# Construction Project Manual

Idaho State UNIVERSITY

## LIBERAL ARTS BLDG. #4
## MULTI CLASSROOM REMODEL
## POCATELLO, ID

## DPW PROJECT #21-225

LICENSED
ARCHITECT
AR - 986832

10-11-21

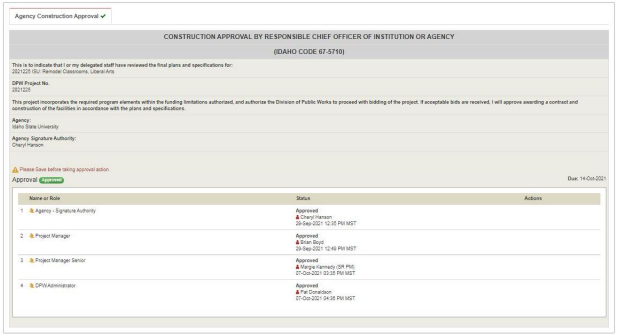
SCOTT R. LLOYD
STATE OF IDAHO

Architects Project No. 2029

SET NO.

JULY 2021

JENSEN•HAYES•SHROPSHIRE
ARCHITECTS, P.A.
125 North Garfield - Pocatello, Idaho
Phone (208) 232-1223 - Fax (208) 232-1226



Agency Construction Approval

CONSTRUCTION APPROVAL BY RESPONSIBLE CHIEF OFFICER OF INSTITUTION OR AGENCY

(IDAHO CODE 67-5710)

This is to indicate that I or my delegated staff have reviewed the final plans and specifications for:
202125 ISU Remodel Classrooms, Liberal Arts

DPW Project No.
202125

This project incorporates the required program elements within the funding limitations authorized, and authorize the Division of Public Works to proceed with bidding of the project. If acceptable bids are received, I will approve awarding a contract and construction of the facilities in accordance with the plans and specifications.

Agency:
Idaho State University

Agency Signature Authority:
Cheryl Hanson

Please Save before taking approval action

Approval Approved

Due: 14-Oct-2021

| | Name or Role | Status | Actions |
|---|---|---|---|
| 1 | Agency - Signature Authority | Approved<br>Cheryl Hanson<br>29-Sep-2021 12:35 PM MST | |
| 2 | Project Manager | Approved<br>Brian Boyd<br>29-Sep-2021 12:49 PM MST | |
| 3 | Project Manager Senior | Approved<br>Margie Kennedy (DPW PM)<br>07-Oct-2021 03:05 PM MST | |
| 4 | DPW Administrator | Approved<br>Pat Donaldson<br>07-Oct-2021 04:05 PM MST | |

# PROJECT MANUAL

**IDAHO STATE UNIVERSITY**
**LIBERAL ARTS MULTI CLASSROOM REMODEL**
**POCATELLO, IDAHO**
**DPW PROJECT # 21-225**
**ARCHITECT'S PROJECT #2029**

## OWNER

STATE OF IDAHO
Division of Public Works
502 North 4th Street
Boise, Idaho 83720-6000
(208) 332-1900

## ARCHITECT

JENSEN ● HAYES ● SHROPSHIRE ARCHITECTS
125 N. Garfield
Pocatello, Idaho 83204
(208) 232-1223

## ELECTRICAL ENGINEER

MUSGROVE ENGINEERING
645 West 25th Street
Idaho Falls, Idaho 83402
(208) 523-2862

July 2021

# BOILERPLATE

(USING TRADITIONAL DESIGN – BID – BUILD PROCESS)

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# ADVERTISEMENT FOR BIDS

Sealed proposals will be received by Division of Public Works, State of Idaho at the DPW Pocatello Field Office, 611 Wilson, Suite 1 Pocatello, ID until 2:00 pm, local time, on _____ 2021 for DPW Project No. 21-225 .

**DPW 21-225**
**Idaho State University**
**Liberal Arts Bldg. #4 Multi Classroom Remodel**
**Pocatello, Idaho**

A description of the work of this project can be summarized to include: The remodel of 12 classrooms in ISU's Liberal Arts Building #4. Demolition, removal and replacement of the existing classroom ceilings and light fixtures, repainting the classroom walls, and the replacement of existing chalkboards (where occurs) as well as providing additional electrical and data outlets within the classrooms. In one classroom (Classroom 351) the existing carpet is to be removed and replaced. All window sills shall be replaced within the entire building and all existing exterior window sealants are to be stripped and replaced.

Proposals will be opened and publicly read at the above hour and date.

Plans, specifications, proposal forms and other information are on file for examination at the following locations:

Division of Public Works, 502 N. 4th St., Boise, ID, 83702 (208) 332-1900
Bonneville Blue, 1802 Curtis, Idaho Falls, ID, 83402 (208) 522-0010
Associated General Contractors, 1649 W Shoreline Dr., Ste. 100, Boise, ID 83702 (208) 344-2531
https://www.idahoagc.org/plan-room
Blueprint Specialties, 6205 W. Overland Rd., Boise, ID 83709 (208) 377-0294 www.docuproject.com
JHS Architects, P.A., 125 N. Garfield Ave., Pocatello, ID 83204 (208) 232-1223

A bid bond in the amount of 5% of the total bid amount, including any add alternates, is required.

One set of documents may be obtained by licensed general contractors and by licensed mechanical and electrical subcontractors from the Architect for a refundable deposit of $ 100.00 . Others may obtain documents at cost, non-refundable.

A pre-bid conference will be held at _____ on _____, 2021 starting at _____. Bidders are encouraged to attend.

A Public Works Contractors License for the State of Idaho is required to bid on this work.

Estimated Cost: $ 511,840

Barry J. Miller, Deputy Administrator
Division of Public Works

END OF ADVERTISEMENT FOR BIDS

# INSTRUCTIONS TO BIDDERS

## GENERAL PROVISIONS

**DEFINITIONS:** Capitalized terms used in these Instructions to Bidders ("Instructions") shall have the meaning given to them in the Division of Public Works' Fixed Price Construction Contract Between Owner and Contractor.

**HEADINGS:** Headings used in these Instructions are for convenience only.

**REJECTION OF BIDS, WAIVER OF INFORMALITIES OR CANCELLATION: Prior to the effective date of a contract, the Administrator of the Division of Public Works shall have the right to accept or reject all bids, to waive any minor deviations/informalities or to cancel the bid.**

**ORAL INFORMATION:** Questions concerning a bid must be directed in writing to the designated Design Professional (architect or engineer) no less than ten (10) calendar days before bids are due unless provided otherwise via an addendum. Oral information is not binding and any reliance by a bidder on any oral information or representation is at the bidder's sole risk. Any information given a prospective bidder in response to a written question will be provided to all prospective bidders by an addendum, if such information is necessary for purposes of submitting a bid or if failure to give such information would be prejudicial to uninformed bidders.

**PUBLIC RECORDS:** The Idaho Public Records Law, Title 74, Chapter 1, Idaho Code, allows the open inspection and copying of public records. Public records include any writing containing information relating to the conduct or administration of the public's business prepared, owned, used or retained by a State or local agency regardless of the physical form or character. Unless exempted by the Public Records Law, your bid will be a public record subject to disclosure under the Public Records Law. Any questions regarding the applicability of the Public Records Law should be addressed to your legal counsel prior to submission.

**FORM OF AGREEMENT:** Unless otherwise specified in the bid documents, the agreement between the successful bidder and the Owner ("State of Idaho") shall be the Division of Public Works' Fixed Price Construction Contract Between Owner and Contractor.

**PERFORMANCE AND PAYMENT BONDS:** A performance bond and payment bond are required for this Project, each in an amount of not less than one hundred percent (100%) of the Contract Price. The performance and payment bonds shall be AIA Document A312, 1984 or the most recent Edition, or a standard surety form certified approved to be the same as the AIA A312 form and shall be executed by a surety or sureties reasonably acceptable to the Owner and authorized to do business in the State of Idaho. Bonds must be provided within ten (10) calendar days following receipt of a Notice of Intent to Award.

## BID SUBMISSION PROCESS

**BID DOCUMENTS:** The bid documents are available from the Design Professional or as provided in the Invitation to Bid or advertisement for bids. The responsibility is on the bidder to use a complete set of bid documents to prepare its bid and neither the Owner nor the Design Professional shall incur any

liability for the bidder's failure to do so. Bidders obtain no ownership interest or any use rights, except to use in preparation of their bid, by issuance of the bid documents.

Bidders and Sub-bidders shall field verify all dimensions pertaining to the Work and shall be responsible for the determination of all quantities of materials required for the completion of the Work. The bidder shall not rely on the scale drawings of the Bidding Documents in his determination of required materials quantities. No allowance shall be made for Bidder's failure to field-verify dimensions.

If a deposit is required, the deposit will be returned to a bidder returning the complete bid documents in good condition no more than twenty (20) days after a Notice of Intent is issued and the amount of any deposit returned may be reduced if the bid documents returned are not complete or are damaged. A bidder awarded a Contract may also keep the bid documents and any deposit will be returned.

**ADDENDA:** In the event it becomes necessary to revise any part of the bid documents, addenda will be issued. Information given to one bidder will be available to all other bidders if such information is necessary for purposes of submitting a bid or if failure to give such information would be prejudicial to uninformed bidders. It is the bidder's responsibility to check for addenda prior to submitting a bid. A bidder is required to acknowledge receipt of all addenda by identifying the addenda numbers in the space provided on the bid proposal form. Failure to do so may result in the bid being declared non-responsive. No addenda will be issued less than four (4) calendar days before the closing date unless the bid closing date is extended.

**REVIEW:** It is the bidder's responsibility to review the bid documents and compare them as needed, including with regard to any other work that is or may be under construction that might affect the bidder or its work, to examine the site and local conditions and to report, in writing, any questions, errors, inconsistencies or ambiguities to the Design Professional.

**PRODUCTS SPECIFIED AND PROPOSED SUBSTITUTIONS:** Materials, products or equipment, if specified by name or manufacturer, establish the standard of quality required and that must be met by any proposed substitution. Requests for substitutions must be made in writing to the Design Professional no less than ten (10) calendar days prior to the bid closing unless provided otherwise via an addendum. Such requests must provide detailed information to allow the Design Professional to determine if the proposed substitution is acceptable, including drawings or performance or test data and a detailed statement of how the substitution would change any other part of the Work. It is the bidder's obligation to satisfy this requirement and the Design Professional's decision shall be final. To be allowed, substitutions must be approved in an addendum to the bid documents.

**BID FORM:** Bids must be submitted on the bid proposal forms, or copies of forms, furnished by the Owner or the design professional. Bids submitted must contain all original signatures in ink on the following forms:

Bid Proposal Form
Contractor's Affidavit Concerning Alcohol and Drug-Free Workplace
Bidder's Acknowledgment Statement
Bid Bond (bid security)

The person signing the Bid Proposal Form must initial any and all changes appearing on any of the bid forms. If the bidder is a corporation or other legal entity, the bid forms must be signed by an authorized designee. Oral, telephonic, telegraphic, facsimile or other electronically transmitted bid forms and/or signatures will not be considered.

**BID PRICES:** The bid form may require bidders to submit bid prices for one (1) or more items on various bases, including lump sum base bid, lump sum bid alternate prices, unit prices or any combination thereof. Bid amounts shall be expressed in words and numbers. The amount in words shall prevail if there is a discrepancy.

**ALTERNATES:** If the solicitation includes alternate bid items or unit prices, failure to bid on the alternates or unit prices may disqualify the bid. If bidding on an alternate does not change the base bid, indicate by "No Change." If bidding on all items is not required by the Contract Documents, bidders must affirmatively indicate that they are not bidding on those items.

**TIME FOR SUBMISSION:** Bids must be submitted on or before the time specified in the advertisement for bids. Any bid submitted late will be rejected.

**SEALED ENVELOPE:** Bids shall be submitted in a sealed envelope with the following clearly printed on the outside of the envelope: the Project number and Project name; the name and address of the bidder; and a statement, such as "BID ENCLOSED" to indicate that it is a bid.

**MAILED BIDS:** When bids are mailed or shipped, the sealed envelope containing the bid shall be enclosed in a separate mailing envelope with the notation "SEALED BID ENCLOSED" on the face thereof. If mailed, the mailing envelope shall be addressed as follows:

Division of Public Works
Attn: Fred Richards
611 Wilson, Suite 1
Pocatello, ID 83201

It is the bidder's responsibility to ensure that its bid is delivered to the place designated for receipt on or before the specified closing time. The Owner assumes no responsibility for delays in the delivery of mail by the U.S. Post Office or private couriers. Bidders should be advised the intra-state mail system may increase delivery time from arrival at Central Postal to the place designated for receipt and should plan accordingly. **LATE SUBMISSIONS WILL BE REJECTED, WILL NOT BE OPENED AND WILL BE RETURNED TO THE BIDDER. NO DEVIATIONS WILL BE ALLOWED.**

**BID CLOSING DECLARED:** Immediately prior to the bid opening, the Owner's representative will declare the official bid closing. Any part of a bid not received prior to the bid closing declared by the designated representative will not be considered and will be returned to the bidder unopened. All bids shall be taken under advisement.

**DRUG-FREE WORKPLACE:** Along with its bid, the bidder shall submit an affidavit certifying compliance with Title 72, Chapter 17, Idaho Code, requiring the Contractor and its subcontractors at the time of bid to provide a drug-free workplace program and to maintain such program throughout the duration of the Contract. The form of affidavit is attached.

**ILLEGAL ALIENS:** Bidder shall warrant that the bidder does not knowingly hire or engage any illegal aliens or persons not authorized to work in the United States; bidder shall take steps to verify that it does not hire or engage any illegal aliens or persons not authorized to work in the United States; and that any misrepresentation in this regard or any employment of persons not authorized to work in the United States constitutes a material breach and shall be cause for the imposition of monetary penalties and/or termination of any Contract resulting from this bid.

**LEGAL RESIDENCY REQUIREMENT:** By submitting a bid, the bidder attests, under penalty of perjury, that he (the bidder) is a United States citizen or legal permanent resident or that it is otherwise lawfully present in the United States pursuant to federal law. Prior to being issued a contract, the bidder will be required to submit proof of lawful presence in the United States in accordance with §67-7903, Idaho Code.

**BIDDER'S ACKNOWLEDGEMENT STATEMENT:** The attached Bidder's Acknowledgement Statement must be completed and included or the bid may be found non-responsive.

**PUBLIC WORKS CONTRACTOR'S LICENSE:** This Project is not financed in whole or in part by federal funds. Bids will be accepted from those Contractors only (prime contractors, subcontractors and/or specialty contractors) who, prior to the bid opening, hold current licenses as public works contractors in the State of Idaho.

**IDAHO LABOR REQUIREMENTS:** This Project is subject to the provisions of Sections 44-1001 and 44-1002, Idaho Code, dealing with labor preference.

**IDAHO PREFERENCE LAW:** Section 67-2348, Idaho Code, requires the Division of Public Works to apply a preference in determining which Contractor submitted the lowest responsible bid. If the Contractor who submitted the lowest dollar bid is domiciled in a state with a preference law that penalizes Idaho domiciled contractors, the Division of Public Works must apply the preference law (percentage amount) of that domiciliary state to that Contractor's bid.

**NAMING OF SUBCONTRACTORS:** Section 67-2310, Idaho Code, requires general (prime) Contractors to include in their bid the name of the subcontractors who shall, in the event the Contractor secures the Contract, subcontract the plumbing, HVAC, and electrical work under the general (prime) Contract. Failure to name subcontractors as required by this section shall render any bid submitted by a general (prime) Contractor nonresponsive and void. Subcontractors named in accordance with the provisions of this section must possess an appropriate license or certificate of competency issued by the State of Idaho covering the Contractor work classification in which the subcontractor is named.

The Division of Public Works interprets Section 67-2310, Idaho Code, to mean three (3) separate areas of work: plumbing work, HVAC, and electrical work. The Division of Public Works also requires that the general (prime) Contractor name the entity that will perform the Work, including if the entity is a subcontractor, a sub-subcontractor or the general (prime) Contractor submitting the bid. Failure to complete the Bid Proposal in full shall render a bid nonresponsive and void.

With regard to possessing an appropriate license or certificate of competency, all subcontractors listed by the general (prime) Contractor must have at the time of the bid opening a current license in the appropriate category (class, type and specialty category) as issued by the Public Works Contractors State License Board. In addition, plumbing, HVAC and electrical subcontractors shall have at the time of the bid opening a valid plumbing contractor's license, HVAC contractor's license or electrical contractor's license, respectively, as issued by the Idaho Division of Building Safety.

In determining if the above listed subcontractors are required on the Project, the Division of Public Works will refer to the plans and specifications. If doubt exists prior to bid closing, potential bidders should contact the Division of Public Works and the Design Professional who prepared the plans and specifications will be requested to make the determination. If plumbing, HVAC or electrical work are

not shown on the plans and specifications, but are discovered by the bidder prior to the date of bid opening, then the bidder must request clarification from the Design Professional. Absent such clarification, Work will be considered incidental and naming of a subcontractor will not be required.

# BID SECURITY

**AMOUNT AND FORM OF SECURITY:** To be considered, bids must be accompanied by an acceptable bid security in an amount not less than five percent (5%) of the total amount of the bid, including additive alternates. The security may be in the form of a bond or a certified or cashier's check. A standard surety bid bond form meeting all the conditions of AIA Document A310 is acceptable and, if used, must include a certified and current copy of the power of attorney if the bond is executed by the attorney-in-fact on behalf of the surety.

**FORFEITURE:** A successful bidder who fails to sign the Contract for the Work or furnish the required bonds within ten (10) calendar days following the receipt of notice of intent to award a Contract is subject to forfeiture in accordance with Section 54-1904E, Idaho Code.

**RETENTION OF SECURITY:** Bid security shall be retained for no more than forty-five (45) calendar days after the opening of bids, so long as the bidder has not been notified of the acceptance of the bid.

# BID WITHDRAWAL

**PRIOR TO BID CLOSING:** If a bid has been submitted, it may be withdrawn in person by a bidder's authorized representative before the opening of the bids. A bidder's representative will be required to show identification and sign on a bid summary sheet before it will be released. After bid closing, no bid may be withdrawn except in strict accordance with these Instructions or applicable law.

# BID MODIFICATION

**PRIOR TO BID CLOSING:** If a bid has been submitted, it may be modified by the submission of a written document contained in a separate sealed envelope marked "Bid Modification from [Name of Bidder] for DPW Project No: 21-225; ISU Liberal Arts Multi Classroom Remodel, Pocatello, ID." **THE DOCUMENT MODIFYING THE BID MUST BE SIGNED IN INK BY AN AUTHORIZED REPRESENTATIVE OF THE SUBMITTING BIDDER. THE DIVISION OF PUBLIC WORKS RESERVES THE RIGHT TO REQUIRE PRESENTATION OF EVIDENCE SATISFACTORY TO IT TO ESTABLISH THE AUTHORITY TO ACT ON BEHALF OF THE SUBMITTING BIDDER. NO OTHER FORM OF MODIFICATION (INCLUDING TELEPHONE, FACSIMILE OR ELECTRONIC MAIL) WILL BE ACCEPTED. AFTER BID CLOSING, NO BID MAY BE MODIFIED EXCEPT IN STRICT ACCORDANCE WITH THESE INSTRUCTIONS OR APPLICABLE LAW.**

# RELIEF FROM BIDS

**CONDITIONS FOR RELIEF:** Relief from bids is subject to Sections 54-1904B through 54-1904E, Idaho Code. In the event a bidder discovers a mistake in its bid following the bid opening and wishes to withdraw its bid, the bidder shall establish to the satisfaction of the Owner, pursuant to Section 54-1904C, Idaho Code, that a clerical or mathematical mistake was made; the bidder gave the public entity (Owner) written notice within five (5) calendar days after the opening of the bid of the mistake, specifying in the notice in detail how the mistake occurred; and the mistake was material.

**DETERMINATION:** If the Owner determines that the bidder has satisfied the requirements of Section 54-1904C, Idaho Code, to entitle it to relief from a bid because of a mistake, it shall prepare a report in writing to document the facts establishing the existence of each required element. The report shall be available for inspection as a public record and shall be filed with the public entity soliciting bids. A bidder claiming a mistake and satisfying all the required conditions of Section 54-1904C, Idaho Code, shall be entitled to relief from the bid and have any bid security returned by the Owner. Bidders not satisfying the conditions of Section 54-1904C, Idaho Code shall be subject to forfeiture in accordance with Section 54-1904B, Idaho Code. A bidder who claims a mistake or who forfeits its bid security shall be prohibited from participating in any re-bidding of that project on which the mistake was claimed or security forfeited and the Owner may award the Contract to the next lowest responsive and responsible bidder.

# BIDDER'S REPRESENTATIONS

**REPRESENTATIONS UPON SUBMITTING A BID:** By submitting its bid, a bidder represents and warrants the following:

1. The person signing the bid is authorized to bind the bidder;
2. It has all required licenses, permits or other authorizations necessary to submit its bid;
3. It has taken steps necessary to ascertain the nature and location of the Work and has investigated and satisfied itself as to the general and local conditions which can affect the Work or its cost, including but not limited to: (i) conditions bearing upon transportation, disposal, handling and storage of materials; (ii) the availability of labor, water, natural gas, electric power and roads; (iii) uncertainties of weather, river stages or similar physical conditions at the site; (iv) the conformation and conditions of the ground; and (v) the character of equipment and facilities needed preliminary to and during the Work;
4. It has satisfied itself as to character, quality and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is reasonably ascertainable from an inspection of the site, including exploratory work done by the Owner as well as from the drawings and specifications provided as part of the bid package, and that any failure of the bidder to take such actions will not relieve the bidder from responsibility for estimating properly the difficulty and cost of successfully performing the Work;
5. It has received, read and reviewed the Contract, has submitted any questions in writing regarding the same and has received an answer to such questions;
6. Its bid is based upon the requirements of the Contract without exception;
7. It is in compliance with Title 72, Chapter 17, Idaho Code, regarding a drug-free workplace and has included the required affidavit regarding the same;
8. Its bid is in compliance with employment of persons authorized to work in the United States;

9. It will retain bid security and hold and honor all base bid prices for forty-five (45) calendar days from the date of bid opening, and cannot be withdrawn after the bid opening;
10. Its bid prices shown for each item on the bid proposal form include all labor, material, equipment, overhead and compensation to complete all of the Work for that item; and
11. It has included in its bid amount Idaho sales and/or use taxes on all materials and equipment and all other taxes imposed by law.

# BID AWARD

**AWARD METHOD:** Public works construction contracts for the State of Idaho are awarded to the "lowest responsible and responsive bidder." The low bidder, for purposes of award, shall be the responsible and responsive bidder offering the low aggregate amount for the base bid item, plus any additive or deductive bid alternates selected by the Owner, and within funds available as determined by the Owner. Award is also subject to the requirements of Idaho Code, including without limitation: Title 67, Chapter 57; Title 67, Chapter 23; Title 54, Chapter 19; and Title 44, Chapter 10. It is the bidder's responsibility to conform to **ALL** applicable federal, state and local statutes or other applicable legal requirements. The information provided herein is intended to assist bidders in meeting applicable requirements but is not exhaustive and the Owner will not be responsible for any failure by any bidder to meet applicable requirements.

**DETERMINATION OF RESPONSIBILITY:** The Owner reserves the right to make reasonable inquiry about or from the submitting bidder or from third parties to determine the responsibility of a submitting bidder. Such inquiry may include, but not be limited to, inquiry regarding experience and expertise related to the Project, manpower and other resources, financial stability, credit ratings, references, potential subcontractors and past performance. The unreasonable failure of a submitting bidder to promptly supply any requested information may result in a finding of non-responsibility.

**NOTICE OF EFFECTIVENESS:** No Contract is effective until the authorized Owner's official has signed the Contract and the Notice to Proceed has been issued. The bidder shall not provide any goods or render services until the Contract has been signed by the Administrator of the Division of Public Works and the Contract has become effective. Furthermore, the Owner is in no way responsible for reimbursing the bidder for goods provided or services rendered prior to the signature of the authorized Division of Public Work's official and the arrival of the Notice to Proceed.

**INCURRING COSTS:** The Owner is not liable for any cost incurred by bidders prior to the Notice to Proceed.

**PRIOR ACCEPTANCE OF DEFECTIVE BIDS OR PROPOSALS:** The Owner generally will not completely review or analyze bids that appear to fail to comply with the requirements of the bid documents, nor will the Owner generally investigate the references or qualifications of those who submit such bids. Therefore, any acknowledgment that the selection is complete shall not operate as a representation by the Owner that an unsuccessful bid was responsive, complete, sufficient or lawful in any respect.

**POST-AWARD SUBMITTALS:** Upon receipt of a Notice of Intent to Award, the apparent low responsive and responsible bidder shall provide documentation required in such Notice. Such Notice of Intent to Award shall generally require the bidder to return to the Owner, within ten (10) days of receipt, a signed Contract, all required bonds, proof of insurance and documentation required by the Idaho State Tax Commission (report and affidavit).

**OWNER'S RIGHT TO REJECT:** Prior to execution of the Contract, the Owner or Design Professional shall provide written notice of any reasonable objection to any person or entity proposed by the bidder. Upon receipt of such notice, the bidder may withdraw its bid, without forfeiture, or propose a substitute and identify any change in any bid amount caused by such substitution. The Owner may accept or reject the substitution or the adjusted price. If the Owner rejects the substitution or the adjusted price, it will return the bidder's bid guarantee.

***END OF INSTRUCTIONS***

# BID PROPOSAL

**TO:** STATE OF IDAHO
DIVISION OF PUBLIC WORKS

Gentlemen:

The Bidder, in compliance with your Invitation for Bids for the construction of DPW 21-225; ISU Liberal Arts Multi Classroom Remodel, Pocatello, ID , having examined the bidding and Contract Documents and the site of the proposed Work, and being familiar with all of the conditions surrounding the construction of the proposed Project, including the availability of materials and labor, hereby proposes to furnish all labor, materials and supplies and to provide the service and insurance in accordance with the Contract Documents, within the time set forth therein, and at the prices stated below. These prices are to cover all expenses incurred in performing the Work required under the Contract Documents.

Bidder hereby agrees to commence Work under this Contract on a date to be specified in the written "Notice to Proceed" of the Owner and to substantially complete the Project within 120 consecutive calendar days thereafter, as stipulated in the specifications. Bidder further agrees to pay as liquidated damages, the sum of $500.00 for each consecutive calendar day after the established substantial completion date or adjusted date as established by change order.

Bidder acknowledges receipt of Addenda No. _____.
(List all Addenda)

**BASE PROPOSAL:** Bidder agrees to perform all of the base proposal Work described in the specifications and shown on the plans for the sum of:

_____ Dollars ($_____)
*(Amount shall be shown in both words and figures. In case of discrepancy, the amount shown in words will govern.)*

Alternate No. 1: Additional (27) Window Sill Replacement

Add the sum of _____ Dollars ($_____)

Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informality in the bidding.

The bidder agrees that this bid shall be good for a period of forty-five (45) calendar days after the scheduled opening time for receiving bids.

Upon receipt of written Notice of Intent to Award of this bid, Bidder will execute the formal Contract within ten (10) calendar days and deliver a Surety Bond or Bonds as required by paragraph “Performance and Payment Bonds” first page (ITB-1) of the Instructions to Bidders.

The bid security in the amount of five percent (5%) of the bid amount is to become the property of the Owner, in the event the Contract and bond are not executed within the time set forth, as liquidated damages for the delay and additional expense to the Owner caused thereby.

The names and addresses of the entities who will perform the Work identified below, subject to approval of Owner and Architect, if Undersigned is awarded the Contract, are as follows:

Heating, Ventilating & Air Conditioning (PWCL Category 15700-HVAC)

(Name)_____

(Address)_____

Idaho Public Works Contractors License No._____

Idaho HVAC Contractors License No. _____

Electrical (PWCL Category 16000)

(Name) _____

(Address) _____

Idaho Public Works Contractors License No. _____

Idaho Electrical Contractors License No. _____

**FAILURE TO NAME A PROPERLY LICENSED SUBCONTRACTOR IN EACH OF THE ABOVE CATEGORIES WILL RENDER THE BID UNRESPONSIVE AND VOID.**

Should the listing of subcontractors change due to selection of alternates or other similar circumstances, attach explanation.

Bidder warrants that bid has been prepared and that any contract resulting from acceptance of this bid is subject to the Fixed Price Construction Contract.

The undersigned notifies that it is of this date duly licensed as an Idaho Public Works Contractor and further that it possesses Idaho Public Works Contractor's License No. _____, and is domiciled in the State of _____.

Dated this _____ day of_____,_____.
(date) (month) (year)

Respectfully submitted by:

_____
(Contractor's Name- Typed)

*SEAL*
(Seal - if bid is by a corporation)

_____
(Street or PO Address)

_____
(City, State and zip code)

_____
(Authorized Signature)

_____
(Title)

_____
(Telephone Number)

_____
(FAX Number)

_____
(Email Address)

**Have you remembered to include bid security (bid bond or a certified or cashier's check), Contractor's Affidavit Concerning Alcohol and Drug-Free Workplace and a signed copy of the Bidder's Acknowledgment Statement with your bid?**

***Execute and Submit with Bid***

**CONTRACTOR'S AFFIDAVIT**
**CONCERNING ALCOHOL AND DRUG-FREE WORKPLACE**

STATE OF _____

COUNTY OF _____

Pursuant to the Section 72-1717, Idaho Code, I, the undersigned, being duly sworn, depose and certify that _____ is in compliance with the provisions of Section 72-1717, Idaho Code; that _____ provides a drug-free workplace program that complies with the provisions of Title 72, Chapter 17, Idaho Code, and will maintain such program throughout the life of a state construction contract; and that _____ shall subcontract Work only to subcontractors meeting the requirements of Section 72-1717(1)(a), Idaho Code.

_____
Name of Contractor

_____
Address

_____
City and State

By: _____
(Signature)

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

_____
NOTARY PUBLIC
Residing at: _____
Commission expires: _____

**FAILURE TO EXECUTE THIS AFFIDAVIT AND SUBMIT IT ALONG WITH YOUR BID SHALL MAKE YOUR BID NON-RESPONSIVE.**

*Execute and Submit with Bid*

## BIDDER'S ACKNOWLEDGMENT STATEMENT

**NOTE: THE INFORMATION CONTAINED HEREIN IS A SUMMARY OF VITAL CONTRACT PROVISIONS AND DOES NOT CHANGE THE CONTRACT DOCUMENTS THAT WILL GOVERN THIS PROJECT.**

Division of Public Works Project No. 21-225; ISU Liberal Arts Multi Classroom Remodel, Pocatello, ID

By submitting a bid for this Project, the undersigned bidder agrees that, if awarded the Contract for construction, Contractor will conform to all conditions and requirements of the Contract, including but not limited to:

- Contractor agrees to comply with conditions pertaining to Sections 44-1001 and 44-1002, Idaho Code, requiring the employment of ninety-five percent (95%) bona fide Idaho residents and providing for a preference in the employment of bona fide Idaho residents and regarding the employment of persons not authorized to work in the United States.

- Contractor will substantially complete the Work within the time stated in the Contract Documents, or as modified by Change Order(s).

- If the Contractor fails to substantially complete the Project within the time stated in the Contract Documents, or as modified by Change Order, the Contractor agrees that the Owner may deduct from the Contract amount liquidated damages in the amount per calendar day, indicated in the Contract Documents, times the number of calendar days until the Project is Substantially Complete, as defined in the Contract Documents and as determined by the Design Professional.

- The Contractor agrees that the amount allowed for overhead and profit on any Change Order is limited to the amounts indicated in subparagraph 16.3.11 of the Fixed Price Construction Contract Between Owner and Contractor.

    1. For total changes the amount allowed for overhead, profit, bonds and insurance for the Contractor and all subcontractors of any tier combined shall not exceed fifteen percent (15%) of direct costs; or

    2. The Contractor will determine the amount of overhead and profit to be apportioned between the Contractor and its subcontractor of allowable amounts of overhead, profit, bonds and insurance.

    - The Contractor agrees that Change Orders are governed by the Fixed Price Construction Contract Between Owner and Contractor General Conditions of the Contract for Construction including as follows:

    1. By the execution of a Change Order, the Contractor agrees and acknowledges that it has had sufficient time and opportunity to examine the change in Work which is the subject of the Change Order and that it has undertaken all reasonable efforts to discover and disclose any concealed or unknown conditions which may, to any extent, affect the Contractor's ability to perform in accordance with the Change Order. Aside from those matters specifically set forth in the Change Order, the Owner shall not be obligated to make any adjustments to either the

Contract Sum or Contract Time by reason of any conditions affecting the change in Work addressed by the Change Order that could have reasonably been discovered or disclosed by the Contractor's examination.

2. Any Change Order fully executed by the Owner, Contractor and Design Professional, including but not limited to, a Change Order arising by reason of the parties' mutual agreement or by mediation, shall constitute a final and full settlement of all matters relating to or affected by the change in the Work, including but not limited to, all direct and consequential costs associated with such change and any and all adjustments to the Contract Price and Contract Time. In the event a Change Order increases the Contract Price, the Contractor shall include the Work covered by such Change Order in the Application for Payment as if such Work was originally part of the Project and Contract Documents.

- **Certification Concerning Boycott of Israel.** Pursuant to Idaho Code section 67-2346, if payments under the Contract exceed one hundred thousand dollars ($100,000) and Contractor employs ten or more persons, Contractor certifies that it is not currently engaged in, and will not for the duration of the Contract engage in, a boycott of goods or services from Israel or territories under its control. The terms in this section defined in Idaho Code section 67-2346 shall have the meaning defined therein.

**FAILURE TO EXECUTE THIS ACKNOWLEDGMENT MAY MAKE YOUR BID NON-RESPONSIVE.**

I, _____, being duly authorized to bind the
(type or print name of individual)

bidder, _____, does hereby certify that I have fully read
(type or print name of company)
and understand this document and that it highlights certain parts of the Contract that will be entered between the parties and that will govern this Project.

Authorized Signature: _____

Title: _____

Date: _____

***END OF BIDDER'S ACKNOWLEDGMENT STATEMENT***

**DIVISION OF PUBLIC WORKS**
**FIXED PRICE CONSTRUCTION CONTRACT**
**BETWEEN OWNER AND CONTRACTOR**

**DPW PROJECT NO. 21-225**
**IDAHO STATE UNIVERSITY**
**LIBERAL ARTS BLDG. #4, MULTI CLASSROOM REMODEL**
**POCATELLO, ID**

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**FIXED PRICE CONSTRUCTION CONTRACT**
**BETWEEN OWNER AND CONTRACTOR**

THIS FIXED PRICE CONSTRUCTION CONTRACT BETWEEN OWNER AND CONTRACTOR (the "Contract") is by and between the State of Idaho, Department of Administration, Division of Public Works ("DPW" or the "Owner") and _____(the "Contractor") and is for the construction of the project (the "Project") identified as DPW Project No.21-225, as more fully described in Exhibit A, and incorporated herein by reference. This Contract shall be effective on _____ (day) of _____ (month), 20__ (year), when executed by both parties.

In consideration of the mutual promises, covenants, and agreements stated herein, and for other good and valuable consideration, the sufficiency of which is hereby acknowledged, the Owner and the Contractor agree:

## ARTICLE 1
## CONTRACT DOCUMENTS

**1.1** The Contract Documents consist of this Contract, the drawings and specifications for the Project (the "Drawings and Specifications") identified in Exhibit C and any Addenda thereto issued prior to execution of this Contract, written amendments signed by both the Owner and the Contractor, Change Orders signed by both the Owner and the Contractor, Construction Change Directives and any written orders by the Design Professional for minor changes in the Work (the "Contract Documents"). Documents not included or expressly contemplated in this Article 1 do not, and shall not, form any part of the Contract Documents.

**1.2** The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor's obligations.

## ARTICLE 2
## REPRESENTATIONS AND WARRANTIES OF THE CONTRACTOR

In order to induce the Owner to execute this Contract and recognizing that the Owner is relying thereon, the Contractor, by executing this Contract, makes the following express representations to the Owner:

**2.1** The Contractor is fully qualified to act as the Contractor for the Project and has, and shall maintain, any and all licenses, permits or other authorizations necessary to act as the Contractor for, and to construct, the Project.

**2.2** The Contractor has become familiar with the Project site and the local conditions under which the Project is to be constructed and operated particularly in correlation to the requirements of the Contract.

**2.3** The Contractor has received, reviewed, compared, studied and carefully examined all of the documents which make up the Contract Documents, including the Drawings and Specifications, and any Addenda, and has found them in all respects to be complete, accurate, adequate, consistent, coordinated and sufficient for construction. Such review, comparison, study and examination shall be a warranty that the contractor believes that the documents are complete and the Project is buildable as described except as reported.

**2.4** The Contractor warrants that the Contract Time is a reasonable period for performing the Work.

**2.5** The Contractor warrants to the Owner and Design Professional that all labor furnished on this Project shall be competent to perform the tasks undertaken; materials and equipment furnished under the Contract will be new and of high quality unless otherwise required or permitted by the Contract Documents; that the Work will be complete, of high quality and free from defects not inherent in the quality required or permitted; and that the Work will strictly conform to the requirements of the Contract Documents. Any Work not strictly conforming to these requirements, including substitutions not properly approved and authorized, shall be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse by Owner or its representatives, modifications not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal

wear and tear and normal usage. If required by the Owner, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment. This warranty shall survive the completion of the Contract and final payment to the Contractor.

**2.6** **Certification Concerning Boycott of Israel.** Pursuant to Idaho Code section 67-2346, if payments under the Contract exceed one hundred thousand dollars ($100,000) and Contractor employs ten or more persons, Contractor certifies that it is not currently engaged in, and will not for the duration of the Contract engage in, a boycott of goods or services from Israel or territories under its control. The terms in this section defined in Idaho Code section 67-2346 shall have the meaning defined therein

## ARTICLE 3
## INTENT AND INTERPRETATION

With respect to the intent and interpretation of this Contract, the Owner and the Contractor agree as follows:

**3.1** This Contract constitutes the entire and exclusive agreement between the parties with reference to the Project, and supersedes any and all prior discussions, communications, representations, understandings, negotiations or agreements. This Contract also supersedes any bid documents.

**3.2** The intent of the Contract is to include all items necessary for the proper execution and completion of the Project and anything that may be required, implied or inferred by the documents which make up this Contract, or any one or more of them, shall be provided by the Contractor for the Fixed Price Contract Amount. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all.

**3.3** Nothing contained in this Contract shall create, nor be interpreted to create, privity or any other relationship whatsoever between the Owner and any person or entity except the Contractor; provided, however, that the Design Professional is entitled to performance and enforcement of obligations under the Contract intended or necessary to facilitate its duties. Any reference to the Owner, the Contractor or the Design Professional shall be deemed to include authorized representatives.

**3.4** When a word, term or phrase is used in this Contract, it shall be interpreted or construed first as defined herein; second, if not defined, according to its generally accepted meaning in the construction industry; and third, if there is no generally accepted meaning in the construction industry, according to its common and customary usage.

**3.5** The words "include," "includes," or "including," as used in this Contract, shall be deemed to be followed by the phrase "without limitation."

**3.6** The specification herein of any act, failure, refusal, omission, event, occurrence or condition as constituting a material breach of this Contract shall not imply that any other, non-specified act, failure, refusal, omission, event, occurrence or condition shall be deemed not to constitute a material breach of this Contract.

**3.7** The Contractor shall have a continuing duty to read, examine, review, compare and contrast each of the documents which make up this Contract, shop drawings and other submittals, and shall give timely written notice to the Owner and the Design Professional of any conflict, ambiguity, error or omission which the Contractor may find with respect to these documents before proceeding with the affected Work.

**3.8** The express or implied approval by the Owner or the Design Professional of any shop drawings or other submittals shall not relieve the Contractor of the continuing duties imposed hereby, nor shall any such approval be evidence of the Contractor's compliance with this Contract. The Owner has requested that the Design Professional prepare documents for the Project, including the Drawings and Specifications for the Project, which are accurate, adequate, consistent, coordinated and sufficient for construction. HOWEVER, THE OWNER MAKES NO REPRESENTATION OR WARRANTY OF ANY NATURE WHATSOEVER TO THE CONTRACTOR CONCERNING SUCH DOCUMENTS. The Contractor again hereby acknowledges and represents that it has received, reviewed and carefully examined such documents; has found them to be complete, accurate, adequate, consistent, coordinated and sufficient for construction; and that the Contractor has not, does not and will not rely upon any

representations or warranties by the Owner concerning such documents, as no such representations or warranties have been or are hereby made.

**3.9** In the event of any conflict among any of the documents which make up this Contract, the Design Professional shall interpret the documents, and the interpretation shall be binding on both the Owner and Contractor; provided, however, that this does not change the Owner's right to make decisions regarding Claims in accordance with Article 13 and Article 14. If no interpretation is provided by the Design Professional, the most stringent requirement in the Contract Documents will apply.

## ARTICLE 4
## OWNERSHIP OF DOCUMENTS

**4.1** Unless otherwise agreed by the Design Professional and its consultants, the party that prepared the drawings, specifications and other documents is the author of such with all copyright, common law, statutory and other reserved rights. The Contractor may retain one (1) record set of the Drawings and Specifications and other documents but shall not own or claim any copyright in them.

The Drawings and Specifications and other documents, and any copies, are to be used solely for this Project, and not on any other project, or additions to this Project outside this Contract, without written consent of the Owner, the Design Professional and the Design Professional's consultants; provided, however, that copies may be made of applicable portions as necessary for completion of the Work. Such copies shall include any copyright notice on the Drawings and Specifications and other documents.

Submission to or use by a regulatory body related to this Project is an acceptable use.

## ARTICLE 5
## CONTRACTOR'S PERFORMANCE

The Contractor shall perform all of the Work required, implied or reasonably inferable from this Contract, including the following:

**5.1** Construction of the Project.

**5.2** The furnishing of any required surety bonds and insurance.

**5.3** The provision or furnishing, and prompt payment therefore, of labor, supervision, services, materials, supplies, equipment, fixtures, appliances, facilities, tools, transportation, storage, power, fuel, heat, light, cooling or other utilities required for construction and all necessary permits, including any required elevator permits, required for the construction of the Project. Construction projects for the State of Idaho require a building permit issued by the Division of Building Safety.

**5.4** The creation and submission of a detailed and comprehensive set of marked up blue or black-lined record drawings. Said record drawings shall be submitted to and approved by the Design Professional as a condition precedent to final payment to the Contractor.

## ARTICLE 6
## TIME FOR CONTRACTOR'S PERFORMANCE

**6.1** The Contractor shall commence the performance of this Contract in accordance with the "Notice to Proceed" (Exhibit F) issued by the Owner and shall diligently continue its performance to and until final completion of the Project. The Contractor shall accomplish Substantial Completion of the Project on or before the time indicated in Exhibit A. The period of time, including any adjustments made under this Contract, for the Contractor to reach Substantial Completion is the "Contract Time."

**6.2** The Contractor may be assessed by and be responsible to the Owner for the amount indicated in Exhibit A per day for each and every calendar day of unexcused delay in achieving Substantial Completion beyond the date set forth for Substantial Completion. Any sums owed hereunder by the Contractor shall be payable not as a penalty but as liquidated damages, representing an estimate of delay damages likely to be sustained by the Owner estimated at the time of this Contract. When the Owner reasonably believes that Substantial Completion will be inexcusably delayed, the Owner shall be entitled, but not required, to withhold from any amounts otherwise due the Contractor an amount then believed by the Owner to be adequate to recover liquidated damages applicable to such delays. If and when the Contractor overcomes the delay in achieving Substantial Completion, or any part thereof, for which the Owner has withheld payment, the Owner shall promptly release to the Contractor those funds withheld, but no longer applicable, as liquidated damages. The Owner's right to liquidated damages is not, and shall not be deemed to be, an exclusive remedy for delay and the Owner shall retain all remedies at law or in equity for delay or other breach.

**6.3** The term "Substantial Completion," as used herein, shall mean that point at which, as certified in writing by the Design Professional, or if there is no Design Professional, as certified by the Owner, the entire Project is at a level of completion in strict compliance with the Contract Documents, such that the Owner or its designee can enjoy beneficial use or occupancy and can use or operate it in all respects for its intended purpose. If, in the reasonable determination of the Owner, receipt of operation and maintenance manuals or completion of training is necessary for such beneficial use or occupancy, then there shall be no Substantial Completion until such manuals are provided or such training is completed. Partial use or occupancy of the Project shall not result in the Project being deemed substantially complete, or accepted as substantially complete, and such partial use or occupancy shall not be evidence of Substantial Completion. The Project shall not be deemed accepted until it is finally complete.

**6.4** Any request by the Contractor for an extension of the Contract Time must be made in accordance with, and is subject to, Article 13 and Article 14 related to Claims.

**6.5** The Owner shall have no liability of any kind to the Contractor if a schedule or other document submitted by the Contractor shows an intention to complete the Work prior to the scheduled completion date and for any reason other than Owner caused delay, the Contractor is not able to achieve such early completion.

## ARTICLE 7
## FIXED PRICE AND CONTRACT PAYMENTS

**7.1** The Owner shall pay, and the Contractor shall accept, as full and complete payment for the Contractor's timely performance of its obligations hereunder, the Fixed Price Contract Amount indicated in Exhibit A. The Fixed Price Contract Amount shall not be modified except as provided in this Contract.

**7.2** Prior to approval of the contract, the Contractor shall prepare and present to the Owner and the Design Professional the Contractor's Schedule of Values apportioning the Fixed Price Contract Amount among the different elements of the Project for purposes of periodic and final payment. The Contractor's Schedule of Values shall be presented in the Owner's web-based construction management software. The Contractor shall not imbalance it's Schedule of Values nor artificially inflate any element thereof. The violation of this provision by the Contractor shall constitute a material breach of this Contract. The Contractor's Schedule of Values will be utilized for the Contractor's requests for payment but shall only be so utilized after it has been approved in writing by the Design Professional.

**7.3** The Owner shall pay the Fixed Price Contract Amount to the Contractor in accordance with the procedures set forth in this Article. The Contractor shall submit a Contractor's Request for Payment, on or before the day of each month indicated in Exhibit A or otherwise agreed to, after commencement of performance, but no more frequently than once monthly. Said payment request shall be on made in the Owner's web-based construction management software, and shall include whatever supporting information as may be required by the Design Professional, the Owner or both. Therein, the Contractor may request payment for one hundred percent (100%) of the Work satisfactorily completed to the date of the Contractor's Request for Payment, less five percent (5%) retainage, based on the Fixed Price Contract Amount allocated on the Schedule of Values. The Contractor's Request for Payment may include only: properly provided labor, materials or equipment properly incorporated into the Project, and time and materials or equipment necessary for the Project or that will be incorporated into the Project and are properly stored at the Project site (or elsewhere if off-site storage is approved in writing by the

Owner). The Contractor's Request for Payment must exclude the total amount of previous payments received from the Owner. Any payment on account of stored materials or equipment will be subject to the Contractor providing written proof that the Owner has title to such materials or equipment and that they are fully insured against loss or damage. Each such Contractor's Request for Payment shall be signed by the Contractor and its submission shall constitute the Contractor's affirmative representation that the quantity of Work has reached the level for which payment is requested; that the Work has been properly installed or performed in strict compliance with the Contract; that all Work for which the Owner has previously paid is free and clear of any lien, claim or other encumbrance of any person whatsoever; and that the Contractor knows of no reason why payment should not be made as requested. As a condition precedent to payment, the Contractor shall, if required by the Owner, furnish to the Owner properly executed waivers or releases, in a form acceptable to the Owner, from all subcontractors, materialmen, suppliers or others having any claims or alleged claims, wherein said subcontractors, materialmen, suppliers or others shall acknowledge receipt of all sums due pursuant to all prior Contractor's Requests for Payment, and waive and relinquish any rights or other claims relating to the Project or Project site. The submission by the Contractor of the Contractor's Request for Payment also constitutes the Contractor's affirmative representation that, upon payment of the Contractor's Request for Payment submitted, title to all Work included in such payment shall be vested in the Owner.

Thereafter, the Design Professional shall review the Contractor's Request for Payment and may also review the Work at the Project site or elsewhere to determine whether the quantity and quality of the Work are as represented in the Contractor's Request for Payment and as required by this Contract. The Design Professional shall approve in writing the amount which, in the opinion of the Design Professional, is properly owing to the Contractor and such approval is required before the Owner shall have any payment obligation. The Design Professional may withhold such approval, in whole or in part, as necessary to protect the Owner if it reasonably believes that the quantity or quality of the Work is not as represented in the Contractor's Request for Payment or is not in strict conformance to the Contract Documents.

**7.4** The Owner shall make payment to the Contractor no more than twenty-one (21) days following receipt by the Owner of the Design Professional's written approval of each Contractor's Request for Payment. The amount of each such payment shall be the amount approved for payment by the Design Professional less such amounts, if any, otherwise owing by the Contractor to the Owner or which the Owner shall have the right to withhold as authorized by this Contract. The Design Professional's approval of the Contractor's Request for Payment shall not preclude the Owner from the exercise of any of its rights it may have in this Contract, at law or in equity, as set forth in Paragraph 7.8 hereinafter.

**7.5** Off-site storage will not be approved at locations more than thirty (30) miles from the Project site or outside the State of Idaho and any payment for any off-site storage is subject to the following:

**.1** The Contractor must provide at least thirty (30) days' advance written notice of its request to store off-site. Such notice must include a description of the type, quantities, locations and values of materials involved for the next billing cycle. All invoices must indicate the type, quantities and value of materials or equipment for which payment is requested;

**.2** All materials stored off-site must be segregated and clearly marked with the DPW Project number and as being the "Property of the State of Idaho;"

**.3** The Design Professional and/or the Owner's Field Representative must have unrestricted access to the stored materials during all business hours and may physically inventory all invoiced materials and equipment and may physically inspect the storage conditions;

**.4** The Contractor must provide written Consent of Surety to off-site storage of materials and equipment and to payment for such materials and equipment prior to incorporation in the Work. Consent must be from the Surety. Consent of local broker or agent is not acceptable;

**.5** The Contractor must maintain and must provide to the Design Professional, upon request, a current log of stored materials and equipment, which reflects when materials and equipment are used or added; and

**.6** The Contractor must obtain and maintain all risk property insurance at replacement cost, with the State of Idaho listed as loss payee on all materials and equipment stored off-site and in transit.

**7.6** When payment is received from the Owner, the Contractor shall immediately pay all subcontractors, materialmen, laborer and suppliers the amounts they are due for the Work covered by such payment. The Contractor shall not withhold from a subcontractor or supplier more than the percentage withheld from a payment certificate for the subcontractor's or supplier's portion of the Work. In the event the Owner becomes informed that the Contractor has not paid a subcontractor, materialmen, laborer or supplier as provided herein, the Owner shall have the right, but not the duty, to issue future checks and payment to the Contractor of amounts otherwise due hereunder naming the Contractor and any such subcontractor, materialmen, laborer or supplier as joint payees. Such joint check procedure, if employed by the Owner, shall create no rights in favor of any person or entity beyond the right of the named payees to payment of the check and shall not be deemed to commit the Owner to repeat the procedure in the future.

**7.7** Payment to the Contractor, utilization of the Project for any purpose by the Owner, or any other act or omission by the Owner shall not be interpreted or construed as an acceptance of any Work of the Contractor not strictly in compliance with this Contract.

**7.8** The Owner shall have and be entitled to the right to refuse to make any payment, including by reducing payment under any Contractor's Request for Payment, and, if necessary, may demand the return of a portion or all of an amount previously paid to the Contractor for reasons that include the following:

**.1** The quality of the Contractor's work, in whole or part, is not in strict accordance with the requirements of this Contract or identified defective work, including punch list work, is not remedied as required by the Contract Documents;

**.2** The quantity of the Contractor's work, in whole or in part, is not as represented in the Contractor's Request for Payment or otherwise;

**.3** The Contractor's rate of progress is such that, in the Owner's opinion, Substantial Completion or final completion, or both, may be inexcusably delayed or that the Owner will incur additional costs or expense related to repeated Substantial Completion or final completion inspections through no fault of the Owner;

**.4** The Owner reasonably believes that the Contractor has failed to use Contract funds, previously paid the Contractor by the Owner, to pay Contractor's project-related obligations, including subcontractors, laborers and material and equipment suppliers;

**.5** There are claims made or it seems reasonably likely that claims will be made, against the Owner;

**.6** The Contractor has caused a loss or damage to the Owner, the Design Professional or another contractor;

**.7** The Owner reasonably believes that the Project cannot be completed for the unpaid balance of the Fixed Price Contract Amount or the Owner reasonably believes that the Project cannot be completed within the Contract Time and that the unpaid balance of the Fixed Price Contract Amount would be inadequate to cover the cost of actual or liquidated damages for the anticipated delay;

**.8** The Contractor fails or refuses to perform any of its obligations to the Owner; or

**.9** The Contractor fails to pay taxes as required by Title 63, Chapter 15, Idaho Code.

In the event that the Owner makes written demand upon the Contractor for amounts previously paid by the Owner as contemplated in Paragraph 7.8, the Contractor shall promptly comply with such demand.

**7.9** If the Owner, without cause, fails to pay the Contractor any amounts due and payable thirty (30) days after those amounts are due pursuant to Paragraph 7.4, the Contractor shall have the right to cease the Work until receipt of proper payment. Contractor must first provide written notice to the Owner of the Contractor's intent to cease the Work ten (10) days prior to stopping the Work under this Paragraph. If any amounts remain unpaid after fifty-one (51) days after the Design Professional approves the Contractor's Request for Payment under Paragraph 7.4, interest at the rate of four percent (4%) per annum shall accrue on those unpaid amounts.

**7.10** When Contractor considers Substantial Completion has been achieved, the Contractor shall notify the Owner and the Design Professional in writing and shall furnish to the Design Professional a listing of those matters yet to be finished. The Design Professional will thereupon conduct an inspection to confirm that the Work is, in fact, substantially complete. Upon its confirmation that the Contractor's work is substantially complete, the Design Professional will so notify the Owner and Contractor in writing and will therein set forth the date of Substantial Completion. The Owner and the Contractor must accept the date of Substantial Completion in writing. Guarantees and warranties required by this Contract shall commence on the date of Substantial Completion. At the Contractor's Request for Payment following Substantial Completion, the Owner shall pay the Contractor an amount sufficient to increase total payments to the Contractor to ninety-five percent (95%) of the Fixed Price Contract Amount, less any liquidated damages, less the reasonable costs as determined by the Design Professional for completing all incomplete work, correcting and bringing into conformance all defective and nonconforming work, and handling any outstanding or potential claims. If the Design Professional determines that the Contractor has made or is making satisfactory progress on any uncompleted portions of the Work, the Owner may, at its discretion, release a portion of the retainage to the Contractor prior to the actual final completion of the conditions set forth in Paragraph 7.13. It is the intent of the parties that the Project will be accepted only in total (at Substantial Completion and final completion) and not in phases unless provided for in Exhibit A. Any acceptance other than in total shall require written agreement of Owner and Design Professional.

**7.11** When Contractor considers the Project is at final completion, it shall notify the Owner and the Design Professional thereof in writing. Thereupon, the Design Professional will perform a final inspection of the Project. If the Design Professional confirms that the Project is complete in full accordance with the Contract Documents and that the Contractor has performed all of its obligations to the Owner, the Design Professional will furnish a final approval for payment to the Owner certifying to the Owner that the Project is complete and the Contractor is entitled to the remainder of the unpaid Fixed Price Contract Amount, less any amount withheld pursuant to this Contract.

**7.12** If the Contractor fails to achieve final completion within a reasonable number of days as established by the Design Professional from the date of Substantial Completion, the Contractor may be assessed and be responsible to the Owner for fifty percent (50%) of the daily amount of liquidated damages as established pursuant to Paragraph 6.2 and Exhibit A, per day for each and every calendar day of unexcused delay in achieving final completion beyond the date established for final completion of the Work. Any sums due and payable hereunder by the Contractor shall be payable not as a penalty but as liquidated damages representing an estimate of delay damages likely to be sustained by the Owner, estimated at or before the time of executing this Contract. When the Owner reasonably believes that final completion will be inexcusably delayed, the Owner may withhold from any amounts otherwise due the Contractor an amount then believed by the Owner to be adequate to recover liquidated damages applicable to such delays. If and when the Contractor overcomes the delay in achieving final completion, or any part thereof, for which the Owner has withheld payment, the Owner shall promptly release to the Contractor those funds withheld, but no longer applicable, as liquidated damages. The Owner's right to liquidated damages is not, and shall not be deemed to be, an exclusive remedy for delay and the Owner shall retain all remedies at law or in equity for delay or other breach.

**7.13** As a condition precedent to final payment, the Contractor must furnish the Owner, in the form and manner required by Owner, and with a copy to the Design Professional of the following:

**.1** An affidavit that all of the Contractor's obligations to subcontractors, laborers, equipment or material suppliers or other third parties in connection with the Project have been paid or otherwise satisfied;

**.2** A release by the Contractor of all Claims it has or might have against the Owner or the Owner's property (DPW's form, Exhibit H);

**.3** Contractor's Affidavit of Debts and Claims (AIA Document G706);

**.4** Consent of Surety to final payment (AIA Document G707);

**.5** Confirmation of all required training, product warranties, operating manuals, instruction manuals and other record documents, drawings and things customarily required of the Contractor; and

**.6** A Public Works Contract Tax Release issued by the Idaho Tax Commission (See "Request for Tax Release" form, Exhibit G, to be submitted by Contractor to the Idaho Tax Commission).

**7.14** The Owner shall, subject to its rights set forth in this Contract, make final payment of all sums due the Contractor within thirty (30) days of the Design Professional's execution of a final approval for payment and receipt of documentation required by Paragraph 7.13, whichever is received later.

## ARTICLE 8
## INFORMATION AND MATERIAL SUPPLIED BY THE OWNER

**8.1** The Administrator of DPW or his designee shall be the sole representative of the State of Idaho. The Design Professional shall have authority to bind Owner only as specifically set forth in this Contract.

**8.2** The Owner will assign a Project Manager and a Field Representative to represent the Owner, identified in Exhibit B. The Owner's Field Representative's duties, responsibilities and limitations of authority are in accordance with DPW's policies and procedures.

**8.3** The Owner shall furnish to the Contractor, prior to the execution of this Contract, any and all written and tangible material in its possession concerning conditions below ground at the site of the Project. Such written and tangible material is furnished to the Contractor only in order to make complete disclosure of such material as being in the possession of the Owner and for no other purpose. By furnishing such material, the Owner does not represent, warrant or guarantee its accuracy, either in whole in part, implicitly or explicitly.

**8.4** The Owner will secure and pay for all required easements, the plan check fee required by the Division of Building Safety, conditional use permits and any other permits and fees specifically indicated in the Contract Documents to be secured and paid for by the Owner.

**8.5** The Owner will provide the Contractor one (1) copy of this complete Contract and the number of sets of Drawings and Project Manuals (including Specifications) as indicated in Exhibit A. The Contractor may purchase additional copies, at its expense, from the Design Professional.

## ARTICLE 9
## STOP WORK ORDER

**9.1** In the event the Contractor fails or refuses to perform the Work as required or fails or refuses to correct nonconforming Work, the Owner may instruct the Contractor to stop Work in whole or in part. Upon receipt of such instruction, the Contractor shall immediately stop as instructed by the Owner and shall not proceed further until the cause for the Owner's instructions has been corrected, no longer exists or the Owner instructs that the Work may resume. In the event the Owner issues such instructions to stop, and in the further event that the Contractor fails and refuses within seven (7) days of receipt of same to provide adequate assurance to the Owner that the cause of such instructions will be eliminated or corrected, then the Owner shall have the right, but not the obligation, to carry out the Work with its own forces or with the forces of another contractor, and the Contractor shall be fully responsible and liable for the costs of performing such Work by the Owner. Without limiting what else might constitute nonconforming Work, the existence of a gross safety violation or other situation or condition that creates, or could imminently create, a threat of serious harm to persons or property, shall constitute nonconforming Work and any order to stop the Work issued for such reason shall not be considered an interference with the Contractor's performance of the Work or its means and methods. The rights set forth herein are in addition to, and without prejudice to, any other rights or remedies the Owner may have against the Contractor.

**9.2** Any order to stop the Work issued pursuant to Paragraph 9.1 shall not be used to justify any Claim by the Contractor for additional time or money.

## ARTICLE 10
## DUTIES, OBLIGATIONS AND RESPONSIBILITIES OF THE CONTRACTOR

In addition to any and all other duties, obligations and responsibilities of the Contractor set forth in this Contract, the Contractor shall have and perform the following duties, obligations and responsibilities to the Owner:

**10.1** The Contractor's continuing duties set forth in Paragraph 3.7 are by reference hereby incorporated in this Paragraph 10.1. The Contractor shall not perform Work without adequate plans and specifications or, as appropriate, approved shop drawings or other submittals. If the Contractor performs Work knowing or believing it involves an error, inconsistency or omission in the Contract without first providing written notice to the Design Professional and Owner, the Contractor shall be responsible for such Work and shall pay the cost of correcting same.

**10.2** The Contractor shall take field measurements and verify field conditions and shall carefully compare such field measurements and conditions and other information known to the Contractor with the Contract Documents before commencing Work. Errors, inconsistencies or omissions discovered shall be reported to the Design Professional, the Owner and the Owner's Field Representative immediately. Such examination, review and comparison shall be a warranty that the Contract Documents are complete and the Project is buildable as described except as reported. Reported errors, inconsistencies or omissions will constitute a request for an interpretation by the Design Professional and may constitute a claim pursuant to Article 13 hereof where appropriate.

**10.3** The Contractor shall ensure that all Work shall strictly conform to the requirements of this Contract.

**10.4** The Work shall be strictly supervised, the Contractor bearing full responsibility for any and all acts or omissions of those engaged in the Work on behalf of the Contractor.

**10.5** All labor furnished on this Project shall be competent to perform the tasks undertaken; materials and equipment furnished under the Contract will be new and of high quality unless otherwise required or permitted by the Contract Documents; the Work will be complete, of high quality and free from defects not inherent in the quality required or permitted; and the Work will strictly conform to the requirements of the Contract Documents. Any Work not strictly conforming to these requirements, including substitutions not properly approved and authorized, shall be considered defective.

**10.6** Except as provided in Paragraph 8.4, the Contractor shall secure or provide and pay for all licenses, permits required by the Idaho Division of Building Safety, governmental approvals and inspections, connections for outside services for the use of municipal or private property for storage of materials, parking, utility services, temporary obstructions, enclosures or opening and patching of streets, and for all other facilities and services necessary for proper execution and completion of the Project.

**10.7** The Contractor shall comply with and give notices required by laws, ordinances, rules, regulations and lawful orders of public authorities bearing on performance of the Work.

**10.8** The Contractor shall employ and maintain at the Project site only competent supervisory personnel. Key supervisory personnel assigned by the Contractor to this Project are as listed in Exhibit B.

**10.9** The Contractor shall employ a competent superintendent and necessary assistants, as needed, to oversee execution of the Work. The superintendent shall be in attendance at the Project site during the progress of the Work. The superintendent and any project manager, if the Contractor utilizes a project manager, shall be reviewed and must be approved by the Design Professional and Owner, and neither shall be changed except with the consent of the Design Professional and Owner, unless the superintendent and/or project manager cease to be employed by the Contractor. Under this circumstance, any new superintendent or new project manager must be satisfactory to the Design Professional and Owner. Such approval shall not be unreasonably withheld. The superintendent and any project manager shall represent the Contractor and all communications given to the superintendent or project manager are deemed given to the Contractor.

**10.10** So long as the individuals named above remain actively employed or retained by the Contractor, they shall perform the functions indicated next to their names unless the Owner agrees to the contrary in writing. In the event one or more individuals not listed in Paragraph 10.9 subsequently assumes one or more of those functions listed in Paragraph 10.9, the Contractor shall be bound by the provisions of this paragraph as though such individuals had been listed in Paragraph 10.9.

**10.11** The Contractor shall provide to the Owner and the Design Professional a milestone schedule for completing the Work within the Contract Time. Such schedule shall be in a form specified in Division 1 of the

Specifications and be acceptable to the Owner and to the Design Professional. The schedule must be submitted to and accepted by the Design Professional prior to the first request for payment unless required earlier by Division 1 of the Specifications. The Contractor's milestone schedule must be updated as required by the Design Professional and/or the Owner to reflect conditions encountered and shall apply to the total Project. The Contractor's revisions to the schedule shall not constitute a waiver of the requirement to complete the Project in the time allowed by the Contract, unless additional time for performance has been allowed pursuant to a Change Order. Any changes in milestone begin or end dates must be furnished to the Owner and the Design Professional. Strict compliance with the requirements of this Paragraph shall be a condition precedent to the payment to the Contractor and failure by the Contractor to strictly comply with said requirements shall constitute a material breach of this Contract.

**10.12** Unless otherwise provided in the Construction Documents, on all projects where the Fixed Price Contract Amount is over $1,000,000, the Contractor shall schedule and perform the Work in accordance with a Critical Path Method ("CPM") to indicate the rate of progress and practical order of the Project. The purpose of this scheduling requirement is to assure adequate planning, coordination and execution of the Work. The schedule shall indicate the dates for starting and completing major work activities, project events, major equipment, material and equipment submittals and delivery of major items. Project activities having critical time restraints on action, required by the Owner, shall be shown as scheduled milestones. The Contractor's schedule shall demonstrate the order, interdependence and sequence of activities. Critical paths shall be highlighted or distinguished. The schedule shall include all the dates specified in the Contract for Substantial Completion and final completion of the Work. The time limit set forth in the Contract for Substantial Completion and final completion must govern; the schedule must be adjusted to meet these dates. Schedule float shall belong to the Project. The Contractor shall submit to the Owner and Design Professional a CPM schedule within three (3) weeks after award of the Contract and maintain such schedule on a current basis in accordance with the Contract Documents.

**10.13** Once a month, or at intervals as required by the Design Professional, the Contractor shall advise the Owner and the Design Professional of the status of the Work (in duplicate) on the current milestone schedule. If any project milestone dates are not met on schedule, the Contractor shall immediately advise the Owner and Design Professional in writing of the proposed action to bring the Work on schedule. The Contractor shall also submit a detailed short term schedule, as required by Division 1 of the Specifications, each month. This short term schedule shall include a description of current and anticipated problem areas, delaying factors and their impact, and explanation of corrective action taken or proposed. If the Work is behind schedule, the Contractor shall indicate what measures it will take to put the Work back on schedule.

**10.14** If the Work is not progressing through no fault of the Owner or the Design Professional, as shown on the milestone schedule, as determined by the Design Professional, and the Owner and the Design Professional do not believe the Contractor's proposed action to bring the Work on schedule is adequate, then the Contractor shall be deemed in default under this Contract and the progress of the Work shall be deemed unsatisfactory. In such event, the Owner, at its discretion, may require the Contractor to work such additional time over regular hours, including Saturdays, Sundays and holidays, without additional cost to the Owner to bring the Work on schedule.

**10.15** The Contractor shall keep an updated copy of the Drawings and Project Manual (including Specifications) and Addenda at the site. Additionally, the Contractor shall keep a current submittal schedule and a copy of approved shop drawings and other submittals. All of these items shall be available to the Owner and the Design Professional at all regular business hours. Upon final completion of the Work, all of these items must be updated by the Contractor and provided to the Design Professional and shall become the property of the Owner.

**10.16** The Contractor shall carefully review and inspect for compliance with the Contract Documents, the shop drawings and other submittals (including product data and samples) required by the Contract Documents and shall submit to the Design Professional only submittals approved in accordance with this section. Such review and submittal shall be done promptly and in a sequence that will not delay its Work under this Contract or the activities of the Owner or of separate contractors. Shop drawings and other submittals from the Contractor do not constitute a part of the Contract. The Contractor shall not do any work requiring shop drawings or other submittals unless the Design Professional has verified compliance in writing. All Work requiring verified shop drawings or other submittals shall be done in strict compliance with such approved documents. However, verification of compliance by the Design Professional shall not be evidence that Work installed pursuant thereto conforms with the requirements of this Contract. The Design Professional shall have no duty to review submittals that are not Contractor approved, partial submittals or incomplete submittals. The Contractor shall maintain a submittal log which shall include, at a

minimum, the date of each submittal, the date of any re-submittal, the date of any approval or rejection and the reason for any rejection.

**10.17** The Contractor shall maintain the Project site in a reasonably clean condition during performance of the Work. Upon final completion, the Contractor shall thoroughly clean the Project site of all debris, trash and excess materials or equipment.

**10.18** At all times relevant to this Contract, the Owner and the Design Professional shall have a right to enter the Project site and the Contractor shall allow the Owner and/or the Design Professional to review or inspect the work without formality or other procedure.

**10.19** The presence or duties of the Design Professional's or the Owner's personnel or representatives at the construction site, does not make any of them responsible for those duties that belong to the Contractor or other entities and does not relieve the Contractor or any other entities of their obligations, duties and responsibilities, including any obligation or requirement to have or to implement any health or safety plans or precautions. Except as provided in Paragraph 10.9, Design Professional's and Owner's personnel have no authority to exercise any control over any Contractor or other entities or their employees in connection with their work or any health or safety precautions and have no duty for inspecting, noting, observing, correcting or reporting on health or safety deficiencies of the Contractor or other entities or any other persons at the site except their own personnel. The presence of Design Professional's or Owner's personnel at a construction site is for the purpose of providing to Owner a greater degree of confidence that the completed Work will conform to the Contract Documents and that the integrity of the design concept as reflected in the Contract Documents has been implemented and preserved by the Contractor. For this Contract only, construction sites include places of manufacture for materials incorporated into the construction Work and Contractor includes manufacturers of materials incorporated into the construction Work.

## ARTICLE 11
## INDEMNITY

**11.1** The Contractor shall defend, indemnify and hold harmless the Owner, Design Professional, and their employees, officers and agents harmless from any and all claims, liabilities, damages, losses, costs and expenses of every type whatsoever, including attorney fees and expenses, arising out of or resulting from the Contractor's work, acts or omissions under or related to the Contract Documents, to the extent caused by the Contractor, or anyone for whose acts the Contractor may be liable, regardless of whether such liability, claim, damage, loss, cost or expense is caused in part by the Owner.

**11.2** The limits of any insurance of the Contractor shall not be, and shall not be deemed to be, a limitation of the Contractor's defense and indemnity obligations contained in this Article.

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

## ARTICLE 12
## THE DESIGN PROFESSIONAL

The Design Professional for this Project is identified in Exhibit B, incorporated herein by reference, along with any authorized representatives and any limitations of responsibility. For the purpose of this Contract, the "Design Professional" means the properly licensed architect, properly registered professional engineer or other professional licensed in the State of Idaho who prepared the Drawings and Specifications for this Project. If the employment of the Design Professional is terminated, the Owner may retain a replacement professional and the role of the replacement professional shall be the same as the role of the Design Professional. Unless otherwise directed by the Owner in writing, the Design Professional will perform those duties and discharge those responsibilities allocated to the Design Professional in this Contract. The duties, obligations and responsibilities of the Design Professional shall be for contract administration and include the following:

**12.1** Unless otherwise directed by the Owner in writing, the Design Professional shall not act as the Owner's agent.

**12.2** Unless otherwise directed by the Owner in writing, the Owner and the Contractor shall communicate with each other through the Design Professional.

**12.3** When requested by the Owner or Contractor in writing, the Design Professional shall within seven (7) days render written interpretations necessary for the proper execution or progress of the Work or shall provide a written explanation as to why more time is needed and provide a date by which it will be provided.

**12.4** The Design Professional shall draft proposed change authorization(s).

**12.5** The Design Professional shall review and verify compliance or respond otherwise as necessary concerning shop drawings or other submittals received from the Contractor.

**12.6** The Design Professional shall be authorized to refuse to accept Work that is defective or otherwise fails to comply with the requirements of this Contract. If the Design Professional deems it appropriate, the Design Professional may, with the Owner's consent, require extra inspections or testing of the Work for compliance with the requirements of this Contract.

**12.7** The Design Professional shall review the Contractor's Request for Payment and shall verify in writing those amounts which, in the opinion of the Design Professional, are properly owing to the Contractor as provided in this Contract.

**12.8** The Design Professional shall, upon written request from the Contractor, perform Substantial Completion and final completion inspections contemplated by Article 6.

**12.9** The Design Professional may require the Contractor to make changes which do not involve a change in the Fixed Price Contract Amount or in the Contract Time consistent with the intent of this Contract. Such changes shall be given to the Contractor in writing under signature of the Design Professional, with a copy to the Owner, and may be in the form of a supplemental instruction.

**12.10** The Design Professional shall review and evaluate Claims and take other actions related to Claims in accordance with Articles 13 and 14.

**12.11** The duties, obligations and responsibilities of the Contractor under this Contract shall in no manner whatsoever be changed, altered, discharged, released or satisfied by any duty, obligation or responsibility of the Design Professional. The Contractor is not a third-party beneficiary of any Contract by and between the Owner and the Design Professional. It is expressly acknowledged and agreed that the duties of the Contractor to the Owner are independent of, and are not diminished by, any duties of the Design Professional to the Owner.

## ARTICLE 13
## CLAIMS

**13.1** For purposes of this Contract, a "Claim" means a demand by the Contractor to the Owner, or by the Owner to the Contractor, for a change in the Fixed Price Contract Amount, an extension of the Contract Time, an adjustment to or interpretation of the Contract terms, or other relief with respect to the terms of the Contract, which demand the Contractor or Owner asserts is required or allowed under the Contract Documents and which the Contractor and the Owner have previously discussed and failed to agree upon.

**13.2** For the Claim to be considered, it must meet the following requirements:

**.1** The Claim must be in writing;

**.2** The Claim by the Contractor must be signed by an authorized representative of the Contractor, and the Claim by the Owner must be signed by an authorized representative of the Owner;

**.3** The Claim by the Contractor must be provided to the Owner and to the Design Professional and the Claim by the Owner must be provided to the Contractor and to the Design Professional;

**.4** The Claim must be made no later than ten (10) days after the event or first appearance of the circumstance giving rise to the Claim;

**.5** The Claim must describe in detail all known facts and circumstances that the Contractor or Owner asserts support the Claim;

**.6** The Claim must refer to the provision(s) of the Contract Documents that the Contractor or Owner asserts support the Claim;

**.7** The Contractor or Owner must provide all documentation or other information to substantiate the Claim; and

**.8** The Contractor or Owner must continue its performance under this Contract pending the resolution of any Claim; provided, however, that the Contractor shall not perform any additional or changed work not otherwise authorized in accordance with the Contract Documents.

**13.3** The failure by the Contractor to meet any of the requirements of Paragraph 13.2 shall constitute a complete waiver by the Contractor of any rights arising from or related to the Claim. Similarly, the failure by the Owner to meet any of the requirements of Paragraph 13.2 shall constitute a complete waiver by the Owner of any rights arising from or related to the Claim.

**13.4** If the Claim is made based on concealed or unknown site conditions, the following shall apply in addition to all other provisions applicable to the Claim:

**.1** The condition must have been previously concealed and unknown or of a type not ordinarily encountered in the general geographic location of the Project and must not have been reasonably susceptible to discovery; and

**.2** The Contractor shall notify the Design Professional and the Owner of the condition and shall not disturb the condition until the Design Professional and Owner have observed it or have waived in writing the right to observe it.

**13.5** If the Claim by the Contractor is for an increase in the Fixed Price Contract Amount, the following shall apply in addition to all other provisions applicable to the Claim:

**.1** Any increase in the Fixed Price Contract Amount shall be strictly limited to the direct costs incurred by the Contractor and shall not include any other costs, indirect or other, including any costs for or related to lost productivity, profit, home office overhead and any other overhead, legal fees, claim preparation, any matter previously resolved by a change order, equipment costs, costs related to the services of a project manager unless the project manager was required full time by the Owner or the Contract Documents, any costs associated with the failure to complete the Work early or in advance of the date required by the Contract Documents, it being specifically agreed to by the parties that there is no intention to have the Eichleay or other similar formula applicable to this Contract nor shall this Contract be deemed to be subject to any such formula; and

**.2** The Owner shall have no liability for, and the Fixed Price Contract Amount shall not be increased related to, any claims of third parties, including subcontractors, unless and until the liability of the Contractor for such has been established in a court of competent jurisdiction and any such liability of the Owner shall be limited in the same manner as described in subparagraph 13.5.1.

**13.6** If the Claim by the Owner is for a change in the Fixed Price Contract Amount, all other applicable provisions to the Claim apply.

**13.7** If the Claim by the Contractor is for an extension of the Contract Time, the following shall apply in addition to all other provisions applicable to the Claim:

**.1** The Contractor has been delayed in its performance by an act or omission of the Owner and through no fault of the Contractor;

**.2** The Contractor has been delayed in its performance by unusually severe weather that could not reasonably have been anticipated or by another event not within its reasonable control;

**.3** At the time it occurs or during its occurrence, the delay will preclude completion of the Project in the time required by the Contract Documents; and

**.4** Any extension of the Contract Time shall be the Contractor's sole and exclusive remedy for any delay except a delay caused by the active interference of the Owner with the Contractor's performance which active interference continues after written notice to the Owner. The Owner's exercise of any of its rights or remedies under this Contract, including ordering changes in the Work, directing suspension, rescheduling or correction of the Work, do not constitute active interference.

**13.8** If a Claim is made based on an error, inconsistency or omission in the Contract that was reasonably susceptible to discovery by the Contractor and was not reported in accordance with Paragraph 2.3, that Claim shall be denied.

## ARTICLE 14
## RESOLUTION OF CLAIMS

**14.1** All Claims made in accordance with Article 13 shall be reviewed and evaluated by the Design Professional. If the Claim is not made in strict accordance with Article 13, it shall be rejected as waived. Any failure by the Design Professional to reject the Claim for failure to meet the requirements of Article 13 is not binding on the Owner and the Owner may reject the Claim for such failure.

**14.2** No later than seven (7) days from receipt of the Claim by the Design Professional, it shall:

**.1** Make a written request to the Contractor or Owner for more data to support the Claim;

**.2** Attempt to facilitate resolution of the Claim through informal negotiations; or

**.3** If the Claim is by the Contractor, make a written recommendation to the Owner, with a copy to the Contractor, that the Owner reject or approve all or part of the Claim and state the reasons for the Design Professional's recommendation. If the Claim is by the Owner, make a written recommendation to the Contractor, with a copy to the Owner, that the Contractor reject or approve all or part of the Claim and state the reasons for the Design Professional's recommendation.

**14.3** If the Design Professional requests more data from the Contractor or the Owner under subparagraph 14.2.1, the Contractor or Owner shall respond no later than seven (7) days from receipt of such request, and provide additional data, provide a date certain by which additional data will be provided, or state that it will not provide additional data. Upon receipt of data, if any, in accordance with this section, the Design Professional will complete the evaluation of the Claim. Failure to respond at all or failure to provide data by the date specified in the response to the request shall result in the Claim being evaluated based on the information in the Design Professional's possession.

**14.4** In evaluating the Claim, the Design Professional may consult with the Contractor, the Owner or other persons with knowledge or expertise that may assist the Design Professional in its evaluation.

**14.5** No later than fourteen (14) days after receipt by the Owner of the Design Professional's recommendation regarding the Contractor's Claim, the Owner shall, in writing, notify the Contractor and the Design Professional of its decision regarding the Claim. No later than fourteen (14) days after receipt by the Contractor of the Design Professional's recommendation regarding the Owner's Claim, the Contractor shall, in writing, notify the Owner and the Design Professional of its decision regarding the Claim.

**14.6** The Owner's decision regarding the Contractor's Claim is binding on the Owner and the Contractor but is subject to mediation in accordance with this Contract, and the Contractor's decision regarding the Owner's Claim is binding on the Owner and the Contractor but is subject to mediation in accordance with this Contract.

## ARTICLE 15
## SUBCONTRACTORS

**15.1** A document in the form of Exhibit E shall be completed and submitted upon execution of this Contract and those subcontractors named therein shall match those subcontractors named in the Contractor's bid unless otherwise agreed to in writing by the Owner. Also upon execution of this Contract by the Contractor, the Contractor shall identify to the Owner and the Design Professional, in writing, those parties intended as subcontractors on the Project not otherwise named in Exhibit E. The Owner shall, in writing, state any objections the Owner may have to one or more of such subcontractors. The Contractor shall not enter into a subcontract with an intended subcontractor with reference to whom the Owner objects. All subcontracts shall afford the Contractor rights against the subcontractor which correspond to those rights afforded to the Owner against the Contractor herein, including those rights of Contract Termination as set forth in this Contract. All subcontractors shall, throughout the duration of this Contract, be properly licensed as Idaho Public Works Contractors.

**15.2** The Contractor conditionally assigns each of its subcontracts related to the Project to the Owner. All subcontracts between the Contractor and the subcontractors shall obligate the subcontractor to such conditional assignment. Upon a Termination by the Owner for cause under Paragraph 20.1, the Owner may accept such conditional assignment by written notification to the applicable subcontractor and to the Contractor. Such acceptance is subject to the rights of the Surety, if any, relating to the Contract.

## ARTICLE 16
## CHANGES IN THE WORK

**16.1** General

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

**.2** Changes in the Work shall be performed under applicable provisions of the Contract Documents and the Contractor shall proceed promptly, unless otherwise provided in the Change Order, Construction Change Directive or order for a minor change in the Work.

**16.2** Change Orders

**.1** A "Change Order" is a written instrument prepared by the Design Professional and signed by the Owner, Contractor and Design Professional, stating their agreement upon: a change in the work, any adjustment in the Fixed Price Contract Amount and any adjustment in the Contract Time;

**.2** Methods used in determining adjustments to the Fixed Price Contract Amount may include those listed in subparagraph 16.3.4;

**.3** The amount allowed for overhead and profit on any Change Order is limited to the amounts indicated in subparagraph 16.3.11;

**.4** Any Change Order prepared, including those arising by reason of the parties' mutual agreement or by mediation, shall constitute a final and full settlement of all matters relating to or affected by the change in the Work, including all direct, indirect and consequential costs associated with such change and any and all adjustments to the Fixed Price Contract Amount and Contract Time. In the event a Change Order increases the Fixed Price Contract Amount, the Contractor shall include the Work covered by such Change Order in the Contractor's Request for Payment as if such Work were originally part of the Project and Contract Documents; and

**.5** By the execution of a Change Order, the Contractor agrees and acknowledges that it has had sufficient time and opportunity to examine the change in Work which is the subject of the Change Order and that it has undertaken all reasonable efforts to discover and disclose any concealed or unknown conditions which may to any extent affect the Contractor's ability to perform in accordance with the Change Order. Aside from those matters specifically set forth in the Change Order, the Owner shall not be obligated

to make any adjustments to either the Fixed Price Contract Amount or Contract Time by reason of any conditions affecting the change in Work addressed by the Change Order, which could have reasonably been discovered or disclosed by the Contractor's examination.

**16.3** Construction Change Directive (CCD)

**.1** A "Construction Change Directive" is a written order prepared by the Design Professional and signed by the Owner and Design Professional directing a change in the Work prior to agreement on adjustment, if any, in the Fixed Price Contract Amount or Contract Time or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract, consisting of additions, deletions or other revisions, the Fixed Price Contract Amount and Contract Time being adjusted accordingly;

**.2** A Construction Change Directive, within limitations, may also be used to incorporate minor changes in the Work agreed to by the Design Professional's representative, the Owner's Field Representative and the Contractor's superintendent or project manager. The limits of these representatives' authority with regard to Construction Change Directives shall be documented in writing by the Design Professional, Owner and Contractor;

**.3** A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order;

**.4** If the Construction Change Directive provides for an adjustment to the Fixed Price Contract Amount, the adjustment shall be based on one (1) of the following methods:

**.1** Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;

**.2** Unit prices stated in the Contract Documents or subsequently agreed upon;

**.3** Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or

**.4** As provided in subparagraph 16.3.7;

**.5** Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Design Professional in writing within forty-eight (48) hours of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Fixed Price Contract Amount or Contract Time;

**.6** A Construction Change Directive signed by the Contractor indicates the agreement of the Contractor therewith, including adjustment in Fixed Price Contract Amount and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be incorporated into a future Change Order;

**.7** If the Contractor does not respond promptly or disagrees with the method for adjustments in the Fixed Price Contract Amount or Contract Time, the method and the adjustment shall be determined by the Design Professional on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Fixed Price Contract Amount, an allowance for overhead and profit in accordance with subparagraph 16.3.11. In such case of an increase in Fixed Price Contract Amount, and also under subparagraph 16.3.4, the Contractor shall keep and present, in such form as the Design Professional may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this subsection shall be limited to the following:

**.1** Costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom and workers' compensation insurance;

**.2** Costs of materials, supplies and equipment, including cost of transportation, whether incorporated or consumed;

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

**.4** Costs of permit fees and sales, use or similar taxes related to the Work; and

**.5** Additional costs of supervision and field office personnel directly attributable to the change;

**.8** The amount of credit to be allowed by the Contractor to the Owner for a deletion or change which results in a net decrease in the Fixed Price Contract Amount shall be for the actual net cost of the decrease, confirmed by the Design Professional. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change;

**.9** Pending final determination of the total cost of a Construction Change Directive to the Owner, amounts not in dispute for such changes in the Work shall be included in the Contractor's Request for Payment accompanied by a Change Order indicating the parties' agreement with part or all of such costs;

**.10** When the Owner and Contractor agree with the determination by the Design Professional concerning the adjustments in the Fixed Price Contract Amount and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and shall be recorded by preparation and execution of an appropriate Change Order; and

**.11** For purposes of subparagraphs 16.2.3 and 16.3.7, the allowance for combined overhead, profit, bonds and insurance shall be limited as follows, unless otherwise provided in the Contract Documents:

**.1** For changes, the amount allowed for overhead, profit, bonds and insurance for the Contractor and all subcontractors of any tier combined shall not exceed fifteen percent (15%) of direct costs; or

**.2** The Contractor will determine the apportionment between the Contractor and its subcontractors of allowable amounts of overhead, profit, bonds and insurance.

**16.4** The Design Professional will have authority to order minor changes in the Work not involving adjustment in the Fixed Price Contract Amount or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes shall be effected by written order and shall be binding on the Owner and Contractor. The Contractor shall carry out such written orders promptly.

## ARTICLE 17
## DISCOVERING AND CORRECTING DEFECTIVE OR INCOMPLETE WORK

**17.1** If the Contractor covers, conceals or obscures its Work in violation of this Contract or in violation of a directive or request from the Owner or the Design Professional, such Work shall be uncovered and displayed for the Owner's or Design Professional's inspection upon request and shall be reworked at no cost in time or money to the Owner.

**17.2** If any of the Work is covered, concealed or obscured in a manner not addressed by Paragraph 17.1, it shall, if directed by the Owner or the Design Professional, be uncovered and displayed for the Owner's or Design Professional's inspection. If the uncovered Work conforms strictly with this Contract, the costs incurred by the Contractor to uncover and subsequently replace such Work shall be borne by the Owner. Otherwise, such costs shall be borne by the Contractor.

**17.3** The Contractor shall, at no cost in time or money to the Owner, promptly correct Work (fabricated, installed or completed) rejected by the Owner or by the Design Professional as defective or that fails to conform to this Contract whether discovered before or after Substantial Completion. Additionally, the Contractor shall reimburse the Owner for all testing, inspections and other expenses incurred as a result thereof.

**17.4** In addition to any other warranty obligations in this Contract, the Contractor shall be specifically obligated to correct, upon written direction from the Owner, any and all defective or nonconforming Work for a period of twelve (12) months following Substantial Completion.

**17.5** The Owner may, but shall in no event be required to, choose to accept defective or nonconforming Work. In such event, the Fixed Price Contract Amount shall be reduced by the lesser of: (i) the reasonable costs of removing and correcting the defective or nonconforming Work; or (ii) the difference between the fair market value of the Project as constructed and the fair market value of the Project had it not been constructed in such a manner as to include defective or nonconforming Work. If the remaining portion of the unpaid Fixed Price Contract Amount, if any, is insufficient to compensate the Owner for the acceptance of defective or nonconforming Work, the Contractor shall, upon written demand from the Owner, pay the Owner such remaining compensation for accepting defective or nonconforming work.

## ARTICLE 18
## TERMINATION BY THE CONTRACTOR

**18.1** The Contractor may terminate the Contract if the Work is stopped for a period of ninety (90) consecutive days through no act or fault of the Contractor or a subcontractor, sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, for any of the following reasons:

**.1** Issuance of an order by a court or by another public authority having jurisdiction and authority which requires all Work to be stopped; or

**.2** An act of government, such as a declaration of national emergency, which requires all Work to be stopped.

**18.2** In such event, the Contractor shall be entitled to recover from the Owner as though the Owner had terminated the Contractor's performance under this Contract pursuant to Paragraph 20.3.

## ARTICLE 19
## OWNER'S RIGHT TO SUSPEND CONTRACTOR'S PERFORMANCE

**19.1** The Owner may, at any time and without cause, order the Contractor, in writing, to suspend, delay or interrupt the Work in whole or in part for such period of time as the Owner may determine. If the Owner directs any such suspension, the Contractor must immediately comply with same.

**19.2** In the event the Owner directs a suspension of performance under this Article, and such suspension is through no fault of the Contractor, the Fixed Price Contract Amount and Contract Time shall be adjusted for increases in the cost and time caused by such suspension, delay or interruption to cover the Contractor's reasonable costs, actually incurred and paid, of:

**.1** Demobilization and remobilization, including such costs paid to subcontractors;

**.2** Preserving and protecting Work in place;

**.3** Storage of materials or equipment purchased for the Project, including insurance thereon; and

**.4** Performing in a later, or during a longer, time frame than that provided by this Contract.

**19.3** The adjustment of the Fixed Price Contract Amount shall include an amount for a reasonable profit. The adjustment of the Fixed Price Contract Amount shall not include any amount not otherwise allowed under this Contract, including any limitations applicable to Claims. The Contractor shall provide supporting documentation related to any increase upon request of the Owner. No adjustment shall be made to the extent:

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

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

## ARTICLE 20
## TERMINATION BY THE OWNER

The Owner may terminate this Contract in accordance with the following terms and conditions:

**20.1** If the Contractor does not perform the Work, or any part thereof, in accordance with the Contract Documents, or in a timely manner; does not supply adequate labor, supervisory personnel, or proper equipment or materials; fails to pay subcontractors; fails to timely discharge its obligations for labor, equipment, and materials; proceeds to disobey applicable law; or otherwise breaches this Contract, then the Owner, in addition to any other rights it may have against the Contractor, may terminate the Contract and assume control of the Project site and of all materials and equipment at the site and may complete the Work. In such case, the Contractor shall not be paid further until the Work is complete. Upon such Termination, the Owner may, subject to any superior rights of the Surety, take possession of the site and of all materials, equipment, tools and construction equipment and machinery thereon owned by the Contractor; accept assignment of those subcontracts conditionally assigned under Paragraph 15.2; and finish the Work by whatever reasonable method the Owner may deem expedient.

**20.2** When the Owner terminates the Contract for cause as provided in Paragraph 20.1, the Contractor shall not be entitled to receive further payment until the Work is finished and shall only be entitled to payment for Work satisfactorily performed by the Contractor in accordance with the Contract Documents. If the costs of finishing the Work, including compensation for the Design Professional's services and expenses made necessary thereby, exceed the unpaid balance, the Contractor shall pay the difference to the Owner. This obligation for payment shall survive termination of the Contract. The Contractor shall also terminate outstanding orders and subcontracts. The Contractor shall settle the liabilities and claims arising out of the termination of subcontracts and orders. In the event the employment of the Contractor is terminated by the Owner for cause pursuant to Paragraph 20.1 and it is subsequently determined by a court of competent jurisdiction that such termination was without cause, such termination shall thereupon be deemed a Termination under Paragraph 20.3 and the provisions of Paragraph 20.3 shall apply.

**20.3** The Owner may, at any time and for any reason, terminate this Contract. The Owner shall give no less than seven (7) days' written notice of such Termination to the Contractor specifying when termination becomes effective. The Contractor shall incur no further obligations in connection with the Work and the Contractor shall stop Work when such Termination becomes effective. The Contractor shall also terminate outstanding orders and subcontracts. The Contractor shall settle the liabilities and claims arising out of the termination of subcontracts and orders. The Owner may direct the Contractor to assign the Contractor's right, title and interest under termination orders or subcontracts to the Owner or its designee. The Contractor shall transfer title and deliver to the Owner such completed or partially completed Work and materials, equipment, parts, fixtures, information and Contract rights as the Contractor has. When terminated pursuant to this section, the following shall apply:

**.1** The Contractor shall submit a Termination Claim to the Owner and the Design Professional specifying the amounts claimed due because of the Termination, together with costs, pricing or other supporting data required by the Owner or the Design Professional. Failure by the Contractor to file a Termination Claim within ninety (90) days from the effective date of termination shall be deemed a complete waiver by the Contractor of any right to any payment;

**.2** Before or after receipt of the Termination Claim, the Owner and the Contractor may agree to the compensation, if any, due to the Contractor hereunder; and

**.3** If the Contractor has filed the Termination Claim but the Contractor and the Owner do not agree on an amount due to the Contractor, the Owner shall pay the Contractor the following amounts:

**.1** Unpaid Contract prices for labor, materials, equipment and other services provided or perfected prior to termination and acceptable to or accepted by the Owner;

**.2** Reasonable costs incurred in preparing to perform the terminated portion of the Work, and in terminating the Contractor's performance, plus a fair and reasonable allowance for direct job-site overhead and profit related to such preparation (such profit shall not include anticipated profit or consequential damages); provided, however, that if it appears that the Contractor would have not profited or would have sustained a loss if the entire Contract would have been completed, no profit

shall be allowed or included and the amount of compensation shall be reduced to reflect the anticipated loss, if any; and

**.3** Reasonable costs of settling and paying claims arising out of the Termination of subcontracts or orders pursuant to this Paragraph 20.3.

**20.4** Costs described in subparagraphs 20.3.3.2 or 20.3.3.3 above shall not include amounts paid in accordance with other provisions hereof. In no event shall the total sum to be paid the Contractor under subparagraph 20.3.3 exceed the total Fixed Price Contract Amount, as properly adjusted, reduced by the amount of payments previously or otherwise made and by any other deductions permitted under this Contract and shall in no event include duplication of payment.

## ARTICLE 21
## CONTRACTOR'S LIABILITY INSURANCE

**21.1** The Contractor, subcontractor and sub-subcontractor shall purchase and maintain in full force and effect from a company or companies lawfully authorized to do business in the State of Idaho such insurance as will protect the Contractor, subcontractor and sub-subcontractor from claims set forth below which may arise out of or result from the Contractor's or subcontractor's operations under the Contract and for which the Contractor may be legally liable, whether such operations be by the Contractor or by a subcontractor or by anyone directly or indirectly employed by any of them or by anyone for whose acts any of them may be liable:

**.1** Claims under workers' or workmen's compensation, disability benefits and other similar employee benefit acts which are applicable to the work to be performed;

**.2** Claims for damages because of bodily injury, occupational sickness or disease or death of the Contractor's employees;

**.3** Claims for damages because of bodily injury, sickness or disease or death of any person other than the Contractor's employees;

**.4** Claims for damages insured by usual personal injury liability coverage which are sustained: (i) by a person as a result of an offense directly or indirectly related to employment of such person by the Contractor; or (ii) by another person;

**.5** Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting there from;

**.6** Claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle;

**.7** Claims for bodily injury or property damage arising out of completed operations; and

**.8** Claims involving contractual liability insurance applicable to the Contractor's obligations under Article 11.

**21.2** The insurance required by Paragraph 21.1 above shall be written for not less than limits of liability specified in this Contract or as required by law, whichever is greater. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption from date of commencement of the Work until date of final payment and termination of any coverage required to be maintained after final payment. In addition, for any insurance required that is obtained on a claims-made basis, "tail coverage" is required at the completion of the Work for twenty-four (24) months. Continuous claims-made coverage will be acceptable in lieu of "tail coverage" provided the retroactive date is on or before the effective date of this Contract or twenty-four (24) months "prior acts" coverage is provided.

**.1** The insurance required by Paragraph 21.1 above shall be written for not less than the following limits:

**.1** Workers' Compensation and Employer's Liability

(a) State Workers Compensation: Statutory

(b) Employer's Liability: $100,000 per Accident

$500,000 Disease, Policy Limit

$100,000 Disease, Each Employee

**.2** Comprehensive Commercial General Liability and Umbrella Liability Insurance. Contractor shall maintain Commercial General Liability ("CGL") and, if necessary, commercial umbrella insurance with a limit of not less than $1,000,000 each occurrence. If such CGL insurance contains a general aggregate limit, it shall apply separately to this project location;

CGL insurance shall be written on Insurance Services Office ("ISO") occurrence form CG 00 01 12 04 (or a substitute form providing equivalent coverage) and shall cover liability arising from premises, operation, independent contractors, products-completed operations, personal (including employee acts) and advertising injury and liability assumed under an insured contract (including the tort liability of another assumed in a business contract). As applicable, coverage must also include a broad form CGL endorsement if the substitute insurance is a 1973 edition CGL or its equivalent;

Owner shall be included as an additional insured under the CGL, using ISO additional insured endorsement CG 20 10 and CG 20 37 or their equivalent, which endorsement shall include coverage for the Owner with respect to liability arising out of the Work, including completed operations of Contractor, and which coverage shall be maintained in effect for the benefit of Owner for a period of two (2) years following the completion of the work specified in this Contract. Additional insured coverage as required in this subparagraph shall apply as primary insurance with respect to any other insurance or self-insurance programs afforded to the Owner;

(a) For the hazards of explosion, collapse, and damage to underground property, commonly referred to as XCU, coverage shall be required if the exposures exist; and

This coverage may be provided by the subcontractor if the Owner and prime Contractor are named as additional insureds;

**.3** Business Auto and Umbrella Liability Insurance: Contractor shall maintain business, auto liability and, if necessary, commercial umbrella liability insurance with a limit of not less than $1,000,000 each accident;

Such insurance shall cover liability arising out of any auto (including owned, hired, and non-owned autos);

Business auto coverage shall be written on ISO form CA 00 01, CA 00 05, CA 00 12, CA 00 20 or a substitute form providing equivalent liability coverage. If necessary, the policy shall be endorsed to provide contractual liability coverage equivalent to that provided in the 1990 and later editions of CA 00 01;

If hazardous waste will be hauled, Contractor shall obtain pollution liability coverage equivalent to that provided under the ISO pollution liability-broadened coverage for covered autos endorsement (CA 99 48) and the Motor Carrier Act endorsement (MCS 90) shall be attached;

**.4** If the General Liability coverages are provided by Commercial Liability policies the:

**.1** General Aggregate shall be not less than $2,000,000; and

**.2** Fire legal liability shall be provided in an amount not less than $100,000 per occurrence; and

**.5** Umbrella Excess Liability. An umbrella policy may be used in combination with other policies to provide the required coverage.

**21.3** The Owner shall be named as additional insured or loss payee, as applicable, on the insurance required in subparagraphs 21.2.1.2, 21.2.1.3 and 21.2.1.5 above, and the insurance shall contain the severability of interest clause as follows:

"The insurance afforded herein applies separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the company's 'liability.' "

**21.4** The Contractor may include all subcontractors as insureds under the Contractor's policies in lieu of separate policies by each subcontractor. The Contractor must furnish the State of Idaho, Division of Public Works, with the required endorsements or certificates of insurance from each subcontractor which names the subcontractor, its officials, employees and volunteers as insureds.

**21.5** Certificates of Insurance for Workers' Compensation shall be on the standard form. Certificates of Insurance for Commercial or Comprehensive General Liability shall be the most current ACORD Form 25 or 28, must be acceptable to the Owner and shall be filed with the Owner prior to commencement of the Work. The Owner may require proof of coverage by an endorsement. If any of the foregoing insurance coverages are required to remain in force after final payment and are reasonably available, an additional certificate evidencing continuation of such coverage shall be submitted with the final Contractor's Request for Payment as required by Article 7. Information concerning reduction of coverage shall be furnished by the Contractor with reasonable promptness in accordance with the Contractor's information and belief.

## ARTICLE 22
## OWNER'S LIABILITY INSURANCE

The Owner, at its option, may purchase or maintain insurance for protection against claims which may arise from operations under the Contract.

## ARTICLE 23
## PROPERTY INSURANCE

**23.1** Unless otherwise provided, the Owner shall purchase or maintain, from a company or companies lawfully authorized to do business in the State of Idaho, property insurance written on a builders risk "all-risk" or equivalent policy form in an amount not less than the initial Fixed Price Contract Amount. Such property insurance shall be maintained until final payment to the Contractor has been made. This insurance shall include interests of the Owner, the Contractor, subcontractors and sub-subcontractors.

**23.2** Property insurance shall be on an "all-risk" or equivalent policy form and shall include, but not necessarily be limited to insurance against the perils of fire (with extended coverage) and mischief, collapse, earthquake, flood, windstorm, temporary buildings and debris removal, including demolition occasioned by enforcement of any applicable legal requirements, and shall cover necessary and reasonable expenses for the Design Professional's expenses required as a result of such insured loss.

**23.3** If the property insurance requires deductibles, the Owner shall pay costs of such deductibles.

**23.4** Boiler and Machinery Insurance. The Owner will purchase and maintain boiler and machinery insurance, which shall specifically cover such insured objects during installation and testing.

**23.5** Loss of Use Insurance. The Owner, at the Owner's option, may purchase and maintain such insurance as will insure the Owner against loss of the Owner's property due to fire or other hazards, however caused.

**23.6** Waivers of Subrogation. The Owner and Contractor waive all rights against: (i) each other and any of their subcontractors, sub-subcontractors, agents and employees, each of the other; and (ii) the Design Professional, Design Professional's consultants, separate contractors, if any, and any of their subcontractors, sub-subcontractors, agents and employees, for damages to the Work caused by fire or other causes of loss to the

extent covered by property insurance obtained pursuant to this Article or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by the Owner. The Owner or Contractor, as appropriate, shall require of the Design Professional, Design Professional's consultants, separate contractors, if any, and the subcontractors, sub-subcontractors, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged. The Owner does not waive its subrogation rights to the extent of its property insurance on structures or portions of structures that do not comprise the Work.

**23.7** The Contractor authorizes the Owner to negotiate and agree on the value and extent of, and to collect the proceeds payable with respect to, any loss under a policy of insurance carried by the Owner pursuant to any of the provisions of this Article. The Owner shall have full right and authority to compromise any claim, or to enforce any claim by legal action or otherwise, or to release and discharge any insurer, by and on behalf of the Owner and Contractor. The Owner shall provide written notice to Contractor of: (i) its having reached any such settlement or adjustment with an insurer; and (ii) the receipt of any funds pursuant to this Article. Any objection by the Contractor to a settlement or adjustment made under this Article must be made in writing to the Owner within five (5) business days of the notice from the Owner. The Owner and the Contractor agree to attempt to resolve the dispute by mutual agreement.

**23.8** A loss under the Owner's property insurance shall be adjusted by the Owner and made payable to the Owner for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause.

**23.9** The Owner shall deposit proceeds so received, in a manner in which such proceeds can be separately accounted for, which proceeds the Owner shall distribute in accordance with such agreement as the parties in interest may reach. If after such loss no other special agreement is made and unless the Owner terminates the Contract pursuant to Article 20, replacement of damaged property shall be performed by the Contractor after notification of a Change in the Work in accordance with Article 16.

**23.10** The Contractor shall pay subcontractors their shares of the insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require subcontractors to acknowledge the Owner's authority under this Article 23 and make payments to their sub-subcontractors in similar manner.

**23.11** Nothing contained in this Article 23 shall preclude the Contractor from obtaining, solely at its own expense, additional insurance not otherwise required.

## ARTICLE 24
## PERFORMANCE AND PAYMENT BONDS

**24.1** The Contractor shall furnish separate performance and payment bonds to the Owner. Each bond shall set forth a penal sum in an amount not less than the Fixed Price Contract Amount and shall include a power of attorney attached to each bond. The signature of both the Contractor (principal) and the Surety are required. If the Surety is incorporated, both bonds must have the corporate seal. Each bond furnished by the Contractor shall incorporate by reference the terms of this Contract as fully as though they were set forth verbatim in such bonds. In the event the Fixed Price Contract Amount is adjusted by Change Order executed by the Contractor, the penal sum of both the performance bond and the payment bond shall be deemed increased by like amount. The performance and payment bonds furnished by the Contractor shall be AIA Document A312, or a standard surety form certified approved to be the same as the AIA Document A312, and shall be executed by a Surety, or Sureties, reasonably acceptable to the Owner and authorized to do business in the State of Idaho.

**24.2** Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall permit a copy to be made.

**24.3** It is the Contractor's obligation to notify the Surety in the event of changes in the Contract Documents, which in the absence of notification might serve to discharge the Surety's obligations, duties or liability under bonds or the Contract.

## ARTICLE 25
## PROJECT RECORDS

**25.1** All documents relating in any manner whatsoever to the Project, or any designated portion thereof, which are in the possession of the Contractor or any subcontractor of the Contractor, shall be made available to the Owner or the Design Professional for inspection and copying upon written request. Furthermore, said documents shall be made available, upon request by the Owner, to any state, federal or other regulatory authority and any such authority may review, inspect and copy such records. Said records include all drawings, plans, specifications, submittals, correspondence, minutes, memoranda, tape recordings, videos or other writings or things which document the Project, its design and its construction. Said records expressly include those documents reflecting the cost of construction to the Contractor. The Contractor shall maintain and protect these documents for no less than four (4) years after final completion or termination of the Contract or for any longer period of time as may be required by law or good construction practice.

## ARTICLE 26
## MISCELLANEOUS PROVISIONS

**26.1** The law is hereby agreed to be the law of the State of Idaho. The parties further agree that venue for any proceeding related to this Contract shall be in Boise, Ada County, Idaho, unless otherwise mutually agreed by the parties.

**26.2** Pursuant to Section 54-1904A, Idaho Code, within thirty (30) days after award of this Contract, the Contractor shall file with the Idaho State Tax Commission, with a copy to the Owner, a signed statement showing the date of Contract award, the names and addresses of the home offices of contracting parties, including all subcontractors, the state of incorporation, the Project Number and a general description of the type and location of the Work, the amount of the prime contracts and all subcontracts and all other relevant information which may be required on forms which may be prescribed by the Idaho State Tax Commission.

**26.3** The Contractor, in consideration of securing the business of erecting or constructing public works in the State of Idaho, recognizing that the business in which it is engaged is of a transitory character, and that in the pursuit thereof, its property used therein may be without the state when taxes, excises or license fees to which it is liable become payable, agrees:

**.1** To pay promptly when due all taxes (other than on real property), excises and license fees due to the State of Idaho, its sub-divisions, and municipal and quasi-municipal corporations therein, accrued or accruing during the term of this Contract, whether or not the same shall be payable at the end of such term;

**.2** That if the said taxes, excises and license fees are not payable at the end of said term, but liability for the payment thereof exists even though the same constitute liens upon its property, to secure the same to the satisfaction of the respective officers charged with the collection thereof; and

**.3** That, in the event of its default in the payment or securing of such taxes, excises and license fees, to consent that the department, officer, board or taxing unit entering into this Contract may withhold from any payment due it hereunder the estimated amount of such accrued and accruing taxes, excises and license fees for the benefit of all taxing units to which said Contractor is liable.

**26.4** Before entering into a Contract, the Contractor shall be authorized to do business in the State of Idaho and shall submit a properly executed Contractor's Affidavit Concerning Taxes (Exhibit D).

**26.5** Pursuant to Section 44-1002, Idaho Code, it is provided that each Contractor "must employ ninety-five percent (95%) bona fide Idaho residents as employees on any job under any such contract except where under such contracts fifty (50) or less persons are employed the contractor may employ ten percent (10%) nonresidents, provided, however, in all cases employers must give preference to the employment of bona fide residents in the performance of said work, and no contract shall be let to any person, firm, association, or corporation refusing to

execute an agreement with the above mentioned provisions in it; provided, that, in contracts involving the expenditure of federal aid funds this act shall not be enforced in such a manner as to conflict with or be contrary to the federal statutes prescribing a labor preference to honorably discharged soldiers, sailors, and marines, prohibiting as unlawful any other preference or discrimination among citizens of the United States." (Ref. Section 44-1001, Idaho Code)

**26.6** The Contractor shall maintain, in compliance with Title 72, Chapter 17, Idaho Code, a drug-free workplace program throughout the duration of this Contract and shall only subcontract work to subcontractors who have programs that comply with Title 72, Chapter 17, Idaho Code.

**26.7** As between the Owner and Contractor as to acts or failures to act, any applicable statute of limitations shall commence to run and any legal cause of action shall be deemed to have accrued in any and all events in accordance with Idaho law.

**26.8** The Contractor and its subcontractors and sub-subcontractors shall comply with all applicable Idaho statutes with specific reference to Idaho Public Works Contractors' licensing laws in the State of Idaho, Title 54, Chapter 19, Idaho Code, as amended.

**26.9** The Contractor shall not knowingly hire or engage any illegal aliens or persons not authorized to work in the United States and take steps to verify that it does not hire or engage any illegal aliens or persons not authorized to work in the United States. Any misrepresentation in this regard or any employment of persons not authorized to work in the United States constitutes a material breach and shall be cause for the imposition of monetary penalties not to exceed five percent (5%) of the Fixed Price Contract Amount per violation and/or Termination of this Contract. The Contractor also acknowledges that, if it is a natural person, it is subject to Title 67, Chapter 79, Idaho Code regarding verification of lawful presence in the United States.

## ARTICLE 27
## EQUAL OPPORTUNITY

The Contractor shall maintain policies of employment as follows:

**27.1** The Contractor and the Contractor's subcontractors shall not discriminate against any employee or applicant for employment because of race, religion, color, sex, age or national origin. The Contractor shall take affirmative action to insure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, color, sex, age or national origin. Such action shall include the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the policies of non-discrimination.

**27.2** The Contractor and the Contractor's subcontractors shall, in all solicitation or advertisements for employees placed by them or on their behalf; state that all qualified applicants will receive consideration for employment without regard to race, religion, color, sex, age or national origin.

## ARTICLE 28
## SUCCESSORS AND ASSIGNS

**28.1** Each party binds itself, its successors, assigns, executors, administrators or other representatives to the other party hereto and to successors, assigns, executors, administrators or other representatives of such other party in connection with all terms and conditions of this Contract. The Contractor shall not assign this Contract or any part of it or right or obligation pursuant to it without prior written consent of the Owner. If Contractor attempts to make assignment without consent of Owner, Contractor shall remain legally responsible for all obligations under this Contract.

## ARTICLE 29
## SEVERABILITY

**29.1** In the event any provision or section of this Contract conflicts with applicable law or is otherwise held to be unenforceable, the remaining provisions shall nevertheless be enforceable and shall be carried into effect.

## ARTICLE 30
## MEDIATION

**30.1** Contractor Claims for additional cost or time are subject to Article 13, shall be reviewed as provided in accordance with that Article and, as a condition precedent to litigation, are subject to dispute resolution attempts and mediation in accordance with this Article. All other issues and disputes arising from this contract are also subject to dispute resolution attempts & mediation in accordance with this Article, as a condition precedent to litigation.

**30.2** The parties agree that resolution of any dispute or disagreement without formal legal proceedings is to their mutual benefit and to the benefit of the Project.

**30.3** The parties agree to make every reasonable attempt to resolve any issues or disputes informally. The parties further agree that prior to the institution by either of legal or equitable proceedings of any kind, and as a condition precedent thereto, any dispute between the Contractor and the Owner related to the Contract, including a dispute over the Owner's decision regarding a Claim, shall be subject to mediation as follows:

**.1** If the issue to be mediated involves only a dispute regarding the Contract Time, no request to mediate shall be made unless liquidated damages have been assessed by the Owner. If the issue to be mediated involves a Claim or other financial dispute, no request to mediate shall be made unless the amount is $50,000 or more or until there are cumulative Claims or disputes amounting to $50,000 or more; provided, however, that a mediation request can be made as to any Claim or financial matter at any time after Substantial Completion;

**.2** The party seeking mediation shall notify the other party in writing of its mediation request. In such written request, the requesting party must clearly describe the issues it believes are subject to mediation;

**.3** Within fifteen (15) days of receipt of the mediation request, the non-requesting party shall respond in writing to the request;

**.4** Unless the Owner and the Contractor agree to other rules for mediation, mediation shall be in accordance with the Construction Industry Rules of Arbitration and Mediation Procedures in effect at the time of the mediation;

**.5** The parties shall share the mediator's fee and any filing fees equally; provided, however, that if a party makes a written request to the mediator without satisfying the requirements of this section and by doing so incurs any costs or fees, that party shall be solely responsible for the costs or fees;

**.6** Unless otherwise mutually agreed to by the parties, the mediation shall be in Boise, Ada County, Idaho;

**.7** The parties shall cooperate in arranging the other details of mediation, such as selection of the mediator, mediation dates and times;

**.8** The parties agree that all parties necessary to resolve the matter shall be parties to the same mediation proceeding; provided, however, that no subcontractor or sub-subcontractor shall attend the mediation absent advance notice and consent from the Owner;

**.9** Agreements reached in mediation shall be enforceable as settlement agreements in any court having proper jurisdiction; and

**.10** Unless otherwise agreed in writing, the Contractor shall continue the Work and maintain the approved schedules during any mediation proceedings. If the Contractor continues to perform, the Owner shall continue to make payments in accordance with the Contract Documents.

**30.4** If mediation fails to resolve the dispute, either party may file an action in the courts of Idaho in accordance with the venue provision contained in this Contract.

## ARTICLE 31
## WAIVER OF CONSEQUENTIAL DAMAGES

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

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

**.2** Damages incurred by the Contractor for principal office expenses, including the compensation of personnel stationed there; for losses of income, financing, business and reputation; loss of management or employee productivity or of the services of such persons; and for loss of profit except profit arising directly from the Work.

**31.2** This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Articles 18 and 20. Nothing contained in this paragraph shall be deemed to preclude an award of the assessment of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

IN WITNESS WHEREOF, the parties have executed this Contract on the dates set forth below.

OWNER

State of Idaho
Division of Public Works

_____ By: _____
Date Executed Pat Donaldson, Administrator

CONTRACTOR

_____
(Contractor's Name- Typed)

*SEAL*

_____ By: _____
Date Executed Signature

_____
Printed Name

_____
Title

## EXHIBIT A

**OWNER'S PROJECT IDENTIFICATION INFORMATION:**

DPW Project No. 21-255
Project Title: Liberal Arts Bldg. #4, Multi Classroom Remodel
Project Location: Idaho State University, Pocatello, ID

General Project Description: The remodel of 12 classrooms in ISU's Liberal Arts Building #4. Demolition, removal and replacement of the existing classroom ceilings and light fixtures, repainting the classroom walls, and the replacement of existing chalkboards (where occurs) as well as providing additional electrical and data outlets within the classrooms. In one classroom (Classroom 351) the existing carpet is to be removed and replaced. All window sills shall be replaced within the entire building and all existing exterior window sealants are to be stripped and replaced.

**ADDENDA:** Addenda applicable to the Contract and made a part of are as follows:

Addendum No. _ Dated _____
Addendum No. _Dated _____
Addendum No. _Dated _____

**FIXED PRICE CONTRACT AMOUNT AND ACCEPTED ALTERNATES:**

| | |
|---|---|
| Base Bid Amount: (_____) Dollars | $.00 |
| | $.00 |
| Alternate No. ONE – Additional (27) Window Sill Replacement (_____) add | $.00 |
| Total Fixed Price Contract Amount (_____) Dollars | $.00 |

Contractor's Requests for Payment are to be submitted for Work accomplished through the _____ day of each month as described in Paragraph 7.3.

**TIME FOR PERFORMANCE AND LIQUIDATED DAMAGES:**

A. The Contractor shall commence construction of its scope of the Work in accordance with the Notice to Proceed issued by the Owner, and which will become Exhibit F to this Contract.

B. The Contractor shall accomplish Substantial Completion as defined in Article 6 of the Contract within one hundred twenty ( 120 ) consecutive calendar days from the date authorized to proceed in the Notice to Proceed.

C. The amount of liquidated damages per day for each and every day of unexcused delay as outlined in Article 6 on the Contract is: five hundred Dollars ($ 500.00 )

**DRAWINGS AND SPECIFICATIONS**

The Owner shall furnish the Contractor 5 sets of Drawings and Project Manuals.

## EXHIBIT B

**ADDRESSES and AUTHORIZED REPRESENTATIVES:** The names, addresses and authorized representatives of the Owner, the Contractor and the Design Professional are:

**OWNER:**
State of Idaho
Division of Public Works
502 N. 4th Street
P.O. Box 83720
Boise, ID 83720-0072
Pat Donaldson, Administrator

Project Manager:
Brian Boyd
Telephone: (208) 332-1914
E-mail: brian.boyd@adm.idaho.gov
Fax: (208) 334-4031
May sign for Owner: Yes [ X ] No [ ]

Field Representative:
Fred Richards
Telephone: (208) 269-0639
E-mail: fred.richards@adm.idaho.gov
Fax: (208) 334-4031
May sign for Owner: Yes [ X ] No [ ]
]

**CONTRACTOR:**
_____ (company name)
_____ (address)
_____ (city, state, zip)
_____ (telephone and FAX)
Public Works Contractors License No. _____

Officer:
_____ (name and title)
_____ (telephone)
_____ (E-mail)

Contractor's Project Manager:
_____ (name)
_____ (telephone and FAX)
_____ (E-mail)
May sign for Contractor: Yes [ ] No [ ]
Change Orders: up to: $____.00
Construction Change Authorizations: up to: $_____.00
Contractor's Request for Payment

Contractor's Superintendent:
_____ (name)
_____ (telephone and FAX)
_____ (E-mail)
May sign for Contractor: Yes [ ] No [ ]
Construction Change Authorizations: up to $_____.00

**DESIGN PROFESSIONAL:**

JHS Architects, P.A. *(firm name)*
123 N. Garfield Avenue *(address)*
*Pocatello, Idaho 83204* *(city, state and zip)*
*(208) 232-1223* *(telephone)*
*(208) 232-1226* *(FAX)*

Professional's Project Manager:

R. Keeven Shropshire *(name)*
Professional License No. 1572
*(208) 232-1223* *(telephone)*
*(208) 232-1226* *(FAX)*
*keeven@jhsarchitects.com* *(E-mail)*

Professional's Field Representative:

Scott Lloyd (*name)*
*(208) 232-1223* *(telephone)*
*(208) 232-1226* *(FAX)*
*scott@jhsarchitects.com* *(E-mail)*

May sign for Design Professional:

| | | |
|---|---|---|
| Field Reports | Yes [X] | No [ ] |
| Change Order Proposal Requests | Yes [X] | No [ ] |
| Construction Change Authorization: | Yes [X] | No [ ] |
| Construction Change Order | Yes [X] | No [ ] |
| Design Professional's Supplemental Instructions | Yes [X] | No [ ] |
| Interpretations of the Contract Documents | Yes [X] | No [ ] |
| Contractor's Request for Payment | Yes [X] | No [ ] |
| Acceptance of Substantial Completion | Yes [X] | No [ ] |
| Acceptance of final completion | Yes [X] | No [ ] |

**EXHIBIT C**

**LIST OF DRAWINGS:**
T1 TITLE, DRAVING INDEX, SYMBOLS 4 ABBREVIATIONS

**ARCHITECTURAL DRAVINGS:**
A1.0 MAIN LEVEL DEMOLITION PLAN
A1.1 LEVEL 2 DEMOLITION PLAN
A1.2 LEVEL 3 DEMOLITION PLAN
A1.3 MAIN LEVEL DEMOLITION REFLECTED CEILING PLANS
A1.4 LEVEL 2 DEMOLITION REFLECTED CEILING PLANS
A1.5 LEVEL 3 DEMOLITION REFLECTED CEILING PLANS
A2.0 MAIN LEVEL FLOOR PLAN
A2.1 LEVEL 2 FLOOR PLAN
A2.2 LEVEL 3 FLOOR PLAN
A3.0 MAIN LEVEL ENLARGED PLANS, CASEVORK ELEVATIONS AND SECTION
A3.1 LEVEL 2 ENLARGED PLANS
A3.2 LEVEL 3 ENLARGED PLANS
A4.0 MAIN LEVEL ENLARGED REFLECTED CEILING PLANS
A4.1 LEVEL 2 ENLARGED REFLECTED CEILING PLANS AND DETAIL
A4.2 LEVEL 3 ENLARGED REFLECTED CEILING PLANS

**ELECTRICAL DRAVINGS:**
E0.0 LEGENDS AND NOTES
E0.1 LIGHTING SCHEDULE AND COMCHECK
E1.0 MAIN LEVEL DEMOLITION AND LIGHTING PLANS
E2.0 LEVEL 2 DEMOLITION AND LIGHTING PLANS
E2.1 LEVEL 2 DEMOLITION AND LIGHTING PLANS
E3.0 LEVEL 3 DEMOLITION AND LIGHTING PLANS
E3.1 LEVEL 3 DEMOLITION AND LIGHTING PLANS
E4.0 DEMOLTION AND POWER PLANS
E4.1 DEMOLITION AND POWER PLANS
E4.2 ELECTRICAL DETAILS

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26 0526 GROUNDING AND BONDING ..... 1-5
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**EXHIBIT D**

**CONTRACTOR'S AFFIDAVIT CONCERNING TAXES**

STATE OF _____)

COUNTY OF _____)

Pursuant to the Title 63, Chapter 15, Idaho Code I, the undersigned, being duly sworn, depose and certify that all taxes, excises and license fees due to the State or its taxing units, for which I or my property is liable then due or delinquent, has been paid, or arrangements have been made, before entering into a Contract for construction of any public works in the State of Idaho.

_____
Name of Contractor

_____
Address

_____
City and State *SEAL*

By:

_____
(Signature)

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

_____
NOTARY PUBLIC
Residing at: _____
Commission expires: _____

**EXHIBIT E**

**NAMED SUBCONTRACTORS:**

Pursuant to Section 67-2310, Idaho Code, commonly known as the naming law, the names and addresses of the entities who will perform the plumbing, heating and air conditioning and electrical work were named in the bid and are as follows:

Heating Ventilating & Air Conditioning (PWCL Category 15700-HVAC)

(Name)_____
(Address)_____

Idaho Public Works Contractors License No._____

Idaho HVAC Contractors License No. _____

Electrical (PWCL Category 1600)

(Name) _____
(Address) _____

Idaho Public Works Contractors License No. _____

Idaho Electrical Contractors License No. _____

**EXHIBIT F**

**NOTICE TO PROCEED**

TO CONTRACTOR: DPW NUMBER:

CONTRACT DATE: ARCHITECT:

CONTRACT AMOUNT: $

DATE OF ISSUANCE: OWNER: State of Idaho

---

You are hereby notified to commence work on the above referenced contract on/or before and are to substantially complete the work within consecutive calendar days thereafter; therefore your contract completion date is .

The contract provides for the sum of **$** as liquidated damages for each consecutive calendar day after the above established substantial completion date that the work remains incomplete. Completion date will be established by "Certificate of Substantial Completion."

You are reminded that any changes to the original contract document regarding either cost or completion date must be effected by a change order approved by this department.

Your payment estimates must be submitted on Division of Public Works forms included herein. We will be most happy to assist you in preparing the payment estimate forms.

has been appointed Field Representative for this project. Please contact him at **332-** prior to beginning work. A pre-construction meeting will be held **,** at , at **(location)**

Sincerely,

PAT DONALDSON
ADMINISTRATOR

PD:pb

DISTRIBUTION: Tax Commission
Division of Building Safety
Risk Management (w/ Builder's Risk Application, if applicable)
(Project Manager)
Fiscal Office TAX ID xx-xxxxxxx

**EXHIBIT G**

# Idaho State Tax Commission
# REQUEST FOR TAX RELEASE

Date:_____

## PART I -- AWARDING AGENCY INFORMATION:

| Name of agency | Mailing address | City, state, and ZIP Code |
|---|---|---|
| | | |

| Contact name | Phone number | Email address |
|---|---|---|
| | | |

## PART II -- CONTRACTOR INFORMATION:

| Name of contractor | Mailing address | City, state, and ZIP Code |
|---|---|---|
| | | |

| Federal EIN | Contact name | Phone number | Email address |
|---|---|---|---|
| | | | |

## PART III -- CONSTRUCTION/CONTRACT MANAGER INFORMATION (if applicable):

| Name of business | Mailing address | City, state, and ZIP Code |
|---|---|---|
| | | |

| Federal EIN | Contact name | Phone number | Email address |
|---|---|---|---|
| | | | |

Send a copy of the approved Tax Release to: Awarding Agency ☐ Contractor ☐ Construction Manager ☐

***NOTE:*** *We will email all copies unless otherwise requested*

## PART IV -- PROJECT INFORMATION:

| Name of project | Location of project |
|---|---|
| | |

Description of project

| Project number assigned by awarding agency | Project start date | Project completion date | Final/closing contract amount (includes all change orders) |
|---|---|---|---|
| | | | $ |

Did any government entities supply materials which were installed by this contractor or its subs?: Yes ☐ No ☐

If YES, list these materials and their dollar values. (Attach additional information if needed)

| List Materials | List Dollar Values of Materials |
|---|---|
| | $ |
| | $ |
| | $ |

Send to: Contract Desk/Sales Tax Audit
Idaho State Tax Commission
PO Box 36
Boise ID 83722-0410
Phone: (208) 334-7618 · Fax: (208) 332-6619 · Email: **contractdesk@tax.idaho.gov**

***NOTE:*** *Please allow 30 days to process a Tax Release Request. You must send a complete, signed Form WH-5 Public Works Contract Report to the Idaho State Tax Commission to complete this request.*

## EXHIBIT H

### RELEASE OF CLAIMS

(TO BE COMPLETED FOR FINAL PAYMENT)

I, _____, do hereby release the State of Idaho from any and all claims of any character whatsoever arising under and by virtue of contract number _____. Dated _____ as amended, except as herein stated.

Dated _____ Contractor _____

# EXHIBIT J

## Conditions Precedent to Final Payment

Date: _____
DPW Project No. _____
Project Title:_____
Location:_____

Send to:
State of Idaho
Division of Public Works
502 N. Fourth Street
Boise, Idaho 83702

Copy to:
Design Professional
_____
_____
_____

**Contractor's Responsibilities:**

Per Paragraph 7:13 of the Fixed Price Contract: As a condition precedent to final payment, the Contractor must furnish the owner, in the form and manner required by Owner, to be submitted to the Design Professional for approval, the following:

- ❒ Contractor's Final Request for Payment Form has been uploaded to OMS;
- ❒ Release of Claims form has been uploaded to OMS (DPW's form, Exhibit H);
- ❒ Contractor's Affidavit of Payment of Debts and Claims Form has been uploaded to OMS (AIA G706);
- ❒ Consent of Surety to Final Payment has been uploaded to OMS (AIA G707);
- ❒ Confirmation of all required training (DPW's Training Confirmation Exhibit K), product warranties, operating manuals, instruction manuals and other record documents, drawings and items customarily required of the Contractor has been uploaded to OMS.
- ❒ Public Works Contract Tax Release from the Idaho Tax Commission has been uploaded to OMS;
- ❒ Division of Building Safety Letter of Completion/Final Inspection has been uploaded to OMS (as required);
- ❒ Project Finalization and Start Up has been uploaded to OMS (as required, Exhibit L);

_____

Contractor's Signature Date

**Design Professional's Approval for Payment:**

- ❒ All Documents Required per Paragraph 7.13 of the Fixed Price Contract have been uploaded to OMS.
- ❒ All Warranties, Guarantees, etc. have been received, approved and have been uploaded to OMS.
- ❒ Contractor's As-Built Drawings, have been received, reviewed, approved and uploaded to OMS in PDF format.
- ❒ Final punch list with AE's verification that all items have been completed, has been uploaded to OMS.
- ❒ Record Drawings have been completed by AE. All required copies of the Record Documents and electronic media are attached and uploaded to OMS in PDF, and DWG 2010 format. DWG files should be bound in zip folder, or "e-transmit" folder, containing all drawing files with relevant dependencies (i.e. x-refs, images, title blocks, and pen settings). *Record Drawings are a requirement for the AE's final payment; not the Contractor's.*

To the best of my knowledge, information, and belief, and on the basis of my observations and inspections, I certify the Work has been completed in accordance with the terms and conditions of the Contract Documents and that the required documentation required by Paragraph 7.13 of the fixed priced contract has been received. The entire balance, as shown on the attached Final Request for Payment, is due and payable.

_____

Design Professional's Signature Date

**EXHIBIT K**

**STATE OF IDAHO**

**DIVISION OF PUBLIC WORKS**

**Training Confirmation Sign-In Sheet**

DPW Project: _____ Agency: _____
Project Name: _____ Project Location: _____
Field Representative: _____ Date & Time:_____

| Name | Company | E-mail | Telephone | Signature |
|---|---|---|---|---|
| | | | | |
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V:\Design and Construction\CONTRACT ADMINISTRATION\Close Out\Training Confirmation Sign In Sheet.xlsx

## EXHIBIT L

PROJECT FINALIZATION AND START-UP

Upon completion of the equipment and systems installation and connections, the contractor shall assemble all equipment factory representative and subcontractors together for system start-up.

These people shall assist in start-up and check out their system(s) and remain at the site until the total system operation is acceptable and understood by the agency's representative(s). The factory representative and system subcontractor shall also give instructions on operation and maintenance of their equipment to the agency's maintenance and/or operation personnel. To prove acceptance of operation and instruction by the agency's representative(s), this written statement of acceptance shall be signed below.

> "I, the Contractor, associated factory representative and subcontractors, have started each system and the total system; and have proven their normal operation to the agency's representative(s) and maintenance/operation personnel and have instructed him/them in the operation and maintenance thereof."

| | |
|---|---|
| _____ | _____ |
| Agency's Representative | Contractor |
| _____ | _____ |
| Signature | Signature |
| _____ | _____ |
| Date | Date |

# SECTION 011000
# SUMMARY

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including Fixed Price Construction Service Contract and other Division 01 Specification Sections, apply to this Section.

### 1.2 SUMMARY
A. Section Includes:
1. Project information.
2. Work covered by Contract Documents.
3. Access to site.
4. Coordination with occupants.
5. Work restrictions.
6. Specification and drawing conventions.
7. Miscellaneous provisions.
8. General Security Requirements
9. Permits

B. Related Requirements:
1. Section 015000 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

### 1.3 PROJECT INFORMATION
A. Project Identification: DPW # 21 225
1. Project Location: Idaho State University
a. Liberal Arts Building #4
Pocatello, ID 83209

B. Owner: State of Idaho
1. DPW Project Manager: Brian Boyd (208) 332-1914
2. Owner's Field Representative: Fred Richards (208) 269-0639

C. Agency: Idaho State University
1. Agency's Representative: Todd Adams (208) 282-1343

D. Architect or Engineer (Design Professional): JHS Architects, P.A.
1. Scott Lloyd (208) 232-1223

### 1.4 WORK COVERED BY CONTRACT DOCUMENTS
The Work of Project is defined by the Contract Documents and consists of the following: The remodel of 12 classrooms in ISU's Liberal Arts Building #4. Demolition, removal and replacement of the existing classroom ceilings and light fixtures, repainting the classroom walls, and the replacement of existing chalkboards (where occurs) as well as providing additional electrical and data outlets within the classrooms. In one classroom (Classroom 351) the existing carpet is to be removed and replaced. All window sills shall be replaced within the entire building and all existing exterior window sealants are to be stripped and replaced.

A. Type of Contract:
1. Project will be constructed under a single prime contract per the Division of Public Works Fixed Price Construction Contract between Owner and Contractor.

### 1.5 WORK BY OWNER
A. General: Cooperate fully with Owner so work may be carried out smoothly, without interfering with or delaying work under this Contract or work by Owner. Coordinate the Work of this Contract with work performed by Owner.

B. Items noted NIC (Not in Contract), will be furnished and installed by the Owner/Agency.

**1.6 ACCESS TO SITE**

A. General: Contractor shall have full use of Project site for construction operations during construction period.

B. Use of Site: Limit use of Project site to areas within the Contract limits indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.

1. Limits: Confine construction operations to access points and work vehicles parking reviewed during Prebid Conference.
2. Driveways, Walkways and Entrances: Keep driveways and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
    a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
    b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
    c. Contractor parking shall be limited to those areas reviewed and approved during Prebid Conference.
    d. Maintain clear access to project at all times for firefighting equipment. Maintain exit ways from existing building required by authorities having jurisdiction.

C. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Any damage to the building, due to negligence on behalf of the contractor to not maintain a weather-tight condition, shall be the responsibility of contractors and they shall bear the burden for correction and/or repairs for any damage. Repair damage caused by construction operations.

D. Security: The contractor shall maintain security of the building’s construction areas and any staging areas throughout the project.

E. Behavior and Dress: Inappropriate behavior by construction personnel and workers will not be tolerated. This includes inappropriate clothing, inappropriate language and inappropriate comments directed at DHW Staff or other public.

**1.7 COORDINATION WITH OCCUPANTS**

A. Full Owner Occupancy: Owner will occupy other areas of the existing building during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's day-to-day operations. Maintain existing building exits without fail.

1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and approval of authorities having jurisdiction.
2. Notify Owner not less than 48 hours in advance of activities that will affect Owner's operations.
3. The Owner will take special care not to damage materials or work completed by the contractor prior to final acceptance. If the contractor occurs any damages, prior to final acceptance, notify the Owner and Architect immediately for verification of damages. If the contractor fails to notify the Owner and Architect within 24 hours of the incident, the contractor shall be responsible for the performance and shall bear the cost of correction.

**1.8 WORK RESTRICTIONS**

A. Work Restrictions, General: Comply with restrictions on construction operations.

1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.

B. Arrange use of site and premises to allow:

1. Owner occupancy.
2. Use of non-construction areas of site and premises by the public.
3. Coordinate hours of work with ISU Project Manager.

C. Provide access to and from site as required by law and by Owner:

D. Emergency Building Exits During Construction: Keep all exits required by code open during construction period; provide temporary exit signs if exit routes are temporarily altered.

E. Parking: Parking is limited and allowed in areas identified at Pre-Construction Conference. No parking shall be permitted within ADA parking areas. No parking will be permitted on sidewalks or similar concrete areas. Parking within staging areas may be permitted by special agreement with the Agency Field Representative.

F. Smoking Policy: Smoking is prohibited on all property wholly owned, leased or operated by the State of Idaho. This consists of all buildings, all grounds, including exterior open spaces, parking lots, on-campus sidewalks.

Smoking is hereby defined as the burning of tobacco or any other material in any type of smoking equipment, including but not restricted to cigarettes, “E” cigarettes, cigars or pipes.

G. Noise, Vibration, and Odors: Written notice shall be given to Agency two weeks in advance of scheduled work activities that may result in high levels of noise, vibrations, odors, or any other activities that may be disruptive to Owner Occupancy.

H. On-Site Work Hours: Work activities are limited to the hours of Monday through Friday 7 a.m. to 6 p.m. unless special arrangements are coordinated with Agency Field Representative.

**1.9 PERMITS**

A. Furnish all necessary permits for construction of the Work.

**1.10 WASTE DISPOSAL**

A. The contractor is responsible for any and all demolition and/or removal as necessary and required to fulfill the requirements of the Contract Documents.

**1.11 SPECIFICATION AND DRAWING CONVENTIONS**

A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
   1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
   2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.

B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.

C. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:
   1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
   2. Abbreviations: Materials and products are identified by abbreviations published as part of the U.S. National CAD Standard.
   3. Keynoting: Materials and products are identified by reference keynotes.

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION (Not Used)**

**END OF SECTION**

# SECTION 012300
# ALTERNATES

## PART 1 - GENERAL

### 1.1 SUMMARY
A. Section includes administrative and procedural requirements for alternates.

### 1.2 DEFINITIONS
A. Add Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the bidding requirements that may be added to the base bid amount if the Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
   1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
   2. The cost for each alternate is the net addition to the Contract Sum to incorporate alternates into the Work. No other adjustments are made to the Contract Sum.

### 1.3 PROCEDURES
A. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
   1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.
B. Execute accepted alternates under the same conditions as other work of the Contract.
C. Schedule: A schedule of alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

## PART 2 - PRODUCTS (Not Used)

## PART 3 - EXECUTION

### 3.1 SCHEDULE OF ALTERNATES
A. Additive Alternate No. ONE: Additional (27) Window Sill Replacement
   1. Base Bid Condition: No additional window sills will be replaced.

   2. Add Alternate: The replacement of an additional twenty-seven (27) window sills throughout the building. See construction drawings for sizes and locations.

**END OF SECTION**

# SECTION 012500

# SUBSTITUTION PROCEDURES

## PART 1 - GENERAL

### 1.1 SUMMARY

A. Section includes administrative and procedural requirements for substitutions.

B. Related Requirements:

1. Section 016000 "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.

### 1.2 DEFINITIONS

A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

### 1.3 ACTION SUBMITTALS

A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
    a. Statement indicating why specified product or fabrication or installation method cannot be provided, if applicable.
    b. Coordination of information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.
    c. Detailed comparison of significant qualities of proposed substitutions with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes, such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
    d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
    e. Samples, where applicable or requested.
    f. Certificates and qualification data, where applicable or requested.
    g. List of similar installations for completed projects, with project names and addresses as well as names and addresses of architects and owners.
    h. Material test reports from a qualified testing agency, indicating and interpreting test results for compliance with requirements indicated.
    i. Research reports evidencing compliance with building code in effect for Project, from ICC-ES.
    j. Detailed comparison of Contractor's construction schedule using proposed substitutions with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.

k. Cost information, including a proposal of change, if any, in the Contract Sum.
l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents, except as indicated in substitution request, is compatible with related materials and is appropriate for applications indicated.
m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
   a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
   b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

**1.4 QUALITY ASSURANCE**

A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

**1.5 PROCEDURES**

A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

**1.6 SUBSTITUTIONS**

A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.
   1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
      a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
      b. Substitution request is fully documented and properly submitted.
      c. Requested substitution will not adversely affect Contractor's construction schedule.
      d. Requested substitution has received necessary approvals of authorities having jurisdiction.
      e. Requested substitution is compatible with other portions of the Work.
      f. Requested substitution has been coordinated with other portions of the Work.
      g. Requested substitution provides specified warranty.
      h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

B. Substitutions for Convenience: Not allowed.

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION (Not Used)**

**END OF SECTION**

# SECTION 012600
# CONTRACT MODIFICATION PROCEDURES

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including Fixed Price Construction Contract and other Division 01 Specification Sections, apply to this Section.

### 1.2 SUMMARY
A. Section includes administrative and procedural requirements for handling and processing Contract modifications.

### 1.3 MINOR CHANGES IN THE WORK
A. Architect will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, through Owner's web-based management software (OMS). ASI may be completed on AIA Document G710, "Architect's Supplemental Instructions" and attached into OMS.

### 1.4 PROPOSAL REQUESTS
A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
   1. Work Change Proposal Requests issued by Architect are not instructions either to stop work in progress or to execute the proposed change.
   2. Within time specified in Proposal Request or 10 days, when not otherwise specified, after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
      a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
      b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
      c. Include costs of labor and supervision directly attributable to the change.
      d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
      e. Quotation Form: Use forms acceptable to Architect.

B. Contractor-Initiated Work Change Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Architect.
   1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
   2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
   3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
   4. Include costs of labor and supervision directly attributable to the change.
   5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

6. Comply with requirements in Section 012500 "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.
7. Work Change Proposal Request Form: Use form acceptable to Architect.

**1.5 ADMINISTRATIVE CHANGE ORDERS**

A. Allowance Adjustment: See Section 012100 "Allowances" for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect actual costs of allowances.

B. Unit-Price Adjustment: See Section 012200 "Unit Prices" for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect measured scope of unit-price work.

**1.6 CHANGE ORDER PROCEDURES**

A. On Owner's approval of a Work Change Proposal Request, the Architect will complete the Owner's Change Order Form and attach the Proposal Request and back-up. The Architect will then forward this documentation to the Owner's Project Manager who will create a Change Order through OMS for approval of the Owner and Contractor. Note approval is determined after Change Order is approved through OMS.

**1.7 CONSTRUCTION CHANGE DIRECTIVE**

A. Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION (Not Used)**

**END OF SECTION**

# SECTION 012900

# PAYMENT PROCEDURES

## PART 1 - GENERAL

### 1.1 SUMMARY

A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment on **DPW's Owners web-based management software (OMS)**.

### 1.2 SCHEDULE OF VALUES (SOV)

A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule.
   1. Coordinate line items in the schedule of values with items required to be indicated as separate activities in Contractor's construction schedule.

B. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.
   1. Submit the schedule of values on Owner's or other approved SOV form to the Division of Public Works seven (7) days after Contract is approved.
   2. Review and approval by Design Professional and DPW Field Representative of SOV is required prior to each application for payment.
   3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Provide multiple line items for principal subcontract amounts where needed.
   4. Provide a separate line item in the SOV for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
      a. Differentiate between items stored on-site and items stored off-site.
   5. After review and approval by the Architect, DPW's Project Manager and DPW's Field Representative, the Contractor will upload the SOV excel template into the **OMS** "cost tracking-budget" module. This will create the construction contract in the OMS. Any changes to the SOV will then require a change order.
   6. Overhead Costs: Include total cost and proportionate share of general overhead and profit for each line item.
   7. Overhead Costs: Show cost of temporary facilities and other major cost items that are not direct cost of actual work-in-place as separate line items.
   8. Closeout Costs. Include separate line items under Contractor and principal subcontracts for Project closeout requirements in an amount totaling **1%** percent of the Contract Sum and subcontract amount.

### 1.3 PAYMENT APPLICATIONS

A. Each Pay Application or Invoice, including SOV as attachment shall be submitted via the **OMS** under the 'Cost Tracking/Contract Mgmt.' module where they will be **electronically approved** by the Contractor, Architect, DPW Field Representative, DPW Project Manager, and DPW Senior Field Representative.

B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction work covered by each Payment Application is the period indicated in the Agreement.

C. Payment Application Times: Create Pay Applications on the Owners web-based management software by the 21$^{st}$ of the month and electronically submit for approval. The period covered by each Payment Application is one month, ending on the **last day of the month**.

D. Waivers of Mechanic's Lien: With each Payment Application, upload waivers of mechanic's lien from **subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application**.
   1. Upload partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
   2. When an application shows completion of an item, upload conditional final or full waivers.
   3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
   4. Upload conditional final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien prior to final Payment Application
   5. Waiver Forms: Upload executed waivers of lien on forms acceptable to Owner.

E. Initial Payment Application: Administrative actions and submittals that must precede or coincide with submittal of first Payment Application include the following:
   1. List of subcontractors.
   2. Contractor's construction schedule (preliminary if not final).
   3. Products list (preliminary if not final).
   4. Schedule of unit prices.
   5. Submittal schedule (preliminary if not final).
   6. Copies of building permits.
   7. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
   8. Initial progress report.
   9. Data needed to acquire Owner's insurance or Builders Risk from the Contractor.

F. Payment Application at Substantial Completion: After Architect issues the Certificate of Substantial Completion, upload a Payment Application showing 100 percent completion for portion of the Work claimed as substantially complete. Retainage will continue to be held until approval of Final Payment Application.

G. Final Payment Application: After completing Project closeout requirements, submit final Payment Application with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
   1. Evidence of completion of Project closeout requirements.
   2. Marked up Record Drawings and Specifications.
   3. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
   4. Contractor’s Affidavit of Payment of Debts and Claims Form. AIA Document G706.
   5. Consent of Surety to Final Payment. AIA Document G707.
   6. Release of Claims form, Exhibit H. Evidence that claims have been settled.
   7. Confirmation of all required training, product warranties, operating manuals, instruction manuals and other record documents, drawings and items customarily required of the Contractor.
   8. Public Works Contract Tax Release from the Idaho Tax Commission.
   9. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
   10. Final liquidated damages settlement statement.
   11. Any and all other items required by DPW under the applicable contract requirements.

   Authority Having Jurisdiction/Division of Building Safety (AHJ/DBS) inspection approval and occupancy permit issued.

**END OF SECTION**

# SECTION 013100

# PROJECT MANAGEMENT AND COORDINATION

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including Fixed Price Construction Contract and other Division 01 Specification Sections, apply to this Section.

### 1.2 SUMMARY

A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
   1. General coordination procedures.
   2. Coordination drawings.
   3. RFIs.
   4. Digital project management procedures.
   5. Project meetings.

~~B.~~ Related Requirements:
   1. Section 017300 "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
   2. Section 019113 "General Commissioning Requirements" for coordinating the Work with Owner's Commissioning Authority.

### 1.3 DEFINITIONS

A. BIM: Building Information Modeling.

B. RFI: Request for Information. Request from Owner, Design Professional, or Contractor seeking information required by or clarifications of the Contract Documents.

### 1.4 INFORMATIONAL SUBMITTALS

A. Key Personnel Names: Within seven (7) days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home, office, and cellular telephone numbers and e-mail addresses. Provide names, addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.
   1. Post copies of list in project meeting room, in temporary field office. Keep list current at all times.

### 1.5 GENERAL COORDINATION PROCEDURES

A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations included in different Sections that depend on each other for proper installation, connection, and operation.
   1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
   2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
   3. Make adequate provisions to accommodate items scheduled for later installation.

B. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and scheduled activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
   1. Preparation of Contractor's construction schedule.
   2. Preparation of the schedule of values.
   3. Installation and removal of temporary facilities and controls.

4. Processing of submittals.
5. Progress meetings.
6. Pre-installation conferences.
7. Project closeout activities.
8. Startup and adjustment of systems.

**1.6 COORDINATION DRAWINGS**

A. Coordination Drawings, General: Prepare coordination drawings according to requirements in individual Sections, and additionally where installation is not completely indicated on Shop Drawings, where limited space availability necessitates coordination, or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity.
   1. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable:
      a. Use applicable Drawings as a basis for preparation of coordination drawings. Prepare sections, elevations, and details as needed to describe relationship of various systems and components.
      b. Coordinate the addition of trade-specific information to the coordination drawings by multiple contractors in a sequence that best provides for coordination of the information and resolution of conflicts between installed components before submitting for review.
      c. Indicate functional and spatial relationships of components of Design Professional, structural, civil, mechanical, and electrical systems.
      d. Indicate space requirements for routine maintenance and for anticipated replacement of components during the life of the installation.
      e. Show location and size of access doors required for access to concealed dampers, valves, and other controls.
      f. Indicate required installation sequences.
      g. Indicate dimensions shown on Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternative sketches to Design Professional indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.

B. Coordination Drawing Organization: Organize coordination drawings as follows:
   1. Floor Plans and Reflected Ceiling Plans: Show Design Professional and structural elements, and mechanical, plumbing, fire-protection, fire-alarm, and electrical Work. Show locations of visible ceiling-mounted devices relative to acoustical ceiling grid. Supplement plan drawings with section drawings where required to adequately represent the Work.
   2. Plenum Space: Indicate sub-framing for support of ceiling and wall systems, mechanical and electrical equipment, and related Work. Locate components within plenums to accommodate layout of light fixtures and other components indicated on Drawings. Indicate areas of conflict between light fixtures and other components.
   3. Mechanical Rooms: Provide coordination drawings for mechanical rooms showing plans and elevations of mechanical, plumbing, fire-protection, fire-alarm, and electrical equipment.
   4. Structural Penetrations: Indicate penetrations and openings required for all disciplines.
   5. Slab Edge and Embedded Items: Indicate slab edge locations and sizes and locations of embedded items for metal fabrications, sleeves, anchor bolts, bearing plates, angles, door floor closers, slab depressions for floor finishes, curbs and housekeeping pads, and similar items.
   6. Mechanical and Plumbing Work: Show the following:
      a. Sizes and bottom elevations of ductwork, piping, and conduit runs, including insulation, bracing, flanges, and support systems.
      b. Dimensions of major components, such as dampers, valves, diffusers, access doors, cleanouts and electrical distribution equipment.

c. Fire-rated enclosures around ductwork.

7. Electrical Work: Show the following:
   a. Runs of vertical and horizontal conduit 1-1/4 inches in diameter and larger.
   b. Light fixture, exit light, emergency battery pack, smoke detector, and other fire-alarm locations.
   c. Panel board, switch board, switchgear, transformer, busway, generator, and motor control center locations.
   d. Location of pull boxes and junction boxes, dimensioned from column center lines.
8. Fire-Protection System: Show the following:
   a. Locations of standpipes, mains piping, branch lines, pipe drops, and sprinkler heads.
9. Review: Design Professional will review coordination drawings to confirm that the Work is being coordinated, but not for the details of the coordination, which are Contractor's responsibility. If Design Professional determines that coordination drawings are not being prepared in sufficient scope or detail, or are otherwise deficient, Design Professional will so inform Contractor, who shall make changes as directed and resubmit.
10. Coordination Drawing Prints: Prepare coordination drawing prints according to requirements in Section 013300 "Submittal Procedures."
11. Review: Design Professional will review coordination drawings to confirm that in general the Work is being coordinated, but not for the details of the coordination, which are Contractor's responsibility.

C. Coordination Digital Data Files: Prepare coordination digital data files according to the following requirements:
   1. File Preparation Format: Same digital data software program, version, and operating system as original Drawings.
   2. File Preparation Format: **PDF**.
   3. File Submittal Format: Submit or post coordination drawing files **PDF format**.
   4. Design Professional will furnish Contractor one set of digital data files of Drawings for use in preparing coordination digital data files.
      a. Design Professional makes no representations as to the accuracy or completeness of digital data files as they relate to Drawings.
      b. Digital Data Software Program: Drawings are available in PDF.
      c. Contractor shall execute a data licensing agreement in the form of **Agreement form acceptable to Owner and Design Professional**.

## 1.7 REQUEST FOR INFORMATION (RFI)

A. General: Immediately on discovery of the need for additional information, clarification, or interpretation of the Contract Documents, Contractor shall prepare and upload an RFI in the Owners web-based management software (OMS).
   1. Design Professional will approve RFIs with any comments through OMS.
   2. Design Professional shall notify DPW of the Design Professional’s Representative who will receive and respond to RFIs.
   3. Contractor to upload RFIs in a prompt manner so as to avoid delays in the work or work of subcontractors.
   4. Contractor and Design Professional can copy any Team members the question and/or response within OMS.

B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:
   1. Input information required by OMS.
   2. Specification Section number and title and related paragraphs, as appropriate.
   3. Drawing number and detail references, as appropriate.
   4. Field dimensions and conditions, as appropriate.
   5. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
   6. Attachments: Upload sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.

C. Design Professional's Action: Design Professional will review each RFI, determine action required, and respond. Allow seven (7) working days for Design Professional's response for each RFI. RFIs received by Design Professional after 1:00 p.m. will be considered as received the following working day.
   1. The following Contractor-generated RFIs will be returned without action:
      a. Requests for approval of submittals.
      b. Requests for approval of substitutions.
      c. Requests for approval of Contractor's means and methods.
      d. Requests for coordination information already indicated in the Contract Documents.
      e. Requests for adjustments in the Contract Time or the Contract Sum.
      f. Requests for interpretation of Design Professional's actions on submittals.
      g. Incomplete RFIs or inaccurately prepared RFIs.
   2. Design Professional's action may include a request for additional information, in which case Design Professional's time for response will date from time of receipt by Design Professional of additional information.
   3. Design Professional's action on RFIs that may result in a change to the Contract Time or the Contract Sum in which case the Contractor may submit a Proposed Request to the Design Professional.
      a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Design Professional in writing within seven (7) days of receipt of the RFI response.

D. On receipt of Design Professional's action, review response and notify Design Professional within seven (7) days if Contractor disagrees with response.

**1.8 DIGITAL PROJECT MANAGEMENT PROCEDURES**

A. Design Professional's Data Files: Design Professional **will** provide Design Professional's PDF digital data files for Contractor's use during construction.

B. Use of Design Professional's Digital Data Files: Digital data files of Design Professional's PDF drawings will be provided by Design Professional for Contractor's use during construction.
   1. Digital data files may be used by Contractor in preparing coordination drawings, Shop Drawings, and Project record Drawings.
   2. Design Professional makes no representations as to the accuracy or completeness of digital data files as they relate to Contract Drawings.
   3. Digital Drawing Software Program: Contract Drawings are available in PDF format.
   4. Contractor shall execute a data licensing agreement in the form of **AIA Document C106 Digital Data Licensing Agreement**.
      a. Subcontractors, and other parties granted access by Contractor to Design Professional's digital data files shall execute a data licensing agreement in the form of **AIA Document C106**.
   5. The following digital data files will be furnished for each appropriate discipline:
      a. Floor plans.
      b. Reflected ceiling plans.

C. Web-Based Project Software: Use **Owner's** web-based management software site (OMS) for purposes of hosting and managing Project communication and documentation until Final Completion.
   1. Web-based Project software site includes the following features for:
      a. Compilation of Project data, including Contractor, subcontractors, Design Professional, Design Professional's consultants, Owner, and other entities involved in Project.
      b. Access control for each entity for each workflow process, to determine entity's digital rights to create, modify, view, and print documents. The ‘My Team’ module Includes names of individuals and contact information.
      c. Document workflow planning, allowing customization of workflow between project entities.
      d. Creation, logging, tracking, and notification for Project communications required in other Specification Sections, including, but not limited to, RFIs, submittals, Minor

Changes in the Work, Proposed Change Orders, Construction Change Directives, and Change Orders.

e. Tracking status of each Project communication in real time, and log time and date when responses are provided.
f. Handling PDFs or similar file formats, allowing markups by each entity. Provide security features to lock markups against changes once submitted.
g. Processing and tracking of payment applications.
h. Processing and tracking of contract modifications.
i. Creating and distributing meeting minutes.
j. Document management for Drawings, Specifications, and coordination drawings, including revision control.
k. Management of daily field reports.
l. Mobile device compatibility, including smartphones and tablets.

D. PDF Document Preparation: Where PDFs are required to be submitted to Design Professional, prepare as follows:
1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
2. Name file with submittal number or other unique identifier, including revision identifier.
3. Certifications: Where digitally submitted certificates and certifications are required, provide a digital signature with digital certificate on where indicated.

**1.9 PROJECT MEETINGS**

A. General: The Design Professional will schedule and conduct monthly meetings at the Project site unless otherwise indicated.

B. Preconstruction Conference: The Owner will schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Design Professional.
1. Attendees: Authorized representatives of Owner, Contractor and its superintendent, and major subcontractors shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Owner’s standard preconstruction agenda will be used.
3. Minutes: The Design Professional will be responsible for the monthly meeting minutes and will record and distribute via the OMS

C. Pre-installation Conferences: Conduct a pre-installation conference at Project site before each construction activity when required by other sections and when required for coordination with other construction.
1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Design Professional, Owner, of scheduled meeting dates.
2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
a. Contract Documents.
b. Options.
c. Related RFIs.
d. Related Change Orders.
e. Purchases.
f. Deliveries.
g. Submittals.
h. Sustainable design requirements.
i. Review of mockups.
j. Possible conflicts.
k. Compatibility requirements.
l. Time schedules.
m. Weather limitations.
n. Manufacturer's written instructions.

o. Warranty requirements.
p. Compatibility of materials.
q. Acceptability of substrates.
r. Temporary facilities and controls.
s. Space and access limitations.
t. Regulations of authorities having jurisdiction.
u. Testing and inspecting requirements.
v. Installation procedures.
w. Coordination with other work.
x. Required performance results.
y. Protection of adjacent work.
z. Protection of construction and personnel.

3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.
5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.

D. Progress Meetings: The Contractor will conduct progress meetings at monthly intervals.
1. Coordinate dates of meetings with preparation of payment requests.
2. Attendees: In addition to representatives of Owner, Agency and Design Professional, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
1) Review schedule for next period.
b. Review present and future needs of each entity present, including the following:
1) Interface requirements.
2) Sequence of operations.
3) Resolution of BIM component conflicts.
4) Status of submittals.
5) Status of sustainable design documentation.
6) Deliveries.
7) Off-site fabrication.
8) Access.
9) Site use.
10) Temporary facilities and controls.
11) Progress cleaning.
12) Quality and work standards.
13) Status of correction of deficient items.
14) Field observations.
15) Status of RFIs.
16) Status of Proposal Requests.
17) Pending changes.
18) Status of Change Orders.
19) As-Built Updates.

20) Pending claims and disputes.
21) Documentation of information for payment requests.

4. Minutes: Contractor is responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.
   a. Schedule Updating: Contractor shall revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

**END OF SECTION**

# SECTION 013300

# SUBMITTAL PROCEDURES

## PART 1 - GENERAL

### 1.1 SUMMARY

A. Section Includes:
   1. Submittal schedule requirements.
   2. Administrative and procedural requirements for submittals.

### 1.2 DEFINITIONS

A. Action Submittals: Written and graphic information and physical samples that require Design Professional's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."

B. Informational Submittals: Written and graphic information and physical samples that do not require Design Professional's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."

### 1.3 SUBMITTAL SCHEDULE

A. Submittal Schedule: Submit, as an action submittal, a list of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Design Professional and additional time for handling and reviewing submittals required by those corrections.

### 1.4 SUBMITTAL FORMATS

A. Submittal Information: Include the following information in each submittal:
   1. Project name.
   2. Date.
   3. Name of Design Professional.
   4. Name of Construction Manager.
   5. Name of Contractor.
   6. Name of firm or entity that prepared submittal.
   7. Names of subcontractor, manufacturer, and supplier.
   8. Unique submittal number, including revision identifier. Include Specification Section number with sequential alphanumeric identifier; and alphanumeric suffix for resubmittals.
   9. Category and type of submittal.
   10. Submittal purpose and description.
   11. Number and title of Specification Section, with paragraph number and generic name for each of multiple items.
   12. Drawing number and detail references, as appropriate.
   13. Indication of full or partial submittal.
   14. Location(s) where product is to be installed, as appropriate.
   15. Other necessary identification.
   16. Remarks.
   17. Signature of transmitter.

B. Options: Identify options requiring selection by Design Professional.

C. Deviations and Additional Information: On each submittal, clearly indicate deviations from requirements in the Contract Documents, including minor variations and limitations; include relevant additional information and revisions, other than those requested by Design Professional on previous submittals. Indicate by highlighting on each submittal or noting on attached separate sheet.

D. Submittals:

1. Upload Submittals on Owners web-based management software (OMS). Contractor to initiate the process via “Construction Management”, then “Submittal” tab within the website.

E. Submittals for Web-Based Project Software: Prepare submittals as PDF files, or other format indicated by Project software website.

**1.5 SUBMITTAL PROCEDURES**

A. Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
   1. Web-Based Project Software: Prepare submittals in PDF form, and upload to OMS. Enter required data in web-based software site to fully identify submittal.
   2. Samples: Prepare submittals and deliver to Design Professional.

B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
   1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
   2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
   3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.

C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Design Professional'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 seven (7) days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Design Professional will advise Contractor when a submittal being processed must be delayed for coordination.
   2. Resubmittal Review: Allow seven (7) days for review of each resubmittal.

D. Resubmittals: Make resubmittals in same form as initial submittal.

E. 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.

F. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Design Professional's action stamp.

**1.6 SUBMITTAL REQUIREMENTS**

A. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
   1. If information must be specially prepared for submittal because standard published data are unsuitable for use, submit as Shop Drawings, not as Product Data.
   2. Mark each copy of each submittal to show which products and options are applicable.
   3. Include the following information, as applicable:
      a. Manufacturer's catalog cuts.
      b. Manufacturer's product specifications.
      c. Standard color charts.
      d. Statement of compliance with specified referenced standards.
      e. Testing by recognized testing agency.
      f. Application of testing agency labels and seals.
      g. Notation of coordination requirements.
      h. Availability and delivery time information.
   4. For equipment, include the following in addition to the above, as applicable:
      a. Wiring diagrams that show factory-installed wiring.
      b. Printed performance curves.
      c. Operational range diagrams.
      d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
   5. Submit Product Data before Shop Drawings, and before or concurrent with Samples.

B. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
   1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
      a. Identification of products.
      b. Schedules.
      c. Compliance with specified standards.
      d. Notation of coordination requirements.
      e. Notation of dimensions established by field measurement.
      f. Relationship and attachment to adjoining construction clearly indicated.
      g. Seal and signature of professional engineer if specified.

C. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other materials.
   1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
   2. Identification: Permanently attach label on unexposed side of Samples that includes the following:
      a. Project name and submittal number.
      b. Generic description of Sample.
      c. Product name and name of manufacturer.
      d. Sample source.
      e. Number and title of applicable Specification Section.
      f. Specification paragraph number and generic name of each item.
   3. Transmittal: Upload PDF transmittal to the Owners web based management software under submittals. Include digital image file illustrating Sample characteristics, and identification information for record.
   4. Web-Based Project Software: Prepare submittals in PDF form, and upload to Owners web-based Project software website. Enter required data in web-based software site to fully identify submittal.
   5. Paper Transmittal: Include paper transmittal including complete submittal information indicated for samples delivered to the Design Professional.
   6. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
      a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
      b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
   7. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
      a. Number of Samples: Submit two (2) full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Design Professional will return submittal with options selected.
   8. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
      a. Number of Samples: Submit three (3) sets of Samples. Design Professional will retain two Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a project record Sample.

1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least two sets of paired units that show approximate limits of variations.

D. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:

E. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of Design Professionals and owners, and other information specified.

F. Design Data: Prepare and submit written and graphic information indicating compliance with indicated performance and design criteria in individual Specification Sections. Include list of assumptions and summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Number each page of submittal.

G. Certificates:
1. Certificates and Certifications Submittals: Submit a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity. Provide a notarized signature where indicated.
2. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
3. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
4. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
5. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
6. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.

H. Test and Research Reports:
1. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
2. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
3. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
4. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
5. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

6. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
   a. Name of evaluation organization.
   b. Date of evaluation.
   c. Time period when report is in effect.
   d. Product and manufacturers' names.
   e. Description of product.
   f. Test procedures and results.
   g. Limitations of use.

**1.7 DELEGATED-DESIGN SERVICES**

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
   1. If criteria indicated are insufficient to perform services or certification required, submit a written request for additional information to Design Professional.

B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, upload to the Owners web-based management software, shall be signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
   1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

**1.8 CONTRACTOR'S REVIEW**

A. Action Submittals 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 uploading to the Owners web based management software.

B. Contractor's Approval: Indicate Contractor's approval for each submittal with a uniform approval stamp that is indicated on the web-based submittal. Include 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.
   1. Design Professional will not review submittals received from Contractor that do not have Contractor's review and approval.

**1.9 DESIGN PROFESSIONAL'S REVIEW**

A. Action Submittals: Design Professional will review each submittal, indicate corrections or revisions required within the “Comment” box on the web site.
   1. Submittals by Web-Based Project Software: Design Professional will indicate, on Project software website, the appropriate action.
      a. Actions taken by indication on Project software website have the following meanings:
         1) No exceptions taken, Pending, Overdue, Complete, or Rejected.

B. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Design Professional.

C. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be rejected for resubmittal without review.

D. Submittals returned through OMS without action will show up as Design Professional being non-responsive.

E. Submittals not required by the Contract Documents will be returned by Design Professional without action.

**END OF SECTION**

# SECTION 014000

# QUALITY REQUIREMENTS

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including Fixed Price Construction Contract 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.

B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
3. Requirements for Contractor to provide quality-assurance and -control services required by Design Professional, or Owner, or authorities having jurisdiction are not limited by provisions of this Section.
4. Specific test and inspection requirements are not specified in this Section.

### 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 the Design Professional.

C. Mockups: Full-size physical assemblies that are constructed on-site. Mockups are constructed to verify selections made under Sample submittals; to demonstrate aesthetic effects and, where indicated, qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples. Unless otherwise indicated, approved mockups establish the standard by which the Work will be judged.

1. Laboratory Mockups: Full-size physical assemblies constructed at testing facility to verify performance characteristics.
2. Integrated Exterior Mockups: Mockups of the exterior envelope erected separately from the building but on Project site, consisting of multiple products, assemblies, and subassemblies.
3. Room Mockups: Mockups of typical interior spaces complete with wall, floor, and ceiling finishes, doors, windows, millwork, casework, specialties, furnishings and equipment, and lighting.

D. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria.

E. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.

F. Source Quality-Control Testing: Tests and inspections that are performed at the source, e.g., plant, mill, factory, or shop.
G. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
H. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
I. 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).
J. 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 Design Professional for a decision before proceeding.
B. Minimum Quantity or Quality Levels: The quantity or quality level shown or 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 Design Professional for a decision before proceeding.

**1.5 ACTION SUBMITTALS**

A. Shop Drawings: For mockups, provide plans, sections, and elevations, indicating materials and size of mockup construction.
   1. Indicate manufacturer and model number of individual components.
   2. Provide axonometric drawings for conditions difficult to illustrate in two dimensions.

**1.6 INFORMATIONAL SUBMITTALS**

A. Contractor's Quality-Control Plan: For quality-assurance and quality-control activities and responsibilities.
B. Qualification Data: For Contractor's quality-control personnel.
C. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility sent to authorities having jurisdiction before starting work on the following systems:
   1. Seismic-force-resisting system, designated seismic system, or component listed in the designated seismic system quality-assurance plan prepared by Design Professional.
   2. Main wind-force-resisting system or a wind-resisting component listed in the wind-force-resisting system quality-assurance plan prepared by Design Professional.
D. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
E. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
   1. Specification Section number and title.
   2. Entity responsible for performing tests and inspections.
   3. Description of test and inspection.
   4. Identification of applicable standards.
   5. Identification of test and inspection methods.
   6. Number of tests and inspections required.
   7. Time schedule or time span for tests and inspections.
   8. Requirements for obtaining samples.
   9. Unique characteristics of each quality-control service.

## 1.7 CONTRACTOR'S QUALITY-CONTROL PLAN

A. Quality-Control Plan, General: Submit quality-control plan within seven days of Notice to Proceed and not less than two days prior to preconstruction conference. Submit in format acceptable to Design Professional. Identify personnel, procedures, controls, instructions, tests, records, and forms to be used to carry out Contractor's quality-assurance and quality-control responsibilities. Coordinate with Contractor's construction schedule.

B. Quality-Control Personnel Qualifications: Engage qualified full-time personnel trained and experienced in managing and executing quality-assurance and quality-control procedures similar in nature and extent to those required for Project.
   1. Project quality-control manager may also serve as Project superintendent.

C. Submittal Procedure: Describe procedures for ensuring compliance with requirements through review and management of submittal process. Indicate qualifications of personnel responsible for submittal review.

D. Testing and Inspection: In quality-control plan, include a comprehensive schedule of Work requiring testing or inspection, including the following:
   1. Contractor-performed tests and inspections including subcontractor-performed tests and inspections. Include required tests and inspections and Contractor-elected tests and inspections.
   2. Special inspections required by authorities having jurisdiction and indicated on the "Statement of Special Inspections."
   3. Owner-performed tests and inspections indicated in the Contract Documents.

E. Continuous Inspection of Workmanship: Describe process for continuous inspection during construction to identify and correct deficiencies in workmanship in addition to testing and inspection specified. Indicate types of corrective actions to be required to bring work into compliance with standards of workmanship established by Contract requirements and approved mockups.

F. Monitoring and Documentation: Maintain testing and inspection reports including log of approved and rejected results. Include work Design Professional has indicated as nonconforming or defective. Indicate corrective actions taken to bring nonconforming work into compliance with requirements. Comply with requirements of authorities having jurisdiction.

## 1.8 REPORTS AND DOCUMENTS

A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:
   1. Date of issue.
   2. Project title and number.
   3. Name, address, and telephone number of testing agency.
   4. Dates and locations of samples and tests or inspections.
   5. Names of individuals making tests and inspections.
   6. Description of the Work and test and inspection method.
   7. Identification of product and Specification Section.
   8. Complete test or inspection data.
   9. Test and inspection results and an interpretation of test results.
   10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
   11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
   12. Name and signature of laboratory inspector.
   13. Recommendations on retesting and re-inspecting.

B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:
   1. Name, address, and telephone number of technical representative making report.
   2. Statement on condition of substrates and their acceptability for installation of product.
   3. Statement that products at Project site comply with requirements.
   4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.

5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
6. Statement whether conditions, products, and installation will affect warranty.
7. Other required items indicated in individual Specification Sections.

C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:
1. Name, address, and telephone number of factory-authorized service representative making report.
2. Statement that equipment complies with requirements.
3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
4. Statement whether conditions, products, and installation will affect warranty.
5. Other required items indicated in individual Specification Sections.

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

**1.9 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.

C. 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.

D. 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 in-service performance.

E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar in material, design, and extent to those indicated for this Project.

F. Specialists: Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.

G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 329; and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.
1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.

H. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

I. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

J. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:
   1. Contractor responsibilities include the following:
      a. Provide test specimens representative of proposed products and construction.
      b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
      c. Provide sizes and configurations of test assemblies, mockups, and laboratory mockups to adequately demonstrate capability of products to comply with performance requirements.
      d. Build site-assembled test assemblies and mockups using installers who will perform same tasks for Project.
      e. Build laboratory mockups at testing facility using personnel, products, and methods of construction indicated for the completed Work.
      f. When testing is complete, remove test specimens, assemblies, and mock-ups; do not reuse products on Project unless authorized by the Design Professional.
   2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Design Professional with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.

K. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:
   1. Build mockups in location and of size indicated or, if not indicated, as directed by Design Professional
   2. Notify Design Professional two days in advance of dates and times when mockups will be constructed.
   3. Employ supervisory personnel who will oversee mockup construction. Employ workers that will be employed during the construction at Project.
   4. Demonstrate the proposed range of aesthetic effects and workmanship.
   5. Obtain Design Professional’s approval of mockups before starting work, fabrication, or construction.
      a. Allow five days for initial review and each re-review of each mockup.
   6. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
   7. Demolish and remove mockups when directed unless otherwise indicated.

L. Integrated Exterior Mockups: Construct integrated exterior mockup as directed by Design Professional. Coordinate installation of exterior envelope materials and products for which mockups are required in individual Specification Sections, along with supporting materials.

M. Room Mockups: Construct Lab room mockups incorporating headwall unit, materials and assemblies, finished according to requirements. Provide required lighting and additional lighting where required to enable Architect to evaluate quality of the Work. Provide room mockups where directed by Design Professional.

N. Laboratory Mockups: Comply with requirements of preconstruction testing and those specified in individual Specification Sections.

**1.10 QUALITY CONTROL**

A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services. These services, or special inspections, provided to the Owner are for the express purpose of meeting the testing requirements required under the authorities having jurisdiction and shall not in any way be considered to replace the Contractor’s responsibility for quality assurance and control for the project.
   1. Contractor will coordinate and schedule all testing and special inspections with the Owner’s testing agency.

2. Under no circumstances will the Owner's testing agency perform quality control or quality assurance work for the Contractor.
3. Costs for retesting and re-inspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor**,** and the Contract Sum will be adjusted by Change Order.
4. Initial reports (handwritten as a minimum) will be given to the Contractor by the Owner's testing Agency before leaving the site the day of the inspection.
5. Final reports will be issued later to the Contractor, Design Professional, and Owner.

B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. 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.
2. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
    a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.
3. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
5. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Section 013300 "Submittal Procedures."

D. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in pre-installation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.

E. Retesting/Re-inspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and re-inspecting, for construction that replaced Work that failed to comply with the Contract Documents.

F. Testing Agency Responsibilities: Cooperate with Owner, Design Professional, and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
1. Notify Owner, Design Professional, and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service to Owner, Design Professional, and Contractor.
5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
6. Do not perform any duties of Contractor.

G. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
1. Access to the Work.

2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
4. Facilities for storage and field curing of test samples.
5. Delivery of samples to testing agencies.
6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
7. Security and protection for samples and for testing and inspecting equipment at Project site.

H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.

I. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents. Coordinate and submit concurrently with Contractor's construction schedule. Update as the Work progresses.
1. Distribution: Distribute schedule to Owner, Design Professional, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

**1.11 SPECIAL TESTS AND INSPECTIONS**

A. Special Tests and Inspections: Owner will engage a qualified testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner as follows:

B. Special Tests and Inspections: Conducted by a qualified testing agency as required by authorities having jurisdiction, as indicated in individual Specification Sections, and as follows:
1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviews the completeness and adequacy of those procedures to perform the Work.
2. Notifying Owner, Design Professional, and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
3. Submitting a certified written report of each test, inspection, and similar quality-control service to Owner, Design Professional, and Contractor, and to authorities having jurisdiction if required.
4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
6. Retesting and re-inspecting corrected work.

## PART 2 - PRODUCTS (Not Used)

## PART 3 - EXECUTION

**3.1 TEST AND INSPECTION LOG**

A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:
1. Date test or inspection was conducted.
2. Description of the Work tested or inspected.
3. Date test or inspection results were transmitted to Architect.
4. Identification of testing agency or special inspector conducting test or inspection.

B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Owner and Design Professional’s reference during normal working hours.

**3.2 REPAIR AND PROTECTION**

A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
   1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 017300 "Execution."

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

**END OF SECTION**

# SECTION 015000

# TEMPORARY FACILITIES AND CONTROLS

## PART 1 - GENERAL

### 1.1 SUMMARY

A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
B. Related Requirements:
   1. Section 011000 "Summary" for work restrictions and limitations on utility interruptions.

### 1.2 USE CHARGES

A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities engaged in the Project to use temporary services and facilities without cost, including, but not limited to, Owner's construction forces, Design Professional, occupants of Project, testing agencies, and authorities having jurisdiction.
B. Sewer Service: Pay sewer-service use charges for sewer usage by all entities for construction operations.
C. Water Service: Pay water-service use charges for water used by all entities for construction operations.
D. Electric Power Service: Pay electric-power-service use charges for electricity used by all entities for construction operations.
E. Water and Sewer Service from Existing System: Water from Owner's existing water system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.
F. Electric Power Service from Existing System: Electric power from Owner's existing system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

### 1.3 INFORMATIONAL SUBMITTALS

A. Site Utilization Plan: Show temporary facilities, temporary utility lines and connections, staging areas, construction site entrances, vehicle circulation, and parking areas for construction personnel.
B. Erosion- and Sedimentation-Control Plan: Show compliance with requirements of EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.
C. Project Identification and Temporary Signs: Show fabrication and installation details, including plans, elevations, details, layouts, typestyles, graphic elements, and message content.
D. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.
E. Moisture-and Mold-Protection Plan: Describe procedures and controls for protecting materials and construction from water absorption and damage and mold.
   1. Describe delivery, handling, and storage provisions for materials subject to water absorption or water damage.
   2. Indicate procedures for discarding water-damaged materials, protocols for mitigating water intrusion into completed Work, and replacing water-damaged Work.
   3. Indicate sequencing of work that requires water, such as sprayed fire-resistive materials, plastering, and terrazzo grinding, and describe plans for dealing with water from these operations. Show procedures for verifying that wet construction has dried sufficiently to permit installation of finish materials.

F. Dust- and HVAC-Control Plan: Submit coordination drawing and narrative that indicates the dust- and HVAC-control measures proposed for use, proposed locations, and proposed time frame for their operation. Include the following:
   1. Locations of dust-control partitions at each phase of work.
   2. HVAC system isolation schematic drawing.
   3. Location of proposed air-filtration system discharge.
   4. Waste-handling procedures.
   5. Other dust-control measures.
   6. Noise control measures.

**1.4 QUALITY ASSURANCE**

A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

C. Accessible Temporary Egress: Comply with applicable provisions in the United States Access Board's ADA-ABA Accessibility Guidelines and ICC/ANSI A117.1.

**1.5 PROJECT CONDITIONS**

A. Temporary Use of Permanent Facilities: Engage Installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

## PART 2 - PRODUCTS

**2.1 TEMPORARY FACILITIES**

A. Field Offices, General: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.

B. Common-Use Field Office: Of sufficient size to accommodate needs of Owner, Design Professional, and construction personnel office activities and to accommodate Project meetings specified in other Division 01 Sections. Keep office clean and orderly. Furnish and equip offices as follows:

**2.2 EQUIPMENT**

A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

B. HVAC Equipment: Unless Owner authorizes use of permanent HVAC system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.

   1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
   2. Heating Units: Listed and labeled for type of fuel being consumed, by a qualified testing agency acceptable to authorities having jurisdiction, and marked for intended location and application.
   3. Permanent HVAC System: If Owner authorizes use of permanent HVAC system for temporary use during construction, provide filter with MERV of **8** at each return-air grille in system and remove at end of construction and clean HVAC system as required in Section 017700 "Closeout Procedures."

C. Air-Filtration Units: Primary and secondary HEPA-filter-equipped portable units with four-stage filtration. Provide single switch for emergency shutoff. Configure to run continuously.

## PART 3 - EXECUTION

### 3.1 TEMPORARY FACILITIES, GENERAL

A. Conservation: Coordinate construction and use of temporary facilities with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.
   1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. See other Sections for disposition of salvaged materials that are designated as Owner's property.

### 3.2 INSTALLATION, GENERAL

A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.

B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

### 3.3 TEMPORARY UTILITY INSTALLATION

A. General: Install temporary service or connect to existing service.
   1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.

B. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.
   1. Connect temporary sewers to municipal system or private system indicated as directed by authorities having jurisdiction.

C. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction.

D. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
   1. Toilets: Use of Owner's existing toilet facilities may be permitted, if authorized, as long as facilities are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.

E. Temporary Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.
   1. Provide temporary dehumidification systems when required to reduce ambient and substrate moisture levels to level required to allow installation or application of finishes and their proper curing or drying.

F. Isolation of Work Areas in Occupied Facilities: Prevent dust, fumes, and odors from entering occupied areas.
   1. Prior to commencing work, isolate the HVAC system in area where work is to be performed according to coordination drawings.
      a. Disconnect supply and return ductwork in work area from HVAC systems servicing occupied areas.
      b. Maintain negative air pressure within work area using HEPA-equipped air-filtration units, starting with commencement of temporary partition construction, and continuing until removal of temporary partitions is complete.
   2. Maintain dust partitions during the Work. Use vacuum collection attachments on dust-producing equipment. Isolate limited work within occupied areas using portable dust-containment devices.
   3. Perform daily construction cleanup and final cleanup using approved, HEPA-filter-equipped vacuum equipment.

G. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.
   1. Install electric power service overhead unless otherwise indicated.

H. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.
   1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.

~~I.~~ Telephone Service: Provide temporary telephone service in common-use facilities for use by all construction personnel.

**3.4 SUPPORT FACILITIES INSTALLATION**

A. General: Comply with the following:
   1. Provide construction for temporary offices, shops, and sheds located within construction area or within 30 feet of building lines that is noncombustible according to ASTM E 136. Comply with NFPA 241.
   2. Maintain support facilities until Design Professional schedules Substantial Completion inspection. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.

B. Temporary Roads and Paved Areas: Construct and maintain temporary roads and paved areas adequate for construction operations. Locate temporary roads and paved areas as indicated within construction limits indicated on Drawings.
   1. Provide dust-control treatment that is nonpolluting and non-tracking. Reapply treatment as required to minimize dust.

C. Temporary Use of Permanent Roads and Paved Areas: Locate temporary roads and paved areas in same location as permanent roads and paved areas. Construct and maintain temporary roads and paved areas adequate for construction operations. Extend temporary roads and paved areas, within construction limits indicated, as necessary for construction operations.
   1. Coordinate elevations of temporary roads and paved areas with permanent roads and paved areas.
   2. Prepare subgrade and install subbase and base for temporary roads and paved areas according to Section 312000 "Earth Moving."
   3. Recondition base after temporary use, including removing contaminated material, regrading, proof-rolling, compacting, and testing.
   4. Delay installation of final course of permanent hot-mix asphalt pavement until immediately before Substantial Completion. Repair hot-mix asphalt base-course pavement before installation of final course according to Section 321216 "Asphalt Paving."

D. Traffic Controls: Comply with requirements of authorities having jurisdiction.
   1. Protect existing site improvements to remain including curbs, pavement, and utilities.
   2. Maintain access for fire-fighting equipment and access to fire hydrants.

E. Parking: See Section 011000, 1.04, E for parking areas for construction personnel.

F. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.
   1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties or endanger permanent Work or temporary facilities.
   2. Remove snow and ice as required to minimize accumulations.

G. Project Signs: Provide Project signs as indicated. Unauthorized signs are not permitted.
   1. Identification Signs: Provide Project identification signs as indicated on Drawings.
   2. Temporary Signs: Provide other signs as indicated and as required to inform public and individuals seeking entrance to Project.
      a. Provide temporary, directional signs for construction personnel and visitors.
   3. Maintain and touch up signs so they are legible at all times.

H. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with progress cleaning requirements in Section 017300 "Execution." Comply with demolition and construction waste disposal requirements in Section 024120.

I. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.

1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

J. Existing Elevator Use: Use of Owner's existing elevators will be permitted, provided elevators are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore elevators to condition existing before initial use, including replacing worn cables, guide shoes, and similar items of limited life.
   1. Do not load elevators beyond their rated weight capacity.
   2. Provide protective coverings, barriers, devices, signs, or other procedures to protect elevator car and entrance doors and frame. If, despite such protection, elevators become damaged, engage elevator Installer to restore damaged work so no evidence remains of correction work. Return items that cannot be refinished in field to the shop, make required repairs and refinish entire unit, or provide new units as required.

K. Temporary Stairs: Until permanent stairs are available, provide temporary stairs where ladders are not adequate.

L. Existing Stair Usage: Use of Owner's existing stairs will be permitted, provided stairs are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore stairs to condition existing before initial use.
   1. Provide protective coverings, barriers, devices, signs, or other procedures to protect stairs and to maintain means of egress. If stairs become damaged, restore damaged areas so no evidence remains of correction work.

M. Temporary Use of Permanent Stairs: Use of new stairs for construction traffic will be permitted, provided stairs are protected and finishes restored to new condition at time of Substantial Completion.

## 3.5 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.
   1. Where access to adjacent properties is required in order to affect protection of existing facilities, obtain written permission from adjacent property owner to access property for that purpose.

B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

C. Temporary Erosion and Sedimentation Control: Comply with requirements of EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent and requirements specified in Section 311000 "Site Clearing."

D. Temporary Erosion and Sedimentation Control: Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to undisturbed areas and to adjacent properties and walkways, according to requirements of EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.
   1. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross tree- or plant-protection zones.
   2. Inspect, repair, and maintain erosion- and sedimentation-control measures during construction until permanent vegetation has been established.
   3. Clean, repair, and restore adjoining properties and roads affected by erosion and sedimentation from Project site during the course of Project.
   4. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

E. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.

F. Tree and Plant Protection: Comply with requirements specified in Section 015639 "Temporary Tree and Plant Protection."

G. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.

H. Site Enclosure Fence: Before construction operations begin, furnish and install site enclosure fence in a manner that will prevent people from easily entering site except by entrance gates.
   1. Extent of Fence: As required to enclose entire Project site or portion determined sufficient to accommodate construction operations.
   2. Maintain security by limiting number of keys and restricting distribution to authorized personnel. Furnish one set of keys to Owner.

I. Security Enclosure and Lockup: Install temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Lock entrances at end of each workday.

J. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.

K. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.

L. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
   1. Where heating or cooling is needed and permanent enclosure is incomplete, insulate temporary enclosures.

M. Temporary Partitions: Provide floor-to-ceiling dustproof partitions to limit dust and dirt migration and to separate areas occupied by Owner and tenants from fumes, dust and noise.
   1. Construct dustproof partitions with gypsum wallboard with joints taped on occupied side, and fire-retardant-treated plywood on construction operations side.
   2. Where fire-resistance-rated temporary partitions are indicated or are required by authorities having jurisdiction, construct partitions according to the rated assemblies.
   3. Provide walk-off mats at each entrance through temporary partition.

N. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire-prevention program.
   1. Prohibit smoking in construction areas. Comply with additional limits on smoking specified in other Sections.
   2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
   3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
   4. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

**3.6 MOISTURE AND MOLD CONTROL**

A. Contractor's Moisture-Protection Plan: Describe delivery, handling, storage, installation, and protection provisions for materials subject to water absorption or water damage.
   1. Indicate procedures for discarding water-damaged materials, protocols for mitigating water intrusion into completed Work, and replacing water-damaged Work.
   2. Indicate sequencing of work that requires water, such as sprayed fire-resistive materials, plastering, and terrazzo grinding, and describe plans for dealing with water from these operations. Show procedures for verifying that wet construction has dried sufficiently to permit installation of finish materials.
   3. Indicate methods to be used to avoid trapping water in finished work.

B. Exposed Construction Period: Before installation of weather barriers, when materials are subject to wetting and exposure and to airborne mold spores, protect as follows:
   1. Protect porous materials from water damage.
   2. Protect stored and installed material from flowing or standing water.
   3. Keep porous and organic materials from coming into prolonged contact with concrete.
   4. Remove standing water from decks.
   5. Keep deck openings covered or dammed.

C. Partially Enclosed Construction Period: After installation of weather barriers but before full enclosure and conditioning of building, when installed materials are still subject to infiltration of moisture and ambient mold spores, protect as follows:
   1. Do not load or install drywall or other porous materials or components, or items with high organic content, into partially enclosed building.
   2. Keep interior spaces reasonably clean and protected from water damage.
   3. Periodically collect and remove waste containing cellulose or other organic matter.
   4. Discard or replace water-damaged material.
   5. Do not install material that is wet.
   6. Discard and replace stored or installed material that begins to grow mold.
   7. Perform work in a sequence that allows wet materials adequate time to dry before enclosing the material in gypsum board or other interior finishes.

D. Controlled Construction Period: After completing and sealing of the building enclosure but prior to the full operation of permanent HVAC systems, maintain as follows:
   1. Control moisture and humidity inside building by maintaining effective dry-in conditions.
   2. Use temporary or permanent HVAC system to control humidity within ranges specified for installed and stored materials.
   3. Comply with manufacturer's written instructions for temperature, relative humidity, and exposure to water limits.

## 3.7 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

B. Maintenance: Maintain facilities in good operating condition until removal.
   1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.

C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.

D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
   1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
   2. Remove temporary roads and paved areas not intended for or acceptable for integration into permanent construction. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.
   3. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Section 017700 "Closeout Procedures."

**END OF SECTION**

# SECTION 016000

# PRODUCT REQUIREMENTS

## PART 1 - GENERAL

### 1.1 SUMMARY

A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.

B. Related Requirements:

1. Section 012500 "Substitution Procedures" for requests for substitutions.

### 1.2 DEFINITIONS

A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
3. Comparable Product: Product that is demonstrated and approved by Design Professional through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

B. Basis-of-Design Product Specification: A specification in which a single manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation. In addition to the basis-of-design product description, product attributes and characteristics may be listed to establish the significant qualities related to type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other special features and requirements for purposes of evaluating comparable products of additional manufacturers named in the specification.

### 1.3 ACTION SUBMITTALS

A. Comparable Product Request Submittal: Submit request for consideration of each comparable product. Identify basis-of-design product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.
2. Design Professional's Action: If necessary, Design Professional will request additional information or documentation for evaluation within seven (7) days of receipt of a comparable product request. Design Professional will notify Contractor of approval or rejection of proposed comparable product request within seven (7) days of receipt of request, or seven (7) days of receipt of additional information or documentation, whichever is later.
    a. Form of Design Professional's Approval of Submittal: As specified in Section 013300 "Submittal Procedures."
    b. Use product specified if Design Professional does not issue a decision on use of a comparable product request within time allocated.

B. Basis-of-Design Product Specification Submittal: Comply with requirements in Section 013300 "Submittal Procedures." Show compliance with requirements.

**1.4 QUALITY ASSURANCE**

A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.

**1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING**

A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.

B. Delivery and Handling:
   1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
   2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
   3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
   4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.

C. Storage:
   1. Store products to allow for inspection and measurement of quantity or counting of units.
   2. Store materials in a manner that will not endanger Project structure.
   3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
   4. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
   5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
   6. Protect stored products from damage and liquids from freezing.

**1.6 PRODUCT WARRANTIES**

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
   1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
   2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.
   1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
   2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
   3. See other Sections for specific content requirements and particular requirements for submitting special warranties.

## PART 2 - PRODUCTS

**2.1 PRODUCT SELECTION PROCEDURES**

A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.
   1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.

2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. Owner reserves the right to limit selection to products with warranties meeting requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Design Professional will make selection.
5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.

B. Product Selection Procedures:
1. Sole Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
   a. Sole product may be indicated by the phrase: "Subject to compliance with requirements, provide the following: …"
2. Sole Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
   a. Sole manufacturer/source may be indicated by the phrase: "Subject to compliance with requirements, provide products by the following: …"
3. Limited List of Products: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
   a. Limited list of products may be indicated by the phrase: "Subject to compliance with requirements, provide one of the following: …"
4. Non-Limited List of Products: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, which complies with requirements.
   a. Non-limited list of products is indicated by the phrase: "Subject to compliance with requirements, available products that may be incorporated in the Work include, but are not limited to, the following: …"
5. Limited List of Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
   a. Limited list of manufacturers is indicated by the phrase: "Subject to compliance with requirements, provide products by one of the following: …"
6. Non-Limited List of Manufacturers: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, which complies with requirements.
   a. Non-limited list of manufacturers is indicated by the phrase: "Subject to compliance with requirements, available manufacturers whose products may be incorporated in the Work include, but are not limited to, the following: …"
7. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.
   a. For approval of products by unnamed manufacturers, comply with requirements in Section 012500 "Substitution Procedures" for substitutions for convenience.

C. Visual Matching Specification: Where Specifications require "match Design Professional's sample," provide a product that complies with requirements and matches Design Professional's sample. Design Professional's decision will be final on whether a proposed product matches.
   1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Section 012500 "Substitution Procedures" for proposal of product.

D. Visual Selection Specification: Where Specifications include the phrase "as selected by Design Professional from manufacturer's full range" or similar phrase, select a product that complies with requirements. Design Professional will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

**2.2 COMPARABLE PRODUCTS**

A. Conditions for Consideration of Comparable Products: Design Professional will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Design Professional may return requests without action, except to record noncompliance with these requirements:
   1. Evidence that proposed product does not require revisions to the Contract Documents, is consistent with the Contract Documents, will produce the indicated results, and is compatible with other portions of the Work. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant product qualities include attributes such as type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other specific features and requirements.
   2. Evidence that proposed product provides specified warranty.
   3. List of similar installations for completed projects with project names and addresses and names and addresses of Design Professionals and owners, if requested.
   4. Samples, if requested.

**END OF SECTION**

# SECTION 017300

# EXECUTION

## PART 1 - GENERAL

### 1.1 SUMMARY

A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:
   1. Construction layout.
   2. Field engineering and surveying.
   3. Installation of the Work.
   4. Cutting and patching.
   5. Progress cleaning.
   6. Starting and adjusting.
   7. Protection of installed construction.

B. Related Requirements:
   1. Section 011000 "Summary" for limits on use of Project site.
   2. Section 017700 "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, replacing defective work, and final cleaning.

### 1.2 QUALITY ASSURANCE

A. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
   1. Structural Elements: When cutting and patching structural elements, notify Design Professional of locations and details of cutting and await directions from Design Professional before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection.
   2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.
   3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. Other construction elements include but are not limited to the following:
      a. Water, moisture, or vapor barriers.
      b. Membranes and flashings.
      c. Exterior curtain-wall construction.
      d. Sprayed fire-resistive material.
      e. Equipment supports.
      f. Piping, ductwork, vessels, and equipment.
      g. Noise- and vibration-control elements and systems.
   4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Design Professional's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
   5. Utilities and Mechanical and Electrical Systems: List services and systems that cutting and patching procedures will disturb or affect. List services and systems that will be

relocated and those that will be temporarily out of service. Indicate length of time permanent services and systems will be disrupted.

a. Include description of provisions for temporary services and systems during interruption of permanent services and systems.

6. Dates: Indicate on the contractor's schedule when cutting and patching will be performed.

B. Cutting and Patching Conference: Before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

C. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

A. General: Comply with requirements specified in other Sections.

B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.

1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Design Professional for the visual and functional performance of in-place materials.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.

1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; underground electrical services; and other utilities.
2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.

C. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

**3.2 PREPARATION**

A. Existing Utility Information: Furnish information to local utility, Design Professional and Owner that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Design Professional according to requirements in Section 013100 "Project Management and Coordination."

**3.3 CONSTRUCTION LAYOUT**

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Design Professional promptly.

B. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.

C. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.

D. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Design Professional.

**3.4 INSTALLATION**

A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
   1. Make vertical work plumb and make horizontal work level.
   2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
   3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
   4. Maintain minimum headroom clearance of in occupied spaces and in unoccupied spaces, or as required by authorities having jurisdiction.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.

F. Tools and Equipment: Where possible, select tools or equipment that minimize production of excessive noise levels.

G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other portions of the Work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned

with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.

1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Design Professional.
2. Allow for building movement, including thermal expansion and contraction.
3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

J. Remove and replace damaged, defective, or non-conforming Work.

**3.5 CUTTING AND PATCHING**

A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.

1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.

C. Temporary Support: Provide temporary support of work to be cut.

D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

E. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching according to requirements in Section 011000 "Summary."

F. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to prevent interruption to occupied areas.

G. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.

1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.
5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
6. Proceed with patching after construction operations requiring cutting are complete.

H. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.

a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
b. Restore damaged pipe covering to its original condition.

3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
   a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.

I. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

**3.6 AGENCY-INSTALLED PRODUCTS**

A. Site Access: Provide access to Project site for Owner's and Agency construction personnel.
B. Coordination: Coordinate construction and operations of the Work with work performed by Owner and Agency construction personnel.
   1. Construction Schedule: Inform Owner/Agency of Contractor's preferred construction schedule for Owner/Agency portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner/Agency in a timely manner if changes to schedule are required due to differences in actual construction progress.
   2. Pre-installation Conferences: Include Owner/Agency construction personnel at pre-installation conferences covering portions of the Work that are to receive Owner/Agency work. Attend pre-installation conferences conducted by Owner/Agency construction personnel if portions of the Work depend on Owner's construction.

**3.7 PROGRESS CLEANING**

A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
   1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
   2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.
   3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
      a. Use containers intended for holding waste materials of type to be stored.
   4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.
B. Site: Maintain Project site free of waste materials and debris.
C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
   1. Remove liquid spills promptly.
   2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Section 015000 "Temporary Facilities and Controls."

H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

J. Limiting Exposures: Supervise construction operations to ensure that no part of the construction completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

**3.8 STARTING AND ADJUSTING**

A. Coordinate startup and adjusting of equipment and operating components with requirements in Section 019113 "General Commissioning Requirements."

B. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.

C. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.

D. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

E. Manufacturer's Field Service: Comply with qualification requirements in Section 014000 "Quality Requirements."

**3.9 PROTECTION OF INSTALLED CONSTRUCTION**

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

B. Protection of Existing Items: Provide protection and ensure that existing items to remain undisturbed by construction are maintained in condition that existed at commencement of the Work.

C. Comply with manufacturer's written instructions for temperature and relative humidity.

**END OF SECTION**

# SECTION 017700

# CLOSEOUT PROCEDURES

## PART 1 - GENERAL

### 1.1 SUMMARY

A. Drawings and general provisions of the Contract, including Fixed Price Construction Contract and other Division 01 Specification Sections, apply to this Section.

B. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
   1. Substantial Completion procedures.
   2. Final completion procedures.
   3. Warranties.
   4. Final cleaning.
   5. Repair of the Work.

C. Related Requirements:
   1. Section 017823 "Operation and Maintenance Data" for additional operation and maintenance manual requirements.
   2. Section 017839 "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
   3. Section 017900 "Demonstration and Training" for requirements to train the Owner's maintenance personnel to adjust, operate, and maintain products, equipment, and systems.

### 1.2 ACTION SUBMITTALS

A. Product Data: For each type of cleaning agent.

B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.

C. Certified List of Incomplete Items: Final submittal at final completion.

### 1.3 CLOSEOUT SUBMITTALS

A. Certificates of Release: From authorities having jurisdiction.

B. Idaho Division of Public Works Close-Out requirements, including “Conditions Precedent to Final Payment” list. The “Project Finalization” form is required unless specifications indicate otherwise.

### 1.4 SUBSTANTIAL COMPLETION PROCEDURES

A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.

B. Submittals Prior to Substantial Completion: Complete the following a minimum of seven (7) days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
   1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
   2. Submit closeout submittals specified in other Division 01 Sections, including As-Built documents indicating all revisions to Project Documents, project record documents, operation and maintenance manuals, damage or settlement surveys, property surveys, and similar final record information.
   3. Submit closeout submittals in both hard copy and electronic copy specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.

4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Design Professional. Label with manufacturer's name and model number.
5. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
6. A final report of Special Inspections to be attached to the Substantial Completion. If no Special Inspections are required, Design Professional can initial as such on the Substantial Completion form.
7. Submit O&M Manuals for compliance with the contract documents in both hard copy and electronic copy.

C. Procedures Prior to Substantial Completion: Complete the following a minimum of seven (7) days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
1. Advise Owner of pending insurance changeover requirements.
2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
3. Complete startup and testing of systems and equipment.
4. Perform preventive maintenance on equipment used prior to Substantial Completion.
5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training video recordings specified in Section 017900 "Demonstration and Training."
6. Advise Owner of changeover in utility services.
7. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
8. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
9. Complete final cleaning requirements.
10. Touch up paint and otherwise repair and restore marred exposed finishes to eliminate visual defects.

D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of ten (10) days prior to date the Work will be completed and ready for final inspection and tests. On receipt of request, Design Professional will either proceed with inspection or notify Contractor of unfulfilled requirements. Design Professional will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Design Professional, that must be completed or corrected before certificate will be issued.
1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for final completion.

**1.5 FINAL COMPLETION PROCEDURES**

A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:
1. Submit final Application for Payment according to Section 012900 "Payment Procedures" via the OMS.
2. Certified List of Incomplete Items: Submit certified copy of Design Professional's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Design Professional. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Idaho Division of Public Works Close-Out requirements.

B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Design Professional will either proceed with inspection or notify Contractor of unfulfilled requirements. Design Professional will approve/initial punch list after inspection or will notify Contractor of construction that must be completed or corrected before final documents will be signed. .

### 1.6 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
   1. Organize list of spaces in sequential order
   2. Submit list of incomplete items in the following format:
      a. MS Excel electronic file. Design Professional will return annotated file.
      b. PDF electronic file. Design Professional will return annotated file.

### 1.7 SUBMITTAL OF PROJECT WARRANTIES

A. Time of Submittal: Submit written warranties on request of Design Professional for designated portions of the Work where warranties are indicated to commence on dates other than date of Substantial Completion, or when delay in submittal of warranties might limit Owner's rights under warranty.

B. Partial Occupancy: Submit properly executed warranties within ten (10) days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.

C. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.

D. Warranty Electronic File: Provide warranties and bonds in PDF format. Assemble complete warranty and bond submittal package into a single electronic PDF file with bookmarks enabling navigation to each item. Provide bookmarked table of contents at beginning of document.
   1. Submit by uploading to web-based project software site.

E. Warranties in Paper Form:
   1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
   2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
   3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
   4. Warranty Electronic File: Scan warranties and bonds and assemble complete warranty and bond submittal package into a single indexed electronic PDF file with links enabling navigation to each item. Provide bookmarked table of contents at beginning of document.

F. Provide additional copies of each warranty to include in operation and maintenance manuals.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

## PART 3 - EXECUTION

### 3.1 FINAL CLEANING

A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:
   a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
   b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
   c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
   d. Remove tools, construction equipment, machinery, and surplus material from Project site.
   e. Remove snow and ice to provide safe access to building.
   f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
   g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
   h. Sweep concrete floors broom clean in unoccupied spaces.
   i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.
   j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Polish mirrors and glass, taking care not to scratch surfaces.
   k. Remove labels that are not permanent.
   l. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances
   m. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
   n. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
   o. Clean ducts, blowers, and coils if units were operated without filters during construction or that display contamination with particulate matter on inspection.

      1) Clean HVAC system in compliance with NADCA Standard 1992-01. Provide written report on completion of cleaning.
   p. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.
   q. Leave Project clean and ready for occupancy.

C. Construction Waste Disposal: Comply with waste disposal requirements in Section 015000 "Temporary Facilities and Controls," comply with demolition and construction waste disposal requirements of Section 024120 "Selective Demolition."

**3.2 REPAIR OF THE WORK**

A. Complete repair and restoration operations, as well as any damage to surrounding areas. Repair includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition before requesting inspection for determination of Substantial Completion.
   1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
   2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that that already show evidence of repair or restoration.

a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.

3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
4. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

B. Repair, or remove and replace, defective construction.

**END OF SECTION**

# SECTION 01 7823

# OPERATION AND MAINTENANCE DATA

## PART 1 - GENERAL

### 1.1 SUMMARY

A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
   1. Operation and maintenance documentation directory manuals.
   2. Emergency manuals.
   3. Systems and equipment operation manuals.
   4. Systems and equipment maintenance manuals.
   5. Product maintenance manuals.

### 1.2 CLOSEOUT SUBMITTALS

A. Submit operation and maintenance manuals indicated. Provide content for each manual as specified in individual Specification Sections, and as reviewed and approved at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.
   1. Design Professional will comment on whether content of operation and maintenance submittals is acceptable.
   2. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.

B. Format: Submit operation and maintenance manuals in the following format:
   1. Submit by uploading to web-based project software site. Enable reviewer comments on draft submittals.
   2. Submit three paper copies. Design Professional will return two copies with comments.

C. Final Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least 7 (seven) days before commencing demonstration and training. Design Professional will return copy with comments.
   1. Correct or revise each manual to comply with Design Professional's comments. Submit copies of each corrected manual within 15 days of receipt of Design Professional's comments and prior to commencing demonstration and training.

D. Comply with Section 017700 "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

### 1.3 FORMAT OF OPERATION AND MAINTENANCE MANUALS

A. Manuals, Electronic Files: Submit manuals in the form of a multiple file composite electronic PDF file for each manual type required.
   1. Electronic Files: Use electronic files prepared by manufacturer where available. Where scanning of paper documents is required, configure scanned file for minimum readable file size.
   2. File Names and Bookmarks: Bookmark individual documents based on file names. Name document files to correspond to system, subsystem, and equipment names used in manual directory and table of contents. Group documents for each system and subsystem into individual composite bookmarked files, then create composite manual, so that resulting bookmarks reflect the system, subsystem, and equipment names in a readily navigated file tree. Configure electronic manual to display bookmark panel on opening file.

B. Manuals, Paper Copy: Submit manuals in the form of hard-copy, bound and labeled volumes.
   1. Binders: Heavy-duty, three-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.

2. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
   a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
   b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

**1.4 REQUIREMENTS FOR EMERGENCY, OPERATION, AND MAINTENANCE MANUALS**

A. Organization of Manuals: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
   1. Title page.
   2. Table of contents.
   3. Manual contents.

B. Title Page: Include the following information:
   1. Subject matter included in manual.
   2. Name and address of Project.
   3. Name and address of Owner.
   4. Date of submittal.
   5. Name and contact information for Contractor.
   6. Name and contact information for Construction Manager.
   7. Name and contact information for Design Professional.
   8. Name and contact information for Commissioning Authority.
   9. Names and contact information for major consultants to the Design Professional that designed the systems contained in the manuals.
   10. Cross-reference to related systems in other operation and maintenance manuals.

C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.

D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.

E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

**1.5 EMERGENCY MANUALS**

A. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.

B. Content: Organize manual into a separate section for each of the following:
   1. Type of emergency.
   2. Emergency instructions.
   3. Emergency procedures.

C. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component:
   1. Fire.
   2. Flood.
   3. Gas leak.
   4. Water leak.
   5. Power failure.
   6. Water outage.
   7. System, subsystem, or equipment failure.
   8. Chemical release or spill.

D. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.
E. Emergency Procedures: Include the following, as applicable:
   1. Instructions on stopping.
   2. Shutdown instructions for each type of emergency.
   3. Operating instructions for conditions outside normal operating limits.
   4. Required sequences for electric or electronic systems.
   5. Special operating instructions and procedures.

**1.6 SYSTEMS AND EQUIPMENT OPERATION MANUALS**

A. Systems and Equipment Operation Manual: Assemble a complete set of data indicating operation of each system, subsystem, and piece of equipment not part of a system. Include information required for daily operation and management, operating standards, and routine and special operating procedures.
B. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:
   1. System, subsystem, and equipment descriptions. Use designations for systems and equipment indicated on Contract Documents.
   2. Performance and design criteria if Contractor has delegated design responsibility.
   3. Operating standards.
   4. Operating procedures.
   5. Operating logs.
   6. Wiring diagrams.
   7. Control diagrams.
   8. Piped system diagrams.
   9. Precautions against improper use.
   10. License requirements including inspection and renewal dates.
C. Descriptions: Include the following:
   1. Product name and model number. Use designations for products indicated on Contract Documents.
   2. Manufacturer's name.
   3. Equipment identification with serial number of each component.
   4. Equipment function.
   5. Operating characteristics.
   6. Limiting conditions.
   7. Performance curves.
   8. Engineering data and tests.
   9. Complete nomenclature and number of replacement parts.
D. Operating Procedures: Include the following, as applicable:
   1. Startup procedures.
   2. Equipment or system break-in procedures.
   3. Routine and normal operating instructions.
   4. Regulation and control procedures.
   5. Instructions on stopping.
   6. Normal shutdown instructions.
   7. Seasonal and weekend operating instructions.
   8. Required sequences for electric or electronic systems.
   9. Special operating instructions and procedures.
E. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.
F. Piped Systems: Diagram piping as installed, and identify color coding where required for identification.

## 1.7 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

A. Systems and Equipment Maintenance Manuals: Assemble a complete set of data indicating maintenance of each system, subsystem, and piece of equipment not part of a system. Include manufacturers' maintenance documentation, preventive maintenance procedures and frequency, repair procedures, wiring and systems diagrams, lists of spare parts, and warranty information.

B. Content: For each system, subsystem, and pieces of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranties and bonds, as described below.

C. Manufacturers' Maintenance Documentation: Include the following information for each component part or piece of equipment:
   1. Standard maintenance instructions and bulletins; include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
      a. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
   2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
   3. Identification and nomenclature of parts and components.
   4. List of items recommended to be stocked as spare parts.

D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
   1. Test and inspection instructions.
   2. Troubleshooting guide.
   3. Precautions against improper maintenance.
   4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
   5. Aligning, adjusting, and checking instructions.
   6. Demonstration and training video recording, if available.

E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.

F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.

G. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
   1. Include procedures to follow and required notifications for warranty claims.

H. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in record Drawings to ensure correct illustration of completed installation.

## 1.8 PRODUCT MAINTENANCE MANUALS

A. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.

B. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.

C. Product Information: Include the following, as applicable:
   1. Product name and model number.
   2. Manufacturer's name.
   3. Color, pattern, and texture.
   4. Material and chemical composition.

5. Reordering information for specially manufactured products.

D. Maintenance Procedures: Include manufacturer's written recommendations and the following:
   1. Inspection procedures.
   2. Types of cleaning agents to be used and methods of cleaning.
   3. List of cleaning agents and methods of cleaning detrimental to product.
   4. Schedule for routine cleaning and maintenance.
   5. Repair instructions.

E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.

F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
   1. Include procedures to follow and required notifications for warranty claims.

**END OF SECTION**

# SECTION 017839

# PROJECT AS-BUILT DOCUMENTS

## PART 1 - GENERAL

### 1.1 SUMMARY

A. Section includes administrative and procedural requirements for as-built documents, including the following:
   1. As-Built Drawings.
   2. As-Built Specifications.
   3. As-Built Product Data.

B. Related Requirements:
   1. Section 017300 "Execution" for final property survey.
   2. Section 017823 "Operation and Maintenance Data" for operation and maintenance manual requirements.

### 1.2 CLOSEOUT SUBMITTALS

A. As-Built Drawings: Comply with the following:
   1. Number of Copies: Submit copies of as-built Drawings as follows:
      a. Initial Submittal:
         1) Submit **one** paper-copy set(s) of marked-up as-built prints.
         2) Upload PDF electronic files of scanned as-built prints of file prints onto DPW's Owners Web-based Management Software.
         3) Architect will indicate whether general scope of changes, additional information recorded, and quality of drafting are acceptable.
      b. Final Submittal:
         1) Submit **one** paper-copy set of marked-up as-built prints.
         2) Upload PDF electronic files of scanned as-built prints onto DPW's Owners Web-based Management Software.
         3) Architect will review for completeness.

B. As-Built Specifications: Submit one marked-up paper copy annotated PDF electronic files of Project's Specifications, including addenda and contract modifications.

C. As-Built Product Data: Submit one paper copy and one annotated PDF electronic files and directories of each submittal.
   1. Where As-Built Product Data are required as part of operation and maintenance manuals, submit duplicate marked-up Product Data as a component of manual.

### 1.3 AS-BUILT DRAWINGS

A. As-Built Prints: Maintain one set of marked-up paper and electronic copy of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.
   1. Preparation: Mark as-built prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained as-built data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up as-built prints.
      a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
      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 as-built prints to corresponding 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.

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.
l. 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 as-built prints.
4. Mark as-built sets with 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.

B. As-Built Digital Data Files: Immediately before inspection for Certificate of Substantial Completion, review marked-up as-built prints with Architect. When authorized, prepare a full set of corrected digital data files of the Contract Drawings, as follows:
1. Format: Same digital data software program, version, and operating system as the original Contract Drawings.
2. Format: DWG.
3. Format: Annotated PDF electronic file with comment function enabled.
4. Incorporate changes and additional information previously marked on as-built prints. Delete, redraw, and add details and notations where applicable.
5. Refer instances of uncertainty to Architect for resolution.
6. Architect will furnish Contractor with one set of digital data files of the Contract Drawings for use in recording information.
a. See Section 013100 "Project Management and Coordination" for requirements related to use of Architect's digital data files.
b. Architect will provide data file layer information. Record markups in separate layers.

C. Format: Identify and date each record Drawing; include the designation "AS-BUILT DRAWING" in a prominent location.
1. As-built Prints: Organize as-built prints into manageable sets. If required, bind each set with durable paper cover sheets. Include identification on cover sheets.
2. Format: Annotated PDF electronic file [with comment function enabled].
3. As-Build Digital Data Files: Organize digital data information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each digital data file.
4. Identification: As follows:
a. Project name.
b. Date.
c. Designation "AS-BUILT DRAWINGS."
d. Name of Architect.
e. Name of Contractor.

## 1.4 AS-BUILT SPECIFICATIONS

A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.

2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
4. For each principal product, indicate whether as-built Product Data has been submitted in operation and maintenance manuals instead of submitted as As-Built Product Data.
5. Note related Change Orders**,** as-built Product Data**,** and as-built Drawings where applicable.

B. Format: Submit as-built Specifications as one paper copy and one scanned PDF electronic file(s) of marked-up paper copy of Specifications.

**1.5 AS-BUILT PRODUCT DATA**

A. Recording: Maintain one copy of each submittal during the construction period for project as-built document purposes. Post changes and revisions to project as-built documents as they occur; do not wait until end of Project.

B. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
3. Note related Change Orders, Specifications, and As-built Drawings where applicable.

C. Format: Submit As-built Product Data as paper copy and scanned PDF electronic file(s) of marked-up paper copy of Product Data.
1. Include as-built Product Data directory organized by Specification Section number and title, electronically linked to each item of as-built Product Data.

**1.6 MAINTENANCE OF AS-BUILT DOCUMENTS**

A. Maintenance of As-Built Documents: Store as-built documents in the field office apart from the Contract Documents used for construction. Do not use project as-built documents for construction purposes. Maintain as-built documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project as-built documents for Architect's reference during normal working hours.

**PART 2 - PRODUCTS**

**PART 3 - EXECUTION**

**END OF SECTION**

# SECTION 017900

# DEMONSTRATION AND TRAINING

## PART 1 - GENERAL

### 1.1 SUMMARY

A. Section includes administrative and procedural requirements for instructing Owner's personnel, including the following:
   1. Instruction in operation and maintenance of systems, subsystems, and equipment.
   2. Demonstration and training video recordings.

### 1.2 INFORMATIONAL SUBMITTALS

A. Instruction Program: Submit outline of instructional program for demonstration and training, including a list of training modules and a schedule of proposed dates, times, length of instruction time, and instructors' names for each training module. Include learning objective and outline for each training module.
   1. Indicate proposed training modules using manufacturer-produced demonstration and training video recordings for systems, equipment, and products in lieu of video recording of live instructional module.

### 1.3 CLOSEOUT SUBMITTALS

A. Demonstration and Training Video Recordings: Submit one copy (1) within seven (7) days of end of each training module.
   1. At completion of training, submit complete training manual(s) for Owner's use prepared in same paper and PDF file format required for operation and maintenance manuals specified in Section 017823 "Operation and Maintenance Data." Upload PDF files to OMS.

### 1.4 QUALITY ASSURANCE

A. Facilitator Qualifications: A firm or individual experienced in training or educating maintenance personnel in a training program similar in content and extent to that indicated for this Project, and whose work has resulted in training or education with a record of successful learning performance.

B. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Section 014000 "Quality Requirements," experienced in operation and maintenance procedures and training.

C. Pre-instruction Conference: Conduct conference at Project site to comply with requirements in Section 013100 "Project Management and Coordination."

### 1.5 COORDINATION

A. Coordinate instruction schedule with Owner's operations. Adjust schedule as required to minimize disrupting Owner's operations and to ensure availability of Owner's personnel.

B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.

C. Coordinate content of training modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data have been reviewed and approved by Design Professional.

### 1.6 INSTRUCTION PROGRAM

A. Program Structure: Develop an instruction program that includes individual training modules for each system and for equipment not part of a system, as required by individual Specification Sections.

B. Training Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following as applicable to the system, equipment, or component:
   1. Basis of System Design, Operational Requirements, and Criteria: Include the following:

a. System, subsystem, and equipment descriptions.
b. Performance and design criteria if Contractor is delegated design responsibility.
c. Operating standards.
d. Regulatory requirements.
e. Equipment function.
f. Operating characteristics.
g. Limiting conditions.
h. Performance curves.

2. Documentation: Review the following items in detail:
   a. Emergency manuals.
   b. Systems and equipment operation manuals.
   c. Systems and equipment maintenance manuals.
   d. Product maintenance manuals.
   e. Project Record Documents.
   f. Identification systems.
   g. Warranties and bonds.
   h. Maintenance service agreements and similar continuing commitments.
3. Emergencies: Include the following, as applicable:
   a. Instructions on meaning of warnings, trouble indications, and error messages.
   b. Instructions on stopping.
   c. Shutdown instructions for each type of emergency.
   d. Operating instructions for conditions outside of normal operating limits.
   e. Sequences for electric or electronic systems.
   f. Special operating instructions and procedures.
4. Operations: Include the following, as applicable:
   a. Startup procedures.
   b. Equipment or system break-in procedures.
   c. Routine and normal operating instructions.
   d. Regulation and control procedures.
   e. Control sequences.
   f. Safety procedures.
   g. Instructions on stopping.
   h. Normal shutdown instructions.
   i. Operating procedures for emergencies.
   j. Operating procedures for system, subsystem, or equipment failure.
   k. Seasonal and weekend operating instructions.
   l. Required sequences for electric or electronic systems.
   m. Special operating instructions and procedures.
5. Adjustments: Include the following:
   a. Alignments.
   b. Checking adjustments.
   c. Noise and vibration adjustments.
   d. Economy and efficiency adjustments.
6. Troubleshooting: Include the following:
   a. Diagnostic instructions.
   b. Test and inspection procedures.
7. Maintenance: Include the following:
   a. Inspection procedures.
   b. Types of cleaning agents to be used and methods of cleaning.
   c. List of cleaning agents and methods of cleaning detrimental to product.
   d. Procedures for routine cleaning.
   e. Procedures for preventive maintenance.
   f. Procedures for routine maintenance.
   g. Instruction on use of special tools.
8. Repairs: Include the following:
   a. Diagnosis instructions.

b. Repair instructions.
c. Disassembly; component removal, repair, and replacement; and reassembly instructions.
d. Instructions for identifying parts and components.
e. Review of spare parts needed for operation and maintenance.

**1.7 PREPARATION**

A. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a training manual organized in coordination with requirements in Section 017823 "Operation and Maintenance Data."
B. Set up instructional equipment at instruction location.

**1.8 INSTRUCTION**

A. Facilitator: Engage a qualified facilitator to prepare instruction program and training modules, to coordinate instructors, and to coordinate between Contractor and Owner for number of participants, instruction times, and location.
B. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
C. Scheduling: Provide instruction at mutually agreed-on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.
   1. Schedule training with Owner through Agency Representative with at least ten (10) days' advance notice.
D. Training Location and Reference Material: Conduct training on-site in the completed and fully operational facility using the actual equipment in-place. Conduct training using final operation and maintenance data submittals.
E. Cleanup: Collect used and leftover educational materials and remove from Project. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.

**1.9 DEMONSTRATION AND TRAINING VIDEO RECORDINGS**

A. General: Record each training module separately. Include classroom instructions and demonstrations, board diagrams, and other visual aids, but not student practice.
   1. At beginning of each training module, record each chart containing learning objective and lesson outline.
B. Digital Video Recordings: Provide high-resolution, digital video.
   ~~1.~~ Submit video recordings on USB thumb drive.
C. Recording: Display continuous running time.
D. Pre-produced Video Recordings: Provide video recordings used as a component of training modules in same format as recordings of live training.

**END OF SECTION**

# SECTION 02 4119
# SELECTIVE DEMOLITION

## PART 1 - GENERAL

### 1.01 SCOPE

A. Section Includes:
   1. Demolition and removal of selected site elements.
   2. Salvage of existing items to be reused.

### 1.02 DEFINITIONS

A. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged or removed and reinstalled.

B. Remove and Salvage: Carefully detach from existing construction, in a manner to prevent damage, and deliver to Owner.

C. Remove and Reinstall: Detach items from existing construction, prepare for reuse, and reinstall where indicated.

D. Existing to Remain: Existing items of construction that are not to be permanently removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

### 1.03 MATERIALS OWNERSHIP

A. Unless otherwise indicated, demolition waste becomes property of Contractor.

### 1.04 PREINSTALLATION MEETINGS

A. Pre-demolition Conference: Conduct conference at Project site.
   1. Inspect and discuss condition of construction to be selectively demolished.
   2. Review structural load limitations of existing structure.
   3. Review and finalize selective demolition schedule and verify availability of materials,
      a. demolition personnel, equipment, and facilities needed to make progress and avoid delays.
   4. Review requirements of work performed by other trades that rely on substrates exposed
      a. by selective demolition operations.
   5. Review areas where existing construction is to remain and requires protection.

### 1.05 INFORMATIONAL SUBMITTALS

A. Proposed Protection Measures: Submit report, including drawings, that indicates the measures proposed for protecting individuals and property , for environmental protection , for dust control and , for noise control. Indicate proposed locations and construction of barriers.

B. Schedule of Selective Demolition Activities: Indicate the following:
   1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's building manager's on-site operations are uninterrupted.
   2. Interruption of utility services. Indicate how long utility services will be interrupted.
   3. Coordination for shutoff, capping, and continuation of utility services.
   4. Coordination of Owner's continuing occupancy of adjacent buildings.

C. Inventory: Submit a list of items to be removed and salvaged and deliver to Owner prior to start of demolition.

D. Pre-demolition Photographs: Submit before Work begins.

### 1.06 CLOSEOUT SUBMITTALS

A. Inventory: Submit a list of items that have been removed and salvaged.

B. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

### 1.07 FIELD CONDITIONS

A. Owner will occupy building areas immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.

B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.
   1. If suspected hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.

E. Storage or sale of removed items or materials on-site is not permitted.

F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

## PART 2 - PRODUCTS (NOT USED)

## PART 3 - EXECUTION

### 3.01 EXAMINATION

A. Verify that utilities have been disconnected and capped before starting selective demolition operations.

B. Review record documents of existing construction provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in record documents.

C. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.

D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.

E. Survey of Existing Conditions: Record existing conditions by use of measured drawings or preconstruction photographs and templates.
   1. Comply with requirements specified in Section 01 3233 "Photographic Documentation."
   2. Inventory and record the condition of items to be removed and salvaged. Provide photographs of conditions that might be misconstrued as damage caused by salvage operations.
   3. Before selective demolition or removal of existing building elements that will be reproduced or duplicated in final Work, make permanent record of measurements, materials, and construction details required to make exact reproduction.

### 3.02 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.
   1. Comply with requirements for existing services/systems

B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.
   1. Arrange to shut off indicated utilities with utility companies.
   2. If services/systems are required to be removed, relocated, or abandoned, provide
      a. temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
   3. Disconnect, demolish, and remove plumbing, and HVAC systems, equipment, and components indicated to be removed
      a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
      b. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material.
      c. Equipment to Be Removed: Disconnect and cap services and remove equipment.
      d. Equipment to Be Removed and Reinstalled: Disconnect and cap services and
         1) remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
      e. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner

**3.03 PREPARATION**

A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
   1. Comply with requirements for access and protection specified in Section 01 5000 "Temporary Facilities and Controls."

B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
   1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
   2. Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Section 01 5000 "Temporary Facilities and Controls."

**3.04 SELECTIVE DEMOLITION, GENERAL**

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
   1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
   2. Neatly cut openings and holes plumb, square, and true to dimensions required.
      a. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
   3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
   4. Do not use cutting torches until work area is cleared of flammable materials.
      a. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
   5. Maintain adequate ventilation when using cutting torches.
   6. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.

7. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing
8. Dispose of demolished items and materials promptly.

B. Removed and Salvaged Items:
1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until delivery to Owner.
4. Transport items to Owner's storage area designated by Owner.
5. Protect items from damage during transport and storage.

C. Removed and Reinstalled Items:
1. Clean and repair items to functional condition adequate for intended reuse.
2. Pack or crate items after cleaning and repairing. Identify contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and reinstalled in their original locations after selective demolition operations are complete.

**3.05 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS**

A. Concrete: Core drilling using power-driven drill. Vacuum water to prevent water damage of adjacent materials or areas.

**3.06 DISPOSAL OF DEMOLISHED MATERIALS**

A. General: Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.
1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. Burning: Do not burn demolished materials.

C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

**3.07 CLEANING**

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

**3.08 SELECTIVE DEMOLITION SCHEDULE**

A. Existing Construction to Be Removed: As indicated on Drawings.

B. Existing Items to Be Removed and Salvaged: As indicated on Drawings.

**END OF SECTION**

# SECTION 06 1000
# ROUGH CARPENTRY

## PART 1 GENERAL

### 1.01 SECTION INCLUDES

A. Blocking within walls for attachment of cabinets, shelves or fixures, as required.

B. The General Contractor shall be responsible for all work shown or implied on the drawings and Spec Section 06100, Rough Carpentry.
   1. Furnishing and Installation of hold down & tie down devices which are embedded in concrete.
   2. Door and window header framing per specifically drawn details.
   3. Placement and anchorage of sill plate at foundation walls.
   4. Hurricane anchors to attach trusses to walls.
   5. Installation of Division 10 specialties.
   6. Fire retardant treated wood materials.
   7. Miscellaneous framing and sheathing.
   8. Communications and electrical room mounting boards.
   9. Concealed wood blocking for attachment of metal siding. Provide two lines of horizontal 2x4 vertical at the 1/3 points on the 10' high wall.
   10. Concealed wood blocking for support of all accessories, handrails, grab bars & fire extinguishers and other wall hung supported extinguishers.
   11. Air Infiltration Provisions: This section shall accomplish the following sealing to prevent air infiltration.
      a. Rubber membrane seal at plumbing vents through wall plates into attic.
      b. Sill Gaskets between sill plate and concrete foundation walls.
   12. Sealing required around wall penetrations for gas main and horizontal flues.
   13. Miscellaneous wood nailers, furring, and grounds.

### 1.02 RELATED REQUIREMENTS

A. Section 06 6500 - Solid Polymer Fabrications.

B. Section 09 2116 - Gypsum Board Assemblies: Gypsum-based sheathing.

### 1.03 SUBMITTALS

A. See Section 01 3300 - Submittal Procedures.

B. Manufacturer's Certificate: Certify that wood products supplied for rough carpentry meet or exceed specified requirements.

## PART 2 PRODUCTS

### 2.01 GENERAL REQUIREMENTS

A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
   1. If no species is specified, provide any species graded by the agency specified; if no grading agency is specified, provide lumber graded by any grading agency meeting the specified requirements.
   2. Grading Agency: Any grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee (www.alsc.org) and who provides grading service

for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.

**2.02 DIMENSION LUMBER**

A. Sizes: Nominal sizes as indicated on drawings, S4S.

B. Moisture Content: S-dry or MC19.

C. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:
   1. Lumber: S4S, No. 2 or Standard Grade.
   2. Boards: Standard or No. 3.

D. Miscellaneous Blocking, Furring, and Nailers:
   1. Lumber: S4S, No. 2 or Standard Grade.
   2. Boards: Standard or No. 3.

**2.03 CONSTRUCTION PANELS**

A. Wall Sheathing: APA PRP-108, Structural I Rated Sheathing, Exterior Exposure Class, and as follows:
   1. Thickness: 15/32" ( 1/2" ).
   2. Span Rating: 32/16.
   3. Thickness: 1/2 inch, nominal.

B. Communications and Electrical Room Mounting Boards: PS 1 A-D plywood, or medium density fiberboard; 3/4 inch thick; flame spread index of 25 or less, smoke developed index of 450 or less, when tested in accordance with ASTM E84.

C. Other Applications:
   1. Plywood Concealed From View But Located Within Exterior Enclosure: PS 1, C-C Plugged or better, Exterior grade.
   2. Resilient Flooring Underlayment: 1/4" Luaan Plywood. (Use at wood Sub-floors only).
   3. Plywood Exposed to View But Not Exposed to Weather: PS 1, A-D, or better.
   4. Other Locations: PS 1, C-D Plugged or better.
   5. Electrical Component Mounting: APA rated sheathing, fire retardant treated.

**2.04 ACCESSORIES**

A. Fasteners and Anchors:
   1. Metal and Finish: Hot-dipped galvanized steel per ASTM A 153/A 153M for high humidity and preservative-treated wood locations, unfinished steel elsewhere.
   2. Screws due to attachmnet to metal studs.

**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 Pressure Treatment of Lumber Above Grade: AWPA U1, Use Category UC3B, Commodity Specification A using waterborne preservative to 0.25 lb/cu ft retention.
   1. Kiln dry lumber after treatment to maximum moisture content of 19 percent.
   2. Treat lumber in contact with masonry or concrete.

**PART 3 EXECUTION**

**3.01 INSTALLATION - GENERAL**

A. Select material sizes to minimize waste.

B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.

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.

B. In framed assemblies that have concealed spaces, provide solid wood fireblocking as required by applicable local code, to close concealed draft openings between floors and between top story and roof/attic space; other material acceptable to code authorities may be used in lieu of solid wood blocking.

C. In walls, provide blocking attached to studs as backing and support for wall-mounted items, unless item can be securely fastened to two or more studs or other method of support is explicitly indicated.

D. Where ceiling-mounting is indicated, provide blocking and supplementary supports above ceiling, unless other method of support is explicitly indicated.

E. Specifically, provide the following non-structural framing and blocking:
   1. Cabinets and shelf supports.
   2. Wall brackets.
   3. Wall-mounted door stops.
   4. Chalkboards and marker boards.

**END OF SECTION**

# SECTION 06 4100
# ARCHITECTURAL WOOD CASEWORK

## PART 1 GENERAL

### 1.01 SECTION INCLUDES

A. Specially fabricated cabinet units.

B. Countertops where shown as

C. Cabinet hardware.

D. Pull-Down Cabinet Lift System. (See Article 2.04 Hardware)

E. Solid Surface Window Sills.

F. Preparation for installing utilities.

### 1.02 RELATED REQUIREMENTS

A. Section 06 1000 - Rough Carpentry: Support framing, grounds, and concealed blocking.

B. Section 06 6500 - Solid Polymer Fabrications -Countertops.

### 1.03 REFERENCE STANDARDS

A. BHMA A156.9 - American National Standard for Cabinet Hardware; 2010.

B. HPVA HP-1 - American National Standard for Hardwood and Decorative Plywood; 2009.

C. AWI (QCP) - Quality Certification Program, www.awiqcp.org; current edition at www.awiqcp.org.

D. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards; 2009.

E. BHMA A156.9 - American National Standard for Cabinet Hardware; Builders Hardware Manufacturers Association; 2010 (ANSI/BHMA A156.9).

### 1.04 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene a preinstallation meeting not less than one week before starting work of this section; require attendance by all affected installers.

### 1.05 SUBMITTALS

A. See Section 01 3300 - Submittal Procedures.

B. Shop Drawings: Indicate materials, component profiles, fastening methods, jointing details, and accessories.
   1. Minimum Scale of Detail Drawings: 1-1/2 inch to 1 foot.
   2. Provide the information required by AWI/AWMAC/WI Architectural Woodwork Standards.

C. Product Data: Provide data for hardware accessories.

D. Samples: Submit actual sample items of proposed pulls, hinges, shelf standards, and locksets, demonstrating hardware design, quality, and finish.

### 1.06 QUALITY ASSURANCE

A. Fabricator Qualifications: Company specializing in fabricating the products specified in this section with minimum five years of documented experience.

### 1.07 DELIVERY, STORAGE, AND HANDLING

A. Protect units from moisture damage.

### 1.08 FIELD CONDITIONS

A. During and after installation of custom cabinets, maintain temperature and humidity conditions in building spaces at same levels planned for occupancy.

## PART 2 PRODUCTS

### 2.01 CABINETS

A. Quality Grade: Unless otherwise indicated provide products of quality specified by AWI//AWMAC/WI Architectural Woodwork Standards for Custom Grade.

B. Wood Veneer Faced Cabinet:
   1. Exposed Surfaces: HPVA HP-1 Grade A, Maple, plain sliced, random-matched.

### 2.02 COUNTERTOPS

A. Plastic Laminate Countertops: Medium density fiberboard substrate covered with HPDL, conventionally fabricated and self-edge banded.

### 2.03 ACCESSORIES

A. Adhesive: Type recommended by AWI/AWMAC to suit application.

B. Fasteners: Size and type to suit application.

C. Bolts, Nuts, Washers, Lags, Pins, and Screws: Of size and type to suit application; galvanized or chrome-plated finish in concealed locations and stainless steel or chrome-plated finish in exposed locations.

D. Concealed Joint Fasteners: Threaded steel.

E. Grommets: Standard plastic, painted metal, or rubber grommets for cut-outs, in color to match adjacent surface.

### 2.04 HARDWARE

A. Hardware: BHMA A156.9, types as recommended by fabricator for quality grade specified.

B. Adjustable Shelf Supports: Standard side-mounted system using recessed metal shelf standards or multiple holes for pin supports and coordinated self rests, polished chrome finish, for nominal 1 inch spacing adjustments.

C. Drawer and Door Pulls: "U" shaped wire pull, steel with chrome finish, 4 inch centers.

D. Sliding Door Pulls: Circular shape for recessed installation, steel with satin finish.

E. Cabinet Locks: Keyed cylinder, two keys per lock, master keyed, steel with chrome finish.

F. Catches: Magnetic.

G. Drawer Slides:
   1. Type: Full extension.
   2. Static Load Capacity: Commercial grade.
   3. Mounting: Side mounted.
   4. Stops: Integral type.
   5. Features: Provide self closing/stay closed type.
   6. Products:
      a. Accuride International, Inc: www.accuride.com/#sle.
      b. Grass America Inc: www.grassusa.com.
      c. Knape & Vogt Manufacturing Company: www.knapeandvogt.com/#sle.
      d. Substitutions: See Section 01 6000 - Product Requirements.

H. Hinges: European style concealed self-closing type, steel with polished finish.
   1. Products:
      a. Grass America Inc: www.grassusa.com/#sle.
      b. Hardware Resources: www.hardwareresources.com/#sle.
      c. Julius Blum, Inc: www.blum.com/#sle.
      d. Substitutions: See Section 01 6000 - Product Requirements.

I. Pull down Cabinet Lift System: Wall anchored cabinet lift system for upper cabinets where shown on Drawings. Lift system allows accessibility to upper storage cabinet shelving. Automatic raise/lower capability. Basis of Design is Universal Design Products.
   1. Products:
      a. Uniiversal Design Products: universal-design-products.com, 877-947-7769
      b. Other manufacturers with prior approval.

**2.05 FABRICATION**

A. Assembly: Shop assemble cabinets for delivery to site in units easily handled and to permit passage through building openings.

B. Edging: Fit shelves, doors, and exposed edges with specified edging. Do not use more than one piece for any single length.

C. Fitting: When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide matching trim for scribing and site cutting.

D. Plastic Laminate: Apply plastic laminate finish in full uninterrupted sheets consistent with manufactured sizes. Fit corners and joints hairline; secure with concealed fasteners. Slightly bevel arises. Locate counter butt joints minimum 2 feet from sink cut-outs.

E. Mechanically fasten back splash to countertops with steel brackets at 16 inches on center.

F. Provide cutouts for plumbing fixtures. Verify locations of cutouts from on-site dimensions. Prime paint cut edges.

**PART 3 EXECUTION**

**3.01 EXAMINATION**

A. Verify adequacy of backing and support framing.

B. Verify location and sizes of utility rough-in associated with work of this section.

**3.02 INSTALLATION**

A. Set and secure custom cabinets in place, assuring that they are rigid, plumb, and level.

B. Use fixture attachments in concealed locations for wall mounted components.

C. Use concealed joint fasteners to align and secure adjoining cabinet units.

D. Carefully scribe casework abutting other components, with maximum gaps of 1/32 inch. Do not use additional overlay trim for this purpose.

E. Secure cabinets to floor using appropriate angles and anchorages.

F. Countersink anchorage devices at exposed locations. Conceal with solid wood plugs of species to match surrounding wood; finish flush with surrounding surfaces.

**3.03 ADJUSTING**

A. Adjust installed work.

B. Adjust moving or operating parts to function smoothly and correctly.

**3.04 CLEANING**

A. Clean casework, counters, shelves, hardware, fittings, and fixtures.

**END OF SECTION**

# SECTION 06 6500
# SOLID POLYMER FABRICATIONS

## PART 1 GENERAL

### 1.01 SECTION INCLUDES

A. All Countertops for this project.

B. Window Sills.

### 1.02 SUBMITTALS

A. See Section 01 3300 - Submittal Procedures.

B. Product Data: Provide product description, fabrication information and compliance with specified performance requirements.

C. Shop Drawings: Indicate fabrication details as related to rough support systems.

D. Samples: Submit manufacturers sample box allowing color selection from full range of colors and textures.

E. Maintenance Data: Submit manufacturers care and maintenance data, including repair and cleaning instructions. Include project close-out documents.

### 1.03 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing the work of this section and approved by manufacturer.

B. Allowable Tolerances:
   1. Variation in component size: +/- 1/8" (3mm).
   2. Location os openings: +/- 1/8" (3mm) from indicated location.

### 1.04 DELIVERY, STORAGE, AND PROTECTION

A. Deliver no components to project site in until areas are ready for installation. Store components indoors prior to installation.

B. Handle materials to prevent damage to finished surfaces. Provide protective coverings to prevent physical damage or staining following installation for duration of the project.

### 1.05 WARRANTY

A. See Section 01 7700 - Closeout Procedures, for additional warranty requirements.

B. Correct defective Work within a five year period after Date of Substantial Completion.

C. Provide ten year manufacturer warranty for defects in materials. Warranty shall provide material and labor to repair or replace defective materials. Damage caused by physical or chemical abuse or damage shall not be required to warranted.

## PART 2 PRODUCTS

### 2.01 MANUFACTURERS

A. Corian Surfaces from The Dupont Company - Basis of Design.

B. Staron

C. Avonite; Avonite, Inc.

D. Fountainhead

E. Gibraltar: Wilsonart International

F. Substitutions: See Section 01600 - Product Requirements.

**2.02 MATERIALS**

A. Solid Polymer Fabrications: 1/2" thick Homogeneous filled acrylic; not coated, laminated, or of composite construction; meeting ANSI Z124.3 & 6 , Type Six, and Fed. Spec. WW-P-541E/GEN.
   1. Material shall have minimum physical and performance properties as follows: Tensile Strength - 6000psi; Flexural Strength - 7950 psi; Work to Break - 2.48 in. lbs.
   2. Superficial damage to a depth of 0.010" (.25mm) shall be repairable by sanding and polishing.

B. Color: Corian - Fawn.

**2.03 ACCESSORIES**

A. Joint Adhesive: Manufacturer's standard two-part adhesive kit to create inconspicuous, non-porous joints, with a chemical bond.

**2.04 FABRICATION**

A. Fabrications to be performed by a Certified fabricator / installer..

B. Form joints between components using manufacturer's standard joint adhesive. Joints shall be inconspicuous in appearance and without voids. Attach 2" wide reinforcing strip of solid polymer under each joint..

C. Rout and finish component edges to a smooth, uniform finish. Rout all cutouts, then sand all edges smooth. Repair or reject defective or inaccurate work.

**2.05 FACTORY FINISHING**

A. All surfaces shall have uniform finish.
   1. Matte, with a gloss rating of 5 to 20 .

**PART 3 EXECUTION**

**3.01 EXAMINATION**

A. Verify dimensions and rough-ins and other conditions.

**3.02 INSTALLATION**

A. Install in accordance with manufacturer's instructions.

B. Install components plumb and level, in accordance with approved shop drawings and product installation details.

C. Provide backsplashes and endsplashes as indicated on the drawings. Adhere to countertop using manuf. standard color - matched silicone sealant.

D. Keep components and hands clean during installation. Remove adhesives, sealants and other stains.

E. Protect surfaces from damage until Date of Substantial Completion.

**END OF SECTION**

# SECTION 07 9000
# JOINT SEALERS

## PART 1 GENERAL

### 1.01 SECTION INCLUDES
A. Sealants and joint backing.

### 1.02 RELATED REQUIREMENTS
A. Section 09 2116 - Gypsum Board Assemblies: Acoustic sealant.

### 1.03 REFERENCE STANDARDS
A. ASTM C834 - Standard Specification for Latex Sealants; 2010.
B. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2013.
C. ASTM D1667 - Standard Specification for Flexible Cellular Materials--Poly(Vinyl Chloride) Foam (Closed-Cell); 2005 (Reapproved 2011).

### 1.04 ADMINISTRATIVE REQUIREMENTS
A. Coordinate the work with other sections referencing this section.

### 1.05 SUBMITTALS
A. See Section 01 3300 - Submittal Procedures, for submittal procedures.
B. Product Data: Provide data indicating sealant chemical characteristics.
C. Manufacturer's Installation Instructions: Indicate special procedures.

### 1.06 FIELD CONDITIONS
A. Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.

## PART 2 PRODUCTS

### 2.01 MANUFACTURERS
A. Gunnable and Pourable Sealants:
   1. Adhesives Technology Corporation: www.atc.ws.
   2. BASF Construction Chemicals-Building Systems: www.buildingsystems.basf.com.
   3. Bostik Inc: www.bostik-us.com.
   4. Dow Corning Corporation: www.dowcorning.com.
   5. Momentive Performance Materials, Inc (formerly GE Silicones): www.momentive.com.
   6. Pecora Corporation: www.pecora.com.
   7. Tremco Global Sealants: www.tremcosealants.com.
   8. Sherwin-Williams Company: www.sherwin-williams.com.
   9. Substitutions: See Section 01 6000 - Product Requirements.

### 2.02 DESIGN STANDARD
A. Acrylic Sealants (ASTM C920): **Countertops and Interior Door and Window Frames.**
   1. Equal to DAP Alex Plus Acrylic Latex Caulk Plus Silicone.

### 2.03 SEALANTS

A. Sealants and Primers - General: Provide only products having lower volatile organic compound (VOC) content than required by South Coast Air Quality Management District Rule No.1168.

B. General Purpose Interior Sealant: Acrylic emulsion latex; ASTM C834, Type OP, Grade NF single component, paintable.
   1. Color: To be selected by Architect from manufacturer's standard range.
   2. Applications: Use for:
      a. Interior wall and ceiling control joints.
      b. Joints between door and window frames and wall surfaces.
      c. Other interior joints for which no other type of sealant is indicated.

C. Bathtub/Tile Sealant: White silicone; ASTM C920, Uses I, M and A; single component, mildew resistant.
   1. Applications: Use for:
      a. Joints between plumbing fixtures and floor and wall surfaces.
   2. Products:
      a. Pecora Corporation; 898NST Sanitary Silicone Sealant - Class 50: www.pecora.com.
      b. Sika Corporation; Sikasil GP: www.usa-sika.com.
      c. Substitutions: See Section 01 6000 - Product Requirements.

### 2.04 ACCESSORIES

A. Primer: Non-staining type, recommended by sealant manufacturer to suit application.

B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.

C. Joint Backing: Round foam rod compatible with sealant; ASTM D 1667, closed cell PVC; oversized 30 to 50 percent larger than joint width.

D. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

## PART 3 EXECUTION

### 3.01 EXAMINATION

A. Verify that substrate surfaces are ready to receive work.

B. Verify that joint backing and release tapes are compatible with sealant.

### 3.02 PREPARATION

A. Remove loose materials and foreign matter that could impair adhesion of sealant.

B. Clean and prime joints in accordance with manufacturer's instructions.

C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.

D. Protect elements surrounding the work of this section from damage or disfigurement.

### 3.03 INSTALLATION

A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.

B. Perform installation in accordance with ASTM C1193.

C. Measure joint dimensions and size joint backers to achieve the following, unless otherwise indicated:
   1. Width/depth ratio of 2:1.
   2. Neck dimension no greater than 1/3 of the joint width.
   3. Surface bond area on each side not less than 75 percent of joint width.

D. Install bond breaker where joint backing is not used.

E. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.

F. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.

G. Tool joints concave.

**3.04 CLEANING**

A. Clean adjacent soiled surfaces.

**3.05 PROTECTION**

A. Protect sealants until cured.

**3.06 SCHEDULE**

A. Interior Joints for Which No Other Sealant is Indicated: Type 3 .

B. Joints Between Plumbing Fixtures and Walls and Floors, and Between Countertops and Walls: Type 4.

**END OF SECTION**

# SECTION 09 2116
# GYPSUM BOARD ASSEMBLIES

## PART 1 GENERAL

### 1.01 SECTION INCLUDES

A. Metal stud framing, joists and hat channel furring.
B. Suspended metal support framing for ceiling.
C. Gypsum sheathing.
D. Gypsum wallboard 5/8" Type X.
E. Joint treatment and accessories.
F. Textured finish system.

### 1.02 RELATED REQUIREMENTS

A. Section 07 9005 - Joint Sealers: Paintable acrylic type.
B. Section 09 9000 - Painting and Coatings.

### 1.03 REFERENCE STANDARDS

A. ASTM C 36 - Standard Specification for Gypsum Wallboard; 2001.
B. ASTM C475/C475M - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board; 2015.
C. ASTM C557 - Standard Specification for Adhesives for Fastening Gypsum Wallboard to Wood Framing; 2003 (Reapproved 2009).
D. ASTM C645 - Standard Specification for Nonstructural Steel Framing Members; 2014.
E. ASTM C754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products; 2015.
F. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board; 2013.
G. 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; 2014.
H. ASTM C1396/C1396M - Standard Specification for Gypsum Board; 2014.
I. ICC (IBC) - International Building Code; 2015.

### 1.04 SUBMITTALS

A. See Section 01 3300 - Submittal Procedures, for submittal procedures.
B. Product Data: Provide data on metal framing.
C. Samples: Submit two samples of gypsum board finished with proposed texture application, 12 by 12 inches in size, illustrating finish color and texture. Match existing texture.

### 1.05 REGULATORY REQUIREMENTS

A. Conform to applicable code for fire rated assemblies as indicated on drawings.

## PART 2 PRODUCTS

### 2.01 GYPSUM BOARD ASSEMBLIES

A. Provide completed assemblies complying with ASTM C840 and GA-216.

**2.02 GYPSUM BOARD:**

A. G-P Gypsum Corporation: www.gp.com.
   1. National Gypsum Company: www.nationalgypsum.com.
   2. USG Corporation: www.usg.com.
   3. Gold Bond Building Products .
   4. Celotex.
   5. Georgia Pacific.

**2.03 METAL FRAMING MATERIALS**

A. Manufacturers - Metal Framing, Connectors, and Accessories:
   1. Clarkwestern Dietrich Building Systems LLC: www.clarkdietrich.com.
   2. Dietrich Metal Framing: www.dietrichindustries.com.
   3. Phillips Manufacturing Company: www.phillipsmfg.com.

B. Non-Loadbearing Framing System Components: ASTM C645; galvanized sheet steel, of size and properties necessary to comply with ASTM C754 for the spacing indicated and as indicated on the drawings, with maximum deflection of wall framing of L/120 at 7.5 psf.
   1. Exception: The minimum metal thickness and section properties requirements of ASTM C645 are waived provided steel of 40 ksi minimum yield strength is used, the metal is continuously dimpled, the effective thickness is at least twice the base metal thickness, and maximum stud heights are determined by testing in accordance with ASTM E72 using assemblies specified by ASTM C754.
      a. Acceptable Products:
         1) Clark Western Building Systems; UltraSteel (tm): www.clarkwestern.com.

C. Non-Loadbearing Framing System Components: ASTM C 645; galvanized sheet steel, size and gage to comply with ASTM C 754 at spacing indicated; maximum deflection L/240 at 5 psf.
   1. Studs: "C" shaped with flat or formed webs with knurled faces.
   2. Runners: U shaped, sized to match studs.
   3. Ceiling Channels: C-shaped.
   4. Furring: Hat-shaped sections, minimum depth of 7/8 inch.

D. Ceiling Hangers: Type and size as specified in ASTM C754 for spacing required.

**2.04 BOARD MATERIALS**

A. Gypsum Wallboard: 5/8" gypsum board over 1/4" aluminum plate shielding. Paper-faced gypsum panels as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
   1. Application: Use for vertical surfaces and ceilings, unless otherwise indicated.
   2. Thickness:
      a. Vertical Surfaces: 5/8 inch.
      b. Ceilings: 5/8 inch.

B. Paper-Faced Product Manufacturers:
   1. American Gypsum; EagleRoc Regular Gypsum Wallboard and FireBloc Type X Gypsum Wallboard.
   2. CertainTeed Corporation; ProRoc Brand Gypsum Board.
   3. CertainTeed Corporation; ProRoc Brand Abuse Resistant Gypsum Board.
   4. Georgia-Pacific Gypsum; ToughRock.
   5. Lafarge North America Inc; Regular Drywall and Firecheck Type X and Type C.
   6. National Gypsum Company; Gold Bond Brand Gypsum Wallboard.
   7. USG Corporation; Sheetrock Brand Gypsum Panels.

**2.05 ACCESSORIES**

A. Joint Materials: ASTM C475/C475M and as recommended by gypsum board manufacturer for project conditions.
   1. Ready-mixed vinyl-based joint compound.

B. Textured Finish Materials: Latex-based compound.

C. Screws for Fastening of Gypsum Panel Products to Cold-Formed Steel Furring Channels Less than 0.033 inch in Thickness and Wood Members: ASTM C1002; self-piercing tapping screws, corrosion resistant.

D. 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.

E. Anchorage to Substrate: Tie wire, nails, screws, and other metal supports, of type and size to suit application; to rigidly secure materials in place.

## PART 3 EXECUTION

### 3.01 EXAMINATION

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

### 3.02 FRAMING INSTALLATION

A. Metal Framing: Install in accordance with ASTM C754 and manufacturer's instructions.

B. Suspended Ceilings and Soffits: Space framing and furring members as indicated.
   1. Laterally brace entire suspension system.

C. Metal Hat Channel Furring: Space metal furring at 16 inches on center.

### 3.03 CEILING AND SOFFIT FRAMING

A. Install furring after work above ceiling or soffit is complete. Coordinate the location of hangers with other work.

B. Install furring independent of walls, columns, and above-ceiling work.

C. Securely anchor hangers to structural members or embed in structural slab. Space hangers as required to limit deflection to criteria indicated. Use rigid hangers at exterior soffits.

D. Space main carrying channels at maximum 72 inch on center, and not more than 6 inches from wall surfaces. Lap splice securely.

E. Securely fix carrying channels to hangers to prevent turning or twisting and to transmit full load to hangers.

F. Place furring channels perpendicular to carrying channels, not more than 2 inches from perimeter walls, and rigidly secure. Lap splices securely.

### 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 in most economical direction, with ends and edges occurring over firm bearing.

### 3.05 INSTALLATION OF TRIM AND ACCESSORIES

A. Corner Beads: Install at external corners, using longest practical lengths.

B. Edge Trim: Install at locations where gypsum board abuts dissimilar materials.

### 3.06 JOINT TREATMENT

A. Finish gypsum board in accordance with levels defined in ASTM C840, as follows:

B. Finish all gypsum board in accordance with ASTM C 840 Level 4.

C. Finish gypsum board in scheduled areas in accordance with levels defined in ASTM C 840 and as scheduled below.

D. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.

1. Feather coats of joint compound so that camber is maximum 1/32 inch.

**3.07 TEXTURE FINISH**

A. Apply finish texture coating by means of spraying apparatus in accordance with manufacturer's instructions and to match approved sample.

**3.08 TOLERANCES**

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

**END OF SECTION**

# SECTION 09 5100
# SUSPENDED ACOUSTICAL CEILINGS

## PART 1 GENERAL

### 1.01 SECTION INCLUDES

A. Suspended metal grid ceiling system.

B. Acoustical units.

### 1.02 REFERENCE STANDARDS

A. ASTM C635/C635M - Standard Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings; 2013a.

B. ASTM E1264 - Standard Classification for Acoustical Ceiling Products; 2014.

### 1.03 ADMINISTRATIVE REQUIREMENTS

A. Sequence work to ensure acoustical ceilings are not installed until building is enclosed, sufficient heat is provided, dust generating activities have terminated, and overhead work is completed, tested, and approved.

B. Do not install acoustical units until after interior wet work is dry.

### 1.04 SUBMITTALS

A. See Section 01 3300 - Submittal Procedures, for submittal procedures.

B. Product Data: Provide data on suspension system components.

C. Samples: Submit two samples 6 x 6 inch in size illustrating material and finish of acoustical units.

### 1.05 QUALITY ASSURANCE

A. Suspension System Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

B. Acoustical Unit Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

### 1.06 FIELD CONDITIONS

A. Maintain uniform temperature of minimum 60 degrees F, and maximum humidity of 40 percent prior to, during, and after acoustical unit installation.

## PART 2 PRODUCTS

### 2.01 ACOUSTICAL UNITS

A. Manufacturers:
   1. Armstrong World Industries, Inc: www.armstrong.com.
   2. Acoustic Ceiling Products, Inc.: www.acpideas.com.
   3. CertainTeed Corporation: www.certainteed.com.
   4. Hunter Douglas Contract: www.hunterdouglascontract.com.
   5. USG: www.usg.com.
   6. Substitutions: See Section 01 6000 - Product Requirements.

B. Acoustical Units - General: ASTM E1264, Class A.

**ACT 01**

Acoustical Panels: Painted mineral fiber ASTM E1264 Type III Armstrong 895, with the following characteristics:

1. Size: 24 by 48 inches.
2. Thickness: 5/8 inches.
3. Edge: Square.
4. Surface Color: White.
5. Surface Pattern: Fissured.
6. Suspension System: Exposed grid.

## 2.02 SUSPENSION SYSTEM(S)

A. Manufacturers:
   1. Armstrong World Industries, Inc: www.armstrong.com.
   2. Acoustic Ceiling Products, Inc.: www.acpideas.com.
   3. CertainTeed Corporation: www.certainteed.com.
   4. Chicago Metallic Corporation: www.chicagometallic.com.
   5. Hunter Douglas Contract: www.hunterdouglascontract.com.
   6. USG: www.usg.com.
   7. Substitutions: See Section 01 6000 - Product Requirements.

B. Suspension Systems - General: Complying with ASTM C635/C635M; die cut and interlocking components, with stabilizer bars, clips, splices, perimeter moldings, and hold down clips as required.

C. Exposed Steel Suspension System: Formed steel, commercial quality cold rolled; heavy-duty.
   1. Profile: Tee; 15/16 inch wide face for 24 x 48 inch acoustic ceiling system.
   2. Construction: Double web.
   3. Finish: White painted.

## 2.03 ACCESSORIES

A. Support Channels and Hangers: Galvanized steel; size and type to suit application, seismic requirements, and ceiling system flatness requirement specified.

B. Perimeter Moldings: Same material and finish as grid.
   1. At Radius Corners: Provide L-Shaped molding.
      a. Armstrong Axium AXM34CUR
      b. Or approved equal.

C. Gasket For Perimeter Moldings: Closed cell rubber sponge tape.

D. Touch-up Paint: Type and color to match acoustical and grid units.

E. Seismic Bracing: Clip perimeter suspended grid members to wall angle with BERC clip at Rooms or areas exceeding 144 square feet. Reference detail 7/A7.1.

# PART 3 EXECUTION

## 3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that layout of hangers will not interfere with other work.

## 3.02 INSTALLATION - SUSPENSION SYSTEM

A. Rigidly secure system, including integral mechanical and electrical components, for maximum deflection of 1:360.

B. Install after major above-ceiling work is complete. Coordinate the location of hangers with other work.

C. Hang suspension system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.

D. Where ducts or other equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers and related carrying channels to span the extra distance.

E. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability.

F. Support fixture loads using supplementary hangers located within 6 inches of each corner, or support components independently.

G. Do not eccentrically load system or induce rotation of runners.

H. Perimeter Molding: Install at intersection of ceiling and vertical surfaces and at junctions with other interruptions.
   1. Use longest practical lengths.
   2. Overlap and rivet corners.

**3.03 INSTALLATION - ACOUSTICAL UNITS**

A. Install acoustical units in accordance with manufacturer's instructions.

B. Fit acoustical units in place, free from damaged edges or other defects detrimental to appearance and function.

C. Lay directional patterned units with pattern parallel to longest room axis.

D. Fit border trim neatly against abutting surfaces.

E. Install units after above-ceiling work is complete.

F. Install acoustical units level, in uniform plane, and free from twist, warp, and dents.

G. Cutting Acoustical Units:
   1. Cut to fit irregular grid and perimeter edge trim.
   2. Make field cut edges of same profile as factory edges.
   3. Double cut and field paint exposed reveal edges.

**3.04 TOLERANCES**

A. Maximum Variation from Flat and Level Surface: 1/8 inch in 10 feet.

B. Maximum Variation from Plumb of Grid Members Caused by Eccentric Loads: 2 degrees.

**END OF SECTION**

# SECTION 09 6500
# RESILIENT BASE

## PART 1 GENERAL

### 1.01 SECTION INCLUDES

A. Resilient Base.

B. Installation accessories.

### 1.02 REFERENCE STANDARDS

A. ASTM E648 - Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source; 2014c.

B. ASTM F150 - Standard Test Method for Electrical Resistance of Conductive and Static Dissipative Resilient Flooring; 2006 (Reapproved 2013).

C. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring; 2011.

D. ASTM F1861 - Standard Specification for Resilient Wall Base; 2008 (Reapproved 2012).

E. ASTM F1913 - Standard Specification for Vinyl Sheet Floor Covering Without Backing; 2004 (Reapproved 2014).

F. NFPA 253 - Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source; 2015.

### 1.03 SUBMITTALS

A. See Section 01 3300 - Submittal Procedures, for submittal procedures.

B. Product Data: Provide data on specified products, describing physical and performance characteristics; including sizes, patterns and colors available; and installation instructions.

C. Shop Drawings: Indicate seaming plan.

D. Selection Samples: Submit manufacturer's complete set of color samples for Architect's initial selection.

E. Verification Samples: Submit two samples, 10 by 10 inch in size illustrating color and pattern for each resilient flooring product specified.

F. Certification: Prior to installation of flooring, submit written certification by flooring manufacturer and adhesive manufacturer that condition of sub-floor is acceptable.

G. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 01 6000 - Product Requirements, for additional provisions.
   2. Extra Wall Base: 20 linear feet of each type and color.

### 1.04 DELIVERY, STORAGE, AND HANDLING

A. Upon receipt, immediately remove any shrink-wrap and check materials for damage and the correct style, color, quantity and run numbers.

B. Store all materials off of the floor in an acclimatized, weather-tight space.

C. Maintain temperature in storage area between 55 degrees F and 90 degrees F.

D. Protect roll materials from damage by storing on end.

E. Do not double stack pallets.

### 1.05 FIELD CONDITIONS

A. Store materials for not less than 48 hours prior to installation in area of installation at a temperature of 70 degrees F to achieve temperature stability. Thereafter, maintain conditions above 55 degrees F.

## PART 2 PRODUCTS

### 2.01 RESILIENT BASE

A. Resilient Base: ASTM F1861, Type TS rubber, vulcanized thermoset; top set Style B, Cove.
   1. Manufacturers:
      a. Burke Flooring: www.burkeflooring.com.
      b. Johnsonite, a Tarkett Company: www.johnsonite.com/#sle.
      c. Roppe Corp: www.roppe.com/#sle.
   2. Critical Radiant Flux (CRF): Minimum 0.45 watt per square centimeter, when tested in accordance with ASTM E 648 or NFPA 253.
   3. Height: 4 inch.
   4. Thickness: 0.125 inch thick.
   5. Finish: Satin.
   6. Length: Roll.
   7. Color: To be selected by Architect from manufacturer's full range.

## PART 3 EXECUTION

### 3.01 EXAMINATION

A. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive resilient base.

### 3.02 PREPARATION

A. Clean substrate.

### 3.03 INSTALLATION

A. Starting installation constitutes acceptance of sub-floor conditions.

B. Install in accordance with manufacturer's instructions.

C. Spread only enough adhesive to permit installation of materials before initial set.

D. Fit joints tightly.

E. Set flooring in place, press with heavy roller to attain full adhesion.

F. Where type of floor finish, pattern, or color are different on opposite sides of door, terminate flooring under centerline of door.

G. Install edge strips at unprotected or exposed edges, where flooring terminates, and where indicated.
   1. Resilient Strips: Attach to substrate using adhesive.

H. Scribe flooring to walls, columns, cabinets, floor outlets, and other appurtenances to produce tight joints.

### 3.04 INSTALLATION - RESILIENT BASE

A. Fit joints tightly and make vertical. Maintain minimum dimension of 18 inches between joints.

B. Install base on solid backing. Bond tightly to wall and floor surfaces.

### 3.05 CLEANING

A. Remove excess adhesive from base, and wall surfaces without damage.

B. Clean in accordance with manufacturer's instructions.

**3.06 PROTECTION**

A. Prohibit traffic on resilient flooring for 48 hours after installation.

**END OF SECTION**

# SECTION 09 6813
# TILE CARPETING

## PART 1 GENERAL

### 1.01 SECTION INCLUDES

A. Carpet tile, fully adhered.

B. Removal of existing broadloom carpet and base.

### 1.02 RELATED REQUIREMENTS

### 1.03 REFERENCE STANDARDS

A. ASTM D2859 - Standard Test Method for Ignition Characteristics of Finished Textile Floor Covering Materials; 2006 (Reapproved 2011).

B. ASTM E648 - Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source; 2014c.

C. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring; 2011.

D. CRI (CIS) - Carpet Installation Standard; Carpet and Rug Institute; 2009.

E. CRI (GLA) - Green Label Testing Program - Approved Adhesive Products; Carpet and Rug Institute; Current Edition.

F. NFPA 253 - Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source; 2015.

### 1.04 SUBMITTALS

A. See Section 01 3300 - Submittal Procedures, for submittal procedures.

B. Shop Drawings: Indicate layout of seams. Architect will mark up and/or highlight public (non stack or office areas) to receive pattern layout of carpet in same pattern family color group.

C. Product Data: Provide data on specified products, describing physical and performance characteristics; sizes, patterns, colors available, and method of installation.

D. Samples: Submit two carpet tiles illustrating color and pattern design for each carpet color selected.

E. Manufacturer's Installation Instructions: Indicate special procedures.

F. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning.

G. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.

1. See Section 01 6000 - Product Requirements, for additional provisions.
2. Extra Carpet Tiles: Divided as directed of each color and pattern installed in amounts as follows:

| | SY | Tiles | Boxes |
|---|---|---|---|
| Future Tiles @ Main Level "References" | 70 | 160 tile | 9 |
| General Attic Stock for Base Bid | 600 | 1350 tile | 75 |
| Include for Alternate #1 | 104 | 234 tile | 13 |
| Include for Alternate #2 | 112 | 252 tile | 14 |
| Total with Alternates | 886 | 1996 | 111 |

### 1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing specified carpet tile with minimum 10 years documented experience.

B. Installer Qualifications: Company specializing in installing carpet with minimum 5 years experience and documented experience in stack areas of minimum three Libraries.

### 1.06 FIELD CONDITIONS

A. Store materials in area of installation for minimum period of 24 hours or as directed by manufactures installation instructions prior to installation.

## PART 2 PRODUCTS

### 2.01 MANUFACTURERS

A. Specified Standard Basis of Design: Mohawk Group Commercial Carpet.

B. Specified Standard Basis of Design: Patcraft Modular for Walk-Off Carpet.

C. Acceptable Manufacturers:
1. Patcraft; Deflect Skinny Tile.
2. Tandus; Changes II.
3. Substitutions: Not permitted.

### 2.02 MATERIALS

A. **Carpet Tile Type:**
1. Product: Mohawk Group Collection: Street thread; Style: Pop Icon Tile GT194
2. Face Weight: 23 oz/yd
3. Tile Size: 24 x 24 inch, nominal
4. Construction: Tufted
5. Surface Texture: Textured Patterned Loop
6. Dye Method: Solution Dyed / Yard /Dyed
7. Fiber Type: Duracolor, Premium Nylon
8. Gauge: 1/12 (47.49 rows per 10 cm)
9. Stitches/inch: 13.3
10. Density: 6225
11. Weight Density: 143,187
12. Finished Pile Thickness: .133" (3.38 mm)
13. Fiber Technology: Duracolor by Mohawk Groups Stain Resistant System. Passes GSA requirements for permanent stain resistant carpet.
14. Backing Material: ExcFlex NXT
15. Pattern Repeat: Not Applicable.
16. Size: 24" x 24"
17. Color: 259 Hip
18. Installation Method: 50/50 mix with Carpet Tile Type B, Random
19. Stain Release Technology: Permanent, Built into Fiber
20. Soil Telease Technology: Sentry Soil Protection
21. Foot Traffic Recommendation: Severe

B. **Carpet Tile Type:**
1. Product: [Mohawk Group] [Collection: State of Mind III; Style: GT314 Enthralled II Tile]
2. Face Weight: 24 oz/yd
3. Tile Size: 24 x 24 inch, nominal
4. Construction: Tufted
5. Surface Texture: Textured Patterned Loop
6. Dye Method: Yard Dyed

7. Fiber Type: Duracolor, Premium Nylon
8. Gauge: 1/12 (47.00 rows per 10 cm)
9. Stitches/inch: 11.0
10. Density: 8470
11. Weight Density: 203,294
12. Finished Pile Thickness: .102" (2.59 mm)
13. Fiber Technology: Duracolor by Mohawk Groups Stain Resistant System. Passes GSA requirements for permanent stain resistant carpet.
14. Backing Material: ExcFlex NXT
15. Pattern Repeat: Not Applicable.
16. Size: 24" x 24"
17. Color: 954 Dazzled
18. Installation Method: 50/50 mix with Carpet Tile Type B, Random
19. Stain Release Technology: Permanent, Built into Fiber
20. Soil Telease Technology: Sentry Soil Protection
21. Foot Traffic Recommendation: Severe

### 2.03 ACCESSORIES

A. Adhesives: Acceptable to carpet tile manufacturer, compatible with materials being adhered; maximum VOC of 50 g/L; CRI Green Label certified; in lieu of labeled product, independent test report showing compliance is acceptable.

## PART 3 EXECUTION

### 3.01 EXAMINATION

A. Verify that sub-floor surfaces are smooth and flat within tolerances specified for that type of work and are ready to receive carpet tile.

B. Verify that sub-floor surfaces are dust-free and free of substances that could impair bonding of adhesive materials to sub-floor surfaces.

C. Cementitious Sub-floor Surfaces: Verify that substrates are dry enough and ready for flooring installation by testing for moisture and pH.
   1. Obtain instructions if test results are not within limits recommended by flooring material manufacturer and adhesive materials manufacturer.

### 3.02 PREPARATION

A. Remove existing carpet base and adhesives in all areas indicated.
   1. Existing Stacks will be lifted in place for carpet removal.

B. Prepare floor substrates as recommended by flooring and adhesive manufacturers.

C. Remove sub-floor ridges and bumps. Fill minor or local low spots, cracks, joints, holes, and other defects with sub-floor filler.

D. Apply, trowel, and float filler to achieve smooth, flat, hard surface. Prohibit traffic until filler is cured.

E. Vacuum clean substrate.

### 3.03 INSTALLATION

A. Starting installation constitutes acceptance of sub-floor conditions.

B. Install carpet tile in accordance with manufacturer's instructions and CRI Carpet Installation Standard.

C. Blend carpet from different cartons to ensure minimal variation in color match.

D. Cut carpet tile clean. Fit carpet tight to intersection with vertical surfaces without gaps.

E. Lay carpet tile in pattern as directed by Architect. Set parallel to building lines.

F. Fully adhere carpet tile to substrate.

G. Complete installation of edge strips, concealing exposed edges.

**3.04 CLEANING**

A. Remove excess adhesive without damage, from floor, base, and wall surfaces.

B. Clean and vacuum carpet surfaces.

**END OF SECTION**

# SECTION 09 9000
# PAINTING AND COATING

## PART 1 GENERAL

### 1.01 SECTION INCLUDES

A. Surface preparation.

B. Field application of paints.

C. Scope: Finish all interior surfaces exposed to view, **unless fully factory-finished** and as scheduled in Finish Schedule, including the following:
   1. Both sides and edges of plywood backboards for electrical and telecom equipment before installing equipment.
   2. Interior wall surfaces.
   3. Hollow metal door frames.
   4. Metal radiant heating covers.

D. Do Not Paint or Finish the Following Items:
   1. Items fully factory-finished unless specifically so indicated; materials and products having factory-applied primers are not considered factory finished.
   2. Items indicated to receive other finishes.
   3. Items indicated to remain unfinished.
   4. Fire rating labels, equipment serial number and capacity labels, and operating parts of equipment.
   5. Floors, unless specifically so indicated.
   6. Glass.
   7. Acoustical materials, unless specifically so indicated.
   8. Concealed pipes, ducts, and conduits.

### 1.02 RELATED REQUIREMENTS

### 1.03 REFERENCE STANDARDS

A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; current edition.

B. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)
   1. Exterior Surfaces for Opaque Finish, Normal Environment.
   2. ASTM D 235Standard Specification for Mineral Spirits (Petroleum Spirits) (Hydrocarbon Dry Cleaning Solvent)
   3. ASTM D 523(1999) Standard Test Method for Specular Gloss
   4. ASTM C 669(1995) Glazing Compounds for Back Bedding and Face Glazing of Metal Sash
   5. ASTM D 2092(1995) Preparation of Zinc-Coated (Galvanized) Steel Surfaces for Painting
   6. ASTM D 4214(1998) Evaluating the Degree of Chalking of Exterior Paint Films

C. **MASTER PAINTERS INSTITUTE (MPI)**
   1. Exterior Coatings
      a. MPI 101(2004) Cold Curing Epoxy Primer
      b. MPI 108(2004) High Build Epoxy Marine Coating
      c. MPI 151 (2005) Waterborne, Light Industrial Coating
   2. Interior Coatings
      a. MPI 50(2004) Interior Latex Primer Sealer
      b. MPI 54(2004) Interior Latex, Semi-Gloss, MPI Gloss Level 6
      c. MPI 77(2004) Epoxy Cold Cured, Gloss
      d. MPI 108(2004) High Build Epoxy Marine Coating

**1.04 DEFINITIONS**

A. Conform to ASTM D 16 for interpretation of terms used in this section.

B. MPI System Number: The MPI coating system number in each Division found in either the MPI Architectural Painting Specification Manual or the Maintenance Repainting Manual and defined as an exterior (EXT/REX) or interior system (INT/RIN). The Division number follows the CSI Master Format.

C. MPI Gloss Levels:
1. MPI system of defining gloss. Seven (7) gloss levels (G1 to G7) are generically defined under the Evaluation sections of the MPI Manuals. Traditionally, Flat refers to G1/G2, Eggshell refers to G3, Semigloss refers to G5, and Gloss refers to G6.
2. Gloss levels are defined by MPI as follows:
a. Gloss Level Description Units Units
b. @ 60 degrees @ 85 degrees
c. G1 Matte or Flat 0 to 5 10 max
d. G2 Velvet 0 to 10 10 to 35
e. G3 Eggshell 10 to 25 10 to 35
f. G4 Satin 20 to 35 35 min
g. G5 Semi-Gloss 35 to 70
h. G6 Gloss 70 to 85
i. G7 High Gloss
3. Gloss is tested in accordance with ASTM D 523.

D. REX - MPI short term designation for an exterior coating system used in repainting projects or over existing coating systems.

E. RIN - MPI short term designation for an interior coating system used in repainting projects or over existing coating systems.

**1.05 SUBMITTALS**

A. See Section 01 3300 - Submittal Procedures, for submittal procedures.

B. Product Data: Provide complete list of all products to be used, with the following information for each:
1. Manufacturer's name, product name and/or catalog number, and general product category (e.g. "alkyd enamel").
2. MPI product number (e.g. MPI #47).
3. Cross-reference to specified paint system(s) product is to be used in; include description of each system.
4. Manufacturer's installation instructions.

C. Samples: Submit three paper "draw down" samples, 8-1/2 by 11 inches in size, illustrating range of colors available for each finishing product specified.
1. Where sheen is specified, submit samples in only that sheen.
2. Allow 30 days for approval process, after receipt of complete samples by Architect.

D. Detailed mixing instructions, minimum and maximum application temperature and humidity, potlife, and curing and drying times between coats.

E. Samples: Submit two painted samples, illustrating selected colors and textures for each color and system selected with specified coats cascaded. Submit on tempered hardboard, 12 x 12 inch in size.

F. Manufacturer's Instructions: Indicate special surface preparation procedures.

**1.06 QUALITY ASSURANCE**

A. The current MPI, "Approved Product List" which lists paint by brand, label, product name and product code as of the date of contract award, will be used to determine compliance with the submittal requirements of this specification. The Contractor may choose to use a subsequent MPI "Approved Product List", however, only one list may be used for the entire contract and

each coating system is to be from a single manufacturer. All coats on a particular substrate must be from a single manufacturer. No variation from the MPI Approved Products List is acceptable.

B. MPI "Approved Product List" shall, for purposes of this specification, mean the products to be considered approved must be qualified under the MPI "Detailed Performance" or MPI " Evaluated Performance" definitions.

C. Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum three years documented experience.

D. Applicator Qualifications: Company specializing in performing the work of this section five years documented experience and approved by manufacturer and approved by manufacturer. Submit the following information concerning the applicator.
   1. Submit the name, address, telephone number, FAX number, and e-mail address of the contractor that will be performing all surface preparation and coating application. Submit evidence that key personnel have successfully performed surface preparation and application of coatings on a minimum of three similar projects within the past three years. List information by individual and include the following:
   2. Name of individual and proposed position for this work.
   3. Information about each previous assignment including:
      a. Position or responsibility
      b. Employer (if other than the Contractor)
      c. Name of facility owner
      d. Mailing address, telephone number, and telex number (if non-US) of facility owner
      e. Name of individual in facility owner's organization who can be contacted as a reference
      f. Location, size and description of structure
      g. Dates work was carried out
      h. Description of work carried out on structure

E. Samples of specified materials may be taken and tested for compliance with specification requirements.

F. Field Samples and Tests: Architect or Owner may choose up to two coatings that have been delivered to the site to be tested at no cost to the Owner. Take samples of each chosen product as specified in the paragraph "Sampling Procedures." Test each chosen product as specified in the paragraph "Testing Procedure." Products which do not conform, shall be removed from the job site and replaced with new products that conform to the referenced specification. Testing of replacement products that failed initial testing shall be at no cost to the Owner.

G. Sampling Procedure: If indicated, the Architect or Owner's Project Representative may select a product at random from the products that have been delivered to the job site. The Contractor shall provide one liter(one quart) samples of the selected paint materials. The samples shall be taken in the presence of the Architect or designated testing agent, and labeled, identifying each sample. Provide appropriate labels.

H. Testing Procedure: If samples are taken, provide Batch Quality Conformance Testing for specified products, as defined by and performed by MPI. As an alternative to Batch Quality Conformance testing, the Contractor may provide Qualification Testing for specified products above to the appropriate MPI product specification, using the third-party laboratory approved under the paragraph "Qualification Testing" laboratory for coatings. The qualification testing lab report shall include the backup data and summary of the test results. The summary shall list all of the reference specification requirements and the result of each test. The summary shall clearly indicate whether the tested paint meets each test requirement. Note that Qualification Testing may take 4 to 6 weeks to perform, due to the extent of testing required.

**1.07 REGULATORY REQUIREMENTS**

A. Conform to applicable code for flame and smoke rating requirements for products and finishes.

B. Lead Content: Do not use coatings having a lead content over 0.06 percent by weight of nonvolatile content.

C. Chromate Content: Do not use coatings containing zinc-chromate or strontium-chromate.

D. Asbestos Content: Materials shall not contain asbestos.

E. Mercury Content: Materials shall not contain mercury or mercury compounds.

F. Silica: Abrasive blast media shall not contain free crystalline silica.

G. Human Carcinogens: Materials shall not contain ACGIH TLV-BKLT and ACGIH TLV-DOC confirmed human carcinogens (A1) or suspected human carcinogens (A2).

**1.08 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.

**1.09 FIELD CONDITIONS**

A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.

B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.

C. Do not apply exterior coatings during rain or snow, or when relative humidity is outside the humidity ranges required by the paint product manufacturer.

D. Minimum Application Temperatures for Latex Paints: 45 degrees F for interiors; 50 degrees F for exterior; unless required otherwise by manufacturer's instructions.

E. Provide lighting level of 80 ft candles measured mid-height at substrate surface.

## PART 2 PRODUCTS

**2.01 MANUFACTURERS**

A. Provide all paint and coating products used in any individual system from the same manufacturer; no exceptions.

B. Provide all paint and coating products from the same manufacturer to the greatest extent possible.
   1. In the event that a single manufacturer cannot provide all specified products, minor exceptions will be permitted provided approval by Architect is obtained using the specified procedures for substitutions.
   2. Substitution of MPI-approved products by a different manufacturer is preferred over substitution of unapproved products by the same manufacturer.

C.
   1. Base Manufacturer: Any Manufacture listed in the specified MPI system which are members or Master Paint Institute (MPI)..
   2. The current MPI, "Approved Product List" which lists paint by brand, label, product name and product code as of the date of contract award, will be used to determine compliance with the submittal requirements of this specification. The Contractor may choose to use a subsequent MPI "Approved Product List", however, only one list may be used for the entire contract and each coating system is to be from a single manufacturer. All coats on a particular substrate must be from a single manufacturer. No variation from the MPI Approved Products List is acceptable.

D.

E. Substitutions: See Section 01 6000 - Product Requirements.

**2.02 PAINTS AND COATINGS - GENERAL**

A. Paints and Coatings: Ready mixed, unless intended to be a field-catalyzed coating.
   1. Provide paints and coatings 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 coating material in quantity required to complete entire project's work from a single production run.
   3. Do not reduce, thin, or dilute coatings or add materials to coatings unless such procedure is specifically described in manufacturer's product instructions.

B. Primers: As follows unless other primer is required or recommended by manufacturer of top coats; where the manufacturer offers options on primers for a particular substrate, use primer categorized as "best" by the manufacturer.

C. Volatile Organic Compound (VOC) Content:
   1. Provide coatings that comply with the most stringent requirements specified in the following:
      a. 40 CFR 59, Subpart D--National Volatile Organic Compound Emission Standards for Architectural Coatings.
   2. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.

D. Colors: To be selected from manufacturer's full range of available colors.
   1. Selection to be made by Architect after award of contract.

**2.03 PAINT SYSTEMS - INTERIOR**

A. **STEEL, INTERIOR FERROUS & NON-FERROUS**
   1. **Steel, Metal; Ferrous & Non-Ferrous such as radiant heater modifications.**
      a. **Waterborne Light Industrial**
         1) **MPI INT 5.1R-G5 (Semi-Gloss)**

| | Primer: | Intermediate: | Topcoat: |
|---|---|---|---|
| (a) | MPI 79 | MPI 139 | MPI 139 |

         (b) System DFT: ((5 mils) 125 microns)

B. **GYPSUM DRYWALL & PLASTER**
   1. **New Wallboard:**
      a. **High Performance Architectural Latex**
         1) New; MPI INT 9.2A-G5 (Semigloss)

| | Primer: | Intermediate: | Topcoat: |
|---|---|---|---|
| (b) | MPI 50 | MPI 54 | MPI 54 |

            (c) System DFT: (4 mils) 100 microns
      b. **High Performance Architectural Latex**
         1) **Epoxy**
            (a) **MPI INT 9.2F-G6 (Gloss)**

| | Primer: | Intermediate: | Topcoat: |
|---|---|---|---|
| (1) | MPI 50 | MPI 77 | MPI 77 |

               (2) System DFT: (4 mils) 100 microns

**2.04 ACCESSORY MATERIALS**

A. Accessory Materials: Provide all primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials required to achieve the finishes specified whether specifically indicated or not; commercial quality.

B. Patching Material: Latex filler.

C. Fastener Head Cover Material: Latex filler.

## PART 3 EXECUTION

### 3.01 PROTECTION OF AREAS AND SPACES NOT TO BE PAINTED

A. Prior to surface preparation and coating applications, remove, mask, or otherwise protect, hardware, hardware accessories, machined surfaces, radiator covers, plates, lighting fixtures, public and private property, and other such items not to be coated that are in contact with surfaces to be coated. Following completion of painting, workmen skilled in the trades involved shall reinstall removed items. Restore surfaces contaminated by coating materials, to original condition and repair damaged items.

### 3.02 EXAMINATION

A. Verify that surfaces are ready to receive work as instructed by the product manufacturer.

B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.

C. Test shop-applied primer for compatibility with subsequent cover materials.

D. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
   1. Gypsum Wallboard: 12 percent.
   2. Masonry, Concrete, and Concrete Unit Masonry: 12 percent.
   3. Concrete Floors and Traffic Surfaces: 8 percent.

### 3.03 PREPARATION

A. Clean surfaces thoroughly and correct defects prior to coating application.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. Surface Appurtenances: Remove or mask electrical plates, hardware, light fixture trim, escutcheons, and fittings prior to preparing surfaces or finishing.

D. Surfaces: Correct defects and clean surfaces which affect work of this section. Remove or repair existing coatings that exhibit surface defects.

E. Seal surfaces that might cause bleed through or staining of topcoat.

F. Remove mildew from impervious surfaces by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.

G. General Surface Preparation: Remove dirt, splinters, loose particles, grease, oil, [disintegrated coatings,] and other foreign matter and substances deleterious to coating performance as specified for each substrate before application of paint or surface treatments. Oil and grease shall be removed prior to mechanical cleaning. Cleaning shall be programmed so that dust and other contaminants will not fall on wet, newly painted surfaces. Exposed ferrous metals such as nail heads on or in contact with surfaces to be painted with water-thinned paints, shall be spot-primmed with a suitable corrosion-inhibitive primer capable of preventing flash rusting and compatible with the coating specified for the adjacent areas.

H. Existing Surfaces, Additional Preparation: Before application of coatings, perform the following on surfaces covered by soundly-adhered coatings, defined as those which cannot be removed with a putty knife:
   1. Arena Bldg. A, Room A01 - Preparation of walls and exposed steel trusses and decking:
      a. Overhead Steel - Sandblast to remove rust and / or any loose paint.
      b. Masonry walls - Light sandblast to remove loose paint and mold. Phase this work after the installation of ventilation and exhaust louver. Confirm the masonry is dry, by testing, prior to applying paint products.

2. Wipe previously painted surfaces to receive solvent-based coatings, except stucco and similarly rough surfaces clean with a clean, dry cloth saturated with mineral spirits, ASTM D 235. Allow surface to dry. Wiping shall immediately precede the application of the first coat of any coating, unless specified otherwise.
3. Sand existing glossy surfaces to be painted to reduce gloss. Brush, and wipe clean with a damp cloth to remove dust.
4. The requirements specified are minimum. Comply also with the application instructions of the paint manufacturer.
5. Previously painted surfaces [specified to be repainted] [damaged during construction] shall be thoroughly cleaned of all grease, dirt, dust or other foreign matter.
6. Blistering, cracking, flaking and peeling or other deteriorated coatings shall be removed.
7. Chalk shall be removed so that when tested in accordance with ASTM D 4214, the chalk resistance rating is no less than 8.
8. Slick surfaces shall be roughened. Damaged areas such as, but not limited to, nail holes, cracks, chips, and spalls shall be repaired with suitable material to match adjacent undamaged areas.
9. Edges of chipped paint shall be feather edged and sanded smooth.
10. Rusty metal surfaces shall be cleaned as per SSPC requirements. Solvent, mechanical, or chemical cleaning methods shall be used to provide surfaces suitable for painting.
11. New, proposed coatings shall be compatible with existing coatings.

I. Gypsum Board Surfaces to be Painted: Fill minor defects with filler compound. Spot prime defects after repair.
1. Surface Cleaning: Plaster and stucco shall be clean and free from loose matter; gypsum board shall be dry. Remove loose dirt and dust by brushing with a soft brush, rubbing with a dry cloth, or vacuum-cleaning prior to application of the first coat material. A damp cloth or sponge may be used if paint will be water-based.
2. Repair of Minor Defects: Prior to painting, repair joints, cracks, holes, surface irregularities, and other minor defects with patching plaster or spackling compound and sand smooth.
3. Allowable Moisture Content: Latex coatings may be applied to damp surfaces, but not surfaces with droplets of water. Do not apply epoxies to damp surfaces as determined by ASTM D 4263. New plaster to be coated shall have a maximum moisture content of 8 percent, when measured in accordance with ASTM D 4444, Method A, unless otherwise authorized. In addition to moisture content requirements, allow new plaster to age a minimum of 30 days before preparation for painting.
4. Fill minor defects with filler compound. Spot prime defects after repair.

**3.04 APPLICATION**

A. Coating Application
1. Apply products in accordance with manufacturer's instructions.
2. At the time of application, paint shall show no signs of deterioration. Uniform suspension of pigments shall be maintained during application.
3. Unless otherwise specified or recommended by the paint manufacturer, paint may be applied by brush, roller, or spray. Rollers for applying paints and enamels shall be of a type designed for the coating to be applied and the surface to be coated.
4. Paints, except water-thinned types, shall be applied only to surfaces that are completely free of moisture as determined by sight or touch.
5. Thoroughly work coating materials into joints, crevices, and open spaces. Special attention shall be given to insure that all edges, corners, crevices, welds, and rivets receive a film thickness equal to that of adjacent painted surfaces.
6. Each coat of paint shall be applied so dry film shall be of uniform thickness and free from runs, drops, ridges, waves, pinholes or other voids, laps, brush marks, and variations in color, texture, and finish. Hiding shall be complete.
7. Touch up damaged coatings before applying subsequent coats.[ Interior areas shall be broom clean and dust free before and during the application of coating material.]

8. Where adjacent sealant is to be painted, do not apply finish coats until sealant is applied.
9. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.
10. Apply each coat to uniform appearance.

B. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.
1. Drying Time: Allow time between coats, as recommended by the coating manufacturer, to permit thorough drying, but not to present topcoat adhesion problems. Provide each coat in specified condition to receive next coat.
2. Primers, and Intermediate Coats: Do not allow primers or intermediate coats to dry more than 30 days, or longer than recommended by manufacturer, before applying subsequent coats. Follow manufacturer's recommendations for surface preparation if primers or intermediate coats are allowed to dry longer than recommended by manufacturers of subsequent coatings. Each coat shall cover surface of preceding coat or surface completely, and there shall be a visually perceptible difference in shades of successive coats.
3. Finished Surfaces: Provide finished surfaces free from runs, drops, ridges, waves, laps, brush marks, and variations in colors.

C. Mixing and Thinning of Paints
1. Reduce paints to proper consistency by adding fresh paint, except when thinning is mandatory to suit surface, temperature, weather conditions, application methods, or for the type of paint being used. Obtain written permission from the Contracting Officer to use thinners. The written permission shall include quantities and types of thinners to use.
2. When thinning is allowed, paints shall be thinned immediately prior to application with not more than [0.125 L] [1 pint] of suitable thinner per [liter.] [gallon.] The use of thinner shall not relieve the Contractor from obtaining complete hiding, full film thickness, or required gloss. Thinning shall not cause the paint to exceed limits on volatile organic compounds. Paints of different manufacturers shall not be mixed.

D. Two-Component Systems
1. Two-component systems shall be mixed in accordance with manufacturer's instructions. Any thinning of the first coat to ensure proper penetration and sealing shall be as recommended by the manufacturer for each type of substrate.

E. Coating Systems
1. Minimum Dry Film Thickness (DFT): Apply paints, primers, varnishes, enamels, undercoats, and other coatings to a minimum dry film thickness of 0.038 mm( 1.5 mil) each coat unless specified otherwise in the Tables. Coating thickness where specified, refers to the minimum dry film thickness.
2. Coatings for Surfaces Not Specified Otherwise: Coat surfaces which have not been specified, the same as surfaces having similar conditions of exposure.

F. Coating Systems for Metal
1. Apply specified ferrous metal primer on the same day that surface is cleaned, to surfaces that meet all specified surface preparation requirements at time of application.
2. Inaccessible Surfaces: Prior to erection, use one coat of specified primer on metal surfaces that will be inaccessible after erection.
3. Shop-primed Surfaces: Touch up exposed substrates and damaged coatings to protect from rusting prior to applying field primer.
4. Surface Previously Coated with Epoxy or Urethane: Apply MPI 101, 0.038 mm( 1.5 mils) DFT immediately prior to application of epoxy or urethane coatings.
5. Exposed Nails, Screws, Fasteners, and Miscellaneous Ferrous Surfaces. On surfaces to be coated with water thinned coatings, spot prime exposed nails and other ferrous metal with latex primer MPI 107.

**3.05 FIELD QUALITY CONTROL**

A. See Section 01 4000 - Quality Requirements, for general requirements for field inspection.

B. Owner will provide field inspection.

**3.06 CLEANING**

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

**3.07 SCHEDULE - PAINT SYSTEMS**

A. Gypsum Board: Finish all surfaces exposed to view.
   1. Interior Walls: MPI INT 9.2A - G5, (Semi-Gloss).
   2. Interior Walls: MPI INT 9.2F - G6 (Gloss)

B. **Steel Door Frames and Radiant Heater Covers: MPI INT 5.1R -G6, (Gloss).**
   1. Interior: MPI INT 5.1R -G5, (Semi-Gloss).

**END OF SECTION**

# SECTION 10 1101
# VISUAL DISPLAY BOARDS

## PART 1 GENERAL

### 1.01 SECTION INCLUDES

A. Markerboards

B. Markerboards.

C. Provide one (1) 8' x 4' board.

### 1.02 RELATED REQUIREMENTS

A. Section 06 1000 - Rough Carpentry: Blocking and supports.

### 1.03 REFERENCE STANDARDS

A. ANSI A135.4 - American National Standard for Basic Hardboard; 2012.

B. ANSI A208.1 - American National Standard for Particleboard; 2009.

C. ASTM A424/A424M - Standard Specification for Steel, Sheet, for Porcelain Enameling; 2009a.

D. PS 1 - Structural Plywood; 2009.

### 1.04 SUBMITTALS

A. See Section 01 3300 - Submittal Procedures, for submittal procedures.

B. Product Data: Provide manufacturer's data on chalkboard, markerboard, tackboard, tackboard surface covering, trim, and accessories.

C. Shop Drawings: Indicate wall elevations, dimensions, joint locations, special anchor details.

D. Samples: Submit two samples 2 by 2 inch in size illustrating materials and finish, color and texture of markerboard and trim.

E. Manufacturer's printed installation instructions.

### 1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

### 1.06 WARRANTY

A. See Section 01 7700 - Closeout Procedures, for additional warranty requirements.

B. Provide five year warranty for markerboard to include warranty against discoloration due to cleaning, crazing or cracking, and staining.

## PART 2 PRODUCTS

### 2.01 MANUFACTURERS

A. Visual Display Boards:

1. MooreCo, Inc: www.moorecoinc.com.
2. Claridge Products and Equipment, Inc: www.claridgeproducts.com/#sle.
3. Polyvision Corporation (Nelson Adams): www.polyvision.com/#sle.

### 2.02 VISUAL DISPLAY BOARDS

A. Markerboards: Porcelain enamel on steel, laminated to core.

1. Color: White.
2. Steel Face Sheet Thickness: 24 gage, 0.0239 inch .
3. Core: Particleboard, manufacturer's standard thickness, laminated to face sheet.
4. Backing: Aluminum foil, laminated to core.
5. Size: As indicated on drawings.

**2.03 MATERIALS**

A. Porcelain Enameled Steel Sheet: ASTM A424/A424M, Type I, Commercial Steel, with fired-on vitreous finish.

B. Particleboard: ANSI A208.1; wood chips, set with waterproof resin binder, sanded faces.

C. Foil Backing: Aluminum foil sheet, 0.005 inch thick.

D. Aluminum Sheet Backing: 27 gage, 0.014 inch thick.

E. Adhesives: Type used by manufacturer.

**2.04 ACCESSORIES**

A. Map Rail: Extruded aluminum, manufacturer's standard profile, with cork insert and runners for accessories; 1 inch wide overall, full width of frame.

B. Temporary Protective Cover: Sheet polyethylene, 8 mil thick.

C. Mounting Brackets: Concealed.

**PART 3 EXECUTION**

**3.01 EXAMINATION**

A. Verify that field measurements are as indicated.

B. Verify that internal wall blocking is ready to receive work and positioning dimensions are as indicated on shop drawings.

C. Verify flat wall surface for frameless adhesive-applied boards.

**3.02 INSTALLATION**

A. Install boards in accordance with manufacturer's instructions.

B. Install with top of chalk tray at 30 inches above finished floor unless shown otherwise..

C. Secure units level and plumb.

**3.03 CLEANING**

A. Clean board surfaces in accordance with manufacturer's instructions.

B. Cover with protective cover, taped to frame.

C. Remove temporary protective cover at Date of Substantial Completion.

**END OF SECTION**

# SECTION 260500

# COMMON WORK RESULTS FOR ELECTRICAL

## PART 1 - GENERAL

### 1.1 SUMMARY

A. Section Includes:
   1. Supporting Devices for Electrical Components
   2. Electricity-Metering Components
   3. Concrete Equipment Bases
   4. Electrical Demolition
   5. Cutting and Patching For Electrical Construction
   6. Touchup Painting

### 1.2 REFERENCES

A. ASTM International (ASTM) Publications:
   1. A53 "Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless"
B. American Welding Society (AWS) Publications:
   1. D1.1 "Structural Welding Code - Steel"
C. National Fire Protection Association (NFPA) Publications:
   1. 70 "National Electric Code"
D. National Electrical Manufacturers Association (NEMA) Publications:
   1. 250 “Enclosures for Electrical Equipment (1000 Volts Maximum)”

### 1.3 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 01 Specification Sections:
   1. Product Data
   2. Shop Drawings:
      a. Dimensioned plans and sections or elevation layouts of electricity-metering equipment.
      b. Dimensioned plans and sections or elevation layouts of electricity-metering equipment.
      c. Do not purchase equipment before completion of shop drawing review.
      d. Engineer will not review shop drawings before the contractor has reviewed the shop drawings. The contractor shall stamp all drawings with a statement that he has reviewed all shop drawings and that they conform to the intent of the drawings and specifications.

B. Submittals shall contain:
   1. The first section of the manual shall contain:
      a. Names, addresses, and telephone numbers of Electrical Engineer, General Contractor, and any other contractors involved.
      b. Date of submission and dates of any previous submissions.
      c. Project title and number.
      d. Contract identification.
      e. The names of Contractor, Supplier, and Manufacturer.
      f. Identification of the product, with the Specification Section number.
      g. Field dimensions, clearly identified as such.

h. Relation to adjacent or critical features of the Work or materials.
i. Applicable standards, such as ASTM or Federal Specification numbers.
j. Identification of deviations from Contract Documents.
k. Identification of revisions on resubmittals.
l. An 8"x3" space for Engineer's and Contractor's stamps.
m. Contractor stamp, initialed or signed, certifying to review of submittal, verification of products, field measurements and field construction criteria, and coordination of the information within the submittal with requirements of the Work and of the Contract Documents.

2. Submittals shall be furnished on the following equipment:
   a. Panelboards
   b. Disconnect Switches
   c. Overcurrent Protective Devices
   d. Light Fixtures
   e. Light Dimmers
   f. Motion Sensors
   g. Receptacles
   h. Floor Boxes
   i. Switches
   j. Special Equipment
   k. Programmable Controllers
   l. Fire Alarm System
      1) Auxiliary power panels
      2) Heat detectors
      3) Audible/visual alarms
      4) Review drawings

C. O & M Manuals:
   1. Provide 3 copies of O & M manual with data for all equipment furnished. Submittals shall be furnished on the following equipment:
      a. Panelboards
      b. Disconnect Switches
      c. Overcurrent Protective Devices
      d. Light Fixtures
      e. Light Dimmers
      f. Motion Sensors
      g. Receptacles
      h. Floor Boxes
      i. Switches
      j. Special Equipment
      k. Programmable Controllers
      l. Fire Alarm System
         1) Auxiliary power panels
         2) Heat detectors
         3) Audible/visual alarms
         4) Review drawings
   2. Provide one copy of contractor's written warranty in each manual.

## 1.4 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.
C. All work to be in accordance with latest requirements of the N.E.C. and all other applicable codes and regulations of authorities having jurisdiction over the work.

## 1.5 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 electrical materials and equipment for efficient flow of the Work. Coordinate installing large equipment requiring positioning before closing in the building.
C. Coordinate electrical service connections to components furnished by utility companies.
   1. Coordinate installation and connection of exterior underground and overhead utilities and services, including provision for electricity-metering components.
   2. Comply with requirements of authorities having jurisdiction and of utility company providing electrical power and other services.
   3. Schedule utility interruptions in accordance with Division 01 of the specifications.
D. Coordinate location of access panels and doors for electrical items that are concealed by finished surfaces. Access doors and panels are specified in Section 083100 - "Access Doors."
E. Coordinate all work with Division 21, 22, & 23. Electrical Contractor shall provide all wiring and final connection to all line voltage thermostats. Thermostat provided and installed by Division 23.
F. All electrical drawings are to be read in conjunction with the project specifications and all other related contract drawings.
G. The contractor shall examine the site and observe the conditions under which the work will be done or other circumstances which will affect the contemplated work. No allowance will be made subsequently in the connection for any error or negligence on the contractor's part.
H. The contractor shall verify exact location, size and extent of all existing utilities, obstructions and/or other conditions which may affect the proposed work under the project. The contractor shall take every precaution to prevent damage to existing work and shall repair any damage as a result of this work.
I. The contractor shall verify all door swings in the field and mount switches on knob side of doors or as approved by the engineer.
J. The contractor shall carefully examine all contract drawings/specifications and be responsible for the proper fittings of materials and equipment at each location as indicated without substantial alteration. The drawings are generally diagrammatic and because of the small scale of the drawings, it is not possible to indicate all offsets, fittings and accessories which may be required. Furnishing such fittings that are required to meet such conditions shall be furnished and installed at no cost.

# PART 2 - PRODUCTS

## 2.1 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.
   1. Channel Thickness: Selected to suit structural loading.
   2. Fittings and Accessories: Products of the same manufacturer as channel supports.
D. Raceway and Cable Supports: Manufactured clevis hangers, riser clamps, straps, threaded C-clamps with retainers, ceiling trapeze hangers, wall brackets, and spring-steel clamps or click-type hangers.
E. Pipe Sleeves: ASTM A53, Type E, Grade A, Schedule 40, galvanized steel, plain ends.
F. Cable Supports for Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug for nonarmored electrical cables in riser conduits. Plugs have

number and size of conductor gripping holes as required to suit individual risers. Body constructed of malleable-iron casting with hot-dip galvanized finish.

G. Expansion Anchors: Carbon-steel wedge or sleeve type.
H. Toggle Bolts: All-steel springhead type.

### 2.2 TOUCHUP PAINT

A. For Equipment: Equipment manufacturer's paint selected to match installed equipment finish.
B. Galvanized Surfaces: Zinc-rich paint recommended by item manufacturer.

## PART 3 - EXECUTION

### 3.1 ELECTRICAL EQUIPMENT INSTALLATION

A. Headroom Maintenance: If mounting heights or other location criteria are not indicated, arrange and install components and equipment to provide the maximum possible headroom.
B. Materials and Components: Install level, plumb, and parallel and perpendicular to other building systems and components, unless otherwise indicated.
C. Equipment: Install to facilitate service, maintenance, and repair or replacement of components. Connect for ease of disconnecting, with minimum interference with other installations.
D. Right of Way: Give to raceways and piping systems installed at a required slope.
E. Coordinate work with other trades and install conduit and boxes to clear embedded ducts, openings, etc. and all structural features.
F. Unless otherwise noted, mounting heights, as shown, are from finished floor to top of panelboard and to centerline of other equipment. Coordinate all mounting heights with contract drawings, local code requirements, and all A.D.A. requirements.
    1. Toggle (snap) switch: 4’-0”.
    2. Enclosed circuit breaker: 5’-0”
    3. Disconnect (safety) switch: 5’-0”.
    4. Motor starter: 5’-0”.
    5. Panelboard: 6’-6”.

### 3.2 ELECTRICAL SUPPORTING DEVICE APPLICATION

A. Damp Locations, Pool Equipment Rooms, Storage Rooms and Outdoors: Hot-dip galvanized materials or nonmetallic, U-channel system components.
B. Dry Locations: Steel materials.
C. Support Clamps for PVC Raceways: Click-type clamp system.
D. Selection of Supports: Comply with manufacturer's written instructions.
E. Strength of Supports: Adequate to carry present and future loads, times a safety factor of at least four; minimum of 200-lb design load.

### 3.3 SUPPORT INSTALLATION

A. Install support devices to securely and permanently fasten and support electrical components.
B. Install individual and multiple raceway hangers and riser clamps to support raceways. Provide U-bolts, clamps, attachments, and other hardware necessary for hanger assemblies and for securing hanger rods and conduits.
C. Support parallel runs of horizontal raceways together on trapeze- or bracket-type hangers.
D. Size supports for multiple raceway installations so capacity can be increased by a 25 percent minimum in the future.
E. Support individual horizontal raceways with separate, malleable-iron pipe hangers or clamps.
F. Install 1/4-inch- diameter or larger threaded steel hanger rods, unless otherwise indicated.
G. Spring-steel fasteners specifically designed for supporting single conduits or tubing may be

used instead of malleable-iron hangers for 1-1/2-inch and smaller raceways serving lighting and receptacle branch circuits above suspended ceilings and for fastening raceways to slotted channel and angle supports.

H. Arrange supports in vertical runs so the weight of raceways and enclosed conductors is carried entirely by raceway supports, with no weight load on raceway terminals.

I. Simultaneously install vertical conductor supports with conductors.

J. Separately support cast boxes that are threaded to raceways 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 raceways on opposite sides of the box and support the raceway with an approved fastener not more than 24 inches from the box.

K. 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.

L. Install sleeves for cable and raceway penetrations of concrete slabs and walls unless core-drilled holes are used. Install sleeves for cable and raceway penetrations of masonry and fire-rated gypsum walls and of all other fire-rated floor and wall assemblies. Install sleeves during erection of concrete and masonry walls.

M. 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. Wood: Fasten with wood screws or screw-type nails.
   2. Masonry: Toggle bolts on hollow masonry units and expansion bolts on solid masonry units.
   3. New Concrete: Concrete inserts with machine screws and bolts.
   4. Existing Concrete: Expansion bolts.
   5. Steel: Welded threaded studs or spring-tension clamps on steel.
      a. Field Welding: Comply with AWS D1.1.
   6. Welding to steel structure may be used only for threaded studs, not for conduits, pipe straps, or other items.
   7. Light Steel: Sheet-metal screws.
   8. Fasteners: Select so the load applied to each fastener does not exceed 25 percent of its proof-test load.

## 3.4 FIRESTOPPING

A. Apply firestopping to cable and raceway penetrations of fire-rated floor and wall assemblies to achieve fire-resistance rating of the assembly.

## 3.5 CUTTING AND PATCHING

A. Cut, channel, chase, and drill floors, walls, partitions, ceilings, and other surfaces required to permit electrical installations. Perform cutting by skilled mechanics of trades involved.

B. Repair and refinish disturbed finish materials and other surfaces to match adjacent undisturbed surfaces. Install new fireproofing where existing firestopping has been disturbed. Repair and refinish materials and other surfaces by skilled mechanics of trades involved.

## 3.6 FIELD QUALITY CONTROL

A. Inspect installed components for damage and faulty work, including the following:
   1. Supporting devices for electrical components.
   2. Electricity-metering components.
   3. Concrete bases.
   4. Electrical demolition.
   5. Cutting and patching for electrical construction.
   6. Touchup painting.

## 3.7 REFINISHING AND TOUCHUP PAINTING

A. Refinish and touch up paint.

## 3.8 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.

**END OF SECTION**

# SECTION 260519

# LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

## PART 1 - GENERAL

### 1.1 SUMMARY

A. Section Includes:
   1. Building wires and cables and associated connectors, splices, and terminations for wiring systems rated 600 V and less.

### 1.2

A. National Electrical Manufacturer's Association (NEMA) Publications:
   1. WC 26 "Binational Wire and Cable Packaging Standard"
   2. WC 70 "Nonshielded Power Cables Rated 2000 Volts or less for the Distribution of Electrical Energy"
B. National Fire Protection Association (NFPA) Publications:
   1. 70 "National Electric Code"
C. Underwriter's Laboratories, Inc. (UL) Publications:
   1. 486A "Standard For Wire Connectors and Soldering Lugs for Use with Copper Conductors"
   2. 486B "Standard for Wire Connectors for Use With Aluminum Conductors"

### 1.3 QUALITY ASSURANCE

A. Listing and Labeling: Provide wires and cables specified in this Section that are listed and labeled.
   1. The Terms "Listed" and "Labeled": As defined in NFPA 70, Article 100.
   2. Listing and Labeling Agency Qualifications: A "Nationally Recognized Testing Laboratory" as defined in OSHA Regulation 1910.7.
B. Comply with NFPA 70.

### 1.4 DELIVERY, STORAGE, AND HANDLING

A. Deliver wires and cables according to NEMA WC 26.

### 1.5 COORDINATION

A. Coordinate layout and installation of cables with other installations.
B. Revise locations and elevations from those indicated, as required to suit field conditions and as approved by Owner's Representative.

## PART 2 - PRODUCTS

### 2.1 BUILDING WIRES AND CABLES

A. Approved Manufacturers:
   1. American Insulated Wire Corp.; Leviton Manufacturing Co. (800-366-2492)
   2. Carol Cable Co., Inc. (401-728-7000)
   3. Southwire Company (800-444-1700)

4. Alcan Cable Division of Alcan Aluminum Corporation (770-392-2368)

B. UL-listed building wires and cables with conductor material, insulation type, cable construction, and rating as specified in Part 3 "Wire and Insulation Applications" Article.
C. Rubber Insulation Material: Comply with NEMA WC 70.
D. Thermoplastic Insulation Material: Comply with NEMA WC 70.
E. Cross-Linked Polyethylene Insulation Material: Comply with NEMA WC 70.
F. Ethylene Propylene Rubber Insulation Material: Comply with NEMA WC 70.
G. Conductor Material: Copper
   1. Feeders 100 ampere or greater may be aluminum "Alcan Stabiloy #8000", or approved substitution by listed manufacturers. Upsize conduit and wire as required.
   2. All aluminum conductors shall include Burndy Hyplug connectors at each end of cable.
H. Stranding: Solid conductor for No. 10 AWG and smaller; stranded conductor for larger than No. 10 AWG.

## 2.2 CONNECTORS AND SPLICES

A. Approved Manufacturers:
   1. AMP Incorporated (800-522-6752)
   2. General Signal; O-Z/Gedney Unit (203-584-0571)
   3. Square D Co.; a Division of Groupe Schneider (888-778-2733)
   4. Alcan Cable Division of Alcan Aluminum Corporation (770-392-2368)
B. UL-listed, factory-fabricated wiring connectors of size, ampacity rating, material, type, and class for application and service indicated. Comply with Project's installation requirements and as specified in Part 3 "Wire and Insulation Applications" Article.

# PART 3 - EXECUTION

## 3.1 EXAMINATION

A. Examine raceways and building finishes to receive wires and cables for compliance with requirements for installation tolerances and other conditions affecting performance of wires and cables. Do not proceed with installation until unsatisfactory conditions have been corrected.

## 3.2 WIRE AND INSULATION APPLICATIONS

A. Horizontal Feeders: Type THHN/THWN, in raceway
B. Vertical Feeders: Type THHN/THWW in raceway
C. Horizontal Branch Circuits: Type THHN/THWN, in raceway
D. Vertical Branch Circuits: Type THNN/THWW in raceway

## 3.3 INSTALLATION

A. Install wires and cables as indicated, according to manufacturer's written instructions and NECA's "Standard of Installation."
B. Pull Conductors: Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.
C. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.
D. Install exposed cables, parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.
E. Support cables according to Section 260500 - "Common Work Results for Electrical."
F. Seal around cables penetrating fire-rated elements according to Section 078400 "Firestopping."
G. Identify wires and cables according to Section 260553 "Identification for Electrical Systems."

## 3.4 CONNECTIONS

A. Conductor Splices: Keep to minimum.
B. Install splices and tapes that possess equivalent or better mechanical strength and insulation ratings than conductors being spliced.
C. Use splice and tap connectors compatible with conductor material.
D. Use oxide inhibitor in each splice and tap connector for aluminum conductors.
E. Wiring at Outlets: Install conductor at each outlet, with at least 12 inches of slack.
F. Connect outlets and components to wiring and to ground as indicated and instructed by manufacturer.
G. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

## 3.5 FIELD QUALITY CONTROL

A. Testing: On installation of wires and cables and before electrical circuitry has been energized, demonstrate product capability and compliance with requirements.
   1. Perform meggar and continuity tests on all conductors.
B. Correct malfunctioning conductors and cables at Project site, where possible, and retest to demonstrate compliance; otherwise, remove and replace with new units and retest.

**END OF SECTION**

# SECTION 260526

# GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

## PART 1 - GENERAL

### 1.1 SUMMARY

A. Section Includes:
   1. Grounding of Electrical Systems and Equipment.
      a. Grounding requirements specified in this Section may be supplemented by special requirements of systems described in other Sections.

### 1.2 REFERENCES

A. ASTM International (ASTM) Publications:
   1. B3 “Standard Specification for Soft or Annealed Copper Wire”
   2. B8 “Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft”
   3. B33 “Standard Specification for Tinned Soft or Annealed Copper Wire for Electrical Purposes”

B. Institute of Electrical and Electronics Engineers, Inc. (IEEE) Publications:
   1. C2 “ASC C2 Eighth Interim Collection of the National Electrical Safety Code ®”
   2. 81 “Instrumentation and Measurement”
   3. 837 “Substations”

C. National Fire Protection Association (NFPA) Publications:
   1. 70 "National Electric Code"
   2. 780 “Standard for the Installation of Lightning Protection Systems”

D. Underwriter's Laboratories, Inc. (UL) Publications:
   1. 96 “Standard for Safety for Lightning Protection Components”
   2. 467 “Grounding and Bonding Equipment”
   3. 486A “Standard For Wire Connectors and Soldering Lugs for Use with Copper Conductors”

### 1.3 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 01 Specification Sections:
   1. Product Data: For the following:
      a. Ground rods.

### 1.4 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.
   1. Comply with UL 467.

B. Comply with NFPA 70; for overhead-line construction and medium-voltage underground construction, comply with IEEE C2.

C. Comply with NFPA 780 and UL 96 when interconnecting with lightning protection system.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

A. Approved Manufacturers:
   1. Grounding Conductors, Cables, Connectors, and Rods:
      a. Chance/Hubbell (573-682-5521)
      b. Copperweld Corp. (931-433-7177)
      c. Thomas & Betts, Electrical (800-816-7809)

### 2.2 GROUNDING CONDUCTORS

A. For insulated conductors, comply with Section 260519 - "Low-Voltage Electrical Power Conductors and Cables."
B. Material: Copper.
C. Equipment Grounding Conductors: Insulated with green-colored insulation.
D. Isolated Ground Conductors: Insulated with green-colored insulation with yellow stripe. On feeders with isolated ground, use colored tape, alternating bands of green and yellow tape to provide a minimum of three bands of green and two bands of yellow.
E. Grounding Electrode Conductors: Stranded cable.
F. Underground Conductors: Bare, tinned, stranded, unless otherwise indicated.
G. Bare Copper Conductors: Comply with the following:
   1. Solid Conductors: ASTM B3.
   2. Assembly of Stranded Conductors: ASTM B8.
   3. Tinned Conductors: ASTM B33.
H. Copper Bonding Conductors: As follows:
   1. Bonding Cable: 28 kcmil, 14 strands of No. 17 AWG copper conductor, 1/4 inch in diameter.
   2. Bonding Conductor: No. 4 or No. 6 AWG, stranded copper conductor.
   3. Bonding Jumper: Bare copper tape, braided bare copper conductors, terminated with copper ferrules; 1-5/8 inches wide and 1/16 inch thick.
   4. Tinned Bonding Jumper: Tinned-copper tape, braided copper conductors, terminated with copper ferrules; 1-5/8 inches wide and 1/16 inch thick.
I. Grounding Bus: Bare, annealed copper bars of rectangular cross section, with insulators.
J. Equipment Ground Conductor (Green) shall be included with all circuit conductors where shown. In addition, provide a neutral conductor where applicable.

### 2.3 CONNECTOR PRODUCTS

A. Comply with IEEE 837 and UL 467; listed for use for specific types, sizes, and combinations of conductors and connected items.
B. Bolted Connectors: Bolted-pressure-type connectors, or compression type.
C. Welded Connectors: Exothermic-welded type, in kit form, and selected per manufacturer's written instructions.

## PART 3 - EXECUTION

### 3.1 APPLICATION

A. Use only copper conductors for both insulated and bare grounding conductors in direct contact with earth, concrete, masonry, crushed stone, and similar materials.
B. In raceways, use insulated equipment grounding conductors.
C. Exothermic-Welded Connections: Use for connections to structural steel and for underground connections, except those at test wells.

D. Equipment Grounding Conductor Terminations: Use bolted pressure clamps.
E. Grounding Bus: Install in electrical and telephone equipment rooms, in rooms housing service equipment, and elsewhere as indicated.
   1. Use insulated spacer; space 1 inch from wall and support from wall 6 inches above finished floor, unless otherwise indicated.
   2. At doors, route the bus up to the top of the door frame, across the top of the doorway, and down to the specified height above the floor.

## 3.2 EQUIPMENT GROUNDING CONDUCTORS

A. Comply with NFPA 70, Article 250, for types, sizes, and quantities of equipment grounding conductors, unless specific types, larger sizes, or more conductors than required by NFPA 70 are indicated.
B. Install equipment grounding conductors in all feeders and circuits.
C. Nonmetallic Raceways: Install an equipment grounding conductor in nonmetallic raceways unless they are designated for telephone or data cables.
D. Signal and Communication Systems: For telephone, alarm, voice and data, and other communication systems, provide No. 4 AWG minimum insulated grounding conductor in raceway from grounding electrode system to each service location, terminal cabinet, wiring closet, and central equipment location.
   1. Service and Central Equipment Locations and Wiring Closets: Terminate grounding conductor on a 1/4-by-2-by-12-inch grounding bus.
   2. Terminal Cabinets: Terminate grounding conductor on cabinet grounding terminal.

## 3.3 INSTALLATION

A. Grounding Conductors: Route along shortest and straightest paths possible, unless otherwise indicated. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.
B. Bonding Straps and Jumpers: Install so vibration by equipment mounted on vibration isolation hangers and supports is not transmitted to rigidly mounted equipment. Use exothermic-welded connectors for outdoor locations, unless a disconnect-type connection is required; then, use a bolted clamp. Bond straps directly to the basic structure taking care not to penetrate any adjacent parts. Install straps only in locations accessible for maintenance.

## 3.4 CONNECTIONS

A. General: Make connections so galvanic action or electrolysis possibility is minimized. Select connectors, connection hardware, conductors, and connection methods so metals in direct contact will be galvanically compatible.
   1. Use electroplated or hot-tin-coated materials to ensure high conductivity and to make contact points closer to order of galvanic series.
   2. Make connections with clean, bare metal at points of contact.
   3. Coat and seal connections having dissimilar metals with inert material to prevent future penetration of moisture to contact surfaces.
B. Exothermic-Welded Connections: Comply with manufacturer's written instructions. Welds that are puffed up or that show convex surfaces indicating improper cleaning are not acceptable.
C. Equipment Grounding Conductor Terminations: For No. 8 AWG and larger, use pressure-type grounding lugs. No. 10 AWG and smaller grounding conductors may be terminated with winged pressure-type connectors.
D. Noncontact Metal Raceway Terminations: If metallic raceways terminate at metal housings without mechanical and electrical connection to housing, terminate each conduit with a grounding bushing. Connect grounding bushings with a bare grounding conductor to grounding bus or terminal in housing. Bond electrically noncontinuous conduits at entrances and exits with grounding bushings and bare grounding conductors, unless otherwise indicated.
E. Tighten screws and bolts for grounding and bonding connectors and terminals according to

manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A.

F. Compression-Type Connections: Use hydraulic compression tools to provide correct circumferential pressure for compression connectors. Use tools and dies recommended by connector manufacturer. Provide embossing die code or other standard method to make a visible indication that a connector has been adequately compressed on grounding conductor.

G. Moisture Protection: If insulated grounding conductors are connected to ground rods or grounding buses, insulate entire area of connection and seal against moisture penetration of insulation and cable.

## 3.5 FIELD QUALITY CONTROL

A. Testing: Perform the following field quality-control testing:

1. After installing grounding system but before permanent electrical circuitry has been energized, test for compliance with requirements.
2. Test completed grounding system at each location where a maximum ground-resistance level is specified, at service disconnect enclosure grounding terminal, and at ground test wells. Measure ground resistance not less than two full days after the last trace of precipitation, and without the soil being moistened by any means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance. Perform tests, by the fall-of-potential method according to IEEE 81.
3. Provide drawings locating each ground rod and ground rod assembly and other grounding electrodes, identify each by letter in alphabetical order, and key to the record of tests and observations. Include the number of rods driven and their depth at each location and include observations of weather and other phenomena that may affect test results. Describe measures taken to improve test results.
   a. Equipment Rated 500 kVA and less: 10 ohms.
   b. Equipment Rated 500 to 1000 kVA: 5 ohms.
4. Excessive Ground Resistance: If resistance to ground exceeds specified values, notify Owner representative promptly and include recommendations to reduce ground resistance such as a chemical ground system or others that are available and approved by the Consulting Engineer.

**END OF SECTION**

# SECTION 260533

# RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

## PART 1 - GENERAL

### 1.1 SUMMARY

A. Section Includes:
   1. Raceways include the following:
      a. RMC
      b. PVC, schedule 40 or 80
      c. EMT
      d. FMC
      e. LFMC
      f. LFNC
      g. RNC
      h. Wireways
      i. Surface raceways
   2. Boxes, enclosures, and cabinets include the following:
      a. Device boxes
      b. Outlet boxes
      c. Pull and junction boxes
      d. Cabinets and hinged-cover enclosures

### 1.2 REFERENCES

A. National Electrical Contractors Association (NECA) Publications:
   1. 111 “Standard for Installing Nonmetallic Raceways (RNC, ENT, LFNC) (ANSI)”
B. National Electrical Manufacturer’s Association (NEMA) Publications:
   1. 250 “Enclosures for Electrical Equipment (1000 Volts Maximum)”
   2. ANSI/NEMA FB 1 “Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable”
   3. ANSI/NEMA OS 1 “Sheet-Steel Outlet Boxes, Device Boxes, Covers, and Box Supports”
   4. RN 1 “Polyvinyl Chloride (PVC) Externally Coated Galvanized Rigid Steel Conduit and Intermediate Metal Conduit”
   5. TC 2 “Electrical Polyvinyl Chloride (PVC) Tubing and Conduit”
   6. TC 3 “Polyvinyl Chloride (PVC) Fittings for Use with Rigid PVC Conduit and Tubing”
C. National Fire Protection Association (NFPA) Publications:
   1. 70 "National Electric Code"
D. Underwriter's Laboratories, Inc. (UL) Publications:
   1. 1660 “Liquid-Tight Flexible Nonmetallic Conduit”

### 1.3 DEFINITIONS

A. EMT: Electrical metallic tubing.
B. FMC: Flexible metal conduit.
C. IMC: Intermediate metal conduit.
D. LFMC: Liquidtight flexible metal conduit.
E. LFNC: Liquidtight flexible nonmetallic conduit.
F. RMC: Rigid metal conduit.
G. RNC: Rigid nonmetallic conduit.

## 1.4 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 01 Specification Sections:
   1. Product Data: For surface raceways, wireways and fittings, floor boxes, hinged-cover enclosures, and cabinets.

## 1.5 QUALITY ASSURANCE

A. Listing and Labeling: Provide raceways and boxes specified in this Section that are listed and labeled.
   1. The Terms "Listed" and "Labeled": As defined in NFPA 70, Article 100.
   2. Listing and Labeling Agency Qualifications: A "Nationally Recognized Testing Laboratory" as defined in OSHA Regulation 1910.7.

B. Comply with NECA's "Standard for Installing Nonmetallic Raceways (RNC, ENT, LFNC) (ANSI)."

C. Comply with NFPA 70.

## 1.6 COORDINATION

A. Coordinate layout and installation of raceways and boxes with other construction elements to ensure adequate headroom, working clearance, and access.

# PART 2 - PRODUCTS

## 2.1 MANUFACTURERS

A. Approved Manufacturers:
   1. Metal Conduit and Tubing:
      a. Anixter Brothers, Inc. (800-323-8166)
      b. Carol Cable Co., Inc. (401-728-7000)
      c. Wheatland Tube Co. (800-257-8128)
   2. Flexible Conduit:
      a. Carol Cable Co., Inc. (401-728-7000)
      b. Electri-Flex Co. (800-323-6174)
   3. Nonmetallic Conduit and Tubing:
      a. Hubbell, Inc.; Raco, Inc. (800-722-6437)
      b. Lamson & Sessions; Carlon Electrical Products (800-322-7566)
      c. Thomas & Betts Corp. (800-816-7809)
   4. Conduit Bodies and Fittings:
      a. Emerson Electric Co.; Appleton Electric Co. (800-727-5102)
      b. Hubbell, Inc.; Killark Electric Manufacturing Co. (314-531-0460)
      c. Lamson & Sessions; Carlon Electrical Products (800-322-7566)
   5. Metal Wireways:
      a. Hoffman Engineering Co. (203-425-8900)
      b. Keystone/Rees, Inc. (219-495-9811)
      c. Square D Co.; a Division of Groupe Schneider (888-778-2733)
   6. Nonmetallic Wireways:
      a. Hoffman Engineering Co. (203-425-8900)
      b. Lamson & Sessions; Carlon Electrical Products (800-322-7566)
   7. Surface Metal Raceways:
      a. Airey-Thompson Co., Inc.; A-T Power Systems (800-421-6196)
      b. Butler Manufacturing Co.; Walker Division (304-485-1611)
      c. Wiremold Co. (The); Electrical Sales Division (800-621-0049)
   8. Surface Nonmetallic Raceways:
      a. Hubbell, Inc.; Wiring Device Division (203-882-4900)

b. Panduit Corp. (800-777-3300)
c. Wiremold Co. (The); Electrical Sales Division (800-621-0049)

9. Boxes, Enclosures, and Cabinets:
   a. Hoffman Engineering Co.; Federal-Hoffman, Inc. (203-425-8900)
   b. Hubbell Inc.; Killark Electric Manufacturing Co. (314-531-0460)
   c. Thomas & Betts Corp. (800-816-7809)
10. MC cable:
   a. Afc Cable Systems (508) 998-1131
   b. Southwire (801) 486-4778
   c. Encore Wire Corp (972) 562-9473

## 2.2 METAL CONDUIT AND TUBING

A. Rigid Steel Conduit: ANSI C80.1.
B. Plastic-Coated Steel Conduit and Fittings: NEMA RN 1.
C. EMT and Fittings: ANSI C80.3.
   1. Fittings: Set-screw or compression type.
D. FMC: Zinc-coated steel.
E. LFMC: Flexible steel conduit with PVC jacket.
F. Fittings: NEMA FB 1; compatible with conduit/tubing materials.

## 2.3 NONMETALLIC CONDUIT AND TUBING

A. RNC: NEMA TC 2, Schedule 40 or 80 PVC.
B. RNC Fittings: NEMA TC 3; match to conduit or conduit/tubing type and material.
C. LFNC: UL 1660.

## 2.4 METAL WIREWAYS

A. Material: Sheet metal sized and shaped as indicated.
B. Fittings and Accessories: Include couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.
C. Select features, unless otherwise indicated, as required to complete wiring system and to comply with NFPA 70.
D. Wireway Covers: As indicated
E. Finish: Manufacturer's standard enamel finish.

## 2.5 NONMETALLIC WIREWAYS

A. Description: PVC plastic, extruded and fabricated to size and shape indicated, with snap-on cover and mechanically coupled connections using plastic fasteners.
B. Fittings and Accessories: Include couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.
C. Select features, unless otherwise indicated, as required to complete wiring system and to comply with NFPA 70.

## 2.6 SURFACE RACEWAYS

A. Surface Metal Raceways: Galvanized steel with snap-on covers. Finish with manufacturer's standard prime coating.
B. Surface Nonmetallic Raceways: 2-piece construction, manufactured of rigid PVC compound with matte texture and manufacturer's standard color.
C. Types, sizes, and channels as indicated and required for each application, with fittings that

match and mate with raceways.

## 2.7 OUTLET AND DEVICE BOXES

A. Sheet Metal Boxes: NEMA OS 1.

## 2.8 PULL AND JUNCTION BOXES

A. Small Sheet Metal Boxes: NEMA OS 1.
B. Cast-Metal Boxes: NEMA FB 1, cast aluminum with gasketed cover.

## 2.9 ENCLOSURES AND CABINETS

A. Hinged-Cover Enclosures: NEMA 250, Type 1, with continuous hinge cover and flush latch.
   1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.
   2. Nonmetallic Enclosures: Plastic, finished inside with radio-frequency-resistant paint.
B. Cabinets: NEMA 250, Type 1, galvanized steel box with removable interior panel and removable front, finished inside and out with manufacturer's standard enamel. Hinged door in front cover with flush latch and concealed hinge. Key latch to match panelboards. Include metal barriers to separate wiring of different systems and voltage, and include accessory feet where required for freestanding equipment.

# PART 3 - EXECUTION

## 3.1 EXAMINATION

A. Examine surfaces to receive raceways, boxes, enclosures, and cabinets for compliance with installation tolerances and other conditions affecting performance of raceway installation. Do not proceed with installation until unsatisfactory conditions have been corrected.

## 3.2 WIRING METHODS

A. Outdoors: Use the following wiring methods:
   1. Exposed: Rigid steel.
   2. Concealed: Rigid steel.
   3. Underground, Single Run: RNC.
   4. Underground, Grouped: RNC.
   5. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
   6. Boxes and Enclosures: NEMA 250, Type 3R or Type 4.
B. Indoors: Use the following wiring methods:
   1. Exposed on ceilings and wall in Mechanical Equipment Rooms galvanized rigid steel conduit.
   2. Concealed in spaces above hung ceiling and wall: Electrical Metallic Tubing (EMT).
   3. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC; except in wet or damp locations, use LFMC.
   4. Damp or Wet Locations: Rigid steel conduit.
   5. Boxes and Enclosures: NEMA 250, Type 1, except as follows:
      a. Damp or Wet Locations: NEMA 250, Type 4, stainless steel.
C. Underground or concrete encased:
   1. Schedule 40 PVC.

## 3.3 INSTALLATION

A. Install raceways, boxes, enclosures, and cabinets as indicated, according to manufacturer's written instructions.
B. Minimum Raceway Size: 3/4-inch trade size (DN21).
C. Conceal conduit and EMT, unless otherwise indicated, within finished walls, ceilings, and floors.
D. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.
E. Install raceways level and square and at proper elevations. Provide adequate headroom.
F. Complete raceway installation before starting conductor installation.
G. Support raceways as specified in Section 260500 - "Common Work Results for Electrical."
H. Use temporary closures to prevent foreign matter from entering raceways.
I. Protect stub-ups from damage where conduits rise through floor slabs. Arrange so curved portion of bends is not visible above the finished slab.
J. Make 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.
K. Use raceway fittings compatible with raceways and suitable for use and location. For intermediate steel conduit, use threaded rigid steel conduit fittings, unless otherwise indicated.
L. Run concealed raceways, with a minimum of bends, in the shortest practical distance considering the type of building construction and obstructions, unless otherwise indicated.
M. Raceways Embedded in Slabs: Install in middle third of slab thickness where practical, and leave at least 1-inch concrete cover.
    1. Secure raceways to reinforcing rods to prevent sagging or shifting during concrete placement.
    2. Space raceways laterally to prevent voids in concrete.
    3. Run conduit larger than 1-inch trade size (DN27) parallel to or at right angles to main reinforcement. Where at right angles to reinforcement, place conduit close to slab support.
    4. Transition from nonmetallic tubing to Schedule 80 nonmetallic conduit or rigid steel conduit, before rising above floor.
N. Install exposed raceways parallel to or at right angles to nearby surfaces or structural members, and follow the surface contours as much as practical.
    1. Run parallel or banked raceways together, on common supports where practical.
    2. Make bends in parallel or banked runs from same centerline to make bends parallel. Use factory elbows only where elbows can be installed parallel; otherwise, provide field bends for parallel raceways.
O. Join raceways with fittings designed and approved for the purpose and make joints tight.
    1. Make raceway terminations tight. Use bonding bushings or wedges at connections subject to vibration. Use bonding jumpers where joints cannot be made tight.
    2. Use insulating bushings to protect conductors.
P. Tighten set screws of threadless fittings with suitable tools.
Q. Terminations: Where raceways are terminated with locknuts and bushings, align raceways to enter squarely and install locknuts with dished part against the box. Where terminations are not secure with one locknut, use two locknuts: one inside and one outside the box.
R. Where raceways are terminated with threaded hubs, screw raceways or fittings tightly into the hub so the end bears against the wire protection shoulder. Where chase nipples are used, align raceways so the coupling is square to the box and tighten the chase nipple so no threads are exposed.
S. Install pull wires in empty raceways. Use No. 14 AWG zinc-coated steel or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 12 inches (300 mm) of slack at each end of the pull wire.
T. Telephone and Signal System Raceways, 2-Inch Trade Size (DN53) and Smaller: In addition to the above requirements, install raceways in maximum lengths of 150 feet and with a maximum of two 90-degree bends or equivalent. Separate lengths with pull or junction boxes where necessary to comply with these requirements.
U. Install raceway sealing fittings according to manufacturer's written instructions. Locate fittings at suitable, approved, and accessible locations and fill them with UL-listed sealing compound.

For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings at the following points:

1. Where conduits pass from warm to cold locations, such as the boundaries of refrigerated spaces.
2. Where otherwise required by NFPA 70.

V. Stub-up Connections: Extend conduits through concrete floor for connection to freestanding equipment. Install with an adjustable top or coupling threaded inside for plugs set flush with the finished floor. Extend conductors to equipment with rigid steel conduit; FMC may be used 6 inches above the floor. Install screwdriver-operated, threaded flush plugs flush with floor for future equipment connections.

W. Flexible Connections: Use maximum of 6 feet of flexible conduit for recessed and semirecessed lighting fixtures; for equipment subject to vibration, noise transmission, or movement; and for all motors. Use liquidtight flexible conduit in wet or damp locations. Install separate ground conductor across flexible connections.

X. Do not install aluminum conduits embedded in or in contact with concrete.

Y. PVC Externally Coated, Rigid Steel Conduits: Use only fittings approved for use with that material. Patch all nicks and scrapes in PVC coating after installing conduits.

Z. Surface Raceways: Install a separate, green, ground conductor in raceways from junction box supplying the raceways to receptacle or fixture ground terminals.

1. Select each surface raceway outlet box, to which a lighting fixture is attached, of sufficient diameter to provide a seat for the fixture canopy.
2. Where a surface raceway is used to supply a fluorescent lighting fixture having central-stem suspension with a backplate and a canopy (with or without extension ring), no separate outlet box is required.
3. Provide surface metal raceway outlet box, and the backplate and canopy, at the feed-in location of each fluorescent lighting fixture having end-stem suspension.
4. Where a surface metal raceway extension is made from an existing outlet box on which a lighting fixture is installed, no additional surface-mounted outlet box is required. Provide a backplate slightly smaller than the fixture canopy.

AA. Set floor boxes level and adjust to finished floor surface.

BB. Install hinged-cover enclosures and cabinets plumb. Support at each corner.

CC. Size all conduits supplying motors and associated control equipment to include equipment grounding conductor sized per NFPA 70 whether or not shown on the drawings or specified.

DD. Unless otherwise noted, terminate all conduits stubbing up inside rooms or roof as follows:

1. Conduits for AC power: Stub up 6” above finished floor and provide concrete sill to protect stub-ups.
2. On PVC conduit for AC power and control cable, provide PVC to galvanized steel rigid conduit adaptor.
3. Plug or cap all conduits during construction or until permanent conductors are installed. Taped ends will not be allowed.

EE. In exposed conduit runs longer than 300 feet, expansion fittings shall be installed. Where embedded conduit crosses a structural expansion joint, expansion and deflection fitting shall be installed.

## 3.4 PROTECTION

A. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensure coatings, finishes, and cabinets are without damage or deterioration at the time of Substantial Completion.

1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
2. Repair damage to PVC or paint finishes with matching touchup coating recommended by manufacturer.

## 3.5 CLEANING

A. On completion of installation, including outlet fittings and devices, inspect exposed finish. Remove burrs, dirt, and construction debris and repair damaged finish, including chips, scratches, and abrasions.

**END OF SECTION**

# SECTION 260553

# IDENTIFICATION FOR ELECTRICAL SYSTEMS

## PART 1 - GENERAL

### 1.1 SUMMARY

A. Section Includes:
   1. Electrical identification materials and devices required to comply with ANSI C2, NFPA 70, OSHA standards, and authorities having jurisdiction.

### 1.2 REFERENCES

A. American National Standards Institute (ANSI) Publications:
B. National Fire Protection Association (NFPA) Publications:
   1. 70 "National Electric Code"

### 1.3 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 01 Specification Sections:
   1. Product Data: For each electrical identification product indicated.

### 1.4 QUALITY ASSURANCE

A. Comply with ANSI C2.
B. Comply with NFPA 70.
C. Comply with ANSI A13.1 and NFPA 70 for color-coding.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

A. Approved Manufacturers:
   1. Brady USA, Inc. (800-541-1686)
   2. Panduit corp. (800-777-3300)
   3. Seton Identification Products (800-571-2596)

### 2.2 RACEWAY AND CABLE LABELS

A. Comply with ANSI A13.1, Table 3, for minimum size of letters for legend and for minimum length of color field for each raceway and cable size.
   1. Color: Black letters on orange field.
   2. Legend: Indicates voltage
B. Pretensioned, Wraparound Plastic Sleeves: Flexible, preprinted, color-coded, acrylic band sized to suit the diameter of the line it identifies and arranged to stay in place by pretensioned gripping action when placed in position.
C. Colored Adhesive Tape: Self-adhesive vinyl tape not less than 3 mils thick by 1 to 2 inches wide.
D. Underground-Line Warning Tape: Permanent, bright-colored, continuous-printed, vinyl tape.
   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 indicating type of underground line.

E. Tape Markers: Vinyl or vinyl-cloth, self-adhesive, wraparound type with preprinted numbers and letters.

F. Aluminum, Wraparound Marker Bands: Bands cut from 0.014-inch thick aluminum sheet, with stamped or embossed legend, and fitted with slots or ears for permanently securing around wire or cable jacket or around groups of conductors.

G. Plasticized Card-Stock Tags: Vinyl cloth with preprinted and field-printed legends. Orange background, unless otherwise indicated, with eyelet for fastener.

H. Aluminum-Faced, Card-Stock Tags: Weather-resistant, 18-point minimum card stock faced on both sides with embossable aluminum sheet, 0.002 inch thick, laminated with moisture-resistant acrylic adhesive, punched for fasteners, and preprinted with legends to suit each application.

## 2.3 NAMEPLATES AND SIGNS

A. Safety Signs: Comply with 29 CFR, Chapter XVII, Part 1910.145.

B. Engraved Plastic Nameplates and Signs: Engraving stock, melamine plastic laminate, minimum 1/16 inch thick for signs up to 20 sq. in. and 1/8 inch thick for larger sizes.
1. Engraved legend with black letters on white face.
2. Punched or drilled for mechanical fasteners.

C. Baked-Enamel Signs for Interior Use: Preprinted aluminum signs, punched or drilled for fasteners, with colors, legend, and size required for the application. 1/4-inch grommets in corners for mounting.

D. Exterior, Metal-Backed, Butyrate Signs: Weather-resistant, nonfading, preprinted, cellulose-acetate butyrate signs with 0.0396-inch galvanized-steel backing; and with colors, legend, and size required for the application. 1/4-inch grommets in corners for mounting.

E. Fasteners for Nameplates and Signs: Self-tapping, stainless-steel screws or No. 10/32, stainless-steel machine screws with nuts and flat and lock washers.

## 2.4 MISCELLANEOUS IDENTIFICATION PRODUCTS

A. Cable Ties: Fungus-inert, self-extinguishing, one-piece, self-locking, Type 6/6 nylon cable ties.
1. Minimum Width: 3/16 inch.
2. Tensile Strength: 50 lb minimum.
3. Temperature Range: Minus 40 to plus 185 deg F.
4. Color: According to color-coding.

# PART 3 - EXECUTION

## 3.1 INSTALLATION

A. Identification Materials and Devices: Install at locations for most convenient viewing without interference with operation and maintenance of equipment.

B. Lettering, Colors, and Graphics: Coordinate names, abbreviations, colors, and other designations with corresponding designations in the Contract Documents or with those required by codes and standards. Use consistent designations throughout Project.

C. Sequence of Work: If identification is applied to surfaces that require finish, install identification after completing finish work.

D. Self-Adhesive Identification Products: Clean surfaces before applying.

E. Caution Labels for Indoor Boxes and Enclosures for Power and Lighting: Install pressure-sensitive, self-adhesive labels identifying system voltage with black letters on orange background. Install on exterior of door or cover.

F. Circuit Identification Labels on Boxes: Install labels externally.
1. Exposed Boxes: Pressure-sensitive, self-adhesive plastic label on cover.

2. Concealed Boxes: Plasticized card-stock tags.
3. Labeling Legend: Permanent, waterproof listing of panel and circuit number or equivalent.

G. Paths of Underground Electrical Lines: During trench backfilling, for exterior underground power, control, signal, and communication lines, install continuous underground plastic line marker located directly above line at 6 to 8 inches below finished grade. Where width of multiple lines installed in a common trench or concrete envelope does not exceed 16 inches overall, use a single line marker. Install line marker for underground wiring, both direct-buried cables and cables in raceway.

H. Secondary Service, Feeder, and Branch-Circuit Conductors: Color-code throughout the secondary electrical system.
1. Wire color code:
a. Color-code for 208/120V system shall be as follows:
1) Phase A: Black
2) Phase B: Red
3) Phase C: Blue
4) Neutral: White
5) Ground: Green
2. Factory apply color the entire length of conductors, except the following field-applied, color-coding methods may be used instead of factory-coded wire for sizes larger than No. 10 AWG:
a. Colored, pressure-sensitive plastic tape in half-lapped turns for a distance of 6 inches from terminal points and in boxes where splices or taps are made. Apply last two turns of tape with no tension to prevent possible unwinding. Use 1-inch wide tape in colors specified. Adjust tape bands to avoid obscuring cable identification markings.
b. Colored cable ties applied in groups of three ties of specified color to each wire at each terminal or splice point starting 3 inches from the terminal and spaced 3 inches apart. Apply with a special tool or pliers, tighten to a snug fit, and cut off excess length.

I. Power-Circuit Identification: Metal tags or aluminum, wraparound marker bands for cables, feeders, and power circuits in vaults, pull and junction boxes, manholes, and switchboard rooms.
1. Legend: 1/4-inch steel letter and number stamping or embossing with legend corresponding to indicated circuit designations.
2. Tag Fasteners: Nylon cable ties.
3. Band Fasteners: Integral ears.

J. Apply identification to conductors as follows:
1. Conductors to Be Extended in the Future: Indicate source and circuit numbers.
2. Multiple Power or Lighting Circuits in the Same Enclosure: Identify each conductor with source, voltage, circuit number, and phase. Use color-coding to identify circuits' voltage and phase.
3. Multiple Control and Communication Circuits in the Same Enclosure: Identify each conductor by its system and circuit designation. Use a consistent system of tags, color-coding, or cable marking tape.

K. Apply warning, caution, and instruction signs as follows:
1. Warnings, Cautions, and Instructions: Install to ensure safe operation and maintenance of electrical systems and of items to which they connect. Install engraved plastic-laminated instruction signs with approved legend where instructions are needed for system or equipment operation. Install metal-backed butyrate signs for outdoor items.
2. Emergency Operation: Install engraved laminated signs with white legend on red background with minimum 3/8-inch high lettering for emergency instructions on power transfer, load shedding, and other emergency operations.

L. Equipment Identification Labels: Engraved plastic laminate. Install on each unit of equipment, including central or master unit of each system. This includes power, lighting, communication, signal, and alarm systems, unless units are specified with their own self-explanatory

identification. Unless otherwise indicated, provide a single line of text with 1/2-inch high lettering on 1-1/2-inch high label; where two lines of text are required, use labels 2 inches high. Use white lettering on black field. Apply labels for each unit of the following categories of equipment using mechanical fasteners:

1. Panelboards, electrical cabinets, and enclosures.
2. Access doors and panels for concealed electrical items.
3. Electrical switchgear and switchboards.
4. Emergency system boxes and enclosures.
5. Disconnect switches.
6. Enclosed circuit breakers.
7. Motor starters.
8. Dimmers.
9. Control devices.
10. Telephone switching equipment.
11. Label inside of all switch plates and cover plates with panel and circuit numbers.

**END OF SECTION**

# SECTION 262726

# WIRING DEVICES

## PART 1 - GENERAL

### 1.1 SUMMARY

A. Section Includes:
   1. Receptacles, Connectors, Switches, and Finish Plates.
B. Related Sections:
   1. Section 260553 - Identification for Electrical Systems.

### 1.2 DEFINITIONS

A. GFCI: Ground-fault circuit interrupter.

### 1.3 SUBMITTALS

A. Submit “Letter of Conformance” in accordance with Section 013300 indicating specified items selected for use in Project with the following supporting data:
   1. Maintenance Data: For materials and products to include in maintenance manuals specified in Division 01.

### 1.4 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.
B. Comply with NEMA WD 1.
   1. Comply with NFPA 70 "National Electric Code"

### 1.5 COORDINATION

A. Receptacles for Owner-Furnished Equipment: Match plug configurations.
   1. Cord and Plug Sets: Match equipment requirements.

## PART 2 - PRODUCTS

### 2.1 RECEPTACLES

A. Straight Blade and Locking Type Receptacles: General duty grade, NEMA 5-20R duplex type.
B. GFCI Receptacles: Feed-through type, with integral NEMA WD 6, Configuration 5-20R duplex receptacle arranged to protect connected downstream receptacles on same circuit. Design units for installation in a 2-3/4-inch- deep outlet box without an adapter.
C. Isolated-Ground Receptacles: Equipment grounding contacts connected only to the green grounding screw terminal of the device with inherent electrical isolation from mounting strap.
   1. Devices: Listed and labeled as isolated-ground receptacles.
   2. Isolation Method: Integral to receptacle construction and not dependent on removable parts.
   3. Approved Manufacturers for Receptacles –

| 15A Receptacles | 20A Receptacles | 15A GFCI Receptacles |
|---|---|---|

| | | | | |
|---|---|---|---|---|
| a. | Cooper Wiring Devices | 5262 | 5362 | GF15A/XGF15A |
| b. | Hubbell | 5262 | 5362 | GF5262 |
| c. | Leviton | 5262 | 5362 | 6598 |
| d. | Pass & Seymour | 5262 | 5362 | 1595-I |

D. Toggle Switches:
1. Snap Switches: General-duty, quiet type.
2. Combination Switch and Receptacle: Both devices in a single gang unit with plaster ears and removable tab connector that permit separate or common feed connection.
   a. Switch: 20 A, 120/277-VAC.
   b. Receptacle: NEMA WD 6, Configuration 5-15R.
3. Where more than one switch occurs at the same location, they shall be ganged under one plate. Where space does not permit horizontal ganging, interchangeable type switches may be used, only with approval of the Owner's Representative.
4. Approved Manufacturers for Switches -

| | | 15A Switches | 20A Switches | 15A Three-Way Switches |
|---|---|---|---|---|
| a. | Cooper Wiring Devices | 1201 | 2221 | 1203 |
| b. | Hubbell | HBL1201 | HBL1221 | HBL1203 |
| c. | Leviton | 1201 | 1202 | 1203 |
| d. | Pass & Seymour | 15AC-1 | 20AC-1 | 15AC-3 |

## 2.2 WALL PLATES

A. Single and combination types match corresponding wiring devices.
1. Plate-Securing Screws: Metal with head color to match plate finish.
2. Provide plates for all devices and outlets with opening configuration suitable for devices to be covered.
3. Plates shall be smooth urea plastic secured in place with screws finished to match the plates. Back of the house areas, such as equipment spaces, shall have steel plates. Stainless steel plates shall be used in kitchens. In use rated weatherproof plates shall be used where exposed to the weather.
4. Color:
   a. White
   b. Color of devices shall match cover plates.

## 2.3 FLOOR SERVICE FITTINGS

A. Type: Modular, flush-type, dual-service units suitable for wiring method used.
B. Compartmentation: Barrier separates power and signal compartments.
C. Housing Material: Die-cast aluminum, satin finished.
D. Power Receptacle: NEMA WD 6, Configuration 5-20R, gray finish, unless otherwise indicated.
E. Signal Outlet: Blank cover with bushed cable opening, unless otherwise indicated.

## 2.4 MULTIOUTLET ASSEMBLIES

A. Components of Assemblies: Products from a single manufacturer designed for use as a complete, matching assembly of raceways and receptacles.
B. Raceway Material: Metal, with manufacturer's standard finish.
C. Wire: No. 12 AWG.

# PART 3 - EXECUTION

## 3.1 INSTALLATION

A. Install devices and assemblies plumb and secure.
B. Protect devices and assemblies during painting. Install wall plates when painting is complete.
C. Install wall dimmers to achieve indicated rating after derating for ganging as instructed by manufacturer.
D. Do not share neutral conductor.
E. Arrangement of Devices: Unless otherwise indicated, mount flush, with long dimension vertical, and grounding terminal of receptacles on top. Group adjacent switches under single, multi-gang wall plates.
F. Adjust locations at which floor service outlets and telephone/power service poles are installed to suit arrangement of partitions and furnishings.

## 3.2 IDENTIFICATION

A. Comply with Section 260553 "Identification for Electrical Systems."
   1. Switches: Where three or more switches are ganged, and elsewhere as indicated, identify each switch with approved legend engraved on wall plate.
   2. Receptacles: Identify panelboard and circuit number from which served. Use machine-printed, pressure-sensitive, abrasion-resistant label tape on face of plate and durable wire markers or tags within outlet boxes.

## 3.3 CONNECTIONS

A. Connect wiring device grounding terminal to branch-circuit equipment grounding conductor.
B. Isolated-Ground Receptacles: Connect to isolated-ground conductor routed to designated isolated equipment ground terminal of electrical system.
C. Tighten electrical connectors and terminals according to manufacturer’s published torque-tightening values. If manufacturers torque values are not indicated, use those specified in UL 486A and UL 486B.

## 3.4 FIELD QUALITY CONTROL

A. Test wiring devices for proper polarity and ground continuity. Operate each device at least six times.
B. Test GFCI operation with both local and remote fault simulations according to manufacturer's written instructions.
C. Replace damaged or defective components.

## 3.5 CLEANING

A. Internally clean devices, device outlet boxes, and enclosures. Replace stained or improperly painted wall plates or devices.

**END OF SECTION**

# SECTION 262819

# ENCLOSED SWITCHES

## PART 1 - GENERAL

### 1.1 SUMMARY
A. Section includes fusible and nonfusible switches.
B. Related Sections:
   1. Fuses – as shown on the drawings.

### 1.2 REFERENCES
A. National Electrical Manufacturers Association:
   1. NEMA FU 1 - Low Voltage Cartridge Fuses.
   2. NEMA KS 1 - Enclosed and Miscellaneous Distribution Equipment Switches (600 Volts Maximum).
B. International Electrical Testing Association:
   1. NETA ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.

### 1.3 SUBMITTALS
A. Section 013300 - Submittal Procedures: Submittal procedures.
B. Product Data: Submit switch ratings and enclosure dimensions.

### 1.4 CLOSEOUT SUBMITTALS
A. Section 01 7000 – Closeout Procedure.
B. Project Record Documents: Record actual locations of enclosed switches and ratings of installed fuses.

### 1.5 QUALIFICATIONS
A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.

## PART 2 - PRODUCTS

### 2.1 FUSIBLE SWITCH ASSEMBLIES
A. Manufacturers:
   1. Square D Class 3110
   2. Cutler-Hammer
   3. General Electric
B. Product Description: NEMA KS 1, Type HD enclosed load interrupter knife switch. Handle lockable in OFF position.
C. Fuse clips: Designed to accommodate NEMA FU 1, Class R fuses.
D. Enclosure: NEMA KS 1, to meet conditions. Fabricate enclosure from steel finished with manufacturer's standard gray.

1. Interior Dry Locations: Type 1.
2. Exterior Locations: Type 3R.

E. Furnish switches with entirely copper current carrying parts.

## 2.2 NONFUSIBLE SWITCH ASSEMBLIES

A. Manufacturers:
1. Square D Class 3110
2. Cutler-Hammer
3. General Electric

B. Product Description: NEMA KS 1, Type HD enclosed load interrupter knife switch. Handle lockable in OFF position.

C. Enclosure: NEMA KS 1, to meet conditions. Fabricate enclosure from steel finished with manufacturer's standard gray.
1. Interior Dry Locations: Type 1.
2. Exterior Locations: Type 3R.

## 2.3 SWITCH RATINGS

A. Switch Rating: Horsepower rated for AC or DC as indicated on Drawings.

B. Short Circuit Current Rating: UL listed for 200,000 rms symmetrical amperes when used with or protected by Class R or Class J fuses.

# PART 3 - EXECUTION

## 3.1 EXISTING WORK

A. Disconnect and remove abandoned enclosed switches.

B. Maintain access to existing enclosed switches and other installations remaining active and requiring access. Modify installation or provide access panel.

C. Clean and repair existing enclosed switches to remain or to be reinstalled.

## 3.2 INSTALLATION

A. Install enclosed switches plumb. Provide supports.

B. Height: 5 feet to operating handle.

C. Install fuses for fusible disconnect switches. See drawings.

D. Install engraved plastic nameplates in accordance with Section 260553.

E. Apply adhesive tag on inside door of each fused switch indicating NEMA fuse class and size installed.

## 3.3 FIELD QUALITY CONTROL

A. Section 014000 – “Quality Requirements and 017000 - Execution and Closeout Procedure: Field inspecting, testing, adjusting, and balancing.

B. Inspect and test disconnect switches for operation.

**END OF SECTION**

# SECTION 265100

# INTERIOR LIGHTING

## PART 1 - GENERAL

### 1.1 SUMMARY

A. Section Includes:
   1. LED Lighting Fixtures
   2. Exit Signs
   3. Emergency Lighting Units
   4. Accessories

### 1.2 REFERENCES

A. Institute of Electrical and Electronics Engineers, Inc. (IEEE) Publications:
   1. C62.41 “Surge Voltages in Low-Voltage AC Power Circuits”
B. National Fire Protection Association (NFPA) Publications:
   1. NFPA 70 "National Electric Code"
   2. NFPA 101 “Life Safety Code®”
C. Underwriter's Laboratories, Inc. (UL) Publications:
   1. 486A “Standard For Wire Connectors and Soldering Lugs for Use with Copper Conductors”
   2. 486B “Standard for Wire Connectors for Use with Aluminum Conductors”
   3. 924 “Emergency Lighting and Power Equipment”

### 1.3 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 01 Specification Sections:
   1. For each type of lighting fixture indicated, arranged in order of fixture designation. Include data on features, accessories, and the following:
      a. Dimensions of fixtures.
      b. Certified results of laboratory tests for fixtures and lamps for photometric performance.
      c. Emergency lighting unit battery and charger.
      d. Fluorescent and high-intensity-discharge ballasts.
      e. Types of lamps.
      f. Photometric data.
   2. Dimming Ballast Compatibility Certificates: Signed by manufacturer of ballast certifying that ballasts are compatible with dimming systems and equipment with which they are used.
   3. Field Test Reports: Indicate and interpret test results for compliance with performance requirements.

### 1.4 QUALITY ASSURANCE

A. Fixtures, Emergency Lighting Units, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction.
B. Comply with NFPA 70.
C. NFPA 101 Compliance: Comply with visibility and luminance requirements for exit signs.

### 1.5 COORDINATION

A. Fixtures, Mounting Hardware, and Trim: Coordinate layout and installation of lighting fixtures with ceiling system and other construction.

### 1.6 EXTRA MATERIALS

A. Deliver extra materials to Owner. Furnish extra materials described in Division 01 Section that match products installed, are packaged with protective covering for storage, and are identified with labels describing contents.

## PART 2 - PRODUCTS

### 2.1 FIXTURES AND FIXTURE COMPONENTS, GENERAL

A. Approved Manufacturers:
   1. Subject to compliance with requirements, provide the products indicated for each designation in Lighting Fixture Schedule as shown on drawings.
   2. All alternate light fixture packages shall be submitted a minimum of 5 days prior to bid for approval.

B. Metal Parts: Free from burrs, sharp corners, and edges.

C. Sheet Metal Components: Steel, unless otherwise indicated. Form and support to prevent warping and sagging.

D. Doors, Frames, and Other Internal Access: Smooth operating, free from light leakage under operating conditions, and arranged to permit relamping without use of tools. Arrange doors, frames, lenses, diffusers, and other pieces to prevent accidental falling during relamping and when secured in operating position.

E. Reflecting Surfaces: Minimum reflectance as follows, unless otherwise indicated:
   1. White Surfaces: 85 percent.
   2. Specular Surfaces: 98 percent.
   3. Diffusing Specular Surfaces: 94 percent.
   4. Laminated Silver Metallized Film: 90 percent.

F. Lenses, Diffusers, Covers, and Globes: 100 percent virgin acrylic plastic or annealed crystal glass, unless otherwise indicated.
   1. Plastic: High resistance to yellowing and other changes due to aging, exposure to heat, and ultraviolet radiation.
   2. Lens Thickness: 0.125 inch minimum, unless greater thickness is indicated.

### 2.2 LED LIGHTING FIXTURES

A. General Requirements:
   1. See lighting fixtures schedule for specifications.

### 2.3 EXIT SIGNS

A. General Requirements: Comply with UL 924 and the following:
   1. Sign Colors and Lettering Size: Comply with authorities having jurisdiction.

B. Internally Lighted Signs: As follows:
   1. Lamps for AC Operation: Light-emitting diodes, 70,000 hours minimum rated lamp life.

C. Self-Powered Exit Signs (Battery Type): Integral automatic charger in a self-contained power pack.
   1. Battery: Sealed, maintenance-free, nickel-cadmium type with special warranty.
   2. Charger: Fully automatic, solid-state type with sealed transfer relay.
   3. Operation: Relay automatically energizes lamp from unit when circuit voltage drops to 80 percent of nominal or below. When normal voltage is restored, relay disconnects lamps,

and battery is automatically recharged and floated on charger.

## 2.4 EMERGENCY LIGHTING UNITS

A. General Requirements: Self-contained units. Comply with UL 924. Units include the following features:
   1. Battery: Sealed, maintenance-free, lead-acid type with minimum 10-year nominal life and special warranty.
   2. Charger: Fully automatic, solid-state type with sealed transfer relay.
   3. Operation: Relay automatically turns lamp on when supply circuit voltage drops to 80 percent of nominal voltage or below. Lamp automatically disconnects from battery when voltage approaches deep-discharge level. When normal voltage is restored, relay disconnects lamps, and battery is automatically recharged and floated on charger.
   4. Integral Time-Delay Relay: Arranged to hold unit on for fixed interval after restoring power after an outage. Provides adequate time delay to permit high-intensity-discharge lamps to restrike and develop adequate output.

## 2.5 FIXTURE SUPPORT COMPONENTS

A. Comply with Section 260500 "Basic Electrical Materials and Methods," for channel- and angle-iron supports and nonmetallic channel and angle supports.
B. Single-Stem Hangers: 1/2-inch steel tubing with swivel ball fitting and ceiling canopy. Finish same as fixture.
C. Twin-Stem Hangers: Two, 1/2-inch steel tubes with single canopy arranged to mount a single fixture. Finish same as fixture.
D. Rod Hangers: 3/16-inch- minimum diameter, cadmium-plated, threaded steel rod.
E. Hook Hangers: Integrated assembly matched to fixture and line voltage and equipped with threaded attachment, cord, and locking-type plug.
F. Aircraft Cable Support: Use cable, anchorages, and intermediate supports recommended by fixture manufacturer.

## 2.6 FINISHES

A. Fixtures: Manufacturer's standard, unless otherwise indicated.
   1. Paint Finish: Applied over corrosion-resistant treatment or primer, free of defects.
   2. Metallic Finish: Corrosion resistant.
   3. Colors as indicated in Light Fixture Schedule.

## 2.7 LAMPS

A. Approved Manufacturers:
   1. LED:
      a. See lighting fixture Schedule
B. Color Temperature and Minimum Color-Rendering Index: 4000 K and 85 CRI, unless otherwise indicated.

# PART 3 - EXECUTION

## 3.1 INSTALLATION

A. Fixtures: Set level, plumb, and square with ceiling and walls, and secure according to manufacturer's written instructions and approved submittal materials. Install lamps in each fixture.
B. Support for Fixtures in or on Grid-Type Suspended Ceilings:

1. Recessed lighting fixtures shall be supported independently from the suspended ceiling system. Number 8 gauge galvanized steel wire or approved type hangers from the overhead building structures shall be provided for fixture support.

## 3.2 LIGHT FIXTURE ATTACHMENT:

A. Light fixtures (all types) shall be mechanically attached to grid per NEC 410-16 (two per fixture unless independently supported).
   1. Surface-mounted fixtures shall be attached to grid.
   2. Pendant-hung fixtures shall be directly supported from structure with 9-gauge wire (or approved alternative).
   3. Rigid lay-in or can light fixtures:
      a. <10 lbs. - one wire to structure (may be slack).
      b. 11 to 56 lbs. - two wires from housing to structure (may be slack).
      c. >57 lbs. - supported directly to structure by approved method.

## 3.3 CONNECTIONS

A. Ground Equipment:
   1. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

## 3.4 FIELD QUALITY CONTROL

A. Inspect each installed fixture for damage. Replace damaged fixtures and components.
B. Advance Notice: Give dates and times for field tests.
C. Provide instruments to make and record test results.
D. Tests: As follows:
   1. Verify normal operation of each fixture after installation.
   2. Emergency Lighting: Interrupt electrical supply to demonstrate proper operation.
   3. Verify normal transfer to battery source and retransfer to normal.
   4. Report results in writing.
E. Malfunctioning Fixtures and Components: Replace or repair, then retest. Repeat procedure until units operate properly.
F. Corrosive Fixtures: Replace during warranty period.

## 3.5 CLEANING AND ADJUSTING

A. Clean fixtures internally and externally after installation. Use methods and materials recommended by manufacturer.
B. Adjust aimable fixtures to provide required light intensities.

**END OF SECTION**

# SECTION 270533

# CONDUITS AND BACKBOXES FOR COMMUNICATIONS SYSTEMS

## PART 1 - GENERAL

### 1.1 SUMMARY

A. Section includes conduit and tubing, surface raceways, wire ways, outlet boxes, pull and junction boxes, and hand holes.

### 1.2 REFERENCES

A. American National Standards Institute:
   1. ANSI C80.1 - Rigid Steel Conduit, Zinc Coated
   2. ANSI C80.3 - Specification for Electrical Metallic Tubing, Zinc Coated

B. National Electrical Manufacturers Association:
   1. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum)
   2. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit and Cable Assemblies
   3. NEMA OS 1 - Sheet Steel Outlet Boxes, Device Boxes, Covers, and Box Supports
   4. NEMA OS 2 - Nonmetallic Outlet Boxes, Device Boxes, Covers, and Box Supports

### 1.3 SYSTEM DESCRIPTION

A. Raceway and boxes located as indicated on Drawings, and at other locations required for splices, taps, wire pulling, equipment connections, and compliance with regulatory requirements. Raceway and boxes are shown in approximate locations unless dimensioned. Provide raceway to complete wiring system.

B. Concealed Dry Locations: Provide electrical metallic tubing and nonmetallic conduit. Provide sheet-metal boxes. Provide flush mounting outlet box in finished areas.

C. Exposed Dry Locations: Provide electrical metallic tubing and nonmetallic conduit. Provide sheet-metal boxes. Provide flush mounting outlet box in finished areas.

### 1.4 DESIGN REQUIREMENTS

A. Minimum Raceway Size: 3/4 inch unless otherwise specified.

### 1.5 SUBMITTALS

A. Section 013300 - Submittal Procedures: Submittal procedures.

B. Product Data: Submit for the following:
   1. Electrical metallic tubing
   2. Surface raceway
   3. Floor boxes

C. Manufacturer's Installation Instructions: Submit application conditions and limitations of use stipulated by Product testing agency specified under Regulatory Requirements. Include instructions for storage, handling, protection, examination, preparation, and installation of Product.

### 1.6 CLOSEOUT SUBMITTALS
A. Section 017000 – Closeout Procedure.
B. Project Record Documents:
   1. Record actual locations and mounting heights of outlet, pull, and junction boxes.

### 1.7 DELIVERY, STORAGE, AND HANDLING
A. Section 016000 - Product Requirements: Product storage and handling requirements.
B. Protect conduit from corrosion and entrance of debris by storing above grade. Provide appropriate covering.

### 1.8 COORDINATION
A. Coordinate installation of outlet boxes for equipment connected under Section 260533.
B. Coordinate mounting heights, orientation and locations of outlets mounted above counters, benches, and backsplashes.

## PART 2 - PRODUCTS

### 2.1 ELECTRICAL METALLIC TUBING (EMT)
A. Product Description: ANSI C80.3; galvanized tubing.
B. Fittings and Conduit Bodies: NEMA FB 1; steel compression type.

### 2.2 SURFACE METAL RACEWAY
A. Manufacturers:
   1. Carlon Electrical Products
   2. Hubbell Wiring Devices
   3. Thomas & Betts Corp.
   4. Walker Systems Inc.
   5. The Wiremold Co.
B. Product Description: Sheet metal channel with fitted cover, suitable for use as surface metal raceway.

### 2.3 SURFACE NONMETAL RACEWAY
A. Manufacturers:
   1. Carlon Electrical Products
   2. Hubbell Wiring Devices
   3. Thomas & Betts Corp.
   4. Walker Systems Inc.
   5. The Wiremold Co.
B. Product Description: Fiberglass channel with fitted cover, suitable for use as surface raceway.
C. Finish: Ivory
D. Fittings, Boxes, and Extension Rings: Furnish manufacturer's standard accessories, finish to match raceway.

### 2.4 OUTLET BOXES
A. Sheet Metal Outlet Boxes: NEMA OS 1, galvanized steel.
   1. Luminaire and Equipment Supporting Boxes: Rated for weight of equipment supported; furnish 1/2 inch male fixture studs where required.
   2. Concrete Ceiling Boxes: Concrete type.

B. Wall Plates for Finished Areas: As specified in Section 262726.

## PART 3 - EXECUTION

### 3.1 EXISTING WORK

A. Remove exposed abandoned raceway. Cut raceway flush with walls and floors, and patch surfaces.
B. Remove concealed abandoned raceway to its source.
C. Disconnect abandoned outlets and remove devices. Remove abandoned outlets when raceway is abandoned and removed. Install blank cover for abandoned outlets not removed.
D. Maintain access to existing boxes and other installations remaining active and requiring access. Modify installation or provide access panel.
E. Extend existing raceway and box installations using materials and methods as specified.
F. Clean and repair existing raceway and boxes to remain or to be reinstalled.

### 3.2 INSTALLATION

A. Install Work in accordance with standards.
B. Identify raceway and boxes in accordance with Section 260553.
C. Arrange raceway and boxes to maintain headroom and present neat appearance.

### 3.3 INSTALLATION - RACEWAY

A. Raceway routing is shown in approximate locations unless dimensioned. Route to complete wiring system.
B. Arrange raceway supports to prevent misalignment during wiring installation.
C. Support raceway using coated steel or malleable iron straps, lay-in adjustable hangers, clevis hangers, and split hangers.
D. Do not support raceway with wire or perforated pipe straps. Remove wire used for temporary supports
E. Do not attach raceway to ceiling support wires or other piping systems.
F. Construct wire way supports from steel channel specified.
G. Route exposed raceway parallel and perpendicular to walls.
H. Route raceway installed above accessible ceilings parallel and perpendicular to walls.
I. Maintain clearance between raceway and piping for maintenance purposes.
J. Maintain 12-inch clearance between raceway and surfaces with temperatures exceeding 104 degrees F.
K. Cut conduit square using saw or pipe cutter; de-burr cut ends.
L. Bring conduit to shoulder of fittings; fasten securely.
M. Install no more than equivalent of three 90-degree bends between boxes. Install conduit bodies to make sharp changes in direction, as around beams.

### 3.4 INTERFACE WITH OTHER PRODUCTS

A. Install conduit to preserve fire resistance rating of partitions and other elements.

## 3.5 CLEANING

A. Section 01 7000 – Closeout Procedure.
B. Clean interior of boxes to remove dust, debris, and other material.
C. Clean exposed surfaces and restore finish.

**END OF SECTION**

# SECTION 271343

# COMMUNICATION SERVICES CABLING

## PART 1 - GENERAL

### 1.1 SCOPE

A. Provide/install Superior Essex nCompass 1G Channel Solution and 1000Base TX/FX intra-building backbone to locations and shown on drawings. Number cabling in to match existing system number scheme.

B. Contractor shall perform the above scope of work while adhering to the appropriate specifications and parts list as contained in this document.

### 1.2 GENERAL

A. This specification may impact other trades. When there is a conflict in the construction documents between trades this (the telecommunications specification) prevails.

B. As an example, the construction documents may instruct the electrical contractor to provide telecommunications grounding and bonding and conduit runs, as specified in the electrical section of the construction document. If there is a conflict between the electrical specification and the telecommunications specification, as contained in this document, the telecommunications specification prevails.

### 1.3 STANDARDS

A. Building structured wiring systems shall meet the cabling conventions of the most currently available Building Industry Consulting Service International (BICSI) Telecommunications Distribution Methods Manual (TDMM 12th Edition), ANSI/TIA/EIA Telecommunications Building Wiring Standards ISBN: 0-9112702-73-7, National Electrical Manufacturer's Association (NEMA) NEMA WC 26, and National Electrical Code 2008 NFPA 70.

B. Bidders shall be fully acquainted with the above referenced standards to bid on and perform work. Bidders shall have qualifications and certifications to install and test a Category 5E (CAT 5E) Ortronics/Superior Essex nCompass1G Channel Solution and 1000BaseTX/FX intra-building backbone. The network cabling infrastructure must be installed by manufacturer approved designers and certified contractors at the Certified Installer Plus-Enterprise Solutions Partner (CIP-ESP) tier or Certified Installer Plus (CIP) tier in accordance with manufacturer's installation instructions and specifications.

C. All station and riser cabling shall be tested and certified by successful bidder to support 1000BaseTX/FX technology. The successful electrical and telecommunications contractor(s) shall follow appropriate installation guidelines, as contained in the most currently available BICSI TDMM, ANSI/TIA/EIA, NEMA WC 26, and NFPA 70 manuals.

### 1.4 TELECOMMUNICATIONS CONTRACTOR QUALIFICATIONS

A. A contractor, by responding to a bid, represents that their company possesses the manufacturer authorizations, qualifications, certifications, capabilities, test equipment, expertise, and personnel necessary to provide an efficient and successful installation of properly operating components, as specified.

B. Bidder must meet the requirement of having continuously performed Telecommunications installation work for a period of at least five (5) years. The Telecommunications contractor must be an approved Ortronics Certified Installer at a Plus tier (CIP, CIP-ESP). The Telecommunications contractor is responsible for workmanship and installation practices in

accordance with the Ortronics CIP Program. Ortronics/Superior Essex will extend a 25-Year nCompass Limited Lifetime Warranty once the Telecommunications contractor fulfills all requirements under Ortronics CIP Program.

C. As a requirement to bidding and performing awarded work, Telecommunications contractor shall have currently trained, registered, and certified BICSI Technicians and at least (1) Registered Communication Distribution Designer (RCDD) on staff as full-time employees. A copy of the RCDD certifications and BICSI member number must be provided with bidding documents.

D. Telecommunications contractor must provide at least one project manager or lead technician on site at all times during project whom is a BICSI trained, certified, and registered Technician and a BICSI member in good standing.

E. Telecommunication contractor must be skilled and proficient in both inside cable plant (copper and fiber optics) installation, as well as outside cable plant (copper and fiber optics) installation, termination, splicing, and testing. Telecommunications contractor must be certified by the manufacture of the structured cable system specified in this document. (See 1.5 Materials)

## 1.5 DOCUMENTATION

A. Prior to system acceptance, the successful bidder shall submit to the owner fully documented 8.5-in. x 11-in. scale drawings of the entire fiber optic and copper distribution system. Documentation shall be provided in both a hard copy binder and a soft copy on CD capable of being viewed and edited in MS Visio. This will include building and floor layouts with appropriate labeling and locations of workstation Telecommunications Outlet (TO), Equipment Room/Telecommunications Room (ER/TR), Main Cross Connect/Intermediate Cross Connect (MC/IC), cable routes, interconnect locations, riser locations, and all other information pertinent to the installation.

B. Successful bidder will be responsible for accurately labeling and identifying all relevant components of the cabling system, including, but not limited to: Telecommunications Outlet (TO) face plate labeling; patch panel and block labeling and color-coding; backbone cable labeling at entrance to MC, BEF/IC/ER, and HC/TR; fiber optic patch panel labeling and color-coding, cables at each end, conduits at each end, and grounding system. Reference BICSI TDMM, 12th Edition, Chapter 14 Telecommunications Administration.

## 1.6 MATERIALS

The Telecommunications contractor must be an approved Ortronics Certified Installer at a Plus tier (CIP, CIP-ESP). A copy of certification documents must be submitted with the bid in order for such bid to be valid. The Telecommunications contractor is responsible for workmanship and installation practices in accordance with the Ortronics CIP Program. Ortronics/Superior Essex will extend a nCompass Limited Lifetime Warranty once the Telecommunications contractor fulfills all requirements under the Ortronics CIP Program.

The horizontal workstation structured cabling system shall be an Ortronics/Superior Essex nCompass Cat 5e U/UTP Channel Solution. Bidder shall be authorized and certified, by the manufacturer's representative, to install, certify and warranty the structured cabling system. The specified Ortronics/Superior Essex nCompass channel solution is not substitutable.

A. Horizontal Work Station Cable:

1. Superior Essex Cobra CAT 5e+, POP Box, CMP, Category 5E, 4 twisted pair, 24 AWG, FEP, Station Wire for Plenum air return systems.

| | Flame Rating | Jacket | Color | Part No. |
|---|---|---|---|---|
| a. | CMP Plenum | PVC Alloy | Blue | Cobra CAT 5e+52-241-28 |
| | | | Yellow | Cobra CAT 5e+52-241-68 |
| | | | Light Gray | Cobra CAT 5e+52-241-38 |

2. NOTE: Irrespective of air handling space, it is required to use CMP Plenum rated cable for smoke and fire mitigation.

B. Intra-Building Backbone Cable-
1. Superior Essex Power Sum CMP, 51-478-48 Category 5e, 25 twisted pair, 24 AWG, FEP, Riser Cable for Plenum riser systems.
2. Corning fiber optic riser cable, 6/6 Hybrid (6) strand, multi-mode, 62.5/125um, 3.5/1.0 dB, and (6) strand single-mode, MIC, TBII tight buffer tube construction, FEP.

C. Workstation Telecommunications Outlet (TO):

| | Description | Part No. |
|---|---|---|
| 1. | Ortronics TracJack USOC 6P6W RJ25C | OR-63700005-13 Ivory Jack |
| 2. | Ortronics TracJack T568A/B 180 deg | OR-TJ5E00-44 Dark Yellow Jack |
| 3. | Ortronics TracJack T568A/B 180 deg | OR-TJ5E00-36 Dark Blue Jack |
| 4. | Ortronics TracJack Face Plate | OR-40300547-13 3-Port Wall Plate |
| 5. | Ortronics TracJack Blank Modules (Pk of Ten) | OR-42100002-13 Ivory Blank |

D. IC/HC ER/TR Patch Panel Data Termination

| | Description | Ports | Part No. |
|---|---|---|---|
| 1. | Ortronics High Density Patch Panel Modular to 110 T568A/B | 24 | OR-PHD5E6U24 |
| | | 48 | OR-PHD5E6U48 |
| | | 96 | OR-PHD5E6U96 |

E. Patch Cords:

| | Description | Length | Part No. |
|---|---|---|---|
| 1. | Blue, 4-pair | 3 ft. | OR-MC5E03-06 |
| | | 5 ft. | OR-MC5E05-06 |
| | | 7 ft. | OR-MC5E07-06 |
| | | 9 ft. | OR-MC5E09-06 |
| | | 15 ft. | OR-MC5E15-06 |
| | | 20 ft. | OR-MC5E20-06 |
| | | 25 ft. | OR-MC5E25-06 |

F. IC/HC ER/TR 110 Block Voice Termination:

| | Description | Part No. |
|---|---|---|
| 1. | Ortronics 200-pair 19-in. Rack Mount 110 Field Termination Block/Panel Kit includes two 100-pair 110 blocks without legs, with (40) 110C4 and (8) 110C5 connecting blocks, two jumper troughs, and designation. | OR-302003251 |
| 2. | 100-pair wall mount 110 Field Termination Block with (20) 110C4 and (4) 110C5 connecting blocks and snap-on label designation field | OR-110ABC5E100 |
| 3. | 110C5 Connecting Blocks, five-pair, Pk of ten. | OR-30200110 |

G. BEF/IC/HC ER/TR Fiber Optic Cabinet and Termination:
1. For Hubbell Next Frame Rack Installations:
   a. Corning CCH-04U Fiber Distribution Center 72/288 fiber optic enclosure.
   b. Corning CCH-CP12-19T Single-Mode ST connector 12 strand pre-loaded panel.

H. For Hubbell RE4X Cabinet Installations:
1. Corning SPH-01P 12-Fiber wall panel with ST connectors

2. Corning CCH-CP12-19T Single-Mode ST connector 12 strand pre-loaded panel.

I. Grounding and Bonding:
1. Chatsworth Products 40153-012 12 inch TMGB Pattern ANSI/EIA/TIA Grounding busbar.

J. Equipment Racks and Cabinets:
1. For Standard Equipment and Telecommunications Room Installations:
a. Hubbell Next Frame 19-in. x 7-ft. Equipment rack with 6 inch Vertical Organizer - 6 inch wide Z Channel and cover and Horizontal Cable Management. Black finish.

K. Other-
1. Panduit HLT21-XO Black Velcro 8 inch Tie Wrap, 10 pack.
2. ERICO, Inc., CADDY CableCat Fasteners ("J" Hooks).
3. Carlon CF4X1C-5200 corrugated FEP orange inner duct.

## PART 2 - CABLE PLANT

### 2.1 EQUIPMENT AND TELECOMMUNICATIONS ROOM REQUIREMENTS

A. Each BEF/IC/ER and HC/TR shall be a stand-alone wiring closet located centrally such that no single UTP horizontal cable run shall exceed 90 meters, when terminated at each end, nor shall horizontal cable runs span floors. There shall be a minimum of one (1) ER/TR per floor in a multi-level building. BEF/IC/ER and HC/TR shall not be co-located in custodial, mechanical or other shared space where damage to critical electronics may occur. Each room shall be sized according to use, and meet the below listed criteria.

B. Each BEF/IC/ER shall have a minimum of (2) 4 inch inside diameter EMT conduits run to each HR/TR. Each conduit shall have (3) 1 inch corrugated inner-duct installed. (See Conceptual Conduit and Riser drawing at the end of this document)

C. No right angle bends or LBs allowed. 60 degree sweep maximum allowed.

D. No Intra or Inter-building telecommunications cable shall be run adjacent and parallel to power cabling. A minimum of 5 inch distance is required from any fluorescent lighting fixture or power line up to 2kVA and 24 inch from any power line over 5kVA. Similarly, cable should be routed and terminated as far as possible from sources of EMF, such as ballasts, generators, fans, motor control units, motors, etc.

E. The BEF/IC/ER and HC/TR structured cable system shall be constructed using materials as specified in the materials list. Horizontal station cable, riser cables, and fiber optics shall be terminated in the appropriate location on the racking system. Voice cables shall be terminated on the appropriate 110 system. Data cables shall be terminated in the appropriate patch panels. Fiber optics shall be terminated in the appropriate fiber optic termination assembly. Cable termination, order of termination, color-coding, grouping, numbering plan, and labeling shall be performed in accordance with BICSI TDMM Chapter 14 Telecommunications Administration. Entrance facilities shall be terminated on the backboard with appropriate building entrance protection. Riser shall be extended from the backboard building entrance protection panel to the 110 system on the rack.

## 2.2 HORIZONTAL WORKSTATION CABLE

A. Each Workstation Telecommunications Outlet (TO) shall have (3) Category 5E cables. The gray cable and ivory jack shall be designated as analog voice and the blue and yellow cables and jacks shall be designated for data communications.

B. Each Computer Lab TO shall have (2) Category 5E cables. The blue and yellow cables and jacks shall be designated for data communications.

1. Each Telecommunications Outlet (TO) shall have (3) jacks in each outlet plate as follows:
2. Install (1) Gray Category 5E (CAT 5E) 4-Pair UTP cable terminated at the TO in an Ivory RJ25C USOC jack and at the HC/TR in the rack mounted (or backboard mounted) 110 system as appropriate.
3. Install (1) Blue CAT 5E 4-Pair UTP cable terminated at the TO in a Blue RJ45 CAT 5E jack and at the HC/TR in the rack mounted patch panel system.
4. Install (1) Yellow CAT 5E 4-Pair UTP cable terminated at the TO in a Yellow RJ45 CAT 5E jack and at the HC/TR in the rack mounted patch panel system.
5. Cables shall be distributed in a horizontal star topology from each TO to the HC/TR. Total terminated length of cable from TO to HC/TR shall not exceed 90 meters total length. Each horizontal cable shall be installed in a "home-run" configuration. No "daisy chained" conduit or cables shall be allowed. No horizontal cable run shall span between floors. A minimum 12 inch service loop shall be provided at each TO and 24 inch at each HC/TR.
6. All cables shall be installed using conduit, cable tray, or "J" hooks. Where cables are not installed in conduit or cable tray, the cable shall not be pulled or installed directly across suspended ceiling tiles or fluorescent lights without proper suspension and consideration of possible electrical interference. If "J" hooks are used, avoid placing any pressure or creating stress points on the cable. Maximum spacing between "J" hooks shall not exceed five feet. Suspended ceiling support wires shall not be used to support cables or cable support system(s).
7. At no time shall pulling tension exceed 25 lbs. on horizontal cables. Exceeding the maximum recommended pulling tension during installation of cables will compromise wire integrity. If wire integrity is compromised, the wire may not pass testing and certification standards required for a 1000BaseTX infrastructure. The installing contractor will be responsible for replacement of any cable system that does not pass required certification standards.
8. Traditional nylon synch style Tie Wraps shall not be used to bundle cables. Only Velcro Tie Wraps are acceptable to bundle cables. Cables shall be dressed in loose, neat bundles.
9. No Intra-building telecommunications cable shall be run adjacent and parallel to power cabling. A minimum of 5 inch distance is required from any fluorescent lighting fixture or power line up to 2kVA and 24 inch from any power line over 5kVA. Similarly, cable should be routed and terminated as far as possible from sources of EMF, such as ballasts, generators, fans, motor control units, motors, etc.
10. Horizontal UTP station cable shall be terminated at the HC/TR in a manner such that each workstation location will be numbered and terminated in sequential order. Voice (Gray) cable shall be terminated at the 19-in. x 7-ft. stand-alone rack in rack mounted (or backboard mounted) 110 blocks as specified in materials list. Each 100 pair 110 block will support (24) 4-pair cables. Designator strips shall be blue in color. Data (Blue & Yellow) cables shall be terminated in Ortronics High Density T568A/B wired Patch Panels as specified in materials list and shall be located in 19-in. x 7 ft. stand-alone rack as specified in materials list. Horizontal and vertical fiber optic cable shall be terminated at BEF/IC/ER and HC/TR in Corning fiber optic distribution centers as specified in materials list.
11. Each TO location shall use Ortronics TracJack hardware as specified in materials list. The gray CAT 5E cable shall be terminated USOC in an Ivory RJ25C jack. The Blue and Yellow CAT 5E cable(s) shall be terminated TIA/EIA T568A in (1) Blue and (1) Yellow CAT 5E RJ45 jacks. Striping of cable jacket, untwisting of conductor pairs and termination shall be done using TIA/EIA conventions. 12 inch of excess, jacketed, cable

shall be coiled in the outlet box to accommodate future re-termination. Maintain UTP cable pair twists up to the point of termination (maximum of up to 1/4-in. jacket removal allowed) at both the station/outlet end as well as patch panel/ block end for each horizontal cable. Take caution as to refrain from physically changing or damaging the shape or geometry of the cable during installation, i.e., do not cinch cable ties too tightly; avoid kinks and sharp bends in cable. Do not place bundles in such a way that the weight of large bundles is damaging the cables on the bottom of the bundle. Each TO wall plate shall be numbered sequentially, consistent with the HC/TR number layout using an acceptable labeling system.

12. Successful bidder shall test and certify, in writing, building wiring meets or exceeds all applicable TIA/EIA 568, 569, 606, 607, etc. conventions and standards. Successful bidder shall test and certify, in writing, building wiring shall support 1000Base TX/FX (gigabit) Ethernet technologies.

## 2.3 VERTICAL RISER CABLE

A. Install a minimum of (2) 4 inch conduit paths between the BEF/IC/ER and each HC/TR.

B. No right angle bends or LBs allowed. 60 degree sweep maximum allowed. Any conduit exceeding 100-ft. shall have a pull box every 100-ft..

C. For each (12) telephone workstation locations there shall be a (25) pair copper riser from the HC/TR to the BEF/IC/ER. Copper riser cable shall be of a 25 Pair Category 5E FEP rated construction as specified in materials list. All riser cable shall be terminated using 110 wiring distribution systems as specified in materials list. Riser cable shall be terminated on a separate 100 pair block from horizontal station cable. Designator strips shall be gray in color.

D. Each HC/TR shall have a (6/6) strand Hybrid multi-mode/single-mode fiber optic cable run back to the BEF/IC/ER. Fiber Optic riser cable shall be Corning , Hybrid (6) stand, multi-mode, FDDI performance, 62.5/125um, 3.5/1.0 dB, (6) strand single-mode, MIC, TBII tight buffer tube construction. Fiber optic cable shall be terminated in a Corning FDC cabinet at the BEF/IC/ER and each HC/TR. See materials list.

## 2.4 PATHWAY SUPPORT SYSTEM

A. All horizontal cable shall be installed using a home-run configuration. Conduit, cable tray or "J" hooks are acceptable in any combination to support the cable system.

1. **NOTE:** In open ceiling environments, where cable is intentionally or unintentionally exposed to view, the cable shall not be painted,
   a. Cable should be protected from exposure to paint.
   b. Paint products may deteriorate the cable sheath and compromise the integrity of cable conductors.

B. Conduits shall be dedicated, using no smaller than a 3/4 inch inside diameter per workstation outlet. There shall be no daisy-chain conduit runs. Each workstation location shall require one 3/4 inch conduit, which is a home run back to the appropriate HC/TR or appropriate tray/support system. Provide pull boxes in telecommunications conduit runs spaced not greater than 100 feet apart with no more than two right angle bends. If more than two bends are in any 100 foot section, increase the conduit by one trade size. See TIA/EIA-569-A Section 4.4. Place a “TELECOMMUNICATIONS” label on all pull and junction boxes. If a cable tray system is installed, the conduit shall be a home run from the workstation outlet jack to the tray. Conduit runs shall not exceed 40% fill capacity and bend design as specified in TIA/EIA-569-A documents. Conduits should be sized appropriately.

1. Workstation conduits *shall be dedicated* 1:1 ratio of conduit to workstation outlet.
2. Workstation conduits *shall not be daisy chained* or shared between workstation outlets.
3. Conduit runs shall have no more than (2) right angle bends.
4. Conduit fill *shall not* exceed 40%.

C. Traditional nylon synch style Tie Wraps shall not be used to bundle cables. Velcro style Tie Wraps are the only acceptable method to secure cable bundles. See materials list. At no time shall pulling tension exceed 25 lbs. on horizontal cables. Exceeding the maximum

recommended pulling tension on Category 5E cables will compromise cable integrity. If wire integrity is compromised, the wire may not pass testing and certification standards required for a 1000BaseTX infrastructure. The installing contractor will be responsible for replacement of any cable system that does not meet required standards.

D. No intra/inter-building telecommunications cable shall be run adjacent and parallel to power cabling. A minimum of 5 inch distance is required from any fluorescent lighting fixture or power line up to 2kVA and 24 inch from any power line over 5kVA. Similarly, cable should be routed and terminated as far as possible from sources of EMF, such as generators, motors etc.

## 2.5 GROUNDING AND BONDING

A. Telecommunications bonding and grounding are additional bonding and grounding installed specifically for telecommunications systems. From a safety code standpoint, the NEC and NFPA 780 already cover such bonding and grounding, however, these codes are established primarily for safety. There are many situations where these codes can be interpreted or implemented in different ways. Some of these ways may not be as suitable as others for equipment protection, reliability, and performance.

1. Establishing a suitable telecommunications ground is critical in protecting and equalizing telecommunications equipment. A proper grounding and bonding infrastructure is essential for the reliable operation of today's sensitive telecommunications equipment and systems. Telecommunications cabling and electrical power cabling must be effectively equalized.
2. The grounding and bonding infrastructure is to originate at the service entrance (electrical power) ground and extend throughout the building to each telecommunications room.
3. Building steel, neither water pipes, nor electrical service sub-panels are acceptable grounding points.
4. Grounding and Bonding shall conform to NEC Article 250 *and* TIA/EIA-607-A using a minimum conductor size of 6 AWG.
    a. Install a contiguous Intra-building grounding and bonding system in compliance with NEC Article 250 and TIA/EIA-607-A.
    b. Use a minimum conductor size of 6 AWG
    c. Install a grounding busbar on each plywood backboard in each telecommunications room as directed.
    d. The grounding and bonding system shall originate at the service entrance (electrical power) ground and be a contiguous intra-building bus as shown in the example drawings.
    e. Bond all telecommunications equipment racks, backboards, conduits, and cable trays as specified in TIA/EIA-607 as shown in example drawings.

B. Glossary:

1. BDF Building Distribution Frame
2. BEF Building Entrance Frame
3. BET Building Entrance Termination
4. BICSI Building Industry Consulting Service International
5. ER Equipment Room
6. HC Horizontal Cross Connect
7. IC Intermediate Cross Connect
8. IDF Intermediate Distribution Frame
9. MC Main Cross Connect
10. MDF Main Distribution Frame
11. RCDD Registered Communications Distribution Designer
12. TO Telecommunications Outlet
13. TR Telecommunications Room
14. UTP Unshielded Twisted Pair
15. FO Fiber Optics

## PART 3 - EXECUTION

### 3.1 INSTALLATION

A. Install building structured wiring systems in accordance with manufacturer's written instructions and with recognized industry practices.

### 3.2 TESTING

A. Testing is required in accordance with these specifications to determine that installation conforms to industry standards.
B. Testing reports shall be furnished to the owner.

**END OF SECTION**