that will flake or peel under forming operation will not be allowed.

C. Installation of sheet metal ducts and related work shall comply with applicable Local, State and National Codes, rules, regulations and ordinances, including the following specific codes:
   1. Air conditioning and ventilating systems of other than residence type NFPA No. 90A.
   2. Air conditioning, warm air heating, air cooling, and ventilating systems NFPA No. 90B.

2.05 METAL DUCT HANGERS AND SUPPORTS

A. Support horizontal ductwork runs with suitable strap or trapeze hangers on 6 foot centers. Where duct weight for the 6 foot length is less than 40 pounds, space hangers 8 feet on center. Support vertical risers at floors with galvanized steel angles riveted to duct on all sides. Size of angles shall be one gage heavier than the ductwork it is supporting.

B. Ductwork may be supported using load rated cable suspension system equal to Gripple Hang-Fast system. Suspension system shall have a specified manufacturer's Save Working Load (SWL) and supplementary safety factor of at least 5 times the SWL.
   1. Suspension system shall be verified by SMACNA Testing and Research Institute to be in compliance with SMACNA Duct Construction Standard Guidelines (1995 Ch 4).
   2. Support ductwork at 6' on center for all round supply 22 inch in diameter or equivlaent square and over. For all supply over 20" support on 6 ft centers.
      a. Mechanical contractor shall consult hanger manufacturer sizing chart for proper hanger sizing based on supported weight.
   3. The "Clutcher" cable hanging system manufactured by Ductmate is not an acceptable product and shall not be used.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install, support, and seal ducts in accordance with SMACNA (DCS).

B. Install in accordance with manufacturer's instructions.

C. Duct sizes indicated are inside clear dimensions. For lined ducts, maintain sizes inside lining.

D. Install and seal metal and flexible ducts in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible.

E. Provide openings in ductwork where required to accommodate thermometers and controllers. Provide pilot tube openings where required for testing of systems, complete with metal can with spring device or screw to ensure against air leakage. Where openings are provided in insulated ductwork, install insulation material inside a metal ring.

F. Locate ducts with sufficient space around equipment to allow normal operating and maintenance activities.

G. Use crimp joints with bead for joining round duct sizes 8 inch and smaller with crimp in direction of air flow.

H. Use double nuts and lock washers on threaded rod supports.

I. Connect diffusers to low pressure ducts with 8 feet maximum length of flexible duct held in place with strap or clamp.

J. Connect flexible ducts to metal ducts with adhesive tape and draw bands.

K. Set plenum doors 6 to 12 inches above floor. Arrange door swings so that fan static pressure holds door in closed position.

L. During construction provide temporary closures of metal or taped polyethylene on open ductwork to prevent construction dust from entering ductwork system.

M. Ducts shall be installed substantially as indicated on the Drawings. However, where conflicts occur with other trades, the Architect/Engineer reserves the right to require the Contractor to make minor changes in duct locations without extra cost to the Owner.

N. Locate ductwork within walls, ceilings, utility or pipe spaces, chases, joist spaces, and the like, insofar as is practical and so that such Work will be properly concealed.
   1. Space sufficiently distant from other Work and from adjacent lines, ducts, etc., to permit maintenance, replacement, insulation, etc., so not less than 1 inch space will exist between completed finished surfaces.
   2. Space parallel runs of ductwork so that each individual run of duct can be separately insulated. Parallel runs of duct or piping, insulated as a bundle, will not be accepted.
   3. This Contractor shall clean the interior of ductwork and fittings, leaving area clean and free of loose insulation and other construction debris.

4. Provide flexible connections at all fan powered equipment on inlet and discharge sides of equipment.

O. Support horizontal ductwork runs with suitable strap or trapeze hangers on 6 foot centers. Where duct weight for the 6 foot length is less than 40 pounds, space hangers 8 feet on center. When weight of duct between hangers does not exceed 60 pounds, hangers shall be 1 inch wide by 18 gauge. For greater weights, use trapeze hangers 6 feet on center, as approved by Architect/Engineer. Support vertical risers at floors with galvanized steel angles riveted to duct on all sides. Size of angles shall be one size heavier than scheduled for stiffer angles.

P. Pack and caulk around ductwork passing through walls and floors where required to prevent sound transmission using fiberglass packing and metal collar.
   1. Connect to walls with galvanized angles anchored to wall and construction. Seal angles using approved sealant compound.

Q. Clean interior of ductwork, leaving it free of loose material and construction debris.

R. Sheet metal elbows and fittings shall be constructed to comply with the following:
   1. Curved elbows shall have a radius not less than 150 percent of duct width to the centerline of the duct (R/D = 1.5).
   2. Where R/D ratio is less than 1.5, use hollow vane (air foil) vanes or turn blades.
   3. Elbows and other fittings shall be constructed the same as required for straight runs of ductwork. Round elbows shall be crimped and beaded on the downstream end. Square elbows must have turning vanes.
   4. When air foil vanes are used in elbows, elbows may have square throat and heel or radius heel and radius throat.

S. Provide, where denoted on Drawings and in square elbows of low pressure ducts, air turning vanes designed to carry the air around the 90 degree bend without eddying or pressure fluctuations in the turn. Vanes shall be formed blade type and of standard catalog product of reputable manufacturer. Manufacturer of air turns shall recommend the number and size of blades. Air turns shall be the complete unit type installed along the diagonals of each square elbow.
   1. Refer to specification section 23 3300 for additional requirements.
   2. Vanes shall be constructed and installed to limit pressure loss to not more than 20 percent of the velocity pressure.

T. Install suspension system in accordance with manufacturer's requirements. Installation instructions shall be provided with fabric duct system by unit manufacturer.

3.02 TESTING AND REPAIR

A. Ductwork shall be sealed and leak tested as required by ASHRAE Standard 90.1.

B. Upon completion of each respective ductwork system, but prior to insulating, covering, or backfilling, each system shall be thoroughly cleaned to remove construction dirt and foreign matter.

C. Test Ductwork as Specified Herein
   1. No ductwork work shall be concealed or covered until it has been inspected and approved by the project inspector, who shall be notified when the Work is ready for inspection. Work shall be completely installed and tested as required by this Contract and Ordinances of the local Municipality and shall be leaktight to the satisfaction of those making the inspection and the Architect/ Engineer.
   2. In general, pressure tests shall be applied to ductwork. In no case shall piping be subject to pressure exceeding its rating. Defective work shall be promptly repaired or replaced and test shall be repeated until the particular system and component parts thereof receive approval of the Architect/Engineer.

3. Provide temporary equipment for testing, including blower and gauges. Test ductwork system before insulation is installed and remove control devices before testing. Test each natural section of each ductwork system independently, but do not use ductwork dampers to isolate sections where test pressure exceeds damper pressure rating.
4. Repair ductwork system sections which fail required ductwork test by disassembly and reinstallation, using new materials to extent required to overcome leakage. Do not use chemicals, stopleak compounds, mastics, or other temporary repair methods.
5. Pressure for Testing of Ductwork Systems shall be as follows:
    a. Ductwork systems shall be tested for leakage in accordance with SMACNA HVAC Air Duct Leakage Test Manual.
        1) Ductwork systems shall be sealed to SMACNA Seal Class as listed.
        2) Ductwork systems shall be tested for leakage in accordance with SMACNA leakage class 12 for rectangular ductwork and leakage class 6 for round ductwork.
        3) Leakage test procedures shall follow the outlines and classifications in the SMACNA HVAC Duct Leakage Test Manual.
        4) If the tested ductwork fails to meet allotted leakage level, the contractor shall modify to bring it into compliance and shall retest it until acceptable leakage is demonstrated.
        5) Testing apparatus shall be a high pressure air source consisting of a portable rotary blower having an inlet damper, and flow measuring device consisting of straightening vanes and an orifice plate installed in a straight tube having properly located pressure taps. Pressure and assembly shall have its own calibrated capacity curve. Pressure and flow reading shall be taken by using "U-tube" manometers.
6. Accurately record and report methods of testing, times, and dates of test, witnesses to the test, and the results of the test. Test reports shall be neatly typewritten on standard 8-1/2 inch by 11 inch sheets and submitted in 5 copies to Architect/Engineer for approval within 5 days after test has been performed.

D. Damage resulting from tests shall be repaired or damaged materials replaced, to satisfaction of Architect/Engineer, and at no cost to Owner.

3.03 CLEANING

A. Clean duct system and force air at high velocity through duct to remove accumulated dust. To obtain sufficient air, clean half the system at a time. Protect equipment that could be harmed by excessive dirt with temporary filters, or bypass during cleaning.

B. Temporary Closure: At ends of ducts which are not connected to equipment or distribution devices at time of ductwork installation, cover with polyethylene film or other covering which will keep the system clean until installation is completed.

3.04 SCHEDULES

A. Ductwork Material:
1. Low Pressure Supply (Heating Systems): Galvanized Steel.
2. Low Pressure Supply (Cooling System): Galvanized Steel.
3. Return and Relief: Galvanized Steel.
4. Outside Air Intake: Galvanized Steel.

END OF SECTION

SECTION 23 37 00
AIR OUTLETS AND INLETS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Diffusers.

B. Registers/grilles.

1.02 RELATED REQUIREMENTS

A. Refer to Section 01 6000 - Product Requirements

B. Section 23 3100 - HVAC Ducts and Casings.

C. Section 09 91 23 - Interior Painting: Painting of ducts visible behind outlets and inlets.

1.03 REFERENCE STANDARDS

A. ADC 1062: GRD - Test Code for Grilles, Registers & Diffusers; Air Diffusion Council; 1984.

B. AMCA 500-L - Laboratory Methods of Testing Louvers for Rating; 2012.

C. ASHRAE Std 70 - Method of Testing the Performance of Air Outlets and Inlets; 2006 (R2011).

D. NFPA 90A - Standard for the Installation of Air-Conditioning and Ventilating Systems; 2021.

E. SMACNA (DCS) - HVAC Duct Construction Standards Metal and Flexible; 2005.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Product Data: Provide data for equipment required for this project. Review outlets and inlets as to size, finish, and type of mounting prior to submission. Submit schedule of outlets and inlets showing type, size, location, application, and noise level.

C. Project Record Documents: Record actual locations of air outlets and inlets.

1.05 QUALITY ASSURANCE

A. Test and rate air outlet and inlet performance in accordance with ASHRAE Std 70.

B. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of documented experience.

C. NFPA 90A for installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Krueger-HVAC: www.krueger-hvac.com/#sle.

B. Price Industries: www.price-hvac.com/#sle.

C. Titus, a brand of Air Distribution Technologies: www.titus-hvac.com/#sle.

D. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 CEILING SUPPLY: TYPE CD

A. Fabrication: Heavy gauge aluminum extrusions with factory off-white enamel finish. Inner core assembly consisting of fixed deflection louvers available in one, two, three, and four-way flow patterns. Refer to drawings for flow patterns required.

B. Core sizes as indicated on the drawings. Core sizes shall be 18"x18" unless otherwise noted.

C. Core shall be easily removable from face of diffuser.

D. Square inlet with round transition piece for connection to round duct.

E. Outer frame shall be 22"x22" square for installation in 2' square ceiling grid.

F. Design based on Titus: model TDC-AA, Krueger: Model 5SH, Price: Model AMD, Tuttle & Bailey: Model AM.

2.03 HEAVY DUTY WALL GRILLE: TYPE HDG

A. Type: Steel construction with fixed blades with 1/2 inch spacing and 38 degree deflection. Blades parallel to long dimension.

B. Frame: 1-1/4 inch margin with countersunk screw mounting and gasket.

C. Fabrication: Steel construction with 16 gage frame and 14 gage blades, with factory off-white enamel finish. Corners shall be welded with full penetration resistance welds with a reinforcing patch for extra strength. Bars shall be reinforced by perpendicular, steel support bars spaced on 6-inch maximum centers.

D. Prime coat for side wall installation for final painting in field to match wall color. Final painting by general contractor.

E. Design based on Titus model 33RL. Krueger: Model S48(H/V), Price: Model 91, Tuttle & Bailey model T116H-1.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Check location of outlets and inlets and make necessary adjustments in position to comply with architectural features, symmetry, and lighting arrangement.

C. Install diffusers to ductwork with air tight connection.

D. Provide balancing dampers on duct take-off to diffusers, and grilles and registers. If dampers are specified and provided as part of the diffuser, or grille and register assembly balancing dampers are not required.

E. Refer to drawings for diffuser sizes, air flow patterns, etc.

F. Paint ductwork visible behind air outlets and inlets matte black. Refer to Section 09 91 23.

END OF SECTION

SECTION 23 81 26.13
SPLIT-SYSTEM HEATING AND COOLING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Forced air furnaces.

B. Air cooled condensing units.

C. Indoor ductless fan & coil units.

D. Controls.

1.02 RELATED REQUIREMENTS

A. Section 01 6000 - Product Requirements

B. Section 03 30 00 - Cast-in-Place Concrete: Mounting pad for outdoor unit.

C. Section 26 05 83 - EQUIPMENT WIRING: Electrical characteristics and wiring connections and installation and wiring of thermostats and other controls components.

1.03 REFERENCE STANDARDS

A. AHRI 210/240 - Standard for Performance Rating of Unitary Air-Conditioning and Air-Source Heat Pump Equipment; 2008.

B. AHRI 520 - Performance Rating of Positive Displacement Condensing Units; 2004.

C. ASHRAE Std 15 - Safety Standard for Refrigeration Systems; 2013.

D. ASHRAE Std 23.1 - Methods of Testing for Rating Positive Displacement Refrigerant Compressors and Condensing Units; 2010.

E. ASHRAE Std 90.1 I-P - Energy Standard for Buildings Except Low-Rise Residential Buildings; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

F. NFPA 54 - National Fuel Gas Code; 2018.

G. NFPA 90A - Standard for the Installation of Air-Conditioning and Ventilating Systems; 2015.

H. NFPA 90B - Standard for the Installation of Warm Air Heating and Air-Conditioning Systems; 2015.

I. NFPA 211 - Guide for Smoke and Heat Venting; 2013, Including All Amendments.

J. UL 207 - Standard for Refrigerant-Containing Components and Accessories, Nonelectrical; Current Edition, Including All Revisions.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide rated capacities, weights, accessories, electrical nameplate data, and wiring diagrams.

C. Shop Drawings: Indicate assembly, required clearances, and location and size of field connections.

D. Design Data: Indicate refrigerant pipe sizing.

E. Manufacturer's Instructions: Indicate rigging, assembly, and installation instructions.

F. Operation and Maintenance Data: Include manufacturer's descriptive literature, operating instructions, installation instructions, maintenance and repair data, and parts listing.

G. Warranty: Submit manufacturers warranty and ensure forms have been filled out in Owner's name and registered with manufacturer.

H. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 01 60 00 - Product Requirements, for additional provisions.
   2. Extra Filters: One for each unit.

1.05 WARRANTY

A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.

B. Provide 1 year manufacturers warranty on parts from time of start-up.

C. Provide 5 year manufacturers warranty on compressor.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Carrier Corporation; _____: www.carrier.com/#sle.

B. Trane Inc; _____: www.trane.com/#sle.

C. York International Corporation / Johnson Controls; _____: www.york.com/#sle.

D. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 SYSTEM DESIGN

A. Split-System Cooling Units: Self-contained, packaged, matched factory-engineered and assembled, pre-wired indoor and outdoor units; UL listed.
   1. Cooling: Outdoor electric condensing unit with evaporator coil in central ducted indoor unit.
   2. Provide refrigerant lines internal to units and between indoor and outdoor units, factory cleaned, dried, pressurized and sealed, with insulated suction line.

B. Performance Requirements: See Drawings for additional requirements.
   1. Efficiency: Energy Efficiency Rating (EER)/Coefficient of Performance (COP) not less than requirements of ASHRAE Std 90.1; seasonal efficiency to ASHRAE Std 103.

C. Electrical Characteristics:
   1. See drawings for size and electrical requirements.
   2. Disconnect Switch: Factory mount disconnect switch on equipment.

2.03 OUTDOOR UNITS

A. Outdoor Units: Self-contained, packaged, pre-wired unit consisting of cabinet, with compressor and condenser.
   1. Cabinet: Steel with baked enamel finish, easily removed and secured access doors with safety interlock switches, glass fiber insulation with reflective liner.
   2. Construction and Ratings: In accordance with AHRI 210/240 with testing in accordance with ASHRAE Std 23.1 and UL 207.

B. Compressor: Hermetic, two speed 1800 and 3600 rpm, AHRI 520 resiliently mounted integral with condenser, with positive lubrication, crankcase heater, high pressure control, motor overload protection, service valves and drier. Provide time delay control to prevent short cycling and rapid speed changes.

C. Air Cooled Condenser: Aluminum fin and copper tube coil, AHRI 520 with direct drive axial propeller fan resiliently mounted, galvanized fan guard.

D. Accessories: Filter drier, high pressure switch (manual reset), low pressure switch (automatic reset), service valves and gauge ports, thermometer well (in liquid line).
   1. Provide thermostatic expansion valves.

E. Operating Controls:
   1. Control by room thermostat to maintain room temperature setting.

2.04 GAS FURNACE COMPONENTS

A. Burner: Atmospheric type with adjustable combustion air supply,
   1. Gas valve, two stage provides 100 percent safety gas shut-off; 24 volt combining pressure regulation, safety pilot, manual set (On-Off), pilot filtration, automatic electric valve.
   2. Combustion air damper with synchronous spring return damper motor.
   3. Non-corrosive combustion air blower with permanently lubricated motor.

B. Burner Safety Controls:
   1. Thermocouple Sensor: Prevents opening of gas valve until pilot flame is proven and stops gas flow on ignition failure.
   2. Flame Rollout Switch: Installed on burner box and prevents operation.
   3. Vent Safety Shutoff Sensor: Temperature sensor installed on draft hood and prevents operation, manual reset.
   4. Limit Control: Fixed stop at maximum permissible setting, de-energizes burner on excessive bonnet temperature, automatic resets.

C. Operating Controls:
   1. Cycle burner by room thermostat to maintain room temperature setting.
   2. Supply fan energized from bonnet temperature independent of burner controls, with adjustable timed off delay and fixed timed on delay, with manual switch for continuous fan operation.

D. Flue Termination: Concentric roof kit.

2.05 ACCESSORY EQUIPMENT

A. Room Thermostat: Wall-mounted, electric solid state microcomputer based room thermostat with remote sensor to maintain temperature setting; low-voltage; with following features:
   1. Preferential rate control to minimize overshoot and deviation from setpoint.
   2. Programming based on weekdays, Saturday and Sunday.
   3. Battery replacement without program loss.
   4. Thermostat Display:
      a. Actual room temperature.
      b. System Mode Indication: Heating, Cooling, Fan Auto, Off, and On, Auto or On, Off.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions and requirements of local authorities having jurisdiction.

B. Install in accordance with NFPA 90A and NFPA 90B.

C. Install gas fired furnaces in accordance with NFPA 54.

D. Provide vent connections in accordance with NFPA 211.

E. Install refrigeration systems in accordance with ASHRAE Std 15.

END OF SECTION

GARMANN MILLER

Division 26

Electrical

SECTION 26 01 01
GENERAL PROVISIONS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. The provisions of the General Conditions, Supplementary Conditions, and the Sections included under Division 1, General Requirements, are included as a part of this Section as though bound herein.

B. Refer to Division 23 Mechanical Specifications and to the requirements stated therein applicable to the Electrical Work, where coordination of trades is covered.

C. Refer to Division 28 Electronic Safety & Security Specifications and to the requirements stated therein applicable to the Electrical Work, where coordination of trades is covered & inclusion of Work provided.

D. The requirements of this Section shall apply to Work for Sections listed under Division 26, Electrical.

1.02 SUMMARY

A. When equipment furnished for or by the Owner is indicated on the Drawings or specified, this Contractor shall provide the proper size switches, conduit, wires, boxes, and fittings that may be required; and make connections complete. This Contractor shall verify exact requirements and locations before installation.
   1. Boxes, raceways, fittings and the like required by this contractor or any subcontractor hired by this contractor shall be coordinated by this contractor prior to footer, floor, wall, etc. types of construction for correct size

B. If the equipment, other than that which the Drawings were designed around, does not properly adapt itself to the space allotted or lend itself accessible for repair and maintenance, the Contractor shall be responsible to provide additional access panels, pipe, fittings, materials, and labor, to achieve the same end results.

C. Electrical support from bar joists shall be allowed only at panel points in top of bottom cords.
   1. Loading shall not exceed 5 pounds/S.F. or 100 pounds per panel point applied at the panel point.
   2. If support must occur between panel points, then threaded rods shall be dropped from both panel points, an adequate angle attached to both, and then the support attached to the angle as required.
   3. Suspension wires, straps, and chains such as those used to support electrical fixtures or equipment shall not be attached to or through steel roof decks.

D. Related Work Specified Elsewhere: Firestopping is Work of this Section though fire barrier sealants for walls and floors are specified in Section 07 84 00 - Firestopping. Contractors are also responsible for proper sizing of their sleeves and core-drilled holes so that they are at least 1-1/2 inches larger in diameter than the penetrating items. Sleeves and core-drilled holes made excessively large or made and not used, will be firestopped and charged to the Contractor who was responsible.

E. The Contractor shall take field measurements necessary for his Work and shall be responsible for the accurate location and size of openings, recesses, slots, ferrules, and the like.

F. The Contractor shall be required to cooperate with "Other Trades" and other Contractors in the coordination of his Work to avoid interferences with installations by other trades and Contractors.

G. Should structural difficulties prevent the setting of cabinets or running of conduits, at points shown on Drawings, necessary minor deviations therefrom, as determined by the Architect/Engineer, may be permitted and shall be made without additional costs.

H. Extra costs which might result from deviations from the Drawings, so as to avoid interferences, shall be considered a "Job Condition" and no additional compensation will be considered applicable. In the event that such interferences occur in course of the Work, due to an error, omission, or oversight by the Contractor, no additional compensation shall be allowed. Interferences which may occur during the course of construction shall be brought to the immediate attention of the Architect/Engineer, and his decision, confirmed in writing, shall be final.

I. Installation of surface mounted trough type raceway above or below switchgear, distribution panels, and/or panelboards shall be approved by engineer prior to installation.

1.03 REFERENCES

A. Work shall be in complete accordance with codes, rules, ordinances, regulations of authorities, bodies, associations, and governments, having proper and legal jurisdiction. Specifically, the following requirements shall be met in their entirety.
   1. State and Local Rules, Regulations, Codes, Statutes, and Ordinances
   2. National Fire Protection Association applicable requirements
   3. National Board of Fire Protection
   4. National Electrical Code applicable requirements
   5. Other Codes and Standards as specifically noted in each Section of the Specifications

B. Electrical equipment shall be Underwriter's approved; also, shall meet requirements established by NEC, NEMA, and ANSI and as specified hereinafter.

C. Abbreviations of authorities used in these Specifications:
   1. NEC National Electrical Code Latest Edition adopted by the National Fire Protection Association
   2. NEMA National Electrical Manufacturers Association
   3. OSHA Occupational Safety and Health Act
   4. IES Illuminating Engineering Society Standards
   5. IPCEA Insulated Power Cable Engineers Association
   6. ANSI American National Standards Institute, Inc.
   7. FCC Federal Communications Commission
   8. EIA Electronic Industries Association
   9. NAB National Association of Broadcasters
   10. NAEB National Association of Educational Broadcasters
   11. CBM Certified Ballasts Manufacturers
   12. ITL Independent Testing Laboratories
   13. ETL Electrical Testing Laboratories
   14. UL Underwriters Laboratories
   15. DLC Design Light Consortium
   16. NICET National Institute for Certification in Engineering Technologies

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Submit shop drawings and illustrations in accordance with requirements of Section 01 30 00 - Administrative Requirements.

C. Shop Drawings (By Contractor)
   1. Where limited space is available due to the nature of the Work, the requirements for shop and working drawings will apply and the Contractor is required to prepare complete shop

drawings showing the exact disposition of apparatus, equipment, conduit, and the like, and its relation to the building so there will be no irregularities or interferences on this account. Shop drawings shall be prepared after coordination with other Contractors and other trades.

2. Shop drawings will not be required to be submitted for review by the Architect/Engineer, unless expressly required herein, but may be submitted when not expressly required, at the option of the Contractor.

PART 2 EXECUTION

2.01 EXPLANATION AND PRECEDENCE OF DRAWINGS

A. For purpose of clearness and legibility, the Electrical "E" drawings are essentially diagrammatic and, although size and location of equipment are closely drawn to scale whenever possible, each Contractor shall make use of the data in all of the Contract Documents and shall verify this information at the building site.

B. The Drawings indicate required size and points of termination of wiring and other related items and they may suggest proper routes for such items to conform to structure, avoid obstructions, and preserve clearances. It is not intended that Drawings indicate every necessary offset, and it shall be the Work of the Contractor to install each item in a manner as to conform to structure, avoid obstructions, preserve headroom, and keep opening and passageways clear, without further instructions or costs to the Owner.

C. It is intended that apparatus be located symmetrical with architectural elements and shall be installed at exact height and location stipulated.

D. The Contractor shall fully inform himself regarding peculiarities and limitations of the spaces available for the installation of work and materials provided under his Contract. He shall exercise due and particular caution to determine that parts of his work are made quickly and easily accessible.

E. The Contractor shall carefully examine existing conditions, existing wiring, and other materials on the premises and compare the Drawings to the existing conditions. Variances and necessary changes shall be adjusted by appropriate modifications.

2.02 PERMITS, FEES, REGULATIONS, AND INSPECTIONS

A. Unless specifically noted otherwise, the Contractor shall arrange and pay for permits, fees, and inspections required in connection with his work.

B. Work shall be inspected by approved local and state inspection bureaus, Electrical Inspection Agency or authority, and electric utility.

C. Upon completion of the Work, the Contractor shall furnish to the Architect/Engineer a certification of inspection and approval from said Bureau or Agency before final payment on contract will be allowed.

2.03 PERMANENT UTILITY CONNECTIONS

A. The Contractor shall make his own arrangements with the utility companies for connection of the permanent utilities.

2.04 HOISTS, RIGGING, TRANSPORTATION, AND SCAFFOLDING

A. The Contractor shall provide scaffolding, staging, cribbing, tackle, hoists, and rigging necessary for placing of his materials and equipment in their proper places in the Project. Temporary work shall be removed from the premises when its use is no longer required on the job.

B. The Contractor shall pay costs for transportation of materials and equipment to the jobsite and shall include such costs in his proposal.

C. Scaffolding and hoisting equipment shall comply with requirements of pertinent Federal, State, and Local Laws and Codes.

2.05 PROTECTION

A. In addition to other requirements of the Contract, the Contractor shall provide various types of protection as follows:
   1. Protect finished floors from chips and cutting oil by the use of metal chip receiving pan and an oil proof floor cover.
   2. Protect equipment and finished surfaces from welding and cutting spatters with baffles and spatter blankets.
   3. Protect equipment, finished surfaces from paint droppings, insulation adhesive, and sizing droppings by use of drop cloths.

B. Switchboards, panelboards, light fixtures, and other electrical equipment shall be stored at the site with openings and bearings covered to exclude dust and moisture. Stockpiled pipe shall be placed on dunnage and protected from weather and from entry of foreign material.

C. The Contractor shall be responsible for the protection of finished work of other trades from damage or defacement by his operations and shall remedy such damage at his own expense.

2.06 EMERGENCY REPAIRS OR OPERATION

A. The Owner reserves the right to make emergency repairs and protection of the equipment and systems in operation without voiding the Contractor's guarantee bond or relieving the Contractor of his responsibility during the bonding period.

2.07 PROVISIONS FOR LATER INSTALLATIONS

A. Where Work cannot be installed as the structure is being erected, the Contractor for such Work shall provide and arrange for the building-in of boxes, sleeves, inserts, fixtures, and devices necessary to permit installation of the omitted work during later phases of construction. The Contractor shall arrange for layout, chases, holes, and other openings which must be provided in masonry, concrete, and other work.

B. The Contractor shall be responsible for informing himself of the nature and arrangement of the materials and constructions to which his work attaches or passes through.

2.08 DEMONSTRATION OF COMPLETE ELECTRICAL SYSTEM

A. Provide a minimum of 2 hours total instruction to personnel selected by the Owner. Instructions shall include the following:
   1. Show equipment locations and explain how the various systems function, including: fire alarm system, power system, generator, sound and lighting controls.
   2. Refer to operating instructions manual for record and clarify.
   3. Coordinate written and verbal instructions so that each is understood by personnel.

B. Provide additional instructions to Owner's personnel as stipulated in other subsections of Division 26.

2.09 FINAL COMPLETION

A. Work shall be cleaned prior to Substantial Completion of the Work.

B. Retouch or repaint factory painted prime and finish coats, where scratched or damaged. Whenever retouching will not be satisfactory, in the opinion of the Architect/Engineer, the Architect/Engineer has the option to require complete repainting until the desired appearance is obtained.

C. Remove temporary wiring as soon as permanent system(s) or portions thereof are in operating condition and have been inspected and approved.

D. Lamps, fixtures, lenses, and reflectors shall be cleaned by the Contractor no sooner than 10 days prior to Substantial Completion of the Work.

E. The Contractor shall clean equipment; restore damaged materials; remove grease, oil, chemical, paint spots, and stains.

F. On completion of his Work, the Contractor shall remove and see that each of his subcontractors removes from the site tools, equipment, surplus materials, and rubbish pertaining to his operations, and pay costs for such removal and disposition.

2.10 CUTTING AND PATCHING

A. The Contractor shall do cutting and patching of building materials and piping, as required for the installation of his Work, but no structural members shall be cut without the approval of the Architect and such cutting shall be done in a manner directed by the Architect.

B. Patching of and repair of damage to Work in place shall be done in a neat and workmanlike manner, meeting with the approval of the Architect. Contractor whose operations require cutting of work in place, or who causes damage which entails repairs of such work, shall employ mechanics of the particular trade whose work must be cut or which is damaged, and shall pay the costs of such patching or repair.

C. Conduits penetrating masonry walls shall not interrupt the vertical masonry wall reinforcing. Coordinate the location of reinforcement with Division 4. Wherever more than 2 conduits 2 inches or larger are to pass through a masonry wall in the same location or where conduits of any size in a row equals a length of 3 feet or greater, prior approval from the Architect shall be required before disturbing the wall. Wherever multiple conduits pass through masonry walls provide a minimum of 4 inches between adjacent penetrations.

D. The Contractor shall caulk around all conduit penetrations in non-fire rated wall with sealant.

2.11 GUARANTEE AND WARRANTY

A. The Contractor shall submit his and each equipment manufacturer's written certificates, warranting that each item of equipment furnished complies with the requirements of the Drawings and Specifications. The electrical system shall be warranted for one year from the date of substantial completion.

2.12 SUPERVISION AND COOPERATION

A. Work done by the Contractor under this Division shall include the services of an experienced superintendent, who shall be constantly in charge of the Work, together with the qualified journeymen, helpers, and laborers required to properly unload, install, connect, adjust, start and operate, and test the Work involved, including related equipment and materials furnished under other contracts or by the Owner.

2.13 MAINTENANCE AND OPERATING MANUALS AND INSTRUCTIONS

A. Comply with Section 01 78 00 - Closeout Submittals and the following:

B. Bind the written operating instructions, shop drawings, equipment catalog cuts, and manufacturer's instructions into the binder. Material to be assembled as follows:

1. First Page - Title of Job, Tipp City Seniors, Inc, 528 North Hyatt Street, Date of Submittal, Name of Contractor, and Garmann/Miller & Associates Inc. Emergency operating instructions and/or list of service organizations (including address and telephone numbers) capable of rendering emergency service on 24 hour calls.
2. Second Page - Index
3. Third Page - Introduction to first section containing a complete written description of the system.
4. First Section - Written description of system contents, where actually located in building, how each part functions individually, and how system works as a whole. Conclude with a list of items requiring service and either state the service needed or refer to the manufacturer's data in the binder that described the proper service.

5. Second Section - A copy of each approved shop drawing (clearly marked for item furnished), with an index at the beginning of the section. Provide a separate list of lighting fixtures used on the job; list shall include, but not be limited to: Plan type, manufacturer's catalog number, and voltage, number of lamps, lamp type, ballast catalog number, manufacturer's name and quantity (when required), catalog number and quantity of any replacement glass and plastic parts.
6. Third Section - A copy of each manufacturer's operating instructions with an index at the beginning of the section.
7. Fourth Section - A list of equipment used on the job, Contractor's purchase order numbers, supplier's name and address.

C. One (1) electronic copy of the Operation and Maintenance Manuals shall be placed on a Thumb Drive, or other form of Mass Storage Device, for the Owners use. Files must be in a PDF format or format approved by the Owner.
   1. PDF shall be indexed/bookmarked to allow a quick search to the relevant material.

2.14 RECORD DRAWINGS

A. The Contractor shall keep a running record of each change and deviation from the Drawings. Records shall be kept clean and undamaged upon a set of drawings used for no other purpose. Upon completion of the Project, the Contractor shall submit to Garmann/Miller & Associates Inc. one complete set of Drawings which have been corrected to show deviations. With the submittal shall be 2 sets of prints made from the corrected Drawings for a total of 3 sets of record (as-built) drawings.

B. Record Drawings shall show:
   1. Size, type, and capacity of materials, devices, or pieces of equipment.
   2. Location of devices or pieces of equipment.
   3. Location of outlets or sources in building service systems.
   4. Routing of piping, conduit, ducts, or other building services.
   5. Actual circuit number.
   6. Actual luminaires (by manufacturer catalog number) installed.
   7. Building plan and devices shall be a scale of original construction documents.
   8. These drawings shall also record the location of concealed electric service, conduit, and other piping by indication of measured dimensions to each such line from readily identifiable and accessible walls or corners of the building.
   9. Record drawings must be complete and accurate with regard to concealed conduit, raceways, wiring, and like equipment or devices. Unless record drawings are sufficiently accurate to permit immediate location and identification of concealed work with a minimum of cutting, record drawings will be considered inadequate and the contract work deemed incomplete.

C. One (1) electronic copy of the Record Drawings shall be placed on a Thumb Drive, or other form of Mass Storage Device, for the Owners use. Files must be in a PDF format or format approved by the Owner.

END OF SECTION

SECTION 26 05 03
WORK IN EXISTING BUILDINGS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. The provisions of the General Conditions, Supplementary Conditions, and the Sections included under Division 1, General Requirements, and of Section 26 01 01 - GENERAL PROVISIONS , are included as a part of this Section as though bound herein.

1.02 SUMMARY

A. During phasing of the Work and General Construction Schedule, all existing systems, including power, lighting, fire alarm, telephone system, public address system (intercom system), etc., shall be maintained in operation, even if it requires temporary relocation, until the new work and new system is completed and operational; at which time the old work is to be removed.

B. This Contractor shall examine the existing site and familiarize himself with the existing conditions that will in any manner affect his work under this contract and include these conditions and required work in his bid.

C. General - Electrical fixtures, devices, panelboards, and other items of electrical equipment located in remodeled portions of the existing building which become obsolete or are shown to be removed, shall be disconnected and removed by the Contractor. Where existing work is removed, remove associated wiring, terminations, and obsolete exposed and interfering conduit and work.

D. Remaining lights, switches, receptacles, motors, etc., not disturbed in the remodeling shall be checked for proper operation, and circuits opened by the remodeling work shall be properly reconnected.

E. Contractor shall be responsible for cutting and patching of existing walls, floors, and ceilings required for the installation of electrical work in the remodeled portions of the existing building. Openings shall be neatly drilled or cut.

F. Patching shall be performed by a workman skilled in the trade involved, and patch work shall match the existing surface and finish in a manner acceptable to the Architect.

G. Electrical work installed in finished rooms of the existing building shall be installed in a concealed manner.

H. Painting of patched work in the existing building will be the responsibility of this Contractor.

I. Install necessary conduit and wiring for new luminaires, panelboards, outlets, and any other equipment, as indicated on the Drawings and as specified to be installed in the existing building.

END OF SECTION

SECTION 26 05 05
MINOR ELECTRICAL DEMOLITION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Electrical demolition.

1.02 RELATED REQUIREMENTS

A. Section 01 70 00 - Execution and Closeout Requirements: Additional requirements for alterations work.

B. Section 02 41 00 - Demolition.

PART 2 PRODUCTS

2.01 MATERIALS AND EQUIPMENT

A. Materials and equipment for patching and extending work: As specified in individual sections.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify field measurements and circuiting arrangements are as indicated.

B. Verify that abandoned wiring and equipment serve only abandoned facilities.

C. Demolition drawings are based on casual field observation and existing record documents.

D. Report discrepancies to Garmann/Miller & Associates Inc. before disturbing existing installation.

E. Beginning of demolition means installer accepts existing conditions.

3.02 PREPARATION

A. Disconnect electrical systems in walls, floors, and ceilings to be removed.

B. Coordinate utility service outages with utility company. It is the Electrical Contractor's responsibility to provide all site electrical disconnections required for demolition. Coordinate this work with the General Contractor.

C. Provide temporary wiring and connections to maintain existing systems in service during construction. When work must be performed on energized equipment or circuits, use personnel experienced in such operations.

D. Existing Electrical Service: Maintain existing system in service until new system is complete and ready for service. Disable system only to make switchovers and connections. Minimize outage duration.
   1. Obtain permission from Owner at least 24 hours before partially or completely disabling system.
   2. Make temporary connections to maintain service in areas adjacent to work area.

E. Existing Fire Alarm System: Maintain existing system in service throughout construction. Disable system only to make switchovers and connections. Minimize outage duration.
   1. Notify Owner before partially or completely disabling system.
   2. Notify local fire service.
   3. Make notifications at least 24 hours in advance.
   4. Make temporary connections to maintain service in areas adjacent to work area.

3.03 DEMOLITION AND EXTENSION OF EXISTING ELECTRICAL WORK

A. Remove, relocate, and extend existing installations to accommodate new construction.

B. Remove abandoned wiring to source of supply.

C. Remove any abandoned wire/cable found above ceiling that is not labeled for future use.

D. Remove exposed abandoned conduit, including abandoned conduit above accessible ceiling finishes. Cut conduit flush with walls and floors, and patch surfaces.

E. Disconnect abandoned outlets and remove devices. Remove abandoned outlets if conduit servicing them is abandoned and removed. Provide blank cover for abandoned outlets that are not removed.

F. Disconnect and remove abandoned panelboards and distribution equipment.

G. Disconnect and remove electrical devices and equipment serving utilization equipment that has been removed.

H. Disconnect and remove abandoned luminaires. Remove brackets, stems, hangers, and other accessories.

I. Repair adjacent construction and finishes damaged during demolition and extension work.

J. Maintain access to existing electrical installations that remain active. Modify installation or provide access panel as appropriate.

K. Extend existing installations using materials and methods compatible with existing electrical installations, or as specified.

3.04 CLEANING AND REPAIR

A. See Section 01 74 19 - Construction Waste Management and Disposal for additional requirements.

B. Clean and repair existing materials and equipment that remain or that are to be reused.

C. Panelboards: Clean exposed surfaces and check tightness of electrical connections. Replace damaged circuit breakers and provide closure plates for vacant positions. Provide typed circuit directory showing revised circuiting arrangement.

D. Luminaires: Remove existing luminaires for cleaning. Use mild detergent to clean all exterior and interior surfaces; rinse with clean water and wipe dry. Replace lamps, ballasts and broken electrical parts.

END OF SECTION

SECTION 26 05 06
TEMPORARY WORK

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. The provisions of the General Conditions, Supplementary Conditions, and the Sections included under Division 1, General Requirements, are included as a part of this Section as though bound herein.

B. Refer to Section 01 50 00 - Temporary Facilities and Controls for additional requirements.

1.02 SUMMARY

A. Except when otherwise stipulated, completed portions of the permanent installation or materials for use in the permanent installation shall not be used in temporary work without specific permission.

1. Installed raceways for the permanent installation may be utilized for installation of temporary wiring.

B. Overload protection and grounding for circuits and equipment of the temporary light and power system shall comply with applicable codes relating to permanent work. Panelboards and other protective equipment shall be furnished and installed as required by field conditions.

C. Contractor shall locate temporary electric service main disconnect in an approved enclosure with lock. Upon request, contractor shall arrange to daily disconnect electric power on load side of "Main(s)" and lock the enclosure(s) containing same. Solid grounding of the temporary electric service is required.

D. Provide ground fault interrupter circuit breakers for branch circuits in accord with codes and regulations, including "OSHA" and "IOSHA".

E. Lighting fixtures employed shall be of the type, quality, and quantity required to provide a temporary lighting system in accord with codes and regulations, including "OSHA" and "IOSHA", and same shall not be on the same circuits with receptacle and other devices.

F. Upon request, the Contractor shall submit shop drawings and detail information for temporary service and distribution to the Architect/Engineer for approval.

END OF SECTION

SECTION 26 05 19
CONDUCTORS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Metal-clad cable.

B. Wire and cable for 600 volts and less.

C. Wiring connectors.

D. Electrical tape.

E. Oxide inhibiting compound.

F. Wire pulling lubricant.

G. Cable ties.

1.02 RELATED REQUIREMENTS

A. Section 26 05 05 - MINOR ELECTRICAL DEMOLITION : Disconnection, removal, and/or extension of existing electrical conductors and cables.

B. Section 31 23 16 - Excavation.

C. Section 31 23 16.13 - Trenching: Excavating, bedding, and backfilling.

D. Section 31 23 23 - Fill: Bedding and backfilling.

1.03 REFERENCE STANDARDS

A. ASTM B3 - Standard Specification for Soft or Annealed Copper Wire; 2013.

B. ASTM B8 - Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft; 2011.

C. ASTM B33 - Standard Specification for Tin-Coated Soft or Annealed Copper Wire for Electrical Purposes; 2010 (Reapproved 2014).

D. ASTM B787/B787M - Standard Specification for 19 Wire Combination Unilay-Stranded Copper Conductors for Subsequent Insulation; 2004 (Reapproved 2014).

E. ASTM B800 - Standard Specification for 8000 Series Aluminum Alloy Wire for Electrical Purposes - Annealed and Intermediate Tempers; 2005 (Reapproved 2011).

F. ASTM B801 - Standard Specification for Concentric-Lay-Stranded Conductors of 8000 Series Aluminum Alloy Wire for Subsequent Covering of Insulation; 2007 (Reapproved 2012).

G. ASTM D3005 - Standard Specification for Low-Temperature Resistant Vinyl Chloride Plastic Pressure-Sensitive Electrical Insulating Tape; 2010.

H. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2015.

I. NECA 104 - Recommended Practice for Installing Aluminum Building Wire and Cable; 2012.

J. NECA 120 - Standard for Installing Armored Cable (AC) and Metal-Clad Cable (MC); 2012.

K. NEMA WC 70 - Nonshielded Power Cable 2000 V or Less for the Distribution of Electrical Energy; 2009.

L. NETA ATS - Standard For Acceptance Testing Specifications For Electrical Power Equipment And Systems; 2021.

M. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

N. UL 44 - Thermoset-Insulated Wires and Cables; Current Edition, Including All Revisions.

O. UL 83 - Thermoplastic-Insulated Wires and Cables; Current Edition, Including All Revisions.

P. UL 486A-486B - Wire Connectors; Current Edition, Including All Revisions.

Q. UL 486C - Splicing Wire Connectors; Current Edition, Including All Revisions.

R. UL 510 - Polyvinyl Chloride, Polyethylene, and Rubber Insulating Tape; Current Edition, Including All Revisions.

S. UL 1569 - Metal-Clad Cables; Current Edition, Including All Revisions.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide manufacturer's standard catalog pages and data sheets for conductors and cables, including detailed information on materials, construction, ratings, listings, and available sizes, configurations, and stranding.

C. Design Data: Indicate sizing for aluminum conductors substituted for copper conductors. Include proposed modifications to raceways, boxes, wiring gutters, enclosures, etc. to accommodate substituted conductors.

D. Manufacturer's Installation Instructions: Indicate application conditions and limitations of use stipulated by product testing agency. Include instructions for storage, handling, protection, examination, preparation, and installation of product.

E. Project Record Documents: Record actual installed circuiting arrangements. Record actual routing of all conduits 2" and larger and all underground conduits.

1.05 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Receive, inspect, handle, and store conductors and cables in accordance with manufacturer's instructions.

1.07 FIELD CONDITIONS

A. Do not install or otherwise handle thermoplastic-insulated conductors at temperatures lower than 14 degrees F, unless otherwise permitted by manufacturer's instructions. When installation below this temperature is unavoidable, notify Architect and obtain direction before proceeding with work.

B. Products: Furnish products listed and classified by Underwriters Laboratories Inc. as suitable for the purpose specified and indicated.

PART 2 PRODUCTS

2.01 CONDUCTOR AND CABLE MANUFACTURERS

A. Cerro Wire & Cable Company.

B. Encore Wire Corporation: www.encorewire.com.

C. Industrial Wire & Cable, Inc: www.iewc.com.

D. Southwire Company .

E. Alcan Cable

F. Phelps Dodge

G. General Cable

H. Colonial Wire & Cable Company

I. Substitutions: See Section 01 6000 - Product Requirements.

2.02 CONDUCTOR AND CABLE GENERAL REQUIREMENTS

A. Provide products that comply with requirements of NFPA 70.

B. Provide products listed, classified, and labeled as suitable for the purpose intended.

C. Unless specifically indicated to be excluded, provide all required conduit, boxes, wiring, connectors, etc. as required for a complete operating system.

D. Comply with NEMA WC 70.

E. Thermoplastic-Insulated Conductors and Cables: Listed and labeled as complying with UL 83.

F. Thermoset-Insulated Conductors and Cables: Listed and labeled as complying with UL 44.

G. Conductor Material:
   1. Provide copper conductors except where aluminum conductors are specifically indicated. Substitution of aluminum conductors for copper is not permitted. Conductor sizes indicated are based on copper unless specifically indicated as aluminum. Conductors designated with the abbreviation "AL" indicate aluminum.
   2. Copper Conductors: Soft drawn annealed, 98 percent conductivity, uncoated copper conductors complying with ASTM B3, ASTM B8, or ASTM B787/B787M unless otherwise indicated.
   3. Tinned Copper Conductors: Comply with ASTM B33.
   4. Aluminum Conductors (only where specifically indicated or permitted for substitution): AA-8000 series aluminum alloy conductors recognized by ASTM B800 and compact stranded in accordance with ASTM B801 unless otherwise indicated.

H. Minimum Conductor Size:
   1. Branch Circuits: 12 AWG.
      a. Exceptions:
         1) 20 A, 120 V circuits longer than 75 feet: 10 AWG, for voltage drop.
         2) 20 A, 120 V circuits longer than 150 feet: 8 AWG, for voltage drop.
         3) 20 A, 277 V circuits longer than 150 feet: 10 AWG, for voltage drop.
   2. Control Circuits: 18 AWG.

I. Conductor Color Coding:
   1. Color code conductors as indicated unless otherwise required by the authority having jurisdiction. Maintain consistent color coding throughout project.
   2. Color Coding Method: Integrally colored insulation.
   3. Color Code:
      a. 208Y/120 V, 3 Phase, 4 Wire System:
         1) Phase A: Black.
         2) Phase B: Red.
         3) Phase C: Blue.
         4) Neutral/Grounded: White.
      b. Equipment Ground, All Systems: Green.

2.03 SINGLE CONDUCTOR BUILDING WIRE

A. Description: Single conductor insulated wire.

B. Conductor Stranding:
   1. Feeders and Branch Circuits:Stranded.

C. Insulation Voltage Rating: 600 V.

D. Insulation:
   1. Copper Building Wire: Type THHN/THWN or THHN/THWN-2, except as indicated below.
      a. Size 4 AWG and Larger: Type XHHW-2.
      b. Installed Underground: Type XHHW-2.

2. Aluminum Building Wire (only where specifically indicated or permitted for substitution): Type XHHW-2.

2.04 METAL-CLAD CABLE

A. Description: NFPA 70, Type MC cable listed and labeled as complying with UL 1569, and listed for use in classified firestop systems to be used.

B. Conductor Stranding: Stranded or solid.

C. Insulation Voltage Rating: 600 V.

D. Insulation: Type THHN, THHN/THWN, or THHN/THWN-2.

E. Grounding: Full-size integral equipment grounding conductor.

F. Armor: Aluminum or steel, interlocked tape.

2.05 WIRING CONNECTORS

A. Description: Wiring connectors appropriate for the application, suitable for use with the conductors to be connected, and listed as complying with UL 486A-486B or UL 486C as applicable.

B. Wiring Connectors for Splices and Taps:
   1. Copper Conductors Size 8 AWG and Smaller: Use twist-on insulated spring connectors.
   2. Copper Conductors Size 6 AWG and Larger: Use mechanical connectors or compression connectors.
   3. Connectors for Aluminum Conductors: Use compression connectors.

C. Wiring Connectors for Terminations:
   1. Copper Conductors Size 8 AWG and Larger: Use mechanical connectors or compression connectors where connectors are required.
   2. Aluminum Conductors: Use compression connectors or mechanical connectorsfor all connections.
   3. Stranded Conductors Size 10 AWG and Smaller: Use crimped terminalsfor connections to terminal screws.

D. Do not use insulation-piercing or insulation-displacement connectors designed for use with conductors without stripping insulation.

E. Do not use push-in wire connectors as a substitute for twist-on insulated spring connectors.

F. Twist-on Insulated Spring Connectors: Rated 600 V, 221 degrees F for standard applications and 302 degrees F for high temperature applications; pre-filled with sealant and listed as complying with UL 486D for damp and wet locations.

G. Mechanical Connectors: Provide bolted type or set-screw type.

H. Compression Connectors: Provide circumferential type or hex type crimp configuration.

I. Crimped Terminals: Nylon-insulated, with insulation grip and terminal configuration suitable for connection to be made.

2.06 ACCESSORIES

A. Electrical Tape:
   1. Vinyl Insulating Electrical Tape: Complying with ASTM D3005 and listed as complying with UL 510; minimum thickness of 7 mil; resistant to abrasion, corrosion, and sunlight; conformable for application down to 0 degrees F and suitable for continuous temperature environment up to 221 degrees F.

B. Oxide Inhibiting Compound: Listed; suitable for use with the conductors or cables to be installed.

C. Wire Pulling Lubricant: Listed; suitable for use with the conductors or cables to be installed and suitable for use at the installation temperature.

D. Cable Ties: Material and tensile strength rating suitable for application.

E. Split Bolt Connectors.

F. Solderless Pressure Connectors.

G. Spring Wire Connectors.

H. Compression Connectors.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that interior of building has been protected from weather.

B. Verify that work likely to damage wire and cable has been completed.

C. Verify that raceways, boxes, and equipment enclosures are installed and are properly sized to accommodate conductors and cables in accordance with NFPA 70.

D. Verify that raceway installation is complete and supported.

E. Verify that field measurements are as indicated.

F. Verify that conditions are satisfactory for installation prior to starting work.

3.02 PREPARATION

A. Clean raceways thoroughly to remove foreign materials before installing conductors and cables.

3.03 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Perform work in accordance with NECA 1 (general workmanship).

C. Install aluminum conductors in accordance with NECA 104.

D. Install metal-clad cable (Type MC) in accordance with NECA 120.

E. Installation in Raceway:
   1. Tape ends of conductors and cables to prevent infiltration of moisture and other contaminants.
   2. Pull all conductors and cables together into raceway at same time.
   3. Do not damage conductors and cables or exceed manufacturer's recommended maximum pulling tension and sidewall pressure.
   4. Use suitable wire pulling lubricant where necessary, except when lubricant is not recommended by the manufacturer.

F. Paralleled Conductors: Install conductors of the same length and terminate in the same manner.

G. Secure and support conductors and cables in accordance with NFPA 70 using suitable supports and methods approved by the authority having jurisdiction. Provide independent support from building structure. Do not provide support from raceways, piping, ductwork, or other systems.

H. Terminate cables using suitable fittings.
   1. Metal-Clad Cable (Type MC):
      a. Use listed fittings.
      b. Cut cable armor only using specialized tools to prevent damaging conductors or insulation. Do not use hacksaw or wire cutters to cut armor.
      c. Do not use direct-bearing set-screw type fittings for cables with aluminum armor.

I. Install conductors with a minimum of 12 inches of slack at each outlet.

J. Neatly train and bundle conductors inside boxes, wireways, panelboards and other equipment enclosures.

K. Group or otherwise identify neutral/grounded conductors with associated ungrounded conductors inside enclosures in accordance with NFPA 70.

L. Make wiring connections using specified wiring connectors.
   1. Make splices and taps only in accessible boxes. Do not pull splices into raceways or make splices in conduit bodies or wiring gutters.
   2. Remove appropriate amount of conductor insulation for making connections without cutting, nicking or damaging conductors.
   3. Do not remove conductor strands to facilitate insertion into connector.
   4. Clean contact surfaces on conductors and connectors to suitable remove corrosion, oxides, and other contaminates. Do not use wire brush on plated connector surfaces.
   5. Connections for Aluminum Conductors: Fill connectors with oxide inhibiting compound where not pre-filled by manufacturer.
   6. Mechanical Connectors: Secure connections according to manufacturer's recommended torque settings.
   7. Compression Connectors: Secure connections using manufacturer's recommended tools and dies.

M. Insulate splices and taps that are made with uninsulated connectors using methods suitable for the application, with insulation and mechanical strength at least equivalent to unspliced conductors.

N. Insulate ends of spare conductors using vinyl insulating electrical tape.

O. Install firestopping to preserve fire resistance rating of partitions and other elements, using materials and methods specified in Section 07 84 00 - Firestopping.

P. Unless specifically indicated to be excluded, provide final connections to all equipment and devices, including those furnished by others, as required for a complete operating system.

Q. In general, install EMT conduit for branch circuits throughout the building. EMT to junction box in room for lighting circuits. MC cable may be used from junction box to light fixtures. MC cable may also be used in metal stud walls for receptacles, but EMT shall still be used from the panel to a junction box in the room, between junction boxes above ceiling, and between each wall stub-out location.

R. Include an equipment ground conductor with each circuit.

S. Provide dedicated neutrals for all circuits. Do not share neutrals.

T. Wire and cable routing indicated is approximate unless dimensioned.

U. Where wire and cable destination is indicated and routing is not shown, determine exact routing and lengths required.

V. Install wire and cable in accordance with the NECA "Standard of Installation."

W. Protect exposed cable from damage.

X. Support cables above accessible ceiling, using spring metal clips or metal cable ties to support cables from structure or ceiling suspension system. Do not rest cable on ceiling panels.

Y. Use suitable cable fittings and connectors.

3.04 FIELD QUALITY CONTROL

A. See Section 01 43 00 - Quality Assurance, for additional requirements.

B. Inspect and test in accordance with NETA ATS, except Section 4.

C. Perform inspections and tests listed in NETA ATS, Section 7.3.2. The insulation resistance test is required for all conductors. The resistance test for parallel conductors listed as optional is not required.

D. Correct deficiencies and replace damaged or defective conductors and cables.

END OF SECTION

SECTION 26 05 26
GROUNDING AND BONDING

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. The provisions of the General Conditions, Supplementary Conditions, and the Sections included under Division 1, General Requirements, are included as a part of this Section as though bound herein.

1.02 RELATED REQUIREMENTS

1.03 SUMMARY

A. Provide a complete grounding system which shall be in accordance with the National Electric Code, State and Local Ordinances, and utility company requirements, and as indicated on the Drawings.

1.04 QUALITY ASSURANCE

A. Grounding shall be in accord with NEC, Article 250, and others which apply. Equipment shall be provided with a suitable ground lug, except for distribution equipment (switchboards, panels, and the like) which shall be provided with a suitable ground bus.

B. UL 467

C. Bare solid copper conductors ASTM B3

D. Bare stranded copper conductors ASTM B8

E. Underground distribution components IEEE C2

PART 2 PRODUCTS

2.01 MATERIALS

A. Grounding connection "make-up" shall be with Erico Products Company "Cadweld", Burndy "Thermoweld", Harger "Ultraweld", or 3M of the type required at locations where a ground bus, lug, or connector is not stipulated.

B. Minimum 12 AWG 600V insulated copper equipment grounding conductor insulated with green colored insulation.

C. Stranded cable grounding electrode conductors.

D. Bare copper conductors.

E. Copper clad steel 3/4" grounding rods.

F. Grounding bus consisting of bare annealed 1/4 inch by 2 inch copper bars of rectangular cross section.

PART 3 EXECUTION

3.01 INSTALLATION

A. The following requires permanent grounds: Electrical service equipment and enclosures, conduits, and other conductor enclosures; neutral or identified conductor of interior system, main switchboard, power and lighting panelboards, control centers; noncurrent carrying metal parts of fixed equipment, such as transformers, motors, starter and controller cabinets, transfer switches, generator, instrument cases, lighting fixtures, switches, receptacles, equipment in hazardous locations; and others as indicated and/or required by NEC.

B. The grounding conductor shall be continuous wire and carried throughout the power system. Properly ground the neutral point of secondary transformers to conduit and to system ground wire. (Wire size per NEC). Grounding wire looping from transformer to transformer is not allowed.

C. System neutral conductor shall be identified throughout and shall be grounded at the point of service only.

D. Metallic conduit shall be electrically continuous throughout and be grounded (bonded) at the service entrance. Feeder conduits (one inch and larger) shall also be grounded at pull boxes, junction boxes, cabinets, and terminal points using grounding knockouts and bushings, to the equipment grounding bar or lugs.

E. Cord connected appliance frames shall be grounded to the system grounding conductor and to the conduit system through a grounding conductor in the cord.

F. Flexible conduit connections to equipment and motors, and the like, shall have an equipment grounding conductor, size per NEC 250.

G. A green pigtail shall be installed from grounding slots of grounding outlets to system grounding conductor and to outlet box in each instance.

H. A green pigtail shall be installed from the attachment bar of toggle switches to system grounding conductor and to outlet box.

I. Green bonding jumper shall be installed in flexible metallic conduit, size per NEC 250.

J. Provide a grounding conductor, sized per NEC 250 from the ground bus at the service entrance to each side of any cold water meter; to the reinforcing bars of the concrete structure; to building; to the steel structure of the building. Similarly jumper the steel structure at building expansion joints, and "catwalks" to the steel structure.

K. Provide grounding of structural steel and ground field as denoted on the accompanying Drawings.

L. A separate equipment grounding conductor, sized in accord with NEC 250 shall be installed with each and every conduit and shall be attached to ground bars, lugs, equipment, frames, devices, pull boxes, junction boxes, outlet boxes, and the like.

M. Conduit is not an allowable grounding means.

N. Ground manholes and handholes metal components with grounding electrode and 1/0 AWG bare copper conductor, provide a ground rod.

3.02 TESTING

A. The contractor must test the primary earth ground and provide the testing results to the Engineer. The resistance shall be 5 ohms or less. If the value tested is greater than 5 ohms, additional ground rods shall be added until the test reading is 5 ohms or less.

END OF SECTION

SECTION 26 05 29
HANGERS AND SUPPORTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Support and attachment requirements and components for equipment, conduit, cable, boxes, and other electrical work.

B. Conduit and equipment supports.

C. Anchors and fasteners.

1.02 REFERENCE STANDARDS

A. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2024.

B. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2023.

C. ASTM B633 - Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel; 2019.

D. MFMA-4 - Metal Framing Standards Publication; 2004.

E. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2015.

F. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.03 QUALITY ASSURANCE

A. Comply with NFPA 70.

B. Comply with applicable building code.

C. Products: Listed and classified by Underwriters Laboratories Inc. as suitable for the purpose specified and indicated.

PART 2 PRODUCTS

2.01 SUPPORT AND ATTACHMENT COMPONENTS

A. General Requirements:
   1. Provide all required hangers, supports, anchors, fasteners, fittings, accessories, and hardware as necessary for the complete installation of electrical work.
   2. Provide products listed, classified, and labeled as suitable for the purpose intended, where applicable.
   3. Where support and attachment component types and sizes are not indicated, select in accordance with manufacturer's application criteria as required for the load to be supported with a minimum safety factor of 1.5. Include consideration for vibration, equipment operation, and shock loads where applicable.
   4. Do not use products for applications other than as permitted by NFPA 70 and product listing.
   5. Steel Components: Use corrosion resistant materials suitable for the environment where installed.
      a. Zinc-Plated Steel: Electroplated in accordance with ASTM B633.
      b. Galvanized Steel: Hot-dip galvanized after fabrication in accordance with ASTM A123/A123M or ASTM A153/A153M.

B. Conduit and Cable Supports: Straps, clamps, etc. suitable for the conduit or cable to be supported.
   1. Conduit Straps: One-hole or two-hole type; steel or malleable iron.

2. Conduit Clamps: Bolted type unless otherwise indicated.

C. Outlet Box Supports: Hangers, brackets, etc. suitable for the boxes to be supported.

D. Metal Channel (Strut) Framing Systems: Factory-fabricated continuous-slot metal channel (strut) and associated fittings, accessories, and hardware required for field-assembly of supports.
   1. Comply with MFMA-4.

E. Hanger Rods: Threaded zinc-plated steel unless otherwise indicated.

F. Anchors and Fasteners:
   1. Unless otherwise indicated and where not otherwise restricted, use the anchor and fastener types indicated for the specified applications.

2.02 MANUFACTURERS

A. Threaded Rod Company

B. All-Ohio Threaded Rod Company

C. Precision Brand

D. Substitutions: See Section 01 60 00 - Product Requirements.

2.03 MATERIALS

A. Hangers, Supports, Anchors, and Fasteners - General: Corrosion-resistant materials of size and type adequate to carry the loads of equipment and conduit, including weight of wire in conduit.

B. Supports: Fabricated of structural steel or formed steel members; galvanized.

C. Anchors and Fasteners:
   1. Concrete Structural Elements: Use precast inserts, expansion anchors, or preset inserts.
   2. Steel Structural Elements: Use beam clamps, steel spring clips, steel ramset fasteners, or welded fasteners.
   3. Concrete Surfaces: Use self-drilling anchors or expansion anchors.
   4. Hollow Masonry, Plaster, and Gypsum Board Partitions: Use toggle bolts or hollow wall fasteners.
   5. Solid Masonry Walls: Use expansion anchors or preset inserts.
   6. Sheet Metal: Use sheet metal screws.
   7. Wood Elements: Use wood screws.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Perform work in accordance with NECA 1 (general workmanship).

C. Provide independent support from building structure. Do not provide support from piping, ductwork, or other systems.

D. Unless specifically indicated or approved by Architect, do not provide support from suspended ceiling support system or ceiling grid.

E. Unless specifically indicated or approved by Architect, do not provide support from roof deck.

F. Do not penetrate or otherwise notch or cut structural members without approval of Structural Engineer.

G. Equipment Support and Attachment:
   1. Use metal fabricated supports or supports assembled from metal channel (strut) to support equipment as required.

2. Use metal channel (strut) secured to studs to support equipment surface-mounted on hollow stud walls when wall strength is not sufficient to resist pull-out.
3. Use metal channel (strut) to support surface-mounted equipment in wet or damp locations to provide space between equipment and mounting surface.
4. Securely fasten floor-mounted equipment. Do not install equipment such that it relies on its own weight for support.

H. Secure fasteners according to manufacturer's recommended torque settings.

I. Remove temporary supports.

J. Install hangers and supports as required to adequately and securely support electrical system components, in a neat and workmanlike manner, as specified in NECA 1.
1. Do not fasten supports to pipes, ducts, mechanical equipment, or conduit.
2. Obtain permission from Architect before drilling or cutting structural members.

K. Rigidly weld support members or use hexagon-head bolts to present neat appearance with adequate strength and rigidity. Use spring lock washers under all nuts.

L. Install surface-mounted cabinets and panelboards with minimum of four anchors.

M. In wet and damp locations use steel channel supports to stand cabinets and panelboards 1 inch off wall.

N. Use sheet metal channel to bridge studs above and below cabinets and panelboards recessed in hollow partitions.

END OF SECTION

SECTION 26 05 50
BASIC MATERIALS AND METHODS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. The provisions of the General Conditions, Supplementary Conditions, and the Sections included under Division 1, General Requirements are included as a part of this Section as though bound herein.

B. Refer to Section 01 2300 for Alternates that may affect the Work of this Section.

C. Refer to other Sections of Division 26 for additional detailed material and methods of Specifications.

1.02 SUMMARY

A. Load Balance and Adjustment
   1. The Contractor shall furnish personnel and equipment and insure that building power, lighting, motor, and appliance loads are balanced between phases of service entrances, distribution feeders, and panelboards as closely as possible.

B. This Contractor shall install rough-in work pertaining to his trade for each item of equipment furnished under another Section of the Specifications or by Owner. The Contractor shall, before bidding the Project, verify exact rough-in requirements before installation with the Contractor, subcontractor, Owner, or supplier furnishing said equipment, who shall furnish dimensional Drawings accurately locating rough-in for his equipment.

C. The Contractor shall rough-in and connect fixtures, equipment, appliances, and the like, requiring electric services.

D. Provide sleeves, raceways, conduit, conduit fittings, conductors, fuses, grounding equipment, devices, disconnects, starters, and protective systems required or denoted on Drawings.

1.03 SUBMITTALS

A. Comply with requirements of Section 01 3000 and Division 26 Sections.

1.04 QUALITY ASSURANCE

A. Materials shall be new, complete with manufacturer's guarantee or warranty, and shall be approved by the Underwriters' Laboratories, Inc., if a standard has been established by that agency for the type of material.

B. Materials shall also comply with applicable standards of the National Electrical Manufacturers' Association, Insulated Power Cable Engineers Association, National Safety Code, and the American Institute of Electrical Engineers. Such standards are hereby made a part of these Specifications.

C. Work shall be executed in a workmanlike manner and shall present a neat mechanical appearance when completed. Methods and techniques of installation shall be subject to the approval of the Architect.

D. Materials of the same type or class shall be the product of one manufacturer. For example, panelboards shall be from one manufacturer, lighting switches from one manufacturer.

1.05 PROJECT CONDITIONS

A. The Contractor shall be responsible for the accurate location of his Work and for informing himself of the nature and arrangement of the materials, equipment, and construction to which his Work attaches or passes through.

B. In general, piping, conduits, and other work shall be concealed in walls and above ceilings, in utility of pipe spaces, in chases, in joist spaces, in tunnels, in equipment rooms, and the like,

insofar as is practical; so that such work will not interfere with the proper coordinated installation work of other trades or Contractors.

C. In general, piping, conduits, and lines, except those below slabs on grade shall be installed parallel (or at right angles) to the building walls, and at such heights as not to obstruct portions of windows, doorways, stairways, pipe space, tunnel, or passageway, and properly concealed to not interfere with the proper coordinated installation of other trades or Contractors. Where interferences develop in the field, the Work shall be offset or routed as required to clear such interferences. Consult architectural, mechanical, electrical drawings, Contractors, and other details before installing work; and unless otherwise specified, ductwork installation shall take precedence over other crafts, such as piping and conduit as determined by the Architect/Engineer.

D. Materials installed shall be new and never before used.

E. The Contractor shall procure definite locations and connections before rough-in or installation. This Contractor shall then lay out his Work and be responsible for determining proper elevations, angles, measurements, and locations required for the installation of his Work.

PART 2 PRODUCTS

2.01 MATERIALS

A. Provide overcurrent protective devices in accordance with Article 240 of the National Electric Code.

B. The overcurrent protective devices must be capable of interrupting the amount of short circuit current available at their location as stated in the National Electric Code.

C. Overcurrent protective devices shall be so selected and coordinated to permit maximum continuity of service and comply with the National Electric Code.

PART 3 EXECUTION

3.01 SITE PREPARATION

A. Excavation and Backfill - Underground Wiring: The following is supplemental to the requirements of Division 31, Site Construction.

B. The Contractor shall do excavating of materials encountered, including backfilling, as shown or as necessary for the installation of underground wiring, foundations, and equipment in his Contract. Provide and maintain bracing, shoring, or sheathing necessary to support the walls of excavations.

C. Trenches shall be opened in straight lines and bottomed out at least 4 inches below conduits or ducts. Exterior trenches shall have a minimum depth of 36 inches which shall be maintained between top of largest conduit or duct and finish grade.

D. Where roots of live trees are encountered in excavations, they shall be carefully protected during construction. Contractor shall cut or remove interfering trees, remove stumps, and rocks in the line of the excavation; however, approval of the Architect shall be obtained before a tree is removed or cut. Shrubbery in line of excavation shall be removed with a ball of dirt and replaced at completion of installation.

E. Where excavation is necessary in existing pavements, Contractors for whose work the excavation is required shall pay fees and costs of opening street or pavement and costs of filling and repaving in accordance with requirements of and to the satisfaction of the Municipality, Utility, or other Owners of such paving.

F. Where existing sidewalks, drives, and roadways must be cut, they shall be cut in straight lines, shall present a neat appearance when relaid and shall match existing work. At such locations the backfill medium shall be concrete from the bottom of the finished surface to the bottom of the trench except as may be otherwise approved by the Architect/Engineer.

G. Where excavation is necessary in an existing lawn, carefully remove and store sod. After backfilling trench, replace sod or apply top dressing of black dirt and seed to match existing lawn. Care shall be exercised during the work to see that no unnecessary damage is done to lawns in the storing of dirt or other construction material. Should unnecessary damage occur, in the opinion of the Architect, the Contractor shall be required to recondition lawns at his own expense.

H. In addition, the Contractor shall provide and maintain warning barricades, flags, and warning lights, and shall conduct his work so as to create a minimum amount of inconvenience to others, traffic, construction, and the like. Temporary suspension of work does not relieve the Contractor of responsibility for the above requirements.

I. Remove and properly dispose of debris, rubbish, and excavation spoils resulting from the Work, off-site. Obtain necessary permits for dumping.

3.02 FOUNDATIONS AND ANCHOR BOLTS AND CURBS

A. The Contractor shall provide concrete pad foundations for floor mounted equipment installed under this Section. Pad foundations shall be 3-1/2 inches high minimum, unless otherwise indicated on Drawings. Edges shall be chamfered one inch. Faces shall be free of voids and rubbed smooth with carborundum block after stripping of forms. Tops of pads shall be dead level. Provide short dowel rods into floor for lateral stability and anchorage.

B. Set equipment anchor bolts in galvanized sheet metal sleeves one inch larger than bolt diameter. Secure each sleeve to a template and secure template to forms.

C. Machinery bases, bed plates, sole plates, and vibration isolation units shall be carefully aligned, shimmed, and leveled, then grouted in place with Embeco Grout (Master Builders).

D. For each surface mounted panel, provide a concrete floor curb around conduits which rise from below to the panel. Curb height shall correspond to the finish wall base material, but be not less than 3 inches high. Depth shall suit requirements but be not less than 6 inches deep (wall to face) and provide at least 2 inches concrete cover over the conduits.

3.03 INSTALLATION

A. Special care shall be taken during load balance to assure that reverse rotation of motors is not caused.

B. Materials installed under this Division of Work shall be supported from the building structure, independent of other pipe, duct, and equipment, except recessed "lay-in" fixtures not larger than 2 feet by 4 feet size may be supported as stipulated in other Divisions and Sections of Division 26.

C. Conductors and cables shall be installed in conduit and other specified raceways which have been properly supported and anchored, unless otherwise specified.

D. The Contractor shall install major and secondary control equipment and erect on approved type brackets or floor supports, located as directed, and make electric connections to major and secondary control equipment and motor or apparatus, complete, and assume full responsibility for the connections.

E. Install taps and connections in properly selected outlet boxes and junction boxes. Install pull boxes only as required. Enclosures for wiring connections of motor controllers or switches shall not be used as junction boxes for cable tapping or splicing, except where the enclosures are designed to provide space which is suitable, adequate, and approved for the purpose.

F. Cover and protect equipment, materials, enclosures, boxes, and raceways, before and after installation, to prevent injury and to prevent entrance of grit, dirt, and foreign matter.

G. Phase, neutral, and ground conductors of a given circuit must be in the same raceway. Circuiting shall be as specified and denoted on the Drawings, with loads balanced as closely as possible across all phase legs.

H. Make final electrical connections of equipment to rough-ins and the electrical system.

I. Equip outlets with fittings and outlet boxes adapted to that particular outlet.

J. Exposed outlets shall be equipped with heavy cast type boxes, such as "FS" and "FSA" type conduits. Exposed raceways in finished spaces shall be wiremold type finished to match adjacent surfaces in which case outlet boxes shall be compatible with the raceway system.

K. The ends of raceway systems and conduits shall be carefully and securely capped during construction.

3.04 ACCESS DOORS

A. Locate panels accurately in coordination with the General Construction requirements and as directed by the Architect. Panels are to be provided in unaccessible ceilings and walls where necessary to provide access to equipment and wiring as required.

3.05 DISCONNECTS

A. Provide properly sized disconnects for apparatus and equipment whenever disconnecting means is not furnished by others. Each device, apparatus, or equipment must have local disconnecting means within actual sight of the motor or apparatus, and within 49 feet of the same.

3.06 TESTING

A. Voltage and System Testing, Checking, and Reports
   1. The Contractor shall:
      a. Test and record voltages and ground loop impedance at various outlets.
      b. Test and determine that system is free of short circuits and other faults.
      c. That motor overload devices are properly sized.
      d. Test and record meter reading to ground at various points and devices.
      e. Record nameplate data for motors, together with final voltage, running current, size of run protection fuses, and thermal overloads.
      f. Test insulation integrity of main service cables, main branch panel feeder cables, switchgear, and transformers for 480 volt service with 1000 volt megger between phases and between each phase and ground with test maintained until readings are steady. Minimum acceptable reading is 50 megohms. Cables for lower voltages to be similarly tested, utilizing 500 volt megger. Minimum acceptable reading is 30 megohms. Transformers to be tested with 1000 volt megger. Minimum acceptable reading is 20 megohms.
   2. Contractor shall conduct such other tests and adjustments of equipment as required by Architect/Engineer or necessary to verify performance requirements. Submit data taken during such tests to Architect/Engineer. Contractor shall pay professional engineering fees involved in required testing of equipment.
   3. Electrical Contractor shall provide necessary electrical personnel and testing instruments as required to assist Architect/Engineer in testing of installation.

END OF SECTION

SECTION 26 05 53
IDENTIFICATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Electrical identification requirements.

B. Identification nameplates and labels.

C. Wire and cable markers.

D. Voltage markers.

E. Underground warning tape.

F. Warning signs and labels.

G. Field-painted identification of conduit.

1.02 RELATED REQUIREMENTS

A. Section 09 91 23 - Interior Painting.

B. Section 26 05 19 - CONDUCTORS: Color coding for power conductors and cables 600 V and less; vinyl color coding electrical tape.

C. 26 0533.13 - Conduit.

D. 26 0533.16 - Boxes.

E. 26 2416 - Panelboards.

F. 26 2726 - Wiring Devices.

G. 26 2816.16 - Enclosed Switches.

1.03 REFERENCE STANDARDS

A. ANSI Z535.2 - American National Standard for Environmental and Facility Safety Signs; 2011 (Reaffirmed 2017).

B. ANSI Z535.4 - American National Standard for Product Safety Signs and Labels; 2011 (Reaffirmed 2017).

C. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

D. UL 969 - Marking and Labeling Systems; Current Edition, Including All Revisions.

1.04 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

PART 2 PRODUCTS

2.01 IDENTIFICATION REQUIREMENTS

A. Identification for Equipment:
   1. Use identification nameplate to identify each piece of electrical distribution and control equipment and associated sections, compartments, and components.
   2. Available Fault Current Documentation: Use identification label to identify the available fault current and date calculations were performed at locations requiring documentation by NFPA 70 including but not limited to the following.
      a. Service equipment.
      b. Industrial control panels.
      c. Motor control centers.
      d. Elevator control panels.

e. Industrial machinery.

3. For facilities equipped with generators or central battery systems, provide labeling at the service equipment in accordance with NEC Article 702.7.

B. Identification for Conductors and Cables:
   1. Color Coding for Power Conductors 600 V and Less: Comply with Section 26 05 19.
   2. Use identification nameplate or identification label to identify color code for ungrounded and grounded power conductors inside door or enclosure at each piece of feeder or branch-circuit distribution equipment when premises has feeders or branch circuits served by more than one nominal voltage system.

2.02 MANUFACTURERS

A. Brady Corporation.

B. Seton Identification Products.

C. HellermannTyton.

D. Substitutions: See Section 01 60 00 - Product Requirements.

2.03 IDENTIFICATION

A. Identification of Electrical Conduits and Raceways
   1. Electrical conduit which is accessible for maintenance operations (except conduits in finished spaces) shall be identified with approved stencils or semi-rigid plastic identification pipe markers, electrical markers, or approved equal.
   2. For stencils use black enamel (except white on black, red, blue or dark backgrounds). Where lines are painted, apply stenciling after the finish coat dried. Characters shall be one inch high and when dry shall be coated with clear lacquer or approved equivalent.
   3. Electrical markers to be used on diameters 3/4 inch through 5 inches.
   4. Electrical markers to be used on diameters 6 inches or larger (with wire bindings and seals).
   5. Markers (or stencils) shall be located adjacent to each junction box, pull box, controller, panelboard, transformer, relay, and the like.
   6. At Contractor's option, covers only of junction boxes shall be labeled or stenciled (in lieu of conduit) with approved permanent labels denoting voltage and circuit designation inside box (for single-phase legs, label voltage to ground; for two or more phase legs, label the phase-to-phase voltage; and combinations shall be suitably labeled).

B. Equipment Identification
   1. Provide nameplates on equipment such as panelboards, distribution panels, motor starters, safety switches, control devices, and the like.
   2. Lettering shall include name of equipment, the specific unit number, and reference to on/off or other instructions that are applicable.
   3. Power panelboards, shall have a nameplate for each section of same and for each device contained therein, i.e., "Panel A," "Sump Pump," as is applicable.
   4. Nameplates shall be laminated phenolic with a white surface and black core, unless otherwise noted. Use 1/16 inch thick material for plates up to 2 inches by 4 inches. For larger sizes use 1/8 inch thick material. Lettering of names should correspond to nomenclature specified for apparatus, corresponding with the Drawings, details, schedules, charts, wiring diagrams, and operating instructions as approved by the Architect/Engineer.
      a. Equipment fed from emergency/standby generators shall have a red surface with white core.
   5. Lettering shall be condensed Gothic. The space between lines shall be equal to the width of the letters. Use 1/4 inch minimum height letters which occupy 4 to the inch. Increase letter size to 3/4 inch on largest plates.

6. In addition, feeder circuits which serve devices (panelboards, appliances) that are located remote from (more than 3 feet from) their main circuit protective device shall have approved identification installed where and as directed which indicates the origin of the power supply, feeder size, and location of main protective device, i.e., "Feeder No. 3; 4-500 MCM, 1-2 AWG Ground, 4" C.; Main Switchboard Circuit 13"; as is applicable.
7. Appliances, motors, heaters, and the like which are served by a separately mounted disconnect switch, motor starter, or combination type motor starter shall be labeled accordingly for easy identification, i.e.:
   a. Combination Starter: "HVAC-4" - "Supply Air Fan Motor"
   b. Motor at HVAC Unit: "HVAC-4" - "Supply Air Fan Motor"
   c. Disconnect Switch: "HVAC-3" - "Primary Air Heater"
   d. Heater at HV Unit: "HVAC-3" - "Primary Air Heater"
8. Nameplates to be .020 inch to .064 inch thick aluminum, not less than 3/4 inches by 2-1/2 inches or 1 inch by 3 inches, except 1-1/2 inches by 4 inches or 3 inches by 6 inches for large items. Plates shall have a colored enamel background, with etched or engraved natural aluminum lettering not less than 3/16 inch high, except 1/4 inch high for 1 inch by 3 inches and 1-1/2 inches by 4 inch plates and 1/2 inch high for 1-3/4 inches by 6 inches and larger plates (unless specifically described elsewhere in this Specification).
9. Background color shall be black,or as otherwise required. Plate shall have pressure sensitive permanent adhesive factory backing, as approved.
   a. Equipment fed from emergency/standby generators shall have a red surface with white core.
10. Note: Use 3/4 inch by 2-1/4 inch size for single gang face plates, 1-1/4 inches by 4 inches for two gang plates attached with black, round head, self threading screws, made of 1/16 inch minimum thick, laminated phenol resin sheet, with white background and black ink or lacquer filled lettering.
11. Attached directly to the apparatus in a manner approved by the Architect/Engineer.

C. Outlet Box Covers (or finishing plates)
   1. Indicate circuit numbers in box on back (box) side of cover (plate) using heavy line laundry marker pen.

D. Indexing
   1. Index each distribution center circuit and each panel circuit, clearly, neatly, and completely, including "Spares." Index shall be typewritten upon heavy card stock paper not subject to fading or mildew and shall be covered with a clear plastic window, and held securely in a suitable frame. Type date (month and year) and panel designation on each index.
   2. Each index shall be sequenced in accord with actual panel circuiting, i.e.:
      a. Left side - top to bottom - 1, 3, 5, 7
      b. Right side - top to bottom - 2, 4, 6, 8
      c. All circuits shall be visible without removing panel index.
   3. Standard index cards printed 1, 2, 3, are not acceptable.
   4. Use actual Owner provided room numbers for circuit labeling in lieu of construction room numbers. Indexes provided with the Drawings are not suitable to use as panelboard indexes.

E. Other Items
   1. Provide identification as required in other subsections of these Specifications and as denoted on the Drawings.

2.04 IDENTIFICATION NAMEPLATES AND LABELS

A. Identification Nameplates:
   1. Materials:

a. Indoor Clean, Dry Locations: Use plastic nameplates.
b. Outdoor Locations: Use plastic, stainless steel, or aluminum nameplates suitable for exterior use.

2. Plastic Nameplates: Two-layer or three-layer laminated acrylic or electrically non-conductive phenolic with beveled edges; minimum thickness of 1/16 inch; engraved text.
3. Stainless Steel Nameplates: Minimum thickness of 1/32 inch; engraved or laser-etched text.
4. Aluminum Nameplates: Anodized; minimum thickness of 1/32 inch; engraved or laser-etched text.
5. Mounting Holes for Mechanical Fasteners: Two, centered on sides for sizes up to 1 inch high; Four, located at corners for larger sizes.

B. Identification Labels:
1. Materials: Use self-adhesive laminated plastic labels; UV, chemical, water, heat, and abrasion resistant.
2. Text: Use factory pre-printed or machine-printed text. Do not use handwritten text unless otherwise indicated.

C. Nameplates: Engraved three-layer laminated plastic, black letters on white background.

D. Locations:
1. Each electrical distribution and control equipment enclosure.
2. Communication cabinets.

E. Letter Size:
1. Use 1/8 inch letters for identifying individual equipment and loads.
2. Use 1/4 inch letters for identifying grouped equipment and loads.

2.05 WIRE AND CABLE MARKERS

A. Markers for Conductors and Cables: Use wrap-around self-adhesive vinyl cloth, wrap-around self-adhesive vinyl self-laminating, heat-shrink sleeve, plastic sleeve, plastic clip-on, or vinyl split sleeve type markers suitable for the conductor or cable to be identified.

B. Markers for Conductor and Cable Bundles: Use plastic marker tags secured by nylon cable ties.

C. Legend: Power source and circuit number or other designation indicated.

D. Text: Use factory pre-printed or machine-printed text, all capitalized unless otherwise indicated.

E. Minimum Text Height: 1/8 inch.

F. Color: Black text on white background unless otherwise indicated.

G. Description: Cloth type wire markers.

H. Locations: Each conductor at panelboard gutters, pull boxes, outlet boxes, and junction boxes each load connection.

I. Legend:
1. Power and Lighting Circuits: Branch circuit or feeder number indicated on drawings.
2. Control Circuits: Control wire number indicated on schematic and interconnection diagrams on drawings.

2.06 UNDERGROUND WARNING TAPE

A. Materials: Use non-detectable type polyethylene tape suitable for direct burial, unless otherwise indicated.

B. Non-detectable Type Tape: 6 inches wide, with minimum thickness of 4 mil.

C. Legend: Type of service, continuously repeated over full length of tape.

D. Color:
   1. Tape for Buried Power Lines: Black text on red background.
   2. Tape for Buried Communication, Alarm, and Signal Lines: Black text on orange background.

2.07 WARNING SIGNS AND LABELS

A. Comply with ANSI Z535.2 or ANSI Z535.4 as applicable.

B. Warning Signs:
   1. Materials:
      a. Indoor Dry, Clean Locations: Use factory pre-printed rigid plastic or self-adhesive vinyl signs.
      b. Outdoor Locations: Use factory pre-printed rigid aluminum signs.
   2. Rigid Signs: Provide four mounting holes at corners for mechanical fasteners.
   3. Minimum Size: 7 by 10 inches unless otherwise indicated.

C. Warning Labels:
   1. Materials: Use factory pre-printed or machine-printed self-adhesive polyester or self-adhesive vinyl labels; UV, chemical, water, heat, and abrasion resistant; produced using materials recognized to UL 969.
   2. Machine-Printed Labels: Use thermal transfer process printing machines and accessories recommended by label manufacturer.
   3. Minimum Size: 2 by 4 inches unless otherwise indicated.

D. Description: 4 inch wide plastic tape, detectable type colored red with suitable warning legend describing buried electrical lines.

PART 3 EXECUTION

3.01 PREPARATION

A. Clean surfaces to receive adhesive products according to manufacturer's instructions.

B. Degrease and clean surfaces to receive nameplates and labels.

3.02 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Install identification products to be plainly visible for examination, adjustment, servicing, and maintenance. Unless otherwise indicated, locate products as follows:
   1. Surface-Mounted Equipment: Enclosure front.
   2. Flush-Mounted Equipment: Inside of equipment door.
   3. Free-Standing Equipment: Enclosure front; also enclosure rear for equipment with rear access.
   4. Elevated Equipment: Legible from the floor or working platform.
   5. Interior Components: Legible from the point of access.
   6. Conductors and Cables: Legible from the point of access.

C. Install identification products centered, level, and parallel with lines of item being identified.

D. Secure nameplates to exterior surfaces of enclosures using stainless steel screws and to interior surfaces using self-adhesive backing or epoxy cement.

E. Install self-adhesive labels and markers to achieve maximum adhesion, with no bubbles or wrinkles and edges properly sealed.

F. Install underground warning tape above buried lines with one tape per trench at 3 inches below finished grade.

G. Secure rigid signs using stainless steel screws.

END OF SECTION

SECTION 26 05 55
CONNECTORS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. The provisions of the General Conditions, Supplementary Conditions, and the Sections included under Division 1, General Requirements, are included as a part of this Section as though bound herein.

B. Refer to Section 01 2300 for Alternates that may affect the Work of this Section.

1.02 SUMMARY

A. Provide required materials for a complete system.

B. Upon request, points of junction, splices, taps, connections, pull boxes, and outlets shall be opened for inspection by Architect/Engineer or other approved authority.

PART 2 PRODUCTS

2.01 MATERIALS

A. Connectors shall be similar and equal to those manufactured by O.Z. Electrical Manufacturing Company, Burndy Engineering Company, Thomas & Betts Company.

B. Splices, taps, and other connections involving conductors not larger than No. 8 AWG max. shall be made with insulated connectors like 3M Co. "Scotchloks," Ideal Co. "Wing-Nut," or T & B Co. "Piggy" connectors. Connectors shall be wrapped with 8.5 mil heavy duty, premium grade all-weather vinyl electrical insulating tape.

C. Splices, taps, and other connections involving conductors larger than No. 8 AWG shall be made using approved compression type connectors, insulated with at least four 1/2 lap layers of 8.5 mil heavy duty, premium grade all-weather vinyl electrical insulating tape and covered overall with at least two 1/2 lap wraps of friction tape.

D. Connections or joints in wet or damp areas shall be waterproofed in an approved manner.

E. Connections of aluminum conductors are not acceptable.

F. Connectors shall be sized to carry 100 percent of the current capacity of the conductors connected. Conductors shall not be trimmed to fit a connection, the connection device shall be changed to accommodate the conductor.

G. Compression lugs shall be by T&B, O.Z. Electrical Manufacturing, or Burndy Engineering Company.

PART 3 EXECUTION

3.01 INSTALLATION

A. Splices and taps shall be made using approved mechanical connectors of the type best suited.

B. Under no circumstances will a soldered splice, tap, or connection be acceptable.

END OF SECTION

SECTION 26 05 83
EQUIPMENT WIRING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Electrical connections to equipment.

1.02 RELATED REQUIREMENTS

A. Section 26 05 19 - CONDUCTORS.

B. Section 26 05 33.13 - CONDUIT.

C. Section 26 0526 - Grounding and Bonding

D. Section 26 05 33.16 - BOXES.

E. Section 26 27 26 - WIRING DEVICES.

F. Section 26 28 16.16 - ENCLOSED SWITCHES.

1.03 REFERENCE STANDARDS

A. NEMA WD 1 - General Color Requirements for Wiring Devices; 1999 (Reaffirmed 2020).

B. NEMA WD 6 - Wiring Devices - Dimensional Specifications; 2016.

C. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.04 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

B. Products: Listed, classified, and labeled as suitable for the purpose intended.

1.05 COORDINATION

A. Obtain and review shop drawings, product data, manufacturer's wiring diagrams, and manufacturer's instructions for equipment furnished under other sections.

B. Determine connection locations and requirements.

C. Sequence rough-in of electrical connections to coordinate with installation of equipment.

D. Sequence electrical connections to coordinate with start-up of equipment.

PART 2 PRODUCTS

2.01 MATERIALS

A. Cords and Caps: NEMA WD 6; match receptacle configuration at outlet provided for equipment.
   1. Colors: Comply with NEMA WD 1.
   2. Cord Construction: NFPA 70, Type SO, multiconductor flexible cord with identified equipment grounding conductor, suitable for use in damp locations.
   3. Size: Suitable for connected load of equipment, length of cord, and rating of branch circuit overcurrent protection.

B. Disconnect Switches: As specified in Section 26 28 16.16 and in individual equipment sections.

C. Wiring Devices: As specified in Section 26 27 26.

D. Flexible Conduit: As specified in Section 26 05 33.13.

E. Wire and Cable: As specified in Section 26 05 19.

F. Boxes: As specified in Section 26 05 33.16.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that equipment is ready for electrical connection, wiring, and energization.

3.02 ELECTRICAL CONNECTIONS

A. Make electrical connections in accordance with equipment manufacturer's instructions.

B. Make conduit connections to equipment using flexible conduit. Use liquidtight flexible conduit with watertight connectors in damp or wet locations.
   1. Flexible conduit shall be limited to a maximum of 3'-0" in length. Provide hard pipe from junction box, disconnect, etc. to within 3'-0" of mechanical equipment termination point, provide transition to flexible conduit as necessary.

C. Connect heat producing equipment using wire and cable with insulation suitable for temperatures encountered.

D. Provide receptacle outlet to accommodate connection with attachment plug.

E. Provide cord and cap where field-supplied attachment plug is required.

F. Install suitable strain-relief clamps and fittings for cord connections at outlet boxes and equipment connection boxes.

G. Install disconnect switches, controllers, control stations, and control devices to complete equipment wiring requirements.

H. Install terminal block jumpers to complete equipment wiring requirements.

I. Install interconnecting conduit and wiring between devices and equipment to complete equipment wiring requirements.

END OF SECTION

SECTION 26 24 16
PANELBOARDS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Lighting and appliance panelboards.

B. Overcurrent protective devices for panelboards.

1.02 RELATED REQUIREMENTS

A. Section 26 0526 - Grounding and Bonding for Electrical Systems.

B. Section 26 05 29 - HANGERS AND SUPPORTS.

C. Section 26 05 53 - IDENTIFICATION: Identification products and requirements.

D. Section 26 28 13 - FUSES: Fuses for fusible switches and spare fuse cabinets.

1.03 REFERENCE STANDARDS

A. FS W-C-375 - Circuit Breakers, Molded Case; Branch Circuit and Service; 2013e (Amended 2017).

B. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2015.

C. NECA 407 - Standard for Installing and Maintaining Panelboards; 2009.

D. NEMA EN 10250 - Enclosures for Electrical Equipment (1000 Volts Maximum); 2024.

E. NEMA AB 1 - Molded Case Circuit Breakers and Molded Case Switches; National Electrical Manufacturers Association; 1993.

F. NEMA ICS 2 - Industrial Control and Systems Controllers, Contactors and Overload Relays Rated 600 Volts; 2008 (Reaffirmed 2020).

G. NEMA BS 31047 - Heavy Duty Enclosed and Dead-Front Switches (600 Volts Maximum); 2013 (Reaffirmed 2023).

H. NEMA PB 1 - Panelboards; 2011.

I. NEMA PB 1.1 - General Instructions for Proper Installation, Operation and Maintenance of Panelboards Rated 600 Volts or Less; 2013.

J. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

K. UL 50 - Enclosures for Electrical Equipment, Non-Environmental Considerations; Current Edition, Including All Revisions.

L. UL 50E - Enclosures for Electrical Equipment, Environmental Considerations; Current Edition, Including All Revisions.

M. UL 67 - Panelboards; Current Edition, Including All Revisions.

N. UL 489 - Molded-Case Circuit Breakers, Molded-Case Switches and Circuit Breaker Enclosures; Current Edition, Including All Revisions.

1.04 SUBMITTALS

A. See Section 01 3300 - Submittal Procedures

B. Shop Drawings: Indicate outline and support point dimensions, voltage, main bus ampacity, overcurrent protective device arrangement and sizes, short circuit current ratings, conduit entry locations, conductor terminal information, and installed features and accessories.

C. Manufacturer's Installation Instructions: Indicate application conditions and limitations of use stipulated by product testing agency. Include instructions for storage, handling, protection, examination, preparation, and installation of product.

D. Project Record Documents: Record actual installed locations of panelboards and actual installed circuiting arrangements.

E. Maintenance Data: Include information on replacement parts and recommended maintenance procedures and intervals.

1.05 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

1.06 MAINTENANCE MATERIALS

A. See Section 01 60 00 - Product Requirements, for additional provisions.

B. Furnish two of each panelboard key.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Square D

B. Siemens.

C. Eaton

D. General Electric

E. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 PANELBOARDS - GENERAL REQUIREMENTS

A. Provide products listed, classified, and labeled as suitable for the purpose intended.

B. Unless otherwise indicated, provide products suitable for continuous operation under the following service conditions:
   1. Altitude: Less than 6,600 feet.
   2. Ambient Temperature:
      a. Panelboards Containing Circuit Breakers: Between 23 degrees F and 104 degrees F.

C. Short Circuit Current Rating: As indicated on drawings.

D. Mains: Configure for top or bottom incoming feed as indicated or as required for the installation.
   1. Where the highest continuous current trip setting is rated or can be adjusted is 1,200 amperes or higher, arc energy reduction shall be provided to comply with National Electrical Code Article 240.87.
   2. Ground-fault protection of equipment shall be provided for solidly grounded wye electrical systems of more than 150 volts to ground but not exceeding 1,000 volts phase-to-phase for each individual device used as a building or structure main disconnecting means rated 1,000 amperes or more.

E. Branch Overcurrent Protective Devices: Replaceable without disturbing adjacent devices.

F. Bussing: Sized in accordance with UL 67 temperature rise requirements.
   1. Provide solidly bonded equipment ground bus in each panelboard, with a suitable lug for each feeder and branch circuit equipment grounding conductor.

G. Conductor Terminations: Suitable for use with the conductors to be installed.

H. Enclosures: Comply with NEMA EN 10250, and list and label as complying with UL 50 and UL 50E.
   1. Environment Type per NEMA EN 10250: Unless otherwise indicated, as specified for the following installation locations:
   2. Boxes: Galvanized steel unless otherwise indicated.
      a. Provide wiring gutters sized to accommodate the conductors to be installed.
   3. Fronts:
      a. Fronts for Surface-Mounted Enclosures: Same dimensions as boxes.
      b. Fronts for Flush-Mounted Enclosures: Overlap boxes on all sides to conceal rough opening.
   4. Lockable Doors: All locks keyed alike unless otherwise indicated.

I. Future Provisions: Prepare all unused spaces for future installation of devices including bussing, connectors, mounting hardware and all other required provisions.

2.03 LIGHTING AND APPLIANCE PANELBOARDS

A. Description: Panelboards complying with NEMA PB 1, lighting and appliance branch circuit type, circuit breaker type, and listed and labeled as complying with UL 67; ratings, configurations and features as indicated on the drawings.

B. Conductor Terminations:
   1. Main and Neutral Lug Material: Aluminum, suitable for terminating aluminum or copper conductors.
   2. Main and Neutral Lug Type: Mechanical.

C. Bussing:
   1. Phase Bus Connections: Arranged for sequential phasing of overcurrent protective devices.
   2. Phase and Neutral Bus Material: Aluminum or copper.
   3. Ground Bus Material: Aluminum or copper.

D. Circuit Breakers: Thermal magnetic bolt-on type unless otherwise indicated.

E. Enclosures:
   1. Provide surface-mounted or flush-mounted enclosures as indicated.
   2. Provide clear plastic circuit directory holder mounted on inside of door.

F. Description: NEMA PB1, circuit breaker type, lighting and appliance branch circuit panelboard.

G. Provide an isolated ground bar in designated panelboards.

H. Minimum Integrated Short Circuit Rating: As indicated on the Drawings.

I. Molded Case Circuit Breakers: Thermal magnetic trip circuit breakers, bolt-on type, with common trip handle for all poles; UL listed.
   1. Type HACR for air conditioning equipment circuits.
   2. Class A ground fault interrupter circuit breakers where scheduled.
   3. Do not use tandem circuit breakers.

J. Current Limiting Molded Case Circuit Breakers: NEMA AB 1, circuit breakers with integral thermal and instantaneous magnetic trip in each pole, coordinated with automatically resetting current limiting elements in each pole.

K. Enclosure: NEMA PB 1, Type 1.

L. Cabinet Box: 6 inches deep, 20 inches wide for 240 volt and less panelboards.

M. Cabinet Front: Flush cabinet front with concealed trim clamps, concealed hinge, metal directory frame, and flush lock all keyed alike. Finish in manufacturer's standard gray enamel.

2.04 OVERCURRENT PROTECTIVE DEVICES

A. Molded Case Circuit Breakers:
   1. Description: Quick-make, quick-break, over center toggle, trip-free, trip-indicating circuit breakers listed and labeled as complying with UL 489, and complying with FS W-C-375 where applicable; ratings, configurations, and features as indicated on the drawings.
   2. Interrupting Capacity:
      a. Provide circuit breakers with interrupting capacity as required to provide the short circuit current rating indicated, but not less than:
         1) 10,000 rms symmetrical amperes at 240 VAC or 208 VAC.
         2) 14,000 rms symmetrical amperes at 480 VAC.
      b. Fully Rated Systems: Provide circuit breakers with interrupting capacity not less than the short circuit current rating indicated.
   3. Conductor Terminations:
      a. Provide mechanical lugs unless otherwise indicated.
      b. Provide compression lugs where indicated.
      c. Lug Material: Aluminum, suitable for terminating aluminum or copper conductors.
   4. Thermal Magnetic Circuit Breakers: For each pole, furnish thermal inverse time tripping element for overload protection and magnetic instantaneous tripping element for short circuit protection.
   5. Multi-Pole Circuit Breakers: Furnish with common trip for all poles.

PART 3 EXECUTION

3.01 INSTALLATION

A. Perform work in accordance with NECA 1 (general workmanship).

B. Install products in accordance with manufacturer's instructions.

C. Install panelboards in accordance with NECA 407 and NEMA PB 1.1.

D. Arrange equipment to provide minimum clearances in accordance with manufacturer's instructions and NFPA 70.

E. Provide required support and attachment in accordance with Section 26 05 29.

F. Install panelboards plumb.

G. Install flush-mounted panelboards so that trims fit completely flush to wall with no gaps and rough opening completely covered.

H. Mount panelboards such that the highest position of any operating handle for circuit breakers or switches does not exceed 79 inches above the floor or working platform.

I. Provide grounding and bonding in accordance with Section 26 05 26.

J. Install all field-installed branch devices, components, and accessories.

K. Install panelboards in accordance with NEMA PB 1.1 and NECA 1.

L. Height: 6 feet to top of panelboard; install panelboards taller than 6 feet with bottom no more than 4 inches above floor.

M. Provide filler plates to cover unused spaces in panelboards.

N. Provide computer-generated circuit directory for each lighting and appliance panelboard and each power distribution panelboard provided with a door, clearly and specifically indicating the loads served. Revise directory to reflect circuiting changes required to balance phase loads. Identify spares and spaces.

O. Provide identification nameplate for each panelboard in accordance with Section 26 05 53.

P. Provide spare conduits out of each recessed panelboard to an accessible location above ceiling. Identify each as SPARE.
   1. Minimum spare conduits: 4 empty 1 inch.

Q. For facilities equipped with generators or central battery systems, provide labeling at the service equipment in accordance with NEC Article 702.7. Reference Section 26 05 53 - IDENTIFICATION for additional information.

3.02 FIELD QUALITY CONTROL

A. See Section 01 43 00 - Quality Assurance, for additional requirements.

B. Correct deficiencies and replace damaged or defective panelboards or associated components.

3.03 ADJUSTING

A. Adjust tightness of mechanical and electrical connections to manufacturer's recommended torque settings.

B. Adjust alignment of panelboard fronts.

C. Load Balancing: For each panelboard, rearrange circuits such that the difference between each measured steady state phase load does not exceed 10 percent and adjust circuit directories accordingly. Maintain proper phasing for multi-wire branch circuits.

END OF SECTION

SECTION 26 27 26
WIRING DEVICES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Wall switches.

B. Receptacles.

C. Wall plates.

1.02 RELATED REQUIREMENTS

A. Section 26 05 33.16 - BOXES.

B. Section 26 0526 - Grounding and Bonding

1.03 REFERENCE STANDARDS

A. FS W-C-596 - Connector, Electrical, Power, General Specification for; 2014h (Validated 2022).

B. FS W-S-896 - Switches, Toggle (Toggle and Lock), Flush Mounted (General Specification); 2017g (Validated 2023).

C. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2015.

D. NECA 130 - Standard for Installing and Maintaining Wiring Devices; 2016.

E. NEMA WD 1 - General Color Requirements for Wiring Devices; 1999 (Reaffirmed 2020).

F. NEMA WD 6 - Wiring Devices - Dimensional Specifications; 2016.

G. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

H. UL 20 - General-Use Snap Switches; Current Edition, Including All Revisions.

I. UL 498 - Attachment Plugs and Receptacles; Current Edition, Including All Revisions.

J. UL 514D - Cover Plates for Flush-Mounted Wiring Devices; Current Edition, Including All Revisions.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide manufacturer's catalog information showing dimensions, colors, and configurations.

1.05 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

C. Products: Listed, classified, and labeled as suitable for the purpose intended.

1.06 EXTRA MATERIALS

A. See Section 01 6000 - Product Requirements for additional provisions

B. Furnish two of each style, size, and finish wall plate.

C. Provide two protective rings.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Cooper

B. Arrow Hart

C. Pass & Seymour

D. Hubbell

E. Leviton

2.02 WIRING DEVICE APPLICATIONS

A. Provide wiring devices suitable for intended use and with ratings adequate for load served.

B. For single receptacles installed on an individual branch circuit, provide receptacle with ampere rating not less than that of the branch circuit.

C. Provide weather resistant GFCI receptacles with specified weatherproof covers for receptacles installed outdoors or in damp or wet locations.

D. Provide GFCI protection for receptacles installed within 6 feet of sinks and as required by the NEC.

2.03 ALL WIRING DEVICES

A. Provide products listed and classified by Underwriters Laboratories Inc. as suitable for the purpose specified and indicated.

B. Finishes: Refer to Drawings.

2.04 WALL SWITCHES

A. Wall Switches - General Requirements: AC only, quiet operating, general-use snap switches with silver alloy contacts, complying with NEMA WD 1 and NEMA WD 6, and listed as complying with UL 20and where applicable FS W-S-896; types as indicated on the drawings.
   1. Wiring Provisions: Terminal screws for side wiring and screw actuated binding clamp for back wiring with separate ground terminal screw.

B. Wall Switches: Heavy Duty, AC only general-use snap switch, complying with NEMA WD 6 and WD 1.
   1. Body and Handle: Plastic with toggle handle.
      a. Voltage: 120 volts, AC.
      b. Current: 20 amperes.
   2. Ratings: Match branch circuit and load characteristics.

C. Switch Types: Single pole, double pole, 3-way, and 4-way.

2.05 RECEPTACLES

A. Receptacles - General Requirements: Self-grounding, tamper resistant, complying with NEMA WD 1 and NEMA WD 6, and listed as complying with UL 498and where applicable FS W-C-596; types as indicated on the drawings.
   1. Wiring Provisions: Terminal screws for side wiring or screw actuated binding clamp for back wiring with separate ground terminal screw.
   2. NEMA configurations specified are according to NEMA WD 6.

B. Receptacles: Heavy duty, complying with NEMA WD 6 and WD 1.
   1. Device Body: Plastic.
   2. Configuration: NEMA WD 6, type as specified and indicated.
   3. Prewired pigtail connectors that accommodate Fed Spec receptacles are approved. Must be crimped and welded terminal application connector.

C. Convenience Receptacles: Type 5 - 20 equal to Hubbell 5362, Cooper BR20, or Pass & Seymour CR20W.
   1. Prewired pigtail receptacles: Type 5 - 20 equal to Pass & Seymour PT5362, Hubbell SNAP5362, Leviton lev-lok, or Cooper ArrowLink.

D. GFCI Receptacles: Convenience receptacle with integral ground fault circuit interrupter to meet regulatory requirements.

2.06 TECHNOLOGY OUTLETS

A. Provide rough-ins as indicated on the Drawings.

2.07 WALL PLATES

A. Wall Plates: Comply with UL 514D.
   1. Configuration: One piece cover as required for quantity and types of corresponding wiring devices.
   2. Size: Standard.
   3. Screws: Metal with slotted heads finished to match wall plate finish.

B. Cover Plates: nylon.

C. Weatherproof covers to be metal hinged covers that allows cord to be plugged in with cover closed.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that outlet boxes are installed in proper locations and at proper mounting heights and are properly sized to accommodate devices and conductors in accordance with NFPA 70.

C. Verify that wall openings are neatly cut and will be completely covered by wall plates.

D. Verify that final surface finishes are complete, including painting.

E. Verify that branch circuit wiring installation is completed, tested, and ready for connection to wiring devices.

F. Verify that conditions are satisfactory for installation prior to starting work.

3.02 PREPARATION

A. Provide extension rings to bring outlet boxes flush with finished surface.

B. Clean dirt, debris, plaster, and other foreign materials from outlet boxes.

3.03 INSTALLATION

A. Perform work in accordance with NECA 1 (general workmanship) and, where applicable, NECA 130, including mounting heights specified in those standards unless otherwise indicated.

B. Coordinate locations of outlet boxes provided under Section 26 05 33.16 as required for installation of wiring devices provided under this section.

C. Install wiring devices in accordance with manufacturer's instructions.

D. Install permanent barrier between ganged wiring devices when voltage between adjacent devices exceeds 300 V.

E. Where required, connect wiring devices using pigtails not less than 6 inches long. Do not connect more than one conductor to wiring device terminals.

F. Modular wiring devices are seen as an acceptable alternative at the discretion of the contractor. Receptacles must meet UL498 and Federal Specification WC-596 requirements. Switches must meet UL20 and Federal Specification WC-896 requirements. Prewired terminal application pigtail connectors must be crimped and welded.

G. Connect wiring devices by wrapping conductor clockwise 3/4 turn around screw terminal and tightening to proper torque specified by the manufacturer. Where present, do not use push-in pressure terminals that do not rely on screw-actuated binding.

H. Unless otherwise indicated, connect wiring device grounding terminal to branch circuit equipment grounding conductor and to outlet box with bonding jumper.

I. Provide GFCI receptacles with integral GFCI protection at each location indicated. Do not use feed-through wiring to protect downstream devices.

J. Install securely, in a neat and workmanlike manner, as specified in NECA 1.

K. Install wiring devices plumb and level with mounting yoke held rigidly in place.

L. Install wall switches with OFF position down.

M. Install wall dimmers to achieve full rating specified and indicated after derating for ganging as instructed by manufacturer.

N. Do not share neutral conductor on branch circuits utilizing wall dimmers.

O. Install vertically mounted receptacles with grounding pole on top and horizontally mounted receptacles with grounding pole on left.

P. Install wall plates to fit completely flush to wall with no gaps and rough opening completely covered without strain on wall plate. Repair or reinstall improperly installed outlet boxes or improperly sized rough openings. Do not use oversized wall plates in lieu of meeting this requirement.

Q. Install blank wall plates on junction boxes and on outlet boxes with no wiring devices installed or designated for future use.

R. Connect wiring device grounding terminal to outlet box with bonding jumper.

S. Install standard plates on switch, receptacle, and blank outlets in finished areas.

T. Install galvanized steel plates on outlet boxes and junction boxes in unfinished areas, above accessible ceilings, and on surface mounted outlets.

U. Install protective rings on active flush cover service fittings.

3.04 INTERFACE WITH OTHER PRODUCTS

A. Coordinate locations of outlet boxes provided under Section 26 05 37 to obtain mounting heights specified.

B. Mounting heights refer to bottom of box.

C. Install wall switch 44 inches above finished floor.

D. Install convenience receptacle 16 inches above finished floor, UNO.

E. Install convenience receptacle 4 inches above backsplash of counter, UNO.

3.05 FIELD QUALITY CONTROL

A. See Section 01 43 00 - Quality Assurance, for additional requirements.

B. Inspect each wiring device for damage and defects.

C. Operate each wall switch, wall dimmer, and fan speed controller with circuit energized to verify proper operation.

D. Verify that each receptacle device is energized.

E. Test each receptacle to verify operation and proper polarity.

F. Test each GFCI receptacle for proper tripping operation according to manufacturer's instructions.

G. Correct wiring deficiencies and replace damaged or defective wiring devices.

3.06 ADJUSTING

A. Adjust devices and wall plates to be flush and level.

3.07 CLEANING

A. Clean exposed surfaces to remove dirt, paint, or other foreign material and restore to match original factory finish.

END OF SECTION

SECTION 26 28 13
FUSES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Fuses.

1.02 REFERENCE STANDARDS

A. NEMA FU 1 - Low Voltage Cartridge Fuses; 2012.

B. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

C. UL 248-1 - Low-Voltage Fuses - Part 1: General Requirements; Current Edition, Including All Revisions.

1.03 SUBMITTALS

A. See Section 01 3000 - Submittal Procedures.

B. Product Data: Provide manufacturer's standard data sheets including voltage and current ratings, interrupting ratings, time-current curves, and current limitation curves.

1.04 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience and with service facilities within 100 miles of Project.

C. Products: Listed and classified by Underwriters Laboratories Inc. as suitable for the purpose specified and indicated.

1.05 MAINTENANCE MATERIALS

A. See Section 01 6000 - Product Requirements for additional provisions

B. Furnish two fuse pullers.

C. Furnish three of each size and type fuse installed.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Bussman.

B. LittelFuse

C. Edison Fuse

D. Substitutions: See Section 01 6000 - Product Requirements.

2.02 FUSES

A. Provide products listed, classified, and labeled as suitable for the purpose intended.

B. Unless specifically indicated to be excluded, provide fuses for all fusible equipment as required for a complete operating system.

C. Provide fuses of the same type, rating, and manufacturer within the same switch.

D. Comply with UL 248-1.

E. Unless otherwise indicated, provide cartridge type fuses complying with NEMA FU 1, Class and ratings as indicated.

F. Voltage Rating: Suitable for circuit voltage.

G. Main Service Switches: Class RK1 (time delay).

H. Power Load Feeder Switches: Class RK1 (time delay).

I. Motor Load Feeder Switches: Class RK1 (time delay).

J. Lighting Load Feeder Switches: Class RK1 (time delay).

K. Other Feeder Switches: Class RK1 (time delay).

L. General Purpose Branch Circuits: Class RK1 (time delay). Class J is also acceptable.

M. Motor Branch Circuits: Class L time delay.

N. Lighting Branch Circuits: Class G.

2.03 CLASS RK1 FUSES

A. Fuses "0 through 600" amperes shall be U.L. Class "RK1" and of the current limiting, dual element type, U.L. approved for 200,000A RMS, symmetrical interrupting capacity. They shall have a silver sand short circuit element, and shall carry 500 percent of rating for a minimum of 10 seconds on overloads. Fuses shall be Buss Low-Peak fuses, type "LPS/RK" or "LPN/RK" as required, except as otherwise denoted on the Drawings.

PART 3 EXECUTION

3.01 INSTALLATION

A. Do not install fuses until circuits are ready to be energized.

B. Install fuses with label oriented such that manufacturer, type, and size are easily read.

END OF SECTION

SECTION 26 43 01
SURGE PROTECTIVE DEVICES AND POWER QUALITY

PART 1 GENERAL

1.01 RELATED SECTIONS

A. Section 26 24 16 - PANELBOARDS.

1.02 REFERENCES

A. IEEE C62.41 – Surge Voltages in Low-Voltage AC Power Circuits.

B. IEEE C62.45 – Low-Voltage AC Power Circuits, Guide on Surge Test.

C. NEMA 250 – Enclosures for Electrical Equipment (1000 Volts Maximum).

D. NEMA LS-1 – Low Voltage Surge Protective Devices.

E. UL 1283 – Electromagnetic Interference Filters.

F. UL 1449 – Surge Protective Devices.

1.03 DEFINITIONS

A. ATS: Acceptance Testing Specifications.

B. VPR: Voltage Protective Rating.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: For each type of product indicated, include rated capacities, unit dimensions, operating weights, operating characteristics, furnished specialties, and accessories.

C. Product Performance: For surge protective devices, certified by an independent testing agency for compliance with UL, IEEE, and NEMA standards.

D. Product Certificates: For surge protective devices, signed by product manufacturer certifying compliance with the following standards:
   1. UL 1283
   2. UL 1449 (4th Edition)
   3. IEEE (62.41)
   4. IEEE (62.45)

E. Operation and Maintenance Data: For surge protective devices to include in emergency, operation, and maintenance manuals.

F. Warranties: Special warranties specified in this Section.

1.05 QUALITY ASSURANCE

A. Source Limitations: Obtain surge protective devices and accessories through one source from a single manufacturer.

B. Third Party Testing: Performance testing and ratings shall be documented by an independent testing agency nationally recognized for the type of testing required.

C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

D. Comply with IEEE C62.41, "IEEE Guide for Surge Voltages in Low Voltage AC Power Circuits," and test devices according to IEEE C62.45, "IEEE Guide on Surge Testing for Equipment Connected to Low Voltage AC Power Circuits."

E. Comply with UL 1283, "Electromagnetic Interference Filters," and UL 1449, "Surge Protective Devices."

1.06 PROJECT CONDITIONS

A. Service Conditions: Rate surge protective devices for continuous operation under the following conditions, unless otherwise indicated:
   1. Maximum Continuous Operating Voltage: Not less than 115 percent of nominal system operating voltage and in compliance with test and evaluation procedures outlined in the nominal discharge surge current test of UL 1449 4th Edition section 37.7.3. MCOV values claimed based on component values or on the 30 minute 115% operating voltage test, section 38 of UL 1449 will not be accepted.
   2. Operating Temperature: 30 to 120 degrees F.
   3. Humidity: 0 to 85 percent, noncondensing.
   4. Altitude: Less than 20,000 feet above sea level.

1.07 COORDINATION

A. Coordinate location of field-mounted surge protective devices to allow adequate clearances for maintenance. Surge protective devices may be externally mounted to the switchboard and/or panelboard.

B. Circuit breakers for externally mounted surge protection device shall be sized per manufacturer's recommendations.

1.08 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of surge protective device that fail in materials or workmanship within ten years from the date of substantial completion.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Square D.

B. Cutler Hammer.

C. General Electric.

D. Siemens.

E. Surge Suppression Inc.

F. Current Technology, Inc.

G. Liebert

H. Intermatic

I. Advanced Protection Technologies, Inc.

J. LEA International

K. Mersen

L. APF - Active Power Filter

M. PQI - Power Quality International

N. Substitutions: See Section 01 6000 - Product Requirements.

2.02 SUPPRESSORS FOR PANELBOARDS

A. Surge Protective Device Description: Sine-wave-tracking type, panel-mounted design with the following features and accessories:
   1. Arrangement with wire connections to phase buses, neutral bus, and ground bus.
   2. LED indicator lights for power and protection status.
   3. Audible alarm, with silencing switch, to indicate when protection has failed.

4. One set of dry contacts rated at 5 amp, 250 volt AC, for remote monitoring of protection status.

B. Peak Single-Impulse Surge Current Rating: 80 kA per mode.

C. Protection modes and UL 1449 Voltage Protective Rating (VPR) based on the 6kV 3kA surge for grounded wye circuits with voltages of 120/208 volt, 3 phase, 4-wire circuits shall be as follows:
   1. Line to Neutral: 600V for 120/208Y.
   2. Line to Ground: 600V for 120/208Y.
   3. Neutral to Ground: 900V for 120/208Y.

2.03 ENCLOSURES

A. NEMA 4 maximum, NEMA 250 minimum.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install devices for panelboard and auxiliary panels with conductors or buses between suppressor and points of attachment as short and straight as possible. Do not exceed manufacturer's recommended lead length and in no case shall conductors exceed 5 feet in length. Do not bond neutral and ground.

3.02 FIELD QUALITY CONTROL

A. Testing: Perform the following field tests and inspections and prepare test reports:
   1. After installing surge protective devices, but before electrical circuitry has been energized, test for compliance with requirements.
   2. Complete startup checks according to manufacturer's written instructions.
   3. Perform each visual and mechanical inspection and electrical test stated in NETA ATS, "Surge Arresters, Low Voltage Surge Protective Devices." Certify compliance with test parameters.

B. Remove and replace malfunctioning units and retest as specified above.

END OF SECTION

SECTION 26 51 00
INTERIOR LIGHTING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Interior luminaires.

B. Exit signs.

C. Accessories.

1.02 RELATED REQUIREMENTS

A. Section 26 0526 - Grounding and Bonding

B. Section 26 05 29 - HANGERS AND SUPPORTS.

C. Section 26 05 33.16 - BOXES.

1.03 REFERENCE STANDARDS

A. ANSI C78.379 - American National Standard for Electric Lamps -- Reflector Lamps -- Classification of Beam Patterns; 2006.

B. ANSI C82.1 - American National Standard for Lamp Ballast - Line Frequency Fluorescent Lamp Ballast; 2004.

C. ANSI C82.4 - American National Standard for Ballasts for High-Intensity-Discharge and Low-Pressure Sodium Lamps (Multiple-Supply Type); 2002.

D. NECA/IESNA 500 - Standard for Installing Indoor Lighting Systems; 2006.

E. NECA/IESNA 502 - Standard for Installing Industrial Lighting Systems; 2006.

F. NEMA WD 6 - Wiring Devices - Dimensional Requirements; National Electrical Manufacturers Association; 2002 (R2008).

G. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

H. NFPA 101 - Life Safety Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

I. UL 1598 - Luminaires; Current Edition, Including All Revisions.

1.04 SUBMITTALS

A. See Section 01 3000 - Submittal Procedures

B. Shop Drawings: Indicate dimensions and components for each luminaire.

C. Product Data: Provide manufacturer's standard catalog pages and data sheets including detailed information on luminaire construction, dimensions, ratings, finishes, mounting requirements, listings, service conditions, photometric performance, installed accessories, and ceiling compatibility; include model number nomenclature clearly marked with all proposed features.

D. Operation and Maintenance Data: Instructions for each product including information on replacement parts.

1.05 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

B. Conform to requirements of NFPA 70 and NFPA 101.

C. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

PART 2 PRODUCTS

2.01 MANUFACTURERS - LUMINAIRES

A. As indicated on the Drawings.

B. Substitutions: See Section 01 60 00 - Product Requirements except where individual luminaire types are designated with substitutions not permitted.

2.02 LUMINAIRES

A. Provide products that comply with requirements of NFPA 70.

B. Provide products that are listed and labeled as complying with UL 1598, where applicable.

C. Provide products listed, classified, and labeled as suitable for the purpose intended.

D. Unless otherwise indicated, provide complete luminaires including lamp(s) and all sockets, ballasts, reflectors, lenses, housings and other components required to position, energize and protect the lamp and distribute the light.

E. Unless specifically indicated to be excluded, provide all required conduit, boxes, wiring, connectors, hardware, supports, trims, accessories, etc. as necessary for a complete operating system.

F. Provide products suitable to withstand normal handling, installation, and service without any damage, distortion, corrosion, fading, discoloring, etc.

PART 3 EXECUTION

3.01 INSTALLATION

A. Coordinate locations of outlet boxes provided under Section 26 05 33.16 as required for installation of luminaires provided under this section.

B. Install products in accordance with manufacturer's instructions.

C. Install luminaires securely, in a neat and workmanlike manner, as specified in NECA 500 (commercial lighting) and NECA 502 (industrial lighting).

D. Provide required support and attachment in accordance with Section 26 05 29.

E. Install luminaires plumb and square and aligned with building lines and with adjacent luminaires.

F. Install suspended luminaires and exit signs using pendants supported from swivel hangers. Provide pendant length required to suspend luminaire at indicated height.

G. Support luminaires larger than 2 x 4 foot size independent of ceiling framing.

H. Locate recessed ceiling luminaires as indicated on reflected ceiling plan.

I. Install surface mounted luminaires and exit signs plumb and adjust to align with building lines and with each other. Secure to prevent movement.

J. Grid Ceilings: Fasten luminaires to ceiling grid members using suitable clips.

K. Install recessed luminaires to permit removal from below.

L. Install recessed luminaires using accessories and firestopping materials to meet regulatory requirements for fire rating.

M. Install wall mounted luminaires, emergency lighting units, and exit signs at height as indicated on Drawings.

N. Install accessories furnished with each luminaire.

O. Connect luminaires and exit signs to branch circuit outlets provided under Section 26 05 37 using flexible conduit.

P. Make wiring connections to branch circuit using building wire with insulation suitable for temperature conditions within luminaire.

Q. Bond products and metal accessories to branch circuit equipment grounding conductor.

R. Install specified lamps in each emergency lighting unit, exit sign, and luminaire.

S. Install lamps in each luminaire.

3.02 FIELD QUALITY CONTROL

A. See Section 01 43 00 - Quality Assurance, for additional requirements.

B. Inspect each product for damage and defects.

C. Perform field inspection in accordance with Section 01450 and 01451

D. Operate each luminaire after installation and connection to verify proper operation.

E. Correct wiring deficiencies and repair or replace damaged or defective products. Repair or replace excessively noisy ballasts as determined by Architect.

3.03 ADJUSTING

A. Aim and position adjustable luminaires to achieve desired illumination as indicated or as directed by Architect. Secure locking fittings in place.

B. Aim and adjust fixtures as indicated.

C. Position exit sign directional arrows as indicated.

3.04 CLEANING

A. Clean surfaces according to NECA 500 (commercial lighting), NECA 502 (industrial lighting), and manufacturer's instructions to remove dirt, fingerprints, paint, or other foreign material and restore finishes to match original factory finish.

B. Clean electrical parts to remove conductive and deleterious materials.

C. Remove dirt and debris from enclosures.

D. Clean photometric control surfaces as recommended by manufacturer.

E. Clean finishes and touch up damage.

3.05 PROTECTION

A. Relamp luminaires that have failed lamps at Substantial Completion.

3.06 SCHEDULE - SEE DRAWINGS

END OF SECTION

SECTION 26 56 00
EXTERIOR LIGHTING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Exterior luminaires.

1.02 RELATED REQUIREMENTS

A. Section 26 05 29 - HANGERS AND SUPPORTS.

B. Section 26 05 33.16 - BOXES.

1.03 REFERENCE STANDARDS

A. ANSI C78.379 - American National Standard for Electric Lamps -- Reflector Lamps -- Classification of Beam Patterns; 2006.

B. ANSI C82.1 - American National Standard for Lamp Ballast - Line Frequency Fluorescent Lamp Ballast; 2004.

C. ANSI C82.4 - American National Standard for Ballasts for High-Intensity-Discharge and Low-Pressure Sodium Lamps (Multiple-Supply Type); 2002.

D. IES RP-8 - Roadway Lighting; 2014.

E. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2015.

F. NECA/IESNA 501 - Standard for Installing Exterior Lighting Systems; 2006.

G. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

H. UL 1598 - Luminaires; Current Edition, Including All Revisions.

1.04 SUBMITTALS

A. See Section 01 3300 - Submittal Procedures

B. Shop Drawings: Indicate dimensions and components for each luminaire that is not a standard product of the manufacturer.

C. Product Data: Provide manufacturer's standard catalog pages and data sheets including detailed information on luminaire construction, dimensions, ratings, finishes, mounting requirements, listings, service conditions, photometric performance, weight, effective projected area (EPA), and installed accessories; include model number nomenclature clearly marked with all proposed features.

D. Operation and Maintenance Data: Instructions for each product including information on replacement parts.

1.05 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

C. Electrical Components: Listed and classified by Underwriters Laboratories Inc. as suitable for the purpose specified and indicated.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. As indicated on the Drawings.

2.02 LUMINAIRE TYPES

A. Furnish products as indicated in luminaire schedule included on the drawings.

B. Substitutions: See Section 01 60 00 - Product Requirements.

2.03 LUMINAIRES

A. Provide products that comply with requirements of NFPA 70.

B. Provide products that are listed and labeled as complying with UL 1598, where applicable.

C. Provide products listed, classified, and labeled as suitable for the purpose intended.

D. Unless otherwise indicated, provide complete luminaires including lamp(s) and all sockets, ballasts, reflectors, lenses, housings and other components required to position, energize and protect the lamp and distribute the light.

E. Unless specifically indicated to be excluded, provide all required conduit, boxes, wiring, connectors, hardware, poles, foundations, supports, trims, accessories, etc. as necessary for a complete operating system.

F. Provide products suitable to withstand normal handling, installation, and service without any damage, distortion, corrosion, fading, discoloring, etc.

PART 3 EXECUTION

3.01 INSTALLATION

A. Coordinate locations of outlet boxes provided under Section 26 05 33.16 as required for installation of luminaires provided under this section.

B. Install products in accordance with manufacturer's instructions.

C. Install luminaires in accordance with NECA/IESNA 501.

D. Provide required support and attachment in accordance with Section 26 05 29.

E. Install luminaires plumb and square and aligned with building lines and with adjacent luminaires.

F. Install accessories furnished with each luminaire.

G. Bond products and metal accessories to branch circuit equipment grounding conductor.

H. Install lamps in each luminaire.

I. Bond luminaires and metal accessories to branch circuit equipment grounding conductor.

3.02 FIELD QUALITY CONTROL

A. See Section 01 43 00 - Quality Assurance, for additional requirements.

B. Inspect each product for damage and defects.

C. Perform field inspection, testing, and adjusting in accordance with Section 01 40 00.

D. Operate each luminaire after installation and connection to verify proper operation.

E. Correct wiring deficiencies and repair or replace damaged or defective products. Repair or replace excessively noisy ballasts as determined by Architect.

3.03 CLEANING

A. Clean surfaces according to NECA/IESNA 501 and manufacturer's instructions to remove dirt, fingerprints, paint, or other foreign material and restore finishes to match original factory finish.

B. Clean electrical parts to remove conductive and deleterious materials.

C. Remove dirt and debris from enclosure.

D. Clean photometric control surfaces as recommended by manufacturer.

E. Clean finishes and touch up damage.

3.04 SCHEDULE - SEE DRAWINGS

END OF SECTION

GARMANN MILLER

Division 28

Electronic Safety and Security

SECTION 26 05 33.13
CONDUIT

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Galvanized steel rigid metal conduit (RMC).

B. Intermediate metal conduit (IMC).

C. Flexible metal conduit (FMC).

D. Liquidtight flexible metal conduit (LFMC).

E. Electrical metallic tubing (EMT).

F. Rigid polyvinyl chloride (PVC) conduit.

G. Conduit fittings.

1.02 RELATED REQUIREMENTS

A. Section 07 84 00 - Firestopping.

B. Section 09 90 00 - Painting and Coating.

C. Section 26 05 26 - GROUNDING AND BONDING.
   1. Includes additional requirements for fittings for grounding and bonding.

D. Section 26 05 29 - HANGERS AND SUPPORTS.

E. Section 26 05 53 - IDENTIFICATION.

F. Section 26 05 33.16 - BOXES.

G. Division 28 - Electronic Safety and Security.

1.03 REFERENCE STANDARDS

A. ANSI C80.1 - American National Standard for Electrical Rigid Steel Conduit (ERSC); 2020.

B. ANSI C80.3 - American National Standard for Electrical Metallic Tubing -- Steel (EMT-S); 2020.

C. ANSI C80.5 - American National Standard for Electrical Rigid Metal Conduit -- Aluminum (ERMC-A); 2020.

D. ANSI C80.6 - American National Standard for Electrical Intermediate Metal Conduit; 2018.

E. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2015.

F. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable; 2014.

G. NEMA RN 1 - Polyvinyl-Chloride (PVC) Externally Coated Galvanized Rigid Steel Metal Conduit and Intermediate Metal Conduit; 2018.

H. NEMA TC 2 - Electrical Polyvinyl Chloride (PVC) Conduit; 2020.

I. NEMA TC 3 - Polyvinyl Chloride (PVC) Fittings for Use with Rigid PVC Conduit and Tubing; 2021.

J. NFPA 70 - National Electrical Code; National Fire Protection Association; Most recent edition adopted by Authority Having Jurisdiction, including all applicable Amendments and Supplements.

K. UL 1 - Flexible Metal Conduit; Current Edition, Including All Revisions.

L. UL 6 - Electrical Rigid Metal Conduit-Steel; Current Edition, Including All Revisions.

M. UL 360 - Liquid-Tight Flexible Metal Conduit; Current Edition, Including All Revisions.

N. UL 514B - Conduit, Tubing, and Cable Fittings; Current Edition, Including All Revisions.

O. UL 651 - Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings; Current Edition, Including All Revisions.

P. UL 797 - Electrical Metallic Tubing-Steel; Current Edition, Including All Revisions.

Q. UL 1242 - Electrical Intermediate Metal Conduit-Steel; Current Edition, Including All Revisions.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittals procedures.

B. Product Data: Provide for metallic conduit, flexible metal conduit, liquidtight flexible metal conduit, metallic tubing, nonmetallic conduit, flexible nonmetallic conduit, nonmetallic tubing, fittings, and conduit bodies.

C. Project Record Documents: Accurately record actual routing of conduits larger than 2 inches.

1.05 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

B. Products: Listed and classified by Underwriters Laboratories Inc. as suitable for purpose specified and shown.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Receive, inspect, handle, and store conduit and fittings in accordance with manufacturer's instructions.

B. Accept conduit on site. Inspect for damage.

C. Protect conduit from corrosion and entrance of debris by storing above grade. Provide appropriate covering.

D. Protect PVC conduit from sunlight.

PART 2 PRODUCTS

2.01 CONDUIT REQUIREMENTS

A. Fittings for Grounding and Bonding: Also comply with Section 26 05 26 - GROUNDING AND BONDING.

B. Provide all conduit, fittings, supports, and accessories required for a complete raceway system.

C. Provide products listed, classified, and labeled as suitable for the purpose intended.

D. Coordinate painting requirements with painting contractor where conduits are exposed due to open structure and the like.

E. Where conduit size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.

F. Conduit Size: Comply with NFPA 70.
   1. Minimum size: 1/2" unless otherwise specified.

G. Underground Installations:
   1. PVC conduit may be used for underground installations. Where underground conduit (2" and larger) passes under a parking lot, driveway, roadway, or the like; encase conduit in concrete.

H. Outdoor Locations Above Grade: Use rigid steel conduit.

I. Wet and Damp Locations: Use rigid steel or intermediate metal conduit.

J. Dry Locations:
   1. Concealed: Use rigid steel conduit, intermediate metal conduit, or electrical metallic tubing.
   2. Exposed: Use rigid steel conduit, intermediate metal conduit, or electrical metallic tubing.

K. In addition to raceways for Division 26 work, the electrical contractor shall provide raceway systems for Division 27 - Communications and Division 28 - Electronic Safety and Security as noted to the Drawings. When raceway requirements are not specifically noted in the electrical legends or the floor plans, Division 26 shall coordinate size and routing with the system installer prior to installation. Systems shall be installed in conduit inside walls, and for spaces with open structures. Raceway for open spaces shall be routed from rough-in box, to an adjacent space with an accessible ceiling, or to the cable tray if tray is routed through the space. Refer to Section 28 31 01 - Fire Alarm Detection System for additional raceway requirements related to fire alarm.

L. Where underground conduit enters a room and water entering through the conduit is a concern or an issue, provide a product similar to Raychem Rayflate Duct Sealing System at both ends of conduit to seal conduit air and water tight.

M. Where conduit penetrates a wall to a room below grade, utilize a product similar to Link-Seals to provide a watertight seal around the outside of the conduit.

2.02 MANUFACTURERS

A. Essex Group

B. Hubbell Power Systems

C. Hellermann Tyton

D. Wheatland Tube Company

E. Allied Tube and Conduit

F. Cantex Inc.

2.03 GALVANIZED STEEL RIGID METAL CONDUIT (RMC)

A. Description: NFPA 70, Type RMC galvanized steel rigid metal conduit complying with ANSI C80.1 and listed and labeled as complying with UL 6.

B. Fittings:
   1. Non-Hazardous Locations: Use fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
   2. Material: Use steel or malleable iron.
   3. Connectors and Couplings: Use threaded type fittings only. Threadless set screw and compression (gland) type fittings are not permitted.

2.04 INTERMEDIATE METAL CONDUIT (IMC)

A. Description: NFPA 70, Type IMC galvanized steel intermediate metal conduit complying with ANSI C80.6 and listed and labeled as complying with UL 1242.

B. Fittings:
   1. Non-Hazardous Locations: Use fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
   2. Material: Use steel or malleable iron.
   3. Connectors and Couplings: Use threaded type fittings only. Threadless set screw and compression (gland) type fittings are not permitted.

C. Conduit Size: Comply with NFPA 70.

2.05 FLEXIBLE METAL CONDUIT (FMC)

A. Description: NFPA 70, Type FMC standard wall steel flexible metal conduit listed and labeled as complying with UL 1, and listed for use in classified firestop systems to be used.

B. Fittings:
   1. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.

2. Material: Use steel or malleable iron.

C. Description: Interlocked steel construction.

2.06 LIQUIDTIGHT FLEXIBLE METAL CONDUIT (LFMC)

A. Description: NFPA 70, Type LFMC polyvinyl chloride (PVC) jacketed steel flexible metal conduit listed and labeled as complying with UL 360.

B. Fittings:
   1. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
   2. Material: Use steel or malleable iron.

C. Description: Interlocked steel construction with PVC jacket.

2.07 ELECTRICAL METALLIC TUBING (EMT)

A. Thin wall conduit shall be Underwriter's approved electrical metallic tubing (EMT). EMT shall meet Federal Specification WW 806, latest edition.

B. Description: NFPA 70, Type EMT steel electrical metallic tubing complying with ANSI C80.3 and listed and labeled as complying with UL 797.

C. Fittings:
   1. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
   2. Material: Use steel or malleable iron.
   3. Connectors and Couplings: Use compression (gland) or set-screw type.
      a. Do not use indenter type connectors and couplings.

2.08 RIGID POLYVINYL CHLORIDE (PVC) CONDUIT

A. Nonmetallic conduit shall be Underwriter's approved Schedule 40 heavy wall "PVC" polyvinyl chloride plastic type, properly supported and anchored. Conduit shall be terminated in end-bells or bushings. Provide bonding or grounding conductors in accordance with NEC.

B. Description: NFPA 70, Type PVC rigid polyvinyl chloride conduit complying with NEMA TC 2 and listed and labeled as complying with UL 651; Schedule 40 unless otherwise indicated, Schedule 80 where subject to physical damage; rated for use with conductors rated 90 degrees C.

C. Fittings:
   1. Manufacturer: Same as manufacturer of conduit to be connected.
   2. Description: Fittings complying with NEMA TC 3 and listed and labeled as complying with UL 651; material to match conduit.

D. Description: NEMA TC 2; Schedule 40 PVC.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that mounting surfaces are ready to receive conduits.

C. Verify that conditions are satisfactory for installation prior to starting work.

D. Verify routing and termination locations of conduit prior to rough-in.

E. Conduit routing is shown on drawings in approximate locations unless dimensioned. Route as required to complete wiring system.

3.02 INSTALLATION

A. In finished rooms with open structure, conduit shall be concealed. If the structure is such that conduit cannot be concealed, the contractor shall review with the Architect and Engineer prior to installation.
   1. In rooms such as gymnasiums, student dining, extended learning and the like with exposed open ceiling structure, exposed conduit shall be limited to within the space of 6" below bottom of structural steel, to within 4" of the roof deck. Conduit shall not be routed exposed on the wall below this area.

B. Immediately after installation of conduit, use suitable manufactured plugs to provide protection from entry of moisture and foreign material and do not remove until ready for installation of conductors.

C. Install EMT conduit for branch circuits throughout the building. EMT to junction box in room for lighting circuits. MC cable may be used from junction box to light fixtures. MC cable may also be used in metal stud walls for receptacles, but EMT shall still be used from the panel to a junction box in the room , between junction boxes above ceiling, and between each wall stub-out location.

D. Branch circuits may be routed underslab. In no case may conduits be routed within the slab.

E. PVC conduit may be used for underground installations. Use metal rigid elbows with metal rigid above grade. Fiberglass elbows with zero burn-through, high strength/UV resistant reinforced epoxy may be used for large utility and electrical sweeps in lieu of the rigid. PVC conduits (2 inches and larger) that are routed outside the building under driveways, roadways, sidewalks or the like shall be incased in concrete.

F. Install conduit securely, in a neat and workmanlike manner, as specified in NECA 1.

G. Install nonmetallic conduit in accordance with manufacturer's instructions.

H. Arrange supports to prevent misalignment during wiring installation.

I. Support conduit using coated steel or malleable iron straps, lay-in adjustable hangers, clevis hangers, and split hangers.

J. Group related conduits; support using conduit rack. Construct rack using steel channel; provide space on each for 25 percent additional conduits.

K. Fasten conduit supports to building structure and surfaces under provisions of Section 26 05 29 - HANGERS AND SUPPORTS.

L. Do not support conduit with wire or perforated pipe straps. Remove wire used for temporary supports.

M. Do not attach conduit to ceiling support wires.

N. Arrange conduit to maintain headroom and present neat appearance.

O. Route exposed conduit parallel and perpendicular to walls.

P. Route conduit installed above accessible ceilings parallel and perpendicular to walls.

Q. Maintain adequate clearance between conduit and piping.

R. Maintain 12 inch clearance between conduit and surfaces with temperatures exceeding 104 degrees F.

S. Cut conduit square using saw or pipecutter; de-burr cut ends.

T. Bring conduit to shoulder of fittings; fasten securely.

U. Join nonmetallic conduit using cement as recommended by manufacturer. Wipe nonmetallic conduit dry and clean before joining. Apply full even coat of cement to entire area inserted in fitting. Allow joint to cure for 20 minutes, minimum.

V. Use conduit hubs to fasten conduit to sheet metal boxes in damp and wet locations.

W. Install no more than equivalent of three 90 degree bends between boxes. Use conduit bodies to make sharp changes in direction, as around beams. Use factory elbows for bends in metal conduit larger than 2 inch size.

X. Avoid moisture traps; provide junction box with drain fitting at low points in conduit system.

Y. Provide suitable fittings to accommodate expansion and deflection where conduit crosses seismic and expansion joints.

Z. Provide suitable pull string in each empty conduit except sleeves and nipples.

AA. Use suitable caps to protect installed conduit against entrance of dirt and moisture.

BB. Identify conduit under provisions of Section 26 05 53 - IDENTIFICATION.

3.03 INTERFACE WITH OTHER PRODUCTS

A. Install conduit to preserve fire resistance rating of partitions and other elements, using materials and methods specified in Section 07 84 00 - Firestopping.

END OF SECTION

SECTION 26 05 33.16
BOXES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Outlet and device boxes up to 100 cubic inches, including those used as junction and pull boxes.

B. Cabinets and enclosures, including junction and pull boxes larger than 100 cubic inches.

C. Wall and ceiling outlet boxes.

D. Pull and junction boxes.

1.02 RELATED REQUIREMENTS

A. Section 26 05 29 - HANGERS AND SUPPORTS.

B. Section 26 27 26 - WIRING DEVICES:
   1. Wall plates.

1.03 REFERENCE STANDARDS

A. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2015.

B. NECA 130 - Standard for Installing and Maintaining Wiring Devices; 2016.

C. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable; 2014.

D. NEMA OS 1 - Sheet-Steel Outlet Boxes, Device Boxes, Covers, and Box Supports; 2013.

E. NEMA OS 2 - Nonmetallic Outlet Boxes, Device Boxes, Covers and Box Supports; 2013.

F. NEMA EN 10250 - Enclosures for Electrical Equipment (1000 Volts Maximum); 2024.

G. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

H. UL 50 - Enclosures for Electrical Equipment, Non-Environmental Considerations; Current Edition, Including All Revisions.

I. UL 50E - Enclosures for Electrical Equipment, Environmental Considerations; Current Edition, Including All Revisions.

J. UL 508A - Industrial Control Panels; Current Edition, Including All Revisions.

K. UL 514A - Metallic Outlet Boxes; Current Edition, Including All Revisions.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements.

B. Project Record Documents: Record actual locations and mounting heights of outlet, pull, and junction boxes on project record documents.

1.05 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

B. Products: Provide products listed and classified by Underwriters Laboratories Inc., as suitable for the purpose specified and indicated.

PART 2 PRODUCTS

2.01 BOXES

A. General Requirements:

1. Do not use boxes and associated accessories for applications other than as permitted by NFPA 70 and product listing.
2. Provide all boxes, fittings, supports, and accessories required for a complete raceway system and to accommodate devices and equipment to be installed.
3. Provide products listed, classified, and labeled as suitable for the purpose intended.
4. Where box size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.
5. Provide grounding terminals within boxes where equipment grounding conductors terminate.

B. Outlet and Device Boxes Up to 100 cubic inches, Including Those Used as Junction and Pull Boxes:
1. Use sheet-steel boxes for dry locations unless otherwise indicated or required.
2. Use cast iron boxes or cast aluminum boxes for damp or wet locations unless otherwise indicated or required; furnish with compatible weatherproof gasketed covers.
3. Use suitable concrete type boxes where flush-mounted in concrete.
4. Use suitable masonry type boxes where flush-mounted in masonry walls.
5. Use raised covers suitable for the type of wall construction and device configuration where required.
6. Use shallow boxes where required by the type of wall construction.
7. Do not use "through-wall" boxes designed for access from both sides of wall.
8. Sheet-Steel Boxes: Comply with NEMA OS 1, and list and label as complying with UL 514A.
9. Cast Metal Boxes: Comply with NEMA FB 1, and list and label as complying with UL 514A; furnish with threaded hubs.
10. Boxes for Supporting Luminaires and Ceiling Fans: Listed as suitable for the type and weight of load to be supported; furnished with fixture stud to accommodate mounting of luminaire where required.
11. Boxes for Ganged Devices: Use multigang boxes of single-piece construction. Do not use field-connected gangable boxes unless specifically indicated or permitted.
12. Wall Plates: Comply with Section 26 27 26.

C. Cabinets and Enclosures, Including Junction and Pull Boxes Larger Than 100 cubic inches:
1. Comply with NEMA EN 10250, and list and label as complying with UL 50 and UL 50E, or UL 508A.
2. NEMA EN 10250 Environment Type, Unless Otherwise Indicated:
3. Junction and Pull Boxes Larger Than 100 cubic inches:
a. Provide screw-cover or hinged-cover enclosures unless otherwise indicated.

2.02 MANUFACTURERS

A. Appleton Electric.

B. Arc-Co./Division of Arcade Technology: www.arc-co.com.

C. Unity Manufacturing: www.unitymfg.com.

D. Hubbell

E. Thomas and Betts

F. Crouse-Hinds - Eaton

G. Substitutions: See Section 01 60 00 - Product Requirements.

2.03 OUTLET BOXES

A. Sheet Metal Outlet Boxes: NEMA OS 1, galvanized steel.

1. Luminaire and Equipment Supporting Boxes: Rated for weight of equipment supported; include 1/2 inch male fixture studs where required.
2. Concrete Ceiling Boxes: Concrete type.

B. Cast Boxes: NEMA FB 1, Type FD, aluminum. Provide gasketed cover by box manufacturer. Provide threaded hubs.

C. Wall Plates for Finished Areas: As specified in Section 26 27 26.

D. Technology rough-in boxes to be extra deep (min 2-1/2").

2.04 PULL AND JUNCTION BOXES

A. Sheet Metal Boxes: NEMA OS 1, galvanized steel.

B. Hinged Enclosures:
1. Material: Galvanized cast iron.
2. Cover: Furnish with ground flange, neoprene gasket, and stainless steel cover screws.
3. Material: Galvanized cast iron.
4. Cover: Smooth cover with neoprene gasket and stainless steel cover screws.
5. Cover Legend: "ELECTRIC".
6. Cable Entrance: Pre-cut 6 x 6 inch cable entrance at center bottom of each side.
7. Cover: Glass fiber weatherproof cover with nonskid finish.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that mounting surfaces are ready to receive boxes.

C. Verify that conditions are satisfactory for installation prior to starting work.

D. Coordinate locations of outlets with other trades prior to rough-in.

3.02 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Install boxes in accordance with NECA 1 (general workmanship) and, where applicable, NECA 130, including mounting heights specified in those standards where mounting heights are not indicated.

C. Arrange equipment to provide minimum clearances in accordance with manufacturer's instructions and NFPA 70.

D. Box Supports:
1. Secure and support boxes in accordance with NFPA 70 and Section 26 05 29 using suitable supports and methods approved by the authority having jurisdiction.
2. Provide independent support from building structure except for cast metal boxes (other than boxes used for fixture support) supported by threaded conduit connections in accordance with NFPA 70. Do not provide support from piping, ductwork, or other systems.

E. Install boxes plumb and level.

F. Flush-Mounted Boxes:
1. Install boxes in noncombustible materials such as concrete, tile, gypsum, plaster, etc. so that front edge of box or associated raised cover is not set back from finished surface more than 1/4 inch or does not project beyond finished surface.
a. For boxes installed in masonry walls, use fittings equal or similar to Raco Block-Loc to hold box flush, plumb and level.

2. Install boxes in combustible materials such as wood so that front edge of box or associated raised cover is flush with finished surface.
3. Repair rough openings around boxes in noncombustible materials such as concrete, tile, gypsum, plaster, etc. so that there are no gaps or open spaces greater than 1/8 inch at the edge of the box.

G. Install boxes as required to preserve insulation integrity.

H. Install permanent barrier between ganged wiring devices when voltage between adjacent devices exceeds 300 V.

I. Close unused box openings.

J. Install blank wall plates on junction boxes and on outlet boxes with no devices or equipment installed or designated for future use.

K. Provide grounding and bonding in accordance with Section 26 05 26.

L. Install in locations as shown on Drawings, and as required for splices, taps, wire pulling, equipment connections, and as required by NFPA 70.

M. Set wall mounted boxes at elevations to accommodate mounting heights indicated.

N. Electrical boxes are shown on Drawings in approximate locations unless dimensioned.
1. Adjust box locations up to 3 feet if required to accommodate intended purpose.

O. Orient boxes to accommodate wiring devices oriented as specified in Section 26 27 26.

P. Maintain headroom and present neat mechanical appearance.

Q. Install pull boxes and junction boxes above accessible ceilings and in unfinished areas only.

R. Inaccessible Ceiling Areas: Install outlet and junction boxes no more than 6 inches from ceiling access panel or from removable recessed luminaire.

S. Install boxes to preserve fire resistance rating of partitions and other elements, using materials and methods specified in Section 07 84 00.

T. Coordinate mounting heights and locations of outlets mounted above counters, benches, and backsplashes.

U. Locate outlet boxes to allow luminaires positioned as shown on reflected ceiling plan.

V. Align adjacent wall mounted outlet boxes for switches, thermostats, and similar devices.
1. Switch outlets shall be located within 12" of latch side of door opening, nearest to the opening.

W. Use flush mounting outlet box in finished areas.

X. Coordinate the installation of flush mounted boxes in masonry walls with the Masonry Contractor to achieve neat openings.

Y. Do not install flush mounting boxes back-to-back in walls; provide minimum 8 inches separation.

Z. Secure flush mounting box to interior wall and partition studs. Accurately position to allow for surface finish thickness.

AA. Use stamped steel bridges to fasten flush mounting outlet box between studs.

BB. Install flush mounting box without damaging wall insulation or reducing its effectiveness.

CC. Use adjustable steel channel fasteners for hung ceiling outlet box.

DD. Do not fasten boxes to ceiling support wires.

EE. Support boxes independently of conduit, except cast box that is connected to two rigid metal conduits both supported within 12 inches of box.

FF. Use gang box where more than one device is mounted together. Do not use sectional box.

GG. Use gang box with plaster ring for single device outlets.

HH. Use cast outlet box in exterior locations exposed to the weather and wet locations.

II. Large Pull Boxes: Use hinged enclosure in interior dry locations, surface-mounted cast metal box in other locations.

3.03 ADJUSTING

A. Adjust flush-mounting outlets to make front flush with finished wall material.

B. Install knockout closures in unused box openings.

3.04 CLEANING

A. Clean interior of boxes to remove dirt, debris, plaster and other foreign material.

B. Clean exposed surfaces and restore finish.

END OF SECTION

SECTION 26 28 16.16
ENCLOSED SWITCHES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Fusible switches.

B. Nonfusible switches.

1.02 RELATED REQUIREMENTS

A. Section 26 05 29 - HANGERS AND SUPPORTS.

B. Section 26 28 13 - FUSES.

C. Section 26 0526 - Grounding and Bonding

1.03 REFERENCE STANDARDS

A. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2015.

B. NECA (INST) - NECA Standard of Installation; National Electrical Contractors Association; 1993.

C. NEMA FU 1 - Low Voltage Cartridge Fuses; National Electrical Manufacturers Association; 2002 (R2007).

D. NEMA BS 31047 - Heavy Duty Enclosed and Dead-Front Switches (600 Volts Maximum); 2013 (Reaffirmed 2023).

E. NETA ATS - Standard For Acceptance Testing Specifications For Electrical Power Equipment And Systems; 2021.

F. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.04 SUBMITTALS

A. See Section 01 3000 - Submittal Procedures

B. Product Data: Provide manufacturer's standard catalog pages and data sheets for enclosed switches and other installed components and accessories.

C. Project Record Documents: Record actual locations of enclosed switches.

1.05 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Square D

B. Siemens.

C. Cutler Hammer

D. General Electric

E. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 COMPONENTS

A. Fusible Switch Assemblies: NEMA KS 1, Type HD enclosed load interrupter knife switch.
   1. Externally operable handle interlocked to prevent opening front cover with switch in ON position.
   2. Handle lockable in OFF position.

3. Fuse clips: Designed to accommodate NEMA FU1, Class R fuses.

B. Nonfusible Switch Assemblies: NEMA KS 1, Type HD enclosed load interrupter knife switch.
   1. Externally operable handle interlocked to prevent opening front cover with switch in ON position.
   2. Handle lockable in OFF position.

C. Enclosures: NEMA KS 1.
   1. Interior Dry Locations: Type 1.
   2. Exterior Locations: Type 3R.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Perform work in accordance with NECA 1 (general workmanship).

C. Arrange equipment to provide minimum clearances in accordance with manufacturer's instructions and NFPA 70.

D. Provide required support and attachment in accordance with Section 26 05 29.

E. Install enclosed switches plumb.

F. Except where indicated to be mounted adjacent to the equipment they supply, mount enclosed switches such that the highest position of the operating handle does not exceed 79 inches above the floor or working platform.

G. Provide grounding and bonding in accordance with Section 26 05 26.

H. Install fuses in fusible disconnect switches.

I. Apply adhesive tag on inside door of each fused switch indicating NEMA fuse class and size installed.

3.02 FIELD QUALITY CONTROL

A. See Section 01 43 00 - Quality Assurance, for additional requirements.

B. Perform field inspection in accordance with Section 01 4500 and 01 4510

C. Inspect and test in accordance with NETA ATS, except Section 4.

D. Perform inspections and tests listed in NETA ATS, Section 7.5.1.1.

E. Correct deficiencies and replace damaged or defective enclosed safety switches or associated components.

END OF SECTION

SECTION 28 31 01
FIRE ALARM - DETECTION SYSTEM

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. The provisions of the General Conditions, Supplementary Conditions, and the Sections included under Division 1, General Requirements are included as a part of this Section as though bound herein.

1.02 SUMMARY

A. Provide labor, material, equipment, and accessories necessary to extend the existing fire alarm system from the existing building to the new addition as indicated on the drawings.

1.03 SUBMITTALS

A. Shop Drawings
   1. The system manufacturer's representative shall be responsible for furnishing 5 sets of engineering drawings matching the layout, scale, and sheet size of the contract documents. These drawings shall be assembled in a manor to satisfy the most recently adopted edition of the Ohio Building Code (OBC) concerning Fire Alarm Detection System Shop Drawings. These drawings shall indicate the interlocking of equipment external to the various control panels. These Drawings shall be included in the submittal to the Architect/Engineer for approval and shall be stamped/signed by a manufacturer's representative who is NICET Level III or IV certified and certified by the State of Ohio Board of Building Standards (OBBS) as a fire alarm system designer, or stamped by a Professional Engineer in the State of Ohio. The Owner will pay the drawing approval fees associated with the state plan approval of the fire alarm system. The Architect will be responsible for submitting the final fire alarm system shop drawings to the state for approval. The Contractor must submit this shop drawing information in a timely manner so as not to impede the project progress.
   2. Complete and comprehensive shop drawings shall be submitted to the Architect/Engineer for review.

B. Post Construction
   1. Provide signed (by attendees & trainer) & dated training syllabus for each completed training session to the Architect/Engineer Technology Designer.
   2. Operation & Maintenance Manuals
      a. Provide complete O & Ms. PDF format.
      b. PDF shall be fully indexed by Section Name/System/Device.
   3. The Architect/Engineer Technology Designer may require operational demonstration of any products and systems to verify Execution/Installation/Configuration requirements are met.

1.04 QUALITY ASSURANCE

A. Units on the fire alarm system shall be listed by Underwriters Laboratories, Inc. for fire alarm use, and the control panel shall bear the UL label. The system shall be installed in accordance with requirements set by National Electric Code with particular attention to Article 760 and in compliance with applicable provisions of Standards No. 72 published by the National Fire Protection Association (NFPA), section 907 of the Ohio Building Code (OBC) and also with Local Code requirements.

B. All equipment must have transient protection to comply with UL864 requirements. Where fire alarm circuits leave the building, additional transient protection must be provided for each circuit.

1.05 CERTIFICATION

A. The Contractor shall provide the services and equipment of an alarm service company certified by NICET as being capable of furnishing the signaling systems specified herein. All components of the fire alarm system shall be U.L. listed.

B. The Contractor shall be certified by the system manufacturer for installation and programing with a minimum of five years experience with this system or similar fire alarm systems. All components of the fire alarm system shall be U.L. listed.

1.06 WARRANTY

A. Components, parts, and assemblies supplied by the manufacturer shall be guaranteed against defects in materials and workmanship in a period of 12 months, commencing upon system start up and beneficial use, at which time the system is protecting property of occupants, provided such defects are not caused by a misuse, abuse, neglect, unauthorized tampering, equipment modifications, or acts of God. Warranty services shall be provided by a qualified factory trained representative of the equipment manufacturer during normal working hours. The representative shall be based in a fully staffed branch office and located within a reasonable distance from the job site. An adequate supply of repair parts shall be maintained by the branch office. The manufacturer shall not be liable for consequential damages. The manufacturer's statement of warranty shall be included in the submittals.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Silent Knight

2.02 FIRE ALARM CONTROL PANEL

A. The existing addressable fire alarm control panel is model number 5700 manufactured by Silent Knight and is located in the existing storage room.

B. Provide NAC extender modules as required to extend the existing system to the new addition for a complete operating system.

2.03 NOTIFICATION APPLIANCE CIRCUIT (NAC) POWER SUPPLY UNITS

A. Provide NAC units as necessary per manufacturer for a complete operating system. Coordinate rough-in and power requirements for unit with Division 26 contractor. Division 26 contractor shall provide rough-ins and power per manufacturer's requirements.
   1. Provide 20 amp, 120 volt circuit for power supply unit power feed. Provide circuit breaker markings, locks, etc. to satisfy applicable codes and the local AHJ.

2.04 SYSTEM DEVICES

A. Addressable Manual Fire Alarm Pull Station.
   1. The pull station shall be dual action pull lever type, key resettable, have a permanently attached intelligent addressable module, and have a plastic breakrod. The pull station shall have a red, metal die-cast housing.
   2. The pull station shall contain electronics that communicate the station's status to the FACP.

B. Addressable Thermal Fire Detector and base.
   1. Combination rate-of rise and 135 degrees F fixed temperature
   2. White polycarbonate housing.
   3. Low profile, flanged, addressable mounting base with electronics to communicate the detector's status to the FACP.
      a. Thermal fire detectors used for direct control of other systems or devices (i.e. smoke dampers, door holds, elevators, shunt trip circuit breakers, etc.) shall have a mounting base equipped with an integral set of dry contacts, or an external intelligent

addressable relay module may be used for control. Power through the relay to be coordinated with Division 26. Refer to E3 and E5 sheets for additional information.

C. Addressable Area Photo Electric Smoke Detector and base.
   1. Intelligent photoelectric smoke sensor with LED which flashes when detector is polled and turns steady on when detector goes into alarm.
      a. Provide a remote LED indicator for smoke detectors mounted above ceilings in smoke dampers and the like. LED indicator shall be flush mounted in ceiling directly below smoke detectors. Provide a label for the remote LED to indicate its purpose.
   2. White polycarbonate housing.
   3. Low profile, flanged, addressable mounting base with electronics to communicate the detector's status to the FACP.
      a. Smoke detectors used for direct control of other systems or devices (i.e. smoke dampers, door holds, elevators, shunt trip circuit breakers, etc.) shall have a mounting base equipped with an integral set of dry contacts, or an external intelligent addressable relay module may be used for control. Power through the relay to be coordinated with Division 26. Refer to E3 and E5 sheets for additional information.

D. Addressable Duct Type Smoke Detector.
   1. Air duct mounted photoelectric type smoke detector assemblies listed by UL and approved by Factory Mutual Research under the current standards for photoelectric type duct detectors. The duct detector assembly shall be addressable with electronics to communicate detector's status to the FACP.
   2. Assembly shall operate at air velocities from 100 feet to 4000 feet per minute.
   3. Provide sampling tubes based on size of ductwork. Coordinate exact size with ductwork in field.
   4. Assembly shall have visual indication of alarm and power. Provide a remote LED indicator light, wall mounted and labeled, to indicate its purpose by each air handler unit VFD.
   5. The duct type smoke detector shall be equipped with integral set of dry contacts, or an external intelligent addressable relay module may be used for control. Power through the relay to be coordinated with Division 26.

E. Addressable Carbon Monoxide Gas Detector
   1. Intelligent CO sensor with LED which flashes when detector is polled and turns steady on when detector goes into alarm.
   2. White polycarbonate housing.
   3. Low profile, flanged, addressable mounting base with electronics to communicate the detector's status to the FACP.

F. Addressable Monitor Module.
   1. Intelligent addressable module with electronics to communicate the module's status to the FACP.
   2. LED to indicate module status.

G. Addressable Relay Module.
   1. Intelligent addressable module with electronics to communicate the module's status to the FACP.
   2. LED to indicate module status.
   3. Two isolated sets of contacts to control desired functions.

H. Remote LED Alarm Indicator.
   1. LED indicator light to connect to smoke detectors, duct detectors, etc. to show status of hidden or remote device.

I. Signal Devices:

1. Recessed combination synchronized strobe light with 4 inch electronic horn (or single synchronized strobe), with back box and trim, 24VDC, with light intensity of 110 candela, 225mA, flush mounted at 80 inches above finished floor or 6 inches below ceiling, whichever is lower.
    a. Wire circuits to a maximum of 80% capacity.
    b. Provide a sync module for signal devices.

2.05 SYSTEM WIRING

A. Provide in accordance with manufacturer's instructions, wiring (in conduit), and outlet boxes for the erection of a complete system as described herein and as shown on the Engineer's Drawings. Minimum wire size shall be No. 14, provide wiring per manufacturer's requirements.

B. Wiring shall be in accordance with requirements of the National Electrical Code and NFPA Regulation No. 72. The fire alarm, including components and wiring, shall be completely installed and wiring shall be properly tagged and color coded. The Contractor shall make final connections as shown and required by the equipment manufacturer's wiring instructions.

C. The manufacturer's authorized representative shall perform a quality inspection of the final installation, which shall be done in the presence of the Contractor and local Authority Having Jurisdiction (AHJ). The representative shall submit a certificate of completion to the contractor when work is satisfactorily completed.

2.06 SYSTEM PERFORMANCE REQUIREMENTS

A. The activation of any fire alarm station or automatic detector circuit shall automatically perform the following functions:
    1. All automatic programs assigned to the alarm point shall be executed and the associated indicating devices and relays activated.
    2. The System Alarm on appropriate panel will indicate an alert condition.
    3. Activate all control by event functions related to the alarm.
    4. The approved certified Central Monitoring Agency to be signaled automatically.
    5. Shut down individual HVAC units upon activation of local detectors.
    6. Doors with hold open devices shall be signaled to release.
    7. Sound a continuous alarm over all signals and activate the associated flashing light.
    8. Activation of the building fire alarm system shall automatically unlock access controlled egress doors and the doors shall remain unlocked until the fire alarm system has been reset.

B. Test - Fire Drill Mode
    1. Include with the system a "Fire Drill Mode". Upon activation of Fire Drill Mode, the annunciators and horns and strobes will activate. HVAC units will NOT be shut down, and the communicator will NOT dial out to the central monitoring agency. This will be a button activation at the main control panel, and there will be button deactivation at the main control panel.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install new manual stations, signals, wiring system, and power and automatic stations (ceiling smoke detectors, duct mounted smoke detectors, thermo detectors, and the like). Connect to existing fire alarm system as required by system manufacturer.

B. Installations shall be in strict conformance with the manufacturer's recommendations.

C. Outlets shall be equipped with the appropriate fire alarm device.

D. Wiring shall be installed in conduit.

3.02 PROGRAMMING

A. Program the system using the Owner's final room number designations, not the Architect's room numbers as shown on the Drawings.

3.03 PARTIAL OR CONTINUED OCCUPANCY

A. Should the Owner elect to partially occupy or continuously occupy the building prior to Substantial Completion of all work, the fire alarm system for that portion of the building so occupied, including the assigned means of egress from same, shall be made fully operational. System status shall be certified in writing by the manufacturer and the Division 26 Contractor.

3.04 DEMONSTRATION/INSPECTION

A. The manufacturer's authorized representative shall perform a quality inspection of the final installation and in the presence of electrical contractor and Owner's representatives, shall perform a complete functional testing of this system. A system certification verifying the proper system operation shall be required prior to acceptance by the Owner.

B. Demonstrate entire system and proper function of each device.

C. Coordinate and assist the Owner with the requirements and set-up of system monitoring with the monitoring company of the Owner's preference.

END OF SECTION

GARMANN MILLER

Division 31

Earthwork

SECTION 31 10 00
SITE CLEARING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Installation of erosion and sedimentation control devices, per Storm Water Pollution Prevention Plans.

B. Clearing of existing vegetation.

C. Protection of vegetation to remain and repair work for construction damage. Work to be completed in accordance with approved nursery standards.

D. Trimming and shaping of existing vegetation to remain.

E. Removal of existing debris.

F. Plant material removal meeting.

1.02 ADMINISTRATIVE REQUIREMENTS

A. Pre-clearing Meeting: Convene a pre-clearing meeting two weeks before starting work of this section; require attendance by all relevant contractors, subcontractors, and owner's representative.

1.03 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Site Plan: Showing:
   1. Vegetation removal limits.
   2. Areas for temporary construction and field offices.

1.04 PROJECT CONDITIONS

A. Minimize production of dust due to clearing operations; do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.

B. Comply with other requirements specified in Section 01 70 00.

PART 2 PRODUCTS

2.01 MATERIALS

A. Fill Material: As specified in Section 31 23 23 - Fill and Backfill

PART 3 EXECUTION

3.01 SITE CLEARING

A. Comply with other requirements specified in Section 01 70 00.

B. Minimize production of dust due to clearing operations; do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.

3.02 EXISTING UTILITIES AND BUILT ELEMENTS

A. Coordinate work with utility companies; notify before starting work and comply with their requirements; obtain required permits.

B. Protect existing utilities to remain from damage.

C. Do not disrupt public utilities without permit from authority having jurisdiction.

D. Protect existing structures and other elements that are not to be removed.

3.03 VEGETATION

A. Scope: Remove trees, shrubs, brush, and stumps in areas to be covered by building structure, and paving.

B. Do not begin clearing until vegetation to be relocated has been removed and all vegetation has been inventoried as noted below.

C. In areas where vegetation must be removed but no construction will occur, remove vegetation with minimum disturbance of the subsoil.

D. Vegetation Removed: Do not burn, bury, landfill, or leave on site, except as indicated.
   1. Chip, grind, crush, or shred vegetation for mulching, composting, or other purposes; preference should be given to on-site uses.
      a. Green wood is not to be used for mulch.
   2. Trees: Sell if marketable; if not, treat as specified for other vegetation removed; remove stumps and roots to depth of 18 inches.
   3. Existing Stumps: Treat as specified for other vegetation removed; remove stumps and roots to depth of 18 inches.
   4. Sod: Re-use on site if possible; otherwise sell if marketable, and if not, treat as specified for other vegetation removed.
   5. Fill holes left by removal of stumps and roots, using suitable fill material, with top surface neat in appearance and smooth enough not to constitute a hazard to pedestrians.
   6. Dead Wood: Remove all dead trees (standing or down), limbs, and dry brush on entire site; treat as specified for vegetation removed.

E. Restoration:
   1. If vegetation outside removal limits or within specified protective fences is damaged, or destroyed, due to subsequent construction operations, replace at no cost to Owner. This includes root damage due to poor protection fence or upkeep.
      a. Trees and vegetation will be considered dead when main leader has died back or when 25 percent or more of crown has died .
      b. Trees will be considered damaged and not able to reasonably survive when repeated neglect of protection is observed.
   2. If a tree is deemed damaged or dead by the owner's representative, a $500 per caliper inch of tree penalty will be assessed.

3.04 DEBRIS

A. Remove debris, junk, and trash from site.

B. Leave site in clean condition, ready for subsequent work.

C. Clean up spillage and wind-blown debris from public and private lands.

END OF SECTION

SECTION 31 22 00
GRADING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Removal of topsoil.

B. Rough grading the site for building pads and site improvements.

C. Topsoil testing, amendment and Finish grading.

1.02 RELATED REQUIREMENTS

A. Section 31 10 00 - Site Clearing.

B. Section 31 23 16 - Excavation.

C. Section 31 23 23 - Fill: Filling and compaction.

D. Section 32 92 19 - Seeding: Finish ground cover.

E. Section 32 93 00 - Plants: Topsoil in beds and pits.

1.03 SUBMITTALS

A. Project Record Documents: Accurately record actual locations of utilities remaining by horizontal dimensions, elevations or inverts, and slope gradients.

1.04 QUALITY ASSURANCE

A. Perform Work in accordance with State of Ohio Highway Department, County, or municipality standards.
   1. Maintain one copy of standards on site in job trailer.

B. Topsoil Analysis: Furnish two (2) soil analysis results made by a qualified independent soil testing agency stating percentages or organic matter, inorganic matter (silt, clay, and sand), deleterious material, pH, and mineral and plant nutrient content of topsoil. First test shall occur as a representative sample of the soil stockpile. Second sample shall occur after topsoil has been respread and prior to finish grading. Stockpiles and/or respread soil showing differences in physical characteristics require different topsoil to be tested separately.

1.05 PROJECT CONDITIONS

A. Protect above- and below-grade utilities that remain.

B. Protect plants, lawns, and other features to remain as a portion of final landscaping.

C. Protect bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs from grading equipment and vehicular traffic.

1.06 DEFINITIONS

A. Prime Areas: High visibility and/or valued turfgrass areas within the site to be constructed, graded, prepared, and established with the highest level of care. Examples: school and recreational athletic fields, areas adjacent to main entrances of buildings, special event areas.

B. Common Areas: General use turfgrass areas within the site to be constructed, graded, prepared, and established with above average care. Examples: school recess areas, parking lot islands, lawn areas adjacent to buildings, privacy mounding or berms.

C. Utility Areas: Basic functional turfgrass areas within the site to be constructed, graded, prepared, and established with average care. Examples: rights-of-way, roadsides, ditches, low-maintenance areas, meadows, areas surrounding electrical or mechanical infrastructure and equipment.

PART 2 PRODUCTS

2.01 MATERIALS

A. Topsoil - Soil Type
   1. Prime: Topsoil Amended with Compost and Fertilizer
   2. Common: Topsoil Amended with Fertilizer and Soil Conditioners
   3. Utility: Topsoil Amended with Fertilizer

B. All Topsoil
   1. Graded.
   2. Free of roots, gravel overages, rocks larger than 3/4 inch, subsoil, debris, large weeds and foreign matter.
   3. Topsoil must be amended and conditioned to be capable of sustaining vigorous plant growth with acceptable macronutrient and micronutrient levels per soil test results as determined by ASTM D5268.
   4. Specific amendments will be based on soil test results and type of area as indicated on site and landscape plans.
   5. Soil shall have the following USDA particle size analysis. Sand, silt and clay shall be determined by ASTM D422
      a. Gravel: Plus 2mm. Less than 10%
      b. Sand: .05mm to .2mm. 15-40%
      c. Silt: .002 to .05mm. 25-65%
      d. Clay: minus .002mm. 20-35%

C. Soil Amendment Materials:
   1. Amend topsoil based on recommendations of topsoil test. Amendments may include, but are not limited to:
      a. Peat Moss: Shredded, loose, sphagnum moss; free of lumps, roots, inorganic material or acidic materials; minimum of 85 percent organic material measured by oven dry weight, pH range of 4 to 5; moisture content of 30 percent.
      b. Composted Organic Material: Mature, stable humus-like material derived from aerobic decomposition. The compost shall be dark brown to black in color and capable of supporting plant growth.
         1) Carbon to Nitrogen ratio not to exceed 30 to 1.
         2) Leaf-litter and yard waste sources only.
         3) Biosolid sources are unacceptable.
         4) Sources from EPA approved compost facility
         5) Most recent compost lab test results furnished to Landscape Architect prior to use as a soil amendment.
         6) Screened to three quarter inch.
      c. Carbon-Based Soil Conditioner: Site One/Lesco Carbon Pro G or equal, minimum 47% carbon derived from pyrolyzed hardwood biochar, mycorrhizae fungi package derived from *Bacillus* spp.
      d. Lime: Ground limestone, dolomite type, minimum 108 calcium carbonate equivalent percent carbonates; or Ground limestone, calcitic type, minimum 100 calcium carbonate equivalent percent carbonates.
      e. Elemental Sulfur: Tiger-Sul Turf Blend or equal, 90% elemental sulfur

D. Other Fill Materials: See Section 31 23 23.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that survey bench mark and intended elevations for the Work are as indicated.

B. Verify the absence of standing or ponding water.

C. Verify tree protection noted in 31 1000 Site Clearing has been completed. Absolutely no work is to start without tree protection in place.

D. Verify all SWPPP sedimentation controls are in place downslope prior to stripping topsoil.

3.02 PREPARATION

A. Identify required lines, levels, contours, and datum.

B. Stake and flag locations of known utilities.

C. Protect from damage above- and below-grade utilities to remain.

D. Notify utility company to remove and relocate utilities.

E. Provide temporary means and methods to remove all standing or ponding water from areas prior to grading.

F. Protect site features to remain, including but not limited to bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs, from damage by grading equipment and vehicular traffic.

G. Amend topsoil as indicated in the Topsoil Test Report as noted below in Soil Amendments.

3.03 ROUGH GRADING

A. Remove topsoil from areas to be further excavated, re-landscaped, or re-graded, without mixing with foreign materials.

B. Do not remove topsoil when wet.

C. Remove subsoil from areas to be further excavated, re-landscaped, or re-graded.

D. Do not remove wet subsoil , unless it is subsequently processed to obtain optimum moisture content.

E. When excavating through roots, perform work by hand and cut roots with sharp axe.

F. Grade areas adjacent to building to drain away from structures and to prevent ponding.

G. See Section 31 23 23 for filling procedures.

H. Benching Slopes: Horizontally bench existing slopes greater than 1:4 to key fill material to slope for firm bearing.

I. Stability: Replace damaged or displaced subsoil to same requirements as for specified fill.

J. Remove and replace soils deemed unsuitable by classification and which are excessively moist due to lack surface water control.

3.04 SOIL REMOVAL AND STOCKPILING

A. Stockpile topsoil to be re-used on site; remove remainder from site.

B. Stockpile subsoil to be re-used on site; remove remainder from site.

C. Stockpiles:
   1. Stockpile without intermixing soil types
   2. Use areas designated on the site
      a. Stockpile soil material away from edges of excavations
      b. Do not place stockpiles within the drip line of trees to remain.
   3. Pile depth not to exceed 8 feet
   4. Place, grade and shape stockpiles to drain surface water.
   5. Protect from erosion (wind and water). Stabilize with temporary vegetation or tarps.

3.05 GENERAL SURFACE GRADING

A. Uniformly grade areas within project limits including adjacent transition areas.

1. Smooth finish surface within specified tolerances, grade in uniform levels or slopes between points where elevations are shown and between points and existing grades.
2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.

3.06 FINISH GRADING

A. Before Finish Grading:
   1. Verify building and trench backfilling have been inspected.
   2. Verify subgrade has been contoured and compacted.
   3. Verify topsoil testing has been completed and any necessary amendments have been added and thoroughly mixed in.

B. Remove debris, roots, branches, stones, in excess of 3/4 inch in size. Remove soil contaminated with petroleum products.

C. Where topsoil is to be placed, scarify or till surface to depth of:
   1. Prime - 6 inches
   2. Common - 3 inches
   3. Utility - 3 inches
   4. In areas where vehicles, equipment, material laydown or stockpiling have compacted the soil, scarify or till surface to a minimum depth of 6". Areas shall be identified by field marking and/or mapping prior to scarifying or tilling. Landscape Architect or Owner Representative shall verify locations prior to commencing work.

D. Pulverize and place topsoil where required to level finish grade.

E. Pulverize and place topsoil to the following compacted thicknesses:
   1. Areas to be Seeded with Grass: 6 inches.
   2. Areas to be Sodded: 4 inches.
   3. Shrub Beds: 18 inches.

F. Place topsoil during dry weather.

G. Remove roots, weeds, rocks, and foreign material while spreading.

H. Near site improvements and existing vegetation spread topsoil manually to prevent damage.

I. Fine grade topsoil to eliminate uneven areas and low spots. Maintain profiles and contour of subgrade.

J. Lightly compact placed topsoil.

K. Maintain stability of topsoil during inclement weather. Replace topsoil in areas where surface water has eroded thickness below specifications.

3.07 SOIL AMENDMENTS

A. Prime Areas
   1. Composted Organic Materials:
      a. Evenly spread the recommended volume of material over the topsoil prior to finish grading.
      b. Using a reverse tine tiller, or approved equal equipment, incorporate the material to a minimum depth of 6 inches in two directions.
      c. Place and till manually near site improvements to avoid damage to amenities, sidewalks, curbs, parking lots, or buildings.
      d. Maximum use rate of 1 inch of composted organic material for every 6 inches of topsoil.
   2. Fertilizer:
      a. Using a properly calibrated rotary spreader, apply recommended fertilizer at rates indicated by approved recommendations based on soil test report.

b. Using a reverse tine tiller, or approved equal equipment, incorporate the material to a minimum depth of 6 inches in two directions and completed concurrently with incorporating composted organic materials.
c. Maximum use rate of 1.5 pounds of nitrogen, phosphorus, and potassium per one thousand square feet

3. Lime:
a. Using a properly calibrated rotary spreader, apply recommended fertilizer at rates indicated by approved recommendations based on soil test report.
b. Using a reverse tine tiller, or approved equal equipment, incorporate the material to a minimum depth of 6 inches in two directions and completed concurrently with incorporating composted organic materials and fertilizer.
c. Maximum use rate of 25 pounds of calcitic or dolomitic lime per one thousand square feet.
d. Complete a minimum of 14 days prior to seeding or sodding turfgrass

4. Elemental Sulfur:
a. Using a properly calibrated rotary spreader, apply recommended fertilizer at rates indicated by approved recommendations based on soil test report.
b. Using a reverse tine tiller, or approved equal equipment, incorporate the material to a minimum depth of 6 inches in two directions and completed concurrently with incorporating composted organic materials and fertilizer.
c. Maximum use rate of 5 pounds per one thousand square feet.
d. Complete a minimum of 14 days prior to seeding or sodding turfgrass

B. Common Areas
1. Carbon-Based Soil Conditioner:
a. Using a properly calibrated rotary spreader, apply at a rate of 10 pounds per one thousand square feet over the topsoil prior to finish grading.
b. Using a power rake, Harley Rake, or approved equal equipment, incorporate the material to a minimum depth of 2 inches in two directions.
c. Place and incorporate manually near site improvements to avoid damage to amenities, sidewalks, curbs, parking lots, or buildings.
d. Maximum use rate of 10 pounds per one thousand square feet.

2. Fertilizer:
a. Using a properly calibrated rotary spreader, apply recommended fertilizer at rates indicated by approved recommendations based on soil test report.
b. Complete application after finish grading.
c. Maximum use rate of 1.5 pounds of nitrogen, phosphorus, and potassium per one thousand square feet.

3. Lime:
a. Using a properly calibrated rotary spreader, apply recommended fertilizer at rates indicated by approved recommendations based on soil test report.
b. Maximum use rate of 25 pounds of calcitic or dolomitic lime per one thousand square feet.
c. Complete a minimum of 14 days prior to seeding or sodding turfgrass

4. Elemental Sulfur:
a. Using a properly calibrated rotary spreader, apply recommended fertilizer at rates indicated by approved recommendations based on soil test report.
b. Maximum use rate of 5 pounds per one thousand square feet.
c. Complete a minimum of 14 days prior to seeding or sodding turfgrass.

C. Utility Areas
1. Fertilizer:

a. Using a properly calibrated rotary spreader, apply recommended fertilizer at rates indicated by approved recommendations based on soil test report.
b. Complete application after finish grading.
c. Maximum use rate of 1.5 pounds of nitrogen, phosphorus, and potassium per one thousand square feet.

2. Lime:
a. Using a properly calibrated rotary spreader, apply recommended fertilizer at rates indicated by approved recommendations based on soil test report.
b. Maximum use rate of 25 pounds of calcitic or dolomitic lime per one thousand square feet.
c. Complete a minimum of 14 days prior to seeding or sodding turfgrass.

3. Elemental Sulfur:
a. Using a properly calibrated rotary spreader, apply recommended fertilizer at rates indicated by approved recommendations based on soil test report.
b. Maximum use rate of 5 pounds per one thousand square feet.
c. Complete a minimum of 14 days prior to seeding or sodding turfgrass.

3.08 TOLERANCES

A. Top Surface of Subgrade: Plus or minus 0.10 foot (1-3/16 inches) from required elevation.

B. Top Surface of Finish Grade from required elevation over 25 feet in any direction:
1. Prime - plus or minus 1/2"
2. Common - plus or minus 3/4"
3. Utility - plus or minus 3/4"

3.09 REPAIR AND RESTORATION

A. Existing Facilities, Utilities, and Site Features to Remain: If damaged due to this work, repair or replace to original condition.

B. Trees to Remain: If damaged due to this work the contractor will hire an arborist to trim broken branches and repair bark wounds; if root damage has occurred, obtain instructions from Landscape Architect as to remedy.

C. Other Existing Vegetation to Remain: If damaged due to this work, replace with vegetation of equivalent species and size.

3.10 FIELD QUALITY CONTROL

A. See Section 31 23 23 for compaction density testing.

B. Furnish records of soil amendments applied as part of O & M.

C. Final inspection on levelness of finish grade subject to Landscape Architect approval prior to seeding or sodding. Contractor responsible to meet finish grades per contract documents.

3.11 CLEANING

A. Remove unused stockpiled topsoil and subsoil. Grade stockpile area to prevent standing water.

B. Leave site clean and raked, ready to receive landscaping.

END OF SECTION

SECTION 31 23 16
EXCAVATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Excavating for building volume below grade, footings, slabs-on-grade, paving, and dewatering.

B. Trenching for utilities outside the building to utility main connections.

C. Temporary excavation support and protection systems.

D. Dewatering

1.02 REFERENCE STANDARDS

A. 29 CFR 1926 - Safety and Health Regulations for Construction; Current Edition.

1.03 DEFINITIONS

A. Excavation: Removal of material encountered required for building volume below grade, footings, slab-on-grade, paving, utility trenches, etc.

B. Additional Excavation: Excavation below required excavation as directed by the Architect. Additional excavation and replacement material will be paid for according to the Contract provisions for changes in the work.

C. Unauthorized Excavation: Excavation below required excavation or beyond required excavation without direction of the Architect. Unauthorized excavation and remedial work directed by the Architect shall be without additional compensation.

1.04 QUALITY ASSURANCE

A. Code and Standards: Perform work complying with requirements of authorities having jurisdiction

B. Testing and Inspection: A qualified independent geotechnical engineering testing agency shall classify proposed on-site borrow soils to verify that soils comply with specified requirements and to perform required field and laboratory testing.

1.05 PROJECT CONDITIONS

A. Verify that survey bench mark and intended elevations for the Work are as indicated.

B. Protect plants, lawns, and other features to remain.

C. Protect bench marks, survey control points, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

PART 2 PRODUCTS

2.01 MATERIALS

A. Bedding and Fill to Correct Over-Excavation:
   1. See Section 31 23 23 for bedding and corrective fill materials at general excavations.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that survey bench mark and intended elevations for the work are as indicated.

3.02 PREPARATION

A. Identify required lines, levels, contours, and datum locations.

B. See Section 31 22 00 for topsoil removal.

C. Protect utilities that remain and protect from damage.

D. Grade top perimeter of excavation to prevent surface water from draining into excavation. Provide temporary means and methods, as required, to maintain surface water diversion until no longer needed, or as directed by Owner's Representative.

3.03 TEMPORARY EXCAVATION SUPPORT AND PROTECTION

A. Excavation Safety: Comply with OSHA's Excavation Standard, 29 CFR 1926, Subpart P.

3.04 DEWATERING

A. Prevent surface water and ground water from entering excavations and from flooding project site and surrounding area.

B. Do not allow water to accumulate in excavations. Remove water to prevent softening of foundation bottoms, undercutting footings and soil changes detrimental to stability of subgrades and foundations.
   1. Provide and maintain pumps, sumps, suction and discharge lines and other dewatering systems necessary to convey water away from excavations.

3.05 EXCAVATING

A. General
   1. Explosives: Do not use explosives
   2. Underpin adjacent structures that could be damaged by excavating work.
   3. Excavate to accommodate new structures and construction operations.
   4. Notify Architect of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.
   5. Comply with local codes, ordinances, and requirements of authorities having jurisdiction to maintain stable excavations.
   6. Slope banks of excavations deeper than 4 feet to angle of repose or less until shored.
   7. Do not interfere with 45 degree bearing splay of foundations.
   8. Cut utility trenches wide enough to allow inspection of installed utilities.
   9. Hand trim excavations. Remove loose matter.
   10. Correct areas that are over-excavated and load-bearing surfaces that are disturbed; see Section 31 23 23.
   11. Provide temporary means and methods, as required, to remove all water from excavations until directed by Architect. Remove and replace soils deemed suitable by classification and which are excessively moist due to lack of dewatering or surface water control.
   12. Determine the prevailing groundwater level prior to excavation. If the proposed excavation extends less than 1 foot into the prevailing groundwater, control groundwater intrusion with perimeter drains routed to sump pumps, or as directed by the Architect. If the proposed excavation extends more than 1 foot into the excavation, control groundwater intrusion with a comprehensive dewatering procedures, or as directed by the Geotechnical Engineer.
   13. Remove excavated material that is unsuitable for re-use from site.
   14. Stockpile excavated material to be re-used in area designated on site 31 22 00.
   15. Remove excess excavated material from site.
   16. Refer to the geotechnical report for additional recommendations.

B. Excavation for structures:
   1. Excavate to indicated elevations and dimensions within a tolerance of plus or minus one (1) inch. Extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction.
      a. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave a solid base to receive other work.

C. Excavation for walks and pavements:

1. Excavate surfaces under walks and pavements to indicated cross sections, elevations and grades.

D. Excavation for trenches:
   1. Cut utility trenches wide enough to allow inspection of installed utilities.
   2. Excavate trenches to indicated gradients, lines, depths and elevations. Beyond building perimeter keep bottoms of trenches sufficiently below grade to avoid freezing.
   3. Excavate trenches to uniform width to provide working clearance on each side of pipe or conduit. Provide 12 inches clearance on each side
   4. If bedding course is not called for, excavated and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape subgrade to provide continuous support for bells, joints and barrels of pipes and for joints, fittings and bodies of conduits. Remove stones and sharp objects to avoid point loading.
      a. For pipe and conduits less than 6 inches in nominal diameter and flat bottom multi-duct conduit lines excavate to indicated depths and support pipe and conduit on an undisturbed subgrade.

3.06 SUBGRADE PREPARATION

A. See Section 31 23 23 for subgrade preparation at general excavations.

3.07 FILLING AND BACKFILLING

A. Do not fill or backfill until all debris, water, unsatisfactory soil materials, obstructions, and deleterious materials have been removed from excavation.

B. See Section 31 23 23 for fill, backfill, and compaction requirements at general excavations.

C. See Section 31 22 00 for rough and final grading and topsoil replacement requirements.

3.08 REPAIR

A. Correct areas that are over-excavated and load-bearing surfaces that are disturbed; see Section 31 23 23.

3.09 FIELD QUALITY CONTROL

A. See Section 01 43 00 - Quality Assurance, for general requirements for field inspection and testing.

B. Provide a test to verify required design bearing capacities at each strata of soil on which footings will be placed.
   1. Provide a test for every 200 lineal feet of footing.
   2. Verification and approval each footing at the strata of soil may be based on visual inspection and comparison between tests locations.
   3. Provide a minimum of three (3) tests for each building

C. Provide a test to verify required design bearing capacities of soil on which slabs on grade will be placed.
   1. Provide a minimum of one test for each 5,000 square feet of building area.
   2. Provide a minimum of three (3) test for each building

D. Provide a test to verify required design bearing capacities at each strata of soil on which footings will be placed.

E. Provide a minimum of three (3) test for each building

F. Provide for visual inspection of load-bearing excavated surfaces by Owner's Representative before placement of foundations.

3.10 CLEANING

A. Stockpile excavated material to be re-used in area designated on site in accordance with Section 31 22 00.

B. Remove excavated material that is unsuitable for re-use from site.

C. Remove excess excavated material from site.

3.11 PROTECTION

A. Divert surface flow from rains or water discharges from the excavation.

B. Prevent displacement of banks and keep loose soil from falling into excavation; maintain soil stability.

C. Protect open excavations from rainfall, runoff, freezing groundwater, or excessive drying so as to maintain foundation subgrade in satisfactory, undisturbed condition.

D. Protect bottom of excavations and soil adjacent to and beneath foundation from freezing.

E. Keep excavations free of standing water and completely free of water during concrete placement.

F. Repair and re-establish grades to specified tolerances where completed surfaces become eroded, rutted, settled or lose compaction due to subsequent construction operations or weather conditions.

END OF SECTION

SECTION 31 23 23
FILL

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Filling, backfilling, and compacting for building volume below grade, footings, slabs-on-grade, paving, and site structures.

B. Backfilling and compacting for utilities outside the building to utility main connections.

C. Proof rolling of building areas, drives and parking areas.

1.02 DEFINITIONS

A. Finish Grade Elevations: Indicated on drawings.

B. Subgrade Elevations: The uppermost surface of an excavation, the top of surface of a fill or backfill, immediately below subbase, drainage fill, or topsoil materials.

C. Borrow: Soil material obtained off-site when sufficient approved soil material is not available from excavations.

D. Bedding Course: Layer placed over excavated subgrade in a trench before laying pipe.

1.03 REFERENCE STANDARDS

A. ASTM C136/C136M - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates; 2014.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Soil Samples: 10 pounds sample of each type of fill; submit in air-tight containers to testing laboratory.

C. Materials Sources: Submit name of imported materials source.

D. Fill Composition Test Reports: Results of laboratory tests on proposed and actual materials used, including manufactured fill.

1.05 DELIVERY, STORAGE, AND HANDLING

A. When necessary, store materials on site in advance of need.

B. When fill materials need to be stored on site, locate stockpiles where designated.
   1. Separate differing materials with dividers or stockpile separately to prevent intermixing.
   2. Prevent contamination.
   3. Protect stockpiles from erosion and deterioration of materials.

PART 2 PRODUCTS

2.01 FILL MATERIALS

A. General Fill: Subsoil excavated on-site and imported if required.
   1. Free of lumps larger than 3 inches, rocks larger than 2 inches, and debris.
   2. Excavated material subject to the approval by representative of the soils testing agency.

B. Structural Fill: Subsoil excavated on-site imported if required
   1. Fill to not contain more than 3 percent by weight of organic matter, waste construction debris, or other deleterious materials.
   2. Non-expansive materials must be used.
   3. Standard Proctor Maximum Density Greater than 100 pounds per cubic foot and Atterburg Liquid Limit less than 40, and a plasticity index of less than 20.
   4. Free of lumps larger than 3 inches, rocks larger than 2 inches, and debris.

5. Excavated material subject to the approval by representative of the soils testing agency.

C. Engineered Fill: Subsoil excavated on-site and imported borrow if required.
   1. Silty-clayey soils or bankrun sand and gravel
   2. Fill to not contain more than 3 percent by weight of organic matter, waste construction debris, or other deleterious materials.
   3. Non-expansive materials must be used.
   4. Standard Proctor Maximum Density Greater than 100 pounds per cubic foot and Atterburg Liquid Limit less than 40, and a plasticity index of less than 20.
   5. Free of lumps larger than 3 inches, rocks larger than 2 inches, and debris.
   6. Excavated material subject to the approval by representative of the soils testing agency.

D. Concrete for Fill: Lean concrete.
   1. Ready-mixed concrete
   2. Compressive strength 1500 psi at 28 days

E. Flowable Fill:
   1. Mix design shall have an unconfined compressive strength according to ASTM D4832.
   2. Mix design shall generally conform to the following:
      a. Type 1 for pipe trench backfill
         1) Cement: 50 lbs/cu yd
         2) Fly Ash: 250 lbs/cu yd
         3) Fine Aggregate: 2910 lbs/cu yd
         4) Water: 500 lbs/cu yd
         5) Entrained Air: 0%
      b. Type 2 for backfill under structures
         1) Cement: 50 - 100 lbs/cu yd
         2) Fly Ash: 0 lbs/cu yd
         3) Fine Aggregate: 2420 lbs/cu yd
         4) Water: 210-300 lbs/cu yd
         5) Entrained Air: 5% plus or minus 1 1/2 %
   3. Mixes shall conform to the requirements of ACI 229 for Controlled Low Strength Material.
   4. Mixes shall be flowable.
   5. Flowable fill shall be ready-mixed concrete.

F. Granular Fill - Gravel : Angular crushed washed stone; free of shale, clay, friable material and debris.
   1. Graded in accordance with ASTM C136/C136M, within the following limits:
      a. 2 inch sieve: 100 percent passing.
      b. No. 200: 5 to 10 percent passing.

G. Drainage Fill:
   1. # 56 or # 57 in accordance with the Ohio Department of Transportation Construction and Material Specifications
   2. Drainage fill shall be clean and washed gravel

H. Sand: Conforming in accordance with Ohio Department of Transportation Construction and Material Specifications

I. Topsoil: See Section 31 22 00.

2.02 SOURCE QUALITY CONTROL

A. See Section 01 43 00 - Quality Assurance, for general requirements for testing and analysis of soil material.

B. Where fill materials are specified by reference to a specific standard, test and analyze samples for compliance before delivery to site.

C. If tests indicate materials do not meet specified requirements, change material and retest.

D. Provide materials of each type from same source throughout the Work.

PART 3 EXECUTION

3.01 EXAMINATION

A. Identify required lines, levels, contours, and datum locations.

B. See Section 31 22 00 for additional requirements.

C. Verify subdrainage, dampproofing, or waterproofing installation has been inspected.

D. Verify structural ability of unsupported walls to support imposed loads by the fill.

E. Verify areas to be filled are not compromised with surface or ground water.

3.02 PREPARATION

A. After topsoil has been stripped proof roll areas to be occupied by the new building, paved surfaces and site improvements using a medium weight roller. A representative of the soils testing agency shall be present during proof rolling.

B. Cut out soft areas of subgrade not capable of compaction in place. Backfill with general fill.

C. Compact subgrade to density equal to or greater than requirements for subsequent fill material.

D. Until ready to fill, maintain excavations and prevent loose soil from falling into excavation.

3.03 DEWATERING

A. Prevent surface water and ground water from entering excavations and from flooding project site and surrounding area.

B. Protect subgrade from softening, washout, undermining and damage.

1. Provide and maintain pumps, sumps, suction and discharge lines and other dewatering systems necessary to convey water away from excavations.

3.04 FILLING

A. Fill to contours and elevations indicated using unfrozen materials.

B. Fill up to subgrade elevations unless otherwise indicated.

C. Fill placement shall extend beyond the limits of the proposed building and paved areas a minimum horizontal distance equal to the height of fill or 5 feet whichever is greater.

D. Employ a placement method that does not disturb or damage other work.

E. Maintain optimum moisture content of fill materials to attain required compaction density.

1. Moisture reduction options:
    a. Disking and drying soil.
    b. Addition of lime or by-product lime modification. Modification procedure to follow the guidelines of ODOT Item 205 using a lime by-product or similar material capable of reducing the moisture content of moist soils. Testing agency to evaluate compatibility of materials and modification procedures.

F. Granular Fill: Place and compact materials in equal continuous layers not exceeding 8 inches compacted depth.

G. Soil Fill: Place and compact material in equal continuous layers not exceeding 8 inches compacted depth.

H. Slope grade away from building minimum 2 inches in 10 feet, unless noted otherwise. Make gradual grade changes. Blend slope into level areas.

I. Correct areas that are over-excavated.

1. Load-bearing foundation surfaces: Use structural fill, flush to required elevation, compacted to 100 percent of maximum dry density.
2. Other areas: Use general fill, flush to required elevation, compacted to minimum 97 percent of maximum dry density.

J. Compaction Density Unless Otherwise Specified or Indicated:
1. Under paving, slabs-on-grade, and similar construction: 97 percent of maximum dry density.
2. At load bearing foundations: 100 percent of maximum dry density.
3. At other locations: 90 percent of maximum dry density.

K. Reshape and re-compact fills subjected to vehicular traffic.

L. Maintain temporary means and methods, as required, to remove all water while fill is being placed as required, or until directed by the Architect. Remove and replace soils deemed unsuitable by classification and which are excessively moist due to lack of dewatering or surface water control.

3.05 FILL AT SPECIFIC LOCATIONS

A. Use general fill unless otherwise specified or indicated.

B. Under load bearing footings and foundations
1. Use Engineered Fill or Structural Fill
2. Fill up to subgrade elevations.
3. Maximum depth per lift: 8 inches, compacted.
4. Compact to minimum 100 percent of maximum dry density.

C. Under Interior Slabs-On-Grade:
1. Use Engineered Fill or Structural up to 4 inches below concrete slab
2. Maximum depth per lift: 8 inches compacted.
3. Use Drainage Fill.
4. Depth: 4 inches deep.
5. Compact to 97 percent of maximum dry density.
6. See Section 03 3000 for placement of Vapor Barrier

D. At Foundation Walls:
1. Use general fill.
2. Fill up to subgrade elevation.
3. Maximum depth per lift: 8 inches compacted.
4. Compact each lift to 95 percent of maximum dry density.
5. Do not backfill against unsupported foundation walls.
6. Backfill simultaneously on each side of unsupported foundation walls until supports are in place.

E. Over Buried Utility Piping, Conduits, and Duct Bank in Trenches:
1. Bedding: Use sand or Drainage Fill
2. Haunching: Use sand fill. Haunching fill up to spring line of pipe
3. Initial Backfill: Use granular fill. Initial backfill up to 12 inches above the pipe
4. Cover with:
   a. Exterior lawn areas: General Fill
   b. Within building area: Granular Fill
   c. Within building area where trench is within 18 inches of column or footing and below bottom of footing:
      1) Wrap pipe with one inch of fiberglass blanket and Concrete Fill or Flowable to bottom of footing
      2) Above Concrete Fill: Granular Fill or Flowable Fill

d. Under paving and walks: Granular Fill or Flowable Fill

5. Fill up to subgrade elevation.
6. Compact in maximum 6 inch lifts to 95 percent of maximum dry density.

F. Below aggregate base of asphalt drives, parking areas:
1. Use Engineered Fill or Structural Fill up to bottom of aggregate base as specified in Section - 32 1123
2. Maximum depth per lift: 6 inches of loose material.
3. Compact each lift to 100 percent of Standard proctor maximum dry density as determined by ASTM Designation D698.

G. Under Portland Cement Concrete Paving:
1. Use Engineered Fill or Structural Fill up to bottom of Drainage fill.
a. Maximum depth per lift: 6 inches of loose material.
b. Compact each lift to 100 percent of Standard proctor maximum dry density as determined by ASTM Designation D698.
2. Place 4 inches of Drainage Fill.
a. Compact to 100 percent of Standard proctor maximum dry density as determined by ASTM Designation D698.

H. At Lawn Areas:
1. Use general fill.
2. Fill up to 6 inches below finish grade elevations.
3. Compact to 95 percent of maximum dry density.
4. See Section 31 22 00 for topsoil placement.

3.06 TOLERANCES

A. Top Surface of General Filling: Plus or minus 1 inch from required elevations.

B. Top Surface of Filling Under Paved Areas: Plus or minus 1 inch from required elevations.

3.07 PROTECTION

A. Protected newly filled areas from traffic, freezing and erosion. Keep free of trash and debris.

B. Repair and re-establish filled areas to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or loses compaction due to subsequent construction operations or weather conditions.
1. Remove and replace material to depth directed by the Architect, reshape and recompact at optimum moisture content to the required density.

C. Settling: Where settling occurs during the project warranty period, remove finish surface, backfill with additional approved material compact and reconstruct surfacing.
1. Restore appearance, quality, and condition of finished surfacing to match adjacent work and eliminate the evidence of restoration to the greatest extent possible.

3.08 CLEANING

A. See Section 01 74 19 - Construction Waste Management and Disposal, for additional requirements.

B. Remove unused stockpiled materials, leave area in a clean and neat condition. Grade stockpile area to prevent standing surface water.

END OF SECTION

GARMANN MILLER

Division 32

Exterior Improvements

SECTION 32 11 23
AGGREGATE BASE AND SURFACING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Aggregate base course.

B. Aggregate Surfacing

1.02 RELATED REQUIREMENTS

A. Section 31 22 00 - Grading: Preparation of site for base course.

B. Section 31 23 23 - Fill: Compacted fill under base course.

C. Section 32 13 13 - Concrete Paving: Finish concrete surface course.

D. Section 32 1816.01 Playground Protective Surfacing

E. Section 31 23 23 - Fill: Topsoil fill at areas adjacent to aggregate base course.

1.03 REFERENCE STANDARDS

A. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3)); 2012.

B. ASTM D1556/D1556M - Standard Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method; 2024.

C. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3 (2,700 kN-m/m3)); 2012 (Reapproved 2021).

D. ASTM D2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method; 2015.

E. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System); 2011.

F. ASTM D 2922 - Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth); 2005.

G. ASTM D 3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth); 2005.

H. ASTM D6938 - Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth); 2023.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. See Section 01 3516 LEED Submittal Forms, for LEED submittal procedures

1. Regionally-Sourced Products:
    a. Material should be extracted, harvested, or recovered as well as manufactured within a radius of 500 miles from the project site.
    b. LEED Submittals: Indicate location of manufacture; in all cases indicate location of final assembly; for harvested products, indicate location of harvest; for extracted (i.e. mined) products, indicate location of extraction; for products involving multiple manufacturing steps, indicate all locations of manufacture or assembly; provide manufacturer or supplier certification of location information.
2. Products with Recycled Content:
    a. LEED Submittals: State unit cost, post-consumer and post-industrial content percentages, quantity installed, total material cost, and total recycled content value; attach evidence of contents from either manufacturer or an independent agency.

C. Samples: 10 lb sample of each type of aggregate; submit to site for approval.

D. Product Data: Provide data on weed barrier

E. Materials Sources: Submit name of imported materials source.

F. Aggregate Composition Test Reports: Results of laboratory tests on proposed and actual materials used.

G. Compaction Density Test Reports.

1.05 DELIVERY, STORAGE, AND HANDLING

A. When necessary, store materials on site in advance of need.

B. Aggregate Storage, General:
   1. Separate differing materials with dividers or stockpile separately to prevent intermixing.
   2. Prevent contamination.
   3. Protect stockpiles from erosion and deterioration of materials.

C. Verify that survey bench marks and intended elevations for the Work are as indicated.

PART 2 PRODUCTS

2.01 MATERIALS

A. Aggregate: Coarse aggregate, conforming to Ohio Department of Transportation (ODOT) Construction and Material Specifications, Item 304

B. AASHTO #57 Stone: Open-graded, self-compacting (angular) aggregate blend of size 5, 6 & 7 stone, graded in accordance with the following limits:
   1. 1 1/2" screen: 100% passing
   2. 1" screen: 95-100% passing
   3. 1/2" screen: 25-80% passing
   4. screen #4: 0-10% passing
   5. screen #8: 0-5% passing

C. Use of Reclaimed Base:
   1. Contractor may use a blend of new material in combination with reclaimed aggregate material.
   2. Material subject to the approval by representative of the testing agency.

D. Recyclable Aggregate: Concrete and masonry products from on site demolition:
   1. Remove reinforcing and separate to salvaged metals.
   2. Remove brick and clay masonry.
   3. Crush concrete and masonry waste to less than 1 1/2 inch in each direction.
   4. Crush concrete and masonry waste with at least four (4) parts of specified aggregate for each part of concrete waste.
   5. Material subject to the approval by representative of the testing agency.

E. Concrete Waste Disposal as Aggregate Material: Dispose of clean hardened concrete waste by crushing and mixing with aggregate as aggregate is placed.
   1. Remove reinforcing and separate to salvaged metals
   2. Crush concrete waste to less than 1 1/2 inch in each direction.
   3. Crush concrete waste with at least four (4) parts of specified aggregate for each part of concrete waste.
   4. Material subject to the approval by representative of the testing agency.

F. Masonry Disposal as Aggregate Material: Dispose of clean concrete masonry waste by crushing and mixing with aggregate as aggregate is placed. Comply with the requirements of the testing agency.
   1. Remove reinforcing and separate to salvaged metals.

2. Remove brick and clay masonry.
3. Crush concrete masonry waste to less than 1 1/2 inch in each direction.
4. Crush concrete masonry waste with at least four (4) parts of specified aggregate for each part of concrete waste.
5. Material subject to the approval by representative of the testing agency.

G. Filter Fabric:
1. Professional Grade 100% spunbonded polypropylene with UV inhibitors
2. Manufacturer:
a. Product: Typar Professional Landscape Fabric by Reemay Inc. www.typarlandscape.com
b. Other Acceptable Manufacturers:
1) B.11 Groundcover Fabric by US Global Resources, Seattle WA. www.usgr.com
2) Gintec Black Groundcover by Gintec Shade Technologies Inc., www.gintec-shade.com
3) Substitutions: See Section 01 6000 - Product Requirements.

2.02 SOURCE QUALITY CONTROL

A. See Section 01 43 00 - Quality Assurance, for general requirements for testing and analysis of aggregate materials.

B. Where aggregate materials are specified using ASTM D2487 classification, test and analyze samples for compliance before delivery to site.

C. If tests indicate materials do not meet specified requirements, change material and retest.

D. Provide materials of each type from same source throughout the Work.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that survey bench marks and intended elevations for the work are as indicated.

B. Verify substrate has been inspected, gradients and elevations are correct, and is dry.

3.02 PREPARATION

A. Correct irregularities in substrate gradient and elevation by scarifying, reshaping, and re-compacting.

B. Do not place aggregate on soft, muddy, or frozen surfaces.

3.03 INSTALLATION

A. Under Bituminous Concrete Paving:
1. Place course aggregate to a compacted thickness as scheduled.
a. 8 inches minimum thickness for:
1) Light Duty Paving
2) Standard Duty Paving
b. 12 inches minimum thickness for
1) Heavy Duty Paving.
c. 8 inches minimum thickness if not called out otherwise
2. Compact to 95 percent of maximum dry density.

B. Under Portland Cement Concrete Paving:
1. Place course aggregate to a compacted thickness as shown.
a. 4 inches minimum thickness if not called out otherwise
2. Compact to 95 percent of maximum dry density.

C. Aggregate Surfacing:

1. Place weed barrier on subsoil
2. Place coarse aggregate to a total compacted thickness of 12 inches.
3. 12 inches minimum thickness if not called out otherwise
4. Compact to 95 percent of maximum dry density.

D. Under Playground Protective Surfacing
1. See Section 32 1816.13 Playground Protective Surfacing
2. Place Geotextile Fabric
3. Place coarse aggregate to a total compacted thickness of 4 inches.
4. 4 inches minimum thickness if not called out otherwise on drawings.
5. Compact to 95 percent of maximum dry density.

E. Place aggregate in maximum 6 inch layers and roller compact to specified density.

F. Level and contour surfaces to elevations and gradients indicated.

G. Add small quantities of fine aggregate to coarse aggregate as appropriate to assist compaction.

H. Add water to assist compaction. If excess water is apparent, remove aggregate and aerate to reduce moisture content.

I. Use mechanical tamping equipment in areas inaccessible to compaction equipment.

3.04 TOLERANCES

A. Flatness: Maximum variation of 1/4 inch measured with 10 foot straight edge.

B. Scheduled Compacted Thickness: Within 1/4 inch.

C. Variation From Design Elevation: Within 1/2 inch.

3.05 FIELD QUALITY CONTROL

A. See Section 01 43 00 - Quality Assurance, for general requirements for field inspection and testing.

B. Compaction density testing will be performed on compacted aggregate base course in accordance with ASTM D1556, ASTM D2167, or ASTM D6938.

C. Results will be evaluated in relation to compaction curve determined by testing uncompacted material in accordance with AASHTO T 180, ASTM D698 ("standard Proctor"), or ASTM D1557 ("modified Proctor").

D. If tests indicate work does not meet specified requirements, remove work, replace and retest.

E. Frequency of Tests: each lift.

F. Proof roll compacted aggregate at surfaces that will be under slabs-on-grade and paving.

3.06 CLEANING

A. Remove unused stockpiled materials, leave area in a clean and neat condition. Grade stockpile area to prevent standing surface water.

END OF SECTION

SECTION 32 12 16
ASPHALT PAVING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Single course bituminous concrete paving.

B. Multiple course bituminous concrete paving.

C. Pavement Overlay Fabric

D. Surface sealer.

E. Striping and Associated Markings.

1.02 REFERENCE STANDARDS

A. Ohio Department of Transportation, Construction and Material Specifications

B. AI MS-2 - Asphalt Mix Design Methods; 2015.

C. AI MS-19 - A Basic Asphalt Emulsion Manual; Fourth Edition.

D. ASTM D3549 -03 - Standard Test Method for Thickness or Height of Compacted Bituminous Paving Mixture Speciments

1.03 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Certificates: Material certificates signed by material producer and Contractor, certifying that each material item complies with or exceeds specified requirements.

C. Product Data: Manufacturer's data sheets on striping paint product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation methods.

1.04 QUALITY ASSURANCE

A. Perform Work in accordance with Ohio Department of Transportation (ODOT) Construction and Material Specifications.

B. Mixing Plant: Complying with State of Ohio Highways standard.

C. Obtain materials from same source throughout.

1.05 REGULATORY REQUIREMENTS

A. Conform to applicable code for paving work on public property.

1.06 FIELD CONDITIONS

A. Do not apply asphalt materials if subgrade is wet or excessively damp.

B. Do not place asphalt when ambient air or base surface temperature is less than 40 degrees F, or surface is wet or frozen.

C. Place bitumen mixture when temperature is not more than 15 F degrees below bitumen supplier's bill of lading and not more than maximum specified temperature.

PART 2 PRODUCTS

2.01 MATERIALS

A. Aggregate for Intermediate Course: Ohio Department of Transportation (ODOT) Construction and Material Specifications Item 441 Type 2
   1. Use of ODOT certified Reclaimed Pavement:

a. Contractor may use a blend of new material in combination with reclaimed asphalt concrete pavement or reclaimed bituminous aggregate base pavement obtained from the job site.
b. A maximum of 25 percent of reclaimed pavement may be used without adjusting the Job Mix Formula.

B. Aggregate for Surface Course: Ohio Department of Transportation (ODOT) Construction and Material Specifications Item 441 Type 1.
1. Use of ODOT certified Reclaimed Pavement:
a. Contractor may use a blend of new material in combination with reclaimed asphalt concrete pavement or reclaimed bituminous aggregate base pavement obtained from the job site.
b. A maximum of 25 percent of reclaimed pavement may be used without adjusting the Job Mix Formula.

C. Fine Aggregate: Ohio Department of Transportation (ODOT) Construction and Material Specificatoins.

D. Mineral Filler: Finely ground particles of limestone, hydrated lime or other mineral dust, free of foreign matter.

E. Tack Coat: Homogeneous, medium curing, liquid asphalt.
1. Homogeneous, medium curing, liquid asphalt, complying withe ASTM D 977 or ASTM 2397
2. ODOT Item 408 bituminous prime coat at 0.04 gallon per square yard.

F. Pavement Overlay Fabric
1. Product: Petromat 4598, Amoco Fabric and Fibers Company, Austell, GA
2. Acceptable Manufacturers:
a. Mirafi Construction Products, Pendergrass, GA,
b. PS Construction Fabrics, Berea, Ohio; www.constfabrics.com
c. Substitutions: See Section 01 6000 - Product Requirements

G. Striping Paint: Fast drying water based, 100 percent acrylic type. (ODOT 740.02, Type 1A)
1. Color:
a. White for Parking Lines.
b. White for Text of designated parking.
c. Yellow for Bus Parking lines.
d. White for Handicap parking spaces, aisles and symbols.
2. Manufacturers:
a. Sherwin Williams: Hotline Fast Dry Latex Traffic Marking Paint.
b. Ennis-Flint: EF Series, Fast Dry
c. Substitutions: See Section 01 6000 - Product Requirements

H. Seal Coat:
1. Coal tar emulsion with sand additive for the seal coat and apply two coats.

2.02 ASPHALT PAVING MIXES AND MIX DESIGN

A. Use dry material to avoid foaming. Mix uniformly.

B. Submit proposed mix design of each class of mix for review prior to beginning of work.

PART 3 EXECUTION

3.01 GENERAL

A. Perform work in accordance to Ohio Department of Transportation (ODOT) Construction and Material Specifications.

3.02 EXAMINATION

A. Verify that compacted subgrade and granular base is dry and ready to support paving and imposed loads.

B. Verify gradients and elevations of base are correct.

C. Proof roll prepared granular base to check for unstable areas and areas requiring additional compaction.
   1. Notify the Owner's Representative prior to start of work of unacceptable base conditions.
   2. Notify the Construction Manager prior to start of work of unacceptable base conditions.
   3. Start of work indicates acceptance of base

3.03 PATCHING

A. Saw cut perimeter of patch and excavate existing pavement section to sound base.

B. Excavate rectangular or trapezoidal patches extending 12 inches into adjacent sound pavement, unless otherwise indicated.

C. Cut excavation faces vertically.

D. Remove excavated material.

E. Recompact existing unbounded-aggregate base course to form new subgrade.

3.04 PREPARATION - TACK COAT

A. Apply tack coat in accordance with manufacturer's instructions.

B. Apply tack coat to contact surfaces of curbs, gutters and other surfaces.

C. Coat surfaces of manhole frames with oil to prevent bond with asphalt pavement. Do not tack coat these surfaces.

3.05 PLACING PAVEMENT OVERLAY FABRIC

A. Surface Preparation. Surface shall be cleaned by sweeping, blowing, or other methods until all dust, mud, clay lumps, vegetation, and foreign material are removed entirely from the pavement. Care shall be exercised to prevent material so removed from becoming mixed with the new surface.

B. Crack Treatment:
   1. Cracks less than 1/8 inch wide require no special treatment.
   2. Cracks 1/8 to 3/8 inch wide to be filled with crack sealant so tack coat cannot seep into cracks
   3. Cracks larger than 3/8 inch wide to be filled with emulsion slurry or commercial crack filler and allow to cure completely.

C. Tack Coat:
   1. The tack coat shall be applied using a calibrated distributor truck spray bar. Hand spraying, squeegee and brush application may be used in location where distributor truck cannot reach.
   2. Application rate must be sufficient to saturate the fabric and to bond the fabric to the existing pavement.
   3. Application rate shall be a minimum of 0.08 to 0.09 gallons per square yard.
   4. Apply tack coat over area to be paved and extend beyond area by at least 3 inches.
   5. Apply tack coat between all fabric overlaps.

D. Fabric Placement.
   1. The fabric shall be placed on the asphalt sealant as soon as practical and before the tackiness of the tack coat is lost.
   2. The fabric shall be placed as smoothly as possible to avoid wrinkles. Wrinkles severe enough to cause "folds" shall be slit and laid flat.

3. The fabric shall be laid straight, within the sealant area.
4. Longitudinal joints shall be made by overlapping the fabric one to three inches. Transverse joints shall be made by overlapping the fabric four to six inches. Additional tack coat shall be added to the joints as required.

3.06 PLACING ASPHALT PAVEMENT - SINGLE COURSE

A. All areas in which paving fabric has been placed shall be paved during the same day.

B. Install Work in accordance with Ohio Department of Transportation (ODOT) Construction and Material Specifications.

C. Place asphalt within 24 hours of applying primer or tack coat.

D. Compact pavement in accordance with Ohio Department of Transportation (ODOT) Construction and Material Specifications. Do not displace or extrude pavement from position. Hand compact in areas inaccessible to rolling equipment.

E. Perform rolling with consecutive passes to achieve even and smooth finish without roller marks.

3.07 PLACING ASPHALT PAVEMENT - MULTIPLE COURSES

A. Place asphalt intermediate course within 24 hours of applying primer or tack coat.

B. Place Surface course within 24 hours of placing and compacting Intermediate course.

C. Install gutter drainage grilles and frames in correct position and elevation.

D. Construct joints free of depressions with same texture and smoothness as other sections of hot-mix asphalt course.

E. Compact pavement in accordance with Ohio Department of Transportation (ODOT) Construction and Materials Specifications. Do not displace or extrude pavement from position. Hand compact in areas inaccessible to rolling equipment.

3.08 PLACING SEALER

A. Surface Preparation. Surface shall be cleaned by sweeping, blowing, or other methods until all dust, mud, clay lumps, vegetation, and foreign material are removed entirely from the pavement. Care shall be exercised to prevent material to be removed from becoming mixed with the new surface.

B. Crack Treatment:
   1. Cracks less than 1/8 inch wide require no special treatment.
   2. Cracks 1/8 to 3/8 inch wide to be filled with crack sealant so seal coat cannot seep into cracks
   3. Cracks larger than 3/8 inch wide to be filled with emulsion slurry or commercial crack filler and allow to cure completely.

C. Seal Coat:
   1. First Coat: The seal coat shall be applied using a calibrated distributor truck spray bar and squeegee. Hand spraying, squeegee and brush application may be used in location where distributor truck cannot reach.
   2. Second Coat: The seal coat shall be applied using a calibrated distributor truck spray bar. Hand spraying, squeegee and brush application may be used in location where distributor truck cannot reach.
   3. Application rate shall be a minimum of 0.28 gallons per square yard per coat.

3.09 TOLERANCES

A. Flatness: Maximum variation of 1/4 inch measured with 10 foot straight edge.
   1. Pavement sections which puddle water (birdbath) will not be acceptable. These sections will be removed and replaced and the entire area will be sealed to conceal patch.

B. Variation from true Elevation: Within 1/4 inch.

C. Compacted Thickness: Per table X1.1 in ASTM D3549-03, based on per layer compacted thickness.

3.10 STRIPING AND ASSOCIATED MARKINGS

A. Examination
   1. Do not begin installation until substrates have been properly prepared.
   2. Allow new pavement surfaces to cure before application of marking materials.
   3. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
   4. Clean surfaces thoroughly prior to installation.
      a. Remove dust, dirt, and other granular surface deposits by sweeping, blowing with compressed air, rinsing with water, or a combination of these methods.
   5. Establish survey control points to determine locations and dimensions of markings; provide templates to control paint application by type and color at necessary intervals.

B. Installation
   1. Allow new pavement surfaces to cure for a minimum of 14 days before application of pavement paint. Clean the surface prior to painting. Ensure the surface is dry prior to painting.
   2. Apply in accordance with manufacturer's instructions using an experienced technician that is thoroughly familiar with equipment, materials, and marking layouts.
   3. Apply markings in locations determined by measurement from survey control points; preserve control points until after markings have been accepted.
   4. Apply uniformly painted markings of color(s), lengths, and widths as indicated on the drawings true, sharp edges and ends.
      a. Apply paint in one coat only.
      b. Wet Film Thickness: 0.015 inch, minimum.
      c. Width Tolerance: Plus or minus 1/8 inch.
   5. Parking Lots: Apply parking space lines, entrance and exit arrows, painted curbs, and other markings indicated on drawings.
      a. Mark the International Handicapped Symbol at indicated parking spaces.
      b. Hand application by pneumatic spray is acceptable.
   6. Symbols: Use a suitable template that will provide a pavement marking with true, sharp edges and ends, of the design and size indicated.

C. Drying, Protection, and Replacement
   1. Protect newly painted markings so that paint is not picked up by tires, smeared, or tracked.
   2. Provide barricades, warning signs, and flags as necessary to prevent traffic crossing newly painted markings.
   3. Allow paint to dry at least the minimum time specified by the applicable paint standard and not less than that recommended by the manufacturer.
   4. Remove and replace markings that are applied at less than minimum material rates; deviate from true alignment; exceed length and width tolerances; or show light spots, smears, or other deficiencies or irregularities.

3.11 FIELD QUALITY CONTROL

A. See Section 01 43 00 - Quality Assurance, for general requirements for quality control.

B. Provide field inspection and testing. Take samples and perform tests in accordance with the following.
   1. Thickness: In place compacted thickness of hot-mix asphalt course to be determined according to ASTM D 3549.

2. Surface Smoothness: Finished surface of each hot mix asphalt course will be tested for compliance with smoothness tolerances.
3. In-place Density:
   a. The right is reserved by the Owner/Architect to invoke the following material testing procedure when he deems necessary during and after pavement installation.
   b. Testing agency to take samples of uncompacted paving mixtures and compacted pavement according to ASTM D 979.
      1) Reference maximum theoretical density will be determined by averaging results from four samples of hot-mix asphalt-paving mixture delivered daily to site, prepare according to ASTM D 2041, and compact according to job-mix specifications.
      2) In-place density of compacted pavement will be determined by testing core samples according to ASTM D 1188 or ASTM D 2726.
         (a) One core sample will be taken for every 1000 square feet of less of installed pavement with no fewer than 3 cores taken.
         (b) Field density of in place compacted pavement may also be determined by nuclear method according to ASTM D 2950 and correlates with ASTM D 1188 or ASTM D 1726.

C. Remove and replace or install additional hot-mix asphalt where test results or measurements indicate that it does not comply with specified requirements.

3.12 PROTECTION

A. Immediately after placement, protect pavement from mechanical injury for 5 days or until surface temperature is less than 140 degrees F.

B. Remove debris, junk, and trash from site.

3.13 SCHEDULE

A. Standard Duty Paving:
   1. Aggregate specified in Section 32 1123
   2. Intermediate Course: 2 1/2 inch average compacted thickness placed upon prime coat.
   3. Tack Coat: # 407 ODOT. Apply at the rate of 0.4 gallons per square yard.
   4. Surface Course: 1 1/2 inch average compacted thickness placed upon properly compacted Intermediate Course.
   5. Painting: All markings as indicated on the drawings.

END OF SECTION

SECTION 32 13 13
CONCRETE PAVING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Concrete paving, sidewalks.

B. Concrete structure collars (manhole, catch basins, drains)

1.02 RELATED REQUIREMENTS

1.03 REFERENCE STANDARDS

A. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete; 1991 (Reapproved 2009).

B. ACI 301 - Specifications for Structural Concrete; 2016.

C. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; 2000.

D. ACI 305R - Hot Weather Concreting; 2010.

E. ACI 306R - Cold Weather Concreting; 2010.

F. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon Steel Bars for Concrete Reinforcement; 2015.

G. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete; 2015.

H. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; 2015a.

I. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete; 2015.

J. ASTM C260/C260M - Standard Specification for Air-Entraining Admixtures for Concrete; 2010a.

K. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete; 2013.

L. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types); 2004 (Reapproved 2013).

M. ASTM D1752 - Standard Specification for Preformed Sponge Rubber Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction; 2004a (Reapproved 2013).

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on joint filler, admixtures, and curing compound.

C. Product Data: Manufacturer's data sheets on striping paint product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation methods.

1.05 MOCK-UP

A. Construct and erect mock-up panel for architectural concrete surfaces indicated to receive special treatment or finish as result of formwork.
   1. Panel Size: 8 x 8 feet minimum.
   2. Locate where directed.

B. Accepted mock-up panel is considered basis of quality for the finished work. Keep mock-up exposed to view for duration of concrete work.

C. Mock-up may not remain as part of the Work.

1.06 QUALITY ASSURANCE

A. Perform work in accordance with ACI 301.

B. Obtain cementitious materials from same source throughout.

C. Follow recommendations of ACI 305R when concreting during hot weather.

D. Follow recommendations of ACI 306R when concreting during cold weather.

E. Installer Qualifications: Installer with minimum three years experience in similar projects.

1.07 ENVIRONMENTAL REQUIREMENTS

A. Do not place concrete when base surface temperature is less than 40 degrees F, or surface is wet or frozen.

PART 2 PRODUCTS

2.01 PAVING ASSEMBLIES

A. Comply with applicable requirements of ACI 301.

B. Pedestrian Concrete: 4,500 psi 28 day concrete, 4 inches thick. light broom finish.

2.02 FORM MATERIALS

A. Form Materials: As specified in Section 03 10 00, comply with ACI 301.

B. Joint Filler: Preformed; non-extruding bituminous type (ASTM D1751) or sponge rubber or cork (ASTM D1752).
   1. Thickness: 1/4 inch.

2.03 REINFORCEMENT

A. Reinforcing Steel: ASTM A615/A615M, Grade 80 (80,000 psi) yield strength; deformed billet steel bars; unfinished.

B. Steel Welded Wire Reinforcement: Plain type, ASTM A1064/A1064M; in flat sheets; unfinished.

C. Fabricated Bar Mats: Steel bar or rod mats per ASTM A184, using ASTM A615, Grade 60 steel bars.

D. Dowels: ASTM A615/A615M, Grade 40 - 40,000 psi yield strength; deformed billet steel bars; unfinished finish.

E. Hook Bolts: ASTM A307, Grade A threaded bolts.

F. Bar Supports: Bolsters, chairs, spacers, supporting, and fastening reinforcement bars, welded with fabric and dowels in place. Manufacture supports according to CRSI's Manual of Standard Practice.

2.04 CONCRETE MATERIALS

A. Obtain cementitious materials from same source throughout.

B. Cement: ASTM C 150, Type I - Normal portland type, grey color.
   1. Acquire all cement for entire project from same source.

C. Supplementary Cementitious Materials:
   1. Fly Ash: ASTM C618, Type C or F may be used up to a maximum of 25% of the total cementitious materials content in all concrete mixes, unless otherwise noted.
   2. Ground Granulated Blast-Furnace Slag: ASTM C989, Grade 100 or 120 maybe used up to a maximum of 35% of the total cementitious material content in all concrete mixes, unless otherwise noted.
   3. The exact percentages shall be used on a successful test placement on the project site

D. Fine and Coarse Aggregates:
   1. ASTM C33, Class 3S, normal weight aggregates, uniformly graded, non-exceeding 1-1/2 inch nominal size.
   2. ASTM C330, light weight aggregates.
   3. Combined aggregate gradation for slabs shall be 8%-18% for large top size aggregate (1 1/2") or 8 - 22% for smaller top size aggregates (1" of 3/4") retained on each sieve below the top size and above the No. 100.
   4. Aggregate Supply: Provide aggregate from one source of supply to maintain uniformity of color size and shape.

E. Water: Clean and not detrimental to concrete.
   1. ASTM C94

F. Exposed Aggregate: Number 8 natural river gravel, smooth, clean, and washed
   1. No iron bearing aggregate permitted.
   2. Color: Buff/brown color from a single source throughout.

G. Air-Entraining Admixtures: ASTM C260/C260M.
   1. Acceptable Manufacturers:
      a. Air-Mix or Perma-Air, Euclid Chemical.
      b. Sealtight AEA WR Meadows, Inc.
      c. Darex AEA or Daravair, WR Grace Company.
      d. Axim Italcmenti Group.
      e. Promix.
      f. Substitutions: See Section 01 60 00 - Product Requirements.

H. Chemical Admixtures: ASTM C494/C494M, Type A - Water Reducing.
   1. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.

2.05 ACCESSORIES

A. Curing Compound: ASTM C 309, Type 1, Class A.
   1. Clear waterborne membrane-forming curing compound.
      a. Day Chem Rez Cure: Dayton Superior Corporation
      b. Diamond Clear Vox: Euclid Chemical Co.
      c. Safe-Cure Clear; Chem Masters

B. Bonding Compound: Polyvinyl acetate or acrylic base complying with ASTM C 1059, type II.

C. Epoxy Adhesive: ASTM C881

2.06 CONCRETE MIX DESIGN

A. Proportioning Normal Weight Concrete: Comply with ACI 211.1 recommendations.

B. Concrete Strength: Establish required average strength for each type of concrete on the basis of field experience or trial mixtures, as specified in ACI 301.
   1. For trial mixtures method, employ independent testing agency acceptable to Architect for preparing and reporting proposed mix designs.

C. Admixtures:
   1. Use of admixtures: Admixtures, except air entraining mixture, are not allowed except with permission of Architect.
   2. Use air-entraining admixture in exterior exposed concrete unless otherwise indicated. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having total air content with a tolerance of plus 1 - 1/2 percent with the following limits:

a. Concrete structures and slabs exposed to freezing and thawing, deicer chemicals, or hydraulic pressure(all above grade):
   1) 6.0 percent(severe exposure) 3/4 inch max. aggregate
   2) Other concrete (not exposed to freezing, thawing, or hydraulic pressure or to receive a surface hardener: 2 percent to 4 percent air

3. NO calcium chloride will be permitted.

D. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended by manufacturer.

E. Normal Weight Concrete:
1. Compressive Strength, per ASTM C 39 at 28 days: As scheduled.
2. Water-Cement Ratio: Provide concrete for following conditions with maximum water-cement (W/C) ratios as follows:
   a. Subjected to deicer/watertight and freezing and thawing: W/C 0.45.
   b. Subjected to brackish water, salt spray, or deicer: W/C 0.40
3. Slump Limits: Proportion and mixes to result in concrete slump a point of placement as follows:
   a. Slump limit for concrete containing high-range water reducing admixture (superplasticizers): Not more than 8 inches after adding admixture to site-verified 2 to 3 inch slump concrete.
   b. Ramps, slabs and sloping surfaces: Not more than 4 inches.
   c. Reinforced foundation systems: Not less than 1 inch and not more than 4 inches.
   d. Other concrete: Not less than 1 inch, not more than 4 inches.

2.07 MIXING

A. Transit Mixers: Comply with ASTM C94/C94M.
1. When air temperature is between 85 degrees F and 90 degrees F, reduce mixing and delivery time from 1 1/2 hour to 75 minutes, and when air temperature is above 90 degrees F, reduce mixing and delivery time to 60 minutes.
2. Use set retarding admixtures during hot weather only when approved by Owner's Representative.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify compacted subgrade is acceptable and ready to support paving and imposed loads.

B. Verify gradients and elevations of base are correct.

3.02 SUBBASE

A. See Section 32 11 23 for construction of base course for work of this Section.

3.03 PREPARATION

A. Moisten base to minimize absorption of water from fresh concrete.

B. Coat surfaces of manhole and catch basin frames with oil to prevent bond with concrete pavement.

3.04 FORMING

A. Place and secure forms to correct location, dimension, profile, and gradient.

B. Assemble formwork to permit easy stripping and dismantling without damaging concrete.

C. Place joint filler vertical in position, in straight lines. Secure to formwork during concrete placement.

3.05 REINFORCEMENT

A. Place reinforcement at midheight of slabs-on-grade.

B. Clean reinforcing of bond reducing material.

C. Arrange, space, and securely tie bars and bar supports to hold reinforcement to maintain minimum cover of reinforcement.

D. Install weld wire fabric in length as long as practical. Lap adjoining pieces at least one full mesh and splices with wire. Off set laps of adjoining width to prevent continuous laps in either direction.

E. Interrupt reinforcement at expansion joints.

F. Place dowels to achieve pavement and curb alignment as detailed.

3.06 COLD AND HOT WEATHER CONCRETING

A. Follow recommendations of ACI 305R when concreting during hot weather.

B. Follow recommendations of ACI 306R when concreting during cold weather.

C. Do not place concrete when base surface temperature is less than 40 degrees F, or surface is wet or frozen.

3.07 PLACING CONCRETE

A. Before placing concrete, inspect, and complete formwork installation, reinforcing steel, and install items to be embedded or cast in. Notify other trades to permit installation of their work.
   1. Do not place concrete around manholes or other structures until they are at the required finish elevation and alignment.

B. Moisten subbase to provide a uniform dampened condition at the time concrete is placed.

C. Place concrete in accordance with ACI 304R.

D. Ensure reinforcement, inserts, embedded parts, formed joints are not disturbed during concrete placement.

E. Place concrete continuously over the full width of the panel and between predetermined construction joints. Do not break or interrupt successive pours such that cold joints occur.

F. Consolidate concrete by mechanical vibrating equipment supplemented by rodding or tamping. Use equipment and procedures to consolidate concrete complying with ACI 309R.

3.08 JOINTS

A. General: Construct contraction, construction and isolation joints true to line with faces perpendicular to surface plan of concrete. Construct transverse joints at right angles to the centerline, unless otherwise indicated.
   1. Align curb, gutter, and sidewalk joints.
   2. When joining existing paving, place transverse joints to align with previously placed joints, unless indicated otherwise

B. Construction Joint: Set construction joints at side and end termination of paving at locations where paving operations are stopped unless paving terminates at isolation joints.
   1. Continue reinforcement across construction joints unless otherwise indicated.

C. Expansion Joints:
   1. Place 1/4 inch wide expansion joints at 20 foot intervals unless otherwise indicated on drawings and to separate paving from vertical surfaces and other components and in pattern indicated.
   2. Form joints with joint filler extending from bottom of pavement to within 1/2 inch of finished surface.

3. Furnish joint fillers in one-piece lengths for full width being placed wherever possible. Where more than one length is required lace or clip joint filler sections together.
4. Secure to resist movement by wet concrete.

D. Contraction Joints: Provide weakened-plane contraction joints, section concrete into areas as shown on Drawings. Construct contraction joints for a depth of 1/4 of the concrete thickness.
1. Tooled Joints: Form contraction joints in fresh concrete by grooving and finishing each edge of joint with radiused jointer tool.
2. Inserts: Form contraction joints by inserting premolded plastic, hardboard, or fiber strips into fresh concrete until top surface of strip is flush with concrete. Radius each joint edge with a jointer tool. Carefully remove strips after concrete has hardened. Clean groove of loose debris.
3. Provide joints at five (5) feet intervals if not indicated.

3.09 FINISHING

A. Nonslip Broom Finish (Ns-Brm-FN): Apply nonslip broom finish to exterior concrete platforms, steps, walks, curbs, gutters and ramps.
1. Immediately after float finishing, slightly roughen concrete by brooming with fiber bristle broom, perpendicular to main traffic route unless otherwise indicated on drawing.

B. Area Paving: Light broom, texture perpendicular to pavement direction unless otherwise indicated on drawings.

C. Sidewalk Paving: Light broom, texture perpendicular to direction of travel with troweled and radiused edge 1/4 inch radius unless otherwise indicated on drawing.

D. Curbs and Gutters: Light broom, texture parallel to pavement direction.

E. Place curing compound on exposed concrete surfaces immediately after finishing. Apply in accordance with manufacturer's instructions.

3.10 TOLERANCES

A. Maximum Variation of Surface Flatness: 1/4 inch in 10 ft.

B. Maximum Variation From True Position: 1/4 inch.

3.11 FIELD QUALITY CONTROL

A. An independent testing agency will perform field quality control tests, as specified in Section 01 43 00 - Quality Assurance.

B. The owner will employ services of an independent testing agency to perform specified testing and inspections

C. Provide free access to concrete operations at project site and cooperate with appointed firm.

D. Submit proposed mix design of each class of concrete to inspection and testing firm for review prior to commencement of concrete operations.

E. Tests of concrete and concrete materials may be performed at any time to ensure compliance with specified requirements.

F. Compressive Strength Tests: ASTM C 39. For each test, mold and cure three concrete test cylinders. Obtain test samples for every 50 cu yd or less of each class of concrete placed in a day or for each 3000 square feet of surface area placed..
1. Cure specimens on job site under same conditions at concrete it represents
2. Test one specimen at 7 days
3. Test one specimen at 28 days
4. Retain one specimen in reserve for later testing if required.

G. Take one additional test cylinder during cold weather concreting, cured on job site under same conditions as concrete it represents.

H. Slump: ASTM C 143, one test for each concrete load at point of discharge, and one for each set of compressive strength test specimens.

3.12 DEFECTIVE CONCRETE

A. Test Results: The testing agency shall report test results in writing to Owner's Representative and Contractor within 24 hours of test.

B. Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances or specified requirements.

C. Repair or replacement of defective concrete will be determined by the Owner's Representative. The cost of additional testing shall be borne by Contractor when defective concrete is identified.

D. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Architect for each individual area.

3.13 PROTECTION

A. Immediately after placement, protect pavement from premature drying, excessive hot or cold temperatures, and mechanical injury.

B. Do not permit pedestrian or vehicular traffic over pavement until 75 percent design strength of concrete has been achieved.

END OF SECTION

SECTION 32 33 00
SITE FURNISHINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Bollards.

1.02 RELATED REQUIREMENTS

A. Section 03 30 00 - Cast-in-Place Concrete: Bollard infill and underground encasement.

B. Section 05 50 00 - Metal Fabrications: Anchors to attach site furnishings to mounting surfaces.

1.03 REFERENCE STANDARDS

A. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2019.

B. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2022.

C. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; 2021a.

D. ASTM B211 - Standard Specification for Aluminum and Aluminum-Alloy Rolled or Cold Finished Bar, Rod, and Wire; 2012.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide manufacturer's specifications and descriptive literature, installation instructions, and maintenance information.

C. Shop Drawings: Indicate plans for each unit or groups of units, elevations with model number, overall dimensions; construction, and anchorage details.

D. Samples: Submit two sets of manufacturer's available colors for metal furnishings.

1.05 WARRANTY

A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Steel Pipe Bollards:
   1. FairWeather Site Furnishings: www.fairweathersf.com/#sle.
   2. Huntco Supply, LLC: www.huntco.com/#sle.

2.02 BOLLARDS

A. Steel Pipe Bollards: Concrete filled steel pipe with plain shaft.
   1. Shape: Round.
   2. Diameter: 6 inches.
   3. Height Above Grade: 42 inches.
   4. Depth Below Grade: 48 inches.
   5. Cap: Concrete fill rounded-off to form a smooth convex cap.
   6. Materials:
      a. Steel Pipe: ASTM A53/A53M, standard weight.
      b. Factory Finish: Primed.
   7. Mounting: In-ground.
   8. Products:
      a. Fair Weather Site Furnishings: www.fairweathersf.com/#sle.

b. Huntco Supply, LLC: www.huntco.com/#sle.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install site furnishings in accordance with approved shop drawings, and manufacturer's installation instructions.

B. See Section 03 30 00 for bollard infill and underground encasement.

C. Provide level mounting surfaces for site furnishing items.

END OF SECTION

SECTION 32 92 19
SEEDING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Confirmation and evaluation of topsoil and grading by others.

B. Finish grading of topsoil

C. Seeding and fertilizer.

D. Maintenance.

1.02 DEFINITIONS

A. Weeds: Include, but not limited to, Dandelion, Jimsonweed, Quackgrass, Horsetail, Morning Glory, Rush Grass, Mustard, Lambsquarter, Chickweed, Cress, Crabgrass, Canadian Thistle, Nutgrass, Poison Oak, Blackberry, Tansy Ragwort, Bermuda Grass, Johnson Grass, Poison Ivy, Nut Sedge, Nimble Will, Bindweed, Bent Grass, Wild Garlic, Perennial Sorrel, and Brome Grass.

B. Prime Areas: High visibility and/or value turfgrass areas within the site to be constructed, graded, prepared, and established with the highest level of care. Examples: school and recreational athletic fields, areas adjacent to main entrances of buildings, special event areas.

C. Common Areas: General use turfgrass areas within the site to be constructed, graded, prepared, and established with above average care. Examples: school recess areas, parking lot islands, lawn areas adjacent to buildings, privacy mounding or berms.

D. Utility Areas: Basic functional turfgrass areas within the site to be constructed, graded, prepared, and established with average care. Examples: rights-of-way, roadsides, ditches, low-maintenance areas, meadows, areas surrounding electrical or mechanical infrastructure and equipment.

1.03 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene two weeks before starting work of this section.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Seed Certification: Contractor to provide documentation that seed is blue tag certified or contains blue tag varieties. Indicate minimum purity and germination rates for each.

C. Seeding Schedule: Indicate dates for proposed seeding and existing lawn restoration. Correlate with specified maintenance periods.

D. Topsoil samples: Furnish two (2) soil analysis results made by a qualified independent soil testing agency stating percentages or organic matter, inorganic matter (silt, clay, and sand), deleterious material, pH, and mineral and plant nutrient content of topsoil. First test shall occur as a representative sample of the soil stockpile (see 32 2200 Grading). Second sample shall occur after topsoil has been respread and prior to finish grading. Stockpiles and/or respread soil showing differences in physical characteristics require different topsoil to be tested separately.

E. Maintenance Data: Include maintenance instructions, cutting method and maximum grass height; types, application frequency, and recommended coverage of fertilizer .

1.05 REGULATORY REQUIREMENTS

A. Comply with regulatory agencies for fertilizer and herbicide composition.

1.06 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in seeding with three (3) years experience of similar size projects.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver grass seed mixture in sealed containers. Seed in damaged packaging is not acceptable. Deliver seed mixture in containers showing percentage of seed mix, year of production, net weight, date of packaging, and location of packaging.

B. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.

1.08 PROJECT CONDITIONS

A. Utilities: Determine location of underground utilities and perform work in a manner that will avoid possible damage. Hand excavate, as required. Maintain grade stakes set by others until removal is mutually agreed upon by parties concerned. Note overhead lines for safety purposes.

B. Fine Grading: When conditions detrimental to seed growth are encountered, such as rubble fill, adverse drainage conditions, or obstructions, notify Contractor and Landscape Architect before commencing work.

C. Provide topsoil as required to complete work

1.09 SEQUENCING AND SCHEDULING

A. Permitted seeding time: Seeding shall be performed from April 1 to May 15, or from August 15 to September 30. When permitted in writing by the Landscape Architect, seeding may be performed outside of these limitations.

B. Notify Owner's Representative at least 72 hours prior to seeding to verify project conditions.

C. Coordination with planting: If planting of trees and shrubs is scheduled after lawn work, protect lawn areas and promptly repair damage to lawns resulting from planting operations.

1.10 WARRANTY

A. Warrant lawns through specified lawn maintenance period to be a smooth and thick lawn, free of weeds, ruts and eroded/bare areas larger than 8" square.

PART 2 PRODUCTS

2.01 SEED MIXTURE

A. Prime Areas – Non-Irrigated
   1. Turf Type Tall Fescue: 80% percent.
      a. Provide equal portions of three to four varieties that have been evaluated by NTEP within the last 5 years and was rated within the first group of Least Significant Difference (LSD) in mean Turfgrass Quality.
      b. Seed Growers: Mountain View Seeds, Landmark Turf and Native Seed, DLF Pickseed, Seed Research of Oregon.
   2. Perennial Ryegass: 10% percent.
      a. Provide equal portions of variety that has been evaluated by NTEP within the last 5 years and was rated within the first group of Least Significant Difference (LSD) in mean Turfgrass Quality.
      b. Seed Growers: Mountain View Seeds, Landmark Turf and Native Seed, DLF Pickseed, Seed Research of Oregon.
   3. Kentucky Bluegrass: 10% percent.

a. Provide equal portions of one variety that has been evaluated by NTEP within the last 5 years and was rated within the first group of Least Significant Difference (LSD) in mean Turfgrass Quality.
b. Seed Growers: Mountain View Seeds, Landmark Turf and Native Seed, DLF Pickseed, Seed Research of Oregon.

B. Common Areas
1. Turf Type Tall Fescue: 80% percent.
a. Provide equal portions of three to four varieties that have been evaluated by NTEP within the last 5 years and was rated within the first group of Least Significant Difference (LSD) in mean Turfgrass Quality.
b. Seed Growers: Mountain View Seeds, Landmark Turf and Native Seed, DLF Pickseed, Seed Research of Oregon.
2. Perennial Ryegass: 10% percent.
a. Provide equal portions of variety that has been evaluated by NTEP within the last 5 years and was rated within the first group of Least Significant Difference (LSD) in mean Turfgrass Quality.
b. Seed Growers: Mountain View Seeds, Landmark Turf and Native Seed, DLF Pickseed, Seed Research of Oregon.
3. Kentucky Bluegrass: 10% percent.
a. Provide equal portions of one variety that has been evaluated by NTEP within the last 5 years and was rated within the first group of Least Significant Difference (LSD) in mean Turfgrass Quality.
b. Seed Growers: Mountain View Seeds, Landmark Turf and Native Seed, DLF Pickseed, Seed Research of Oregon.

C. Utility Areas
1. Perennial Ryegrass: 40% percent.
a. Provide equal portions of three to four varieties that have been evaluated by NTEP within the last 5 years and was rated within the first group of Least Significant Difference (LSD) in mean Turfgrass Quality.
b. Seed Growers: Mountain View Seeds, Landmark Turf and Native Seed, DLF Pickseed, Seed Research of Oregon.
2. Kentucky Bluegrass: 30% percent.
a. Provide equal portions of varieties that have been evaluated by NTEP within the last 5 years and was rated within the first group of Least Significant Difference (LSD) in mean Turfgrass Quality.
b. Seed Growers: Mountain View Seeds, Landmark Turf and Native Seed, DLF Pickseed, Seed Research of Oregon.
3. Chewings Fescue: 15% percent.
a. Provide equal portions of one variety that has been evaluated by NTEP within the last 5 years and was rated within the first group of Least Significant Difference (LSD) in mean Turfgrass Quality.
b. Seed Growers: Mountain View Seeds, Landmark Turf and Native Seed, DLF Pickseed, Seed Research of Oregon.
4. Creeping Red Fescue: 15% percent.
a. Provide equal portions of one variety that has been evaluated by NTEP within the last 5 years and was rated within the first group of Least Significant Difference (LSD) in mean Turfgrass Quality.
b. Seed Growers: Mountain View Seeds, Landmark Turf and Native Seed, DLF Pickseed, Seed Research of Oregon.

2.02 SOIL MATERIALS

A. Topsoil: Excavated from site, see Section 31 2200 Grading.

2.03 ACCESSORIES

A. Mulching Material:
   1. Paper or Cellulose Mulch, made from recycled newsprint, applied at a rate between 1000 - 1200 pounds per acre.
   2. Pelletized Mulch, composed of 20% recycled wood and 80% recycled paper, applied at 1100 to 1300 pounds per acre.
   3. Combination Mulch, made from a mixture of wood and paper mulch.
   4. Bonded Fiber Matrix
   5. Oat or wheat straw, crimped, free from weeds, foreign matter detrimental to plant life, and dry. Hay or chopped cornstalks are not acceptable.

B. Fertilizer: as indicated in analysis;or to the following or equal proportions
   1. Nitrogen: **[19]** percent.
   2. Phosphoric Acid: **[19]** percent.
   3. Soluble Potash: 19 percent

C. Water: Clean, fresh and free of substances or matter that could inhibit vigorous growth of grass.
   1. Contractor shall furnish necessary equipment attachments and accessories for adequate irrigation of seeded areas.

D. Erosion Fabric: Jute matting, open weave.

E. Pre-Plant Herbicide: Syngenta Tenacity or equal.

F. Erosion Hydromulch: Profile Products Flexterra HP-FGM.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that prepared soil base is ready to receive the work of this Section.

B. Examine areas to receive lawns and grass for compliance with requirements and other conditions affecting performance.

C. Proceed with installation only after unsatisfactory conditions have been corrected

D. Ensure SWPPP plan is adhered to and any areas with potential erosion issues are noted in the pre-planting coordination meeting with the Landscape Architect. Any issues noted shall be corrected as soon as is practicable prior to seeding.

E. Coordinate work with Landscape Contractor.

3.02 PREPARATION

A. Prepare subgrade in accordance with Section 31 22 00.

B. Place topsoil in accordance with Section 31 22 00.

C. Establish lines for seeding, sod, and planting bed prior to seeding. Identify areas to receive different seed mixes (Prime, Common, Utility, Detention Basin, Sports Turf).

D. Remove debris, roots, branches, and stones in excess of
   1. Prime: 3/4 inch
   2. Common: 1 inch
   3. Utility: 1.5 inch
   4. Detention Basin: 1.5 inch
   5. Sports Turf: 3/4 inch

E. Uniformly grade areas within project limits including adjacent transition areas.
   1. Smooth finish surface within specified tolerances, grade in uniform levels or slopes between points where elevations are shown and between points and existing grades. Roll and rake, remove ridges, and fill depressions to meet finish grades.
   2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.
   3. Provide additional topsoil if required
   4. Tolerances
      a. Top Surface of Finish Grade: Plus or minus the following inches from required elevation over 25 feet in any direction.
         1) Prime: 1/2 inch
         2) Common: 3/4 inch
         3) Utility: 3/4 inch

3.03 FERTILIZING

A. Apply fertilizer Apply fertilizer in accordance with recommendations based on stockpile and placed soil test results; or at a minimum rate of [0.5 pounds Nitrogen, 0.5 pounds Phosphorus, 0.5 pounds Potassium per thousand square feet].

B. Apply after smooth raking of topsoil and prior to roller compaction.

C. Do not apply fertilizer at same time or with same machine as will be used to apply seed.

D. Lightly water to aid the dissipation of fertilizer.

3.04 GENERAL SEEDING

A. Equipment
   1. Primary Seeding on Prime, Common, Utility, and Sports Turf Areas
      a. Vredo, TurfCo, Brillon, Land Pride or Approved Equal
   2. Hydroseeding on Utility or Detention Basin Areas
      a. Finn, Kincaid, Epic Manufacturing or Approved Equal

B. Method – General Seeding
   1. Apply seed in two directions on a 30-degree angle at a rate equal to one-half the full seeding rate in each direction.
   2. Seed shall have no greater than 1/8" soil cover for optimum germination.
   3. Roll seed bed with tow-behind roller less than one ton in weight. Hand tamp bed and sidewalk edges as needed.
   4. Apply Syngenta Tenacity herbicide or an approved equal with the active ingredient of mesotrione (40% active ingredient) at a rate of 5 fluid ounces per acre.
   5. Install erosion control materials as specified on the site plan.
      a. 70/30 wood fiber hydromulch at 2,000 pounds per acre
      b. Profile Products Flexterra HP at 3,000 pounds per acre or higher based on manufacturer's recommendations for slope gradient
      c. Straw at 4,000 pounds per acre and crimped in 2 directions after application

C. Seeding Rates
   1. Seed shall be applied by a properly calibrated primary or hydroseeding apparatus at a rate noted below per thousand square feet
      a. Prime Area-Non-Irrigated: 10 pounds;
      b. Common Areas: 10 pounds;
      c. Utility Areas: 6 pounds;
      d. Detention Basin: 8 pounds;
      e. Sports Field-Non-Irrigated: 10 pounds per thousand square feet
   2. Apply seed evenly in two intersecting directions (passes) at 30-degree angles.

3. Do not seed areas in excess of that which can be mulched on same day.
4. Seed blends or mixtures with coated or treated seed shall be seeded at the specified rate multiplied times 1.5 during the spring, summer, and dormant seeding windows.
5. Seed blends or mixtures planted during the dormant seeding window shall be seeded at the specified rate multiplied times 1.25. If using coated or treated seed, additional multiplier must also be used.

D. Planting Season
1. Spring Seeding: April 1st to May 15th
2. Fall Seeding: August 21st to October 15th
3. Dormant Seeding: August 21st to December 31st

E. Do not sow immediately following rain, when ground is too dry, or during windy periods.

F. Using caution to protect grades and other plant material, roll seeded area with roller not exceeding 2000 lbs.

G. Immediately following seeding and compacting, apply mulch to a thickness of 1/8 inches. Crimp or otherwise prevent blowing of mulch material (pin fabric, crimp, etc) Maintain clear of shrubs and trees.

H. Apply water with a fine spray immediately after each area has been mulched. Saturate to 2 inches of soil.

I. Following germination, immediately re-seed areas without germinated seeds that are larger than 8 by 8 inches until such time as the area achieves 95 percent coverage of desirable turfgrass with no more than 5 percent weeds and/or bare areas.

J. Install Flexterra HP-FGM hydromulch, as recommended by the manufacturer, on seeded slopes with a gradient of 10 percent and greater.

3.05 HYDROSEEDING

A. Mix seed specified, fertilizer, and pulverized mulch in water, using equipment specifically designed for hydroseed application. Continue mixing until uniformly blended into homogeneous slurry suitable for hydraulic application.

B. Apply slurry uniformly to all areas to be seeded. Rate of application as required to obtain specified seed sowing rate as noted above.

C. Apply water with a fine spray immediately after each area has been mulched. Saturate to 2 inches of soil.

D. Following germination, immediately re-seed areas without germinated seeds that are larger than 8 by 8 inchesuntil such time as the area achieves 95 percent coverage of desirable turfgrass with no more than 5 percent weeds and/or bare areas.

3.06 RECONDITIONING EXISTING LAWNS

A. Recondition existing lawn areas damaged or left unmanaged by Contractor's operations including, but not limited to, storage of materials and equipment and movement of vehicles. Also recondition existing lawn areas where minor regrading, filling of low spots and removal of humps, is required for a smooth, level lawn.

B. Remove diseased and unsatisfactory lawn areas; do not bury into soil. Remove topsoil containing foreign materials resulting from construction, including but not limited to, oil drippings, stone, gravel or other loose materials.

C. Using a lawn aerator, aerate the soil to disrupt a minimum of 3 percent of the surface area at a minimum depth of 3 inches.

D. Remove weeds by hand or with a selective chemical weed killer as required.

E. Mow lawn short (1-1.5") and slice seed at a rate of 50 percent of the specified seeding rate based on location of lawn area. Bare spots should be treated at the rate recommended for new seeding. After seed is deposited, top dress the lawn/seed area with compost to lightly cover the seed and water in well.

F. Discourage foot traffic and keep soil moist until seed germination.
   1. Prime Areas: Install snow fence around the perimeter of the area to discourage foot traffic and keep soil moist until seed germination.

3.07 PROTECTION

A. Cover seeded slopes where grade is 4 inches per foot or greater with Flexterra HP-FGM at a depth equal to or greater than 1/4 inch.

3.08 REPAIR AND RESTORATION

A. Contractor to maintain the original grades of the slopes after commencement of planting operations and during the maintenance period. Damage to the finished surface shall be promptly repaired. In the event erosion occurs from rainfall or other causes such damage shall be promptly repaired after each occurrance during the maintenance period and documented through field reports submitted to Owner and Architect . Ruts, ridges, tracks, and other surface irregularities shall be corrected and areas replanted where required prior to final acceptance by Landscape Architect. Utilize straw bales or wattles to mitigate water eroding slopes, protect area until establishment then remove or move down to establish additional areas.

B. Plant Materials: If damaged due to this work, replace with vegetation of equivalent species and size.

3.09 MAINTENANCE

A. Provide maintenance at no extra cost to Owner; Owner will pay for water.

B. See Section 01 70 00 - Execution Requirements, for additional requirements relating to maintenance service.

C. Maintain seeded areas immediately after placement until grass is well established and exhibits a vigorous growing condition, but not less than the following periods:
   1. Seeded lawns: Until the date of Final Acceptance by Owner's Representative or as long as may be necessary to produce a uniform stand of grass.
      a. When full maintenance period has not elapsed before the end of the growing season, or if the lawn is not fully established, the maintenence period shall continue into the next growing season

D. For the purpose of establishing an acceptable standard, scattered bare spots, none of which is larger than 8 inches by 8 inches, will be allowed up to a maximum of 5 percent of the lawn area. Areas not meeting this requirement will be reseeded on an ongoing basis until this performance standard has been achieved.

E. Mow grass at regular intervals to maintain at a maximum height of 3 inches. Do not cut more than 1/3 of grass blade at any one mowing.

F. Neatly trim edges and hand clip where necessary.

G. Immediately remove clippings after mowing and trimming.

H. Water to prevent grass and soil from drying out.

I. Roll surface to remove minor depressions or irregularities.

J. Control growth of weeds. Apply herbicides in accordance with manufacturer's instructions. Remedy damage resulting from improper use of herbicides.

K. Immediately reseed areas that show bare spots.

L. Protect seeded areas with warning signs during maintenance period.

END OF SECTION