SPECIFICATIONS FOR

MECHANICAL UPDATES AND RELATED WORK

AT

WATERLOO ELEMENTARY SCHOOL

1933 SOUTH CUSTER ROAD, MONROE, MI. 48161

FOR

MONROE PUBLIC SCHOOLS

1275 NORTH MACOMB STREET, MONROE, MI. 48162

FILE #22114

SET #_____

JULY 12, 2022

KOHLER
ARCHITECTURE, INC.
www.kohlerarchitect.net
1118 WEST FRONT STREET
MONROE, MICHIGAN 48161
PH:(734)242-6880

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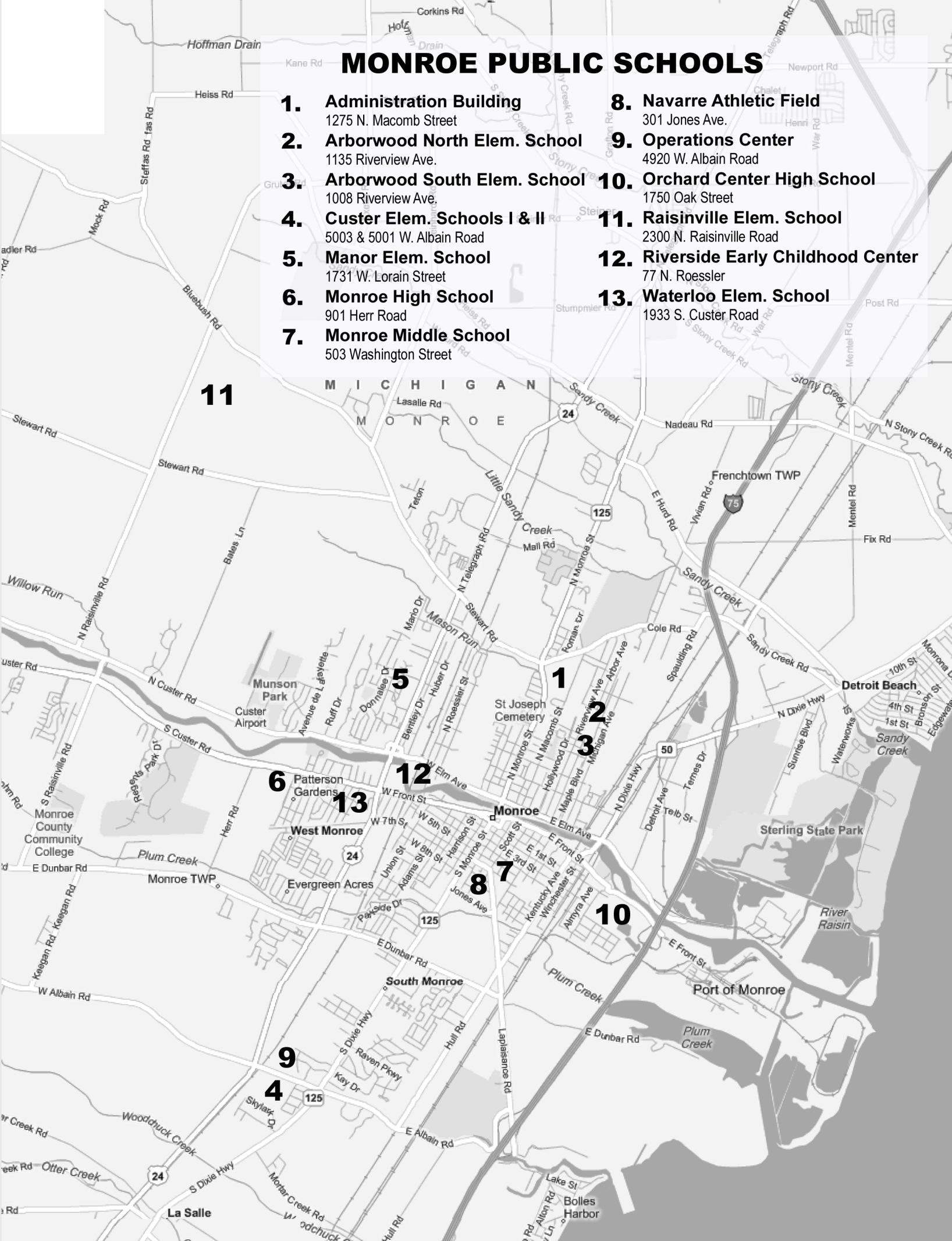

ADVERTISEMENT FOR BIDS

OWNER: Monroe Public Schools
North Macomb St
Monroe, MI. 48162
Phone: (734) 265-3000

ARCHITECT:

KOHLER
ARCHITECTURE, INC.
WWW.KOHLERARCHITECT.NET
1118 WEST FRONT ST., MONROE, MI. 48161
PH:(734)242-6880 FX:(734)242-6883

PROPOSALS: Separate sealed proposals for Prime Contractors are invited for the following construction work: (#22114) **Mechanical Updates and Related Work at Waterloo Elementary School**, 1933 South Custer Road, Monroe, MI., 48161 for Monroe Public Schools, Monroe, MI. Proposals are to be separate per project and complete, including all trades (Sub-Contractors and Suppliers), as the successful Contractor will be considered a Prime Contractor entering into a direct contract with the Owner.

DUE DATE: Proposals will be received by the owner until **Wednesday, August 10, 2022 at 3:00 P.M.**, at the Monroe Public Schools Administration Building, 1275 North Macomb Street, Monroe, MI 48162. Bids will be publicly opened and read aloud at that time at the same location. The School Board will not consider or accept any bid submitted after the due date and time.

PLANS: Electronic pdf copies will be available for viewing and/or downloading at no cost from the Monroe Public Schools website at **https://bids.monroe.k12.mi.us.** Hard copies of plans and specifications may be purchased for $150.00 for each set from the office of Kohler Architecture, Inc. located at 1118 West Front Street, Monroe, Mi., 48161.

The project will be advertised on the Buy4Michigan.com website and at Builders Exchange of Michigan, Grand Rapids, MI; CMD (Construction Market Data).Norcross, GA; Construction Association of Michigan, Bloomfield Hills, Mi.; Dodge Data & Analytics. Cincinnati, OH. Only bidders registered with the Architect will be sent any addendums and receive any other information regarding this project.

MANDATORY PRE-BID MEETING: A mandatory pre-bid meeting will be held at the job site **Wednesday July 27, 2022 at 3:00 P.M.**

These meetings are for the Prime Contractors, (NOT Sub-Contractors), to gain knowledge about the project and submit proof of qualifications for pre-approval. The Architect's Project Manager, will be at this meeting to collect proof of qualification documentation, clarify the bidding procedures, scope of work, identify any items of concern and answer questions from the Bidders for their preparation and submission of representative competitive bids. It is the Contractor's responsibility to assure the Architect has been furnished all necessary pre-approval information as listed in Instructions to bidders at or prior to this meeting. The Architect will assemble an official list of approved bidders two days after the mandatory pre-bid meeting. The list will be limited to Contractors who attend the entire pre-bid meeting, have signed an official attendance list, have checked out official plans and specifications from the Architect, and meet the minimum Contractor qualifications as listed in the Instructions to Bidders. **Bids submitted by Contractors who are not on the approved bidders list or do not meet these pre-bid requirements will not be opened and will be returned to the bidder.**

PROPOSAL GUARANTEE: The proposal must be accompanied by a certified check or bid bond by an approved surety company in the amount of five percent (5%) of the proposal submitted payable to the Owner. Proposals shall remain firm for a period of forty-five (60) days after official opening of bids.

CONTRACT SECURITY: The successful Contractor will be required to furnish performance, labor and material bonds, each in the full amount of the proposal if payments are issued prior to completion and/or the contract is $50,000.00 or more.

FAMILIAL DISCLOSURE: All bidders must provide disclosure in compliance with MCL 380.1267 and attach this information to the bid. The bid shall be accompanied by a sworn and notarized statement disclosing any familial relationship that exists between the Owner or the employee of the bidder and any member of the board, intermediate school board, or board of directors or the superintendent of the school district, intermediate superintendent of the intermediate school district, or chief executive officer of the public school academy. The District shall not accept a bid that does not include this sworn and notarized disclosure statement.

IRAN ECONOMIC SANCTIONS ACT COMPLIANCE: All bidders must provide a sworn and notarized statement in compliance with Iran Economic Sanctions Act, Michigan Public Act No. 517 of 2012 and attach this information to the bid. The District shall not accept a bid that does not include this sworn and notarized statement.

RIGHT RESERVED BY OWNER: The Owner reserves the right to waive any irregularities, reject any or all bids, or accept the bid that in the opinion of the Owner, will serve the best interests of the Owner.

PROPOSAL FORM
(Submit in Duplicate)

To: Secretary of the School Board:

Having carefully examined the Instructions to Bidders, the Specifications and Drawings, including Addendum No._____, all entitled, “Mechanical Updates and Related Work at Waterloo Elementary School, 1933 South Custer Road, Monroe, MI., 48161 for Monroe Public Schools, 1275 North Macomb Street, Monroe, MI.", Architect's File #22114, as well as the premises and the conditions affecting the work, the undersigned agrees to furnish all labor and materials to perform the work, including All Trades, and agrees to accept in payment therefore, the sum of:

Proposal A (Base Bid) _____ Dollars

($_____)

Alternate E-1 (ADD) _____ Dollars

($_____)

The following form of bid guarantee, as indicated below, is herewith enclosed, representing 5% of the amount of the Total Bid, including Alternates, payable to the Owner:
Certified Check_____ Bid Bond_____

It is agreed that this bid may not be withdrawn for a period of 60 days. The Owner reserves the right to waive any irregularities, reject any or all bids or accept the bid that in the opinion of the Owner will serve the best interest of the Owner.

Guaranteed Maximum percentage of mark-up values on change orders including Overhead, profit, bond, insurance, wage rates, and equipment rates for BOTH prime contractors and subcontractors will not more than _____%.

The undersigned agrees, if awarded the contract, to commence construction immediately and to complete work as noted in Division #1. (Notes: See Supplemental and Special conditions for Liquidated Damages and Instructions to Bidders for Architect's Inspections and Additional Services.)

SUB-CONTRACTORS - The undersigned submits for your approval herewith as a condition of being awarded the contract, the **separately attached list** of Contractors to whom it is proposed to let portions of this work, agreeing in every way to be responsible for the work, materials, equipment and supplies furnished by each and all of them. **A tentative list shall be submitted with bid and confirmed/verified no later than 24 hours after bid opening.**

SUBSTITUTIONS - The following is a list of manufacturers or trade names of substitute materials and equipment, which the undersigned submit for consideration, guaranteeing the same to conform to exact requirements of the specifications. The additions, deductions or no-charge figures indicated are separate from and not part of the proposal. **A tentative list shall be submitted with bid and confirmed/verified no later than 24 hours after bid opening.**

Item	Substitute Mfr./Trade Name	Add	Deduct	No Charge
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

PROPOSAL FORM
(Submit in Duplicate)

FAMILIAL DISCLOSURE – As required by the State of Michigan, and included as part of this proposal, shall be an Affidavit for Statement Regarding Familial Relationship, completely filled out and signed.

IRAN ECONOMIC SANCTIONS ACT COMPLIANCE - As required by the State of Michigan, and included as part of this proposal, shall be an Affidavit of Compliance of the Iran Economic Sanctions Act, Michigan Public Act No. 515 of 2012, completely filled out and signed.

BIDDER'S COMPLIANCE ASSURANCE- **Sign in the space provided below to confirm that you have read, understand, and will comply with the requirements as stated in this project manual, including, but not limited to the sections dealing with the following: (1) criminal/security checks/records and, (2) Qualification of Bidders.**

(PLEASE PRINT OR TYPE)

Date _____ Firm_____

Address _____ By _____

_____ Signature _____

Phone _____ Title _____

Email _____ Fed. Tax ID _____

STATEMENT REGARDING FAMILIAL RELATIONSHIP

AFFIDAVIT OF _____
(insert name of affiant)

STATE OF MICHIGAN)
)ss
COUNTY OF _____)

_____ makes this Affidavit under oath and states as follows:
(insert name of affiant)

1. I am a/the:
   - ☐ President
   - ☐ Vice-President
   - ☐ Chief Executive Officer
   - ☐ Member
   - ☐ Partner
   - ☐ Owner
   - ☐ Other (please specify) _____

of _____, a bidder on a construction project for
(insert name of contractor)

Monroe Public Schools that involves, at least in part, construction of a new school building or an addition to or repair or renovation of an existing school building or other facilities.

2. I have personal knowledge and/or I have personally verified that the following are all of the familial relationships existing between the owner(s) and the employee(s) of the aforementioned contractor and the school district's superintendent and/or board members: (leave blank if none)

_____

_____

_____

3. I have authority to bind the aforementioned contractor with the representations contained herein, and I am fully aware that the school district will rely on my representations in evaluating bids for the construction project.

4. I declare the above information to be true to the best of my knowledge, information and belief. I could completely and accurately testify regarding the information contained in this affidavit if requested to do so.

_____
(signature of affiant)

Dated: _____

Subscribed and sworn before me in _____ County,

Michigan, on the ___ day of _____, 20____.

_____ (signature)

_____ (printed)

Notary public, State of Michigan, County of _____

My Commission expires on _____

Acting in the County of _____

AFFIDAVIT OF COMPLIANCE
IRAN ECONOMIC SANCTIONS ACT
Michigan Public Act No. 517 of 2012

AFFIDAVIT OF _____
(insert name of affiant)

STATE OF MICHIGAN)
)ss
COUNTY OF _____)

_____ makes this Affidavit under oath and states as follows:
(insert name of affiant)

1. **I am a/the:**
   - ☐ **President**
   - ☐ **Vice-President**
   - ☐ **Chief Executive Officer**
   - ☐ **Member**
   - ☐ **Partner**
   - ☐ **Owner**
   - ☐ **Other (please specify) _____**

   of _____, a bidder on a construction project for
   (insert name of contractor)
   Monroe Public Schools that involves, at least in part, construction of a new school building or an addition to or repair or renovation of an existing school building or other facilities.

2. **I personally certify, represent and warrant that the Bidder (including its officers, directors and employees) is not an "Iran Linked Business" within the meaning of the Iran Economic Sanctions Act, Michigan Public Act No. 517 of 2012 (the "Act"), and that in the event the Bidder is awarded a Contract as a result of the aforementioned Advertisement for Bids, the Bidder will not become an "Iran Linked Business" at any time during the course of performing under the Contract.**

   The Bidder further acknowledges that any person as that term is defined in Section 2(f) of the "Act" who is found to have submitted false certification is responsible for a civil penalty of not more than $250,000.00 or 2 times the amount of the Contract or proposed Contract for which the false certification was made, whichever is greater plus the cost of the Owner's investigation, and reasonable Attorney fees in addition to the fine. Moreover, any person who submitted a false certification shall be ineligible to bid on an Invitation to Bid or submit a proposal as to any Request for Proposals for a period of three (3) years from the date that it is determined that the person has submitted the false certification.

3. **I have authority to bind the aforementioned contractor with the representations contained herein, and I am fully aware that the school district will rely on my representations in evaluating bids for the construction project.**

4. **I declare the above information to be true to the best of my knowledge, information and belief. I could completely and accurately testify regarding the information contained in this affidavit if requested to do so.**

_____
(signature of affiant)

Dated: _____

Subscribed and sworn before me in _____ County,

Michigan, on the ___ day of _____, 20____.

_____ (signature)

_____ (printed)

Notary public, State of Michigan, County of _____

My Commission expires on _____

Acting in the County of _____

Project Schedule

Mechanical Updates and Related Work
at
Waterloo Elementary School
#22114

This reflects an anticipated project schedule for this construction project. Contractors shall familiarize themselves with this schedule and note any conflicts on the proposal form. The project schedule will be reviewed, coordinated, and finalized at the contractor/owner pre-construction meeting.

Description	**Date**
Out for Bids	July 12, 2022
Mandatory Pre-bid Meeting	July 27, 2022
Official Bidders List	July 28, 2022
Bids Due	August 10, 2022 at 3:00 pm
Post Bid Interviews	August 11-12, 2022
Architect Recommendation	August 12, 2022
Owner Awards Project	August 23, 2022
Notice to Proceed Letters	August 24, 2022
Pre-Construction Meeting	T.B.D.
Physical Construction (Boiler Rm.)	May 12, 2023
Physical Construction (All Other)	June 19, 2023 – August 18, 2023
Substantial Completion	August 18, 2023
Final Completion	September 18, 2023

Kohler Architecture, Inc.
1118 West Front Street
Monroe, MI. 48161
(734)242-6880

Files: \Documents\Specifications\22113 Project Schedule

SECTION 002113
INSTRUCTIONS TO BIDDERS

INVITATION

1.01 PROPOSAL SUBMISSION

A. Bids signed and sealed, executed, and dated will be received per the Advertisement for Bids.

B. Submit required Supplements To Bid Forms within 24 hours after closing time for receiving bids.

C. Amendments to the submitted offer will be permitted if received in writing prior to bid closing and if endorsed by the same party or parties who signed and sealed the offer.

1.02 INTENT

A. All work specified in this project manual shall be bid as one package. The prime contractor (assumed General Contractor) shall be responsible to assemble and collect all parts, materials, equipment, labor, etc. as required for a complete finished installation at completion. Included shall be architectural (patching, demolition, finishes, roofing, etc.) mechanical, electrical, plumbing, and all other related trades as required for a complete project.

1.03 CONTRACT TIME

A. The bidder, in submitting an offer, will perform the Work within the time stated in Section 001300 - Project Schedule.

BID DOCUMENTS AND CONTRACT DOCUMENTS

2.01 CONTRACT DOCUMENTS IDENTIFICATION

A. All work shall be performed under this contract as described in this project manual as prepared by Kohler Architecture, Inc. Included, but not limited to are; Title Sheet, Index, Advertisement for Bids, Bid Proposal Form, Instructions to Bidders, Certificate of Insurance, Specifications - All Divisions, Drawings, etc.

2.02 AVAILABILITY

A. Electronic pdf copies will be available for viewing and/or downloading at no cost from the Monroe Public Schools website at **https://bids.monroe.k12.mi.us.** Hard copies of plans and specifications may be purchased for $150.00 for each set from the office of Kohler Architecture, Inc. located at 1118 West Front Street, Monroe, Mi., 48161. This is the official and only recogonized place that addenda and other information regarding this project will be posted.

B. The project will be advertised on the Bid4Michigan.com website and at Builders Exchange of Michigan, Lansing, MI; Construct Connect (formerly CMD), Norcross, GA; Construction Association of Michigan, Bloomfield Hills, Mi.; Dodge Data & Analytics. Cincinnati, OH.

C. Bid Documents are made available only for the purpose of obtaining offers for this project. Their use does not grant a license for other purposes.

2.03 EXAMINATION

A. Bid Documents may be viewed at the office of Architect.

B. Upon receipt of Bid Documents verify that documents are complete. Notify Architect should the documents be incomplete.

C. Immediately notify Architect upon finding discrepancies or omissions in the Bid Documents.

D. Each bidder shall examine all drawings, specifications and all other data or instructions pertaining to the work. No plea of ignorance of conditions that exist or of difficulties of conditions that may be encountered, or of any other relevant matter concerning that work to be performed in the execution of the work will be accepted as an excuse for any failure or omission on the part of the Contractor to fulfill every detail of all the requirements of the contract documents, governing the work. The bidder, if awarded the contract, will not be allowed extra compensation by reason of any matter or thing concerning which such bidder might have fully informed himself prior to bidding.

2.04 INQUIRIES/ADDENDA

A. Addenda may be issued during the bidding period. All Addenda become part of Contract Documents. Include resultant costs in the Bid Amount.

B. If any person contemplating submitting a bid is in doubt as to the true meaning of any part of the plans or specifications, or other proposed contract documents, or requesting a change, they shall submit to the Architect a written request for interpretation which shall be delivered to the Architect at least (7) days before the opening of bids. Any interpretation of the proposed documents will be made only by an addendum duly issued.

C. Such addendum will be posted in the same manner as original bid documents. If after the pre-bid meeting and approved bidders are known, such addendum will be emailed to each approved bidder. It shall be the bidder's responsibility to make inquiry as to addenda issued. Any addendum issued during the time of bidding shall be included in the bid, and in closing a contract will become a part thereof.

D. Any verbal information obtained from or statements made by representatives of the Owner or Architect at the time of examination of the contract documents or site shall not be construed as in anyway amending the contract documents. Only such corrections or addenda as are issued in writing to all bidders shall become a part of the contract. Neither the Owner nor the Architect will be responsible for verbal instructions. Verbal answers are not binding on any party.

2.05 VOLUNTARY SUBSTITUTIONS

A. For a bid proposal to be accepted by the Owner, and considered for contract award, it must contain costs to perform the work exactly as specified. The bidder is required to perform all work, all materials, etc., as specified. Voluntary substitutions may be listed in the bid proposal by the bidder but will only be considered if the Contractor first bids on the work as specified. The bidder must be considered the lowest bonafide, qualified, bidder in the base specified bid before the voluntary substitution is considered.

B. If a bidder feels a product, assembly of products, or an equal solution is available to perform the same design intent, he shall contact the Architect for review and if approved, will be issued in an addendum as described elsewhere, as an "approved equal".

SITE ASSESSMENT

3.01 SITE EXAMINATION

A. The bidder shall carefully examine the site of each project and surrounding territory, the means of approach to the site and the structure of the ground and make all necessary investigations required to inform himself thoroughly and fully as to facilities for delivery, storing, placing and handling of materials and equipment and to inform himself fully as to all difficulties that may be encountered in the complete execution of all work in accordance with the contract documents.

B. For making appointment to visit the site and enter the building, bidders should contact:
Mr. Jerry Oley, Director of Operations, Monroe Public Schools, 4920 West Albain Road, Monroe, MI 48161 (Phone 734-265-3333)

3.02 MANDATORY PRE-BID MEETING

A. A mandatory pre-bid meeting will be held at the time and place noted in the Advertisement for Bids. This meeting is for the Prime Contractors, (NOT Sub-Contractors), to gain knowledge about the project and submit proof of qualifications. The Architect's Project Manager, will be at this meeting to collect proof of qualification documentation, clarify the bidding procedures, scope of work, identify any items of concern and answer questions from the Bidders for their preparation and submission of representative competitive bids. It is the Contractor's responsibility to assure the Architect has been furnished all necessary documentation as listed below at or prior to this meeting. The Architect will assemble a list of bidders within seven days after the mandatory pre-bid meeting. The list will be limited to Contractors who attend the entire pre-bid meeting, have signed an official attendance list, and meet the minimum Contractor qualifications as listed in the Instructions to Bidders, and the Advertisement for Bids. **Bids submitted by Contractors who are not on the approved bidders list or do not meet these pre-bid requirements will not be opened and will be returned to the bidder.**

B. See Contractor Requirements Section for list of Qualifications to be delivered to the Architect, **at or before**, the Mandatory Pre-Bid Meeting:

CONTRACTOR REQUIREMENTS

4.01 EVIDENCE OF QUALIFICATIONS

A. The following is a list of items to be delivered to the Architect, at or before, the Mandatory Pre-Bid Meeting:
   1. Contractor's Qualification Statement - AIA A305 Current edition (copies available from the AIA, www.documentsondemand.AIA.org) setting forth previous experience, references, physical plant and equipment possessed, description of organizations, financial resources, conformance with special requirements, qualification statement and such other evidence as may testify to his ability to carry out the contract..
   2. List of Job References for minimum 5 similar (type/size) projects with current contact names and phone numbers providing company experience.
   3. Resumes of key personnel including Project Manager and Project Superintendent providing individual's name, address, current driver's license or legal photo I.D, trade classification, years of trade experience and years employed by contractor.
   4. Equipment list providing physical plant and equipment possessed.
   5. Other such evidence as may testify to the Contractor's ability to carry out the contract.

4.02 SPECIAL REQUIREMENTS

A. All Contractors and Sub-Contractors shall comply with the following conditions:
   1. The main office of all Contractors, Sub-Contractors, and other bidders shall be located within approximately a fifty (50) mile radius from the job site.
   2. The Contractor and their Sub-Contractors shall give preference to using local firms for labor and materials where practical without sacrificing the quality, time schedule and cost of the project. Local is defined as that available within the boundaries of Monroe County.
   3. The Owner expects the Contractor to utilize local Sub-Contractors and suppliers when all other factors are similar and when it would serve the Owner's best interest. Other factors that will be used in awarding a contract include cost, past projects and performance, time schedule, qualifications, credit/financial history, bonding capability, etc.
   4. Contractor's Qualifications:
      a. Experience - The Prime Contractor shall have been in business under its present name and ownership for the last five (5) years. The Prime Contractor shall have completed a minimum of five (5) projects similar to this project, in type and size, using the materials and manufacturers as herein specified.
      b. Personnel - The Prime Contractor shall have a minimum of (3) regular full-time employees (Estimators, Superintendents, Laborers, etc.) on his company payroll that are qualified with the appropriate skills to perform the work specified. This excludes Owners/Officers of the company.
      c. Project Superintendent - Shall be sufficiently experienced to coordinate and be responsible to direct all workers and Sub-Contractors in the installation of the work and for taking instructions from the Owner/Architect. **The Project Superintendent shall be on the job site at all times that construction is in progress.** He shall also be responsible to up-date an accurate "As-Built" drawing of all trades on a daily basis to be submitted to the Architect at job completion.
      The same Superintendent shall remain on the job from beginning to end, unless written approval is given by the Architect, in advance. This is to avoid additional costs the Owner will incur should the Architect have to repeat directives, review changes, or any other additional services required to get the replacement Foreman educated with the project's details and scope.
      d. Franchised Installer - The Prime Contractor, or any Sub-Contractor shall be franchised and approved by the manufacturer of the components, or system, which is to be installed for the last five (5) years. Contractor shall submit a letter from the component manufacturer, stating this Contractor's previous performance rating of installation of the component on the last ten (10) completed projects.

e. Equipment - The Prime Contractor shall possess sufficient equipment, tools, safety items, etc., to properly install the work and to ensure the necessary security and safety of the job site, the workers and the occupants.

5. As all of the above items are essential conditions for awarding a contract, the three lowest bidders shall submit the following required items no later than twenty-four (24) hours following the bid opening:
   a. Finalized Sub-Contractor list with each worker's name, address, social security number, trade classification, years of trade experience and years employed by Sub-Contractor. See other Divisions of these specifications that may set ratios of apprentices to journeymen.
   b. Anticipated material supplier list.
   c. Guaranteed Maximum percentage of mark-up values on change orders including Overhead, profit, bond, insurance, wage rates, and equipment rates for BOTH prime contractors and subcontractors.

   If the Owner awards a contract, sub-contractors shall not be changed by the Contractor unless approved in writing by the Owner. Request for changes shall be submitted by the Contractor, stating the reason(s) for the change, along with all supporting documentation.
6. Any bidder not in agreement or conformance with these conditions shall request a waiver at the time of submitting the bid. Otherwise if a contract is awarded to a Contractor not requesting a waiver, the Contractor will be required to conform as specified.
7. The contractor shall not employ and shall not subcontract with a subcontractor of any degree that employs, an individual required to be registered under Article 2 of 1994 PA 295, as amended, who will be assigned to work within a student safety zone, as that term is defined in 1994 PA 295, as amended.

   Neither the contractor nor subcontractor thereof of any degree shall assign to the Owner's Project any individual, and the Owner shall not allow any individual, to regularly and continuously work under contract in any of the Owner's schools if the reports on an individual's criminal history or criminal records check have not been received or if those checks would disclose or do disclose that individual has been convicted of a felony other than a "listed offense" as that term is defined in Section 2 of the Sex Offenders Registration Act, 1994 PA 295, as amended, or which disclose that individual has been convicted of a felony other than a "listed offense" unless the Superintendent and the Board of the Owner each specifically approve of the work assignment in writing. Additionally, the contractor agrees that it shall not assign any of its employees, agents or other individuals to perform, and shall not permit any of its subcontractors to assign personnel to perform, any services under this Agreement where such individuals would regularly and continuously work in the school district's facilities or program sites if such person has been convicted of any of the following offenses:
   a. Any "listed offense" as defined under Section 2 of the Sex Offenders Registration Act, MCL 28.722; or
   b. Any offence that would, in the judgment of the Board, create a potential risk to the safety and security of students served by the school district or employees of the school district; or
   c. Any offense enumerated in Sections 1535a (1) or 1539b of the Revised School Code, MCL 380.1535a(1) or MCL 380.1539b; or
   d. Any offense of a substantially similar enactment of the United States or another State.

      Any personnel of the contractor or of the subcontractors thereof of any degree that have been charged with any of the above-referenced crimes shall immediately report that circumstance to the Owner's superintendent and shall not be permitted to work in any of the schools of the Owner during the pendency of the prosecution associated with such charge(s). The Owner reserves the right to refuse contractor's assignment of any individual, agent or employee of the contractor or subcontracted personnel of any degree to render services under this Agreement where the criminal history of that individual (including any pending charges) indicate, in the school district's judgment, unfitness to perform services under this Agreement. Violation of the above by the contractor or a subcontractor thereof shall be a basis for immediate termination of this

Agreement. The contractor shall require language similar to the above in all of its agreements and/or contracts with its consultants, subcontractors, suppliers and materialmen of any degree.

8. Any and all personnel of the contractor, any subcontracted personnel, and/or any suppliers thereof of any degree, assigned to regularly and continuously work under contract in any of the Owner's schools shall be required to submit a signed Conviction Disclosure Form and a legal photo identification for a background check before being allowed on the construction site. (Copy of form included at end of this Division).
9. Contractor shall submit a signed and notarized copy of the Statement Regarding Familial Relationship with his Bid Proposal. (Copy of form included in bid specification packet.)
10. Contractor shall submit a signed and notarized copy of the Affidavit of Compliance Iran Economics Sanctions Act with his Bid Proposal. (Copy of form included in bid specification packet.)

BID SUBMISSION

5.01 DEPOSIT AND OPENING OF BIDS

A. Proposals shall be submitted and delivered in opaque envelopes addressed to **Monroe Public Schools, 4920 West Albain Road, Monroe, MI 48161, ATTN: Mr. Jerry Oley, Director of Operations,** and clearly marked **Proposal.** There shall also appear name and address of the bidder.

5.02 PREPARATION OF PROPOSALS

A. Proposals shall be prepared only on the form provided by the Architect, and all spaces left for the purpose shall be fully filled in. All designations and prices shall be fully and clearly set forth, with the amount of the bid stated in words and repeated in figures. In case of variations the worded amount shall prevail. Erasures or other changes in the bid shall bear the signature of the bidder. Proposals must be signed.

B. The bids shall be on the basis of guaranteed sum. Bidders should not add any conditions or qualifying statements, the proposal shall not contain any added recapitulation of the work to be done nor will oral, electronic or telephonic modifications of the work be considered, as otherwise the proposal may be declared irregular.

5.03 BID PROPOSAL CLARIFICATIONS

A. Bidders shall submit prices for each proposal, alternate, unit price, or other requested bid amount. Bidders may elect not to bid the Alternate prices but may jeopardize their chances of being awarded a contract. The Owner has the right to award contracts to the bidder on the basis of any combination of base bid and alternate plus ay unit prices or other bid amounts that best serves the Owner's best interest.

B. The alternate numbering system does not reflect any priority. The Owner may select and award a contract on the basis of which alternates are in their best interest.

C. In the case where several separate Base Bid Proposals are requested, the Owner may award contracts on the basis of these proposals or a combined bid, to one Contractor or several Contractors, whose bid(s) serves the Owner's best interest. If the Base Bids are an either/or selection, the Owner may choose the Proposal (Base Bid or Optional Bid) that serves their best interest.

BID ENCLOSURES/REQUIREMENTS

6.01 BID GUARANTEES

A. No proposal will be considered unless it is accompanied by the bid guarantees as stated in the official Advertisement for Bids. Guarantees may be in the form of a certified check or a standard form of bid bond by a corporate surety licensed to underwrite bids in the State of Michigan (facsimile copies are not acceptable). Guarantee shall be in the amount of five percent (5%) of the amount of the bid submitted, or in the case of separate and combined bids, five percent (5%) of the total of the separate bids. Amount shall include Base Bid plus all Alternates. Guarantees shall be drawn in favor of the Owner.

6.02 RETURN & FORFEITURE OF BID GUARANTEES

A. The bid guarantees of all except the three lowest Bidders will be returned within fifteen days after the opening of bids. The guarantees of the three lowest bidders will be returned within three days after the executed contract and bonds have been finally approved by the Owner.

B. In the event of the successful bidder refusing to enter into contract, or failing to execute the contract and bonds within ten (10) days after formal notification of award of contract, then a sum not to exceed five percent (5%) of the amount of the bid shall be forfeited to the Owner due to lack of performance and as liquidated damages.

OFFER ACCEPTANCE/REJECTION/WITHDRAW

7.01 RIGHT RESERVED BY OWNER

A. The Owner reserves the right to waive any irregularities, reject any or all bids, or accept the bid that in the opinion of the Owner will serve the best interest of the Owner. The Owner also reserves the right to reject the bid of any bidder who has previously failed to perform properly, or to complete on time contracts of a similar nature, or who is not in a position to perform the contract, or who has habitually and without just cause neglected the payment of bills or otherwise disregarded his obligations to Sub-contractors, Material Men or Employees.

B. The ability of a bidder to obtain a performance bond shall not be regarded as the sole test of such bidder's competency or responsibility.

7.02 ACCEPTANCE OF OFFER

A. After acceptance by Owner, Architect on behalf of Owner, will issue to the successful bidder, a written Notice To Proceed.

7.03 WITHDRAW OF PROPOSALS

A. Any bidder may withdraw his bid at any time prior to the hour and date specified for openings. No bidder may withdraw his proposal for **Sixty (60) days** thereafter. Negligence on the part of the bidder in preparing his bid confers no right of withdrawal or modification of his bid after such bid has been opened.

ARCHITECT'S SERVICES

8.01 ARCHITECT'S BASIC SERVICES

A. The Architect will schedule and conduct a pre-construction meeting before work starts.

B. The Architect will make job site visits on a scheduled basis (or) on a random basis, (approximately one per week), during the course of construction. He shall be provided with access to all areas of work to ensure construction is proceeding in accordance with the contract documents. The Contractor shall schedule all sample mock-ups, questions regarding the project, any special meetings for Architect's review and approval during this visit.

C. The Contractor is responsible to notify the Architect 48 hours in advance for the following special visits:
   1. First day of job set-up to review material storage placements & general layout
   2. All excavations prior to backfill or concrete placement & during testing, after demolition, but before new materials are installed, to view concealed job conditions.
   3. To review/approve all samples of construction before Contractor continues with the work. Sample areas may be described in other Divisions of the Specifications - this may also include special visits by manufacturers of systems.
   4. When observations/reviews/approvals are made by representatives of Manufacturers and Suppliers
   5. The Contractor shall submit a notice of completion letter to the Architect in writing when all work is complete and ready for a punch list. Under the normal services, the Architect will make (1) punch list visit, (1) re-punch and (1) random final check. The initial punch list will be made by the Architect in the presence of the Contractor and the Owner to determine what items may need corrections and if the project is substantially complete. One week’s advance notice is required.

The punch list will be written up by the Architect and describe general and/or specific items in general locations. It is the Prime Contractor's responsibility to also make a list of his own, dealing with the specifics and translate them to the proper Sub-Contractors.

If the Architect arrives at the job site and the project is not done and ready for a punch list, but rather a "to do list", the Architect has the right to leave and will only return when notice of completion is again received in writing. This process will use up (1) of the normal punch/re-punch visits.

The first re-punch and the final random re-punch visit shall again be requested in writing, similar in format to the initial punch list.

6. The punch and re-punch list include physical items in the field requiring completion, as well as paperwork items that must be submitted prior to job "close-out" and "final completion" as noted in the General/Special Conditions. Final payment can only be considered once all items are completed to the satisfaction of the Owner/Architect.

8.02 ARCHITECT'S ADDITIONAL SERVICES

A. The contractor should review the special conditions for any applicable liquidated damages that apply for failure to meet "substantial" or "final completion" dates. In addition to these costs, or in the event that liquidated damages are not part of this contract, the contractor is responsible to reimburse the owner for the direct costs incurred for additional time by the architect, administrative/custodial staff, attorney, etc., when the project goes beyond the established dates and the cause of the delay is not beyond his control.

B. The Contractor will be responsible to pay for all additional Architectural services, including all special visits requested by the Contractor to resolve problems that are due to the lack of performance by the Contractor. Examples of certain circumstances which will cause the Contractor to incur additional Architectural service fees include, but are not limited to the following:

1. Shop drawing submittals that are rejected due to being incomplete or for submitting on materials other than as specified and noted on the Bid Proposal Form.
2. Contractor elects to use more than (1) Sub-Contractor for any trade that results in duplicate shop drawing submittals.
3. Contractor requests a punch list in writing and Architect finds the work incomplete.
4. If the Contractor fails to complete all punch list items within the (3) punch/re-punch visits allowed, the costs for all additional punch list visits will be deducted from the final cost amount due to the Contractor to cover any Architect's, Owner's, or Attorney's additional services at their regular billing rate until the work is accepted by the Architect and Owner.
5. Contractor installs other than approved materials, resulting in additional time incurred by Architect.
6. Contractor changes job Foreman or fails to have job Foreman present on job when visited by the Architect, which requires Architect to educate new Foreman to job status or repeat instructions.
7. Contractor's layout or installation is found to be significantly different than the design or shop drawings and the Architect is required to review, approve, or make extensive revisions.
8. Contractor's failure to promptly correct or make good any problem that is part of this contract work and falls under the Contractor's responsibility to properly work as intended, either during the course of construction, or during the close-out period, all of which requires additional time by the Architect for reviews, observations, etc.
9. All Architect's/Engineer's time to close out the project beyond the thirty (30) days after substantial completion, including making phone calls, writing letters, reviewing documents, special close-out meetings, etc., unless a time extension has been approved with a signed change order.

10. Note: All additional time required by the Architect to resolve any of the above items will be back charged against the contract amount based on the Architect's/Engineer's current hourly rate and made payable to the Architect by the Owner. The Contractor shall be informed by the Architect within ten (10) days of any incident of any intent to invoke back-charges for additional Architectural services. It shall be the Contractor's responsibility to request in writing any estimates of additional costs to be incurred. Contractor's failure to respond to the estimate in a timely manner will be interpreted as Contractor's acceptance of all additional Architectural services for back-charges as summarized by the Architect.

END OF SECTION

SECTION 007400
SUPPLEMENTARY AND SPECIAL CONDITIONS

PART 1 GENERAL

1.01 CONTRACTS, BONDS AND INSURANCE

A. Contract
   1. The Architect will prepare the AIA Document A101-2017, Standard Form of Agreement Between the Owner and Contractor based on the bid amount agreed by the Owner. Successful bidders will be required to furnish bonds and insurance in accordance with the provisions of the General Conditions. Executed duplicate copies of bonds and insurance certificates will be required for each set of contract documents. On this project the Owner elects not to require “Project Management Protective Liability Insurance”.
   2. All conditions of all contract and sub-contracts for labor and material to be furnished on this work shall be as set forth in the General Conditions for Building Contracts, Form A-201-2017, latest edition of the American Institute of Architects. Where there is a difference between this project manual and Form A-201, this project manual shall govern. All Contractors and Sub-Contractors shall familiarize themselves with all conditions of this form and be bound by them. (Copies available from the AIA, www.documentsondemand.AIA.org, at cost.)

B. Guarantee Bonds:
   1. Article 11.5 of the General Conditions shall be supplemented as follows:
      a. "Prior to signing the contract, Contractor shall pay the premium for and furnish Performance Bond in the full amount of the contract price to cover faithful performance of the contract, and a Labor and Materials Bond in full amount of contract price to cover payment of all obligations arising thereunder. Bonds shall be in such form as Owner may prescribe and with such sureties as he may approve."
   2. In lieu of the Performance and Labor Bond as stated above, and if allowed in the bid advertisement and the project contract cost including Alternates, is under $50,000.00, the Contractor may perform the work to the point of total completion before receiving any payments. The payment will be issued upon completion of all physical and paperwork. However, the Contractor's bid surety (certified check only of 5% of bid) will be held by the Owner until completion. On any work with a contract cost of $50,000.00 or more, a 100% Performance/Labor Bond must be provided.
   3. An irrevocable Letter of Credit from a local Monroe County banking institution in the amount of the contract is allowed in lieu of a Performance and Labor Bond. The irrevocable Letter of Credit must conform to standards of the “Uniform Customs and Practice for Documentary Credits, 1983 Revision, The International Chamber of Commerce Publication No. 400”.

C. Insurances:
   1. Article II of the General Conditions shall be supplemented as follows:
      a. "Insurance shall be written for amounts as required by law or not less than the following limits of liability" for personal and property loses:

General Aggregate	= $2,000,000.00
Producst and Completed Operations Aggregate	= $2,000,000.00
Personal & Advertising Injury	= $1,000,000.00
Each Occurrence	= $1,000,000.00
Medical Expense	= $ 5,000.00
Automobile - Owned/Non-Owned	= $ 1,000,000.00

      b. Contractor shall provide and pay the premium for Owner's liability and builders risk insurance for 100% of the contract amount. The Owner shall provide and pay the premium for any amount required in excess of the contract amount.
      c. Contractor shall provide certificates of coverage for necessary unemployment insurance, workman’s compensation, etc., as required by the State of Michigan and the Federal Government.

d. Contractor shall provide and pay the premium to add the Owner and Architect as additional insured to the insurance coverage for this work (See this section for Hold Harmless / Indemnify). (This is to cover any claims against Owner/Architect due to Contractor's negligence.)
e. Only Certificates of Insurance Certified using Accord Form #25-S (7-90) will be acceptable. All insurance shall be carried with companies authorized to do business in the State of Michigan and which are satisfactory to the Owner. See sample certificate at end of “Instruction to Bidders”.
f. The insurer shall agree to notify the project Owner prior to termination, or reduction of any insurance coverage. The certificate shall include the following statement, "30 Day Notification in Case of Cancellation", and shall contain no disclaimers.
g. The Contractor shall require his Sub-Contractors who are not protected under his liability and workman's compensation insurance to purchase and maintain their own insurance of the same types and limits as is required of the Contractor.

1.02 EXAMINATION OF SITE, MEASUREMENTS & LEVELS:

A. Bidders shall visit the site of the work, compare the drawings and specifications with any work in place, and inform themselves of all conditions, including other work, if any, being performed. Failure to visit the site will in no way relieve the successful bidders from the necessity of furnishing any materials or performing any work that may be required to complete the work in accordance with the contract documents without additional cost to the Owner.
   1. Each Contractor shall be responsible for the correct installation of his work to comply with the plans and specifications.

1.03 GENERAL CONTRACT

A. Local Labor & Materials - Each Contractor shall give preference to the employment of local labor and the purchase of materials locally where same are available at prices equivalent to those obtainable elsewhere.

B. Current Laws - The Contractor shall keep himself fully informed of all laws and municipal ordinances and regulations in any manner affecting those engaged or employed in the work, and all orders and decrees of bodies or tribunals having any jurisdiction or authority over the same. He shall, at all times, observe and comply with all such current laws, ordinances, regulations, orders and decrees which are effective during the progress of the work; and shall protect and indemnify the Owner and its officers and agents against any claim or liability arising from or based on the violations of any such law, ordinances, regulation, order or decree, whether by himself, his Sub-contractors, or his employees.

C. Collusion - If at any time it shall be found that the person, firm, or corporation to whom the contract has been awarded has, in presenting any bid or bids, colluded with any other party or parties, then the contract so awarded shall be null and void, and the Contractor and his sureties shall be liable to the Owner for all loss or damage which the Owner may suffer thereby and the Owner may advertise anew for bids and said work.

D. Responsibility - The Contractor is primarily responsible for all work. He shall coordinate all Suppliers, Sub-Contractors, etc., that he may contract work with. He shall notify all Sub-Contractors in advance to avoid any unnecessary delays. The Contractor shall assume responsibility for the general charge and security of the building within the contract limits until it is accepted by the Owner. Contractor shall be responsible for maintenance of his work until final acceptance by Owner, and shall take such measures as necessary to ensure adequate protection of equipment and materials during delivery, storage, installation, start-up, temporary operation and shut-downs and any damage, vandalism, thievery, etc., to stored, or installed materials or any part of this construction.

E. General/Prime Contractor’s Responsibility - It is the General Contractor’s responsibility to provide and install all items specified in this contract, to assemble and collect all parts, materials, equipment, labor, etc. as required for a complete finished installation. Where these documents state, for clarification purposes that the work or item is to be completed by certain trades or Sub-contractors, (i.e. Mechanical or Electrical Contractor), it shall be referenced only to those related divisions. These specifications and drawings do not control the Contractor in

dividing the work among his workers, Sub-contractors, suppliers, etc., or in establishing the extent of work to be performed by any trade.

F. Lay Out - The Contractor shall immediately locate all general reference points and take such action as is necessary to prevent their destruction; lay out his work and be responsible for all lines, elevations and measurements of buildings, grading, paving, utilities and other work executed by him under the contract. He must exercise proper precautions to verify figures shown on drawings before laying out work and will be held responsible for any error resulting from his failure to exercise such precaution.

G. Cooperation & Courtesy - There must be complete co-operation between all Contractors, as well as between Contractor and Sub-Contractor, to insure satisfactory performance of all work. Foul language, alcoholic beverages and illegal or controlled substances/drugs will not be allowed by anyone under the control of this Contractor. Tobacco usage will also not be allowed where prohibited by law or by the Owner's wishes/policies. Courtesy must be exercised towards the owner, their staff and customers, deliverymen, etc., at all times.

H. Skilled Labor - All labor on this project shall be done by skilled mechanics, qualified and competent to perform the best grade of workmanship in the trade of work being performed, such as a Roofer shall not perform finish carpentry or drywall work in an exposed location.

Each Contractor and Sub-contractor shall provide a competent foreman at the job, who shall be responsible for taking instructions from the Architect and directing and installation of the Contractor's work.

I. Equal Opportunity - It shall be understood that the Contractor shall comply with the State Policy of Equal Employment Opportunity established by the Michigan Civil Rights Commission. The following Civil Rights Laws must be conformed to:

1. Title VI of the Civil Rights Act of 1964, as amended, 42 U.S.C., Section 2000d et seq., which prohibits discrimination on the basis of handicap in programs and activities receiving Federal financial assistance
2. Section 504 of the Rehabilitation Act of 1973, as amended, 29 U.S.C., Section 794, which prohibits discrimination on the basis of handicap in programs and activities receiving Federal financial assistance.
3. Title IX of the Education Amendments of 1972, as amended, 20 U.S.C., Section 1681 et seq., which prohibits discrimination on the basis of sex in education programs and activities receiving Federal financial assistance.
4. The Age Discrimination Act of 1976, as amended, 42 U.S.C., Section 6101 et seq., which prohibits discrimination on the basis of age in programs or activities receiving Federal financial assistance.

J. Hold Harmless/ Indemnify Clause - The Contractor agrees to comply with all laws and regulations applicable to the work to be performed and will indemnify, defend and save harmless the Owner and Architect and said property from damage which may arise as a result of the work performed and list each on certificates of insurance as additional insured, if Project Management Protective Liability Insurance is not provided.

K. Shop Drawings & Data Sheets - Submit shop drawings per 013000 - Administrative Requirements for review by the Architect. A copy of all shop drawings shall be kept at the job site by the Contractor. The Contractor shall review and stamp approved, note changes, etc.,before submitting to the Architect.

Shop drawings are not contract documents. Their purpose is to demonstrate the way the Contractor proposes to conform with the information given on the Architect's drawings. Shop drawings shall be submitted on all pre-manufactured items, custom fabricated components, any individual component that fits with or into another component to form the entire assembly, or on items specifically specified in certain divisions.

The Contractor, his Sub-Contractor and Supplier shall be responsible to determine and verify all materials, field measurements and field construction data, prior to submittal to the Architect. The Architect's review is only for the limited purpose of checking conformance with information given and the design concept expressed in the contract documents. The Architect's review is not conducted for the purpose of determining the accuracy and completeness of details, such

as dimensions, quantities and the assembly of specific components to work as a whole. The Architect is also not responsible for any safety precautions, construction means, methods, techniques, sequences or procedures.

It shall also be the responsibility of the Contractor, his Sub-Contractor or Supplier to work from a full set of contract documents in preparation of the shop drawings, so that each part or component will work with those parts as furnished or fabricated by others, so that the assembled whole works together as intended.

Shop drawings shall be submitted to the Architect early enough to allow adequate ordering, fabricating and delivery to the job site. Once received by the Architect the shop drawings will be returned to the Contractor in a timely manner. For estimating purposes and fitting into the job progress construction schedule, the following estimates of time may be used: Engineered reviewed drawings - 14 days; in-house Architectural reviewed drawings 7-10 days. Failure by the Contractor to submit enough in advance to the Architect in no way relieves the Contractor from completing the work in the time frame specified. The Contractor relieves the Architect of all responsibility and liability should he proceed with construction, fabrication or delivery of the specified part(s) without obtaining the Architect's review first.

Data sheets, manufacturer's specifications, picture cuts, etc., shall be submitted for all materials proposed to be used in this contract. All materials shall be asbestos free, 100%. No use of any materials, glues, sealants, gaskets, etc., containing any trace of asbestos shall be used on this project. Data Sheets shall clearly state the product's composition, or that no asbestos is used.

All finish materials and/or their adhesives for securing to substrates, shall meet the A.D.A. (American Disability Act), as passed July 1990 and revised September 15, 2010 to regards to elimination of toxic/allergic chemical contamination via direct vapors/fumes, or when in contact with normal spilled materials and cleaning agents.

Submit at the beginning of the project an index sheet listing all proposed shop drawings to be submitted.

L. As-Builts - The Contractor shall keep an accurate record of all deviations from the contract drawings and specifications. He shall neatly and correctly enter in pencil any deviations on the drawings affected and shall keep drawings available for inspection. Extra set of transparencies will be furnished for this purpose. Submit As-Builts per 013000 - Administrative Requirements and 017000 - Execution and Closeout Requirements for review by the Architect.

M. Manuals & Brochures - The Contractor shall submit per 013000 - Administrative Requirements and 017000 - Execution and Closeout Requirements to the Architect at completion, maintenance manuals, instructions, parts, etc., of all items installed as part of this work. Include all warranties, application for extended warranties, etc. These items shall be submitted as shop drawings.

N. Debris - All rubbish resulting from the work herein specified shall be removed from the premises as fast as it accumulates.

1.04 DEFECTIVE WORK & GUARANTEE:

A. The Contractor shall maintain his work in good condition, and repair at his own expense any work or material which proves to be defective within one (1) year from the time of final payment. A specific time can be determined towards the end of job, but it is estimated as approximately thirty days after substantial completion. This shall not be construed to cover misuse or abuse. Submit the guarantee in writing to the Architect upon completion. Specific material, equipment, or special trade warranties and guarantees as noted in these specifications shall also be submitted in writing. All warranties shall be written using the format and language as in sample warranty listed at the end of this section. Included, but not limited to, shall be the following:
   1. All Sub-contractors shall submit a signed written warranty same as the general contractor.
   2. All warranties shall be addressed to the Owner, on Company’s letterhead.
   3. All equipment warranties shall start from date of project substantial completion in the phases noted – not the dates the equipment was installed or started up.
   4. All work under this contract, in addition to the roof, shall be watertight and leak proof throughout at every point, and in every area, for a period of (1) year from date of final

payment, except where leaks can be attributed to damage caused by external forces beyond the Contractor's control. The Contractor shall immediately, upon written notification by the Owner, respond to the site to determine the source of water penetration and if found to be caused from faulty materials/workmanship resulting from this contract, repair or replace the item(s) or do any other work necessary to make watertight at his own expense.

5. Contractor shall also, at his own expense, repair or replace, or reimburse the Owner for any damaged materials, finishes, and furnishings/contents damaged as a result of this water penetration, in order to return the premises back to the same condition prior to the water penetration.
6. In addition to the warranties as stated in this manual, the Contractor shall comply with all other warranties referred to in any portions of the contract documents or otherwise provided by law or in equity, and where warranties are in conflict, the more stringent requirement shall govern.

B. Neither the final certificate nor payment shall relieve the Contractor of responsibility for lack of conformance to the contract documents, lessening the quality of specified work or scope, errors, negligence, faulty materials or faulty workmanship within this contract, the period provided by law at the location of this project, or any special equipment/material warranties.

C. The Contractor shall bear the cost of correcting mistakes, which by a reasonable check he could have avoided.

D. The Contractor shall promptly remove from the premises all materials, whether worked or un-worked and take down and remove all portions of contract work demanded by the Architect or his representative as failing to conform to the contract.

E. The Contractor shall promptly replace and re-execute the work in accordance with the contract and shall bear expense of same, together with the expense involved in making good all work of other Contractors destroyed or damaged by each removal or replacement. If the Architect deems it expedient to accept work injured or not done in accordance with the contract, the difference in value, making a full allowance for damage, shall be deducted from the contract sum if acceptable to the Owner.

F. Each Sub-Contractor shall warrant that all work installed by his company, including that movable or adjustable, shall remain in good working order and agrees to remedy and correct and place in proper operating condition all such found not in good working order during the period of warranty unless such work has been abused or neglected by the Owner.

1.05 DEFINITIONS:

A. Architect - Shall be interpreted to mean **Kohler Architecture, Inc.**, or his authorized representative.

B. Contractor - Shall be interpreted to mean the Prime Contractor who has a direct contract with the Owner. (assumed General Contractor)

C. Owner - Shall be interpreted to mean **Monroe Public Schools**

D. Sub-contractor - Shall be interpreted to mean any person or entity who has a direct contract with the Prime Contractor, either supplying labor or materials.

The Prime Contractor shall employ only (1) Sub-Contractor/Supplier for each trade/category of work for the entire contract, or in the case of multiple building/sites, (1) Sub-Contractor/Supplier in each trade/category for all sites/buildings. This improves coordination and project scheduling, reduces shop drawing and payroll reviews, and standardizes materials and installation.

E. Substantial Completion - Shall be defined to mean when the Architect establishes in writing, based on his knowledge, observations and beliefs, that all necessary components are installed for the project to be acceptable for the Owner's intended use and beneficial occupancy, including the Contractor obtaining governing agency approvals (City, Township, County, and/or State) on all permits issued on this project. The project must meet substantial completion no later than the date established elsewhere, unless amended by change order.

F. Final Completion - Shall be defined to mean when all work, including completion of all punch list items, paper work has been submitted (guarantees, final waivers, as-builts, etc.) and the Architect approves the Contractor's final certificate for payment.

1.06 SPECIAL CLARIFICATIONS:

A. Manufacturer's Specifications - All materials, items, equipment, etc., shall be installed in accordance with the manufacturer's specifications and recommendations when not otherwise specified. These specifications do not replace or override any installation manuals/directions. The installer shall provide all materials and perform all work that is needed for this application, whether specialized to this installation or not, as required and/or recommended by the manufacturer so as not to void any warranties and functions properly so that each component becomes part of the entire assembly.

B. Where a material or installation is specified in these specifications and is in conflict with manufacturer's recommendations, the Contractor shall immediately notify the Architect before proceeding with the work. Failure to do so will place full responsibility upon the Contractor performing the work.

C. Methods of Construction - The Contractor takes full responsibility and liability for the means and methods of construction to perform the work under this contract. The timing, scheduling and skill of workers and suppliers shall be coordinated prior to beginning any work. The type of equipment, installation, sequence, temporary provisions, etc., all as required to produce the finished product for a first-class installation shall be determined by the Prime Contractor. Any delays, errors, omissions or any other problems caused to the job by a change in Sub-contractors or suppliers, bad scheduling, lack of supervision, material deliveries, etc., shall be borne by the Prime Contractor.

D. Changes - These drawings and specifications are provided to give the Contractor an understanding of the systems and materials to be installed under this contract. Where the scope of work or details are in conflict with job conditions, the manufacturer's specifications, manufacturer's guarantee, etc., they shall be modified as required by the Contractor. The Architect shall be notified prior to any change. When these details exceed the manufacturer's requirements and the guarantee, no change shall be made, unless so directed by the Owner or Architect, and the work shall be performed in strict accordance to these drawings and specifications.

When a change is initiated either by the Owner, Contractor or Architect, the Contractor shall submit a cost breakdown of the change for approval by the Architect and Owner, before proceeding with the work. Any change in completion date shall also be documented. A formal Change Order, signed by the Owner, Contractor and the Architect will follow to authorize the work to be done and the contract amount and/or completion date to be changed. A Change Order must be fully executed before including on pay requests.

E. To insure the intent of the contract documents are being complied with and since the Architect is not providing full time inspection/observation services, the Contractor shall perform the following:

1. On all demolitions, removals, excavations or existing concealed conditions, the Contractor shall certify that conditions found were as anticipated, or as specified in the contract documents. If the above conditions are closed-up, covered, or back-filled prior to notifying the Architect or prior to his scheduled inspection, the Contractor shall document with photos, measurements and/or sketches how the concealed conditions were constructed.
2. Should the Contractor become aware of any deviations, unusual circumstances, cause for extra work, or other reasons he feels may have an effect, or cost change on this contract, he shall immediately notify the Architect for directions.
3. Contractor's failure to notify the Architect/Owner, prior to performing the additional work, accepts full responsibility for any extra costs, delays or non-acceptance by the Owner or Architect that may be produced or incurred to the contract.

F. Discrepancies - Should the contract documents disagree (drawings and specifications), the better quality or larger quantity of materials or work shall be included in the bid and unless otherwise ordered in writing, shall be furnished by the Contractor.

G. Standard Codes - Reference made to standard specifications or codes refer to latest edition unless otherwise noted. Such reference includes current addenda and errata, if any. All work shall meet or exceed all zoning and code requirements, including the current Michigan Building Code, or as adopted by the local building authority, and State Fire Marshal.

H. Organization - The organization of the specifications into Divisions, Sections and Articles, and the arrangement of drawings shall not control the Contractor in dividing the work among Sub-contractors or in establishing the extent of work to be performed by any trade.

I. Materials - Shall be new. Seconds or damaged materials will be rejected by the Architect, who reserves the right to disapprove and reject any materials proposed or installed, which in his opinion fail to meet quality standards specified. Contractor shall, at his expense, remove and replace with approved materials, any rejected materials.

J. Labor - As noted elsewhere, it is the Prime Contractor's responsibility to keep the job moving according to the progress schedule and meet completion dates specified or stated in the Bid Proposal. Whether Workers/Sub-Contractors/Suppliers are union or non-union, default, quit, fail to perform, it is the Prime Contractor's responsibility to work out problems that may occur to keep on schedule and prevent any damages, delays, or disturbances caused to the Owner and/or job site.

1.07 DAMAGE & REPAIRS TO SITE & BUILDING:

A. The site, building and furniture or equipment, including such items as walls, ceilings, floors, roofs, trees, drives, walks, curbs, gutters, paving, grade areas, etc., cut up or damaged during construction of this project shall be repaired or replaced in a neat and workmanlike manner, to the satisfaction of the Owner and Architect, by the Contractor responsible.

B. The Contractor shall be responsible for the security, water tightness and systems operation of the building in areas of this work. Any vandalism, water damage, theft, electrical/mechanical damages, etc., to the building or its components or any stored or installed materials as part of this work, or furniture and equipment (ceilings, floors, walls, desks, computers, books, papers, etc.) shall become the Contractor's responsibility to restore (replace or repair) all items to their same condition as when the work started. Included, but not limited to, shall be all additional costs for Architects, Attorneys and Owner's staff time to clean up, document and resolve any damages or issues.

1.08 PROGRESS PAYMENT:

A. Owner shall make payments on account, upon issuance of certificates of payment by the Architect, for labor and materials incorporated in the work and for materials suitably stored at the site, up to ninety percent (90%) of the value thereof. Properly documented invoices shall be submitted for all stored materials. Pay requests shall reflect only the work stored or completed at date of submittal to the Architect. No projections of cost for anticipated work beyond the submittal date will be allowed.

B. Payments shall stop at 90% of the total contract, until project is SUBSTANTIALLY COMPLETE (Owner's use) and until governing agency (Governing Building Authority) has given approval. (See Substantial Completion definition in Section 1.1D-5)

C. Final payment will be made when the work is FULLY PERFORMED and FINAL COMPLETION is achieved.

D. Certain specialty construction projects are subject to other payment conditions, such as re-roofing, re-paving, etc. (see Special Payment Conditions at end of this Division, if applicable).

E. Also see Instructions to Bidders for any other requirements.

1.09 LABOR RATES

A. Federal Funded Projects

1. On all Federal projects or Federal funded projects, all employees of Contractor and any subcontractors employed under this contract shall be subject to the Federal Davis-Bacon Act. Required minimum wage rates to be paid are attached as an appendix to this section, General Decision MI20220092, dated 06/24/2022 (7 pages), as applicable for the type of work being performed. Contractor’s labor rates must be submitted with each pay request.

HUD Form WH 347 or another form similar with same information shall be used.

1.10 TIME OF COMMENCING & COMPLETION:

A. Contractor, upon award of contract, shall begin immediately to order materials so work can begin with no delays in material deliveries.

B. All auxiliary Sub-contractors (Electrical, Carpentry, etc.) performing work under this contract at same time that Contractor is doing work, are obligated to commence, carry on, co-ordinate and complete their work in the various stages, so that the whole job will be accomplished in a scheduled manner and so that the Prime Contractor will be able to complete his work within completion time fixed.

C. To assure that all materials are placed on order and their delivery to site does not cause any unnecessary delays, the Prime Contractor shall submit transmittals, or copies of purchase orders, confirmations from the Sub-Contractor or the Supplier, along with delivery dates to the Architect for his records. This information shall all be submitted at same time, along with a weekly bar graph progress schedule, as prepared by the Prime Contractor. All schedules, purchase orders, etc., shall be submitted and approved by the Architect before any contract work begins.

D. For purposes of determining the date that contract may be awarded and for ordering materials, and submittal of shop drawings, the date of **08-23-2022** shall be used.

E. Physical Work in the Boiler room can commence starting **05-12-2023**. All other Physical work shall begin as soon as weather permits starting **06-19-2023** so that the completion date is achieved. On site storage of materials before this date will only be allowed in a locked trailer at Contractor's expense and with Owner's advanced approval.

F. All work on this project shall be "**Substantially Completed**" on or before **08-18-2023, at 5:00 P.M.**, or sooner as stated in the bid proposal by the bidder. See this Division regarding Liquidated Damages. All work, including punch lists, paper work, etc., as described for receiving final payment and termed "Final Completion" shall occur within thirty (30) consecutive days after the "Substantial Completion" date. (See Liquidated Damages Section for damages should dates not be met.)

G. The above dates/schedules are based on current delivery of equipment, estimated man-hours, and anticipated weather conditions for the scope of work. Contractors shall verify availability of all materials during the bidding process and list on the bid proposal the manufacturers of equipment that will not conform to this schedule. Should the equipment manufacturers as specified, not fit the anticipated schedule, list other equal equipment in area provided on bid proposal for substitutions, along with any cost changes for the Owner's consideration

1.11 HAZARDOUS MATERIAL:

A. If any Contractor during the course of construction, or work, observes the existence of asbestos, lead base paint, P.C.B., or other hazardous materials in the structure or building, or in area of work, the Contractor shall promptly notify the Owner. The Owner shall consult with their environmental consultant regarding removal or encapsulation of the questioned material. The Contractor shall not perform any work pertinent to the hazardous material prior to receipt of special instructions from the Owner. Any work involved with hazardous material removal, handling, etc., shall NOT be part of this Contract or any Field Orders relating to this Contract.

B. On this particular job and in the area of work, or related area that may be affected due to this work, certain hazardous materials may exist and if known will be properly identified or made known to the Contractor by the Owner. It is the Contractor's responsibility to exercise care in performing all operations of this work to not disturb or affect these materials, either directly, or in-directly (such as water damage, materials dropped, etc.). If an incident should occur, the Contractor shall immediately notify the Owner and his insurance company and safeguard the area. The Owner will make an inspection and advise of all procedures to be implemented. It is the Owner's responsibilities to contact their hazardous material consultant and perform all work to test, remedy and enclose the situation, all at the Contractor's expense. The cost will be deducted from the contract amount, or the Contractor's insurance company will reimburse the Owner directly.

C. The Architect shall have no responsibility for the discovery, presence, handling, removal, or disposal of, or exposure of persons to asbestos and hazardous materials in any form for the project.

D. The Contractor shall inform himself of the presence of asbestos/hazardous materials which may be present in the buildings by reviewing the Owner's copy of the A.H.E.R.A. Management Act (Asbestos Hazards Emergency Response Act), which is available in each building, or by contacting the Owner.

E. The Contractor shall be responsible to inform all workers of all known hazardous materials present at the job site prior to starting any work and instruct each worker on the proper safeguards required, so as not to disrupt any encapsulated or contained hazardous materials.

1.12 SALVAGEABLE ITEMS:

A. All existing items called for to be removed, or are abandoned, or are in the way of this new work, shall be completely removed and disposed of offsite at a licensed disposal facility by this Contractor unless noted differently.

B. See related Divisions - 024100 - Demolition, Mechanical and Electrical Divisions.

1.13 LIQUIDATED DAMAGES & COMPLETION OF WORK:

A. It is hereby understood and mutually agreed, between the Contractor and the Owner that the date of completion, as specified in the Proposal, is an essential condition of this Contract, and that the time for the completion of the work described herein is a reasonable time for the completion of the same, taking into consideration the average climatic range and prevailing industrial conditions.

B. If the Contractor shall fail, neglect or refuse to **SUBSTANTIALLY COMPLETE** the work within the time herein specified, or within any proper extension thereof granted by the Owner, the Contractor does hereby agree, as a part of the consideration for awarding this contract, to pay to the Owner the amount specified herein as Class A liquidated damages for each and every calendar day that the Contractor shall be in default after the time stipulated for SUBSTANTIAL COMPLETION of the work. The amount of Class A liquidated damages shall be deducted from the estimated amounts coming due and payable to the Contractor at the rate of **$1,000** per day, after the date as specified in the special conditions for SUBSTANTIAL COMPLETION.

C. If the Contractor shall neglect, fail, or refuse to obtain **FINAL COMPLETION** of the contract and final acceptance of the project by the Owner within the time herein specified, or with any proper extension thereof granted by the Owner, then the Contractor does hereby agree, a part of the consideration for awarding this contract, to pay to the Owner the amount specified in the proposal as Class B liquidated damages for each and every calendar day that the Contractor shall be in default after the time stipulated for FINAL COMPLETION and acceptance of the project by the Owner. The amount of Class B liquidated damages shall be deducted from the estimated amounts coming due and payable to the Contractor at the rate of **$100** per day, after the date as stated in the special conditions for FINAL COMPLETION and acceptance of the project by the Owner.

D. The Contractor shall not be charged with liquidated damages or any excess cost when the Owner determines that the Contractor is without fault due to unforeseeable cause beyond the control and without the fault or negligence of the Contractor, including but not restricted to acts of God, or of the public enemy, acts of the Owner, acts of another Contractor in the performance of a contract with the Owner, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes and severe weather.

E. Request for the extension of time for completion beyond the completion date noted in the Invitation to Bid may be requested in writing of the Owner by the Contractor. Such request to be considered must show reasons beyond the control of the Contractor. All requests shall be submitted within five (5) days of when problem becomes known to the Contractor.

1.14 TEMPORARY FACILITIES:

A. Enclosures - Contractor is responsible for any damage to all materials, stored or built into this work under this contract, due to elements of the weather, vandalism, theft, fire, etc. No open

areas of work shall be left open during non-working hours or inclement weather. Contractor is responsible for all damages caused due to this contract, to all materials, whether existing or incorporated into this work.

B. Storage - Each Contractor shall erect a materials storage shed, properly covered, locked, etc., as required. Contractor is responsible for stored materials. Stolen, damaged or destroyed materials shall be replaced at the Contractor's expense. No inside of building storage of materials is allowed before the date noted herein as start of physical work. No inside storage is allowed after construction starts unless it is in the area of work governed by this contract and is under the Contractor's full control and contract limits.

C. Field Office - None Required

D. Toilet Facilities - Workmen will be allowed to use existing facilities. Contractor shall be responsible for maintaining and keeping areas clean.

E. Miscellaneous - Contractor shall provide all temporary drainage, drains, sumps, walkways, railings, etc., as required for proper execution of work and as required to meet all codes and ordinances.

F. Debris Removal - All debris resulting from this work shall be cleaned up at end of each day’s work and hauled away from job upon completion to a licensed disposal site. Prime Contractor shall provide a dumpster as required for use by all Sub-Contractors and pay for all usage/dump charges.

G. Removal - Temporary facilities shall be removed when no longer required, or at completion and site restored to original condition.

H. Exits - Provide temporary ladders, railings, etc., as required for emergency use during construction. Proper exiting of building shall be maintained at all times.

I. Temporary Heat - Contractor shall provide and maintain all temporary heating and ventilating units during construction as required to properly execute this contract. All fuels used shall be paid for by the Contractor. (No electric units)

J. Barricades - Provide all necessary barricades, fencing, flagmen, etc., to properly control and assure the safety of workers and the public during this work.

K. Water - The Prime Contractor shall make suitable connections as required to perform the work. Water to be available at site as provided by the Owner.

L. Electrical - The Contractor shall make suitable connections as required to perform the work. Electricity will be available on the site as furnished and paid for by the Owner. See Electrical Division for other requirements.

M. Telephones - Contractor can use on-site pay telephones if available. Contractor is not to use Owner's general telephones.

N. Fencing - General Contractor is to secure the contract limits of this work with snow type fencing or better as needed to secure the construction site off limits to unauthorized people. Safety to staff, students and public is of utmost importance. All ladders, scaffolding, doors, windows, entries, and other attractive/inviting items, shall be secured during non-working hours.

O. Temporary Fire Barriers - In student occupied buildings, temporary fire rated doors/barriers are to be installed when the students are scheduled to occupy the building and construction is not complete.

P. Road Maintenance - Contractor shall keep the Owner’s roads free of construction spillages and debris at all times. Repair damage caused to these roads by contract-related construction vehicles by replacing damaged pavement and curbing to match existing construction.

Construct and maintain temporary earth ramps for access and egress of heavy construction and delivery vehicles to below grade (excavated) areas of the construction site.

Q. Parking - Contractor may use designated areas of Owner’s parking facilities for passenger vehicles only. Heavy construction equipment will not be permitted on Owner’s parking facilities. Maintain and repair any damage caused by use of Owner’s parking facilities. Maintain parking area for construction vehicles as designated by the Owner.

1.15 OWNER'S WORK & SCHEDULES:

A. Owner shall be responsible for removing his equipment and materials from the contract area in sufficient time before the Contractor's work is to begin.

B. Contractor shall assume that the site and building will be occupied by staff/students during the time of construction. Precautions concerning the safety of occupants shall be exercised at all times.

C. The Owner reserves the right to award contracts for the work on the same project, or perform work with own personnel. Complete cooperation shall exist between all parties.

D. Unavoidable shutdowns for purposes of extension of existing utilities (water, electric, etc.), or installation of temporary or permanent work shall be scheduled 48 hours in advance and at the convenience of the Owner during off-use hours.

E. The Owner reserves the right to make emergency repairs, as required to keep equipment in operation without voiding the Contractor's guarantee bond, nor relieving the Contractor of his responsibilities during the bonding period.

F. Since students and staff will be occupying the site and building, specific areas for Contractor parking, storage, building access, etc., must be coordinated with Owner. Contractor shall install snow type fences to secure these areas.

G. Hours of interior building work by this Contractor/Sub-Contractor(s) shall occur between 7:30 A.M. to 4:00 P.M., Monday through Friday. The Owner will be responsible to have the building open and closed at times so noted.

H. Should the Contractor desire times other than those listed above for interior work, the Contractor shall submit a written request to the Owner for consideration and approval forty-eight (48) hours in advance, in order to change the scheduling of their custodial staff and the opening/closing of the building(s)/sites(s). Should this special request be granted by the Owner, the Contractor shall accept and pay the additional costs incurred by the Owner at the rate of $60 per opening and $60 per closing of the building/site. This cost will be treated as a Change Order and deducted from the contract cost.

1.16 MISCELLANEOUS COSTS:

A. The Prime Contractor shall secure and pay for the building permit from the Governing Building Authority, based on the work of all Contractors, along with all costs for inspections, plan review fees, approvals, etc. Sub-contractors shall secure same related permits as required by code. Upon completion, submit all occupancy permits, approvals, etc. It is the Prime Contractor's responsibility to pick up all costs and coordinate the Sub-permits, should the Sub-Contractors under his control fail to do so. All permits, including electrical/mechanical, shall be secured from the State of Michigan. Contact the Michigan Department of Licensing and Regulatory Affairs, Bureau of Construction Codes and Fire Safety, Plan Review Division, P.O. Box 30255, Lansing, MI 48909 (517-241-9328).

B. The Prime Contractor shall retain the services of an Approved Third-Party Agency to perform all Special Inspections and Testing as required by the Governing Building Code, Governing Building Authority, or as called out in the construction documents. Notify Owner / Architect, immediately, of any failed tests or inspections and provide Owner with all written reports and test results at project completion. See “Special Inspections” in the Governing Building Code for requirements.

C. Contractor, Sub-Contractor and Supplier shall include in his bid and contract price any Michigan sales and use taxes, currently imposed by legislative enactment.

D. Electric - the Electrical Contractor shall be responsible and include all power company's back-charge and utility company's work in the bid for all secondary and primary wiring, poles, transformers, meter, meter socket, etc. For either temporary or final service the Prime Contractor shall be responsible for all usage bills, until acceptance by the Owner, or substantial completion.

E. Electrical Contractor to be responsible for labor and materials for final hook-up of all electrical equipment as supplied under Electrical Division, Mechanical Division, or Equipment Division as

furnished by Prime Contractor, unless noted otherwise in specific Divisions, such as overhead door operators. Included are kitchen appliances, lights, fans, motors, etc.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

Monroe Public Schools
Conviction Disclosure Form – New Employees

I UNDERSTAND THAT THE INFORMATION REQUESTED IS REQUIRED BY THE CENTRAL RECORDS DIVISION OF THE MICHIGAN STATE POLICE, LANSING, MICHIGAN. I FURTHER UNDERSTAND THAT A CONVICTION RECORD DOES NOT NECESSARILY PREVENT ACCEPTANCE OF EMPLOYMENT. I AUTHORIZE MONROE PUBLIC SCHOOLS TO UTILIZE THE ABOVE INFORMATION FOR THE PURPOSE OF OBTAINING INFORMATION REGARDING A CRIMINAL CONVICTION.

Name: _____

Last First Middle

Maiden name or names previously used: _____

Birthdate: _____ Race: _____ Sex: _____

Building: _____ Assignment: _____

Pursuant to Public Act 138 of 2005, I represent that (check all that apply):

_____ 1. I have not been convicted of, or pled guilty or nolo contendre (no contest) or am the subject of a finding of guilt by a judge or jury of any crime.

_____ 2. I have been convicted of, or pled guilty or nolo contendre (no contest) or am the subject of a finding of guilt by a judge or jury for the following crimes *(attach a separate sheet of paper to explain the criminal offense, date, court, city/state, and circumstances surrounding the conviction):*

Felony _____ Misdemeanor _____

Felony _____ Misdemeanor _____

Felony _____ Misdemeanor _____

In signing this form, I understand and agree that:

3. If I have been convicted of a listed offense, my employment shall be terminated. I also understand that if I have been convicted of a felony, other than a listed offense, the superintendent, or chief administrator and the School Board must each approve, in writing, my employment or work assignment.

4. Until the criminal history report is received and reviewed by the employing school district, I am regarded as a conditional employee and if the criminal history report is not the same as my representation(s) above, my employment contract is voided at the option of the school district.

_____ _____

Signature Date

* SAMPLE *

ACORD®

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): DATE

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Agent: Name Address Phone Number Contact Person	CONTACT NAME: PHONE (A/C, No, Ext): FAX (A/C, No): E-MAIL ADDRESS: INSURER(S) AFFORDING COVERAGE — NAIC # INSURER A: List Company for each Coverage INSURER B: INSURER C: INSURER D: INSURER E: INSURER F:
INSURED Contractor: Name Address Phone Number Contact Person	

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
	GENERAL LIABILITY [X] COMMERCIAL GENERAL LIABILITY [ ] CLAIMS-MADE [X] OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: [ ] POLICY [ ] PRO-JECT [ ] LOC			List #	List Dates →		EACH OCCURRENCE	$ 1,000,000
							DAMAGE TO RENTED PREMISES (Ea occurrence)	$
							MED EXP (Any one person)	$ 5,000
							PERSONAL & ADV INJURY	$ 1,000,000
							GENERAL AGGREGATE	$ 2,000,000
							PRODUCTS - COMP/OP AGG	$ 2,000,000
								$
	AUTOMOBILE LIABILITY [X] ANY AUTO ALL OWNED AUTOS HIRED AUTOS [ ] SCHEDULED AUTOS [ ] NON-OWNED AUTOS			List #	→		COMBINED SINGLE LIMIT (Ea accident)	$ 1,000,000
							BODILY INJURY (Per person)	$
							BODILY INJURY (Per accident)	$
							PROPERTY DAMAGE (Per accident)	$
								$
	[ ] UMBRELLA LIAB [ ] OCCUR [ ] EXCESS LIAB [ ] CLAIMS-MADE [ ] DED [ ] RETENTION $						EACH OCCURRENCE	$
							AGGREGATE	$
								$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y/N [ ] N/A (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below			List #	→		WC STATU-TORY LIMITS [ ] OTH-ER	
							E.L. EACH ACCIDENT	$
							E.L. DISEASE - EA EMPLOYEE	$
							E.L. DISEASE - POLICY LIMIT	$
	Installation Floater Business Risk			List #	→		Site Amt — stored Transit — or install Total	

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

Owner + Architect as additional insured with respect to general liability.

→ List actual names (add any attachments)

CERTIFICATE HOLDER

Owner: Name
Mailing Address

NOT Job or Architect

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Signature of Agent

* SAMPLE *

Project Name
Client

Type on contractor's letterhead with complete address, phone numbers, federal and state ID#

LETTER OF WARRANTY

Re: List here Owner's name and project description as listed on Architect's Project Manual

Date:

We hereby warrant that the work, described as _____, which we have completed at the above mentioned project, has been done in strict accordance with the drawings and specifications and that the work installed will fulfill the requirements of those specifications. We agree to repair or replace or cause to be repaired or replace any or all of work which may prove to be defective in workmanship or materials, together with any adjacent work which requires repair or replacement because of our defective work, within a period of _____ year(s) from date of Certificate of Occupancy or date of final payment by the Owner, whichever is later, ordinary wear and tear and unusual abuse or neglect excepted.

If we fail to commence to comply with the above paragraph within 10 days after receipt of written notice from the Owner to do so or fail to pursue such compliance with diligence, we, jointly and severally, do hereby authorize the Owner to proceed to have the defects repaired and made good at our sole expense, and we will honor and pay the costs and charges for it together with interest at the maximum rate permitted by law upon demand. If we fail to fulfill the preceding obligations, and if the Owner brings an action to enforce this warranty, we agree to pay the Owner's reasonable architect's, attorneys and staff fees incurred in connection therewith.

This guarantee does not limit the requirements for liability and responsibility as covered by the State of Michigan Statute of Limitations, or equipment and manufactured items, which have extended warranties.

_____

Signed

_____

Printed Name / Title

List bonding company, address, phone number, as well as the local bonding agent with same information.

"General Decision Number: MI20220092 06/24/2022

Superseded General Decision Number: MI20210092

State: Michigan

Construction Type: Building

County: Monroe County in Michigan.

BUILDING CONSTRUCTION PROJECTS (does not include single family homes or apartments up to and including 4 stories).

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:	. Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least $15.00 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2022.
If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:	. Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least $11.25 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2022.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at https://www.dol.gov/agencies/whd/government-contracts.

Modification Number	Publication Date
0	01/07/2022
1	02/25/2022

2 06/24/2022

ASBE0045-005 07/01/2021

	Rates	Fringes
ASBESTOS WORKER/HEAT & FROST INSULATOR	$ 32.34	30.54

BOIL0085-003 01/06/2014

	Rates	Fringes
BOILERMAKER	$ 31.82	24.48

BRMI0001-001 06/01/2020

	Rates	Fringes
BRICKLAYER	$ 36.24	22.74
TILE FINISHER	$ 28.58	20.45
TILE SETTER	$ 35.71	20.45

CARP0687-004 06/01/2021

	Rates	Fringes
CARPENTER (Including Acoustical Ceiling Installation; Drywall Hanging, Finishing/Taping; Form Work; Metal Stud Installation; & Scaffold Building)	$ 35.16	29.22

CARP1102-002 06/01/2020

	Rates	Fringes
MILLWRIGHT	$ 35.30	34.10

ELEC0008-006 05/25/2021

	Rates	Fringes
ELECTRICIAN, Excludes Low Voltage Wiring	$ 43.33	22.61

* ENGI0324-017 06/01/2022

	Rates	Fringes
OPERATOR: Power Equipment		
GROUP 1	$ 46.44	24.95
GROUP 2	$ 44.94	24.95
GROUP 3	$ 43.44	24.95
GROUP 4	$ 43.14	24.95
GROUP 5	$ 42.32	24.95
GROUP 6	$ 41.46	24.95
GROUP 7	$ 40.49	24.95
GROUP 8	$ 38.78	24.95
GROUP 9	$ 30.44	24.95

FOOTNOTES:

Tower cranes: to be paid the crane operator rate determined

by the combined length of the mast and the boom. If the worker must climb 50 ft. or more to the work station, $.25 per hour additional.

Derrick and cranes where the operator must climb 50 ft. or more to the work station, $.25 per hour additional to the applicable crane operator rate.

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Crane with boom and jib or leads 400' or longer

GROUP 2: Crane with boom and jib or leads 300' or longer

GROUP 3: Crane with boom and jib or leads 220' or longer

GROUP 4: Crane with boom and jib or leads 140' or longer

GROUP 5: Crane with boom and jib or leads 120' or longer

GROUP 6: Regular crane operator, and concrete pump with boom operator

GROUP 7: Backhoe/Excavator/Trackhoe, bobcat/skid Loader, broom/sweeper, bulldozer, grader/blade, highlift, hoist, loader, roller, scraper, tractor & trencher

GROUP 8: Forklift & extend-a-boom forklift

GROUP 9: Oiler

IRON0055-014 07/01/2021

	Rates	Fringes
IRONWORKER		
Metal Building Erection	$ 23.59	19.35
Reinforcing & Structural	$ 31.25	26.90

LABO0334-005 06/01/2021

	Rates	Fringes
LABORER: Landscape & Irrigation		
GROUP 1	$ 21.35	7.40
GROUP 2	$ 19.35	7.40

CLASSIFICATIONS

GROUP 1: Landscape specialist, including air, gas and diesel equipment operator, lawn sprinkler installer, skidsteer (or equivalent)

GROUP 2: Landscape laborer: small power tool operator, material mover, truck driver and lawn sprinkler installer tender

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LABO0499-003 06/01/2021

	Rates	Fringes
LABORER		

Common or General; Grade Checker; Sandblaster.....$ 31.16 14.95
Mason Tender - Brick; Mason Tender - Cement/Concrete.....$ 31.38 14.95
Pipelayer.....$ 31.71 14.95

PAIN0022-006 06/01/2015

	Rates	Fringes
PAINTER: Brush and Roller	$ 26.06	17.66
PAINTER: Spray	$ 26.86	17.66

PAIN0357-002 06/01/2020

	Rates	Fringes
GLAZIER	$ 34.10	21.46

PAID HOLIDAYS: New Year's Day, Decoration Day, Fourth of July, Labor Day, Thanksgiving Day and Christmas Day; provided that the employee has worked the last full regular scheduled work day prior to the holiday, and the first full regular scheduled work day following the holiday, provided the employee is physically able to work.

PLAS0067-001 04/01/2014

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER	$ 30.63	14.07

PLUM0671-001 07/01/2020

	Rates	Fringes
PIPEFITTER (Including HVAC Pipe Installation; Excluding HVAC System Installation)	$ 41.91	22.19
PLUMBER, Excludes HVAC Pipe and Unit Installation	$ 41.91	22.19

ROOF0134-002 07/01/2021

	Rates	Fringes
ROOFER	$ 29.07	22.51

SHEE0033-014 07/01/2011

	Rates	Fringes
SHEET METAL WORKER, Includes HVAC Duct and Unit Installation	$ 30.80	21.51

TEAM0247-002 06/01/2018

	Rates	Fringes
TRUCK DRIVER		
GROUP 1		
Dump; Flatbed; Pickup	$ 26.71	0.70+a

GROUP 2
Semi.....$ 26.86 0.70+a
GROUP 3
Lowboy.....$ 26.96 0.70+a

PAID HOLIDAYS: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. If any of the above holidays fall on a Sunday, the following Monday shall be considered the holiday and, if work is performed, the rate shall be double time.

FOOTNOTE:
a. $456.70 per week, plus $67.10 per day.

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* SUMI2011-017 02/01/2011

	Rates	Fringes
IRONWORKER, ORNAMENTAL	$ 18.48	7.93
TRUCK DRIVER: Tractor Haul		
Truck	$ 13.57 **	1.18

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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** Workers in this classification may be entitled to a higher minimum wage under Executive Order 14026 ($15.00) or 13658 ($11.25). Please see the Note at the top of the wage determination for more information.

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at https://www.dol.gov/agencies/whd/government-contracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the

cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour National Office because National Office has responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISIO"

SECTION 012400
ALTERNATES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Description of Alternates - work that is to be deducted or added to the Base Proposal for various items, including all labor and materials herein described.

1.02 RELATED REQUIREMENTS

A. See other related Divisions for the scope of work, type of materials, etc., if not specified herein.

B. Instructions to Bidders: Instructions for preparation of pricing for Alternates.

C. Proposal Form(s).

D. The Alternate work herein is bound by the same conditions and requirements in the main sections of these specifications as governs all other trade divisions. Included shall be Index, Advertisement for Bids, Instructions to Bidders, Bid Proposal Form, General and Special Conditions, etc.

E. Description(s) of Alternates in this section are not meant to be all inclusive, but give a general understanding of the work to be included. Reference the drawings and other sections of specifications for all work included.

1.03 ACCEPTANCE OF ALTERNATES

A. Alternates quoted on Bid Forms will be reviewed and accepted or rejected at Owner's option. Accepted Alternates will be identified in the Owner-Contractor Agreement.

B. The order of the Alternates are not listed in priority. The number of Alternates accepted will be determined by the Owner that serves their best interest.

C. Coordinate related work and modify surrounding work to integrate the Work of each Alternate.

1.04 SCHEDULE OF ALTERNATES

A. **ALTERNATE E-1**

1. State the amount to be added to the base bid to furnish all material, labor, and equipment necessary for the complete installation.
2. Work includes, but is not limited to the following:
   a. New three-phase service (E.C. shall coordinate with utility company), pad mounted transformer, underground feeders, ats, mpd, three-phase panel, three-phase pumps & all connections and components as indicated.
   b. Furnish 208V/3ph motors and VFDs in lieu of 208V/1ph motors and VFDs for heating water pumps WA-HWP-1 and WA-HWP-2 with electrical system upgrade.
   c. Install new Concrete transformer pad, trenching/boring/backfilling of ug. electrical lines, grass restoration, and striping asphalt.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 012500
SUBSTITUTION PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Procedural requirements for proposed substitutions.

1.02 DEFINITIONS

A. Substitutions: Changes from Contract Documents requirements proposed by Contractor to materials, products, assemblies, and equipment.

The proposal shall be based ONLY upon the furnishing of all materials and/or equipment and accessories as specified by manufacturer or trade names throughout the various specification headings. Where the phrase "approved substitute" and/or "approved equal" appears, the Contractor may, if he desires, request approval from the Owner and Architect. The acceptance of such substitutes, which the Architect and Owner believe to be in the Owner's best interests, will be made prior to bid opening. If no such substitutions are accepted at that time, the Contractor shall furnish only those materials and/or equipment specifically named. Contractor shall submit all pertinent data, manufacturer's specifications, picture cuts, etc., as required by the Architect/Owner for proper evaluation.

1. Substitutions for Cause: Proposed due to changed Project circumstances beyond Contractor's control.
   a. Unavailability.
   b. Regulatory changes.
2. Substitutions for Convenience: Proposed due to possibility of offering substantial advantage to the Project.
   a. Substitution requests offering advantages solely to the Contractor will not be considered.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 GENERAL REQUIREMENTS

A. A Substitution Request for products, assemblies, materials, and equipment constitutes a representation that the submitter:
   1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product, equipment, assembly, or system.
   2. Agrees to provide the same warranty for the substitution as for the specified product.
   3. Agrees to provide same or equivalent maintenance service and source of replacement parts, as applicable.
   4. 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.
   5. Waives claims for additional costs or time extension that may subsequently become apparent.
   6. Agrees to reimburse Owner and Architect for review or redesign services associated with re-approval by authorities.

B. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents. Burden of proof is on proposer.
   1. Note explicitly any non-compliant characteristics.

C. Content: Include information necessary for tracking the status of each Substitution Request, and information necessary to provide an actionable response.
   1. No specific form is required. Contractor's Substitution Request documentation must include the following:
      a. Project Information:
         1) Official project name and number, and any additional required identifiers established in Contract Documents.

2) Owner's, Architect's, and Contractor's names.

b. Substitution Request Information:
1) Indication of whether the substitution is for cause or convenience.
2) Issue date.
3) Reference to particular Contract Document(s) specification section number, title, and article/paragraph(s).
4) Description of Substitution.
5) Reason why the specified item cannot be provided.
6) Differences between proposed substitution and specified item.
7) Description of how proposed substitution affects other parts of work.

c. Attached Comparative Data: Provide point-by-point, side-by-side comparison addressing essential attributes specified, as appropriate and relevant for the item:
1) Physical characteristics.
2) In-service performance.
3) Expected durability.
4) Visual effect.
5) Warranties.
6) Other salient features and requirements.
7) Include, as appropriate or requested, the following types of documentation:
(a) Product Data:
(b) Samples.
(c) Certificates, test, reports or similar qualification data.
(d) Drawings, when required to show impact on adjacent construction elements.

d. Impact of Substitution:
1) Savings to Owner for accepting substitution.
2) Change to Contract Time due to accepting substitution.

D. Limit each request to a single proposed substitution item.
1. Submit an electronic document, combining the request form with supporting data into single document.

3.02 SUBSTITUTION PROCEDURES DURING PROCUREMENT

A. Submittal Time Restrictions:
1. Owner will consider requests for substitutions only if submitted at least 10 days prior to the date for receipt of bids.

3.03 SUBSTITUTION PROCEDURES DURING CONSTRUCTION

A. Submit request for Substitution for Cause within 14 days of discovery of need for substitution, but not later than 14 days prior to time required for review and approval by Architect, in order to stay on approved project schedule.

B. Submit request for Substitution for Convenience immediately upon discovery of its potential advantage to the project, but not later than 14 days prior to time required for review and approval by Architect, in order to stay on approved project schedule.
1. In addition to meeting general documentation requirements, document how the requested substitution benefits the Owner through cost savings, time savings, greater energy conservation, or in other specific ways.
2. Document means of coordinating of substitution item with other portions of the work, including work by affected subcontractors.
3. Bear the costs engendered by proposed substitution of:
a. Owner's compensation to the Architect for any required redesign, time spent processing and evaluating the request.
b. Other construction by Owner.
c. Other unanticipated project considerations.

C. Substitutions will not be considered under one or more of the following circumstances:

1. When they are indicated or implied on shop drawing or product data submittals, without having received prior approval.
2. Without a separate written request.
3. When acceptance will require revisions to Contract Documents.

3.04 RESOLUTION

A. Architect may request additional information and documentation prior to rendering a decision. Provide this data in an expeditious manner.

B. Architect will notify Contractor in writing of decision to accept or reject request.
   1. Architect's decision following review of proposed substitution will be noted on the submitted form.

3.05 ACCEPTANCE

A. Accepted substitutions change the work of the Project. They will be documented and incorporated into work of the project by Change Order, Construction Change Directive, Architectural Supplementary Instructions, or similar instruments provided for in the Conditions of the Contract.

END OF SECTION

SECTION 013000
ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Electronic document submittal.

B. Preconstruction meeting.

C. Progress meetings.

D. Construction progress schedule.

E. Contractor's daily reports.

F. Progress photographs.

G. Submittals for review, information, and project closeout.

H. Requests for Interpretation (RFI) procedures.

I. Submittal procedures.

1.02 RELATED REQUIREMENTS

A. Section 016000 - Product Requirements: General product requirements.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 ELECTRONIC DOCUMENT SUBMITTAL

A. All documents transmitted for purposes of administration of the contract are to be in electronic (PDF, MS Word, or MS Excel) format, as appropriate to the document, and transmitted via email.
   1. Besides submittals for review, information, and closeout, this procedure applies to Requests for Interpretation (RFIs), progress documentation, contract modification documents (e.g. supplementary instructions, change proposals, change orders), applications for payment, field reports and meeting minutes, Contractor's correction punchlist, and any other document any participant wishes to make part of the project record.
   2. It is Contractor's responsibility to submit documents in allowable format.
   3. Contractor, Subcontractors, Suppliers, Owner, Architect, Architect's consultants, and any others who are part of the Electronic Document Submittal process are to follow this process.
   4. Users of the service need an email address, internet access, and PDF review software that includes ability to mark up and apply electronic stamps (such as Adobe Acrobat, www.adobe.com, or Bluebeam PDF Revu, www.bluebeam.com).
   5. Paper document transmittals will not be reviewed.
   6. All other specified submittal and document transmission procedures apply, except that electronic document requirements do not apply to samples or color selection charts.

B. Cost: Any cost for this submital process is to be covered by each user.

3.02 PRECONSTRUCTION MEETING

A. Architect will schedule a meeting after Notice of Award to review all schedules, purchase orders, and details of the work. This must be done before any physical work begins - estimated time is 2-3 weeks after contract award. Invited to attend are the Prime Contractors, Owner's Representatives and the Architect/Engineer. Also, the Contractor shall have present, his Foreman, or Superintendent who will be in charge of the job and any Sub-Contractors that are deemed major contributions to the work.

B. Agenda:
   1. Execution of Owner-Contractor Agreement.
   2. Submission of executed bonds and insurance certificates.

3. Distribution of Contract Documents.
4. Designation of personnel representing the parties to Contract.
5. Contractor to have the following information for distribution at this meeting:
    a. Progress Schedule - Weekly bar graph of the anticipated progress of work.
    b. List of all Suppliers, Sub-Contractors, with phone numbers and addresses.
    c. Schedule of Payment Values
    d. List of all shop drawings to be submitted. Include spec data sheets, color samples, picture cuts, samples, etc. (See Shop Drawing Schedule at end of Instructions to Bidders.)
    e. Copies of purchase orders and written confirmation from Supplier/Sub-Contractor.
    f. Permit applications, or copies of permits, or submit a written letter to the Architect with date, inspector's name and phone number from the Governing Building Authority stating that permits will not be required.
6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.

C. Architect will record minutes and distribute copies within two days after meeting to participants, Contractor, Owner, participants, and those affected by decisions made.

3.03 PROGRESS MEETINGS

A. Schedule and administer meetings throughout progress of the work at maximum weekly intervals.

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. Maintenance of quality and work standards.
12. Effect of proposed changes on progress schedule and coordination.
13. Other business relating to work.

D. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

3.04 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. If preliminary schedule requires revision after review, submit revised schedule within 10 days.

C. Within 20 days after review of preliminary schedule, submit draft of proposed complete schedule for review.
1. Include written certification that major contractors have reviewed and accepted proposed schedule.

D. Within 10 days after joint review, submit complete schedule.

E. Submit updated schedule with each Application for Payment.

3.05 DAILY CONSTRUCTION REPORTS

A. Include only factual information. Do not include personal remarks or opinions regarding operations and/or personnel.

B. In addition to transmitting electronically at daily interval to Owner and Architect, submit electronically with pay app at monthly intervals.
   1. Field reports may be handwritten, scanned, and sent in .pdf format; or from electronic project management software (i.e. Raken, FieldLens, or others).

C. Prepare a daily construction report recording the following information concerning events at Project site and project progress:
   1. Date.
   2. High and low temperatures, and general weather conditions.
   3. List of subcontractors at Project site.
   4. List of separate contractors at Project site.
   5. Approximate count of personnel at Project site.
      a. Include a breakdown for supervisors, laborers, journeymen, equipment operators, and helpers.
   6. Material deliveries.
   7. Safety, environmental, or industrial relations incidents.
   8. Meetings and significant decisions.
   9. Stoppages, delays, shortages, and losses. Include comparison between scheduled work activities (in Contractor's most recently updated and published schedule) and actual activities. Explain differences, if any. Note days or periods when no work was in progress and explain the reasons why.
   10. Directives and requests of Authority(s) Having Jurisdiction (AHJ).
   11. Testing and/or inspections performed.
   12. List of verbal instruction given by Owner and/or Architect.
   13. Signature of Contractor's authorized representative.
   14. Progress Photographs

3.06 PROGRESS PHOTOGRAPHS

A. Maintain one set of all photographs at project site for reference; same copies as submitted, identified as such.

B. Photography Type: Digital; electronic files.

C. In addition to periodic, recurring views, take photographs of each of the following events:
   1. Completion of site clearing.
   2. Excavations in progress.
   3. Foundations in progress and upon completion.
   4. Structural framing in progress and upon completion.
   5. Enclosure of building, upon completion.
   6. Final completion, minimum of ten (10) photos.

D. Digital Photographs: 24 bit color, minimum resolution of 1024 by 768, in JPG format; provide files unaltered by photo editing software.
   1. Delivery Medium: Via email.
   2. File Naming: Include project identification, date and time of view, and view identification.
   3. PDF File: Assemble all photos into printable pages in PDF format, with 2 to 3 photos per page, each photo labeled with file name; one PDF file per submittal.
   4. Photo CD(s): Provide 1 copy including all photos cumulative to date and PDF file(s), with files organized in separate folders by submittal date.

3.07 REQUESTS FOR INTERPRETATION (RFI)

A. Definition: A request seeking one of the following:

1. An interpretation, amplification, or clarification of some requirement of Contract Documents arising from inability to determine from them the exact material, process, or system to be installed; or when the elements of construction are required to occupy the same space (interference); or when an item of work is described differently at more than one place in Contract Documents.
2. A resolution to an issue which has arisen due to field conditions and affects design intent.

B. Whenever possible, request clarifications at the next appropriate project progress meeting, with response entered into meeting minutes, rendering unnecessary the issuance of a formal RFI.

C. Preparation: Prepare an RFI immediately upon discovery of a need for interpretation of Contract Documents. Failure to submit a RFI in a timely manner is not a legitimate cause for claiming additional costs or delays in execution of the work.
1. Prepare a separate RFI for each specific item.
2. Combine RFI and its attachments into a single electronic file. PDF format is preferred.

D. Reason for the RFI: Prior to initiation of an RFI, carefully study all Contract Documents to confirm that information sufficient for their interpretation is definitely not included.
1. Include in each request Contractor's signature attesting to good faith effort to determine from Contract Documents information requiring interpretation.
2. Unacceptable Uses for RFIs: Do not use RFIs to request the following::
   a. Approval of submittals (use procedures specified elsewhere in this section).
   b. Approval of substitutions (see Section - 016000 - Product Requirements)
   c. Changes that entail change in Contract Time and Contract Sum (comply with provisions of the Conditions of the Contract).
   d. Different methods of performing work than those indicated in the Contract Drawings and Specifications (comply with provisions of the Conditions of the Contract).
3. Improper RFIs: Requests not prepared in compliance with requirements of this section, and/or missing key information required to render an actionable response. They will be returned without a response, with an explanatory notation.
4. Frivolous RFIs: Requests regarding information that is clearly indicated on, or reasonably inferable from, Contract Documents, with no additional input required to clarify the question. They will be returned without a response, with an explanatory notation.
   a. The Owner reserves the right to assess the Contractor for the costs (on time-and-materials basis) incurred by the Architect, and any of its consultants, due to processing of such RFIs.

E. Content: Include identifiers necessary for tracking the status of each RFI, and information necessary to provide an actionable response.
1. Official Project name and number, and any additional required identifiers established in Contract Documents.
2. Owner's, Architect's, and Contractor's names.
3. Discrete and consecutive RFI number, and descriptive subject/title.
4. Issue date, and requested reply date.
5. Reference to particular Contract Document(s) requiring additional information/interpretation. Identify pertinent drawing and detail number and/or specification section number, title, and paragraph(s).
6. Annotations: Field dimensions and/or description of conditions which have engendered the request.
7. Contractor's suggested resolution: A written and/or a graphic solution, to scale, is required in cases where clarification of coordination issues is involved, for example; routing, clearances, and/or specific locations of work shown diagrammatically in Contract Documents. If applicable, state the likely impact of the suggested resolution on Contract Time or the Contract Sum.

F. Attachments: Include sketches, coordination drawings, descriptions, photos, submittals, and other information necessary to substantiate the reason for the request.

G. RFI Log: Prepare and maintain a tabular log of RFIs for the duration of the project.
1. Indicate current status of every RFI. Update log promptly and on a regular basis.

2. Note dates of when each request is made, and when a response is received.
3. Highlight items requiring priority or expedited response.
4. Highlight items for which a timely response has not been received to date.

H. Review Time: Architect will respond and return RFIs to Contractor within seven calendar days of receipt. For the purpose of establishing the start of the mandated response period, RFIs received after 12:00 noon will be considered as having been received on the following regular working day.
1. Response period may be shortened or lengthened for specific items, subject to mutual agreement, and recorded in a timely manner in progress meeting minutes.

I. Responses: Content of answered RFIs will not constitute in any manner a directive or authorization to perform extra work or delay the project. If in Contractor's belief it is likely to lead to a change to Contract Sum or Contract Time, promptly issue a notice to this effect, and follow up with an appropriate Change Order request to Owner.
1. Response may include a request for additional information, in which case the original RFI will be deemed as having been answered, and an amended one is to be issued forthwith. Identify the amended RFI with an R suffix to the original number.
2. Do not extend applicability of a response to specific item to encompass other similar conditions, unless specifically so noted in the response.
3. Upon receipt of a response, promptly review and distribute it to all affected parties, and update the RFI Log.
4. Notify Architect within seven calendar days if an additional or corrected response is required by submitting an amended version of the original RFI, identified as specified above.

3.08 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.
a. For assemblies, equipment, systems comprised of multiple components and/or requiring detailed coordination with other work, allow for additional time to make corrections or revisions to initial submittals, and time for their review.

3.09 SUBMITTALS FOR REVIEW

A. When the following are specified in individual sections, submit them for review:
1. Product data.
2. Shop drawings.
3. Samples for selection.
4. Samples for verification.

B. All must be submitted and reviewed prior to ordering that particular item and starting any physical work on the job site unless other arrangements are made with the Architect in advance:

C. Submit to Architect for review for the limited purpose of checking for compliance with information given and the design concept expressed in Contract Documents.

D. Samples will be reviewed for aesthetic, color, or finish selection.

E. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below and for record documents purposes described in Section 017800 - Closeout Submittals.

3.10 SUBMITTALS FOR INFORMATION

A. When the following are specified in individual sections, submit them for information:
1. Design data.
2. Certificates.

3. Test reports.
4. Inspection reports.
5. Manufacturer's instructions.
6. Manufacturer's field reports.
7. Other types indicated.

B. Submit for Architect's knowledge as contract administrator or for Owner.

3.11 SUBMITTALS FOR PROJECT CLOSEOUT

A. Submit Correction Punch List for Substantial Completion.

B. Submit Final Correction Punch List for Substantial Completion.

C. When the following are specified in individual sections, submit them at project closeout in compliance with requirements of Section 017800 - Closeout Submittals:
1. Project record documents.
2. Operation and maintenance data.
3. Warranties.
4. Bonds.
5. Other types as indicated.

D. Submit for Owner's benefit during and after project completion.

3.12 PAY REQUEST SUBMITALS

A. Contractor shall file electronic (.pdf) applications for monthly payment installments with the Architect in accordance with the requirements of the General Conditions if a 100% Performance/Labor and Material Bond is a part of this contract. Otherwise no payment shall be made until completion of the work.

B. Submitted with the first application for payment, the Contractor shall file with the Architect, for his approval, a schedule of values for the various parts of the work aggregating the contract sum. Schedule shall be in such form and in sufficient detail to facilitate issuance of certificates of payment. Schedule shall become the basis for payments and shall accompany all remaining applications for payments.

C. Pay Request Submittals - Must be submitted to the Architect (1) week before it goes to Owner. Owner needs (20) days for processing and issuing check. Note any special dates that request for payments must be received by Owner. Otherwise dates will be established at the pre-construction meeting.
1. AIA Form G-702, signed and notarized.
2. AIA Form G-703, complete with line item breakdowns for General Conditions, Architectural Trades, Mechanical, Electrical, etc.
3. Waiver of Lien from Contractor, each Sub-Contractor, each Major Material Supplier for preceding pay request.
4. Contractors Sworn statement. (See sample Statement at the end of this section. This sample statement is available from architect in electronic format. Any other Sworn statement form shall include, at least, the column information shown on sample.)
5. Labor/Payroll Forms from Contractor and each Sub-Contractor listing each Worker’s name, address, social security number, trade classification, rate of pay, hours and week worked. HUD Form WH 347, or Certified Payroll Form is acceptable. Must be signed. This is applicable only if a State Prevailing Wage or Federal Wage Rate Project.
6. Daily Field Reports since previous pay application.
7. Progress Photographs since previous pay application.

D. Final Pay Request shall include the above items, plus the following items:
1. Final Waivers of Lien from Contractor, all Sub-Contractors, all Major Material Suppliers
2. Contractor's Affidavit of Payment of Debts and Claims, AIA Form G706
3. Consent of Surety Company to Final Payment, AIA Form G707
4. Contractor's written Warranty per 007400 - Supplementary and Special Conditions from the date of Final Payment.

5. All written Warranties per Section 007400 - Supplementary and Special Conditions of Specifications from Manufacturer's Components/Systems, as noted in other Divisions of these Specifications.
6. "As-Built" Drawings, showing any changes from bidding drawings. Including “site survey” verifying all grades, dimensioning locations of all U.G. valves, clean-outs, taps, etc. per requirements listed elsewhere.
7. Final Approval Certificates from the Governing Building Officials on all Construction Permits obtained, and/or required.
8. Copies of all Maintenance Manuals/Procedures from the Manufacturers of all Pre-Manufactured Components/Systems, plus (1) complete set of all Shop Drawings for project.
9. List containing all Sub-Contractors, their Suppliers and related products with names, address, contact person and phone numbers.

3.13 WORKER'S QUALIFICATION SUBMITTALS

A. Must be submitted electronicaly within two (2) weeks after receiving notice to proceed. This includes Prime Contractor and all major Sub-Contractors.
   1. List with each worker's name, address, social security number, trade classification, years of trade experience and years employed by Contractor. See other Divisions of these specifications that may set ratios of apprentices to journeymen.
   2. Conviction Disclosure Form, (copy attached at the end of this Division) and a copy of their driver’s license or legal photo I.D. for each worker on the construction site with the name and signature of each worker.

3.14 SUBMITTAL PROCEDURES

A. General Requirements:
   1. Submit separate packages of submittals for review and submittals for information, when included in the same specification section.
   2. Transmit using approved form.
      a. Use form generated by Electronic Document Submittal Service software. If Electronic Document Submittal Service is not used for this project, use Contractor's form, subject to prior approval by Architect.
   3. Sequentially identify each item. For revised submittals use original number and a sequential numerical suffix.
   4. Identify: Project; Contractor; subcontractor or supplier; pertinent drawing and detail number; and specification section number and article/paragraph, as appropriate on each copy.
   5. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of products required, field dimensions, adjacent construction work, and coordination of information is in accordance with the requirements of the work and Contract Documents.
      a. Submittals from sources other than the Contractor, or without Contractor's stamp will not be acknowledged, reviewed, or returned.
   6. Deliver each submittal on date noted in submittal schedule, unless an earlier date has been agreed to by all affected parties, and is of the benefit to the project.
      a. Upload submittals in electronic form to Electronic Document Submittal Service website.
   7. Schedule submittals to expedite the Project, and coordinate submission of related items.
      a. For each submittal for review, allow 15 days excluding delivery time to and from the Contractor.
      b. For sequential reviews involving Architect's consultants, Owner, or another affected party, allow an additional 7 days.
      c. For sequential reviews involving approval from authorities having jurisdiction (AHJ), in addition to Architect's approval, allow an additional 30 days.
   8. Identify variations from Contract Documents and product or system limitations that may be detrimental to successful performance of the completed work.
   9. Provide space for Contractor and Architect review stamps.

10. When revised for resubmission, identify all changes made since previous submission.
11. Distribute reviewed submittals. Instruct parties to promptly report inability to comply with requirements.
12. Incomplete submittals will not be reviewed, unless they are partial submittals for distinct portion(s) of the work, and have received prior approval for their use.
13. Submittals not requested will be recognized, and will be returned "Not Reviewed",

B. Product Data Procedures:
   1. Submit only information required by individual specification sections.
   2. Collect required information into a single submittal.
   3. Submit concurrently with related shop drawing submittal.
   4. Do not submit (Material) Safety Data Sheets for materials or products.

C. Shop Drawing Procedures:
   1. Prepare accurate, drawn-to-scale, original shop drawing documentation by interpreting Contract Documents and coordinating related work.
   2. Do not reproduce Contract Documents to create shop drawings.
   3. Generic, non-project-specific information submitted as shop drawings do not meet the requirements for shop drawings.
   4. At a minimum, shop drawings shall:
      a. Convey the contractor's understanding of the work to be performed meets the design intent and contract documents.
      b. Coordinate material/equipment options (i.e. finish/color selections, power requirements, etc.).
      c. Include any information needed by other trades for a complete coordination of the work to be provided.

D. Samples Procedures:
   1. Transmit related items together as single package.
   2. Identify each item to allow review for applicability in relation to shop drawings showing installation locations.
   3. Include with transmittal high-resolution image files of samples to facilitate electronic review and approval. Provide separate submittal page for each item image.

3.15 SUBMITTAL REVIEW

A. Submittals for Review: Architect will review each submittal, and approve, or take other appropriate action.

B. Submittals for Information: Architect will acknowledge receipt and review. See below for actions to be taken.

C. Architect's actions will be reflected by marking each returned submittal using virtual stamp on electronic submittals.
   1. Notations may be made directly on submitted items and/or listed on appended Submittal Review cover sheet.

END OF SECTION

SWORN STATEMENT

STATE OF MICHIGAN) SS:
COUNTY OF _____)

_____, *[name of person swearing statement]*, being duly sworn, states the following:

_____ *[name of contractor]* is the contractor for an improvement to the following real property in _____ County, Michigan, described as follows: *[Give the legal description of the property.]*

The following is a statement of each subcontractor, supplier and laborer for whom payment of wages or fringe benefits and withholdings is due but unpaid with whom the contractor has contracted for performance under the contract with the owner or lessee, and the amounts due to the persons as of the date of this statement are correctly and fully set forth opposite their names:

Name, Address & Phone No. of Subcontractor, Supplier or Laborer	Type of Improvement Furnished	Total Contract Price	Change Orders	Adjusted Contract Price	Subcontractor Paid to Date	Current Request	Retainage	Balance to Complete
TOTALS:								

[NOTE: It is not necessary to list any materials furnished by the contractor / subcontractor out of his/her own inventory, and which have not been purchased specifically for performing the contract.]

The contractor has not procured materials from, or subcontracted with, any person other than those set forth above, and owes no money for the improvement other than the sums set forth above.

I make this statement as the contractor or as _____ *[capacity]* of the contractor to represent to the owner or lessee of the property and his/her agents that the property is free from claims of construction liens, or the possibility of construction liens, except as specifically set forth in this statement and except for claims of construction liens by laborers that may be provided under Section 109 of the Construction Lien Act, 1980 PA 497, MCL 570.1109.

SWORN STATEMENT

WARNING TO OWNER OR LESSEE: AN OWNER OR LESSEE OF THE PROPERTY MAY NOT RELY ON THIS SWORN STATEMENT TO AVOID THE CLAIM OF A SUBCONTRACTOR, SUPPLIER OR LABORER WHO HAS PROVIDED A NOTICE OF FURNISHING OR A LABORER WHO MAY PROVIDE A NOTICE OF FURNISHING UNDER SECTION 109 OF THE CONSTRUCTION LIEN ACT, 1980 PA 497, MCL 570.1109 TO THE DESIGNEE OR TO THE OWNER OR LESSEE IF THE DESIGNEE IS NOT NAMED OR HAS DIED.

IF THIS SWORN STATEMENT IS IN REGARD TO A RESIDENTIAL STRUCTURE, ON RECEIPT OF THIS SWORN STATEMENT, THE OWNER OR LESSEE, OR THE OWNER'S OR LESSEE'S DESIGNEE MUST GIVE NOTICE OF ITS RECEIPT, EITHER IN WRITING, OR BY TELEPHONE, OR PERSONALLY, TO EACH SUBCONTRACTOR, SUPPLIER, AND LABORER WHO HAS PROVIDED A NOTICE OF FURNISHING UNDER SECTION 109 OR, IF A NOTICE OF FURNISHING IS EXCUSED UNDER SECTION 108 OR 108A, TO EACH SUBCONTRACTOR, SUPPLIER, AND LABORER NAMED IN THE SWORN STATEMENT. IF A SUBCONTRACTOR, SUPPLIER, OR LABORER WHO HAS PROVIDED A NOTICE OF FURNISHING OR WHO IS NAMED IN THE SWORN STATEMENT MAKES A REQUEST, THE OWNER, LESSEE, OR DESIGNEE SHALL PROVIDE THE REQUESTER A COPY OF THE SWORN STATEMENT WITHIN 10 BUSINESS DAYS AFTER RECEIVING THE REQUEST.

_____ _____

Signature of Deponent Print Name

WARNING TO DEPONENT: A PERSON WHO GIVES A FALSE SWORN STATEMENT WITH INTENT TO DEFRAUD IS SUBJECT TO CRIMINAL PENALTIES AS PROVIDED IN SECTION 110 OF THE CONSTRUCTION LIEN ACT, 1980 PA 497, MCL 570.1110.

Subscribed and sworn to before me this _____ day of _____, 20_____.

_____

Notary Public, _____ County, Michigan
Print Name-
My Commission Expires: _____

CONTRACTOR'S DAILY FIELD REPORT

DATE COPIED TO ARCHITECT _____

(INCLUDE ENTIRE ACTIVITIES PER DAY)

CONTRACTOR: _____ FIELD REPORT NUMBER: _____

PROJECT: _____ ARCHITECT'S PROJECT NUMBER _____

DATE:_____ TIME _____ TEMP RANGE: _____ WORK HOURS:____A.M. TO ____ P.M.

PERCENT COMPLETE:_____ CONFORMANCE WITH SCHEDULE (+,-) _____

CREW (LIST SUBS, NUMBER OF WORKERS & TRADE CLASSIFICATIONS)

MATERIAL DELIVERIES / REMOVALS:

SITE VISITORS:

HEAVY EQUIPMENT OR SPECIAL EQUPMENT USED:

WORK PERFORMED:

ITEMS TO VERIFY:

INFORMATION OR ACTION REQUIRED:

ATTACHMENTS:

REPORTED BY: _____ PAGE _____ OF _____ PAGES

SECTION 015000
TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Temporary Controls: Barriers and enclosures.

1.02 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. Provide barricades and covered walkways required by governing authorities for public rights-of-way and for public access to existing building.

C. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

1.03 INTERIOR ENCLOSURES

A. Protect all areas adjacent to construction AND common points of travel to and from construction areas. Protection in these areas to include air quality, walk surfaces, equipment, furnishings, building occupants, etc. from dust / debris, excessive noise, wear, or damage of any kind. Prior to any physical work, the contractor must have a written plan for protection approved by the architect.

B. Provide temporary partitions and ceilings as indicated to separate work areas from Owner-occupied areas, to prevent penetration of dust and moisture into Owner-occupied areas, and to prevent damage to existing materials and equipment.

C. Construction: Framing and reinforced polyethylene sheet materials with closed joints and sealed edges at intersections with existing surfaces:

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 016000
PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Re-use of existing products.

B. Transportation, handling, storage and protection.

C. Product option requirements.

D. Substitution limitations.

E. Maintenance materials, including extra materials, spare parts, tools, and software.

1.02 RELATED REQUIREMENTS

A. Section 012500 - Substitution Procedures: Substitutions made during procurement and/or construction phases.

1.03 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.

PART 2 PRODUCTS

2.01 EXISTING PRODUCTS

A. Do not use materials and equipment removed from existing premises unless specifically required or permitted by Contract Documents.

B. Unforeseen historic items encountered remain the property of the Owner; notify Owner promptly upon discovery; protect, remove, handle, and store as directed by Owner.

C. Existing materials and equipment indicated to be removed, but not to be re-used, relocated, reinstalled, delivered to the Owner, or otherwise indicated as to remain the property of the Owner, become the property of the Contractor; remove from site.

D. Specific Products to be Reused: The reuse of certain materials and equipment already existing on the project site is required.
   1. See Section 011000 for list of items required to be salvaged for reuse and relocation.
   2. If reuse of other existing materials or equipment is desired, submit substitution request.

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 using or containing CFC's or HCFC's.
   2. Containing lead, cadmium, or asbestos.

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. Furnish min. 5% replacement stock materials for all non-painted ceiling, flooring, and wall coverings installed as part of this work.

C. Deliver to Project site; obtain receipt prior to final payment.

PART 3 EXECUTION

3.01 SUBSTITUTION LIMITATIONS

A. See Section 012500 - Substitution Procedures.

3.02 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.

3.03 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 017419.
   1. Structural Loading Limitations: Handle and store products and materials so as not to exceed static and dynamic load-bearing capacities of project floor and roof areas.

B. Store and protect products in accordance with manufacturers' instructions.

C. Store with seals and labels intact and legible.

D. Arrange storage of materials and products to allow for visual inspection for the purpose of determination of quantities, amounts, and unit counts.

E. Store sensitive products in weathertight, climate-controlled enclosures in an environment favorable to product.

F. For exterior storage of fabricated products, place on sloped supports above ground.

G. Provide off-site storage and protection when site does not permit on-site storage or protection.

H. Protect products from damage or deterioration due to construction operations, weather, precipitation, humidity, temperature, sunlight and ultraviolet light, dirt, dust, and other contaminants.

I. Comply with manufacturer's warranty conditions, if any.

J. Do not store products directly on the ground.

K. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.

L. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.

M. Prevent contact with material that may cause corrosion, discoloration, or staining.

N. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

O. 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 017000
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. Pre-installation meetings.

D. Cutting and patching.

E. Surveying for laying out the work.

F. Cleaning and protection.

G. Storage of Materials

H. Starting of systems and equipment.

I. Demonstration and instruction of Owner personnel.

J. Closeout procedures, including Contractor's Correction Punch List, except payment procedures.

1.02 RELATED REQUIREMENTS

A. Section 015000 - Temporary Facilities and Controls: Temporary exterior enclosures.

B. Section 015000 - Temporary Facilities and Controls: Temporary interior partitions.

C. Section 078400 - Firestopping.

D. Individual Product Specification Sections:
   1. Advance notification to other sections of openings required in work of those sections.
   2. Limitations on cutting structural members.

1.03 REFERENCE STANDARDS

A. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations 2022.

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements, for submittal procedures.

B. Demolition Plan: Submit demolition plan as specified by OSHA and local authorities.
   1. Indicate extent of demolition, removal sequence, bracing and shoring, and location and construction of barricades and fences. Include design drawings and calculations for bracing and shoring.
   2. Identify demolition firm and submit qualifications.
   3. Include a summary of safety procedures.

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 demolition work, employ a firm specializing in the type of work required.
   1. Minimum of 5 years of documented experience.

B. For design of temporary shoring and bracing, employ a Professional Engineer experienced in design of this type of work and licensed in the State in which the Project is located.

1.06 PROJECT CONDITIONS

A. Use of explosives is not permitted.

B. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.

C. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.

D. Perform dewatering activities, as required, for the duration of the project.

E. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

F. 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.

G. 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.

H. Noise Control: Provide methods, means, and facilities to minimize noise produced by construction operations.

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, with provisions for accommodating items installed later.

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.

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 016000 - 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. Clean substrate surfaces prior to applying next material or substance.

B. Seal cracks or openings of substrate prior to applying next material or substance.

C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

3.03 PREINSTALLATION MEETINGS

A. When required in individual specification sections, convene a preinstallation meeting at the site prior to commencing work of the section.

B. Require attendance of parties directly affecting, or affected by, work of the specific section.

C. Notify Architect four days in advance of meeting date.

D. Prepare agenda and preside at meeting:
   1. Review conditions of examination, preparation and installation procedures.
   2. Review coordination with related work.

E. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

3.04 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.

3.05 GENERAL INSTALLATION REQUIREMENTS

A. 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.

B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.

C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.

D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.

E. Make neat transitions between different surfaces, maintaining texture and appearance.

3.06 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. Keep areas in which alterations are being conducted separated from other areas that are still occupied.
   1. Provide, erect, and maintain temporary dustproof partitions of construction specified in Section 015000 in locations indicated on drawings.

C. Maintain weatherproof exterior building enclosure except for interruptions required for replacement or modifications; take care to prevent water and humidity damage.
   1. Where openings in exterior enclosure exist, provide construction to make exterior enclosure weatherproof.
   2. Insulate existing ducts or pipes that are exposed to outdoor ambient temperatures by alterations work.

D. 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.

E. 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.

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.

G. Adapt existing work to fit new work: Make as neat and smooth transition as possible.
   1. When existing finished surfaces are cut so that a smooth transition with new work is not possible, terminate existing surface along a straight line at a natural line of division and make recommendation to Architect.

H. 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.

I. Refinish existing surfaces as indicated:
   1. 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.
   2. 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.

3.07 CUTTING AND PATCHING

A. The Prime Contractor shall be responsible for coordinating all cutting and patching of built work that needs to be modified for missed items, errors, defects, etc., as caused by his own Employees or Sub-contractors. He shall coordinate with related trades and Sub-Contractors and work out all details and scheduling. The Prime Contractor shall coordinate with the responsible party for the problem and extra work and shall resolve all costs to correct, without additional charge to the Owner.

B. Whenever possible, execute the work by methods that avoid cutting or patching.

C. See Alterations article above for additional requirements.

D. 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.

E. 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.

F. Employ original installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.

G. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.

H. Restore work with new products in accordance with requirements of Contract Documents.

I. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

J. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material in accordance with Section 078400, to full thickness of the penetrated element.

K. 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.

3.08 PROGRESS CLEANING

A. On a daily basis, all rubbish and debris shall be cleaned up and placed in a dumpster on the job site to be removed/replaced as needed to a licensed disposal site. The building site shall be kept neat and organized, so that work and safety of all trades is not affected. Submit written documentation, manifests, logs, etc. of all debris removal at completion of job.

B. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.

C. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.

D. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.

E. Collect and remove waste materials, debris, and trash/rubbish from site daily and dispose off-site; do not burn or bury.

F. It shall be the Prime Contractor's responsibility to clean-up and co-ordinate work areas so that each trade can perform their work safely and efficiently or direct and enforce that each Sub-Contractor conforms to these same requirements.

G. Should the Contractor fail to clean-up debris caused from his operations and properly store and remove from site on a daily basis, the Owner in a safety/emergency situation without notice to the Contractor may elect to clean up debris with their own work force. At other times the Owner will give Contractor advance notice. All costs incurred by the Owner due to Contractor's neglect will be documented and deducted against the final contract amount due to the Contractor.

3.09 STORAGE OF MATERIALS

A. Materials used as part of this work shall be neatly stored and properly protected in an organized manner, so they do not interfere with the work, safety of all trades and hazard or damage to the site/building. Vandalism arising from improperly stored materials to the Owner's site/building shall be borne by the Contractor.

3.10 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.

3.11 SYSTEM STARTUP

A. Coordinate schedule for start-up of various equipment and systems.

B. Notify Architect and Owner seven days prior to start-up of each item.

C. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions that may cause damage.

D. Verify tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.

E. Verify that wiring and support components for equipment are complete and tested.

F. Execute start-up under supervision of applicable Contractor personnel and manufacturer's representative in accordance with manufacturers' instructions.

G. When specified in individual specification Sections, require manufacturer to provide authorized representative to be present at site to inspect, check, and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.

H. Submit a written report that equipment or system has been properly installed and is functioning correctly.

3.12 DEMONSTRATION AND INSTRUCTION

A. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at scheduled time, at equipment location.

B. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.

C. Provide a qualified person who is knowledgeable about the Project to perform demonstration and instruction of Owner's personnel.

D. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with Owner's personnel in detail to explain all aspects of operation and maintenance.

E. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.

3.13 ADJUSTING

A. Adjust operating products and equipment to ensure smooth and unhindered operation.

3.14 FINAL CLEANING

A. Use cleaning materials that are nonhazardous.

B. 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.

C. Remove all labels that are not permanent. Do not paint or otherwise cover fire test labels or nameplates on mechanical and electrical equipment.

D. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.

E. Clean filters of operating equipment.

F. Clean debris from roofs, gutters, downspouts, scuppers, overflow drains, area drains, and drainage systems.

G. Clean site; sweep paved areas, rake clean landscaped surfaces.

H. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

I. If this contract involves construction of a new building, remodeling, or additions the scope of clean up shall be more than the normal removal of rubbish and leaving the work areas clean. The Contractor shall clean all new work, wash floors, vacuum carpet, wash glass, remove all stickers, replace broken glass, remove stains, spots, marks, dust and dirt from all decorated work and finishes, including all existing areas affected by this operation, including tenants furnishings, contents and personal belongings. All damage to lawns, walks, pavement, vehicles or other operations in performing this work shall be repaired or replaced to an equal, or better condition than before the damage occurred. The project shall be ready for Owner's occupancy

and use when completed.

3.15 CLOSEOUT PROCEDURES

A. Make submittals that are required by governing or other authorities.
   1. Provide copies to Architect.

B. Accompany Project Coordinator on preliminary inspection to determine items to be listed for completion or correction in the Contractor's Correction Punch List for Contractor's Notice of Substantial Completion.

C. Notify Architect when work is considered ready for Architect's Substantial Completion inspection.

D. 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.

E. 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.

F. Correct items of work listed in Final Correction Punch List and comply with requirements for access to Owner-occupied areas.

G. Notify Architect when work is considered finally complete and ready for Architect's Substantial Completion final inspection.

H. Complete items of work determined by Architect listed in executed Certificate of Substantial Completion.

END OF SECTION

SECTION 019100
COMMISSIONING OF HVAC AND ELECTRICAL SYSTEMS

PART 1 – GENERAL

1.01 GENERAL

A. The Construction Manager has contracted separately with a Commissioning Authority independent from the Architect, Engineer, and Contractors.

B. The purpose of the commissioning is to secure for the Owner, a completely functional, easily maintainable, fully documented, and verifiable mechanical and electrical system upon substantial completion of the project. The commissioning will also verify that the design intent has been accomplished and that all mechanical and electrical systems are ready for the function intended.

1.02 COMMISSIONING AUTHORITY

A. The Commissioning Authority shall be responsible solely to Construction Manager, and shall act as an agent of the Construction Manager in the quality control of the mechanical and electrical portions of the project. The Commissioning Authority shall, through the Construction Manager, have the authority to direct the General Contractor and their Subcontractors to perform corrective work until final acceptance of the project by the District.

1.03 COMMISSIONING PROCESS

A. Construction Observation: The responsibilities of the Commissioning Authority during the construction phase shall be as follows:
   1. The Commissioning authority will perform submittal review concurrent with the A/E's review and provide recommendations to the A/E for acceptance or rejection for temperature controls, air handling units, boilers, electrical service equipment, electrical distribution equipment, and standby generator and equipment. All other submittals for the systems being commissioned shall be reviewed by the Commissioning Authority for information after the submittal is approved by the A/E.

B. System Performance Verification: The responsibilities of the Commissioning Authority during the system functional testing, and performance verification shall be as follows:
   1. The Commissioning Authority shall coordinate scheduling the functional testing of the items to be commissioned with the Contractors and the Construction Manager. These items include but are not limited to:
      a. Mechanical and Heating, Ventilating, and Air Conditioning (HVAC) Systems
      b. Building Automation and Environmental Controls Systems
      c. Electrical Systems: Electrical distribution main and panels, Standby Power System
      d. Domestic Hot Water Systems
      e. Lighting and Lighting Controls
      f. Review and Verification of Contractor Provided Facility Staff Training
      g. Fire Alarm System, Public Address System and Access Control System
   2. The functional testing of the equipment listed above will include but not be limited to verifying proper operation of systems, checking the calibration of all sensors and controls, commanding damper and valve actuators fully open and closed and observing the responses, observing the operation of system safety devices, verifying that all devices go to their fail safe position upon shutdown, verifying that standby devices properly operate upon loss of primary devices, and verifying that the various control loops have been tuned and operate according to the sequence of controls and the Engineer's Design Intent.
   3. The functional testing of the automatic controls system will also include but not be limited to a checkout of required graphics programming, review of the programming for compliance with the sequence of control, and analysis of trend data for proper system responses and loop stability.
   4. The Commissioning process will not void or violate any manufacturer's or contractor warranties or guarantees.

C. Job Closeout: The responsibilities of the Commissioning Authority during the contract closeout phase shall be as follows:
   1. The Commissioning Authority shall review the System Test and Balance Reports after acceptance by the design engineer for completeness, accuracy, and compliance with the contract documents and make recommendations on acceptance to the Construction Manager.
   2. The Commissioning Authority will review the O&M manuals for commissioned equipment.
   3. The Commissioning Authority will return to the site approximately one month prior to the end of the warranty period to review outstanding issues and review system operation. The Commissioning authority will assist the faculty and staff in developing reports and requests for services to remedy outstanding problems.

D. Submittals: System Commissioning Documentation on individual project site basis.
   a. The Commissioning Authority will compile a Commissioning Record for submission to the Construction Manager. The contractors are required to provide various documents for inclusion into the manual as described later in this specification.
   b. The Commissioning Record shall include the following:
      1) List of principal participants and their roles.
      2) Overview of commissioning and testing scope.
      3) General description of testing and verification methods.
      4) Provide an itemized report indicating the test results for each piece of equipment commissioned, a recommendation to the Construction Manager for the pass/fail status, and the corrective action, if any, required.
      5) A summary of all non-compliance issues.
      6) Submittal reviews.

PART 2 – RESPONSIBILITIES

2.01 CONTRACTORS

A. Support Documentation: The responsibilities of each Contractor, with respect to System Commissioning documentation shall be as follows:
   1. The Construction Manager shall provide the Commissioning Authority with one copy of all Requests for Information dealing with the mechanical and electrical systems to be commissioned. The Architect's and Engineer's response shall be attached to the RFI.
   2. The Construction Manager shall provide the Commissioning Authority with one copy of all mechanical and electrical change orders that have been approved for incorporation into the project, and one copy of all mechanical and electrical change requests or change orders that have been disapproved.
   3. The Commissioning Authority will verify the A/E and CM review of coordination drawings to ensure that all trade contractors are making a reasonable effort to coordinate work.
   4. The Construction Manager shall provide the Commissioning Authority access to approved material and equipment data and submittal shop drawings for the following equipment:
      a. Air Handling Units
      b. Boiler(s)
      c. Building Automation System
      d. Exhaust Fan(s)
      e. Hot and Chilled Water Pumping Systems
      f. Pumps
      g. Terminal Units
      h. Domestic Hot Water
      i. Lighting and Lighting Controls
      j. Electrical distribution main and panels, Standby Power System
   5. The Controls Contractor shall provide the Commissioning Authority with electronic copies of all automatic temperature control material and equipment data and shop drawing submittals for review. These shall be provided at the same time that they are provided to the design engineer. After review, recommendations for acceptance or rejection will be made to the Engineer as to the suitability for commissioning. The controls contractor shall

provide the Commissioning Authority with one copy of the approved submittal for use during the commissioning process.

6. The Controls Contractor shall provide the Commissioning Authority with a table of all set points and implications when changing them.
7. The Mechanical and Controls Contractors shall provide the Commissioning Authority with written instructions for operation of each piece of equipment for emergencies, seasonal adjustment, startup and shutdown.
8. The Mechanical and Controls Contractors shall provide the Commissioning Authority with manufacturer's maintenance schedules for each piece of equipment. If the manufacturer does not produce a maintenance schedule, consult manufacturer and generate a written maintenance schedule to be submitted to the Commissioning Authority.
9. The CM shall coordinate with the Commissioning Authority to ensure that commissioning activities with appropriate durations are being incorporated into the master schedule.
10. The Commissioning Authority will plan and coordinate with the CM the schedule for commissioning related and required meetings. Meetings will be scheduled with other regular meetings whenever possible. The Commissioning Authority will issue meeting agendas and the CM will record and distribute meeting minutes.
11. The Mechanical, Electrical and Controls Contractors shall provide the Commissioning Authority with the same warranty start and expiration dates and appropriate points of contact for warranty service for each piece of equipment that is included in the project O&M manuals. The Commissioning Authority will review all commissioned equipment warranties.
12. The Mechanical, Electrical, and Controls Contractors shall provide the Commissioning Authority with any information needed from trade contractors or equipment manufacturers to perform commissioning tasks, including manufacturer and contractor generated O&M materials, start-up and checkout procedures.
13. The Mechanical Contractor shall make the Test and Balance Contractor available to the Commissioning Authority for a minimum of 4 hours to assist with spot checks of each system after balancing is complete. The spot checks will include both air and water balancing. The Test and Balance Contractor shall use the same instruments for the spot checks as was used for the balancing.

B. Job Site Access During Construction: The responsibilities of the Contractors, with respect to job site access by the Commissioning Authority shall be as follows:
   1. The Construction Manager shall provide the Commissioning Authority unlimited access to the job site files for Requests for Information, Change Orders, and Submittals.
   2. The CM will provide necessary documents to the Commissioning Authority. The CM will distribute the documents and information provided by the Commissioning Authority to the Project Team.
   3. A complete set of reproducible drawings indicating as-built conditions of all systems including but not limited to automatic temperature controls schematics, piping, ductwork, electrical systems, lighting and lighting controls, all systems and equipment incorporating all changes made during construction; provided by the A/E, Contractor, and CM and reviewed by the Commissioning Authority. Documents and drawings shall be reviewed and approved by the A/E prior to the review by the Commissioning Authority.
   4. The Construction Manager shall provide the Commissioning Authority assistance as necessary to gain access to the construction site for the purpose of verifying that the installation of materials and equipment is performed in accordance with the contract documents. This shall include the use of keys, ladders, power lifts and other specialized equipment where necessary to access the equipment without compensation. Site visits will be documented via a written submitted report noting all pertinent observations and deficiencies. The Commissioning Authority will notify the CM when Commissioning personnel are on site.

C. System Setup, Calibration, and Loop Tuning: It is the specific responsibility of each contractor to complete all equipment setup, testing, calibration, loop tuning, and related functions prior to the Commissioning of Mechanical Systems. The Contractor shall complete all required checklists and certify in writing that these tasks have been accomplished and that the systems

are ready for commissioning.

D. System Demonstration: The Contractor shall assist in the demonstration of the performance of the HVAC and other systems to the Commissioning Authority as follows:
   1. The Mechanical and Controls Contractors shall assist the Commissioning Authority as necessary for the purpose of verifying performance of the HVAC and Automatic Temperature Control systems. The Contractor shall assist in the demonstration of the operation of all pieces of equipment throughout the equipment performance ranges, demonstrate all operating and control functions, safety devices, and other appurtenances as requested by the Commissioning Authority during the period scheduled for commissioning of the systems and equipment. The Controls Contractor shall tune, repair, replace, calibrate, or otherwise modify all equipment that fails to meet the performance required by the contract documents as directed by the Commissioning Authority at no additional cost to the Construction Manager.
   2. The General Contractor and Sub-Contractors shall assist in the demonstration of the operation of all seasonal operating equipment during the normal season of operation for such equipment, as requested by the Commissioning Authority.
   3. The Electrical Contractor shall remove and replace covers and doors from all power distribution equipment and motor control enclosures as requested by the Commissioning Authority for the purpose of verifying feeder, overcurrent device ratings and general installation. Electrician shall gain access to interior of all power distribution equipment enclosures including distribution equipment related to mechanical or kitchen equipment.
   4. The Commissioning Authority will perform thermographic imaging of the electrical system panels, switchgear, and critical equipment and connections. Six months after Owner occupancy, the Electrical Contractor shall return to the site and remove and replace all covers and doors from all power distribution equipment and motor control enclosures as requested by the Commissioning Authority.
   5. Standby Generator Testing: Electrical contractor shall provide an electrician to accompany the commissioning authority for testing of the emergency generator for a duration of approximately 15 minutes. The building main shall be disconnected while the automatic transfer switch is observed for proper switching. The generator as well as building emergency systems such as egress lighting shall be observed for proper operation. If applicable contractor shall refill fuel tank after test.
   6. Lighting Control System Demonstration: Electrical contractor shall provide qualified personnel familiar with equipment operation, locations and required passwords to accompany the commissioning authority and demonstrate the performance of all control relays, sensors, and switches. The contractor shall demonstrate the performance of the system's time-based relay control, time clock control, photocell-based relay control and occupancy/vacancy control. The contractor shall be equipped with a typed written schedule illustrating the control sequence for each relay. Each system shall be tested for proper operation per the written sequence to automatically turn lights "ON and OFF". Photocell and time clock shall each be temporarily overridden for demonstration purposes. The contractor shall provide access to all areas/rooms with lighting control equipment or lighting fixtures affected by this control system.
   7. Public Address System Demonstration: Electrical contractor shall provide qualified personnel familiar with equipment operation, locations and required login/passwords to accompany the commissioning authority and demonstrate the performance of the system. Reference related specification section 275116 "Public Address System". The contractor shall provide access to all areas/rooms for verification of this system.
   8. Fire Alarm System Demonstration: Electrical contractor shall provide qualified personnel familiar with equipment operation, locations and required passwords to accompany the commissioning authority and demonstrate the performance of the system. Reference related specification section 283111 "Digital, Addressable Fire Alarm System". The contractor shall provide access to all areas/rooms for verification of this system.

E. Test Equipment: The Contractor shall provide all necessary test equipment for the duration of the commissioning as follows. At the Contractor's option, the Commissioning Authority may use their own equipment, however, if the Contractor selects this option, the Contractor will be

bound by the results of tests performed with different instruments than used in the Contractor's set-up and calibration:

1. The Mechanical and Controls Contractors shall provide all test equipment necessary to measure system performance with the accuracy necessary to ascertain that the equipment is performing within specified limits. The Mechanical and Controls Contractors shall maintain the test equipment and shall provide documentation or other evidence that the test equipment has been calibrated within the previous 12 months with test standards traceable to the National Bureau of Standards. The test equipment provided to the Commissioning Authority for use in this testing should be the same as was used for initial system set up. This will avoid any disparity that may be caused by using two separate pieces of test equipment. This equipment shall be made available to the Commissioning Authority without qualification at any time during the performance testing of equipment, and during retesting or opposite season checks, and will remain on the job site at all times. Equipment to be provided by the General Contractor and Sub-Contractors shall include as a minimum:
    a. Digital Thermometer(s)
    b. Digital Relative Humidity or Dew Point Sensor(s)
    c. Magnehelics of appropriate scale for all pressure measurements
    d. Hand held operator interface unit or laptop computer with appropriate software and cables for communication with the DDC system. The hand held device or laptop computer must be capable of connecting into the control panels at the equipment so that the control system can be accessed while in the immediate vicinity of the equipment

F. Performance Documentation: The Contractor shall provide all necessary system performance documentation as follows:
    1. The Contractor shall provide the Commissioning Authority with all operating data and reports, as may be available from the equipment data acquisition features, when requested for the purpose of verifying performance testing of the HVAC and Automatic Temperature Control systems or to document performance testing results. At a minimum this shall include All Point Logs and Point Trend Data for all points in the Automatic Temperature Control Systems. All software to provide All Point Logs and Trend Data shall be provided with the Automatic Temperature Controls (ATC). Sufficient memory shall be provided in the DDC system components to allow trending of all analog variables on a 30-minute average for an 8-day sliding window. All trends of requested variables shall be started by the ATC contractor, and transferred to compact disk by the ATC Contractor when requested by the Commissioning Authority.
    2. The Mechanical Contractor shall provide the Commissioning Authority one copy of all System Test and Balance Reports with the A/E signature for review and comment.
        a. The Commissioning Authority will check portions of the TAB service for the air, water, and HVAC systems.
        b. The Commissioning Authority will randomly verify the validity of returned TAB deficiency reports to verify that the corrections have been made.

2.02 SOFTWARE AND HARDWARE

A. Software and hardware for Commissioning Authority Access to Direct Digital Control Equipment.
    1. The Automatic Temperature Control Sub-contractor shall provide the Commissioning Authority full access to the Direct Digital Control (DDC) System software and hardware. The Sub-contractor shall provide the Commissioning Authority with a complete set of keys, and a copy of all software, along with sufficient training to allow the Commissioning Authority to enter the programs at the highest level of password and to perform the functional testing unassisted. The Sub-contractor shall load the software on a Portable Computer provided by the Commissioning Authority. The Sub-contractor shall provide the Commissioning Authority a copy of all diagnostic and testing software and all necessary LAN interface attachments required to attach the Commissioning Authority's Portable Computer to all of the Sub-contractor's field panels or local area network hubs. The Sub-contractor shall make available the necessary software and hardware to the

Commissioning Authority for a period beginning at the start of the installation and ending one year after the date of substantial completion of the project, including all updates as required to be 100% compatible with the installed DDC controls. The Commissioning Authority agrees to sign a licensing or confidentiality agreement, however the software and hardware shall be provided without additional charge. The software will be deleted from the Commissioning Authority's computer at the end of this one year period. In lieu of the above requirement, the automatic temperature control contractor may provide a laptop computer with the above required connection cable and software, for the Commissioning Authority's use during the period of on-site functional testing. This laptop computer will be returned at the completion of the functional testing but would be made available to the Commissioning Authority for a period of one year for retesting, opposite season testing, and warranty checks.

B. Remote Access:
   1. The Automatic Temperature Control Sub-contractor shall provide a means to access the control system via internet connection. The Sub-contractor shall provide the Commissioning Authority with a copy of any software required to access the system at the highest password level from a remote site for the purpose of data acquisition. The remote capabilities shall include the ability to start trend logs, to retrieve trend data, and to convert trend data to Microsoft Excel files for graphic analysis. The Commissioning Authority shall provide internet access and computer at his location for the remote access.

2.03 SCHEDULING

A. The General Contractor or CM shall include in the project schedule sufficient time for the commissioning process. System commissioning and performance verification testing and all corrective work shall be completed prior to the Request for Substantial Completion being submitted to the Construction Manager. System commissioning and performance verification testing cannot begin until all major systems are completely installed, the balancing contractor has completed balancing of the entire system, and the automatic temperature control contractor has performed calibration tests and adjustments, control loop tuning, and has programmed the operators terminal complete with interactive graphics. The HVAC systems must be running with all systems connected, and all terminal devices continuously operating as if the building were occupied. All corrective work indicated on pre-commissioning punch lists prepared by the Architect and Engineer must be completed prior to performance testing and system operation verification begins. For the purpose of being included in the overall project schedule, a minimum of one day should be scheduled for each air-handling unit for testing, and a minimum of four days should be allowed for the contractor to perform corrective work. A minimum of seven days should be allowed for performance verification checks of terminal units. Testing of terminal units may begin prior to testing of the associated equipment serving them such as air-handling units, central plant (boilers) and related pumping systems, but not before all this associated equipment serving the terminal units is operational. The associated equipment must be operated without interruption while the commissioning of the terminal units is in progress. A minimum of 1 day should be allowed for performance verification checks of the central plant (boilers) and related pumping systems. Commissioning can be performed while minor finish work or punch list items, which do not affect the mechanical systems, are being performed. Some of the mechanical commissioning activities can be scheduled concurrently. Mechanical commissioning activities should not be scheduled concurrently with fire alarm or fire protection system testing or concurrent with mechanical room floor sealing.

B. Provided that all provisions of paragraph 2.02 are met, the Commissioning Authority will accomplish the majority of the commissioning effort without contractor personnel required to be present. The manpower allotted by the contractors to assist in the commissioning effort for training etc. described in this section shall be as listed below. The time listed does not include the time required to make corrections or to accomplish retest due to work found to be incomplete during the initial test.
   1. One control technician (capable of manipulating all aspects of the control system) for 8 hours during the initial functional testing and 8 hours during the opposite season testing. The contractor shall also have a control technician on call during all of the scheduled commissioning, available to periodically answer questions and assist with control system

interface. Estimate 1 hour per day through the scheduled functional testing for answering questions. These estimates are based on the commissioning authority being allowed to manipulate the control system without a controls technician present. If the contractor requires that a control technician accomplish all control manipulation, a control technician will be required for all days.

2. Provide a control technician to set up trend data for the air handler control loops, central plant equipment, and selected terminal units. The control technician shall provide the data to the commissioning agent in an electronic graphical format. Estimate 3 hours per system.
3. Power Distribution System: Electrical contractor shall provide an electrician to accompany the commissioning authority during inspection and testing of the power distribution system. Estimate (1) sessions of (6) hours.
4. Thermographic Imaging of the Electrical Distribution System: Electrical contractor shall provide an electrician to accompany the commissioning authority during thermographic imaging of all equipment in the power distribution system. Thermographic Imaging will occur approximately six months after building occupancy during a time of maximum building electrical loading. Estimate (1) session of (8) hours.
5. Standby Generator Testing: Electrical contractor shall provide an electrician to accompany the commissioning authority for testing of the emergency generator. Estimate (1) hour total. Test shall be performed at no cost to the owner or commissioning authority.
6. Lighting Control System Demonstration: Electrical contractor shall provide qualified personnel familiar with equipment operation, locations and required passwords to accompany the commissioning authority. Estimate (1) session of (4) hours.
    a. Electrical contractor shall notify commissioning authority a minimum of 48 hours prior to any required training session to accommodate attendance by the authority. Note: Training session(s) should be scheduled after lighting control system has been completed and is fully programmed and operational.

END OF SECTION

SECTION 024100
DEMOLITION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Selective demolition of building elements for alteration purposes.

1.02 RELATED REQUIREMENTS

A. Section 016000 - Product Requirements: Handling and storage of items removed for salvage and relocation.

B. Section 017000 - 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.

C. Section 312323 - Fill and Testing: Filling holes, pits, and excavations generated as a result of removal operations.

1.03 SUBMITTALS

A. See Section 013000 - Administrative Requirements, for submittal procedures.

B. Demolition Plan: Submit demolition plan as specified by OSHA and local authorities.
   1. Indicate extent of demolition, removal sequence, bracing and shoring, and location and construction of barricades and fences.
   2. Identify demolition firm and submit qualifications.
   3. Include a summary of safety procedures.

C. Project Record Documents: Accurately record actual locations of capped and active utilities and subsurface construction.

1.04 QUALITY ASSURANCE

A. All demolition workmanship shall be of first quality, performed by skilled workers with items carefully removed to not damage existing work that remains or to be built upon/modified by other trades. The Demolition Contractor or workers shall be knowledgeable of the systems and materials they are removing. Coordinate all demolition work with the Sub-Contractors that will be required to repair, extend, modify, alter, etc., the item or items involved. Where possible, the actual trade performing the re-construction shall perform the demolition.

PART 3 EXECUTION

2.01 SCOPE

A. Work included consists of, but is not limited to the following:
   1. Selective removal of roofing, decking, structure, ceilings, walls, slabs, foundations, floor finishes, joints, masonry, fenestrations, misc. equipment, doors/frames, etc., as detailed or required for new work and/or maintenance repairs.
   2. See related mechanical, electrical, and plumbing specifications for other items.
   3. Where necessary or specified, saw cut, core drill, etc., certain areas to prevent un-necessary destruction of the existing work, which may otherwise require extra re-building to return to original or acceptable condition as existed before starting new work.
   4. Miscellaneous finishes as required for new work.
   5. All other work as indicated on the drawings.
   6. See Alternate Division.

B. Remove other items indicated, for salvage, relocation, and recycling.

2.02 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. Do not begin removal until built elements to be salvaged or relocated have been removed.

D. Do not begin removal until vegetation to be relocated has been removed and specified measures have been taken to protect vegetation to remain.

E. 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.
4. It is the contractor’s responsibility to exercise proper care to protect all surroundings (air quality, furnishings, building, occupants, etc.) during all phases of construction. Certain areas with high replacement costs, containing occupants, still under warranty, and/or easily damaged should have added protection features. An example would be "flat" roofs and gymnasium floors and any walking surface to remain being covered using protective boards to prevent puncturing, denting, surface scratching, and wear. Prior to any physical work, the contractor must have a written plan for protection approved by the architect.

F. 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.

G. 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.

H. 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.

2.03 SALVAGEABLE MATERIALS

A. Where noted in Special Conditions, or herein, or other related Divisions or in the drawings, including mechanical and electrical, carefully remove certain items and store on job site in mutually agreed upon areas for Owner to pick-up and remove.

B. Any salvageable items as requested to become the property of the Owner, and the Contractor feels the item will be destroyed in the removal process, or is not cost effective to carefully removed, shall be stated as such in the Bid Proposal. Also any item or items scheduled to be turned over to the Owner, which the Contractor feels has substantial salvageable value and wishes to retain, he may elect to submit a credit for Owner's consideration on the Bid Proposal.

C. Contractor shall verify and coordinate salvageable material selection with the Owner prior to removal from the job site.

D. Salvageable items to turn over to the owner incude but are not limited to:
1. Noted Unit vents / Pumps
2. Air compressors.

3. Dryers.
4. Other items as noted on the plans.

E. Special Note - Wherever contractor removes ceiling tile, it shall be saved until the end of job for blending into the existing ceilings as needed at other areas / work throughout the building. At the end of project, the owner has the option of keeping the salvaged tile or having contractor haul off at his expense.

2.04 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.

2.05 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 015000 in locations indicated on drawings.

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.

2.06 PATCHING

A. Where certain items are called for to be replaced, removed, repaired, altered, etc., and the work involves the removal/destruction of adjacent or related existing items, those damaged items shall be patched, repaired, replaced to their original or better condition as existed before the work is started. A typical example would be regarding new door/frame replacement in same wall. Included as part of the work is any wall damage caused by the removal of door/frame and the installation of the new - including finishes.

B. Where not shown on drawings, all patching, painting, etc. shall be done with similar materials or an approved substitute to the surrounding areas or as specified in other related Divisions and as recommended by manufacturer. If the Contractor is in question, consult the Architect prior to removal or replacement. All materials shall be carefully removed to avoid damage to other work not scheduled for demolition or for turning over to the Owner.

C. All patching work shall be uniform in appearance, flush, same texture, etc. with the adjacent existing work. In certain instances, to achieve this, additional adjacent work may be necessary to remove and replace. Typical examples would be:

D. Any patch painting shall be done in geometric configurations, stopping at logical break points, such as inside or outside corners, at change of materials, or as directed by Owner/Architect.

E. Neatly saw cut existing walls for installation of new shower panel frames. Grout all surrounding masonry solid in preparation of frame installation.

F. Where existing tile ceilings are removed during Owners asbestos abatement, and the work will be exposed, patching may be done with matching plaster of 5/8” drywall properly anchored, taped and spackled.

G. Where existing walls are removed and/or finishes are removed, the substrate material shall be cleaned, ground down, filled, leveled smooth, etc. and made ready for new finishes and/or materials as specified. Flatness tolerance shall be Class ‘A’ (1/8” deviation in 10’). Leveling shall be done with materials as manufactured by Ardex, Sika, Thoro, or equal.

2.07 DEBRIS AND WASTE REMOVAL

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 031000
CONCRETE FORMING AND ACCESSORIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Formwork for cast-in-place concrete, with shoring, bracing and anchorage.

B. Openings for other work.

C. Form accessories.

D. Form stripping.

1.02 RELATED REQUIREMENTS

A. Section 016000 - Product Requirements

B. Section 017000 - Execution and Closeout Requirements

C. Section 032000 - Concrete Reinforcing.

D. Section 033000 - Cast-in-Place Concrete.

E. Section 051200 - Structural Steel Framing: Placement of embedded steel anchors and plates in cast-in-place concrete.

1.03 REFERENCE STANDARDS

A. ACI 117 - Specification for Tolerances for Concrete Construction and Materials 2010 (Reapproved 2015).

B. ACI 301 - Specifications for Concrete Construction 2020.

C. ACI 347R - Guide to Formwork for Concrete 2014 (Reapproved 2021).

PART 2 PRODUCTS

2.01 FORMWORK - GENERAL

A. Provide concrete forms, accessories, shoring, and bracing as required to accomplish cast-in-place concrete work.

B. Design and construct concrete that complies with design with respect to shape, lines, and dimensions.

C. Comply with applicable state and local codes with respect to design, fabrication, erection, and removal of formwork.

2.02 WOOD FORM MATERIALS

A. Form Materials: Lumber used in forms for exposed surfaces shall be dressed to a uniform width and thickness and shall be free from loose knots or other defects. Joints in forms shall be horizontal or vertical. Undressed lumber may be used for rough work or unexposed work.

2.03 FORMWORK ACCESSORIES

A. Form Release Agent: Capable of releasing forms from hardened concrete without staining or discoloring concrete or forming bugholes and other surface defects, compatible with concrete and form materials, and not requiring removal for satisfactory bonding of coatings to be applied.
   1. Composition: Colorless, reactive, water-based or solvent-based compound.
   2. Do not use materials containing diesel oil or petroleum-based compounds.
   3. VOC Content: In compliance with applicable local, State, and federal regulations.
   4. Products:
      a. SpecChem, LLC; SpecStrip: www.specchemllc.com/#sle.
      b. W. R. Meadows, Inc; Duogard: www.wrmeadows.com/#sle.

B. Nails, Spikes, Lag Bolts, Through Bolts, Anchorages: Sized as required, of sufficient strength and character to maintain formwork in place while placing concrete.

C. Embedded Anchor Shapes, Plates, Angles and Bars: As specified in Section 051200.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify lines, levels and centers before proceeding with formwork. Ensure that dimensions agree with drawings.

3.02 ERECTION - FORMWORK

A. Erect formwork, shoring and bracing to achieve design requirements, in accordance with requirements of ACI 301.

B. Provide bracing to ensure stability of formwork. Shore or strengthen formwork subject to overstressing by construction loads.

C. If the nature of the soil will permit, trenches for wall footings may be cut to accurate sizes and side form omitted where the earth will properly contain the concrete. Conform with requirements/recommendations of ACI 347R for formwork.

D. Arrange and assemble formwork to permit dismantling and stripping. Do not damage concrete during stripping. Permit removal of remaining principal shores.

E. Coordinate this section with other sections of work that require attachment of components to formwork.

F. If formwork is placed after reinforcement, resulting in insufficient concrete cover over reinforcement, request instructions from Architect before proceeding.

3.03 APPLICATION - FORM RELEASE AGENT

A. Apply form release agent on formwork in accordance with manufacturer's recommendations.

B. Apply prior to placement of reinforcing steel, anchoring devices, and embedded items.

C. Do not apply form release agent where concrete surfaces will receive special finishes or applied coverings that are affected by agent. Soak inside surfaces of untreated forms with clean water. Keep surfaces coated prior to placement of concrete.

3.04 INSERTS, EMBEDDED PARTS, AND OPENINGS

A. Provide formed openings where required for items to be embedded in passing through concrete work.

B. Locate and set in place items that will be cast directly into concrete.

C. Coordinate with work of other sections in forming and placing openings, slots, reglets, recesses, sleeves, bolts, anchors, other inserts, and components of other work.

D. Install accessories in accordance with manufacturer's instructions, so they are straight, level, and plumb. Ensure items are not disturbed during concrete placement.

3.05 FORM CLEANING

A. Clean forms as erection proceeds, to remove foreign matter within forms.

B. Clean formed cavities of debris prior to placing concrete.

3.06 FORMWORK TOLERANCES

A. Construct formwork to maintain tolerances required by ACI 117, unless otherwise indicated.

3.07 FORM REMOVAL

A. Do not remove forms or bracing until concrete has gained sufficient strength to carry its own weight and imposed loads.

B. Loosen forms carefully. Do not wedge pry bars, hammers, or tools against finish concrete surfaces scheduled for exposure to view.

END OF SECTION

SECTION 032000
CONCRETE REINFORCING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Reinforcing steel for cast-in-place concrete.

B. Supports and accessories for steel reinforcement.

1.02 RELATED REQUIREMENTS

A. Section 016000 - Product Requirements

B. Section 017000 - Execution and Closeout Requirements

C. Section 031000 - Concrete Forming and Accessories.

D. Section 033000 - Cast-in-Place Concrete.

1.03 REFERENCE STANDARDS

A. ACI 301 - Specifications for Concrete Construction 2020.

B. ACI 318 - Building Code Requirements for Structural Concrete 2019, with Errata (2021).

C. ACI SP-66 - ACI Detailing Manual 2004.

D. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement 2020.

E. ASTM A704/A704M - Standard Specification for Welded Steel Plain Bar or Rod Mats for Concrete Reinforcement 2019, with Editorial Revision.

F. ASTM A775/A775M - Standard Specification for Epoxy-Coated Steel Reinforcing Bars 2019.

G. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete 2018a.

H. ASTM D3963/D3963M - Standard Specification for Fabrication and Jobsite Handling of Epoxy-Coated Steel Reinforcing Bars 2021.

I. CRSI (DA4) - Manual of Standard Practice 2009.

J. CRSI (P1) - Placing Reinforcing Bars 2011.

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Comply with requirements of ACI SP-66. Include bar schedules, shapes of bent bars, spacing of bars, and location of splices.

1.05 QUALITY ASSURANCE

A. Perform work of this section in accordance with ACI 301.
   1. Maintain one copy of each document on project site.

PART 2 PRODUCTS

2.01 REINFORCEMENT

A. Reinforcing Steel: ASTM A615/A615M, Grade 60 (60,000 psi) (420 MPa).
   1. Unfinished.
   2. Where required, Epoxy coated in accordance with ASTM A775/A775M.

B. Reinforcing Steel Mat: ASTM A704/A704M, using ASTM A615/A615M, Grade 40 (40,000 psi) (280 MPa) steel bars or rods, unfinished.

C. Steel Welded Wire Reinforcement (WWR): Galvanized, deformed type; ASTM A1064/A1064M.

D. Reinforcement Accessories:
   1. Tie Wire: Annealed, minimum 16 gauge, 0.0508 inch (1.29 mm).

2. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement. Accessories shall be placed in accordance with the CRSI Code unless otherwise noted.

2.02 FABRICATION

A. Fabricate concrete reinforcing in accordance with CRSI (DA4) - Manual of Standard Practice.

B. Welding of reinforcement is not permitted.

C. Fabricate and handle epoxy-coated reinforcing in accordance with ASTM D3963/D3963M.

D. Locate reinforcing splices not indicated on drawings at point of minimum stress.

PART 3 EXECUTION

3.01 PLACEMENT

A. Place, support and secure reinforcement against displacement. Do not deviate from required position.

B. Reinforcement shall be carefully formed to dimensions on the plans and as recommended in "Details & Detailing of Concrete Reinforcement" (ACI SP-66. Placement of bars shall conform to latest CRSI "Recommended Practice for Placing Reinforcement Bars"), details and detailing of concrete reinforcing ACI 315, and guide for concrete floor and slab construction ACI 302.1-R.

C. Do not displace or damage vapor barrier.

D. Metal reinforcement shall not be bent or straightened in a manner that will injure the material. Bars with kinks or bends not shown on the plans shall not be used.

E. Accommodate placement of formed openings.

F. Unless otherwise noted, lap continuous bars 36 diameters, but in any case' not less than 15". Horizontal bars shall continue around corners minimum of 15" unless otherwise noted. Provide corner bars equivalent in size and number to horizontal bars at corners and wall footings and lap with horizontal reinforcement.

G. Reinforcement shall be free from rust, scale and oil, and shall be accurately positioned and secured against displacement by using annealed wire of not less than No. 16 Ga., or suitable clips at intersections and shall be supported in a manner that will keep all metal away from the exposed surface of the concrete.

H. Comply with applicable code for concrete cover over reinforcement. The minimum concreted cover shall be: for concrete exposed to the weather 1-1/2" for #5 and smaller, 2" for #6 and larger; 3" for concrete on or below ground; 3/4" in slabs on grade, walls and joists, and 1-1/2" for beams, girders and columns.

I. Lap mesh a minimum of one grid spacing (plus 2") and ensure that mesh is completely embedded in the concrete approximately 2" from the bottom of the slab.

J. Dowel masonry foundation walls to concrete entrance aprons and footings minimum of 24 bar diameters into each wall and footing at 24" O.C. with (1) - #5 unless noted otherwise on the plans.

K. All reinforced pilasters, masonry door openings, bearing walls under beams, etc. shall have vertical foundation/footing dowels extended into walls for full height reinforcing. (From footing to top of masonry wall).

L. Dowel all exterior concrete slabs/walks into concrete porches and aprons with #4-bars 24" O.C. unless noted otherwise.

M. Provide reinforcement in top of interior wall footings centered under door and other openings equivalent in size and number to bottom reinforcement and 4 feet longer than opening.

N. Minimum reinforcement unless noted otherwise:
1. Walls 8" or less in thickness: #5 at 12" each way centered in wall.
2. Walls thicker than 8": #5 at 12" each way in each face.
3. Slabs on grade or slabs on joists: 6" x 6" W 1.4 x W 1.4 W.W.F.

O. Bond and ground all reinforcement to requirements of Section 260526.

END OF SECTION

SECTION 033000
CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Guard Posts

B. Miscellaneous concrete elements, including transformer and equipment pads.

C. Concrete curing.

1.02 RELATED REQUIREMENTS

A. Section 016000 - Product Requirements

B. Section 017000 - Execution and Closeout Requirements

C. Section 031000 - Concrete Forming and Accessories: Forms and accessories for formwork.

D. Section 032000 - Concrete Reinforcing.

E. Section 079200 - Joint Sealants: Products and installation for sealants and joint fillers for saw cut joints and isolation joints in slabs.

F. Section 321313 - Concrete Paving: Sidewalks, curbs and gutters.

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 302.1R - Guide to Concrete Floor and Slab Construction 2015.

E. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete 2000 (Reapproved 2009).

F. ACI 305R - Guide to Hot Weather Concreting 2020.

G. ACI 306R - Guide to Cold Weather Concreting 2016.

H. ACI 308R - Guide to External Curing of Concrete 2016.

I. ACI 318 - Building Code Requirements for Structural Concrete 2019, with Errata (2021).

J. ACI 347R - Guide to Formwork for Concrete 2014 (Reapproved 2021).

K. ASTM C33/C33M - Standard Specification for Concrete Aggregates 2018.

L. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens 2021.

M. ASTM C143/C143M - Standard Test Method for Slump of Hydraulic-Cement Concrete 2020.

N. ASTM C150/C150M - Standard Specification for Portland Cement 2021.

O. ASTM C260/C260M - Standard Specification for Air-Entraining Admixtures for Concrete 2010a (Reapproved 2016).

P. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete 2019.

Q. ASTM C1602/C1602M - Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete 2018.

R. ASTM E1155 - Standard Test Method for Determining FF Floor Flatness and FL Floor Levelness Numbers 2020.

S. ASTM E1155M - Standard Test Method for Determining FF Floor Flatness and FL Floor Levelness Numbers (Metric) 2014.

T. 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.

U. ASTM E1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill Under Concrete Slabs 2017.

V. ICRI 310.2R - Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, Polymer Overlays, and Concrete Repair 2013.

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements for submittal procedures.

B. Product Data: Submit manufacturers' data on manufactured products showing compliance with specified requirements and installation instructions.
   1. For curing compounds, provide data on method of removal in the event of incompatibility with floor covering adhesives.

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 318, Chapter 5 - Concrete Quality, Mixing and Placing.
   3. Indicate proposed mix design complies with admixture manufacturer's written recommendations.

D. Samples: Submit samples of underslab vapor retarder to be used.

E. Test Reports: Submit report for each test or series of tests specified.

1.05 QUALITY ASSURANCE

A. Perform work of this section in accordance with ACI 301 and ACI 318.
   1. Maintain one copy of each document on site.

B. Follow recommendations of ACI 305R when concreting during hot weather.

C. Follow recommendations of ACI 306R when concreting during cold weather.

1.06 WARRANTY

A. See Section 017800 - Closeout Submittals for additional warranty requirements.

PART 2 PRODUCTS

2.01 FORMWORK

A. Comply with requirements of Section 031000.

2.02 REINFORCEMENT MATERIALS

A. Comply with requirements of Section 032000.

2.03 CONCRETE MATERIALS

A. Cement: ASTM C150/C150M, Type I - Normal Portland type. Exterior cement shall be the same with Air-Entraining Admixture, Type 1A, for exterior walks, slabs, etc.
   1. Acquire cement for entire project from same source.

B. Fine and Coarse Aggregates: ASTM C33/C33M. The maximum size of aggregate shall not be larger than 3/4 of the minimum clear spacing between reinforcing bars.

C. Sand to consist of clean, hard, durable, un-coated grains free from salt, loam and clay. Sand shall be M.D.O.T., Class 2 NS, meeting ASTM C33/C33M.

D. Water: ASTM C1602/C1602M; clean, potable, and not detrimental to concrete.

2.04 ADMIXTURES

A. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.

B. Air Entrainment Admixture: ASTM C260/C260M.

2.05 ACCESSORY MATERIALS

A. Underslab and Crawl Space Vapor Retarder:
   1. Sheet Material: ASTM E1745, Class A; stated by manufacturer as suitable for installation in contact with soil or granular fill under concrete slabs. Visqueen polyethylene film min. 6 mil (.006") thick, as manufactured by the Visking Co., or approved substitute.
   2. Accessory Products: Vapor retarder manufacturer's recommended tape, adhesive, mastic, prefabricated boots, etc., for sealing seams and penetrations.

B. Tactile surface of ramps and crosswalks (sidewalk/paving transitions) with detectable warning strip shall be contrasting solid color pre-manufactured polymer composite tiles as manufactured by Armor-Tile Tactile Systems, 1-800-682-2525 or cast-iron plates as manufactured by East Jordan Iron Works (800) 231-3549. Install units directly into wet concrete without anchors or adhesives in strict compliance with manufacturer’s installation instructions. Color as selected by Architect.

2.06 BONDING AND JOINTING PRODUCTS

A. Water Stops – Multi-ribbed, keyway design and others as detailed on drawings, for non-limited movement as manufactured by Bometals, Inc., Powder Springs, GA, 800-862-4835 or approved equal.

B. Expansion joint to be fiberboard impregnated with not less than 35% nor more than 50% of asphalt by weight. Joint material to be full thickness of slab or joint and 1/4" thick interior and 1/2" thick exterior, height equal to slab thickness, with removable top section that will form 1/2 inch (13 mm) deep sealant pocket after removal.

2.07 CURING MATERIALS

A. Exterior Concrete Curing Compound, Naturally Dissipating: Clear, water-based, liquid membrane-forming compound; complying with ASTM C309.
   1. Products:
      a. Euclid Chemical Company; COLOR-CRETE CURE AND SEAL VOC: www.euclidchemical.com/#sle.
      b. W. R. Meadows, Inc; 1100-Clear: www.wrmeadows.com/#sle.

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. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended or required by manufacturer.

D. Normal Weight Concrete:
   1. Compressive Strength, when tested in accordance with ASTM C39/C39M at 28 days: 3,000 PSI; Footings, foundations, and interior slabs on grade – 3,500 PSI; Columns – 4,000 PSI; Exterior slabs, walks, curbs, and pads - 4,000 PSI air entrained w/ 4% - 6% air.

2.09 MIXING

A. Mixing, placing and curing shall conform to ACI 301, ACI 305-R hot weather concreting, and ACI 306-R (cold weather concreting) and ACI 304-R (measuring, mixing and placing). Ready mixed concrete may be used and shall be mixed and delivered in accordance with ASTM 094-55T. Delivery tickets shall be recorded for inspection showing batch No., mix admixtures, time, water content, etc. Submit copies to Architect.

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.

3.02 PREPARATION

A. All existing pavement, walks, curbs and other hard materials shall be saw cut in straight perpendicular/parallel lines in regular geometric patterns. Walk sections and other similar work shall be removed back to nearest control joint for replacement of the full section.

B. 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.

C. Verify that forms are clean and free of rust before applying release agent.

D. Coordinate placement of embedded items with erection of concrete formwork and placement of form accessories.

E. Prepare existing concrete surfaces to be repaired according to ICRI 310.2R, [_____].

F. In locations where new concrete is doweled to existing work, drill holes in existing concrete, insert steel dowels and pack solid with non-shrink grout or epoxy as specified.

G. Interior Slabs on Grade: Install vapor retarder under interior slabs on grade. Comply with ASTM E1643. Lap joints minimum 6 inches (150 mm). Seal joints, seams and penetrations watertight with manufacturer's recommended products and follow manufacturer's written instructions. Seal around all pipes and other projections piercing vapor barrier. It is suggested that pipe screeds on concrete leveling pads be used for striking off concrete to grade, as no screed stakes will be permitted to puncture vapor barrier. Spot tape in place to prevent movement while installing concrete.Repair damaged vapor retarder before covering.

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.

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. Notify Architect not less than 24 hours prior to commencement of placement operations.

D. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.

E. Ensure reinforcement, inserts, waterstops, embedded parts, and formed construction joint devices will not be disturbed during concrete placement.

F. Before concrete is placed, all equipment for mixing and transporting concrete shall be cleaned, all debris shall be removed from spaces to be occupied by the concrete, forms shall be thoroughly wetted and oiled, water shall be removed from excavations, and all work to be built into the concrete shall be in place, inspected and approved by the Architect.

G. Place concrete continuously without construction (cold) joints wherever possible; where construction joints are necessary, before next placement prepare joint surface by removing laitance and exposing the sand and sound surface mortar, by sandblasting or high-pressure water jetting.

H. Concrete shall be handled from the mixer to the place of final deposit as rapidly as possible by methods, which shall prevent the separation or loss of ingredients.

I. Weather Conditions:
   1. Concrete shall not be placed during rain, sleet or snow, to avoid adding to the water content or damage surface finish.

2. Below mean daily temperature of 40 degrees F.; concrete temperature as placed shall be 50 degrees F.; above mean daily temperature of 90 degrees F.; the concrete temperature shall not exceed 90 degrees F.
3. Cold Weather Concrete
   a. Contractor shall exercise precautions as outlined in ACI 306-R for concrete installed in cold weather. Included is all heating equipment, fiberglass insulation, visqueen, etc., as required to thoroughly protect the concrete.
   b. The Contractor shall notify the Architect of any concrete placement within twenty-four hours in advance. Failure to do so will result in concrete removal and replacement at the Contractor's expense.

J. Equipment Pads - As specified in the Mechanical/Electrical Divisions and noted on drawings, shall be installed in sizes and locations as coordinated with equipment to be supported. Forms shall be set and Contractor shall receive Architect's approval prior to pouring concrete.

K. Finish floors level and flat, unless otherwise indicated, within the tolerances specified elsewhere.

3.05 SLAB JOINTING

A. Locate joints as indicated on drawings.

B. Anchor joint fillers and devices to prevent movement during concrete placement.

C. Isolation Joints: Use preformed joint filler with removable top section for joint sealant, total height equal to thickness of slab, set flush with top of slab.

3.06 FLOOR FLATNESS AND LEVELNESS TOLERANCES

A. All floors must be free from irregularities, waviness, rough spots and any other defects, with maximum variation of 1/8" in 10' diameter.

B. Minimum F(F) Floor Flatness and F(L) Floor Levelness Values:
   1. Exposed to View and Foot Traffic: F(F) of 20; F(L) of 15, on-grade only.
   2. Under Thick-Bed Tile: F(F) of 20; F(L) of 15, on-grade only.
   3. Under Carpeting: F(F) of 25; F(L) of 20, on-grade only.
   4. Under Thin Resilient Flooring and Thinset Tile: F(F) of 35; F(L) of 25, on-grade only.

C. Measure F(F) Floor Flatness and F(L) Floor Levelness in accordance with ASTM E1155 (ASTM E1155M), within 48 hours after slab installation; report both composite overall values and local values for each measured section.

D. Correct the slab surface if composite overall value is less than specified and if local value is less than two-thirds of specified value or less than F(F) 13/F(L) 10.

E. Correct defects by grinding or by removal and replacement of the defective work. Areas requiring corrective work will be identified. Re-measure corrected areas by the same process.

3.07 CONCRETE FINISHING

A. Repair surface defects, including tie holes, immediately after removing formwork.

B. Unexposed Form Finish: Rub down or chip off fins or other raised areas 1/4 inch (6 mm) or more in height.

C. All exposed surfaces when forms are stripped shall be sealed with a light cement sand mixture. Thoroughly wet surfaces and rub with burlap to fill all air pockets and voids.

D. Chamfer all exposed edges ¾” x 45 degrees

E. Concrete Slabs: Finish to requirements of ACI 302.1R, and as follows:
   1. Screed floors to proper level, float and trowel. After floating to proper level, allow concrete to stand until all water sheen has disappeared. Do finish troweling with steel trowel after concrete is so hard that no mortar accumulates on the trowel and a ringing sound is produced as the trowel is drawn over the surface.
   2. Finish exterior walks and platforms with magnesium trowel and give a lightly swirled, non-slip trowel finish.
   3.

4. Other Surfaces to Be Left Exposed: Trowel as described in ACI 302.1R, minimizing burnish marks and other appearance defects.

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.

C. 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 ponding, water-saturated sand, water-fog spray, or saturated burlap.
2. Final Curing: Begin after initial curing but before surface is dry.

3.09 FIELD QUALITY CONTROL

A. An independent testing agency will perform field quality control tests, as specified in Section 014000 - Quality Requirements.

B. Provide free access to concrete operations at project site and cooperate with appointed firm.

C. Submit proposed mix design of each class of concrete to inspection and testing firm for review prior to commencement of concrete operations.

D. Tests of concrete and concrete materials may be performed at any time to ensure compliance with specified requirements.

E. Compressive Strength Tests: ASTM C39/C39M, for each test, mold and cure three concrete test cylinders. Obtain test samples for every 50 cubic yards (38.23 cu m) or less of each class of concrete placed.

F. Take one additional test cylinder during cold weather concreting, cured on job site under same conditions as concrete it represents.

G. Perform one slump test for each set of test cylinders taken, following procedures of ASTM C143/C143M.

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.

END OF SECTION

SECTION 040511
MORTAR AND MASONRY GROUT

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Mortar for masonry.

B. Grout for masonry.

1.02 RELATED REQUIREMENTS

A. Section 016000 - Product Requirements

B. Section 017000 - Execution and Closeout Requirements

C. Section 042000 - Unit Masonry: Installation of mortar and grout.

1.03 REFERENCE STANDARDS

A. ASTM C5 - Standard Specification for Quicklime for Structural Purposes 2018.

B. ASTM C91/C91M - Standard Specification for Masonry Cement 2018.

C. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete 2021b.

D. ASTM C144 - Standard Specification for Aggregate for Masonry Mortar 2018.

E. ASTM C207 - Standard Specification for Hydrated Lime for Masonry Purposes 2018.

F. ASTM C270 - Standard Specification for Mortar for Unit Masonry 2019a, with Editorial Revision.

G. ASTM C387/C387M - Standard Specification for Packaged, Dry, Combined Materials for Concrete and High Strength Mortar 2017.

H. ASTM C404 - Standard Specification for Aggregates for Masonry Grout 2018.

I. ASTM C476 - Standard Specification for Grout for Masonry 2020.

J. ASTM C780 - Standard Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry 2020.

K. ASTM C979/C979M - Standard Specification for Pigments for Integrally Colored Concrete 2016.

L. ASTM C1019 - Standard Test Method for Sampling and Testing Grout for Masonry 2020.

M. TMS 402/602 - Building Code Requirements and Specification for Masonry Structures 2016.

1.04 SUBMITTALS

A. See Section 013000 - 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. Reports: Submit reports on mortar indicating compliance of mortar to property requirements of ASTM C270 and test and evaluation reports per ASTM C780.

D. Reports: Submit reports on grout indicating compliance of component grout materials to requirements of ASTM C476 and test and evaluation reports to requirements of ASTM C1019.

E. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Maintain packaged materials clean, dry, and protected against dampness, freezing, and foreign matter.

1.06 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 AND GROUT APPLICATIONS

A. At Contractor's option, mortar and grout may be field-mixed from packaged dry materials, made from factory premixed dry materials with addition of water only, or ready-mixed.

B. Mortar Color: Shall be standard gray or if patching/addition, shall be tinted in color and ratio of mix adjusted as required throughout to match existing. Provide Sample for Architect's approval.

C. Mortar Mix Designs: ASTM C270, Property Specification.
   1. Mortar shall comply with ASTM C91 and C-270 in all respects of property and proportion specifications. Below grade and above grade shall be Type “M” or "S" - 1,500 PSI. Masonry cements will be permitted that meet or exceed ASTM C 1329-96. No anti-freeze agents are allowed. Tuckpointing and patching/repair mortars shall be similar in characteristics to what originally used. Prepare sample mix for Architect’s approval.
   2. Masonry below grade and in contact with earth: Type S.
   3. Exterior Masonry Veneer: Type N.
   4. Exterior Cavity Walls: Type S mortar with Type N pointing mortar.
   5. Interior, Loadbearing Masonry: Type N.

D. Grout Mix Designs:
   1. Grout – For use under bearing plates and anchor bolts shall be construction grade, non-ferrous, non-gaseous, non-shrink, #CG-86 as manufactured by W.R. Meadows, Seal Tite-Elgin, IL (1-847-683-4500). Foundation grout shall comply with ASTM C476 and have minimum strength of 2000 PSI.
   2. Bond Beams and Lintels: 3,000 psi (21 MPa) strength at 28 days; 8-10 inches (200-250 mm) slump; provide premixed type in accordance with ASTM C 94/C 94M.

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.

B. Packaged Dry Material for Grout for Masonry: Premixed cementitious materials and dried aggregates; capable of producing grout of the specified strength in accordance with ASTM C476 with the addition of water only.

C. Portland Cement: ASTM C150/C150M.
   1. Type: Type I - Normal; ASTM C150/C150M.
   2. Color: Standard gray.

D. Masonry Cement: ASTM C91/C91M.
   1. Type: Type N; ASTM C91/C91M.

E. Hydrated Lime: ASTM C207, Type S.

F. Quicklime: ASTM C5, non-hydraulic type.

G. Mortar Aggregate: ASTM C144.

H. Grout Aggregate: ASTM C404.

I. Pigments for Colored Mortar: Pure, concentrated mineral pigments specifically intended for mixing into mortar and complying with ASTM C979/C979M.

J. Water: Clean and potable.

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. Colored Mortar: Proportion selected pigments and other ingredients to match Architect's sample, without exceeding manufacturer's recommended pigment-to-cement ratio; mix in

accordance with manufacturer's instructions, uniform in coloration.

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.

2.04 GROUT MIXING

A. Mix grout in accordance with ASTM C94/C94M.

B. Thoroughly mix grout ingredients in quantities needed for immediate use in accordance with ASTM C476 for fine and coarse grout.

PART 3 EXECUTION

3.01 INSTALLATION

A. Lay units in full beds of mortar, plumb, true to line and level. Make joints uniform approximately 3/8" and as required to match existing for patching work. Remove units and relay in fresh mortar when shifting or realignment is necessary. Tool all "interior and exterior" joints above grade to slightly concave, smooth, compact surface, using correct tool. Exterior joints below grade shall be trowel pointed. All mortar shall be used within two hours after mixing or after it has begun to set.

B. Build in all required miscellaneous metal and other items. Set any and all loose lintels and bed structural bearings in mortar to line and level. Install all bolts, lintels, anchors, plates, etc., as shown or required. Provide all expansion and control joints in walls were shown. If not shown, maximum length of wall between control joints to be 20’ o.c. Expansion joints shall be installed at all areas were new masonry wall intersects existing wall and maximum 120’-0” o.c. Install Galvanized Metal Joint Stabilizer Anchor #1700 as manufactured by “Masonry Reinforcing Corp. of America 2’-0” o.c. vertically. Reinforcing shall not extend through expansion joints.

C. Do not lay mortar when temperature of surrounding atmosphere is below 32 degrees F. or is likely to fall below 32 degrees F. in the twenty-four hour period after laying, unless adequate protection is provided. At temperatures below 32 degrees F., provide adequate equipment for heating materials. Protect all finished work against freezing for a period of not less than forty-eight hours by means of enclosures, artificial heat or such other protective methods as may be required.

END OF SECTION

SECTION 042000
UNIT MASONRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Concrete block.

B. Clay facing brick.

C. Mortar and grout.

D. Reinforcement and anchorage.

E. Flashings.

F. Accessories.

1.02 RELATED REQUIREMENTS

A. Section 016000 - Product Requirements

B. Section 017000 - Execution and Closeout Requirements

C. Section 040511 - Mortar and Masonry Grout.

D. Section 055000 - Metal Fabrications: Loose steel lintels.

E. Section 071113 - Bituminous Dampproofing: Dampproofing parged masonry surfaces.

F. Section 071900 - Water Repellents: for Masonry Brick Units

G. Section 072100 - Thermal Insulation: Insulation for cavity spaces.

H. Section 072119 - Foamed-In-Place Insulation: Insulation for masonry unit cores

I. Section 072700 - Air Barriers: Air barriers applied to exterior face of backing sheathing or unit masonry substrate.

J. Section 078400 - Firestopping: Firestopping at penetrations of fire-rated masonry and at top of fire-rated walls.

K. Section 079200 - Joint Sealants: Sealing control and expansion joints.

1.03 REFERENCE STANDARDS

A. ASTM A951/A951M - Standard Specification for Steel Wire for Masonry Joint Reinforcement 2016, with Editorial Revision (2018).

B. ASTM C90 - Standard Specification for Loadbearing Concrete Masonry Units 2021.

C. ASTM C216 - Standard Specification for Facing Brick (Solid Masonry Units Made from Clay or Shale) 2021.

D. BIA Technical Notes No. 13 - Ceramic Glazed Brick Exterior Walls 2017.

E. TMS 402/602 - Building Code Requirements and Specification for Masonry Structures 2016.

F. UL (FRD) - Fire Resistance Directory Current Edition.

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements for submittal procedures.

B. Product Data: Provide data for masonry units, fabricated wire reinforcement, mortar, and masonry accessories.

C. Shop Drawings: Indicate pertinent dimensions, materials, anchorage, size and type of fasteners, and accessories for brickwork support system.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing work of the type specified and with at least five years of documented experience.

1.06 MOCK-UPS

A. Construct a masonry wall as a mock-up panel sized 8 feet (2.4 m) long by 6 feet (1.8 m) high; include mortar, accessories, structural backup, and flashings (with lap joint, corner, and end dam) in mock-up.

B. Locate where directed.

PART 2 PRODUCTS

2.01 CONCRETE MASONRY UNITS

A. Concrete Block: Comply with referenced standards and as follows:
   1. Size: Standard units with nominal face dimensions of 16 by 8 inches (400 by 200 mm) and nominal depths as indicated on drawings for specific locations.
   2. Masonry Units - Standard units with crushed stone aggregate, clean cut corners and true dimensions. Average percentage of moisture in units shall not exceed 40% of their total absorption at time of setting. Units shall have a minimum compressive strength of l,500 lbs. PSI of gross area at twenty-eight days or when delivered to the job. Provide special blocks for corners, concrete joints, bullnose, piers, control joints, etc., as may be required. Regular blocks will not be permitted for corners, even below grade. To conform to ASTM C-90-94b latest edition and TMS 402/602, Grade N-1. Firewall units shall meet N.C.M.A., equivalent thickness method and supplied in wall thickness noted.

2.02 BRICK UNITS

A. Facing Brick: ASTM C216, Type FBS Smooth, Grade SW.
   1. Color, size, and texture to match existing. Contractor to submit samples for Architect's review and approval prior to installation.
   2. Nominal size: As indicated on drawings.
   3. Special shapes: Molded units as required by conditions indicated, unless standard units can be sawn to produce equivalent effect.

2.03 MORTAR AND GROUT MATERIALS

A. Mortar and Grout: As specified in Section 040511.

2.04 REINFORCEMENT AND ANCHORAGE

A. Reinforcing - Horizontal wall reinforcing shall be #9 Ga. type 304 stainless steel trussed wires of not less than 3/16" diameter hook and eyes, manufactured by Hohmann & Barnard, Inc., Haven-Busch Co., or equal. Width shall be within 1" of surface of the walls - brick and block. For block only walls, or block/brick walls installed at same time, use (1) piece 120 Truss-Mesh. For block/brick walls installed separately when damp proofed, parged, and/or rigid insulation is installed, use (2) piece Hohmann & Barnard, Inc, Lox-All adjustable joint reinforcement 170-2X Truss Eye-Wire with #9 Ga. type 304 stainless steel wire truss and anchors 16" x 16" and separate hook loops of 3/16” thick, type 304 stainless steel. Reinforcing to be wider with cavity wall insulation, as the eyes shall project just through insulation so the insulation is held tight to the block with the tails of the brick hooks.

B. Anchor Bolts - Minimum 1/2" diameter x 12" hooked, or as noted on drawings. Material shall be as approved by the treated wood manufacturer, i.e, stainless steel, epoxy coated steel, etc.

C. Existing Masonry Anchors - shall be "Heckmann" or equal #133 vertical channel-slot bars anchored with #133-P bridge plate to existing block, 32" O.C. vertically. Install vertical slots 16" O.C. horizontally. Set new brick with keyed corrugated ties, #134, at 16"x16" O.C. Finish to be hot dipped galvanized.

2.05 FLASHINGS

A. Masonry Base Course & Sill Flashing – Shall be a composite of copper fabric flashing as manufactured by Wasco/York manufacturer series #201. Shall consist of 5 oz. full sheet of copper coated with reinforced glass/asphaltic fabric on both sides - permanently bonded together. No PVC flashing allowed.

2.06 ACCESSORIES

A. Expansion Joints- shall be #3300 Vertical as manufactured by Masonry Reinforcing Corp. of America with standard sash blocks. Both sides of joint to be rod filled and caulked. Install angle or galvanized joint stabilizer as shown on drawings.

B. Control Joints – Shall be Block-Tite Formed Rubber “T” #AA 2005, as manufactured by AA Wire with standard sash blocks. Both sides of joint to be rod filled and caulked.

C. Mortar Net - Thickness of cavity (minimum 0.4" thick) x 10" high x 5' long, as manufactured by Mortar Net USA LTD, Highland, Indiana 46322 (1-800-664-6638), or approved equal.

D. Weep Tubes - #3600I stainless steel filter and wick as manufactured by Wirebond, 400 Rountree Rd., Charlotte, NC. 28217 or approved Equal

2.07 CLEANING

A. Shall be as recommended by the masonry supplier, non-toxic, non-hazardous, equal to Sure Klean, as manufactured by Prosoco. Change cleaner type and adjust mix as required to clean different masonry/stone/concrete/clay materials. Submit type/mix for each masonry material for approval in the shop drawing phase.

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. Provide temporary bracing during installation of masonry work. Maintain in place until building structure provides permanent bracing.

3.03 PLACING AND BONDING

A. BRICK UNITS
   1. Lay all units in running bond with all work laid in modular dimensions or as shown on drawings. Pieces shall be kept to a minimum. Note any special brick work - soldier course bands, Rolok sills, etc. Miter sills, headers, corners, etc., to eliminate exposure of unfinished brick surfaces. Where applicable lay all units in bond to match existing.
   2. Lay solid masonry units in full bed of mortar, with full head joints, uniformly jointed with other work.
   3. Thoroughly wet "high suction" bricks before laying to obtain proper bond. Do not lay dry.
   4. Brick/Mortar Patching - Existing brick shall be re-worked as noted to allow for new framing to anchor to existing. Also patch/replace brick in existing wall where openings are filled-in. Tooth in all work, remove all cut/non-full size units, and lay up new work to provide a final uniform appearance without evidence of patching. Install horizontal dowels/rebars into existing horizontal reinforcing and other anchors, for proper lateral stability.
   5. When installing brick over wood studs, anchor with brick ties 16" on center vertically and horizontally. Anchor ties to wood studs (thru sheathing) with 1-1/2" galvanized roofing nails. Bend ties down toward brick to drain and not catch/trap water at bend.
   6. Brick Replacement - In all areas of existing building where left exposed to view on exterior, the existing brick is to be removed and new added. Provide and install new anchoring system with slotted channels and keyed ties with anchors spaced 16"x16" O.C. Install brick with weeps, flashings, mortar net, asphaltic water proofing, etc. All as specified for new.

B. CONCRETE MASONRY UNITS
   1. Lay all block units in running bond with all work laid in modular dimensions or as shown on drawings. Pieces shall be kept to a minimum coursing to match existing.

2. Provide neatly cut and fitted units around all plumbing pipes, electrical and similar items. Install PVC sleeves around pipes, tiles, etc., below or above grade.
3. All walls having full frost foundations shall be toothed into all intersecting walls at every other course, including the interior walls meeting exterior walls, porch foundations, etc. All interior walls bearing on slabs abutting walls bearing on foundations shall not be toothed with masonry. Provide lateral stability using corrugated galvanized wall ties 16" on center vertically, while allowing vertical movement. All intersecting walls bearing on slab shall be toothed similar to all walls bearing on foundations.
4. Verify location and size of all steel lintels, jambs, beams and other steel or mechanical work as supplied by others and install same. Cut all openings into existing masonry and rework as noted/required for new grills, ducts, windows, doors, enlarged openings, etc.
5. Provide and install bullnose, rounded corner, blocks at all doorways, outside corners, openings, etc., when not covered by drywall and where called for on the drawings. Verify all conditions with types of door frames and steel jambs specified elsewhere.
6. Install foundation block working around all vertical reinforcing bars, extending from footings. Grout cores of entire foundation blocks solid.
7. Brick seats shall be constructed with 12"x 8"x 16" grade block, 8"x 8" x 16" semi solid, or all exposed cores shall be filled with grout for solid flat bearing of fabric flashing and brick. Stop brick seats as required so a minimum of (2) courses fall below exterior finish grade.
8. Provide and install a bond beam around entire building perimeter at height as noted on drawings, with steel reinforcing and grouted full. Use special bond beam masonry units.
9. For small piers, pilasters, or corners having concentrated bearing, grout blocks full height to footing 24" from bearing edge and rod with 2-#5 vertical bars minimum with #2 horizontal stirrups 16" o.c. vertically, or as detailed. Pilasters shall be laid at same time as wall and integral with same.

3.04 WEEPS/CAVITY VENTS

A. Install weeps in veneer and cavity walls at 24 inches (600 mm) on center horizontally on top of through-wall flashing above shelf angles and lintels and at bottom of walls.

3.05 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 control panels continuously throughout full height of exterior masonry cavities during construction of exterior wythe, complying with manufacturer's installation instructions.

3.06 REINFORCEMENT AND ANCHORAGE - GENERAL, SINGLE WYTHE MASONRY, AND CAVITY WALL MASONRY

A. Reinforce all masonry walls below and above grade with trussed wires at every 2nd course (16") and shall be so laid out that one layer shall come in the course above lintels. Longitudinal wire shall be lapped not less than 12" at corners, cut inside rod and bend to proper angle. At each doorway reinforce first two courses above opening and reinforcing extending not less than 3" beyond each jamb. Where concrete block is to be waterproofed on exterior and before installing brick, install (2) piece type horizontal reinforcing, being sure to install full horizontal reinforcing in block as well as brick with "U" type wire anchors 16"x 16" on center.

B. Set all hooked anchors for wood framing/roof plates - shall be minimum 4'-0" on center; 2'-0" from corner; 1'-0" from edges of all doors/openings, etc. Grout cores of block solid.

3.07 MASONRY FLASHINGS

A. Whether or not specifically indicated, install masonry flashing to divert water to exterior at all locations where downward flow of water will be interrupted.

B. Base Course Flashing - Shall be installed in strict accordance with manufacturer’s specifications and recommendations and detailed drawings. Fabric must be laid in fresh mortar bed – above and below fabric without voids. Fabric shall be lapped at least 6" at all end joints

with a liberal coating of bonding agent. Ample mastic shall be used at all turn-ups and at all locations to thoroughly bond the fabric to the brick. Install at brick seat, above door and window lintels, under windowsills approximately 8”, 12” above projected rooflines, and other condensation ledges in areas as recommended by the manufacturer and shown on the drawings. Top edge of fabric shall be laid into block coursing a minimum of 16" above weep ledge. On wood framing, install under wood sill plate and lap with sheathing vapor barrier. At all discontinuous ends, such as at the ends of windows, beams, doors, etc., form end dams by turning up fabric to prevent water from spilling over ends. Angle cut ends at 30° ± slope to reduce exposed edge of dam in vertical exposed face of masonry. The fabric shall be fully supported on bottom side without dips and laid to drain water outward. Fill all voids/cavities below flashing with mortar. Weeps shall be installed on top of flashing 24” o.c. and at all ends.

3.08 INSULATION

A. See Division #7 for masonry insulation. Contractor shall notify and receive Architect's approval of having insulation full height in walls before top of wall is capped, bond beam is placed, or other features are installed where blocked from view. Protect tops of all filled walls with poly covering from elements of the weather. All exterior block walls receive foam-in-place insulation.

3.09 LINTELS

A. Install all structural steel hooked bearing plates, joist stirrups, etc. Under all steel beam and lintel bearings, grout blocks solid for a minimum of three courses below and 24" back from bearing edge.

B. Install all steel lintels as noted on drawings.

C. Provide and install any miscellaneous pre-cast lintels for minor items (mechanical and electrical), if no steel lintel is specified. Lintels shall be constructed of 2,500# concrete, manufactured from same materials and texture as wall to comply with reinforcing standards as established by the Concrete Products Association of Michigan..

3.10 CONTROL AND EXPANSION JOINTS

A. Control joints and expansion joints shall be in locations and constructed as noted on the drawings. Rod and grout block cores on each side with minimum #4 re-bars. Install formed rubber unit continuous from grade to roof and full width of wall, less depth for foam rod and caulking both sides. Barb of rubber unit shall extend into masonry units (sash blocks).

B. Do not continue horizontal joint reinforcement through control or expansion joints.

C. Size control joints as indicated on drawings; if not indicated, 3/4 inch (19 mm) wide, fullwidth of wall, max. 40'-0" o.c. spacing as directed by architect.

D. Control joints at juncture of new walls to existing shall be laterally braced, using full height steel angle bolted to existing - minimum 2'-0" on center, using 1/2" diameter expansion anchors. Install formed rubber cushion adjacent to angle and fill remaining void/core of masonry unit with grout and re-rod. Separate with felt layer for isolation and movement.

3.11 BUILT-IN WORK

A. As work progresses, install built-in metal door frames and glazed frames, work hose bibs, gas vents, electrical outlets, 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.

3.12 PARGING

A. Seal all blocks below grade on exterior side with 3/8" parge coating of portland cement mortar. Below grade shall in addition be sealed with asphaltic waterproofing compound. No voids or pores shall be visible. Above grade block in cavity walls shall be sealed as a vapor barrier with asphaltic damproofing without parge coating. (See Division #7).

3.13 CLEANING

A. Clean brick in strict conformance with cleaner manufacturer's specifications and recommendations. Leave surfaces free from mortar and other stains at completion of work. Use mild cleaning solution to wash down brickwork and excess mortar. Install cleaner/wash a sample area for Owner/Architect approval before proceeding with remaining work. Do not permit cleaner to come in contact with metal or aluminum. Wire brush as required to assist cleaning. Thoroughly rinse brick with water after washing.

END OF SECTION

SECTION 050513
SHOP-APPLIED COATINGS FOR METAL

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Surface preparation.

B. Shop Applied Coatings for Metal

C. Scope:
   1. This Contractor shall carefully remove the metal louvers, registers, grilles, fin-tube enclosures and unit heater cabinets scheduled to be removed and re-installed.
   2. Demolished or salvageable items shall all be removed by other trades prior to beginning this work.

1.02 RELATED REQUIREMENTS

A. Section 016000 - Product Requirements

B. Section 017000 - Execution and Closeout Requirements

1.03 REFERENCE STANDARDS

A. American Architectural Manufacturers Association (AAMA):
   1. AAMA 621 - Voluntary Specification for High Performance Organic Coatings on Coil Coated Architectural Hot Dipped Galvanized (HDG) and Zinc-Aluminum Coated Steel Substrates
   2. AAMA 2603 - Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels
   3. AAMA 2604 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions
   4. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions
   5. AAMA 643 – Voluntary Specification, Performance Requirements and Test Procedures for Solar Reflectance Finishes

B. ASTM International (ASTM):
   1. ASTM B 117 - Practice for Operating Salt Spray (Fog) Apparatus.
   2. ASTM G 85 annex 5 – Modified Salt Spray Cyclic Fog Test.
   3. ASTM D 7091 - Standard Test Method for Nondestructive Measurement of Dry Film Thickness of Nonconductive Coatings Applied to a Nonferrous Metal Base.
   4. ASTM D 1654 - Standard Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments.
   5. ASTM D 2244 - Test Method for Calculation of Color Differences from Instrumentally Measured Color Coordinates.
   6. ASTM D 2247 - Standard Practice for Testing Water Resistance of Coatings in 100% Relative Humidity.
   7. ASTM D 3363 - Standard Test Method for Film Hardness by Pencil Test.
   8. ASTM D 4214 - Test Methods for Evaluating Degree of Chalking of Exterior Paint Films.
   9. ASTM E 1980 - Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces.

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements for submittal procedures.

B. Product Data: For each type of coating product specified.

C. Samples for Selection: For each color, gloss specified.

D. Samples for Verification: For each coating product, for each color, gloss and texture specified, on

E. specified substrate.

F. Product test reports.

G. Qualifications: For shop-applied coatings Applicator.

H. Maintenance data.

I. Warranty: Sample of special warranty.

1.05 QUALITY ASSURANCE

A. Applicator Qualifications: Coating manufacturer's approved certified applicator, equipped, trained and approved for application of coatings required for this Project, and is approved to provide warranty specified in this Section.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver, unload and store shop-coated items so that they remain free of damage or deformation. Package and protect items during shipping and handling. Protect stored items from water; stack to facilitate drainage. Keep shop-coated items out of contact with materials that may adversely affect the coating.

B. Protect shop-coated items with protective covering until installed.

C. Handling: Maintain a clean, dry storage area to prevent contamination or damage to materials.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Basis of Design Products: Subject to compliance with requirements, provide Sherwin-Williams Company (The) products indicated; www.sherwin-williams.com/#sle.

B. Comparable Products: Products of approved manufacturers will be considered in accordance with 016000 - Product Requirements.

2.02 COATINGS

A. Powdura Polyester TGIC Powder Coating, color as selected by architect from manufacturer standard colors.

B. Material shall be the "top of the line" quality of each manufacturer used. Materials shall meet all State requirements for flame spread, smoke density, and fuel contribution. A notarized affidavit certifying this rating must be given to the Architect.

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 affect proper application.

3.02 PREPARATION

A. General - Before cleaning and painting, remove hardware, accessories, plates and similar items, or provide ample protection of such items. Upon completion of each space, re-install all removed above items. Use only skilled mechanics for removing and re-installation of above items.

B. All removed items scheduled for powder coating shall be identified in such a manner as to insure the re-installation in the same location as where it was removed.

C. All surfaces of items to be powder coated shall cleaned to remove existing painted finishes using the basic standards for preparing metal substrates in a joint effort between the Society for Protective Coatings (SSPC) and the National Association of Construction Engineers International (NACE) as recommended by the coating manufacturer.

D. Substrates shall be free of grease, oil, dirt, fingerprints, drawing compounds, any contamination, and surface preparation treatments to ensure optimum adhesion and coating performance properties. The use of a chemical conversion coating prior to the application of a powder coating is strongly recommended.

E. Schedule - Coordinate with the Owner/General Contractor the sequence of this work so as not to interfere with Owners schedules and that of other trades.

3.03 APPLICATION

A. All materials shall be powder coated using suitable electrostatic equipment in strict conformance with manufacturer's specifications.

B. Finished work shall be uniform, of approved color, smooth and free from runs, sags and visible defects.

C. See other divisions for work to follow and make sure this work will not affect their work.

3.04 PROTECTION

A. Protect finished coatings from damage until completion of project.

END OF SECTION

SECTION 051200
STRUCTURAL STEEL FRAMING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Structural steel framing members.

B. Structural steel support members and struts.

C. Base plates, shear stud connectors and expansion joint plates.

D. Grouting under base plates.

1.02 RELATED REQUIREMENTS

A. Section 016000 - Product Requirements

B. Section 017000 - Execution and Closeout Requirements

C. Section 053100 - Steel Decking: Support framing for small openings in deck.

D. Section 055000 - Metal Fabrications: Steel fabrications affecting structural steel work.

1.03 REFERENCE STANDARDS

A. AISC (MAN) - Steel Construction Manual 2017.

B. AISC 303 - Code of Standard Practice for Steel Buildings and Bridges 2016.

C. ASTM A36/A36M - Standard Specification for Carbon Structural Steel 2019.

D. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless 2020.

E. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware 2016a.

F. ASTM A242/A242M - Standard Specification for High-Strength Low-Alloy Structural Steel 2013 (Reapproved 2018).

G. ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength 2021.

H. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes 2021a.

I. ASTM A563 - Standard Specification for Carbon and Alloy Steel Nuts 2021a.

J. ASTM A563M - Standard Specification for Carbon and Alloy Steel Nuts (Metric) 2021a.

K. ASTM A992/A992M - Standard Specification for Structural Steel Shapes 2020.

L. ASTM F436/F436M - Standard Specification for Hardened Steel Washers Inch and Metric Dimensions 2019.

M. 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 2021.

N. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination 2020.

O. RCSC (HSBOLT) - Specification for Structural Joints Using High-Strength Bolts; Research Council on Structural Connections 2020.

P. SSPC-SP 3 - Power Tool Cleaning 2018.

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements, for submittal procedures.

B. Shop Drawings:
   1. Indicate profiles, sizes, spacing, locations of structural members, openings, attachments, and fasteners.

2. Connections not detailed.
3. Indicate cambers and loads.
4. Indicate welded connections with AWS A2.4 welding symbols. Indicate net weld lengths.

C. Manufacturer's Mill Certificate: Certify that products meet or exceed specified requirements.

D. Steel fabricator to design beam connections for reactions indicated or where not indicated, one half of total uniform load capacity of a simple beam for span given as specified in latest AISC Manual of steel construction. Design connections of bracing members for member forces indicated, or where not indicated, for the full tensile and compressive capacities of the bracing member.

E. Members shall be of dimensions and weights shown on drawings. Substitutions of other sections may be made, subject to the Architect's approval and provided that no change is made to architectural design and that the substituted sections are at least equal to the original design in strength and stability.

1.05 QUALITY ASSURANCE

A. Fabricate structural steel members in accordance with AISC (MAN) "Steel Construction Manual."

B. Structural steel members designated as architecturally-exposed structural steel (AESS) to also comply with Section 051213.

C. Maintain one copy of each document on site.

PART 2 PRODUCTS

2.01 MATERIALS

A. Structural steel shall conform to the latest edition of Specifications for Structural Steel Buildings allowable stress and plastic design, AISC; allowable stress design of single-angle members, AISC; structural joints using ASTM A325 or A 490 bolts, RCSC; standard code of practice, AISC.

B. Steel Angles and Plates: ASTM A36/A36M.

C. Steel W Shapes and Tees: ASTM A992/A992M.

D. Rolled Steel Structural Shapes: ASTM A992/A992M.

E. Steel Shapes, Plates, and Bars: ASTM A242/A242M high-strength, corrosion-resistant structural steel.

F. Cold-Formed Structural Tubing: ASTM A500/A500M, Grade B.

G. Pipe: ASTM A53/A53M, Grade B, Type E or S.

H. Structural Bolts and Nuts: Carbon steel, ASTM A307, Grade A and galvanized in compliance with ASTM A153/A153M Class C.

I. High-Strength Structural Bolts, Nuts, and Washers: ASTM A325 or ASTM F3125/F3125M, Type 1, with matching compatible ASTM A563 or ASTM A563M nuts and ASTM F436/F436M washers.

J. Anchor Bolts - ASTM A307 or A36

K. Furnish angle lintels for new doors, windows, miscellaneous openings, mechanical equipment and duct openings as noted on drawings or required to complete this work. Steel angles, unless noted otherwise, to be minimum (2) – 3 ½" x 3 ½" x ¼" angles for 4' spans and (2) 5 ½" x 3 ½" x ¼" angles for 8' spans in 8" thick walls and (3) of same angles in 12" thick walls. For roof openings, unless noted otherwise, provide and install 'H' frame of 3 ½" x 3 ½" x ¼" angle spanning between existing structural members.

L. Furnish adequate bearing plates with anchors for all steel beams bearing on masonry. Minimum of 6" bearing of all lintels, beams, etc., on masonry; 4" minimum bearing on steel, unless noted otherwise. Provide all brick angle lintels for all windows, doors and miscellaneous openings.

M. Provide all hangers, attachments, etc., in connection with lintels and other structural steel.

N. Grout: ASTM C1107/C1107M; Non-shrink; premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents.
   1. Minimum Compressive Strength at 48 Hours: 2,000 pounds per square inch (13.7 MPa).
   2. Minimum Compressive Strength at 28 Days: 7,000 pounds per square inch (48 MPa).

2.02 FABRICATION

A. Fabricate structural steel in accordance with current edition of Specifications adopted by the American Institute of Steel Construction. Do all punching and drilling of steel required for attachment of other materials thereto.

B. Shop fabricate to greatest extent possible.

2.03 FINISH

A. Prepare structural component surfaces in accordance with SSPC-SP 3.

B. All steel beams, miscellaneous steel, etc.(other thane fireproofed, field welded, or high strength bolted.), shall have one heavy coat of rust inhibitive paint applied in the shop. It shall be clean of all rust, scale, sand and other foreign matter before painting. Patch paint in the field in case of damage due to welding, installation, etc. Note: any concealed lintels/beams built into masonry or concrete, shall be field painted with (2) coats of alkyd paint before installation.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that conditions are appropriate for erection of structural steel and that the work may properly proceed.

3.02 ERECTION

A. Erect structural steel in compliance with AISC 303.

B. Allow for erection loads and provide sufficient temporary bracing to maintain structure in safe condition, plumb, and in true alignment until completion of erection and installation of permanent bracing.

C. Connections, except as otherwise noted or shown, shall be riveted or welded; field connections may be bolted, unless otherwise noted. Bolted field connections for main members only shall be made with 3/4" ASTM A325 high strength bolts and shall conform to the "Specifications for Structural Joints, using ASTM A325 or A490 Bolts". All other connections may be made with 3/4" standard machine bolts meeting ASTM A307. Shop connections may be riveted, welded or bolted with high strength bolts. Beams shall frame into the side of columns, unless shown otherwise on plans.

D. Use carbon steel bolts only for temporary bracing during construction, unless otherwise specifically permitted on drawings. Install high-strength bolts in accordance with RCSC (HSBOLT) "Specification for Structural Joints Using High-Strength Bolts".

E. Grout solidly between column plates and bearing surfaces, complying with manufacturer's instructions for non-shrink grout. Trowel grouted surfaces smooth, splaying neatly to 45 degrees.

END OF SECTION

SECTION 055000
METAL FABRICATIONS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Shop fabricated steel and aluminum items.

B. Any miscellaneous metals as required for installation of work by other trades. Included are clip angles, closure plates, nosings, door jamb channels, guard posts, etc., in sizes and type as shown.etc.

1.02 RELATED REQUIREMENTS

A. Section 016000 - Product Requirements

B. Section 017000 - Execution and Closeout Requirements

1.03 REFERENCE STANDARDS

A. ASTM A276/A276M - Standard Specification for Stainless Steel Bars and Shapes 2017.

B. ASTM A36/A36M - Standard Specification for Carbon Structural Steel 2019.

C. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless 2020.

D. ASTM A283/A283M - Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates 2018.

E. ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength 2021.

F. ASTM A501/A501M - Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing 2021.

G. ASTM A554 - Standard Specification for Welded Stainless Steel Mechanical Tubing 2021.

H. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar 2015.

I. ASTM B210/B210M - Standard Specification for Aluminum and Aluminum-Alloy Drawn Seamless Tubes 2019a.

J. ASTM B211/B211M - Standard Specification for Aluminum and Aluminum-Alloy Rolled or Cold Finished Bar, Rod, and Wire 2019.

K. ASTM B209/B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate 2021a.

L. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes 2021.

M. SSPC-Paint 15 - Steel Joist Shop Primer/Metal Building Primer 2004.

N. SSPC-Paint 20 - Zinc-Rich Coating (Type I - Inorganic, and Type II - Organic) 2019.

1.04 SUBMITTALS

A. See Section 013000 - 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.

PART 2 PRODUCTS

2.01 MATERIALS - STEEL

A. Steel Sections: ASTM A36/A36M.

B. Steel Tubing: ASTM A501/A501M hot-formed structural tubing.

C. Plates: ASTM A283/A283M.

D. Pipe: ASTM A53/A53M, Grade B Schedule 40, black finish.

E. Stainless Steel, General: ASTM A666, Type 304.

F. Stainless Steel Tubing: ASTM A554, Type 304, 16 gauge, 0.0625 inch (1.59 mm) minimum metal thickness, 1-1/2 inch (38 mm) diameter.

G. Stainless Steel Bars, Shapes and Moldings: ASTM A276/A276M, Type 304.

H. Mechanical Fasteners: Same material as or compatible with materials being fastened; type consistent with design and specified quality level.

I. Bolts, Nuts, and Washers: ASTM A307, Grade A, plain.

J. Shop and Touch-Up Primer: SSPC-Paint 15, complying with VOC limitations of authorities having jurisdiction.

K. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, Type I - Inorganic, complying with VOC limitations of authorities having jurisdiction.

2.02 MATERIALS - ALUMINUM

A. Extruded Aluminum: ASTM B221 (ASTM B221M), 6063 alloy, T6 temper.

B. Sheet Aluminum: ASTM B209/B209M, 5052 alloy, H32 or H22 temper.

C. Aluminum-Alloy Drawn Seamless Tubes: ASTM B210/B210M, 6063 alloy, T6 temper.

D. Aluminum-Alloy Bars: ASTM B211/B211M, 6061 alloy, T6 temper.

E. Bolts, Nuts, and Washers: Stainless steel.

2.03 FABRICATION

A. Fit and shop assemble items in largest practical sections, for delivery to site.

B. Fabricate items with joints tightly fitted and secured.

C. 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.

D. Furnish components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

2.04 FABRICATED ITEMS

A. Fabricate metal work with sharp lines, angles, true and plumb-weld all connections, not otherwise shown, and fill smooth for painting any exposed surfaces.

B. Bollards: Steel pipe, concrete filled, crowned cap, as detailed; prime paint finish.

C. Joist Hangers: Strap anchors, fabricated with sheet steel, 18 gauge, 0.0478 inch (1.21 mm) minimum base metal thickness; galvanized finish.

D. Ledge Angles, Shelf Angles, Channels, and Plates Not Attached to Structural Framing: For support of metal decking; prime paint finish.

PART 3 EXECUTION

3.01 INSTALLATION

A. Installation of metal shall be compatible with the adjacent materials. Provide any necessary spacers, isolators, shims, anchors, etc.

B. Install items plumb and level, accurately fitted, free from distortion or defects.

C. Provide for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.

D. Obtain approval prior to site cutting or making adjustments not scheduled.

E. Turn over to Masonry/Concrete Contractor all metal items required to be installed into their work. Provide all templates, instructions, and other data to insure proper installation.

F. All members shown or required to have anchors embedded in masonry or concrete (floor nosings, door jambs, cantilevered beams, etc.) shall be shop assembled and welded. Unless noted otherwise, minimum anchors shall be 1/2" diameter x 12" with hooked end at 2'-0" on center and back welded full circumference of anchor.

G. Install guard posts as noted on drawings. See Division #3 for setting in concrete footing.

END OF SECTION

SECTION 061000
ROUGH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Roof-mounted curbs.

B. Roofing nailers.

C. Preservative treated wood materials.

D. Fire retardant treated wood materials.

E. Communications and electrical room mounting boards.

F. Concealed wood blocking, nailers, and supports.

1.02 RELATED REQUIREMENTS

A. Section 016000 - Product Requirements

B. Section 017000 - Execution and Closeout Requirements

1.03 REFERENCE STANDARDS

A. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware 2016a.

B. ASTM C557 - Standard Specification for Adhesives for Fastening Gypsum Wallboard to Wood Framing 2003 (Reapproved 2017).

C. ASTM D3498 - Standard Specification for Adhesives for Field-Gluing Wood Structural Panels (Plywood or Oriented Strand Board) to Wood Based Floor System Framing 2019a.

D. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials 2021a.

E. AWPA U1 - Use Category System: User Specification for Treated Wood 2021.

F. PS 20 - American Softwood Lumber Standard 2021.

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements for submittal procedures.

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.

B. Fire Retardant Treated Wood: Prevent exposure to precipitation during shipping, storage, and installation.

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.

2.02 DIMENSION LUMBER

A. Sizes: Nominal sizes as indicated on drawings, S4S.

B. Moisture Content: S-dry or MC19.

C. Rough lumber shall be grade #2 or better, dressed four sides, of spruce, pine, douglas fir, or equal, in shapes and sizes as required.

D. Structural lumber shall be grade #2 or better kiln dried, 1,000 psi bending, unless noted elsewhere (spruce/pine/fir).

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. General Plywood shall be CDX Grade, with exterior glue - such as 1/2" thick shall be 4 ply.

2.04 ACCESSORIES

A. Fasteners and Anchors:
   1. Metal and Finish: Hot-dipped galvanized steel complying with ASTM A153/A153M for high humidity and preservative-treated wood locations, unfinished steel elsewhere.
   2. Drywall Screws: Bugle head, hardened steel, power driven type, length three times thickness of sheathing.
   3. Anchors: Toggle bolt type for anchorage to hollow masonry.
   4. Install all work with nails, spikes, screws, joist hangers and similar items of approved sizes and types. Exterior framing anchors to be galvanized.

B. Construction Adhesives: Adhesives complying with ASTM C557 or ASTM D3498.

2.05 FACTORY WOOD TREATMENT

A. Treated Lumber and Plywood: Comply with requirements of AWPA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.
   1. Fire-Retardant Treated Wood: Mark each piece of wood with producer's stamp indicating compliance with specified requirements.
   2. Preservative-Treated Wood: Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWPA standards.

B. Fire Retardant Treatment:
   1. Interior Type A: AWPA U1, Use Category UCFA, Commodity Specification H, low temperature (low hygroscopic) type, chemically treated and pressure impregnated; capable of providing a maximum flame spread index of 25 when tested in accordance with ASTM E84, with no evidence of significant combustion when test is extended for an additional 20 minutes. Each piece of lumber and plywood shall be U.L. labeled. Install per code requirements.
      a. Kiln dry wood after treatment to a maximum moisture content of 19 percent for lumber and 15 percent for plywood.
      b. Treat rough carpentry items as indicated .
      c. Do not use treated wood in applications exposed to weather or where the wood may become wet.

C. Preservative Treatment:
   1. Preservative Pressure Treatment of Lumber Above Grade: AWPA U1, Use Category UC3B, Commodity Specification A using waterborne preservative.
      a. Kiln dry lumber after treatment to maximum moisture content of 19 percent.
      b. Treat lumber exposed to weather.
      c. Treat lumber in contact with roofing, flashing, or waterproofing.
      d. Treat lumber in contact with masonry or concrete.
   2. Preservative Pressure Treatment of Plywood Above Grade: AWPA U1, Use Category UC2 and UC3B, Commodity Specification F using waterborne preservative.
      a. Kiln dry plywood after treatment to maximum moisture content of 19 percent.
   3. Preservative Pressure Treatment of Lumber in Contact with Soil: AWPA U1, Use Category UC4A, 1,200 psi construction grade, Commodity Specification A using waterborne

preservative.

a. Preservative for Field Application to Cut Surfaces: As recommended by manufacturer of factory treatment chemicals for brush-application in the field.
b. Restrictions: Do not use lumber or plywood treated with chromated copper arsenate (CCA) in exposed exterior applications subject to leaching.

PART 3 EXECUTION

3.01 INSTALLATION - GENERAL

A. Select material sizes to minimize waste.

B. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

C. Install all temporary guardrails, walks, forms, bracing, shoring, etc., as required for the work or safety.

D. Install any necessary temporary enclosures for door openings, barricades, etc., to close off work for security or moisture/temperature protection.

E. See Concrete Division #3 for formwork.

F. Unless otherwise noted, install all nailers or plates on beams or masonry walls per Michigan Building Code and secure with 1/2" diameter bolts, spaced 4'-0" on center with (2) anchors minimum per piece and not closer than 4” or greater than 12” from each end. Provide and install nuts/washers/plates of proper size per code.

G. Provide all necessary framing around ductwork, registers, vents, etc. Included are nailers and blocking for drywall, cabinets, grab bars, handrails, toilet partitions, window drapes (2x12 each side of window), etc.

H. Provide and install fire blocking in walls at 10'-0" height, at ceiling lines, behind soffits, around modular tub/shower units, etc., as noted or required by code. Draft stops shall consist of 1/2" CDX plywood.

3.02 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 metal stud walls, provide continuous blocking around door and window openings for anchorage of frames, securely attached to stud framing.

D. 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.

E. Where ceiling-mounting is indicated, provide blocking and supplementary supports above ceiling, unless other method of support is explicitly indicated.

F. Provide the following specific nonstructural framing and blocking:
1. Cabinets and shelf supports.
2. Wall brackets.
3. Toilet Partitions.
4. Handrails.
5. Grab bars.
6. Towel and bath accessories.
7. Wall-mounted door stops.
8. Chalkboards and marker boards.
9. Wall paneling and trim.
10. Joints of rigid wall coverings that occur between studs.

3.03 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 specifically indicated otherwise; form corners by alternating lapping side members.

END OF SECTION

SECTION 072100
THERMAL INSULATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Board insulation and integral vapor retarder at interior wall with facer providing exposed finish.

1.02 RELATED REQUIREMENTS

A. Section 016000 - Product Requirements

B. Section 017000 - Execution and Closeout Requirements

C. Section 075323 - EPDM Thermoset Single-Ply Roofing: Installation requirements for board insulation over low slope roof deck.

1.03 REFERENCE STANDARDS

A. ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation 2019.

B. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials 2021a.

1.04 SUBMITTALS

A. See Section 013000 - 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 on inside face of Masonry (between wall and unit vents): Extruded polystyrene (XPS) board.

B. Insulation Over Roof Deck: Polyisocyanurate board - see roofing section 075323 - EPDM Thermoset Single-Ply Roofing - Carlisle

2.02 FOAM BOARD INSULATION MATERIALS

A. Extruded Polystyrene (XPS) Continuous Insulation (CI) Board: Complies with ASTM C578, and manufactured using carbon black technology.
   1. Flame Spread Index (FSI): Class A - 0 to 25, when tested in accordance with ASTM E84.
   2. Smoke Developed Index (SDI): 450 or less, when tested in accordance with ASTM E84.
   3. Type and Thermal Resistance, R-value (RSI-value): Type IV, 5.6 (0.98), minimum, per 1 inch (25.4 mm) thickness at 75 degrees F (24 degrees C) mean temperature.
   4. Board Size: 48 inch by 96 inch (1220 mm by 2440 mm).
   5. Board Thickness: per drawings.
   6. Board Edges: Shiplap, at long edges.

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 EXTERIOR WALLS

A. Install all insulation as recommended by the manufacturer without misses.

B. Adhere 6 inches (152 mm) wide strip of polyethylene sheet over expansion joints with double beads of adhesive each side of joint.
   1. Tape seal joints between sheets.
   2. Extend sheet full height of joint.

C. Apply adhesive to back of boards:

D. Install boards horizontally on walls.

E. Extend boards over expansion joints, unbonded to wall on one side of joint.

F. Cut and fit insulation tightly to protrusions or interruptions to the insulation plane.

G. Tape insulation board joints.

3.03 FIELD QUALITY CONTROL

A. See Section 014000 - Quality Requirements for additional requirements.

B. Contractor to call for and receive Architect's inspection/approval of all insulation before covering up.

END OF SECTION

SECTION 075323
EPDM THERMOSET SINGLE-PLY ROOFING - CARLISLE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Adhered roof system with ethylene propylene diene monomer (EPDM) roofing membrane.

B. Insulation, flat and tapered.

C. Flashings.

D. Roofing cant strips, stack boots, roofing expansion joints, and walkway pads.

E. Metal Roof Edge

F. Copings

G. Expansion Joints

1.02 RELATED REQUIREMENTS

A. Section 016000 - Product Requirements

B. Section 017000 - Execution and Closeout Requirements

1.03 REFERENCE STANDARDS

A. ASTM D4637/D4637M - Standard Specification for EPDM Sheet Used in Single-Ply Roof Membrane 2015 (Reapproved 2021).

B. FM DS 1-29 - Roof Deck Securement and Above-Deck Roof Components 2016, with Editorial Revision (2020).

C. NRCA (RM) - The NRCA Roofing Manual 2022.

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide manufacturer's written information listed below.
   1. Product data indicating membrane materials, flashing materials, insulation, vapor retarder, surfacing, and fasteners.

C. Shop drawings must be submitted to Carlisle by the Carlisle Authorized Roofing Applicator along with a completely executed Notice of Award (Page 1 of Carlisle's Request for Warranty form) for approval. Approved shop drawings are required for inspection of the roof and on projects where on-site technical assistance is requested.

D. Shop Drawings must include:
   1. Outline of roof and size
   2. Deck type (for multiple deck types)
   3. Location and type of all penetrations
   4. Perimeter and penetration details
   5. Key plan (on multiple roof areas) with roof heights indicated
   6. Sure-Seal Fastener type, length and maximum spacing or Fast Adhesive ribbon spacing (for insulation securement)

E. Along with the project submittals (shop drawing and Request for Warranty), the roofing contractor must include pullout test results when the results are below the requirements identified in the Table included in Design Reference DR-06-11 “Withdrawal Resistance Criteria”.

F. Upon completion of half the project, the contractor shall notify Carlisle and pay any fee to make "mid-way inspection" to ensure work is being installed per the manufacturer's standard details. Note: no more than 50% of the contact amount will be paid to the Contractor prior to this inspection being made by the roofing manufacturer.

G. After project completion, the Contractor must be submitted a Notice of Completion, (Page 2 of the Carlisle Request for warranty form) to Carlisle to schedule the necessary inspection and

acceptance of the project prior to issuance of the Carlisle warranty. An inspection shall be made by a representative of Carlisle SynTec Systems in order to ascertain that the Roofing System has been installed according to Carlisle SynTec System's published specifications and details.

H. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

I. Manufacturer's Field Reports: Indicate procedures followed, ambient temperatures, humidity, wind velocity during application, and other supplementary instructions.

J. Warranty:
   1. Upon approval of the installation, Carlisle shall submit a watertight full system guarantee for twenty (20) years against defects due to material or workmanship. This shall not be construed to cover misuse or abuse. The warranty shall include wind speed (Maximum Peak Gusts) up to 72 mph. Also, a manufacturer's guarantee shall be submitted for twenty (20) years on the membrane materials.
   2. Total System Warranty - Contractor shall state the amounts on the bid proposal form to provide and install only materials from among those supplied or approved by Carlisle for the total roofing system. All components of the entire roofing system are to be products of the manufacturer or accepted by the manufacturer as compatible. Upon approval of the installation, the manufacturer shall submit their standard full systems guarantee for (20) years against defects due to material or workmanship and their standard guarantee on membrane material - both by manufacturer. This shall not be construed to cover misuse or abuse. The Contractor shall list the manufacturer's name of the roofing system bid on the total system bid proposal form.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum twenty (20) years of documented experience.

B. Installer Qualifications: Company specializing in performing work of this section:
   1. With minimum five years documented experience.
   2. Franchised Installer - Roofing Contractor shall be franchised installers by the manufacturer of the roofing system.
   3. Experience - Roofing Contractor shall have been in the roofing business for the last five, (5) years as Roofing Installers. Contractor shall have a minimum of 5 years' experience and have installed a minimum of five, (5) re-roofs similar to this project size or larger using the materials and manufacturers as herein specified. Written verification shall be submitted with bid proposal, stating references and jobs similar in scope of this project.
   4. Location - Roofing Contractors shall be located within approximately a fifty (50) mile radius of the City of Monroe, Michigan.
   5. Worker's Qualifications:
      a. Workmanship shall be of the highest standard throughout and in accordance with the latest and best standard practices of the trade. Only skilled workmen in the task assigned them shall be employed.
      b. A Roofer shall have a minimum of two years' experience installing the material herein specified, or certification from the roofing manufacturer or from a Federal or Michigan State approved program, or trade school, or certification from a local trade union having the classification of a journeyman.
      c. A Roofer's helper shall be anyone performing roofing related work (excluding the installation of roofing materials), such as tear-offs, carrying materials, mixing materials, cleaning up, etc.
      d. An apprentice Roofer is one who is registered in a bonafide program as registered with the U.S. or State of Michigan Department of Labor.
      e. The proportion of apprentices and helpers shall not exceed (1) helper and/or (1) apprentice to every (3) Roofers. An apprentice may do the work of a helper.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver products in manufacturer's original containers, dry, undamaged, with seals and labels intact.

B. Protect products in weather protected environment, clear of ground and moisture.

C. Protect foam insulation from direct exposure to sunlight.

D. Keep Safety Data Sheets (SDS) at the project site at all times during transportation, storage, and installation of materials.

E. Comply with requirements from Owner to prevent overloading or disturbance of the structure when loading materials onto the roof.

1.07 WARRANTY

A. See Section 017800 - Closeout Submittals, for additional warranty requirements.

B. System Warranty: Provide manufacturer's system warranty agreeing to repair or replace roofing that leaks or is damaged due to wind or other natural causes.
   1. Warranty Term: 20 years.
   2. For repair and replacement include costs of both material and labor in warranty.
   3. Exceptions NOT Permitted:
      a. Damage due to roof traffic.
      b. Damage due to wind of speed greater than 56 mph (90 km/h) but less than 90 mph (145 km/h).

PART 2 PRODUCTS

2.01 MANUFACTURER

A. Carlisle SynTec: www.carlisle-syntec.com/#sle.

B. The following roofing system manufacturers, in addition to Carlisle, have submitted written documentation of products, guarantee, testing, etc., and are approved by the Architect.
   1. Firestone "Rubbergard" Fully Adhered 60 Mil

C. Substitutions: See Section 016000 - Product Requirements.

2.02 ROOFING APPLICATIONS

A. Furnish and install Bonded, Sure Seal, Design "A" Rubber Membrane Roofing System indicated on drawings and specified herein.

B. Roofing Assembly Performance Requirements and Design Criteria:

2.03 ROOFING MEMBRANE AND ASSOCIATED MATERIALS

A. Membrane:
   1. Material: Ethylene propylene diene monomer (EPDM); ASTM D4637/D4637M, Type I (non-reinforced).
   2. Thickness: 60 mil, 0.060 inch (1.5 mm), minimum.
   3. Sheet Width: Factory fabricated into largest sheets possible.
   4. Color: Black.

B. Seaming Materials: As recommended by membrane manufacturer.

C. Flexible Flashing Material: Same material as membrane.

D. Base Flashing: Provide waterproof, fully adhered base flashing system at all penetrations, plane transitions, and terminations.

2.04 INSULATION

A. Standard insulation on metal deck shall be nominal 2.6" thickness, with a minimum aged "R" Value of 15.0, installed in two layers with staggered seams as noted on plans, (total R-30.0) when tested per ASTM C1289-11A effective January 1, 2014, of closed cell isocyanurate core with fibrous mat facings, equal to Carlisle InsulBase Polyisocyanurate, Grade 3, (25 psi.) insulation or other F.M. approved insulations, as manufactured by Carlisle, or equal as approved by the roofing membrane manufacturer. Adjust nailer thickness accordingly. Before ordering, submit approved letter from insulation manufacturer to the Architect that this insulation is approved by the roofing membrane system manufacturer (Carlisle), and will be included in their full systems twenty (20) year warranty.

B. Tapered Insulation - Shall be Polyisocyanurate tapered board - minimum of 1/2" thick Grade 3, (25 psi). Taper to be minimum 1/8” per foot slope or as noted on plans. Stagger all joints and lay in ashlar pattern. Note tapered insulation to be covered with standard insulation to allow bonding to roof membrane. Before ordering, submit approved letter from insulation manufacturer to Architect that this insulation is approved by the Roofing Membrane System Manufacturer (Carlisle) and will be included in their full systems warranty.

2.05 ACCESSORIES

A. Prefabricated Roofing Expansion Joint Flashing: Sheet butyl over closed-cell foam backing seamed to galvanized steel flanges.

B. Prefabricated Flashing Accessories:
   1. Corners and Seams: Same material as membrane, in manufacturer's standard thicknesses.
   2. Penetrations: Same material as membrane, with manufacturer's standard cut-outs, rigid inserts, clamping rings, and flanges.
   3. Sealant Pockets: Same material as membrane, with manufacturer's standard accessories, in manufacturer's standard configuration.
   4. Sure-Seal Pressure-Sensitive Reinforced Universal Securement Strip (RUSS):

C. Insulation Fasteners: Appropriate for purpose intended and approved by roofing manufacturer.
   1. Length as required for thickness of insulation material and penetration of deck substrate.

D. Surface Conditioner for Adhesives: Compatible with membrane and adhesives.

E. Sealants: As recommended by membrane manufacturer.

F. Cleaner: Manufacturer's standard, clear, solvent-based cleaner.

G. Wood Nailers - Shall be #2 or better lumber, 2"x 6" minimum, weather resistant, pressure treated of sizes as noted or as required. Plywood to be C.D.X. grade and also pressure treated. Nails and anchors shall be hot dipped or hot tumbled, corrosion resistant galvanized steel. Wood nailers at perimeter of roof shall be installed in accordance with F.M. (I-90) guidelines. Existing wood nailers shall be re-anchored in a similar pattern. Galvanized nails or screws shall be installed to penetrate the bottom nailer a minimum of 1-1/4", using a staggered fastening pattern in two rows at 24" on center in each row (12" on center). Fastener pattern density shall be increased within 8' of roof corners in two rows at 12" on center in each row (6" on center). Contractor shall verify that all existing nailers are anchored to decking and/or wall plates similar to the pattern as listed above, or anchored to masonry and structural steel 4'-0" on center, with 1/2" diameter anchor bolts and 5/8" diameter washers.

H. Edgings and Terminations: Manufacturer's standard edge and termination accessories.
   1. Product: Snap-on edge system.
      a. SecurEdge 200.
   2. Product: Coping.
      a. SecurEdge 200 Coping.
   3. In lieu of Carlisle Secure Edge gravel stop and coping, it shall be the Contractor's option to provide and install all materials and labor required to install an equal metal fascia/gravel stop, similar in style, function and appearance, as approved by the roofing manufacturer to be included in the twenty (20) year Total System Warranty. Finish and gauge to be as specified above.
   4. Provide any matching drip extenders to cover all exposed wood nailers, common brick, etc., to same elevation as existing fascia being removed. Install matching joint covers, mitered outside corners, and inside cover plates, water dams, clips, anchors, etc., as part of the complete system.
   5. Termination Bar - Shall be aluminum of thickness and width as required by Carlisle. Shall be anchored with approved fasteners in spacing’s to make bar stop tight against flashing and wall with proper sealant between (Carlisle Water Cut Off).

I. Roof Drain

1. Roof drain shall be #ZC-100EARC as manufactured by Zurn, or approved equal with Duracoated cast iron body, with extension, roof sump receiver and under-deck clamp. Drain shall have combination membrane flashing clamp/gravel guard and low-silhoette cast iron dome strainer, secured with easily removed anchors for cleaning. Drain to be for 3" no-hub fittings.
2. Drainage pipe shall be service weight cast iron hubless CISPI 3001-85, ASTM A-888-90. Fittings shall be soil pipe coupling clamp-all Corp., Model 0, or Husky 4000.
3. Piping, roof sump and fittings shall be insulated with 1" thick fiberglass, nominal 4 lb. density with All Service Jacket (ASJ). Cold systems shall have a vapor barrier. Fittings, etc. may be covered with Zeston, or equal pre-molded fittings. Pre-molded sump covers by Armaflex (or similar materials) are not acceptable.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that surfaces and site conditions are ready to receive work.

B. Verify deck is supported and secure.

C. Verify deck is clean and smooth, flat, free of depressions, waves, or projections, properly sloped and suitable for installation of roof system.

D. Verify deck surfaces are dry and free of snow or ice.

E. Verify that roof openings, curbs, and penetrations through roof are solidly set, and cant strips are in place.

3.02 PREPARATION, GENERAL

A. Clean substrate thoroughly prior to roof application.

B. Surfaces on which the Sure Seal Roofing System is to be applied shall be clean, smooth, dry, free of fins, sharp edges, loose and foreign materials, oil and grease.

C. Spud off all existing roofing to gypsum decks, as shown on plans and remove from job site in areas where noted. Be careful not to destroy or disturb any electrical conduits on bottom side of deck.

D. Do not begin work until other work that requires foot or equipment traffic on roof is complete.

E. Apply manufacturer's recommended vapor retarder or temporary roof before roof installation.

F. Install wood nailer at the perimeter of the roof and around all roof vents and any similar penetrations. The nailer shall be secured mechanically to the roof deck. The thickness of the nailer shall be as shown, or tapered such that the top of the nailer is flush with the surface to which the membrane is to be applied. Anchors to be of type and spacing’s as approved by Carlisle and the Architect.

G. Auger and clean all roof drains before beginning any work

H. Before beginning work, a representative of Carlisle SynTec Systems shall examine the roof surfaces in order to insure that existing conditions are acceptable.

3.03 INSTALLATION - GENERAL

A. Perform work in accordance with manufacturer's instructions and NRCA (RM) applicable requirements.

B. The Architect's drawings and specifications are developed and provided to the Contractor to understand the design intent of the contract. Where these details are in conflict with the standard details, recommendations and specifications of the membrane manufacturer, or affect the guarantee, they shall be modified as required by the Contractor and approved by the Architect at no additional cost to the contract.

C. All installation and materials used in Sure Seal Universal Roofing Systems shall be as furnished and specified and conforming to all physical properties as manufactured by Carlisle SynTec Systems, a Division of Carlisle Corporation, Carlisle, PA. All details of work shall be coordinated and approved with Carlisle Corporation before starting work.

D. Do not apply roofing membrane during unsuitable weather.

E. Do not apply roofing membrane when ambient temperature is outside the temperature range recommended by manufacturer.

F. Do not apply roofing membrane to damp or frozen deck surface or when precipitation is expected or occurring.

G. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed the same day.

H. Coordinate the work with installation of associated counter flashings installed by other sections as the work of this section proceeds.

I. When substrate preparation is responsibility of another installer, notify Architect of unsatisfactory conditions before proceeding.

3.04 INSULATION APPLICATION

A. Apply vapor retarder to deck surface with adhesive in accordance with manufacturer's instructions.
   1. Extend vapor retarder under cant strips and blocking to deck edge.
   2. Install flexible flashing from vapor retarder to air seal material of wall construction, lap and seal to provide continuity of the air barrier plane.

B. Ensure vapor retarder is clean and dry, continuous, and ready for application of insulation.

C. Carlisle Sure Seal Bonded Roofing System - Shall be applied over an approved insulation, bonded to the existing roof deck with a Factory Mutual approved system. Install starting from the high point of the roof and working to the low point. Lap all seams shingle fashion in direction of drainage.

D. Attachment of Insulation:
   1. Mechanically fasten insulation to deck in accordance with roofing manufacturer's instructions and Factory Mutual FM DS 1-29 requirements.
   2. Insulation on roof decks shall be installed with standard insulation as specified first and followed by tapered insulation. Adjust lengths of fasteners according to thickness of insulation. Type of screw fastener, fastener pattern, etc., shall be installed as required by insulation mfr., similar to the F.M. I-90 wind up-lift requirements for metal decks. Contractor shall perform a minimum of (5) anchor pull-out tests on each roof area with the proposed membrane underlayments and fastener to assure compliance with insulation manufacturer's written recommendations. Contractor shall submit written report of pull out tests to the Architect for approval prior to ordering insulation, anchors and roofing. Pull out resistance must meet the membrane manufacturer's requirements.

E. Lay subsequent layers of insulation with joints staggered minimum 6 inches (152 mm) from joints of preceding layer.

F. Place tapered insulation to the required slope pattern in accordance with manufacturer's instructions.

G. Lay boards with edges in moderate contact without forcing, and gap between boards no greater than 1/4 inch (6.4 mm). Cut insulation to fit neatly to perimeter blocking and around penetrations through roof.

H. At roof drains, use factory-tapered boards to slope down to roof drains over a distance of 18 inches (457 mm).

I. Do not apply more insulation than can be completely waterproofed in the same day.

3.05 MEMBRANE APPLICATION

A. Roll out membrane, free from wrinkles or tears. Place sheet into place without stretching.

B. Shingle joints on sloped substrate in direction of drainage.

C. Fully Adhered Application: Membrane shall be bonded to the insulation and substrate with the bonding adhesive recommended by the Roofing System manufacturer and shall be installed in strict conformance with the manufacturer's specifications for the "Bonded Roofing System" -

Design "A". Bonding Adhesive must be applied to both the membrane and the surface to which it is being bonded.

D. Adjoining sheets of Membrane are overlapped a minimum of 3” along the length of the membrane (at selvage edged) in preparation for membrane splicing. At end laps (along the width of the sheet), membrane shall be overlapped 1/2” to 1” which will be overlaid with 6” wide Pressure-Sensitive Flashing. Note: all splices shall be overlaid with 6” wide Pressure-Sensitive Flashing for a 20-year warranty.

E. All field splices of roofing membrane shall be installed using the double sided adhesive tape method with membrane thoroughly cleaned with "splice-wash", as manufactured and specified by Carlisle. Tape width shall be minimum of 6". Coat edge of final seam with lap sealant.

F. Membrane Splicing with SecureTape:
1. Prime the splice area with Sure-Seal Primer.
2. Apply SecureTape to bottom membrane sheet with the edge of the release film along a line marked 1/2” out from the top sheet. Press tape onto sheet using hand pressure, overlapping tape, roll ends a minimum of 1”.
3. Remove the release film and press the top sheet onto the tape using hand pressure. Roll the splice with a 2” wide steel roller.
4. Install a 6” wide section of Pressure-Sensitive Flashing or Elastoform Flashing over all field splice intersections and seal edges of flashing with Lap Sealant.
5. The use of Lap Sealant along the entire splice edge is optional, except at tape overlaps.

G. Membrane Splicing with Splicing Cement:
1. When using Sure-Seal (black) Membrane, cleaning the splice area is not required unless the membrane has been contaminated with field dirt, adhesive or other residue.
2. Apply Splicing Cement at a rate of approximately 100 square feet per gallon. Just prior to closing the splice, apply a 1/8” to ¼” diameter bead of In-Seam Sealant a minimum of ½” from the inside edge of the bottom membrane and a minimum of 2” from the lead edge.
3. Roll the top membrane sheet onto the mating surface and roll the splice with a 2” wide steel roller.
4. After adjoining membrane sheets have been splice together, wait a minimum of 2 hours and, if necessary, clean exposed edge of splice with Splice Cleaner or HP-250 Primer. Apply a 5/16” diameter bead of Lap Sealant and feather to completely cover the splice edge.

H. Flashing
1. When feasible, flash all walls, curbs, etc., with continuous deck membrane. When the use of continuous membrane is not feasible, a separate piece of Cured EPDM Flashing, or Uncured Membrane may be utilized.
2. Uncured Elastoform Flashing and Pressure-Sensitive Uncured Flashing shall be limited to overlaying vertical field seams, inside/outside corners, scuppers or other unusually shaped walls or penetrations; where use of Cured EPDM Flashing, EPDM Membrane, Pressure-Sensitive Flashing or Prefabricated accessories (pipe seals, Pourable sealer pockets, corners), is not practical.
3. When using Pressure-Sensitive Flashing (semi-cured or cured) to overlay metal edging flanges, etc., Sure-Seal Primer must be used to clean the membrane and metal surfaces. Lap Sealant is optional on straight runs of Pressure-Sensitive Flashing and around Pressure-Sensitive Pipe Seals.
4. Terminate the flashing in accordance with the appropriate FB-9 Termination Detail.
5. Copings, counter flashing and metal work, not supplied by Carlisle, shall be fastened to prevent metal from pulling free or buckling and sealed to prevent moisture from entering the roofing system or building.

I. **(for gypsum deck installation)** Insulation on roof decks shall be installed with standard insulation as specified first and followed by second layer insulation. Check to ensure the substrate is dry. FAST Adhesive cannot be applied to a wet or damp surface.
1. Spray apply Sure-Seal FAST Adhesive over the dry substrate, (gypsum decks) at a coverage rate recommended by the manufacturer to allow for full coverage. (ribbons of

adhesive greater than 6” on center will not be allowed).

2. Allow the adhesive to rise up approximately 1/8” and set insulation boards into adhesive. Continue to install boards into the adhesive and after the necessary set up time (will vary based on temperature and amount of catalyst added) walk the boards into the adhesive and using the 30” wide, 100-150 pound weighted steel roller to ensure full embedment. Optimal set up time should be approximately 5 to 10 minutes. One person should be designated to walk/roll in all boards and trim/slit or apply weight as needed to ensure adequate securement.
3. When multiple layers of insulation are specified or required, spray apply FAST Adhesive over the base layer once fully secured and follow the procedures noted above for attachment of each insulation layer.

J. At intersections with vertical surfaces:
   1. Extend membrane over cant strips and up a minimum of 4 inches (102 mm) onto vertical surfaces.
   2. Provide and install all necessary bar stops as detailed or required to terminate flashings.
   3. Install sealant on top in all exposed areas to adhere to the bar stop and masonry. Shall be as approved by manufacturer (Carlisle Lap Sealant).

K. Install roofing expansion joints where indicated, and ensure joints are watertight.

L. Install prefabricated joint components in accordance with manufacturer's instructions.

M. Install fascia, roof edge, copings in strict conformance with Carlisle's specifications. Install clips, anchors, mitered corners, etc. Seal all fasteners with elastoform lap splice and sealant on topside of gravel stop.

N. Coordinate installation of roof drains and sumps and related flashings, locate field splices away from low areas and roof drains, and lap upslope sheet over downslope sheet. Support new cast iron horizontal pipe at each joint and not more than 5' intervals. Where no-hub fittings are utilized, install hangers per manufacturer's installation instructions, or install hanger each side of no-hub fittings and at 5' intervals. New cast iron drainage piping shall connect into existing cast iron drainage piping, above the suspended ceiling, using appropriate cast iron, no-hub wye fittings with clean-out.

O. Daily Seal: Install daily seal per manufacturers instructions at the end of each work day. Prevent infiltration of water at incomplete flashings, terminations, and at unfinished membrane edges.

3.06 RELATED WORK

A. Where noted on drawings, or where required in areas of new roofing, re-work all electrical conduits, wiring, gas lines, control wiring, etc.

B. Provide and install all necessary blocking, clamps, fasteners, fittings, elbows, junction boxes, etc., as required.

3.07 FIELD QUALITY CONTROL

A. See Section 014000 - Quality Requirements, for general requirements for field quality control and inspection.

B. Require site attendance of roofing and insulation material manufacturers daily during installation of this work.

3.08 CLEANING

A. See Section 017419 - Construction Waste Management and Disposal, for additional requirements.

B. Remove wrappings, empty containers, paper, and other debris from the roof daily. Dispose of debris in compliance with local, State, and Federal regulations.

C. Remove bituminous markings from finished surfaces.

D. In areas where finished surfaces are soiled by work of this section, consult manufacturer of surfaces for cleaning advice and conform to their documented instructions.

E. Repair or replace defaced or damaged finishes caused by work of this section.

3.09 PROTECTION

A. Protect installed roofing and flashings from construction operations.

B. Where traffic must continue over finished roof membrane, protect surfaces using durable materials.

END OF SECTION

SECTION 078400
FIRESTOPPING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Firestopping systems.

B. Firestopping of joints and penetrations in fire-resistance-rated and smoke-resistant assemblies, whether indicated on drawings or not, and other openings indicated.

1.02 RELATED REQUIREMENTS

A. Section 016000 - Product Requirements

B. Section 017000 - Execution and Closeout Requirements

1.03 REFERENCE STANDARDS

A. ITS (DIR) - Directory of Listed Products current edition.

B. FM (AG) - FM Approval Guide current edition.

C. UL (FRD) - Fire Resistance Directory Current Edition.

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements for submittal procedures.

B. Product Data: Provide data on product characteristics, performance ratings, and limitations.

1.05 QUALITY ASSURANCE

A. Fire Testing: Provide firestopping assemblies of designs that provide the scheduled fire ratings when tested in accordance with methods indicated.
   1. Listing in UL (FRD), FM (AG), or ITS (DIR) will be considered as constituting an acceptable test report.
   2. Valid evaluation report published by ICC Evaluation Service, Inc. (ICC-ES) at www.icc-es.org will be considered as constituting an acceptable test report.
   3. Submission of actual test reports is required for assemblies for which none of the above substantiation exists.

1.06 FIELD CONDITIONS

A. Comply with firestopping manufacturer's recommendations for temperature and conditions during and after installation; maintain minimum temperature before, during, and for three days after installation of materials.

PART 2 PRODUCTS

2.01 MATERIALS

A. Fire Stop Insulation – Shall be “ThermaFiber Fire Safing Insulation” unfaced, flame spread 15, smoke develop 0, as manufactured by Thermafiber Inc, Toledo, Oh. (888-834-2371) Blanket size is 4” thick x 24” x 48”.

B. Fire Stopping - One part silicone sealant equal to Dow Corning 3-6548 RTV foam, flame spread of 20 per ASTM E-84-76A or Tremco “TREMstop Fyre Sil”.

C. Primers, Sleeves, Forms, Insulation, Packing, Stuffing, and Accessories: Provide type of materials as required for tested firestopping assembly.

D. Fire Ratings: Refer to drawings for required systems and ratings.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify openings are ready to receive the work of this section.

3.02 PREPARATION

A. Clean substrate surfaces of dirt, dust, grease, oil, loose material, or other materials that could adversely affect bond of firestopping material.

B. Remove incompatible materials that could adversely affect bond.

C. Install backing materials to prevent liquid material from leakage.

3.03 INSTALLATION

A. Install materials in manner described in fire test report and in accordance with manufacturer's instructions, completely closing openings.

B. Joints deeper than 1/2" shall be built up to a depth of 3/8" below adjacent surfaces with approved compacted filler material prior to applying sealant.

C. Do not cover installed firestopping until inspected by authorities having jurisdiction.

3.04 CLEANING

A. Clean adjacent surfaces of firestopping materials.

3.05 PROTECTION

A. Protect adjacent surfaces from damage by material installation.

END OF SECTION

SECTION 079200
JOINT SEALANTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Nonsag gunnable joint sealants.

B. Joint backings and accessories.

1.02 RELATED REQUIREMENTS

A. Section 016000 - Product Requirements

B. Section 017000 - Execution and Closeout Requirements

C. Section 072500 - Weather Barriers: Sealants required in conjunction with water-resistive barriers.

D. Section 078400 - Firestopping: Firestopping sealants.

E. Section 079100 - Preformed Joint Seals: Precompressed foam, gaskets, and strip seals.

F. Section 092300 - Gypsum Plastering: Sealing acoustical and sound-rated walls and ceilings.

1.03 REFERENCE STANDARDS

A. ASTM C1193 - Standard Guide for Use of Joint Sealants 2016.

1.04 SUBMITTALS

A. See Section 013000 - 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, 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.
   6. Substrates for which laboratory adhesion and/or compatibility testing is required.
   7. Installation instructions, including precautions, limitations, and recommended backing materials and tools.
   8. Sample product warranty.

C. Color Cards for Selection: Where sealant color is not specified, submit manufacturer's color cards showing standard colors available for selection.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum ten years documented experience.

B. Installer Qualifications: Company specializing in performing the work of this section and with at least five years of documented experience.

1.06 WARRANTY

A. See Section 017800 - Closeout Submittals for additional warranty requirements.

B. Correct defective work within a five 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 SEALANTS - GENERAL

A. Colors: as selected from manufactures complete colors.

2.02 JOINT SEALANTS

A. General Exterior - One part polyurethane sealant equal to Vulkem 116, or Tremco Dymonic 100.

B. General interior - Acrylic latex paintable sealant caulking equal to Tremco #834.

C. Fire Stopping - One part silicone sealant equal to Dow Corning 3-6548 RTV foam, flame spread of 20 per ASTM E-84-76A or Tremco “TREMstop Fyre Sil”.

D. Fixtures/Counters - One part mildew resistant silicone equal to Dow Corning #786.

E. Compression Joints - one part, butyl #440 Tape, 1/16" or 1/8" by 3/8" or 1/2" wide in Grey or Black color as manufactured by Tremco.

F. Asphalt Compatible – Sealtight pointing mastic, available in 29 oz. cartridges as manufactured by W.R. Meadows.

2.03 ACCESSORIES

A. Primer - A quick drying clear primer as recommended by manufacturer shall be used where required.

B. 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.

C. Filler Material - Polyurethane foam rod stock, non-gassing, open-cell, equal to Tundra Foam, as manufactured by Industrial Thermo Polymers Limited, 2316 Delaware Avenue, Suite 216, Buffalo, NY 14216 (212-475-2000) and as distributed by Williams Products, Inc., Troy, MI. (248-643-6400). Size shall be such that when compacted, it equals 2/3 of its original width, or as recommended by the sealant manufacturer. Tundra foam rod stock is black (ebony) color, compatible with hot pour and cold applied sealants.

D. Backing Tape: Self-adhesive polyethylene tape with surface that sealant will not adhere to and recommended by tape and sealant manufacturers for specific application.

E. Masking Tape: Self-adhesive, nonabsorbent, non-staining, removable without adhesive residue, and compatible with surfaces adjacent to joints and sealants.

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.

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. Joints deeper than 1/2" shall be built up to a depth of 3/8" below adjacent surfaces with approved compacted filler material prior to applying sealant.

D. Install bond breaker backing tape where backer rod cannot be used.

E. Sealant shall be installed in strict conformance with the manufacturer's recommendations. Compounds shall generally be applied by means of a handgun. Use special nozzles as required for hard to apply areas. Exercise extreme care to prevent smearing on adjacent surfaces. A full head of sealant shall be applied into joint under sufficient pressure to fill all voids and joints solidly, drawing nozzle across sealant to leave a slightly concave surface.

F. Install sealant free of air pockets, foreign embedded matter, ridges, and sags, and without getting sealant on adjacent surfaces.

G. 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.

H. Neatly tool joints to slightly concave surface, using tooling agent recommended by sealant manufacturer. Repair any air pockets exposed by tooling. Tool so as to compress material and improve adhesion to surfaces joined. Sealant bead shall be of width/depth and cross section as recommended by manufacturer.

I. Sealed joints shall not be touched, washed, or otherwise disturbed for 48 hours, to allow sealant to cure.

J. Final appearance of joint shall be without sags, ripples, globs and waviness. It shall be a straight, uniform sized, continuous flow of material. Work in and blend where one stroke flow ends and other begins.

K. Joints shall be caulked before painting adjacent work. Do not paint over any sealant unless allowed by manufacturer.

L. When concrete walks abutt vertical walls and aprons, the expansion joint material is to be held down ½" and sealed flush with polyurethane sealant to not pond water.

M. Caulk all joints as called for on the drawings, or specified herein as required to complete the work including, but not limited to, caulking of the following:
   1. At intersections of aluminum work with other materials, etc.
   2. Perimeter of louvers and grills at masonry or aluminum.
   3. In between lap joints of sills, flashing drips, 'Z' flashing and similar items.
   4. Refer to drawings for other locations.

3.04 FIELD QUALITY CONTROL

A. Perform field quality control inspection/testing as specified in PART 1 under QUALITY ASSURANCE article.

B. Remove and replace failed portions of sealants using same materials and procedures as indicated for original installation.

3.05 POST-OCCUPANCY

A. Post-Occupancy Inspection: Perform visual inspection of entire length of project sealant joints at a time that joints have opened to their greatest width; i.e. at low temperature in thermal cycle. Report failures immediately and repair.

END OF SECTION

SECTION 083100
ACCESS DOORS/PANELS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Wall- and ceiling-mounted access units.

1.02 RELATED REQUIREMENTS

A. Section 016000 - Product Requirements

B. Section 017000 - Execution and Closeout Requirements

C. Section 099123 - Interior Painting: Field paint finish.

1.03 SUBMITTALS

A. See Section 013000 - Administrative Requirements for submittal procedures.

B. Product Data: Provide sizes, types, finishes, hardware, scheduled locations, and details of adjoining work.

C. Shop Drawings: Indicate exact position of each access door and/or panel unit.

PART 2 PRODUCTS

2.01 ACCESS DOORS AND PANELS ASSEMBLIES

2.02 WALL- AND CEILING-MOUNTED ACCESS UNITS

A. Manufacturer - All doors shall be model #KRP-150FR, as manufactured by KARP Maspeth, New York (800-888-4212) and as distributed by Tanner Supply, Temperance, MI (734) 847-5446.

B. Construction - Shall be 16-gauge frame and trim, 1" wide, with flanged trim for flush mounting with adjacent surfaces. Door to be 20-gauge steel, welded pan type, filled with 2" thick fire-rated insulation. Hinge shall be continuous piano hinge. Latch shall be bolt type, operated by either ring turn or flush key type device (all keyed alike), as selected by Owner. Door shall be operable from inside by single latch release.

C. Finish - To be prime coat of rust inhibitive electrostatic powder, baked enamel.

D. Fire Rating - All shall be fire rated by U.L. for 1.5 hour "B" label in walls and by Warnoch Hersey for 3 hours in ceiling.

E. Sizes - Standard sizes for wall to be 36"H x 24"W and for ceiling to be 36"H x 22"W.
   1. Standard Features:
      a. Standard Wall Mount with Brackets.
      b. Access Doors: Stainless steel stiffener and closed-cell non-contaminating gasket.
      c. Work Surface: Stainless steel.
      d. Door Latches: Dual expansion latches type.
      e. Mechanical Interlock: 304 stainless steel mechanical interlock. #6705-48A

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that rough openings are correctly sized and located.

B. Location - Shall be installed in basic area as shown on drawings and finalized in the field with Owner/Architect before framing in opening. Coordinate with other trades to assure door location and swing will serve function proposed.

3.02 PREPARATION

A. Clean surfaces thoroughly prior to proceeding with this work.

B. Provide templates and rough-in measurements as required.

C. Begin installation only after substrates have been properly prepared using methods recommended by manufacturer for applicable substrates in accordance with project conditions,

and if the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.03 INSTALLATION

A. Install units in accordance with manufacturer's instructions.

B. Install frames plumb and level in openings, and secure units rigidly in place.

C. Position units to provide convenient access to concealed equipment when necessary.

D. Anchors - Install and secure into framed in opening per manufacturer's recommendations to achieve same fire rating as door/frame.

E. Seal with proper sealant all voids, openings and irregularities around entire perimeter of frame against adjacent materials.

3.04 CLEANUP

A. Remove all stickers, protective coverings and wash as recommended by manufacturer.

3.05 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

SECTION 095100
ACOUSTICAL CEILINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Suspended metal grid ceiling system.

1.02 RELATED REQUIREMENTS

A. Section 016000 - Product Requirements

B. Section 017000 - Execution and Closeout Requirements

1.03 REFERENCE STANDARDS

A. ASTM C636/C636M - Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels 2019.

B. ASTM E580/E580M - Standard Practice for Installation of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Subject to Earthquake Ground Motions 2022.

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 013000 - Administrative Requirements for submittal procedures.

B. Shop Drawings: Indicate grid layout and related dimensioning.

C. Product Data: Provide data on suspension system components and acoustical units.

D. Samples: Submit two full size samples illustrating material and finish of acoustical units.

E. Samples: Submit two samples each, of suspension system main runner, cross runner, and perimeter molding.

F. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 016000 - Product Requirements, for additional provisions.
   2. Extra Acoustical Units: Quantity equal to 5 percent of total installed.

1.06 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing work specified in this section, with minimum of five years of documented experience.

1.07 FIELD CONDITIONS

A. Maintain uniform temperature of minimum 60 degrees F (16 degrees C), and maximum humidity of 40 percent prior to, during, and after acoustical unit installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Acoustic Tiles/Panels:
   1. Armstrong World Industries, Inc: www.armstrongceilings.com/#sle.
   2. CertainTeed Corporation: www.certainteed.com/#sle.
   3. USG Corporation: www.usg.com/ceilings/#sle.

B. Suspension Systems:
   1. Same as for acoustical units.

2.02 TYPES

A. General (Classrooms/Offices/Toilet Rooms/Corridors)

1. Shall be white “Radar Education” Acoustical Panels (#2207/USG), 24"x 24" x 5/8", square edge, Class "A" flame spread and U.L rated 1 hour.
2. Grid suspension system shall be 1-1/2" high x 15/16" wide inverted bulb "T" Series DX or DXL, Heavy Duty ASTM Class, by Donn USG.
3. Wall mold to be "M7" with 3/4" face.
4. Grid/Trim/Transition Finish to be Flat White #050 baked enamel.
5. Where noted on drawings provide complete fire rated installation per manufacturer directions including specific requirements of any noted UL Designations.
6. Provide special trim/transition pieces as required and/or detailed for a complete installation.

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.

C. Provide hanger clips during steel deck erection. Provide additional hangers and inserts as required.

3.03 INSTALLATION - SUSPENSION SYSTEM

A. Install suspension system in accordance with ASTM C636/C636M, ASTM E580/E580M, and manufacturer's instructions, as reuired for the indicated fire rating, and as supplemented in this section.

B. Rigidly secure system, including integral mechanical and electrical components, for maximum deflection of 1:360.

C. Locate system on room axis according to reflected plan. Notify and consult architect where where there are differences from plans that will effect layout. Systems shall be installed to permit border units of greatest possible size. Do not install edge units in less than 50 percent of acoustical unit size. Layout to be symmetrical from room centerline in all directions using largest area as control and extending same grid lines into minor areas, alcoves, etc.

D. 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.

E. Install suspension system independently in each room. Main runners to be installed continuously without being broken on 4’ centers – wall to wall cross members @ 24” O.C. Entire perimeter to have angle member anchored to studs or masonry.

F. The system shall be installed in strict accordance with the manufacturer's recommendations and in such a manner where noted on drawings to achieve the specified fire rating. Minimum hanger wire to be 12 ga. Galvanized steel. Wires to be anchored to building structure.

G. 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.

H. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability.

I. Support fixture loads using supplementary hangers located within 6 inches (152 mm) of each corner, or support components independently.

J. Do not eccentrically load system or induce rotation of runners.

K. Level entire grid in place and rigidize before installation of ceiling tiles.

L. Install light fixture boxes constructed of gypsum board above light fixtures in accordance with fire rated assembly requirements and light fixture ventilation requirements.

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 acoustical units level, in uniform plane, and free from twist, warp, and dents.

E. Cutting Acoustical Units:
   1. Cut to fit irregular grid and perimeter edge trim.
   2. Make field cut edges of same profile as factory edges.

F. Where round obstructions occur, provide preformed closures to match perimeter molding.

G. Install hold-down clips on each panel to retain panels tight to grid system; comply with fire rating requirements.

H. Install hold-down clips on panels within 20 ft (6 m) of an exterior door.

I. Where corridor ceilings are unrated and corridor walls terminate at the bottom of corridor ceilings, the corridor ceilings shall form a continuous membrane having a minimum tile uplift force of 1 lb/ sq. foot as required per NFPA 101 and/or the authority of jurisdiction. Provide ceiling tile density pads (in lieu of tile clips) as provided by ceiling manufacturer or approved equal installed in accordance with ceiling manufacturer requirements.

3.05 TOLERANCES

A. Maximum Variation from Flat and Level Surface: 1/8 inch in 10 feet (3 mm in 3 m).

B. Maximum Variation from Plumb of Grid Members Caused by Eccentric Loads: 2 degrees.

END OF SECTION

SECTION 096500
RESILIENT FLOORING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Resilient tile flooring.

B. Resilient base.

C. Installation accessories.

1.02 RELATED REQUIREMENTS

A. Section 016000 - Product Requirements

B. Section 017000 - Execution and Closeout Requirements

1.03 REFERENCE STANDARDS

A. RFCI (RWP) - Recommended Work Practices for Removal of Resilient Floor Coverings 2011.

1.04 SUBMITTALS

A. See Section 013000 - 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 Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 016000 - Product Requirements, for additional provisions.
   2. Extra Flooring Materials: Quantity equivalent to 5 percent of each type and color.
   3. Extra Wall Base Materials: Quantity equivalent to 5 percent of each type and color.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing specified flooring with minimum three years documented experience.

B. Installer Qualifications: Company specializing in installing specified flooring with minimum five years documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Store all materials off of the floor in an acclimatized, weather-tight space.

B. Maintain temperature in storage area between 55 degrees F (13 degrees C) and 90 degrees F (72 degrees C).

C. Protect roll materials from damage by storing on end.

D. Do not double stack pallets.

1.07 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 (21 degrees C) to achieve temperature stability. Thereafter, maintain conditions above 55 degrees F (13 degrees C).

PART 2 PRODUCTS

2.01 TILE FLOORING

A. Vinyl tile shall be first quality, commercial grade material, 1/8" thick and composed of a thoroughly blended composition of thermoplastic binder of the vinyl type, pigments and fillers. Tile shall be 12" square. Color to be selected from the manufacturer's standard

group. To be “Standard Excelon”, as manufactured by Armstrong Cork Co., or equal by Kentile, Azrock, Congoleum, or approved equal. Each room to contain only (1) color tile. Approximately (3) colors total throughout project will be selected of equal amounts.

2.02 RESILIENT BASE

A. Vinyl base shall be as manufactured by Armstrong, VPI, Kentile, Azrock, or equal, 4" high. Approximately (2) colors total throughout each building will be selected from the manufacturer’s standard colors.
   1. Straight base for Carpet
   2. Cove base for all other flooring types.

2.03 ACCESSORIES

A. Subfloor Filler: White premix latex; type recommended by adhesive material manufacturer.

B. Tile: Primers, Adhesives, and Seam Sealers shall be as manufactured by, or as recommended by the Tile Manufacturer.

C. Resilient Base: Adhesive shall be as manufactured by, or as recommended by the base Manufacturer.

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. Cementitious Subfloor Surfaces: Verify that substrates are ready for resilient flooring installation by testing for moisture and alkalinity (pH).
   1. Obtain instructions if test results are not within limits recommended by resilient flooring manufacturer and adhesive materials manufacturer.

C. Verify that required floor-mounted utilities are in correct location.

3.02 PREPARATION

A. Ensure substrate meets the requirements of ASTM F710.

B. Remove existing resilient flooring and flooring adhesives; follow the recommendations of RFCI (RWP).

C. Prepare floor substrates as recommended by flooring and adhesive manufacturers.

D. Remove subfloor ridges and bumps. Fill minor low spots, cracks, joints, holes, and other defects with subfloor filler to achieve smooth, flat, hard surface.

E. Prohibit traffic until filler is fully cured.

F. Clean substrate. Substrates must be free of visible water or moisture, dust, sealers, paint, sweeping compounds, curing compounds, residual adhesives and adhesive removers, concrete hardeners or densifiers, solvents, wax, oil, grease, asphalt, visible alkaline salts or excessive efflorescence, mold, mildew and any other extraneous coating, film, material or foreign matter.

G. 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. Scribe flooring to walls, columns, cabinets, floor outlets, and other appurtenances to produce tight joints.

3.04 INSTALLATION - TILE FLOORING

A. Tile shall be laid from contents of at least two different containers and/or sorted, so that marbleizing and color will be uniform and not spotty. Lay all marbleized tile with veining running

in same direction. Obtain Owner/Architect approval prior to installation.

B. At door openings or junctures with other materials, or where thresholds of other materials are not specified, install reducer strip full width of juncture, #633, as manufactured by Mercer.

3.05 INSTALLATION - RESILIENT BASE

A. Fit joints tightly and make vertical. Maintain minimum dimension of 18 inches (45 mm) between joints or at corner returns.

B. Install base on solid backing. Bond tightly to wall and floor surfaces.

C. Scribe and fit to door frames and other interruptions.

D. Install base on all walls, unless noted otherwise, for a uniform appearance.

E.

3.06 CLEANING

A. Remove excess adhesive from floor, base, and wall surfaces without damage.

B. Clean in accordance with manufacturer's written instructions.

3.07 PROTECTION

A. Prohibit traffic on resilient flooring for 48 hours after installation.

END OF SECTION

SECTION 096813
TILE CARPETING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Carpet tile, fully adhered.

1.02 RELATED REQUIREMENTS

A. Section 016000 - Product Requirements

B. Section 017000 - Execution and Closeout Requirements

1.03 SUBMITTALS

A. See Section 013000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on specified products, describing physical and performance characteristics; sizes, patterns, colors available, and method of installation.

C. Shop Drawings: Indicate layout of joints, pattern direction, tile pattern, transitions, and thresholds.

D. Samples: Submit two carpet tiles illustrating color and pattern design for each carpet color selected.

E. Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention.

F. Installer's Qualification Statement.

G. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 016000 - Product Requirements, for additional provisions.
   2. Extra Carpet Tiles: Quantity equal to 5 percent of total installed of each color and pattern installed.

1.04 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in installing carpet tile with minimum five years documented experience and approved by carpet tile manufacturer.

1.05 FIELD CONDITIONS

A. Store materials in area of installation for minimum period of 24 hours prior to installation.

PART 2 PRODUCTS

2.01 MATERIALS

A. Carpet Tile shall be “Light Series” series "Vibrant Tile" style as manufactured by ShawContract Carpet or equal by Interface, Inc., or Armstrong Flooring, Inc.

B. Architect to select Color / Style from manufacturer's standard colors and styles of up to (3) color/style options per building.

C. Carpet shall meet State requirements for flame spread, smoke density and fuel contributed. To be Class "A" interior finish.

D. Carpet shall be guaranteed for ten years from date of installation against defects in workmanship, materials and wear, including uneven color. Contractor shall guarantee the repair and/or replacement (material and labor) at his own expense for a period of two years for all defects resulting from installation, including loosening of seams or edges and wrinkles. This shall not be construed to cover misuse or abuse.

2.02 ACCESSORIES

A. Edge Strips: Embossed aluminum, color as selected by Architect.

B. Transitions assumed to be rubber mercer strip, by Roppe or approved equal in color as selected by architect, unless specified elsewhere.

C. Carpet Tile Adhesive: Recommended by carpet tile manufacturer; releasable type.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that subfloor surfaces are smooth and flat within tolerances specified for that type of work and are ready to receive carpet tile.

B. Verify that subfloor surfaces are dust-free and free of substances that could impair bonding of adhesive materials to subfloor surfaces.

C. Cementitious Subfloor Surfaces: Verify that substrates are ready for flooring installation by testing for moisture and alkalinity (pH).
   1. Obtain instructions if test results are not within limits recommended by flooring material manufacturer and adhesive materials manufacturer.

3.02 PREPARATION

A. Prepare floor substrates as recommended by flooring and adhesive manufacturers.

B. Remove subfloor ridges and bumps. Fill minor or local low spots, cracks, joints, holes, and other defects with subfloor filler.

C. Apply, trowel, and float filler to achieve smooth, flat, hard surface. Prohibit traffic until filler is cured.

D. Vacuum clean substrate.

3.03 INSTALLATION

A. Starting installation constitutes acceptance of subfloor conditions.

B. Install carpet tile in accordance with manufacturer's instructions.

C. Blend carpet from different cartons to ensure minimal variation in color match.

D. Cut carpet tile clean. Fit carpet tight to intersection with vertical surfaces without gaps.

E. Lay carpet tile in square pattern, with pile direction parallel to next unit, set parallel to building lines.

F. Trim carpet tile neatly at walls and around interruptions.

G. Complete installation of edge strips, concealing exposed edges.

END OF SECTION

SECTION 099000
PAINTING AND COATING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Surface preparation.

B. Interior painting and coating systems.

C. Exterior painting and coating systems.

D. Scope:
   1. This Contractor shall paint all exterior and interior building materials as required for a finished installation or as noted on drawings.
   2. Finish surfaces exposed to view, unless fully factory-finished and unless otherwise indicated, including but not limited to the following: .
      a. Exposed gas piping (on roof and elsewhere) and meter, electric disconnect/conduits/meter socket, etc.
      b. Roof sanitary vents, furnace flue/air intake, non-shingle roof elements, mechanical vents/louvers in walls, etc.
      c. Vertical and horizontal sheet metal pipe chases.
      d. Interior concrete floors.
      e. Miscellaneous items as required for a finished installation.
      f. Millwork not factory finished.
      g. Patch Paint - any surface that was not exposed prior to this work and becomes exposed as a result of this work.
      h. Items as called out in drawings.
   3. Patch painting as called out in drawings and as required for a finished appearance.
   4. Contractor shall acquaint himself with all divisions of the specifications and drawings, as he shall paint or finish to completion all materials requiring painting or finishing which are left un-finished.

1.02 RELATED REQUIREMENTS

A. Section 016000 - Product Requirements

B. Section 017000 - Execution and Closeout Requirements

1.03 REFERENCE STANDARDS

A. SSPC-SP 1 - Solvent Cleaning 2015, with Editorial Revision (2016).

B. SSPC-SP 2 - Hand Tool Cleaning 2018.

C. SSPC-SP 6 - Commercial Blast Cleaning 2007.

D. SSPC-SP 13 - Surface Preparation of Concrete 2018.

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements for submittal procedures.

B. Product Data: Provide complete list of products to be used, with the following information for each:
   1. Product characteristics.
   2. Surface preparation instructions and recommendations.
   3. Primer requirements and finish specification.
   4. Storage and handling requirements and recommendations.
   5. Application methods.
   6. Clean-up information.

C. Samples: Submit four paper draw down samples, 8-1/2 by 11 inches (216 by 279 mm) in size, illustrating range of colors available for each finishing product specified.

D. Applicator's qualification statement.

E. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 016000 - Product Requirements for additional provisions.
   2. Extra Paint and Finish Materials: 1 gallon (4 L) of each color; from the same product run, store where directed.
   3. Label each container with color in addition to manufacturer's label.

1.05 QUALITY ASSURANCE

A. Applicator Qualifications: Company specializing in performing the type of work specified with minimum 3 years experience and approved by manufacturer.

1.06 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, product name, product code, color designation, VOC content, batch date, environmental handling, surface preparation, application, and use instructions.

C. Paint Materials: Store at a minimum of 45 degrees F (7 degrees C) and a maximum of 90 degrees F (32 degrees C), in ventilated area, and as required by manufacturer's instructions.

D. Handling: Maintain a clean, dry storage area to prevent contamination or damage to materials.

1.07 FIELD CONDITIONS

A. Do not apply materials when environmental conditions are outside the ranges required by manufacturer.

B. Follow manufacturer's recommended procedures for producing the best results, including testing substrates, moisture in substrates, and humidity and temperature limitations.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Basis of Design Products: Subject to compliance with requirements, provide Sherwin-Williams Company (The) products indicated; www.sherwin-williams.com/#sle.

B. Comparable Products: Products of approved manufacturers will be considered in accordance with 016000 - Product Requirements, and the following:
   1. Other Acceptable Manufacturers:

2.02 PAINTINGS AND COATINGS

A. General:
   1. Provide factory-mixed coatings unless otherwise indicated.
   2. When required, mix coatings to correct consistency in accordance with manufacturer's instructions before application.
   3. Do not reduce, thin, or dilute coatings or add materials to coatings unless specifically indicated in manufacturer's instructions.

B. Accessory Materials: Provide primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials as required for final completion of painted surfaces.

2.03 PAINT SYSTEMS - EXTERIOR

A. Exterior Ferrous Metal - Paint

1 Coat: SW Pro Industrial Pro Cryl Universal Primer, B66 Series (5-10 mil wet, 1.8-3.6 mil dry)

2 Coats: SW Pro Industrial Acrylic Semi-Gloss, B66 Series (6-12 mil wet, 2.1-4.2 mil dry)

B. Exterior Galvanized Metal – Paint

1 Coat: SW Pro Industrial Pro Cryl Universal Primer, B66 Series (5-10 mil wet, 1.8-3.6 mil dry)

2 Coats: SW Pro Industrial Acrylic Semi-Gloss, B66 Series (6-12 mil wet, 2.1-4.2 mil dry)

2.04 PAINT SYSTEMS - INTERIOR

A. Interior Drywall – Paint Latex

1 Coat: SW ProMar 200 Zero VOC Interior Latex Primer, B28 Series (4 mil wet, 1.0 mil dry)

2 Coats: SW ProMar 200 Zero VOC Interior Latex Eg-Shel, B20 Series (4 mil wet, 1.5 mil dry)

B. Interior Wood - Paint

1 Coat: SW Prep Premium Wall and Wood Interior Latex Primer, B28 Series (4 mil wet, 1.6 mil dry)

2 Coats: SW ProMar 200 Zero VOC Interior Latex Eg-Shel, B20 Series (4 mil wet, 1.5 mil dry)

C. Interior Concrete Block/Brick - Paint

1 Coat: SW Pro Industrial Heavy-Duty Block Filler, B42 Series (16.0-21.0 mil wet, 8.0-10.5 mil dry)

2 Coats: SW ProMar 200 Zero VOC Interior Latex Semi-Gloss, B31 Series (4 mil wet, 1.5 mil dry)

D. Interior Ferrous Metal – Paint

1 Coat: SW Pro Industrial Pro Cryl Universal Primer, B66 Series (5-10 mil wet, 1.8-3.6 mil dry)

2 Coats: SW Pro Industrial Acrylic Semi-Gloss, B66 Series (6-12 mil wet, 2.1-4.2 mil dry)

E. Interior Galvanized Metal – Paint

1 Coat: SW Pro Industrial Pro Cryl Universal Primer, B66 Series (5-10 mil wet, 1.8-3.6 mil dry)

2 Coats: SW Pro Industrial Acrylic Semi-Gloss, B66 Series (6-12 mil wet, 2.1-4.2 mil dry)

F. Interior Concrete Floor – Non Slip Epoxy Coating

2 Coats EUCOPOXY TUFCOAT (2 Part Epoxy Clear or Colored Semi-Gloss Coating)

Shall be as manufactured by the Euclid Chemical Co., Cleveland, OH. Color to be clear or solid color as selected. Coating shall be installed after all major work is complete and when floor is completely dry. Thoroughly clean concrete floor of all grease, oil, dirt, etc. per manufacturer directions, for proper adherence and so once sealed, a uniform appearance is achieved. Refer to manufacturer's recommendations for cleaning and if floor is acid cleaned, properly neutralize per manufacturer's recommendations before installing sealer.

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 affect proper application.

C. Test shop-applied primer for compatibility with subsequent cover materials.

3.02 PREPARATION

A. General - Before painting, remove hardware, accessories, plates, lighting fixtures, fire alarm devices, and other similar items, or provide ample protection of such items. Remove any clear covers or other items where the painted surface can be seen at completion. Upon completion of each space, replace above items. Use only skilled mechanics for removing and connection of above items.

B. Clean surfaces thoroughly and correct defects prior to application.

C. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

D. Remove mildew from impervious surfaces by scrubbing with solution of water and bleach. Rinse with clean water and allow surface to dry.

E. All hairline cracks, splits, gouges, scratches and alligatored surfaces shall be spackled with Durabond 90, following manufacturer's recommendations. Prime these areas with a heavy-duty primer similar to Sherwin Williams Prep Rite High Build Latex Primer, B28W601 (1-4 Mills Dry).

F. Roughen up and clean all surfaces as required by manufacturer for proper bonding of product used to the material/surface being prepped.

G. Concrete:
   1. Remove release agents, curing compounds, efflorescence, and chalk.
   2. Fill bug holes, air pockets, and other voids with cement patching compound.
   3. Prepare concrete according to SSPC-SP 13.

H. Masonry: Remove efflorescence and chalk.

I. Gypsum Board: Fill minor defects with filler compound; sand smooth and remove dust prior to painting.

J. Plaster: Fill hairline cracks, small holes, and imperfections with patching plaster. Make smooth and flush with adjacent surfaces. Treat textured, soft, porous, or powdery surfaces in accordance with manufacturer's instructions.

K. Concrete Floors and Traffic Surfaces: Prepare concrete according to SSPC-SP 13.

L. Aluminum: Remove surface contamination and oil; wash with solvent according to SSPC-SP 1.

M. 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.

N. 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. Prime bare steel surfaces.
   3. Remove rust, loose mill scale, and other foreign substances using methods recommended by paint manufacturer and blast cleaning according to SSPC-SP 6. Protect from corrosion until coated.

O. Wood: Remove dust, grit, and foreign matter. Scrape, sand, and spot prime knots and pitch streaks. Fill nail holes and imperfections with wood filler and sand smooth.

3.03 APPLICATION

A. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.

B. All paint shall be installed in strict conformance with manufacturer's specifications. Surface to be painted shall be clean, dry, smooth and adequately protected from weather. Temperature shall be above 50 degrees F.

C. Finished work shall be uniform, of approved color, smooth and free from runs, sags, defective brushing, clogging, or excessive flooding.

D. Small cracks, holes and other imperfections in masonry surfaces, which show up after primer-sealer has been applied to the surface shall be filled with an approved spackling compound before application of second coat.

E. Paint or finish all work specified herein and all work customarily painted for appearance or protection, as well as other specified items of work scheduled to be painted in room finish schedule.

F. Apply coatings at spread rate required to achieve manufacturer's recommended dry film thickness.

G. Regardless of number of coats specified, apply additional coats until complete uniform color, hide, and sheen is achieved.

H. All patch painting shall be done in neat logical configurations, stopping at logical break points, such as inside or outside corners, at change of materials, or as directed by the Owner/Architect.

3.04 PRIMING

A. Apply primer to all surfaces unless specifically not required by coating manufacturer. Apply in accordance with coating manufacturer's instructions.

B. Primers specified in painting schedules may be omitted on items factory primed or factory finished items if acceptable to top coat manufacturers.

3.05 CLEANING

A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

B. Clean surfaces immediately of overspray, splatter, and excess material.

C. After coating has cured, clean and replace finish hardware, fixtures, and fittings previously removed.

3.06 PROTECTION

A. Protect finished coatings from damage until completion of project.

B. Touch-up damaged finishes after Substantial Completion.

END OF SECTION

SECTION 312200
GRADING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Finish grading.

1.02 RELATED REQUIREMENTS

A. Section 016000 - Product Requirements

B. Section 017000 - Execution and Closeout Requirements

C. Section 311000 - Site Clearing.

D. Section 312316 - Excavation.

E. Section 312316.13 - Trenching: Trenching and backfilling for utilities.

F. Section 312323 - Fill and Testing: Filling and compaction.

G. Section 329219 - Seeding: Finish ground cover.

1.03 SUBMITTALS

A. Project Record Documents: Accurately record actual locations of utilities remaining by horizontal dimensions, elevations or inverts, and slope gradients.

PART 2 PRODUCTS

2.01 MATERIALS

A. Topsoil: See Section 312323.

B. Other Fill Materials: See Section 312323.

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.

3.02 PREPARATION

A. Identify required lines, levels, contours, and datum.

B. Stake and flag locations of known utilities.

C. Locate, identify, and 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. Protect trees to remain by providing substantial fencing around entire tree at the outer tips of its branches; no grading is to be performed inside this line.

H. Protect plants, lawns, rock outcroppings, and other features to remain as a portion of final landscaping.

3.03 ROUGH GRADING

A. Remove and replace soils deemed unsuitable by classification and which are excessively moist due to lack surface water control.

3.04 SOIL REMOVAL

A. Stockpile excavated topsoil on site.

B. Stockpiles: Use areas designated on site by owner; pile depth not to exceed 8 feet (2.5 m); protect from erosion.

3.05 FINISH GRADING

A. Before Finish Grading:
   1. Verify subgrade has been contoured and compacted.
   2. Before placing fill, remove all debris subject to termite attack, rot or corrosion and other deleterious materials from area to be backfilled. Deposit backfill in layers not more than 8" thick. All fill material shall be reasonably free from roots, plaster, bats and frozen or otherwise unsuitable material. Stones larger than 4" shall not be permitted in the upper 6" of fill. Compact fill in layers. The finished sub-grade shall be brought to elevations indicated and sloped to drain water from building to match flush with existing grades

B. In all earth/grass areas that remain in final design, within the contract limits, shall be scarified, earth turned over/rototilled, graded, raked, seeded and mulched for an all new grass area.

C. Near plants spread topsoil manually to prevent damage.

D. Distribute topsoil to bring areas not occupied by walks, etc., to finish grade as shown on drawings. Finish grade shall be raked smooth and seeded. Topsoil shall be minimum of 4" thick. Fine grade topsoil to eliminate uneven areas and low spots. Maintain profiles and contour of subgrade.

E. Lawn areas to be rough graded to same slope as final grades specified (less topsoil thickness). Work level, drag, semi-compact and roll. All areas shall be free of all debris that might interfere or work-up through top soil and plant materials.

F. Finish grades shall correspond with existing grades, unless otherwise indicated. Excess top soil from stockpile that is left after finish grades are met shall be distributed on site, or removed as directed by Owner - grade smooth without dips and not to pond water, seed and mulch.

G. Maintain stability of topsoil during inclement weather. Replace topsoil in areas where surface water has eroded thickness below specifications.

3.06 TOLERANCES

A. Top Surface of Subgrade: Plus or minus 0.10 foot (1-3/16 inches) (30 mm) from required elevation.

B. Top Surface of Finish Grade: Plus or minus 0.04 foot (1/2 inch) (13 mm).

3.07 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. Other Existing Vegetation to Remain: If damaged due to this work, replace with vegetation of equivalent species and size.

3.08 FIELD QUALITY CONTROL

A. See Section 312323 for compaction density testing.

3.09 CLEANING

A. Remove unused stockpiled topsoil. Grade stockpile area to prevent standing water.

B. Leave site clean and raked, ready to receive landscaping.

END OF SECTION

SECTION 312316.13
TRENCHING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Trenching for new utilities.

B. Backfilling and compacting for utilities outside the building to utility main connections.

1.02 RELATED REQUIREMENTS

A. Section 016000 - Product Requirements

B. Section 017000 - Execution and Closeout Requirements

C. Section 312200 - Grading

D. Section 312316 - Excavation

E. Section 312323 - Fill and Testing

1.03 REFERENCE STANDARDS

A. AASHTO T 180 - Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18 in.) Drop 2021, with Errata (2022).

B. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3)) 2012 (Reapproved 2021).

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).

PART 3 EXECUTION

2.01 EXAMINATION

A. Verify that survey bench marks and intended elevations for the work are as indicated.

2.02 PREPARATION

A. Identify required lines, levels, contours, and datum locations.

B. Locate, identify, and protect utilities that remain and protect from damage.

C. Protect bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

D. Protect plants, lawns, rock outcroppings, and other features to remain.

E. Grade top perimeter of trenching area to prevent surface water from draining into trench. Provide temporary means and methods, as required, to maintain surface water diversion until no longer needed, or as directed by the Architect.

2.03 TRENCHING

A. Do all excavations of whatever substances encountered to depths indicated.

B. Notify Architect of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.

C. Grade the bottom of trenches accurately. Grade to provide a uniform bearing support for each section of pipe. Shore and brace sides of excavations as required.

D. Slope banks of excavations deeper than 4 feet (1.2 meters) to angle of repose or less until shored.

E. Do not interfere with 45 degree bearing splay of foundations.

F. Cut trenches wide enough to allow inspection of installed utilities.

G. Hand trim excavations. Remove loose matter.

H. Remove excavated material that is unsuitable for re-use from site.

I. Remove excess excavated material from site.

J. Provide temporary means and methods, as required, to remove all water from trenching 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.

K. Determine the prevailing groundwater level prior to trenching. If the proposed trench extends less than 1 foot (305 mm) into the prevailing groundwater, control groundwater intrusion with perimeter drains routed to sump pumps, or as directed by the Architect.

2.04 PREPARATION FOR UTILITY PLACEMENT

A. Cut out soft areas of subgrade not capable of compaction in place. Backfill with general fill.

B. Compact subgrade to density equal to or greater than requirements for subsequent fill material.

C. Until ready to backfill, maintain excavations and prevent loose soil from falling into excavation.

D. See Section 312323 Fill and Testing for additional work/requirements.

E. Trenches shall not be backfilled until inspections and tests have been performed.

2.05 FIELD QUALITY CONTROL

A. See Section 014000 - Quality Requirements, for general requirements for field inspection and testing.

B. Evaluate results in relation to compaction curve determined by testing uncompacted material in accordance with ASTM D1557 ("modified Proctor"), AASHTO T 180, or ASTM D698 ("standard Proctor").

C. If tests indicate work does not meet specified requirements, remove work, replace and retest.

END OF SECTION

SECTION 312323
FILL AND TESTING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Backfilling and compacting for utilities outside the building to utility main connections.

B. Filling holes, pits, and excavations generated as a result of removal (demolition) operations.

1.02 RELATED REQUIREMENTS

A. Section 015713 - Temporary Erosion and Sediment Control: Slope protection and erosion control.

B. Section 016000 - Product Requirements

C. Section 017000 - Execution and Closeout Requirements

D. Section 033000 - Cast-in-Place Concrete.

E. Section 312200 - Grading: Site grading.

F. Section 312316 - Excavation: Removal and handling of soil to be re-used.

G. Section 312316.13 - Trenching: Excavating for utility trenches outside the building to utility main connections.

1.03 REFERENCE STANDARDS

A. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System) 2017, with Editorial Revision (2020).

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements, for submittal procedures.

B. Product Data for Manufactured Fill.

C. Compaction Density Test Reports.

1.05 QUALITY ASSURANCE

A. Testing Agency Qualifications: Independent firm specializing in performing testing and inspections of the type specified in this section.

1.06 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 indicated.
   1. Separate differing materials with dividers or stockpile separately to prevent intermixing.
   2. Prevent contamination.
   3. Protect stockpiles from erosion and deterioration of materials.

1.07 WARRANTY

A. See Section 017800 - Closeout Submittals, for additional warranty requirements.

PART 2 PRODUCTS

2.01 FILL MATERIALS

A. General Fill: Subsoil excavated on-site Subsoil excavated on-site.
   1. Free of lumps larger than 3 inches (75 mm), rocks larger than 2 inches (50 mm), and debris.
   2. Complying with ASTM D2487 Group Symbol CL.

B. Granular Fill - Fill Type 21A, 25A, and others as called out on plans: Coarse aggregate, complying with State of Michigan/Ohio Highway Department standards.

C. Sand - Shall be Class 2 NS yellow bank sand, meeting ASTM C-33 compacted and tested in maximum 8" lifts from bottom of excavation
   1. Grade in accordance with ASTM D2487 Group Symbol SW.

D. Topsoil - Fill under lawns with new top soil furnished from off-site shall be natural, fertile, friable soil obtained from natural well drained areas and possessing characteristics of representative productive soil in vicinity. Shall be easily worked. Soil shall not be excessively acid, alkaline or contain toxic substances harmful to plant growth. Soil shall be without admixtures of subsoil and shall be cleaned, reasonably free from clay, lumps, stones, stumps, roots or similar substances 1" or larger in diameter, or other objects which might be a hindrance to planting operation. Topsoil 4" compacted depth and finely raked to finished elevations shown. Top soil from stockpile on site (stripped soils) may be re-used, providing it is clean, without rocks, grass, etc. as noted for new.

E. Stabilized Concrete Backfill (Ready Mixed Flowable Fill, RFF) - Shall consist of a mixture of 1,700 lbs. fly ash (dry weight), meeting ASTM C-618, 90 lbs., Type I Cement, meeting ASTM C-150 and 100-120 gallons of water for a 1.29 water-cement ratio and a minimum of 50 psi compressive strength at 28 days, similar to M-Crete as distributed by Messina Concrete Inc., of Monroe, MI. The flowable fill mixture shall be delivered to the job site in a revolving drum mixer truck and the temperature of the mix shall be at least 50^0F. when placed. Submit mix design as shop drawing to the Architect.

2.02 SOURCE QUALITY CONTROL

A. See Section 014000 - Quality Requirements, for general requirements for testing and analysis of soil material.

B. Where fill materials are specified by reference to a specific standard, testing of samples for compliance will be provided before delivery to site.

C. If tests indicate materials do not meet specified requirements, change material and retest.

PART 3 EXECUTION

3.01 EXAMINATION

A. Identify required lines, levels, contours, and datum locations.

B. Verify areas to be filled are not compromised with surface or ground water.

3.02 PREPARATION

A. Scarify and proof roll subgrade surface to a depth of 6 inches (150 mm) to identify soft spots.

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.

E. Sub-grade (new and existing) shall be tested and approved by an independent Soils Engineer before placing of concrete slabs, paving, footings, etc. The Contractor shall utilize the same testing company who performed the soils report in this manual or one who will support the same findings/recommendations. This Contractor shall pay for all fees, inspections, reports, compaction tests, etc. and submit all reports verbally, followed in writing, to the Architect before placing additional fill or new work. Lifts shall be limited to 8" maximum. Testing shall include all existing and new fill (stone and sand). Footing bearing tests to be minimum of 2,000 lbs. per square feet.

3.03 FILLING

A. Trenches shall not be backfilled until inspections and tests have been performed.

B. If suitable bearing is not encountered at the depth indicated on drawings for foundation, the Contractor shall immediately notify the Architect. He shall not proceed further until instructions are given and necessary measurements made for purpose of establishing additional volume of excavation

C. Place footings and foundations upon undisturbed and firm bottoms. Fill any excess cuts under footings with concrete.

D. Do not place footings or slabs on frozen ground. Protect bottoms of trenches and excavations with straw or other suitable materials.

E. Fill to contours and elevations indicated using unfrozen materials.

F. Employ a placement method that does not disturb or damage other work.

G. Systematically fill to allow maximum time for natural settlement. Do not fill over porous, wet, frozen or spongy subgrade surfaces.

H. Maintain optimum moisture content of fill materials to attain required compaction density.

I. Slope grade away from building minimum 2 inches in 10 feet (50 mm in 3 m), unless noted otherwise. Make gradual grade changes. Blend slope into level areas.

J. Correct areas that are over-excavated.
   1. Other areas: Use general fill, flush to required elevation, compacted to minimum 97 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.

3.04 FILL AT SPECIFIC LOCATIONS

A. Provide all cutting, filling and grading necessary to bring areas indicated to the following minimum sub-levels (or sub-levels as noted on plans):
   1. Under Building slabs - 8" below underside of slab with min. 4" #21A C.I.P.
   2. Under Walks - 8" below finish grade (4" #21A stone fill minimum under walks).
   3. Under other areas (grass) - 4" below finish grade (4" topsoil required).
   4. Under Paving - depths as noted on plans or min. 12" below finish surface (8" #21A stone and 4" of asphalt).
   5. Under Roadway - M.D.O.T. #25-A C.I.P. pipe bedding to 6" minimum cover above water line, M.D.O.T. #21-A C.I.P., or control density backfill 50-100 P.S.I. to within 8" of underside of existing pavement (8" minimum #25-A C.I.P. to underside of pavement). Concrete/asphalt roadway patching to match existing thickness.
   6. Under paving Area at porous fill for pipe bedding (water/storm/sanitary) - M.D.O.T. #25-A C.I.P. to be 3" minimum thickness under pipe, 6" minimum width both sides, with 6" minimum cover over pipe. Fill trench to bottom of stone/paving depth.
   7. Under Lawn Area at porous fill for pipe bedding (water/storm/sanitary) - sand C.I.P. to be 3" minimum thickness under pipe, 6" minimum width both sides, with 6" minimum cover over pipe. Fill trench to 4" below finished grade for 4" topsoil required.
   8. General Lawn Areas - Good clean excavated/stripped materials (without grass clumps, rocks, etc.) may be used as base (clay/sand) fill in lawn areas within contract limits. Excess topsoil may be used as final surfacing in lawn areas.

3.05 TESTING / FIELD QUALITY CONTROL

A. See Section 014000 - Quality Requirements, for general requirements for field inspection and testing.

B. REQUIRED TESTS/AREAS:
   1. Footing Bearing Tests - At each wall location, approximately every 20 lineal feet, depending on soil type changes. Critical locations to be at all columns, major beam bearing points, and against existing building.
   2. Building Slab Density Tests – Shall be taken at approximately 15’ x 15’ grid starting against inside of walls, at all corners, under thickened slabs and other critical areas.
   3. Paving Stone Density Tests - Approximately every 5,000 S.F., at edges, around catch basins, over utility trenches, major drive lanes, cut outs, patches, etc.
   4. Testing of Sub-Base (Top of Stripped Soils) & Any New Fill (Sand/Stone) - Shall be made in every cut out area (1 of 2 points) and in other areas at the minimum rate of 1 for every 5,000 S.F. of paving surface. The actual locations in the field shall be as recommended and/or selected by the testing company and in any questionable areas as requested by the Architect/Owner. The testing and/or re-testing shall occur until the specifications are

met and until the Testing Engineer submits report, stating that the surface is suitable for the next phase of work.

C. Density tests shall be taken by the testing lab using a calibrated nuclear densometer registered for the soils/fill type and density based on actual proctor.

D. In lieu of, and in conjunction with the nuclear densometer, the stripped cut base (natural soils) and the new stone base may be proofed rolled with a 20 to 30 ton hard rubber tired vehicle in the presence and direction of the testing lab technician.

E. C.I.P. (Compact in Place) Fill - Shall be thoroughly compacted to 95% capacity at optimum moisture content as determined by the ASTM D 1557 (Modified Proctor) as indicated on plans or specified herein.

F. Fill at asphalt drive areas shall be thoroughly compacted to 95% capacity at optimum moisture content as determined by the ASTM D 1557 (Modified Proctor). Existing soils within the paving limits (upper 6") shall be compacted to a minimum of 95% relative density before placing and compacting new fill.

G. Fill occurring under supported concrete entrance platforms shall be loose forming, not tamped. Fill under other slabs shall be thoroughly compacted to 95% capacity at optimum moisture content as determined by the ASTM D 1557 (Modified Proctor). Existing soils within the building limits (upper 6") shall be compacted to a minimum of 95% relative density before placing and compacting new fill.

3.06 CLEANING

A. All debris (trees, stumps, roots, paving, rocks, stone, concrete, etc.) shall be entirely removed from the premises.

B. Good excavated materials remaining at completion of work (clay, sand, topsoil -no trees, roots, limbs, etc.), shall be neatly and seperately stockpiled in areas on site as directed by Owner. Contractor shall grade level and seed excess materials not scheduled for re-use. If no areas are available on site for distribution, Contractor shall remove.

C. Leave borrow areas in a clean and neat condition. Grade to prevent standing surface water.

END OF SECTION

SECTION 329219
SEEDING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Preparation of subsoil.

B. Placing topsoil.

C. Hydroseeding, mulching and fertilizer.

1.02 RELATED REQUIREMENTS

A. Section 016000 - Product Requirements

B. Section 017000 - Execution and Closeout Requirements

C. Section 312200 - Grading: Topsoil material.

D. Section 312200 - Grading: Preparation of subsoil and placement of topsoil in preparation for the work of this section.

1.03 SUBMITTALS

A. See Section 013000 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Seed mix design, fertilizer

C. Maintenance Data: Include maintenance instructions, cutting method and maximum grass height; types, application frequency, and recommended coverage of fertilizer .

1.04 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.

PART 2 PRODUCTS

2.01 REGULATORY REQUIREMENTS

A. Comply with regulatory agencies for fertilizer and herbicide composition.

2.02 SEED MIXTURE

A. Sod – Only certain areas shall be sodded as noted on drawings. If not noted, entire area shall be seeded/or hydroseeded.
   1. Sod shall be best quality of Kentucky Blend grass and composed of 50% Baron. 30% Penn Lawn Fescue. 20% Fulkying. Samples shall be submitted to the Architect for approval prior to cutting and shipping.
   2. Sodding shall be done on previously prepared surface. Correct all soft spots and inequalities before laying sod. Sod shall be laid without void between strips. Tamp or roll sod after laying. Final appearance to be true to grade, smooth, even and firm at all points. Protect sodded areas from displacements of any kind. Lightly sprinkle well screened soil over sodded areas being corrected and keep moist for three weeks.

B. Seeding or Hydroseeding - The following is a suggested seed mix design. The Contractor shall submit for review and approval to the Architect during shop drawing stage, the mix that best suits the site conditions and performs best to insure growth, durability, density and longevity.
   1. 20% Baron Ky Bluegrass
   2. 15% Kenblue/Newport KY Bluegrass
   3. 35% Shadow/Jamestown Chewing Fescue
   4. 30% Palmer/Citation II Per Ryegrass
      a. Maximum weed content shall be .05%, purity 90% and germination 85%.

C. Operation:

2.03 ACCESSORIES

A. Mulching Material: Oat or wheat straw, free from weeds, foreign matter detrimental to plant life, and dry. Hay or chopped cornstalks are not acceptable.

B. Fertilizer: Recommended for grass, with fifty percent of the elements derived from organic sources; of proportion necessary to eliminate any deficiencies of topsoil, to the following proportions:
   1. Nitrogen: 24 percent.
   2. Phosphoric Acid: 25 percent.
   3. Soluble Potash: 4 percent.

C. Water: Clean, fresh and free of substances or matter that could inhibit vigorous growth of grass.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that prepared soil base is ready to receive the work of this Section.

3.02 PREPARATION

A. Prepare subgrade in accordance with Section 312200.

B. Place topsoil in accordance with Section 312200.

3.03 FERTILIZING

A. Spread fertilizer with mechanical spreader at a rate of 20 lbs. per 1,000 sq. ft., and/or at rate as recommended by seed manufacturer - incorporate into top soil to a depth of 2 inches or if Hydroseeding, incorporate in the Hydro-Slurry mix at a rate of four hundred pounds per acre.

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. Mix thoroughly into upper 2 inches (50 mm) of topsoil.

E. Lightly water to aid the dissipation of fertilizer.

3.04 HYDROSEEDING

A. Seed - sown evenly at a minimum rate of 6 lbs. per 1,000 sq. ft. and as recommended by manufacturer. Apply seed mixture by Hydro-seeding.

B. Do not hydroseed area in excess of that which can be mulched on same day.

C. Immediately following seeding, apply mulch to a thickness of 1/8 inches (3 mm). Maintain clear of shrubs and trees.

D. Apply water with a fine spray immediately after each area has been mulched. Saturate to 4 inches (100 mm) of soil.

E. Following germination, immediately re-seed areas without germinated seeds that are larger than 4 by 4 inches (100 by 100 mm).

F. Owner will assume maintenance of seeded area, regarding watering and mowing.

G. After a suitable period of time for normal germination and growth to begin, Contractor shall re-check job with Owner and re-seed where required to establish a final dense lawn.

3.05 PROTECTION

A. Identify seeded areas with stakes and string around area periphery.

3.06 CLEAN-UP

A. Any paved areas which hauling operations are conducted shall be cleaned daily. Any top soil or other dirt or debris which may be dropped on the surface shall be removed promptly. As the various sections of work are completed, the ground shall be cleared of all debris and surplus materials resulting from the Landscape Contractor's operations.

END OF SECTION