

1015 North 98th Street Suite 300 Omaha, NE 68114-2334

architecture landscape architecture interior design construction management



OPS Mills Electrical Service Replacement

4311 North 30th Street Omaha, NE 68111 Project Manual Combined Contract

BCDM Project Number: 5444-02 June 9, 2024

TABLE OF CONTENTS

DIVISION 00 - PROCUREMENT AND CONTRACTING REQUIREMENTS

00 01 07	SEALS PAGE
SECTION 1	BID INVITATION
SECTION 2	CONTRACT SPECIFICATIONS
SECTION 3	PROJECT DRAWINGS AND TECHNICAL SPECIFICATIONS
SECTION 4	BID SUBMISSION INFORMATION & GUIDELINES
SECTION 5	GENERAL TERMS AND CONDITIONS

BID PROPOSAL FORM SIGNATURE PAGE PERFORMANCE LABOR MATERIAL BOND

DIVISION 01 – GENERAL CONDITIONS

- 01 10 00 SUMMARY OF WORK
- 01 31 13 COORDINATION
- 01 33 00 SUBMITTAL PROCEDURES
- 01 33 19 PROGRESS AND PRE-INSTALLATION MEETINGS
- 01 35 23 SAFETY PRECAUTIONS AND PROGRAMS
- 01 40 00 QUALITY REQUIREMENTS
- 01 41 16 DEFINITIONS AND STANDARDS
- 01 50 00 TEMPORARY FACILITIES AND CONTROLS
- 01 66 00 STORAGE AND PROTECTION
- 01 70 00 PROJECT CLOSE-OUT
- 01 73 29 CUTTING AND PATCHING
- 01 74 23 FINAL CLEANING
- 01 77 19 FINAL ACCEPTANCE FORM
- 01 78 30 WARRANTIES AND BONDS
- 01 78 39 PROJECT RECORD DOCUMENTS

DIVISIONS 02 THROUGH 07 – NOT USED

DIVISION 08 – OPENINGS

08 11 13 HOLLOW METAL DOORS AND FRAMES 08 71 00 FINISH HARDWARE

DIVISION 09 – FINISHES

09 21 16	GYPSUM BOARD ASSEMBLIES
09 65 00	RESILIENT FLOORING
09 91 23	INTERIOR PAINTING
09 99 90	COLOR SCHEDULE

DIVISIONS 10 THROUGH 23 – NOT USED

DIVISION 26 – ELECTRICAL

26 01 00	GENERAL ELECTRICAL REQUIREMENTS
26 05 00	BASIC ELECTRICAL MATERIALS AND METHODS
26 22 00	DRY-TYPE TRANSFORMERS (1000 V AND LESS)

BCDM No.: 5444-02

ADDENDUM 01

1. Specifications:

- Item #1: Remove the following specification sections:
- a) 08 11 13 Hollow Metal Doors and Frames
- b) 08 71 00 Finish Hardware
 c) 09 65 00 Resilient Flooring

,

Item #2: Add the following specification sections:

- a) 06 10 00 Rough Carpentry
 b) 07 21 00 Thermal Insulation
- c) 072500 Weather Barriers
- d) 07 46 00 Fiber Cement Siding
- e) 07 62 00 Sheet Metal Flashing and Trim
- f) 07 92 00 Joint Sealants
- g) 32 31 13 Metal Chain Link Fencing and Gates

Item #3: Revise the existing specification sections with the below specification sections:

- a) 09 21 16 Gypsum Board Assemblies
- b) 09 91 23 Interior Painting
 c) 09 99 90 Color Schedule

TABLE OF CONTENTS TOC-1 **OPS Mills Electrical Service Replacement**

- 26 24 13 SWITCHBOARDS
- 26 24 16 PANELBOARDS
- 26 43 13 SURGE PROTECTIVE DEVICES (SPD'S)

DIVISIONS 27 THROUGH 33 – NOT USED

DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS

SECTION 00 01 07 SEALS PAGE

1.01 OWNER

A. Omaha Public Schools
 4041 North 72nd Street
 Omaha, Nebraska 68134-4470
 Phone: 402-299-01800

1.02 DESIGN PROFESSIONALS OF RECORD

A. Coordinating Professional and Architect:

BCDM Architects 1015 North 98th Street, Suite 300 Omaha, Nebraska 68114-2334 Phone: 402-391-2211 Nebraska Certificate of Authorization #CA-0271



- 1. I, Alec Eastman, am the Coordinating Professional and Architect Coordinating Professional for the OPS Mills Electrical Service Replacement dated June 9, 2024.
- 2. Responsible for Divisions 08 and 09.
- B. Electrical Engineer:

Morrissey Engineering 4940 North 118th Street Omaha, Nebraska 68164 Phone: 402-491-4144 Nebraska Certificate of Authorization #CA-0835 Responsible for Division 26

END OF SECTION



Bid Invitation 25-029

TO BE CONSIDERED, BIDS MUST BE RECEIVED PRIOR TO THE DEADLINE LATE BIDS WILL NOT BE ACCEPTED

The Board of Education for Douglas County School District 0001 (Omaha Public Schools)

Invites bids on the following title:

OPS Mills – Electrical Service Replacement

RETURN TO:

Omaha Public Schools District Operational Services 3215 Cuming St., Omaha, Nebraska 68131

Bid Number	25-029
Date of Issuance of Bid	May 14, 2025
Prebid Meeting - Mandatory	May 23, 2025, 10:00 AM CT OPS Mills – Electrical Service Replacement 54311 N. 30 th St. Omaha, NE 68111
Deadline for Submission of Questions	May 30, 2025
Bid Submission Deadline	June11, 2025
Anticipated Bid Award & Board of Education Approval Timeline	June 16, 2025
Substantial Completion of Project	October 31, 2025

Question Submission Box	Questions_Clarifications_1@ops.org
Microsoft Teams Meeting Phone Number for Bid Opening	402-509-3892
Microsoft Team Conference ID for Bid Opening	64365159#
Address for in Person Bid Opening	District Operational Services Purchasing Division Omaha Public Schools 3215 Cuming Street Omaha, NE 68131

1.0 <u>BID INVITATION</u>

Douglas County School District 0001 ("Omaha Public Schools"), ("OPS" or "District") invites qualified bidders to submit bids to furnish OPS with all labor, materials, tools, equipment, utility and transportation services and related work necessary for the replacement of the electrical service (switchgear) equipment at the OPS Mills Building located at located at 4311 N. 30th, Omaha, NE 68111. The work includes, but not limited to underground primary conduits, intercept and connect to existing conduits stubbed out from pad, provide final connection to integral disconnect and equipment required to provide the complete replacement of the electrical service. (herein as "the Project" and may also be referred to as "the Work") in accordance with the following bid specifications and plans developed by the District and Vireo, a more detailed description of the Work to be performed is in Section 2.0, Contract Specifications, Section 3.0, Project Drawings and Technical Specifications and in Exhibits A and B below. Bids must be completed on the bid form provided in the Bid Documents and submitted in accordance with the requirements stated in these Bid Documents. For purposes of this Bid, the term "Bid Documents" include the following documents: Bid Invitation, the Bid Submission Instructions and Requirements, the Contract Specifications, the Project Drawings and Technical Specifications, the General Terms and Conditions, the Bid Form and Signature Page, Exhibits A, Technical Specifications and Exhibit B Project Drawings and any Addenda issued prior to bid opening. The Bid Documents are not complete unless all of these documents are included. Bidders should review all the Bid Documents carefully before submitting a bid proposal since these Bid Documents, along with other documents that are referred to in the Bid Documents, will be incorporated into and will become a part of any Purchase Order or Contract (as hereinafter defined) between OPS and a successful bidder for the Work.

Please note the mandatory pre-bid meeting requirement for all potential bidders. See Section 4.4 below.

Submit bids in a sealed opaque envelope or container clearly marked on the exterior with the information listed below:

BID No. 25-029, OPS Mills - Electrical Service Replacement

Address:

Omaha Public Schools District Operational Services 3215 Cuming St. Omaha, NE 68131

Hand-delivered bids shall be brought to the Security Desk, East Entrance, Ground Floor.

2.0 CONTRACT SPECIFICATIONS

2.1 SPECIFICATIONS & SCOPE OF WORK

The Work called for in these Bid Documents includes the supply and installation of the equipment for the complete replacement of the electrical service at OPS Mills, located at 4311 N. 30th St. Omaha, NE 68111. The work includes, but not limited to underground primary conduits, intercept and connect to existing conduits stubbed out from pad, provide final connection to integral disconnect and equipment required to provide the complete replacement of the electrical service.

In general, all materials and equipment to be furnished by Contractor must be of good quality, new and unused, undamaged, and shall be constructed and installed as required in the Contract Documents and of the types of equipment and materials as specified.

It is the Contractor's responsibility to protect existing construction. In addition, daily removal of debris and repair of any damage due to work under this Contract is considered within the scope of Work and is the responsibility of the Contractor.

Contractor shall be responsible for the performance of all of the Work for the Project. Unless specifically prohibited by the Contract Documents, Contractor may retain qualified and responsible subcontractors for the performance of parts of the Work. Such subcontractors must be reasonably acceptable to the District. Contractor shall be fully responsible to District for all acts and omissions of the Contractor's subcontractors, suppliers, and other individuals or entities performing or furnishing any of the Work provided by or under the control of the Contractor, just as Contractor is responsible for Contractor's own acts and omissions. No acceptance by District of any such subcontractor, supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of the right of District to the completion of the Work in accordance with this Contract Documents. Contractor shall be solely responsible for scheduling and coordinating the Work of subcontractors, suppliers, and all other individuals or entities performing or furnishing any of the Work, which are under the control of Contractor.

All Work must be done in accordance with best trade practices using qualified workmen. All Work shall be performed in a manner that does not void any manufacturer's warranty.

All engineering work and plan preparations for shop drawings and other Contractor submittals shall be the responsibility of the Contractor, who shall utilize qualified and licensed engineers for such work.

2.2 WORK HOURS AND WORK DAYS

With respect to Work in or in connection with OPS occupied facilities, it is expected that all Work will be performed during normal working hours (6:30 am - 5:00 pm CT) on regular working days (Monday-Friday) exclusive of District observed holidays. Should the Contractor desire to work at other times, advance requests shall be made to the project manager so that the areas can be made available. OPS personnel must be on hand at any time work is in progress at such an occupied location.

2.3 CONTRACTOR EXPERIENCE AND PROJECT STAFFING

The District requires that the Contractor for this Project have a minimum of five (5) years experience with high-voltage work. Contractor and its personnel shall be duly licensed by the City of Omaha to perform the mechanical and electrical installation work required by the Contract with the District.

All work must be done in accordance with best trade practices using qualified workers. Qualified workers shall mean at least one (1) experienced journeyman for every two (2) workers on the job site. There shall be a minimum of three (3) workers from start of Project to completion. At all times, at least one of the Contractor's work crew must be fluent in English and able to communicate in the language of the remaining crew members.

2.4 PROJECT COMMENCEMENT, COMPLETION DATES AND LIQUIDATED DAMAGES

The performance of the Work shall commence upon receipt by Contractor of written notice to proceed from District. A notice to proceed will not be issued prior to execution of the Contract between the District and the Contractor, and in any event, not prior to June 16, 2025. Moreover, the District will not issue a notice to proceed until Contractor and the District have executed the Contract for the Project and the Contractor has furnished District with an insurance certificate and

a performance, labor, and material bond complying with the requirements of the Contract Documents.

Substantial Completion of the work shall be achieved not later than October 31, 2025. Final Completion shall be achieved not later than thirty (30) days after Substantial Completion is achieved.

If Contractor does not achieve Substantial Completion by the date set forth in this Section, as may have been extended by Change Order, Contractor shall pay to District as liquidated damages the sum of \$500.00 per day for each calendar day after the day set for Substantial Completion that Substantial Completion has not been achieved. See Section 5.34 below.

2.5 <u>ASBESTOS</u>

Asbestos containing materials (ACM) have NOT been found at the OPS Mills Building in the proposed work areas. It is the Contractor's responsibility to review and study the information that may relate to asbestos-bearing material with which the Contractor may come into contact. A document describing the general location and characteristics of this material is available in the building office or through the Asbestos Program Coordinator's office at 4041 North 72nd Street, Omaha, Nebraska 68134 for your review. During this Project, should any suspected material be found, Contractor should stop work in the area immediately and contact this office at 531-299-0180.

2.6 ASBESTOS DAILY AWARENESS

Contractor shall be responsible for coordinating a central sign-in location at the facility where the Project is located for enforcement of the District's requirements of the asbestos material awareness program. Each employee, subcontractor employee and other individuals under contract with the Contractor shall be advised of locations of any hazardous material at the facility. This sign-in certificate must be submitted weekly and prior to final closeout on the Project.

2.7 ASBESTOS REMOVAL, NOTIFICATION

All known and accessible asbestos-containing material has been identified for this Project area by the District's Environmental Division. In the event Contractor encounters suspect asbestos-containing or other hazardous materials at the Project site, Contractor shall stop work immediately in the suspected contaminated area and contact the District's Environmental Division at 531-299-0180.

2.8 EQUIPMENT AND INSTALLATION REQUIREMENTS

Contractor will be required to perform all Work and supply any and all equipment and accessories described in the Contract Documents or that are necessary for completion of the Project. This includes supplying accessories such as, wiring and electrical connections and labeling as required by the Contract Documents, or reasonably inferable therefrom, so that the equipment being supplied by Contractor will be fully operational in this facility.

Work at the Project site shall start within forty-eight (48) hours of delivery of equipment, provided notice to proceed has previously been given by the District.

2.9 WARRANTIES

Contractor's one (1) year warranty set forth in the General Terms and Conditions that are a part of the Contract Documents shall run for a period of one (1) year from Substantial Completion. Materials must be installed in a manner that does not void or limit any manufacturer's warranty for such materials. Prior to final completion, Contractor will take any corrective measures and work to assure that the full manufacturer's warranty will apply to this Project.

2.10 <u>COLLUSIVE BIDDING</u>

The bidder's submission of its bid response is the bidder's representation and guarantee to OPS that the prices quoted have been arrived at without collusion with any other eligible bidders and without an attempt to preclude OPS from obtaining the lowest possible competitive price, influencing the prices quoted by any other eligible bidder or discouraging other potential bidders from bidding.

2.11 ASSIGNMENT / SUBCONTRACTING

Contractor awarded the Contractor or issued the purchase order shall not assign the same in whole or in part to any other person or entity without the prior written consent of OPS, which shall not be unreasonably withheld. No interest of Contractor in the Contractor shall be transferred by operation of law.

If Contractor intends to utilize subcontractors for the performance of any services under the Contract, OPS shall have the right to review any subcontractors that the Contractor intends to use for this Contract. Any approved subcontractor shall meet all requirements of the Contract. Subcontractors selected by the approved Contractor will be the direct responsibility of such Contractor and not OPS. The responsibility for coordinating and managing the activities of a subcontractor lies with the Contractor and not OPS.

2.12 MATERIALS AND EQUIPMENT TO BE FURNISHED

The specifications for any required materials and equipment are contained in the Specifications Manual for the Project prepared by BCDM and Morrissey Engineering, which is a part of the Bid Documents and the Contract Documents.

3.0 PROJECT DRAWINGS AND TECHNICAL SPECIFICATIONS

The Project Drawings and Technical Specifications have been prepared by BCDM and Morrissey Engineering and are a part of the Bid Documents and of the Contract Documents. Those Plans and Specifications are detailed below.

3.1 <u>TECHNICAL SPECIFICATIONS</u>

Technical Specifications prepared by BCDM and Morrissey Engineering, inclusive of the construction Divisions and reports listed below are included and are to be included in the Bid Documents and the Contract Documents.

3.2 PROJECT DRAWINGS

Project Drawings prepared by BCDM and Morrissey Engineering, inclusive of the plan sheets listed below are included as Exhibit A, and are to be included in the Bid Documents.

Drawing Sheets: ES1-0 – Electrical Plans ES2-0 – Electrical Schedules and Diagrams

4.0 BID SUBMISSION INSTRUCTIONS AND REQUIREMENTS

4.1 <u>GENERAL</u>

To be considered, bids must be submitted in accordance with the bid instructions set forth in these Bid Documents. Failure to comply with the requirements of these bid instructions may result in the rejection of the bidder's bid proposal.

The term "Bid Documents" is defined in Section 1.0 of the Invitation to Bidders. The Bid Documents are incomplete if they do not contain all of the Bid Documents identified in that Section. Bids must be prepared on the unaltered bid form included in the Bid Documents with all required information provided and submitted in a sealed opaque envelope or container with the bid name, bid number and the date and time of the deadline for submitting bids noted on the exterior of the envelope or container. DO NOT SUBMIT BIDS ON ANY OTHER FORM. Bids must also include the original bid bond and all attachments required by the Bid Documents. E-mail, facsimile or telephone bids will not be accepted. Any incomplete bid or bid not complying with the Bid Documents may be rejected by the District.

Bids are due at 2:00 PM Central time on the due date specified in the Cover Page at the Teacher Administrative Center, 3215 Cuming Street, Omaha, Nebraska 68131. Hand-delivered bids shall be brought to the Security Desk, East Entrance, Ground Floor. Any bid received after the deadline for submission of bids will not be considered and will be rejected and returned to the bidder unopened. The risk of delivery rests solely on the bidder. The time stamp on the District's timeclock in the District Operational Services' offices will be the official clock utilized to determine the time for the close of submission of bids.

4.2 DISTRICT'S RIGHT

The District reserves the right to accept or reject any or all bids or any part thereof and to waive any and all technicalities and irregularities and award the Contract based on its determination of the best interests of the District.

4.3 PLANS AND SPECIFICATIONS

Bona fide bidders may inspect and obtain copies of the Plans and Specifications for the Project, prepared by the District and BCDM and Morrissey Engineering, and identified in Exhibit A of the Bid Documents, at any of the locations specified in the Bid Advertisement. Plans and Specifications are also available for download on the OPS Purchasing Department website.

4.4 MANDATORY PRE-BID MEETING

OPS will conduct a mandatory pre-bid meeting for interested bidders at OPS Mills Building, 4311 N. 30th St. Omaha, NE 68111, on May 23, 2025, at 10:00AM CT. All attendees are required to signin at that time, and only those who attend the pre-bid meeting will be allowed to submit a bid. Proposals received from bidders not attending the pre-bid meeting will be returned unopened. Questions may be asked at the pre-bid meeting. However, such questions and the answers given will not be transcribed or transmitted to the other potential bidders.

4.5 <u>BID QUESTIONS</u>

Any questions or requests for interpretation of these Bid documents must be submitted in writing by e-mail to the question submission box at the email address included on the cover page of the Bid Documents, by 2:00 p.m. CT on or before the deadline for submission of questions. The <u>subject</u> <u>line of the email must include at a minimum the Bid Name and Bid Number of the Project</u>. Both the question submission box address and the deadline are listed on the coversheet. Answers to questions will be posted on the OPS Purchasing website, the plan house websites in which the District has been requested plans be made available, and provided to all attendees who signed in at the Project pre-bid meeting, without indicating which Bidder submitted the question. The communications requirements have been established by the District to ensure a fair and equitable process for all potential respondents. The email address listed on the Bid Cover Page for questions

is the only authorized location and representative of the District who can respond to questions regarding this bid. Questions submitted in any other form, including by hard copy, facsimile and telephone, and questions submitted to an email address other than the one indicated in these Bid Documents will NOT be answered. Any attempt to communicate with or contact any Board Member, employee, or consultant of the District of in any manner having to do with any aspect of this bid may result in the disqualification of the Firm as a potential supplier.

4.6 <u>BID BOND</u>

An original certified check or cashier's check payable to the Board of Education or satisfactory original Bid Bond executed by the bidder and acceptable sureties in an amount equal to five percent (5%) of the amount of the bid shall be submitted with each bid (the certified or cashier's check and the bid bond may sometimes be collectively or individually referred to in these Bid Documents as the "Bid Security"). If an original cashier's or certified check or an original signed Bid Bond (not a photocopy) as required by this Section is not submitted the District with the bidder's bid submission in a sealed opaque envelope or container by the bid submission deadline, the bid will not be considered. To be valid, the Bid Bond submitted must have original signatures of both the bidder and the surety on the Bond, and if signed by an attorney-in-fact for the surety, a valid power of attorney from the surety must be attached to the Bid Bond. The Bid Security will be retained as liquidated damages in case the bidder awarded the Contract fails to furnish the required Performance, Labor and Material Payment Bond, insurance certificate, or sign the Contract within ten (10) days after presentation of the Contract to the successful bidder. If original Bid Security as required by this Section is not received by the District with bidder's bid proposal by the deadline for submission of bids, is submitted in any other manner, or is submitted to an address other than the one indicated in these Bid Documents, the bid by bidder failing to properly submit the Bid Security will NOT be considered, even if the bid was otherwise properly submitted. The bidder shall have all risk of failed or late delivery of the Bid Security.

4.7 BID PREPARATION

All bids must be completed and submitted on the unaltered OPS bid form that is a part of the Bid Documents. DO NOT SUBMIT BIDS ON ANY OTHER FORM. If a new bid form is issued by OPS by an Addendum to the Bid Documents, the new bid form must be used for bid submission, and using an earlier version of the bid form may result in the bid being rejected. Unless specifically allowed in the Bid Documents, only one bid form may be submitted by any bidder. All required blanks on the bid form must be completed and be initialed and dated where indicated and the final page of the bid form must be signed by an authorized representative of the bidder. All attachments and required information requested in the bid form must be furnished, together with the Bid Bond. Bids are to be submitted to the location specified in the Bid Documents by the time and date indicated in the Bid Documents. Bids are to be submitted in a sealed opaque envelope or container addressed as specified on the Invitation to Bid with the required notation on the exterior of the sealed envelope or container. The amount bid shall be the total cost to OPS for the successful bidder awarded the bid to provide and furnish all labor, materials, equipment, tools, expendable equipment and all utility and transportation services necessary to perform and complete in a workmanlike manner all of the Work required by the bid Documents. Bids that attempt to change, modify or add additional terms and conditions to the Bid Documents by conditioning a bid response upon the acceptance by OPS of Contract terms attached to a bid response or referencing in a bid response certain Contract terms on a web site shall be considered non-complying bids by OPS and the bid may be rejected by OPS.

4.8 <u>BID SUBMITTAL</u>

To be considered, one (1) copy the bidder's proposal prepared in compliance with the requirements of the Bid Documents must be submitted to the District by the proposal deadline listed on the Cover Page. The amount bid shall be the total cost to OPS for the Work specified, inclusive of all the labor, materials, equipment, tools, supplies and services enumerated in the Bid Documents,

together with all insurance costs, delivery costs, duties, surcharges, tariffs and brokerage costs and no additional amount will be paid by OPS to the successful bidder for the Work. No bidder will be allowed to offer more than one price. Bids that attempt to change, modify or add additional terms and conditions to the Bid Documents will be rejected by OPS. Bids must be signed by an authorized signatory for bidder and initialed and dated where indicated. Bids and Bid Security must be submitted in hard copy to the address specified in the Bid Documents by the time and date indicated in the Bid Documents. The time stamp on the Purchasing Department time clock will be the official clock utilized to determine the time for the close of submissions. Bids may be submitted either in person or by mail or courier to the address shown on the cover page. All submitted bids must comply with the following requirements:

- Bidder must include the Bid Proposal with the completed Signature page.
- Bid Security equal to 5% of the bidder's bid amount as previously described in Section 4.6.
- The bid must be submitted in hard copy with the bid title and bid number written on the exterior of the envelope or container containing the bid.
- All required attachments must be submitted with the bid proposal.

4.9 <u>BID ATTACHMENTS</u>

Bidders shall include with their bid responses the following attachments: (i) summary of the manufacturer's warranty terms for the materials and equipment the bidder is proposing to furnish; and (ii) the specifications for the Contractor furnished materials and equipment specified in Plans and in the Specification Manual of the Bid Documents that the bidder is proposing to furnish.

4.10 BID SUBMISSION DEADLINE

Bids are due by 2:00 p.m. Central time on the due date specified one the Cover Page and in the Bid Documents. Bids received after 2:00 p.m. Central time on the due date are considered late and will be returned unopened. OPS is not responsible for ANY late bids due to failure or delay in mail delivery. The bid must be received by the time and date indicated on the bid document. The risk of delivery rests solely on the bidder. Late bids will not be accepted. The time stamp maintained by District Operational Services shall be the official clock for determining when the time for submission of bids has closed.

4.11 WITHDRAWALS AND RESUBMISSIONS

Withdrawal of a bid may be made by a bidder any time prior to 2:00 p.m. Central time on the bid due date. A withdrawal may only be done by the bidder's written notification delivered to the same address where the bid was originally submitted, with the following notation on the exterior of the envelope containing the withdrawal: "Withdrawal of Bid" including the Bid number and the Bid title. The withdrawal notification must be received by the OPS Purchasing Division prior to the date and time of the bid submission deadline. An attempted withdrawal in any other form, including email, facsimile, telephone or oral withdrawal request will not be honored. An addendum or bid modification in lieu of a withdrawal is NOT acceptable and will be rejected. If properly withdrawn, a bid may be resubmitted in accordance with the Bid Documents so long as it is re-submitted prior to the deadline for submission of bids. All bids submitted and not withdrawn as specified in the Bid Documents shall remain open and be subject to acceptance for ninety (90) days after the bid due date and may not be withdrawn prior to the expiration of such 90-day period.

4.12 OPENING OF BIDS OR PROPOSALS

Bids will be opened and read aloud in public at the Omaha Public Schools Teacher Administrative Center, District Operational Services, 3215 Cuming St, Omaha, Nebraska 68131, immediately following the bid submission deadline stated on the Bid Document Cover Page. Those submitting bids can attend in person or remotely join the opening by accessing Microsoft Teams meeting at 1 402-509-3892 within the United States Phone Conference ID is listed on the Bid Cover Page. If attending in person, please arrive at the security desk at least 10 minutes prior to the 2:00 PM CT deadline.

4.13 BID TABULATIONS

Notes may be taken at the public reading of the bids at the specified time and date of the opening, or a personal inspection may be made of the bids after award has been made and documents are placed in central files in the Purchasing Division offices. In lieu of a visit, copies of the bid tabulations are available. The cost for a bid tabulation copy is \$5.00 for any tabulation up to 20 pages in length. There is an additional charge of \$.25 for each page in excess of 20 pages. Make checks payable to Douglas County School District 0001. Bidders may include a request for a bid tabulation copy with its bid response or may contact the OPS buyer to make a request. The buyer will notify the bidder regarding the cost of the bid tabulation once it is known.

4.14 BIDDER REPRESENTATION

In submitting a proposal, the Contractor represents that it has read the Bid Documents, that its bid is submitted in accordance therewith, that the bidder is familiar with the local conditions that may affect the bid and the performance of the Work by the successful bidder and that the bidder has all required governmental licenses to perform the type of Work required.

4.15 COLLUSIVE BIDDING

The bidder's submission of its bid response is the bidder's representation and guarantee to OPS that the prices quoted have been arrived at without collusion with any other eligible bidders and without an attempt to preclude OPS from obtaining the lowest possible competitive price, influencing the prices quoted by any other eligible bidder or discouraging other potential bidders from bidding.

4.16 POST-BID EVALUATIONS

Prior to recommendation to the Board of Education for the bid award, District will review the apparent low bidder's qualifications and credible experience in similar projects to assure that the bidder meets the experience required by the District in the Contract Specifications that are a part of the Bid Documents. As part of that evaluation, the District reserves the right to ask any bidder to provide references of companies that contracted with Contractor for similar projects, including the following information: Company Name(s), Contact Name, Phone Number, and Email Address.

4.17 <u>BID AWARD</u>

OPS reserves the right to reject any or all bids or any part thereof and to waive any and all technicalities and irregularities. This is an all or nothing bid, and the bid will only be awarded to one bidder. The OPS Board of Education must approve all bid awards and contracts of \$50,000.00 or more. Except due to a holiday or an extenuating circumstance, the Board generally meets the first and third Monday of each month for approval of bids and purchases. Approval or award of a bid by OPS or its Board of Education does NOT constitute a contract between OPS and the bidder and no contract shall be deemed created, nor shall OPS be deemed obligated in any manner to bidder, until such time as the bidder furnishes the required Performance, Labor and Material Payment Bond, insurance certificate and an Agreement is signed by Contractor and OPS, or a Purchase Order is issued by OPS if no separate Contract is required. OPS will either sign an Agreement with or issue an official Purchase Order to the successful bidder which, together with the other Contract

Documents incorporated therein, will constitute the Contract with OPS for the construction of the Project as specified in the Agreement or Purchase Order and will incorporate by reference into the Agreement or Purchase Order the Contract Documents (defined in the General Terms and Conditions, in Section 5.1 below). If an Agreement is to be executed, OPS will submit to the successful bidder after the bid award the Agreement form that will be utilized by the parties.

5.0 GENERAL TERMS AND CONDITIONS

5.1 <u>GENERAL</u>

The term "Contract Documents", as used herein, means those documents that together form the Contract or Agreement between OPS and that consist of the following: the Agreement between OPS and the Contractor, all of the Bid Documents, the Information to Bidders (Section 1.0), the Contract Specifications (Sections 2.0 to 2.12, inclusive), the Drawings and Technical Specifications (Sections 3.0 to 3.2, inclusive), the Bid Submission Instructions and Requirements (Sections 4.0 to 4.17), the General Terms and Conditions (Sections 5.0 to 5.39, inclusive), the Bid Form, the form of the Performance, Labor, and Material Bond, Exhibits A and B, any Addenda issued by OPS, Contractor's completed Bid Form including all attachments, and any subsequent modifications. The Contract Documents are incorporated by reference into the Contract between OPS and Contractor and are a part of that Agreement. In the event of any conflict between the Contractor's completed Bid Form and the other Contract Document, the other Contract Documents shall control. The term "Contractor" as used herein, means the successful bidder that contracts with the District to furnish the Work being bid.

All work to be performed by Contractor shall be performed in a good and workmanlike manner and in conformance with the requirements of the Contract Documents.

The Contract Specifications in Sections 2.0 and the Project Drawings (Exhibit B) and Technical Specifications (Exhibit A) prepared by BCDM and Morrissey Engineering and Drawings in Section 3.0 are all incorporated into the Contract Documents provide the minimum requirements for materials, workmanship, construction, and finish. In general, all equipment to be furnished must be of good quality, new, unused, in good condition and undamaged and shall be constructed and installed as specified and of types of equipment and material as specified. Materials of equal or better quality by another manufacturer may be acceptable but only if submitted to the District in advance as a permitted alternate and approved by the District.

5.2 <u>CONTRACTOR'S RESPONSIBILITY</u>

Prior to commencing work, Contractor shall furnish to the District the bond and insurance certificates required by the Contract Documents. It shall be the responsibility of the Contractor to review and understand the Plans and Specifications, to check the Plans and Specifications carefully to ensure accurate fit of its particular items of equipment, and to field verify all on-job dimensions.

Contractor and District personnel will also meet for a pre-construction meeting and survey. The survey shall document the existing condition of interior finishes and existing spaces, sidewalks, driveways, doorways, windows, etc. adjacent to areas of Work. It shall also identify acceptable dumpster locations, construction parking, and Contractor-furnished watering stations and locations for temporary sanitary facilities for use by construction personnel.

Projects involving asbestos containing materials require Contractor to meet with the District's Environmental Division at (531-299-0180) prior to starting work to ensure compliance with State of Nebraska Asbestos Control Program Regulations.

Contractor shall have all assigned workers of Contractor and any subcontractors be approved through OneSource and provide documentation of such to the District. All assigned Contractor and subcontractor employees shall wear proper identification badges as provided by OneSource.

Contractor shall protect all existing construction. Repair of any damage caused due to work under the Contract Documents is the responsibility of the Contractor and shall be promptly completed as such damages arise. Similarly, Contractor shall repair any damage to the property of the District caused by Contractor or any subcontractor of Contractor.

Contractor and each subcontractor shall always enforce strict discipline and good order among employees and shall not employ on the work site any unfit person or anyone not skilled in the work assigned. Clothing shall not depict profane or vulgar images, words, or phrases unsuitable for students or staff. The District strictly prohibits the illegal use of drugs, alcohol consumption, and the possession of permitted and/or non-permitted firearms within the boundaries of District property.

Contractor will provide at its expense temporary sanitary facilities for use by construction personnel. District restrooms shall not be used by construction personnel.

5.3 CHANGES IN THE WORK

No change in the work required shall be made unless pursuant to a written change order that is approved by the District. No claim for an increase in the amount to be paid to Contractor or any extension of time to complete the Work shall be valid unless allowed by such approved change order.

5.4 LABOR PRACTICES

It shall be the Contractor's responsibility to prevent any labor disputes due to Contractor's actions at the job site. In this regard, Contractor shall adhere to the following minimal guidelines to avoid labor disputes.

5.4.1 Become familiar with labor practices in existence at the job site as established by the existing contractors, and ensure that these practices are in place and enforced at all times during the performance of the work specified in these General Conditions.

5.4.2 Use experienced, established laborers and contractors for any work pertinent to the transportation, loading, unloading, distribution, uncrating and installation of all equipment, accessories and materials necessary for the performance of the work specified in these General Conditions.

5.5 <u>NON-DISCRIMINATION</u>

OPS does not discriminate on the basis of race, color, national origin, religion, sex (including pregnancy), marital status, sexual orientation, disability, age, genetic information, gender identity, gender expression, citizenship status, veteran status, political affiliation or economic status in its programs, activities and employment and provides equal access to the Boy Scouts and other designated youth groups. The following individual has been designated to accept allegations regarding non-discrimination policies: Superintendent of Schools, 3215 Cuming Street, Omaha, NE 68131 (531-299-9822). The following persons have been designated to handle inquiries regarding the non-discrimination policies: Director of Equity and Diversity (equityanddiversity@ops.org), 3215 Cuming St, Omaha, NE 68131 (531-299-0307).

5.6 USE OF TOBACCO PRODUCTS

There shall be no smoking or use of any tobacco or vaping products on/or within the property limits of District property. This regulation shall be enforced by the Contractor.

5.7 WORKER VERIFICATION

The Contractor contracting with the District shall be required to register with and utilize an electronic verification system or program, whether the work authorization program of the Illegal Immigration Reform and Immigrant Responsibility Act of 1996. 8 U.S.C. 1324a, now known as the "E-Verify Program" or an equivalent federal program designated by the Department of Homeland Security or other federal agency authorized to verify the work eligibility status of a newly hired employee pursuant to the Immigration Reform and Control Act of 1986. The Contractor shall require all subcontractors performing work under the Contract to also register and utilize such electronic The Contractor awarded the Contract and all of such Contractor's verification system. subcontractor(s) shall use such electronic verification system to determine the work eligibility status of each new employee physically performing any services within the State of Nebraska under the Contract. Any person whom the electronic verification system determines is ineligible or not authorized to work in the United States shall not be permitted by the Contractor or any subcontractor to perform services in Nebraska under such Contract. The Contractor shall provide such reasonable documentation as District may request from time to time during the performance of the Contract and for 5 years thereafter documenting compliance with the provisions of this Section. Failure to comply with the provisions of this Section shall constitute a default under the Contract with the District.

5.8 <u>CIVIL RIGHTS</u>

Contractor will comply with Title VI of the Civil Rights Act of 1964 (P.L. 88-352), as amended by the Equal Opportunity Act of 1972, all requirements imposed by or pursuant to the Regulations of the Department of Education (34 C.F.R. Part 100) issued pursuant to that title, the Pregnancy Discrimination Act of 1978, Federal Executive Order 11246, the Federal Rehabilitation Act of 1973, as amended, the Vietnam Era Veteran's Readjustment Assistance Act of 1974, Title IX of the Education amendments of 1972, the Age Act of 1972, the Americans With Disabilities Act of 1990, the Genetic Information Nondiscrimination Act of 2008, and the Nebraska Fair Employment Practice Act, Neb. Rev. Stat. §48-1122. Contractor agrees no person in the United States shall on the grounds of race, color or national origin, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity for which OPS receives federal financial assistance from the Department; and hereby gives assurance that the Institution will immediately take any measures necessary to effectuate this Agreement. Contractor further agrees to comply with all applicable requirements of state and local laws, ordinances, and regulations regarding nondiscrimination in employment. Contractor agrees not to discriminate in its employment practices and will render services under this Agreement without regard to race, color, national origin, religion, sex (including pregnancy), marital status, sexual orientation, disability, age, genetic information, gender identity, gender expression, citizenship status, veteran status, political affiliation or economic status. Any act of discrimination committed by Contractor or failure to comply with these statutory obligations when applicable shall be a default under the Contract Documents.

5.9 <u>EMPLOYEE ELIGIBILITY</u>

If the Contract with OPS requires physical performance of services in the State of Nebraska, as determined under Nebraska law, the Contractor awarded the Contract shall be required to register with and utilize an electronic verification system or program, whether the work authorization program of the Illegal Immigration Reform and Immigrant Responsibility Act of 1996, 8 U.S.C.1324a, now known as the "E-Verify Program" or an equivalent federal program designated by the Department of Homeland Security or other federal agency authorized to verify the work eligibility status of a newly hired employee pursuant to the Immigration Reform and Control Act of 1986.Contractor shall contractually require all subcontractors performing work under such Contract to also register and utilize such electronic verification system. The Contractor awarded the Contract

and all of such Contractor's subcontractors shall use such electronic verification system to determine the work eligibility status of each new employee physically performing any services within the State of Nebraska under the Contract. Any person whom the electronic verification system determines is ineligible or not authorized to work in the United States shall not be permitted by Contractor nor any subcontractor to perform services in Nebraska under such Contract. Contractor shall provide such reasonable documentation as OPS may request from time to time during the performance of the Contract and for five (5) years thereafter documenting compliance with the provisions of this Section. Failure to comply with these provisions will constitute a default under any Contract awarded by OPS.

5.10 SUBCONTRACTING

If Contractor intends to utilize subcontractors for the performance of any services under the Contract, OPS shall have the right to review any subcontractors that the Contractor intends to use for this Contract. Any approved subcontractor shall meet all requirements of the Contract. Subcontractors selected by the Contractor will be the direct responsibility of such Contractor and not OPS. The responsibility for coordinating and managing the activities of a subcontractor lies with the Contractor and not OPS.

5.11 TERMINATION OF CONTRACT

In the event that the Contractor executes a Contract with OPS, or is issued a Purchase Order, and fails or refuses to perform such Contract or Purchase Order according to its terms, or in the event such Contractor otherwise defaults in the performance thereof, OPS may, in addition to all other rights that it may have at law or equity, terminate such Contract or Purchase Order, and may enter into a Contract with another vendor for the same product or service. Any additional costs incurred by OPS in obtaining such Products or services from a substitute contractor, shall be paid by Contractor to OPS, in addition to any other damages that OPS may have suffered due to such default. In the event of such termination, the Contractor shall not be entitled to any further payment under the Contract. Should the cost of completing the performance of the Contractor, at that time exceed unpaid balance of the Contract price, the Contractor shall pay the difference to OPS upon demand by OPS, and in addition may recover any other damages as OPS is entitled to recover for Contractor's breach of Contract.

5.12 PUBLIC BENEFIT

For purposes of complying with Neb. Rev. Stat. §§ 4-108 through 4-114, if the Contractor is a sole proprietorship or a general partnership, the Contractor represents to OPS that the sole proprietor each general partner, as applicable, are citizens of the United States or that are qualified aliens under the federal Immigration and Nationality Act. Any qualified alien must provide to OPS that person's immigration status, alien number and a copy of their USCIS documentation upon request by the District.

5.13 GOVERNING LAW, JURISDICTION, AND FORUM SELECTION

The laws of the State of Nebraska shall govern the interpretation and performance of the Contractor Purchase Order between OPS and Contractor and of the Contract Documents without regard to its conflicts of laws principles. The Contractor who enters into the Contract with OPS or accept a Purchase Order from OPS shall irrevocably consent and submit to the personal jurisdiction of the state and federal courts of Nebraska. Any action brought to enforce or interpret any provision of the Contract Documents shall be brought in the state or federal courts located in Douglas County, Nebraska. The Contractor hereby acknowledges and agrees that the state and federal courts located in Douglas County, Nebraska, are proper and convenient forums in which to litigate any matter pertaining to the Bid Documents and the Contract Documents.

5.14 INDEMNITY

Contractor, on behalf of itself and its successors and assigns, hereby agrees to indemnify, defend, and hold harmless OPS and its Board members, officers, agents and employees, from any or all losses, damages, claims, liabilities, judgments, costs and expenses (including reasonable attorney's fees and expenses) arising out of or in connection with: (i) any act or omission of Contractor or Contractor's agents, contractors or employees; (ii)any default, breach, violation or non-performance of the Contract between the Contractor and OPS or (iii) any injury to persons or property or loss of life caused by Contractor or by Contractor's agents, contractors or employees, other than any such claims that are caused solely by the negligent or intentional act or omission of OPS, or its employees, agents, or contractors.

5.15 PROHIBITED ITEMS

There shall be no smoking or use of any tobacco or vaping products on/or within the property limits of OPS property. OPS strictly prohibits the illegal use of drugs, alcohol possession or consumption, and the possession of permitted and/or non-permitted firearms within the boundaries of District property. These regulations shall be enforced by the Contractor.

5.16 EMPLOYEE CLASSIFICATION

The Contractor agrees to abide by the provisions of Neb. Rev. Stat. 48-2901 to 48-2912, also known as the Employee Classification Act. In compliance with the Act, the Contractor shall to submit to District upon execution of the contract and upon request an affidavit attesting that (1) each individual performing services for the Contractor is properly classified under the Employee Classification Act, (2) the Contractor has completed a Federal I-9 immigration form and has such form on file for each employee performing services, (3) the Contractor has complied with Neb. Rev. Stat. § 4-114, (4) the Contractor has no reasonable basis to believe that any individual performing services for such Contractor is an undocumented worker, and (5) as of the time of this Contract, the Contractor is not barred from contracting with the state or any political subdivision pursuant to Section 48-2912. The Contractor acknowledges that a violation of the Act is grounds for rescission of this Contract by District. The Contractor further acknowledges that providing a false affidavit under Section 48-2911 to District may subject the Contractor to the penalties of perjury and upon a second or subsequent violation the Contractor shall be barred from contracting with the state or any political subdivision for a period of three years after the date of discovery of the falsehood. The Contractor shall require any and all subcontractors who perform work pursuant to the Contract to provide a similar affidavit, which shall be made available to the District upon request.

5.17 DISTRICT FURNISHED INFORMATION

Construction Drawings of facility areas that are furnished by District are approximate and subject to on-site verification by the Contractor. Drawings are for clarification only and are not to scale.

5.18 SHOP DRAWINGS

If required by the Contract Documents, the Contractor shall furnish one (1) copy of shop drawings to the District for approval before fabrication. The District will not be responsible for or accept any equipment or material that is not constructed or manufactured in conformity with the approved shop drawings, Plans and Specifications. The District will review shop drawings as soon as reasonably practical after they are submitted.

5.19 PERFORMANCE AND PAYMENT BOND

If the amount of the Contractor's Contract exceeds \$10,000, the Contractor shall furnish within ten (10) days of the award of the Contract a Contractor's Performance, Labor and Material Payment Bond for the full and faithful completion of the work required by the Contract Documents in a sum

equal to the full amount of the Contract price executed by a corporate bonding company licensed to transact such business in the State of Nebraska and acceptable to the District. To be valid, the Performance, Labor and Material Bond submitted must be signed by both the Contractor and the surety on the Bond, and if signed by an attorney-in-fact for the surety, a valid power of attorney from the surety must be attached to the Bond. The expense of such bond shall be borne by the Contractor. If at any time, in the judgement of the District, a surety on such a bond becomes unable to perform its commitments under such bond, or is otherwise unacceptable to the District, the Contractor shall furnish a substitute bond, with acceptable surety, within ten (10) calendar days after receipt of written notice to do so. There shall not be a lapse in any bond furnished by Contractor. The bond must be provided on the bond form attached to these Bid Documents.

5.20 FEDERAL TAXES

OPS is exempt from state and city sales and use taxes and no sales or use taxes shall be included in the bid or collected from OPS. The OPS tax-exempt number is 05-0597767. OPS will provide the Contractor with its tax-exempt form upon request. Where Federal statutes exempt OPS from the payment of excise or manufacturer's taxes on materials or equipment, bidders shall exclude the amount of any Federal excise or manufacturer's taxes from its bid. Contractor shall comply with all applicable federal tax laws.

5.21 NEBRASKA STATE AND CITY SALES AND USE TAX

The District, a tax-exempt governmental unit, will appoint the Contractor to be its Purchasing Agent for the purpose of obtaining materials to be incorporated into the Work contemplated by these Bid Documents without the payment of sales or use taxes. Materials to be incorporated into the Project shall be purchased tax exempt from Nebraska sales and use taxes in the name of the District; and the bidder shall exclude from its bid all State of Nebraska and Local Option Sales and Use Tax for materials. The bidder shall include State of Nebraska and Local Option Sales and Use Tax for materials which are used or consumed in performing the Work but which are not incorporated into the completed Project.

5.22 <u>SOILS</u>

If any soil is brought onto District property, it must be tested for environmental contaminates. Borrow soils used for the purposes other than for structural fill, such as finish grade, topsoil or surcharge, are required to be tested in the same manner for environmental contaminates. Contractor will inform District of the location of borrow soil no less than two weeks prior to its use on District property. Testing will include the collection of not less than three samples per borrow site. The District and/or their designated representative will perform soil sample collection.

Lead content of soil will be determined by analysis using either flame or furnace atomic absorption spectroscopy. Laboratories performing analysis for lead in soil will be certified by the National Lead Laboratories Accreditation Program (NLLAP) by mandatory participation in the Environmental Lead Proficiency Analytical Testing (ELPAT) program. Lead content will be reported as parts per million (ppm). Should any of the soil samples report a lead concentration greater than 200 ppm, the soil will not be allowed for use on District properties.

5.23 ASBESTOS, PCBs, OR HAZARDOUS WASTE

All known and accessible asbestos-containing material, polychlorinated biphenyls (PCBs) and hazardous waste has been or will be removed from the Project area by the District's Environmental Division. In the event Contractor encounters suspect asbestos-containing, PCB contaminated or other hazardous materials at the Project site, Contractor shall stop work immediately in the suspected contaminated area and contact the District's Environmental Division at 531-299-0180.

No asbestos containing products shall be used or installed in any District facility.

5.24 WORKER'S COMPENSATION INSURANCE

Each Contractor shall maintain at its own expense until completion of this Project and acceptance thereof by the District, Workers' Compensation Insurance coverage, covering the obligations of the Contractor in accordance with the provisions of the laws of the State of Nebraska. In case any Work is subcontracted, the Contractor shall require subcontractors similarly to provide such insurance covering the subcontractor's obligations to its employees. Each Contractor shall furnish the District with a certificate on or before the date the Agreement is signed, that such Contractor is covered by Worker's Compensation insurance for protection of their employees as required by law.

5.25 INSURANCE

The Contractor shall maintain such insurance as will protect themselves, any subcontractor, and the District, from claims arising from property damage liability, and from claims for damages because of bodily injury, including death, which may arise from and during the operations under and during the life of this Contract, whether such operations be by the Contractor or by any subcontractor or anyone directly or indirectly employed by either of them. This insurance shall be written in accordance with the limits of liability specified in the Contract Documents as outlined as follows and shall be written on an occurrence basis only. This insurance shall be written in accordance with the limits of liability specified in the following paragraphs. District shall be an additional insured on all insurance policies provided by Contractor. Contractor must at all times maintain the following insurance coverages:

Employer's Liability \$500,000 per accident \$500,000 disease, policy limit \$500,000 disease, each employee

Commercial General Liability Bodily injury and property damage liability \$1,000,000 per occurrence \$2,000,000 general aggregate \$2,000,000 completed operations aggregate \$1,000,000 personal and advertising injury

General Liability Coverage must include the following:

(1) General Aggregate to apply on a per project basis.

(2) District shall be named as Additional Insured on a primary and non-contributory basis including completed operations.

(3) Contractor agrees to waive its rights of recovery against District. Waiver of Subrogation in favor of (District) shall be added to the policy.

(4) Contractual liability coverage shall be on a broad form basis and shall not be amended by any limiting provisions or endorsements.

(5) Products and completed operations shall be maintained for duration of work and shall be further maintained for a minimum period of two (2) years after final acceptance and payment.

Automobile liability coverage insuring both bodily injury and property damage with limits of liability per occurrence of at least \$1,000,000 combined single limit. This insurance shall cover owned, non-owned and hired vehicles. Automobile liability insurance must also include insurance covering liability for transportation of asbestos containing materials.

Umbrella/Excess policy with limits of at least \$2,000,000. Policy shall provide liability coverage in excess of the specified Workers Compensation/Employers Liability, Commercial General

Liability and Auto Liability. Waiver of Subrogation in favor of the District shall be added to the policy. Policy limits shall apply on a per project basis.

All insurance required must be written by a company or companies licensed to transact such business either on an admitted or non-admitted basis in the State of Nebraska which are acceptable to the District. District shall be named as an additional insured on all such policies on a primary and non-contributory basis. All required policies of insurance and the certificates must provide for at least thirty (30) days written notice to District of any change in or cancellation of or termination of the coverage or coverages. All liability insurance to be furnished by Contractor shall provide "occurrence" coverage for any liability arising out of the Contract. Contractor shall maintain such liability insurance, including products and completed operations coverage, for a period of two (2) years after final acceptance of the work and shall provide District with certificates evidencing such coverage.

All projects where price quotes were solicited by bid or proposal must submit an individual insurance certificate noting all required coverages in place for that particular project prior to commencing any work on the project. Contractors or vendors who respond to small projects that are initiated by verbal request such as emergencies may submit an insurance certificate for general coverage in the amounts listed in this Section in force for a period of one-year.

5.26 BUILDERS' RISK/INSTALLATION FLOATER INSURANCE

Contractor will purchase and maintain Builder's Risk/Installation Floater Insurance equal to the amount of the Contract covering the entire Work at the Project site including all materials and equipment destined to become a part of the Work only if the Contractor is involved with construction activities related to the structural integrity of the building or any mechanical system of the building. The District and subcontractors will be an additional insured under this policy. The Contractor will be responsible for the deductible portion of any covered loss due to loss caused by or contributed by the negligent act of the Contractor or subcontractor. This deductible shall not exceed \$10,000. There will be a waiver of subrogation in favor of the District on all Builders' Risk/Installation Floater coverage. The District shall be named as an additional named insured on any Builders' Risk/ Installation Floater policy, and will be named as an additional insured and loss payee on any installation floater policy.

Minimum limits of at least: (\$TBD) Jobsite (\$TDB) Off-site at a Temporary Location (\$TBD) In Transit Riggers Limit: (\$TBD)

Contractor agrees to waive all rights of recovery against District and its agents, officers, directors and employees for any loss insured under such policy. Contractor's insurer shall endorse the policy to waive subrogation against the District and its agents, officers, directors and employees.

5.27 RIGGERS COVERAGE (if applicable)

If the Contractor will be using a crane or other equipment to rig or lift equipment or materials as part of this Project, the Contractor will maintain Riggers Coverage equal to the most expensive item rigged and lifted as part of the installation.

5.28 <u>PAYMENT</u>

Applications for payment may be submitted up to twice monthly. All such applications must be approved by the District's Board of Education at a regular meeting, usually held the first and third Monday of the month. Contractor should allow at least fourteen (14) business days prior to a Board

meeting when submitting payment applications. Contractor shall submit applications for progress payments via email to the Project Manager (PM) and the Schoolhouse Planning Accounts Payable inbox at (planning.ap@ops.org). Invoices must be approved and processed 10 workdays prior to the next Board date where approval is requested for payment. Payments are generally issued the Tuesday following the Board meetings on the first and third Mondays of a month, except in those instances when the normal twice-monthly Monday Board of Education meeting is delayed, due to a holiday or other extenuating circumstance.

Such application for payment shall be accompanied by such other documents as are required by the Contract Documents or that may be reasonably required by the District. Such application for payment shall be reasonably detailed and shall include the value of any Work performed and materials incorporated into the Work, based on the Contractor's approved schedule of values, less any applicable retainage and less the aggregate of all previous payments. Retainage in the amount of 10% of the amount of each application for payment shall be retained from each payment until the work is 50% completed at which time retainage shall be reduced to 5% of each subsequent application for payment. District may reinstate 10% retainage at any time as permitted by law. Based on the PM's observations and an evaluation of the Contractor's applications for payment as submitted to the PM, the PM will determine the amounts owing to the Contractor and will forward the Contractor's Certificates for Payment to District for review and action in such amounts and with such recommendations as PM deems appropriate. Final approval of any application for payment shall be made by the District. At Substantial Completion of the work, retainage will be paid to Contractor, less 125% of the amount estimated by District to complete any incomplete work and the amount of unsettled claims against Contractor. Final payment of all remaining unpaid amounts will be paid as provided in Section 5.29 (Final Payment and Closeout) hereof.

The Contractor shall maintain books, records, and documents in accordance with generally accepted accounting principles and procedures and which sufficiently and properly document and calculate all charges billed to OPS for a period of at least four (4) years following the date of final payment or completion of any required audit, whichever is later. Records to be maintained include both financial records and service records. The Contractor shall permit the Auditor of the OPS Board of Education or any authorized representative of OPS, and where Federal funds are involved, the Comptroller General of the United States, or any other authorized representative of Federal or State government, to access and examine, audit, excerpt and transcribe any directly pertinent books, documents, papers, electronically or optically stored and created records or other records of the Contractor relating to orders, invoices, or payments or any other documentation or materials pertaining to the Contract, wherever such records may be located during normal business hours. The Contractor shall not impose a charge for audit or examination of the Contractor's books and records. If an audit discloses incorrect billings or improprieties, OPS reserves the right to charge the Contractor for the cost of the audit and appropriate reimbursement. Evidence of criminal conduct will be turned over to the proper authorities.

5.29 FINAL PAYMENT AND PROJECT CLOSEOUT

Final payment shall not become due until the Contractor has provided the following documents to the District:

5.29.1 A satisfactorily completed punch list of deficiencies required to satisfy warranty requirements or been judged incomplete by District personnel.

5.29.2 A complete unconditional waiver and release of all lien and bond claims and rights arising out of this Contract, including Contractor and all subcontractors and all principal material suppliers or receipts showing payment in full in lieu thereof.

5.29.3 An affidavit of Contractor stating that the releases of liens payment receipts provided to the District by Contractor for labor and/or material supplied to the Project include all subcontractors and principal suppliers.

5.29.4 Contractor may, if any subcontractor refuses to furnish a lien waiver, furnish a bond satisfactory to the District, to protect District from against any bond claims or liens from such subcontractor.

5.29.5 Original Consent of Surety to Final Payment.

5.29.6 Material Safety Data Sheets (MSDS) for all materials used in the completion of work.

5.29.7 Original Contractor's one (1) year Labor & Workmanship Warranty.

5.29.8 Original Manufacturer's Material & Equipment Warranty with Contractor's assignment to the District.

If any lien remains unsatisfied after all payments are made, the Contractor shall refund to the District all monies the latter may be compelled to pay in discharging such a lien, including all costs, interest and reasonable attorney's fee.

5.30 <u>COMPLIANCE WITH LAW</u>

The Contractor, in performance of the Work called for in the Contract Documents, will comply with all applicable governmental laws, ordinances, regulations, and codes. Contractor shall have the necessary rights, licenses and approvals required to provide the specified Products and services.

The laws of the State of Nebraska shall govern the interpretation and performance of the Contract between OPS and Contractor and of the Contract Documents without regard to its conflicts of laws principles. The Contractor who enters into the Contract with the District shall irrevocably consent and submit to the personal jurisdiction of the state and federal courts of Nebraska. Any action brought to enforce or interpret any provision of the Contract Documents shall be brought in the state or federal courts located in Douglas County, Nebraska. The Contractor hereby acknowledges and agrees that the state and federal courts located in Douglas County, Nebraska, are proper and convenient forums in which to litigate any matter pertaining to the Bid Documents or the Contract.

5.31 DEFECTIVE WORK AND WARRANTIES

The District, or its designated representative, prior to final completion and acceptance of the Work, shall have the right to reject any work, materials, or equipment that are defective, which Contractor shall promptly correct. For a period of one (1) year from the date of Substantial Completion of the Contractor's work, the Contractor will, upon demand by the District, promptly make all repairs and replacements to the work at Contractor's cost due to any defects in the equipment, material or workmanship furnished and performed under the Contract Documents. This warranty is in addition to all other warranties provided in the Plans and Specifications. In addition to the Labor and Material Warranty, all manufacturers' warranties provided by the equipment or material manufacturers must be assigned to the District.

5.32 PERMITS

The successful Contractor shall be responsible for securing the necessary permits required to perform the work. Fees are not assessed against the District for permits issued by the Permits and Inspections Division, City of Omaha; however, fees for electrical work are assessed by the State of Nebraska and shall be paid by Contractor.

5.33 THE DISTRICT'S RIGHT TO DO WORK

If the Contractor should neglect to prosecute the work properly or fail to perform any provision of this Contract, the District, after seven (7) calendar days' written notice to the Contractor may, without prejudice to any other remedy it may have, make good such deficiencies and may deduct the cost thereof from the payment then or thereafter due the Contractor.

5.34 PERFORMANCE OF WORK AND LIQUIDATED DAMAGES

It is hereby understood and mutually agreed, by and between the Contractor and the District, that the date of beginning, rate of progress, and the time for completion of the work to be done hereunder are ESSENTIAL CONDITIONS of this Contract; and it is further mutually understood and agreed that the work embraced in this Contract shall be commenced on a date to be specified in the Specifications.

The Contractor agrees that the Project shall be prosecuted regularly, diligently and uninterruptedly at such rate of progress as will ensure full completion thereof within the time specified. It is expressly understood and agreed by and between the Contractor and the District, that the time for the completion of the Project described herein is a reasonable time for the completion of the same, taking into consideration the average climatic range and usual industrial prevailing in this locality.

IF THE CONTRACTOR SHALL NEGLECT, FAIL OR REFUSE TO COMPLETE THE PROJECT WITHIN THE TIME SPECIFIED IN THE CONTRACT DOCUMENTS, then the Contractor does hereby agree, as a part consideration for the awarding of this Contract, to pay to the District the amount specified in the Contract, not as a penalty, but as liquidated damages for such breach of Contract as hereinafter set forth, for each and every calendar day that the Contractor shall be in default after the time stipulated in the Contract for Substantial Completion of the Work.

The liquidated damages amount is fixed and agreed upon by and between the Contractor and the District because of the impracticability and difficulty of fixing and ascertaining the actual damages the District would in such event sustain, and said amount is agreed to be the amount of damages which the District would sustain and said amounts shall be retained from time to time by the District from current periodical estimates. It is further agreed that time is of the essence of each and every portion of this Contract and of the Plans and Specifications wherein a definite and certain length of time is fixed for the performance of any act whatsoever and where under the Contract an additional time is allowed for the completion of any Work, the new time limit fixed by such extension shall be of the essence of this Contract.

Contractor shall not be charged with liquidated damages for those days of delay that are solely due to the occurrence of any of the following that actually delay the performance of the Work:

(1) any material shortage caused by preference, priority or allocation order duly issued by the Government, or

(2) any unforeseeable causes 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, fires, floods, epidemics, quarantine, restrictions, strikes which preclude the Contractor from working on the site or from obtaining materials necessary to the progress of the work and material shortages due to freight or trade embargoes.

Provided that each case, the Contractor must, within seven (7) calendar days from the beginning of such delay from such cause, request an extension of time by change order, which must be approved by the District. The liquidated damages provision regarding delays does not in any way impact the District's right to recover its actual damages for defective performance of the contracted-for scope of Work.

5.35 DISTRICT'S RIGHT TO TERMINATE CONTRACT

The Contractor shall be in default and the Contract with Contractor may be terminated by the District should any one or more of the following conditions occur:

- 5.35.1 The Contractor should be adjudged as bankrupt.
- 5.35.2 The Contractor makes a general assignment for the benefit of creditors.
- 5.35.3 A receiver is appointed to take over the Contractor's affairs.

5.35.4 The Contractor fails to prosecute the Work with due diligence and carry the Work forward in accordance with the Project schedule and time limits set forth in the Contract.

5.35.5 The Contractor fails to promptly pay any subcontractor or suppliers without justification.

5.35.6 The Contractor fails to perform one or more of the provisions of the Contract.

In such cases, the District may serve written notice on the Contractor and the Surety on Contractor's performance bond stating its intention to exercise one or more of the remedies set forth in Section 5.36 and the grounds upon which the District bases its right to exercise such remedy.

5.36 DISTRICT REMEDIES FOR DEFAULT

In the event the District serves written notice referred to in Section 5.35 on Contractor, District may, without prejudice to any other right or remedy, exercise one or more of the following remedies at once.

5.36.1 The District may terminate the employment of the Contractor, effective immediately. Should the Contractor's Surety fail to commerce completion of the Contract within the ten (10) calendar days after notice of termination, the District may:

5.36.1.1 Take over the work, taking possession of and use all materials, tools, equipment and appliances on the premises, and

5.36.1.2 prosecute the work to completion by such means as it shall deem best.

In the event of such termination of employment, the Contractor shall not be entitled to any further payment under the Contract until the work is completed and accepted. If the unpaid balance of the Contract price, including compensation for any damages or expenses incurred by the District through the default of the Contractor at that time, exceeds the cost of completing the work, then such excess shall be paid to the Contractor upon completion and acceptance by District and satisfaction of any claims of District against Contractor. Should such damages or expenses incurred by the District through the default of the Contract price, the Contractor and his Surety shall pay the difference to the District.

5.36.2 The District may take control of the work and either:

5.36.2.1 Correct the deficiencies of the Contractor itself, or

5.36.2.2 Direct the activities of the Contractor and in doing so, employing such additional help as the District deems advisable.

In such event, the District shall be entitled to collect the cost thereof from the Contractor and its Surety, or deduct from any payment then or thereafter due the Contractor the cost incurred by the District to have such deficiencies corrected or expenses incurred through the default of the Contractor.

5.36.3 The District may require the Surety on the Contractor's bond to take control of the Work at once and see to it that all the deficiencies of the Contractor are corrected, with due diligence. As between the District and Contractor, the cost of correcting such deficiencies shall all be borne by the Surety.

5.36.4 If the Surety takes over the Project, either upon termination of employment of the Contractor or upon instructions from the District to do so, the provisions of the Contract Documents shall govern in respect to Work done by the Surety, the Surety being substituted for the Contractor as to such provisions including provisions as to payment for the Work and the provisions as to the right of the District to do the Work itself, or take control of the Work.

5.37 TERMINATION FOR CONVENIENCE

At any time during the term of the Contract, the District may terminate the Contract for its convenience and without cause by written notice to Contractor given at any time during the term if the Contract, which notice shall specify the effective date of termination. In the event that the District elects to terminate this Contract without cause, the District will remain obligated to take possession of and pay the Contract price for all Work that has been completed and accepted by the District at the time the notice of such termination is given. The parties shall be released of further obligation under the Contract except for those obligations that are to survive termination and the obligations of the parties.

5.38 GOVERNING LAW, JURISDICTION, AND FORUM SELECTION

The laws of the State of Nebraska shall govern the interpretation and performance of the Contract or Purchase Order between OPS and Contractor and of the Contract Documents without regard to its conflicts of laws principles. The Contractor who enters into the Contract with OPS or accept a Purchase Order from OPS shall irrevocably consent and submit to the personal jurisdiction of the state and federal courts of Nebraska. Any action brought to enforce or interpret any provision of the Contract Documents shall be brought in the state or federal courts located in Douglas County, Nebraska. The Contractor hereby acknowledges and agrees that the state and federal courts located in Douglas County, Nebraska, are proper and convenient forums in which to litigate any matter pertaining to the Bid Documents and the Contract Documents.

5.39 PUBLIC RECORDS

As a Nebraska political subdivision, OPS is subject to the requirements of the Nebraska public records laws (Neb. Rev. Stat. §§ 84-712 to 84-712.09), which allows members of the public to have access to any information or records, regardless of physical form, of or belonging to a Nebraska political subdivision, such as OPS. As defined by Nebraska law, examples of public records subject to disclosure during a bid procedure will include the Bid Documents, a bidder's bid and any other document submitted by a bidder to OPS, bidder questions and OPS responses, any contract between OPS and the successful bidder, any purchase order issued to the successful bidder by OPS, or any other public record in the possession of OPS regarding this bidding and contracting process, whether created before or after the Bid Documents were issued by OPS and whether created by OPS, the bidders or any other third party. These public records will be open to public inspection and copying unless exempted from disclosure in accordance with the OPS's interpretation and application of applicable law. Documents exempt from disclosure under the Nebraska public records laws are enumerated at Neb. Rev. Stat. §712.05. It shall be the sole responsibility of a bidder (a) to notify OPS, as soon as possible, of any requested redactions to any

such information or records provided by the bidder to OPS that may otherwise be required to be open to public inspection and copying and (b) to indicate the legal basis for such requested redactions. In addition, bidder agrees to defend OPS in any legal challenge to such requested redactions at the bidder's own expense. The failure of a bidder to request redactions to any information or records released by OPS shall constitute a complete waiver of any and all claims for damages caused by any such release. Any attempt by a bidder to request a redaction or otherwise claim confidentiality as to any public record in the possession of OPS will be ineffective and not, by itself, binding upon OPS unless OPS has independently determined that the bidder's request that a document, or portion thereof, is entitled to be withheld from public inspection and copying or if OPS is ordered by a court of appropriate jurisdiction to allow public inspection and copying of the document.

BID FORM

BID NO.: 25-029

OPS Mills - Electrical Service Replacement

Proposal of ______, a [] corporation organized and existing under the laws of the State of ______; a [] limited liability company organized and existing under the laws of the State of ______; a [] partnership, organized and existing under the laws of the State of ______; or an [] individual (check the appropriate box). TO: Omaha Public Schools

Purchasing Division 3215 Cuming St. Omaha, NE 68131

The undersigned, having familiarized themselves with the work at the place where the Work is to be done and with the Plans and Specifications and other Contract Documents hereby proposes and agrees to perform everything required to be performed, and to provide and furnish all labor, materials, tools, expendable equipment and all utility and transportation services necessary to perform and complete in a workmanlike manner all of the Work required by the specifications for OPS Mills - Electrical Service Replacement, all in strict accordance with the Plans, Specifications and other Contract Documents as prepared by the Douglas County School District 0001 ("District") for the consideration hereinafter set forth.

In submitting this bid the Bidder certifies to the District that the bidder is complying with, and will continue to comply with, all applicable Fair Labor Standards set forth in Chapter 73 of the Nebraska Revised Statutes.

The undersigned agrees that this bid cannot be withdrawn and can be accepted by the District for a period of ninety (90) days subsequent to the opening of bids without the consent of the Board of Education. The undersigned further acknowledges that the District reserves the right to accept or reject any or all bids and any part thereof and to waive any and all technicalities and irregularities.

The undersigned proposes to furnish all labor and materials (required to be furnished by the Contractor) and complete all Work as required by the Contract Documents for this Project for the following amount.

OPS Mills - Electrical Service Replacement -- Lump Sum Base Bid:

	Dollars (\$)
(amount in words)	(amount in numerals)

(Initial:)	
Date:)	

In the event of a discrepancy between the amount shown in figures and the amount shown in writing on the previous pages, the written amount shall take precedence and will be used.

Attachments: 1. Bid Bond



SIGNATURE PAGE BID NO.: 25-029

The undersigned certifies that the information in the foregoing bid is submitted in accordance with the requirements of the Bid Documents and is true and correct to the best of the undersigned's knowledge and belief. The undersigned further represents to the District that the undersigned is duly authorized to sign this Signature Page on behalf of the referenced company

COMPANY NAME:		
ADDRESS:		
CITY/STATE/ZIP:		
EMAIL ADDRESS:		
PHONE:	FAX #:	
SIGNATURE:	Bids must be signed to be valid.	
PRINTED NAME:		
TITLE:		
DATE:		

Acknowledge Receipt of Bid Addendum:

Addenda No.	Dated:
Addenda No	Dated:
Addenda No.	Dated:

PERFORMANCE, LABOR AND MATERIALS BOND

KNOW ALL MEN BY THESE PRESENTS That we	as principal and
as Surety are held and firm	ly bound to the Board of Education
of the Douglas County School District 0001, a political subdivision of the S	State of Nebraska, in the penal sum
of \$ to be	paid to said Board of Education of
the Douglas County School District 0001 for which payment to be well and each of us, our and each of our heirs, executors, administrators, successo firmly by these presents.	d truly made, we bind ourselves and ors and assigns, jointly and severally

Dated this______day ______A.D., 20_____.

The condition of this obligation is that:

Whereas, by even date herewith the said principal has entered into a contract with the said Board of Education of the Douglas County School District 0001 to perform the labor and furnish the material for_____

_____a copy of which said contract is

attached hereto and made a part hereof.

NOW THEREFORE, the conditions of this obligation are such that if the said principal shall duly perform and observe all the stipulations and agreements in said contract on his part to be performed and observed, then and in that event this obligation shall be void and of no effect, but otherwise shall be and remain in full force and effect. It is expressly agreed that any alterations which may be made therein by agreement between the said principal and the said Board of Education of the Douglas County School District 0001, in the terms of said contract, or the nature of the work to be done there under, or the giving of any extensions of time for performing the said contract, or of any of the stipulations therein contained, and on the part of said principal to be performed, or any other forbearance shall not in any way release the said Surety from this liability under the above written bond. It is further expressly agreed and understood that this Bond shall stand as Surety for the payment of all laborers and mechanics for labor that shall be performed and for the payment for material and equipment rental which is actually used or rented in performing said contract.

IN TESTIMONY WHEREOF, the said parties hereto have hereunto set their hands this _____day of ______, <u>20</u> and said Surety has caused these presents to be sealed with its corporate seal and duly attested by the signature of its attorney in fact, and their authority is attached hereto and made a part hereof.

(Principal)

(Surety)

In the presence of _____

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 01 10 00 - SUMMARY OF WORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

- A. OPS Mills Electrical Service Replacement. OPS Bid No. 25-029
 - <u>Project Location</u>: OPS Mills Building – 4311 North 30th Street, Omaha, NE 68111.
 - 2. Owner: Omaha Public Schools (OPS) 3215 Cuming Street Omaha, NE 68131-2024
- B. The Project consists of work related to the OPS Mills Electrical Service Replacement in the building.
 - 1. The following is a general description of the Work within this bid package.
 - a. Work includes the renovation of existing space for installation of new electrical service, construction of new interior partitions, installation of select exterior doors, and related construction.
- C. Contract Documents, dated June 09, 2024 were prepared for the Project by BCDM Architects, 1015 N. 98th Street Suite 300, Omaha, NE 68114.

1.3 WORK SEQUENCE

- A. The Contractor shall review and prepare a work sequence of events and major milestones. All events and milestones shall be reflected in a project schedule to be submitted to the Architect and Owner for review. Submit project schedule for review no later than 10 days following the Notice to Proceed.
 - 1. Sequence, coordination and timing of the Work is the responsibility of the Contractor. Work shall be performed to meet the Owner's schedule requirements as outlined in the documents.
- B. Construct Work as required to accommodate Owner use of building and site during construction; coordinate construction schedule and operations with Owner.
- C. Construct Work as required to provide for continuous public usage of the building, do not close off public usage of facilities.

- D. Existing main building exits shall be maintained as clear unobstructed egress pathways.
- E. The Contractor shall provide at his/her expense increased work crews and/or overtime necessary to meet scheduled Milestones.

1.4 CONTRACTOR USE OF PREMISES

- A. General: During the construction period, the Contractor shall have use of the premises for construction operations; however, he must coordinate his use of the site with the Owner's activities.
- B. Use of the Building and Site: Confine operations to areas within the general limits of the project work area. Coordinate building usage with Owners requirements (note: building will remain in use during the construction period.) Do not disturb portions of the site beyond the areas in which the Work is indicated.
 - 1. Driveways and Entrances: Keep driveway and entrance serving the site clear and available to the Tenant, and emergency vehicles at all times. Do not use these areas for parking or storage of materials. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

1.5 OCCUPANCY REQUIREMENTS

- A. The Architect will prepare a Certificate of Substantial Completion for the Work to be occupied prior to Owner occupancy.
 - 1. Obtain a certificate of acceptance from local building officials prior to Owner Acceptance of construction.
- PART 2 PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 01 31 13 - COORDINATION

PART 1 - GENERAL

- 1.1. RELATED DOCUMENTS
 - A. Provisions established within the General and Supplementary General Conditions of the Contract, Division 1 General Requirements, and Drawings are collectively applicable to this Section.
- 1.2 SECTION INCLUDES
 - A. Coordination of Work of the Contract.
- 1.3 RELATED SECTIONS
 - A. Section 01 73 29 Cutting and Patching
 - B. Section 01 33 19 Progress Meetings
- 1.4 DESCRIPTION
 - A. Coordination, scheduling, submittals, and Work of the various Sections of Specifications to assure efficient and orderly sequence of installation of construction elements, with provisions for accommodating items to be installed later.
- 1.5 GENERAL COORDINATION
 - A. Coordinate all portions of the Work under the Contract. Require subcontractors to coordinate their portion of the Work and provide their requirements for coordination of their work with other related Work.
 - B. Coordinate mechanical and electrical Work with that of other trades in order that various components of systems are installed at proper time, fit available space, and allow proper service access to those requiring maintenance, including equipment specified in other Divisions.
 - C. Coordinate Work of Sections having interdependent responsibilities for installing, connecting to, and placing in service, such as equipment.
 - D. Coordinate use of project space and sequence of installation of mechanical, plumbing, and electrical work which is indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduits as closely as practicable, with due allowance for available physical space; make runs parallel with lines of building. Utilize space efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
 - E. In normally occupied areas, except as otherwise shown, conceal pipes, ducts, conduit, and wiring in the construction. Coordinate locations of

fixtures and outlets with finish elements. Provide escutcheon plates at penetrations through finished surfaces with finish appropriate to adjacent finish surface.

1.6 COORDINATION OF DRAWINGS

- A. Schedule and coordinate submittals specified in Section 01 33 00.
- B. Coordinate Work of various Sections having interdependent responsibilities for installing, connecting to, and placing in service, such as equipment.
- C. Coordinate requests for substitutions to assure compatibility of space, of operating elements, and effect on Work of other Sections.
- 1.7 COORDINATION OF SPACE
 - A. Coordinate use of Project space and sequence of installation of mechanical, and electrical work which is indicated diagrammatically on Drawings. Follow routings shown for pipes, ducts, and conduits as closely as practicable, with due allowance for available physical space; make runs parallel with lines of building. Utilize space efficiently to maximize accessibility for other installations, for maintenance, and repairs.
 - B. In finished areas except as otherwise shown, conceal pipes, ducts, and wiring in the construction. Coordinate locations of fixtures and outlets with finish elements.

1.8 COORDINATION OF CONTRACT CLOSE-OUT

- A. Coordinate completion and cleanup of Work of separate Sections in preparation for Substantial Completion of portions of Work designated for Owner partial occupancy.
- B. After Owner occupancy of premises, coordinate access to site by various Sections for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.
- C. Assemble and coordinate close-out submittals specified in Section 01 70 00.
- PART 2 PRODUCTS (Not Applicable)
- PART 3 EXECUTION (Not Applicable)

END OF SECTION
SECTION 01 33 00 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

1.3 REQUIREMENTS:

A. Processing Time

Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

- 1. Initial Review: Allow 10 calendar days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect/Engineer will advise Contractor when a submittal being processed must be delayed for coordination.
- B. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- C. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's action stamp.

PART 2 - PRODUCTS

2.1 SCHEDULE OF ANTICIPATED SUBMITTALS:

- A. Architectural
 - a. Insulated Metal Wall Panel Data and Color Samples
 - b. Fiberlass Sandwich Panel Assemblies Data and Samples
 - c. Paint Product Data and Color Samples

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

A. Action and Informational Submittals

Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.

B. Project Closeout and Maintenance Material Submittals

See requirements in Division 01 Section "Project Closeout."

C. Approval Stamp

Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT/ENGINEER'S ACTION

A. Action Submittals

Architect/Engineer will review each submittal, make marks to indicate corrections or revisions required, and return it. Architect/Engineer will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.

B. Informational Submittals

Architect/Engineer will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect/Engineer will forward each submittal to appropriate party.

- C. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect/Engineer.
- D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.
- E. Submittals not required by the Contract Documents may be returned by the Architect/Engineer without action.



SHOP DRAWING TRANSMITTAL

	PROJECT OPS Mills	BCDM# 5444-02	DATE	TRANSMITTAL NO.	
	Electrical Service Replacement		CONTRACTOR		
			ADDRESS		
✓ FIRST SUBMITTAL	LOCATION 4311 North 30th Street				
RE-SUBMITTAL	Omaha, NE 68111		THE CONTRACTOR AND CERTIFIES TH	HAS REVIEWED THE ENCLOSED SHOP DRAWINGS AT ALL MATERIALS ARE IN COMPLIANCE WITH	
PREV. NO			THE CONTRACT DOCUMENTS EXCEPT AS SPECIFICALLY NOTED.		
			BY	CONTRACT	

SPEC. SECTION	NO. COPIES	DESCRIPTION	MANUFACTURER	DRAWING OR DATA NO.	ACTION TAKEN

OWNER	THE ABOVE DRAWINGS ARE RETURNED WITH ACTION AS	REMARKS		
CONTRACTOR	DESIGNATED ABOVE IN ACCORDANCE WITH THE FOLLOWING			
ARCHITECT	LEGEND:			
OTHER	A: NO EXCEPTION TAKEN			
	B: MAKE CORRECTIONS NOTED			
	C: REVISE AND RESUBMIT			
	D: REJECTED	<u></u> Вү	DATE	
	E: SUBMIT SPECIFIED ITEM			

1015 North 98th Street, Suite 300

Omaha, NE 68114

402.391.

SECTION 01 33 19 – PROGRESS AND PRE-INSTALLATION MEETINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Provisions established within the General and Supplementary General Conditions of the Contract, Division 1, General Requirements, and the Drawings are collectively applicable to this Section.
- 1.2 SECTIONS INCLUDES
 - A. Scheduling and administration of progress meetings.
 - B. Reinstallation conferences.
- 1.3 RELATED SECTIONS
 - A. Section 01 33 00 Submittal Procedures.
 - B. Section 01 78 39 Project Record Documents.

1.4 PROGRESS MEETING

- A. The General Contractor will schedule and administer weekly construction progress meetings, throughout progress of Work. They will prepare agenda, and distribute notice of meeting to participants, and distribute minutes with-in five (5) days after meeting.
- B. Location of Meetings: To Be Determined.
- C. Attendance: Contractor, job superintendent, subcontractors, and suppliers, as appropriate to agenda; Owner and professional consultants as appropriate.
- D. Anticipated Agenda:
 - 1. Approval of minutes of previous meeting.
 - 2. Review of Work progress and Contractor's daily manpower reports.
 - 3. Field observations, problems, and decisions.
 - 4. Identification of problems which impede planned progress.
 - 5. Review of submittals, schedule and status of submittals.
 - 6. Review of off-site fabrication and delivery schedules.
 - 7. Maintenance of progress schedule.

- 8. Corrective measures to regain projected schedule.
- 9. Planned progress during succeeding work period.
- 10. Coordination of projected progress.
- 11. Maintenance of quality and work standards.
- 12. Effect of proposed changes on progress schedule and coordination.
- 13. Other business relating to Work.
- 1.5 PRE-INSTALLATION MEETING
 - A. Aluminum and Hollow Metal Doors and Frames Pre-Installation Meeting shall be coordinated by the General Contractor and include representatives of the Owner, Architect and any related subcontractors. The purpose of the meeting shall be to thoroughly discuss layout requirements, potential conflicts or coordinate items well in advance of the physical work taking place.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

SECTION 01 35 23 - SAFETY PRECAUTIONS AND PROGRAMS

PART 1 – PROTECTION OF PERSONS, PROPERTY SAFETY PRECAUTIONS AND PROGRAMS

1.1 <u>CONTRACTOR RESPONSIBLITITY</u>

A. The Contractor is solely responsible for initiating, maintaining and supervising all safety precautions and programs required under its portion of the Work on a day-to-day basis.

1.2 <u>SAFETY OVERVIEW</u>

- A. Each Contractor and its subcontractors of all tiers shall be responsible for the health, safety and security of employees under their control and as to their area of Work.
- B. The Contractor shall recognize that it is important to its business and the Owner's Project to prevent the occurrences of incidents that lead to occupational injuries or illnesses. Safety, Health and Security requirements on this Project shall be prepared and administered by the Contractor in accordance with the following:
 - 1. The accident prevention policy shall be based on a sincere desire to eliminate personal injuries, occupational illnesses, and equipment and property damage; and to protect the general public exposed to or associated with the Work;
 - 2. The importance of safety on the Project shall be recognized and accident prevention shall be an integral part of all planning and operations;
 - Contractor and its subcontractors shall conduct Work in a safe and practical manner in conformance with Occupational Safety and Health Act of 1970 (OSHA) and all additions and revisions thereto, the latest edition of the Manual of Accident Prevention, Associated General Contractors of America;
 - 4. In addition to the Contractor's Project Site Safety Program, the Contractor and its subcontractors shall follow all applicable Federal, State and local laws/regulations pertaining to safety, health, pollution control, water supply, fire protection, sanitation facilities, waste disposal and other related items;
 - 5. Each Contractor shall cooperate fully with all other Contractors and the Owner in their respective Safety, Health and Security programs;
 - 6. Good housekeeping shall be observed at all times, and waste, debris, and garbage shall be removed daily or placed in appropriate waste containers outside of the work place and all materials, tools and equipment shall be stored in a safe and orderly fashion; and

- 7. Each Contractor shall educate its employees and its subcontractors and their employees as to the site specific Safety, Health and Security Plan(s) and to enforce adherence to safe work procedures outlined in these General Conditions.
- 8. Should the Owner observe a Contractor, subcontractor or its supervisors or employees engaged in an unsafe act or improperly utilizing equipment in such a manner that creates an inherently dangerous condition which puts the life or safety of job site personnel at risk or in danger, then the Contractor agrees that the Owner has the right to immediately stop such Work or acts. This non-compliance will be documented using the Field Observation Notice and submitted to the Contractor. The safety concerns shall be immediately address by the Contractor, who shall correct the hazard or condition prior to resuming Work in the area. An employee and his/her supervisor that creates a potential hazard to his/her self, other employees, to equipment or property will be issued a safety warning. The accumulation of two safety warnings by such individual and his/her supervisor shall warrant a 30 day suspension of the employee and his/her supervisor from the Project Work Site. Upon return, if another serious breach of safety occurs, the involved employee and his/her supervisor, they will not be allowed to work on site or be on the Contractors' Project Payroll for a period of one year on Omaha Public Schools' projects.

1.3 SAFETY PROGRAM

- A. Each Contractor and its subcontractor(s) of any tier shall be required to submit its company Project Safety Site Program to the Owner for review of compliance with the contract requirements before starting any Work.
- B. The Contractor shall provide a written Project Site Safety Program, maintain injury records as required by OSHA, keep the Program Manager informed of all serious and/or lost time injuries, and make available to the Program Manager information on injury logs, safety meetings including topics and a sign-in sheet for each meeting, inspection reports and other items concerning Project safety.
- C. Contractors' employing more than a combined total of 50 or more employees (including sub-tier contractors) shall be required to employ a dedicated full time Safety Representative knowledgeable in the areas of safety, health and fire prevention. Contractors' employing a combined total of less than 50 employees (including sub-tier contractors) will be required to identify a supervisory employee having knowledge and experience in safety to act as the designated Safety Representative to assist the Contractors supervision in the conduct of its safety program and responsibilities. This individual shall have the responsibility and authority to act as liaison with the Owner, the Contractor and its subcontractors on all matters related to safety. This individual shall have the full authority, and shall exercise same as necessary to ensure safe work practices and correct unsafe hazardous conditions.

- D. The Contractor shall inform the Owner of any Federal or State inspection, and the Owner and Program Manager will receive copies of all Federal and State inspection reports, citations, penalties, abatement dates, etc.
- E The Contractor shall give full cooperation to the Owner's personnel, who may periodically observe the Project Work Site without prior notice.

1.4 SAFETY ORIENTATION FOR CONTRACTOR SUPERVISION

- A. The Contractor and its subcontractors shall meet with the Owner to review and agree to the following:
 - 1. Safety procedures at the Project;
 - 2. Safety orientation and meetings for trades personnel (schedule and methods to be used);
 - 3. Record keeping requirements for inspections, violations
 - 4. Employee complaints and discipline;
 - 5. Injury reporting and Investigation;
 - 6. Sanitation and water supply system;
 - 7. Work Activities Requiring Permits; and
 - 8. Traffic incidents and accidents.
- B. The Contractor shall be responsible for written documentation of all such meeting.

1.5 EMPLOYEE SAFETY ORIENTATION AND SAFETY MEETINGS

- A. The Contractor or its subcontractor(s) of any tier shall follow OSHA Act 1926.21 (b) (2) requirements that state "that each employer shall instruct each employee in the recognition and avoidance of unsafe conditions and the regulations applicable to his work environment."
- B. The Contractor shall provide site and safety orientation to all employees as they begin Work on the Project. This orientation shall cover general safety rules, potential hazards, site work rules, the wearing of protective equipment and the relationship of the Owner's personnel assigned to the Project. Attendance at the mandatory briefing is required of all Contractors' employees. The Contractor and each of its subcontractors shall keep a record of all attendees and topics discussed.
- B. The Contractor and each of its subcontractors shall hold weekly Toolbox Meetings at the Project site. It is the responsibility of the Contractor and/or its subcontractor(s) to furnish the following documentation to the Owner after each safety meeting: date, topics discussed, meeting chair, names of employees who were present, names of employees who were absent, trade and/or subcontractor name.

1.6 ACCIDENT REPORTS

- A. All accidents or occurrences resulting in employee injury and/or property damage shall immediately be verbally reported by the Contractor to the Program Manager. An Accident investigation with a formal written "Accident Report" and "First Report of Injury" shall be completed and forwarded to the Program Manager within 24 hours, but not later than the end of the working day after the occurrence or Accident. Any incidents involving the police or law enforcement agency shall also be included in this documentation.
- B. All recordable occupational injuries and illnesses, other than First Aid cases, shall be submitted with the Payment Application to the Program Manager. Failure to provide this information will delay the processing of the Contractors Payment Application.
- C. The Owner will meet on a regular basis to review safety and claims. At this time any Contractor or its subcontractor who has adverse accident experience shall have a senior executive of the company attend in person and report on the cause of the accident, what corrective measures have been instituted and the status of "Return-to-Work" for injured employees.

1.7 FIRST AID AND MEDICAL TREATMENT

- A. The contractor will establish a network of physicians, hospitals and medical facilities for the treatment of injuries.
- B. Utilizing an established 911 protocol, the Contractor shall be required to provide for the immediate transportation and treatment of any employee who may be injured or become ill while on the Project to the appropriate facility.
- C. The Contractor shall maintain a first aid kit supplied according to current regulations and shall have a certified person trained in first aid and CPR identified on site to cover those periods outside of normal project working hours.
- D. Each Contractor shall maintain a log of all minor First Aid Treatments and will provide to the Program Manager a copy of such log monthly or as directed.

1.8 EMPLOYEE AND VISITOR DRESS REQUIREMENTS

- A. The Project shall be a 100% hard hat, durable work shoe and safety glasses (meeting ANSI requirements) project. All supervisors, employees and visitors shall be required to wear hard hats, durable work shoes and safety glasses while on the Project Work Site.
- B. It will be the responsibility of the Contractor and its subcontractors to insure that all of its employees wear durable work shoes and under no conditions shall its employees wear shorts, tank tops, sleeveless shirts, clothes or footwear with large openings, street shoes, tennis shoes or sandals.
- C. All employees shall be properly and completely clothed while working. Bare torsos, legs and feet will not be allowed.

D. Other appropriate personal protective equipment shall be provided and worn as required for personal safety and protection.

1.9 EMERGENCY NOTIFICATION

A. A procedure will be established by the Contractor to provide emergency communications to all individuals on the site. This procedure shall be submitted to the Owner for their review. This procedure will not be used to handle routine calls to individuals.

1.10 FAILURE TO COMPLY WITH SAFETY REGULATIONS

- A. Failure to comply with the Contract safety requirements will be considered as noncompliance with the Contract and may result in remedial action provided by the Contract.
- B. If the Owner notifies the Contractor of any non-compliance with the provisions of this program, the Contractor shall make all reasonable efforts to correct the unsafe conditions or acts. Satisfactory corrective action shall be taken within the time specified by the Owner.
- C. If a Contractor or subcontractor refuses to correct unsafe or unhealthy conditions or acts, the Owner may take one or more of the following steps:
- D. Cease the operation or a portion thereof until the condition is brought into compliance with the Contractor's Project Site Safety Program or procedures and the Project Master Safety Requirements.
 - 1. Require the Contractor to replace or supplement its Site Safety Representative and/or the supervisory personnel
 - 2. Stop payment for the Work being performed
 - 3. Correct the situation using other employees or contractors and backcharge the Contractor for expenses incurred. All costs, including but not limited to those above, associated with insuring a safe and health conscious work environment shall be borne by the non-complying Contractor and costs will be backcharged to the non-conforming Contractor. Each Contractor shall be responsible for payment of all fines and/or claims for damages levied against the Owner for deficiencies relating to conduct of Contractor's Work.

1.11 SAFETY OF PERSONS AND PROPERTY

- A. The Contractor shall take all reasonable precautions for the safety of, and shall provide all reasonable protection to prevent damage, injury or loss to:
 - 1. All employees on-site and all other persons who may be affected thereby;
 - 2. All the Work and all materials and equipment to be incorporated therein, whether in storage on or off the site, under the care, custody or control of

the Contractor or any of its subcontractors, sub-subcontractors or suppliers; and

- 3. Other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation of replacement in the course of construction.
- B. The Contractor shall comply with all applicable laws, ordinances, rules, regulations and orders of any public authority having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss. The Contractor shall erect and maintain as required by existing conditions and progress of the Work, until the acceptance of the completion of its portion of the project, all reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent utilities.
- C. If the use of explosives and other hazardous materials or equipment is necessary for the prosecution of the Work, the Contractor shall contact the Owner prior to starting the work.
- D. All damages or loss to any property referred to in the "Safety of Persons and Property" Section of these General Conditions caused in whole or in part by the Contractor, any subcontractor, any sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable, shall be remedied by the Contractor, except damage or loss attributable to faulty drawings or specifications or to the acts or omissions of the Owner or anyone employed by any of them or for whose acts either of them may be liable, and which damage or loss is not attributable to the fault or negligence of the Contractor.
- E. The Prime Contractor shall not load or permit any part of the Work to be loaded so as to endanger its safety.

1.12 EMERGENCIES

A. In any emergency affecting the safety of persons or property, the Contractor shall act to prevent threatened damage, injury or loss.

SECTION 01 40 00 – QUALITY REQUIREMENTS

PART 1 – GENERAL

- 1.1 RELATED DOCUMENTS
 - A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.
- 1.2 SUMMARY:
 - A. Section includes administrative and procedural requirements for quality assurance and quality control.

1.3 DEFINITIONS:

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect.
- C. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work
- D. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
 - 1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).
- E. Experienced: When used with an entity or individual, "experienced" means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.4 CONFLICTING REQUIREMENTS:

- A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Architect for a decision before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or

BCDM No.: 5444-02

specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.5 QUALITY ASSURANCE:

- A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- C. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful inservice performance.

1.6 QUALITY CONTROL:

- A. Contractor Responsibilities: Perform additional quality-control activities required to verify that the Work complies with requirements, whether specified or not.
 - 1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 REPAIR AND PROTECTION:

- A. Protect construction exposed by or for quality-control service activities.
- B. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

SECTION 01 41 16 – DEFINITIONS AND STANDARDS

PART 1 - GENERAL

- 1.1 RELATED DOCUMENTS
 - A. Drawing and General Provisions of Contract, including General and Supplementary Conditions and other Division 1, Specification Sections, apply to work of this Section.

1.2 DESCRIPTION OF WORK REQUIREMENTS

- A. General: This Section specifies procedural and administrative requirements for compliance with governing regulations and codes and standards imposed upon the Work. These requirements include the obtaining of permits, licenses, inspections, releases, and similar statements, as well as payments, associated with regulations, codes, and standards.
- B. "Regulations" is defined to include laws, statutes, ordinances, and lawful orders issued by governing authorities, as well as those rules, conventions and agreements within the construction industry which effectively control the performance of the Work regardless of whether they are lawfully imposed by governing authority or not.
- C. Governing Regulations: Refer to General and Supplementary Conditions for requirements related to compliance with governing regulations.

1.3 DEFINITIONS

- A. General Explanation: A substantial amount of Specification language consists of definitions of terms found in other Contract Documents, including the Drawings. (Drawings are recognized as diagrammatic in nature and not completely descriptive of requirements indicated thereon.) Certain terms used in Contract Documents are defined in this Article. Definitions and explanations contained in this Section are not necessarily either complete or exclusive, but are general for the Work to the extent that they are not stated more explicitly in another element of Contract Documents.
- B. General Requirements: The provisions or requirements of Division 1, Sections apply to entire Work of the Contract and where indicated, to other elements which are included in the Project.
- C. Indicated: The term "Indicated" is a cross-reference to graphic representations, notes or schedules in the drawings, to other paragraphs or schedules in the Specifications, and to similar means of recording requirements in Contract Documents. Where terms such as "shown", "noted", "scheduled", and "specified" are used in lieu of "indicated", it is for the purpose of helping the reader locate the cross-reference, and no limitation of location is intended except as specifically noted.

OPS Mills Electrical Service Replacement

- D. Directed, Requested, Etc.: Where not otherwise explained, terms such as "directed", "requested", "authorized", "selected", "approved", "required", "accepted", and "permitted" mean "directed" by Architect/Engineer", "requested by Architect/Engineer", and similar phrases. However, no such implied meaning will be interpreted to extend Architect/Engineer's responsibility into Contractor's area of construction supervision.
- E. Approve: Where used in conjunction with the Architect/Engineer's response to submittals, request, applications, inquires, reports, and claims by the Contractor, the meaning of term "approved" will be held to limitations of the Architect/Engineer's responsibilities and duties as specified in General and Supplementary Conditions. In no case will the Architect/Engineer's approval be interpreted as a release of the Contractor from responsibilities to fulfill requirements of Contract Documents.
- F. Project Site: The term "Project Site" is defined as the space available to the Contractor for performance of the Work, either exclusively or in conjunction with others performing other work as part of the Project. The extent of the project site is shown on the drawings, and may or may not be identical with the description of the land upon which the project is to be built. Access and extent of site to be coordinated with Owner.
- G. Furnish: Except as otherwise defined in greater detail, the term "furnish" is used to mean "supply and deliver to the project site, ready for unloading, unpacking, assembly, installation, etc., and similar operations", as applicable in each instance.
- H. Install: Except as otherwise defined in greater detail, the term "install" as used to describe operations at project site including the actual unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations, as applicable in each instance.
- I. Provide: Except as otherwise defined in greater detail, the term "provide" means "to furnish and install, complete and ready for intended use", as applicable in each instance.
- J. Installer: The term "installer" is defined as "the entity" (person or firm) engaged by the Contractor, its subcontractor or sub-subcontractor for performance of a particular unit of work at project site, including installation, erection, application, and similar required operations. It is a requirement that installers are experienced in operations they are engaged to perform.
- K. Testing Laboratories: The term "Testing Laboratory" is defined as an independent entity engaged to perform specific inspections or tests of the Work, either at the project site or elsewhere, and to report, and (if required) interpret results of those inspections or tests.

1.4 SPECIFICATION FORMAT

OPS Mills Electrical Service Replacement

A. General: The numbering of in this specification are intended to aid in the referencing to individual sections, page numbers and paragraph numbers.

1.5 INDUSTRY STANDARDS

- A. Applicability of Standards: Except where more explicit or stringent requirements are written into the Contract Documents, applicable construction industry standards have the same force and effect as if bound into or copied directly into the Contract Documents. Such industry standards are made a part of the Contract Documents by reference. Individual Specification Sections indicate which codes and standards the Contractor must keep available at the project site for reference.
- B. Conflicting Requirements: Where compliance with two or more standards is specified, and where these standards establish different or conflicting requirements for minimum quantities or quality levels, the most stringent requirement will be enforced, unless the Contract Documents specifically indicate a less stringent requirement. Refer requirements that are different, but apparently equal, and uncertainties as to which quality level is more stringent to the Architect/Engineer for a decision before proceeding.
- C. Minimum Quantities or Quality Levels: In every instance the quantity or quality level shown or specified is intended to be the minimum for the work to be provided or performed. Unless otherwise indicated, the actual work may either comply exactly, within specified tolerances, with the minimum quantity or quality specified, or may exceed that minimum within reasonable limits. In complying with these requirements, the indicated numeric values are either minimum or maximum values, as noted, or as appropriate for context of the requirements. Refer instances of uncertainty to the Architect/Engineer for decision before proceeding.

1.6 SUBMITTALS

A. Permits, Licenses and Certificates: For the Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, and similar documents, correspondence, and records established in conjunction with compliance with standards and regulations bearing upon performance of the Work.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION - (Not applicable)

SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

- 1.1 SUMMARY
 - A. This Section includes requirements for temporary facilities and controls, including temporary utilities, support facilities, and security and protection facilities.

1.2 USE CHARGES

- A. Existing Facilities:
 - 1. Water Service: Use water from Owner's existing water system without metering and without payment of use charges
 - 2. Electric Power Service: Use electric power from Owner's existing system without metering and without payment of use charges.

1.3 QUALITY ASSURANCE

- A. Regulations: Comply with requirements of local laws and regulations governing construction and local industry standards, in the installation and maintenance of temporary services and facilities, including but not limited to the following:
 - 1. Building Codes, including local requirements for permits, testing, and inspection.
 - 2. Health and safety regulations.
 - 3. Utility company regulations and recommendations governing temporary utility services.
 - 4. Police and Fire Department rules and recommendations.
 - 5. Police and Rescue Squad recommendations.
 - 6. Environmental protection regulations governing use of water and energy, and the control of dust, noise and other nuisances.
- B. Standards: Comply with the requirements of NFPA Code 241, "Building Construction and Demolition Operations", the ANSI-A10 Series standards for "Safety Requirements for Construction and Demolition", and the NECA National Joint Guideline NJG-6 "Temporary Job Utilities and Services".
- C. Refer to "Guidelines for Bid Conditions for Temporary Job Utilities and Services", as prepared jointly by AGC and ASC for industry recommendations.
- D. Inspections: Inspect and test each service before placing temporary utilities in use. Arrange for required inspections and tests by governing authorities, and obtain required certifications, and permits for use.

1.4 SUBMITTALS

A. Reports and Permit: During progress of the Work, submit copies of reports and permits required by governing authorities or necessary for installation and efficient operation of temporary services and facilities.

B. Submit and Review Construction Jobsite fencing and temporary facilities placement with Owner and Project Manager prior to mobilization on site.

PART 2 - PRODUCTS

A. Drinking-Water Fixtures: Containerized, tap-dispenser, drinking-water, including paper cup supply.

PART 3 - EXECUTION

3.1 TEMPORARY CONSTRUCTION AND SUPPORT FACILITIES INSTALLATION

- A. General: Provide a reasonably neat and uniform appearance in temporary construction and support facilities acceptable to the architect/engineer and the Owner.
- B. Telephone Service: Provide field office temporary telephone service throughout construction period for common-use facilities used by all personnel engaged in construction activities.
- C. Internet Access (WIFI): Provide temporary internet access (WIFI via land line with Modem or "hot-spot") throughout construction period for common-use by Owner, Architect, and Owner's Project Manager in temporary construction office.
- D. Sanitary Facilities:
 - 1. General: Sanitary facilities include temporary toilets, wash facilities and drinking water fixtures. Comply with governing regulations including safety and health codes for type, number, location, operation and maintenance of fixtures and facilities; provide not less than specified requirements. Install in locations that will best serve Project's needs.
- E. Dewatering Facilities and Drains:
 - 1. General: Dispose of rainwater subsurface water or other fluids in a lawful manner which will not result in flooding the Project or adjoining property, nor endanger either permanent work of temporary facilities. Control and suitably dispose of water and other fluids by means of temporary pumps, piping drainage lines or other methods.
 - a. Provide temporary drainage where the roofing or similar waterproof deck construction is complete prior to the connection and operation of the permanent drainage piping system.
- F. Project Identification & Jobsite Signs:
 - 1. Project Sign: Project identification sign will be supplied by Owner. Sign to be installed by Contractor. Contractor to provide support posts for 4' x 8' sign provided by Owner.
 - 2. Provide temporary directional and safety signage as necessary and/or as directed by Architect of Project Manager.
 - 3. Other jobsite signage is not permitted.

- G. Collection and Disposal of Wastes:
 - General: Establish a system for daily collection and disposal of waste materials from construction areas and elsewhere on the site. Enforce requirements strictly. Do not hold collected materials at the site longer than seven (7) days during normal weather or three (3) days when the daily temperature is expected to rise above 80 degrees F (27 degree C). Handle waste materials that are hazardous, dangerous, or unsanitary separately from other inert waste by containerizing appropriately. Dispose of waste material in a lawful manner.

3.2 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Select Enclosure Fence for Alternatives and Additions: Specify enclosure of new construction and sufficient area to accommodate construction operation. Means of egress and fire lane to be kept open and free of construction activity.
- B. Security Enclosure and Lockup: Install substantial temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security.
- C. Barricades, Warning Signs, and Lights: Comply with standards and code requirements for erecting structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and public of possible hazard. Where appropriate and needed, provide lighting, including flashing red or amber lights.

3.3 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary services and facilities at the site. Limit availability of temporary services and facilities to essential and intended uses to minimize waste and abuse. Do not permit temporary installations to be abused or endangered. Do not allow hazardous, dangerous or unsanitary conditions to develop or persist on the Project site.
- B. Maintenance: Operate and maintain temporary services and facilities in good condition throughout the time of use and until removal is authorized.
- C. Termination and Removal: Unless the Architect/Engineer requests that it be maintained for a longer period of time, remove each temporary service and facility promptly when the need for it or a substantial portion of it has ended, or when it has been replaced by the permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent work which may have been delayed because of interference with the temporary service or facility. Repair damaged work, clean exposed surfaces and replace work which cannot be satisfactorily repaired.

SECTION 01 66 00 – STORAGE AND PROTECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Provisions established within the General and Supplementary General Conditions of the Contract, Division 01 – General Requirements, and Drawings are collectively applicable to this Section.

1.2 REQUIREMENTS INCLUDED

- A. Storage, General.
- B. Enclosed Storage.
- C. Exterior Storage.
- D. Maintenance Storage.

1.3 RELATED REQUIREMENTS

- A. Section 01 11 00 Summary of Work.
- B. Section 01 50 00 -Temporary Facilities and Controls: Storage facilities. Protection of installed work.
- C. Section 01 78 39 Project Record Documents.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

- 3.1 STORAGE, GENERAL
 - A. Store products, immediately on delivery, in accordance with manufacturer's instructions, with seals and labels intact. Protect until installed.
 - B. Arrange storage in a manner to provide access for maintenance of stored items and for inspection.
- 3.2 ENCLOSED STORAGE
 - A. Store products, subject to damage by the elements, in substantial weathertight enclosures.
 - B. Maintain temperature and humidity within ranges stated in manufacturer's instructions

- C. Provide humidity control and ventilation for sensitive products as required by manufacturer's instructions.
- D. Store unpacked and loose products on shelves, in bins, or in neat groups of like items.

3.3 EXTERIOR STORAGE

- A. Provide substantial platforms, blocking, or skids, to support fabricated products above ground; slope to provide drainage. Protect products from soiling and staining.
- B. For products subject to discoloration or deterioration from exposure to elements, cover with impervious sheet material. Provide ventilation to avoid condensation.
- C. Store granular materials on clean, solid surfaces such as pavement, or on rigid sheet materials, to prevent mixing with foreign matter.
- D. Provide surface drainage to prevent erosion and ponding of water.
- E. Prevent mixing of refuse or chemically injurious materials or liquids.

3.4 MAINTENANCE OF STORAGE

- A. Periodically inspect stored products on a scheduled basis.
- B. Verify that storage facilities comply with manufacturer's product storage requirements.
- C. Verify that manufacturer's required environmental conditions are maintained continually.
- D. Verify that surfaces of products exposed to the elements are not adversely affected; that any weathering of finishes is acceptable under requirements of Contract Documents.

3.5 MAINTENANCE OF EQUIPMENT STORAGE

- A. For mechanical and electrical equipment in long-term storage, provide manufacturer's service package.
- B. Service equipment on a regularly scheduled basis, maintaining a log of services; submit as a Record Document.

SECTION 01 70 00 – PROJECT CLOSE-OUT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawing and General Provisions of Contract, including General and Supplementary Conditions and other Division 1, Specification Sections, apply to work of this Section.

1.2 DESCRIPTION OF REQUIREMENTS

- A. Project close-out is the term used to describe certain collective Project requirements, indicating completion of the Work that are to be fulfilled near the end of the Contract Time in preparation for final acceptance and occupancy of the Work by the Owner, as well as final payment to the Contractor and normal termination of the Contract.
 - 1). Time of close-out is directly related to "Substantial Completion;" therefore, the time of close-out may be either a single time period for the entire Work or a series of time periods for individual elements of the Work that have been certified as Substantially Complete at different dates. This time variation, if any, shall be applicable to the other provisions of this Section.
- B. Close-Out submittal includes, but are not necessary limited to:
 - 1). Project Record Documents described in Section 01 78 39.
 - 2). Certification of Substantial Completion.
 - 3). Final Change Order, if applicable.
 - 4). Final Acceptance for Payment-figures to assume acceptance of Final C/O no work or retention outstanding.
 - 5). Consent of Surety to Final Payment.
 - 6). City of Omaha Certificate of Occupancy of Building.
 - 7). Contractor's Affidavit of Release of Liens.
 - 8). Contractor's Affidavit of Payment of debts and claims.
 - 9). Contractor's Confirmation of General Guarantee.

- 10). Subcontractor and Material Supplier's Release and Guarantee all blanks completed - notarized for all subcontractors and suppliers on original List of Subcontractors.
- 11). Letter from Contractor advising which subcontractors or suppliers differ from originally submitted List of Subcontractors, if any, with release / guarantees, as applicable.
- 12). Transmittal Listing Keys: Contractor shall prepare an itemized key list in complete detail ending in a statement that the keys were turned over, the Contractor's signature, a line stating that the keys were received and the receiver's signature. Copies of this list should be retained by the Contractor and receiver and a copy sent to the Architect and OPS. Keys should be identified with tags corresponding to the approved room number designation.
- 13). Letter from Architect that all Punch List Items have been completed to his satisfaction and recommendation regarding liquidated damages, if applicable.
- 14). Operating, Instruction and Maintenance Manuals for Equipment (Mechanical, Electrical, Plumbing, etc.). All stamped by Consultant or Engineer as in accordance with Specifications.
- B. Final Adjustment of Accounts
 - 1). Submit a final statement of accounting to the Architect, showing all adjustments to the Contract Sum.
 - 2). If so required, the Architect will prepare a final Change Order showing adjustments to the Contract Sum which were not made previously by Change Orders.
- C. Instruction: Instruct the Owner's personnel in proper operation and maintenance of systems, equipment, and similar items, which were provided as part of the Work.

PART 2 - PRODUCTS

2.1 CLEANING MATERIALS

- A. Use material which will not create hazards to health or property, and which will not damage surfaces.
- B. Use only materials and methods recommended by manufacturer of material being cleaned.

PART 3 - EXECUTION

3.1 SUBSTANTIAL COMPLETION

- Α. General: Complete the following before requesting the Architect/Engineer's for Certification inspection of Substantial Completion, either for the entire Work or for portions of the Work. List known exceptions in the request.
 - 1). Prepare and submit the list required by the first sentence of paragraph 13.7.1 of the General Conditions.
 - 2). Within a reasonable time after receipt of the list, Architect will inspect to determine status of completion.
 - 3). Should the Architect determine that the Work is not Substantially Complete. The Architect promptly will so notify the Contractor, in writing, giving the reasons therefore.
 - 4). Remedy the deficiencies and notify the Architect when ready for reinspection.
 - 5). The Architect will reinspect the work. When the Architect concurs that the Work is Substantially Complete. The Architect will prepare a "Certificate of Substantial Completion" on AIA form G704, accompanied by the Contractor's list of items to be completed or corrected, as verified by Architect.
 - 6). The Architect will submit the Certificate to the Owner and to the Contractor for their written acceptance of responsibilities assigned to them in the Certificate.

3.2 FINAL ACCEPTANCE

- A. General: Complete the following before requesting the Architect/Engineer's final inspection for Architect/Engineer's final inspection for Certification of Final Acceptance, and Final Payment as required by the General Conditions. List known exceptions, if any, in the request.
 - 1). Prepare and submit the notice required by the first sentence in Paragraph 13.8.1 of General Conditions.
 - 2). Verify that the Work is complete including, but not necessarily limited to, the items mentioned in Paragraph 13.8.2 of the General Conditions.
 - 3). Certify that:

- a. Work has been inspected for compliance with the Contract Documents.
- b. Work has been completed in accordance with the Contract Documents.
- c. Equipment and systems have been tested, as required, and are operational.
- d. Work is completed and ready for final inspection.
- 4). The Architect will schedule an inspection to verify status of completion.
- 5). Should the Architect determine that the Work is incomplete or defective:
 - a. The architect promptly will notify the Contractor, in writing, listing the incomplete or defective work.
 - b. Remedy the deficiencies promptly, and notify the Architect when ready for reinspection.
 - c. When the Architect determines that the Work is acceptable under the Contract Documents, he will request the Contractor to make close-out submittals.

3.3 FINAL CLEANING

- A. General: Special cleaning requirements for specific units of work are included in the appropriate Section of Divisions 2 through 16. The General Conditions requires general cleaning during the regular progress of the Work.
 - 1). Use experienced workmen, or professional cleaners for final cleaning.
 - 2). At completion of construction and just prior to acceptance or occupancy, conduct a final inspection of exposed interior and exterior surfaces.
 - 3). Remove grease, dust, dirt, stains, labels, fingerprints, and other foreign materials, from interior and exterior surfaces.
 - 4). Repair, patch and touch-up marred surfaces to match adjacent finishes.
 - 5). Broom clean paved surfaces. Rake clean other surfaces disturbed during construction.

- 6). Clean ducts, blowers, and coils if air conditioning units were operated during construction.
- 7). Sweep and buff resilient floors and base.
- 8). Dust all walls, metal, wood and similar finished materials.
- 9). Clean all cabinet and casework.
- 10). Dust and wash all plumbing and electrical fixtures. Remove stickers from plumbing fixtures.
- 11). Wash and buff or polish all non-resilient materials.
- 12). Vacuum carpet floors.
- 13). Vacuum all floor areas scheduled to receive floor finish by others.
- 14). Wash and polish all glass, inside and out.
- 15). Replace broken or scratched glass with new glass.
- 16). Remove waste, foreign matter, and debris from roofs gutter, area ways and drainage systems.
- B. Remove temporary protection and labels not required to remain.
- C. Clean permanent filters of ventilating equipment and replace all disposable filters and clean ducts, blowers and coils when units have been operated without filters.
- D. Clean plumbing fixtures and food service equipment and replace disposable filters.
- E. Maintain cleaning until Final Completion.

SECTION 01 73 29 – CUTTING AND PATCHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and General Provisions of Contract, including General and Supplementary Conditions and other Division 1, Specification Sections, apply to work of this Section.

1.2 DESCRIPTION OF WORK

- A. Definitions: "Cutting and Patching" includes cutting into existing construction to provide for the installation or performance of other Work and subsequent fitting and patching required to restore surfaces to their original conditions.
- B. "Cutting and Patching" is performed for coordination of the Work, to uncover work for access or inspection, to obtain samples for testing, to permit alternations to be performed, or for other similar purposes.
- C. Cutting and Patching performed during the manufacture of products, or during the initial fabrication, erection or installation processes is not considered to the "Cutting and Patching" under this definition. Drilling of holes to install fasteners and similar operations are also not considered to be "Cutting and Patching".

1.3 QUALITY ASSURANCE

- A. Requirements for Structural Work: Do not cut and patch structural work in a manner that would result in a reduction of load-carrying capacity or of load-deflection ratio.
- B. Operational and Safety Limitations: Do not cut and patch operational elements or safety related components in a manner that would result in a reduction of their capacity to perform in the manner intended, including energy performance, or that would result in increased maintenance, or decreased operational life or decreased safety.

1.4 SUBMITTALS

- A. Procedural Proposal for Cutting and Patching: Where prior approval of cutting and patching is required, submit proposed procedures for this work well in advance of the time work will be performed and request approval to proceed. Include the following information, as applicable, in the submittal.
- B. List products to be used and firms that will perform work.
- C. Give dates when work is expected to be performed.

- D. List utilities that will be disturbed or otherwise be affected by work, including those that will be relocated and those that will be out-of-service temporarily. Indicate how long utility service will be disrupted.
- E. Approval by the Architect/Engineer to proceed with cutting and patching work does not waive the Architect/Engineer's right to later require complete removal and replacement of work found to be cut and patched in an unsatisfactory manner.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Except as otherwise indicated, or as directed by the Architect/Engineer, the materials for cutting and patching shall be identical to existing materials. If identical materials are not available, or cannot be used, use material that match existing adjacent surfaces to the fullest extent possible with regard to visual effect. Use materials for cutting and patching that will result in equal-or-better performance characteristics.

PART 3 - EXECUTION

- 3.1 INSPECTION
 - A. Before cutting, examine the surface to be cut and patched and the conditions under which the work is to be performed. If unsafe or otherwise unsatisfactory conditions are encountered notify Architect immediately. Execute cutting (including excavation) fitting or patching of work required to: make several parts fit properly; uncover work to provide for installation or ill-timed work; remove and replace defective work; remove and replace work not conforming to requirements of Contract Documents.

3.2 PREPARATION

- A. Temporary Support: To prevent failure provide temporary support of work to be cut.
- B. Protection: Protect other work during cutting and patching to prevent damage. Provide protection from adverse weather conditions for that part of the project that may be exposed during cutting and patching operations.

3.3 PERFORMANCE

- A. General: Employ skilled workmen to perform cutting and patching work. Except as otherwise indicated or as approved by the Architect/Engineer, proceed with cutting and patching at the earliest feasible time and complete work without delay.
- B. Cutting: Cut the work using methods that are least likely to damage work to be retained or adjoining work. Where possible review proposed procedures with the original installer; comply with original installer's recommendations.
- C. In general, where cutting is required use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut through concrete and masonry using a cutting machine such as a carborundum saw or core drill to insure a neat hole. Cut holes and slots neatly to size required with minimum disturbance of adjacent work. To avoid marring existing finished surfaces, cut or drill from exposed or finished side into concealed surfaces. Temporarily cover openings when not in use.
- D. Patching: Patch with seams which are durable and as invisible as possible. Comply with specified tolerances for the work.
- E. Where feasible, inspect and test patched areas to demonstrate integrity of work.
- F. Restore exposed finishes of patched areas and where necessary extend finish restoration into retained adjoining work in a manner which will eliminate evidence of patching and refinishing.
- G. Where removal of walls or partitions extends one finished area into another finished area, patch and repair floor and wall surfaces in the new space to provide an even surface of uniform color and appearance, remove existing floor and wall coverings and replace with new materials.
- H. Where patch occurs in a smooth painted surface, extend final paint coat over entire unbroken surface containing patch, after patched area has received prime and base coat.

3.4 CLEANING

A. Thoroughly clean areas and spaces where work is performed or used as access to work. Remove completely, point mortar, oils, putty, and items of similar nature. Thoroughly clean piping, conduit, and similar features before painting or other finishing is applied. Restore damaged pipe covering to its original condition

SECTION 01 74 23 - FINAL CLEANING

PART 1- GENERAL

1.1 RELATED DOCUMENTS

A. Provisions established within the General and Supplementary General Conditions of the Contract, Division 01 - General Requirements, and the Drawings are collectively applicable to this Section.

1.2 SECTION INCLUDES

A. Final cleaning of project and related site work.

1.3 RELATED SECTIONS

- A. General Conditions: Clean-up.
- B. Section 01 50 00 Temporary Facilities and Controls: Cleaning during construction.
- C. Section 01 70 00 Project Close-Out.
- D. Individual Specification Sections: Specific cleaning for product or work.

1.4 DESCRIPTION

A. Execute cleaning prior to inspection for Substantial Completion of Work.

PART 2 - PRODUCTS

2.1 CLEANING MATERIALS

- A. Use material which will not create hazards to health or property, and which will not damage surfaces.
- B. Use only materials and methods recommended by manufacturer of material being cleaned.

PART 3 - EXECUTION

3.1 CLEANING

- A. In addition to removal of debris and cleaning specified in other Sections, clean interior and exterior exposed-to-view surfaces.
- B. Remove temporary protection and labels not required to remain.
- C. Clean finishes free of dust, stains, films, and other foreign substances.

- D. Clean transparent and glossy materials to a polished condition; remove foreign substances.
- E. Vacuum clean carpeted and similar soft surfaces.
- F. Clean, damp mop, wax and polish resilient and hard-surface floor as specified.
- G. Clean surfaces of equipment; remove excess lubrication.
- H. Clean plumbing fixtures, and food service equipment and replace disposable filters when units have been operatedduring construction.
- I. Clean permanent filters of ventilating equipment and replace disposable filters when units have been operated during construction; in addition, clean ducts, blowers, and coils when units have been operated.
- J. Clean light fixtures and lamps.
- K. Maintain cleaning until Final Completion.
- L. Remove waste, foreign matter, and debris from roofs gutters, area ways, and drainage systems.
- M. Remove waste, debris, and surplus materials from site. Clean grounds; remove stains, spills, and foreign substances from paved areas and sweep clean. Rake clean other exterior surfaces.

SECTION 01 77 19 - FINAL ACCEPTANCE FORM

PROCEDURES - FINAL ACCEPTANCE OF CONSTRUCTION PROJECT

School:		Date:		
Proj	ect Architect:	Project Contractor:		
1.	Letter received from Project Architect Certifying		Date	
	a. Completion according to plans and specb. Punch List item	ifications	Date	
2.	Affidavit received from Contractor certifying are paid on file.	that all bills		
3.	Certificate of Occupancy from the Contra construction only) on file.	actor (new	Date	
4.	OPS inspection team composed of the inspected the project; (Please sign below)	following,	Date	
			Date	
-	Assistant Superintendent Department of Services	Business		
	Director, Building & Grounds			
	Contractor Representative			
	Project Architect			
5.	Final application for retainage submitted by Co	ontractor.		
6.	Consent of Surety for Final Payment		Date	
7.	District authorized carrier notified		Date	
8.	Board authorized final payment		Date	
			Date	
Abo	ve items coordinated by:			

SECTION 01 78 30 – WARRANTIES AND BONDS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Provisions established within the General and Supplementary General Conditions of the Contract, Division 1 - General Requirements, and Drawings are collectively applicable to this Section.

1.2 SECTION INCLUDES

A. Preparation and submittal of warranties and bonds.

1.3 RELATED SECTIONS/DOCUMENTS

- A. Instruction to Bidders: Bid Bonds.
- B. General Conditions: Performance Bond and Labor and Material Payment Bonds, Warranty, and Correction of Work.
- C. Section 01 70 00 Project Close-Out.
- D. Individual Specification Sections: Warranties and bonds required for specific Products or Work.

1.4 FORM OF SUBMITTALS

- A. Bind in commercial quality 8-1/2 x 11 inch three-ringed binders, with hardback, cleanable plastic covers.
- B. Label cover of each binder with typed or printed title WARRANTIES AND BONDS, with title of Project; name, address and telephone number of Contractor; name of responsible principal.
- C. Table of Contents: Neatly typed, in the sequence of the Table of Contents of the Project Manual, with each item identified with the number and title of the Specification Section in which specified, and the name of Product or Work item.
- D. Separate each warranty or bond with index tab sheets as necessary. List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

1.5 PREPARATION OF SUBMITTALS

A. Obtain warranties and bonds, executed in duplicate by responsible subcontractors, suppliers, and manufacturers, within fourteen calendar (14) days after completion of applicable item of Work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until the Date of Substantial Completion is determined. Warranties shall commence on the Date of Substantial Completion.

- B. Verify that documents are in proper form, contain full information, and are notarized.
- C. Co-sign all submittals. Contractor is responsible for coordination and completion of all warranty work during two (2) year warranty period.
- D. Retain warranties and bonds until time specified for submittal.
- 1.6 TIME OF SUBMITTALS
 - A. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within ten (10) days after acceptance.
 - B. Make other submittals within fourteen (14) calendar days after date of Substantial Completion, prior to final Application for Payment.
 - C. For items of Work when acceptance is delayed beyond Date of Substantial Completion, submit within fourteen (14) calendar days after acceptance, listing the date of acceptance as the beginning of the warranty period.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

SECTION 01 78 39 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

- 1.1 RELATED DOCUMENTS: Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.
- 1.2 SUMMARY: Section includes administrative and procedural requirements for project record documents, including the following:
 - A. Record Drawings.
 - B. Miscellaneous record submittals.

PART 2 - PRODUCTS

- 2.1 RECORD DRAWINGS:
 - A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and reviewed Shop Drawings at the jobsite, incorporating new and revised drawings as modifications are issued.
 - 1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.
 - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later, in particular, attention should be given to the final location, depth and sizes of underground utilities.
 - b. Accurately record information in an acceptable drawing technique.
 - c. Record data as soon as possible after obtaining it.
 - d. Record and check the markup before enclosing concealed installations.
 - e. Cross-reference record prints to corresponding archive photographic documentation.
 - 2. Content: Types of items requiring marking include, but are not limited to, the following:
 - a. Dimensional changes to Drawings.
 - b. Revisions to details shown on Drawings.
 - c. Depths of foundations below first floor.
 - d. Locations and depths of underground utilities.
- e. Revisions to routing of piping and conduits.
- f. Revisions to electrical circuitry.
- g. Actual equipment locations.
- h. Duct size and routing.
- i. Locations of concealed internal utilities.
- j. Changes made by Change Order or Construction Change Directive.
- k. Changes made following Architect's written orders.
- I. Details not on the original Contract Drawings.
- m. Field records for variable and concealed conditions.
- n. Record information on the Work that is shown only schematically.
- 3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
- 4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
- 5. Mark important additional information that was either shown schematically or omitted from original Drawings.
- 6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

2.2 MISCELLANEOUS RECORD SUBMITTALS:

- A. Assemble miscellaneous records as may be required for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.
- B. Format: Submit miscellaneous record submittals as PDF electronic file or scanned PDF electronic file(s) of marked-up miscellaneous record submittals.
 - 1. Include miscellaneous record submittals directory organized by Specification Section number and title, electronically linked to each item of miscellaneous record submittals

2.3 WARRANTIES:

A. Sets: Provide two (2) bound copies and one (1) electronic (PDF) copy.

PART 3 - EXECUTION

BCDM No.: 5444-02

3.1 RECORDING AND MAINTENANCE:

- A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project.
- B. Maintenance of Record Documents and Samples: Store record documents and Samples in the field office apart from the Contract Documents used for construction. Do not use the project record documents for construction. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Architect's reference during normal working hours.

SECTION 06 10 00 ROUGH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Preservative treated wood materials.
- B. Fire retardant treated wood materials.
- C. Concealed wood blocking, nailers, and supports.
- D. Miscellaneous wood nailers, furring, and grounds and panels.

1.02 REFERENCE STANDARDS

- A. ASME B18.2.1 Square, Hex, Heavy Hex, and Askew Head Bolts and Hex, Heavy Hex, Hex Flange, Lobed Head, and Lag Screws (Inch Series); 2012 (Reaffirmed 2021).
- B. ASTM A307 Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength; 2021.
- C. ASTM A563 Standard Specification for Carbon and Alloy Steel Nuts; 2021a.
- D. ASTM B633 Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel; 2023.
- E. ASTM E488/E488M Standard Test Methods for Strength of Anchors in Concrete Elements; 2022.
- F. ASTM F1667 Standard Specification for Driven Fasteners: Nails, Spikes, and Staples; 2021.
- G. ASTM F593 Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs; 2022.
- H. ASTM F594 Standard Specification for Stainless Steel Nuts; 2022.
- I. ASTM A153/A153M Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2023.
- J. ASTM A653/A653M Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2022.
- K. AWPA U1 Use Category System: User Specification for Treated Wood; 2024.
- L. PS 20 American Softwood Lumber Standard; 2025.

1.03 SUBMITTALS

- A. See Front End Documents for submittal procedures.
- B. Product Data: Provide technical data on each type of process and factory-fabricated product.
- C. Material Certificates: For dimension lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design values approved by the American Lumber Standards Committee Board of Review.
- D. Research/Evaluation Reports: For the following, showing compliance with the building code in effect for the Project:
 - 1. Power-driven fasteners.
 - 2. Powder-actuated fasteners.
 - 3. Expansion anchors
 - 4. Metal framing anchors.

1.04 QUALITY ASSURANCE

A. New Products: Only new lumber shall be utilized throughout the project.

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.

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.
 - 3. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
 - 4. Provide dry lumber with 19 percent maximum moisture content at time of dressing for 2inch nominal thickness or less, unless otherwise indicated.
 - 5. Treated wood will not be allowed, except at sill plate conditions.

2.02 DIMENSION LUMBER

- A. General: Provide dimension lumber of grades indicated according to the American Lumber Standards Committee National Grading Rule provisions of the grading agency indicated.
- B. Sizes: Nominal sizes as indicated on drawings, S4S.
- C. Moisture Content: S-dry or MC19.
- D. Miscellaneous Framing, Blocking, Cants, Nailers, Grounds, and Furring:
 - 1. For items of dimension lumber size, provide Construction, Stud or No. 2 grade SPF lumber with 19 percent maximum moisture content.
 - 2. For concealed boards, provide lumber with 19 percent maximum moisture content and the following species and grades:
 - a. Spruce-pine-fir (south)or Spruce-pine-fir, Construction or No. 2 Common grade; NELMA, NLGA, WCLIB, or WWPA.

2.03 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.
 - 1. Where rough carpentry is exposed to weather, in ground contact, or in an area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A153/A153M.
- B. Nails, Brads, and Staples: ASTM F1667.
- C. Power-Driven Fasteners: CABO NER-272.
- D. Wood Screws: ASME B18.6.1.
- E. Lag Bolts: ASME B18.2.1.
- F. Bolts: Steel bolts complying with ASTM A307, Grade A, Property Class 4.6; with ASTM A563 Hex nuts and, where indicated, flat washers.
- G. Headed Anchor Bolts at Sill Plates: Stainless steel with bolts and nuts complying with ASTM F593 and ASTM F594, Alloy Group 1 or 2.
- H. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to six (6) times the load imposed when installed in unit masonry assemblies and equal to four (4) times the load imposed when installed in concrete as determined by testing per ASTM E488/E488M conducted by a qualified independent testing and inspecting agency.
 - 1. Material: Carbon-steel components, zinc plated to comply with ASTM B633, Class FelZn 5.

2. Material: Stainless steel with bolts and nuts complying with ASTM F593 and ASTM F594, Alloy Group 1 or 2.

2.04 METAL FRAMING ANCHORS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - Alpine Engineered Products, Inc.
 Cleveland Steel Specialty Co.
 - Cleveland Steel Specially Co.
 Simpson Strong-Tie Co., Inc.
 - 4. USP Structural Connectors.
- B. Allowable Design Loads: Provide products with allowable design loads, as published by the manufacturer that meet or exceed those indicated. The manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.
- C. Galvanized Steel Sheet: Hot-dip, zinc-coated steel sheet complying with ASTM A653/A653M, G60 coating designation.

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. 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. Preservative Treatment:
 - 1. Preservative Pressure Treatment of Lumber Above Grade: AWPA Standard C2, using waterborne preservative to 0.25 lb/cu ft retention. Mark each treated item with AWPB or SPIB Quality Mark Requirements.
 - a. Kiln dry lumber after treatment to maximum moisture content of 19 percent.
 - b. Treat wood items in contact with roofing.
 - c. Treat wood items in contact with masonry or concrete.

PART 3 EXECUTION

3.01 INSTALLATION - GENERAL

- A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted Fit rough carpentry to other construction; scribe and cope as needed for accurate fit.
- B. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
 - 1. CABO NER-272 for power-driven fasteners.
 - 2. Published requirements of metal framing anchor manufacturer.
 - 3. Table 2304.9.1, "Fastening Schedule", in the 2006 International Building Code.
 - 4. Use common wire nails, unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view of will receive finish materials. Make tight connections between members. Install fasteners without splitting wood; pre-drill as required.
 - 5. Use finishing nails for exposed work, unless otherwise indicated. Countersink nail heads and fill holes with wood filler.
- C. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

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. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.

- B. In metal stud walls, provide continuous blocking around door and window openings for anchorage of frames, securely attached to stud framing.
- C. In walls, provide blocking attached to studs as backing and support for wall-mounted items, unless item can be securely fastened to two or more studs or other method of support is explicitly indicated. Recess bolts and nuts flush with surfaces, unless otherwise indicated.
- D. Build anchor bolts into masonry during installation of masonry work. Where possible, secure anchor bolts to formwork before concrete placement.

3.03 SITE APPLIED WOOD TREATMENT

- A. Apply preservative treatment compatible with factory applied treatment at site-sawn cuts, complying with manufacturer's instructions.
- B. Allow preservative to dry prior to erecting members.

SECTION 07 21 00 THERMAL INSULATION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Board insulation at exterior wall behind fiber-cement wall finish.
- B. Batt insulation for filling perimeter window and door shim spaces and crevices in exterior wall and roof.

1.02 REFERENCE STANDARDS

- A. ASTM C578 Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation; 2023.
- B. ASTM C665 Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2023.
- C. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials; 2023.
- D. ASTM E2357 Standard Test Method for Determining Air Leakage Rate of Air Barrier Assemblies; 2024.

1.03 SUBMITTALS

- A. See Front End Documents for submittal procedures.
- B. Product Data: Provide data on product characteristics, performance criteria, and product limitations.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Protect insulation from physical damage and from becoming wet, soiled, or covered with ice or snow. Comply with the manufacturer's recommendations for handling, storage, and protection during installation.
- B. Do not expose plastic insulation to sunlight, except to the extent necessary for the period of installation and concealment.
- C. Protect plastic insulation against ignition at all times. Do not deliver plastic insulating materials to project site ahead of time. Complete installation and concealment of plastic materials as rapidly as possible in each area of work.

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 FOAM BOARD INSULATION MATERIALS

- A. Insulated Sheathing Extruded Polystyrene (XPS) Board Insulation: Complies with ASTM C578 with either natural skin or cut cell surfaces.
 - 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: Type IV, 5.0 (0.88), minimum, per 1 inch thickness at 75 degrees F mean temperature.
 - 4. Compressive Strength: 25 psi.
 - 5. Board Edges: Square.

2.02 MINERAL FIBER BLANKET INSULATION MATERIALS

- A. Flexible Glass Fiber Blanket Thermal Insulation: Preformed insulation, complying with ASTM C665; friction fit.
 - 1. Flame Spread Index: 25 or less, when tested in accordance with ASTM E84.
 - 2. Smoke Developed Index: 450 or less, when tested in accordance with ASTM E84.

- 3. Formaldehyde Content: Zero.
- 4. Thermal Resistance: R-value of R-13.
- 5. Facing: Unfaced.

2.03 ACCESSORIES

- A. Weather Barrier: See Section 07 25 00.
- B. Continuous Air Barrier and Vapor Retarder: At all exterior walls where Batt Insulation is provided, that area shall be encapsulated by a vapor barrier. Install per manufacturer's recommended standards.
 - 1. Product: MemBrain by Certainteed Corporation.
- C. Tape: Polyethylene self-adhering type, mesh reinforced, 2 inch wide.
- D. Insulation Fasteners: Appropriate for purpose intended.1. Length as required for thickness of insulation material and penetration of deck substrate.
- E. Nails or Staples: Steel wire; electroplated or galvanized; type and size to suit application.
- F. Adhesive: Type recommended by insulation manufacturer for application.

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 rigid insulation directly to steel studs or exterior grade sheathing at 16 inches on center with manufacturer recommended mechanical fasteners, and tape joints with manufacturer's minimum 4 inches wide sealant tape; comply with ASTM E2357.
- B. Install boards horizontally on walls.

3.03 BATT INSTALLATION

- A. Install insulation and vapor retarder in accordance with manufacturer's instructions.
- B. Install in exterior wall spaces without gaps or voids. Do not compress insulation.
- C. Trim insulation neatly to fit spaces. Insulate miscellaneous gaps and voids.
- D. Fit insulation tightly in cavities and tightly to exterior side of mechanical and electrical services within the plane of the insulation.
- E. Push down and in vertical spaces to assure avoidance of future settling.
- F. Maintain all required minimum clearances between insulation and fans, lights, or other heat producing equipment items.
- G. Staple or nail facing flanges in place at maximum 6 inches on center.
- H. Extend vapor retarder tightly to full perimeter of adjacent window and door frames and other items interrupting the plane of the membrane; tape seal in place.

3.04 PROTECTION

A. Do not permit installed insulation to be damaged prior to its concealment.

SECTION 07 25 00 WEATHER BARRIERS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Weather barrier membrane to be located at exterior walls.

1.02 REFERENCE STANDARDS

- A. AATCC Test Method 127 Test Method for Water Resistance: Hydrostatic Pressure; 2018, with Editorial Revision (2019).
- B. ASTM D882 Standard Test Method for Tensile Properties of Thin Plastic Sheeting; 2018.
- C. ASTM D1177 Standard Test Method for Freezing Point of Aqueous Engine Coolants; 2022.
- D. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials; 2023.
- E. ASTM E96/E96M Standard Test Methods for Gravimetric Determination of Water Vapor Transmission Rate of Materials; 2023.
- F. ASTM E2178 Standard Test Method for Determining Air Leakage Rate and Calculation of Air Permeance of Building Materials; 2021a.

1.03 SUBMITTALS

- A. See Front End Documents for submittal procedures.
- B. Product Data: Provide data on material characteristics.
- C. Shop Drawings: Provide drawings of special joint conditions.
- D. Manufacturer's Installation Instructions: Indicate preparation, installation methods, and storage and handling criteria.

1.04 FIELD CONDITIONS

A. Maintain temperature and humidity recommended by materials manufacturers before, during, and after installation.

1.05 WARRANTY

- A. Special Warranty
 - 1. Special weather-barrier manufacturer's warranty for weather barrier for a period of ten (10) years from date of final weather barrier installation.
 - 2. Pre-installation meetings and jobsite observations by weather barrier manufacturer for warranty is required prior to assembly installation.

PART 2 PRODUCTS

2.01 WATER-RESISTIVE BARRIER MATERIALS

- A. Weather Barrier Membrane: On vertical walls: spunbonded polyolefin, non-woven, non-perforated, weather barrier.
 - 1. Air Permeance: 0.0011 cfm/sq ft, maximum, when tested in accordance with ASTM E2178.
 - 2. Water Vapor Permeance: 28 perms, minimum, when tested in accordance with ASTM E96/E96M using Procedure B.
 - 3. Ultraviolet (UV) and Weathering Resistance: Approved by manufacturer for up to 9 of weather exposure.
 - 4. Water Penetration Resistance: Minimum 280 cm when tested in accordance with AATCC Test Method 127.
 - 5. Basis Weight: Minimum 2.7 oz/yd², when tested in accordance with TAPPI Test Method T-410.
 - 6. Air Resistance: Air infiltration at >1500 seconds, when tested in accordance with TAPPI Test Method T-460.

- 7. Tensile Strength: Minimum 38/35 lbs/in., when tested in accordance with ASTM D882, Method A.
- 8. Tear Resistance: 12/10 lbs., when tested in accordance with ASTM D1117.
- 9. Surface Burning Characteristics: Class A, when tested in accordance with ASTM E84. Flame Spread: 10, Smoke Developed: 10.
- 10. Seam and Perimeter Tape: As recommended by sheet manufacturer.
- 11. Products:
 - a. Basis of Design:
 - 1) Dupont de Nemours, Inc; Tyvek Commercial Wrap: www.dupont.com.

2.02 ACCESSORIES

- A. Fasteners:
 - 1. Steel Frame Construction:
 - a. 1-5/8 inch rust resistant screw with 2-inch diameter plastic cap or manufacturer approved 1-1/4" or 2" metal gasketed washer.
 - 2. Wood Frame Construction:
 - a. Nail Caps: #4 nails with large 1-inch plastic cap fasteners, or 1-inch plastic cap staples with leg length sufficient to achieve a minimum penetration of 5/8-inch into the wood stud.
 - 3. Masonry Construction:
 - a. Masonry tap-con fasteners with Caps: 2-inch diameter plastic cap fasteners.
- B. Sealants:
 - 1. Provide sealants that comply with ASTM C920, elastomeric polymer sealant to maintain watertight conditions.
 - 2. Products: Sealants recommended by the weather barrier manufacturer.
- C. Adhesives:
 - 1. Provide adhesive recommended by weather barrier manufacturer.
 - 2. Products: Adhesives recommend by the weather barrier manufacturer.
- D. Primers:
 - 1. Provide flashing manufacturer recommended primer to assist in adhesion between substrate and flashing.
 - 2. Products: Primers recommended by the flashing manufacturer.
- E. Flashing:
 - 1. Flexible membrane flashing materials for window openings and penetrations recommended by manufacturer.
 - 2. Straight flashing membrane materials for flashing windows and doors and sealing penetrations such as masonry ties, etc. recommended by manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that surfaces and conditions comply with requirements of this section.

3.02 PREPARATION

A. Remove projections, protruding fasteners, and loose or foreign matter that might interfere with proper installation.

3.03 INSTALLATION

- A. Install materials in accordance with manufacturer's installation instructions.
- B. Water-Resistive Barriers: Install continuous water-resistive barrier over surfaces indicated, with sheets lapped to shed water but with seams not sealed.
- C. Apply sealants and adhesives within recommended temperature range in accordance with manufacturer's installation instructions.
- D. Mechanically Fastened Exterior Sheets:

- 1. Install sheets shingle-fashion to shed water, with seams aligned horizontal.
- 2. Overlap seams as recommended by manufacturer, 6 inches, minimum.
- 3. Overlap at outside and inside corners as recommended by manufacturer, 12 inches, minimum.
- 4. Attach to framed construction with fasteners extending through sheathing into framing, and space fasteners at 12 to 18 inches on center along each framing member supporting sheathing.
- 5. Where stud framing rests on concrete or masonry substrate, extend lower edge of barrier sheets at least 4 inches below bottom of framing and seal to substrate with sealant or approved mounting tape.
- 6. Install water-resistive barrier over jamb flashings.
- 7. Install head flashings under water-resistive barrier.
- 8. At framed openings with frames having nailing flanges, extend sheet into opening and over flanges; at head of opening, seal sheet over flange and flashing.
- E. Openings and Penetrations in Exterior Water-Resistive Barriers:
 - 1. Install flashing over sills, covering entire sill framing member, and extend at least 5 inches onto water-resistive barrier and at least 6 inches up jambs; mechanically fasten stretched edges.
 - 2. At openings filled with frames having nailing flanges, seal head and jamb flanges using a continuous bead of sealant compressed by flange and cover flanges with sealing tape at least 4 inches wide; do not seal sill flange.
 - 3. At openings filled with nonflanged frames, seal water-resistive barrier to each side of framing at opening using flashing at least 9 inches wide, and covering entire depth of framing.
 - 4. At head of openings, install flashing under water-resistive barrier extending at least 2 inches beyond face of jambs; seal water-resistive barrier to flashing.
 - 5. At interior face of openings, seal gaps between window and door frames and rough framing using appropriate joint sealant over backer rod.
 - 6. Service and Other Penetrations: Form flashing around penetrating items and seal to surface of water-resistive barrier.

3.04 PROTECTION

A. Do not leave materials exposed to weather longer than recommended by manufacturer.

SECTION 07 46 46 FIBER-CEMENT SIDING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Fiber-cement siding.

1.02 RELATED REQUIREMENTS

- A. Section 06 10 00 Rough Carpentry: Siding substrate.
- B. Section 07 25 00 Weather Barriers: Water-resistive barrier under siding.
- C. Section 07 92 00 Joint Sealants: Sealing joints between siding and adjacent construction and fixtures.

1.03 REFERENCE STANDARDS

A. ASTM C1186 - Standard Specification for Flat Fiber-Cement Sheets; 2022, with Editorial Revision (2023).

1.04 SUBMITTALS

- A. See Front End Documents for submittal procedures.
- B. Product Data: Submit manufacturer's data sheets on each product to be used, including:
 - 1. Manufacturer's requirements for related materials to be installed by others.
 - 2. Preparation instructions and recommendations.
 - 3. Storage and handling requirements and recommendations.
 - 4. Installation methods, including nail patterns.
- C. Installer's qualification statement.
- D. Maintenance Instructions: Periodic inspection recommendations and maintenance procedures.
- E. Warranty: Submit copy of manufacturer's warranty, made out in Owner's name, showing that it has been registered with manufacturer.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing work of type specified in this section with not less than three years of experience.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store materials in manufacturer's unopened packaging, with labels intact, until ready for installation.
- B. Store materials under dry and waterproof cover, well ventilated, and elevated above grade on a flat surface.

1.07 WARRANTY

A. See Front End Documents for additional warranty requirements.

PART 2 PRODUCTS

2.01 FIBER-CEMENT SIDING

- A. Panel Siding: Vertically oriented panels made of cement and cellulose fiber formed under high pressure with integral surface texture, complying with ASTM C1186, Type A, Grade II; with machined edges, for nail attachment.
 - 1. Texture: Smooth.
 - 2. Length (Height): 96 inches, nominal.
 - 3. Width: 48 inches.
 - 4. Thickness: 5/16 inch, nominal.
 - a. Product: ColorPlus Technology by James Hardie.
 - 5. Color: Monterey Taupe.

- 6. Products:
 - a. Basis of Design: James Hardie Building Products, Inc; HardiePanel HZ10: www.jameshardie.com/#sle.
 - b. Substitutions: See Front End Documents for procedures.

2.02 ACCESSORIES

- A. Trim: Same material and texture as siding.
- B. Fasteners: Galvanized or corrosion resistant; length as required to penetrate, 1-1/4 inches, minimum.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine substrate, clean and repair as required to eliminate conditions that would be detrimental to proper installation.
- B. Do not begin until unacceptable conditions have been corrected.
- C. If substrate preparation is responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.02 INSTALLATION

- A. Install in accordance with manufacturer's instructions and recommendations.
 - 1. Read warranty and comply with terms necessary to maintain warranty coverage.
 - 2. Use trim details as indicated on drawings.
 - 3. Touch up field cut edges before installing.
 - 4. Pre-drill nail holes if necessary to prevent breakage.
- B. Over Steel Studs: Use hot-dipped galvanized self-tapping screws, with the points of at least three screws penetrating each stud the panel crosses and at panel ends.
- C. Joints in Vertical Siding: Install Z-flashing in horizontal joints between successive courses of vertical siding.
- D. Do not install siding less than 6 inches from ground surface, or closer than 1 inch to roofs, patios, porches, and other surfaces where water may collect.
- E. After installation, seal joints except lap joints of lap siding; seal around penetrations, and paint exposed cut edges.

3.03 PROTECTION

- A. Protect installed products until Date of Substantial Completion.
- B. Touch-up, repair or replace damaged products before Date of Substantial Completion.

SECTION 07 62 00 SHEET METAL FLASHING AND TRIM

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Fabricated sheet metal items, including flashings and counterflashings.
- B. Sealants for joints within sheet metal fabrications.

1.02 REFERENCE STANDARDS

- A. AAMA 611 Specification for Anodized Architectural Aluminum; 2024.
- B. ASTM C920 Standard Specification for Elastomeric Joint Sealants; 2018.
- C. ASTM D4586/D4586M Standard Specification for Asphalt Roof Cement, Asbestos-Free; 2007 (Reapproved 2018).
- D. SMACNA (ASMM) Architectural Sheet Metal Manual; 2012.

1.03 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene at project site before starting work of this section.

1.04 SUBMITTALS

- A. See Front End Documents for submittal procedures.
- B. Shop Drawings: Indicate material profile, jointing pattern, jointing details, fastening methods, flashings, terminations, and installation details.

1.05 QUALITY ASSURANCE

A. Perform work in accordance with SMACNA (ASMM) requirements and standard details, except as otherwise indicated.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Stack material to prevent twisting, bending, and abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.
- B. Prevent contact with materials that could cause discoloration or staining.

1.07 WARRANTY

A. All flashing materials and installation shall be warranted to be leakproof and free of defects by the flashing subcontractor for a period of 2 years following the date of Substantial Completion. All prefinished sheet metal shall be warranted covering fade, chalking and film integrity for a non-prorated period of 20 years following the date of Substantial Completion. These warranties shall also be signed by the Prime Contractor and shall be submitted in duplicate.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Aluminum: ASTM B209 (ASTM B209M); 22 gauge, 0.0253 inch thick; mill finish.
 - 1. Clear Anodized Finish: AAMA 611, AA-M12C22A41, Class I, clear anodic coating not less than 0.7 mil, 0.0007 inch thick.

2.02 FABRICATION - GENERAL

A. General: Shop fabricate work to greatest extent possible. Comply with details shown, and with applicable requirements of SMACNA "Architectural Sheet Metal Manual" and other recognized industry practices. Fabricate for waterproof and weather-resistant performance and with expansion provisions for running work, sufficient to permanently prevent leakage, damage or deterioration of the work. Form work to fit substrates. Form exposed sheet metal work without excessive oil-canning, buckling and tool marks, true to line and levels as indicated. Provide uniform neat seams with minimum exposure of sealant.

- B. Sealant Joints: Where movable, non-expansion type joints are indicated or required for proper performance of work, form metal to provide for proper installation of elastomeric sealant in compliance with industry standards.
- C. Form sections true to shape, accurate in size, square, and free from distortion or defects.
- D. Hem exposed edges on underside 1/2 inch; miter and seam corners.
- E. Form material with flat lock seams, except where otherwise indicated; at moving joints, use sealed lapped, bayonet-type or interlocking hooked seams.
- F. Expansion Provisions: Where lapped or bayonet-type expansion provisions in work cannot be used, or would not be sufficiently water/weatherproof, form expansion joints of intermeshing hooked flanges, not less than 1-inch deep, filled with mastic sealant (concealed within joints).

2.03 FABRICATION

- A. General: Fabricate sheet metal items in thickness or weight needed to comply with performance requirements.
- B. Protection: Protect mechanical and other finishes on exposed surfaces from damage by applying a strippable, temporary protective film before shipping.
- C. Form miscellaneous drawings from 24-gauge prefinished sheet metal as shown on the Drawings, and install with clips, cleats, or other fastenings as required.

2.04 EXTERIOR PENETRATION FLASHING PANELS

A. Flashing Panels for Exterior Wall Penetrations: Premanufactured components and accessories as required to preserve integrity of building envelope; suitable for conduits and facade materials to be installed.

2.05 ACCESSORIES

- A. Nails: Shall be not less than No. 12 gauge, with large flat heads, diamond points, barbed shafts, and of sufficient length to penetrate substrate at least 7/8-inch. Nails shall have lead or neoprene washers where heads are exposed to the weather. Nails shall be hot-dipped galvanized steel with ring shanks.
- B. Screws: Shall be No. 12 stainless steel, galvanized, bronze or brass round head wood or sheet metal screws of sufficient length to penetrate substrate 7/8-inch. Provide lead, bronze, or nylon expansion sleeves where screws are used to secure sheet metal to masonry or concrete. Neoprene or lead washers shall be provided where screws are exposed to the weather.
- C. Primer Type: Zinc chromate.
- D. Concealed Sealants: Non-curing butyl sealant.
- E. Exposed Sealants: ASTM C920; elastomeric sealant, with minimum movement capability as recommended by manufacturer for substrates to be sealed; color to match adjacent material.
- F. Asphalt Roof Cement: ASTM D4586/D4586M, Type I, asbestos-free.
- G. Reglets: Units of type, material and profile indicated, formed to provide secure interlocking of separate reglet and counterflashing pieces, and compatible with flashing indicated. Form the 90 degree bent to receive sealant.
- H. Isolation Materials: Coatings and tapes, for isolation of dissimilar materials, shall meet the recommendations of the sheet metal manufacturer. Aluminum surfaces and dissimilar surfaces to be placed in contact with each other shall each be coated with paints as specified in Aluminum Construction Manual published by The Aluminum Association, latest edition.

PART 3 EXECUTION

3.01 PREPARATION

- A. Install starter and edge strips, and cleats before starting installation.
- B. Install surface mounted reglets true to lines and levels, and seal top of reglets with sealant.

- C. Back paint concealed metal surfaces with protective backing paint to a minimum dry film thickness of 15 mil, 0.015 inch.
- D. Install underlayment where shown on the Drawings to substrate according to manufacturer's recommendations.

3.02 INSTALLATION

- A. Install work with lines and corners true and accurate in alignment. Install faces flat and free of buckles, excessive waves, and avoidable tool marks, considering the temper and reflectivity of the metal. Provide uniform neat seams with minimum exposure of solder, welds, and sealant. Fold back sheet metal to form a hem on the concealed side of exposed edges. Joints at corners shall be sealed and designed to accommodate movement.
- B. SMACNA and Manufacturer's Details: Install work to meet the recommendations shown in the SMACNA Manual and the recommendations of the sheet metal manufacturer, except when otherwise shown or specified. In the event of a conflict between recommendations of SMACNA and the sheet metal manufacturer, the latter shall govern.
- C. Conceal fasteners and expansion provisions wherever possible in exposed work, and locate to minimize the possibility of leakage. Cover and seal work for a watertight installation. Provide cleat-type anchorages for metal flashing and trim wherever practical, arranged to relieve stresses resulting from building movement and thermal expansion.
- D. Apply plastic cement compound between metal flashings and felt flashings.
- E. Fit flashings tight in place; make corners square, surfaces true and straight in planes, and lines accurate to profiles.
- F. Seal metal joints watertight.
- G. Provide flanges, minimum 4-inches wide, for stripping in roofing.
- H. Provide for thermal expansion for items which exceed 10-feet in length
- I. Expansion joints shall be watertight, and shall be located as follows:
 - 1. Flashing and Trim. At 2-feet from corners and intersections and at 10-foot centers elsewhere.

J.	Overlaps shall be as follows:	
	Vertical surfaces and slopes	Minimum 3-inches
	steeper than 6 in 12	
	Slopes 6 in 12 or less	Minimum 6-inches

- K. Form drive-cleat sealed seams unless otherwise shown or specified.
- L. Install other miscellaneous sheet metal items as shown on the Drawings and as specified herein and in the SMACNA Manual to provide a neat, weathertight installation.

3.03 CLEANING AND PROTECTION

- A. Touch-up exposed surfaces which are visible or which might cause corrosion of metal or deterioration of finish with touch-up paint approved by the sheet metal manufacturer. Only minor scratches and fastening heads shall be touched-up. Other damaged material shall be replaced.
- B. Protection: Installer shall advise Contractor of required procedures for surveillance and protection of flashings and sheet metal work during construction, to ensure that work will be without damage or deterioration at time of Substantial Completion.

SECTION 07 92 00 JOINT SEALANTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Nonsag gunnable joint sealants.
- B. Self-leveling pourable joint sealants.
- C. Joint backings and accessories.

1.02 REFERENCE STANDARDS

- A. ASTM C661 Standard Test Method for Indentation Hardness of Elastomeric-Type Sealants by Means of a Durometer; 2015 (Reapproved 2022).
- B. ASTM C794 Standard Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants; 2018 (Reapproved 2022).
- C. ASTM C920 Standard Specification for Elastomeric Joint Sealants; 2018.
- D. ASTM C1087 Standard Test Method for Determining Compatibility of Liquid-Applied Sealants with Accessories Used in Structural Glazing Systems; 2023.
- E. ASTM C1193 Standard Guide for Use of Joint Sealants; 2016 (Reapproved 2023).
- F. ASTM C1330 Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid-Applied Sealants; 2023.
- G. SCAQMD 1168 Adhesive and Sealant Applications; 1989, with Amendment (2022).

1.03 SUBMITTALS

- A. See Front End Documents for submittal procedures.
- B. Product Data: Submit manufacturer's technical datasheets for each product to be used; include 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. Certification by manufacturer indicating that product complies with specification requirements.
- C. Color Cards for Selection: Where sealant color is not specified, submit manufacturer's color cards showing standard colors available for selection. Samples shall be strips of actual caulking. Paper samples shall not be acceptable.
- D. Preconstruction Laboratory Test Reports: Submit at least four weeks prior to start of installation.
- E. Executed warranty.

1.04 QUALITY ASSURANCE

- A. Installer Qualifications: Company specializing in performing the work of this section and with at least three years of documented experience.
- B. Preconstruction Laboratory Testing: Arrange for sealant manufacturer(s) to test each combination of sealant, substrate, backing, and accessories.
 - 1. Adhesion Testing: In accordance with ASTM C794.
 - 2. Compatibility Testing: In accordance with ASTM C1087.
 - 3. Allow sufficient time for testing to avoid delaying the work.
 - 4. Deliver sufficient samples to manufacturer for testing.
 - 5. Report manufacturer's recommended corrective measures, if any, including primers or techniques not indicated in product data submittals.

1.05 WARRANTY

- A. See Front End Documents for additional warranty requirements.
- B. Manufacturer Warranty: Provide 2-year manufacturer warranty for installed sealants and accessories that fail to achieve a watertight seal, exhibit loss of adhesion or cohesion, or do not cure. Complete forms in Owner's name and register with manufacturer.
 - 1. Urethane Sealants: Five years.
 - 2. Silicone Sealants: Twenty years.
- C. Extended Correction Period: Correct defective work within 5-year period commencing on Date of Substantial Completion.

1.06 JOB CONDITIONS

- A. Weather and Temperature: Sealants shall be installed on dry days preferably with temperatures between 40F and 55F, but in no case shall sealants be installed when temperatures are below 40F or above 90F.
- B. Protection: Special care shall be exercised to prevent damage to adjacent work during installation of sealants.
- C. Sequencing:
 - 1. Install sealant adjacent to painted and stained surfaces before adjacent surfaces receive their final coat of paint or stain.
 - 2. Install sealants after brickwork and concrete is washed down and before water repellent treatment is applied.
 - 3. Caulking shall not begin until all samples have been approved and until a meeting has been held at the construction site between the Architect/Engineer and the caulking subcontractor to discuss miscellaneous caulking requirements and workmanship.

PART 2 PRODUCTS

2.01 JOINT SEALANT APPLICATIONS

- A. Scope:
 - 1. Exterior Joints: Seal open joints, whether or not the joint is indicated on drawings, unless specifically indicated not to be sealed. Exterior joints to be sealed include, but are not limited to:
 - a. Wall expansion and control joints.
 - b. Joints between door, window, and other frames and adjacent construction.
 - c. Joints between different exposed materials.
 - d. Openings below ledge angles in masonry.
 - e. Other joints indicated below.
 - 2. Interior Joints: Do not seal interior joints unless specifically indicated to be sealed. Interior joints to be sealed include, but are not limited to, the following items.
 - a. Joints between door, window, and other frames and adjacent construction.
 - b. Other joints indicated below.
 - 3. Do not seal the following types of joints:
 - a. Intentional weep holes in masonry.
 - b. Joints indicated to be treated with manufactured expansion joint cover, or some other type of sealing device.
 - c. Joints where sealant is specified to be provided by manufacturer of product to be sealed.
 - d. Joints where installation of sealant is specified in another section.
 - e. Joints between suspended panel ceilings/grid and walls.
- B. Type S-1 Exterior Joints: Use non-sag polyurethane sealant, unless otherwise indicated.
- C. Interior Joints: Use non-sag polyurethane sealant, unless otherwise indicated.
 - 1. Type S-2 Wall and Ceiling Joints in Non-Wet Areas: Acrylic emulsion latex sealant.

2.02 JOINT SEALANTS - GENERAL

A. Sealants and Primers: Provide products having lower volatile organic compound (VOC) content than indicated in SCAQMD 1168.

2.03 NONSAG JOINT SEALANTS

- A. Non-Staining Silicone Sealant: ASTM C920, Grade NS, Uses M and A; not expected to withstand continuous water immersion or traffic.
 - 1. Products:
 - a. Dow; DOWSIL 790 Silicone Building Sealant: www.dow.com/#sle.
 - b. Dow; DOWSIL 791 Silicone Weatherproofing Sealant: www.dow.com/#sle.
 - c. Pecora Corporation: www.pecora.com/#sle.
 - d. Tremco Commercial Sealants & Waterproofing; Spectrem 1: www.tremcosealants.com/#sle.
 - e. Tremco Commercial Sealants & Waterproofing; Spectrem 3: www.tremcosealants.com/#sle.
 - 2. Products:
 - a. Dow Corning Corporation; 786 Mildew Resistant.
 - b. General Electric; Sanitary 1700 Sealant.
- B. Polyurethane Sealant: ASTM C920, Grade NS, Uses M and A; single or multi-component; not expected to withstand continuous water immersion or traffic.
 - 1. Movement Capability: Plus and minus 50 percent, minimum.
 - 2. Hardness Range: 20 to 35, Shore A, when tested in accordance with ASTM C661.
 - 3. Products:
 - a. Pecora Corporation; Dynatrol II: www.pecora.com/#sle.
 - b. Sika Corporation; Sikaflex-2c NS: www.usa-sika.com/#sle.
 - c. Tremco Commercial Sealants & Waterproofing; Dymeric 240 FC: www.tremcosealants.com/#sle.
 - d. W. R. Meadows, Inc; POURTHANE NS: www.wrmeadows.com/#sle.
- C. Polyurethane Sealant for Continuous Water Immersion: ASTM C920, Grade NS, Uses M and A; single or multi-component; explicitly approved by manufacturer for continuous water immersion; suitable for traffic exposure when recessed below traffic surface.
 - 1. Movement Capability: Plus and minus 35 percent, minimum.
 - 2. Products:
 - a. Pecora Corporation; NR-200 Urexpan: www.pecora.com.
 - b. Sika Corporation; Sikaflex-2c NS: www.usa.sika.com/#sle.
 - c. Tremco Commercial Sealants & Waterproofing; THC-900: www.tremcosealants.com.
- D. Non-Sag "Traffic-Grade" Polyurethane Sealant: ASTM C920, Grade NS, Uses M and A; single or multi-component; explicitly approved by manufacturer for continuous water immersion and traffic without the necessity to recess sealant below traffic surface.
 - 1. Hardness Range: 20 to 30, Shore A, when tested in accordance with ASTM C661.
 - 2. Products:
 - a. Pecora Corporation; Dynatread: www.pecora.com.
 - b. Sika Corporation; Sikaflex-1a: www.usa-sika.com.
 - c. W. R. Meadows, Inc; Pourthane SL: www.wrmeadows.com.
- E. Acrylic Emulsion Latex: Water-based; ASTM C834, single component, non-staining, nonbleeding, non-sagging; not intended for exterior use. Acoustical Sealant for use at penetrations through walls and at the tops of walls.
 - 1. Color: To be selected by Architect from manufacturer's standard range.
 - 2. Products:
 - a. Master Builders Solutions; MasterSeal NP 520: www.master-builderssolutions.com/en-us/#sle.
 - b. Pecora Corporation; AC-20: www.pecora.com/#sle.

c. Tremco Commercial Sealants & Waterproofing; Tremflex 834: www.tremcosealants.com/#sle.

2.04 SELF-LEVELING JOINT SEALANTS

- A. Self-Leveling Polyurethane Sealant: ASTM C920, Grade P, Uses M and A; multi-component; explicitly approved by manufacturer for traffic exposure; not expected to withstand continuous water immersion .
 - 1. Movement Capability: Plus and minus 25 percent, minimum.
 - 2. Hardness Range: 35 to 55, Shore A, when tested in accordance with ASTM C661.
 - 3. Products:
 - a. Sika Corporation; Sikaflex-2c SL: www.usa.sika.com/#sle.
- B. Self-Leveling Polyurethane Sealant for Horizontal Expansion Joints: ASTM C920, Grade P, Uses T, M and O; multi-component; explicitly approved by manufacturer for horizontal expansion joints.
 - 1. Movement Capability: Plus and minus 25 percent, minimum.
 - 2. Hardness Range: 30 to 35, Shore A, when tested in accordance with ASTM C661.
 - 3. Products:
 - a. W.R. Meadows, Inc.; Gardox:

2.05 ACCESSORIES

- A. Backer Rod: Cylindrical cellular foam rod with surface that sealant will not adhere to, compatible with specific sealant used, and recommended by backing and sealant manufacturers for specific application.
 - 1. Type for Joints Not Subject to Pedestrian or Vehicular Traffic: ASTM C1330; Type O Open Cell Polyurethane.
 - 2. Type for Joints Subject to Pedestrian or Vehicular Traffic: ASTM C1330; Type B Bi-Cellular Polyethylene.
 - 3. Open Cell: 40 to 50 percent larger in diameter than joint width.
 - 4. Where used with hot-applied sealant, provide heat-resistant type which will not be deteriorated by sealant application temperature as indicated.
 - 5. Closed Cell and Bi-Cellular: 25 to 33 percent larger in diameter than joint width.
 - 6. Products:
 - a. BASF: www.basf.com.
 - b. Nomaco, Inc: www.nomaco.com/#sle.
 - c. W.R. Meadows: www.wrmeadows.com.
- B. Overlay Extrusion for Glazing System Joint Protection: Rubber profiled extrusions placed over joints in glazing system and provided with watertight seal.
 - 1. Profile: As required to match existing metal glazing cap requirements.
- C. Preformed Extruded Silicone Joint Seal: Pre-cured low-modulus silicone extrusion, in sizes to fit applications indicated on drawings, combined with a neutral-curing liquid silicone sealant for bonding joint seal to substrates.
 - 1. Thickness: 0.78 inch, with ridges along outside bottom edges for bonding area.
 - 2. Products:
- 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, nonstaining, removable without adhesive residue, and compatible with surfaces adjacent to joints and sealants.
- F. Joint Cleaner: Noncorrosive and nonstaining type, type recommended by sealant manufacturer; compatible with joint forming materials.
- G. Primers: Type recommended by sealant manufacturer to suit application; nonstaining.

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. Install this work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.
- B. Provide joint sealant installations complying with ASTM C1193.
- C. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer, except where specific dimensions are indicated.
- D. Install bond breaker backing tape where backer rod cannot be used.
- E. Install sealant free of air pockets, foreign embedded matter, ridges, and sags, and without getting sealant on adjacent surfaces.
- F. Do not install sealant when ambient temperature is outside manufacturer's recommended temperature range, or will be outside that range during the entire curing period, unless manufacturer's approval is obtained and instructions are followed.
- G. Nonsag Sealants: Tool surface concave, unless otherwise indicated; remove masking tape immediately after tooling sealant surface.

3.04 FIELD QUALITY CONTROL

A. Remove and replace failed portions of sealants using same materials and procedures as indicated for original installation.

DIVISION 09 – FINISHES

SECTION 09 21 16 GYPSUM BOARD ASSEMBLIES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Metal stud wall framing.
- B. Metal channel ceiling framing.
- C. Acoustic insulation.
- D. Gypsum sheathing.
- E. Cementitious backing board.
- F. Gypsum wallboard.
- G. Joint treatment and accessories.

1.02 RELATED REQUIREMENTS

A. Section 06 10 00 - Rough Carpentry: Wood blocking product and execution requirements.

1.03 REFERENCE STANDARDS

- A. AISI S100 North American Specification for the Design of Cold-Formed Steel Structural Members; 2016, with Supplement (2020).
- B. AISI S220 North American Standard for Cold-Formed Steel Nonstructural Framing; 2020.
- C. AISI S240 North American Standard for Cold-Formed Steel Structural Framing; 2015, with Errata (2020).
- D. ANSI A108.11 American National Standard Specifications for Interior Installation of Cementitious Backer Units; 2023.
- E. ASTM A653/A653M Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2022.
- F. ASTM A1003/A1003M Standard Specification for Steel Sheet, Carbon, Metallic- and Nonmetallic-Coated for Cold-Formed Framing Members; 2015.
- G. ASTM B117 Standard Practice for Operating Salt Spray (Fog) Apparatus; 2019.
- H. ASTM C475/C475M Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board; 2017 (Reapproved 2022).
- I. ASTM C514 Standard Specification for Nails for the Application of Gypsum Board; 2004 (Reapproved 2020).
- J. ASTM C754 Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products; 2020.
- K. ASTM C840 Standard Specification for Application and Finishing of Gypsum Board; 2023.
- L. ASTM C954 Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs from 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness; 2022.
- M. ASTM C1002 Standard Specification for Steel Self-Piercing Tapping Screws for Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs; 2022.
- N. ASTM C1047 Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base; 2019.
- O. ASTM C1278/C1278M Standard Specification for Fiber-Reinforced Gypsum Panel; 2017.
- P. ASTM C1396/C1396M Standard Specification for Gypsum Board; 2017.
- Q. ASTM C1658/C1658M Standard Specification for Glass Mat Gypsum Panels; 2019, with Editorial Revision (2020).

- R. ASTM D3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber; 2021.
- S. GA-216 Application and Finishing of Gypsum Panel Products; 2024.
- T. SSMA Steel Stud Manufacturers Association; Current Edition.

1.04 SUBMITTALS

- A. See Front End Documents for submittal procedures.
- B. Product Data: Provide data on metal framing, gypsum board, glass mat faced gypsum board, accessories, and joint finishing system.
 - 1. Provide manufacturer's data on partition head to structure connectors, showing compliance with requirements.

1.05 QUALITY ASSURANCE

A. Allowable Tolerances: On faces of work exposed in occupied spaces, including stairwells (if any), limit offsets between planes of board faces to 1/8-inch, and limit variations from plumb and location (including warp and bow) not to exceed 1/4-inch in 8'-0".

1.06 DELIVERY STORAGE AND HANDLING

- A. Delivery: Gypsum wallboard shall not be delivered to the project site until immediately before application is to begin. All gypsum drywall materials shall be delivered in original packages, containers or bundles bearing brand name and identification nomenclature.
- B. Storage: Gypsum wallboard boards shall be stored inside under cover and stacked flat in a manner to keep material flat, dry, protected from weather, direct sunlight, surface contamination, traffic or other construction damage. Other materials and accessories shall remain in their original wrappings or containers, sorted flat and protected from damage or bending until ready for actual use.
- C. Handling: Handle gypsum boards in a manner to prevent damage to edges, ends and surfaces. Damaged gypsum boards and accessories shall not be incorporated within the work and shall be immediately removed from the site.
- D. Steel framing and related accessories shall be stored and handled in accord with A.I.S.I. "Code of Standard Practice".

1.07 JOB CONDITIONS

- A. Environmental Requirements, General: Comply with requirements of referenced gypsum board application standards and recommendations of gypsum board manufacturer, for environmental conditions before, during, and after application of gypsum board.
- B. Temperature: When outside temperatures are below 55F, maintain continuous interior temperature in the range of 55F to 70F for minimum period of 48 hours prior to, during, and following application of gypsum board, joint and finishing treatment materials or bonding of adhesives.
- C. Ventilation: Ventilate building spaces as required to remove water in excess of that required for drying of joint treatment material immediately after its application. Avoid drafts during dry, hot weather to prevent drying too rapidly.
- D. Protection: Protect all adjacent surfaces and work by suitable means from splatter or overspray from texture surface application.

PART 2 PRODUCTS

2.01 GYPSUM BOARD ASSEMBLIES

A. Provide completed assemblies complying with ASTM C840 and GA-216.
1. See PART 3 for finishing requirements.

2.02 METAL FRAMING MATERIALS

A. Steel Sheet: ASTM A1003/A1003M, subject to the ductility limitations indicated in AISI S240.

- B. Manufacturers Metal Framing, Connectors, and Accessories:
 - 1. Clarkwestern Dietrich Building Systems LLC: www.clarkdietrich.com/#sle.
 - 2. MBA Metal Framing: www.mbastuds.com.
 - 3. Marino: www.marinoware.com/#sle.
 - 4. Phillips Manufacturing Co: www.phillipsmfg.com/#sle.
 - 5. Substitutions: See Section 01 60 00 Product Requirements.
- C. Nonstructural Framing System Components: AISI S220; galvanized sheet steel, of size and properties necessary to comply with ASTM C754 for the spacing indicated, with maximum deflection of wall framing of L/120 at 5 psf.
 - 1. Framing and Suspension Materials: When 20-gauge and 25-gauge materials are specified below, they shall be fabricated from commercial quality galvanized steel with a minimum yield point of 33,000 psi. 20-gauge material shall have a design thickness of .0312-inch and the 25-gauge material shall have a design thickness of .0188-inch as defined by SSMA (Steel Stud Manufacturers Association).
 - 2. Studs: "C" shaped with flat or formed webs consisting of 25-gauge and 20-gauge galvanized steel, 1-5/8 inch, 3-5/8 inch, 4 inch and 6 inch screw type studs and track or as may otherwise be indicated on the Drawings.
 - a. 25-gauge studs shall be used throughout, except 20-gauge shall be used at the following locations:
 - 1) All interior studs that are over 12-feet total height.
 - 2) All 4-inch and 6-inch interior studs.
 - 3) All interior studs which support wall-mounted cabinets and plumbing fixtures.
 - 3. Runners: 20-gauge galvanized U shaped, sized to match studs with 1-1/2-inch minimum legs placed at the top of all walls abutting structural members above as indicated on the Drawings.
 - 4. Ceiling Channels: C-shaped.
 - 5. Z-Channel: 2 inches.
- D. Partition Head to Structure Connections: Provide mechanical anchorage devices that accommodate deflection and prevent rotation of studs while maintaining structural performance of partition.
 - 1. Structural Performance: Maintain lateral load resistance and vertical movement capacity required by applicable code, when evaluated in accordance with AISI S100.
 - 2. Material: ASTM A653/A653M steel sheet, SS Grade 50/340, with G60/Z180 hot-dipped galvanized coating.
- E. Fastenings Shall be as Follows:

Studs to track	3/8-inch drywall, type S, pan head screws
Track to masonry	1/4-inch diameter hooked anchor bolts
Track to concrete floor and furring studs and channel to masonry	Cartridge driven studs or concrete nails
Track to metal deck	Self-tapping screws (toggle bolts required to hang heavy bulkheads in tension)

2.03 BOARD MATERIALS

- A. Manufacturers Gypsum-Based Board:
 - 1. American Gypsum Company: www.americangypsum.com/#sle.
 - 2. CertainTeed Corporation: www.certainteed.com/#sle.
 - 3. Georgia-Pacific Gypsum: www.gpgypsum.com/#sle.
 - 4. National Gypsum Company: www.nationalgypsum.com/#sle.
 - 5. USG Corporation: www.usg.com/#sle.
- B. Gypsum Wallboard: Paper-faced gypsum panels as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
 - 1. Application: Use for vertical surfaces, unless otherwise indicated.

- 2. Glass mat faced gypsum panels, as defined in ASTM C1658/C1658M, suitable for paint finish, of the same core type and thickness may be substituted for paper-faced board.
- 3. Unfaced fiber-reinforced gypsum panels as defined in ASTM C1278/C1278M, suitable for paint finish, of the same core type and thickness may be substituted for paper-faced board.
- 4. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
 - a. Mold-resistant board is required whenever board is being installed before the building is enclosed and conditioned.
 - b. Mold resistant board is required at the interior face of all exterior walls as noted on Sheet A0-0.
- 5. Thickness:
 - a. Vertical Surfaces: 5/8 inch.
 - b. Ceilings: 5/8 inch.
- 6. Paper-Faced Products:
 - a. CertainTeed Corporation; Type X Drywall: www.certainteed.com/#sle.
 - b. USG Corporation; Sheetrock Brand Firecode X Panels 5/8 in. (15.9 mm): www.usg.com/#sle.
 - c. Substitutions: See Section 01 60 00 Product Requirements.
- 7. Mold-Resistant, Paper-Faced Products:
 - a. Gold Bond Building Products, LLC provided by National Gypsum Company; Gold Bond XP Gypsum Board: www.goldbondbuilding.com/#sle.
 - b. Substitutions: See Section 01 60 00 Product Requirements.
- 8. Glass Mat Faced Products:
 - a. USG Corporation; Sheetrock Brand Glass-Mat Panels Mold Tough Regular 5/8 in. (15.9 mm): www.usg.com/#sle.
 - b. Substitutions: See Section 01 60 00 Product Requirements.
- C. Exterior Sheathing Board: Sizes to minimize joints in place; ends square cut.
 - 1. Application: Exterior sheathing, unless otherwise indicated.
 - 2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
 - 3. Core Type: Regular.
 - 4. Regular Board Thickness: 5/8 inch.
 - 5. Edges: Square.
 - 6. Glass Mat Faced Products:
 - a. Georgia-Pacific Gypsum; DensGlass Sheathing: www.gpgypsum.com/#sle.
 - b. Gold Bond Building Products, LLC provided by National Gypsum Company; Gold Bond eXP Fire-Shield Sheathing: www.goldbondbuilding.com/#sle.
 - c. United States Gypsum Company; Fiberock Aqua-Tough Exterior Panels.

2.04 GYPSUM BOARD ACCESSORIES

- A. Acoustic Sealant: Acrylic emulsion latex or water-based elastomeric sealant; do not use solvent-based non-curing butyl sealant.
- B. Water-Resistive Barrier: See Section 07 25 00.
- C. Beads, Joint Accessories, and Other Trim: ASTM C1047, rigid plastic, galvanized steel, or rolled zinc, unless noted otherwise.
 - 1. Corner Beads: Low profile, for 90 degree outside corners.
 - a. Products:
 - 1) ClarkDietrich: www.clarkdietrich.com/#sle.
 - 2. Expansion Joints:
 - a. Type: 1/4-inch by 7/16-inch deep V-shaped metal with factory-installed protective tape.
 - b. Products:
 - 1) ClarkDietrick; 093 Zinc Control Joint (ZNCJ): www.clarkdietrich.com.

- D. Joint Materials: ASTM C475/C475M and as recommended by gypsum board manufacturer for project conditions.
 - 1. Tape: 2 inch wide, creased paper tape for joints and corners.
- E. Screws for Fastening of Gypsum Panel Products to Cold-Formed Steel Studs Less than 0.033 inches in Thickness and Wood Members: ASTM C1002; self-piercing tapping screws, corrosion-resistant.
- F. Screws for Fastening of Gypsum Panel Products to Steel Members from 0.033 to 0.112 inch in Thickness: ASTM C954; steel drill screws, corrosion-resistant.
- G. Screws shall be 1-inch, Type S, drywall screws for securing gypsum board to metal studs and 1-1/4-inch, Type W drywall screws for securing gypsum board to wood furring. Longer screws, as recommended by the gypsum board manufacturer, shall be utilized to secure the exposed layer of gypsum board to the framing and suspension systems through the concealed layer at double layer walls, ceilings and bulkheads, and to attach and secure accessories. Provide other screws as recommended by the manufacturer for attachment of tile backer board to metal studs.
- H. Fasteners for Glass-Mat Gypsum Sheathing Board: 1-5/8" (41 mm), No. 8 (4.2 mm diameter) wafer-head steel drill screws complying with ASTM C 954, with an organic-polymer coating or other corrosion-protective coating having a salt-spray resistance of more than 500 hours per ASTM B117.
- I. Nails for Attachment to Wood Members: Annular ring nails, 1-1/2-inches long, GWB 54, ASTM C514.
- J. Adhesive for direct lamination of gypsum board panels at double layer walls, ceilings and bulkheads, and direct lamination of gypsum board to other substrates shall be selected as recommended by the gypsum board manufacturer for the specific applications and as approved by the Architect/Engineer.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that project conditions are appropriate for work of this section to commence.

3.02 FRAMING INSTALLATION

- A. Metal Framing: Install in accordance with AISI S220 and manufacturer's instructions.
- B. Studs: Space studs at 16 inches on center.
 - 1. Partitions Terminating at Structure: Attach top runner to structure, maintain clearance between top of studs and structure, and connect studs to track using specified mechanical devices in accordance with manufacturer's instructions; verify free movement of top of stud connections; do not leave studs unattached to track.
 - 2. Align track at floor, top of masonry walls, frames and overhead structure as indicated on the Drawings. Secure base track at 24-inch centers and at ends with power-driven fasteners as specified above. Head track to be held within the down turn legs of special formed 20-gauged galvanized steel slip runner track welded or secured to bottom side of structure above for lateral support with deflection allowance of 1/2-inch or as indicated on the Drawings. Bulkhead or other similar construction which is to be hung under tension shall have head track secured to structure at 16-inch centers minimum. Butt weld or splice track at joints.
 - 3. Set studs at partition ends, corners, and intersections, at jambs of openings and at 16-inch centers in between unless shown otherwise on Drawings. Seat studs squarely into track and plumb or align. Secure studs to track as required.
 - 4. If the partition is of such height that the studs must be spliced, do so by installing 2 horizontal runner channels back-to-back (one for the top of the lower wall and one for the bottom of the upper wall). Fasten the runner channels to each other and then install 3-5/8-inch metal stud diagonal knee braces at 8-feet maximum centers from on face of the studs to the structure.

- 5. Install horizontal stiffener channels through studs at cut-out locations at maximum 6-foot centers in partitions which do not have GWB installed in both faces.
- 6. Install knee braces for metal frames and for walls which terminate above the ceiling as required to provide lateral support.
- C. Openings: Reinforce openings as required for weight of doors or operable panels, using not less than double studs at jambs.
- D. Blocking: Install wood blocking for support of:
 - 1. Framed openings.
 - 2. Other items as indicated

3.03 ACOUSTIC ACCESSORIES INSTALLATION

- A. Acoustic Insulation: Place tightly within spaces, around cut openings, behind and around electrical and mechanical items within partitions, and tight to items passing through partitions.
- B. Acoustic Sealant: Install in accordance with manufacturer's instructions.
 - 1. Place one bead continuously on substrate before installation of perimeter framing members.
 - 2. Seal around all penetrations by conduit, pipe, ducts, and rough-in boxes, except where firestopping is provided.

3.04 BOARD INSTALLATION

- A. Comply with ASTM C840, GA-216, and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.
- B. Single-Layer Non-Rated: Install gypsum board of maximum practical length with long dimensions at right angles to furring, cross channels, and studs, with ends and edges occurring over firm bearing.
- C. Double-Layer Non-Rated: The finish layer shall be installed with screws spaced as specified above, and with adhesive as recommended by the manufacturer. All joints of the second (finish) layer shall be staggered for a minimum of 16-inches from the joints of the base layer. All screws for the finish layer shall be driven through the base layer into the framing above.
- D. Cementitious Backing Board: Install over steel framing members where indicated, in accordance with ANSI A108.11 and manufacturer's instructions.
- E. Openings: End joints may occur not closer than 8-inches form either side of openings in walls. No joint shall align with edges of openings, and joints above openings shall be centered over openings.
- F. Fastenings: Panels shall be held in firm contact with the support member while the nails and screws are being driven. Fastenings shall proceed from the central portion of the board toward ends and edges. Fastenings shall proceed from the central portion of the board toward ends and edges. Fastenings shall be driven home with the heads slightly below the surface of the board. Care shall be taken to avoid breaking the paper face. Improperly driven fastenings shall be removed. Space screws at 15-inch centers and locate 3/8-inch to 1/2-inch from edges of panels. At double layer walls and bulkheads, install finish layer with longer screws and adhesive as noted above for ceilings.
- G. Checking Fasteners: After installation, pound on walls and ceilings to detect loose fastenings and push on board adjacent to fasteners to see if there is movement. If loose fasteners are detected, drive them tight. Whenever fastenings have punctured paper, hold board tight against framing and install another fastener properly, approximately 1-1/2-inches from fastener head which punctured paper, and remove faulty fastener. When fastenings wallboard to second side of a partition, check the opposite side for fasteners loosened by pounding and drive them tight again.

3.05 INSTALLATION OF TRIM AND ACCESSORIES

A. Control Joints: Place control joints consistent with lines of building spaces and as indicated.

- 1. Not more than 30 feet apart on walls and ceilings over 50 feet long and in continuous lengths with fasteners spaced at 6-inch centers.
- B. Casing Beads: Casing beads shall be applied to all exposed edges and ends of gypsum wallboard, and wherever indicated on the Drawings with nails at 6-inch centers.
- C. Corner Beads: Install at external corners, using longest practical lengths with nails at 9-inch centers maximum of each flange of the bead with nailing staggered.

3.06 JOINT TREATMENT

- A. Paper Faced Gypsum Board: Use paper joint tape, embed with drying type joint compound and finish with drying type joint compound.
- B. Finish gypsum board in accordance with levels defined in ASTM C840, as follows:
 - 1. Level 5: Walls and ceilings to receive semi-gloss or gloss paint finish and other areas specifically indicated.
 - 2. Level 4: Walls and ceilings to receive paint finish or wall coverings, unless otherwise indicated.
 - 3. Level 3: Walls to receive textured wall finish.
 - 4. Level 2: In utility areas, behind cabinetry, and on backing board to receive tile finish.
 - 5. Level 1: Ceiling plenum areas above finished ceilings, whether or not accessible in the completed construction.
 - 6. Level 0: Temporary partitions.
 - 7. Level 0: Surfaces indicated to be finished in later stage of project.
- C. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
 - 1. Taping: A uniformly thin layer of joint compound, approximately 4-inches wide, shall be applied over the joint. Tape shall be centered over the joint and embedded into the compound, leaving sufficient joint compound under the tape to provide proper bond. Wall angles, corners, returns and inside corner angles shall be reinforced with tape to conform to the angle and embedded into the compound. Taping and finishing shall be required for all below ceiling line exposed joints, and all joints behind tackwall surfaces. Taping only without finishing will be required for all fire rated partitions above the ceiling line, and for all gypsum board which covers steel structure members at return air plenum.
 - 2. Joint compound combinations to be utilized at gypsum board locations shall be as follows (note: use portland based product at cement board locations):
 - a. Embedding and First Coat: Ready-mixed or job-mixed, drying-type, all-purpose or taping compound.
 - b. Fill (Second) Coat: Ready-mixed or job-mixed, drying-type, all-purpose or topping compound.
 - c. Finish (Third) Coat: Ready-mixed or job-mixed, drying-type, all-purpose or topping compound.
 - 3. Finishing Joints: After compound is thoroughly dry, the tape shall be covered with a coat of joint compound or taping compound spread over the tape approximately 3-inches on each side of the tape and feathered out at the edge. After thoroughly dry, another coat of joint compound or taping compound shall be applied with a slight, uniform crown over the joint. This coat shall be smooth and the edges feathered approximately 3-inches beyond the preceding coat.
 - 4. Finishing Corners: All inside corners shall be coated with at least one coat of joint compound or topping compound with the edges feathered out. Flanges of wallboard corner bead shall be concealed by at least 2 coats of compound. The first coat shall be joint compound, and the second coat may be joint compound or topping compound feathered out approximately 9-inches on both sides of the exposed metal nose.
 - 5. Finish Nail or Screw Heads and Dimples: Apply three coats of joint compound or taping compound to all exposed gypsum board surfaces below the ceiling, and concealed behind tackwall locations. This may be applied as each coat is applied to the joints. Allow 24

hours drying time between coats, sanding between if necessary. Caution shall be used to avoid roughing of wallboard paper.

D. Where Level 5 finish is indicated, spray apply high build drywall surfacer over entire surface after joints have been properly treated; achieve a flat and tool mark-free finish.

3.07 TOLERANCES

A. Maximum Variation of Finished Gypsum Board Surface from True Flatness: 1/8 inch in 10 feet in any direction.

3.08 PROTECTION

A. Protect installed gypsum board assemblies from subsequent construction operations.

SECTION 09 91 23 INTERIOR PAINTING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Surface preparation.
- B. Field application of paints.
- C. Scope: Finish interior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated.
- D. Do Not Paint or Finish the Following Items:
 - 1. Items factory-finished unless otherwise indicated; materials and products having factoryapplied primers are not considered factory finished. Prefinished items include the following factory-finished components:
 - a. Wood Doors
 - b. Finished mechanical and electrical equipment
 - c. Light fixtures
 - 2. UL, FMG or other code-required labels, equipment serial number and capacity labels.
 - 3. Operating parts include moving parts of operating equipment and the following;
 - a. Valve and damper operators
 - b. Linkages
 - c. Sensing devices
 - d. Motor and fan shafts
 - 4. Stainless steel, anodized aluminum, bronze, brass, copper, copper alloys, and chromium plate.
 - 5. Glass.
 - 6. Concealed surfaces include walls or ceilings in the following generally inaccessible spaces:
 - a. Ceiling plenums
 - b. Pipe spaces
 - c. Duct shafts

1.02 REFERENCE STANDARDS

- A. MPI (APSM) Master Painters Institute Architectural Painting Specification Manual; Current Edition.
- B. SSPC-SP 1 Solvent Cleaning; 2015, with Editorial Revision (2016).
- C. SSPC-SP 6 Commercial Blast Cleaning; 2007.

1.03 SUBMITTALS

- A. See Front End Documents for submittal procedures.
- B. Samples: Submit two paper "draw down" samples, 8-1/2 by 11 inches in size, for each finishing product specified and/or color.
 - 1. Where sheen is specified, submit samples in only that sheen.
- C. Maintenance Data: Submit data including product technical data sheets and material safety data sheets (MSDS).
- D. Upon completion of Project, contractor to leave at least one full gallon of each finish material and/or color, clearly labeled and in usable condition.

1.04 QUALITY ASSURANCE

A. Pre-Painting Conference: Prior to the start of painting and after approval of required shop drawings and samples, the General Contractor shall arrange a Pre-painting Conference at the project site at a pre-arranged time approved by the Architect/Owner. The conference shall include in attendance the painting subcontractor and his/her jobsite foreperson. The Contractor

shall record discussions and agreements that are made which are not specifically addressed in the Contract Documents, and shall furnish a copy to all involved participants.

- B. Applicator Qualifications
 - 1. This contractor shall have a minimum of five (5) years proven satisfactory experience and shall show proof before commencement of work that he will maintain a qualified crew of painters throughout the duration of the work. When requested, contractors shall provide a list of the last three comparable jobs including: name and location, specifying authority/project manager, start/completion dates and value of painting work.
- C. Products and Manufacturers
 - 1. All materials, preparation and workmanship shall conform to the requirement of the LATEST EDITION of the architectural painting specification manual by the Master Painters Institute (MPI) (hereafter referred to as the MPI Painting Manual.
 - 2. All paint manufacturers and produtcs used shall be listed under the approved produt list section of the MPI Painting Manual.
- D. Single Source Responsibility
 - 1. Provide primer and undercoat in accordance with manufacturers recommendations for selected MPI approved topcoat.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
- B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.
- C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

1.06 FIELD CONDITIONS

- A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.
- B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.
- C. Minimum Application Temperatures for Waterborne Paints: 50 degrees F for interiors unless required otherwise by manufacturer's instructions.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Provide paints and finishes from the same manufacturer.
- B. Paints:
 - 1. Benjamin Moore & Co: www.benjaminmoore.com.
 - 2. Diamond Vogel Paints: www.diamondvogel.com/#sle.
 - 3. Pittsburgh Paints: www.ppgpaints.com/#sle.
 - 4. Pratt & Lambert Paints: www.prattandlambert.com/#sle.
 - 5. Sherwin-Williams Company: www.sherwin-williams.com/#sle.
 - 6. Tnemec: www.tnemec.com.

2.02 PAINTS AND FINISHES - GENERAL

- A. Paints and Finishes: Ready mixed, unless intended to be a field-catalyzed paint.
 - 1. Provide paints and finishes of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
 - 2. Supply each paint material in quantity required to complete entire project's work from a single production run.

3. Do not reduce, thin, or dilute paint or finishes or add materials unless such procedure is specifically described in manufacturer's product instructions.

2.03 PAINT SYSTEMS - INTERIOR

- A. Gypsum Board Walls and Ceilings (where Ceilings are noted to be Epoxy)
 - 1. 1. Surface Preparation: Clean and Dry
 - 2. 2. (1 Coat): MPI Category: Sealer, Latex, interior
 - a. Sherwin Williams ProMar 200 Zero VOC Interior Latex Primer, B28W2600
 - b. PPG Paints 6-2 Latex Primer/Sealer
 - c. Benjamin Moore & Co., N023 Benjamin Moore & Co.
 - Finish: (2 Coats): MPI Category: Light industrial coating, water based, Gloss Level 3
 - a. Sherwin Williams: Pro-Industrial Precatylized Water based Epoxy Eg-Shel, K45 Series
 - b. PPG Paints:Pitt-Glaze WB1 Precatylized Epoxy. 16-310
 - c. Benjamin Moore & Co., V450 Corotech Coatings

PART 3 EXECUTION

3.

3.01 EXAMINATION

- A. Do not begin application of paints and finishes until substrates have been properly prepared.
- B. Examine substrates, areas and conditions, with Applicator present, for compliance with requirements for paint application.
- C. Proceed with paint application only after unsatisfactory conditions have been corrected and surfaces receiving paint are thoroughly dry.
- D. Start of painting will be constured as Applicator's acceptance of surfaces and conditions within a particular area.
- E. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.
- F. Test shop-applied primer for compatibility with subsequent cover materials.

3.02 PREPARATION

- A. Clean surfaces thoroughly and correct defects prior to application.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces or finishing.
- D. Seal surfaces that might cause bleed through or staining of topcoat.

3.03 APPLICATION

- A. Apply products in accordance with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual".
- B. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.
- C. Apply each coat to uniform appearance in thicknesses specified by manufacturer.
- D. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.
- E. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.04 FIELD QUALITY CONTROL

A. Owner reserves the right to invoke field inspection and testing at any time and as often as Owner deems necessary during the periord when paint is being applied.

- 1. Owner may engage a qualified independent testing agency to sample paint material being used. Samples of material delivered to Project will be taken, identified, sealed and certified in the presence of Contractor.
- 2. Owner may direct Contractor to stop paintin if test results show material being used does not comply with specified requirements. Contractor shall remove noncomplying paint from Project side, pay for testing and repaint surfaces previously coated with the noncomplying paint. If necessary, Contractor may be required to remove noncomplying paint from previously painted surfaces if, on repainting with specified paint, the two coatings are incompatible.

3.05 CLEANING

A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

3.06 PROTECTION

- A. Protect finishes until completion of project.
- B. Provide "Wet Paint" signs to protect newly painted finishes. After completing painting operations, remove temporary protective wrappings provided by others to protect their work.
- C. Touch-up damaged finishes after Substantial Completion.

SECTION 09 99 90 COLOR SCHEDULE

PART 1 GENERAL

1.01 DESCRIPTION OF WORK

- A. This section covers color selections of paint and other building finishes and components which are specified in other Sections. Color is considered of prime importance for all aspects of this Project. Obtain colors for items not specifically noted herein from applicable Sections or Architect.
- B. Colors selected are those of the brand specified. Colors of items proposed as substitutes shall match those specified subject to approval of Architect.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Materials to be used and installation thereof are specified in other Sections of this Specification.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 INTERIOR COLOR SCHEDULE

- A. Painting and Coating (Section 09 90 00)
 - 1. Paint Color
 - a. P-1, color: Sherwin Williams TBD (Field verify to match existing color).

3.02 EXTERIOR COLOR SCHEDULE

- A. Fiber Cement Siding (Section 07 46 46)
 - 1. Fiber Cement Siding, color: James Hardie, Monterey Taupe, Smooth Texture.
- B. Sheet Metal Flashing and Trim (Section 07 62 00)
 - 1. Flashing, color: to be selected from manufacturer's standards.

DIVISION 26 - ELECTRICAL
SECTION 26 01 00 GENERAL ELECTRICAL REQUIREMENTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.

1.02 SUMMARY

A. This Section includes general electrical requirements and shall apply to all phases of the work specified, indicated on the drawings or required to provide for complete installation of electrical systems.

1.03 WARRANTIES

- A. All materials, workmanship and equipment shall be warranted against defects or against injury from proper and usual wear for a period of one year after the date of substantial completion. Certain equipment shall be warranted beginning at the time of final acceptance or for longer periods of time as specified in those sections of the Project Manual. Any item which becomes defective within the warranty period shall be repaired or replaced, at no additional cost to the Owner.
- B. All manufactures warranties shall run to the benefit of the Owner. No manufacturer's warranties shall be voided or impaired.
- C. Warranty shall include repair of faulty workmanship.

1.04 INTERPRETATION OF DOCUMENTS

- A. Any questions regarding the meaning of any portion of the contract documents shall be submitted to the Architect/Engineer for interpretation. Addenda or supplemental information will publish definitive interpretations or clarification. Verbal interpretation not issued by addendum or supplemental information shall not be considered part of the contract documents.
- B. The Architect/Engineer shall be the sole judge of interpretations of discrepancies within the contract documents.
- C. If ambiguities should appear in the contract documents, the Contractor shall request clarification from the Architect/Engineer before proceeding with the work. If the Contractor fails to make such request, no excuse will thereafter be entertained for failure to carry out the work in a manner satisfactory to the Architect/Engineer. Should a conflict occur within the contract documents, the Contractor is deemed to have estimated the more expensive way of doing the work unless a written clarification from the Architect/Engineer was requested and obtained before submission of proposed methods or materials.

1.05 DEFINITIONS ABREVIATIONS

- The following shall apply throughout the contract documents Α.
 - All applicable national state and local codes 1. Code
 - Furnish Supply and deliver to site ready for installation 2.
 - Indicated Noted, scheduled or specified 3.
 - 4. Furnish, install and connect complete and ready for final use by Provide Owner
 - 5. Americans with Disabilities Act ADA 6.
 - ANSI American National Standards Institute
 - 7. ASTM American Society for Testing and Materials
 - FΜ Factory Mutual System 8.
 - **HSB** Industrial Risk Insurers 9. IRI
 - National Electric Code (NFPA 70) 10. NEC
 - 11. NEMA National Electrical Manufacturers Association
 - 12. NFPA National Fire Protection Association

13. UL

Underwriters Laboratories Inc.

1.06 CODES AND STANDARDS

- A. All work shall be performed by competent craftsmen skilled in the trade involved and shall be done in a manner consistent with normal industry standards.
- B. All work shall conform to the currently adopted edition of the National Electric Code (NEC), Local Building Code, and all other applicable state and local codes or standards.
- C. Where there is a conflict between the code and the contract documents, the code shall have precedence only when it is more stringent than the contract documents. Items that are allowed by the code but are less stringent than those specified shall not be substituted.

1.07 PERMITS

A. Contractor shall become familiar and comply with all requirements regarding permits, fees, licenses, etc. All permits, licenses, inspections and arrangements required for the work shall be obtained by Contractor's effort and expense. All utilities shall be installed in accordance with the local rules and regulations and all charges shall be paid by the Contractor. Capital facilities fees will be paid by Owner.

1.08 SUBMITTALS

- A. Division 1 section "Submittals" shall be adhered to if more stringent than this section.
- B. Shop drawings shall be submitted to Architect/Engineer for review when required by other sections of this specification and **for all equipment scheduled or specified on drawings**.
 - 1. A letter of transmittal shall accompany each submittal. Submittals shall be numbered consecutively and list products covered.
 - 2. Unless otherwise noted, submit a minimum of six (6) copies of shop drawing and product data for review.
- C. Shop Drawings
 - 1. Shop drawings include fabrication and installation drawings, diagrams, schedules of other data specifically prepared for the project. Include dimensions and notations showing compliance with specified standards.
 - Drawing sheet size shall be at least 8 ½" x 11" and no longer than 30" x 42". For sheets larger than 11" x 17", submit one sheet of reproducible media and one blue-line or photocopy print. Architect/Engineer action will be returned on reproducible media.
- D. Product Data
 - 1. Product data includes printed information, such as manufacturer's installation instructions, catalog cuts, standard color charts, rough-in diagrams, wiring diagrams and performance curves.
 - 2. Each copy shall clearly indicate conformance with specified capacities, characteristics, dimensions and details. Mark all equipment with same item number as used on drawings. Mark each copy to clearly indicate applicable choices and options.
- E. Architect/Engineer will review or take appropriate action for submittals. Review is only to determine general conformance with design shown in contract documents.
- F. Architect/Engineer review of submittals shall not relieve contractor of responsibility for deviation from requirements of the contract documents or from errors or omissions within submittals.
- G. No portion of the work requiring submittals shall be commenced until the Architect/Engineer has reviewed the submittal.
- H. See "Submittal Schedule" at the end of Section 26 01 00 General Electrical Requirements.

1.09 OPERATION AND MAINTENANCE MANUALS

A. Assemble three (3) complete sets of operation and maintenance data indicating the operation and maintenance of each system, subsystem, and piece of equipment not part of a system. Include operation and maintenance data required in individual Specification Sections and as follows:

- 1. Operation Data:
 - a. Emergency instructions and procedures.
 - b. System, subsystem, and equipment descriptions, including operating standards.
 - c. Operating procedures, including startup, shutdown, seasonal, and weekend operations.
 - d. Description of controls and sequence of operations.
 - e. Piping and wiring diagrams.
- 2. Maintenance Data:
 - a. Manufacturer's information, including list of spare parts.
 - b. Name, address, and telephone number of installer or supplier.
 - c. Maintenance procedures.
 - d. Maintenance and service schedules for preventive and routine maintenance.
 - e. Maintenance record forms.
 - f. Sources of spare parts and maintenance materials.
 - g. Copies of maintenance service agreements.
 - h. Copies of warranties and bonds.
- B. Organize operation and maintenance manuals into suitable sets of manageable size. Bind and index data in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, with pocket inside the covers to receive folded oversized sheets. Identify each binder on front and spine with the printed title "OPERATION AND MAINTENANCE MANUAL," Project name, and subject matter of contents.

1.10 PROJECT RECORD DOCUMENTS

- A. Record Drawings: Maintain and submit one set of blue- or black-line white prints of Contract Drawings and Shop Drawings.
 - 1. Mark Record Prints to show the actual installation where installation varies from that shown originally.
 - 2. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at the same location.
 - 3. Mark important additional information that was either shown schematically or omitted from original Drawings.
 - 4. Note Construction Change Directive numbers, Change Order numbers, alternate numbers, and similar identification where applicable.
 - 5. Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
- B. Record Specifications: Submit one copy of Project's Specifications, including addenda and contract modifications. Mark copy to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
- C. Record Product Data: Submit one copy of each Product Data submittal. Mark one set to indicate the actual product installation where installation varies substantially from that indicated in Product Data.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. All materials and equipment used in the construction of the project shall be new unused and undamaged unless otherwise specified. Materials and equipment shall be of latest design standards of manufacturer specified.
- B. Materials and equipment are limited by the requirements of the contract documents. Material and equipment shall be provided in accordance with the following:
 - 1. Basis of Design Products: Basis of Design Products are those products around which the project was designed in terms of capacity, performance, physical size and quality. Basis of Design Products shall be provided unless substitutions are made in accordance with this specification.
 - 2. Substitutions: Substitutions are product of manufacturers other than listed as Basis of Design. Substitutions shall meet each of the following requirements and shall be subject

to prior approval. Submissions requesting prior approval shall be received by the engineer no less than ten (10) days prior to project bid date.

- a. The product shall be manufactured by one of the acceptable manufacturers listed in the contract documents.
- b. The product shall meet or exceed the requirements of the contract documents in terms of quality, performance, suitability, appearance and characteristics.
- c. The contractor providing the substitution shall bear the total cost of all changes due to substitutions. These may include but are not limited to redesign costs and increased work by other contractors or the Owner.
- d. The Architect/Engineer shall be the sole judge of the suitability of the substitution items.
- C. Verify installation details and requirements for materials and equipment furnished by others and installed under this contract.

PART 3 - EXECUTION

3.01 STARTING AND ADJUSTING

- A. Start and test all equipment and operating components to confirm proper operation. Test and adjust all systems to achieve designed capacity and performance.
- B. Provide three (3) copies of all test report to the Architect/Engineer for review prior to date of substantial completion.
- C. All equipment and systems discrepancies shall be corrected prior to final acceptance.

3.02 TEMPORARY POWER AND LIGHTING

- A. Electric Power Service: Provide temporary electric power from Owner's electric system without payment of use charges.
- B. Electric Distribution: Provide receptacle outlets adequate for connection of power tools and construction equipment.
- C. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations and traffic conditions.

ELECTRICAL SUBMITTAL SCHEDULE [EDIT SCHEDULE FOR REQUIRED TEST REPORTS, O&M's AND TRAINING] Refer to individual specification sections for additional requirements and detail on each submittal.

Section	Section Name	Product Data	Shop Dwgs	Test Reports / Quality Control	Warranty	Extra Materials	O&M Data	Record Docs	Demonstration / Training
260100	General Electrical Requirements	\checkmark	√						<u> </u>
260500	Basic Electrical Materials and Meth								
262200	Dry Type Transformers				\checkmark				
262413	Switchboards				\checkmark				\checkmark
262416	Panelboards				\checkmark				
264313	Surge Protective Devices (SPD's)				\checkmark				

SECTION 26 05 00 BASIC ELECTRICAL MATERIALS AND METHODS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section includes the following basic electrical materials and methods and shall apply to all phases of the work specified, indicated on the drawings or required to provide for complete installation of electrical systems.
 - 1. Conduits.
 - 2. Building wire and connectors.
 - 3. Supporting devices for electrical components.
 - 4. Outlet boxes.
 - 5. Electrical identification.
 - 6. Electrical demolition.
 - 7. Work in existing buildings.
 - 8. Cutting and patching for electrical construction.
 - 9. Fire Stopping.
 - 10. Touchup painting.

1.03 MATERIAL QUALITY ASSURANCE

- A. Electrical components, devices, and accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with NFPA 70.

1.04 COORDINATION

- A. Coordinate chases, slots, inserts, sleeves, and openings with general construction work and arrange in building structure during progress of construction to facilitate the electrical installations that follow.
 - 1. Set inserts and sleeves in poured-in-place concrete, masonry work, and other structural components as they are constructed.
- B. Sequence, coordinate, and integrate installing of electrical materials and equipment with other trades.
- C. Coordinate location of access panels and doors for electrical items that are concealed by finished surfaces.
- D. Where electrical identification devices are applied to field-finished surfaces, coordinate installation of identification devices with completion of finished surface.
- E. Where electrical identification markings and devices will be concealed by acoustical ceilings and similar finishes, coordinate installation of these items before ceiling installation.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Each contractor shall make provisions for delivery and safe storage of materials. Materials shall be delivered in a timely manner to expedite the work.
- B. Protect stored piping, supplies and equipment from cold, moisture and dirt. Elevate above grade. Do not exceed structural capacity of floor, if stored inside.

PART 2 - PRODUCTS

2.01 CONDUITS

- A. Electrical metallic tubing (EMT): ANSI C80.3 and UL 797, zinc-coated steel with steel or die cast, set-screw or compression type fittings.
 - 1. Color coded exterior for system identification:

- a. Fire Alarm Red.
- b. Power Silver.
- c. Security Orange.
- d. Communications Blue.
- B. Flexible metal conduit (FMC): UL 1, Zinc-coated steel.
- C. Intermediate metal conduit (IMC): ANSI C80.6 and UL 1242, zinc-coated steel, with threaded fittings.
- D. Liquidtight flexible metal conduit (LFMC): Flexible steel conduit with PVC jacket and complying with UL 360.
- E. Rigid nonmetallic conduit (RNC): NEMA TC 2 and UL 651, EPC-40 (schedule 40) PVC, with NEMA TC3 fittings.
- F. Installation location shall determine conduit type permitted.
 - 1. For indoor installations:
 - a. Exposed: EMT.
 - b. Concealed: EMT.
 - c. Connection to vibrating equipment: FMC; except in wet or damp locations, use LFMC.
 - d. Boxes and enclosures: NEMA 250, Type 1, unless otherwise indicated.
 - 2. Use the following conduits for outdoor installations:
 - a. Exposed: IMC.
 - b. Underground: RNC.
 - c. Boxes and enclosures: NEMA 250, Type 3R or Type 4.
- G. Conduit fittings: Specifically designed for the conduit type with which used. Comply with NEMA FB 1 and UL 514B.

2.02 CONDUCTORS

- A. Conductors and conductor insulation: Comply with NEMA WC 70.
- B. Conductors, No. 10 AWG and Smaller: Solid or stranded copper.
- C. Conductors, larger than No. 10 AWG: Stranded copper.
- D. Insulation: thermoplastic, rated at 75 deg C minimum.
 - 1. Feeders: Type THHN/THWN insulated conductors in conduit.
 - 2. Underground Feeders and Branch Circuits: Type THWN in conduit.
 - 3. Branch Circuits: Type THHN/THWN insulated conductors in conduit.
 - 4. Circuits over 100 feet from GFCI devices and all circuits from line isolation panels: Lowleakage XHHW in conduit.
- E. Wire connectors and splices: Units of size, ampacity rating, material, type, and class suitable for service indicated.
- F. Unless otherwise indicated on the drawings, circuits are to be 20 amps with #12 AWG wire.
- G. A green ground shall be installed with all branch and feeder circuits. Unless otherwise indicated on the drawings, ground wires are to be #12 AWG.
- H. Provide a dedicated neutral conductor for each 120V and 277V branch circuit unless otherwise indicated on drawings.

2.03 SUPPORTING DEVICES

- A. Material: Cold-formed steel, with corrosion-resistant coating acceptable to authorities having jurisdiction.
- B. Metal items for use outdoors or in damp locations: Hot-dip galvanized steel.
- C. Slotted-steel channel supports: Flange edges turned toward web, and 9/16-inch- diameter slotted holes at a maximum of 2 inches o.c., in webs.

- D. Conduit and cable supports: Manufactured clevis hangers, riser clamps, straps, threaded Cclamps with retainers, ceiling trapeze hangers, wall brackets, and spring-steel clamps or clicktype hangers.
 - 1. In general, use the following support methods for outdoor conduit installations:
 - a. Individual exposed conduit: 1" and smaller; 2 hole straps.
 - b. Individual exposed conduit: 1-1/4" and larger; Minerallac.
 - c. Paired individual exposed conduit: Minerallac.
 - d. Rack exposed conduit: Unistrut with strut straps.
 - e. Concealed in concrete pour: Approved iron tie wire.
 - 2. In general, use the following support methods for indoor conduit installations:
 - a. Individual exposed conduit: 1" and smaller; 2 hole straps.
 - b. Individual exposed conduit: 1-1/4" and larger; Minerallac.
 - c. Individual lighting and power above lay-in ceilings: Dedicated ceiling wire with Caddy clips.
 - d. Racked exposed or concealed conduit: Unistrut with strut straps.
- E. Pipe sleeves: ASTM A 53, Type E, Grade A, Schedule 40, galvanized steel, plain ends.
- F. Expansion anchors: Carbon-steel wedge or sleeve type.
- G. Toggle bolts: All-steel springhead type.
- H. Powder-driven threaded studs: Heat-treated steel.

2.04 BOXES

- A. Hollow wall and ceiling spaces: Outlet boxes for concealed applications shall be 4" square with single or multiple gang plaster ring in round or square configuration to match the device or fixture being installed. Depth of ring shall be selected so that face of ring is recessed back from face of finished surface by approximately 1/8".
- B. Masonry walls: Outlet boxes in masonry walls shall be 4" square with single or multiple gang masonry rings with square edges. Masonry boxes may also be used where 4" square boxes are impractical. Slush boxes in place to prevent movement within walls. **Flush mounted boxes and conduit are to be used unless otherwise indicated**.
- C. Exposed exterior boxes: Where exposed boxes are required, they shall be the cast type with threaded hubs and gasketed covers. Use of these boxes is by approval only. Flush mounted boxes and conduit are to be used unless otherwise indicated.
- D. Interior junction boxes: Interior junction boxes shall be 4" square minimum with knock outs as required. Larger boxes may be required and shall be sized per NEC. Provide a flat steel coverplate.
- E. Specialty junction boxes larger than 4 11/16": Junction and pull boxes shall be sized per NEC and arranged to facilitate pulling or splicing. Boxes shall be steel without knock outs, with hinged or screw on cover plates.

2.05 ELECTRICAL IDENTIFICATION

- A. Underground warning tape: Permanent, bright-colored, continuous-printed, vinyl tape with the following features:
 - 1. Not less than 6 inches wide by 4 mils thick.
 - 2. Compounded for permanent direct-burial service.
 - 3. Embedded continuous metallic strip or core.
 - 4. Printed legend that indicates type of underground line.
- B. Tape markers for wire: Vinyl or vinyl-cloth, self-adhesive, wraparound type with preprinted numbers and letters.
- C. Engraved-plastic labels, signs, and instruction plates: Engraving stock, melamine plastic laminate punched or drilled for mechanical fasteners 1/16-inch minimum thickness for signs up to 20 sq. in. and 1/8-inch minimum thickness for larger sizes. Engraved legend in black letters on white background.

2.06 ACCESS DOORS

A. Prime coated 14 gauge steel, flush, with screw driver operated cam lock. Frame to accommodate construction type; size as indicated.

PART 3 - EXECUTION

3.01 UTILITY COORDINATION

- A. Utility locations indicated on drawings are approximate and the most accurate information available at the time of design. Prior to equipment and conduit installation, the contractor shall coordinate exact installation details and modify work plan accordingly to meet utility requirements. Correspond with utility company prior to any site development that may impact the installation such as irrigation installation, concrete or asphalt installation, landscaping, etc.
- B. Contact utility locating services prior to digging.

3.02 ELECTRICAL EQUIPMENT INSTALLATION

- A. Quality of workmanship: A neat and workmanlike installation shall be provided as defined in the National Electrical Installation Standards (NEIS) established by the National Electrical Contractors Association (NECA). NEIS standards shall be followed for all work including that which is concealed by construction.
- B. Neatness and craftsmanship shall be a priority. Installations shall be subject to regular observations performed by the Engineer or the Engineer's Representative. If an installation is deemed unsatisfactory by the Engineer or the Engineer's Representative due to quality of workmanship, code conflicts or deviations from the Construction Drawings or Specifications, the Contractor shall remedy the installation to the satisfaction of the Engineer.
- C. Inspect installed components for damage and faulty work, including the following:
 - 1. Conduits.
 - 2. Building wire and connectors.
 - 3. Supporting devices for electrical components.
 - 4. Electrical identification.
 - 5. Cutting and patching for electrical construction.
 - 6. Touchup painting.
- D. Headroom maintenance: If mounting heights or other location criteria are not indicated, arrange and install components and equipment to provide the maximum possible headroom.
- E. Materials and components: Install level, plumb, and parallel and perpendicular to other building systems and components, unless otherwise indicated.
- F. Equipment: Install to facilitate service, maintenance, and repair or replacement of components. Connect for ease of disconnecting, with minimum interference with other installations.
- G. Right of way: Give to conduits and piping systems installed at a required slope.

3.03 CONDUIT AND CABLE INSTALLATION

- A. Conceal conduit and cables, unless otherwise indicated, within finished walls, ceilings, and floors.
- B. Install conduit and cables at least 6 inches away from parallel runs of flues or hot-water pipes. Locate horizontal conduit runs above water piping.
- C. Use temporary conduit caps to prevent foreign matter from entering.
- D. Make conduit bends and offsets so ID is not reduced. Keep legs of bends in the same plane and straight legs of offsets parallel, unless otherwise indicated.
- E. Use conduit and cable fittings compatible with conduit and cables and suitable for use and location.
- F. Make bends in exposed parallel or banked runs from same centerline to make bends parallel. Use factory elbows where elbows can be installed parallel; otherwise, provide field bends for exposed parallel conduits.

- G. Install pull wires in empty conduits. Use No. 14 AWG zinc-coated steel or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 12 inches of slack at each end of the pull wire.
- H. Utilize sweep elbows for all telephone and signal system conduits 2" and larger.
- I. All **conduits routed through unfinished spaces** shall be routed as high as allowable to avoid future conflicts with build out.
- J. Route conduits parallel to building structural members in a neat and orderly manner.

3.04 CONDUIT SUPPORT INSTALLATION

- A. Install support devices to securely and permanently fasten and support electrical components.
- B. Install individual and multiple conduit hangers and riser clamps to support conduits. Provide Ubolts, clamps, attachments, and other hardware necessary for hanger assemblies and for securing hanger rods and conduits.
- C. Size supports for multiple conduits so capacity can be increased by **a 25 percent minimum** in the future.
- D. Install 1/4-inch diameter or larger threaded steel hanger rods, unless otherwise indicated.
- E. Simultaneously install vertical conductor supports with conductors.
- F. Separately support cast boxes that are threaded to conduits and used for fixture support. Support sheet-metal boxes directly from the building structure or by bar hangers. If bar hangers are used, attach bar to conduits on opposite sides of the box and support the conduit with an approved fastener not more than 24 inches from the box.
- G. Install metal channel racks for mounting cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices unless components are mounted directly to structural elements of adequate strength. Use factory hardware for all connections and assemblies including 45 and 90 degree attachment hardware.
- H. Install sleeves for cable and conduit penetrations of concrete slabs and walls unless coredrilled holes are used. Install sleeves for cable and conduit penetrations of masonry and firerated gypsum walls and of all other fire-rated floor and wall assemblies. Install sleeves during erection of concrete and masonry walls.
- I. Install PVC sleeves for grounding cable riser penetrations of concrete slabs. Where ground wires are run through metal sleeves use grounding bushings on both ends of the conduit or sleeve.
- J. Securely fasten electrical items and their supports to the building structure, unless otherwise indicated. Perform fastening according to the following unless other fastening methods are indicated:
 - 1. Masonry: Toggle bolts on hollow masonry units and expansion bolts on solid masonry units.
 - 2. New concrete: Concrete inserts with machine screws and bolts.
 - 3. Light steel: Sheet-metal screws.
 - 4. Fasteners: Select so the load applied to each fastener does not exceed 25 percent of its proof-test load.

3.05 WIRING INSTALLATION

- A. Install splices and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.
- B. Install wiring at outlets with at least 12 inches of slack conductor at each outlet.
- C. Connect outlet and component connections to wiring systems and to ground. Tighten electrical connectors and terminals, according to manufacturer's published torque-tightening values.

3.06 POSITION OF DEVICE OUTLETS

A. Outlets shall be installed at the height indicated below unless otherwise noted. All heights of outlets are measured from finished floor to centerline of device. Heights may be adjusted as

necessary to clear wall mounted cabinets, fin tube convectors, unit heaters, etc. Where installed in masonry walls, mounting heights may be adjusted to correspond to block coursing. In no case shall outlets be mounted below 15" or switches above 48":

1. Wall switches

Receptacle outlet (general)

44". 16".

3.07 ELECTRICAL IDENTIFICATION

2

- A. Install at locations for most convenient viewing without interference with operation and maintenance of equipment.
- B. Coordinate names, abbreviations, colors, and other designations used for electrical identification with corresponding designations indicated in the Contract Documents or required by codes and standards. Use consistent designations throughout Project.
- C. Self-Adhesive Identification Products: Clean surfaces before applying.
- D. Tag and label circuits designated to be extended in the future. Identify source and circuit numbers in each cabinet, pull and junction box, and outlet box. Color-coding may be used for voltage and phase identification.
- E. Install warning markers directly above power and communication lines during trench backfilling for underground power, control, signal, and communication lines. Locate marker 6 to 8 inches below finished grade unless required otherwise by NEC. Markers shall be continuous and detectable with a metal detector from above ground after backfilling. Provide one strip of marker for each 16 inches of width if multiple lines are installed in a common trench or concrete envelope.
- F. Color-code 208/120-V system secondary service, feeder, and branch-circuit conductors throughout the secondary electrical system as follows:
 - 1. Phase A: Black.
 - 2. Phase B: Red.
 - 3. Phase C: Blue.
 - 4. Neutral: White.
 - 5. Ground: Green.
- G. Color-code 480/277-V system secondary service, feeder, and branch-circuit conductors throughout the secondary electrical system as follows:
 - 1. Phase A: Brown
 - 2. Phase B: Orange
 - 3. Phase C: Yellow
 - 4. Neutral: White with a colored stripe or gray
 - 5. Ground: Green.

3.08 FIRESTOPPING

- A. Apply firestopping to cable and raceway penetrations of fire-rated floor and wall assemblies to achieve fire-resistance rating of the assembly and to resist passage of smoke and other gases. Products designed to achieve a fire or smoke resistance rating shall not be used in locations where such ratings are not required by AHJ. Coordinate location requirements with other disciplines and AHJ prior to installation.
 - 1. Limit air leakage to 5.0cfm per square foot tested in accordance with UL 1479.
 - 2. Materials labeled by a qualified testing agency acceptable to AHJ.
 - 3. Comply with manufacturer's written installation instructions and published drawings
 - 4. Identify penetration firestopping with preprinted metal or plastic labels. Attach labels permanently to surfaces adjacent to and within 6 inches of firestopping edge so labels will be visible to anyone seeking to remove penetrating items or firestopping. Use mechanical fasteners or self-adhering-type labels with adhesives capable of permanently bonding labels to surfaces on which labels are placed. Include the following information on labels:
 - a. The words "Warning Penetration Firestopping Do Not Disturb. Notify Building Management of Any Damage."
 - b. Contractor's name, address, and phone number.

- c. Designation of applicable testing and inspecting agency.
- d. Date of installation.
- e. Manufacturer's name.
- f. Installer's name.
- B. All firestopping assemblies shall be from one manufacturer. Match manufacturer used by other trades or as directed by general contractor.
- C. Where electrical outlets are to be installed in fire rated walls, provide FlameSafe FSP1077 putty pads or equal to maintain adequate fire rating.
- D. Where lighting fixtures or other electrical devices are to be installed in fire rated ceilings, provide Tenmat Fire Rated Light Covers or equal to maintain adequate fire rating.

3.09 HOUSEKEEPING PADS

- A. Provide a 3-1/2 inch tall concrete housekeeping pad for all floor mounted interior electrical equipment as follows:
 - 1. Pad shall extend 4-6" beyond all sides of equipment, except in the back for switchboards mounted tight against the wall.
 - 2. Constructed of 3000 psi concrete.
 - 3. Provide 6" x 6" #4 welded wire mesh.
 - 4. Securely bond pad to floor by roughing the floor and coating with cement grout.

3.10 DEMOLITION

- A. Disconnect, demolish, and remove construction indicated in specifications and drawings.
- B. The Owner shall have first salvage rights to all fixtures, devices and equipment removed. Present removed materials to owner's representative. Materials not retained by owner's representative shall be removed from project site.
- C. If equipment to remain is damaged or disturbed, remove damaged portions and install new products of equal capacity and quality.
- D. Remove, store, clean, reinstall, reconnect, and make operational equipment indicated for relocation.
- E. Power to existing areas not being remodeled shall be maintained at all times except for short term outages necessary for reconnection of existing circuits. Coordinate and schedule outages with owner.
- F. Coordinate demolition with the work of other trades. Provide temporary power as required to allow the work of other trades to proceed or as required to allow the owner to occupy the space.
- G. See architectural plans to determine project phasing requirements. Electrical circuits serving areas not under construction shall remain active until those areas are turned over to the contractor for construction.
- H. Work abandoned in place: Cut and remove underground conduit a minimum of 2 inches beyond face of adjacent construction. Cap and patch surface to match existing finish.

3.11 WORK IN EXISTING BUILDINGS

- A. Partial Owner Occupancy: The Owner may occupy completed areas of the building before Substantial Completion. Cooperate with the Owner to minimize conflicts with the Owner's operations.
- B. Schedule all work in advance with the owner. Do not proceed with work without the Owner's written approval.
- C. Notify Owner of noisy operations and schedule in advance.
- D. The Owner shall have the right to direct work to secure safe and proper progress and quality of work.

- E. Do not interrupt utilities without Owner's written approval of time and duration. Interruptions shall be the minimum required for completion of work and performed during the hours of 10:00 PM-6:00 AM Monday through Friday or 6:00 PM Saturday through 6:00 AM Monday.
- F. The existing fire alarm system shall remain functional throughout the project. The Owner and the Fire Marshal shall approve required outages.
- G. The Owner shall be notified before starting welding or cutting. Fire extinguishers shall be immediately accessible when welding or cutting with an open flame or arc. Welding or cutting with an open flame or arc shall be stopped not less than one hour before leaving the premises.
- H. Existing electrical items that interfere with the proper installation new work shall be removed or relocated as required or as directed by the Architect/Engineer.
- I. Maintain downstream circuit continuity to equipment to remain active.
- J. Where breakers are indicated to be installed in existing panelboards, remove panel covers and verify all connection details prior to ordering of breakers. Provide all required hardware for installation of breakers in existing panels.

3.12 CUTTING AND PATCHING

- A. Cut, channel, chase, and drill floors, walls, partitions, ceilings, and other surfaces necessary for electrical installations. Perform cutting by skilled mechanics of trades involved.
- B. Repair cut surfaces to match adjacent surfaces.

3.13 CONSTRUCTION LAYOUT

- A. Layout work in advance of installation using data and measurements from the site, the appropriate architectural and structural drawings and shop drawings.
- B. Confirm adequate clearance for installation, operation, maintenance and code required clearance including items installed by other contractors.
- C. If layout to provide clearance is not possible, promptly notify Architect/Engineer for clarification.

3.14 DATA AND MEASUREMENTS

- A. The data given herein and on the drawings is as accurate as could be secured. The existence and location of construction as indicated is not guaranteed. Before beginning work investigate and verify the existence and location of items affecting work. Obtain exact locations, measurements, levels, etc., at the site and adapt work to actual conditions.
- B. Only Architectural drawings, Structural drawings, and site measurements may be utilized in calculations. Mechanical and electrical drawings are diagrammatic or schematic.

3.15 REFINISHING AND TOUCHUP PAINTING

- A. Refinish and touch up paint.
 - 1. Clean damaged and disturbed areas and apply primer, intermediate, and finish coats to suit the degree of damage at each location.
 - 2. Follow paint manufacturer's written instructions for surface preparation and for timing and application of successive coats.
 - 3. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
 - 4. Repair damage to PVC or paint finishes with matching touchup coating recommended by manufacturer.

3.16 CLEANING AND PROTECTION

- A. On completion of installation, including outlets, fittings, and devices, inspect exposed finish. Remove burrs, dirt, paint spots, and construction debris.
- B. Protect equipment and installations and maintain conditions to ensure that coatings, finishes, and cabinets are without damage or deterioration at time of Substantial Completion.

SECTION 26 22 00 DRY-TYPE TRANSFORMERS (1000 V AND LESS)

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

A. This Section includes dry-type distribution and specialty transformers rated 1000 V and less.

1.03 SUBMITTALS

- A. Product Data: Include data on features, components, ratings, and performance for each type of transformer specified including the following:
 - 1. Outline dimensions
 - 2. Weight
 - 3. Impedance
 - 4. Temperature rating
 - 5. Quantity of voltage taps
 - 6. Noise levels
- B. Maintenance Data: For transformers to include in the maintenance manuals specified in Division 1.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Temporary Heating: Apply temporary heat according to manufacturer's written instructions within the enclosure of each ventilated-type unit throughout periods during which equipment is not energized and is not in a space that is continuously under normal control of temperature and humidity.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide transformers by one the following:
 - 1. Acme Electric Corp.; Transformer Division.
 - 2. Challenger Electrical Equipment Corp.
 - 3. Cutler-Hammer/Eaton Corp.
 - 4. GE/ABB.
 - 5. MagneTek Inc.
 - 6. Siemens Energy & Automation, Inc.
 - 7. Square D; Groupe Schneider.

2.02 TRANSFORMERS, GENERAL

- A. Description: Factory-assembled and -tested, air-cooled units of types specified, designed for 60-Hz service.
- B. Cores: Grain-oriented, nonaging silicon steel.
- C. Coils: Continuous windings without splices, except for taps.
- D. Internal Coil Connections: Brazed or pressure type.
- E. Enclosure: Class complies with NEMA 250 for the environment in which installed.
- F. Energy Efficiency: DOE 2016 rated.
- G. Sound levels (measured at 1 foot):
 - 1. 25 to 50 kva, 45 db
 - 2. 51 to 150 kva, 50 db
 - 3. 151 to 300 kva, 55 db
 - 4. 301 to 500 kva, 60 db

2.03 GENERAL-PURPOSE DISTRIBUTION AND POWER TRANSFORMERS

- A. Comply with NEMA ST 20 and list and label as complying with UL 1561.
- B. Cores: One leg per phase.
- C. Windings: One coil per phase in primary and secondary.
 - 1. Internal Coil Connections: Brazed or pressure type.
 - 2. Coil Material: Aluminum
- D. Enclosure: Indoor, ventilated.
- E. Insulation Class: 185 or 220 deg C class for transformers 15 kVA or smaller; 220 deg C class for transformers larger than 15 kVA.
 - 1. Rated Temperature Rise: 115 deg C maximum rise above 40 deg C. for transformers 300 kVA and smaller.
 - 2. Rated Temperature Rise: 150 deg C maximum rise above 40 deg C, for transformers larger than 300 kVA.
- F. Taps: For transformers 3 kVA and larger, full-capacity taps in high-voltage windings are as follows:
 - 1. Taps, 3 through 15 kVA: Two 5-percent taps below rated high voltage.
 - 2. Taps, 15 through 300 kVA: Six 2.5-percent taps, 2 above and 4 below rated high voltage.
 - 3. Taps, 301 kVA and Above: Four 2.5-percent taps, 2 above and 2 below rated high voltage.
- G. Electrostatic Shielding: Each winding is independently single shielded with a full-width copper electrostatic shield arranged to minimize interwinding capacitance.
 - 1. Coil leads and terminal strips are arranged to minimize capacitive coupling between input and output connections.
 - 2. Shield Terminal: Separate; marked "Shield" for grounding connection.
 - 3. Capacitance: Shield limits capacitance between primary and secondary to a maximum of 33 picofarads over a frequency range of 20 Hz to 1 MHz.
 - 4. Common-Mode Noise Attenuation: Minus 120 dB minimum, 0.5 to 1.5 kHz; minus 65 dB minimum, 1.5 to 100 kHz.
 - 5. Normal-Mode Noise Attenuation: Minus 52 dB minimum, 1.5 to 10 kHz.

2.04 FINISHES

A. Indoor Units: Manufacturer's standard paint over corrosion-resistant pretreatment and primer.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. All connections to transformers shall be made with flexible metal conduit. Do not connect conduits to the top of transformers.
- B. Arrange equipment to provide adequate spacing for access and for circulation of cooling air.
- C. Label transformers in accordance with Basic Materials and Methods.
- D. Tighten electrical connectors and terminals according to manufacturer's published torquetightening values.

3.02 GROUNDING

- A. Separately Derived Systems: Comply with NFPA 70 requirements for connecting to grounding electrodes and for bonding to metallic piping near the transformer.
- B. Ground core of transformer to enclosure using braided grounding strap sized in accordance with NEC.

3.03 CLEANING

A. On completion of installation, inspect components. Remove paint splatters and other spots, dirt, and debris. Repair scratches and mars on finish to match original finish. Clean components internally using methods and materials recommended by manufacturer.

3.04 ADJUSTING

- A. After installing and cleaning, touch up scratches and mars on finish to match original finish.
- B. Adjust transformer taps to provide optimum voltage conditions at utilization equipment throughout normal operating cycle of facility. Record primary and secondary voltages and tap settings and submit with test results.
- C. Occupancy Adjustments: When requested within 12 months of date of Substantial Completion, provide on-site assistance in readjusting transformer tap settings to suit actual occupied conditions. Provide up to 2 visits to Project site for this purpose without additional cost.
 - 1. Voltage Recordings: Contractor performed. Provide up to 48 hours of recording on the low-voltage system of each medium-voltage transformer.
 - 2. Point of Measurement: Make voltage recordings at load outlets selected by Owner.

SECTION 26 24 13 SWITCHBOARDS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section includes service and distribution switchboards, overcurrent protective devices, and associated auxiliary equipment rated 600 V and less.
- B. Related Sections include the following:
 - 1. Division 26 Section "General Electrical Requirements."
 - 2. Division 26 Section "Basic Electrical Materials and Methods."
 - 3. Division 26 Section "Surge Protective Devices (SPDs)."

1.03 SUBMITTALS

- A. Product Data: For each type of switchboard, overcurrent protective device, accessory, and component indicated. Include dimensions and manufacturers' technical data on features, performance, electrical characteristics, ratings, and finishes.
- B. Shop Drawings: For each switchboard and related equipment.
 - 1. Dimensioned plans, elevations, sections, and details, including required clearances and service space around equipment. Show tabulations of installed devices, equipment features, and ratings. Include the following:
 - a. Enclosure types and details for types other than NEMA 250, Type 1.
 - b. Bus materials, configuration, current, and voltage ratings.
 - c. Short-circuit current rating of switchboards and overcurrent protective devices.
 - d. Features, characteristics, ratings, and factory settings of individual overcurrent protective devices, and auxiliary components.
 - e. SPD devices when integrated into equipment.
 - 2. Wiring Diagrams: Diagram power, signal, and control wiring and differentiate between manufacturer-installed and field-installed wiring.
- C. Maintenance Data: For switchboards and components to include in maintenance manuals specified in Division 1. In addition to requirements specified in Division 1 Section "Contract Closeout," include the following:
 - 1. Routine maintenance requirements for switchboards and all installed components.
 - 2. Manufacturer's written instructions for testing and adjusting overcurrent protective devices.
 - 3. Time-current curves, including selectable ranges for each type of overcurrent protective device.

1.04 QUALITY ASSURANCE

A. Source Limitations: Obtain switchboards, overcurrent protective devices, components, and accessories from single source from single manufacturer.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver in sections of lengths that can be moved past obstructions in delivery path.
- B. Store indoors in clean dry space with uniform temperature to prevent condensation. Protect from exposure to dirt, fumes, water, corrosive substances, and physical damage.

1.06 PROJECT CONDITIONS

A. Installation Pathway: Remove and replace access fencing, doors, lift-out panels, and structures to provide pathway for moving switchboards into place.

- B. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
 - 1. Notify Architect/Engineer not less than seven days in advance of proposed utility interruptions. Identify extent and duration of utility interruptions.
 - 2. Indicate method of providing temporary utilities.
 - 3. Proceed with utility interruptions only after receiving Architect/Engineer's written authorizations.

1.07 COORDINATION

- A. Coordinate layout and installation of switchboards and components with other construction, including conduit, piping, equipment, and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels.
- B. Coordinate size and location of concrete bases. Cast anchor-bolt inserts into bases.

PART 2 - PRODUCT

2.01 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Switchboards, Overcurrent Protective Devices, and Accessories:
 - a. Eaton Corp.; Cutler-Hammer Products.
 - b. GE/ABB
 - c. Siemens Energy & Automation, Inc.
 - d. Square D Co.

2.02 MANUFACTURED UNITS

- A. Front-Connected, Front-Accessible Switchboard: Fixed, individually mounted main device, panel-mounted branches, and sections rear aligned.
- B. Nominal System Voltage: 480Y/277 V
- C. Main-Bus Continuous: 2000 A

2.03 FABRICATION AND FEATURES

- A. Enclosure: Steel, NEMA 250, Type 1
- B. Enclosure Finish for Indoor Units: Factory-applied finish in manufacturer's standard gray finish over a rust-inhibiting primer on treated metal surface.
- C. Service Equipment Label: Labeled for use as service equipment for switchboards with one or more service disconnecting and overcurrent protective devices.
- D. Bus Transition and Incoming Pull Sections: Matched and aligned with basic switchboard.
- E. Buses and Connections: Three phase, four wire, unless otherwise indicated. Include the following features:
 - 1. Phase- and Neutral-Bus Material: Tin-plated, high-strength, electrical-grade aluminum alloy with copper or tin-plated, aluminum circuit-breaker line connections.
 - 2. Load Terminals: Insulated, rigidly braced, silver-plated, copper runback bus extensions equipped with pressure connectors for outgoing circuit conductors. Provide load terminals for future circuit-breaker positions at full ampere rating of circuit-breaker position.
 - 3. Ground Bus: 1/4-by-2-inch minimum size, drawn-temper copper of 98 percent conductivity, equipped with pressure connectors for feeder and branch-circuit ground conductors. For busway feeders, extend insulated equipment grounding cable to busway ground connection and support cable at intervals in vertical run.
 - 4. Contact Surfaces of Buses: Silver plated.
 - 5. Horizontal Main Phase Buses, Neutral Buses, and Equipment Ground Buses: Uniform capacity for entire length of switchboard's main and distribution sections. Provide for future extensions from both ends.

- 6. Vertical Main Phase Buses, Neutral Buses: Extend vertical bus from top to bottom of each distribution section to allow maximum mounting of current and future devices.
- 7. Neutral Buses: 100 percent of the ampacity of the phase buses, unless otherwise indicated, equipped with pressure connectors for outgoing circuit neutral cables. Bus extensions for busway feeder neutral bus is braced.
- F. Future Devices: Equip compartments with mounting brackets, supports, bus connections, and appurtenances at full rating of circuit-breaker compartment.

2.04 SURGE PRORTECTIVE DEVICE (SPD)

- A. Panelboard configured to physically accommodate integration of a SPD.
- B. Panelboard phase, neutral, and ground busses configured to accommodate an integral SPD with leads for each mode no longer than 12".

2.05 OVERCURRENT PROTECTIVE DEVICES

- A. Main Device: Molded-Case Circuit Breaker.
- B. Branch Devices: Molded-Case Circuit Breakers.
- C. Molded-Case Circuit Breaker: NEMA AB 1, with interrupting capacity to meet available fault currents.
 - 1. Thermal-Magnetic Circuit Breakers: Inverse time-current element for low-level overloads, and instantaneous magnetic trip element for short circuits. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.
 - 2. Electronic Trip Unit Circuit Breakers for breaker frame sizes 800 A and larger: RMS sensing; field-replaceable rating plug; with the following field-adjustable settings:
 - a. Instantaneous trip.
 - b. Long- and short-time pickup levels.
 - c. Long- and short-time time adjustments.
 - d. Ground-fault pickup level, time delay, and l²t response.
 - 3. Molded-Case Circuit-Breaker Features and Accessories:
 - a. Lugs: Mechanical style, suitable for number, size, trip ratings, and material of conductors.
 - b. Ground-Fault Protection: Integrally mounted relay and trip unit with adjustable pickup and time-delay settings, push-to-test feature, and ground-fault indicator.
- D. Arc Energy Reducing Maintenance Switch: For each circuit breaker rated 1200A or higher, provide a selector switch to switch the circuit breaker instantaneous tripping characteristics to an alternate setting temporarily during maintenance activity. Switch shall be lockable in either the OFF or ON (maintenance mode) position. Provide with an LED indicator light to indicate that switch is in maintenance mode. Provide with NO and NC contact for connection to building management or alarm system.

2.06 INSTRUMENTATION

- A. Instrument Transformers: NEMA EI 21.1, IEEE C57.13, and the following:
 - 1. Current Transformers: IEEE C57.13; 5 A, 60 Hz, secondary; wound or bushing type; single or double secondary winding and secondary shorting device. Burden and accuracy shall be consistent with connected metering and relay devices.
- B. Multifunction Digital-Metering Monitor: Microprocessor-based unit suitable for three- or fourwire systems equal to GE Power Leader Panel-Mount EPM and with the following features:
 - 1. Switch-selectable digital display of the following values with maximum accuracy tolerances as indicated:
 - a. Phase Currents, Each Phase: Plus or minus 1 percent.
 - b. Phase-to-Phase Voltages, Three Phase: Plus or minus 1 percent.
 - c. Phase-to-Neutral Voltages, Three Phase: Plus or minus 1 percent.
 - d. Kilowatts: Plus or minus 2 percent.
 - e. Kilovars: Plus or minus 2 percent.
 - f. Power Factor: Plus or minus 2 percent.

- g. Frequency: Plus or minus 0.5 percent.
- h. Kilowatt Demand: Plus or minus 2 percent; demand interval programmable from 5 to 60 minutes.
- i. Accumulated Energy, Kilowatt Hours: Plus or minus 2 percent. Accumulated values unaffected by power outages up to 72 hours.
- 2. Mounting: Display and control unit flush or semi-flush mounted in instrument compartment door.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine elements and surfaces to receive switchboards for compliance with installation tolerances and other conditions affecting performance.
 - 1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Install switchboards and accessories according to NEMA PB 2.1.
- B. Support switchboards on concrete bases, 3 1/2-inch nominal thickness. Bases should be sized to extend no more than 6" in front of equipment.
- C. Temporary Lifting Provisions: Remove temporary lifting eyes, channels, and brackets and temporary blocking of moving parts from switchboard units and components.

3.03 IDENTIFICATION

- A. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs as specified in Division 26 Section "Basic Electrical Materials and Methods."
- B. Switchboard Nameplates: Label each switchboard compartment and overcurrent protective device with engraved metal or laminated-plastic nameplate mounted with corrosion-resistant screws.

3.04 CONNECTIONS

- A. Install equipment grounding connections for switchboards with ground continuity to main electrical ground bus.
- B. Tighten electrical connectors and terminals according to manufacturer's published torquetightening values.

3.05 FIELD QUALITY CONTROL

- A. Perform acceptance tests as follows:
 - 1. Test insulation resistance for each switchboard bus, component, connecting supply, feeder, and control circuit.
 - 2. Test continuity of each circuit.
 - 3. Test performance of ground-fault protection system per NEC 230.95(C).
- B. Testing Agency: Engage a qualified independent testing agency to perform specified testing.

3.06 ADJUSTING

- A. Set field-adjustable switches and circuit-breaker trip ranges as indicated.
 - 1. Settings are based off of Square D PE and PX circuit breakers. Equivalent settings should be provided for other manufacturer's equipment.
 - a. Long Time Setting = 1.0
 - b. Long Time Delay = 20
 - c. Short Time Pickup = 8
 - d. Short Time Delay = 0.5
 - e. Instantaneous = 8
 - f. Ground Fault = Set to comply with requirements of NEC 230.95(A).

3.07 CLEANING

A. On completion of installation, interior and exterior of switchboards. Remove paint splatters and other spots. Vacuum dirt and debris; do not use compressed air to assist in cleaning. Repair exposed surfaces to match original finish.

SECTION 26 24 16 PANELBOARDS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section includes load centers and panelboards, overcurrent protective devices and associated auxiliary equipment rated 600V and less for the following types:
 - 1. Distribution panelboards.
- B. Related Sections include the following:
 - 1. Division 26 Section "General Electrical Requirements."
 - 2. Division 26 Section "Basic Electrical Materials and Methods.

1.03 SUBMITTALS

- A. Product Data: For each type of panelboard, overcurrent protective device, accessory, and component indicated. Include dimensions and manufacturers' technical data on features, performance, electrical characteristics, ratings, and finishes.
- B. Shop Drawings: For each panelboard and related equipment.
 - 1. Dimensioned plans, elevations, sections, and details, including required clearances and service space around equipment. Show tabulations of installed devices, equipment features, and ratings. Include the following:
 - a. Enclosure types and details for types other than NEMA 250, Type 1.
 - b. Panel designation (same as on drawings).
 - c. Bus configuration, current, and voltage ratings.
 - d. Short-circuit current rating of panelboards and overcurrent protective devices.
 - e. Features, characteristics, ratings, and factory settings of individual overcurrent protective devices, and auxiliary components.
 - f. Mounting (flush or surface).
 - 2. Wiring Diagrams: Diagram power, signal, and control wiring and differentiate between manufacturer-installed and field-installed wiring.
- C. Maintenance Data: For panelboards and components to include in maintenance manuals specified in Division 1. In addition to requirements specified in Division 1 Section "Contract Closeout," include the following:
 - 1. Manufacturer's written instructions for testing and adjusting overcurrent protective devices.
 - 2. Time-current curves, including selectable ranges for each type of overcurrent protective device.

1.04 COORDINATION

A. Coordinate layout and installation of panelboards and components with other construction that penetrates walls or is supported by them, including electrical and other types of equipment, raceways, piping, and encumbrances to workspace clearance requirements.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Panelboards, Overcurrent Protective Devices, Controllers, Contactors, and Accessories:
 - a. Eaton Corp.; Cutler-Hammer Products.
 - b. GE/ABB.
 - c. Siemens Energy & Automation, Inc.
 - d. Square D Co.

2.02 FABRICATION AND FEATURES

- A. Enclosures: Surface-mounted cabinets. NEMA PB 1, Type 1, to meet environmental conditions at installed location.
- B. Front: Secured to box with concealed trim clamps. For surface-mounted fronts, match box dimensions; for flush-mounted fronts, overlap box.
- C. Finish: Manufacturer's standard enamel finish over corrosion-resistant treatment or primer coat.
- D. Directory Card: With transparent protective cover, mounted inside metal frame, inside panelboard door.
- E. Bus: Tin-plated aluminum.
- F. Main and Neutral Lugs: Mechanical type suitable for use with conductor material.
- G. Equipment Ground Bus: Adequate for feeder and branch-circuit equipment ground conductors; bonded to box.
- H. Delete paragraph below if not required. Contactors shall be in main bus when wanting to disconnect entire panel, common application would be a kitchen panel without separate shunt trip contactors for each load.
- I. Delete paragraph below if owner metering is not desired.
- J. Select lug option, maintain similar lug style accepted above.
- K. Feed-through Lugs: Mechanical type suitable for use with conductor material. Locate at opposite end of bus from incoming lugs or main device.

2.03 PANELBOARD SHORT-CIRCUIT RATING

A. Fully rated to interrupt symmetrical short-circuit current available at terminals.

2.04 Delete paragraph and subparagraphs below if load centers are not utilized on project. Load centers are common for residential applications.

2.05 DISTRIBUTION PANELBOARDS

- A. Doors: Front mounted, except omit in fused-switch panelboards; secured with vault-type latch with tumbler lock; keyed alike.
- B. Main Overcurrent Protective Devices: Circuit breaker
- C. Branch overcurrent protective devices shall be one of the following:
 - 1. For Circuit-Breaker Frame Sizes 125 A and Smaller: Bolt-on circuit breakers.
 - 2. For Circuit-Breaker Frame Sizes Larger Than 125 A: Bolt-on circuit breakers; plug-in circuit breakers where individual positive-locking device requires mechanical release for removal.
 - 3. Fused switches.
- D. Lighting and appliance branch-circuit panelboard construction shall not be acceptable.

2.06 OVERCURRENT PROTECTIVE DEVICES

- A. Molded-Case Circuit Breaker: NEMA AB 1, with interrupting capacity to meet available fault currents.
 - 1. Thermal-Magnetic Circuit Breakers: Inverse time-current element for low-level overloads, and instantaneous magnetic trip element for short circuits. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.
 - Electronic Trip Unit Circuit Breakers for breaker frame sizes 800 A and larger: RMS sensing; field-replaceable rating plug; with the following field-adjustable settings:

 Instantaneous trip.
 - b. Long- and short-time pickup levels.
 - c. Long- and short-time time adjustments.
- B. Molded-Case Circuit-Breaker Features and Accessories. Standard frame sizes, trip ratings, and number of poles.

- 1. Lugs: Mechanical style, suitable for number, size, trip ratings, and material of conductors.
- 2. Application Listing: Appropriate for application
- C. Retain paragraph below for fusible distribution panelboards.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Install panelboards and accessories according to NEMA PB 1.1.
- B. Mounting Heights:
 - 1. General: Top of trim 74 inches above finished floor, unless otherwise indicated.
- C. Mounting: Plumb and rigid without distortion of box.
- D. Circuit Directory: Create a directory to indicate installed circuit loads after balancing panelboard loads. Obtain approval before installing. Use a computer or typewriter to create directory; handwritten directories are not acceptable.
- E. Install filler plates in unused spaces.
- F. Wiring in Panelboard Gutters: Arrange conductors into groups and bundle and wrap with wire ties after completing load balancing.

3.02 IDENTIFICATION

- A. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs as specified in Division 26 Section "Basic Electrical Materials and Methods"
- B. Panelboard Nameplates: Label each panelboard with engraved metal or laminated-plastic nameplate mounted with corrosion-resistant screws.

3.03 CONNECTIONS

- A. Install equipment grounding connections for panelboards with ground continuity to main electrical ground bus.
- B. Tighten electrical connectors and terminals according to manufacturer's published torquetightening values.

3.04 FIELD QUALITY CONTROL

- A. Prepare for acceptance tests as follows:
 - 1. Test insulation resistance for each panelboard bus, component, connecting supply, feeder, and control circuit.
 - 2. Test continuity of each circuit.
- B. Testing Agency: Engage a qualified independent testing agency to perform specified testing.
- C. Balancing Loads: After Substantial Completion, but not more than 60 days after Final Acceptance, measure load balancing and make circuit changes as follows:
 - 1. Measure as directed during period of normal system loading.
 - 2. Perform load-balancing circuit changes outside normal occupancy/working schedule of the facility and at time directed. Avoid disrupting critical 24-hour services such as fax machines and on-line data-processing, computing, transmitting, and receiving equipment.
 - 3. After circuit changes, recheck loads during normal load period. Record all load readings before and after changes and submit test records.
 - 4. Tolerance: Difference exceeding 20 percent between phase loads, within a panelboard, is not acceptable. Rebalance and recheck as necessary to meet this minimum requirement.

3.05 ADJUSTING

A. Set field-adjustable switches and circuit-breaker trip ranges.

3.06 CLEANING

A. On completion of installation, inspect interior and exterior of panelboards. Remove paint splatters and other spots. Vacuum dirt and debris; do not use compressed air to assist in cleaning. Repair exposed surfaces to match original finish.

SECTION 26 43 13 SURGE PROTECTIVE DEVICES (SPD'S)

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

A. Section includes permanently installed, factory or field mounted, 1kV or less surge protective device (SPD) equipment.

1.03 DEFINITIONS

- A. Type 1 SPD: Referred to as secondary surge arrestors prior to the 2008 NEC. These devices are designed for installation on the line side of the service entrance disconnect and must have integrated overcurrent protection.
- B. Type 2 SPD: Referred to as hardwired transient voltage surge suppressors (TVSS) prior to the 2008 NEC. These devices are designed for installation at any location on the load side of the service disconnect. External overcurrent protection is allowed.
- C. Type 4 SPD: SPD components intended to be part of a complete SPD.
- D. VPR: Voltage protection rating.

1.04 ACTION SUBMITTALS

A. Product Data: For each type of product indicated. Include rated capacities, operating weights, electrical characteristics, furnished specialties, and accessories.

1.05 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For SPD devices to include in emergency, operation, and maintenance manuals.

1.06 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a testing agency, and marked for intended location and application.
- B. Comply with IEEE C62.41.2 and test devices according to IEEE C62.45.
- C. Comply with UL 1283 2nd Edition.
- D. Comply with UL 1449 3rd Edition.
- E. Comply with NFPA 70, 2008 Edition.
- F. Service Conditions: Rate SPDs for continuous operation under the following conditions unless otherwise indicated:
 - 1. Maximum Continuous Operating Voltage: Not less than 125 percent of nominal system operating voltage.
 - 2. Operating Temperature: 30 to 120 deg F.
 - 3. Humidity: 0 to 85 percent, noncondensing.
 - 4. Altitude: Less than 20,000 feet above sea level.

1.07 COORDINATION

A. Coordinate location of field-mounted SPDs to allow adequate clearances for maintenance.

1.08 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of surge suppressors that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: Ten years from date of Substantial Completion.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Designed for integration into selected switchgear/switchboard/panelboard manufacturer's equipment.
 - 1. Panel arrangement allowing maximum lead length to phase, neutral, and ground bus connection points of 8".
- B. Subject to compliance with requirements, provide product by one of the following:
 - 1. Advanced Protection Technologies, Inc. (APT).
 - 2. Cutler-Hammer; Eaton Business Unit.
 - 3. GE/ABB Zenith.
 - 4. Innovative Technology; Eaton Business Unit.
 - 5. LEA International.
 - 6. Liebert; Emerson Network Power Business Unit.
 - 7. Siemens.
 - 8. Surgelogic/Square D; Schneider Electric Business Unit.
- C. SPD for Service Entrance Equipment Location (Primary Protection)
 - 1. UL listed to UL 1449 3rd Edition
 - 2. Type 1 (installed downstream of main breaker) or Type 2.
 - 3. 20kA nominal discharge (In).
 - 4. Short-circuit current rating (SCCR) complying with UL 1449, and matching or exceeding the connected equipment short-circuit rating.
 - 5. 7 modes of protection (L-N, L-G, N-G).
 - 6. Peak surge current rating: 200kA per phase.
 - 7. VPR: Not to exceed 700V for 208Y/120V systems, 1200V for 480Y/277V systems.
 - 8. System voltage: match service entrance equipment.
 - 9. EMI/RFI noise rejection filter: Noise attenuation of 50 dB from 10 kHz to 100 MHz using the MIL-STD-220A insertion loss test method.
 - 10. LED indicator lights for power and protection status.
 - 11. Audible alarm, with silencing switch, to indicate when protection has failed.
 - 12. Form-C contacts rated at 5 A and 250-V ac, one normally open and one normally closed, for remote monitoring of protection status. Contacts shall reverse on failure of any surge diversion module or on opening of any current-limiting device. Coordinate with building power monitoring and control system.
 - 13. Six-digit transient-event counter set to totalize transient surges.

2.02 ENCLOSURES

A. Indoor Enclosures: NEMA 250 Type 1

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Install SPD devices at service entrance on load side of main disconnect, with ground lead bonded to service entrance ground.
- B. Install SPD devices for panelboards and auxiliary panels with conductors or buses between suppressor and points of attachment as short and straight as possible. Do not exceed manufacturer's recommended lead length. Do not bond neutral and ground.
 - 1. Comply with manufacturer's written recommendation for conductor and circuit-breaker size for connecting SPD devices to distribution system.
- C. Tests and Inspections:
 - Perform each visual and mechanical inspection and electrical test stated in NETA ATS, "Surge Arresters, Low-Voltage Surge Protection Devices" Section. Certify compliance with test parameters.
 - 2. After installing SPD devices but before electrical circuitry has been energized, test for compliance with requirements.
 - 3. Complete startup checks according to manufacturer's written instructions.

- 4. Coordinate with commissioning agent. Supply requested product documentation.
- D. SPD device will be considered defective if it does not pass tests and inspections.
- E. Prepare test and inspection reports.

3.02 STARTUP SERVICE

- A. Do not energize or connect service entrance equipment to their sources until SPDs are installed and connected.
- B. Do not perform insulation resistance tests of the distribution wiring equipment with the SPD installed. Disconnect before conducting insulation resistance tests and reconnect immediately after the testing is over.

3.03 DEMONSTRATION

A. Train Owner's maintenance personnel to maintain SPD devices.

SECTION 32 31 13 CHAIN LINK FENCES AND GATES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Posts, rails, and frames.
- B. Wire fabric.
- C. Manual gates with related hardware.
- D. Accessories.

1.02 REFERENCE STANDARDS

- A. ASTM A123/A123M Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2017.
- B. ASTM A153/A153M Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2023.
- C. ASTM A392 Standard Specification for Zinc-Coated Steel Chain-Link Fence Fabric; 2011a (Reapproved 2022).
- D. ASTM A1011/A1011M Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength; 2023.
- E. ASTM F567 Standard Practice for Installation of Chain-Link Fence; 2023.
- F. ASTM F1043 Standard Specification for Strength and Protective Coatings on Steel Industrial Fence Framework; 2018 (Reapproved 2022).
- G. ASTM F1083 Standard Specification for Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for Fence Structures; 2018 (Reapproved 2022).
- H. BHMA A156.3 Exit Devices; 2025.
- I. CLFMI CLF-PM0610 Product Manual; 2017.
- J. CLFMI CLF-SFR0111 Security Fencing Recommendations; 2014.
- K. FS RR-F-191/1D Fencing, Wire and Post Metal (Chain-Link Fence Fabric); 1990.

1.03 SUBMITTALS

- A. See Front End Documents for submittal procedures.
- B. Product Data: Provide data on fabric, posts, accessories, fittings and hardware.
- C. Shop Drawings: Indicate plan layout, spacing of components, post foundation dimensions, hardware anchorage, and schedule of components. See CLFMI CLF-SFR0111 for planning and design recommendations.

PART 2 PRODUCTS

2.01 DESCRIPTION

- A. Location: Interior, as shown on Drawings. Set into floor flanges bolted to existing concrete flooring. Single gate.
- B. Height: 8 feet.
- C. Gate Width: 48 inches.

2.02 COMPONENTS

- A. Line Posts: 1.9 inch diameter.
- B. Corner and Terminal Posts: 2.38 inch diameter.
- C. Gate Posts: 3-1/2 inch diameter.

- D. Gate Frame: 1.66 inch diameter for welded fabrication.
- E. Fabric: 2 inch diamond mesh interwoven wire, 6 gauge, 0.1920 inch thick, top selvage knuckle end closed, bottom selvage twisted tight.
- F. Tension Wire: 6 gauge, 0.1920 inch thick steel, single strand.
- G. Tension Band: 3/4 inch thick steel.
- H. Tie Wire: Aluminum alloy steel wire.
- I. Floor Flange Fittings: galvanized.

2.03 MATERIALS

- A. Posts, Rails, and Frames:
 - 1. ASTM A1011/A1011M, Designation SS; hot-rolled steel strip, cold formed to pipe configuration, longitudinally welded construction, minimum yield strength of 50 ksi; zinc coating complying with ASTM F1043 and ASTM F1083.
 - 2. Line Posts: Type I round in accordance with FS RR-F-191/1D.
 - 3. Terminal, Corner, Rail, Brace, and Gate Posts: Type I round in accordance with FS RR-F-191/1D.
 - 4. Comply with CLFMI CLF-PM0610.
- B. Wire Fabric:
 - 1. ASTM A392 zinc coated steel chain link fabric.
 - 2. Comply with CLFMI CLF-PM0610.

2.04 MANUAL GATES AND RELATED HARDWARE

- A. Hardware for Single Swinging Gates: 180 degree hinges, outward swing, 3 for taller gates; fork latch with gravity drop and padlock hasp; keeper to hold gate in fully open position.
- B. Hinges: Finished to match fence components.
- C. Latches: Finished to match fence components.

2.05 LIGHT-DUTY ARCHITECTURAL HARDWARE

- A. Exit Devices and Lever Trim: Aluminum, 36 inches (914 mm) wide.
 - 1. Provide exit device, adjustable gate plate, gate latch protector, strike latch protector, lever hardware, and cylindar.
 - 2. Performance Criteria: Comply with BHMA A156.3, Grade 1.
 - 3. Provide strike of type recommended by manufacturer for application indicated.
 - 4. Aluminum Finish: 628.
 - 5. Products:
 - a. DAC Industries, Inc; Detex Exit Bar; GTPLKIT: www.dacindustries.com/#sle.

2.06 ACCESSORIES

- A. Caps: Cast steel galvanized; sized to post diameter, set screw retainer.
- B. Fittings: Sleeves, bands, clips, rail ends, tension bars, fasteners and fittings; steel.
- C. Metal floor flange fittings bolted to the concrete floor to match fencing

2.07 FINISHES

- A. Components (Other than Fabric): Galvanized in accordance with ASTM A123/A123M, at 1.7 ounces per square foot.
- B. Hardware: Hot-dip galvanized to weight required by ASTM A153/A153M.
- C. Accessories: Same finish as framing.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verification of Conditions: Verify that areas are clear of obstructions or debris.

3.02 INSTALLATION

- A. Install framework, fabric, accessories and gates in accordance with ASTM F567.
- B. Place fabric on outside of posts and rails.
- C. Set intermediate posts plumb in plumb in metal floor flange fittings bolted to the concrete floor to match fencing.
- D. Set intermediate, terminal, and gate posts plumb in metal floor flange fittings bolted to the concrete floor to match fencing.
- E. Brace each gate and corner post to adjacent line post with horizontal center brace rail and diagonal truss rods. Install brace rail one bay from end and gate posts.
- F. Provide top rail through line post tops and splice with 6 inch long rail sleeves.
- G. Fasten fabric to top rail, line posts, braces, and bottom tension wire with tie wire at maximum 15 inches on centers.
- H. Attach fabric to end, corner, and gate posts with tension bars and tension bar clips.
- I. Install bottom tension wire stretched taut between terminal posts.
- J. Do not attach the hinged side of gate to building wall; provide gate posts.
- K. Install hardware and gate with fabric to match fence.

3.03 FIELD QUALITY CONTROL

- A. Layout: Verify that fence installation markings are accurate to design, paying attention to gate locations, underground utilities, and property lines.
- B. Gates: Inspect for level, plumb, and alignment.

3.04 CLEANING

- A. Leave immediate work area neat at end of each work day.
- B. Clean jobsite of excess materials; scatter excess material from post hole excavations uniformly away from posts. Remove excess material if required.
- C. Clean fence with mild household detergent and clean water rinse well.

SECTION 00 01 07 SEALS PAGE

1.01 OWNER

A. Omaha Public Schools
 4041 North 72nd Street
 Omaha, Nebraska 68134-4470
 Phone: 402-299-01800

1.02 DESIGN PROFESSIONALS OF RECORD

A. Coordinating Professional and Architect:

BCDM Architects 1015 North 98th Street, Suite 300 Omaha, Nebraska 68114-2334 Phone: 402-391-2211 Nebraska Certificate of Authorization #CA-0271



- 1. I, Alec Eastman, am the Coordinating Professional and Architect Coordinating Professional for the OPS Mills Electrical Service Replacement dated June 9, 2024.
- 2. Responsible for Divisions 08 and 09.
- B. Electrical Engineer:

Morrissey Engineering 4940 North 118th Street Omaha, Nebraska 68164 Phone: 402-491-4144 Nebraska Certificate of Authorization #CA-0835 Responsible for Division 26

