

Approved
State of Idaho
Division of Building Safety
PA# 81D2407-00050
Date: 08/01/24
These Documents are approved contingent on the compliance with the mark-ups and notes applied.
This approval shall not be construed to be an approval of any violation of, or variance from, Idaho's adopted codes, standards, laws or rules applicable to this project.
This is not a building permit

PROJECT MANUAL

For the Construction of:

CSI: Entry Access Controls Phase II
College of Southern Idaho (CSI)
Twin Falls, Idaho

DPW Project No. 19107

For the:

Idaho Department of Administration
Division of Public Works
P.O. Box 83720
Boise, Idaho 83720-0072

Set



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ENGINEERING, P.A.
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PROJECT MANUAL
FOR
DPW PROJECT 19107

CSI: ENTRY ACCESS CONTROLS, PHASE II
COLLEGE OF SOUTHERN IDAHO
TWIN FALLS, IDAHO

OWNER
STATE OF IDAHO
DIVISION OF PUBLIC WORKS
P.O. BOX 83270
BOISE, IDAHO 83720-0072

ENGINEER
MUSGROVE ENGINEERING, PA
645 W 25TH ST
IDAHO FALLS, IDAHO 83402
(208) 523-2862

April 2024



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ADVERTISEMENT FOR BIDS

Sealed proposals will be received by the Division of Public Works, State of Idaho, at **the College of Southern Idaho, Taylor Administration Building, Room 102, 315 Falls Ave, Twin Falls, Idaho 83301** until **2:00 p.m.** local time, on **Thursday September 5, 2024** for **DPW Project No. 19107, CSI: Entry Access Controls Phase II College of Southern Idaho (CSI) Twin Falls, Idaho.**

A description of the work of this project can be summarized to include: improvement of the security and safety in the Canyon Building, Fine Arts Building, Hepworth Building, McManaman Building, Taylor Building, Key Shop Building, Physical Education Building, and Human Services and Health Sciences Building by converting all main keyed entry points to a keyless system and adding security cameras to building entrances.

Buildings are to remain 100% occupied and exiting maintained.

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:

State of Idaho Division of Public Works, 502 N. 4th St., Boise, ID 83702 (208) 332-1900
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
Musgrove Engineering, PA, 625 W 25th St, Idaho Falls, ID 83402 (208) 523-2862

There will be a Pre-Bid Conference on **Thursday, August 29, 2024**, beginning at **10:00 a.m.**, prevailing local time, at the **McManaman Physical Plant Building Conference Room, College of Southern Idaho, 315 Falls Avenue, Twin Falls, Idaho.** Bidders are encouraged to attend.

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

A bid bond in the amount of 5% of the total bid amount, including any add alternates, is required. A Public Works Contractor's License for the State of Idaho is required to bid on this work.

Estimated Cost: **\$650,000**

Barry J. Miller, Deputy Administrator, Division of Public Works

END OF ADVERTISEMENT FOR BID

OTHER PUBLICATIONS: Copies may have been furnished for INFORMATIONAL PURPOSES ONLY to the following:

Department of Administration
Associated General Contractors
AGC Magic Valley
AGC Idaho Falls
AGC North Idaho

Daily Journal of Commerce, Seattle
Intermountain Contractor, SLC
Idaho Business Review
Idaho Plan Room
Idaho Sub-Contractors Bid Service
Daily Journal of Commerce, Portland

Coordinator for this project is Zach Nadeau

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 its 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 addenda. 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:

1. Bid Proposal Form;
2. Contractor's Affidavit Concerning Alcohol and Drug-Free Workplace;
3. Bidder's Acknowledgment Statement and;
4. 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/bid 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:

Mailing Address

Mr. Jeff Harmon
Taylor Administration Building
315 Falls Avenue
Twin Falls, ID 83301

Physical Address

Mr. Bruce Berry
Taylor Administration Building
315 Falls Avenue
Twin Falls, ID 83301

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 it (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: 19107, CSI: Entry Access Controls, Phase II, College of Southern Idaho (CSI), Twin Falls, Idaho.” **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 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. Bid 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

To Whom it May Concern:

The Bidder, in compliance with your Invitation for Bids for the construction of DPW 19107, CSI: Entry Access Controls, Phase II, College of Southern Idaho (CSI), Twin Falls, Idaho, 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 **one hundred twenty (120)** consecutive calendar days thereafter, as stipulated in the specifications. Bidder further agrees to pay as liquidated damages, the sum of **Four Hundred (\$400)** 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 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.)

BASE PROPOSAL PLUS UNIT PRICE:

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

Alternate No. 1: Canyon Building

Add the sum of _____ Dollars (\$ _____)

Alternate No. 2: Health Science and Human Services Building

Add the sum of _____ Dollars (\$ _____)

Alternate No. 3: Physical Education Building

Add the sum of _____ Dollars (\$ _____)

Alternate No. 4: Fine Arts

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 Design Professional, if Undersigned is awarded the Contract, are as follows:

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 _____, 20__.

Respectfully submitted by:

Contractor's Name- Typed

Street or PO Address

City, State and zip code

Authorized Signature

Title

Telephone 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?

CONTRACTOR'S AFFIDAVIT
CONCERNING ALCOHOL AND DRUG-FREE WORKPLACE

STATE OF _____

:ss

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.

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

Name of Contractor

Address or PO address

City, State, zip code

Signature

Title

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

(SEAL)

NOTARY PUBLIC
Residing at: _____
Commission expires: _____

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.

DPW Project No. 19107, CSI: Entry Access Controls, Phase II, College of Southern Idaho (CSI), Twin Falls, Idaho

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.(k) 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 (10) 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.
- Ownership or Operation by China. Pursuant to Idaho Code section 67-2359, Contractor certifies that it is not currently owned or operated by the government of China and will not for the duration of the Contract be owned or operated by the government of China. The terms in this section defined in Idaho Code section 67-2359 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.: 19107

PROJECT NAME PER DPW: CSI: Entry Access Controls Phase II

NAME OF STATE AGENCY: College of Southern Idaho

PROJECT LOCATION: Twin Falls, Idaho

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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 insert name of contractor (the "Contractor") and is for the construction of the project (the "Project") identified as DPW Project No. . DPW Project No. 19107, CSI: Entry Access Controls, Phase II, College of Southern Idaho (CSI), Twin Falls, Idaho, 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

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 Required Certifications.
- 2.6.1 **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.
- 2.6.2 **Ownership or Operation by China.** Pursuant to Idaho Code section 67-2359, Contractor certifies that it is not currently owned or operated by the government of China and will not for the duration of the Contract be owned or operated by the government of China. The terms in this section defined in Idaho Code section 67-2359 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 Work, 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 (the "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 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.
- 5.5** **The Contractor is solely liable for theft or damage of materials and equipment stored on the Worksite but not yet installed in the facility. The Contractor shall protect and replace any loss of materials due to theft or damage, until final acceptance of the Project.**

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.
- 6.5** 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.
- 6.6** 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 its 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 forty-five (45) 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:
- (a) 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;
 - (b) 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;"
 - (c) 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;
 - (d) 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;
 - (e) 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
 - (f) 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:

- (a) 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;
- (b) 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;
- (c) 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;
- (d) 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;
- (e) There are claims made or it seems reasonably likely that claims will be made, against the Owner;
- (f) The Contractor has caused a loss or damage to the Owner, the Design Professional or another contractor;
- (g) 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;
- (h) The Contractor fails or refuses to perform any of its obligations to the Owner; or
- (i) The Contractor fails to pay taxes as required by Title 63, Chapter 15, Idaho Code.

7.9 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.

7.10 If the Owner, without cause, fails to pay the Contractor any amounts due and payable sixty (60) 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 sixty (60) days after the Design Professional approves the Contractor's Request for Payment under Paragraph 7.4, interest in accordance with Idaho Code § 67-2302.

7.11 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 7.14. 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.

- 7.12** 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.
- 7.13** 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.
- 7.14** 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:
- (a) 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;

- (b) 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);
- (c) Contractor's Affidavit of Debts and Claims (AIA Document G706);
- (d) Consent of Surety to final payment (AIA Document G707);
- (e) Confirmation of all required training, product warranties, operating manuals, instruction manuals and other record documents, drawings and things customarily required of the Contractor; and
- (f) 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).

7.15 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 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 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 Contract 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 these items shall be available to the Owner and the Design Professional at all regular business hours. Upon final completion of the Work, all 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. 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

SAVE HARMLESS AND INDEMNIFICATION

- 11.1** The Contractor shall indemnify, defend and hold harmless the State of Idaho, Division of Public Works, its officers, agents, employees, from and against all liability, claims, damages, losses, expenses, actions, settlements, attorneys' fees, and suits whatsoever caused by, arising out of, or in connection with Contractor's acts or omissions under this Agreement or the Contractor's failure to comply with any State or federal statute, law, regulation, or rule.
- 11.2** Upon receipt of the State's tender of indemnity and defense, Contractor shall immediately take all reasonable actions necessary, including, but not limited to providing a legal defense for the State, to

begin fulfilling its obligation to indemnify, defend, and save harmless the State. Contractor's indemnification and defense liabilities described herein shall apply regardless of any allegations that a claim or suit is attributable in whole or in part to any act or omission of the State under this Agreement. Contractor shall not be required to hold the State harmless for damages attributed to the State in a final order issued by a court of competent jurisdiction.

- 11.3** Any legal defense provided by the Contractor to the State under this Section must be free of any conflicts of interest, even if retention of separate legal counsel for the State is necessary. Any attorney appointed to represent the State must first qualify as and be appointed by the Attorney General of the State of Idaho as a Special Deputy Attorney General pursuant to Idaho Code sections 67-1401(13) and 67-1409(1). The State must approve all settlement offers and agreements made on its behalf and has the option to attend any settlement or alternative dispute resolution proceedings.

ARTICLE 12 **THE DESIGN PROFESSIONAL**

- 12.1** 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:

- (a) Unless otherwise directed by the Owner in writing, the Design Professional shall not act as the Owner's agent.
- (b) Unless otherwise directed by the Owner in writing, the Owner and the Contractor shall communicate with each other through the Design Professional.
- (c) 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.
- (d) The Design Professional shall draft proposed change authorization(s).
- (e) The Design Professional shall review and verify compliance or respond otherwise as necessary concerning shop drawings or other submittals received from the Contractor.
- (f) 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.

- (g) 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.
- (h) The Design Professional shall, upon written request from the Contractor, perform Substantial Completion and final completion inspections contemplated by Article 6.
- (i) The Design Professional may require the Contractor to make changes which do not involve a change in the Fixed Price Construction Contract Amount or 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.
- (j) The Design Professional shall review and evaluate Claims and take other actions related to Claims in accordance with Articles 13 and 14.
- (k) 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

OWNER'S NOTIFICATION TO CONTRACTOR OF NON-CONFORMING WORK

- 13.1** The Owner, Owner's Representative, or the Design Professional shall notify the Contractor of non-conforming work, which shall include work that deviates from the Contract Documents ("Non-Conforming Work"). Non-Conforming Work shall be determined in the sole discretion of the Owner or Design Professional. The notice shall be in writing or verbally at the regular construction progress meetings as soon as reasonably practicable and documented in the minutes.
- 13.2** This section shall not limit the Owner's remedies under this Agreement.
- 13.3** Contractor shall fix Non-Conforming Work to Owner's satisfaction or the Contractor may file an Objection pursuant to the requirements in Article 14.
- 13.4** The Contractor must demonstrate to Owner, Owner's Representative or the Design Professional that Non-Conforming work has been corrected prior to covering or concealing the work.

ARTICLE 14

CONTRACTOR'S OBJECTIONS

- 14.1** For purposes of this Contract, an "Objection" means a demand by the Contractor to the Owner or Design Professional for a change in the Fixed Price Contract Amount, an extension of the Contract Time, an adjustment to or interpretation of the Contract terms, change to Contract Documents, 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, or Contractor and Design Professional have previously discussed and failed to agree upon.

14.2 For the Objection to be considered, it must meet the following requirements:

- (a) The Objection must be in writing;
- (b) The Objection by the Contractor must be signed by an authorized representative of the Contractor;
- (c) The Objection by the Contractor must be provided to the Owner and to the Design Professional;
- (d) The Objection must be made no later than ten (10) days after the event or first appearance of the circumstance giving rise to the Objection;
- (e) The Objection must describe in detail all known facts and circumstances that the Contractor asserts support the Objection;
- (f) The Objection must refer to the provision(s) of the Contract Documents that the Contractor asserts support the Objection;
- (g) The Contractor must provide all documentation or other information to substantiate the Objection; and
- (h) The Contractor must continue its performance under this Contract pending the resolution of any Objection; provided, however, that the Contractor shall not perform any additional or changed work not otherwise authorized in accordance with the Contract Documents.

14.3 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 Objection.

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

- (a) 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
- (b) 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.

14.5 If the Objection 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 Objection:

- (a) 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, Objection 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

- (b) The Owner shall have no liability for, and the Fixed Price Contract Amount shall not be increased related to, any Objections 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.

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

- (a) The Contractor has been delayed in its performance by an act or omission of the Owner and through no fault of the Contractor;
- (b) 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;
- (c) 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
- (d) 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.

14.7 If an Objection 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, then that Objection shall be denied.

14.8 All Objections made in accordance with this Article 14 shall be reviewed and evaluated by the Design Professional. If the Objection is not made in strict accordance with Article 14, it shall be rejected as waived. Any failure by the Design Professional to reject the Objection for failure to meet the requirements of Article 14 is not binding on the Owner and the Owner may reject the Objection for such failure.

14.9 No later than seven (7) days from receipt of the Objection by the Design Professional, it may either:

- (a) Make a written request to the Contractor or Owner for more data to support the Objection if desired;
- (b) Attempt to facilitate resolution of the Objection through informal negotiations; or

(c) Make a written recommendation to the Owner, with a copy to the Contractor, that the Owner reject or approve all or part of the Objection and state the reasons for the Design Professional's recommendation.

- 14.10** If the Design Professional requests more data from the Contractor under subparagraph 14.2.(a), the Contractor 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 Objection. Failure to respond at all or failure to provide data by the date specified in the response to the request shall result in the Objection being evaluated based on the information in the Design Professional's possession.
- 14.11** In evaluating the Objection, 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.
- 14.12** No later than fourteen (14) days after receipt by the Owner of the Design Professional's recommendation regarding the Contractor's Objection, the Owner shall, in writing, notify the Contractor and the Design Professional of its decision regarding the Objection.
- 14.13** The Owner's decision regarding the Contractor's Objection is binding on final between the Owner and the Contractor but is subject to mediation in accordance with this Contract. The Contractor must proceed with the Work under the terms of this Agreement and any decision made by the Owner pursuant to this Section; provided, however, that Contractor but may concurrently pursue any remedies available at law or under 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:

- (a) 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
- (b) 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:

- (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;
- (b) Methods used in determining adjustments to the Fixed Price Contract Amount may include those listed in subparagraph 16.3.(d);
- (c) The amount allowed for overhead and profit on any Change Order is limited to the amounts indicated in subparagraph 16.3.(k);
- (d) 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
- (e) 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):

- (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;

- (b) 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;
- (c) A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order;
- (d) 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:
 - i. Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
 - ii. Unit prices stated in the Contract Documents or subsequently agreed upon;
 - iii. Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
 - iv. As provided in subparagraph 16.3.(g).
- (e) 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;
- (f) 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;
- (g) 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.(k). In such case of an increase in Fixed Price Contract Amount, and also under subparagraph 16.3.(d), 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:

- i. Costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom and Workers' compensation insurance;
 - ii. Costs of materials, supplies and equipment, including cost of transportation, whether incorporated or consumed;
 - iii. Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;
 - iv. Costs of permit fees and sales, use or similar taxes related to the Work; and
 - v. Additional costs of supervision and field office personnel directly attributable to the change.
- (h) 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;
- (i) 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;
- (j) 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
- (k) For purposes of subparagraphs 16.2.(c) and 16.3.(g), the allowance for combined overhead, profit, bonds and insurance shall be limited as follows, unless otherwise provided in the Contract Documents:
- i. 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
 - ii. 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 occur 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:
- (a) the reasonable costs of removing and correcting the defective or nonconforming Work; or
 - (b) 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:
- (a) Issuance of an order by a court or by another public authority having jurisdiction and authority which requires all Work to be stopped; or

(b) 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:

(a) Demobilization and remobilization, including such costs paid to subcontractors;

(b) Preserving and protecting Work in place;

(c) Storage of materials or equipment purchased for the Project, including insurance thereon; and

(d) 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:

(a) That performance is, was or would have been so suspended, delayed or interrupted by another cause for which the Contractor is responsible; or

(b) 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:

- (a) 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;
- (b) 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
- (c) 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:
 - i. Unpaid Contract prices for labor, materials, equipment and other services provided or perfected prior to termination and acceptable to or accepted by the Owner;

- ii. 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
- iii. 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.(c)(ii) or 20.3.(c)(iii) 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.(c) 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** All insurance carriers providing coverage under this Agreement, shall be rated an "A" or above by Best's Insurance Rating Service. Evidence of such insurance coverage or self-insurance shall be in the form of a certificate of insurance or statement of financial responsibility. The Contractor shall immediately notify the Owner of notice of knowledge of cancellation, refusal to renew, or change in any material way the nature or extent of the coverage provided by such policies. The Contractor will provide notification by written notice, by certified or registered mail, return receipt requested.
- 21.2** Contractor shall maintain such Commercial General Liability insurance with minimum limits of \$1,000,000 to protect its interest and that of the Owner. The State of Idaho, Division of Public Works, College of Southern Idaho will be named an Additional Insured on any general liability and property policies carried and required by this Agreement. The insurance afforded by the Contractor shall be primary insurance. The State of Idaho's retained risk program coverage is only applicable to the acts or omissions of the State's officials, agents, or employees and shall not cover the acts or omissions of the Contractor or its Sub-Contractors.
- 21.3** Contractor shall carry Worker's Compensation Insurance to cover obligations imposed by federal and state statutes covering all employees and employers' liability insurance with a minimum limit of 1,000,000.
- 21.4** If any of the insurance required under this Agreement is arranged on "claims made" basis, "tail" coverage will be required at the completion of this Agreement for duration of five (5) years thereafter. The Contractor shall be responsible for furnishing certification of "tail" coverage or continuous "claims made" liability coverage for five (5) years following the completion of this Agreement. Continuous "claims made" coverage will be acceptable in lieu of "tail" coverage provided its retroactive date is on or before the effective date of this Agreement.
- 21.5** The Contractor shall indemnify, defend and save harmless the State of Idaho, the Division of Public Works, (name of agency), their officers, agents and employees, from and against any liability,

claims, damages, losses, expenses, actions and suits whatsoever, including injury or death of others or any employees of the Contractor or the Contractor's Sub-Contractor caused by or arising out of acts or omissions, or negligent performance by the Contractor of any term of this contract.

- 21.6** All express representations, indemnifications or limitations of liability made in or given to this Agreement will survive the completion of all services of Contractor under this Agreement or the termination of this Agreement for any reason.

ARTICLE 22

BUILDER'S RISK INSURANCE

- 22.1** Unless otherwise provided in this Agreement, the General Contractor shall purchase or maintain property insurance written on a builder's risk "all-risk" policy (the "Builder's Risk Policy") in excess of WRITE OUT AMOUNT [\$000.000 Total Contract Sum] to cover the Owner's property, the Project, and General Contractor's equipment, materials, and supplies.

- (a) The Builder's Risk Policy shall:
- i. Include perils of fire with extended coverage and mischief, collapse, earthquake, flood, windstorm, temporary buildings and debris removal, demolition, and flood damage, if commercially available for similar operation in the region of the United States where the Project is located;
 - ii. Be of an amount not less than the initial Contract Amount, plus value of subsequent Contract modifications and cost of materials supplied or installed by others, comprising total value for the entire Project at the site, on a replacement cost basis without optional deductibles;
 - iii. Cover resultant damage from errors in design, plans, specifications, faulty workmanship, materials, and construction;
 - iv. Include reasonable compensation for Design Professional, Project Manager, Owner and its contractors' services and expenses required as a result of an insured loss, excluding any Liquidated Damages, extra expense, and expediting expense;
 - v. Contain an express, full and complete, waiver of any right of subrogation by the insurer in favor of the Owner and State of Idaho for loss or damage occurring during the Work to the extent covered by the Builder's Risk Policy.
- (b) The General Contractor shall purchase the Builder's Risk Policy from a company or companies lawfully authorized to do business and issues contracts of insurance in the State of Idaho.
- (c) The General Contractor shall be responsible for the deductible, whether or not to the extent the loss is caused by the negligence or intentional misconduct of the General Contractor, any of its Subcontractors or sub-subcontractors or material suppliers or any other person for whom the General Contractor is responsible.
- (d) The General Contractor shall submit to the Owner, or the Project Manager if designated by the Owner, for its approval, all items deemed by the Builder's Risk Policy carrier to be uninsurable.

- (e) The General Contractor shall not commence Work under the Agreement until it has obtained all required insurance and until evidence of the required insurance has been reviewed and accepted by the Owner. Owner review of the insurance shall not relieve nor decrease the liability of the General Contractor.
- (f) The Builder's Risk Policy shall be maintained in force, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final acceptance by the Owner and final payment to the General Contractor has been made.

22.2 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 where the Owner is the Insured or Additional Insured 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:

- (a) its having reached any such settlement or adjustment with an insurer; and
- (b) 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 General Contractor agree to attempt to resolve the dispute by mutual agreement.

22.3 The General Contractor shall deposit proceeds received under the Builder's Risk Policy in a manner in which such proceeds can be separately accounted for. The General Contractor shall distribute the proceeds in accordance with an agreement as the parties 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.

ARTICLE 23

SOVEREIGN IMMUNITY

23.1 In no event shall this Agreement or any act by the STATE OF IDAHO, be a waiver of any form of defense or immunity, whether sovereign immunity, governmental immunity, immunity based on the Eleventh Amendment to the Constitution of the United States or otherwise, from any claim or from the jurisdiction of any court. If a claim must be brought in a federal forum, then it must be brought and adjudicated solely and exclusively within the United States District Court for the State of Idaho. This Section applies to a claim brought against the STATE OF IDAHO only to the extent Congress has appropriately abrogated the state's sovereign immunity, and is not consent by the STATE OF IDAHO, to be sued in federal court, or a waiver of any form of immunity, including, but not limited to, sovereign immunity, and immunity based on the Eleventh Amendment to the Constitution of the United States.

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's 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:
- (a) 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;
 - (b) 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
 - (c) 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 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 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.
- 276.9** 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 ensure 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:

- (a) 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;
- (b) 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;
- (c) Within fifteen (15) days of receipt of the mediation request, the non-requesting party shall respond in writing to the request;
- (d) 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;

- (e) 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;
- (f) Unless otherwise mutually agreed to by the parties, the mediation shall be in Boise, Ada County, Idaho;
- (g) The parties shall cooperate in arranging the other details of mediation, such as selection of the mediator, mediation dates and times;
- (h) 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;
- (i) Agreements reached in mediation shall be enforceable as settlement agreements in any court having proper jurisdiction; and
- (j) 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:

- (a) Damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business, and reputation and for loss of management or employee productivity or of the services of such persons; and
- (b) 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:

Authorized Signature

Print Signature

Title

CONTRACTOR:

Contractor's Name- Typed

Authorized Signature

Print Signature

Title

EXHIBIT A

PROJECT IDENTIFICATION, ADDENDA, CONTRACT AMOUNT, CONTRACT TIME, ACCEPTED ALTERNATIVES, LIQUIDATED DAMAGES, AND SPECIAL CONDITIONS (IF ANY)

OWNER'S PROJECT IDENTIFICATION INFORMATION:

DPW PROJECT 19107

CSI: Entry Access Controls, Phase II
College of Southern Idaho (CSI)
Twin Falls, Idaho

General Project Description:

A description of the work includes the improvement of the security and safety in the Canyon Building, Fine Arts Building, Physical Education Building, and Human Services and Health Sciences Building by converting all main keyed entry points to a keyless system and adding security cameras to building.

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:			\$.00
Alternate No. 1: Canyon Building	(_____)	add	\$.00
Alternate No. 2: Health Science and Human Services Building	(_____)	add	\$.00
Alternate No. 3: Physical Education Building	(_____)	add	\$.00
Alternate No. 4: Fine Arts	(_____)	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: Four hundred Dollars (\$400)

DRAWINGS AND SPECIFICATIONS:

The Owner shall furnish the Contractor 3 sets of Drawings and Project Manuals.

SPECIAL CONDITIONS:

A. In Article 23 and all Paragraphs only, all references to “Owner” shall mean College of Southern Idaho.

EXHIBIT B

ADDRESSES AND AUTHORIZED REPRESENTATIVES (INCLUDING LIMITATIONS)

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: John Parham
Telephone: (208) 332-1909
E-mail: John.Parham@adm.idaho.gov
Fax: (208) 334-4031
May sign for Owner: Yes [**X**] No []
Change Orders: up to \$20,000.

Field Representative: Bruce Berry
Telephone: (208) 332-1906
E-mail: Bruce.Berry@adm.idaho.gov
Fax: (208) 334-4031
May sign for Owner: Yes [**X**] No []
Change Orders: up to \$10,000.

CONTRACTOR: _____ (company name)
_____ (address or PO 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:**

Musgrove Engineering, PA
 645 West 25th Street
 Idaho Falls, ID 83402-4569
 (208) 523-2862

Professional's Project Manager: Matthew N. Bradley, P.E.
 Professional License No. 13299
 (208) 523-2862
 mattb@musgrovepa.com

Professional's Field Representative: Matthew N. Bradley, P.E.
 (208) 523-2862
 mattb@musgrovepa.com
 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 AND SPECIFICATIONS

LIST OF DRAWINGS:

T1.0 Electrical Title Sheet
T1.1 Electrical Legends Sheet

Canyon Building:

A100 Canyon Building Door Replacement Plan
E2.1 Access Control Plan
E2.2 Access Control Plan
E2.3 IT Room 122F Data Rack
E2.4 Security Camera Plan

Hepworth Building:

A101 Hepworth Building Door Replacement Plan
A400 Door Schedules and Details
E6.1 Access Control Plan

McMannaman Building:

E9.1 Access Control Plan
E9.2 Security Control Plan

Woodshop and Key shop Building:

E15.1 Access Control Plan
E15.2 Security Camera Plan

Human Service and Health Sciences Building:

E8.1 Access Control Plan
E8.2 Access Control Plan
E8.3 Security Camera Plan
E8.4 IT Room 149 Data Rack

Physical Education Building:

E11.1 Lower Floor Access Control Plan
E11.2 Upper Floor Access Control Plan
E11.3 Upper Floor Access Control Plan
E11.4 Upper Floor Access Control Plan
E11.5 IT Room 230 Data Rack
E11.6 Security Camera Plan

Fine Arts Building:

E5.1 North Access Control Plan
E5.2 South Access Control Plan
E5.3 Security Camera Plan
E5.4 IT Room 114 Data Rack

Taylor Building:

E14.1 Access Control Plan
E14.2 Security Camera Plan

Key Shop Building:

E15.1 Access Control Plan
E15.2 Security Camera Plan

LIST OF SPECIFICATIONS:

DIVISION 1 - GENERAL REQUIREMENTS

SECTION 011000 – SUMMARY OF WORK

SECTION 012300 – ALTERNATES

SECTION 012500 – SUBSTITUTION PROCEDURES
SECTION 012600 – MODIFICATION PROCEDURES
SECTION 12900 – PAYMENT PROCEDURES
SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

SECTION 014000 – QUALITY REQUIREMENTS
SECTION 015000 - TEMPORARY FACILITIES
SECTION 016000 – PRODUCT REQUIREMENTS
SECTION 017300 – EXECUTION
SECTION 017419 – CONSTRUCTION WASTE MANAGEMENT
SECTION 017700 = CLOSEOUT PROCEDURES
SECTION 017823 – OPERATIONS AND MAINTENANCE DATA
SECTION 017839 – PROJECT RECORD DOCUMENTS
SECTION 017900 – DEMONSTRATION AND TRAINING

DIVISION 7 – THERMAL AND MOISTURE PROTECTION

SECTION 078400 – FIRESTOPPING

SECTION 8 – OPENINGS

SECTION 081314 – STANDARD STEEL DOORS
SECTION 084113 – ALUMINUM FRAMED STOREFRONTS
SECTION 087100 – DOOR HARDWARE
SECTION 087110 – ELECTRIFIED DOOR HARDWARE
SECTION 088000 – GLAZING

DIVISION 9 – FINISHES

SECTION 099000 – PAINTING AND COATING

DIVISION 26- ELECTRICAL

SECTION 260500 – GENERAL ELECTRICAL REQUIREMENTS
SECTION 260519 – WIRE AND CABLE
SECTION 260526 – GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS
SECTION 260533 – RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS
SECTION 260553 – IDENTIFICATION FOR ELECTRICAL SYSTEMS
SECTION 262726 – WIRING DEVICES

DIVISION 27 - COMMUNICATIONS

SECTION 271343 – COMMUNICATION SERVICES CABLING

DIVISION 28 – ELECTRONIC SAFETY AND SECURITY

SECTION 281300 – ACCESS CONTROL SYSTEM
SECTION 282100 – SURVEILLANCE CAMERAS
SECTION 282300 – VIDEO MANAGEMENT SYSTEM

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:

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 (208) 332 _____ prior to beginning Work. A pre-construction meeting will be held on _____, _____, at _____, _____ .m., _____ at _____ .(location)

Sincerely,

Pat Donaldson
Administrator

PD:**

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 DWP 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:	Copy to:
State of Idaho	Design Professional
Division of Public Works	_____
502 N. Fourth Street	_____
Boise, Idaho 83702	_____

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); and
- 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: _____
Project Name: _____
Field Representative: _____

Agency: _____
Project Location: _____
Date & Time: _____

Name	Company	E-mail	Telephone	Signature

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

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****DO NOT INCLUDE THE FOLLOWING INFORMATION IN THE PROJECT MANUAL.
THIS INFORMATION IS INTENDED FOR USE BY THE WRITER OF THE
SPECIFICATIONS****

DIVISION 1 - GENERAL REQUIREMENTS

In addition to the information and data contained in the Bidding Documents and Contract Documents, the following information should be included in Division 1. The Design Professional should review each Project to determine applicability and tailor each specification to suit the particular Project. The Section breakdown and numbering is optional but should generally follow the CSI recommended format.

Summary, Alternates, Allowances

One or more sections to include a scope of Work, phases of construction, etc. Include a full and detailed description of alternates and unit prices and a listing of allowances with dollar amounts. Alternates should be kept to a minimum and must be clear, precise, and independent of other alternates. Unit prices and allowances should only be used when specific requirements are not available at time of bidding, and only with the DPW Project Manager's approval. Use only add alternates unless specifically authorized elsewhere.

Project Coordination

This section should be used for requiring surveys or special recording requirements. Installer inspections prior to actual application should be required for major units of Work and always for critical items like waterproofing, roofing, glazing, special coatings, etc. Pre-installation meetings should always include Owner, Design Professional, DPW Field Representative, contractor, subcontractor and manufacturer's representative.

DPW typically requires a pre-construction meeting and monthly construction meetings. A typical format and agenda for such meetings is available in DPW Instructions to Design Professional. Meetings are to be set-up, chaired and recorded by the A/E.

Under Project Coordination, several areas of responsibility and activity are herein defined:

1. The Division of Public Works Field Representative will determine the time, location, and date for the Preconstruction Conference. Personnel to attend will be the contractor, sub-contractor(s), material suppliers, Division of Public Works Field Representative, Agency Representative and Design Professional.
2. The Design Professional is to provide minutes of the Preconstruction Conference to all concerned parties.

This section should also include coordination with existing site operations. Most DPW projects occur on state campuses and institutions, some with very restrictive access and most with continuing operations.

Cutting and Patching

This section may be required on new Work and is usually required on renovation and repair projects.

Definitions and Standards

Provide as required to clarify technical sections.

Schedules, Reports, Payments

Use if required for more detailed explanation of requirements. Require CPM or similar type scheduling for large or complicated projects. Obtain the appropriate forms from DPW for payment requests, change orders, substantial completion, etc.

Submittals

Outline procedures for shop drawing, product data, samples, etc. DPW Field Representative should be included for receipt of approved submittals.

Quality Control Services

The State typically pays the cost of normal testing to include earthwork, paving, concrete and welding. Special tests may be specified to be performed at contractor expense. Payment for retesting of failed tests should be specified to be at cost of contractor.

Temporary Facilities

For remodeling and additions, temporary utilities may be arranged for through the Owner and utility charges can be paid for by the Owner. For new construction, require the Contractor to provide and pay for temporary and construction utility costs through substantial completion. Provide for security and access as required.

Products and Substitutions

Define and outline as required including details relating to warranties. DPW prefers no substitutions after bid date except where products are unavailable within construction schedule.

Project Finalization/Start-up

****FOR PROJECTS WITH OPERATING SYSTEMS AND EQUIPMENT, SUCH AS HVAC, CERTAIN ELECTRICAL AND CONTROL SYSTEMS, ETC., THE APPROPRIATE DIVISION / SECTION(S) OF THE PROJECT SPECIFICATIONS SHALL INCLUDE A STATEMENT SIMILAR TO THE FOLLOWING.**

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 and remain at the site until the total system operation is acceptable and understood by the agency's representative. 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, the contractor shall prepare a written statement of acceptance explaining same for his signature. The statement might read as follows:

I, the Contractor, associated factory representative and sub-contractors, have started each system and the total system; and have proven their normal operation to the agency's representative and have instructed him in the operation and maintenance thereof.

Agency's Representative

Contractor

Signature

Signature

Date

Date

Project Closeout

Outline closeout procedures. Require accurate and complete "As-Built" drawings. Require accurate record keeping and a listing of products, subcontractors, supplier and/or manufacturers. Require maintenance manuals and instructions to Owner's operating and maintenance personnel. Require complete final cleaning. Normally two copies of maintenance manuals will be required. For projects with complex equipment and systems include project finalization and start-up requirements.

****FOR PROJECTS IN IDAHO STATE BUILDING AUTHORITY BUILDINGS, INCLUDE THE FOLLOWING PROVISION PERTAINING TO WARRANTIES AND GUARANTEES.**

Contractor agrees that all warranties and guarantees of materials, equipment and workmanship to the Owner shall also be for the specific benefit of the Idaho State Building Authority and, specifically agrees for itself and all of its subcontractors and suppliers that any and all provisions of any warranty or guaranty may be enforced by the Owner, the Idaho State Building Authority or any of its assignees or successors in interest.

Instructions for Uploading Files to Blueprint Specialties (WWW.DOCUPROJECT.COM)

1. **Right** mouse click on the **Start** button and select **Explorer**.
2. Type **ftp.bpsboise.com** in the address bar and hit enter.
3. For User name type **DPW**
4. For Password type **dpw1!**
5. You can now drag and drop or copy and paste your folders or files to the ftp site.
6. Please call us at 377-0294 when completed.

END OF GENERAL REQUIREMENTS

**TECHNICAL SPECIFICATIONS
DIVISION 1 - GENERAL REQUIREMENTS**

DIVISION 1 GENERAL REQUIREMENTS

SECTION 011000 - SUMMARY OF WORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including Fixed Price Construction Contract and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 1. Project information.
 2. Work covered by Contract Documents.
 3. Phased construction.
 4. Work by Owner.
 5. Work under separate contracts.
 6. Future work.
 7. Owner-furnished products.
 8. Contractor-furnished, Owner-installed products.
 9. Access to site.
 10. Coordination with occupants.
 11. Work restrictions.
 12. Specification and drawing conventions.
 13. Miscellaneous provisions.
 14. General Security Requirements
 15. 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 Project No. 19107 CSI: Entry Access Controls Phase II, College of Southern Idaho, Twin Falls, Idaho
 1. Project Location: College of Southern Idaho, Twin Falls, Idaho
- B. Owner: Idaho Division of Public Works
 1. Owner's Representative: John Parham Office:(208) 332-1909
Mobile: (208) 867-0267
- C. Agency: College of Southern Idaho
 1. Agency's Representative: Theo Schut Office: (208) 732-6610
Mobile: (208) 219-3365

D. Design Professional:

1. Matthew N. Bradley P.E.

Office: (208) 523-2862

Mobile: (208) 589-5998

1.4 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of Project is defined by the Contract Documents and consists of the following:

1. A description of the work includes the improvement of the security and safety of the Fine Arts Building, Health Sciences and Humans service Building, Physical Education Building and Canyon Building by converting all main keyed entry points to a keyless system and adding security cameras to building entrances.

B. 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. Contractor's use of Project site is limited only by Owner's right to perform work or to retain other contractors on portions of Project, and by use of facility by building tenants in existing tenant improvement Projects.

B. Use of Site: Limit use of project site to designated area of storage located near the baseball fields. Do not disturb portions of project site beyond areas in which the Work is not indicated.

1. Driveways, Walkways and Entrances: Keep driveways, sidewalks, loading areas, 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 indicated on the Contract Document and as designed by the Owner.

d. Maintain clear access to project at all times for firefighting equipment. Maintain exit ways from existing building required by authorities having jurisdiction.

- e. Signs: Provide signs adequate to direct visitors.
 - 1) Do not install, or allow to be installed, signs other than specified sign(s) and signs identifying the principal entities involved in the project.
- 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 roof areas and any staging areas throughout the project.

1.7 COORDINATION WITH OCCUPANTS

- A. Full Owner Occupancy: Owner will occupy site and adjacent building(s) 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 exits.
 - 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, they need to notify the Owner and Design Professional immediately for verification of damages. If the contractor fails to notify the Owner and Design Professional 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. On-Site Work Hours: Limit work in the existing building to normal business working hours of 8:00 a.m. to 5:00 p.m., Monday through Friday, unless otherwise indicated.
 - 1. Weekend hours: may be worked at contractor's discretion.
 - 2. Early morning or late evening hours may be worked at contractor's discretion. Access shall be coordinated with CSI Security Office.
 - 3. Hours for utility shutdowns: may occur between 08:00 and 17:00 and not during testing timeframes.
 - 4. Hours for noisy or hazardous activity may occur during normal business working hours of 8:00 a.m. to 5:00 p.m., Monday through Friday, unless otherwise indicated.

- C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:
 - 1. Notify College of Southern Idaho seven (7) days in advance of proposed utility interruptions.
 - 2. Obtain College of Southern Idaho's written permission before proceeding with utility interruptions.
- D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner.
 - 1. Notify College of Southern Idaho not less than seven (7) days in advance of proposed disruptive operations.
 - 2. Obtain College of Southern Idaho's written permission before proceeding with disruptive operations.
- E. Hazardous Materials: Notify the Design Professional and Owner immediately upon discovery of existing hazardous materials.
- F. Nonsmoking Building: Smoking is not permitted within the building on College of Southern campus.
- G. Controlled Substances: Use of tobacco products and other controlled substances is not permitted per Section 72-1717, Idaho Code.
- H. Employee Identification: Contractor shall provide identification tags for Contractor personnel working on Project site. Require personnel to always use identification tags.
- I. Employee Screening: Comply with Owner's requirements for drug and background screening of Contractor personnel working on Project site.
 - 1. Maintain list of approved screened personnel with Owner's representative.
- J. Contractor Parking: Shall be limited to parking area near the baseball fields.
- K. On Owner/Tenant occupied projects, maintain cleanliness in areas adjacent to and surrounding the construction area to the satisfaction of the Owner at all times.
- L. On Owner/Tenant occupied projects, ensure deliveries and contractor work access are in accordance with previous agreement with Owner and/or as indicated in the Contract Documents.

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 TESTING AND INSPECTION

- A. Notify Owner/Design Professional at least 24 hours prior to commencement of Work requiring special inspection.

1.12 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 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 1 General Requirements: Requirements of Sections in Division 1 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 and scheduled on Drawings.
 - 3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

PART 2 - PRODUCTS (NOT USED)

PART 3 - PRODUCTS (NOT USED)

END OF SECTION 011000

SECTION 012300 - ALTERNATES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for alternates.

1.2 DEFINITIONS

- A. 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 or credit for each alternate is the net addition to or deduction from 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. Base Bid: Canyon Building Convert all main keyed entry points to a keyless system and add security cameras.
- B. Alternate No. 1: Health Science and Human Service Building convert all main keyed entry points to a keyless system and add security cameras.
- C. Alternate No. 2: Physical Education Building convert all main keyed entry points to

- a keyless system and add security cameras system and add security cameras.
- D. Alternate No. 3: Fine Arts Building convert all main keyed entry points to a keyless system and add security cameras system and add security cameras.
- E. Alternate No. 4: Key shop Building convert all main keyed entry points to a keyless system and add security cameras system and add security cameras.

END OF SECTION 012300

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 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 Design Professionals and owners.
- h. Material test reports from a qualified testing agency, indicating and interpreting test results for compliance with requirements indicated.
 - i. 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.
 - j. Cost information, including a proposal of change, if any, in the Contract Sum.
 - k. 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.
 - l. 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. Design Professional's Action: If necessary, Design Professional will request additional information or documentation for evaluation within seven (7) days of receipt of a request for substitution. Design Professional will notify Contractor of acceptance or rejection of proposed substitution within seven (7) days of receipt of additional information or documentation, whichever is later.
- a. Forms of Acceptance: Change Order, Construction Change Directive, or Design Professional's Supplemental Instructions for minor changes in the Work.
 - b. Use product specified if Design Professional 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: Design Professional will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not

satisfied, Design Professional 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 012500

SECTION 012600 – CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including other Division 1 Specification sections, apply to this section.

1.2 SUMMARY

- A. This section specifies administrative and procedural requirements for handling and processing Contract modifications.
- B. Related Sections: The following sections contain requirements that relate to this section:
 - 1. Division 1 Section "Submittal Procedures" for requirements for the Contractor's Construction Schedule.
 - 2. Division 1 Section "Payment Procedures" for administrative procedures governing applications for payment.
 - 3. Division 1 Section "Substitution Procedures" for administrative procedures for handling requests for substitutions made after award of the Contract.

1.3 MINOR CHANGES IN THE WORK

- A. Supplemental instructions authorizing minor changes in the Work, not involving an adjustment to the Contract Sum or Contract Time, will be issued by the Design Professional's Supplemental Instructions form.

1.4 CHANGE ORDER PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Proposed changes in the Work that will require adjustment to the Contract Sum or Contract Time will be issued by the Design Professional, with a detailed description of the proposed change and supplemental or revised Drawings and Specifications, if necessary.
 - 1. Proposal requests issued by the Design Professional are for information only. Do not consider them instruction either to stop work in progress, or to execute the proposed change.
 - 2. Unless otherwise indicated in the proposal request, within 10 days of receipt of the proposal request, submit to the Design Professional for the Owner's review an estimate of cost necessary to execute the proposed change.
 - a. Include a list of quantities of products to be purchased and unit costs, along with the total amount of purchases to be made. Where requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include a statement indicating the effect the proposed change in the Work will have on the Contract Time.

3. A Proposal Request issued by the design professional will be used for Owner initiated requests
- B. Contractor-Initiated Change Order Proposal Requests: When latent or other unforeseen conditions require modifications to the Contract, the Contractor may propose changes by submitting a request for a change to the Design Professional.
1. Include a statement outlining the 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 Contract Time.
 2. Include a list of quantities of products to be purchased and unit costs along with the total amount of purchases to be made. Where requested, furnish survey data to substantiate quantities.
 3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 4. Comply with requirements in Section "Product Substitutions" if the proposed change in the Work requires the substitution of one product or system for a product or system specified.

1.5 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: When the Owner and Contractor are not in total agreement on the terms of a Change Order Proposal, the Design Professional may issue a Construction Change Directive instructing the Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
1. The Construction Change Directive will contain a complete description of the change in the Work and designate the method to be followed to determine change in the Contract Sum or 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 the change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.
- C. CCD also used for Aquick approval@ by field representative, A/E and contractor, etc. within field representative's limits.

1.6 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Work Changes 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.

PART 2 - PRODUCTS (NOT USED)

DPW PROJECT NO. 19107
CSI: Entry Access Controls, Phase II
College of Southern Idaho (CSI)
Twin Falls, Idaho

April 2024

PART 3 - EXECUTION (NOT USED)

END OF SECTION 012600

SECTION 012900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

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

1.2 SCHEDULE OF VALUES (SOV)

- A. Coordinate preparation of the Schedule of Values with preparation of the 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 "schedule of values" form to Division of Public Works seven days after contract is approved.
 - 2. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Payment Procedures and progress reports. Provide multiple line items for principal subcontract amounts where needed.
 - 3. Provide a separate line item in the Schedule of Values for each part of the Work where Payment Procedures 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.
 - 4. Allowances: Provide a separate line item in the Schedule of Values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
 - 5. Overhead Costs: Include total cost and proportionate share of general overhead and profit for each line item.
 - 6. 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.
 - 7. Closeout Costs. Include separate line items under Contractor and principal subcontracts for Project closeout requirements in an amount totaling five percent (5%) of the Contract Sum and subcontract amount.
 - 8. Review and approval by the Design Professional and Owner (DPW's Project Manager and DPW's Field Representative) is required prior to the first payment application.

1.3 PAYMENT PROCEDURES

- A. Each Pay Application or Invoice shall be submitted via the OMS under the 'Cost Tracking/Contract Mgmt.' module where they will be electronically approved by the

- Contractor, Design Professional, DPW Field Representative, DPW Project Manager, and DPW Senior Field Representative. The Schedule of Value must be included and attached in OMS with the Invoice.
- 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 first day 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. 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).
- E. Payment Application at Substantial Completion: After Design Professional issues the Certificate of Substantial Completion, upload a Payment Application showing 100 percent completion for portion of the Work claimed as substantially complete and Retainage will still be held by the Owner.
- F. 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. Authority Having Jurisdiction/Division of Boulding Safety (AHJ/DBS) inspection approval/occupancy permit.
12. Any and all other items required by DPW under the applicable contract requirements.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 012900

PART 1 - SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 2 - GENERAL

2.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including Fixed Price Construction Contract and other Division 1 and Division 26 Specification Sections apply to this Section.

2.2 SUMMARY

- A. This Section includes administrative and supervisory requirements necessary for coordinating construction operations including, but not necessarily limited to, the following:
 - 1. General project 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.

2.3 DEFINITIONS

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

2.4 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.

2.5 GENERAL COORDINATION PROCEDURES

- A. **Buildings are to remain 100% occupied and emergency egress exiting maintained.**

- B. Coordinate construction operations included in various Sections of these Specifications to assure efficient and orderly installation of each part of the Work. Coordinate construction operations included under different Sections that depend on each other for proper installation, connection, and operation.
 - 1. Schedule construction operations in the 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.

- C. Where necessary, prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and attendance at meetings.
 - 1. Prepare similar memoranda for the Owner and separate contractors where coordination of their work is required.

- D. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and assure 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. Preinstallation conferences.
 - 7. Project closeout activities.
 - 8. Startup and adjustment of systems.

2.6 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 architectural, 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 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. Electrical Work: Show the following:
 - a. Location of pull boxes and junction boxes dimensioned from column center lines.
 3. 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: DWG, Version 2013 or later, operating in Microsoft Windows operating system.
 3. File Submittal Format: Submit or post coordination drawing files using format same as file preparation 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 AutoCad DWG format, version 2013 or later.
 5. Contractor shall execute a data licensing agreement in the form of Agreement acceptable to Owner and Design Professional.

2.7 REQUESTS FOR INFORMATION (RFIS)

- 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. RFI subject.
 3. Specification Section number and title and related paragraphs, as appropriate.
 4. Drawing number and detail references, as appropriate.
 5. Field dimensions and conditions, as appropriate.
 6. Contractor's suggested resolution. If Contractor's solution(s) impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
 7. Attachments: Include 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 Proposal 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.
 4. On receipt of Design Professional's action, review response and notify Design Professional within seven (7) days if Contractor disagrees with response.
 5. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
 6. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.

2.8 DIGITAL PROJECT MANAGEMENT PROCEDURES

- A. Design Professional's Data Files Are Available: Design Professional will provide Design Professional's CAD drawing digital data files for Contractor's use during

- construction.
1. Digital Drawing Software Program: Contract Drawings are available in Autocad.
 2. The following digital data files will be furnished for each appropriate discipline:
 - a. Floor plans.
 - b. Reflected ceiling plans.
 - c. Site plans
- B. 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:
 2. Compilation of Project data, including Contractor, subcontractors, Design Professional, Design Professional's consultants, Owner, and other entities involved in Project.
 3. 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.
 4. Document workflow planning, allowing customization of workflow between project entities.
 5. 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, Construction Change Directives, and Change Orders.
 6. Tracking status of each Project communication in real time, and log time and date when responses are provided.
 7. Handling PDFs or similar file formats, allowing markups by each entity. Provide security features to lock markups against changes once submitted.
 8. Processing and tracking of payment applications.
 9. Processing and tracking of contract modifications.
 10. Creating and distributing meeting minutes.
 11. Document management for Drawings, Specifications, and coordination drawings, including revision control.
 12. Management of Daily Field Reports
 13. Management of construction progress photographs.
- C. 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.

2.9 PROJECT MEETINGS

- A. General: Schedule and conduct meetings and conferences at Project site unless otherwise indicated.
- B. Preconstruction Conference: The Owner (DPW) will schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner, Agency and Design Professional.
 - 1. Attendees: Authorized representatives of Owner, Agency, Design Professional, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties 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 meeting minutes and will record and distribute via the Owners web-based management software.
- C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity that requires 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 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. Possible conflicts.
 - j. Compatibility problems.
 - k. Time schedules.
 - l. Weather limitations.
 - m. Manufacturer's written instructions.
 - n. Warranty requirements.
 - o. Compatibility of materials.
 - p. Acceptability of substrates.
 - q. Temporary facilities and controls.
 - r. Space and access limitations.
 - s. Regulations of authorities having jurisdiction.
 - t. Testing and inspecting requirements.
 - u. Installation procedures.
 - v. Coordination with other work.
 - w. Required performance results.
 - x. Protection of adjacent work.
 - y. 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: Design Professional 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 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) Status of submittals.
 - 4) Status of sustainable design documentation.
 - 5) Deliveries.
 - 6) Of -site fabrication.
 - 7) Access.
 - 8) Site utilization.
 - 9) Temporary facilities and controls.
 - 10) Progress cleaning.
 - 11) Quality and work standards.
 - 12) Status of correction of deficient items.
 - 13) Field observations.
 - 14) Status of RFIs.
 - 15) Status of proposal requests.
 - 16) Pending changes.
 - 17) Status of Change Orders.
 - 18) As-built Updates.
 - 19) Pending claims and disputes.
 - 20) Documentation of information for payment requests.

4. Minutes: Design Professional responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.
 - a. Schedule Updating: 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.

PART 3 - PRODUCTS (NOT USED)

PART 4 - EXECUTION (NOT USED)

END OF SECTION 013100

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. Contractor to initiate the process via "Construction Management", then "Submittal" tab within the website.
- E. PDF Submittals: Upload submittals as PDF package, incorporating complete information into each PDF file. Name PDF file with submittal number.
- F. 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 Web-Based Project software website. 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. 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.
 6. 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.
 7. 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 one 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 three 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 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.

1.8 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. PDF Submittals: Design Professional will indicate, via markup on each submittal, the appropriate action.

2. 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) Approved, Pending, Overdue, Complete, or Rejected.
 - B. Informational Submittals: Design Professional will review each submittal and will not return it, or will return it if it does not comply with requirements. Design Professional will forward each submittal to appropriate party.
 - C. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Design Professional.
 - D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be rejected for resubmittal without review.
 - E. Design Professional will return without review submittals received from sources other than Contractor.
 - F. Submittals not required by the Contract Documents will be returned by Design Professional without action.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 013300

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 1 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. 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.
- D. 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.
- E. Source Quality-Control Testing: Tests and inspections that are performed at the

source, e.g., plant, mill, factory, or shop.

- F. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- G. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- H. 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).
- I. Experienced: When used with an entity or individual, "experienced" means having successfully completed a minimum of 10 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 20 days of Notice to Proceed and not less than 5 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."

- 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. 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. 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.
- D. 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.
- E. 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.
- F. 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.
- G. 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.
 - 2. Demolish and remove mockups when directed unless otherwise indicated.

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

1. Not required for this project.

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 Design Professional.
 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 014000

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 Design Professional, testing agencies, and authorities having jurisdiction.
- B. 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.
- C. 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. Project Identification and Temporary Signs: Show fabrication and installation details, including plans, elevations, details, layouts, typestyles, graphic elements, and message content.

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.

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 1 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.

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.
 - 2. 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.

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. Parking: Use designated areas of Owner's existing parking areas for construction personnel.
- C. 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.

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

signs and lighting.

- E. 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 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

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Section 017700 "Closeout Procedures."

END OF SECTION 015000

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.

PART 3 - EXECUTION (NOT USED)

END OF SECTION 016000

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 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 minimize 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 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.

3.7 STARTING AND ADJUSTING

- A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- B. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.
- C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- D. Manufacturer's Field Service: Comply with qualification requirements in

Section 014000 "Quality Requirements."

3.8 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 017300

SECTION 017419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for the following:
 - 1. Salvaging nonhazardous demolition and construction waste.
 - 2. Recycling nonhazardous demolition and construction waste.
 - 3. Disposing of nonhazardous demolition and construction waste.

1.2 DEFINITIONS

- A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.
- B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.
- C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.
- D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.
- E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.
- F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

1.3 ACTION SUBMITTALS

- A. Waste Management Plan: Upload plan within 7 days of date established for commencement of the Work

1.4 INFORMATIONAL SUBMITTALS

- A. Waste Reduction Progress Reports: Concurrent with each Application for Payment, upload report. Include the following information:
 - 1. Material category.
 - 2. Generation point of waste.
- B. Waste Reduction Calculations: Before request for Substantial Completion, submit calculated end-of-Project rates for salvage, recycling, and disposal as a percentage of total waste generated by the Work.

- C. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.
- D. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.
- E. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.
- F. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.
- G. Qualification Data: For waste management coordinator.

1.5 QUALITY ASSURANCE

- A. Waste Management Coordinator Qualifications: Experienced firm, with a record of successful waste management coordination of projects with similar requirements.
- B. Waste Management Conference: Conduct conference at Project site to comply with requirements in Section 013100 "Project Management and Coordination."

1.6 WASTE MANAGEMENT PLAN

- A. General: Develop a waste management plan according to ASTM E 1609 and requirements in this Section. Plan shall consist of waste identification, waste reduction work plan, and cost/revenue analysis. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.
- B. Waste Identification: Indicate anticipated types and quantities of waste generated by the Work. Include estimated quantities and assumptions for estimates.
- C. Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.
 - 1. Salvaged Materials for Reuse: For materials that will be salvaged and reused in this Project, describe methods for preparing salvaged materials before incorporation into the Work.
 - 2. Salvaged Materials for Sale: For materials that will be sold to individuals and organizations, include list of their names, addresses, and telephone numbers.
 - 3. Salvaged Materials for Donation: For materials that will be donated to individuals and organizations, include list of their names, addresses, and telephone numbers.
 - 4. Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.

5. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.
6. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location where materials separation will be performed.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

- A. General: Implement approved waste management plan. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.
- B. Waste Management Coordinator: Engage a waste management coordinator to be responsible for implementing, monitoring, and reporting status of waste management work plan
- C. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work occurring at Project site.
 1. Distribute waste management plan to everyone concerned within 7 days of submittal return.
 2. Distribute waste management plan to entities when they first begin work on-site. Review plan procedures and locations established for salvage, recycling, and disposal.
- D. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
 1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged, recycled, reused, donated, and sold.
 2. Comply with Section 015000 "Temporary Facilities and Controls" for controlling dust and dirt, environmental protection, and noise control.

3.2 SALVAGING DEMOLITION WASTE

- A. Salvaged Items for Reuse in the Work:
 1. Clean salvaged items.
 2. Pack or crate items after cleaning. Identify contents of containers.
 3. Store items in a secure area until installation.
 4. Protect items from damage during transport and storage.
 5. Install salvaged items to comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make items functional for use indicated.
- B. Salvaged Items for sale not permitted on Project site.

- C. Salvaged Items for Owner's Use:
 - 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 on-site
 - 5. Protect items from damage during transport and storage.

3.3 RECYCLING WASTE, GENERAL

- A. General: Recycle paper and beverage containers used by on-site workers.
- B. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical according to approved construction waste management plan.
 - 1. Provide appropriately marked containers or bins for controlling recyclable waste until they are removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.
 - a. Inspect containers and bins for contamination and remove contaminated materials if found.
 - 2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
 - 3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
 - 4. Store components off the ground and protect from the weather.
 - 5. Remove recyclable waste from Owner's property and transport to recycling receiver or processor.

3.4 RECYCLING DEMOLITION WASTE

- A. Metals: Separate metals by type.
 - 1. Structural Steel: Stack members according to size, type of member, and length.
 - 2. Remove and dispose of bolts, nuts, washers, and other rough hardware.
- B. Conduit: Reduce conduit to straight lengths and store by type and size.

3.5 RECYCLING CONSTRUCTION WASTE

- A. Packaging:
 - 1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
 - 2. Polystyrene Packaging: Separate and bag materials.
 - 3. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
 - 4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.

- B. Wood Materials:
 - 1. Clean Cut-Offs of Lumber: Grind or chip into small pieces.
 - 2. Clean Sawdust: Bag sawdust that does not contain painted or treated wood.

3.6 DISPOSAL OF WASTE

- A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.
 - 1. Except as otherwise specified, do not allow waste materials that are to be disposed of 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 waste materials.
- C. Burning: Burning of waste materials is permitted only at designated areas on Owner's property, provided required permits are obtained. Provide full-time monitoring for burning materials until fires are extinguished.
- D. Disposal: Remove waste materials and dispose of at designated spoil areas on Owner's property.
- E. Disposal: Remove waste materials from Owner's property and legally dispose of them.

END OF SECTION 017419

SECTION 017419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for the following:
 - 1. Salvaging nonhazardous demolition and construction waste.
 - 2. Recycling nonhazardous demolition and construction waste.
 - 3. Disposing of nonhazardous demolition and construction waste.

1.2 DEFINITIONS

- A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.
- B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.
- C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.
- D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.
- E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.
- F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

1.3 ACTION SUBMITTALS

- A. Waste Management Plan: Upload plan within 7 days of date established for commencement of the Work

1.4 INFORMATIONAL SUBMITTALS

- A. Waste Reduction Progress Reports: Concurrent with each Application for Payment, upload report. Include the following information:
 - 1. Material category.
 - 2. Generation point of waste.
- B. Waste Reduction Calculations: Before request for Substantial Completion, submit calculated end-of-Project rates for salvage, recycling, and disposal as a percentage of total waste generated by the Work.

- C. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.
- D. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.
- E. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.
- F. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.
- G. Qualification Data: For waste management coordinator.

1.5 QUALITY ASSURANCE

- A. Waste Management Coordinator Qualifications: Experienced firm, with a record of successful waste management coordination of projects with similar requirements.
- B. Waste Management Conference: Conduct conference at Project site to comply with requirements in Section 013100 "Project Management and Coordination."

1.6 WASTE MANAGEMENT PLAN

- A. General: Develop a waste management plan according to ASTM E 1609 and requirements in this Section. Plan shall consist of waste identification, waste reduction work plan, and cost/revenue analysis. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.
- B. Waste Identification: Indicate anticipated types and quantities of waste generated by the Work. Include estimated quantities and assumptions for estimates.
- C. Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.
 - 1. Salvaged Materials for Reuse: For materials that will be salvaged and reused in this Project, describe methods for preparing salvaged materials before incorporation into the Work.
 - 2. Salvaged Materials for Sale: For materials that will be sold to individuals and organizations, include list of their names, addresses, and telephone numbers.
 - 3. Salvaged Materials for Donation: For materials that will be donated to individuals and organizations, include list of their names, addresses, and telephone numbers.
 - 4. Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.

5. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.
6. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location where materials separation will be performed.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

- A. General: Implement approved waste management plan. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.
- B. Waste Management Coordinator: Engage a waste management coordinator to be responsible for implementing, monitoring, and reporting status of waste management work plan
- C. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work occurring at Project site.
 1. Distribute waste management plan to everyone concerned within 7 days of submittal return.
 2. Distribute waste management plan to entities when they first begin work on-site. Review plan procedures and locations established for salvage, recycling, and disposal.
- D. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
 1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged, recycled, reused, donated, and sold.
 2. Comply with Section 015000 "Temporary Facilities and Controls" for controlling dust and dirt, environmental protection, and noise control.

3.2 SALVAGING DEMOLITION WASTE

- A. Salvaged Items for Reuse in the Work:
 1. Clean salvaged items.
 2. Pack or crate items after cleaning. Identify contents of containers.
 3. Store items in a secure area until installation.
 4. Protect items from damage during transport and storage.
 5. Install salvaged items to comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make items functional for use indicated.
- B. Salvaged Items for sale not permitted on Project site.

- C. Salvaged Items for Owner's Use:
 - 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 on-site
 - 5. Protect items from damage during transport and storage.

3.3 RECYCLING WASTE, GENERAL

- A. General: Recycle paper and beverage containers used by on-site workers.
- B. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical according to approved construction waste management plan.
 - 1. Provide appropriately marked containers or bins for controlling recyclable waste until they are removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.
 - a. Inspect containers and bins for contamination and remove contaminated materials if found.
 - 2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
 - 3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
 - 4. Store components off the ground and protect from the weather.
 - 5. Remove recyclable waste from Owner's property and transport to recycling receiver or processor.

3.4 RECYCLING DEMOLITION WASTE

- A. Metals: Separate metals by type.
 - 1. Structural Steel: Stack members according to size, type of member, and length.
 - 2. Remove and dispose of bolts, nuts, washers, and other rough hardware.
- B. Conduit: Reduce conduit to straight lengths and store by type and size.

3.5 RECYCLING CONSTRUCTION WASTE

- A. Packaging:
 - 1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
 - 2. Polystyrene Packaging: Separate and bag materials.
 - 3. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
 - 4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.

- B. Wood Materials:
 - 1. Clean Cut-Offs of Lumber: Grind or chip into small pieces.
 - 2. Clean Sawdust: Bag sawdust that does not contain painted or treated wood.

3.6 DISPOSAL OF WASTE

- A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.
 - 1. Except as otherwise specified, do not allow waste materials that are to be disposed of 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 waste materials.
- C. Burning: Burning of waste materials is permitted only at designated areas on Owner's property, provided required permits are obtained. Provide full-time monitoring for burning materials until fires are extinguished.
- D. Disposal: Remove waste materials and dispose of at designated spoil areas on Owner's property.
- E. Disposal: Remove waste materials from Owner's property and legally dispose of them.

END OF SECTION 017419

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 1 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 1 Sections, including as-built documents which indicate any field revisions made to the construction documents, operation and maintenance manuals, damage or settlement surveys, property surveys, and similar final record information.
 3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents. Submittals shall be both hard and electronic copies as requested by the Agency.
 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 sustainable design submittals not previously submitted.
 6. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
 7. 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.
 8. Submit O&M Manuals for compliance with the contract documents. Submittals shall be both hard and electronic copies as requested by the Agency.
- 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. Retain the subparagraph below if default submittal format in Section 013300 "Submittal Procedures" is not appropriate.
 3. 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.
 - c. Web-based project software upload. Utilize software feature for creating and updating list of incomplete items (punch list).

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 on digital media acceptable to Design Professional.
- 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, 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."

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 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 017700

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 and remain at the site until the total system operation is acceptable and understood by the agency's representative. 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, the contractor shall prepare a written statement of acceptance explaining same for his signature. The statement might read as follows:

I, the Contractor, associated factory representative and sub-contractors, have started each system and the total system; and have proven their normal operation to the agency's representative and have instructed him in the operation and maintenance thereof.

Agency's Representative

Contractor

Signature

Signature

Date

Date

SECTION 017823 - 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 and Agency 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 on digital media acceptable to Design Professional or by uploading to web-based project software site. Enable reviewer comments on draft submittals.
 2. Submit three (3) paper copies. Design Professional will return two (2) copies.
- 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, 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 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. Precautions against improper use.
 - 9. 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. Design Professional's data and tests.
 - 8. 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.

1.6 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 piece 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.

1.7 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.

PART 2 - PRODUCTS (NOT USED)

DPW PROJECT NO. 19107
CSI: Entry Access Controls, Phase II
College of Southern Idaho (CSI)
Twin Falls, Idaho

April 2024

PART 3 - EXECUTION (NOT USED)

END OF SECTION 017823

SECTION 017839 - PROJECT AS-BUILT DOCUMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for project as-built documents, including the following:
 - 1. As-built Drawings.
 - 2. As-built Specifications.
 - 3. As-built Product Data.
- B. Related Requirements:
 - 1. 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 one set(s) of marked-up as-built prints.
 - 2. 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 and one of file prints onto DPW's Owners Web-based Management Software.
 - 3) Design Professional will indicate whether general scope of changes, additional information as-built, 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) Design Professional will review for completeness.
- B. As-built Specifications: Submit one paper copy of Project's Specifications, including addenda and contract modifications.
- C. As-built Product Data: Submit one paper copy 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 or electronic copies 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 as-built later.
 - b. Accurately as-built information in an acceptable drawing technique.
 - c. As-built data as soon as possible after obtaining it.
 - d. As-built 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 Work Change Directive.
 - k. Changes made following Design Professional's written orders.
 - l. Details not on the original Contract Drawings.
 - m. Field as-builts for variable and concealed conditions.
 - n. As-built information on the Work that is shown only schematically.
 3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at as-building 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 Design Professional. 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, Version 2010 operating system.
 3. Format: Annotated PDF electronic file.
 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 Design Professional for resolution.
 6. Design Professional will furnish Contractor with one set of digital data files of the Contract Drawings for use in as-building information.
 - a. See Section 013100 "Project Management and Coordination" for

- requirements related to use of Design Professional's digital data files.
 - b. Design Professional will provide data file layer information. As-built markups in separate layers.
- C. Format: Identify and date each as-built Drawing; include the designation "PROJECT 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.
 - 3. As-built 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 "PROJECT AS-BUILT DRAWINGS."
 - d. Name of Design Professional.
 - 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 as-built later.
 - 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
 - 3. As-built the name of manufacturer, supplier, Installer, and other information necessary to provide a as-built 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 and as-built Drawings where applicable.
- B. Format: Submit as-built Specifications as paper copy.

1.5 AS-BUILT PRODUCT DATA

- A. As-building: 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 as-built 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 and as-built Drawings where applicable.
- C. Format: Submit as-built Product Data as paper copy.
 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 Design Professional's reference during normal working hours.

PART 2 - PRODUCTS

PART 3 - EXECUTION

END OF SECTION 017839

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 format required for operation and maintenance manuals specified in Section 017823 "Operation and Maintenance Data."

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. Operating standards.
 - c. Equipment function.
 - d. Operating characteristics.
 - 2. Documentation: Review the following items in detail:
 - a. Systems and equipment operation manuals.
 - b. Systems and equipment maintenance manuals.
 - c. Product maintenance manuals.
 - d. Project Record Documents.
 - e. Identification systems.
 - f. Warranties and bonds.
 - g. Maintenance service agreements and similar continuing commitments.
 - 3. 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.
 - 4. Adjustments: Include the following:
 - a. Alignments
 - b. Checking adjustments

- c. Noise and vibration adjustments.
- d. Economy and efficiency adjustments.
- 5. Troubleshooting: Include the following:
 - a. Diagnostic instructions.
 - b. Test and inspection procedures.
- 6. 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.
- 7. 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.
 - 1. Training should be provided for no less than 4 hours of .
 - 2. Training session shall be recorded and video shall be given to CSI for future training purposes.
- 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 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.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 017900

DIVISION 7 THERMAL AND MOISTURE PROTECTION

DIVISION 7 THERMAL AND MOISTURE PROTECTION

SECTION 078400 - FIRESTOPPING

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of contract, Division 1 and Fixed Price Construction Contract (FPCC)

1.2 DESCRIPTION OF WORK

- A. Provide firestopping as indicated.
 - 1. Penetrations through corridor fire-rated walls for new wire and conduit.
 - 2. Penetrations through electric rooms and telephone rooms.
 - 3. Penetrations through any wall suspect to be a firewall.
 - 4. Penetrations through any wall the DBS building inspector requires.

1.3 QUALITY ASSURANCE

- A. General: Provide firestopping materials that expand to fill cavities or provide adhesion to substrates, and that will maintain seal under normal, expected movements of substrates.
- B. UL Classification: Provide firestopping materials that are currently classified with UL as AFill, Void, or Cavity Materials@, and AThrough Penetration Firestop Systems@.
- C. Fire Tested: Provide firestopping materials that have been tested in accordance with ASTM E814 AMethods for Fire Tests of Through-Penetration Firestops@ and UL 1479 AFire Tests of Through-Penetration Firestops@.
- D. Provide UL certification for the specific applications used on this project.

1.4 SUBMITTALS

- A. Product Data:
 - 1. Submit under manufacturer=s technical product data, including product description, technical data, and installation instructions.
- B. Maintenance Data:
 - 1. Include product data in maintenance manuals in accordance with requirements of Section 017000.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Deliver firestopping materials to job site in original, new, and unopened packages and containers bearing manufacturer=s name and a label identifying contents.

- B. Store firestopping materials out of weather, at temperature below 90 degrees F (32° C) and as recommended by manufacturer.

1.6 PROJECT CONDITIONS

- A. Foam: Store unmixed liquid components in their original, unopened containers at temperature of 65-80 degrees F (18-27° C) for 12 hours minimum before use.
- B. Use forced air ventilation when installing foam in areas having less than two cubic feet of free air for each pound of liquid mixture being foamed.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Provide the following firestopping materials or Design Professional approved equal:
 - 1. Foam: Dow Corning Fire Stop Foam or 3M fire protection products.
 - 2. Sealant: Dow Corning Fire Stop Sealant or 3M fire protection products.

2.2 MATERIALS

- A. Sealant: Provide ready-to-use fire protection penetration seal that will stop passage of fire, smoke, and water through fire-rated wall and floor penetrations and will cure in the presence of atmosphere moisture to produce durable and flexible seal, and will form airtight and watertight bonds with most common building materials in any combination, including cement, masonry, steel and aluminum.
- B. Composition: Provide one-part, ready-to-use materials with consistency of soft caulk at temperatures ranging from -35-160 degrees F (-37-71° C), and extension and compression properties of + or - 40% of original gap.
- C. Primer: Provide Dow Corning 1200 RTV prime coat, if required.
- D. Masking Tape: Provide pressure-sensitive adhesive tape as selected by installer.
- E. Foam: Provide 14 to 18 lbs/cu. ft. AFree foam@ density, two-part silicone elastomer, supplied in liquid A and B components colored black and off-white, respectively, for each identification.
- F. Mixing: Provide A and B components that when thoroughly mixed at room temperature in a 1:1 ratio by either weight or volume, will expand and cure to a foamed elastomer in one to five minutes.
- G. Dams: Provide alumina silicate fire-board, mineral fiberboard, mineral fiber mating, mineral fiber putty, duct tape, gypsum wallboard, type X, plywood or particle board, as selected by installer.

PART 3 EXECUTION

3.1 INSTALLATION OF SEALANT

- A. Applications: Use sealant for simple fire-rated walls.
- B. Preparation: Inspect surfaces to be sealed to establish that they are clean, dry, sound, and frost-free.
 - 1. Metal and Glass Surfaces: Clean with cloth saturated in non-alcohol solvent in accordance with label instruction.
 - 2. Priming: Test sealant adhesion to each substrate material. Apply primer to any surface showing poor adhesion.
 - 3. Exposed Seals: Use masking tape to cover finished substrate adjacent to sealant.
 - 4. Support:
 - a. Where required, support sealant with any common damming material, such as cardboard, duct tape, plastic foam, or backer rod.
 - b. Where required, support sealant with 3-inch thickness of mineral wool, inserted and compressed into opening.
- C. Installation: Cut sealant nozzle to desired size and puncture inner foil seal.
 - 1. 2-Hour Rated Seal: Apply sealant bead to depth of 1 2" by pushing bead in front of nozzle to fill void above support or, if mineral wood support is used, to a depth of 1/2" thick
 - 2. Tool sealant immediately after application and before skin forms. Immediately remove any masking tape used. Protect seal from any disturbance for 48 hours minimum.

3.2 INSTALLATION OF FOAM

- A. Applications: Use foam for complex fire-rated wall penetrations including multiple cables and multiple conduit and pipes.
- B. Preparation: Remove combustible materials and loose impediments from penetration openings and adjacent surfaces.
 - 1. Remove oil and other free liquids from penetration openings.
- C. Installation: Provide damming of penetration opening in accordance with manufacturer=s instructions.
 - 1. Sealing: Seal gaps and cracks left after damming materials are in place.
 - 2. Mixing: Stir parts A and B in their original containers. Combine with 1:1 ratio of Parts A and B. Stir resulting mixture thoroughly, either by hand or with power mixer.
 - 3. Foam Placement: Immediately after mixing, pour or inject liquid foam into penetration opening, not more than 1/3 full to compensate for expansion during cure. Follow manufacturer=s instructions explicitly.
 - a. When dispensing continuously, do not exceed measure snap time or 3 minutes, whichever is less.
 - b. If opening is not filled when shot reaches measured snap time or 3-minutes maximum, stop application for at least 15 minutes to allow foam to set.

4. Dam: Leave dam in place for 24 hours minimum to allow foam to fully cure.

3.3 FIELD QUALITY CONTROL

- A. Sealant: Inspect seal after 48 hours for complete adhesion, and seal and correct any deficiencies.
- B. Foam: Follow manufacturer=s installation instruction precisely, including 64-point field quality control checks which consist of foam color, foam cell structure, snap time, and free foam density.
 1. Inspect seal after 24 hours. Remove damming materials to inspect under site.
 2. Correct any deficiencies by adding foam or sealant. Re-inspect after 24-hours.
 3. Reinstall damming materials which are required to achieve fire rating.
- C. All material shall be legibly labeled with the date, name of firm performing the firestopping and product name with UL certification number and application instructions.

3.4 ADJUSTING AND CLEANING

- A. Sealant: Clean excess cured sealant from nonporous surfaces with commercial solvent such as naphtha mineral solvents, following instructions on container label.
- B. Foam: Clean spills of Part A and Part B liquid components with high-flash mineral spirit solvent, following instructions on container label. Trim excess foam with sharp knife or blade.
- C. Cleaning: Remove equipment, materials and debris. Leave area in undamaged clean conditions.

END OF SECTION 078400

SECTION 081314 - STANDARD STEEL DOORS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes non-rated and thermally insulated steel doors.
- B. Related Sections:
 - 1. Section 087100 - Door Hardware.
 - 2. Section 099000 - Painting and Coating: Field painting of doors.

1.2 REFERENCES

- A. American National Standards Institute:
 - 1. ANSI A250.8 - Recommended Specifications for Standard Steel Doors and Frames.
- B. ASTM International:
 - 1. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - 2. ASTM C1363 - Standard Test Method for the Thermal Performance of Building Assemblies by Means of a Hot Box Apparatus.
- C. Hollow Metal Manufacturers Association:
 - 1. HMMA 810 - Hollow Metal Doors.
- D. Steel Door Institute:
 - 1. SDI 108 - Recommended Selection and Usage Guide for Standard Steel Doors.

1.3 SUBMITTALS

- A. Section 013300 - Submittal Procedures: Requirements for submittals.
- B. Shop Drawings: Indicate door elevations, internal reinforcement, closure method, and cut-outs for glazing, and finishes.
- C. Product Data: Submit door configurations, location of cut-outs for hardware reinforcement.
- D. Manufacturer's Installation Instructions: Submit special installation instructions.

1.4 QUALITY ASSURANCE

- A. Perform Work in accordance with ANSI A250.8.
- B. NFPA 252; with neutral pressure level at 40 inches maximum above sill at 5 minutes into test
Air Leakage: Maximum 3.0 cfm/sf of door opening with 0.10 inch water gage pressure differential.

1.5 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing Products specified in this section with minimum three years documented experience.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Section 016000 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.
- B. Accept doors on site in manufacturer's packaging. Inspect for damage.
- C. Break seal on site to permit ventilation.

1.7 COORDINATION

- A. Section 013100 – Project Management and Coordination
- B. Coordinate Work with door opening construction, door frame, and door hardware installation.

PART 2 - PRODUCTS

2.1 STANDARD STEEL DOORS

A. Manufacturers:

- 1. Amweld Building Products, Inc.
- 2. Ceco Door Products.
- 3. Republic Builders Products.
- 4. Steelcraft.
- 5. Substitutions: Section 012500 – Substitution Procedures

B. Product Description:

- 1. Exterior Doors (Insulated): ANSI A250.8, SDI 108, 1-3/4 inch thick.
 - a. Level 3 - Extra heavy Duty, Model 1, full flush design.

2.2 COMPONENTS

- A. Face: Steel sheet in accordance with ANSI A250. SDI 108.
- B. End Closure: Channel, 0.04 inches thick, flush.
- C. Core:
 - 1. Exterior doors: polyurethane and vertical steel stiffeners.
- D. Thermal Insulated Door: Total insulation R-Value of 14, measured in accordance with ASTM C1363.

2.3 ACCESSORIES

- A. Astragals for Double Doors: Steel, T shaped, specifically for double doors.
- B. Primer: ANSI A250.10 rust inhibitive type.

2.4 FABRICATION

- A. Fabricate doors with hardware reinforcement welded in place.
- B. Attach astragal to one leaf of pairs of doors.

2.5 SHOP FINISHING

- A. Steel Sheet: Galvanized to ASTM A653/A653M A60.
- B. Primer: Baked.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 017300 - Execution: Verification of existing conditions before starting work.
- B. Verify opening sizes and tolerances are acceptable.

3.2 INSTALLATION

- A. Install doors in accordance with ANSI A250.8.
- B. Install door louvers, plumb and level.
- C. Coordinate installation of glass and glazing specified in Section 088000.
- D. Coordinate installation of doors with installation of hardware specified in Section 087100.
- E. Touch-up damaged shop finishes.

3.3 ERECTION TOLERANCES

- A. Section 014000 - Quality Requirements: Tolerances.
- B. Maximum Diagonal Distortion: 1/16 inch measured with straight edge, corner to corner.

3.4 ADJUSTING

- A. Section 017300 - Execution: Starting and adjusting.
- B. Adjust door for smooth and balanced door movement.

3.5 SCHEDULE

- A. Refer to Door Schedule.

END OF SECTION 081314

SECTION 084113 - ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes aluminum-framed storefronts including aluminum and glass doors and frames including hardware, glass.
- B. Related Sections:
 - 1. Section 087100 - Door Hardware: Mortised hardware reinforcement requirements affecting framing members.
 - 2. Section 088000 - Glazing.
 - 3. Section 099000 - Painting and Coating: Field painting of interior

1.2 REFERENCES

- A. Aluminum Association:
 - 1. AA ADM 1 - Aluminum Design Manual.
- B. American Architectural Manufacturers Association/Window & Door Manufacturers Association:
 - 1. AAMA/WDMA 101/I.S.2 - Specification for Windows, Doors and Unit Skylights.
 - 2. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum.
 - 3. AAMA 1503 - Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors and Glazed Wall Sections.
 - 4. AAMA CW-10 - Care and Handling of Architectural Aluminum from Shop to Site.
 - 5. AAMA SFM-1 - Aluminum Store Front and Entrance Manual.
- C. ASTM International:
 - 1. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
 - 2. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
 - 3. ASTM E283 - Standard Test Method for Determining the Rate of Air Leakage through Exterior Windows, Curtain Walls, and Doors under Specified Pressure Differences across the Specimen.
 - 4. ASTM E330 - Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
 - 5. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
- D. National Fenestration Rating Council Incorporated:
 - 1. NFRC 100 - Procedures for Determining Fenestration Product U-Factors.

1.3 SYSTEM DESCRIPTION

- A. Aluminum-framed storefront system includes tubular aluminum sections with supplementary internal support framing, aluminum and glass entrances, shop fabricated, factory finished, glass and glazing, related flashings, anchorage and attachment devices.
- B. System Assembly: Site assembled. Shop unitized assembly.

1.4 PERFORMANCE REQUIREMENTS

- A. System Design: Design and size components to withstand dead and live loads caused by positive and negative wind pressure acting normal to plane of wall, including building corners.
 - 1. As calculated in accordance with applicable code, as tested in accordance with ASTM E330.
- B. Deflection: Limit mullion deflection to 1/175 for spans less than 13'-6" and 1/240 plus 1/4 inch for spans over 13'-6" or flexure limit of glass of span; with full recovery of glazing materials.
- C. System Assembly: Accommodate without damage to components or deterioration of seals, movement within system, movement between system and peripheral construction, dynamic loading and release of loads, deflection of structural support framing.
- D. Air Infiltration: Limit air leakage through assembly to 0.06 cfm/min/sq ft of wall area, measured at reference differential pressure across assembly of 1.57 psf as measured in accordance with ASTM E283.
- E. Condensation Resistance Factor: CRF of not less than 45 when measured in accordance with AAMA 1503.
- F. Water Leakage: None, when measured in accordance with AAMA/WDMA 101/I.S.2 or ASTM E331 with test pressure difference of 20 percent of design pressure, with minimum differential of 2.86 lbf/sq ft and maximum of 12.00 lbf/sq ft.
- G. Thermal and Solar Heat Transmittance of Assembly (U Value and SHGC): Comply with ICC IECC for climate zone in which project is located.
- H. Expansion / Contraction: Provide for expansion and contraction within system components caused by cycling temperature range of 170 degrees F over 12 hour period without causing detrimental effect to system components and anchorage.
- I. System Internal Drainage: Drain water entering joints, condensation occurring in glazing channels, or migrating moisture occurring within system, to exterior by weep drainage network.

1.5 SUBMITTALS

- A. Section 013300 - Submittal Procedures: Submittal procedures.
- B. Shop Drawings: Indicate system dimensions, framed opening requirements and tolerances, affected related Work, expansion, contraction joint location, and details.
- C. Product Data: Submit component dimensions, describe components within assembly, anchorage and fasteners, glass and infill, door hardware, and internal drainage details.
- D. Design Data: Indicate framing member structural and physical characteristics, calculations, dimensional limitations.
- E. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

1.6 QUALITY ASSURANCE

- A. Perform Work in accordance with AAMA SFM-1 and AAMA MCWM-1 - Metal Curtain Wall, Window, Store Front and Entrance - Guide Specifications Manual.

- B. Surface Burning Characteristics:
 - 1. Foam Insulation: Maximum 75/450 flame spread/smoke developed index when tested in accordance with ASTM E84.
- C. Apply label from agency approved by authority having jurisdiction to identify each foam plastic insulation board.

1.7 QUALIFICATIONS

- A. Manufacturer and Installer: Company specializing in manufacturing aluminum glazing systems with minimum three years documented experience.
- B. Design structural support framing components under direct supervision of Professional Engineer experienced in design of this Work and licensed at Project location.

1.8 DELIVERY, STORAGE, AND PROTECTION

- A. Section 016000 - Product Requirements: Product storage and handling requirements.
- B. Handle Products of this section in accordance with AAMA MCWM-1 - Curtain Wall Manual #10.
- C. Protect finished aluminum surfaces with wrapping or strippable coating. Do not use adhesive papers or sprayed coatings which bond when exposed to sunlight or weather.

1.9 ENVIRONMENTAL REQUIREMENTS

- A. Section 016000 - Product Requirements.
- B. Do not install sealants or glazing materials when ambient temperature is less than 40 degrees F during and 48 hours after installation.

1.10 COORDINATION

- A. Section 013100 – Project Management and Coordination: Coordination and project conditions.
- B. Coordinate the Work with installation of air barrier, components or materials.

1.11 WARRANTY

- A. Section 017700 - Closeout Procedures: Product warranties and product bonds.
- B. Furnish five year manufacturer warranty for glazed units.

PART 2 - PRODUCTS

2.1 ALUMINUM-FRAMED STOREFRONTS

- A. Manufacturers:
 - 1. Trulite
 - 2. C.R. Laurence
 - 3. Kawneer Co., Inc.
 - 4. Vistawall Architectural Products.
 - 5. Substitutions: Section 012500 – Substitution Procedures

- B. Product Description:
 - 1. Aluminum Frame: 2 inches x 4- 1/2 inches thermally broken applied glazing stops; drainage holes; internal weep drainage system.
 - 2. Mullions: Profile of extruded aluminum with internal reinforcement of aluminum or shaped steel structural section.
 - 3. Doors: Aluminum framed glass doors; 1-3/4 inches thick, 5 inches wide top rail and vertical stiles, nominal 11 inch wide bottom rail; square glazing stops.

2.2 COMPONENTS

- A. Extruded Aluminum: ASTM B221; 6063 alloy, T5 temper typical, 6061 alloy, T6 temper for extruded structural members.
- B. Sheet Aluminum: ASTM B209, 5005 alloy, H15 or H34 temper.
- C. Steel Sections: ASTM A36/A36M; shaped to suit mullion sections, galvanized.
- D. Glass: Specified in Section 088000.
- E. Glazing Materials: Storefront manufacturer's standard types to suit application and to achieve weather, moisture, and air infiltration requirements.
- F. Flashings: Minimum 0.032 inch thick aluminum to match mullion sections where exposed.
- G. Sealant and Backing Materials:
 - 1. Sealant Used within System (Not Used for Glazing): Manufacturer's standard materials to achieve weather, moisture, and air infiltration requirements.
- H. Fasteners: Stainless or Hot-dip galvanized steel, standard with storefront manufacturer.

2.3 HARDWARE

- A. Lockset
 - 1. Schlage.
 - 2. No substitutions permitted
- B. Lock Cores 7 pin SFIC, F keyway
 - 1. Schlage.
 - 2. No substitutions permitted- All lock sets and cores shall be from same manufacturer.
- C. Hinges:
 - 1. McKinney (Continuous Hinge).
 - 2. Hager.
 - 3. Stanley
 - 4. Substitutions: Section 012500 – Substitution Procedures
- D. Cylinder Locks
 - 1. Schlage.
 - 2. No substitutions permitted.
- E. Exit Devices:
 - 1. Von Dupin 99.
 - 2. No substitutions permitted.
- F. Closers:
 - 1. LCN

2. No substitutions permitted.
- G. Gasket:
 1. Pemko.
 2. Zero.
 3. Substitutions: Section 012500 – Substitution Procedures

2.4 KEYING

- A. Door Locks: Provide blank cores to CSI for keying.
- B. Provide cylinder core and two keys.
- C. Owner shall coordinate with contractor to replace construction cores with new cores.

2.5 FABRICATION

- A. Fabricate components with minimum clearances and shim spacing around perimeter of assembly, yet enabling installation and dynamic movement of perimeter seal.
- B. Accurately fit and secure joints and corners. Make joints flush, hairline, and weatherproof.
- C. Prepare components to receive anchor devices. Fabricate anchors.
- D. Arrange fasteners and attachments to conceal from view.
- E. Prepare components with internal reinforcement for door hardware.
- F. Reinforce framing members for imposed loads.

2.6 SHOP FINISHING

- A. Color Anodized Aluminum Surfaces: AAMA 611, AA-M12C22A44 non-specular as fabricated mechanical finish, medium matte chemical finish, and Architectural Class I 0.7 mils dark bronze anodized coating.
- B. Concealed Steel Items: Galvanized to ASTM A123/A123M.
- C. Apply bituminous paint to concealed aluminum and steel surfaces in contact with cementitious or dissimilar metals.
- D. Shop Primer for Steel Components: SSPC Paint 25 red oxide.
- E. Touch-Up Primer for Galvanized Steel Surfaces: SSPC Paint 20 zinc rich.
- F. Extent of Finish:
 1. Apply factory coating to surfaces exposed at completed assemblies.
 2. Apply finish to surfaces cut during fabrication so no natural aluminum is visible in completed assemblies, including joint edges.
 3. Apply touch-up materials recommended by coating manufacturer for field application to cut ends and minor damage to factory applied finish.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 017300 - Execution: Coordination and project conditions.

- B. Verify dimensions, tolerances, and method of attachment with other Work.
- C. Verify wall openings and adjoining air and vapor seal materials are ready to receive Work of this Section.

3.2 INSTALLATION

- A. Install wall system in accordance with AAMA MCWM-1 - Metal Curtain Wall, Window, Store Front and Entrance - Guide Specifications Manual.
- B. Attach to structure to permit sufficient adjustment to accommodate construction tolerances and other irregularities.
- C. Provide alignment attachments and shims to permanently fasten system to building structure.
- D. Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional tolerances, aligning with adjacent Work.
- E. Provide thermal isolation where components penetrate or disrupt building insulation.
- F. Install sill flashings. Turn up ends and edges; seal to adjacent Work to form water tight dam.
- G. Coordinate attachment and seal of perimeter air and vapor retarder materials.
- H. Pack fibrous insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.
- I. Install integral flashings and integral joint sealers.
- J. Set thresholds in bed of mastic and secure.
- K. Install hardware using templates provided. Refer to Section 087100 for installation requirements.
- L. Install glass in accordance with manufacturer's recommendations.
- M. Coordinate installation of perimeter sealants per manufacturer's recommendations

3.3 ERECTION TOLERANCES

- A. Section 014000 - Quality Requirements: Tolerances.
- B. Maximum Variation from Plumb: 0.06 inches every 3 ft non-cumulative or 1/16 inches per 10 ft, whichever is less.
- C. Maximum Misalignment of Two Adjoining Members Abutting in Plane: 1/32 inch.

3.4 FIELD QUALITY CONTROL

- A. Section 017300 - Execution: Field inspecting, testing, adjusting, and balancing.
- B. Inspection to monitor quality of installation and glazing.
- C. Test to AAMA 501.

3.5 ADJUSTING

- A. Section 017300 - Execution: Testing, adjusting and balancing.

- B. Adjust operating hardware for smooth operation.

3.6 CLEANING

- A. Section 017700 – Closeout Procedures: Final cleaning.
- B. Remove protective material from pre-finished aluminum surfaces.
- C. Wash down surfaces with solution of mild detergent in warmwater, applied with soft, clean wiping cloths. Take care to remove dirt from corners. Wipe surfaces clean.
- D. Remove excess sealant by method acceptable to sealant manufacturer.

3.7 PROTECTION OF INSTALLED CONSTRUCTION

- A. Section 017300 - Execution: Protection of installed construction.
- B. Protect finished Work from damage.

END OF SECTION 084113

SECTION 087100 - DOOR HARDWARE

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes hardware for wood steel and aluminum doors
 - 1. Provide door gaskets, including weatherstripping and seals, and thresholds
- B. Related Sections:
 - 1. Section 081314 – Standard Steel Doors
 - 2. Section 084113 - Aluminum-Framed Entrances and Storefronts: Door hardware

1.2 REFERENCES

- A. American National Standards Institute:
 - 1. ANSI A156.1 - Butts and Hinges
 - 2. ANSI A156.2 - Bored and Preassembled Locks and Latches
 - 3. ANSI A156.3 - Exit Devices
 - 4. ANSI A156.4 - Door Controls - Closures
 - 5. ANSI A156.5 - Auxiliary Locks and Associated Products
 - 6. ANSI A156.6 - Architectural Door Trim
 - 7. ANSI A156.7 - Template Hinge Dimensions
 - 8. ANSI A156.12 - Interconnected Locks and Latches
 - 9. ANSI A156.15 - Closer Holder Release Devices
 - 10. ANSI A156.16 - Auxiliary Hardware
 - 11. ANSI A156.18 - Materials and Finishes
 - 12. ANSI A156.23 - Electromagnetic Locks
- B. Builders Hardware Manufacturers Association:
 - 1. BHMA Directory of Certified Products
- C. National Fire Protection Association:
 - 1. NFPA 80 - Standard for Fire Doors, Fire Windows
 - 2. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies
- D. Underwriters Laboratories Inc.:
 - 1. UL 10B - Fire Tests of Door Assemblies
 - 2. UL 305 - Panic Hardware
 - 3. UL - Building Materials Directory
- E. Intertek Testing Services (Warnock Hersey Listed):
 - 1. WH - Certification Listings

1.3 PERFORMANCE REQUIREMENTS

- A. Fire Rated Openings: Provide door hardware listed by UL or Intertek Testing Services (Warnock Hersey Listed), or other testing laboratory approved by applicable authorities
 - 1. Hardware: Tested in accordance with NFPA 252

1.4 SUBMITTALS

- A. Section 013300 - Submittal Procedures: Submittal procedures

- B. Shop Drawings:
 - 1. Indicate locations and mounting heights of each type of hardware, schedules, catalog cuts
 - 2. Submit manufacturer's parts lists, and templates
- C. Manufacturer's Installation Instructions: Submit special procedures, and perimeter conditions requiring special attention

1.5 CLOSEOUT SUBMITTALS

- A. Section 017300 – Closeout Procedures
- B. Project Record Documents: Record actual locations of installed cylinders and their master key code.
- C. Operation and Maintenance Data: Submit data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.
- D. Keys: Deliver with identifying tags to Owner by security shipment direct from hardware supplier

1.6 QUALITY ASSURANCE

- A. Perform Work in accordance with the following requirements:
 - 1. ANSI A156 series
 - 2. NFPA 80.
 - 3. UL 305.
- B. Furnish hardware marked and listed in BHMA Directory of Certified Products

1.7 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience
- B. Hardware Supplier: Company specializing in supplying commercial and institutional door hardware with minimum three years documented experience approved by primary hardware manufacturers.
 - 1. Hardware Supplier Personnel: Employ Architectural Hardware Consultant (AHC) to assist in work of this section.
- C. Products Requiring Electrical Connection: Listed and classified by Underwriters' Laboratories, Inc., as suitable for purpose specified and indicated.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Section 016000 - Product Requirements: Product storage and handling requirements
- B. Package hardware items individually with necessary fasteners, instructions, and installation templates, when necessary; label and identify each package with door opening code to match hardware schedule.

1.9 COORDINATION

- A. Section 017300 - Execution: Coordination and project conditions
- B. Coordinate Work with other directly affected sections involving manufacture or fabrication of internal reinforcement for door hardware and recessed items.
 - 1. Provide templates or actual hardware as required to ensure proper preparation of

doors and frames.

- C. Sequence installation to accommodate required utility connections.
- D. Coordinate Owner's keying requirements during course of Work

1.10 WARRANTY

- A. Section 017700 - Closeout Procedures: Product warranties and product bonds
- B. Furnish manufacturer standard warranty for locksets and door closers.

1.11 MAINTENANCE MATERIALS

- A. Section 017823 – Operation and Maintenance Data.
- B. Furnish special wrenches and tools applicable for each different and for each special hardware component.
- C. Furnish maintenance tools and accessories supplied by hardware component manufacturer.

PART 2 - PRODUCTS

2.1 DOOR HARDWARE

- A. Hinge Manufacturers:
 - 1. Stanley Commercial Hardware
 - 2. Ives
 - 3. Substitutions: Section 012500 – Substitution Procedures
- B. Lockset , Latch Set , and Cylinder Manufacturers:
 - Schlage - small format IC core Everest 29R.
 - 1. Schlage - small format IC core Everest 29R.
 - 2. Substitutions: Section 012500 – Substitution Procedures
- C. Exit Device Manufacturers:
 - 1. Von Duprin
 - 2. Substitutions: Section 012500 – Substitution Procedures

2.2 COMPONENTS

- A. General Hardware Requirements:
 - 1. Where not specifically indicated, comply with applicable ANSI A156 standard for type of hardware required.
 - 2. Furnish each type of hardware with accessories as required for applications indicated and for complete, finished, operational doors.
 - a. Templates: Furnish templates or physical hardware items to door and frame manufacturers sufficiently in advance to avoid delay in Work
 - b. Reinforcing Units: Furnished by door and frame manufacturers;

- coordinated by hardware supplier or hardware manufacturer.
 - c. Fasteners: Furnish as recommended by hardware manufacturer and as required to secure hardware
 - 1) Finish: Match hardware item being fastened
 - d. Fire Ratings: Provide hardware with UL or Intertek Testing Services (Warnock Hersey Listed) listings for type of application involved.
- B. Hinges: ANSI A156.1, full mortise type, template type, ANSI A156.7, complying with following general requirements unless otherwise scheduled
- 1. Widths: Sufficient to clear trim projection when door swings 180 degrees
 - 2. Number: Furnish minimum three hinges to 90 inches high, four hinges to 120 inches high for each door leaf
 - a. Fire Rated Doors To 86 inches High: Minimum three hinges
 - 3. Size and Weight: 4-1/2 inch heavy weight typical for 1-3/4 inch doors
 - a. Doors Over 40 inches Wide: Extra heavy weight ball or oilite bearing hinges
 - b. Doors 1-3/8 inch Thick: 3-1/2 inch size
 - c. Doors 2 inch Thick: 5 inch extra heavy weight ball or oilite bearing
 - d. Doors Over 48 inches Wide: 5 inch extra heavy weight ball or oilite bearing
 - 4. Pins: Furnish nonferrous hinges with non-removable pins (NRP) at exterior and locked out swinging doors, non-rising pins at interior doors
 - 5. Tips: Flat button tips with matching plug flush tips
- C. Locksets:
- 1. Furnish locksets compatible with specified cylinders
 - 2. Typical 2-3/4 inch backset
 - 3. Furnish standard strikes with extended lips to protect trim from being marred by latch bolt verify type of cutouts provided in metal frames
- D. Latch Sets:
- 1. Match locksets
 - 2. Typical 2-3/4 inch backset
 - 3. Furnish standard strikes with extended lips to protect trim from being marred by latch bolt verify type of cutouts Exit Devices: ANSI A156.3, Grade 1 rim type, with cross bar, unless otherwise indicated
 - 4. Furnish standard strikes with extended lips to protect trim from being marred by latch bolt verify type of cutouts provided in metal frames, with dust-proof floor strikes
 - 5. Types: Suitable for doors requiring exit devices
- E. Cylinders: ANSI A156.5, Grade 1, 6 pin type removable cylinders
- 1. Keying: Keyed as directed by Owner
 - 2. Include construction keying
 - 3. Keys: Nickel silver
 - a. Stamp keys with "DO NOT DUPLICATE"
 - 4. Supply keys in the following minimum quantities:
 - a. 5 master keys
- F. Door Controls and Overhead Holders: Furnish with accessories as required for complete operational installation.
- 1. Low Energy Power Door Operators: ANSI A156.19 power mechanism which opens and closes door upon receipt of signal.
 - a. Automatic Operator: LCN 9540 Series
 - b. Wall Plate actuators: Interior and exterior flush mount LCN Flush Mount Kit

8310-3856WF

- c. Sequencer: LCN
 - d. Control Box: LCN 9500 Series
 - e. Finish: Dark Bronze Anodized
- G. Closers: ANSI A156.4 modern type with cover, surface mounted closers; full rack and pinion type with steel spring and non-freezing hydraulic fluid; closers required for fire rated doors unless otherwise indicated
- 1. Adjustability: Furnish controls for regulating closing, latching, speeds, and back checking
 - 2. Arms: Type to suit individual condition; parallel-arm closers at reverse bevel doors and where doors swing full 180 degrees
 - 3. Location: Mount closers on inside of exterior doors, room side of interior doors typical; mount on pull side of other doors
 - 4. Operating Pressure: Maximum operating pressure as follows
 - a. Interior Doors: Maximum 5 pounds
 - b. Exterior Doors: Maximum 8.5 pound
 - c. Fire Rated Doors: As required for fire rating, maximum 15 pounds
- H. Exit Devices: ANSI A156.3, Grade 1 rim type, with cross bar, unless otherwise indicated
- 1. Furnish standard strikes with extended lips to protect trim from being marred by latch bolt verify type of cutouts provided in metal frames
 - a. Types: Suitable for doors requiring exit devices.
- I. Push/Pulls, Manual Bolts, Protection Plates, Gaskets, Thresholds, and Trim:
- 1. Furnish as indicated in Schedule, with accessories as required for complete operational door installations
 - a. Push/Pulls: ANSI A156.6; push plates minimum 0.050 inch thick
 - 1) Furnish push-pull plate type pulls with bolts to secure from opposite door face; furnish with minimum 0.050 inch pull plates unless otherwise indicated
 - b. Manual Bolts: ANSI A156.16 Grade 1 top and bottom flush bolts, with dust- proof floor strike, unless otherwise indicated
 - c. Kickplates Mop Plate: ANSI A156.6, metal; height indicated in Schedule by 1 inch less than door width; minimum 0.050 inch thick stainless steel
 - d. Weatherstripping: Furnish continuous weatherstripping at top and sides of exterior doors
 - e. Fire Rated Gaskets: Furnish continuous fire rated gaskets at top and sides of fire rated doors
 - f. Thresholds: Maximum 1/2 inch height
 - g. Wall Stops: ANSI A156.1, Grade 1, 2-1/2 inch wall stop concave pad wall stop with no visible screws
 - h. Floor Stops: ANSI A156.1 Grade 1 dome type; furnish with accessories as required for applications indicated

2.3 ACCESSORIES

- A. Lock Trim: Furnish levers with rose escutcheon plate as indicated in Schedule
 - 1. Do not permit through bolts on solid wood core doors
- B. Through Bolts: Do not permit through bolts and grommet nuts on door faces in occupied areas unless no alternative is possible

1. Do not use through bolts on solid wood core doors

2.4 FINISHING

- A. Finishes: ANSI A156.18; furnish following finishes except where otherwise indicated in Schedule
 1. Finishes: As indicated on the Drawing
 2. Other Items: Furnish manufacturer's standard finishes to match similar hardware types on same door, and maintain acceptable finish considering anticipated use and BHMA category of finish

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 017300 - Execution: Coordination and project conditions
- B. Verify doors and frames are ready to receive door hardware and dimensions are as indicated on drawings.

3.2 INSTALLATION

- A. Coordinate mounting heights with door and frame manufacturers.
 1. Use templates provided by hardware item manufacturer.
- B. Mounting Heights From Finished Floor to Center Line of Hardware Item: Comply with manufacturer recommendations and applicable codes where not otherwise indicated
 1. Locksets: 38 inch
 2. Push/Pulls: 42 inch
 3. Dead Locks: 48 inch
 4. Push Pad Type Exit Devices: 42 inch
 5. Cross Bar Type Exit Devices: 38 inch
 6. Top Hinge: Jamb manufacturer's standard, but not greater than 10 inches from head of frame to center line of hinge
 7. Bottom Hinge: Jamb manufacturer's standard, but not greater than 12-1/2 inches from floor to center line of hinge
 8. Intermediate Hinges: Equally spaced between top and bottom hinges and from each other.
 9. Hinge Mortise on Door Leaf: 1/4 inch. to 5/16 inch from stop side of door

3.3 ADJUSTING

- A. Section 017300 - Execution: Testing, adjusting, and balancing.
- B. Adjust hardware for smooth operation.

3.4 PROTECTION OF INSTALLED CONSTRUCTION

- A. Section 017300 - Execution: Protection installed construction
- B. Do not permit adjacent work to damage hardware or hardware finish.

3.5 SCHEDULES

- A. Refer to Door and Frame Schedule on the Drawings

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Falls, Idaho

April 2024

END OF SECTION 087100

DIVISION 8 - OPENINGS

DIVISION 8 OPENINGS

SECTION 087110 – ELECTRIFIED DOOR HARDWARE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes:
 - 1. Mechanical and electrified door hardware for:
 - a. Swinging doors.
 - b. Sliding doors.
 - c. Gates.
 - 2. Electronic access control system components, including:
 - a. Electronic access control devices.
 - 3. Field verification, preparation and modification of existing doors and frames to receive new door hardware.
 - 4. The intent of the hardware specification is to specify the hardware for interior and exterior doors, and to establish a type, continuity, and standard of quality. However, it is the door hardware supplier's responsibility to thoroughly review existing conditions, schedules, specifications, drawings, and other Contract Documents to verify the suitability of the hardware specified.
- B. Exclusions: Unless specifically listed in hardware sets, hardware is not specified in this section for:
 - 1. Windows
 - 2. Cabinets (casework), including locks in cabinets.
 - 3. Signage
 - 4. Toilet accessories
 - 5. Overhead doors
- C. Related Sections:
 - 1. Division 01 Section "Alternates" for alternates affecting this section.
 - 2. Division 07 Section "Joint Sealants" for sealant requirements applicable to threshold installation specified in this section.
 - 3. Division 09 sections for touchup, finishing or refinishing of existing openings modified by this section.
 - 4. Division 13 Section "Radiation Protection" for requirements for lead-lining for door hardware at openings indicated to receive radiation protection.
 - 5. Division 26 sections for connections to electrical power system and for low-voltage wiring.

6. Division 28 sections for coordination with other components of electronic access control system.

1.3 REFERENCES

- A. UL - Underwriters Laboratories
 1. UL 10B - Fire Test of Door Assemblies
 2. UL 10C - Positive Pressure Test of Fire Door Assemblies
 3. UL 1784 - Air Leakage Tests of Door Assemblies
 4. UL 305 - Panic Hardware
- B. DHI - Door and Hardware Institute
 1. Sequence and Format for the Hardware Schedule
 2. Recommended Locations for Builders Hardware
 3. Key Systems and Nomenclature
- C. ANSI - American National Standards Institute
 1. ANSI/BHMA A156.1 - A156.29, and ANSI/BHMA A156.31 - Standards for Hardware and Specialties

1.4 SUBMITTALS

- A. General:
 1. Submit in accordance with Conditions of Contract and Division 01 requirements.
 2. Highlight, encircle, or otherwise specifically identify on submittals deviations from Contract Documents, issues of incompatibility or other issues which may detrimentally affect the Work.
 3. Prior to forwarding submittal, comply with procedures for verifying existing door and frame compatibility for new hardware, as specified in PART 3, "EXAMINATION" article, herein.
- B. Action Submittals:
 1. Product Data: Technical product data for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements.
 2. Riser and Wiring Diagrams: After final approval of hardware schedule, submit details of electrified door hardware, indicating:
 - a. Wiring Diagrams: For power, signal, and control wiring and including:
 - 1) Details of interface of electrified door hardware and building safety and security systems.
 - 2) Schematic diagram of systems that interface with electrified door hardware.
 - 3) Point-to-point wiring.
 - 4) Risers.
 3. Samples for Verification: If requested by Architect, submit production sample of requested door hardware unit in finish indicated, and tagged with full description for coordination with schedule.
 - a. Samples will be returned to supplier. Units that are acceptable to Architect may, after final check of operations, be incorporated into Work, within

- limitations of key coordination requirements.
4. Door Hardware Schedule: Submit schedule with hardware sets in vertical format as illustrated by Sequence of Format for the Hardware Schedule as published by the Door and Hardware Institute. Indicate complete designations of each item required for each door or opening, include:
 - a. Door Index: include door number, heading number, and Architects hardware set number.
 - b. Opening Lock Function Spreadsheet: List locking device and function for each opening.
 - c. Quantity, type, style, function, size, and finish of each hardware item.
 - d. Name and manufacturer of each item.
 - e. Fastenings and other pertinent information.
 - f. Location of each hardware set cross-referenced to indications on Drawings.
 - g. Explanation of all abbreviations, symbols, and codes contained in schedule.
 - h. Mounting locations for hardware.
 - i. Door and frame sizes and materials.
 - j. Name and phone number for local manufacturer's representative for each product.
 - k. Operational Description of openings with any electrified hardware (locks, exits, electromagnetic locks, electric strikes, automatic operators, door position switches, magnetic holders or closer/holder units, and access control components). Operational description should include operational descriptions for: egress, ingress (access), and fire/smoke alarm connections.
 - 1) Submittal Sequence: Submit door hardware schedule concurrent with submissions of Product Data, Samples, and Shop Drawings. Coordinate submission of door hardware schedule with scheduling requirements of other work to facilitate fabrication of other work that is critical in Project construction schedule.
 5. Key Schedule:
 - a. After Keying Conference, provide keying schedule listing levels of keying as well as explanation of key system's function, key symbols used and door numbers controlled.
 - b. Use ANSI/BHMA A156.28 "Recommended Practices for Keying Systems" as guideline for nomenclature, definitions, and approach for selecting optimal keying system.
 - c. Provide 3 copies of keying schedule for review prepared and detailed in accordance with referenced DHI publication. Include schematic keying diagram and index each key to unique door designations.
 - d. Index keying schedule by door number, keyset, hardware heading number, cross keying instructions, and special key stamping instructions.
 - e. Provide one complete bitting list of key cuts and one key system schematic illustrating system usage and expansion.
 - 1) Forward bitting list, key cuts and key system schematic directly to Owner, by means as directed by Owner.
 - f. Prepare key schedule by or under supervision of supplier, detailing Owner's final keying instructions for locks.
 6. Templates: After final approval of hardware schedule, provide templates for doors, frames and other work specified to be factory or shop prepared for door

hardware installation.

- C. Informational Submittals:
 - 1. Qualification Data: For Supplier, Installer and Architectural Hardware Consultant.
 - 2. Product data for electrified door hardware:
 - a. Certify that door hardware approved for use on types and sizes of labeled fire-rated doors complies with listed fire-rated door assemblies.
 - 3. Warranty: Special warranty specified in this Section.
- D. Closeout Submittals:
 - 1. Operations and Maintenance Data: Provide in accordance with Division 01 and include:
 - a. Complete information on care, maintenance, and adjustment; data on repair and replacement parts, and information on preservation of finishes.
 - b. Catalog pages for each product.
 - c. Factory order acknowledgement numbers (for warranty and service)
 - d. Name, address, and phone number of local representative for each manufacturer.
 - e. Parts list for each product.
 - f. Final approved hardware schedule, edited to reflect conditions as-installed.
 - g. Final keying schedule
 - h. Copies of floor plans with keying nomenclature
 - i. As-installed wiring diagrams for each opening connected to power, both low voltage and 110 volts.
 - j. Copy of warranties including appropriate reference numbers for manufacturers to identify project.

1.5 QUALITY ASSURANCE

- A. Supplier Qualifications and Responsibilities: Recognized architectural hardware supplier with record of successful in-service performance for supplying door hardware similar in quantity, type, and quality to that indicated for this Project and that provides certified Architectural Hardware Consultant (AHC) or Door Hardware Consultant (DHC) available to Owner, Architect, and Contractor, at reasonable times during the Work for consultation.
 - 1. Warehousing Facilities: In Project's vicinity.
 - 2. Scheduling Responsibility: Preparation of door hardware and keying schedules.
 - 3. Engineering Responsibility: Preparation of data for electrified door hardware, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project.
 - 4. Coordination Responsibility: Assist in coordinating installation of electronic security hardware with Architect and electrical engineers and provide installation and technical data to Architect and other related subcontractors.
 - a. Upon completion of electronic security hardware installation, inspect and verify that all components are working properly.
- B. Architectural Hardware Consultant Qualifications: Person who is experienced in providing consulting services for door hardware installations that are comparable in

- material, design, and extent to that indicated for this Project and meets these requirements:
1. For door hardware, DHI-certified, Architectural Hardware Consultant (AHC) or Door Hardware Consultant (DHC).
 2. Can provide installation and technical data to Architect and other related subcontractors.
 3. Can inspect and verify components are in working order upon completion of installation.
 4. Capable of producing wiring diagrams.
 5. Capable of coordinating installation of electrified hardware with Architect and electrical engineers.
- C. Fire-Rated Door Openings: Provide door hardware for fire-rated openings that complies with NFPA 80 and requirements of authorities having jurisdiction. Provide only items of door hardware that are listed products tested by Underwriters Laboratories, Intertek Testing Services, or other testing and inspecting organizations acceptable to authorities having jurisdiction for use on types and sizes of doors indicated, based on testing at positive pressure and according to NFPA 252 or UL 10C and in compliance with requirements of fire-rated door and door frame labels.
- D. Electrified Door Hardware: Listed and labeled as defined in NFPA 70, Article 100, by testing agency acceptable to authorities having jurisdiction.
- E. Accessibility Requirements: For door hardware on doors in an accessible route, comply with governing accessibility regulations cited in "REFERENCES" article, herein.
- F. Keying Conference
1. Incorporate keying conference decisions into final keying schedule after reviewing door hardware keying system including:
 - a. Function of building, flow of traffic, purpose of each area, degree of security required, and plans for future expansion.
 - b. Preliminary key system schematic diagram.
 - c. Requirements for key control system.
 - d. Requirements for access control.
 - e. Address for delivery of keys.
- G. Pre-installation Conference
1. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 2. Inspect and discuss preparatory work performed by other trades.
 3. Inspect and discuss electrical roughing-in for electrified door hardware.
 4. Review sequence of operation for each type of electrified door hardware.
 5. Review required testing, inspecting, and certifying procedures.
- H. Coordination Conferences:
1. Installation Coordination Conference: Prior to hardware installation, schedule and hold meetings to review questions or concerns related to proper installation and

adjustment of door hardware.

2. Electrified Hardware Coordination Conference: Prior to ordering electrified hardware, schedule and hold meeting to coordinate door hardware with security, electrical, doors and frames, and other related suppliers.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up for hardware delivered to Project site.
- B. Tag each item or package separately with identification coordinated with final door hardware schedule, and include installation instructions, templates, and necessary fasteners with each item or package.
 1. Deliver each article of hardware in manufacturer's original packaging.
- C. Project Conditions:
 1. Maintain manufacturer-recommended environmental conditions throughout storage and installation periods.
 2. Provide secure lock-up for door hardware delivered to Project. Control handling and installation of hardware items so that completion of Work will not be delayed by hardware losses both before and after installation.
- D. Protection and Damage:
 1. Promptly replace products damaged during shipping.
 2. Handle hardware in manner to avoid damage, marring, or scratching. Correct, replace or repair products damaged during Work.
 3. Protect products against malfunction due to paint, solvent, cleanser, or any chemical agent.
- E. Deliver keys to manufacturer of key control system for subsequent delivery to Owner.
- F. Deliver keys and permanent cores to Owner by registered mail or overnight package service.

1.7 COORDINATION

- A. Coordinate layout and installation of floor-recessed door hardware with floor construction. Cast anchoring inserts into concrete.
- B. Installation Templates: Distribute for doors, frames, and other work specified to be factory or shop prepared. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.
- C. Security: Coordinate installation of door hardware, keying, and access control with Owner's security consultant.
- D. Electrical System Roughing-In: Coordinate layout and installation of electrified door hardware with connections to power supplies and building safety and security

systems.

- E. Existing Openings: Where existing doors, frames and/or hardware are to remain, field verify existing functions, conditions and preparations and coordinate to suit opening conditions and to provide proper door operation.

1.8 WARRANTY

- A. Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: Beginning from date of Substantial Completion, for durations indicated.
 - a. Exit Devices:
 - 1) Electrified: 1 year.
 - b. Locksets:
 - 1) Electrified: 1 year.
 - 2. Warranty does not cover damage or faulty operation due to improper installation, improper use or abuse.

1.9 MAINTENANCE

- A. Maintenance Tools: Furnish complete set of special tools required for maintenance and adjustment of hardware, including changing of cylinders.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Approval of manufacturers and/or products other than those listed as "Scheduled Manufacturer" or "Acceptable Manufacturers" in the individual article for the product category shall be in accordance with QUALITY ASSURANCE article, herein.
- B. Approval of products from manufacturers indicated in "Acceptable Manufacturers" is contingent upon those products providing all functions and features and meeting all requirements of scheduled manufacturer's product.
- C. Where specified hardware is not adaptable to finished shape or size of members requiring hardware, furnish suitable types having same operation and quality as type specified, subject to Architect's approval.

2.2 MATERIALS

- A. Fasteners
 - 1. Provide hardware manufactured to conform to published templates, generally prepared for machine screw installation.
 - 2. Furnish screws for installation with each hardware item. Finish exposed (exposed under any condition) screws to match hardware finish, or, if exposed in surfaces of other work, to match finish of this other work including prepared for paint

- surfaces to receive painted finish.
 - 3. Provide concealed fasteners for hardware units exposed when door is closed except when no standard units of type specified are available with concealed fasteners. Do not use thru-bolts for installation where bolt head or nut on opposite face is exposed in other work unless thru-bolts are required to fasten hardware securely. Review door specification and advise Architect if thru-bolts are required.
 - 4. Install hardware with fasteners provided by hardware manufacturer.
- B. Modification and Preparation of Existing Doors: Where existing door hardware is indicated to be removed and reinstalled.
- 1. Provide necessary fillers, Dutchmen, reinforcements, and fasteners, compatible with existing materials, as required for mounting new opening hardware and to cover existing door and frame preparations.
 - 2. Use materials which match materials of adjacent modified areas.
 - 3. When modifying existing fire-rated openings, provide materials permitted by NFPA 80 as required to maintain fire-rating.
- C. Provide screws, bolts, expansion shields, drop plates and other devices necessary for hardware installation.
- 1. Where fasteners are exposed to view: Finish to match adjacent door hardware material.

2.3 KEYING

- A. Provide a factory registered keying system, complying with guidelines in ANSI/BHMA A156.28, incorporating decisions made at keying conference.
- B. Provide cylinders/cores keyed into Owner's existing small format IC keying system.
- C. Comply with guidelines in ANSI/BHMA A156.28, incorporating decisions made at keying conference.
- D. Requirements:
- 1. Provide permanent cylinders/cores keyed by the manufacturer according to the following key system.
 - a. Master Keying system is small format IC core Everest 29R.
 - 2. Forward bitting list and keys separately from cylinders, by means as directed by Owner. Failure to comply with forwarding requirements will be cause for replacement of cylinders/cores involved at no additional cost to Owner.
 - 3. Provide keys with the following features:
 - a. Material: Nickel silver; minimum thickness of .107-inch.
 - 4. Identification:
 - a. Mark permanent cylinders/cores and keys with applicable blind code per DHI publication "Keying Systems and Nomenclature" for identification. Do not provide blind code marks with actual key cuts.
 - b. Identification stamping provisions must be approved by the Architect and Owner.
 - c. Stamp cylinders/cores and keys with Owner's unique key system facility code as established by the manufacturer; key symbol and embossed or stamped

- with "DO NOT DUPLICATE" along with the "PATENTED" or patent number to enforce the patent protection.
- d. Failure to comply with stamping requirements will be cause for replacement of keys involved at no additional cost to Owner.
 - e. Forward permanent cylinders/cores to Owner, separately from keys, by means as directed by Owner.
5. Quantity: Furnish in the following quantities.
- a. Change (Day) Keys: 3 per cylinder/core.
 - b. Master Keys: 6.
- E. Finish: BHMA 626/652 (US26D); except:
1. Hinges at Exterior Doors: BHMA 630 (US32D)
 2. Continuous Hinges: BHMA 630 (US32D)
 3. Continuous Hinges: BHMA 628 (US28)
 4. Push Plates, Pulls, and Push Bars: BHMA 630 (US32D)
 5. Protection Plates: BHMA 630 (US32D)
 6. Overhead Stops and Holders: BHMA 630 (US32D)
 7. Door Closers: Powder Coat to Match
 8. Wall Stops: BHMA 630 (US32D)
 9. Latch Protectors: BHMA 630 (US32D)
 10. Weatherstripping: Clear Anodized Aluminum
 11. Thresholds: Mill Finish Aluminum

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Prior to installation of hardware, examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire-rated door assembly construction, wall and floor construction, and other conditions affecting performance.
- B. Field verify existing doors and frames receiving new hardware and existing conditions receiving new openings. Verify that new hardware is compatible with existing door and frame preparation and existing conditions.
- C. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Where on-site modification of doors and frames is required:
 1. Carefully remove existing door hardware and components being reused. Clean, protect, tag, and store in accordance with storage and handling requirements specified herein.
 2. Field modify and prepare existing door and frame for new hardware being

- installed.
- 3. When modifications are exposed to view, use concealed fasteners, when possible.
- 4. Prepare hardware locations and reinstall in accordance with installation requirements for new door hardware and with:
 - a. Steel Doors and Frames: For surface applied door hardware, drill and tap doors and frames according to ANSI/SDI A250.6.
 - b. Wood Doors: DHI WDHS.5 "Recommended Hardware Reinforcement Locations for Mineral Core Wood Flush Doors."
 - c. Doors in rated assemblies: NFPA 80 for restrictions on on-site door hardware preparation.

3.3 INSTALLATION

- A. Mount door hardware units at heights to comply with the following, unless otherwise indicated or required to comply with governing regulations.
 - 1. Standard Steel Doors and Frames: ANSI/SDI A250.8.
 - 2. Custom Steel Doors and Frames: HMMA 831.
 - 3. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."
- B. Install each hardware item in compliance with manufacturer's instructions and recommendations, using only fasteners provided by manufacturer.
- C. Do not install surface mounted items until finishes have been completed on substrate. Protect all installed hardware during painting.
- D. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate as necessary for proper installation and operation.
- E. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.
- F. Install operating parts so they move freely and smoothly without binding, sticking, or excessive clearance.
- G. Hinges: Install types and in quantities indicated in door hardware schedule but not fewer than quantity recommended by manufacturer for application indicated or one hinge for every 30 inches of door height, whichever is more stringent, unless other equivalent means of support for door, such as spring hinges or pivots, are provided.
- H. Intermediate Offset Pivots: Where offset pivots are indicated, provide intermediate offset pivots in quantities indicated in door hardware schedule but not fewer than one intermediate offset pivot per door and one additional intermediate offset pivot for every 30 inches of door height greater than 90 inches.
- I. Lock Cylinders: Install construction cores to secure building and areas during construction period.
 - 1. Replace construction cores with permanent cores as indicated in keying section.

- J. Wiring: Coordinate with Division 26, ELECTRICAL sections for:
 - 1. Conduit, junction boxes and wire pulls.
 - 2. Connections to and from power supplies to electrified hardware.
 - 3. Connections to fire/smoke alarm system and smoke evacuation system.
 - 4. Connection of wire to door position switches and wire runs to central room or area, as directed by Architect.
 - 5. Testing and labeling wires with Architect's opening number.
- K. Key Control System: Tag keys and place them on markers and hooks in key control system cabinet, as determined by final keying schedule.
- L. Door Closers: Mount closers on room side of corridor doors, inside of exterior doors, and stair side of stairway doors from corridors. Mount closers so they are not visible in corridors, lobbies and other public spaces unless approved by Architect.
- M. Closer/holders: Mount closer/holders on room side of corridor doors, inside of exterior doors, and stair side of stairway doors.
- N. Power Supplies: Locate power supplies as indicated or, if not indicated, above accessible ceilings or in equipment room, or alternate location as directed by Architect.
- O. Thresholds: Set thresholds in full bed of sealant complying with requirements specified in Division 07 Section "Joint Sealants."
- P. Stops: Provide floor stops for doors unless wall or other type stops are indicated in door hardware schedule. Do not mount floor stops where they may impede traffic or present tripping hazard.
- Q. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.
- R. Meeting Stile Gasketing: Fasten to meeting stiles, forming seal when doors are closed.
- S. Door Bottoms: Apply to bottom of door, forming seal with threshold when door is closed.

3.4 FIELD QUALITY CONTROL

- A. Engage qualified manufacturer trained representative to perform inspections and to prepare inspection reports.
 - 1. Representative will inspect door hardware and state in each report whether installed work complies with or deviates from requirements, including whether door hardware is properly installed and adjusted.

3.5 ADJUSTING

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be

adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

- B. Occupancy Adjustment: Approximately three to six months after date of Substantial Completion, Installer's Architectural Hardware Consultant must examine and readjust each item of door hardware, including adjusting operating forces, as necessary to ensure function of doors and door hardware.

3.6 CLEANING AND PROTECTION

- A. Clean adjacent surfaces soiled by door hardware installation.
- B. Clean operating items as necessary to restore proper function and finish.
- C. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of Substantial Completion.

3.7 DOOR HARDWARE SCHEDULE

- A. Hardware items are referenced in the following hardware. Refer to the above-specifications for special features, options, cylinders/keying, and other requirements.

- B. Hardware Sets:

HARDWARE GROUP NO. C1:

FOR USE ON DOOR #(S):

C1b		C20a	C21a	C23a	C24a	C25a	
C27a		C28a	C30a	C30a			
QTY		DESCRIPTION	CATALOG NUMBER			FINISH	MFR
1	EA	WIRELESS DOOR CONTACT AND RECEIVER	INOVONICS EN1210W PROVIDED BY SECURITY SYSTEM INSTALLER. INOVONICS EN4204R RECEIVERS, QUANTITY AS REQUIRED FOR FUNCTIONAL SYSTEM CSI STANDARDIZED PRODUCT			✓ WHITE	INN

HARDWARE GROUP NO. C2:

FOR USE ON DOOR #(S):

C6a, b						
QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
2	EA	WIRELESS DOOR CONTACT AND RECEIVER	INOVONICS EN1210W PROVIDED BY SECURITY SYSTEM INSTALLER. INOVONICS EN4204R RECEIVERS, QUANTITY AS REQUIRED FOR FUNCTIONAL SYSTEM CSI STANDARDIZED PRODUCT	✓	WHITE	INN

HARDWARE GROUP NO. C3

FOR USE ON DOOR #(S):

C1a		C2a	C3a	C7a	C8a	C9a
C15a		C18a				
QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
1	EA	WIRELESS ELECTRONIC HANDLE SET, CYLINDER LOCK, CLASSROOM, MULTI-TECH, RHODES LEVER, SATIN CHROME FINISH.	AD-400-CY-50-MT-RHO,626 (LEVER PREP AND CONFIGURATION AS REQ) BATTERY POWERED CSI STANDARDIZED PRODUCT	✓	626	SCE
1	EA	PIM	PIM400-1501 CSI STANDARDIZED PRODUCT	✓		SCE
1	EA	WIRELESS DOOR CONTACT AND RECEIVER	INOVONICS EN1210W PROVIDED BY SECURITY SYSTEM INSTALLER. INOVONICS EN4204R RECEIVERS, QUANTITY AS REQUIRED FOR FUNCTIONAL SYSTEM CSI STANDARDIZED PRODUCT	✓	WHITE	INN

HARDWARE GROUP NO. C4

FOR USE ON DOOR #(S):

C4a		C5a	C11a	C13a			
QTY		DESCRIPTION	CATALOG NUMBER			FINISH	MFR
1	EA	STAND ALONE TO WIRELESS ELECTRONIC HANDLE CONVERSION KIT	AD-COMM400P BATTERY POWERED		✓		SCE
			CSI STANDARDIZED PRODUCT				
1	EA	PIM	PIM400-1501		✓		SCE
			CSI STANDARDIZED PRODUCT				

HARDWARE GROUP NO. C5:

FOR USE ON DOOR #(S):

C10a, b		C12a, b	C14a, b				
QTY		DESCRIPTION	CATALOG NUMBER			FINISH	MFR
2	EA	ELECTRIFIED LATCH RETRACTION DEVICE WITH BUILT IN REQUEST TO EXIT AND FIELD INSTALLED LATCH BOLT MONITOR KIT	COMMAND ACCESS TECH. MLRK1-VD + VDLMBKIT-ED		✓		CAT
			CSI STANDARDIZED PRODUCT				
2	EA	POWER TRANSFER LOOP, BLACK END CAPS	SDC SECURITY PT-2		✓	STAIN LESS STEEL	SDC
			CSI STANDARDIZED PRODUCT				
1	EA	MULTI-TECH READER	SCHLAGE MT11 12 VDC		✓	BLACK	SCE
			CSI STANDARDIZED PRODUCT				
2	EA	WIRED DOOR CONTACT	ARITECH 1076CW-N PROVIDED BY SECURITY SYSTEM INSTALLER		✓	WHITE	ARI
			CSI STANDARDIZED PRODUCT				

HARDWARE GROUP NO. C6:

FOR USE ON DOOR #(S):

C16a		C17a	C22a	C26a	C29a	C29b	
C31a		C32a					
QTY		DESCRIPTION	CATALOG NUMBER			FINISH	MFR
1	EA	WIRED DOOR CONTACT DOOR TRACK MOUNTED	WBOX TECHNOLOGIES OE-DC4811		✓	AL	WBX
			CSI STANDARDIZED PRODUCT				

HARDWARE GROUP NO. C7

FOR USE ON DOOR #(S):

C19a						
QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
1	EA	WIRELESS ELECTRONIC HANDLE SET, CYLINDER LOCK, CLASSROOM, MULTI-TECH, RHODES LEVER, SATIN CHROME FINISH.	AD-400-CY-50-MT-RHO,626 (LEVER PREP AND CONFIGURATION AS REQ) BATTERY POWERED CSI STANDARDIZED PRODUCT	✓	626	SCE
1	EA	PIM	PIM400-1501 CSI STANDARDIZED PRODUCT	✓		SCE

HARDWARE GROUP NO. HP1:

FOR USE ON DOOR #(S):

P2a, b, c, d, e						
QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
2	EA	ELECTRIFIED LATCH RETRACTION DEVICE WITH BUILT IN REQUEST TO EXIT AND FIELD INSTALLED LATCH BOLT MONITOR KIT	COMMAND ACCESS TECH. MLRK1-VD + VDLMBKIT-ED CSI STANDARDIZED PRODUCT	✓		CAT
2	EA	ENERGY TRANSFER HINGE, PIVOT TYPE HINGE	COMMAND ACCESS ETH8WH CSI STANDARDIZED PRODUCT	✓	DARK BRONZE	CAT
1	EA	MULTI-TECH READER	SCHLAGE MT11 12 VDC CSI STANDARDIZED PRODUCT	✓	BLACK	SCE
2	EA	WIRED DOOR CONTACT	ARITECH 1076CW-N PROVIDED BY SECURITY SYSTEM INSTALLER CSI STANDARDIZED PRODUCT	✓	WHITE	ARI

DPW PROJECT NO. 19107
 CSI: Entry Access Controls, Phase I
 College of Southern Idaho (CSI)
 Twin Falls, Idaho

April 2024

HARDWARE GROUP NO. M1:

FOR USE ON DOOR #(S):

M1a						
QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
1	EA	MULTI-TECH READER	MT11 12 VDC	✓	BLACK	SCE
			CSI STANDARDIZED PRODUCT			

HARDWARE GROUP NO. M2:

FOR USE ON DOOR #(S):

M2a		M3a	M3b	M4a	M4b	
QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
1	EA	WIRELESS ELECTRONIC HANDLE SET, CYLINDER LOCK, CLASSROOM, MULTI-TECH, RHODES LEVER, SATIN CHROME FINISH.	AD-400-CY-50-MT-RHO,626 (LEVER PREP AND CONFIGURATION AS REQ) BATTERY POWERED CSI STANDARDIZED PRODUCT	✓	626	SCE
1	EA	PIM	PIM400-1501	✓		SCE

HARDWARE GROUP NO. T1

FOR USE ON DOOR #(S):

T1	T2
----	----

PROVIDE EACH SGL DOOR(S) WITH THE FOLLOWING:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
1	EA	WIRELESS ELECTRONIC HANDLE SET, CYLINDER LOCK, CLASSROOM, MULTI-TECH, RHODES LEVER, SATIN CHROME FINISH.	AD-400-CY-50-MT-RHO,626 (LEVER PREP AND CONFIGURATION AS REQ) BATTERY POWERED CSI STANDARDIZED PRODUCT	✓	626	SCE
1	EA	PIM	PIM400-1501 (ONLY 1 REQUIRED IN TAYLOR BUILDING) CSI STANDARDIZED PRODUCT	✓		SCE

HARDWARE GROUP NO. H1:

FOR USE ON DOOR #(S):

H1a, b		H4a, b	H6a, b	H7a, b	H9a, b	H10a, b	
QTY		DESCRIPTION	CATALOG NUMBER			FINISH	MFR
2	EA	ELECTRIFIED LATCH RETRACTION DEVICE WITH BUILT IN REQUEST TO EXIT AND FIELD INSTALLED LATCH BOLT MONITOR KIT	COMMAND ACCESS PD10-M-PTS-VD PD10REXKIT-ED – RX KIT PD10LBMKIRT-ED – LX KIT		✓		CAT
			CSI STANDARDIZED PRODUCT				
2	EA	POWER TRANSFER LOOP, BLACK END CAPS	SDC SECURITY PT-2		✓	STAIN LESS STEEL	SDC
			CSI STANDARDIZED PRODUCT				
1	EA	MULTI-TECH READER	SCHLAGE MT11 12 VDC		✓	BLK	SCE
			CSI STANDARDIZED PRODUCT				
2	EA	WIRED DOOR CONTACT	ARITECH 1078/107 SERIES PROVIDED BY SECURITY SYSTEM INSTALLER FIELD VERIFY SIZE AND SERIES		✓	WHITE	ARI
			CSI STANDARDIZED PRODUCT				
2	EA	WIRED JAB MOUNT AUTOMATIC OPERATOR ACTUATOR	LCN 8310-818T		✓	STAIN LESS STEEL	LCN
			CSI STANDARDIZED PRODUCT				
1	EA	DOUBLE DOOR AUTOMATIC OPERATOR	RECORD HA-9		✓	AL	REC

HARDWARE GROUP NO. H2:

FOR USE ON DOOR #(S):

H2a		H3a	H5c				
QTY		DESCRIPTION	CATALOG NUMBER			FINISH	MFR
1	EA	WIRELESS DOOR CONTACT AND RECEIVER	INOVONICS EN1210W PROVIDED BY SECURITY SYSTEM INSTALLER.		✓	WHITE	INN
			PROVIDE AND INSTALL INOVONICS EN4204R RECEIVERS AS REQUIRED FOR FUNCTIONAL SYSTEM				
			CSI STANDARDIZED PRODUCT				

HARDWARE GROUP NO.H3

FOR USE ON DOOR #(S):

H4c						
QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
1	EA	WIRELESS ELECTRONIC HANDLE SET, CYLINDER LOCK, CLASSROOM, MULTI-TECH, RHODES LEVER, SATIN CHROME FINISH.	AD-400-CY-50-MT-RHO,626 (LEVER PREP AND CONFIGURATION AS REQ) BATTERY POWERED CSI STANDARDIZED PRODUCT	✓	626	SCE
1	EA	PIM	PIM400-1501	✓		SCE
1	EA	WIRED DOOR CONTACT	ARITECH 1078/107 SERIES PROVIDED BY SECURITY SYSTEM INSTALLER FIELD VERIFY SIZE AND SERIES CSI STANDARDIZED PRODUCT	✓	WHITE	ARI

HARDWARE GROUP NO. H4:

FOR USE ON DOOR #(S):

H4d						
QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
1	EA	WIRED DOOR CONTACT DOOR TRACK MOUNTED	WBOX TECHNOLOGIES OE-DC4811 CSI STANDARDIZED PRODUCT	✓	AL	WBX

HARDWARE GROUP NO.H5

FOR USE ON DOOR #(S):

H5a						
QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
1	EA	WIRED ELECTRONIC HANDLE SET, CYLINDER LOCK, STOREROOM, MULTI-TECH, RHODES LEVER, SATIN CHROME FINISH.	AD-300-CY-70-MT-RHO,626 (LEVER PREP AND CONFIGURATION AS REQ) CSI STANDARDIZED PRODUCT	✓	626	SCE
1	EA	WIRED DOOR CONTACT	ARITECH 1078/107 SERIES PROVIDED BY SECURITY SYSTEM INSTALLER FIELD VERIFY SIZE AND SERIES CSI STANDARDIZED PRODUCT	✓	WHITE	ARI

HARDWARE GROUP NO. H6:

FOR USE ON DOOR #(S):

H5b		H8a				
QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
1	EA	WIRED DOOR CONTACT	ARITECH 1078/107 SERIES PROVIDED BY SECURITY SYSTEM INSTALLER FIELD VERIFY SIZE AND SERIES CSI STANDARDIZED PRODUCT	✓	WHITE	ARI

HARDWARE GROUP NO. P1:

FOR USE ON DOOR #(S):

P9a		P11a		P13a		
QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
1	EA	WIRELESS DOOR CONTACT AND RECEIVER	INOVONICS EN1210W PROVIDED BY SECURITY SYSTEM INSTALLER. INOVONICS EN4204R RECEIVERS, QUANTITY AS REQUIRED FOR FUNCTIONAL SYSTEM CSI STANDARDIZED PRODUCT	✓	WHITE	INN

HARDWARE GROUP NO. P2:

FOR USE ON DOOR #(S):

P1a, b		P8a, b		P10a, b		
QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
2	EA	WIRELESS DOOR CONTACT AND RECEIVER	INOVONICS EN1210W PROVIDED BY SECURITY SYSTEM INSTALLER. INOVONICS EN4204R RECEIVERS, QUANTITY AS REQUIRED FOR FUNCTIONAL SYSTEM CSI STANDARDIZED PRODUCT	✓	WHITE	INN

HARDWARE GROUP NO. P3:

FOR USE ON DOOR #(S):

P2a, b, c, d, e						
QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
5	EA	ELECTRIFIED LATCH RETRACTION DEVICE WITH BUILT IN REQUEST TO EXIT AND FIELD INSTALLED LATCH BOLT MONITOR KIT	COMMAND ACCESS TECH. MLRK1-VD + VDLMBKIT-ED CSI STANDARDIZED PRODUCT	✓		CAT
5	EA	ENERGY TRANSFER HINGE, PIVOT TYPE HINGE	COMMAND ACCESS ETH8WH CSI STANDARDIZED PRODUCT	✓	DARK BRONZE	CAT
1	EA	MULTI-TECH READER	SCHLAGE MT11 12 VDC CSI STANDARDIZED PRODUCT	✓	BLACK	SCE
5	EA	WIRED DOOR CONTACT	ARITECH 1076CW-N PROVIDED BY SECURITY SYSTEM INSTALLER CSI STANDARDIZED PRODUCT	✓	WHITE	ARI

HARDWARE GROUP NO. P4:

FOR USE ON DOOR #(S):

P3a,b,c,d,e,f,g,h,i,j						
QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
10	EA	ELECTRIFIED LATCH RETRACTION DEVICE WITH BUILT IN REQUEST TO EXIT AND FIELD INSTALLED LATCH BOLT MONITOR KIT	COMMAND ACCESS TECH. MLRK1-VD + VDLMBKIT-ED CSI STANDARDIZED PRODUCT	✓		CAT
10	EA	ENERGY TRANSFER HINGE, 5 KNUCKLE HINGE	COMMAND ACCESS TECH. ETH12WH CSI STANDARDIZED PRODUCT	✓	MATCH EXIST	SCE
1	EA	MULTI-TECH READER	SCHLAGE MT11 12 VDC CSI STANDARDIZED PRODUCT	✓	BLACK	SCE
10	EA	WIRED DOOR CONTACT	ARITECH 1076CW-N PROVIDED BY SECURITY SYSTEM INSTALLER CSI STANDARDIZED PRODUCT	✓	WHITE	ARI

HARDWARE GROUP NO. P5:

FOR USE ON DOOR #(S):

P4a, b,		P7a, b					
QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR	
2	EA	ELECTRIFIED LATCH RETRACTION DEVICE WITH BUILT IN REQUEST TO EXIT AND FIELD INSTALLED LATCH BOLT MONITOR KIT	COMMAND ACCESS TECH. MLRK1-VD + VDLMBKIT-ED CSI STANDARDIZED PRODUCT	✓		CAT	
2	EA	ENERGY TRANSFER HINGE, PIVOT TYPE HINGE	COMMAND ACCESS ETH8WH CSI STANDARDIZED PRODUCT	✓	DARK BRONZE	SCE	
1	EA	MULTI-TECH READER	SCHLAGE MT11 12 VDC CSI STANDARDIZED PRODUCT	✓	BLK	SCE	
2	EA	WIRED DOOR CONTACT	ARITECH 1076CW-N PROVIDED BY SECURITY SYSTEM INSTALLER CSI STANDARDIZED PRODUCT	✓	WHITE	ARI	

HARDWARE GROUP NO. P6:

FOR USE ON DOOR #(S):

P5a, b, c,		P6a, b, c,					
QTY		DESCRIPTION	CATALOG NUMBER		FINIS H	MFR	
3	EA	ELECTRIFIED LATCH RETRACTION DEVICE WITH BUILT IN REQUEST TO EXIT AND FIELD INSTALLED LATCH BOLT MONITOR KIT	COMMAND ACCESS TECH. MLRK1-VD + VDLMBKIT-ED CSI STANDARDIZED PRODUCT	✓		CAT	
3	EA	ENERGY TRANSFER HINGE, PIVOT TYPE HINGE	COMMAND ACCESS ETH8WH CSI STANDARDIZED PRODUCT	✓	DARK BRONZE	SCE	
1	EA	MULTI-TECH READER	SCHLAGE MT11 12 VDC CSI STANDARDIZED PRODUCT	✓	BLK	SCE	
3	EA	WIRED DOOR CONTACT	ARITECH 1076CW-N PROVIDED BY SECURITY SYSTEM INSTALLER CSI STANDARDIZED PRODUCT	✓	WHIT E	ARI	

HARDWARE GROUP NO. P7:

FOR USE ON DOOR #(S):

P12a, b,		P12c, d					
QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR	
2	EA	ELECTRIFIED LATCH RETRACTION DEVICE WITH BUILT IN REQUEST TO EXIT AND FIELD INSTALLED LATCH BOLT MONITOR KIT	MLRK1-VD + VDLMBKIT-ED CSI STANDARDIZED PRODUCT	✓		CAT	
2	EA	POWER TRANSFER LOOP, BLACK END CAPS	SDC SECURITY PT-2 CSI STANDARDIZED PRODUCT	✓	STAIN LESS STEEL	SDC	
1	EA	MULTI-TECH READER	SCHLAGE MT11 12 VDC CSI STANDARDIZED PRODUCT	✓	BLK	SCE	
2	EA	WIRED DOOR CONTACT	ARITECH 1076CW-N PROVIDED BY SECURITY SYSTEM INSTALLER CSI STANDARDIZED PRODUCT	✓	WHITE	ARI	

HARDWARE GROUP NO. F1:

FOR USE ON DOOR #(S):

F2a		F3B	F11a	F13a		
QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
1	EA	WIRELESS DOOR CONTACT AND RECEIVER	INOVONICS EN1210W PROVIDED BY SECURITY SYSTEM INSTALLER. INOVONICS EN4204R RECEIVERS, QUANTITY AS REQUIRED FOR FUNCTIONAL SYSTEM CSI STANDARDIZED PRODUCT	✓	WHITE	INN

HARDWARE GROUP NO. F2

FOR USE ON DOOR #(S):

F8a, b, c, d						
QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
4	EA	WIRELESS ELECTRONIC HANDLE SET, CYLINDER LOCK, CLASSROOM, MULTI-TECH, RHODES LEVER, SATIN CHROME FINISH.	AD-400-CY-50-MT-RHO,626 (LEVER PREP AND CONFIGURATION AS REQ) BATTERY POWERED CSI STANDARDIZED PRODUCT	✓	626	SCE
1	EA	PIM	PIM400-1501 CSI STANDARDIZED PRODUCT	✓		SCE

HARDWARE GROUP NO. F3

FOR USE ON DOOR #(S):

F3a		F5a	F7a	F9a	F10a	F12a
QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
1	EA	WIRELESS ELECTRONIC HANDLE SET, CYLINDER LOCK, CLASSROOM, MULTI-TECH, RHODES LEVER, SATIN CHROME FINISH.	AD-400-CY-50-MT-RHO,626 (LEVER PREP AND CONFIGURATION AS REQ) BATTERY POWERED CSI STANDARDIZED PRODUCT	✓	626	SCE
1	EA	PIM	PIM400-1501 CSI STANDARDIZED PRODUCT	✓		SCE
1	EA	WIRELESS DOOR CONTACT AND RECEIVER	INOVONICS EN1210W PROVIDED BY SECURITY SYSTEM INSTALLER. INOVONICS EN4204R RECEIVERS, QUANTITY AS REQUIRED FOR FUNCTIONAL SYSTEM CSI STANDARDIZED PRODUCT	✓	WHITE	INN

HARDWARE GROUP NO. F4

FOR USE ON DOOR #(S):

F1a, b		F6a, b					
QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR	
2	EA	ELECTRIFIED LATCH RETRACTION DEVICE WITH BUILT IN REQUEST TO EXIT AND FIELD INSTALLED LATCH BOLT MONITOR KIT	COMMAND ACCESS TECH. MLRK1-VD + VDLMBKIT-ED CSI STANDARDIZED PRODUCT	✓		CAT	
2	EA	POWER TRANSFER LOOP, BLACK END CAPS	SDC SECURITY PT-2 CSI STANDARDIZED PRODUCT	✓	STAIN LESS STEEL	SDC	
1	EA	MULTI-TECH READER	SCHLAGE MT11 12 VDC CSI STANDARDIZED PRODUCT	✓	BLACK	SCE	
2	EA	WIRED DOOR CONTACT	ARITECH 1076CW-N PROVIDED BY SECURITY SYSTEM INSTALLER CSI STANDARDIZED PRODUCT	✓	WHITE	ARI	

HARDWARE GROUP NO. F5:

FOR USE ON DOOR #(S):

F4a		F11a					
QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR	
1	EA	WIRED DOOR CONTACT DOOR TRACK MOUNTED	WBOX TECHNOLOGIES OE-DC4811 CSI STANDARDIZED PRODUCT	✓	AL	WBX	

HARDWARE GROUP NO. KS1

FOR USE ON DOOR #(S):

KS1							
QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR	
1	EA	WIRELESS ELECTRONIC HANDLE SET, CYLINDER LOCK, CLASSROOM, MULTI-TECH, RHODES LEVER, SATIN CHROME FINISH.	AD-400-CY-50-MT-RHO,626 (LEVER PREP AND CONFIGURATION AS REQ) BATTERY POWERED CSI STANDARDIZED PRODUCT	✓	626	SCE	
1	EA	PIM	PIM400-1501	✓		SCE	

SECTION 088000 - GLAZING

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Glass glazing for doors.
- B. Related Sections:
 - 1. Section 081314 – Standard Steel Doors
 - 2. Section 084113 - Aluminum Framed Entrances and Storefronts

1.2 REFERENCES

- A. American National Standards Institute:
 - 1. ANSI Z97.1 - Safety Glazing Materials Used in Buildings Safety.
- B. ASTM International:
 - 1. ASTM C864 - Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers.
 - 2. ASTM C920 - Standard Specification for Elastomeric Joint Sealants.
 - 3. ASTM C1036 - Standard Specification for Flat Glass.
 - 4. ASTM C1193 - Standard Guide for Use of Joint Sealants.
 - 5. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
 - 6. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials.
 - 7. ASTM E2190 - Standard Specification for Insulating Glass Unit Performance and Evaluation.
 - 8. ASTM E1886 - Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials.
- C. Consumer Products Safety Commission:
 - 1. CPSC 16 CFR 1201 - Safety Standard for Architectural Glazing.
- D. Glass Association of North America:
 - 1. GANA - Sealant Manual.
 - 2. GANA - Glazing Manual.
 - 3. GANA - Laminated Glass Design Guide.
- E. National Fenestration Rating Council Incorporated:
 - 1. NFRC 100 - Procedures for Determining Fenestration Product U-Factors.
 - 2. NFRC 200 - Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence.
- F. NFRC 300 - Test Method for Determining the Solar Optical Properties of Glazing Materials and Systems.

1.3 PERFORMANCE REQUIREMENTS

- A. Provide glass and glazing materials for continuity of building enclosure vapor retarder and air barrier:

1. To utilize inner pane of multiple pane sealed units for continuity of air barrier and vapor retarder seal.
 2. To maintain continuous air barrier and vapor retarder throughout glazed assembly from glass pane to heel bead of glazing sealant. Structural Design: Design in accordance with applicable code for most critical combination of wind, snow, seismic, and dead loads.
- B. Wind Loads: Design and size glass to withstand positive and negative wind loads acting normal to plane of wall, including increased loads at building corners.
- C. Seismic Loads: Design and size components to withstand seismic loads and sway displacement as calculated in accordance with applicable code.
- D. Exterior Glass Deflection: Maximum of 1/175 of glass edge length or 3/4 inch, whichever is less with full recovery of glazing materials.
- E. Interior Glass Deflection: Maximum differential deflection for two adjacent unsupported edges when 50 plf forces is applied to one panel at any point up to 42 inches above finished floor less than thickness of glass.
- F. Thermal and Solar Optical Performance: Measured or calculated in accordance with the following:
1. Maximum U-Values: Comply with ICC IEEC for climate zone in which project is located. Measure in accordance with NFRC 100.
 2. Maximum SHGC: Comply with ICC IEEC for climate zone in which project is located. Measure in accordance with NFRC 200.
 3. Solar Optical Properties: NFRC 300.

1.4 SUBMITTALS

- A. Section 013300 - Submittal Procedures: Submittal procedures.
- B. Product Data:
1. Glass: Provide structural, physical, and thermal and solar optical performance characteristics, size limitations, and special handling or installation requirements.
 2. Glazing Sealants, Compounds and Accessories: Provide chemical, functional, and environmental characteristics, limitations, special application requirements. Identify available colors were exposed.
- C. Samples:
1. Glass: Submit two samples 6 x 6 inch in size, illustrating each glass units, coloration and design.
- D. Manufacturer's Certificate: Certify sealed insulating glass, meets or exceeds specified requirements.
- E. Installer's Certificate: Certify glass furnished without identification label is installed in accordance with Construction Documents and applicable code.

1.5 QUALITY ASSURANCE

- A. Perform Work in accordance with GANA Glazing Manual, GANA Sealant Manual, and GANA Laminated Glass Design Guide for glazing installation methods.

1.6 QUALIFICATIONS

- A. Installer: Company specializing in performing Work of this section with minimum three years' experience approved by manufacturer.

1.7 ENVIRONMENTAL REQUIREMENTS

- A. Section 016000 - Product Requirements.
- B. Do not install glazing when ambient temperature is less than 50 degrees F.
- C. Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

1.8 WARRANTY

- A. Section 017700 - Closeout Procedures: Product warranties and product bonds.
- B. Furnish ten year warranty to include coverage for sealed glass units from seal failure, interpane dusting or misting, and replacement of same.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Glass
 - 1. ACH Glass Operations.
 - 2. AFG Industries, Inc.
 - 3. Guardian Industries Corp.
 - 4. PPG Industries.
 - 5. Pilkington North America, Inc.
 - 6. Substitutions: Section 012500 – Substitution Procedures

2.2 FLOAT GLASS MATERIALS

- A. Annealed Glass: ASTM C1036, Type 1 transparent flat, Quality Q3, float glass.
 - 1. Furnish annealed glass except where heat strengthened or tempered glass is required to meet specified performance requirements.
- B. Tempered Glass: ASTM C1048, Type 1 transparent flat, Quality Q3, Kind FT fully tempered, Condition an uncoated, float glass with horizontal tempering.
 - 1. Furnish tempered glass conforming to CPSC 16 CFR 1201 Category II at locations where safety glass is required by applicable code.

2.3 FLOAT GLASS PRODUCTS

- A. Clear Glass: Annealed and Tempered float glass as specified; Class 1 clear.
 - 1. Clear annealed glass.
 - 2. Clear tempered glass.
 - 3. Minimum Thickness: 1/4 inch.
 - 4. Tempered where required by code
- B. Low E Glass: Annealed and Tempered float glass as specified; Class 1 clear.
 - 1. Clear Low E annealed glass.
 - 2. Clear Low E tempered glass.
 - 3. Minimum Thickness: 1/4 inch.
 - 4. Coating: ASTM C1376; pyrolytic.

2.4 INSULATING GLASS PRODUCTS

- A. Insulating Glass: ASTM E2190; with glass elastomeric glass to mastic silicone sealant edge seal; place reflective film within unit; purge interpane space with dry hermetic air.
 - 1. Total Unit Thickness: 1 inch.
 - 2. Insulating Glass Unit Edge Seal Construction: Aluminum, or Stainless steel, thermally broken, bent and soldered mitered and spigot corners.
 - 3. Insulating Glass Unit Edge Seal Material: clear color.
- B. Double Pane Insulating Vision Glass:
 - 1. Outer Pane: Clear Low E annealed glass.
 - 2. Inner Pane: annealed glass.
 - 3. U-Factor Winter Nighttime: .35 maximum.
 - 4. U-Factor Summer: .35 maximum.
 - 5. Solar Energy Transmittance: 52 percent minimum.
 - 6. Visible Light Transmittance: 74 percent minimum.
 - 7. Solar Heat Gain Coefficient: .62 maximum.
 - 8. Tempered where required by code

2.5 GLAZING SEALANTS

- A. Elastomeric Glazing Sealants: Materials compatible with adjacent materials including glass, insulating glass seals, and glazing channels.
 - 1. Glazing Compounds: As recommended by manufacturer.

2.6 GLAZING ACCESSORIES

- A. Setting Blocks: As recommended by manufacturer.
- B. Spacer Shims: As recommended by manufacturer.
- C. Glazing Clips: Manufacturer's standard type.

2.7 COMPONENTS

- A. Flat Glass: Minimum 1/4 inch unless otherwise indicated.
 - 1. Clear Float Glass: ASTM C1036, Type 1 transparent flat, Class 1 clear, Quality q3 glazing select.
- B. Safety Glass: Conform to CPSC 10 CFR 1201 Category II, total thickness 1/4 inch unless otherwise indicated.
 - 1. Clear Tempered Glass: ASTM C1048, Condition A, uncoated, Type 1 transparent flat, Class 1 clear, Quality q3 glazing select; with horizontal tempering.
 - 2. Clear Laminated Glass: ASTM C1172, clear heat strengthened glass with plastic interlayer.
 - a. Plastic interlayer: Polyvinyl butyral, minimum 0.040 inch thick.
 - b. 1/4" laminated glass consists of two 1/8" angled panes bonded with 0/040 polyvinyl butyral inter layer.
- C. Insulated Glass Units: Total thickness 1 inch.
 - 1. Double Pane Insulated Glass Units: ADTM E774 Class A and E773; with glass elastomer, glass to mastic, or silicone sealant edge seal; purge interpane space with dry hermetic air.
 - a. Type: Sungate 100 (3) manufactured by PPG Industries.
 - b. Outer Pane: Glass Type: 1/4" clear float glass.

- c. Inner Pane: 1/4 clear laminated with Low E (sputtered) coating on third surface
 - 1) Plastic Interlayer: Polyvinyl butyral, minimum 0.040 inch thick.
 - 2) 1/4" laminated glass consists of two 1/8" angled panes bonded with 0.040 inch polyvinyl butyral inter layer.
- d. Frosted Inner Pane 1/4 Frosted Laminated Glass: where called out on drawings
 - 1) Plastic Interlayer: Polyvinyl butyral, minimum 0.040 inch thick.
 - 2) 1/4" laminated glass consists of two 1/8" angled panes bonded with 0.040 inch polyvinyl butyral inter layer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 017300 - Execution: Coordination and project conditions.
- B. Verify openings for glazing are correctly sized and within acceptable tolerance.
- C. Verify surfaces of glazing channels or recesses are clean, free of obstructions impeding moisture movement; weeps are clear, and ready to receive glazing.

3.2 PREPARATION

- A. Clean contact surfaces with solvent and wipe dry.
- B. Seal porous glazing channels or recesses with substrate compatible primer or sealer.
- C. Prime surfaces scheduled to receive sealant.

3.3 INSTALLATION

- A. Perform installation in accordance with GANA Glazing Manual.
 - 1. Glazing Sealants: Comply with ASTM C119 Interior Dry Method (Tape and Tape) Installation:
 - 2. Cut glazing tape to length and set against permanent stops, projecting 1/16 inch above sight line.
 - 3. Place setting blocks at 1/4 points with edge block no more than 6 inches from corners.
 - 4. Rest glazing on setting blocks and push against tape for full contact at perimeter of pane or unit.
 - 5. Place glazing tape on free perimeter of glazing in same manner described above.
 - 6. Install removable stop without displacement of tape. Exert pressure on tape for full continuous contact.
 - 7. Knife trim protruding tap.

3.4 CLEANING

- A. Section 017700 – Closeout Procedures: Final cleaning.
- B. Remove glazing materials from finish surfaces.
- C. Remove labels after Work is complete.
- D. Clean glass and adjacent surfaces.

3.5 PROTECTION OF INSTALLED CONSTRUCTION

- A. Section 017300 - Execution: Protection of installed construction.
- B. After installation, mark pane with an 'X' by using removable plastic tape or paste. Do not mark heat absorbing or reflective glass units.

END OF SECTION 088000

SECTION 099000 - PAINTING AND COATING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes surface preparation and field application of paints, stains, varnishes, and other coatings.

1.2 REFERENCES

- A. ASTM International:
 - 1. ASTM D16 - Standard Terminology for Paint, Related Coatings, Materials, and Applications.
 - 2. ASTM D4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials.
- B. Painting and Decorating Contractors of America:
 - 1. PDCA - Architectural Painting Specification Manual.
- C. SSPC: The Society for Protective Coatings:
 - 1. SSPC - Steel Structures Painting Manual.

1.3 DEFINITIONS

- A. Conform to ASTM D16 for interpretation of terms used in this section.

1.4 SUBMITTALS

- A. Section 013300 - Submittal Procedures: Submittal procedures.
- B. Product Data: Submit data on finishing products and special coating.
- C. Samples:
 - 1. Submit paper chip samples illustrating range of colors available for each surface finishing product scheduled.

1.5 CLOSEOUT SUBMITTALS

- A. Section 017700 - Closeout procedures.
- B. Operation and Maintenance Data: Submit data on cleaning, touch-up, and repair of painted and coated surfaces.

1.6 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.
- B. Applicator: Company specializing in performing work of this section with minimum five years documented experience.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Section 016000 - Product Requirements: Product storage and handling requirements.
- B. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
- C. 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.
- D. Paint Materials: Store at minimum ambient temperature of 45 degrees F and maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

1.8 ENVIRONMENTAL REQUIREMENTS

- A. Section 016000 - Product Requirements.
- B. Do not apply materials when surface and ambient temperatures are outside temperature ranges required by paint product manufacturer.
- C. Do not apply exterior coatings during rain or snow when relative humidity is outside humidity ranges, or moisture content of surfaces exceed those required by 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. Minimum Application Temperature for Varnish and Finishes: 65 degrees F for interior or exterior, unless required otherwise by manufacturer's instructions.
- F. Provide lighting level of 80 ft candle measured mid-height at substrate surface.

1.9 SEQUENCING

- A. Sequence application to the following:
 - 1. Do not apply finish coats until paintable sealant is applied.
 - 2. Back prime wood trim before installation of trim.

1.10 WARRANTY

- A. Section 017700 - Closeout Procedures: Product warranties and product bonds.
- B. Furnish five year manufacturer warranty for paints and coatings.

1.11 EXTRA MATERIALS

- A. Section 017823 – Operation and Maintenance Data: Spare parts and maintenance products.

PART 2 - PRODUCTS

2.1 PAINTS AND COATINGS

- A. Manufacturers: Paint, Transparent Finishes, Stain, Primer Sealers and Block Filler.
 - 1. Benjamin Moore Paint Co.
 - 2. Columbia Paint Co.
 - 3. Devoe Paint Co.

4. Fuller-O'Brien.
5. PPG Architectural Finishes.
6. Sherwin Williams Paint Co
7. Substitutions: Section 012500 – Substitution Procedures

2.2 COMPONENTS

- A. Coatings: Ready mixed, except field catalyzed coatings. Prepare coatings:
 1. To soft paste consistency, capable of being readily and uniformly dispersed to homogeneous coating.
 2. For good flow and brushing properties.
 3. Capable of drying or curing free of streaks or sags.
- B. Accessory Materials: Linseed oil, shellac, turpentine, paint thinners and other materials not specifically indicated but required to achieve finishes specified; commercial quality.
 1. Interior Clear Wood Finishes: Maximum volatile organic compound content in accordance with SCAQMD Rule 1113.
- C. Patching Materials: Latex filler.
- D. Fastener Head Cover Materials: Latex filler.
- E. Exterior Masonry Sealer : Waterborne, U/V Protected Waterproofing Sealer
 1. Manufacturer:
 - a. Sherwin Williams Paint Co: Duron Dura Crete
 - b. Substitutions: Section 012500 – Substitution Procedures
- F. Interior Masonry Sealer : acrylic sealer

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 017300 - Execution: Coordination and project conditions.
- B. Verify surfaces and substrate conditions are ready to receive Work as instructed by product manufacturer.
- C. Examine surfaces scheduled to be finished prior to commencement of work. Report conditions capable of affecting proper application.
- D. Test shop applied primer for compatibility with subsequent cover materials.
- E. Measure moisture content of surfaces using electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
 1. Plaster and Gypsum Wallboard: 12 percent.
 2. Masonry, Concrete, and Concrete Unit Masonry: 12 percent.
 3. Interior Wood: 15 percent, measured in accordance with ASTM D4442.
 4. Exterior Wood: 15 percent, measured in accordance with ASTM D4442.
 5. Concrete Floors: 8 percent.

3.2 PREPARATION

- A. Surface Appurtenances: Remove or mask electrical plates, hardware, light fixture trim, escutcheons, and fittings prior to preparing surfaces or finishing.

- B. Surfaces: Correct defects and clean surfaces capable of affecting work of this section. Remove or repair existing coatings exhibiting surface defects.
- C. Marks: Seal with shellac those which may bleed through surface finishes.
- D. Impervious Surfaces: Remove mildew by scrubbing with solution of tetra-sodium or tri-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.
- E. Aluminum Surfaces Scheduled for Paint Finish: Remove surface contamination by steam or high pressure water. Remove oxidation with acid etch and solvent washing. Apply etching primer immediately following cleaning.
- F. Asphalt, Creosote, or Bituminous Surfaces Scheduled for Paint Finish: Remove foreign particles to permit adhesion of finishing materials. Apply compatible sealer or primer.
- G. Insulated Coverings: Remove dirt, grease, and oil from canvas and cotton.
- H. Concrete Floors: Remove contamination, acid etch, and rinse floors with clear water. Verify required acid-alkali balance is achieved. Allow to dry.
- I. Copper Surfaces Scheduled for Paint Finish: Remove contamination by steam, high pressure water, or solvent washing. Apply vinyl etch primer immediately following cleaning.
- J. Copper Surfaces Scheduled for Natural Oxidized Finish: Remove contamination by applying oxidizing solution of copper acetate and ammonium chloride in acetic acid. Rub on repeatedly for required effect. Once attained, rinse surfaces with clear water and allow to dry.
- K. Gypsum Board Surfaces: Fill minor defects with filler compound. Spot prime defects after repair.
- L. Galvanized Surfaces: Remove surface contamination and oils and wash with solvent. Apply coat of etching primer.
- M. Concrete and Unit Masonry Surfaces Scheduled to Receive Paint Finish: Remove dirt, loose mortar, scale, salt or alkali powder, and other foreign matter. Remove oil and grease with solution of tri-sodium phosphate; rinse well and allow to dry. Remove stains caused by weathering of corroding metals with solution of sodium metasilicate after thoroughly wetting with water. Allow to dry.
- N. Plaster Surfaces: Fill hairline cracks, small holes, and imperfections with latex patching plaster. Make smooth and flush with adjacent surfaces. Wash and neutralize high alkali surfaces.
- O. Uncoated Steel and Iron Surfaces: Remove grease, mill scale, weld splatter, dirt, and rust. Where heavy coatings of scale are evident, remove by hand or power tool wire brushing or sandblasting; clean by washing with solvent. Apply treatment of phosphoric acid solution, ensuring weld joints, bolts, and nuts are similarly cleaned. Spot prime paint after repairs.
- P. Shop Primed Steel Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces. Prime metal items including shop primed items.
- Q. Interior Wood Items Scheduled to Receive Paint Finish: Wipe off dust and grit prior to priming. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried; sand between coats.

- R. Interior Wood Items Scheduled to Receive Transparent Finish: Wipe off dust and grit prior to sealing, seal knots, pitch streaks, and sappy sections with sealer. Fill nailholes and cracks after sealer has dried; sand lightly between coats.
- S. Exterior Wood Scheduled to Receive Paint Finish: Remove dust, grit, and foreign matter. Seal knots, pitch streaks, and sappy sections. Fill nail holes with tinted exterior paintable caulking compound after prime coat has been applied.
- T. Exterior Wood Scheduled to Receive Transparent Finish: Remove dust, grit, and foreign matter; seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes with tinted exterior caulking compound after sealer has been applied.
- U. Glue-Laminated Beams: Prior to finishing, wash surfaces with solvent, remove grease and dirt.
- V. Wood Doors Scheduled for Painting: Seal wood door top and bottom edge surfaces with clear sealer.
- W. Metal Doors Scheduled for Painting: Prime metal door top and bottom edge surfaces.

3.3 EXISTING WORK

- A. Extend existing paint and coatings installations using materials and methods compatible with existing installations and as specified.
- B. When walls have been repaired and repainted, paint application shall be from wall corner to wall corner. Spot painting, or only painting over patched area only is not approved.

3.4 APPLICATION

- A. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.
- B. Apply each coat to uniform appearance. Apply each coat of paint slightly darker than preceding coat unless specified otherwise.
- C. Sand wood and metal surfaces lightly between coats to achieve required finish.
- D. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.
- E. Where clear finishes are required, tint fillers to match wood. Work fillers into grain before set. Wipe excess from surface.
- F. Prime concealed surfaces of interior and exterior woodwork with primer paint.
- G. Prime concealed surfaces of interior wood surfaces scheduled to receive stain or varnish finish with gloss varnish reduced 25 percent with thinner.
- H. When walls have been repaired and repainted, paint application shall be from wall corner to wall corner. Spot painting, or only painting over patched area only is not approved.
- I. Finishing Mechanical And Electrical Equipment:
 - 1. Refer to Division 23 for schedule of color coding and identification banding of equipment, duct work, piping, and conduit.
 - 2. Paint shop primed equipment.
 - 3. Remove unfinished louvers, grilles, covers, and access panels on mechanical

- and electrical components and paint separately.
4. Prime and paint insulated and exposed pipes, conduit, boxes, insulated and exposed ducts, hangers, brackets, collars and supports, and except where items are shop finished.
 5. Paint exposed conduit and electrical equipment occurring in finished areas.
 6. Paint both sides and edges of plywood backboards for electrical and telephone equipment before installing equipment.
 7. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.5 FIELD QUALITY CONTROL

- A. Section 017300 Execution: Field inspecting, testing, adjusting, and balancing.

3.6 CLEANING

- A. Section 017700 - Closeout Procedures: Final cleaning.
- B. Collect waste material which may constitute fire hazard, place in closed metal containers, and remove daily from site.

3.7 SCHEDULE - SHOP PRIMED ITEMS FOR SITE FINISHING

- A. Metal Fabrications (Section 05 50 00).

3.8 SCHEDULE - EXTERIOR SURFACES

- A. Wood - Painted (Opaque):
 1. One coat of alkyd primer sealer.
 2. Two coats of alkyd enamel, gloss or semi-gloss.
- B. Wood - Transparent:
 1. Two coats of stain
- C. Pavement Markings:
 1. Two coats of solvent based acrylic copolymer paint, yellow.
- D. Steel - Unprimed:
 1. One coat of alkyd primer.
 2. Two coats of alkyd enamel, gloss or semi-gloss.
- E. Steel - Shop Primed:
 1. Touch-up with zinc chromate primer.
 2. Two coats of alkyd enamel, gloss or semi-gloss.
- F. Steel - Galvanized:
 1. One coat galvanize primer.
 2. Two coats of alkyd enamel, gloss or semi-gloss.
- G. Aluminum - Mill Finish:
 1. One coat etching primer.
 2. Two coats of alkyd enamel, gloss or semi-gloss.
- H. Concrete, Concrete Block:
 1. Two coats of clear sealer.

- I. When walls have been repaired and repainted, paint application shall be from wall corner to wall corner. Spot painting, or only painting over patched area only is not approved.

3.9 SCHEDULE - INTERIOR SURFACES

- A. Wood - Painted:
 1. One coat of alkyd prime sealer.
 2. Two coats of alkyd enamel, gloss or semi-gloss.
- B. Wood - Transparent:
 1. Filler coat (for open grained wood only).
 2. One coat of stain.
 3. Two coats of varnish, gloss.
- C. Concrete, Concrete Block:
 1. Two coats of clear sealer.
- D. Steel - Unprimed:
 1. One coat of alkyd primer.
 2. Two coats of alkyd enamel, gloss or semi-gloss.
- E. Steel - Primed:
 1. Touch-up with alkyd primer.
 2. Two coats of alkyd enamel, gloss or semi-gloss.
- F. Steel - Galvanized:
 1. One coat galvanize primer.
 2. Two coats of alkyd enamel, gloss or semi-gloss.
- G. Aluminum - Mill Finish:
 1. One coat etching primer.
 2. Two coats of alkyd enamel, gloss or semi-gloss.
- H. Gypsum Board:
 1. One coat of latex primer sealer.
 2. Two coats latex acrylic enamel, gloss or semi-gloss.
- I. When walls have been repaired and repainted, paint application shall be from wall corner to wall corner. Spot painting, or only painting over patched area only is not approved.
 - 1.

END OF SECTION 099000

DIVISION 26 ELECTRICAL WORK

DIVISION 26 ELECTRICAL WORK

SECTION 260500 - GENERAL ELECTRICAL REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Supporting Devices for Electrical Components
 - 2. Concrete Equipment Bases
 - 3. Electrical Demolition
 - 4. Cutting and Patching For Electrical Construction
 - 5. 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 PRIOR APPROVAL

- A. General:
 - 1. Catalog and manufacturer's numbers are for the purpose of establishing standards of quality and types of materials to be used. Products of other manufacturers may be used if equal in quality and design in the opinion of the Design Professional and are specifically approved by the Design Professional, in writing, 10 days prior to close of bidding.
 - 2. Any conflict arising from the use of substituted equipment shall be the responsibility of the supplier of that equipment. The contractor and his supplier shall bear all costs required to make equipment comply with the intent of the plans and specifications.

1.4 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections:

1. Prior approval
 - a. Catalog and manufacturer's numbers are for the purpose of establishing standards of quality and types of materials to be used. Products of other manufacturers may be used if equal in quality and design in the opinion of the Design Professional and are specifically approved by the Design Professional. All submittals for "or equal" approval shall be made no less than ten days prior to bidding.
 - b. Any conflict arising from the use of substituted equipment shall be the responsibility of the supplier of that equipment. The contractor and his supplier shall bear all costs required to make equipment comply with the intent of the plans and specifications.

1.5 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.

1.6 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 location of access panels and doors for electrical items that are concealed by finished surfaces. Access doors and panels as specified.
- D. All electrical drawings are to be read in conjunction with the project specifications and all other related contract drawings.
- E. 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.
- F. 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.

- G. The contractor shall verify all door swings in the field and mount switches on knob side of doors or as approved by the Design Professional.
- H. 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 CONCRETE BASES

- A. Concrete Forms and Reinforcement Materials: As specified.

2.3 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. Firestopping materials and installation requirements as specified.

3.5 CONCRETE BASES

- A. Construct concrete bases of dimensions indicated, but not less than 4 inches larger, in both directions, than supported unit. Follow supported equipment manufacturer's anchorage recommendations and setting templates for anchor-bolt and tie locations, unless otherwise indicated. Use 3000-psi 28-day compressive-strength concrete and reinforcement as specified.

3.6 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.

3.7 FIELD QUALITY CONTROL

- A. Inspect installed components for damage and faulty work, including the following:
 1. Supporting devices for electrical components.
 2. Concrete bases.
 3. Electrical demolition.
 4. Cutting and patching for electrical construction.
 5. Touchup painting.

3.8 REFINISHING AND TOUCHUP PAINTING

- A. Refinish and touch up paint. Paint materials and application requirements are specified in Section 099000 - "Painting and Coating."

3.9 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 260500

SECTION 260519 - WIRE AND CABLE

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 REFERENCES

- 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 PRIOR APPROVAL

- A. General:
 - 1. Catalog and manufacturer's numbers are for the purpose of establishing standards of quality and types of materials to be used. Products of other manufacturers may be used if equal in quality and design in the opinion of the Design Professional and are specifically approved by the Design Professional, in writing, 10 days prior to close of bidding.
 - 2. Any conflict arising from the use of substituted equipment shall be the responsibility of the supplier of that equipment. The contractor and his supplier shall bear all costs required to make equipment comply with the intent of the plans and specifications.

1.4 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections:
 - 1. Prior approval:
 - a. Catalog and manufacturer's numbers are for the purpose of establishing standards of quality and types of materials to be used. Products of other manufacturers may be used if equal in quality and design in the opinion of the Design Professional and are specifically approved by the Design Professional, in writing, 10 days prior to close of bidding.
 - b. Any conflict arising from the use of substituted equipment shall be the

responsibility of the supplier of that equipment. The contractor and his supplier shall bear all costs required to make equipment comply with the intent of the plans and specifications.

2. Product Data: For each electrical product indicated.
3. Shop Drawings:
 - a. Do not purchase equipment before completion of shop drawing review.
 - b. Design Professional 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.
4. Field Test Reports: Indicate and interpret test results for compliance with performance requirements.

1.5 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.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver wires and cables according to NEMA WC 26.

1.7 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.
- 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. Service Entrance: Type RHW or THWN, in raceway
- B. Horizontal Feeders: Type THHN/THWN, in raceway
- C. Vertical Feeders: Type THHN/THWN in raceway
- D. Horizontal Branch Circuits: Type THHN/THWN, in raceway
- E. Vertical Branch Circuits: Type THNN/THWW in raceway
- F. Fire alarm Circuits: Power-limited, fire-protective, signaling circuit cable.
- G. Class 1 Control Circuits: Type THHN/THWN, in raceway

- H. Class 2 Control Circuits: Type THHN/THWN, 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 - General.
- F. Seal around cables penetrating fire-rated elements accordingly.
- 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. Procedures: Perform each visual and mechanical inspection and electrical test stated in NETA ATS, Section 7.3.1. Certify compliance with test parameters.
- 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 260519

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 PRIOR APPROVAL

- A. General:
1. Catalog and manufacturer's numbers are for the purpose of establishing standards of quality and types of materials to be used. Products of other manufacturers may be used if equal in quality and design in the opinion of the Design Professional and are specifically approved by the Design Professional, in writing, 10 days prior to close of bidding.
 2. Any conflict arising from the use of substituted equipment shall be the responsibility of the supplier of that equipment. The contractor and his supplier shall bear all costs required to make equipment comply with the intent of the plans and specifications.

1.4 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections:
 - 1. Prior approval
 - a. Catalog and manufacturer's numbers are for the purpose of establishing standards of quality and types of materials to be used. Products of other manufacturers may be used if equal in quality and design in the opinion of the Design Professional and are specifically approved by the Design Professional, in writing, 10 days prior to close of bidding.
 - b. Any conflict arising from the use of substituted equipment shall be the responsibility of the supplier of that equipment. The contractor and his supplier shall bear all costs required to make equipment comply with the intent of the plans and specifications.
 - 2. Product Data: For ground rods
 - 3. Shop Drawings:
 - a. Do not purchase equipment before completion of shop drawing review.
 - b. Design Professional 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.
 - 4. Field Test Reports: Indicate and interpret test results for compliance with performance requirements.

1.5 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 - Wire and Cable.
- 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. Ground Conductor and Conductor Protector for Wood Poles: As follows:
 - 1. No. 4 AWG minimum, soft-drawn copper conductor.
 - 2. Conductor Protector: Half-round PVC or wood molding. If wood, use pressure-treated fir, or cypress or cedar.
- J. Equipment Ground Conductor (Green) shall be included with all circuit conductors. 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.

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. Computer Outlet Circuits: Install insulated equipment grounding conductor in branch-circuit runs from computer-area power panels or power-distribution units.
- D. Isolated Grounding Receptacle Circuits: Install an insulated equipment grounding conductor connected to the receptacle grounding terminal. Isolate grounding conductor from raceway and from panelboard grounding terminals. Terminate at equipment grounding conductor terminal of the applicable derived system or service, unless otherwise indicated.
- E. Isolated Equipment Enclosure Circuits: For designated equipment supplied by a branch circuit or feeder, isolate equipment enclosure from supply raceway with a nonmetallic raceway fitting listed for the purpose. Install fitting where raceway enters enclosure, and install a separate equipment grounding conductor. Isolate equipment grounding conductor from raceway and from panelboard grounding terminals. Terminate at equipment grounding conductor terminal of the applicable derived system or service, unless otherwise indicated.
- F. Nonmetallic Raceways: Install an equipment grounding conductor in nonmetallic raceways unless they are designated for telephone or data cables.
- G. Air-Duct Equipment Circuits: Install an equipment grounding conductor to duct-mounted electrical devices operating at 120 V and more, including air cleaners and heaters. Bond conductor to each unit and to air duct.
- H. 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.

END OF SECTION 260526

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
 - j. MC Cable (not used on this project)
 2. Boxes, enclosures, and cabinets include the following:
 - a. Device boxes
 - b. Floor boxes
 - c. Outlet boxes
 - d. Pull and junction boxes
 - e. 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.
- H. MC: Metal clad cable (not used on this project)

1.4 PRIOR APPROVAL

- A. General:
 - 1. Catalog and manufacturer's numbers are for the purpose of establishing standards of quality and types of materials to be used. Products of other manufacturers may be used if equal in quality and design in the opinion of the Design Professional and are specifically approved by the Design Professional, in writing, 10 days prior to close of bidding.
 - 2. Any conflict arising from the use of substituted equipment shall be the responsibility of the supplier of that equipment. The contractor and his supplier shall bear all costs required to make equipment comply with the intent of the plans and specifications.

1.5 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections:
 - 1. Prior approval
 - a. Catalog and manufacturer's numbers are for the purpose of establishing standards of quality and types of materials to be used. Products of other manufacturers may be used if equal in quality and design in the opinion of the Design Professional and are specifically approved by the Design Professional, in writing, 10 days prior to close of bidding.
 - b. Any conflict arising from the use of substituted equipment shall be the responsibility of the supplier of that equipment. The contractor and his supplier shall bear all costs required to make equipment comply with the intent of the plans and specifications.
 - 2. Product Data: For surface raceways, wireways and fittings, floor boxes, hinged-cover enclosures, and cabinets.
 - 3. Shop Drawings:
 - a. Dimensioned plans and sections or elevation layouts of electricity-metering

- equipment.
 - b. Do not purchase equipment before completion of shop drawing review.
 - c. Design Professional 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.
4. Field Test Reports: Indicate and interpret test results for compliance with performance requirements.
- B. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections:

1.6 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.

1.7 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)

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.
- D. MC cable shall not be used on this project.

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 - General.
- 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 1 locknut, use 2 locknuts: 1 inside and 1 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 260533

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 PRIOR APPROVAL

A. General:

1. Catalog and manufacturer's numbers are for the purpose of establishing standards of quality and types of materials to be used. Products of other manufacturers may be used if equal in quality and design in the opinion of the Design Professional and are specifically approved by the Design Professional, in writing, 10 days prior to close of bidding.
2. Any conflict arising from the use of substituted equipment shall be the responsibility of the supplier of that equipment. The contractor and his supplier shall bear all costs required to make equipment comply with the intent of the plans and specifications.

1.4 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections:

1. Prior approval
 - a. Catalog and manufacturer's numbers are for the purpose of establishing standards of quality and types of materials to be used. Products of other manufacturers may be used if equal in quality and design in the opinion of the Design Professional and are specifically approved by the Design Professional, in writing, 10 days prior to close of bidding.
 - b. Any conflict arising from the use of substituted equipment shall be the responsibility of the supplier of that equipment. The contractor and his supplier shall bear all costs required to make equipment comply with the intent of the plans and specifications.
2. Product Data: For each electrical identification product indicated.
3. Shop Drawings:
 - a. Dimensioned plans and sections or elevation layouts of electricity-metering equipment.

- b. Do not purchase equipment before completion of shop drawing review.
 - c. Design Professional 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.
4. Field Test Reports: Indicate and interpret test results for compliance with performance requirements.

1.5 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. Color Banding Raceways and Exposed Cables: Band exposed and accessible raceways of the systems listed below:
 - 1. Bands: Pretensioned, wraparound plastic sleeves; colored adhesive tape; or a combination of both. Make each color band 2 inches wide, completely encircling conduit, and place adjacent bands of two-color markings in contact, side by side.
 - 2. Band Locations: At changes in direction, at penetrations of walls and floors, at 50-foot maximum intervals in straight runs, and at 25-foot maximum intervals in congested areas.
 - 3. Apply the following colors to the systems listed below:
 - a. Fire Alarm System: Red.
 - b. Fire-Suppression Supervisory and Control System: Red and yellow.
 - c. Combined Fire Alarm and Security System: Red and blue.
 - d. Security System: Blue and yellow.
 - e. Mechanical and Electrical Supervisory System: Green and blue.
 - f. Telecommunication System: Green and yellow.
- F. 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.
- G. 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.
- H. 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.
- I. Secondary Service, Feeder, and Branch-Circuit Conductors: Color-code throughout the secondary electrical system.
 - 1. Color-code 240/120-V single phase system as follows:
 - a. Phase A: Black
 - b. Phase B: Red
 - c. Neutral: White

- d. Ground: Green
2. Color-code 208/120-V single phase system as follows:
 - a. Phase A: Black
 - b. Phase B: Red
 - c. Phase C: Blue
 - d. Neutral: White
 - e. Ground: Green
3. 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.
- J. 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.
- K. 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.
- L. 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.
- M. 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. Telephone switching equipment.
9. Label inside of all switch plates and cover plates with panel and circuit numbers.

END OF SECTION 260553

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 PRIOR APPROVAL

- A. General:
 - 1. Catalog and manufacturer's numbers are for the purpose of establishing standards of quality and types of materials to be used. Products of other manufacturers may be used if equal in quality and design in the opinion of the Design Professional and are specifically approved by the Design Professional, in writing, 10 days prior to close of bidding.
 - 2. Any conflict arising from the use of substituted equipment shall be the responsibility of the supplier of that equipment. The contractor and his supplier shall bear all costs required to make equipment comply with the intent of the plans and specifications.

1.4 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections:
 - 1. Prior approval
 - a. Catalog and manufacturer's numbers are for the purpose of establishing standards of quality and types of materials to be used. Products of other manufacturers may be used if equal in quality and design in the opinion of the Design Professional and are specifically approved by the Design Professional, in writing, 10 days prior to close of bidding.
 - b. Any conflict arising from the use of substituted equipment shall be the responsibility of the supplier of that equipment. The contractor and his supplier shall bear all costs required to make equipment comply with the intent of the plans and specifications.
 - 2. Product Data: For each electrical product indicated.
 - 3. Shop Drawings:
 - a. Product Data: Submit manufacturer's catalog information showing dimensions, colors, and configurations.
 - b. Do not purchase equipment before completion of shop drawing review.

- c. Design Professional 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.
 - 4. Field Test Reports: Indicate and interpret test results for compliance with performance requirements.
- B. Submit "Letter of Conformance" in accordance with Section 013300 "Submittal Procedures" 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 1.

1.5 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"

1.6 COORDINATION

- A. Receptacles for Owner-Furnished Equipment: Match plug configurations.
 - 1. Cord and Plug Sets: Match equipment requirements.

1.7 EXTRA MATERIALS

- A. Furnish extra materials described that match products installed and that are packaged with protective covering for storage and identified with labels describing contents. Deliver extra materials to Owner.

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.

D. Approved Manufacturers:

1. For receptacles:

	15A <u>Recept.</u>	20A <u>Recept.</u>	15A GFCI <u>Receptacles</u>	15A <u>Surge Protected</u>
a. Cooper Wiring Devices	5262	5362	GF15A/XGF15A	5250/1208
b. Hubbell	5262	5362	GF5262	5262S
c. Leviton	5262	5362	6598	
d. Pass & Seymour	5262	5362	1595-I	

2. Approved manufacturers for tamper resistant, weather resistant GFCI receptacles:

	15A GFCI <u>Tamper/Weather Resistant</u>	20A GFCI <u>Tamper/Weather Resistant</u>
a. Cooper Wiring Devices	TWRVGF15W	TWRVG20W
b. Hubbell	GFTR15W	GFTR20W
c. Leviton	W7599-TW	W7899-TW
d. Pass & Seymour	1595TRWRW	2095TRWRW

E. In Use Weatherproof Covers -

1. Approved Manufacturer -

- a. TayMac MX3200 Extra Heavy Duty
- b. Intermatic WP3110MXD, WP1030MXD, WP1010MXD, WP1010HMXD
- c. Design Professional approved equal

2.2 TOGGLE SWITCHES

A. Snap Switches: General-duty, quiet type.

B. 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.

1. Switch: 20 A, 120/277-VAC.
2. Receptacle: NEMA WD 6, Configuration 5-15R.

C. Approved Manufacturers for Switches -

	15A <u>Switches</u>	20A <u>Switches</u>	15A <u>Three-Way Switches</u>
1. Cooper Wiring Devices	1201	2221	1203
2. Hubbell	HBL1201	HBL1221	HBL1203
3. Leviton	1201	1202	1203
4. Pass & Seymour	15AC-1	20AC-1	15AC-3

D. Light switches for emergency power circuits shall be red. Normal power circuits ivory.

- E. 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.
- F. Approved Manufacturers for occupancy sensors:
 - 1. Sensor Switch CMR PDT 10 (line voltage) ceiling
 - 2. Sensor Switch WSD PDT (line voltage - wall)
 - 3. Sensor Switch WSD PDT 2 (line voltage two pole – wall)
 - 4. Design Professional approved equal

2.3 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 stainless steel.
 - 4. Color:
 - a. Stainless steel

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 on load side of dimmers.
- 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 manufacturer's 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. Check TVSS receptacle indicating lights for normal indication.
- C. Test GFCI operation with both local and remote fault simulations according to manufacturer's written instructions.
- D. 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 262726

DIVISION 27 COMMUNICATIONS

DIVISION 27 COMMUNICATIONS

SECTION 271343 - COMMUNICATION SERVICES CABLING

PART 1 - GENERAL

1.1 GENERAL

- A. This document provides minimum standards and direction for a structured cable system to be installed as part of this project.
- B. All new cabling must conform to BICSI TDMM, ANSI/TIA/EIA, NEMA, and NFPA standards and integrate with the existing infrastructure.

1.2 STANDARDS

- A. Building structured wiring systems shall meet the cabling conventions of CSI Networking & Telecommunications Department to include adherence to the most currently available Building Industry Consulting Service International (BICSI) Telecommunications Distribution Methods Manual (TDMM 10th 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 manuals as adopted by CSI.
- B. Bidders shall be fully acquainted with the above referenced standards and be fully qualified, as outlined in the Telecommunications contractor qualifications, to bid on and perform work. Bidders shall have demonstrated manufacturer authorization, qualifications and certifications to install and test a Category 6 All station and riser cabling shall be tested and certified by successful bidder to support 1000BaseTX/FX technology. Additionally, the successful bidder will be required to meet CSI conventions and standards. The successful bidder will be required to meet with and coordinate with a representative of CSI prior to work beginning, and weekly, during the installation process. Weekly meetings will include a site inspection to ensure compliance with the defined standards contained in this document. 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. Additionally, contractor will work with CSI to ensure proper placement and routing of cable and support hardware. The specified Structured Cable Wiring Standards are to be used as a minimum requirement.

1.3 TELECOMMUNICATIONS CONTRACTOR QUALIFICATIONS

- A. CSI requires only qualified and experienced Telecommunications contractors perform design, project management, and installation services in the construction of the CSI structured cabling infrastructure. Pursuant to this, CSI wants to ensure that successful contractors have the manufacturer authorizations, capabilities, qualifications, financial stability, and experience to complete Telecommunications installations using common industry practices (i.e. BICSI TDMM, ANSI/TIA/EIA, NEMA, NFPA, etc.) while meeting

all CSI guidelines.

- B. 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.
- C. 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-GOLD, CIP- PLATINUM, and multi-site/national contractor). A copy of certification documents must be submitted with the quote in order for such quote to be valid. The Telecommunications contractor is responsible for workmanship and installation practices in accordance with the Ortronics CI/CIP Program Ortronics will extend a 25-year Warranty to the end user once the Telecommunications contractor fulfills all requirements under Ortronics CI/CIP. At least 30 percent of the copper installation and termination crew must be certified by BICSI and Ortronics, with a Technicians Level of Training.
- D. Prior to submitting bid, bidder is required to carefully consider the amount and character of the work to be done, as well as the difficulties involved in its proper execution. Bidder should include in their bid all costs deemed necessary to cover contingencies essential to successfully installing the specified system. Any cost not specifically itemized in the proposal shall not be incurred unless specifically agreed upon by all parties and documented in writing. No claims for compensation will be considered or allowed for extra work resulting from lack of knowledge of any existing conditions on the part of the bidder.
- E. As a requirement to bidding and performing awarded work, Telecommunications contractor shall have a currently trained, registered, and certified BICSI Technician on staff as a full time employee. A copy of certifications and BICSI member number must be provided with bidding documents.
- F. 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 1.8 Materials)

1.4 PRIOR APPROVAL

- A. General:
 - 1. Catalog and manufacturer's numbers are for the purpose of establishing standards of quality and types of materials to be used. Products of other manufacturers may be used if equal in quality and design in the opinion of the Design Professional and are specifically approved by the Design Professional, in writing, 10 days prior to close of bidding.
 - 2. Any conflict arising from the use of substituted equipment shall be the responsibility of the supplier of that equipment. The contractor and his supplier

shall bear all costs required to make equipment comply with the intent of the plans and specifications.

1.5 PROGRESS MEETINGS

- A. The successful bidder will be required to meet with and coordinate with a representative of CSI prior to work beginning, and weekly, during the installation process. Weekly meetings will include a site inspection to ensure compliance with established standards. The successful electrical and Telecommunications contractor(s) will follow appropriate installation guidelines, as contained in the most currently available BICSI TDMM, ANSI/TIA/EIA Wiring Standards, NEMA and NFPA 70 National Electrical Code manuals. Additionally, contractor will work with CSI to ensure proper placement, routing, labeling, and documentation of cable and support hardware.

1.6 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections:
1. Prior approval
 - a. Catalog and manufacturer's numbers are for the purpose of establishing standards of quality and types of materials to be used. Products of other manufacturers may be used if equal in quality and design in the opinion of the Design Professional and are specifically approved by the Design Professional, in writing, 10 days prior to close of bidding.
 - b. Any conflict arising from the use of substituted equipment shall be the responsibility of the supplier of that equipment. The contractor and his supplier shall bear all costs required to make equipment comply with the intent of the plans and specifications.
 2. Product Data for each item of telecommunications equipment
 3. Shop Drawings:
 - a. Catalog and manufacturer's numbers are for the purpose of establishing standards of quality and types of materials to be used. Products of other manufacturers may be used if equal in quality and design in the opinion of the Design Professional and are specifically approved by the Design Professional, in writing, 10 days prior to close of bidding.
 - b. Any conflict arising from the use of substituted equipment shall be the responsibility of the supplier of that equipment. The contractor and his supplier shall bear all costs required to make equipment comply with the intent of the plans and specifications.
 - c. Do not purchase equipment before completion of shop drawing review.
 - d. Design Professional 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.
 4. Field Test Reports: Indicate and interpret test results for compliance with performance requirements.

1.7 DOCUMENTATION

- A. Prior to system acceptance, the successful bidder shall submit to the design consultant fully documented 8.5" x 11" 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: 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.

1.8 MATERIALS

The Telecommunications contractor must be an approved Certified Installer for the solution provided. A copy of certification documents must be submitted with the quote in order for such quote to be valid. The Telecommunications contractor is responsible for workmanship and installation practices in accordance with the Ortronics CI/CIP Program. At least 30 percent of the copper installation and termination crew must be certified by BICSI , or BICSI and Ortronics, with a Technicians Level of Certification.

Bidder should expect to present quotes based on the following manufacturer's products. The horizontal workstation structured cabling system shall be an Ortronics. Bidder shall be authorized and certified, by the manufacturer's representative, to install, certify, and warranty, the structured cabling system. The specified Ortronics solution is substitutable with 10 day prior approval.

- A. Horizontal Work Station Cable:
 - 1. Category 6, 4 twisted pair, 23 AWG, Station Wire for Plenum air return systems.
 - 2. Irrespective of air handling space, CSI requires the use of CMP Plenum rated cable for smoke and fire mitigation.
 - 3. Or approved equal.
- B. Other-
 - 1. Panduit HLT21-XO Black Velcro 8" Tie Wrap, 10 pack, or approved equal.
 - 2. ERICO, Inc., CADDY CableCat Fasteners ("J" Hooks), or approved equal.
 - 3. Carlon CF4X1C-5200 corrugated FEP orange inner duct, or approved equal.

PART 2 - CABLE PLANT

2.1 EQUIPMENT AND TELECOMMUNICATIONS ROOM REQUIREMENTS

- A. No Intra or Inter-building telecommunications cable shall be run adjacent and parallel

to power cabling. A minimum of 5" distance is required from any fluorescent lighting fixture or power line up to 2kVA and 24" 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.

2.2 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" inside diameter per workstation outlet. There shall be no daisy-chain conduit runs. Each location shall require one 3/4" 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. Conduit runs shall have no more than (2) right angle bends.
 - 2. 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" distance is required from any fluorescent lighting fixture or power line up to 2kVA and 24" 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.

2.3 GLOSSARY

- A. BDF Building Distribution Frame
- B. BEF Building Entrance Frame

- C. BET Building Entrance Termination
- D. BICSI Building Industry Consulting Service International ER Equipment Room
- E. HC Horizontal Cross Connect
- F. IC Intermediate Cross Connect
- G. IDF Intermediate Distribution Frame
- H. MC Main Cross Connect
- I. MDF Main Distribution Frame
- J. RCDD Registered Communications Distribution Designer TO Telecommunications Outlet
- K. TR Telecommunications Room
- L. UTP Unshielded Twisted Pair
- M. 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 271343

**DIVISION 28 ELECTRONIC SAFETY AND
SECURITY**

DIVISION 28 ELECTRONIC SAFETY AND SECURITY

SECTION 281300 – ACCESS CONTROL SOFTWARE AND DATABASE MANAGEMENT

PART 1 - GENERAL

1.1 RELATED WORK

- A. Division 08 - Door Hardware
- B. Section 282300 – Video Surveillance

1.2 DEFINITIONS

- A. ACS – Access Control System
- B. CSA – Client Software Application
- C. DGM – Dynamic Graphical Maps
- D. ALPR – Automatic License Plate Recognition
- E. SDK – Software Development Kit
- F. GLM – Genetec Lifecycle Management
- G. SSM – Server Software Module
- H. UI – User Interface
- I. USP – Unified Security Platform
- J. USW – Unified Web Client
- K. VMS – Video Management System

1.3 PROJECT LICENSING WORKSCOPE

- A. Genetec licensing:
 - 1. Existing Genetec support licensing has expired. CSI requests all access control licenses, video management licenses, camera licenses to be brought current as part of this project. At the end of the project all licenses are issued such that all licenses have the same renewal date.
 - 2. CSI would like to include a lock down license and part of this project work scope.
 - 3. CSI would like to add Gentec mobile device license application.

4. Access control system door hardware components integrated in lock sets, handle sets, shall be purchased through the access control integration contractor to alleviate issues arising from installation and product warranty requirements. Contractor shall coordinate access control system door hardware components procurement responsibilities with door hardware supplier.

1.4 QUALIFICATIONS

- A. The system programmer will have attended manufacturer training and obtained certification in Genetec™ Security Center - Synergis™ Technical Certification.
- B. Optionally, the system programmer will have attended manufacturer training and obtained certification in Genetec Security Center - Enterprise Technical Certification.
- C. The system programmer shall be a Genetec certified partner with the following level of qualification:
 1. Elite Reseller or better
- D. The system programmer shall submit proof of certification.

PART 2 - PRODUCTS

2.1 ELECTRONIC ACCESS CONTROL SYSTEM GENERAL REQUIREMENTS

- A. The existing ACS is an enterprise class IP access control software solution. It is fully embedded within a Unified Security Platform (USP). The USP allows the seamless unification of the ACS with an IP video management system (VMS).
- B. The existing ACS supports an unrestricted number of logs and historical transactions (events and alarms) with the maximum allowed being limited by the amount of hard disk space available.
- C. The existing ACS supports a variety of access control functionalities, including but not limited to:
 1. Controller (Unit) management, door management, elevator management, and area management.
 2. Cardholder and cardholder group management, credential management, and access rule management.
 3. Badge printing and template creation.
 4. People counting, area presence tracking, and mustering.
 5. Offering a framework for third party hardware integration such as card and signature scanner.
- D. Manufacturer:
 1. Genetec Security Center:
 - a. Existing Synergis Enterprise
- E. Manufacturer:

1. Schlage 9651T Thin Keyfobs
 - a. **Provide 200 thin keyfobs to CSI for owner programming.**

F. Certification

1. The existing ACS is certified.
 - a. UL-294
 - b. ULC-S319
 - c. EN-60839-11-1
 - d. CSPN

2.2 ACS ACCESS MANAGEMENT

- A. The existing ACS is based on an open architecture able to support multiple access control hardware manufacturers. The ACS is be able to integrate with multiple non-proprietary interface modules and controllers, access readers, and other third party applications.
- B. The existing ACS is IP enabled solution. All communication between the ACS and hardware controllers are be based on standard TCP/IP protocol.
- C. Access Manager Role
 1. The Access Manager Role is the server that synchronizes all access control hardware units under its control, such as door controllers and I/Omodules. It is also be able to validate and log all access activities and events when the door controllers and I/Omodules are online.
 2. The Access Manager Role maintains the communication link with the hardware controllers under its control. It also continuously monitors whether the controllers are online or offline.
 3. Synchronization of hardware units are automated and transparent to users and will occur in the background. It is also possible to manually synchronize units or to synchronize units on a schedule.
 4. The Access Manager Role supports doors and controllers located within one or more facilities. The Access Server supports a minimum of 200 readers and up to 2000 readers per computer.
- D. The Access Server stores all access events associated with the doors, areas, hardware zones (hardware input points), elevators, and controllers under its direct control.

2.3 EXISTING ACS HARDWARE COMPATIBILITY LIST

- A. The ACS has an open architecture that supports the integration of third party IP-based door controllers and I/O modules. The ACS simultaneously supports mixed configurations of access control hardware from multiple vendors.
- B. The ACS supports SAM onboard to hold Desfire encryption keys.
- C. The ACS supports 802.1x authentication.

- D. The ACS supports embedded certificate validation engine.
- E. The ACS supports the use of TLS 1.2 and certificates.
- F. The ACS supports OSDP transparent reader mode to read Desfire credentials.
- G. The ACS supports multiple types of hardware devices: single-reader controllers, 2-reader controllers, 1- to 64-reader controllers, integrated readers and door controllers, and Power-over-Ethernet (PoE) enabled door controllers.
- H. The ACS supports most industry standard card readers that output card data using the Wiegand protocol and Clock-and-Data.
- I. The ACS supports the following IP-enabled controllers. For a description of the capabilities of the controller, refer to the specific controller's A&E specifications and design:
 - 1. Synergis Master Controller
 - 2. Synergis Cloud Link
 - 3. Synergis IX
 - 4. SharpV
 - 5. HID VertX
 - 6. HID VertX EVO
 - 7. HID Edge
 - 8. HID Edge EVO
 - 9. PW6000 controllers
 - 10. Mercury EP controllers
 - 11. Mercury LP controllers
 - 12. Mercury SIO module
 - 13. Mercury M5 Bridge
 - 14. Mercury MS Bridge
 - 15. Assa Abloy Aperio RS485 8 to 1 hub
 - 16. Assa Abloy AH40 (IP) hub
 - 17. Assa Abloy IP Locks (no DSR required)
 - a. Corbin Russwin
 - b. Sargent Passport
 - c. Sargent Profile
 - d. IN220
 - 18. Salto Sallis RS485 and PoE routers
 - 19. Schlage AD-300 and AD-400 electronic locks
 - 20. Schlage Control wireless lock
 - 21. Schlage LE Networked wireless Mortise lock
 - 22. Schlage NDE Networked wireless lock
 - 23. Axis A1001
 - 24. Axis A1601
 - 25. STid RS485 readers
 - 26. DDS AS34/TPL4
 - 27. SimonsVoss Smart Intego
- J. The following USB enrollment readers are supported:

1. RF Ideas pcProx HID USB reader for enrolling proximity cards

2.4 EXISTING SEAMLESS UNIFICATION WITH VMS

- A. Through the USP, the ACS supports integration with an IP Video Surveillance System or MVS. Integration with an IP video surveillance system permits the user to view live and recorded video.
- B. Users are be able to associate one or more video cameras to the following entity types: doors, elevator and hardware zones (input points), and more.
- C. The Monitoring UI presents a true Unified Security Interface for access control and video surveillance. Advanced live video viewing and playback of archived video is available through the Monitoring UI.
- D. It is possible to view video associated with access control events when viewing a report.

2.5 EXISTING ACS CONTROLLER (UNIT) MANAGEMENT

- A. The ACS supports the discovery, configuration, and management of IP enabled controllers and I/O modules (hardware units). A user is permitted to add, delete, or modify a controller if they have the appropriate privileges.
- B. The ACS supports unit configuration through a preconfigured door template.
- C. The ACS supports automatic unit discovery. The user can establish the settings for discovery ports and for the types of unit discovery and the ACS will automatically detect all connected devices.
- D. The ACS supports a unit swap utility for swapping out an existing controller with a new controller. The unit swap utility will avoid the reprogramming of the system whenever a unit is replaced. All logs and events from the old unit are to be maintained.
- E. The ACS supports pre-configuration of the system prior to the physical hardware installation.
- F. The ACS supports Firmware upgrade in bulk from the application.

2.6 EXISTING ACS CARDHOLDER AND CARDHOLDER GROUP MANAGEMENT

- A. The ACS supports the configuration and management of cardholders and cardholder groups. A user is able to add, delete, or modify a cardholder or cardholder group if they have the appropriate privileges.
- B. Custom fields are supported for both cardholders and cardholder groups.
- C. The ACS permits the following activation/expiration options for a cardholder's profile: delayed activation of a cardholder's profile, expiration based on the date of first use of

credentials, or expiration on a user-defined date.

- D. It is possible to set a start date and expiration date for the association of a cardholder and an access rule for temporary access.
- E. It is possible to associate a picture to a cardholder's profile. The picture needs to be imported from a file, captured with a digital camera, or captured from a video surveillance camera. When a cardholder event occurs, the picture of the cardholder will be displayed in the Monitoring UI. The ACS supports multiple standard picture formats.
- F. Cardholder groups enable the grouping of cardholders to facilitate mass changes to system settings. It is possible to assign cardholder groups to access rules, thus avoiding the assignment of one cardholder at a time.
- G. It is possible to search by picture association, custom fields, names, and credential codes.
- H. It is possible to select multiple cardholders for immediate deactivation or reactivation.
- I. The ACS supports the synchronization of cardholders and cardholders group through Active Directory including the credentials and pictures of the cardholders. It is possible to import cardholders from Azure AD.
- J. It will support the ability to track unused credentials for x days.

2.7 EXISTING ACS CREDENTIAL MANAGEMENT

- A. The ACS supports the configuration and management of credentials, for example access cards and keypad PIN numbers. A user is able to add, delete, or modify a credential if the user has the appropriate privileges.
- B. The ACS supports reader transparent mode.
- C. Users are able to add Custom Fields (user-defined fields) to credentials. Creating a new credential can be accomplished either manually or automatically.
- D. Automatic creation will allow the user to create a credential entity by presenting a credential to a selected reader. The ACS will read the card data and associate it to the credential entity. It is possible to automatically enroll any card format.
- E. The ACS will support high assurance credentials using validation of a certificate.
- F. The ACS supports multiple credentials per cardholder without necessitating duplicate cardholder information. The ACS automatically detects and prevent attempts to register an already-registered credential.
- G. It is possible to natively encode Desfire credentials from the user interface using customer's own keys and configuration.

- H. Batch enrollment of credentials is supported.
- I. The ACS provides a workflow for badge issuance and card requests.
- J. It is possible to support natively PIV credential in the system.
- K. The ACS supports the use of license plates as a credential.
- L. The ACS supports duress pin.
- M. The ACS natively supports the creation and management of mobile IDs in the same way as other credentials.

2.8 EXISTING ACS CUSTOM CARD FORMATS

- A. A custom card format feature will allow the administrator to add additional custom card formats using an intuitive tool within the Configuration UI. The custom card format tool are flexible in the following ways:
 - 1. Once enrolled, new custom card formats will appear in the card format lists for manual card enrollment.
 - 2. An unrestricted number of additional custom card formats can be added.
 - 3. Supports credential with up to 256 bits.
 - 4. The administrator is able to set the following options when defining a new format:
 - a. The order in which card fields appear in the user interface or CSA.
 - b. Whether a field is hidden from or visible to an operator.
 - c. Whether a field is read only or modifiable by an operator.
 - d. Complex parity checking schemes.
 - e. The order and location of a field's data. Location can be defined on a bit-by-bit basis.
 - f. Application ID and keys for Desfire EV1 credentials.

2.9 EXISTING ACS BADGE DESIGNER

- A. The badge designer will allow the creation of badge templates that define the content and presentation format of a cardholder badge to be printed.
- B. Badge production consists of selecting the credential, the badge template, and clicking print.
- C. Batch printing of cards is available.
- D. The contents of a badge template can include: cardholder's first and last name, picture, custom fields, bitmap graphics, lines, ovals, rectangles, dynamic text labels linked to custom fields and static text labels, and barcodes (Interleaved 2 of 5, Extended Code 39).
- E. Copy and paste of badge template objects is available.
- F. It is possible to set the border thickness and color, the fill color of badge objects

(content), and the color of text labels.

- G. Settings, such as object transparency, text orientation, and auto-sizing of text is available or transparent to the user.
- H. Supported badge formats is (portrait and landscape): CR70 (2.875" x 2.125"), CR80 (3.37" x 2.125"), CR90 (3.63" x 2.37"), CR100 (3.88" x 2.63"), and custom card sizes.
- I. Dual-sided badges is supported.
- J. A badge template import and export function is available to allow the sharing of badge templates between distinct or independent ACS.
- K. Chromakey is supported.

2.10 EXISTING ACS DOOR MANAGEMENT

- A. The ACS supports the configuration and management of doors. A user is able to add, delete, or modify a door if they have the appropriate privileges.
- B. The ACS permit multiple access rules to be associated to a door.
- C. It is possible to unlock all doors from an area at once.
- D. The ACS supports the following forms of authentication: Card Only, Card or Keypad (PIN), or Card and Keypad (PIN). It is possible to define a schedule for when Card Only or Card and Keypad authentication modes is required.
- E. It is possible to set an extended grant time on a per-door basis (in addition to the standard grant time). Cardholder properties includes the option of using the extended grant time. When flagged cardholders are granted access, the door is unlocked for the duration of the extended grant time instead of the standard grant time.
- F. The ACS allows the configuration of the relocking mode on doors such as on door open, after a definite time, or on door close.
- G. The ACS supports the ability to enforce the use of two valid reads from different cardholders to grant access to an area.
- H. The ACS supports the ability to enable access rules for other cardholders once a supervisor has accessed an area.
- I. The ACS supports the ability to enable unlocking schedule on a door once an employee has entered the facility.
- J. Readerless doors.
 - 1. The ACS supports doors configured solely with a lock, a REX, and a door contact but without readers.
 - 2. The implementation of a reader less door is possible with the use of standard

access hardware IO modules. External hardware, such as timers, are not required.

3. Unlocking schedules is programmable for reader less doors.
 4. Standard door activity reports are possible with reader less doors.
- K. Unlocking schedules and exceptions to unlocking schedules is associated with a door. An unlocking schedule will determine when a door is automatically unlocked. The ACS supports the use of a specific offline unlocking schedule. Exceptions to unlocking schedules are used to define time periods during which unlocking schedules are not applied, such as during statutory holidays.
- L. The ACS supports one or more cameras per door. Video will then be associated to door access events, such as access grant or access denied.

2.11 EXISTING ACS ELEVATOR MANAGEMENT

- A. The ACS supports the configuration and management of elevators. A user is able to add, delete, or modify an elevator if they have the appropriate privileges.
- B. The ACS is able to control access to specific floors using a reader within the elevator cab. Control is available through the use of a controller with an interface to a reader and to multiple output modules with relays.
- C. Elevator floor selections is tracked using a controller with an interface to multiple input modules. Floor tracking is available within an elevator activity report.
- D. The elevator control module will continue to function in offline mode if communication between the ACS and the controller fails.
- E. The ACS supports one or more cameras per elevator cab. Video will then be associated to elevator access events, such as access granted, or access denied.

2.12 EXISTING ACS PEOPLE COUNTING & AREA PRESENCE TRACKING (MUSTERING)

- A. The ACS supports people counting (or area presence tracking). The ACS is able to monitor and report the number of cardholders in an area in real-time and for all areas. Monitoring is based on the entire access control infrastructure, for both local areas and those in remote geographic locations. People counting can also be used to perform mustering.
- B. It is possible to control the maximum occupancy of an area by setting a threshold and user notification when reaching the limit.
- C. The ACS will report area presence counts in the UI. Area presence tracks will dynamically track the total number of cardholders in an area. Displayed data is updated dynamically.
- D. The ACS supports mustering through the use of mobile readers (requires additional software and hardware from third-party).

- E. The ACS provides a native dedicated mustering task using a USB, mobile, or wall reader.
- F. The ACS is able to generate an area presence report listing the cardholders located in one or more areas, accessible through the Monitoring UI. It is possible to filter the report by area and time period. The report also includes activity from sub-areas (nested areas).
- G. Through people counting, the ACS is able to generate First Person In and Last Person Out events. The First Person In event will be detected when the first cardholder enters an empty area. The Last Person Out event will be detected when the last cardholder leaves an area. It is possible to trigger actions from both events such as sending a message or triggering an alarm.
- H. The ACS is able to determine the entry of a cardholder based on a dedicated sensor.

2.13 EXISTING ACS CUSTOM FIELDS (USER-DEFINED FIELDS)

- A. The ACS permits the creation of custom fields. Up to 1,000 custom fields are supported.
- B. Custom fields is supported for the following entities: cardholders, cardholder groups, credentials, and visitors.
- C. Supported custom fields includes text, integers, decimal numbers, dates, Boolean, and images (graphics).
- D. Users is able to define a default value for a custom field.
- E. The creation of new custom field types is possible. New custom field types is based on the standard custom fields supported. They support user-defined values from which an operator must make a selection.
- F. Administrators have the ability to define which users can view and modify specific custom fields. This limits the access to custom field data to users with pre-defined privileges. The ACS supports querying and report generation using custom fields.
- G. Custom fields can be grouped and ordered within these groups as defined by the user.
- H. Values for custom fields can be imported using the Import Tool.

2.14 EXISTING ACS IMPORT TOOL

- A. The ACS supports an integrated Import Tool to facilitate the import of existing cardholder and credential data. The import of data is through the use the CSV file format. The tool is available from the Configuration UI.
- B. The Import Tool supports the ability to manually import data that has been exported

from a third party database if it is in CSV format.

- C. The import tool permits the import of the following data:
 - 1. Cardholder name, descriptions, picture, email, and status.
 - 2. Cardholder group information.
 - 3. Credential name, status, format, and card number (including credentials with custom formats).
 - 4. Partition information.
 - 5. Custom fields.
 - 6. Activation date and expiration date.
 - 7. Update cardholder group association.
- D. Full flexibility in selecting the fields to be imported during an import session is available.
- E. The option to use a custom and unique cardholder key is specified during the import process to ensure that cardholders with duplicate names will not have their data overwritten. Cardholder key generation is automated. The end user will have the option to select which fields will be used to create this unique key, for example credential number, custom fields, or cardholder name.
- F. The ACS supports re-importing a CSV file containing new information to update existing information in the ACS database. Re-importing will enable bulk amendments to existing access control data.

2.15 EXISTING GENERAL CLIENT SOFTWARE REQUIREMENTS

- A. The Client Software Applications (CSA) provides the user interface for USP configuration and monitoring over any network and be accessible locally or from a remote connection.
- B. The CSA consists of the Configuration UI for system configuration and the Monitoring UI for monitoring. The CSA is Windows-based and provides an easy-to-use graphical user interface (UI).
- C. The CSA for monitoring supports running in 64-bit mode.
- D. The Server Administrator is used to configure the server database(s). It is web-based and accessible locally on the SSM or across the network.
- E. The CSA will seamlessly merge access control, license plate recognition (ALPR), and video functionalities within the same user application.
- F. The USP will the latest user interface (UI) development and programming technologies such as Microsoft WPF (Windows Presentation Foundation), the XAML markup language, and the .NET software framework.
- G. All applications provide an authentication mechanism, which verifies the validity of the user. As such, the administrator (who has all rights and privileges) can define specific

access rights and privileges for each user in the system.

- H. Logging on to a CSA is done either through locally stored USP user accounts and passwords or using the operator's Windows credentials when Active Directory integration is enabled. Additional license required for Active Directory.
- I. When integrated with Microsoft's Active Directory, the CSA and USP will authenticate users using their Windows credentials. As a result, the USP will benefit from Active Directory password authentication and strong security features. Additional license required for Active Directory.
- J. The CSA supports multiple languages, including but not limited to the following: English, French, Arabic, Czech, Dutch, German, Hebrew, Hungarian, Italian, Japanese, Korean, Norwegian, Persian (Farsi), Polish, Portuguese (Brazilian), Simplified and Traditional Chinese, Russian, Spanish, Swedish, Thai, Turkish, and Vietnamese.
- K. To enhance usability and operator efficiency, the Configuration UI and Monitoring UI supports many of the latest UI such as:
 - 1. A customizable Home Page that includes favorite and recently used tasks.
 - 2. Task-oriented approach for administrator/operator activities where each type of activity (surveillance, visitor management, individual reports, and more) is an operator task.
 - 3. Consolidated and consistent workflows for video, ALPR, and access control.
 - 4. Single click functionality for reporting and tracking. The Monitoring UI supports both single-click reporting for access control, ALPR, and video, as well as single-click tracking of areas, cameras, doors, zones, cardholders, elevators, ALPR entities, and more. Single-click reporting or tracking will create a new task with the selected entities to report on or track.
- L. Configuration UI and Monitoring UI Home Page and Tasks
 - 1. The Configuration UI and Monitoring UI is task oriented.
 - 2. A task is user interface design patterns whose goal is to simplify the user interface by grouping related features from different systems such as video and access, in the same display window. Features is grouped together in a task based on their shared ability to help the user perform a specific task.
 - 3. Tasks is accessible via the Home Page of either the Configuration or the Surveillance CSA.
 - 4. Newly created tasks is accessible via the Configuration UI or the Monitoring UI taskbar.
 - 5. Similar tasks is grouped into the following categories:
 - a. Operation: Access control management, LRP management, and more.
 - b. Investigation: access control activity reports, visitor activity reports, alarm reports, and more.
 - c. Maintenance: Access control, troubleshooters, audit trails, health-related reports, and more.
 - 6. An operator is able to launch a specific task only if they have the appropriate privileges.
 - 7. The Home Page content is customizable through the use of privileges to hide

tasks that an operator will not have access to and through a list of favorite and recently used tasks. In addition, editing a USP XML file to add new tasks on the fly will also be possible.

M. The Contractor provides up to 40 of simultaneous Clients.

2.16 EXISTING CONFIGURATION USER INTERFACE (UI)

A. General

1. The Configuration UI application will allow the administrator or users with appropriate privileges to change the system configuration. The Configuration UI provides decentralized configuration and administration of the USP system from anywhere on the IP network.
2. The configuration of all embedded ACS, VMS, and ALPR systems is accessible via the Configuration UI.
3. The Configuration UI will have a home page with single-click access to various tasks.
4. The Configuration UI includes a variety of tools such as troubleshooting utilities, import tools, and a unit discover tool, amongst many more.
5. The Configuration UI includes a static reporting interface to:
 - a. View historical events based on entity activity. The user is able to perform such actions as printing a report and troubleshooting a specific access event from the reporting view.
 - b. View audit trails that show a history of user/administrator changes to an entity.
6. Common entities such as users, schedules, alarms, and many more, can be reused by all embedded systems (ACS, VMS, and ALPR).

2.17 EXISTING ACS CLIENT USER INTERFACE (UI)

- A. The Monitoring UI will fulfill the role of a Unified Security Interface that is able to monitor video, ALPR, and access control events and alarms, as well as view live and recorded video.
- B. The Monitoring UI provides a graphical user interface to control and monitor the USP over any IP network. It will allow administrators and operators with appropriate privileges to monitor their unified security platform, run reports, and manage alarms.
- C. To enhance usability and operator efficiency, the Monitoring UI supports the following UI concepts:
 1. Dynamically adaptive interface that adjusts in real-time to what the operator is doing.
 2. Dynamic controls loaded with entity-specific widgets (for example, door and camera widgets).
 3. Use of transparent overlays that can display multiple types of data in a seamless fashion.
 4. Display tile menus and quick commands.
 5. Consolidated and consistent workflows.
 6. Tile menus and quick commands easily accessible within every display tile of the

- user workspace.
7. Single click functionality for reporting and tracking. The Monitoring UI supports both single-click reporting for access control, ALPR, and video, as well as single-click tracking of areas, cameras, doors, zones, cardholders, elevators, ALPR entities, and more. Single-click reporting or tracking will create a new task with the selected entities to report on or to track.
- D. Monitoring UI Home Page and Tasks
1. Similar tasks is grouped into the following categories:
 - a. Operation: Access control/LRP/video surveillance, visitor management, mustering, access control and video alarm monitoring, and more.
 - b. Investigation: Video bookmark/motion/archive reports, access control activity reports, visitor activity reports, alarm reports, ALPR activity reports, and more.
 - c. Maintenance: Access control and video configuration reports, troubleshooters, audit trails, and more.
- E. Dynamically Adaptive UI, Controls section, and Widgets
1. The Monitoring UI will dynamically adapt to what the operator is doing. This is accomplished through the concept of widgets that are grouped in the Monitoring UI Controls section.
 2. Widgets is mini-applications or mini-groupings in the Monitoring UI Controls section that let the operator perform common tasks and provide them with fast access to information and actions.
 3. With a single click on an entity (for example, door or camera) the specific widgets associated to that entity appear and other non-relevant widgets disappear dynamically (instantly). Widgets will bring the operator information such as door status and camera stream information, as well as user actions, such as door unlock, PTZ controls, and more.
 4. Specific widgets include those for a door, camera, alarm, zone, display tile, video stream (statistics), PTZ camera, and more.
- F. Operator Workflows
1. A workflow is a sequence of operations an operator or administrator will execute to complete an activity. The “flow” relates to a clearly defined timeline or sequence for executing the activity.
 2. The Monitoring UI is equipped with consistent workflows for the ALPR, video, and access control systems that it unifies.
 3. Generating or printing a report, setting up or acknowledging an alarm, or creating an incident report will follow the same process (workflow) whether the operator is working with video, ALPR, or access control, or with both video and access control.
- G. Each task within the Monitoring UI consists of one or more of the following items:
1. Event list.
 2. Logical tree. Doors, cameras, zones, ALPR units, and elevators is grouped under Areas in a hierarchical fashion.
 3. Entities list of all entities being tracked.
 4. Display tiles with various patterns (1 x 1, 2 x 2, and more).

5. Display tile menu with various commands related to cameras, doors, PTZ, and tile controls.
 6. Control section with widgets.
- H. The Monitoring UI supports multiple event lists and display tile patterns, including:
1. Event/alarm list layout only
 2. Display tile layout only
 3. Display tile and alarm/event list combination
 4. ALPR map and alarm/event list combination
- I. User workspace customization
1. The user will have full control over the user workspace through a variety of user-selectable customization options. Administrators will be able to limit what users and operators can modify in their workspace through privileges.
 2. Once customized, the user is able to save their workspace.
 3. The user workspace is accessible by a specific user from any client application on the network.
 4. Display tile patterns is customizable.
 5. Event or alarm lists span anywhere from a portion of the screen up to the entire screen and is resizable by the user. The length of event or alarm lists is user-defined. Scroll bars enable the user to navigate through lengthy lists of events and alarms.
 6. The Monitoring UI supports multiple display tile patterns (e.g. 1 display tile (1x1 matrix), 16 tiles (8x8 matrix), and multiple additional variations).
 7. The Monitoring UI supports as many monitors as the PC video adapters and Windows Operating System are capable of accepting.
 8. Additional customization options include: show/hide window panes, show/hide menus/toolbars, show/hide overlaid information on video, resize different window panes, and choice of tile display pattern on a per task basis.
- J. The Monitoring UI provides an interface to support the following tasks and activities common to access control, ALPR, and video:
1. Monitoring the events from a live security system (ACS and/or VMS and/or ALPR).
 2. Generating reports, including custom reports.
 3. Monitoring and acknowledging alarms.
 4. Creating and editing incidents and generating incident reports.
 5. Displaying dynamic graphical maps and floor plans, as well as executing actions from dynamic graphical maps and floor plans.
 6. Management and execution of hot actions and macros.
- K. The Monitoring UI is able to monitor the activity of the following entities in real-time: areas, ALPR entities, doors, elevators, cameras, cardholders, cardholder groups, zones (input points), and more. The Monitoring UI provides an interface to support the following access control tasks and capabilities:
1. Monitoring and management of access events and alarms.
 2. Viewing of cardholder picture or badge IDs.
 3. Verification of cardholder picture IDs against live video.
 4. Visitor management.

5. People counting or mustering, including resetting the people count in an area.
 6. Door control, including remotely unlocking doors, overriding a door's unlocking schedules, and enabling door maintenance mode.
 7. Forgiving antipassback.
 8. Generation of ACS configuration and activity reports.
 9. Viewing of HTML files including alarm instructions.
- L. Entity Monitoring
1. The USP permits the user to select multiple entities to monitor from the Monitoring UI by adding the entities one by one to the tracking list.
 2. The Monitoring UI provides the option to filter which events is displayed in the display tile layout, event list layout, or both.
 3. It is possible to lock a Monitoring UI display tile so that it only tracks the activity of a specific entity (for example, a specific door or camera).
 4. The user is able to drag and drop an event from an event list (or an alarm from an alarm list) onto a display tile to view a license plate read, cardholder picture ID, badge ID, or live/archived video, among other options.
 5. Event, alarm, monitoring/tracking, and report lists contain cardholder pictures where applicable.
 6. The user is permitted to start or pause the viewing of events within each display tile.
- M. Display Tile Packing and Unpacking
1. The Monitoring UI supports single-click unpacking and packing for, areas, doors, zones, and alarms.
 2. The packing and unpacking of entities allow operators to quickly obtain additional information and camera views of a specific entity.
 3. The unpacking of an entity displays associated entities. For example, unpacking a door with multiple associated cameras displays all cameras associated with that door. Unpacking will reconfigure the display tiles to be able to display all associated entities. For example, unpacking a door (or a zone or alarm) that is currently in a 1 x 1 tile configuration and that has 3 cameras tied to it will create a 1 x 3 display tile arrangement for viewing all associated entities.
 4. Packing will return the display to the original tile pattern.
- N. The following additional tools or utilities is available from the Monitoring UI: create credentials, create cardholders, and access control troubleshooter.

2.18 EXISTING SERVER ADMINISTRATOR USER INTERFACE REQUIREMENTS

- A. The Server Administrator is used to configure the SSM and the Directory Role (main configuration) and its database(s), to apply the license, and more.
- B. The Server Administrator is a web-based application. Through the Server Administrator, it is possible to access the SSM across the network or locally on the server.
- C. Access to the Server Administrator is protected via login name, password, and encrypted communications.

- D. The Server Administrator allows the administrator (user) to perform the following functions:
 - 1. Manage the system license.
 - 2. Configure the database(s) and database server for the Directory Role.
 - 3. Activate/Deactivate the Directory Role.
 - 4. Manually back up the Directory Role database(s) and/or restore the server database(s), as well as configure scheduled backups of the databases.
 - 5. Define the client-to-server communications security settings.
 - 6. Configure the network communications hardware, including connection addresses and ports.

2.19 EXISTING UNIFIED WEB CLIENT (UWC) GENERAL REQUIREMENTS

- A. The USP supports a unified web client (UWC) for access control, video, and automatic license plate recognition (ALPR).
- B. The UWC is a truly thin client with no download required other than an internet web browser or standard web browser plugins.
- C. The UWC is platform independent and run within Microsoft Internet Explorer, Firefox, Safari, and Google Chrome.
- D. The UWC is designed as an HTML5 application.
- E. The UWC supports display on tablet format.
- F. The UWC will support native H.264 video in the web client.
- G. Web pages for the web client is managed and pushed by the Web Client Server. Microsoft IIS or any other web hosting service will not be required given that all the web pages is hosted by the Mobile Server.
- H. The Web Client Server provides the ability to define a unique URL to access the web client, to ensure the security of the application.
- I. The UWC provides the ability to configure, save, and reload camera layouts.
- J. The UWC provides the ability to control PTZ cameras.
- K. Functionalities:
 - 1. Log in using name and password or Active Directory support is available. Ability for user to change its password.
 - 2. Encrypted communications for all transactions.
 - 3. Print reports and export to CSV file.
 - 4. Access Control.
 - a. Cardholder and group (add/modify/delete)
 - b. Credential management (modify/delete)
 - c. Visitor management (check-in/modify/check-out)
 - d. Unlock door

- e. Override the unlocking schedule on a door
- f. Door Activities report
- 5. Alarms.
 - a. Alarm report
- 6. Threat Level management.
- 7. Automatic License Plate Recognition (ALPR).
 - a. Live monitoring of the ALPR cameras
 - b. ALPR reads and hits report
 - c. Addition of plate numbers to hotlists

2.20 EXISTING SMARTPHONE AND TABLET APP GENERAL REQUIREMENTS

- A. The USP supports mobile apps for various off-the-shelf devices. The mobile apps will communicate with the USP over any Wi-Fi or cellular network connection.
- B. Mobile apps will communicate with the USP via a Mobile Server Role (MSR). All communication between the mobile apps and MSR is based on standard TCP/IP protocol and will use the TLS encryption with digital certificates to secure the communication channel.
- C. Supported device manufacturers includes (refer to Mobile App specifications for latest compatibility list):
 - 1. Apple devices running iOS 11.0 or later
 - 2. Android devices 6.0 or later
- D. It is possible to download the mobile apps from the Central application store (Apple iTunes App Store, Google Play).
- E. Functionalities
 - 1. Core
 - a. Ability to logon/logoff the USP using an authorized use profile of the system.
 - b. Ability to change the picture or the password of the user of the mobile app.
 - c. Ability to view the current Threat Level of the system.
 - d. Ability to change the current Threat Level of the system.
 - e. Ability to execute hot actions configured in the user profile.
 - f. Ability to view entities from the USP:
 - 1) Cameras
 - 2) Doors
 - 3) ALPR cameras
 - 4) Web Tile Plugins
 - 5) Layouts
 - 6) Camera Sequences
 - 7) Macros
 - g. Ability to navigate the system hierarchical view of the entities and search entities in the system.
 - 2. Video
 - a. Ability to view live and recorded video from the cameras of the USP. A maximum of four cameras is displayed.
 - b. Ability to display live and recorded video side-by-side for a specific camera.

- c. Ability to perform digital zoom on cameras.
 - d. Ability to perform actions on cameras, such as add a bookmark, control a PTZ, control the iris/focus function, save a snapshot, and start/stop recording.
 - e. Ability to view camera layouts.
 - f. Ability to view camera sequences.
 - g. Ability to run a camera events report.
 - h. Ability to change the video quality on the cameras displayed on the mobile app.
 - i. Ability to use the camera of the smartphone and stream a live video feed to a video recorder in the system
3. Access Control
- a. Ability to view the door state and the door lock state.
 - b. Ability to perform actions on a door such as unlock the door, set the door in maintenance mode, and override the door unlocking schedule.
4. Automatic License Plate Recognition
- a. Ability to view live events raised by an ALPR camera.
 - b. Ability to view the read image, context image, and all metadata captured by the ALPR camera.
 - c. Ability to run an ALPR event report.
 - d. Ability to add a license plate to a hotlist on the system.
5. Alarm Management
- a. Ability to receive push notifications to notify mobile operators that an alarm was received.
 - b. Ability to view all active alarms assigned to the mobile operator.
 - c. Ability to perform action on an alarm such as acknowledge, forward, or alternate-acknowledge an active alarm.
 - d. Ability to view entities attached to the alarm.
- F. It is possible to send a message from the client user interface to a mobile operator.
- G. It is possible to send a live or playback video sequence from the client UI to a mobile operator.

2.21 EXISTING HEALTH MONITOR

- A. The USP will monitor the health of the system, log health-related events, and calculate statistics.
- B. USP services, roles, agents, units, and client apps will trigger health events.
- C. The USP will populate the Windows Event Log with health events related to USP roles, services, and client apps.
- D. A dedicated role, the Health Monitoring Role, will perform the following actions:
 - 1. Monitor the health of the entire system and log events.
 - 2. Calculate statistics within a specified time frame (hours, days, months).
 - 3. Calculates availability for clients, servers and video/access/ALPR units.

- E. A Health Monitoring task and Health History reporting task is available for live and historical reporting.
- F. A Health Monitoring dashboard task is available in the client application user interface to provide a live display, such as pie charts and event lists, for quick visual assessment on the general health of the system.
- G. A web-based, centralized health dashboard is available to remotely view unit and role health events of the USP.
- H. Detailed system care statistics will be available through a web-based dashboard providing health metrics of USP entities and roles, including Uptime and mean-time-between-failures.
- I. All health events raised in the system can be used for automating the USP event/action management.
- J. Health events is accessible via the SDK (can be used to create SNMP traps).

2.22 USP GENERAL REQUIREMENTS

- A. The Unified Security Platform (USP) is an enterprise class IP-enabled security and safety software solution.
- B. The USP supports the seamless unification of IP access control system (ACS), IP video management system (VMS), and IP automatic license plate recognition system (ALPR) under a single platform. The USP user interface (UI) applications will present a unified security interface for the management, configuration, monitoring, and reporting of embedded ACS, VMS and ALPR systems, and associated edge devices.
- C. Functionalities available with the USP includes:
 - 1. Configuration of embedded systems, such as ACS, ALPR, and VMS systems.
 - 2. Live event monitoring.
 - 3. Live video monitoring and playback of archived video.
 - 4. Alarm management.
 - 5. Reporting, including creating custom report templates and incident reports.
 - 6. Dynamic graphical map viewing.
- D. The USP is deployed in one or more of the following types of installations:
 - 1. Unified access, ALPR, video platform, and any combination thereof.
 - 2. Standalone access control, video, or ALPR platform.
 - 3. Unified access and video platform that federates multiple remote ACS, VMS, and ALPR.
 - 4. Standalone access control that federates multiple independent remote ACS.
- E. Licensing:
 - 1. A single central license is applied centrally on the configuration server.
 - 2. There is no requirement to apply a license at every server computer or client workstation.

3. Based on selected options, one or more embedded systems is enabled or disabled.
- F. Hardware and Software Requirements:
1. The USP and embedded systems (video, license plate recognition, and access control) is designed to run on a standard PC-based platform loaded with a Windows operating system. The preferred operating system is coordinated with the Owner following the manufacturer supported operating systems.
 2. The core client/server software is built in its entirety using the Microsoft .NET software framework and the C# (C-Sharp) programming language.
 3. The USP database server(s) is built on Microsoft's SQL Server. The preferred SQL version is coordinated with the Owner and compatible with the USP.
 4. The USP is compatible with virtual environments, including VMware and Microsoft Hyper-V.
 5. The USP will use the latest user interface (UI) development and programming technologies such as Microsoft WPF (Windows Presentation Foundation), the XAML markup language, and .NET software framework.

2.23 EXISTING USP ARCHITECTURE

- A. The USP is based on a client/server model. The USP consists of a standard Server Software Module (SSM) and Client Software Applications (CSA).
- B. The USP is an IP enabled solution. All communication between the SSM and CSA is based on standard TCP/IP protocol and will TLS encryption with digital certificates to secure the communication channel.
- C. The SSM is a Windows service that can be configured to start when the operating system is booted and run in the background. The SSM will automatically launch at computer startup, regardless of whether or not a user is logged on the machine.
- D. Users is able to deploy the SSM on a single server or across several servers for a distributed architecture. The USP will not be restricted in the number of SSM deployed.
- E. The USP will protect against potential database server failure and continue to run through standard off-the-shelf solutions.
- F. The USP supports an unrestricted number of logs and historical transactions (events and alarms) with the maximum allowed being limited by the amount of hard disk space available.
- G. Roles-Based Architecture:
 1. The USP consists of a role-based architecture, with each SSM hosting one or more roles.
 2. Each role will execute a specific set of tasks related to either core system, automatic license plate recognition (ALPR), video (VMS), or access control (ACS) functionalities, among many others. Installation is streamlined through the ability of the USP to allow administrators to:

- a. Deploy one or several SSM across the network prior to activating roles.
- b. Activate and deactivate roles as needed on each and every SSM.
- c. Centralize role configuration and management.
- d. Support remote configuration.
- e. Move roles over from one SSM to another.
3. Each role, where needed, will have its own database to store events and role-specific configuration information.
4. Roles without databases, such as The Federation feature, Active Directory, and Global Cardholder Management, supports near real-time standby without any third party failover software being required.
5. Directory Role:
 - a. The Directory Role will manage the central database that contains all the system information and component configuration of the USP.
 - b. The Directory Role will authenticate users and give access to the USP based on predefined user access rights or privileges, and security partition settings.
 - c. The Directory Role supports the configuration/management of the following components common to the ACS, ALPR, and VMS sub-systems:
 - 1) Security Partitions, users, and user groups
 - 2) Areas
 - 3) Zones, input/output (IO) linking rules, and custom output behavior
 - 4) Alarms. Schedules, and scheduled tasks
 - 5) Custom events
 - 6) Macros or custom scripts
 - d. The Directory Role supports the configuration/management of the following components specific to VMS:
 - 1) Video servers and their peripherals (for example audio, IOs, and serial ports)
 - 2) PTZ
 - 3) Camera sequences
 - 4) Recording and archiving schedules
 - e. The Directory Role supports the configuration/management of the following components specific to ACS:
 - 1) Door controllers, and input and output (IO) modules
 - 2) Doors, Elevators, and Access rules
 - 3) Cardholders and cardholder groups, credentials, and badge templates
 - f. The Directory Role supports the configuration/management of the following components specific to ALPR:
 - 1) ALPR units and cameras
 - 2) Hotlists, permit lists, and overtime rules
6. The Video Archiver Role is responsible for managing cameras and encoders under its control and archiving.
7. The Media Router Role is responsible for routing video and audio streams across local and wide area networks from the source (for example DVS) to the destination (for example CSA).
8. The Access Manager Role is responsible for synchronizing access control hardware units under its control, such as door controllers and I/O modules. This role will also be responsible for validating and logging all access activities and events when the door controllers and I/O modules are online.

9. The Automatic License Plate Recognition (ALPR) Role is responsible for synchronizing fixed ALPR units (cameras) and mobile ALPR applications under its control. The ALPR Role will also be responsible for logging all ALPR activities and events.
 10. The Zone Manager Role is responsible for managing all software zones (collection of inputs) and logging associated zone events. Zones consists of inputs from both access control and video devices.
 11. The Health Monitoring Role is responsible for monitoring and logging health events and warnings from the various client applications, roles, and services that are part of the USP. This role will also be responsible for logging events within the Windows Event Log and for generating reports on health statistics and health history.
- H. Server Monitoring Service (Watchdog):
1. The USP includes a Server Monitoring Service that continuously monitors the state of the Server Software Module (SSM) service.
 2. The Server Monitoring Service is a Windows service that automatically launches at system startup, regardless of whether or not a user is logged into his account.
 3. The Server Monitoring Service is installed on all PCs/servers running an SSM. In the event of a malfunction or failure, the Server Monitoring Service will restart the failed service. As a last resort, the Server Monitoring Service will reboot the PC/server if unable to restart the service.

2.24 EXISTING USP ACCESS CONTROL, VIDEO, AND ALPR UNIFICATION

- A. The Monitoring UI will present a true Unified Security Interface for live monitoring and reporting of the ACS, VMS, and ALPR. Advanced live video viewing and playback of archived video is available through the Monitoring UI.
- B. The Configuration UI will present a true Unified Security Interface for the configuration and management of the ACS, VMS, and ALPR.
- C. The user is able to associate one or more video cameras to the following entity types: areas, doors, elevators, zones, alarms, intrusion panels, ALPR cameras, and more.
- D. It is possible to view video associated to access control events when viewing a report.
- E. It is possible to view video associated to intrusion panel events when viewing a report.
- F. It is possible to view video associated to ALPR events when viewing a report.

2.25 EXISTING USP ALARM MANAGEMENT

- A. The USP supports the following Alarm Management functionality:
 1. Create and modify user-defined alarms. An unrestricted number of user-defined alarms is supported.
 2. Assign a time schedule or a coverage period to an alarm. An alarm is triggered only if it is a valid alarm for the current time period.
 3. Set the priority level of an alarm and its reactivation threshold.

4. Define whether to display live or recorded video, still frames or a mix once the alarm is triggered.
 5. Provide the ability to display live and recorded video within the same video tile using picture-in-picture (PiP) mode.
 6. Provide the ability to group alarms by source and by type.
 7. Define the time period after which the alarm is automatically acknowledged.
 8. Define the recipients of an alarm. Alarm notifications is routed to one or more recipients. Recipients is assigned a priority level that prioritizes the order of reception of an alarm.
 9. Define the alarm broadcast mode. Alarm notifications is sent using either a sequential or an all-at-once broadcast mode.
 10. Define whether to display the source of the alarm, one or more entities, or an HTML page.
 11. Specify whether an incident report is mandatory during acknowledgment.
- B. The workflows to create, modify, add instructions and procedures, and acknowledge an alarm is consistent for access control, ALPR, and video alarms.
- C. Alarms is federated, allowing global alarm management across multiple independent USP, ACS, and VMS systems.
- D. The USP will also support alarm notification to an email address or any device using the SMTP protocol.
- E. The ability to create alarm-related instructions is supported through the display of one or more HTML pages following an alarm event. The HTML pages is user-defined and can be interlinked.
- F. Alarm unpacking and packing is supported where all the entities associated to an alarm can be display in the Monitoring UI with the single click of a button.
- G. The user will have the ability to acknowledge alarms, create an incident upon alarm acknowledgement, and put an alarm to snooze.
- H. The user is able to spontaneously trigger alarms based on something he or she sees in the system.
- I. An alarm is configured in such a way that it remains visible until the source condition has been acknowledged.
- J. The user is able to investigate an alarm without acknowledging it.

2.26 EXISTING USP ADVANCED TASK MANAGEMENT

- A. USP supports an infrastructure for managing Monitoring UI tasks used for live monitoring, day-to-day activities, and reporting.
- B. Administrators is able to assign tasks and lock the operator's workspace. The user management of their workspace is limited by their assigned privileges.

- C. Operators is able save their tasks as either Public tasks or Private tasks and in a specific partition. Public tasks is available to all users. Private tasks will only be available to the owner of the task.
- D. Operators is able to share their tasks by sending them to one or more online users. Recipients will have the option to accept the sent task.
- E. Operators is able to duplicate a task.

2.27 EXISTING USP REPORTING

- A. The USP supports report generation (database reporting) for access control, ALPR, video, and intrusion.
- B. Each and every report in the system is a USP task, each associated with its own privilege. A user will have access to a specific report task if they have the appropriate privilege.
- C. The workflows to create, modify, and run a report is consistent for access control, ALPR, and video reports.
- D. Reports is federated, allowing global consolidated reporting across multiple independent USP, ACS, VMS, and ALPR systems.
- E. Access control and ALPR reports supports cardholder pictures and license plate pictures, respectively.
- F. The USP supports the following types of reports:
 - 1. Alarm reports
 - 2. Video-specific reports (archive, bookmark, motion, and more)
 - 3. Configuration reports (cardholders, credentials, units, access rules, readers/inputs/outputs, and more)
 - 4. Activity reports (cardholder, cardholder group, visitor, credential, door, unit, area, zone, elevator, and more)
 - 5. ALPR-specific reports (mobile ALPR playback, hits, plate reads, reads/hits per day, reads/hits per ALPR zone, and more)
 - 6. Health activity and health statistics reports
 - 7. Other types of reports, including visitor reports, audit trail reports, incident reports, and time and attendance reports
- G. Generic Reports, Custom Reports and Report Templates:
 - 1. The user will have the option of generating generic reports from an existing list, generating reports from a list of user-defined templates, or creating a new report or report template.
 - 2. The user is able to customize the predefined reports and save them as new report templates. There is no need for an external reporting tool to create custom reports and report templates. Customization options includes setting filters, report lengths, and timeout period. The user will also be able to set which columns is visible in a report. The sorting of reported data is available by clicking on the

- appropriate column and selecting a sort order (ascending or descending).
 - 3. All report templates is created within the Monitoring UI.
 - 4. These templates can be used to generate reports on a schedule in PDF or Excel formats.
 - 5. An unrestricted number of custom reports and templates is supported.
- H. A reporting task layout consists of panes with settings (report length, filters, go and reset commands, etc.), the actual report data in column format, and a pane with display tiles. The user is able to drag and drop individual records in a report onto one or more display tiles to view a cardholder's picture ID, playback a video sequence, or an ALPR event.
- I. The USP supports comprehensive data filtering for most reports based on entity type, event type, event timestamp, custom fields, and more.
- J. The reporting task will have the ability to display results through graphics such as line charts, bar charts, stacked bar charts, doughnut charts, and pie charts.
- K. The user is able to click on an entity within an existing report to generate additional reports from the Monitoring UI.
- L. The USP supports the following actions on a report: print report, export report to a PDF/Microsoft Excel/CSV file, export the graphics chart in JPG/PNG, and automatically email a report based on a schedule and a list of one or more recipients.

2.28 EXISTING USP DASHBOARDS

- A. The USP supports the ability to create dashboards.
- B. Operators is allowed to view dashboards if they are granted the appropriate privilege. Modification to the dashboards will also be allowed to users granted the appropriate privilege.
- C. Dashboards in the system is a USP task. A user will have access to a specific dashboard task if they have the appropriate privilege.
- D. Dashboards is shaved either in a private folder or a public folder.
- E. A dashboard consists of a canvas with various widgets displayed on the canvas. All widgets will offer the ability to specify location and size to the widget, a title to the widget, a background color to the widget, and the ability to refresh periodically the content of the widget.
- F. Dashboard widget types is:
 - 1. Image: provides the ability to display an image (JPG, PNG, GIF, BMP) on a dashboard.
 - 2. Text: provides the ability to display a text on a dashboard. The text style is configurable, so font, size, color, and alignment can be specified by the user.
 - 3. Tile: provides the ability to display any entity of the USP inside of a tile.

4. Web page: provides the ability to display a URL on a dashboard.
 5. Entity Count: provides the ability to display the total number of a specific entity type in the USP.
 6. Reports: provides the ability to display the results of any saved reports in the system. The results is displayed either by showing the total number of results in the report, a set of top results from the report, or a visual graph from the data returned by the report.
- G. It is possible to extend the widgets of a dashboard using the SDK. This will provide the ability to develop custom widgets to the system.
- H. The USP supports the following actions on a dashboard: print dashboard, export dashboard to PNG file, and automatically email a report based on a schedule and a list of one or more recipients.

2.29 EXISTING USP ZONE MANAGEMENT

- A. The USP supports the configuration and management of zones for input point monitoring via the Zone Manager Role. A user is able to add, delete, or modify a zone if they have the appropriate privileges.
- B. A zone will monitor the status of one or more inputs points. Zone monitoring or input point monitoring is possible through the use of a controller and one or more input modules. Inputs from video cameras or video encoders will also be accessible via a zone.
- C. Depending on the hardware installed, supervised inputs is supported. Depending on the input module used, both 3-state and 4-state supervision is available.
- D. A schedule is defined for a zone, indicating when the zone will be monitored.
- E. Custom Events provides full flexibility in creating custom events tailored to a zone. Users is able to associate custom events to state changes in monitored inputs.
- F. The ACS supports one or more cameras per zone. Video will then be associated to zone state changes.
- G. Input/Output (IO) Linking
1. Zone management supports Input/Output (IO) Linking. I/O Linking will allow one or more inputs to trigger one or more outputs.
 2. I/O Linking is available in offline mode when communication between the server and hardware is not available.
 3. Custom Output Behaviors provides full flexibility in creating a variety of complex output signal patterns: simple pulses, periodic pulses, variable duty-cycle pulses, and state changes.
 4. Through the “trigger an output” action, the ACS supports the triggering of outputs with custom output behaviors.

2.30 EXISTING USP USER AND USER GROUP SECURITY, PARTITIONS, AND

PRIVILEGES MANAGEMENT

- A. The USP supports the configuration and management of users and user groups. A user is able to add, delete, or modify a user or user group if they have the appropriate privileges.
- B. The USP supports user authentication with claims-based authentication using external providers. External providers includes:
 - 1. ADFS (Active Directory Federation Services)
- C. Common access rights and privileges shared by multiple users is defined as User Groups. Individual group members will inherit the rights and privileges from their parent user groups. User group nesting is allowed.
- D. User privileges is extensive in the USP. All configurable entities for the USP, including access control, video, and ALPR will have associated privileges.
- E. Specific entities, such as cardholders, cardholder groups, and credentials includes a more granular set of privileges, such as the right to access custom fields and change the activation or profile status of an entity.
- F. Partitions:
 - 1. The USP limits what users can view in the configuration database via security partitions (database segments). The administrator, who has all rights and privileges, is allowed to segment a system into multiple security partitions.
 - 2. All entities that are part of the USP can be assigned to one or more partitions.
 - 3. A user who is given access to a specific partition will only be able to view entities (components) within the partition to which they have been assigned. Access is given by assigning the user as an accepted user to view the entities that are members of a particular partition.
 - 4. A user or user group can be assigned administrator rights over the partition.
- G. It is possible to specify user and user group privileges on a per partition basis.
- H. Advanced logon options is available such as dual logon and more.
- I. It is possible to specify an inactive period for the Monitoring UI after which time the application will automatically lock, while still preserving access to currently displayed camera feeds.
- J. It is possible to review used permissions and determine:
 - 1. For any entity in the system, which user group or user can view or modify it.
 - 2. For any user group or user in the system, what are its privileges.
 - 3. For any privilege in the system, which used group or used is allowed to perform the underlying action.

2.31 EXISTING USP EVENT/ACTION MANAGEMENT

- A. The USP supports the configuration and management of events for video and ALPR.

- A user is able to add, delete, or modify an action tied to an event if he has the appropriate privileges.
- B. The USP will receive all incoming events from one or more ACS, VMS, and/or ALPR. The USP will take the appropriate actions based on user-define event/action relationships.
 - C. The USP will receive and log the following events:
 - 1. System-wide events
 - 2. Application events (clients and servers)
 - 3. Area, camera, door, elevator, and ALPR events (reads and hits)
 - 4. Cardholder and credential events
 - 5. Unit events
 - 6. Zone events
 - 7. Alarm events
 - 8. ALPR events
 - 9. First Person In and Last Person Out events and antipassback events
 - 10. Intrusion events
 - 11. Asset management events
 - 12. Health monitoring events.
 - D. The USP will allow the creation of custom events.
 - E. The USP will have the capability to execute an action in response to an access control, video, and ALPR event.
 - F. The USP will allow a schedule to be associated with an action. The action is executed only if it is an appropriate action for the current time period.

2.32 EXISTING USP SCHEDULES AND SCHEDULED TASKS

- A. Schedules
 - 1. The USP supports the configuration and management of complex schedules. A user is able to add, delete, or modify a schedule if they have the appropriate privileges.
 - 2. The USP provides full flexibility and granularity in creating a schedule. The user is able to define a schedule in 1-minute or 15-minute increments.
 - 3. Daily, weekly, ordinal, and specific schedules is supported.
- B. Scheduled Tasks
 - 1. The USP supports scheduled tasks for access control, video, and ALPR.
 - 2. Scheduled tasks is executed on a user-defined schedule at a specific day and time. Recurring or periodic scheduled tasks will also be supported.
 - 3. Scheduled tasks supports all standard actions available within the USP, such as sending an email or emailing a report.

2.33 EXISTING USP MACROS AND CUSTOM SCRIPTS

- A. The USP will enable users to automate and extend the functionalities of the system

through the use of macros or custom scripts for access control, video, and ALPR.

- B. Custom macros is created with the USP Software Development Kit (SDK).
- C. A macro is executed either automatically or manually.
- D. In the Monitoring UI, a macro is launched through hot actions.

2.34 EXISTING USP DYNAMIC GRAPHICAL MAPS (DGM)

- A. The USP supports mapping functionality for access control, video surveillance, intrusion detection, ALPR, and external applications.
- B. The USP provides a map centric interface with the ability to command and control all the USP capabilities from a full screen map interface.
- C. It is possible to span the map over all screens of the USP client station. In the scenario where the map is spanned over all the screens of the USP client station it is possible to navigate the map including pan and zoom, and the map's moves is synchronized between all screens. Spanning the map over multiple screen must provide the same command and control capabilities than in a single screen display.
- D. The DGM supports the following file format and protocol for importing map background:
 - 1. PDF
 - 2. JPG
 - 3. PNG
 - 4. Web Tile Map Service (WMTS) and Web Map Service (WMS) defined by the Open Geospatial Consortium (OGC)
 - 5. BeNomad
 - 6. AutoCAD (DWG & DXF)
- E. The DGM provides the following online map providers for use as map background and provide the ability to manage their service license if they require one:
 - 1. Google Map, aerial, terrain (Licensed)
 - 2. Bing Map, aerial, satellite, hybrid (Licensed)
 - 3. ESRI ArcGIS (Licensed)
 - 4. OpenStreet Map aerial (Licensed)
 - 5. OVI hybrid
- F. It is possible to configure a mixed set of maps made of GIS, online providers and private imported files and link them together.
- G. The DGM provides the ability to display all native entities of the USP including:
 - 1. Cameras, fix, and PTZ
 - 2. Doors
 - 3. Camera sequences
 - 4. Areas
 - 5. Intrusion areas

6. Intrusion zones
 7. License Plate Recognition cameras
 8. Digital inputs
 9. Digital outputs
 10. Intercoms
 11. Alarms
 12. Macros
 13. Police Car Patrollers
- H. The DGM provides the ability to draw and display information over the map in the form of:
1. Vectoral shapes: line, rectangles, polygons, ellipse
 2. Pictures
 3. Text
- I. The DGM provides the ability to display layer of information in Keyhole Markup Language (KML) format.
- J. The DGM provides the ability to the operator to manage layers of entities displayed over the map, being able to turn them on and off and changing the superposition order.
- K. The DGM provides the ability to import data layers from one or more ESRI ArcGIS servers.
- L. The DGM provides the operators with the ability to manage layers that are imported from ESRI ArcGIS. The operators is able to turn the layers on and off, as well as sort the layers.
- M. The DGM will offer built-in map data backup and restore for both map backgrounds and layers of entities.
- N. The DGM will offer failover capabilities.
- O. The DGM will scale up to several thousands of entities on a single map and hundreds of maps.
- P. The DGM provides a means to update a map background without affecting the map object configuration.
- Q. The DGM will offer a user-friendly graphical map designer to configure the maps.
- R. The DGM provides user friendly and intuitive navigation that includes:
1. The ability to create hierarchies of maps to facilitate navigation within and between various sites and buildings.
 2. The ability to define favorites for recurrent position recall.
 3. The possibility to create links between maps. The map links will allow the link from one map to multiple maps representing the floors of a building. Navigating between floors of a building will keep the level of the map.

- S. It is possible to monitor the state of entities on the map. It is possible to customize the icons of any entities represented on the map.
- T. The DGM will offer the ability to optionally set a graphical display notification of the motion detection.
- U. The DGM will offer a smart selection tool to access the video. By clicking the location the user wants to see, the DGM will automatically select the cameras that can see this location and move the PTZ towards that location. This smart selection tool will take obstacles into consideration and not display cameras that cannot see the location because of a wall.
- V. It is possible to select a location by drawing a zone of interest on the DGM, and to display all the entities that are part of that zone of interest at once.
- W. The user is able to select and display the content of multiple USP entities on the map in pop-up windows.
- X. The user is able to move, resize, and pin the USP entity pop-up windows to the map.
- Y. It is possible to access live and playback video from the map.
- Z. It is possible to monitor all entity event notifications from the DGM. Users is able to turn notifications on and off per entity.
- AA. The DGM will offer the ability to fully operate alarm monitoring. It is possible to:
 - 1. Center the map on entities related to the alarm.
 - 2. Visualize the Alarm notifications on the map and access the related videos from the map.
 - 3. Trigger and receive alarms.
 - 4. Act on the alarm from the DGM, including acknowledgements, forwarding, and investigation.
 - 5. Visualize that an alarm occurred in an underlying linked map.
- BB. The DGM provides the following search capabilities:
 - 1. Search and center by entity name.
 - 2. From the Display of an entity in the USP, locate the entity on the map and offer the ability to select another one close-by.
- CC. Any update of map content by an administrator is immediately and dynamically pushed to all DGM users.
- DD. built-in map designer for entity positioning on the map using drag and drop. Any configuration is graphic.
- EE. It is possible to edit and configure multiple map objects at once.
- FF. All map design modifications is logged in an audit trail.

GG. Various actions is available within maps for execution through simple and intuitive double-click, right-click, or drag-and-drop functionality. Examples of actions available through maps includes unlocking a door and acknowledging an alarm.

HH. The DGM will offer lasso tools for:

1. Displaying entities at one location through a single action.
2. Triggering an action on all entities at one a location in a single click.
3. Editing multiple entities at one location simultaneously.

II. The DGM provides the ability to search within the map by entity name.

JJ. The Contractor provides licenses for each entity that is required to be shown on the graphical maps.

2.35 EXISTING USP AUDIT AND USER ACTIVITY TRAILS (LOGS)

- A. The USP supports the generation of audit trails. Audit trails consists of logs of operator/administrator additions, deletions, and modifications.
- B. Audit trails is generated as reports. They is able to track changes made within specific time periods. Querying on specific users, changes, affected entities, and time periods will also be possible.
- C. For entity configuration changes, the audit trail report includes detailed information of the value before and after the changes.
- D. The USP supports the generation of user activity trails. User activity trails consists of logs of operator activity on the USP such as login, camera viewed, ALPR event viewed, badge printing, video export, and more.
- E. The ACS supports the following actions on an audit and activity trail report: print report and export report to a PDF/ Microsoft Excel/CSV file.

2.36 EXISTING USP INCIDENT REPORTS

- A. Incident reports will allow the security operator to create reports on incidents that occurred during a shift. Both video-related and access control-related incident reports is supported.
- B. The operator is able to create standalone incident reports or incident reports tied to alarms.
- C. The operator is able to link multiple video sequences to an incident, access them in an incident report, and change the date or time of the sequences later on.
- D. It is possible to create a list of Incident categories, tag a category to an incident, and filter the search with the category as a parameter.
- E. Incident reports will allow the creation of a custom form on which to input information

on an incident.

- F. Incident reports will allow entities, events, and alarms to be added to support at the report's conclusions.

PART 3 - EXECUTION

3.1 WARRANTY

- A. The product will perform in all material respects in accordance with the accompanying user manual, and the media on which the Software Product resides will be free from defects in materials and workmanship under normal use. Software defects are covered through Service Releases and Cumulative Updates which are available for a period of 1 year from the date of the software purchase.
- B. Extended warranty, up to 5 years, is available through the purchase of the Genetec Advantage support service which includes the following additional services over the standard warranty:
 - 1. Access to phone support and online chat for technical assistance
 - 2. Online case management
 - 3. Online system availability monitor
 - 4. Access to Major and Minor Release Upgrades

3.2 DEPLOYMENT SERVICES AND SYSTEM COMMISSIONING

- A. General Requirements:
 - 1. The contractor will engage the services of the USP vendor to assist in the management of the deployment of the USP at the end-user site on projects that involve:
 - a. Multiple contractors or subcontractors that will be responsible for deploying the USP at multiple client sites in different geographical regions.
 - b. Complex enterprise installations involving advanced functionality (for example The Federation feature, failover, plugins) and/or multiple systems (for example access control, video, ALPR) and/or third party integrations.
 - c. Extensive use of customized solutions/plugins developed by the vendor that will be integrated into the USP.
 - 2. The USP vendor services includes Deployment Management and System Configuration and Commissioning.
- B. Deployment Management Service:
 - 1. The Deployment Management service from the vendor includes a Project Manager acting as the single point of contact for all communications between the contractor and the vendor organization and who will be responsible for:
 - a. Conducting a Risk Assessment of the impact of potential risk factors on the operation of the vendor's USP.
 - b. Providing a project plan for the deployment of the vendor's USP.
 - c. Managing the development and deployment of the custom solution components that will be integrated into the vendor's USP (if applicable).

- d. Providing a scope of work detailing the services to be provided by the vendor to assist in the deployment of the vendor's USP.
 - e. Coordinating and scheduling the vendor field services with the contractor to assist with the deployment of the vendor's USP.
 - f. Providing regular project status updates to the contractor regarding the development of custom solutions (if applicable) and the deployment of the vendor's USP.
- C. Solution Architect Service:
- 1. The Solution Architect service from the vendor includes a Solutions Architect Engineer acting as a single technical point of contact throughout the deployment of the USP, and who will be responsible for:
 - a. Assisting the contractor/subcontractor with the design and architecture of the vendor's USP.
 - b. Conducting technical consultation activities that may include fit/gap analysis, system design reviews, device compatibility assessments, functional and technical design reviews, as well as performance reviews of the vendor's USP.
 - c. Conducting a system assessment and ensuring best practices of the vendor's USP are followed.
 - d. Providing upgrade and migration strategy for the vendor's USP where applicable.
 - e. Providing documentation regarding the system architecture, system design, hardware specifications and compatibility requirements, camera bandwidth calculations, and best practices as they relate to the vendor's USP.
- D. System Configuration and Commissioning Service:
- 1. The System Configuration and Commissioning service from the vendor includes a Field Engineer who will be responsible for:
 - a. Assisting the contractor's or subcontractor's onsite/remote technicians with the configuration and commissioning of the vendor's USP at the client site.
 - b. Conducting a test of the USP following the deployment of the system using real-world operator scenarios to ensure optimal system performance.
 - c. Providing the contractor with a Service Report detailing the tasks completed during the deployment of the USP at the client site, as well as any recommendations for improving the performance of the USP that must be implemented by the contractor.
 - d. Providing a knowledge transfer of the vendor's USP to the contractor following the deployment of the USP at the client site.

3.3 MANUFACTURER END USER OPERATOR TRAINING

- A. The contractor will engage the services of the USP vendor to assist in the end user training of the USP at the end-user sit. Training is no less than 8 hours for up to 20 people. Contractor will provide video recording of operator training, and provided it to the agency for future training of staff.

END OF SECTION 281300

SECTION 282100 - SURVEILLANCE CAMERAS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. IP security cameras.
- B. Accessory products.

1.2 RELATED SECTIONS

- A. Division 26 - Electrical.

1.3 REFERENCES

- A. Code of Federal Regulations (CFR).
- B. Institute of Electrical and Electronics Engineers (IEEE):
 - 1. 802.3 Ethernet Standards.
- C. International Electrotechnical Commission (IEC).
- D. International Organization for Standardization (ISO):
 - 1. ISO / IEC 10918 - Information technology - Digital compression and coding of continuous-tone still images: Requirements and guidelines; JPEG.
 - 2. ISO / IEC 14496-10 - Information Technology - Coding Of Audio-Visual Objects - Part 10: Advanced Video Coding; MPEG-4 Part 10 (ITU H.264).
 - 3. ISO / IEC 23008-2 - High Efficiency Coding and Media Delivery in Heterogeneous Environments - Part 2: High Efficiency Video Coding; MPEG-H Part 2 (ITU H.265, HEVC).
- E. European Standard (EN):
 - 1. EN 50130-4 - Alarm Systems. Electromagnetic Compatibility. Product Family Standard: Immunity Requirements for Components of Fire, Intruder, Hold Up, CCTV, Access Control and Social Alarm Systems.
 - 2. CE EN 50581 - Technical Documentation for the Assessment of Electrical and Electronic Products With Respect to the Restriction of Hazardous Substances.
 - 3. EN 55022 Class A - Information Technology Equipment - Radio Disturbance Characteristics - Limits And Methods Of Measurement.
 - 4. EN 61000-3-2-A2 - Electromagnetic Compatibility (EMC) - Part 3-2: Limits - Limits for Harmonic Current Emissions (Equipment Input Current: 16 A per phase).
 - 5. EN 61000-3-3 - Electromagnetic Compatibility (EMC) - Part 3-3: Limits - Limitation of Voltage Changes, Voltage Fluctuations and Flicker In Public Low-Voltage Supply Systems, For Equipment With Rated Current less than or equal to 16 A Per Phase And Not Subject To Conditional Connection.
- F. European Union Safety Standards (CE).

- G. Federal Communications Commission (FCC):
 - 1. FCC Rules and Regulation of Title 47 of CFR Part 15 Subpart B Class A.
- H. Open Network Video Interface Forum (ONVIF):
 - 1. ONVIF - Profiles S Specification.
- I. Underwriters Laboratories (UL):
 - 1. UL listed.
- J. United States Military Standard (MIL-STD):
 - 1. MIL-STD-810F - Environmental Engineering Considerations and Laboratory Tests.

1.4 DEFINITIONS

- A. Abbreviations:
 - 1. ARP - Address Resolution Protocol.
 - 2. DHCP - Dynamic Host Configuration Protocol.
 - 3. DNR - Digital Noise Reduction.
 - 4. DDNS - Dynamic Domain Name Server.
 - 5. fps - frames per second.
 - 6. GUI - Graphical User Interface.
 - 7. HDD - Hard Disk Drive.
 - 8. HTTP - Hypertext Transfer Protocol.
 - 9. ICMP - Internet Control Message Protocol.
 - 10. IGMP - Internet Group Management Protocol
 - 11. IP - Internet Protocol.
 - 12. iSCSI - Internet Small Computer System Interface.
 - 13. JBOD - Just a Bunch of Disks.
 - 14. JPEG - Joint Photographic Experts Group.
 - 15. MJPEG - Motion JPEG.
 - 16. MP - Megapixel.
 - 17. MPEG - Moving Pictures Experts Group.
 - 18. NAS - Network Attached Storage.
 - 19. NTP - Network Time Protocol.
 - 20. POS - Point of Sale.
 - 21. PPPoE - Pont to Point Protocol over Ethernet.
 - 22. RAID - Redundant Array of Independent Disks (Drives).
 - 23. RTP - Real-Time Transport Protocol.
 - 24. RTCP - Real-Time Control Protocol.
 - 25. RTSP - Real-Time Streaming Protocol.
 - 26. SMTP - Simple Mail Transfer Protocol.
 - 27. SNMP - Simple Network Management Protocol.
 - 28. SSL - Secure Sockets Layer.
 - 29. TCP - Transmission Control Protocol.
 - 30. UDP - User Datagram Protocol.
 - 31. UPnP - Universal Plug and Play.
 - 32. VMS - Video Management System.
 - 33. PoS - Point of Sales.

34. VA - Video Analytics.
35. PnP - Plug and Play.
36. ARB - Auto Recovery Backup.
37. NVR - Network Video Recorder.
38. RAID - Redundant Array of Independent Disks.

B. Definitions:

1. JBOD: A collection of hard disks that have not been configured to act as a redundant array of independent disks (RAID) array.
2. GOV (Group of Video object planes): A set of video frames for H.264 and H.265 compression, indicating a collection of frames from the initial I-Frame (key frame) to the next I-Frame. GOV consists of 2 kinds of frames: I-Frame and P-Frame.
3. Dynamic GOV: Dynamic assignment of GOV length based on the complexity of the scene to efficiently manage bitrate of the video stream and reduce the storage required.
4. Dynamic fps: Dynamic assignment of frames per second based on the complexity of the scene to efficiently manage bitrate of the video stream and reduce the storage required.
5. ARB (Auto Recovery Backup): Automatic backup mechanism that enables cameras to store videos on to SD card during failures and stream it to the storage device after recovery.
6. Failover: A feature that automatically switches to a redundant or standby device upon failure or unexpected shutdown of an active device.

1.5 SUBMITTALS

- A. Submit under provisions of Section 01 30 00 - Administrative Requirements.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 1. Manufacturer's printed or electronic data sheets.
 2. Manufacturer's installation and operation manuals.
 3. Warranty documentation.
- C. Shop Drawings: Include details of construction, interface of equipment, and relationship with adjacent construction.

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Minimum 5 year experience manufacturing similar products.
- B. System Integrator shall provide the following as part of the System Solution:
 1. Complete product and technical data specification sheets that include all material and equipment and shall be available freely online.
 2. List of all equipment with part numbers, manufacturer, firmware, and assigned IP addresses.
 3. Locations and details for all components to be installed under this scope of work.
 4. Placement Diagram showing the proposed location of all system hardware devices.

5. System Calculation of all network bandwidth and storage requirements for System Servers to ensure proper planning of computing and networking infrastructure.
- C. Installer Qualifications: Minimum 2-year experience installing similar products. Installers shall be trained and authorized by the Manufacturer to install, integrate, test, and commission the system.

1.7 PRE-INSTALLATION MEETINGS

- A. Convene minimum one week prior to starting work of this section.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store products in manufacturer's unopened packaging bearing the brand name and manufacturer's identification until ready for installation.
- B. Handling: Handle materials to avoid damage.

1.9 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.

1.10 SEQUENCING

- A. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

1.11 WARRANTY

- A. The security system VMS software and labor furnished by the System Integrator including wiring, software, hardware and third party products shall be fully warranted for parts, materials and labor for a minimum of 1 year from date of the final acceptance of the Video Surveillance System.
- B. Manufacturer shall provide a limited 3 year warranty for the product to be free of defects in material and workmanship.
- C. Software Licensing and Warranty:
 1. Software licensing should be on a per device basis (e.g. 1 x license for 1 IP Camera or I/O device) with no base license for additional features or capabilities.
 2. The VMS Software should be completely free for live streaming or playback of offline media files (images, videos).
 3. Lifetime software upgrades shall be provided by the Manufacturer without cost and without the need for an annual maintenance agreement.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer:
 - 1. Hanwha Techwin – CSI Standardized product

2.2 IP SECURITY CAMERAS

- A. 5 MP Fisheyes:
 - 1. Video Compression and Transmission: Cameras to have the following properties relating to video signals they produce.
 - a. Compression: H.265, H.264 and MJPEG. Each derived from a dedicated encoder and capable of being streamed independently and simultaneously.
 - 1) H.265 and H.264: Maximum of 30 fps at all resolutions
 - 2) MJPEG: Maximum of 15 fps
 - b. Video Stream Profiles: Able to configure 10 independent profiles with differing encoding, quality, frame rate, resolution, and bit rate settings.
 - c. Resolution Selections: Able to configure various selections in four view modes.
 - 1) Original View: 2048 x 2048, 1280 x 1280, 1080 x 1080, 960 x 960, 768 x 768, 720 x 720, 640 x 640, and 480 x 480.
 - 2) Single Panorama: 2048 x 512, 1920 x 480, 1280 x 320, 640 x 160, and 704 x 176.
 - 3) Double Panorama: 2048 x 1024, 1920 x 960, 1280 x 640, 640 x 320, and 704 x 352.
 - 4) Quad View: 2048 x 1536, 1600 x 1200, 1280 x 960, 1024 x 768, 800 x 600, 640 x 480, and 704 x 576.
 - d. Video Streams: 10 independent stream types using unicast protocol.
 - 1) Multicast and unicast video streaming.
 - e. DDNS Configurable: At no additional cost by manufacturer.
 - 2. Camera Physical and Performance Properties:
 - a. Wi-Fi interface: Stream video to a smart phone for installation purposes.
 - 1) Wi-Fi dongle is required for Wi-Fi connection.
 - b. Produce clear images in highly contrast scenes with multi-exposure wide dynamic range up to 120 dB.
 - c. Day and Night Operation:
 - 1) Automated, manual, scheduled, or externally triggered with infrared cut filter.
 - 2) Images available in color or black and white.
 - 3) Low Light Level Operation: Color Mode: 0.1 lux (F1.6). Black and White Mode: 0 (IR LED on).
 - d. Digital Noise Reduction: 2D and 3D technology.
 - e. Privacy Masking Regions: 32 Configurable regions utilizing a polygon.
 - f. Defog Feature: Remove fogginess of scene. Triggered automatically from fog detection event.
 - 3. Intelligence and Analytics: A suite of integral intelligent operations and analytic functions to include:
 - a. Motion Detection:
 - 1) Eight definable detection areas with eight point polygonal zones, minimum and maximum object size.

- 2) Hand-Over to PTZ Cameras. Calls a preset of PTZ camera when motion event is triggered.
- b. Logical Events Detection from Camera Video Input:
 - 1) Tampering.
 - 2) Loitering.
 - 3) Directional detection.
 - 4) Virtual line.
 - 5) Enter/Exit.
 - 6) (Dis)Appear.
 - 7) Audio detection.
- c. Logical Events Detection from Camera Audio Input:
 - 1) Scream.
 - 2) Gunshot.
 - 3) Explosion.
 - 4) Crashing glass.
- d. Business Intelligence:
 - 1) People Counting.
 - 2) Heatmap.
 - 3) Queue Management.
4. Interoperability: ONVIF Profile S and G compliant. Allow users to install third party applications from manufacturer's partners through Open Platform. List of available applications and partners to be available from manufacturer's homepage.
5. Camera Characteristics:
 - a. Built-in web server, accessed via standard browsers including MS Internet Explorer, Firefox, Chrome and Safari.
 - b. Streaming to multiple smart phones with DDNS provided freely from the manufacturer.
 - c. Micro SD/SDHC/SDXC memory card with configurable pre-alarm and post-alarm recording intervals.
 - d. NAS recording option with configurable pre-alarm and post-alarm recording intervals.
 - e. Alarms and Notifications:
 - 1) Triggers:
 - a) Alarm input.
 - b) Motion detection.
 - c) Video and audio analytics.
 - d) Network disconnection.
 - 2) Available Notification Means Upon Trigger:
 - a) File upload via FTP and e-mail.
 - b) Notification via e-mail.
 - c) Record to local storage (SD / SDHC / SDXC) or NAS.
 - d) External output.
 - f. Pixel counter available in the web viewer.
 - g. PoE capable.
- B. 5 MP Indoor Domes:
 1. Video Compression and Transmission: Cameras to have the following properties

- relating to video signals they produce.
- a. Compression: H.265, H.264 and MJPEG. Each derived from a dedicated encoder and capable of being streamed independently and simultaneously.
 - 1) H.265 and H.264: Maximum of 30 fps at all resolutions
 - 2) MJPEG: Maximum of 30 fps
 - b. Video Stream Profiles: Able to configure 10 independent profiles with differing encoding, quality, frame rate, resolution, and bit rate settings.
 - c. Resolution Selections: Able to configure various selections.
 - 1) Aspect Ratio of 16:9: 2560 x 1440, 1920 x 1080, 1280 x 720, 800 x 448, and 640 x 360.
 - 2) Aspect Ratio of 4:3: 2560 x 1920, 1600 x 1200, 1280 x 960, 1024 x 768, 800 x 600, 640 x 480, and 320 x 240.
 - 3) Aspect Ratio of 5:4: 1280 x 1024 and 720 x 576.
 - 4) Aspect Ratio of 3:2: 720 x 480.
 - d. Video Streams: 10 independent stream types using unicast protocol.
 - 1) Multicast and unicast video streaming.
 - e. DDNS Configurable: At no additional cost by manufacturer.
 - f. Smart Codec: Dynamic GOV, and Dynamic fps to efficiently manage bitrate of video stream.
2. Camera Physical and Performance Properties:
- a. Impact Protection: IK08 rated.
 - b. True Day/Night Operation: Removable IR cut filter.
 - 1) Low Light Level Operation:
 - a) Color Mode: 0.07 lux at F1.3
 - b) Color Mode: 0.16 lux at F1.6
 - c) Black and White Mode: 0 lux with IR LED on.
 - c. Digital Noise Reduction: 2D and 3D technology.
 - d. Integral IR Illumination: Effective visibility of 98.43 ft (30 m) at 0 Lux when activated in Black and White mode.
 - e. Configurable privacy masking regions utilizing a 4 point polygon.
3. Intelligence and Analytics: A suite of integral intelligent operations and analytic functions to include:
- a. Motion Detection: Eight definable detection areas with 8 point polygonal zones, minimum and maximum object size.
 - b. Logical Events Detection from Camera Video Input:
 - 1) Tampering (scene change).
 - 2) Defocus detection.
 - 3) Fog detection.
 - 4) Motion detection with metadata.
 - 5) Face detection.
 - 6) Virtual Area Based Event:
 - a) Intrusion.
 - b) Enter or exit.
 - c) Appear or disappear.
 - d) Loitering.
 - 7) Virtual Line Based Event:
 - a) Directional detection.
 - b) Crossing.

- c. Logical Events Detection from Camera Audio Input:
 - 1) Scream.
 - 2) Gunshot
 - 3) Explosion
 - 4) Crashing glass.
 - 4. Interoperability: ONVIF Profile S and G compliant.
 - 5. Camera Characteristics:
 - a. Built-in web server, accessed via standard browsers including MS Internet Explorer, Firefox, Chrome and Safari.
 - b. Dual edge recording slot like Micro SD/SDHC/SDXC memory card with configurable pre-alarm and post-alarm recording intervals.
 - c. NAS recording option with configurable pre-alarm and post-alarm recording intervals.
 - d. Bi-directional audio.
 - e. Alarms and Notifications:
 - 1) Triggers:
 - a) Alarm input.
 - b) Motion detection.
 - c) Tampering detection.
 - d) Defocus detection.
 - e) Fog detection.
 - f) Face detection.
 - g) Audio detection.
 - h) Video and audio analytics.
 - i) Network disconnect.
 - 2) Available Notification Means Upon Trigger:
 - a) File upload via FTP and e-mail.
 - b) Notification via e-mail.
 - c) Record to local storage (SD card) or NAS.
 - d) External output.
 - e) Move to DPTZ preset.
 - f. Pixel counter available in the web viewer.
 - g. PoE capable.
- C. 5 MP Indoor Dome Flush Mount:
- 1. Video Compression and Transmission: Cameras have the following properties relating to video signals they produce.
 - a. Compression: H.265, H.264 and MJPEG. Each derived from a dedicated encoder and capable of being streamed independently and simultaneously.
 - 1) H.265 and H.264: Maximum of 30 fps at all resolutions
 - 2) MJPEG: Maximum of 30 fps
 - b. Video Stream Profiles: Able to configure 10 independent profiles with differing encoding, quality, frame rate, resolution, and bit rate settings.
 - c. Resolution Selections: Able to configure various selections.
 - 1) 2560 x 1920, 2560 x 1440, 1920 x 1080, 1600 x 1200, 1280 x 1024, 1280 x 960, 1280 x 720, 1024 x 768, 800 x 600, 800 x 448, 720 x 576, 720 x 480, 640 x 480, 640 x 360, and 320 x 240.
 - d. Video Streams: 10 independent stream types using unicast protocol.

- 1) Multicast and unicast video streaming.
- e. DDNS Configurable: At no additional cost by manufacturer.
2. Camera Physical and Performance Properties:
 - a. Wi-Fi Interface: Stream video to smart phones for installation purposes.
 - b. Produce clear images in highly contrast scenes with multi-exposure wide dynamic range.
 - c. Electrical day/night operation with scheduling and options for external devices.
 - 1) Low light level operation to 0.16 lux at F1.6 (1/30 sec) in color mode and black and white mode.
 - d. Digital Noise Reduction: 2D and 3D technology.
 - e. Privacy Masking Regions: 32 Configurable regions utilizing a polygon.
 - f. Cabling: RJ45 to reduce installation effort.
 - 1) Audio Input: Built-in MIC and alarms received and sent through Ethernet cable.
 - 2) Power: Supplied by PoE and CVBS often required for installers to be replaced by aforementioned Wi-Fi interface.
 - g. Magnetic Dome Cover: Easy physical installation requiring no screw on camera body except temper screw, available optionally.
 - h. Design: Compact with minimum exposure of camera body and minimum effect on design of surroundings. Dome cover is the only part of whole camera body exposed.
 - 1) Color: White
3. Intelligence and Analytics: A suite of integral intelligent operations and analytic functions to include:
 - a. Motion Detection:
 - 1) Eight definable detection areas with eight point polygonal zones, minimum and maximum object size.
 - 2) Hand-Over to PTZ Cameras. Calls a preset of PTZ camera when motion event is triggered.
 - b. Logical Events Detection from Camera Video Input:
 - 1) Tampering.
 - 2) Loitering.
 - 3) Directional detection.
 - 4) Defocus detection.
 - 5) Fog detection.
 - 6) Virtual line.
 - 7) Enter and exit.
 - 8) (Dis)Appear.
 - 9) Face detection.
 - 10) Motion detection.
 - 11) Digital auto tracking.
 - 12) Heat map.
 - 13) People counting.
 - 14) Queue management.
 - c. Logical Events Detection from Camera Audio Input:
 - 1) Scream
 - 2) Gunshot

- 3) Explosion
 - 4) Crashing glass
 4. Interoperability: ONVIF Profile S and G compliant.
 5. Camera Characteristics:
 - a. Built-in web server, accessed via standard browsers including MS Internet Explorer, Firefox, Chrome and Safari.
 - b. Streaming to multiple smart phones with DDNS provided freely from the manufacturer.
 - c. Micro SD/SDHC/SDXC memory card with configurable pre-alarm and post-alarm recording intervals.
 - d. NAS recording option with configurable pre-alarm and post-alarm recording intervals.
 - e. Alarms and Notifications:
 - 1) Alarm Notification Triggers:
 - a) Motion detection.
 - b) Video analytics.
 - c) Network disconnection.
 - 2) Available notification means upon trigger:
 - a) File upload via FTP and e-mail.
 - b) Notification via e-mail.
 - c) Record to local storage (SD card) or NAS storage.
 - d) Move to DPTZ preset.
 - f. Pixel Counter available in the web viewer.
 - g. PoE capable.
- D. 5 MP Outdoor Domes:
1. Video Compression and Transmission: Cameras to have the following properties relating to video signals they produce.
 - a. Compression: H.265, H.264 and MJPEG. Each derived from a dedicated encoder and capable of being streamed independently and simultaneously.
 - 1) H.265 and H.264: Maximum of 30 fps at all resolutions
 - 2) MJPEG: Maximum of 30 fps
 - 3) Maximum frame rates are available at selected resolutions:
 - a) H.265 and H.264: 30 fps is available at all resolutions.
 - b. Video Stream Profiles: Able to configure 10 independent profiles with differing encoding, quality, frame rate, resolution, and bit rate settings.
 - c. Resolution Selections: Able to configure various selections.
 - 1) Aspect Ratio of 16:9: 2560 x 1440, 1920 x 1080, 1280 x 720, 800 x 448, and 640 x 360.
 - 2) Aspect Ratio of 4:3: 2560 x 1920, 1600 x 1200, 1280 x 960, 1024 x 768, 800 x 600, 640 x 480, and 320 x 240.
 - 3) Aspect Ratio of 5:4: 1280 x 1024 and 720 x 576.
 - 4) Aspect Ratio of 3:2: 720 x 480.
 - d. Video Streams: 10 independent stream types using unicast protocol.
 - 1) Multicast and unicast video streaming.
 - e. DDNS Configurable: At no additional cost by manufacturer.
 - f. Smart Codec: Dynamic GOV, and Dynamic fps to efficiently manage bitrate of video stream.

2. Camera Physical and Performance Properties:
 - a. Dustproof, waterproof, and IP67 rated.
 - b. Impact Protection: IK10 rated.
 - c. True Day/Night Operation: Removable IR cut filter.
 - 1) Low Light Level Operation:
 - a) Color Mode: 0.07 lux at F1.3.
 - b) Color Mode: 0.16 lux at F1.6.
 - c) Black and White Mode: 0 lux with IR LED on.
 - d. Digital Noise Reduction: 2D and 3D technology.
 - e. Configurable privacy masking regions utilizing a 4 point polygon
3. Intelligence and Analytics: A suite of integral intelligent operations and analytic functions to include:
 - a. Motion Detection: Eight definable detection areas with 8 point polygonal zones, minimum and maximum object size.
 - b. Logical Events Detection from Camera Video Input:
 - 1) Tampering (scene change).
 - 2) Defocus detection.
 - 3) Fog detection.
 - 4) Motion detection with metadata.
 - 5) Face detection.
 - 6) Virtual Area Based Event:
 - a) Intrusion.
 - b) Enter or exit.
 - c) Appear or disappear.
 - d) Loitering.
 - 7) Virtual Line Based Event:
 - a) Directional detection.
 - b) Crossing.
 - c. Logical Events Detection from Camera Audio Input:
 - 1) Scream.
 - 2) Gunshot.
 - 3) Explosion.
 - 4) Crashing glass.
4. Interoperability: ONVIF Profile S and G compliant.
5. Camera Characteristics:
 - a. Built-in web server, accessed via standard browsers including MS Internet Explorer, Firefox, Chrome and Safari.
 - b. Dual edge recording slot like Micro SD/SDHC/SDXC memory card with configurable pre-alarm and post-alarm recording intervals.
 - c. NAS recording option with configurable pre-alarm and post-alarm recording intervals.
 - d. Bi-directional audio.
 - e. Alarms and Notifications:
 - 1) Triggers:
 - a) Alarm input.
 - b) Motion detection.
 - c) Tampering detection.
 - d) Defocus detection.

- e) Fog detection.
 - f) Face detection.
 - g) Audio detection.
 - h) Video and audio analytics.
 - i) Network disconnect.
 - 2) Available Notification Means Upon Trigger:
 - a) File upload via FTP and e-mail.
 - b) Notification via e-mail.
 - c) Record to local storage (SD card) or NAS.
 - d) External output.
 - e) Move to DPTZ preset.
 - f. Pixel counter available in the web viewer.
 - g. PoE capable.
- E. 5 MP Bullets:
1. Video Compression and Transmission: Cameras to have the following properties relating to video signals they produce.
 - a. Compression: H.265, H.264 and MJPEG. Each derived from a dedicated encoder and capable of being streamed independently and simultaneously.
 - 1) H.265 and H.264: Maximum of 30 fps at all resolutions
 - 2) MJPEG: Maximum of 30 fps
 - 3) Maximum frame rates are available at selected resolutions:
 - a) H.265 and H.264: 30 fps is available at all resolutions.
 - b) MJPEG: 30 fps is available
 - b. Video Stream Profiles: Able to configure 10 independent profiles with differing encoding, quality, frame rate, resolution, and bit rate settings.
 - c. Resolution Selections: Able to configure various selections.
 - 1) Aspect Ratio of 16:9: 2560 x 1440, 1920 x 1080, 1280 x 720, 800 x 448, and 640 x 360.
 - 2) Aspect Ratio of 4:3: 2560 x 1920, 1600 x 1200, 1280 x 960, 1024 x 768, 800 x 600, 640 x 480, and 320 x 240.
 - 3) Aspect Ratio of 5:4: 1280 x 1024 and 720 x 576.
 - 4) Aspect Ratio of 3:2: 720 x 480.
 - d. Video Streams: 10 independent stream types using unicast protocol.
 - 1) Multicast and unicast video streaming.
 - e. DDNS Configurable: At no additional cost by manufacturer.
 - f. Smart Codec: Dynamic GOV, and Dynamic fps to efficiently manage bitrate of video stream.
 2. Camera Physical and Performance Properties:
 - a. Dustproof, waterproof, and IP67 rated.
 - b. Impact Protection: IK10 rated.
 - c. True Day/Night Operation: Removable IR cut filter.
 - 1) Low Light Level Operation
 - a) Color Mode: 0.07 lux at F1.2.
 - b) Color Mode: 0.16 lux at F1.
 - c) Black and White Mode: 0 lux with IR LED on
 - d. Digital Noise Reduction: 2D and 3D technology.
 - e. Configurable privacy masking regions utilizing a 4 point polygon

- f. Video display on smart phone (iPhone, Android) to adjust viewing angle, rotation and focus.
- 3. Intelligence and Analytics: A suite of integral intelligent operations and analytic functions to include:
 - a. Motion Detection: Eight definable detection areas with 8 point polygonal zones, minimum and maximum object size.
 - b. Logical Events Detection from Camera Video Input:
 - 1) Tampering (scene change).
 - 2) Defocus detection.
 - 3) Fog detection.
 - 4) Motion detection with metadata.
 - 5) Face detection.
 - 6) Virtual Area Based Event:
 - a) Intrusion.
 - b) Enter or exit.
 - c) Appear or disappear.
 - d) Loitering.
 - 7) Virtual Line Based Event:
 - a) Directional detection.
 - b) Crossing.
 - c. Logical Events Detection from Camera Audio Input:
 - 1) Scream.
 - 2) Gunshot.
 - 3) Explosion.
 - 4) Crashing glass.
- 4. Interoperability: ONVIF Profile S and G compliant.
- 5. Camera Characteristics:
 - a. Built-in web server, accessed via standard browsers including MS Internet Explorer, Firefox, Chrome and Safari.
 - b. Dual edge recording slot like Micro SD/SDHC/SDXC memory card with configurable pre-alarm and post-alarm recording intervals.
 - c. NAS recording option with configurable pre-alarm and post-alarm recording intervals.
 - d. Bi-directional audio.
 - e. Alarms and Notifications:
 - 1) Triggers:
 - a) Alarm input.
 - b) Motion detection.
 - c) Tampering detection.
 - d) Defocus detection.
 - e) Fog detection.
 - f) Face detection.
 - g) Audio detection.
 - h) Video and audio analytics.
 - i) Network disconnect.
 - 2) Available Notification Means Upon Trigger:
 - a) File upload via FTP and e-mail.
 - b) Notification via e-mail.

- c) Record to local storage (SD card) or NAS.
- d) External output.
- e) Move to DPTZ preset.
- f. Pixel counter available in the web viewer.
- g. PoE capable.

2.3 ACCESSORIES

- A. Accessory Products: Provide the following, as applicable to the system selected and as scheduled on the Drawings.
 - 1. Backbox mounting.

PART 3 - EXECUTION

3.1 PREPARATION

- A. System Integrator: Confirm the solution proposal planning and design with the installing contractor.
- B. The network design and configuration to be verified for compatibility and performance with the input/output devices.
- C. Network Configuration: Tested and qualified by Contractor prior to remote device installation.
- D. Equipment to be tested and configured in accordance with instructions provided by the System Integrator prior to installation.
- E. All firmware found in products to be the latest and most up-to-date provided by the manufacturer, or of a version as specified by the provider of the Video Management Application (VMA).
- F. All equipment requiring users to log on using a password to be configured with user/site-specific password/passwords. No system/product default passwords shall be allowed.
- G. Confirm hardware will be stored in an environment where temperature and humidity are in the range specified by the Manufacturer.

3.2 INSTALLATION

- A. Install products per manufacturer's recommendations and approved submittals.
 - 1. Comply with documentation provided by the System Integrator to insure all steps have been taken to provide a reliable, easy-to-operate system.
- B. Contractor personnel must comply with all applicable state and local licensing requirements.
- C. Before permanent installation of the system, the Contractor will test the system in

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conditions simulating the final installed environment witnessed by the System Integrator. Adjust as required until proper operation is achieved.

END OF SECTION 282100

SECTION 282300 – EXISTING VIDEO MANAGEMENT SYSTEM

PART 1 - GENERAL

1.1 RELATED WORK

- A. Section 281300 – Electronic Access Control System

1.2 DEFINITIONS

- A. ACS – Access Control System
- B. CSA – Client Software Application
- C. DGM – Dynamic Graphical Maps
- D. DVS – Digital Video Server
- E. ALPR – Automatic License Plate Recognition
- F. SDK – Software Development Kit
- G. GLM – Genetec Lifecycle Management
- H. SSM – Server Software Module
- I. UI – User Interface
- J. USP – Unified Security Platform
- K. USW – Unified Web Client
- L. VMS – Video Management System

1.3 QUALIFICATIONS

- A. The system programmer will have attended manufacturer training and obtained certification in Genetec Security Center - Omnicast™ Technical Certification.
- B. Optionally, the system programmer will have attended manufacturer training and obtained certification in Genetec Security Center - Enterprise Technical Certification.
- C. The system programmer will be a Genetec certified partner with the following level of qualification:
 - 1. Unified Elite Reseller
- D. The system programmer will submit proof of certification.

PART 2 - PRODUCTS

2.1 EXISTING VMS GENERAL REQUIREMENTS

- A. Storage drives shall be added to the existing VMS to provide 3 months' storage capacity for new cameras added to the system as part of this contract.
- B. Existing camera licensing for all existing cameras at CSI campus shall be updated to renew at the same time as new camera license added as part of this project.
- C. VMS service licensing needs to be renewed and shall be included as part of this project.
- D. Contractor shall know that existing VMS is 100% functional and no maintenance repairs are included in the project. If repairs to existing VMS are required contractor shall notify design professional soon as realized.
- E. Contractor shall know that repairs to existing cameras are included in the project. If repairs to existing camera are required contractor shall notify CSI as realized.
- F. The existing VMS is based on a true open architecture that allows the use of non-proprietary workstation and server hardware, non-proprietary network infrastructure, and non-proprietary storage.
- G. The existing VMS offers a complete and scalable video surveillance solution that allows cameras to be added on a unit-by-unit basis.
- H. The existing VMS will interface with analog-to-digital video encoders and IP cameras and with digital-to-analog video decoders, hereafter referred to as digital video servers (DVS). The VMS will support DVS from various manufacturers.
- I. The existing VMS will integrate DVS using the DVS native SDK or using the following industry standards to interface to the DVS:
 - 1. ONVIF
- J. All video streams supplied from analog cameras or IP cameras are digitally encoded in H.265, H.264, MPEG-4, MPEG-2, MJPEG, MxPEG, Wavelet, or JPEG2000 compression formats and recorded simultaneously in real time.
- K. All audio streams supplied from IP video servers are digitally encoded in g711 (u-law), g721, g723, or AAC compression formats and recorded simultaneously in real time.
- L. Each camera's bit rate, frame rate, and resolution is set independently from other cameras in the system and altering these settings will not affect the recording and display settings of other cameras.
- M. The existing VMS are able to use multiple CCTV keyboards to operate the entire set of cameras throughout the system, including brands of cameras from various manufacturers and including their PTZ functionalities (i.e. Pelco keyboard controls

Panasonic dome or vice-versa).

- N. The existing VMS are able to retrieve and set the current position of PTZ cameras using XYZ coordinates.
- O. The existing VMS supports PTZ camera protocols from multiple manufacturers, including analog and IP protocols.
- P. The VMS arbitrates the user conflict on PTZ usage based on user levels per camera.
- Q. The existing VMS supports the following list of CCTV keyboard protocols:
 - 1. American Dynamics 2078 ASCII, and American Dynamics 2088 ASCII
 - 2. Bosch Autodome, Bosch Intuikey
 - 3. DVTel
 - 4. GE ImpactNet
 - 5. Panasonic, Pelco ASCII, Pelco KBD-300, Pelco 9760, and Pelco P.
 - 6. Radionics
 - 7. Hanwha Techwin SSC-100, SPC-600, SPC-2010, SPC-6000, and SPC-7000.
 - 8. Videoalarm
 - 9. Sony RM-NS1000
 - 10. Panasonic WV-CU161C
- R. The existing VMS supports the following list of joysticks and control keyboards:
 - 1. Axis 295.
 - 2. Axis T8310, T8311, T8312, T8313 Video Surveillance Control Board.
 - 3. Panasonic WV-CU950 Ethernet keyboard.
 - 4. Any USB joystick detected as a Windows Game Controller.
- S. The existing VMS allowS for the configuration of a time zone for each camera connected to a DVS. For playback review, users has the ability to search for video based on the following options:
 - 1. Local time of the camera
 - 2. Local time of the SSM
 - 3. Local time of user's workstation
 - 4. GMT Time
 - 5. Other time zone
- T. The existing SSM does not limit the actual storage capacity configured per server.
- U. Manufacturer:
 - 1. Genetec Security Center:
 - a. Omnicast Enterprise

2.2 CYBER SECURITY REQUIREMENTS

- A. The existing USP is an IP enabled solution. All communication between the SSM and CSA based on standard TCP/IP protocol and uses TLS encryption with digital certificates to secure the communication channel.

- B. The existing USP supports user authentication with claims-based authentication using external providers. External providers includes:
 - 1. ADFS (Active Directory Federation Services)
- C. The USP limits the IP ports in use and provides the Administrator with the ability to configure these ports.
- D. The existing VMS supports only secured media stream requests, unless explicitly configured otherwise. Secured media stream requests are secured with strong certificate based authentication leveraging RTSPS (RTSP over TLS). Client authentication for media stream requests is claims-based and may use a limited lifetime security token.
- E. The existing VMS offers the ability to encrypt the media stream, including video, audio, and metadata with authenticated encryption. Media stream encryption are done at rest and in transit and be a certificate based AES 128-bits encryption. The VMS will:
 - 1. Allow encryption to be set on a per camera basis for all or some of the cameras.
 - 2. Provide up to 20 different certificates for different groups of CSA or users who have been granted access to decrypted streams.
 - 3. Not decrease the recording performance by more than 50% when encryption is enabled.
 - 4. Use Secure RTP (SRTP) to encrypt the payload of a media stream in transit and allow multicast and unicast of the encrypted stream.
 - 5. Use a random encryption key and change periodically.
 - 6. Allow encrypted streams to be exported.
- F. The existing VMS supports end to end encrypted streams with cameras supporting Secure RTP (SRTP) both in unicast and multicast from the camera.
- G. The existing USP supports encryption for all communications with its databases.
- H. The existing USP provides in its main user interface a visual list showing the state of all configuration items relating to the cyber security hardening of the features of the system.
- I. The existing USP provides recommendations relating to the passwords used to access the hardware units in the system. The recommendation displays if the passwords used on the units are weak, average, strong, or very strong.
- J. The existing USP provides recommendations relating to the firmware of the hardware units enrolled in the system. Recommendations displays if the firmware is up to date, out of date, or if it has known security vulnerabilities.

2.3 EXISTING ARCHIVING

- A. The Archiver (role) will use an event and timestamp database for the advanced search of audio/video archives. This database uses Microsoft SQL.

- B. The Archiver protects archived audio/video files and the system database against network access and non-administrative user access.
- C. The Archiver digitally signs a recorded video using 248-bit RSA public/private key cryptography.
- D. The Archiver offers a plug and play type hardware discovery service with the following functionalities:
 - 1. Automatically discover DVS units as they are attached to the network.
 - 2. Discover DVS units on different network segments, including the Internet, and across routers with or without network address translation (NAT) capabilities.
- E. The Archiver has the capacity to configure the key frame interval (I-frame) in seconds or number of frames.
- F. The Archiver provides a pre-alarm and post-alarm recording option that can be set between one second and 5 minutes on a per camera basis.
- G. The Archiver provides the functionality of storing of video and audio streams based on triggering events, such as:
 - 1. Digital motion detection
 - 2. Digital input activation
 - 3. Macros
 - 4. Through SDK application recording
- H. The Archiver performs video motion detection on each individual camera based on a grid of 1320 motion detection blocks. All of the video motion detection settings are configurable on schedule. A global sensitivity threshold is available to reduce motion detection sensitivity when the video signal is noisy or when a lot of false hits are incurred. Video motion detection itself can be set into four different modes:
 - 1. Full Screen: All 1320 blocks on screen are activated, and a general threshold for the overall motion in the entire image can be set, and when it is reached, it can trigger recording and a motion event or a custom event.
 - 2. Full Screen Unit: This is the same as the Full Screen but the motion detection takes place in the DVS.
 - 3. Detection Zone: Six overlapping zones can be defined in the 1320 blocks on screen with each of these zones having its own threshold, and, when that threshold is reached, each one of them can trigger recording and a motion event or a custom event. Each zone triggering its own event allows for the configuration of directional motion detection events and other complex motion detection logic.
 - 4. Detection Zone Unit: This is the same as the Detection Zone, but the motion detection takes place in the DVS and only one zone is supported.
 - 5. Disabled: No motion detection is performed on this camera.
- I. The Archiver are able to detect motion in video within 200 milliseconds and not only on key frames.
- J. The Archiver will allow for multiple recording schedules to be assigned to a single camera. Each schedule are created with the following parameters:

1. Recording mode:
 - a. Continuous
 - b. On Motion/Manual
 - c. Manual
 - d. Disabled
 2. Recurrence pattern:
 - a. Once on specific days
 - b. Specific days on a yearly basis
 - c. Specific days on a monthly basis
 - d. Specific days on a weekly basis
 - e. Daily
- K. Time coverage:
1. All day.
 2. Specific time range(s).
 3. Daytime or nighttime based on the times of sunrise and sunset that are automatically calculated from the time of year and a geographical location. Provision are given to offset the calculated sunrise or sunset time by plus or minus 3 hours.
- L. The Archiver will allow each camera (video source) to be encoded multiple times in the same or different video formats (H.265, H.264, MPEG-4, MPEG-2, MJPEG, MxPEG, Wavelet, or JPEG2000), limited only by the capabilities of each DVS.
- M. Whenever multiple video streams are available from the same camera, users are free to use any one of them based on their assigned usage. The standard video stream usages are:
1. Live
 2. Recording
 3. Remote
 4. Low resolution
 5. High resolution
- N. The Archiver will allow the video quality to vary according to predefined schedules. Such schedules will have the same configuration flexibility as the recording schedules mentioned earlier. The video quality are based on, but not limited to, the following parameters:
1. Maximum bit rate
 2. Maximum frame rate
 3. Image quality
 4. Key frame interval
- O. The Archiver will have the ability to dynamically boost the quality of the "recording stream" (see previous bullet) based on specific events:
1. When recording is started manually by a user.
 2. When recording is triggered by a macro, an alarm or detected motion.
- P. The Archiver will have the capacity to communicate with the DVS using 128 bits SSL encryption.

- Q. The Archiver will have the capacity to communicate with the DVS using HTTPS secure protocol.
- R. The Archiver will have the capacity to receive multicast UDP streams directly from the DVS.
- S. For network topologies that restrict the DVS from sending multicast UDP streams, the Archiver will redirect audio/video streams to active viewing clients on the network using multicast UDP.
- T. The Archiver will have the capacity to redirect audio/video streams to active viewing clients on the network using unicast UDP or TCP.
- U. The Archiver will empower the administrator with a full range of disk management options:
 - 1. The Archiver will allow the administrator to choose which disks to use for archiving and to set a maximum quota for each.
 - 2. The Archiver will allow the administrator to spread the archiving of different cameras on different disk groups (groups of disks controlled by the same controller) so that archiving could be carried out in parallel on multiple disks.
 - 3. The Archiver will have the capacity to move video archives to the Azure Cloud. The archives will be moved after a preset number of days.
- V. The Archiver offers the following options to clean up old archives, on a camera by camera basis:
 - 1. After a preset number of days.
 - 2. Deleting oldest archives first when disks run out of space.
 - 3. Stop archiving when disks are full.
- W. The Archiver will allow important video sequences to be protected against normal disk cleanup routines.
- X. Users will have the following options when protecting a video sequence:
 - 1. Until a specified date
 - 2. For a specified number of days
 - 3. Indefinitely (until the protection is explicitly removed)
- Y. The Archiver will allow the administrator to put a cap on the percentage of storage space occupied by protected video.
- Z. The Archiver will keep a log and compile statistics on disk space usage.
 - 1. The statistics are available by disk group or for the whole Archiver.
 - 2. The statistics will show the percentage of protected video over the total used disk space.
- AA. The Archiver will have the capacity to down-sample video streams for storage saving purposes. The down-sampling options available are the following:
 - 1. For H.264, MPEG-4, and H.265, streams the down-sampling options are: all key frames, 1 fps, 2 sec./frame, 5 sec./frame, 10 sec./frame, 15 sec./frame, 30

- sec./frame, 60 sec./frame, 120 sec./frame.
 - 2. For MJPEG streams the down-sampling options are: 15 fps, 10 fps, 5 fps, 2 fps, 1 fps, 2 sec./frame, 5 sec./frame, 10 sec./frame, 15 sec./frame, 30 sec./frame, 60 sec./frame, 120 sec./frame.
- BB. The Archiver supports DVS with edge recording capabilities and offer the following capacity:
- 1. The ability to playback the video recorded on the DVS at different speeds.
 - 2. The ability to offload (video trickling) the video recorded on the DVS on schedule, on event, or manually to store it on the Archiver.
 - 3. It are possible to filter the video that is being offloaded using one or multiple of the following filters:
 - a. Time interval
 - b. Playback request
 - c. Video analytic events
 - d. Motion events
 - e. Bookmarks
 - f. Alarms
 - g. Input pin events
 - h. Unit offline events
- CC. The Archiver are provided with proven performance and scalability figures:
- 1. The Archiver's performance are guaranteed during the rebuild of a disk from a raid 5 disk group. The rebuild process will not affect the recording and playback capabilities.
 - 2. The recommended server specification from the Genetec Security Center Hardware Requirement will allow Archiver to perform up to 300 cameras or 300Mbs throughput first limit reached.
- 2.4 AUXILIARY ARCHIVER (SPECIFIER, ENTERPRISE ONLY, ADDITIONAL LICENSE REQUIRED)
- A. The Auxiliary Archiver are used to produce redundant archives (video, events, or bookmarks) for any camera in the system, on a case by case basis.
 - B. The Auxiliary Archiver will have the ability to record a camera on a different schedule than the Archiver.
 - C. The Auxiliary Archiver will have the ability to archive any of the standard video streams for archiving. The standard video stream usages are: Live, Recording, Remote, Low Resolution, and High Resolution.
 - D. The Auxiliary archiver will have the capacity to move video archives to the Azure Cloud.
 - E. from the cloud, to playback recordings without requiring an additional transfer.

2.5 EXISTING VMS MEDIA STREAMING

- A. The Media Router Role are responsible for routing video and audio streams across local and wide area networks from the source (for example DVS) to the destination (for example CSA).
- B. The Media Router Role supports multiple transport protocols, such as unicast TCP, unicast UDP, and multicast UDP.
- C. The Media Router supports IGMP (Internet Group Management Protocol) to establish multicast group memberships:
 - 1. IGMP v3, including SSM (Source-Specific Multicast) are supported.
- D. The Media Router Role using Redirector Agents are responsible for redirecting a stream from a source IP endpoint to a destination IP endpoint.
- E. The Redirector Agents are capable of converting a stream from and to any supported transport protocols:
 - 1. Multicast UDP to Unicast TCP
 - 2. Multicast UDP to Unicast UDP
 - 3. Unicast TCP to Multicast UDP
 - 4. Unicast UDP to Multicast UDP
- F. It are possible to limit the number of concurrent live and playback video redirections for each Redirector Agent in order to better control the bandwidth across multiple sites.
- G. It are possible to limit the bandwidth consumed by live and playback video from the CSA to better control the bandwidth across multiple sites. The SSM are able to prioritize video streaming to the CSA based on user level.
- H. It are possible to protect the Media Router Role against hardware or software unavailability by configuring another Media Router Role to act as a hot standby server.
- I. Multiple Redirector Agents are used on a large VMS installation to increase the service availability and to provide automatic load balancing.

2.6 EXISTING VMS VIDEO ARCHIVES TRANSFER CAPABILITIES

- A. Archive transfer provides the ability to:
 - 1. Transfer video from a server to another server in the same system.
 - 2. Transfer video from a federated server to another server.
 - 3. Transfer video from camera storage to a server.
- B. It are possible to program video transfers either on a recurrent schedule, or to trigger them manually or upon connection.
- C. It are possible to filter the video of interest for a transfer. The video of interest are

defined with the following filters:

1. All archives when the camera was offline.
 2. Alarms.
 3. Playback request from the edge.
 4. Video analytics events.
 5. Motion events.
 6. Bookmarks.
 7. Input triggers.
 8. Time range.
- D. It is possible to define the length of video before and after the event used as a filter to determine the video of interest.
- E. The USP offers an interface for displaying all video archive transfer requests. This interface will display all the current, requested and scheduled video transfer requests. It is possible to edit, trigger, and cancel video archive transfers from this interface.

2.7 EXISTING SECURITY VIDEO ANALYTICS

- A. The analytics are completely unified with the Video Management System.
- B. Configuration will natively be performed in the configuration interface of the Video Management System.
- C. The analytics will feature dedicated configuration possibilities for the following scenarios:
1. Perimeter protection
 2. Area protection
 3. Direction control
 4. Object detection
 5. Stopped vehicle detection
- D. Each of the scenarios will trigger events in the Video Management System, which correspond to their functionality.
- E. Additional to these scenarios, the analytics will allow to configure custom intrusion detection and object detection scenarios as well as allow to import settings to allow maximum flexibility.
- F. The analytics license will allow to configure any one of these scenarios per camera.
- G. The analytics will allow at least two different detection variants:
1. Trigger an alarm if a motion pattern moves from zone A (source) through zone B into zone C (sink).
 2. Trigger an alarm if a motion pattern moves anywhere inside a specified zone.
- H. The analytics supports an unlimited number of detection areas.
- I. The analytics feature rain-filters to filter out disturbances.

- J. The analytics will feature live configuration to immediately see the effects of parameter changes in the configuration interface without prior saving new configurations.
- K. The configuration of the analytics are possible on recorded video streams.
- L. The analytics offers the possibility to configure object movement paths.
- M. The analytics will not employ tripwires or cross-lines.
- N. Areas and the scenes perspective (near and far object size) are configured on-screen using a point-and-click interface.
- O. The analytics will feature filters for movement speed, distance, and direction to detect events.
- P. The analytics will feature options to separately show or hide areas, area names, and detection overlays.
- Q. The analytics are fully server-based, with no calculation on cameras necessary.
- R. The analytics will operate with color, thermal, and infrared cameras.
- S. The accuracy of the analytics are evaluated and approved by the CPNI Video Analytics Assessment Program and are listed in the CPNI Catalogue of Security Equipment (CSE).

2.8 EXISTING CAMERA INTEGRITY MONITOR

- A. Description:
 - 1. Automatically checks camera feeds to detect if cameras have been tampered with.
 - 2. Can be used for near-real-time alerting of tampering events or as a maintenance tool.
 - 3. Reports can be run on detected tampering events.
- B. Details:
 - 1. It are completely unified with the Video Management System.
 - 2. It are possible to set the detection sensitivity per camera stream between low, medium, and high.
 - 3. It are possible to choose on which servers the analytics will run.
 - 4. The camera stream used for analytics are configurable.
 - 5. It are possible to define how many cameras are being analyzed at the same time.
 - 6. To utilize minimum hardware resources, it are definable how often camera streams are analyzed.
 - 7. There are an overview over which cameras are configured to be analyzed.

2.9 EXISTING PRIVACY PROTECTOR

- A. Description:
 - 1. Automatically obscures all movement in surveillance videos in real-time.
 - 2. Live privacy masking of moving objects (such as people and vehicles).
 - 3. Completely unified with the video management system.
 - 4. Native configuration in the configuration interface of the video management system.

- B. Details:
 - 1. Certified with a valid EuroPriSe certification seal.
 - 2. Indoor / outdoor modes using flexible background modeling:
 - a. Indoor: Learning model with up to 10 different illumination states – this allows to adapt to fast lighting changes such as lights switching on and off.
 - b. Outdoor: Foreground detection based on edge detection rather than color – this allows to adapt to heavily changing lighting conditions such as clouds temporarily blocking sunlight.
 - 3. Detects movements using an absolute difference image, calculated by subtracting the current frame from a calculated background model.
 - 4. Masks movements using blocks, thus obscuring the outline of an object or person.
 - 5. Eight different scrambling methods: Pixelation, Colorize, and Transparency.
 - 6. Masking grids can be configured in a point-and-click interface.
 - 7. Past preview mode to see configuration changes in the configuration interface without necessity to save the configuration.
 - 8. Zones can be freely definable polygons with a point-and-click interface.
 - 9. Option to set analysis resolution to optimize performance.
 - 10. No calculation on the camera necessary, completely server-based.
 - 11. Option to define zones, which will always or never be pixelated.
 - 12. Option to choose input stream and output stream parameters, including resolutions, frame rate, and encoding.
 - 13. Utilizes server-side hardware acceleration to maximize the amount of cameras analyzed per server.

2.10 EXISTING GENERAL CLIENT SOFTWARE REQUIREMENTS

- A. The Client Software Applications (CSA) provides the user interface for USP configuration and monitoring over any network and be accessible locally or from a remote connection.

- B. The CSA will consist of the Configuration UI for system configuration and the Monitoring UI for monitoring. The CSA are Windows-based and provide an easy-to-use graphical user interface (UI).

- C. The CSA for monitoring supports running in 64-bit mode.

- D. The Server Administrator are used to configure the server database(s). It are web-based and accessible locally on the SSM or across the network.

- E. The CSA will seamlessly merge access control, license plate recognition (ALPR), and video functionalities within the same user application.

- F. The USP will use the latest user interface (UI) development and programming technologies such as Microsoft WPF (Windows Presentation Foundation), the XAML markup language, and the .NET software framework.
- G. All applications provides an authentication mechanism, which verifies the validity of the user. As such, the administrator (who has all rights and privileges) can define specific access rights and privileges for each user in the system.
- H. The CSA supports multiple languages, including but not limited to the following: English, French, Arabic, Czech, Dutch, German, Hebrew, Hungarian, Italian, Japanese, Korean, Norwegian, Persian (Farsi), Polish, Portuguese (Brazilian), Simplified and Traditional Chinese, Russian, Spanish, Swedish, Thai, Turkish, and Vietnamese.
- I. To enhance usability and operator efficiency, the Configuration UI and Monitoring UI supports many of the latest UI such as:
 - 1. A customizable Home Page that includes favorite and recently used tasks.
 - 2. Task-oriented approach for administrator/operator activities where each type of activity (surveillance, visitor management, individual reports, and more) is an operator task.
 - 3. Consolidated and consistent workflows for video, ALPR, and access control.
 - 4. Single click functionality for reporting and tracking. The Monitoring UI supports both single-click reporting for access control, ALPR, and video, as well as single-click tracking of areas, cameras, doors, zones, cardholders, elevators, ALPR entities, and more. Single-click reporting or tracking will create a new task with the selected entities to report on or track.
- J. Configuration UI and Monitoring UI Home Page and Tasks
 - 1. The Configuration UI and Monitoring UI are task-oriented.
 - 2. A task are user interface design patterns whose goal is to simplify the user interface by grouping related features from different systems, such as video and access, in the same display window. Features are grouped together in a task based on their shared ability to help the user perform a specific task.
 - 3. Tasks are accessible via the Home Page of either the Configuration or the Surveillance CSA.
 - 4. Newly created tasks are accessible via the Configuration UI or the Monitoring UI taskbar.
 - 5. Similar tasks are grouped into the following categories:
 - a. Operation: Access control management, LRP management, and more.
 - b. Investigation: Video bookmark/motion/archive reports, access control activity reports, visitor activity reports, alarm reports, ALPR activity reports, and more.
 - c. Maintenance: Access control and video configuration reports, troubleshooters, audit trails, health-related reports, and more.
 - 6. An operator are able to launch a specific task only if they have the appropriate privileges.
 - 7. The Home Page content are customizable through the use of privileges to hide tasks that an operator will not have access to and through a list of favorite and recently used tasks. In addition, editing a USP XML file to add new tasks on the

fly will also be possible.

K. The Contractor provides up to 5 simultaneous Clients.

2.11 EXISTING CONFIGURATION USER INTERFACE (UI)

A. General:

1. The Configuration UI application will allow the administrator or users with appropriate privileges to change the system configuration. The Configuration UI provides decentralized configuration and administration of the USP system from anywhere on the IP network.
2. The configuration of all embedded ACS, VMS, and ALPR systems are accessible via the Configuration UI.
3. The Configuration UI will have a home page with single-click access to various tasks.
4. The Configuration UI includes a variety of tools such as troubleshooting utilities, import tools, and a unit discover tool, amongst many more.
5. The Configuration UI includes a static reporting interface to:
 - a. View historical events based on entity activity. The user are able to perform such actions as printing a report and troubleshooting a specific access event from the reporting view.
 - b. View audit trails that show a history of user/administrator changes to an entity.
6. Common entities such as users, schedules, alarms and many more, can be reused by all embedded systems (ACS, VMS, and ALPR).

B. Video management system:

1. The Configuration UI will allow the administrator or users with appropriate privileges to change video configuration.
2. The Configuration UI provides the ability to change video quality, bandwidth, and frame rate parameters on a per camera (stream) basis for both live and recorded video.
3. The Configuration UI provides the ability to change video quality by a selection of predefined video quality template.
4. The Configuration UI provides the ability to configure brightness, contrast, and hue settings for each camera on the same DVS.
5. The Configuration UI provides the capability to enable audio recording on DVS units that support audio.
6. The Configuration UI provides the ability to change the audio parameters, serial port and I/O configuration of individual DVS units.
7. The Configuration UI provides the capability to rename all DVS units based on system topology and to add descriptive information to each DVS.
8. The Configuration UI provides the ability to set recording schedules and modes for each individual camera. The recording mode can be:
 - a. Continuous
 - b. On motion and Manual
 - c. Manual only
 - d. Disabled
9. The Configuration UI supports the creation of schedules to which any of the

- following functional aspects can be attached:
- a. Video quality (for each video stream per camera)
 - b. Recording (for each camera)
 - c. Motion detection (for each detection zone per camera)
 - d. Brightness, Contrast, and Hue (for each camera)
 - e. Camera sequence execution
10. The Configuration UI supports the creation of unlimited recording schedules and the assigning of any camera to any schedule.
 11. The Configuration UI will detect and warn user of any conflict within assigned schedules.
 12. The Configuration UI provides the capability to set a PTZ protocol to a specific DVS serial port and will allow mixing domes of various manufacturers within a system.
 13. User will have the ability to configure a return to home function after a predefined time of inactivity for PTZ cameras. This period of inactivity time are configurable from 1 to 7200 seconds.

2.12 EXISTING VMS CLIENT USER INTERFACE (UI)

- A. The Monitoring UI will fulfill the role of a Unified Security Interface that is able to monitor video, ALPR, and access control events and alarms, as well as view live and recorded video.
- B. The Monitoring UI provides a graphical user interface to control and monitor the USP over any IP network. It will allow administrators and operators with appropriate privileges to monitor their unified security platform, run reports, and manage alarms.
- C. To enhance usability and operator efficiency, the Monitoring UI supports the following UI concepts:
 1. Dynamically adaptive interface that adjusts in real-time to what the operator is doing.
 2. A dynamic controls section loaded with entity-specific widgets (e.g. door and camera widgets).
 3. Use of transparent overlays that can display multiple types of data in a seamless fashion.
 4. Display tile menus and quick commands.
 5. Consolidated and consistent workflows.
 6. Tile menus and quick commands easily accessible within every display tile of the user workspace.
 7. Single click functionality for reporting and tracking. The Monitoring UI supports both single-click reporting for access control, ALPR, and video, as well as single-click tracking of areas, cameras, doors, zones, cardholders, elevators, ALPR entities, and more. Single-click reporting or tracking will create a new task with the selected entities to report on or to track.

- D. Monitoring UI Home Page and Tasks:
1. Similar tasks are grouped into the following categories:
 - a. Operation: Access control/LRP/video surveillance, visitor management, mustering, access control and video alarm monitoring, and more.
 - b. Investigation: Video bookmark/motion/archive reports, access control activity reports, visitor activity reports, alarm reports, ALPR activity reports, and more.
 - c. Maintenance: Access control and video configuration reports, troubleshooters, audit trails, and more.
- E. Dynamically Adaptive UI, Controls section, and Widgets:
1. The Monitoring UI will dynamically adapt to what the operator is doing. This is accomplished through the concept of widgets that are grouped in the Monitoring UI Controls section.
 2. Widgets are mini-applications or mini-groupings in the Monitoring UI Controls section that let the operator perform common tasks and provide them with fast access to information and actions.
 3. With a single click on an entity (for example door or camera) the specific widgets associated to that entity appear and other non-relevant widgets disappear dynamically (instantly). Widgets will bring the operator information such as door status and camera stream information, as well as user actions, such as door unlock, PTZ controls, and more.
 4. Specific widgets include those for a door, camera, alarm, zone, display tile, video stream (statistics), PTZ camera, and more.
- F. Operator Workflows:
1. A workflow is a sequence of operations an operator or administrator will execute to complete an activity. The "flow" relates to a clearly defined timeline or sequence for executing the activity.
 2. The Monitoring UI is equipped with consistent workflows for the ALPR, video, and access control systems that it unifies.
 3. Generating or printing a report, setting up or acknowledging an alarm, or creating an incident report will follow the same process (workflow) whether the operator is working with video, ALPR, or access control, or with both video and access control.
- G. Each task within the Monitoring UI will consist of one or more of the following items:
1. Event list.
 2. Logical tree: Doors, cameras, zones, ALPR units, and elevators are grouped under Areas in a hierarchical fashion.
 3. Entities list of all entities being tracked.
 4. Display tiles with various patterns (1 x 1, 2 x 2, and more).
 5. Display tile menu with various commands related to cameras, doors, PTZ, and tile controls.
 6. Controls section with widgets.
- H. The Monitoring UI supports multiple event lists and display tile patterns, including:
1. Event/alarm list layout only
 2. Display tile layout only

3. Display tile and alarm/event list combination
 4. ALPR map and alarm/event list combination
- I. User workspace customization
1. The user will have full control over the user workspace through a variety of user-selectable customization options. Administrators will also be able to limit what users and operators can modify in their workspace through privileges.
 2. Once customized, the user are able to save his or her workspace.
 3. The user workspace are accessible by a specific user from any client application on the network.
 4. Display tile patterns are customizable.
 5. Event or alarm lists will span anywhere from a portion of the screen up to the entire screen and are resizable by the user. The length of event or alarm lists are user-defined. Scroll bars will enable the user to navigate through lengthy lists of events and alarms.
 6. The Monitoring UI supports multiple display tile patterns (for example one display tile (1x1 matrix), 16 tiles (8x8 matrix), and multiple additional variations).
 7. The Monitoring UI supports as many monitors as the PC video adapters and Windows Operating System are capable of accepting.
 8. Additional customization options include: show/hide window panes, show/hide menus/toolbars, show/hide overlaid information on video, resize different window panes, and choice of tile display pattern on a per task basis.
- J. The Monitoring UI provides an interface to support the following tasks and activities common to access control, ALPR, and video:
1. Monitoring the events from a live security system (ACS and/or VMS and/or ALPR).
 2. Generating reports, including custom reports.
 3. Monitoring and acknowledging alarms.
 4. Creating and editing incidents and generating incident reports.
 5. Displaying dynamic graphical maps and floor plans as well as executing actions from dynamic graphical maps and floor plans.
 6. Management and execution of hot actions and macros.
- K. The Monitoring UI are able to monitor the activity of the following entities in real-time: areas, ALPR entities, doors, elevators, cameras, cardholders, cardholder groups, zones (input points), and more.
- L. The Monitoring UI includes advanced video capabilities, including:
1. Advanced live video viewing functionality.
 2. Advanced archive playing and video playback functionality.
 3. Monitoring and management of video system events and alarms.
 4. Intercom or duplex audio.
 5. Generation of video reports.
 6. Control of PTZ cameras.
 7. Creating and monitoring archive transfer requests.
 8. Display metadata overlaid on live or playback video.
- M. The Monitoring UI will leverage the Graphical Processing Unit (GPU) for video

- decoding.
1. The following GPU technologies are supported:
 - a. NVidia CUDA
 - b. Intel Quick Sync
 2. The Monitoring UI will have the ability to decode video through the optimal simultaneous use of the GPU and Computer Processing Units (CPU).
- N. The live video viewing capabilities of the Monitoring UI includes:
1. The ability to display all cameras attached to the USP and all cameras attached to federated systems.
 2. Support for live video monitoring on each and every display tile within a task in the user's workspace.
 3. The USP supports uninterrupted video streaming. The CSA will keep existing video connections active in the event that an SSM (except Archiver) becomes unavailable.
 4. The ability to drag and drop a camera into a display tile for live viewing.
 5. The ability to drag and drop a camera into a display tile for live viewing on an analog monitor connected to an IP hardware decoder (converting an IP encoded stream into an analog video signal).
 6. The ability to drag and drop a camera from a map into a display tile for live viewing.
 7. Support for digital zoom on live camera video streams.
 8. The ability for audio communication with video units with audio input and output.
 9. The ability to control pan-tilt-zoom, iris, focus, and presets.
 10. The ability to bookmark important events for later retrieval on any archiving camera and to uniquely name each bookmark in order to facilitate future searches.
 11. The ability to start/stop recording on any camera in the system that is configured to allow manual recording by clicking on a single button.
 12. The ability to activate or de-activate viewing of all system events as they occur.
 13. The ability to switch to instant replay of the video for any archiving camera with the simple click of button.
 14. The ability to take snapshots of live video and be able to save or print the snapshots.
 15. The ability to view the same camera multiple times in different tiles.
- O. The video playback (archive playing) capabilities of the Monitoring UI includes:
1. Support for audio and video playback for any time span.
 2. Support for video playback on each and every display tile.
 3. The ability to instantly replay the video for any archiving camera with the simple click of a button.
 4. The ability to select between instant synch of all video streams in playback mode, allowing operators to view events from multiple angles or across several camera fields, or non-synchronous playback.
 5. The ability to simultaneously view the same camera in multiple tiles at different time intervals.
 6. The ability to control playback with:
 - a. Pause
 - b. Lock Speed

- c. Forward and Reverse Playback at: 1x, 2x, 4x, 6x, 8x, 10x, 20x, 40x, 100x
- d. Forward and Reverse Playback frame by frame
- e. Slow Forward and Reverse Playback at: 1/8x, 1/4x, 1/3x, 1/2x
- f. Loop playback between two time markers
7. The ability to display a single timeline or one timeline for each selected video stream, which would allow the operator to navigate through the video sequence by simply clicking on any point in the timeline.
8. The ability to display the level of motion at any point on a timeline.
9. The ability to clearly display bookmarked events on the timeline(s).
10. The ability to query archived video using various search criteria, including, but not limited to, time, date, camera, and area.
11. The tool necessary for searching video and associated audio based on user-defined events or motion parameters.
12. The ability to define an area of the video field in which to search for motion as well as define the amount of motion that will trigger search results. The Monitoring UI will then retrieve all archived video streams that contain motion that meets the search parameters. There are a graphical timeline on which the time of each search hit are indicated.
13. The ability to browse through a list of all bookmarks created on the system and select any bookmarked event for viewing.
14. The ability to add bookmarks to previously archived video for easier searching and retrieval.
15. Support for digital zoom on playback video streams.
16. Still image export to PNG, JPEG, GIF, and BMP format with Date and Time stamp, and Camera Name on the image (snapshot).
17. Tools for exporting video and a self-contained video player on various media such as USB keys or CD/DVD-ROM. This video player are easy to use without training and will still support reviewing video metadata, such as bookmark, or navigating the video with functions like panoramic camera view dewarping.
18. Tools for exporting video sequences in standard video formats, such as ASF or MP4.
19. The ability to encrypt exported video files.
20. The ability for an operator to load previously exported video files from their computer or network.
21. The ability for queries to be saved upon closing the CSA and reappear when the application is reopened.
22. The ability to dynamically block, on demand, video stream dynamically to lower level users to prevent access, for a specific time, to live and recorded video.
23. A tool building and exporting a set of videos into a single container. This tool will allow the operator to build sequences of video to create a storyboard and allow the export of synchronous cameras.
24. The ability to store the video export and still image export at a pre-defined storage location.
25. An interface with the ability to list, search, and manipulate previously generated video exports.
26. The ability to export sequences of video in open standards including ASF and MP4.

- P. The Monitoring UI provides an interface to support the following ALPR tasks and capabilities:
1. Monitoring and management of ALPR events and alarms.
 2. Viewing of license plate picture(s) and context images.
 3. Viewing of license plate data (e.g. license plate reads)
 4. Verification of ALPR data against live and recorded video.
- Q. Entity Monitoring:
1. The USP will permit the user to select multiple entities to monitor from the Monitoring UI by adding the entities one by one to the tracking list.
 2. The Monitoring UI provides the option to filter which events are displayed in the display tile layout and/or event list layout.
 3. It are possible to lock a Monitoring UI display tile so that it only tracks the activity of a specific entity (e.g. specific door or camera).
 4. The user are able to drag and drop an event from an event list (or an alarm from an alarm list) onto a display tile to view a license plate read, cardholder picture ID, badge ID, or live/archived video, among other options.
 5. Event, alarm, monitoring/tracking, and report lists will contain cardholder pictures where applicable.
 6. The user are permitted to start or pause the viewing of events within each display tile.
- R. Display Tile Packing and Unpacking:
1. The Monitoring UI supports single-click unpacking and packing for ALPR hits, ALPR reads, areas, doors, zones, camera sequences, and alarms.
 2. The packing and unpacking of entities will allow operators to quickly obtain additional information and camera views of a specific entity.
 3. The unpacking of an entity will display associated entities. For example, unpacking a door with multiple associated cameras will display all cameras associated with that door. Unpacking will reconfigure the display tiles to be able to display all associated entities. For example, unpacking a door (or a zone or alarm) that is currently in a 1 x 1 tile configuration and that has 3 cameras tied to it will create a 1 x 3 display tile arrangement for viewing all associated entities.
 4. Packing will return the display to the original tile pattern.
- S. Visual Tracking:
1. The Monitoring UI supports the ability to manually track a moving target with the single click of a button.
 2. The ability to switch from one camera view to an adjacent camera are done within a single display tile.
 3. Switching between camera streams are accomplished by simply clicking on a semi-transparent shape or overlay.
 4. Visual tracking are available with both live and recorded video.

2.13 EXISTING SERVER ADMINISTRATOR USER INTERFACE REQUIREMENTS

- A. The Server Administrator are used to configure the SSM and the Directory Role (main configuration) and its database(s), to apply the license, and more.

- B. The Server Administrator are a web-based application. Through the Server Administrator, it are possible to access the SSM across the network or locally on the server.
- C. Access to the Server Administrator are protected via login name, password, and encrypted communications.
- D. The Server Administrator will allow the administrator (user) to perform the following functions:
 - 1. Manage the system license.
 - 2. Configure the database(s) and database server for the Directory Role,
 - 3. Activate/Deactivate the Directory Role.
 - 4. Manually back up the Directory Role database(s) and/or restore the server database(s), as well as configure scheduled backups of the databases.
 - 5. Define the client-to-server communications security settings.
 - 6. Configure the network communications hardware, including connection addresses and ports.
 - 7. Configure system SMTP settings (mail server and port).
 - 8. Configure event and alarm history storage options.

2.14 VUNIFIED WEB CLIENT (UWC) GENERAL REQUIREMENTS

- A. The USP supports a unified web client (UWC) for access control and video.
- B. The UWC are a truly thin client with no download required other than an internet web browser or standard web browser plugins.
- C. The UWC are platform independent and run within Microsoft Edge, Internet Explorer, Firefox, Safari, and Google Chrome.
- D. Web pages for the web client are managed and pushed by the Web Server Role. Microsoft IIS or any other web hosting service will not be required given that all the web pages are hosted by the Web Server Role.
- E. The UWC supports display on tablet format.
- F. Video Stream are redirected to the Web Client with no stream transformation or re-encoding for all streams in H264.
- G. The Contractor provides up to 5 simultaneous Web Clients.
- H. Functionalities:
 - 1. Log in using name and password or Active Directory support are available.)
 - 2. Ability for user to change their password.
 - 3. Encrypted communications for all transactions.
 - 4. Print reports and export to CSV file.
 - 5. Customer logo customization are available for multi-tenant and hosted services applications.
 - 6. Video:

- a. Live and playback video at 320 x 240, 640 x 480 or 1280 x 1024 @ 15 fps
- b. Video export
- c. 1, 4, 6 or 9 tiles
- d. Basic PTZ Controls (Pan/Tilt, Zoom, go to presets, start pattern)
- e. Start / Stop recording
- f. Sample web page for customers to see how to view video for their own development
- g. Add bookmarks
7. Alarms:
 - a. Alarm report
8. Threat Level.

2.15 EXISTING SMARTPHONE AND TABLET APP GENERAL REQUIREMENTS

- A. The USP supports mobile apps for various off-the-shelf devices. The mobile apps will communicate with the Mobile Server of the USP over any Wi-Fi or cellular network connection.
- B. Mobile apps will communicate with the USP via a Mobile Server Role (MSR). All communication between the mobile apps and MSR are based on standard TCP/IP protocol and will use the TLS encryption with digital certificates to secure the communication channel.
- C. Supported device manufacturers includes (refer to Mobile App specifications for latest compatibility list):
 1. Apple devices running iOS 11.0 or later
 2. Android devices 6.0 or later
- D. It are possible to download the mobile apps from the Central application store (Apple iTunes App Store, Google Play).
- E. Functionalities:
 1. Core
 - a. Ability to logon/logoff to the USP using an authorized user profile of the system.
 - b. Ability to change the picture or the password of the user of the mobile app.
 - c. Ability to view the current Threat Level of the system.
 - d. Ability to change the current Threat Level of the system.
 - e. Ability to execute hot actions configured in the user profile.
 - f. Ability to view entities from the USP:
 - 1) Cameras
 - 2) Doors
 - 3) ALPR cameras
 - 4) Web Tile Plugins
 - 5) Layouts
 - 6) Camera Sequences
 - 7) Macros
 - g. Ability to navigate the system hierarchical view of the entities and search

- entities in the system.
 - 2. Video
 - a. Ability to view live and recorded video from the cameras of the USP. A maximum of four cameras are displayed.
 - b. Ability to display live and recorded video side-by-side for a specific camera.
 - c. Ability to perform digital zoom on cameras.
 - d. Ability to perform actions on cameras such as add a bookmark, control a PTZ, control the iris/focus function, save a snapshot, start/stop recording.
 - e. Ability to view camera layouts.
 - f. Ability to view camera sequences.
 - g. Ability to run a camera events report.
 - h. Ability to change the video quality on the cameras displayed on the mobile app.
 - i. Ability to use the camera of the smartphone and stream a live video feed to a video recorder in the system.
 - 3. Access Control
 - a. Ability to view the door state and door lock state.
 - b. Ability to perform actions on a door such as unlock the door, set the door in maintenance mode, override the door unlocking schedule.
 - 4. Automatic License Plate Recognition
 - a. Ability to view live events raised by an ALPR camera.
 - b. Ability to view the read image, context image, and all metadata captured by the ALPR camera.
 - c. Ability to run an ALPR event report.
 - d. Ability to add a license plate to a hotlist on the system.
 - 5. Alarm Management
 - a. Ability to receive push notifications to notify mobile operators that an alarm was received.
 - b. Ability to view all active alarms assigned to the mobile operator.
 - c. Ability to perform action on an alarm such as acknowledge, forward, or alternate-acknowledge an active alarm.
 - d. Ability to view entities attached to the alarm.
 - 6. Map
 - a. Ability to display a geographic map with USP entities geo-located on the map.
 - b. Ability to view any entity configured on the map.
 - c. Ability to search entities or location on the map.
- F. It is possible to send a message from the client user interface to a mobile operator.
- G. It is possible to send a live or playback video sequence from the client UI to a mobile operator.

2.16 HEALTH MONITOR

- A. The USP will monitor the health of the system, log health-related events, and calculate statistics.
- B. USP services, roles, agents, units, and client apps will trigger health events.

- C. The USP will populate the Windows Event Log with health events related to USP roles, services, and client apps.
- D. A dedicated role, the Health Monitoring Role, performs the following actions:
 - 1. Monitor the health of the entire system and log events.
 - 2. Calculate statistics within a specified time frame (hours, days, months).
 - 3. Calculates availability for clients, servers and video/access/ALPR units.
- E. A Health Monitoring task and Health History reporting task are available for live and historical reporting.
- F. A Health Monitoring dashboard task are available in the client application user interface to provide a live display, such as pie charts and event lists, for quick visual assessment on the general health of the system.
- G. A web-based, centralized health dashboard are available to remotely view unit and role health events of the USP.
- H. Detailed system care statistics will be available through a web-based dashboard providing health metrics of USP entities and roles, including Uptime and mean-time-between-failures.
- I. All health events raised in the system can be used for automating the USP event/action management.
- J. Health events are accessible via the SDK (can be used to create SNMP traps).

2.17 EXISTING USP GENERAL REQUIREMENTS

- A. The Unified Security Platform (USP) are an enterprise class IP-enabled security and safety software solution.
- B. The USP supports the seamless unification of IP access control system (ACS), IP video management system (VMS), and IP automatic license plate recognition system (ALPR) under a single platform. The USP user interface (UI) applications will present a unified security interface for the management, configuration, monitoring, and reporting of embedded ACS, VMS, and ALPR systems and associated edge devices.
- C. Functionalities available with the USP includes:
 - 1. Configuration of embedded systems, such as ACS, ALPR, and VMS systems.
 - 2. Live event monitoring.
 - 3. Live video monitoring and playback of archived video.
 - 4. Alarm management.
 - 5. Reporting, including creating custom report templates and incident reports.
 - 6. Dynamic graphical map viewing.
 - 7. Asset management system integration. (Specifier, Professional and up, additional license required)
- D. The USP are deployed in one or more of the following types of installations:

1. Unified access, ALPR, video platform, and any combination thereof.
 2. Standalone access control, ALPR, or video platform.
 3. Unified access and video platform that federates multiple remote ACS, VMS, ALPR.
 4. Standalone video platform that federates multiple independent remote VMS.
 5. Standalone access control that federates multiple independent remote ACS.
 6. Standalone access control that federates multiple independent remote ALPR.
- E. Licensing:
1. A single central license are applied centrally on the configuration server.
 2. There are no requirement to apply a license at every server computer or client workstation.
 3. Based on selected options, one or more embedded systems are enabled or disabled.
- F. Hardware and Software Requirements:
1. The USP and embedded systems (video, license plate recognition, and access control) are designed to run on a standard PC-based platform loaded with a Windows operating system. The preferred operating system are coordinated with the Owner following the manufacturer supported operating systems.
 2. The core client/server software are built in its entirety using the Microsoft .NET software framework and the C# (C-Sharp) programming language.
 3. The USP database server(s) are built on Microsoft's SQL Server. The preferred SQL version are coordinated with the Owner and compatible with the USP.
 4. The USP are compatible with virtual environments, including VMware and Microsoft Hyper-V.
 5. The USP will use the latest user interface (UI) development and programming technologies such as Microsoft WPF (Windows Presentation Foundation), the XAML markup language, and .NET software framework.

2.18 EXISTING USP ARCHITECTURE

- A. The USP are based on a client/server model. The USP will consist of a standard Server Software Module (SSM) and Client Software Applications (CSA).
- B. The USP are an IP enabled solution. All communication between the SSM and CSA are based on standard TCP/IP protocol and will use TLS encryption with digital certificates to secure the communication channel.
- C. The SSM are a Windows service that can be configured to start when the operating system is booted and run in the background. The SSM will automatically launch at computer startup, regardless of whether or not a user is logged on the machine.
- D. Users are able to deploy the SSM on a single server or across several servers for a distributed architecture. The USP will not be restricted in the number of SSM deployed.
- E. The USP protects against potential database server failure and continue to run through standard off-the-shelf solutions.

- F. The USP supports an unrestricted number of logs and historical transactions (events and alarms) with the maximum allowed being limited by the amount of hard disk space available.
- G. The USP supports uninterrupted video streaming. The CSA will keep existing video connections active in the event that an SSM (except Archiver) becomes unavailable.
- H. Roles-Based Architecture:
 - 1. The USP will consist of a role-based architecture, with each SSM hosting one or more roles.
 - 2. Each role will execute a specific set of tasks related to either core system, automatic license plate recognition (ALPR), video (VMS), or access control (ACS) functionalities, among many others. Installation are streamlined through the ability of the USP to allow administrators to:
 - a. Deploy one or several SSM across the network prior to activating roles.
 - b. Activate and deactivate roles as needed on each and every SSM.
 - c. Centralize role configuration and management.
 - d. Support remote configuration.
 - e. Move roles over from one SSM to another.
 - 3. Each role, where needed, will have its own database to store events and role-specific configuration information.
 - 4. Roles without databases, such as The Federation feature, Active Directory, and Global Cardholder Management, supports near real-time standby without any third party failover software being required.
 - 5. Directory Role:
 - a. The Directory Role will manage the central database that contains all the system information and component configuration of the USP.
 - b. The Directory Role will authenticate users and give access to the USP based on predefined user access rights or privileges, and security partition settings.
 - c. The Directory Role supports the configuration/management of the following components common to the ACS, ALPR, and VMS sub-systems:
 - 1) Security Partitions, users and user groups
 - 2) Areas
 - 3) Zones, input/output (IO) linking rules, and custom output behavior
 - 4) Alarms. Schedules, and scheduled tasks
 - 5) Custom events
 - 6) Macros or custom scripts
 - d. The Directory Role supports the configuration/management of the following components specific to VMS:
 - 1) Video servers and their peripherals (e.g. audio, IOs, and serial ports)
 - 2) PTZ
 - 3) Camera sequences
 - 4) Recording and archiving schedules
 - e. The Directory Role supports the configuration/management of the following components specific to ACS:
 - 1) Door controllers, and input and output (IO) modules
 - 2) Doors, Elevators, and Access rules
 - 3) Cardholders and cardholder groups, credentials, and badge templates
 - f. The Directory Role supports the configuration/management of the following

- components specific to ALPR:
 - 1) ALPR units and cameras
 - 2) Hotlists, permit lists, and overtime rules
 - 6. The Video Archiver Role are responsible for managing cameras and encoders under its control and archiving.
 - 7. The Media Router Role are responsible for routing video and audio streams across local and wide area networks from the source (for example DVS) to the destination (for example CSA).
 - 8. The Access Manager Role are responsible for synchronizing access control hardware units under its control, such as door controllers and I/O modules. This role will also be responsible for validating and logging all access activities and events when the door controllers and I/O modules are online.
 - 9. The Automatic License Plate Recognition (ALPR) Role are responsible for synchronizing fixed ALPR units (cameras) and mobile ALPR applications under its control. The ALPR Role will also be responsible for logging all ALPR activities and events.
 - 10. The Zone Manager Role are responsible for managing all software zones (collection of inputs) and logging associated zone events. Zones will consist of inputs from both access control and video devices.
 - 11. The Health Monitoring Role are responsible for monitoring and logging health events and warnings from the various client applications, roles, and services that are part of the USP. This role will also be responsible for logging events within the Windows Event Log and for generating reports on health statistics and health history.
- I. Server Monitoring Service (Watchdog):
- 1. The USP includes a Server Monitoring Service that continuously monitors the state of the Server Software Module (SSM) service.
 - 2. The Server Monitoring Service are a Windows service that automatically launches at system startup, regardless of whether or not a user is logged into his account.
 - 3. The Server Monitoring Service are installed on all PCs/servers running an SSM. In the event of a malfunction or failure, the Server Monitoring Service will restart the failed service. As a last resort, the Server Monitoring Service will reboot the PC/server will it be unable to restart the service.

2.19 EXISTING USP ACCESS CONTROL, VIDEO, AND ALPR UNIFICATION

- A. The Monitoring UI will present a true Unified Security Interface for live monitoring and reporting of the ACS, VMS, and ALPR. Advanced live video viewing and playback of archived video are available through the Monitoring UI.
- B. The Configuration UI will present a true Unified Security Interface for the configuration and management of the ACS, VMS, and ALPR.
- C. The user are able to associate one or more video cameras to the following entity types: areas, doors, elevators, zones, alarms, intrusion panels, ALPR cameras, and more.
- D. It are possible to view video associated to access control events when viewing a

- report.
- E. It are possible to view video associated to intrusion panel events when viewing a report.
 - F. It are possible to view video associated to ALPR events when viewing a report.
 - G. The USP supports the following Alarm Management functionality:
 1. Create and modify user-defined alarms. An unrestricted number of user-defined alarms are supported.
 2. Assign a time schedule or a coverage period to an alarm. An alarm are triggered only if it is a valid alarm for the current time period.
 3. Set the priority level of an alarm and its reactivation threshold.
 4. Define whether to display live or recorded video, still frames or a mix once the alarm is triggered.
 5. Provide the ability to display live and recorded video within the same video tile using picture-in-picture (PiP) mode.
 6. Provide the ability to group alarms by source and by type.
 7. Define the time period after which the alarm is automatically acknowledged.
 8. Define the recipients of an alarm. Alarm notifications are routed to one or more recipients. Recipients are assigned a priority level that prioritizes the order of reception of an alarm.
 9. Define the alarm broadcast mode. Alarm notifications are sent using either a sequential or an all-at-once broadcast mode.
 10. Define whether to display the source of the alarm, one or more entities, or an HTML page.
 11. Specify whether an incident report is mandatory during acknowledgment.
 - H. The workflows to create, modify, add instructions and procedures, and acknowledge an alarm are consistent for access control, ALPR, and video alarms.
 - I. Alarms are federated, allowing global alarm management across multiple independent USP, ACS, VMS, and ALPR systems.
 - J. The USP will also support alarm notification to an email address or any device using the SMTP protocol.
 - K. The ability to create alarm-related instructions are supported through the display of one or more HTML pages following an alarm event. The HTML pages are user-defined and can be interlinked.
 - L. Alarm unpacking and packing are supported where all the entities associated to an alarm can be display in the Monitoring UI with the single click of a button.
 - M. The user will have the ability to acknowledge alarms, create an incident upon alarm acknowledgement, and put an alarm to snooze.
 - N. The user are able to spontaneously trigger alarms based on something they see in the system.

- O. An alarm are configured in such a way that it remains visible until the source condition has been acknowledged.
- P. The user are able to investigate an alarm without acknowledging it.

2.20 EXISTING USP REMOTE TASK

- A. The USP provides, through a Remote Task, capabilities to remotely monitor and control the content of other workstations running the CSA (Monitoring UI) that are part of the same system.
- B. The USP supports video wall applications by connecting and controlling multiple workstations and monitors simultaneously.
- C. The Remote Task are a graphical interface showing a replication of the remote workstation running the CSA (Monitoring UI).
- D. The Remote Task will allow the connection to other workstations using a low bandwidth mode to receive only snapshots of video viewed remotely.
- E. The Remote Task will allow the connection to other workstations using a spy mode to remain invisible to the remotely connected workstation. The spy mode option are available to the user with permission to access the feature.
- F. The functionality provided by the remote monitoring and control capability includes:
 - 1. Remote monitoring and control of the monitoring and alarm monitoring tasks.
 - 2. Ability to remotely switch cameras, doors and zones into display tiles.
 - 3. Ability to remotely control live and playback video.
 - 4. Ability to remotely change the tile pattern.
 - 5. Ability to remotely create and delete tasks.
 - 6. Ability to remotely start/stop task cycling.
 - 7. Ability to remotely go into full screen mode.
 - 8. Ability to remotely save and reload the workspace.

2.21 EXISTING USP ADVANCED TASK MANAGEMENT

- A. USP supports an infrastructure for managing Monitoring UI tasks used for live monitoring, day to day activities, and reporting.
- B. Administrators are able to assign tasks and lock the operator's workspace. The user management of their workspace are limited by their assigned privileges.
- C. Operators are able save their tasks as either Public tasks or Private tasks and in a specific partition. Public tasks are available to all users. Private tasks will only be available to the owner of the task.
- D. Operators are able to share their tasks by sending them to one or more online users. Recipients will have the option to accept the sent task.

- E. Operators are able to duplicate a task.

2.22 EXISTING USP REPORTING

- A. The USP supports report generation (database reporting) for access control, ALPR, video, and intrusion.
- B. Each and every report in the system are a USP task, each associated with its own privilege. A user will have access to a specific report task if they have the appropriate privilege.
- C. The workflows to create, modify, and run a report are consistent for access control, ALPR, and video reports.
- D. Reports are federated, allowing global consolidated reporting across multiple independent USP, ACS, VMS, and ALPR systems.
- E. Access control and ALPR reports supports cardholder pictures and license plate pictures, respectively.
- F. The USP supports the following types of reports:
 - 1. Alarm reports
 - 2. Video-specific reports (archive, bookmark, motion, and more)
 - 3. Configuration reports (cardholders, credentials, units, access rules, readers/inputs/outputs, and more)
 - 4. Activity reports (cardholder, cardholder group, visitor, credential, door, unit, area, zone, elevator, and more)
 - 5. ALPR-specific reports (mobile ALPR playback, hits, plate reads, reads/hits per day, reads/hits per ALPR zone, and more)
 - 6. Health activity and health statistics reports
 - 7. Other types of reports, including visitor reports, audit trail reports, incident reports, and time and attendance reports
- G. Generic Reports, Custom Reports, and Report Templates:
 - 1. The user will the option of generating generic reports from an existing list, generating reports from a list of user-defined templates, or creating a new report or report template.
 - 2. The user are able to customize the predefined reports and save them as new report templates. There are no need for an external reporting tool to create custom reports and report templates. Customization options includes setting filters, report lengths, and timeout period. The user will also be able to set which columns are visible in a report. The sorting of reported data are available by clicking on the appropriate column and selecting a sort order (ascending or descending).
 - 3. All report templates are created within the Monitoring UI.
 - 4. These templates can be used to generate reports on a schedule in PDF or Excel formats.
 - 5. An unrestricted number of custom reports and templates are supported.

- H. A reporting task layout will consist of panes with settings (report length, filters, go and reset commands, etc.), the actual report data in column format, and a pane with display tiles. The user are able to drag and drop individual records in a report onto one or more display tiles to view a cardholder's picture ID, playback a video sequence, or an ALPR event.
- I. The USP supports comprehensive data filtering for most reports based on entity type, event type, event timestamp, custom fields, and more.
- J. The reporting task will have the ability to display results through graphics such as line charts, bar charts, stacked bar charts, doughnut charts, and pie charts.
- K. The user are able to click on an entity within an existing report to generate additional reports from the Monitoring UI.
- L. The USP supports the following actions on a report: print report, export report to a PDF/Microsoft Excel/CSV file, export the graphics chart in JPG/PNG, and automatically email a report based on a schedule and a list of one or more recipients.

2.23 EXISTING USP DASHBOARDS

- A. The USP supports the ability to create dashboards.
- B. Operators are allowed to view dashboards if they are granted the appropriate privilege. Modification to dashboards will also be allowed to users granted the appropriate privilege.
- C. Dashboards in the system are a USP task. A user will have access to a specific dashboard task if they have the appropriate privilege.
- D. Dashboards are saved either in a private folder or a public folder.
- E. A dashboard will consist of a canvas with various widgets displayed on the canvas. All widgets offers the ability to specify location and size to the widget, a title to the widget, a background color to the widget, and the ability to refresh periodically the content of the widget.
- F. Dashboard widget types are:
 - 1. Image: provides the ability to display an image (JPG, PNG, GIF, BMP) on a dashboard.
 - 2. Text: provides the ability to display a text on a dashboard. The text style are configurable, so font, size, color, and alignment can be specified by the user.
 - 3. Tile: provides the ability to display any entity of the USP inside of a tile.
 - 4. Web page: provides the ability to display a URL on a dashboard.
 - 5. Entity Count: provides the ability to display the total number of a specific entity type in the USP.
 - 6. Reports: provides the ability to display the results of any saved reports in the system. The results are displayed either by showing the total number of results in the report, a set of top results from the report, or a visual graph from the data

returned by the report.

- G. It are possible to extend to the widgets of a dashboard using the SDK. This will provide the ability to develop custom widgets to the system.
 - 1.
- H. The USP supports the following actions on a dashboard: print dashboard, export dashboard to PNG file, and automatically email a report based on a schedule and a list of one or more recipients.

2.24 EXISTING USP ZONE MANAGEMENT

- A. The USP supports the configuration and management of zones for input point monitoring via the Zone Manager Role. A user are able to add, delete, or modify a zone if they have the appropriate privileges.
- B. A zone will monitor the status of one or more inputs points. Zone monitoring or input point monitoring are possible through the use of a controller and one or more input modules. Inputs from video cameras or video encoders will also be accessible via a zone.
- C. Depending on the hardware installed, supervised inputs are supported. Depending on the input module used, both 3-state and 4-state supervision are available.
- D. A schedule are defined for a zone, indicating when the zone will be monitored.
- E. Custom Events provides full flexibility in creating custom events tailored to a zone. Users are able to associate custom events to state changes in monitored inputs.
- F. The ACS supports one or more cameras per zone. Video will then be associated to zone state changes.
- G. Input/Output (IO) Linking:
 1. Zone management supports Input/Output (IO) Linking. I/O Linking will allow one or more inputs to trigger one or more outputs.
 2. IO Linking are available in offline mode when communication between the server and hardware is not available.
 3. Custom Output Behaviors provides full flexibility in creating a variety of complex output signal patterns: simple pulses, periodic pulses, variable duty-cycle pulses, and state changes.
 4. Through the “trigger an output” action, the ACS supports the triggering of outputs with custom output behaviors.

2.25 EXISTING USP USER AND USER GROUP SECURITY, PARTITIONS, AND PRIVILEGES MANAGEMENT

- A. The USP supports the configuration and management of users and user groups. A user are able to add, delete, or modify a user or user group if they have the appropriate privileges.

- B. The USP supports user authentication with claims-based authentication using external providers. External providers includes:
 - 1. ADFS (Active Directory Federation Services)
- C. Common access rights and privileges shared by multiple users are defined as User Groups. Individual group members will inherit the rights and privileges from their parent user groups. User group nesting are allowed.
- D. User privileges are extensive in the USP. All configurable entities for the USP, including access control, video, and ALPR will have associated privileges.
- E. Specific entities, such as cardholders, cardholder groups, and credentials includes a more granular set of privileges, such as the right to access custom fields and change the activation or profile status of an entity.
- F. Partitions:
 - 1. The USP limits what users can view in the configuration database via security partitions (database segments). The administrator, who has all rights and privileges, are allowed to segment a system into multiple security partitions.
 - 2. All entities that are part of the USP can be assigned to one or more partitions.
 - 3. A user who is given access to a specific partition will only be able to view entities (components) within the partition to which they have been assigned. Access is given by assigning the user as an accepted user to view the entities that are members of a particular partition.
 - 4. A user or user group can be assigned administrator rights over the partition.
- G. It are possible to specify user and user group privileges on a per partition basis.
- H. Advanced logon options are available such as dual logon and more.
- I. It are possible to specify an inactive period for the Monitoring UI after which time the application will automatically lock, while still preserving access to currently displayed camera feeds.
- J. It are possible to review user permissions and determine:
 - 1. For any entity in the system, which user group or user can view or modify it.
 - 2. For any user group or user in the system, what are its privileges.
 - 3. For any privilege in the system, which user group or user is allowed to perform the underlying action.

2.26 EXISTING USP EVENT/ACTION MANAGEMENT

- A. The USP supports the configuration and management of events for video and ALPR. A user are able to add, delete, or modify an action tied to an event if he has the appropriate privileges.
- B. The USP will receive all incoming events from one or more ACS, VMS, and/or ALPR. The USP will take the appropriate actions based on user-define event/action relationships.
- C. The USP will receive and log the following events:
 - 1. System-wide events
 - 2. Application events (clients and servers)
 - 3. Area, camera, door, elevator, and ALPR events (reads and hits)
 - 4. Unit events
 - 5. Zone events
 - 6. Alarm events
 - 7. ALPR events
 - 8. Health Monitoring events
- D. The USP will allow the creation of custom events.
- E. The USP will have the capability to execute an action in response to an access control, video, and ALPR event. The USP supports the following list of actions, without being limited to:
 - 1. Add bookmark
 - 2. Arm intrusion detection area
 - 3. Arm zone
 - 4. Block and unblock video
 - 5. Bypass input
 - 6. Cancel postpone intrusion detection area arming
 - 7. Clear input bypass
 - 8. Clear task
 - 9. Display a camera on an analog monitor
 - 10. Display an entity in the CSA
 - 11. Email a report
 - 12. Email a snapshot
 - 13. Export report
 - 14. Forgives antipassback violation
 - 15. Go home
 - 16. Go to preset
 - 17. Import from file
 - 18. Override recording quality
 - 19. Override with event recording quality
 - 20. Override with manual recording quality
 - 21. Play a sound
 - 22. Postpone intrusion detection area arming
 - 23. Reboot unit
 - 24. Recording quality as standard configuration

25. Rest area people count
26. Reset parking zone inventory
27. Run a macro
28. Run a pattern
29. Send a message
30. Send a task
31. Send an email
32. Set parking zone occupancy
33. Set reader mode
34. Set the door maintenance mode
35. Set threat level
36. Start/Stop applying video protection
37. Start/Stop recording
38. Start/Stop transfer
39. Synchronize role
40. Temporary override elevator schedules
41. Trigger intrusion alarm
42. Trigger alarm
43. Trigger output
44. Trigger read
45. Unlock door explicitly

- F. The USP will allow a schedule to be associated with an action. The action are executed only if it is an appropriate action for the current time period.

2.27 EXISTING USP SCHEDULES AND SCHEDULED TASKS

A. Schedules

1. The USP supports the configuration and management of complex schedules. A user are able to add, delete, or modify a schedule if they have the appropriate privileges.
2. The USP provides full flexibility and granularity in creating a schedule. The user are able to define a schedule in 1-minute or 15-minute increments.
3. Daily, weekly, ordinal, and specific schedules are supported.

B. Scheduled Tasks

1. The USP supports scheduled tasks for video, and ALPR.
2. Scheduled tasks are executed on a user-defined schedule at a specific day and time. Recurring or periodic scheduled tasks will also be supported.
3. Scheduled tasks supports all standard actions available within the USP, such as sending an email or emailing a report.

2.28 EXISTING USP MACROS AND CUSTOM SCRIPTS

- A. The USP will enable users to automate and extend the functionalities of the system through the use of macros or custom scripts for access control, video, and ALPR.
- B. Custom macros are created with the USP Software Development Kit (SDK).

- C. A macro are executed either automatically or manually.
- D. In the Monitoring UI, a macro are launched through hot actions.

2.29 EXISTING USP AUDIT AND USER ACTIVITY TRAILS (LOGS)

- A. The USP supports the generation of audit trails. Audit trails will consist of logs of operator/administrator additions, deletions, and modifications.
- B. Audit trails are generated as reports. They are able to track changes made within specific time periods. Querying on specific users, changes, affected entities, and time periods will also be possible.
- C. For entity configuration changes, the audit trail report includes detailed information of the value before and after the changes.
- D. The USP supports the generation of user activity trails. User activity trails will consist of logs of operator activity on the USP such as login, camera viewed, ALPR event viewed, badge printing, video export, and more.
- E. The ACS supports the following actions on an audit and activity trail report: print report and export report to a PDF/ Microsoft Excel/CSV file.

2.30 EXISTING USP SOFTWARE DEVELOPMENT KIT (SDK)

- A. A USP SDK are available to support custom development for the platform.
- B. The SDK includes functionalities specific to the embedded automatic license plate recognition (ALPR), access control (ACS), and video (VMS) systems.
- C. Integration with external applications and databases are possible with the SDK.
- D. The SDK will enable end-users to develop new functionality (user interface, standalone applications or services) to link the USP to third party business systems and applications, such as Badging Systems, Human Resources Management Systems (HRMS), and Enterprise Resource Planning (ERP) systems.
- E. The SDK are based on the .NET framework.
- F. The SDK supports dynamic or transactional updates to the USP configuration. It will also support change notification of USP entity configuration.
- G. The SDK provides an extensive list of programming functions to view and/or configure core entities such as: users and user groups, alarms, custom events, and schedules, and more.
- H. The SDK provides an extensive list of programming functions to view and configure ACS, VMS, and ALPR.

- I. The SDK provides an extensive list of programming functions to view and configure most ACS entities such as: cardholders, cardholder groups, visitors, credentials, access rules (modify only), and custom fields.
- J. The SDK are able to receive real time events from the following USP entities: users and user groups, areas, zones, cameras, video units, doors, door controllers (units), elevators, cardholders, cardholder groups, and credentials.
- K. The SDK are able to query the history of events for areas, cameras, zones, alarms, cardholders, credentials, visitors, doors, query license plate read events, license plate hit events, generate a license plate hits report, generate a license plate reads report.
- L. The SDK supports the following alarm functions: view alarms in real time, acknowledge alarms, change priority, and change recipient.

PART 3 - EXECUTION

3.1 WARRANTY

- A. The product performs in all material respects in accordance with the accompanying user manual, and the media on which the Software Product resides will be free from defects in materials and workmanship under normal use. Software defects are covered through Service Releases and Cumulative Updates which are available for a period of 1 year from the date of the software purchase.
- B. Extended warranty, up to 5 years, are available through the purchase of the Genetec Advantage support service which includes the following additional services over the standard warranty:
 - 1. Access to phone support and online chat for technical assistance
 - 2. Online case management
 - 3. Online system availability monitor
 - 4. Access to Major and Minor Release Upgrades

3.2 DEPLOYMENT SERVICES AND SYSTEM COMMISSIONING

- A. General Requirements:
 - 1. The contractor will engage the services of the USP vendor to assist in the management of the deployment of the USP at the end-user site on projects that involve:
 - a. Multiple contractors or subcontractors that will be responsible for deploying the USP at multiple client sites in different geographical regions.
 - b. Complex enterprise installations involving advanced functionality (for example The Federation feature, failover, plugins) and/or multiple systems (for example access control, video, ALPR) and/or third party integrations.
 - c. Extensive use of customized solutions/plugins developed by the vendor that will be integrated into the USP.
 - 2. The USP vendor services includes Deployment Management and System Configuration and Commissioning.

- B. Deployment Management Service:
1. The Deployment Management service from the vendor includes a Project Manager acting as the single point of contact for all communications between the contractor and the vendor organization and who will be responsible for:
 - a. Conducting a Risk Assessment of the impact of potential risk factors on the operation of the vendor's USP.
 - b. Providing a project plan for the deployment of the vendor's USP.
 - c. Managing the development and deployment of the custom solution components that will be integrated into the vendor's USP (if applicable).
 - d. Providing a scope of work detailing the services to be provided by the vendor to assist in the deployment of the vendor's USP.
 - e. Coordinating and scheduling the vendor field services with the contractor to assist with the deployment of the vendor's USP.
 - f. Providing regular project status updates to the contractor regarding the development of custom solutions (if applicable) and the deployment of the vendor's USP.
- C. Solution Architect Service:
1. The Solution Architect service from the vendor includes a Solutions Architect Engineer acting as a single technical point of contact throughout the deployment of the USP, and who will be responsible for:
 - a. Assisting the contractor/subcontractor with the design and architecture of the vendor's USP.
 - b. Conducting technical consultation activities that may include fit/gap analysis, system design reviews, device compatibility assessments, functional and technical design reviews as well as performance reviews of the vendor's USP.
 - c. Conducting a system assessment and ensuring best practices of the vendor's USP are followed.
 - d. Providing upgrade and migration strategy for the vendor's USP where applicable.
 - e. Providing documentation regarding the system architecture, system design, hardware specifications and compatibility requirements, camera bandwidth calculations, and best practices as they relate to the vendor's USP.
- D. System Configuration and Commissioning Service:
1. The System Configuration and Commissioning service from the vendor includes a Field Engineer who will be responsible for:
 - a. Assisting the contractor's or subcontractor's onsite/remote technicians with the configuration and commissioning of the vendor's USP at the client site.
 - b. Conducting a test of the USP following the deployment of the system using real-world operator scenarios to ensure optimal system performance.
 - c. Providing the contractor with a Service Report detailing the tasks completed during the deployment of the USP at the client site, as well as any recommendations for improving the performance of the USP that must be implemented by the contractor.
 - d. Providing a knowledge transfer of the vendor's USP to the contractor following the deployment of the USP at the client site.

3.3 MANUFACTURER END USER OPERATOR TRAINING

- A. The contractor will engage the services of the USP vendor to assist in the end user training of the USP at the end-user site. Training are no less than 4 hours for up to 20 people. Contractor provides video recording of operator training, and provided it to the agency for future training of staff.

END OF SECTION 282300

DPW PROJECT 19107

CSI: ENTRY ACCESS CONTROL
COLLEGE OF SOUTHERN IDAHO (CSI)
TWIN FALLS, IDAHO
Addendum #1

August 20, 2024

This Addendum applicable to work designed herein shall be understood to be and is an Addendum and as such shall be part of and included in the contract.

To all bidders for furnishing all labor and materials necessary for:

DPW PROJECT 19107

CSI: ENTRY ACCESS CONTROL
COLLEGE OF SOUTHERN IDAHO (CSI)
TWIN FALLS, IDAHO

Failure to acknowledge receipt of this Addendum on the bid proposal form may result in rejection of your bid.

DRAWINGS:

A100 added bid documents for Hepworth building.

A101 added bid documents for Hepworth building.

A400 added bid documents for Hepworth building.

SPECIFICATIONS:

Add Specification Section:

081314 – Standard Steel Doors.

087100 – Standard Steel Doors.

088000 – Glazing

099000 – Painting and Coating

END OF ADDENDUM NO. 1

SECTION 081314 - STANDARD STEEL DOORS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes non-rated and thermally insulated steel doors.
- B. Related Sections:
 - 1. Section 087100 - Door Hardware.
 - 2. Section 099000 - Painting and Coating: Field painting of doors.

1.2 REFERENCES

- A. American National Standards Institute:
 - 1. ANSI A250.8 - Recommended Specifications for Standard Steel Doors and Frames.
- B. ASTM International:
 - 1. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - 2. ASTM C1363 - Standard Test Method for the Thermal Performance of Building Assemblies by Means of a Hot Box Apparatus.
- C. Hollow Metal Manufacturers Association:
 - 1. HMMA 810 - Hollow Metal Doors.
- D. Steel Door Institute:
 - 1. SDI 108 - Recommended Selection and Usage Guide for Standard Steel Doors.

1.3 SUBMITTALS

- A. Section 013300 - Submittal Procedures: Requirements for submittals.
- B. Shop Drawings: Indicate door elevations, internal reinforcement, closure method, and cut-outs for glazing, and finishes.
- C. Product Data: Submit door configurations, location of cut-outs for hardware reinforcement.
- D. Manufacturer's Installation Instructions: Submit special installation instructions.

1.4 QUALITY ASSURANCE

- A. Perform Work in accordance with ANSI A250.8.
- B. NFPA 252; with neutral pressure level at 40 inches maximum above sill at 5 minutes into test
Air Leakage: Maximum 3.0 cfm/sf of door opening with 0.10 inch water gage pressure differential.

1.5 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing Products specified in this section with minimum three years documented experience.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Section 016000 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.
- B. Accept doors on site in manufacturer's packaging. Inspect for damage.
- C. Break seal on site to permit ventilation.

1.7 COORDINATION

- A. Section 013100 – Project Management and Coordination
- B. Coordinate Work with door opening construction, door frame, and door hardware installation.

PART 2 - PRODUCTS

2.1 STANDARD STEEL DOORS

A. Manufacturers:

- 1. Amweld Building Products, Inc.
- 2. Ceco Door Products.
- 3. Republic Builders Products.
- 4. Steelcraft.
- 5. Substitutions: Section 012500 – Substitution Procedures

B. Product Description:

- 1. Exterior Doors (Insulated): ANSI A250.8, SDI 108, 1-3/4 inch thick.
 - a. Level 3 - Extra heavy Duty, Model 1, full flush design.

2.2 COMPONENTS

- A. Face: Steel sheet in accordance with ANSI A250. SDI 108.
- B. End Closure: Channel, 0.04 inches thick, flush.
- C. Core:
 - 1. Exterior doors: polyurethane and vertical steel stiffeners.
- D. Thermal Insulated Door: Total insulation R-Value of 14, measured in accordance with ASTM C1363.

2.3 ACCESSORIES

- A. Astragals for Double Doors: Steel, T shaped, specifically for double doors.
- B. Primer: ANSI A250.10 rust inhibitive type.

2.4 FABRICATION

- A. Fabricate doors with hardware reinforcement welded in place.
- B. Attach astragal to one leaf of pairs of doors.

2.5 SHOP FINISHING

- A. Steel Sheet: Galvanized to ASTM A653/A653M A60.
- B. Primer: Baked.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 017300 - Execution: Verification of existing conditions before starting work.
- B. Verify opening sizes and tolerances are acceptable.

3.2 INSTALLATION

- A. Install doors in accordance with ANSI A250.8.
- B. Install door louvers, plumb and level.
- C. Coordinate installation of glass and glazing specified in Section 088000.
- D. Coordinate installation of doors with installation of hardware specified in Section 087100.
- E. Touch-up damaged shop finishes.

3.3 ERECTION TOLERANCES

- A. Section 014000 - Quality Requirements: Tolerances.
- B. Maximum Diagonal Distortion: 1/16 inch measured with straight edge, corner to corner.

3.4 ADJUSTING

- A. Section 017300 - Execution: Starting and adjusting.
- B. Adjust door for smooth and balanced door movement.

3.5 SCHEDULE

- A. Refer to Door Schedule.

END OF SECTION 081314

SECTION 084113 - ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes aluminum-framed storefronts including aluminum and glass doors and frames including hardware, glass.
- B. Related Sections:
 - 1. Section 087100 - Door Hardware: Mortised hardware reinforcement requirements affecting framing members.
 - 2. Section 088000 - Glazing.
 - 3. Section 099000 - Painting and Coating: Field painting of interior

1.2 REFERENCES

- A. Aluminum Association:
 - 1. AA ADM 1 - Aluminum Design Manual.
- B. American Architectural Manufacturers Association/Window & Door Manufacturers Association:
 - 1. AAMA/WDMA 101/I.S.2 - Specification for Windows, Doors and Unit Skylights.
 - 2. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum.
 - 3. AAMA 1503 - Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors and Glazed Wall Sections.
 - 4. AAMA CW-10 - Care and Handling of Architectural Aluminum from Shop to Site.
 - 5. AAMA SFM-1 - Aluminum Store Front and Entrance Manual.
- C. ASTM International:
 - 1. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
 - 2. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
 - 3. ASTM E283 - Standard Test Method for Determining the Rate of Air Leakage through Exterior Windows, Curtain Walls, and Doors under Specified Pressure Differences across the Specimen.
 - 4. ASTM E330 - Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
 - 5. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
- D. National Fenestration Rating Council Incorporated:
 - 1. NFRC 100 - Procedures for Determining Fenestration Product U-Factors.

1.3 SYSTEM DESCRIPTION

- A. Aluminum-framed storefront system includes tubular aluminum sections with supplementary internal support framing, aluminum and glass entrances, shop fabricated, factory finished, glass and glazing, related flashings, anchorage and attachment devices.
- B. System Assembly: Site assembled. Shop unitized assembly.

1.4 PERFORMANCE REQUIREMENTS

- A. System Design: Design and size components to withstand dead and live loads caused by positive and negative wind pressure acting normal to plane of wall, including building corners.
 - 1. As calculated in accordance with applicable code, as tested in accordance with ASTM E330.
- B. Deflection: Limit mullion deflection to 1/175 for spans less than 13'-6" and 1/240 plus 1/4 inch for spans over 13'-6" or flexure limit of glass of span; with full recovery of glazing materials.
- C. System Assembly: Accommodate without damage to components or deterioration of seals, movement within system, movement between system and peripheral construction, dynamic loading and release of loads, deflection of structural support framing.
- D. Air Infiltration: Limit air leakage through assembly to 0.06 cfm/min/sq ft of wall area, measured at reference differential pressure across assembly of 1.57 psf as measured in accordance with ASTM E283.
- E. Condensation Resistance Factor: CRF of not less than 45 when measured in accordance with AAMA 1503.
- F. Water Leakage: None, when measured in accordance with AAMA/WDMA 101/I.S.2 or ASTM E331 with test pressure difference of 20 percent of design pressure, with minimum differential of 2.86 lbf/sq ft and maximum of 12.00 lbf/sq ft.
- G. Thermal and Solar Heat Transmittance of Assembly (U Value and SHGC): Comply with ICC IEBC for climate zone in which project is located.
- H. Expansion / Contraction: Provide for expansion and contraction within system components caused by cycling temperature range of 170 degrees F over 12 hour period without causing detrimental effect to system components and anchorage.
- I. System Internal Drainage: Drain water entering joints, condensation occurring in glazing channels, or migrating moisture occurring within system, to exterior by weep drainage network.

1.5 SUBMITTALS

- A. Section 013300 - Submittal Procedures: Submittal procedures.
- B. Shop Drawings: Indicate system dimensions, framed opening requirements and tolerances, affected related Work, expansion, contraction joint location, and details.
- C. Product Data: Submit component dimensions, describe components within assembly, anchorage and fasteners, glass and infill, door hardware, and internal drainage details.
- D. Design Data: Indicate framing member structural and physical characteristics, calculations, dimensional limitations.
- E. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

1.6 QUALITY ASSURANCE

- A. Perform Work in accordance with AAMA SFM-1 and AAMA MCWM-1 - Metal Curtain Wall, Window, Store Front and Entrance - Guide Specifications Manual.

- B. Surface Burning Characteristics:
 - 1. Foam Insulation: Maximum 75/450 flame spread/smoke developed index when tested in accordance with ASTM E84.
- C. Apply label from agency approved by authority having jurisdiction to identify each foam plastic insulation board.

1.7 QUALIFICATIONS

- A. Manufacturer and Installer: Company specializing in manufacturing aluminum glazing systems with minimum three years documented experience.
- B. Design structural support framing components under direct supervision of Professional Engineer experienced in design of this Work and licensed at Project location.

1.8 DELIVERY, STORAGE, AND PROTECTION

- A. Section 016000 - Product Requirements: Product storage and handling requirements.
- B. Handle Products of this section in accordance with AAMA MCWM-1 - Curtain Wall Manual #10.
- C. Protect finished aluminum surfaces with wrapping or strippable coating. Do not use adhesive papers or sprayed coatings which bond when exposed to sunlight or weather.

1.9 ENVIRONMENTAL REQUIREMENTS

- A. Section 016000 - Product Requirements.
- B. Do not install sealants or glazing materials when ambient temperature is less than 40 degrees F during and 48 hours after installation.

1.10 COORDINATION

- A. Section 013100 – Project Management and Coordination: Coordination and project conditions.
- B. Coordinate the Work with installation of air barrier, components or materials.

1.11 WARRANTY

- A. Section 017700 - Closeout Procedures: Product warranties and product bonds.
- B. Furnish five year manufacturer warranty for glazed units.

PART 2 - PRODUCTS

2.1 ALUMINUM-FRAMED STOREFRONTS

- A. Manufacturers:
 - 1. Trulite
 - 2. C.R. Laurence
 - 3. Kawneer Co., Inc.
 - 4. Vistawall Architectural Products.
 - 5. Substitutions: Section 012500 – Substitution Procedures

- B. Product Description:
 - 1. Aluminum Frame: 2 inches x 4- 1/2 inches thermally broken applied glazing stops; drainage holes; internal weep drainage system.
 - 2. Mullions: Profile of extruded aluminum with internal reinforcement of aluminum or shaped steel structural section.
 - 3. Doors: Aluminum framed glass doors; 1-3/4 inches thick, 5 inches wide top rail and vertical stiles, nominal 11 inch wide bottom rail; square glazing stops.

2.2 COMPONENTS

- A. Extruded Aluminum: ASTM B221; 6063 alloy, T5 temper typical, 6061 alloy, T6 temper for extruded structural members.
- B. Sheet Aluminum: ASTM B209, 5005 alloy, H15 or H34 temper.
- C. Steel Sections: ASTM A36/A36M; shaped to suit mullion sections, galvanized.
- D. Glass: Specified in Section 088000.
- E. Glazing Materials: Storefront manufacturer's standard types to suit application and to achieve weather, moisture, and air infiltration requirements.
- F. Flashings: Minimum 0.032 inch thick aluminum to match mullion sections where exposed.
- G. Sealant and Backing Materials:
 - 1. Sealant Used within System (Not Used for Glazing): Manufacturer's standard materials to achieve weather, moisture, and air infiltration requirements.
- H. Fasteners: Stainless or Hot-dip galvanized steel, standard with storefront manufacturer.

2.3 HARDWARE

- A. Lockset
 - 1. Schlage.
 - 2. No substitutions permitted
- B. Lock Cores 7 pin SFIC, F keyway
 - 1. Schlage.
 - 2. No substitutions permitted- All lock sets and cores shall be from same manufacturer.
- C. Hinges:
 - 1. McKinney (Continuous Hinge).
 - 2. Hager.
 - 3. Stanley
 - 4. Substitutions: Section 012500 – Substitution Procedures
- D. Cylinder Locks
 - 1. Schlage.
 - 2. No substitutions permitted.
- E. Exit Devices:
 - 1. Von Dupin 99.
 - 2. No substitutions permitted.
- F. Closers:
 - 1. LCN

2. No substitutions permitted.

G. Gasket:

1. Pemko.
2. Zero.
3. Substitutions: Section 012500 – Substitution Procedures

2.4 KEYING

- A. Door Locks: Provide blank cores to CSI for keying.
- B. Provide cylinder core and two keys.
- C. Owner shall coordinate with contractor to replace construction cores with new cores.

2.5 FABRICATION

- A. Fabricate components with minimum clearances and shim spacing around perimeter of assembly, yet enabling installation and dynamic movement of perimeter seal.
- B. Accurately fit and secure joints and corners. Make joints flush, hairline, and weatherproof.
- C. Prepare components to receive anchor devices. Fabricate anchors.
- D. Arrange fasteners and attachments to conceal from view.
- E. Prepare components with internal reinforcement for door hardware.
- F. Reinforce framing members for imposed loads.

2.6 SHOP FINISHING

- A. Color Anodized Aluminum Surfaces: AAMA 611, AA-M12C22A44 non-specular as fabricated mechanical finish, medium matte chemical finish, and Architectural Class I 0.7 mils dark bronze anodized coating.
- B. Concealed Steel Items: Galvanized to ASTM A123/A123M.
- C. Apply bituminous paint to concealed aluminum and steel surfaces in contact with cementitious or dissimilar metals.
- D. Shop Primer for Steel Components: SSPC Paint 25 red oxide.
- E. Touch-Up Primer for Galvanized Steel Surfaces: SSPC Paint 20 zinc rich.
- F. Extent of Finish:
 1. Apply factory coating to surfaces exposed at completed assemblies.
 2. Apply finish to surfaces cut during fabrication so no natural aluminum is visible in completed assemblies, including joint edges.
 3. Apply touch-up materials recommended by coating manufacturer for field application to cut ends and minor damage to factory applied finish.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 017300 - Execution: Coordination and project conditions.

- B. Verify dimensions, tolerances, and method of attachment with other Work.
- C. Verify wall openings and adjoining air and vapor seal materials are ready to receive Work of this Section.

3.2 INSTALLATION

- A. Install wall system in accordance with AAMA MCWM-1 - Metal Curtain Wall, Window, Store Front and Entrance - Guide Specifications Manual.
- B. Attach to structure to permit sufficient adjustment to accommodate construction tolerances and other irregularities.
- C. Provide alignment attachments and shims to permanently fasten system to building structure.
- D. Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional tolerances, aligning with adjacent Work.
- E. Provide thermal isolation where components penetrate or disrupt building insulation.
- F. Install sill flashings. Turn up ends and edges; seal to adjacent Work to form water tight dam.
- G. Coordinate attachment and seal of perimeter air and vapor retarder materials.
- H. Pack fibrous insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.
- I. Install integral flashings and integral joint sealers.
- J. Set thresholds in bed of mastic and secure.
- K. Install hardware using templates provided. Refer to Section 087100 for installation requirements.
- L. Install glass in accordance with manufacturer's recommendations.
- M. Coordinate installation of perimeter sealants per manufacturer's recommendations

3.3 ERECTION TOLERANCES

- A. Section 014000 - Quality Requirements: Tolerances.
- B. Maximum Variation from Plumb: 0.06 inches every 3 ft non-cumulative or 1/16 inches per 10 ft, whichever is less.
- C. Maximum Misalignment of Two Adjoining Members Abutting in Plane: 1/32 inch.

3.4 FIELD QUALITY CONTROL

- A. Section 017300 - Execution: Field inspecting, testing, adjusting, and balancing.
- B. Inspection to monitor quality of installation and glazing.
- C. Test to AAMA 501.

3.5 ADJUSTING

- A. Section 017300 - Execution: Testing, adjusting and balancing.

- B. Adjust operating hardware for smooth operation.

3.6 CLEANING

- A. Section 017700 – Closeout Procedures: Final cleaning.
- B. Remove protective material from pre-finished aluminum surfaces.
- C. Wash down surfaces with solution of mild detergent in warm water, applied with soft, clean wiping cloths. Take care to remove dirt from corners. Wipe surfaces clean.
- D. Remove excess sealant by method acceptable to sealant manufacturer.

3.7 PROTECTION OF INSTALLED CONSTRUCTION

- A. Section 017300 - Execution: Protection of installed construction.
- B. Protect finished Work from damage.

END OF SECTION 084113

SECTION 087100 - DOOR HARDWARE

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes hardware for wood steel and aluminum doors
 - 1. Provide door gaskets, including weatherstripping and seals, and thresholds
- B. Related Sections:
 - 1. Section 081314 – Standard Steel Doors
 - 2. Section 084113 - Aluminum-Framed Entrances and Storefronts: Door hardware

1.2 REFERENCES

- A. American National Standards Institute:
 - 1. ANSI A156.1 - Butts and Hinges
 - 2. ANSI A156.2 - Bored and Preassembled Locks and Latches
 - 3. ANSI A156.3 - Exit Devices
 - 4. ANSI A156.4 - Door Controls - Closures
 - 5. ANSI A156.5 - Auxiliary Locks and Associated Products
 - 6. ANSI A156.6 - Architectural Door Trim
 - 7. ANSI A156.7 - Template Hinge Dimensions
 - 8. ANSI A156.12 - Interconnected Locks and Latches
 - 9. ANSI A156.15 - Closer Holder Release Devices
 - 10. ANSI A156.16 - Auxiliary Hardware
 - 11. ANSI A156.18 - Materials and Finishes
 - 12. ANSI A156.23 - Electromagnetic Locks
- B. Builders Hardware Manufacturers Association:
 - 1. BHMA Directory of Certified Products
- C. National Fire Protection Association:
 - 1. NFPA 80 - Standard for Fire Doors, Fire Windows
 - 2. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies
- D. Underwriters Laboratories Inc.:
 - 1. UL 10B - Fire Tests of Door Assemblies
 - 2. UL 305 - Panic Hardware
 - 3. UL - Building Materials Directory
- E. Intertek Testing Services (Warnock Hersey Listed):
 - 1. WH - Certification Listings

1.3 PERFORMANCE REQUIREMENTS

- A. Fire Rated Openings: Provide door hardware listed by UL or Intertek Testing Services (Warnock Hersey Listed), or other testing laboratory approved by applicable authorities
 - 1. Hardware: Tested in accordance with NFPA 252

1.4 SUBMITTALS

- A. Section 013300 - Submittal Procedures: Submittal procedures
- B. Shop Drawings:

1. Indicate locations and mounting heights of each type of hardware, schedules, catalog cuts
 2. Submit manufacturer's parts lists, and templates
- C. Manufacturer's Installation Instructions: Submit special procedures, and perimeter conditions requiring special attention

1.5 CLOSEOUT SUBMITTALS

- A. Section 017300 – Closeout Procedures
- B. Project Record Documents: Record actual locations of installed cylinders and their master key code
- C. Operation and Maintenance Data: Submit data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.
- D. Keys: Deliver with identifying tags to Owner by security shipment direct from hardware supplier

1.6 QUALITY ASSURANCE

- A. Perform Work in accordance with the following requirements:
1. ANSI A156 series
 2. NFPA 80.
 3. UL 305.
- B. Furnish hardware marked and listed in BHMA Directory of Certified Products

1.7 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience
- B. Hardware Supplier: Company specializing in supplying commercial and institutional door hardware with minimum three years documented experience approved by primary hardware manufacturers.
1. Hardware Supplier Personnel: Employ Architectural Hardware Consultant (AHC) to assist in work of this section.
- C. Products Requiring Electrical Connection: Listed and classified by Underwriters' Laboratories, Inc., as suitable for purpose specified and indicated.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Section 016000 - Product Requirements: Product storage and handling requirements
- B. Package hardware items individually with necessary fasteners, instructions, and installation templates, when necessary; label and identify each package with door opening code to match hardware schedule

1.9 COORDINATION

- A. Section 017300 - Execution: Coordination and project conditions
- B. Coordinate Work with other directly affected sections involving manufacture or fabrication of internal reinforcement for door hardware and recessed items.
1. Provide templates or actual hardware as required to ensure proper preparation of

doors and frames.

- C. Sequence installation to accommodate required utility connections.
- D. Coordinate Owner's keying requirements during course of Work

1.10 WARRANTY

- A. Section 017700 - Closeout Procedures: Product warranties and product bonds
- B. Furnish manufacturer standard warranty for locksets and door closers.

1.11 MAINTENANCE MATERIALS

- A. Section 017823 – Operation and Maintenance Data.
- B. Furnish special wrenches and tools applicable for each different and for each special hardware component.
- C. Furnish maintenance tools and accessories supplied by hardware component manufacturer.

PART 2 - PRODUCTS

2.1 DOOR HARDWARE

- A. Hinge Manufacturers:
 - 1. Stanley Commercial Hardware
 - 2. Ives
 - 3. Substitutions: Section 012500 – Substitution Procedures
- B. Lockset , Latch Set , and Cylinder Manufacturers:
 - 1. Schlage
 - 2. Substitutions: Section 012500 – Substitution Procedures
- C. Exit Device Manufacturers:
 - 1. Von Duprin
 - 2. Substitutions: Section 012500 – Substitution Procedures
- D. Closers Manufacturers:
 - 1. LCN: 4040 XP
 - 2. Substitutions: Section 012500 – Substitution Procedures
- E. Door Controls and Overhead Holders Manufacturers:
 - 1. LCN: 9540 Series
 - 2. Substitutions: Section 012500 – Substitution Procedures

2.2 COMPONENTS

- A. General Hardware Requirements:
 - 1. Where not specifically indicated, comply with applicable ANSI A156 standard for type of hardware required.
 - 2. Furnish each type of hardware with accessories as required for applications indicated and for complete, finished, operational doors.
 - a. Templates: Furnish templates or physical hardware items to door and frame manufacturers sufficiently in advance to avoid delay in Work
 - b. Reinforcing Units: Furnished by door and frame manufacturers;

- coordinated by hardware supplier or hardware manufacturer.
 - c. Fasteners: Furnish as recommended by hardware manufacturer and as required to secure hardware
 - 1) Finish: Match hardware item being fastened
 - d. Fire Ratings: Provide hardware with UL or Intertek Testing Services (Warnock Hersey Listed) listings for type of application involved.
- B. Hinges: ANSI A156.1, full mortise type, template type, ANSI A156.7, complying with following general requirements unless otherwise scheduled
 - 1. Widths: Sufficient to clear trim projection when door swings 180 degrees
 - 2. Number: Furnish minimum three hinges to 90 inches high, four hinges to 120 inches high for each door leaf
 - a. Fire Rated Doors To 86 inches High: Minimum three hinges
 - 3. Size and Weight: 4-1/2 inch heavy weight typical for 1-3/4 inch doors
 - a. Doors Over 40 inches Wide: Extra heavy weight ball or oilite bearing hinges
 - b. Doors 1-3/8 inch Thick: 3-1/2 inch size
 - c. Doors 2 inch Thick: 5 inch extra heavy weight ball or oilite bearing
 - d. Doors Over 48 inches Wide: 5 inch extra heavy weight ball or oilite bearing
 - 4. Pins: Furnish nonferrous hinges with non-removable pins (NRP) at exterior and locked out swinging doors, non-rising pins at interior doors
 - 5. Tips: Flat button tips with matching plug flush tips
- C. Locksets:
 - 1. Furnish locksets compatible with specified cylinders
 - 2. Typical 2-3/4 inch backset
 - 3. Furnish standard strikes with extended lips to protect trim from being marred by latch bolt verify type of cutouts provided in metal frames
- D. Latch Sets:
 - 1. Match locksets
 - 2. Typical 2-3/4 inch backset
 - 3. Furnish standard strikes with extended lips to protect trim from being marred by latch bolt verify type of cutouts Exit Devices: ANSI A156.3, Grade 1 rim type, with cross bar, unless otherwise indicated
 - 4. Furnish standard strikes with extended lips to protect trim from being marred by latch bolt verify type of cutouts provided in metal frames, with dust-proof floor strikes
 - 5. Types: Suitable for doors requiring exit devices
- E. Cylinders: ANSI A156.5, Grade 1, 6 pin type removable cylinders
 - 1. Keying: Keyed as directed by Owner
 - 2. Include construction keying
 - 3. Keys: Nickel silver
 - a. Stamp keys with "DO NOT DUPLICATE"
 - 4. Supply keys in the following minimum quantities:
 - a. 5 master keys
- F. Door Controls and Overhead Holders: Furnish with accessories as required for complete operational installation.
 - 1. Low Energy Power Door Operators: ANSI A156.19 power mechanism which opens and closes door upon receipt of signal.
 - a. Automatic Operator: LCN 9540 Series
 - b. Wall Plate actuators: Interior and exterior flush mount LCN Flush Mount Kit

8310-3856WF

- c. Sequencer: LCN
 - d. Control Box: LCN 9500 Series
 - e. Finish: Dark Bronze Anodized
- G. Closers: ANSI A156.4 modern type with cover, surface mounted closers; full rack and pinion type with steel spring and non-freezing hydraulic fluid; closers required for fire rated doors unless otherwise indicated
- 1. Adjustability: Furnish controls for regulating closing, latching, speeds, and back checking
 - 2. Arms: Type to suit individual condition; parallel-arm closers at reverse bevel doors and where doors swing full 180 degrees
 - 3. Location: Mount closers on inside of exterior doors, room side of interior doors typical; mount on pull side of other doors
 - 4. Operating Pressure: Maximum operating pressure as follows
 - a. Interior Doors: Maximum 5 pounds
 - b. Exterior Doors: Maximum 8.5 pound
 - c. Fire Rated Doors: As required for fire rating, maximum 15 pounds
- H. Exit Devices: ANSI A156.3, Grade 1 rim type, with cross bar, unless otherwise indicated
- 1. Furnish standard strikes with extended lips to protect trim from being marred by latch bolt verify type of cutouts provided in metal frames
 - a. Types: Suitable for doors requiring exit devices.
- I. Push/Pulls, Manual Bolts, Protection Plates, Gaskets, Thresholds, and Trim:
- 1. Furnish as indicated in Schedule, with accessories as required for complete operational door installations
 - a. Push/Pulls: ANSI A156.6; push plates minimum 0.050 inch thick
 - 1) Furnish push-pull plate type pulls with bolts to secure from opposite door face; furnish with minimum 0.050 inch pull plates unless otherwise indicated
 - b. Manual Bolts: ANSI A156.16 Grade 1 top and bottom flush bolts, with dust-proof floor strike, unless otherwise indicated
 - c. Kickplates Mop Plate: ANSI A156.6, metal; height indicated in Schedule by 1 inch less than door width; minimum 0.050 inch thick stainless steel
 - d. Weatherstripping: Furnish continuous weatherstripping at top and sides of exterior doors
 - e. Fire Rated Gaskets: Furnish continuous fire rated gaskets at top and sides of fire rated doors
 - f. Thresholds: Maximum 1/2 inch height
 - g. Wall Stops: ANSI A156.1, Grade 1, 2-1/2 inch wall stop concave pad wall stop with no visible screws
 - h. Floor Stops: ANSI A156.1 Grade 1 dome type; furnish with accessories as required for applications indicated

2.3 ACCESSORIES

- A. Lock Trim: Furnish levers with rose escutcheon plate as indicated in Schedule
 - 1. Do not permit through bolts on solid wood core doors
- B. Through Bolts: Do not permit through bolts and grommet nuts on door faces in occupied areas unless no alternative is possible

1. Do not use through bolts on solid wood core doors

2.4 FINISHING

- A. Finishes: ANSI A156.18; furnish following finishes except where otherwise indicated in Schedule
 1. Finishes: As indicated on the Drawing
 2. Other Items: Furnish manufacturer's standard finishes to match similar hardware types on same door, and maintain acceptable finish considering anticipated use and BHMA category of finish

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 017300 - Execution: Coordination and project conditions
- B. Verify doors and frames are ready to receive door hardware and dimensions are as indicated on drawings.

3.2 INSTALLATION

- A. Coordinate mounting heights with door and frame manufacturers.
 1. Use templates provided by hardware item manufacturer.
- B. Mounting Heights From Finished Floor to Center Line of Hardware Item: Comply with manufacturer recommendations and applicable codes where not otherwise indicated
 1. Locksets: 38 inch
 2. Push/Pulls: 42 inch
 3. Dead Locks: 48 inch
 4. Push Pad Type Exit Devices: 42 inch
 5. Cross Bar Type Exit Devices: 38 inch
 6. Top Hinge: Jamb manufacturer's standard, but not greater than 10 inches from head of frame to center line of hinge
 7. Bottom Hinge: Jamb manufacturer's standard, but not greater than 12-1/2 inches from floor to center line of hinge
 8. Intermediate Hinges: Equally spaced between top and bottom hinges and from each other.
 9. Hinge Mortise on Door Leaf: 1/4 inch. to 5/16 inch from stop side of door

3.3 ADJUSTING

- A. Section 017300 - Execution: Testing, adjusting, and balancing.
- B. Adjust hardware for smooth operation.

3.4 PROTECTION OF INSTALLED CONSTRUCTION

- A. Section 017300 - Execution: Protection installed construction
- B. Do not permit adjacent work to damage hardware or hardware finish.

3.5 SCHEDULES

- A. Refer to Door and Frame Schedule on the Drawings

DPW PROJECT NO. 19107
CSI: Entry Access Controls, Phase II
College of Southern Idaho (CSI)
Twin Falls, Idaho

July 2023

END OF SECTION 087100

SECTION 088000 - GLAZING

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Glass glazing for doors.
- B. Related Sections:
 - 1. Section 081314 – Standard Steel Doors
 - 2. Section 084113 - Aluminum Framed Entrances and Storefronts

1.2 REFERENCES

- A. American National Standards Institute:
 - 1. ANSI Z97.1 - Safety Glazing Materials Used in Buildings Safety.
- B. ASTM International:
 - 1. ASTM C864 - Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers.
 - 2. ASTM C920 - Standard Specification for Elastomeric Joint Sealants.
 - 3. ASTM C1036 - Standard Specification for Flat Glass.
 - 4. ASTM C1193 - Standard Guide for Use of Joint Sealants.
 - 5. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
 - 6. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials.
 - 7. ASTM E2190 - Standard Specification for Insulating Glass Unit Performance and Evaluation.
 - 8. ASTM E1886 - Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials.
- C. Consumer Products Safety Commission:
 - 1. CPSC 16 CFR 1201 - Safety Standard for Architectural Glazing.
- D. Glass Association of North America:
 - 1. GANA - Sealant Manual.
 - 2. GANA - Glazing Manual.
 - 3. GANA - Laminated Glass Design Guide.
- E. National Fenestration Rating Council Incorporated:
 - 1. NFRC 100 - Procedures for Determining Fenestration Product U-Factors.
 - 2. NFRC 200 - Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence.
- F. NFRC 300 - Test Method for Determining the Solar Optical Properties of Glazing Materials and Systems.

1.3 PERFORMANCE REQUIREMENTS

- A. Provide glass and glazing materials for continuity of building enclosure vapor retarder and air barrier:

1. To utilize inner pane of multiple pane sealed units for continuity of air barrier and vapor retarder seal.
 2. To maintain continuous air barrier and vapor retarder throughout glazed assembly from glass pane to heel bead of glazing sealant. Structural Design: Design in accordance with applicable code for most critical combination of wind, snow, seismic, and dead loads.
- B. Wind Loads: Design and size glass to withstand positive and negative wind loads acting normal to plane of wall, including increased loads at building corners.
- C. Seismic Loads: Design and size components to withstand seismic loads and sway displacement as calculated in accordance with applicable code.
- D. Exterior Glass Deflection: Maximum of 1/175 of glass edge length or 3/4 inch, whichever is less with full recovery of glazing materials.
- E. Interior Glass Deflection: Maximum differential deflection for two adjacent unsupported edges when 50 plf forces is applied to one panel at any point up to 42 inches above finished floor less than thickness of glass.
- F. Thermal and Solar Optical Performance: Measured or calculated in accordance with the following:
1. Maximum U-Values: Comply with ICC IEEC for climate zone in which project is located. Measure in accordance with NFRC 100.
 2. Maximum SHGC: Comply with ICC IEEC for climate zone in which project is located. Measure in accordance with NFRC 200.
 3. Solar Optical Properties: NFRC 300.

1.4 SUBMITTALS

- A. Section 013300 - Submittal Procedures: Submittal procedures.
- B. Product Data:
1. Glass: Provide structural, physical, and thermal and solar optical performance characteristics, size limitations, and special handling or installation requirements.
 2. Glazing Sealants, Compounds and Accessories: Provide chemical, functional, and environmental characteristics, limitations, special application requirements. Identify available colors were exposed.
- C. Samples:
1. Glass: Submit two samples 6 x 6 inch in size, illustrating each glass units, coloration and design.
- D. Manufacturer's Certificate: Certify sealed insulating glass, meets or exceeds specified requirements.
- E. Installer's Certificate: Certify glass furnished without identification label is installed in accordance with Construction Documents and applicable code.

1.5 QUALITY ASSURANCE

- A. Perform Work in accordance with GANA Glazing Manual, GANA Sealant Manual, and GANA Laminated Glass Design Guide for glazing installation methods.

1.6 QUALIFICATIONS

- A. Installer: Company specializing in performing Work of this section with minimum three years' experience approved by manufacturer.

1.7 ENVIRONMENTAL REQUIREMENTS

- A. Section 016000 - Product Requirements.
- B. Do not install glazing when ambient temperature is less than 50 degrees F.
- C. Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

1.8 WARRANTY

- A. Section 017700 - Closeout Procedures: Product warranties and product bonds.
- B. Furnish ten year warranty to include coverage for sealed glass units from seal failure, interpane dusting or misting, and replacement of same.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Glass
 - 1. ACH Glass Operations.
 - 2. AFG Industries, Inc.
 - 3. Guardian Industries Corp.
 - 4. PPG Industries.
 - 5. Pilkington North America, Inc.
 - 6. Substitutions: Section 012500 – Substitution Procedures

2.2 FLOAT GLASS MATERIALS

- A. Annealed Glass: ASTM C1036, Type 1 transparent flat, Quality Q3, float glass.
 - 1. Furnish annealed glass except where heat strengthened or tempered glass is required to meet specified performance requirements.
- B. Tempered Glass: ASTM C1048, Type 1 transparent flat, Quality Q3, Kind FT fully tempered, Condition an uncoated, float glass with horizontal tempering.
 - 1. Furnish tempered glass conforming to CPSC 16 CFR 1201 Category II at locations where safety glass is required by applicable code.

2.3 FLOAT GLASS PRODUCTS

- A. Clear Glass: Annealed and Tempered float glass as specified; Class 1 clear.
 - 1. Clear annealed glass.
 - 2. Clear tempered glass.
 - 3. Minimum Thickness: 1/4 inch.
 - 4. Tempered where required by code
- B. Low E Glass: Annealed and Tempered float glass as specified; Class 1 clear.
 - 1. Clear Low E annealed glass.
 - 2. Clear Low E tempered glass.
 - 3. Minimum Thickness: 1/4 inch.
 - 4. Coating: ASTM C1376; pyrolytic.

2.4 INSULATING GLASS PRODUCTS

- A. Insulating Glass: ASTM E2190; with glass elastomeric glass to mastic silicone sealant edge seal; place reflective film within unit; purge interpane space with dry hermetic air.
 - 1. Total Unit Thickness: 1 inch.
 - 2. Insulating Glass Unit Edge Seal Construction: Aluminum, or Stainless steel, thermally broken, bent and soldered mitered and spigot corners.
 - 3. Insulating Glass Unit Edge Seal Material: clear color.
- B. Double Pane Insulating Vision Glass:
 - 1. Outer Pane: Clear Low E annealed glass.
 - 2. Inner Pane: annealed glass.
 - 3. U-Factor Winter Nighttime: .35 maximum.
 - 4. U-Factor Summer: .35 maximum.
 - 5. Solar Energy Transmittance: 52 percent minimum.
 - 6. Visible Light Transmittance: 74 percent minimum.
 - 7. Solar Heat Gain Coefficient: .62 maximum.
 - 8. Tempered where required by code

2.5 GLAZING SEALANTS

- A. Elastomeric Glazing Sealants: Materials compatible with adjacent materials including glass, insulating glass seals, and glazing channels.
 - 1. Glazing Compounds: As recommended by manufacturer.

2.6 GLAZING ACCESSORIES

- A. Setting Blocks: As recommended by manufacturer.
- B. Spacer Shims: As recommended by manufacturer.
- C. Glazing Clips: Manufacturer's standard type.

2.7 COMPONENTS

- A. Flat Glass: Minimum 1/4 inch unless otherwise indicated.
 - 1. Clear Float Glass: ASTM C1036, Type 1 transparent flat, Class 1 clear, Quality q3 glazing select.
- B. Safety Glass: Conform to CPSC 10 CFR 1201 Category II, total thickness 1/4 inch unless otherwise indicated.
 - 1. Clear Tempered Glass: ASTM C1048, Condition A, uncoated, Type 1 transparent flat, Class 1 clear, Quality q3 glazing select; with horizontal tempering.
 - 2. Clear Laminated Glass: ASTM C1172, clear heat strengthened glass with plastic interlayer.
 - a. Plastic interlayer: Polyvinyl butyral, minimum 0.040 inch thick.
 - b. 1/4" laminated glass consists of two 1/8" angled panes bonded with 0/040 polyvinyl butyral inter layer.
- C. Insulated Glass Units: Total thickness 1 inch.
 - 1. Double Pane Insulated Glass Units: ADTM E774 Class A and E773; with glass elastomer, glass to mastic, or silicone sealant edge seal; purge interpane space with dry hermetic air.
 - a. Type: Sungate 100 (3) manufactured by PPG Industries.
 - b. Outer Pane: Glass Type: 1/4" clear float glass.

- c. Inner Pane: 1/4 clear laminated with Low E (sputtered) coating on third surface
 - 1) Plastic Interlayer: Polyvinyl butyral, minimum 0.040 inch thick.
 - 2) 1/4" laminated glass consists of two 1/8" angled panes bonded with 0.040 inch polyvinyl butyral inter layer.
- d. Frosted Inner Pane 1/4 Frosted Laminated Glass: where called out on drawings
 - 1) Plastic Interlayer: Polyvinyl butyral, minimum 0.040 inch thick.
 - 2) 1/4" laminated glass consists of two 1/8" angled panes bonded with 0.040 inch polyvinyl butyral inter layer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 017300 - Execution: Coordination and project conditions.
- B. Verify openings for glazing are correctly sized and within acceptable tolerance.
- C. Verify surfaces of glazing channels or recesses are clean, free of obstructions impeding moisture movement; weeps are clear, and ready to receive glazing.

3.2 PREPARATION

- A. Clean contact surfaces with solvent and wipe dry.
- B. Seal porous glazing channels or recesses with substrate compatible primer or sealer.
- C. Prime surfaces scheduled to receive sealant.

3.3 INSTALLATION

- A. Perform installation in accordance with GANA Glazing Manual.
 - 1. Glazing Sealants: Comply with ASTM C119 Interior Dry Method (Tape and Tape) Installation:
 - 2. Cut glazing tape to length and set against permanent stops, projecting 1/16 inch above sight line.
 - 3. Place setting blocks at 1/4 points with edge block no more than 6 inches from corners.
 - 4. Rest glazing on setting blocks and push against tape for full contact at perimeter of pane or unit.
 - 5. Place glazing tape on free perimeter of glazing in same manner described above.
 - 6. Install removable stop without displacement of tape. Exert pressure on tape for full continuous contact.
 - 7. Knife trim protruding tap.

3.4 CLEANING

- A. Section 017700 – Closeout Procedures: Final cleaning.
- B. Remove glazing materials from finish surfaces.
- C. Remove labels after Work is complete.
- D. Clean glass and adjacent surfaces.

3.5 PROTECTION OF INSTALLED CONSTRUCTION

- A. Section 017300 - Execution: Protection of installed construction.
- B. After installation, mark pane with an 'X' by using removable plastic tape or paste. Do not mark heat absorbing or reflective glass units.

END OF SECTION 088000

SECTION 099000 - PAINTING AND COATING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes surface preparation and field application of paints, stains, varnishes, and other coatings.

1.2 REFERENCES

- A. ASTM International:
 - 1. ASTM D16 - Standard Terminology for Paint, Related Coatings, Materials, and Applications.
 - 2. ASTM D4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials.
- B. Painting and Decorating Contractors of America:
 - 1. PDCA - Architectural Painting Specification Manual.
- C. SSPC: The Society for Protective Coatings:
 - 1. SSPC - Steel Structures Painting Manual.

1.3 DEFINITIONS

- A. Conform to ASTM D16 for interpretation of terms used in this section.

1.4 SUBMITTALS

- A. Section 013300 - Submittal Procedures: Submittal procedures.
- B. Product Data: Submit data on finishing products and special coating.
- C. Samples:
 - 1. Submit paper chip samples illustrating range of colors available for each surface finishing product scheduled.

1.5 CLOSEOUT SUBMITTALS

- A. Section 017700 - Closeout procedures.
- B. Operation and Maintenance Data: Submit data on cleaning, touch-up, and repair of painted and coated surfaces.

1.6 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.
- B. Applicator: Company specializing in performing work of this section with minimum five years documented experience.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Section 016000 - Product Requirements: Product storage and handling requirements.
- B. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
- C. 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.
- D. Paint Materials: Store at minimum ambient temperature of 45 degrees F and maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

1.8 ENVIRONMENTAL REQUIREMENTS

- A. Section 016000 - Product Requirements.
- B. Do not apply materials when surface and ambient temperatures are outside temperature ranges required by paint product manufacturer.
- C. Do not apply exterior coatings during rain or snow when relative humidity is outside humidity ranges, or moisture content of surfaces exceed those required by 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. Minimum Application Temperature for Varnish and Finishes: 65 degrees F for interior or exterior, unless required otherwise by manufacturer's instructions.
- F. Provide lighting level of 80 ft candle measured mid-height at substrate surface.

1.9 SEQUENCING

- A. Sequence application to the following:
 - 1. Do not apply finish coats until paintable sealant is applied.
 - 2. Back prime wood trim before installation of trim.

1.10 WARRANTY

- A. Section 017700 - Closeout Procedures: Product warranties and product bonds.
- B. Furnish five year manufacturer warranty for paints and coatings.

1.11 EXTRA MATERIALS

- A. Section 017823 – Operation and Maintenance Data: Spare parts and maintenance products.

PART 2 - PRODUCTS

2.1 PAINTS AND COATINGS

- A. Manufacturers: Paint, Transparent Finishes, Stain, Primer Sealers and Block Filler.
 - 1. Benjamin Moore Paint Co.
 - 2. Columbia Paint Co.
 - 3. Devoe Paint Co.

4. Fuller-O'Brien.
5. PPG Architectural Finishes.
6. Sherwin Williams Paint Co
7. Substitutions: Section 012500 – Substitution Procedures

2.2 COMPONENTS

- A. Coatings: Ready mixed, except field catalyzed coatings. Prepare coatings:
 1. To soft paste consistency, capable of being readily and uniformly dispersed to homogeneous coating.
 2. For good flow and brushing properties.
 3. Capable of drying or curing free of streaks or sags.
- B. Accessory Materials: Linseed oil, shellac, turpentine, paint thinners and other materials not specifically indicated but required to achieve finishes specified; commercial quality.
 1. Interior Clear Wood Finishes: Maximum volatile organic compound content in accordance with SCAQMD Rule 1113.
- C. Patching Materials: Latex filler.
- D. Fastener Head Cover Materials: Latex filler.
- E. Exterior Masonry Sealer : Waterborne, U/V Protected Waterproofing Sealer
 1. Manufacturer:
 - a. Sherwin Williams Paint Co: Duron Dura Crete
 - b. Substitutions: Section 012500 – Substitution Procedures
- F. Interior Masonry Sealer : acrylic sealer

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 017300 - Execution: Coordination and project conditions.
- B. Verify surfaces and substrate conditions are ready to receive Work as instructed by product manufacturer.
- C. Examine surfaces scheduled to be finished prior to commencement of work. Report conditions capable of affecting proper application.
- D. Test shop applied primer for compatibility with subsequent cover materials.
- E. Measure moisture content of surfaces using electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
 1. Plaster and Gypsum Wallboard: 12 percent.
 2. Masonry, Concrete, and Concrete Unit Masonry: 12 percent.
 3. Interior Wood: 15 percent, measured in accordance with ASTM D4442.
 4. Exterior Wood: 15 percent, measured in accordance with ASTM D4442.
 5. Concrete Floors: 8 percent.

3.2 PREPARATION

- A. Surface Appurtenances: Remove or mask electrical plates, hardware, light fixture trim, escutcheons, and fittings prior to preparing surfaces or finishing.

- B. Surfaces: Correct defects and clean surfaces capable of affecting work of this section. Remove or repair existing coatings exhibiting surface defects.
- C. Marks: Seal with shellac those which may bleed through surface finishes.
- D. Impervious Surfaces: Remove mildew by scrubbing with solution of tetra-sodium or tri-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.
- E. Aluminum Surfaces Scheduled for Paint Finish: Remove surface contamination by steam or high pressure water. Remove oxidation with acid etch and solvent washing. Apply etching primer immediately following cleaning.
- F. Asphalt, Creosote, or Bituminous Surfaces Scheduled for Paint Finish: Remove foreign particles to permit adhesion of finishing materials. Apply compatible sealer or primer.
- G. Insulated Coverings: Remove dirt, grease, and oil from canvas and cotton.
- H. Concrete Floors: Remove contamination, acid etch, and rinse floors with clear water. Verify required acid-alkali balance is achieved. Allow to dry.
- I. Copper Surfaces Scheduled for Paint Finish: Remove contamination by steam, high pressure water, or solvent washing. Apply vinyl etch primer immediately following cleaning.
- J. Copper Surfaces Scheduled for Natural Oxidized Finish: Remove contamination by applying oxidizing solution of copper acetate and ammonium chloride in acetic acid. Rub on repeatedly for required effect. Once attained, rinse surfaces with clear water and allow to dry.
- K. Gypsum Board Surfaces: Fill minor defects with filler compound. Spot prime defects after repair.
- L. Galvanized Surfaces: Remove surface contamination and oils and wash with solvent. Apply coat of etching primer.
- M. Concrete and Unit Masonry Surfaces Scheduled to Receive Paint Finish: Remove dirt, loose mortar, scale, salt or alkali powder, and other foreign matter. Remove oil and grease with solution of tri-sodium phosphate; rinse well and allow to dry. Remove stains caused by weathering of corroding metals with solution of sodium metasilicate after thoroughly wetting with water. Allow to dry.
- N. Plaster Surfaces: Fill hairline cracks, small holes, and imperfections with latex patching plaster. Make smooth and flush with adjacent surfaces. Wash and neutralize high alkali surfaces.
- O. Uncoated Steel and Iron Surfaces: Remove grease, mill scale, weld splatter, dirt, and rust. Where heavy coatings of scale are evident, remove by hand or power tool wire brushing or sandblasting; clean by washing with solvent. Apply treatment of phosphoric acid solution, ensuring weld joints, bolts, and nuts are similarly cleaned. Spot prime paint after repairs.
- P. Shop Primed Steel Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces. Prime metal items including shop primed items.
- Q. Interior Wood Items Scheduled to Receive Paint Finish: Wipe off dust and grit prior to priming. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried; sand between coats.

- R. Interior Wood Items Scheduled to Receive Transparent Finish: Wipe off dust and grit prior to sealing, seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after sealer has dried; sand lightly between coats.
- S. Exterior Wood Scheduled to Receive Paint Finish: Remove dust, grit, and foreign matter. Seal knots, pitch streaks, and sappy sections. Fill nail holes with tinted exterior paintable caulking compound after prime coat has been applied.
- T. Exterior Wood Scheduled to Receive Transparent Finish: Remove dust, grit, and foreign matter; seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes with tinted exterior caulking compound after sealer has been applied.
- U. Glue-Laminated Beams: Prior to finishing, wash surfaces with solvent, remove grease and dirt.
- V. Wood Doors Scheduled for Painting: Seal wood door top and bottom edge surfaces with clear sealer.
- W. Metal Doors Scheduled for Painting: Prime metal door top and bottom edge surfaces.

3.3 EXISTING WORK

- A. Extend existing paint and coatings installations using materials and methods compatible with existing installations and as specified.

3.4 APPLICATION

- A. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.
- B. Apply each coat to uniform appearance. Apply each coat of paint slightly darker than preceding coat unless specified otherwise.
- C. Sand wood and metal surfaces lightly between coats to achieve required finish.
- D. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.
- E. Where clear finishes are required, tint fillers to match wood. Work fillers into grain before set. Wipe excess from surface.
- F. Prime concealed surfaces of interior and exterior woodwork with primer paint.
- G. Prime concealed surfaces of interior wood surfaces scheduled to receive stain or varnish finish with gloss varnish reduced 25 percent with thinner.
- H. Finishing Mechanical And Electrical Equipment:
 - 1. Refer to Division 23 for schedule of color coding and identification banding of equipment, duct work, piping, and conduit.
 - 2. Paint shop primed equipment.
 - 3. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.
 - 4. Prime and paint insulated and exposed pipes, conduit, boxes, insulated and exposed ducts, hangers, brackets, collars and supports, and except where items are shop finished.
 - 5. Paint exposed conduit and electrical equipment occurring in finished areas.

6. Paint both sides and edges of plywood backboards for electrical and telephone equipment before installing equipment.
7. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.5 FIELD QUALITY CONTROL

- A. Section 017300 Execution: Field inspecting, testing, adjusting, and balancing.

3.6 CLEANING

- A. Section 017700 - Closeout Procedures: Final cleaning.
- B. Collect waste material which may constitute fire hazard, place in closed metal containers, and remove daily from site.

3.7 SCHEDULE - SHOP PRIMED ITEMS FOR SITE FINISHING

- A. Metal Fabrications (Section 05 50 00).

3.8 SCHEDULE - EXTERIOR SURFACES

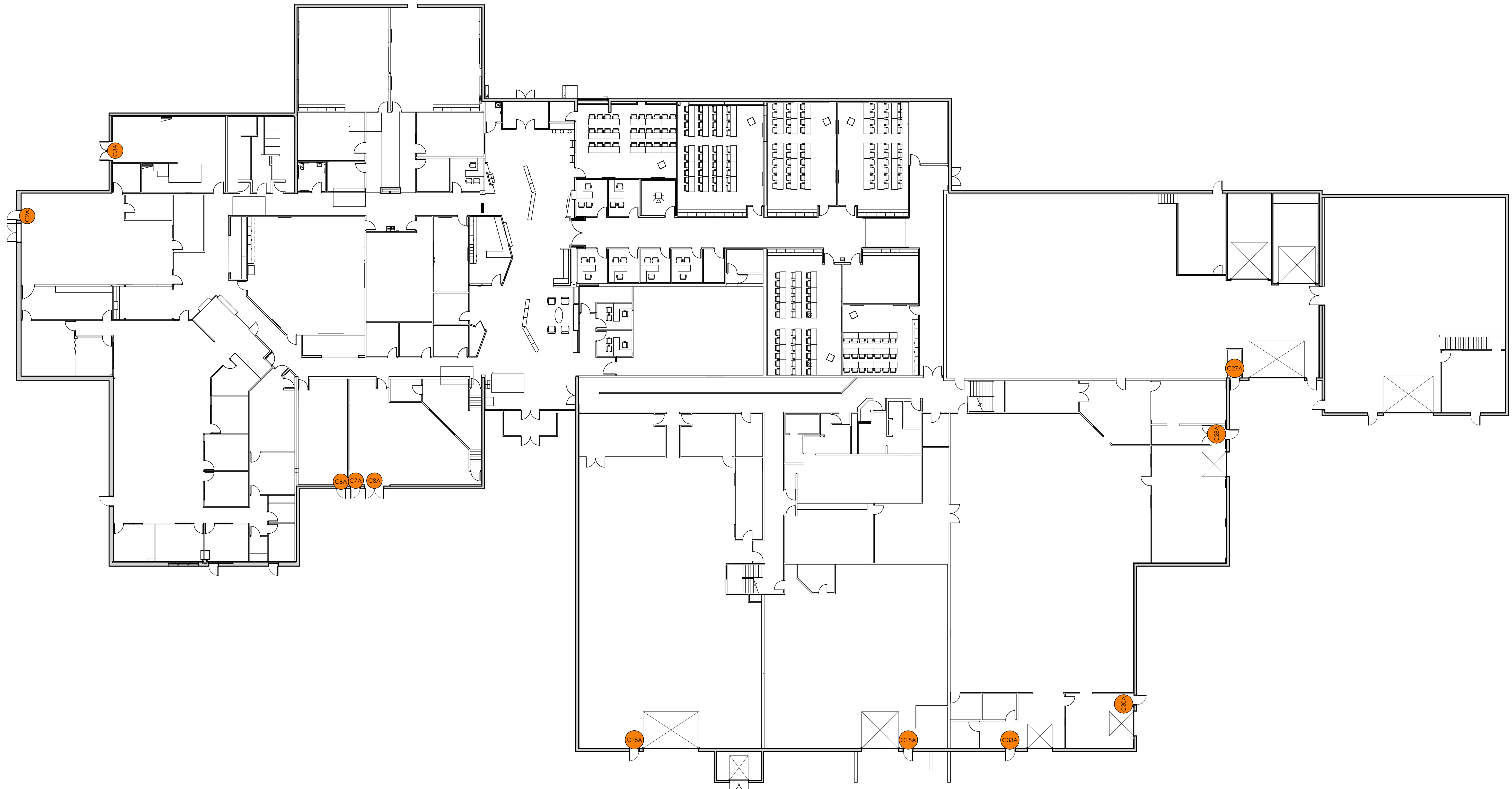
- A. Wood - Painted (Opaque):
 1. One coat of alkyd primer sealer.
 2. Two coats of alkyd enamel, gloss or semi-gloss.
- B. Wood - Transparent:
 1. Two coats of stain
- C. Pavement Markings:
 1. Two coats of solvent based acrylic copolymer paint, yellow.
- D. Steel - Unprimed:
 1. One coat of alkyd primer.
 2. Two coats of alkyd enamel, gloss or semi-gloss.
- E. Steel - Shop Primed:
 1. Touch-up with zinc chromate primer.
 2. Two coats of alkyd enamel, gloss or semi-gloss.
- F. Steel - Galvanized:
 1. One coat galvanize primer.
 2. Two coats of alkyd enamel, gloss or semi-gloss.
- G. Aluminum - Mill Finish:
 1. One coat etching primer.
 2. Two coats of alkyd enamel, gloss or semi-gloss.
- H. Concrete, Concrete Block:
 1. Two coats of clear sealer.

3.9 SCHEDULE - INTERIOR SURFACES

- A. Wood - Painted:
 1. One coat of alkyd prime sealer.

2. Two coats of alkyd enamel, gloss or semi-gloss.
- B. Wood - Transparent:
 1. Filler coat (for open grained wood only).
 2. One coat of stain.
 3. Two coats of varnish, gloss.
- C. Concrete, Concrete Block:
 1. Two coats of clear sealer.
- D. Steel - Unprimed:
 1. One coat of alkyd primer.
 2. Two coats of alkyd enamel, gloss or semi-gloss.
- E. Steel - Primed:
 1. Touch-up with alkyd primer.
 2. Two coats of alkyd enamel, gloss or semi-gloss.
- F. Steel - Galvanized:
 1. One coat galvanize primer.
 2. Two coats of alkyd enamel, gloss or semi-gloss.
- G. Aluminum - Mill Finish:
 1. One coat etching primer.
 2. Two coats of alkyd enamel, gloss or semi-gloss.
- H. Gypsum Board:
 1. One coat of latex primer sealer.
 2. Two coats latex acrylic enamel, gloss or semi-gloss.

END OF SECTION 099000



1
A100 **CANYON BUILDING FLOOR PLAN**

SCALE: 1/16" = 1'-0"

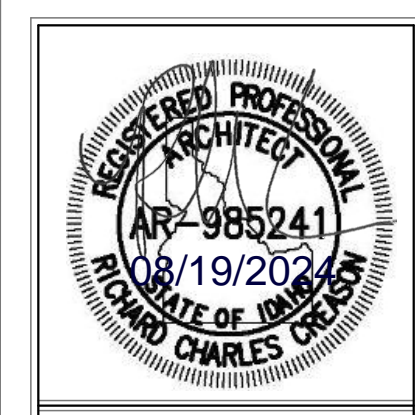
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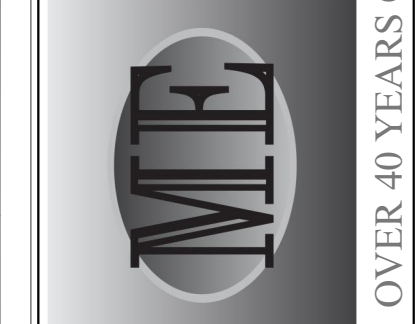
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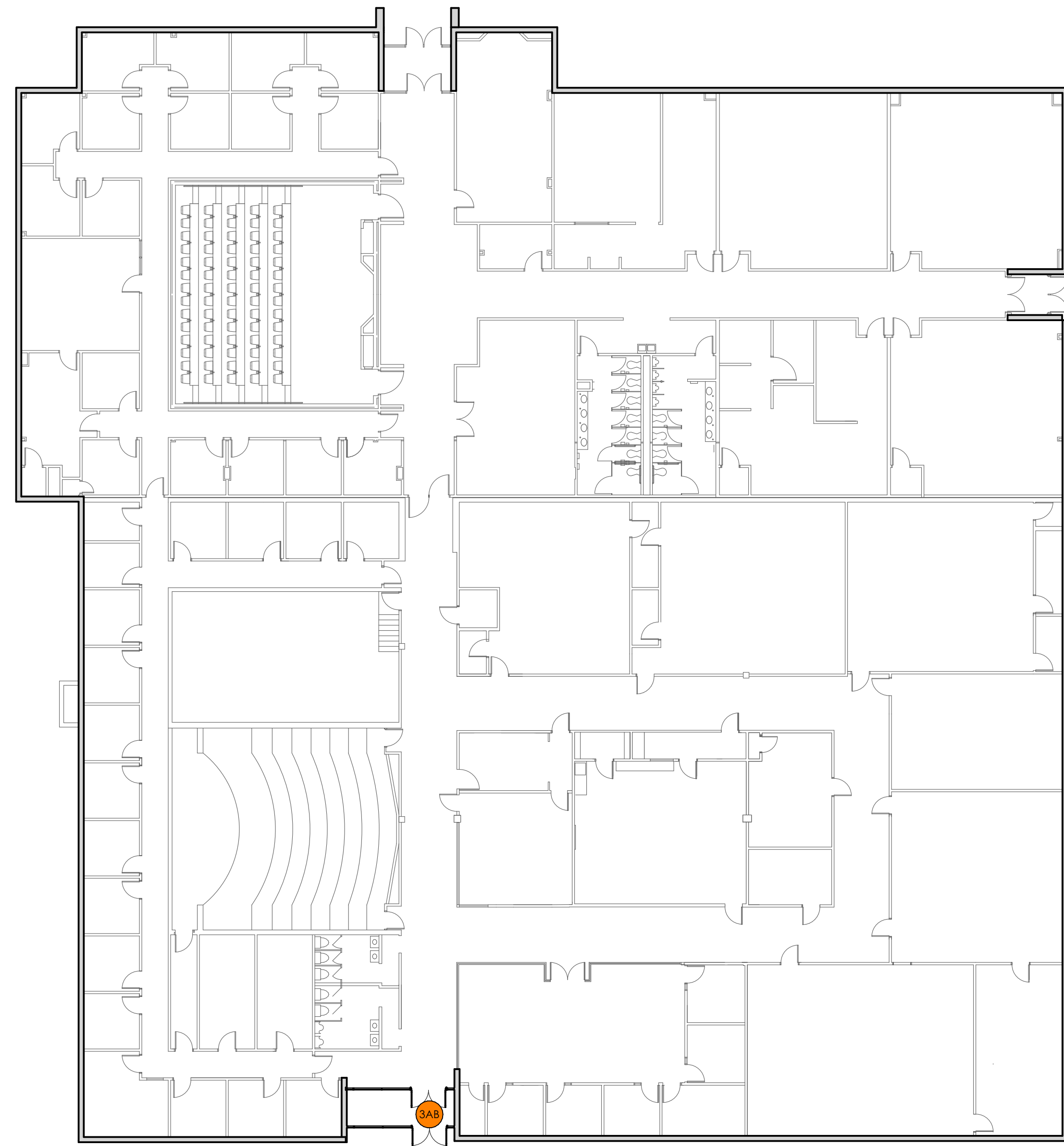
MUSGROVE ENGINEERING, P.A.
 234 S. Whisperwood Way
 Boise, ID 83709
 445 West 2500 Street
 Idaho Falls, ID 83402
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DPW PROJECT 19107
CSI: ENTRY ACCESS CONTROLS, PHASE II
COLLEGE OF SOUTHERN IDAHO
TWIN FALLS, ID

PROJECT	
DRAWN	
CHECKED	
DATE	FEB 2024
SCALE	
SHEET	

A100



1
A101 HEPWORTH FLOOR PLAN
SCALE: 1/16" = 1'-0"

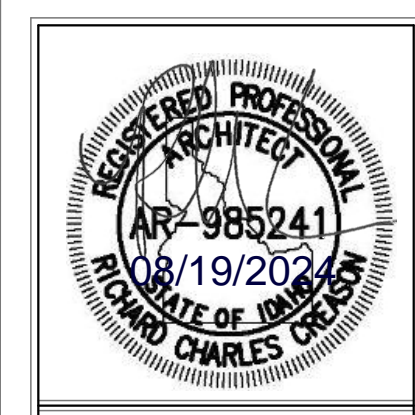
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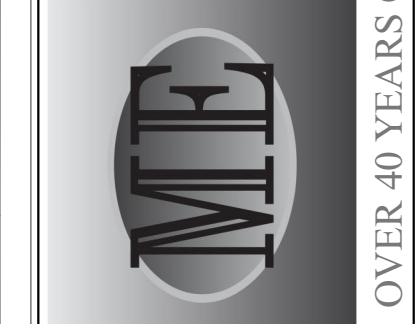
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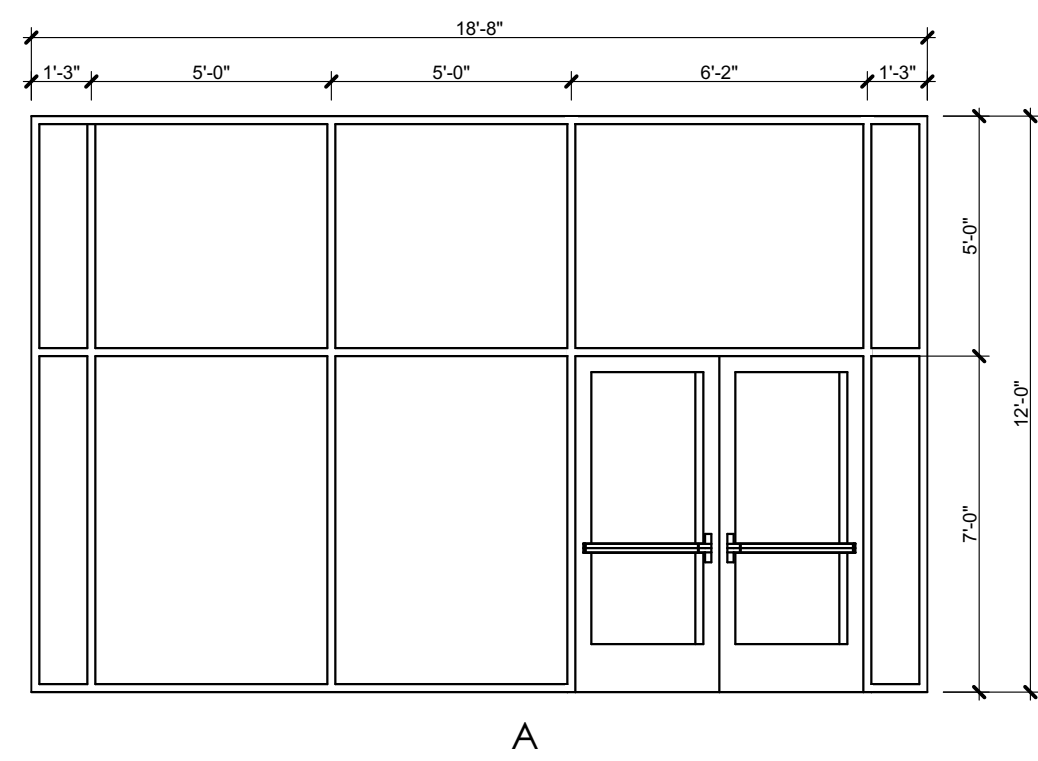
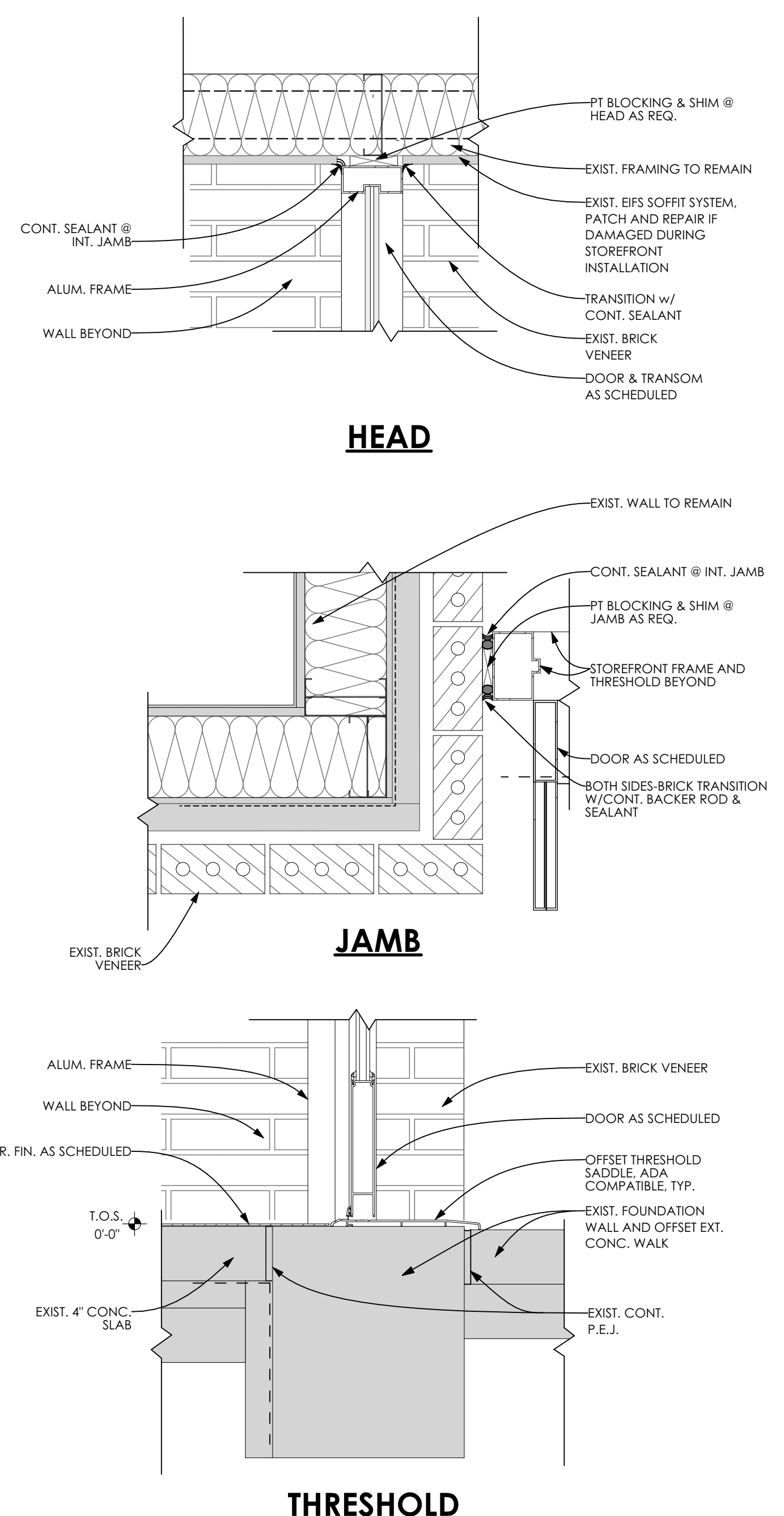
A101

CANYON BUILDING DOOR SCHEDULE																								
DOOR #	DOOR TYPE	WIDTH	HEIGHT	DOOR		FRAME		THROAT	HARDWARE					WEATHER STRIPPING	ACCESS CONTROL	DOOR SWEEP	THRESHOLD	EXIT DEVICE	PUSH/PULL	GLAZING	FIRE RATING	NOTES	DETAIL	DOOR #
				MATERIAL	FINISH	MATERIAL	FINISH		HINGES	LOCKS	CLOSER	KICKPLATES	STOPS											
MAIN FLOOR																								
C2A	B	3'-0"	7'-0"	HM	H.M. PAINTED	E.T.R.	E.T.R. PAINTED	---	H1	---	C1	K1	---	WS1	AC-1	DS1	T1	---	---	---	---	1; 6; 7; 8	---	C2A
C3A	C	6'-0"	7'-8"	HM	H.M. PAINTED	E.T.R.	E.T.R. PAINTED	---	H1	---	C1	K1	---	WS1	AC-1	DS1	T1	---	---	---	---	1; 2; 3; 4; 5; 6; 7; 8	---	C3A
C6A	D	3'-0"	7'-8"	HM	H.M. PAINTED	E.T.R.	E.T.R. PAINTED	---	H1	---	C1	K1	---	WS1	AC-1	DS1	T1	---	---	---	---	1; 6; 7; 8	---	C6A
C7A	D	3'-0"	7'-8"	HM	H.M. PAINTED	E.T.R.	E.T.R. PAINTED	---	H1	---	C1	K1	---	WS1	AC-1	DS1	T1	---	---	---	---	1; 6; 7; 8	---	C7A
C8A	C	6'-0"	7'-8"	HM	H.M. PAINTED	E.T.R.	E.T.R. PAINTED	---	H1	---	C1	K1	---	WS1	AC-1	DS1	T1	---	---	---	---	1; 2; 3; 4; 5; 6; 7; 8	---	C8A
C15A	B	3'-0"	7'-0"	HM	H.M. PAINTED	E.T.R.	E.T.R. PAINTED	---	H1	---	C1	K1	---	WS1	AC-1	DS1	T1	---	---	---	---	1; 6; 7; 8	---	C15A
C18A	B	3'-0"	7'-0"	HM	H.M. PAINTED	E.T.R.	E.T.R. PAINTED	---	H1	---	C1	K1	---	WS1	AC-1	DS1	T1	---	---	---	---	1; 6; 7; 8	---	C18A
C27A	B	3'-0"	7'-0"	HM	H.M. PAINTED	E.T.R.	E.T.R. PAINTED	---	H1	---	C1	K1	---	WS1	AC-1	DS1	T1	---	---	---	---	1; 6; 7; 8	---	C27A
C28A	B	3'-0"	7'-0"	HM	H.M. PAINTED	E.T.R.	E.T.R. PAINTED	---	H1	---	C1	K1	---	WS1	AC-1	DS1	T1	---	---	---	---	1; 6; 7; 8	---	C28A
C30A	B	3'-0"	7'-0"	HM	H.M. PAINTED	E.T.R.	E.T.R. PAINTED	---	H1	---	C1	K1	---	WS1	AC-1	DS1	T1	---	---	---	---	1; 6; 7; 8	---	C30A
C33A	B	3'-0"	7'-0"	HM	H.M. PAINTED	E.T.R.	E.T.R. PAINTED	---	H1	---	C1	K1	---	WS1	AC-1	DS1	T1	---	---	---	---	1; 6; 7; 8	---	C33A

DOOR LEGEND			
HINGES			
H1	GEARED CONTINUOUS HINGE XY SERIES US28 CLEAR ALUMINUM ANODIZED	IVES STANLEY	
H2	179 FULL MORTISE NRP		
EXIT DEVICE			
ED1	99N-OP-626 RIM DEVICE, LEVER HANDLE	VON DUPRIN	
ED2	99EO-626 RIM DEVICE, EXIT ONLY	VON DUPRIN	
ACCESS CONTROL			
AC-1	AD-400-CY W/ EXTERIOR MASTER KEY CORE 29-018	SCHLAGE	
AC-2	AD-200-CY (REFER ALSO TO NOTE #9)	SCHLAGE	
CLOSER			
C1	4040XP-3049CNS	LCN	
C2	4640	LCN	
KICKPLATES			
K1	36" J100 DW-2"	QUALITY	
STOPS			
S1	W302 PT US26D	QUALITY	
WEATHER STRIPPING			
WS1	303CPK	PEMCO	
SMOKE SEALS			
SS1	303CPK	PEMCO	
DOOR SWEEP			
DS1	18042CP	PEMCO	
THRESHOLD			
T1	PEMCO 172A		
GLAZING			
G-1	1/4" PLATE GLASS, TEMPERED		
G-2	1" INSULATED GLASS, TEMPERED		

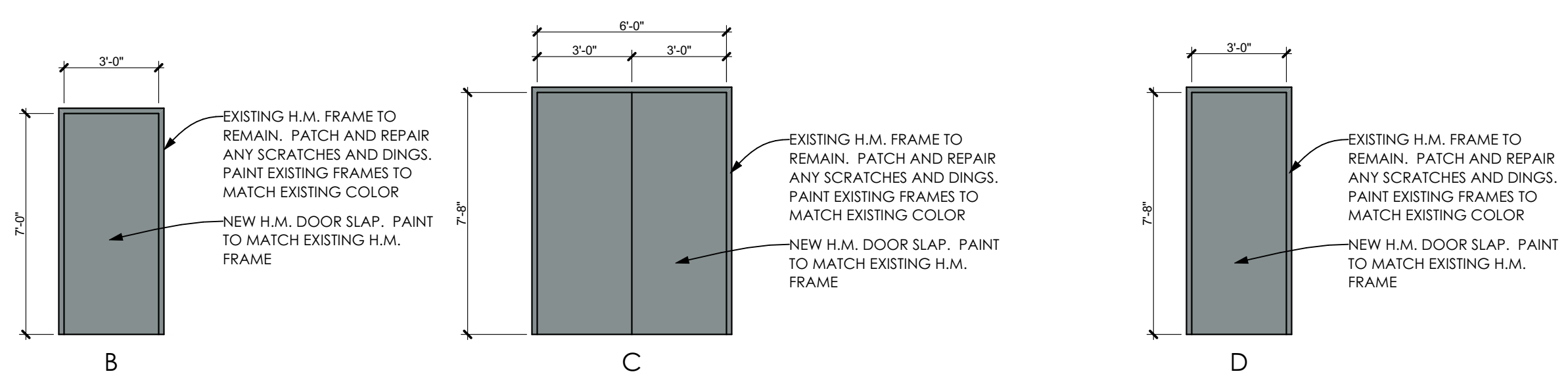
HEPWORTH BUILDING DOOR SCHEDULE																								
DOOR #	DOOR TYPE	WIDTH	HEIGHT	DOOR		FRAME		THROAT	HARDWARE					WEATHER STRIPPING	ACCESS CONTROL	DOOR SWEEP	THRESHOLD	EXIT DEVICE	PUSH/PULL	GLAZING	FIRE RATING	NOTES	DETAIL	DOOR #
				MATERIAL	FINISH	MATERIAL	FINISH		HINGES	LOCKS	CLOSER	KICKPLATES	STOPS											
MAIN FLOOR																								
I3AB	A	6'-0"	7'-0"	ALUM	FAC. FIN.	ALUM.	E.T.R. PAINTED	4-1/2"	H2	---	C1; C2	K1	S1	WS1	AC-2	DS1	T1	ED2	---	G2	---	1; 4; 8; 9; 10	1/A400	3AB

- NOTES**
- HARDWARE BY DOOR SUPPLIER
 - PROVIDE TOP & BOTTOM FLUSH BOLTS ON INACTIVE LEAF. PROVIDE RADIUS STRIKE ON INACTIVE LEAF.
 - PROVIDE ACCESS CONTROL DEVICE ON ACTIVE LEAF ONLY. PROVIDE CLOSER ON ACTIVE LEAF ONLY. ALL OTHER HARDWARE CALLED OUT TO BE PROVIDED IN PAIRS
 - PROVIDE HARDWARE IN PAIRS ON DOUBLE DOORS UNLESS OTHERWISE NOTED
 - PROVIDE VERTICAL ASTRAGAL ON INACTIVE LEAF
 - FIELD VERIFY EXISTING DOOR SLAB SIZE TO BE REPLACED PRIOR TO ORDERING NEW DOOR SLAB
 - EXISTING HOLLOW METAL DOOR FRAME TO REMAIN AND BE REUSED. INSTALL NEW HOLLOW METAL DOOR SLAB WITH CONTINUOUS HINGE
 - COORDINATE W/ ELECTRICAL DRAWINGS FOR ALL OTHER DOORS TO RECEIVE DOOR HARDWARE AND ACCESS CONTROL DEVICES
 - PROVIDE LOCABLE REMOVABLE MULLION VON DUPRIN 5654 W/ CYLINDER & (2) 299 STRIKES
- CRASH BARS SHALL RECEIVE:
a. COMMAND ACCESS: REQUEST TO EXIT - VDREXKIT-ED
b. COMMAND ACCESS: MOTORIZED LATCH RETRACTION - MLR1-VD
- SURFACE CLOSER: LCN 4040XP-3049CNS
- ADA DOOR OPERATOR: LCN 4640
- 1 ELECTRIC POWER TRANSFER ON EACH LEAF: VON DUPRIN EPT-10
- PULLS ON EACH LEAF FROM STOREFRONT MANUFACTURER
 - PROVIDE ADA DOOR OPERATOR: LCN 4640 ON SINGLE LEAF OF INTERIOR VESTIBULE STOREFRONT DOOR. COORDINATE OPERATION OF OPERATOR W/ EXTERIOR VESTIBULE OPERATOR



2 HEPWORTH DOOR TYPES

SCALE: 1/4" = 1'-0"



3 CANYON BUILDING DOOR TYPES

SCALE: 1" = 1'-0"

1 STOREFRONT DETAIL

SCALE: 1 1/2" = 1'-0"

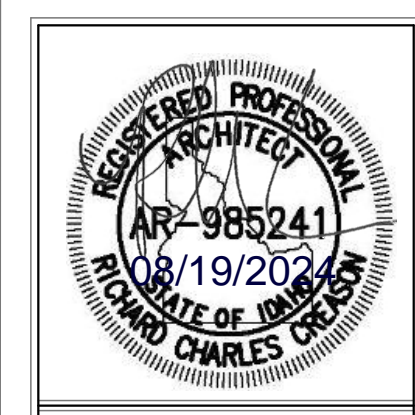
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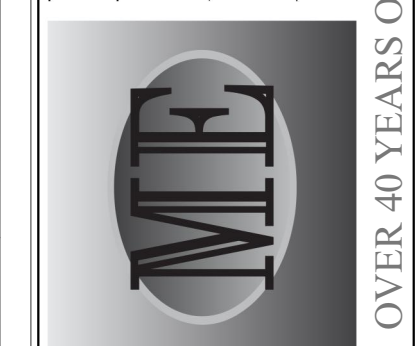
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 OVER 40 YEARS OF EXCELLENCE

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A400