PROJECT MANUAL

January 30, 2020

9TH & MAIN GARAGE

ELEVATOR REFURBISHMENT PROJECT

BIDS DUE: FEBRUARY 26, 2020 3:00 P.M. local time

OWNER'S REPRESENTATIVES / PROJECT CONSULTANTS

OWNER'S REPRESENTATIVE
MATT EDMOND
CAPITAL CITY DEVELOPMENT CORP
121 N. 9TH STREET, STE. 501
BOISE, IDAHO 83702
208-384-4264

PROJECT ARCHITECT
BRIAN COLEMAN
HUMMEL ARCHITECTS PLLC
2785 NORTH BOGUS BASIN ROAD
BOISE, IDAHO 83702
208-343-7523

OWNER'S CONTRACTS SPECIALIST
KATHY WANNER
CAPITAL CITY DEVELOPMENT CORP.
121 N 9TH STREET, STE. 501
BOISE, IDAHO 83702
208-384-4264
208-319-7304 (direct)

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SECTION 00 11 16 INVITATION TO BID

January 30, 2020

Sealed proposals will be received by Capital City Development Corporation (CCDC), at 121 N. 9th Street, Suite 501, Boise, Idaho 83702 until 3 p.m., local time, on **February 26, 2020** for the 9TH & MAIN GARAGE - ELEVATOR REFURBISHMENT PROJECT. The project consists of refurbishing two existing elevators in the 9th & Main public parking garage located in downtown Boise, Idaho.

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 location:

- Capital City Development Corp., 121 N 9th St., Suite 501, Boise, ID 83702 and online at www.ccdcboise.com
- Associated General Contractors, 1649 W. Shoreline Drive, Suite 100, Boise, ID 83702
- Idaho Blueprint & Supply Co., 619 W. Main Street, Boise, Idaho 83702

Five percent (5%) bidder's security is REQUIRED in the form of a certified check, cashier's check, cash, or Bidder's Bond made payable to CCDC executed by a qualified surety company.

A pre-bid meeting will be held on at the offices of CCDC, 121 N. 9th Street, Suite 501, Boise, ID on February, 11, 2020, starting at 11:00 am. A site tour will follow.

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

CCDC reserves the right to reject any and all proposals, to waive any irregularities in the proposals received, and to accept the proposal that is in the best interest of CCDC. The issuance of the Invitation to Bid and the receipt and evaluation of sealed bids does not obligate CCDC to award a contract. CCDC will pay no costs incurred by Bidders in responding to this Invitation to Bid. CCDC may in its discretion cancel this process at any time prior to execution of a contract without liability.

CCDC appreciates your interest in meeting the needs of the agency and the citizens of Boise.

Kathy Wanner, Contracts Specialist

CAPITAL CITY DEVELOPMENT CORP

121 N 9TH ST, SUITE 501 BOISE, ID 83702
208-384-4264 WWW.CCDCBOISE.COM

END OF SECTION 00 11 16

SECTION 00 21 13 INSTRUCTIONS TO BIDDERS

1. BID SUBMISSION

The submission package or envelope must be sealed and plainly marked for delivery as follows:

Capital City Development Corporation
Attn: **9th & Main Garage - Elevator Refurbishment Project - BID**
121 N. 9th Street, Suite 501
Boise, Idaho 83702

Indicate "SEALED BID ENCLOSED" on the outside envelope.

One (1) SIGNED original bid is required – unsigned bids will not be accepted. Late or incomplete submissions will not be accepted. Email or fax submissions will not be accepted. Bidder assumes full responsibility for the timely delivery of its bid to CCDC.

The Bidder will be responsible for all costs (including site visits where needed) incurred in preparing or responding to this bid invitation. All materials and documents submitted in response to this bid invitation become the property of CCDC and will not be returned.

2. GENERAL CONDITIONS

2.1 Intent of Bid/Proposal

It is the intent of this Invitation to Bid to define requirements in sufficient detail to secure comparable Bids. Bids shall be in accordance with Bid document requirements. Bids not conforming to the requested format or not in compliance with the specifications will be considered non-responsive.

CCDC reserves the right to act in the public best interest and in furtherance of the purposes of the Idaho Code Title 50, Chapter 20 (Idaho Urban Renewal Law) and Idaho Code Title 67, Chapter 28 (Purchasing by Political Subdivisions). CCDC reserves the right to waive any formalities or defects as to form, procedure, or content with respect to its Bid Invitation and any irregularities in the Bids received, to request additional data and information from any and all Bidders, to reject any submissions based on real or apparent conflict of interest, to reject any submissions containing inaccurate, or misleading information, and to accept the proposal that is in the best interest of CCDC. The issuance of this Bid Invitation and the receipt and evaluation of sealed bids does not obligate CCDC to award a contract. CCDC may in its discretion cancel this process at any time prior to execution of a contract without liability.

2.2 Public Records

CCDC is a public agency. All documents in its possession are public records subject to disclosure under the Idaho Public Records Act, Title 74, Chapter 1, Idaho Code, and will be available for inspection and copying by any person. The Public Records Act contains certain exemptions – one of which that is potentially applicable to part of your response may be for trade secrets. Trade secrets include a formula, pattern, compilation, program, computer program, device, method, technique or process that derives economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means by

other persons and is subject to the efforts that are reasonable under the circumstances to maintain its secrecy. Prices quoted in a bid are not a trade secret.

If any Bidder claims any part of a Bid is exempt from disclosure under the Idaho Public Records Act, the Bidder must: 1.) Indicate by marking the pertinent document "CONFIDENTIAL"; and, 2.) Include the specific basis for the position that it be treated as exempt from disclosure. Marking the entire bid as "Confidential" is not in accordance with Idaho Public Records Act and will not be honored.

CCDC, to the extent allowed by law and in accordance with these Instructions, will honor a designation of nondisclosure. By claiming material to be exempt from disclosure under the Idaho Public Records Act, Bidder expressly agrees to defend, indemnify, and hold CCDC harmless from any claim or suit arising from CCDC's refusal to disclose such materials. Any questions regarding the applicability of the Public Records Act should be addressed to your own legal counsel prior to submission.

2.3 Form of Agreement

Unless otherwise specified in the bid documents, the form of the Contract will be a Standard Agreement and General Conditions Between Owner and Constructor, as modified by CCDC.

2.4 Performance and Payment Bond

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 CCDC 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.

2.5 Taxes

CCDC is exempt from Federal and State taxes and will execute the required exemption certificates for items purchased and used by CCDC. Items purchased by CCDC and used by a contractor are subject to Use Tax. All other taxes are the responsibility of the Contractor and are to be included in the Contractor's Bid pricing.

3. SUBMISSION PROCESS

3.1 All Forms to be Submitted

Bidders must submit the following completed forms with original signatures in ink. Failure to submit all forms along with a Bid Security will render any Bid unresponsive and void.

00 41 13 Bid Form
00 45 46 Contractor's Affidavit Concerning Taxes

3.2 Request for Clarification; Objections to Specifications or Process;

Any Bidder who wishes to request clarifications or object to specifications or bidding procedures outlined in this Invitation to Bid may submit a written notification to the CCDC Contracts Specialist to be received no later than:

Questions and Clarifications Due:	5:00 p.m. Thursday, February 13, 2020
Objections to Specs / Bidding:	5:00 p.m. Wednesday, February 19, 2020

The notification will state the exact nature of the clarification or protest, describing the location of the protested portion or clause in the Bid/Proposal documents, and explaining why the provision should be struck, added, or altered, and contain suggested corrections. CCDC may deny the objection, modify the Project Manual, and/or reject all or part of the objection. Changes to these specifications will be made by written addendum. Verbal responses will not be binding on CCDC or the Bidder.

Written requests must be directed to:

Kathy Wanner, Contracts Specialist
kwanner@ccdcboise.com

3.3 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.

3.4 Time for Submission
Bids must be submitted on or before the time specified in the Invitation to Bid. Any bid submitted late will be rejected.

3.5 Bid and Price Guarantee
A submitted Bid must remain open for sixty (60) days.

3.6 Bid Modification; Bid Withdrawal
A Bid may be modified or withdrawn by the Bidder prior to the set date and time for the opening of Bids. Bids may not be modified or withdrawn after the bid opening.

3.7 Legal Residency Requirement
By submitting a bid, the bidder attests, under penalty of perjury, that they (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.

3.8 Public Works Contractor's License Requirements
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.

The Contractor will, in the space provided in the Bid Form, provide the names and addresses and Idaho Public Works Contractor's license number of each subcontractor that the Contractor will utilize for the construction, alteration, or repair of the public works here involved, as required by Idaho Code § 67-2310. Failure to name subcontractors for plumbing, heating,

air-conditioning, and electrical as required will render any Bid submitted by a general Contractor unresponsive and void.

Idaho Code § 54-1902 requires that public works contractors and subcontractors have the appropriate Public Works License for the particular type of construction work involved, and the prime contractor must perform at least 20% of the work under contract.

CCDC uses the Idaho Division of Building Safety's (DBS) online license search utility to verify that Bidders meet all PWC License requirements.

4. BID SECURITY

All Bids must be accompanied by a bid security that is not less than five percent (5%) of the total Bid amount. The bid security shall be in the form of either cash; a cashier's check made out to CCDC; a certified check made out to CCDC; or a Bidder's bond executed by a surety company authorized to do business in the State of Idaho.

CCDC reserves the right, on the refusal or failure of the Successful Bidder to execute the CCDC contract or furnish the required proof of insurance and bonds, to award the contract for the Project to the next lowest responsive Bidder. If CCDC awards the CCDC contract to the next lowest responsive Bidder, the amount of the lowest responsive Bidder's bid security will be applied by CCDC to the difference between the lowest responsive Bid for the Project and the next lowest responsive Bid for the Project, and the surplus, if any, shall be returned to the lowest Bidder if cash or check is used, or to the surety on the Bidder's bond if a bond is used, less reasonable administrative costs not to exceed twenty-five percent (25%) of the amount of the Bidder's bid security.

5. SELECTION CRITERIA

Selection will be based on the procurement rules set forth in Idaho Code § 67-2805(2)(a). CCDC has the right to waive or alter submission requirements or to reject any or all submissions, including without limitation, nonconforming, nonresponsive, unbalanced or conditional bids consistent with Idaho law. 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 CCDC will not be responsible for any failure by any bidder to meet applicable requirements.

6. OBJECTION TO CONTRACT AWARD

If any participating Bidder objects to CCDC's award of the contract for the Project, that Bidder shall respond in writing to the notice of the bid award from CCDC within seven (7) calendar days of the date of transmittal of the notice, stating the express reason or reasons that the award decision of CCDC's governing board is in error. Upon receipt of such objection, the CCDC Board shall review the award and determine whether to affirm, modify or re-bid, setting forth the reason or reasons for its decision. At completion of the review process, CCDC may proceed as it deems to be in the public interest.

END OF SECTION 00 21 13

SECTION 00 25 13 PRE BID MEETING

A pre-bid meeting will be held on at the offices of CCDC, 121 N. 9th Street, Suite 501, Boise, Idaho on February, 11, 2020, starting at 11:00 am. A site tour will follow.

CCDC strongly recommends that Bidders attend the Pre-Bid Conference and Site Tour.

END OF SECTION 00 25 13

SECTION 00 31 00 AVAILABLE PROJECT INFORMATION

PRELIMINARY PROJECT SCHEDULE

Substantial Completion in two hundred thirty-one (231) days.
Final Completion in twenty-one (21) days after Substantial Completion.

Anticipated Notice to Proceed:	March 17, 2020
Anticipated Substantial Completion:	November 3, 2020
Anticipated Final Completion:	November 24, 2020

END OF SECTION 00 31 00

SECTION 00 41 13 BID FORM

BID FORM

PROJECT: **9TH & MAIN GARAGE - ELEVATOR REFURBISHMENT PROJECT**

THIS BID IS SUBMITTED TO:

Capital City Development Corporation
Attn: **9TH & MAIN GARAGE - ELEVATOR REFURBISHMENT PROJECT**
121 N. 9th Street, Suite 501
Boise, Idaho 83702

1.01 The undersigned Bidder proposes and agrees to enter into a Contract with CCDC in the form included in the Project Manual to perform all the Work as specified or indicated in the Project Manual for the prices indicated in this Bid and in accordance with the other terms and conditions of the Project Manual.

1.02 Bidder accepts all of the terms and conditions of the Advertisement or Invitation to Bid and Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. The Bid will remain subject to acceptance for sixty (60) days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of CCDC.

1.03 Within thirty (30) days from receiving a written notice of acceptance of this Bid, Bidder shall execute the Contract and shall deliver evidence of required insurance coverages and bonds in the amounts required by the Contract.

1.04 In submitting this Bid, Bidder represents, as set forth in the Contract and Project Manual, that:

a. Bidder has examined and understands the Project Manual and the following Addenda:

Addendum No.	Addendum Date
_____	_____
_____	_____

b. Bidder has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

c. Bidder is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work.

d. Bidder has carefully studied: 1.) all reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site which have been identified in the Project Manual; and 2.) all reports and drawings of a Hazardous Environmental Condition, if any, which has been identified in the Project Manual.

e. Bidder has obtained and carefully studied (or assumes responsibility for having done so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Project Manual to be employed by Bidder, and safety precautions and programs incident thereto.

f. Bidder does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times and in accordance with the other terms and conditions of the Project Manual.

g. Bidder is aware of the general nature of work to be performed by CCDC and others at the Site that relates to the Work as indicated in the Project Manual.

h. Bidder has correlated the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Project Manual, and all additional examinations, investigations, explorations, tests, studies, and data with the Project Manual.

i. Bidder has given CCDC written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovered in the Project Manual, and the written resolution thereof by CCDC is acceptable to Bidder.

j. The Project Manual is generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.

k. Bidder is responsible for ascertaining the existence of any addenda and the contents thereto.

1.5 Bidder represents that this Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any agreement or rules of any group, association, organization, or corporation; Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; Bidder has not solicited or induced any individual or entity to refrain from bidding; and Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over CCDC.

1.6 Bidder will complete the Work in accordance with the Contract Documents for the lump sum given, which includes all taxes. Unit prices have been computed in accordance with the General Conditions. Bidder acknowledges that estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Bid Items will be based on actual quantities provided, determined as provided in the Contract Documents.

1.7 Bidder agrees that the Work will be substantially completed and fully completed ready for final payment in accordance with General Conditions on or before the dates or within the number of calendar days indicated in the Contract Documents. Bidder accepts the provisions of the Contract as to liquidated damages in the event of failure to complete the Work within the times specified.

1.8 Bidder agrees to comply with Idaho Code § 44-1001 through 44-1006 regarding employment of Idaho residents.

1.9 The following documents are attached to and made a condition of this Bid: 1.) Required Bid security; and 2.) Contractor's Affidavit Concerning Taxes.

Bidder agrees to include with the Bid the names and addresses and Idaho Public Works Contractor License numbers of the Subcontractors who shall, in the event the Bidder secures the Contract, subcontract the plumbing, heating and air-conditioning work, and electrical work under the general Contract.

1.10 WAIVER & RELEASE: Bidder has read and fully accepts CCDC's discretion and non-liability as stipulated herein, expressly for, but not limited to, CCDC's decision to proceed with a selection process in response to the Invitation to Bid, including the right in its sole discretion and judgment for whatever reason it deems appropriate, at any time unless contrary to applicable state law, to:

a. Modify or suspend any and all aspects of the process seeking a contractor to construct Project.

b. Obtain further information from any person, entity, or group, including, but not limited to, any person, entity, or group responding to CCDC's Bid Invitation (any such person, entity, or group responding is, for convenience, hereinafter referred to as "Bidder"), and to ascertain the depth of Bidder's capability and experience for construction of Project and in any and all other respects to meet with and consult with any Bidder or any other person, entity, or group.

c. Waive any formalities or defects as to form, procedure, or content with respect to its Bid Invitation and any responses by any Bidder thereto.

d. Accept or reject any sealed Bid received in response to the Bid Invitation, including any sealed Bid submitted by the undersigned; or select any one submission over another.

e. Accept or reject all or any part of any materials, plans, drawings, implementation programs, schedules, phrasings and proposals or statements, including, but not limited to, the nature and type of Bid.

Bidder agrees that CCDC shall have no liability whatsoever, of any kind or character, directly or indirectly, by reason of all or any decision made at the discretion of CCDC as identified above.

SUBCONTRACTORS

CCDC requires the names and addresses of subcontractors to whom work will be awarded, subject to approval of CCDC and Architect, and pursuant to Idaho Code § 67-2310. If such work is not required, Bidder will indicate "Not Applicable" in the list below. In the event that the general (Trade) contractor intends to self-perform the plumbing, HVAC, or electrical work, the general contractor must be properly licensed by the state of Idaho to perform such work. The general (Trade) contractor shall demonstrate compliance with this requirement by listing the valid contractor's license number for the plumbing, HVAC, or electrical work to be self-performed by the general contractor on the bid form.

Failure to name subcontractors as required by Idaho Code shall render any bid submitted unresponsive and void.

Plumbing _____

Address: _____

_____

Public Works License No. _____

Idaho Plumbing Contractors License No. _____

Heating & Air Conditioning _____

Address: _____

_____

Public Works License No. _____

Idaho HVAC Contractors License No. _____

Electrical _____

Address: _____

_____

Public Works License No. _____

Idaho Electrical Contractors License No. _____

BASE BID - OFFER

Bidder agrees to perform all the work described in the Drawings and Specifications for the total lump sum bid of:

_____

($_____) Dollars, lawful money of the United States.
[Show amount in both words and figures; in event of discrepancy, the amount in words shall govern.]

BID FORM SIGNATURE

SUBMITTED on _____, 2020.

X_____ _____
SIGNATURE | Idaho Public Works Contractor License No.

_____ _____
Print Name and Title | License Expiration Date

_____ _____
Contractor / Company | Federal Tax ID #

_____ _____
Address | E-mail Address

_____ _____
City, State, Zip | Phone No.

_____ _____
Fax No.

ATTENTION: Did you remember the Bid Security and Contractor's Affidavit Concerning Taxes?

- Bid Security in the form of a bid bond, certified check, cashier's check, or cash in an amount not less than five percent (5%) of the total amount of the bid is **REQUIRED.**
- Contractor's Affidavit Concerning Taxes is **REQUIRED**.

IF BID SECURITY AND CONTRACTOR'S AFFIDAVIT ARE NOT INCLUDED, YOUR BID WILL BE CONSIDERED NON-RESPONSIVE.

END OF SECTION 00 41 13

EXECUTE AND SUBMIT WITH BID

CONTRACTOR'S AFFIDAVIT CONCERNING TAXES

STATE OF _____

COUNTY OF _____

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

_____ X_____

Contractor / Company — Authorized Representative Signature

_____ _____

Address — Print Name and Title

_____ _____

City, State, Zip

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

_____

Notary Public
Residing at: _____

Commission Expires: _____

END OF SECTION 00 45 46

STANDARD AGREEMENT AND GENERAL CONDITIONS BETWEEN OWNER AND CONSTRUCTOR

9th & MAIN GARAGE - ELEVATOR REFURBISHMENT PROJECT

(Lump Sum Price)

TABLE OF ARTICLES

ARTICLE 1 AGREEMENT

This Agreement is made this ___ day of _____ in the year 2020, by and between the

OWNER: Capital City Development Corporation (CCDC)
121 N. 9th Street, Suite 501
Boise, Idaho 83702

and the

CONSTRUCTOR: _____

Tax identification number (TIN): _____

Idaho Public Works Contractor License No. _____

for construction services in connection with the following PROJECT:

9th & Main Garage - Elevator Refurbishment Project
Work Area: 9th & Main Garage, 848 West Main Street, Boise, Idaho 83702

Notice to the Parties shall be given at the above addresses.

The Owner's Project Architect is Hummel Architects, Brian Coleman.

The Owner's Representative is Matt Edmond.

The Parties agree as set forth herein:

ARTICLE 2 GENERAL PROVISIONS

2.1 RELATIONSHIP OF PARTIES The Parties each agree to proceed with the Project on the basis of mutual trust, good faith, and fair dealing.

2.1.1 The Constructor shall furnish construction administration and management services and use the Constructor's diligent efforts to perform the Work in an expeditious manner consistent with the Contract Documents. The Parties shall each endeavor to promote harmony and cooperation among all Project participants.

2.1.2 The Constructor represents that it is an independent contractor and that in its performance of the Work it shall act as an independent contractor. Owner will have no right to control or direct the details, manner, or means by which Constructor accomplishes the results of the services performed hereunder.

2.1.3 The Constructor has no obligation to work any particular hours or days or any particular number of hours or days. Constructor agrees, however, that its other contracts and services shall not interfere with the performance of its services under this Agreement.

2.1.4 Neither the Constructor nor any of its agents or employees shall act on behalf of or in the name of the Owner except as provided in this Agreement or unless authorized in writing by the Owner's Representative.

2.1.5 The Parties shall perform their obligations with integrity, ensuring at a minimum that each: (a) avoids conflicts of interest and promptly discloses any to the other Party; and (b) warrants that it has not and shall not pay or receive any contingent fees or gratuities to or from the other Party, including its agents, officers, and employees, subcontractors, or others for whom they may be liable, to secure preferential treatment.

2.2 DESIGN PROFESSIONAL Owner's Design Professional is **HUMMEL ARCHITECTS, PLLC**. The Owner, through its Design Professional, shall provide all design services necessary for the completion of the Work. The Constructor shall not be required to provide professional services which constitute the practice of architecture, landscape architecture, or engineering.

2.2.1 The Owner shall obtain from the Design Professional either a license for Constructor and Subcontractors to use the design documents prepared by the Design Professionals or ownership of the copyrights for such design documents, and shall indemnify and hold harmless the Constructor against any suits or claims of infringement of any copyrights or licenses arising out of the use of the design documents for the Project.

2.3 DEFINITIONS

2.3.1 "Agreement" means this Standard Agreement and General Conditions Between Owner and Constructor, as modified, and exhibits and attachments made part of this agreement upon its execution. For purposes of this Agreement, the terms "Agreement" and "Contract" are equivalent.

2.3.2 "Business Day" means all Days, except weekends and official federal or state holidays where the Project is located.

2.3.3 "Change Order" is a written order signed by the Owner and the Constructor after execution of this Agreement, indicating changes in the scope of the Work, the Contract Price, or Contract Time, including substitutions proposed by the Constructor and accepted by the Owner.

2.3.4 "Contract Documents" consist of this Agreement, the existing Contract Documents listed in Section 14.1, drawings, specifications, addenda issued and acknowledged prior to execution of this Agreement, information furnished by the Owner pursuant to subsection 3.13.4, and modifications issued in accordance with this Agreement.

2.3.5 "Contract Price" is the amount indicated in section 7.1 of this Agreement.

2.3.6 "Contract Time" is the period between the Date of Commencement and Final Completion.

2.3.7 "Constructor" is the person or entity identified in ARTICLE 1 and includes the Constructor's Project Manager, designated by Constructor as having authority to represent, make decisions, and act on behalf of Constructor. For purposes of this Agreement, the terms Constructor and Contractor with the capitalized "C" are equivalent.

2.3.8 "Construction Period" is the period of time between the Date of Commencement stated in the Notice to Proceed and the date of Final Completion stated in the Certificate of Final Completion.

2.3.9 "Cost of the Work" means the costs and discounts specified in section 8.3.

2.3.10 "Date of Commencement" is as set forth in section 6.1.

2.3.11 "Day" means a calendar day.

2.3.12 “Defective Work” is any portion of the Work that does not conform with the Contract Documents.

2.3.13 “Design Professional” means the licensed architect or Architect, and its consultants, retained by the Owner to perform design services for the Project.

2.3.14 “Final Completion” occurs on the date when the Constructor’s obligations under this Agreement are complete and accepted by the Owner and final payment becomes due and payable. This date shall be confirmed by a Certificate of Final Completion signed by the Owner and the Constructor.

2.3.15 “Interim Directed Change” is a change to the Work directed by the Owner pursuant to section 8.2.

2.3.16 “Laws” mean federal, state, and local laws, ordinances, codes, rules, and regulations applicable to the Work with which the Constructor must comply that are enacted as of the Agreement date.

2.3.17 “Material Supplier” is a person or entity retained by the Constructor to provide material and equipment for the Work.

2.3.18 “Others” means other contractors/constructors, material suppliers, and persons at the Worksite who are not employed by the Constructor or Subcontractors.

2.3.19 “Overhead” means (a) payroll costs and other compensation of Constructor employees in the Constructor's principal and branch offices; (b) general and administrative expenses of the Constructor's principal and branch offices including charges against the Constructor for delinquent payments; and (c) the Constructor's capital expenses, including interest on capital used for the Work.

2.3.20 “Owner” is the person or entity identified in ARTICLE 1 and includes the Owner's Representative.

2.3.21 “Owner’s Representative” is the individual employed by the Owner who shall be fully acquainted with the Project, shall act as the prime point of contact between Owner and Owner’s Project Architect, shall provide the Owner’s instructions to Owner’s Project Architect, and shall have authority to bind the Owner in all matters requiring the Owner's approval, authorization, or written notice.

2.3.22 “Parties” are collectively the Owner and the Constructor.

2.3.23 “Project,” as identified in ARTICLE 1, is the construction, installation, repair or other improvements for which the Constructor is to perform Work under this Agreement. It may also include construction by the Owner or Others.

2.3.24 “Project Architect” is the individual retained by the Owner to perform day-to-day field observations of the Project on Owner’s behalf and shall be the prime point of contact for Constructor. The Project Architect shall possess full authority to receive instructions from Owner and to act on those instructions.

2.3.25 “Schedule of the Work” is the document prepared by the Constructor that specifies the dates on which the Constructor plans to begin and complete various parts of the Work, including dates on which information and approvals are required from the Owner.

2.3.26 “Subcontractor” is a person or entity retained by the Constructor as an independent contractor to provide the labor, materials, equipment, or services necessary to complete a specific portion of the Work. The term Subcontractor does not include the Design Professional or Others. All subcontractors shall hold valid Public Works Contractor licenses pursuant to Idaho Code § 54-1902.

2.3.27 “Substantial Completion” of the Work occurs on the date when the Work is sufficiently complete in accordance with the Contract Documents so that the Owner may occupy or utilize the Project, or a designated portion, for the use for which it is intended, without unscheduled disruption. This date shall be confirmed by a Certificate of Substantial Completion signed by the Owner and Constructor.

2.3.28 “Subsubcontractor” is a person or entity who has an agreement with a Subcontractor or another Subsubcontractor to perform a portion of the Subcontractor's Work.

2.3.29 “Terrorism” means a violent act, or an act that is dangerous to human life, property, or infrastructure, that is committed by an individual or individuals and that appears to be part of an effort to coerce a civilian population or to influence the policy or affect the conduct of any government by coercion. Terrorism includes, but is not limited to, any act certified by the United States government as an act of terrorism pursuant to the Terrorism Risk Insurance Act, as amended.

2.3.30 “Work” means the construction and services necessary or incidental to fulfill the Constructor's obligations for the Project in conformance with this Agreement and the other Contract Documents. The Work may refer to the whole Project or only a part of the Project if work is also being performed by the Owner or Others.

2.3.30.1 “Changed Work” means work that is different from the original scope of Work; or work that changes the Contract Price or Contract Time.

2.3.31 “Worksite” means the geographical area of the Project Location as identified in ARTICLE 1 where the Work is to be performed.

ARTICLE 3 CONSTRUCTOR'S RESPONSIBILITIES

3.1 GENERAL RESPONSIBILITIES

3.1.1 The Constructor shall provide all labor, materials, equipment, and services (except those items specifically identified in the Contract Documents as products, equipment, systems or materials that Owner shall provide) necessary to complete the Work, all of which shall be provided in full accord with and reasonably inferable from the Contract Documents.

3.1.2 The Constructor shall be responsible for the supervision and coordination of the Work, including the construction means, methods, techniques, sequences, and procedures utilized, unless the Contract Documents give other specific instructions. In such case, the Constructor shall not be liable to the Owner for damages resulting from compliance with such instructions unless the Constructor recognized and failed to timely report to the Project Architect any error, inconsistency, omission, or unsafe practice that it discovered in the specified construction means, methods, techniques, sequences, or procedures.

3.1.3 The Constructor shall perform Work only within locations allowed by the Contract Documents, Laws, and applicable permits.

3.2 COOPERATION WITH WORK OF OWNER AND OTHERS

3.2.1 The Owner may perform work at the Worksite directly or by Others. Any agreements with Others to perform construction or operations related to the Project shall include provisions pertaining to insurance, indemnification, waiver of subrogation, consequential damages, coordination, interference, cleanup, and safety that are substantively the same as the corresponding provisions of this Agreement.

3.2.2 If the Owner elects to perform work at the Worksite directly or by Others, the Constructor and the Owner shall coordinate the activities of all forces at the Worksite and agree upon fair and reasonable schedules and operational procedures for Worksite activities. The Owner shall require each separate contractor to cooperate with the Constructor and assist with the coordination of activities and the review of construction schedules and operations. The Contract Price and Contract Time shall be equitably adjusted, as mutually agreed by the Parties, for changes made necessary by the coordination of construction activities, and the Schedule of the Work shall be revised accordingly. The Constructor, the Owner, and Others shall adhere to the revised construction schedule.

3.2.3 With regard to the work of the Owner and Others, the Constructor shall: (a) proceed with the Work in a manner that does not hinder, delay, or interfere with the work of the Owner or Others or cause the work of the Owner or Others to become defective; (b) afford the Owner or Others reasonable access for introduction and storage of their materials and equipment and performance of their activities; and (c) coordinate the Constructor's Work with theirs.

3.2.4 Before proceeding with any portion of the Work affected by the construction or operations of the Owner or Others, the Constructor shall give the Owner prompt written notification of any defects the Constructor discovers in their work which will prevent the proper execution of the Work. The Constructor's obligations in this subsection do not create a responsibility for the work of the Owner or Others, but are for the purpose of facilitating the Work. If the Constructor does not notify the Owner of defects interfering with the performance of the Work, the Constructor acknowledges that the work of the Owner or Others is not defective and is acceptable for the proper execution of the Work. Following receipt of written notice from the Constructor of defects, the Owner shall promptly inform the Constructor what action, if any, the Constructor shall take with regard to the defects.

3.3 RESPONSIBILITY FOR PERFORMANCE

3.3.1 Prior to commencing the Work, the Constructor shall examine and compare the drawings and specifications with information furnished by the Owner that are Contract Documents, relevant field measurements made by the Constructor, and any visible conditions at the Worksite affecting the Work.

3.3.2 Should the Constructor discover any errors, omissions, or inconsistencies in the Contract Documents, the Constructor shall promptly report them to Owner’s Project Architect and Owner’s Representative. It is recognized, however, that the Constructor is not acting in the capacity of a licensed design professional, and that the Constructor's examination is to facilitate construction and does not create an affirmative responsibility to detect errors, omissions, or inconsistencies or to ascertain compliance with applicable laws, building codes, or regulations. Following receipt of written notice from the Constructor of defects, the Owner shall promptly inform the Constructor what action, if any, the Constructor shall take with regard to the defects.

3.3.3 The Constructor shall have no liability for errors, omissions, or inconsistencies discovered under this section 3.3 unless the Constructor knowingly fails to report a recognized problem to the Owner’s Project Architect and Owner’s Representative.

3.3.4 The Constructor may be entitled to additional costs or time because of clarifications or instructions arising out of the Constructor's reports described in this section 3.3.

3.3.5 Nothing in this section 3.3 shall relieve the Constructor of responsibility for its own errors, inconsistencies, and omissions.

3.4 CONSTRUCTION PERSONNEL AND SUPERVISION

3.4.1 The Constructor shall provide competent supervision for the performance of the Work. Before commencing the Work, the Constructor shall notify the Project Architect and Owner's Representative in writing of the name and qualifications of its proposed Constructor's Project Manager so the Project Architect and Owner's Representative may review the individual's qualifications. If, for reasonable cause, the Project Architect and/or Owner's Representative refuses to approve the individual or withdraws its approval after once giving it, the Constructor shall name a different Constructor's Project Manager for the Owner's review. Any disapproved Project Manager shall not perform in that capacity thereafter at the Worksite.

3.4.2 The Constructor shall be responsible to the Owner for acts or omissions of parties or entities performing portions of the Work for or on behalf of the Constructor or any of its Subcontractors.

3.4.3 The Constructor shall permit only qualified persons to perform the Work. The Constructor shall enforce safety procedures, strict discipline, and good order among persons performing the Work. If the Owner determines that a particular person does not follow safety procedures, or is unfit or unskilled for the assigned Work, the Constructor shall immediately reassign the person upon receipt of the Owner's written notice to do so.

3.4.4 CONSTRUCTOR'S PROJECT MANAGER The Constructor's authorized Project Manager is _____. The Constructor's Project Manager shall possess full authority to receive instructions from the Owner directly or through Owner's Project Architect and to act on those instructions. If the Constructor changes the Constructor's Project Manager or his/her authority, the Constructor shall immediately notify the Project Architect in writing.

3.5 WORKMANSHIP The Work shall be executed in accordance with the Contract Documents in a workmanlike manner. All materials used in the Work shall be furnished in sufficient quantities to facilitate the proper and expeditious execution of the Work and shall be new except such materials as may be expressly provided in the Contract Documents to be otherwise.

3.6 MATERIALS FURNISHED BY THE OWNER OR OTHERS If the Work includes installation of materials or equipment furnished by the Owner or Others, it shall be the responsibility of the Constructor to examine the items so provided and thereupon handle, store, and install the items, unless otherwise provided in the Contract Documents, with such skill and care as to provide a satisfactory and proper installation. Loss or damage due to acts or omissions of the Constructor shall be the responsibility of the Constructor and may be deducted from any amounts due or to become due the Constructor. Any defects discovered in such materials or equipment shall be reported at once to the Project Architect. Following receipt of written notice from the Constructor of defects, the Project Architect shall promptly inform the Constructor what action, if any, the Constructor shall take with regard to the defects.

3.7 TESTS AND INSPECTIONS

3.7.1 The Constructor shall schedule all required tests, approvals, and inspections of the Work or portions thereof at appropriate times so as not to delay the progress of the Work or other work related to the Project. The Constructor shall give proper notice to all required parties of such tests, approvals, and inspections. If feasible, the Project Architect, Owner's Representative and Others may timely observe the tests at the normal place of testing. Except as provided in subsection 3.7.3 and the Drawings and Specifications, the Owner shall bear all expenses associated with tests, inspections, and approvals required by the Contract Documents, which, unless otherwise agreed to, shall be conducted by an independent testing laboratory or entity retained by the Owner. Unless otherwise required by the Contract Documents, required certificates of testing, approval, or

inspection shall be secured by the Constructor and promptly delivered to the Project Architect, with copies to the Owner's Representative.

3.7.2 If the Owner or appropriate authorities determine that tests, inspections, or approvals in addition to those required by the Contract Documents will be necessary, the Constructor shall arrange for the procedures and give timely notice to the Owner and Others who may observe the procedures. Costs of the additional tests, inspections, or approvals are at the Owner's expense except as provided in subsection 3.7.3.

3.7.3 If the procedures described in the two subsections above indicate that portions of the Work fail to comply with the Contract Documents due to negligence of the Constructor, the Constructor shall be responsible for costs of correction and retesting.

3.8 WARRANTY

3.8.1 The Constructor warrants that all materials and equipment shall be new unless otherwise specified, of good quality, in conformance with the Contract Documents, and free from defective workmanship and materials. At the Owner's request, the Constructor shall furnish satisfactory evidence of the quality and type of materials and equipment furnished. The Constructor further warrants that the Work shall be free from material defects not intrinsic in the design or materials required in the Contract Documents. The Constructor's warranty does not include remedies for defects or damages caused by normal wear and tear during normal usage, use for a purpose for which the Project was not intended, improper or insufficient maintenance, modifications performed by the Owner or Others, or abuse. The Constructor's warranty shall commence on the Date of Substantial Completion of the Work, or of a designated portion.

3.8.2 To the extent products, equipment, systems or materials incorporated in the Work are specified and purchased by the Owner, they shall be covered exclusively by the warranty of the manufacturer. There are no warranties which extend beyond the description on the face of any such warranty.

3.8.3 The Constructor shall obtain from its Subcontractors and Material Suppliers any special or extended warranties required by the Contract Documents. All such warranties shall be listed in an attached exhibit to this Agreement. After that period, the Constructor shall provide reasonable assistance to the Owner in enforcing the obligations of Subcontractors or Material Suppliers for such extended warranties.

3.9 CORRECTION OF WORK WITHIN ONE YEAR

3.9.1 If, prior to Substantial Completion and within one year after the date of Substantial Completion of the Work, any Defective Work is found, the Owner shall promptly notify the Constructor in writing. Unless the Owner provides written acceptance of the condition, the Constructor shall promptly correct the Defective Work at its own cost and time and bear the expense of additional services required for correction of any Defective Work for which it is responsible. If within the one-year correction period the Owner discovers and does not promptly notify the Constructor or give the Constructor an opportunity to test or correct Defective Work as reasonably requested by the Constructor, the Owner waives the Constructor's obligation to correct that Defective Work as well as the Owner's right to claim a breach of the warranty with respect to that Defective Work.

3.9.2 With respect to any portion of Work first performed after Substantial Completion, the one-year correction period shall be extended by the period of time between Substantial Completion and the actual performance of the later Work. Correction periods shall not be extended by corrective work performed by the Constructor.

3.9.3 If the Constructor fails to correct Defective Work within a reasonable time after receipt of written notice from the Owner prior to final payment, the Owner may correct it in accordance with

the Owner's right to carry out the Work. In such case, an appropriate Change Order shall be issued deducting the cost of correcting the Defective Work from payments then or thereafter due the Constructor. If payments then or thereafter due the Constructor are not sufficient to cover such amounts, the Constructor shall pay the difference to the Owner within forty-five (45) days.

3.9.4 The Constructor's obligations and liability, if any, with respect to any Defective Work discovered after the one-year correction period shall be determined by the Law. If, after the one-year correction period but before the applicable limitation period has expired, the Owner discovers any Work which the Owner considers Defective Work, the Owner shall, unless the Defective Work requires emergency correction, promptly notify the Constructor and allow the Constructor an opportunity to correct the Work if the Constructor elects to do so. If the Constructor elects to correct the Work, it shall provide written notice of such intent within fourteen (14) Days of its receipt of notice from the Owner and shall complete the correction of Work within a mutually agreed timeframe. If the Constructor does not elect to correct the Work, the Owner may have the Work corrected by itself or Others, and, if the Owner intends to seek recovery of those costs from the Constructor, the Owner shall promptly provide the Constructor with an accounting of the correction costs it incurs.

3.9.5 If the Constructor's correction or removal of Defective Work causes damage to or destroys other completed or partially completed Work or existing buildings, the Constructor shall be responsible for the cost of correcting the destroyed or damaged property.

3.9.6 The one-year period for correction of Defective Work does not constitute a limitation period with respect to the enforcement of the Constructor's other obligations under the Contract Documents.

3.9.7 Prior to final payment, at the Owner's option and with the Constructor's agreement, the Owner may elect to accept Defective Work rather than require its removal and correction. In such case, the Contract Price shall be equitably adjusted for any diminution in the value of the Project caused by such Defective Work.

3.10 CORRECTION OF COVERED WORK

3.10.1 On request of the Project Architect, Work that has been covered without a requirement that it be inspected prior to being covered may be uncovered for the Project Architect's and, if desired the Owner's inspection. The Owner shall pay for the costs of uncovering and replacement if the Work proves to be in conformance with the Contract Documents, or if the defective condition was caused by the Owner or Others. If the uncovered Work proves to be defective, the Constructor shall pay the costs of uncovering and replacement.

3.10.2 If, contrary to specific requirements in the Contract Documents or contrary to a specific request from the Project Architect or Owner, a portion of the Work is covered, the Project Architect or Owner, by written request, may require the Constructor to uncover the Work for the Project Architect's and, if desired the Owner's observation. In this circumstance, the Work shall be replaced at the Constructor's expense and with no adjustment to the Contract Time.

3.11 SAFETY OF PERSONS AND PROPERTY

3.11.1 SAFETY PRECAUTIONS AND PROGRAMS The Constructor shall have overall responsibility for safety precautions and programs in the performance of the Work. However, such obligation does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work or for compliance with Laws.

3.11.2 The Constructor shall seek to avoid injury, loss, or damage to persons or property by taking reasonable steps to protect: (a) its employees and other persons at the Worksite; (b) materials and

equipment stored at onsite or offsite locations for use in the Work; and (c) property located at the Worksite and adjacent to Work areas, whether or not the property is part of the Worksite.

3.11.3 CONSTRUCTOR'S SAFETY REPRESENTATIVE The Constructor's Worksite safety representative is _____, who shall act as the Constructor's Worksite safety representative with a duty to prevent accidents. If no individual is identified in this subsection, the Constructor's safety representative shall be the Constructor's Project Manager. The Constructor shall report promptly in writing to the Project Architect, with a copy to the Owner's Representative, all recordable accidents and injuries occurring at the Worksite. When the Constructor is required to file an accident report with a public authority, the Constructor shall furnish a copy of the report to the Project Architect and Owner's Representative.

3.11.4 The Constructor shall provide the Project Architect and Owner's Representative with copies of all notices required of the Constructor by law or regulation. The Constructor's safety program shall comply with the requirements of governmental and quasi-governmental authorities having jurisdiction.

3.11.5 Damage or loss not insured under property insurance which may arise from the Work, to the extent caused by the negligent acts or omissions of the Constructor, or anyone for whose acts the Constructor may be liable, shall be promptly remedied by the Constructor.

3.11.6 If the Project Architect deems any part of the Work or Worksite unsafe, the Project Architect, without assuming responsibility for the Constructor's safety program, may require the Constructor to stop performance of the Work or take corrective measures satisfactory to the Project Architect, or both. If the Constructor does not adopt corrective measures, the Owner may perform them and deduct their cost from the Contract Price. The Constructor agrees to make no claim for damages, for an increase in the Contract Price or for a change in the Contract Time based on the Constructor's compliance with the Project Architect's or Owner's reasonable request.

3.12 EMERGENCIES In an emergency affecting the safety of persons or property, the Constructor shall act in a reasonable manner to prevent threatened damage, injury, or loss. If appropriate, an equitable adjustment in the Contract Price or Contract Time resulting from the actions of the Constructor in an emergency situation shall be determined as provided for in ARTICLE 8.

3.13 HAZARDOUS MATERIALS

3.13.1 A Hazardous Material is any substance or material identified now or in the future as hazardous under Laws, or any other substance or material that may be considered hazardous or otherwise subject to statutory or regulatory requirement governing handling, disposal, or cleanup. The Constructor shall not be obligated to commence or continue work until any Hazardous Material discovered at the Worksite has been removed, rendered, or determined to be harmless by the Owner as certified by an independent testing laboratory and approved by the appropriate governmental agency.

3.13.2 If after commencing the Work, Hazardous Material is discovered at the Worksite, the Constructor shall be entitled to immediately stop Work in the affected area. The Constructor shall promptly report the condition to the Project Architect and Owner's Representative and, if required, the governmental agency with jurisdiction.

3.13.3 The Constructor shall not be required to perform any Work relating to or in the area of Hazardous Material without written mutual agreement.

3.13.4 The Owner shall be responsible for retaining an independent testing laboratory to determine the nature of the material encountered and whether the material requires corrective measures or remedial action. Such measures shall be the sole responsibility of the Owner, and shall be performed in a manner minimizing any adverse effect upon the Work. The Constructor shall resume

Work in the area affected by any Hazardous Material only upon written agreement between the Parties after the Hazardous Material has been removed or rendered harmless and only after approval, if necessary, of the governmental agency with jurisdiction.

3.13.5 If the Constructor incurs additional costs or is delayed due to the presence or remediation of Hazardous Material, the Constructor shall be entitled to an equitable adjustment in the Contract Price or the Contract Time.

3.13.6 To the extent permitted by section 6.9 and to the extent not caused by the negligent acts or omissions of the Constructor, its Subcontractors and Subsubcontractors, and the agents, officers, directors, and employees of each of them, the Owner shall defend, indemnify, and hold harmless the Constructor, its Subcontractors and Subsubcontractors, and the agents, officers, directors, and employees of each of them, from and against all claims, damages, losses, costs, and expenses, including but not limited to reasonable attorneys' fees, costs, and expenses incurred in connection with any dispute resolution process, arising out of or relating to the performance of the Work in any area affected by Hazardous Material.

3.13.7 MATERIALS BROUGHT TO THE WORKSITE

3.13.7.1 Material Safety Data (MSD) sheets as required by law and pertaining to materials or substances used or consumed in the performance of the Work, whether obtained by the Constructor, Subcontractors, the Owner, or Others, shall be maintained at the Worksite by the Constructor and made available to the Project Architect, Subcontractors, and Others.

3.13.7.2 The Constructor shall be responsible for the proper delivery, handling, application, storage, removal, and disposal of all materials and substances brought to the Worksite by the Constructor, its Subcontractors, or both, in accordance with the Contract Documents and used or consumed in the performance of the Work.

3.13.7.3 To the extent caused by the negligent acts or omissions of the Constructor, its agents, officers, directors, and employees, the Constructor shall indemnify and hold harmless the Owner, its agents, officers, directors, and employees, from and against any and all claims, damages, losses, costs, and expenses, including but not limited to attorneys' fees, costs, and expenses incurred in connection with any dispute resolution procedure, arising out of or relating to the delivery, handling, application, storage, removal, and disposal of all materials and substances brought to the Worksite by the Constructor, its Subcontractors, or both, in accordance with the Contract Documents.

3.13.7.4 This section 3.13.7 shall survive the completion of the Work or any termination of this Agreement.

3.14 SUBMITTALS

3.14.1 The Constructor shall submit to the Project Architect all shop drawings, samples, product data, and similar submittals required by the Contract Documents for review and approval. The Constructor shall be responsible for the accuracy and conformity of its submittals to the Contract Documents. At no additional cost, the Constructor shall prepare and deliver its submittals in a manner consistent with the Schedule of the Work and in such time and sequence so as not to delay the performance of the Work or the work of the Owner and Others. Constructor submittals shall identify in writing for each submittal all changes, deviations, or substitutions from the requirements of the Contract Documents. The approval of any Constructor submittal shall not be deemed to authorize changes, deviations or substitutions from the requirements of the Contract Documents unless express written approval is obtained from the Project Architect specifically authorizing such deviation, substitution or change. To the extent a change, deviation or substitution causes an impact to the Contract Price or Contract Time, such approval shall be promptly memorialized in a Change Order. Neither the Project Architect nor Owner shall make any change, deviation or substitution

through the submittal process without specifically identifying and authorizing such deviation to the Constructor.

3.14.2 The Constructor agrees upon request to submit in a timely fashion to the Project Architect, with copies to the Owner's Representative, for review any shop drawings, samples, product data, manufacturers' literature or similar submittals as may reasonably be required by the Project Architect.

3.14.3 The Constructor shall perform all Work strictly in accordance with approved submittals. Approval of shop drawings is not an authorization to perform changed work, unless the procedures of ARTICLE 8 are followed. Approval does not relieve the Constructor from responsibility for Defective Work resulting from errors or omissions on the approved shop drawings.

3.14.4 No substitutions shall be made in the Work unless permitted in the Contract Documents and then only after the Constructor obtains approvals required under the Contract Documents for substitutions. All such substitutions shall be promptly memorialized in a Change Order no later than seven (7) Days following approval by the Project Manager and the Owner and, if applicable, Design Professional provide for an adjustment in the Contract Price or Contract Time.

3.14.5 As-Built Documents: The Constructor shall maintain at the Worksite for the Owner one (1) copy of each of the Drawings and Specifications, Addenda, Change Orders, and other modifications, in good order and marked to indicate field changes and selections made during construction; and one (1) copy or sample of approved shop Drawings, Product Data, Samples, and similar required submittals.

3.15.5.1 General: Retain copy of each submittal made and each Addenda, Change Order, and Contract amendment issued affecting Contract Documents during the Construction Period for Project As-Built Document purposes. Post changes and modifications to Project As-Built Documents as they occur; do not wait until the end of the Project.

3.15.5.2 Maintenance of As-Built Documents: Store Project As-Built Documents in the field apart from the Contract Documents used for construction. Do not use Project As-Built Documents for construction purposes. Maintain Project As-Built Documents in good order and in clean, dry, legible condition, protected from deterioration and loss. Provide access to Project As-Built Documents for Project Architect's reference during normal working hours.

(a) Project Architect shall evaluate As-Built Drawings for document condition, order, legibility, accuracy and completeness. Project Architect shall notify Constructor of acceptance or request revisions or replacements and resubmittal. Constructor shall supply acceptable As-Built Drawings within seven (7) Days and prior to Final Payment for the Project.

(b) Project Architect shall be responsible for creating digital Record Drawings incorporating the mark-ups on the As-Built Drawings submitted by the Constructor. Project Architect will issue digital Record Drawings to the Constructor and Owner within fourteen (14) Days following Final Payment and distribute a minimum of one (1) copy each of Record Drawings to Owner, Landscape Architect and Constructor.

3.15.8.4 As Built Specifications and Record Specifications: Maintain at the Worksite for the Owner a copy of Contract Documents for purposes of annotating where the actual product installation varies from that indicated. Submit the annotated portions of the Contract Documents to Project Architect prior to requesting a Substantial Completion

Inspection. Project Architect may request corrections from the Constructor to make the submittal more legible and complete. Project Architect shall be responsible for maintaining its own records on variations in product installations, assembling Record Specifications for the Project in a digital format and for distributing them to the Owner and Constructor at the conclusion of the Project. In preparing the Record Specifications, Project Architect shall:

(a) Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.

(b) Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.

(c) Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.

(d) Note related Change Orders and Record Drawings where applicable.

3.15 WORKSITE CONDITIONS

3.15.1 WORKSITE VISIT The Constructor acknowledges that it has visited, or has had the opportunity to visit, the Worksite to visually inspect the general and local conditions which could affect the Work.

3.15.2 CONCEALED OR UNKNOWN SITE CONDITIONS If the conditions encountered at the Worksite are (a) subsurface or other physical conditions materially different from those indicated in the Contract Documents, or (b) unusual and unknown physical conditions materially different from conditions ordinarily encountered and generally recognized as inherent in Work provided for in the Contract Documents, the Constructor shall stop affected Work after the condition is first observed and give prompt written notice of the condition to the Project Architect. The Constructor shall not be required to perform any Work relating to the unknown condition without the written mutual agreement of the Parties. Any change in the Contract Price or the Contract Time as a result of the unknown condition shall be determined as provided in ARTICLE 8.

3.16 PERMITS AND TAXES

3.16.1 The Constructor shall give public authorities all notices required by law and shall obtain and pay for all necessary permits, licenses, and renewals pertaining to the Work. The Constructor shall provide to the Project Architect and the Owner’s Representative copies of all notices, permits, licenses, and renewals required under this Agreement.

3.16.2 The Constructor shall pay all applicable taxes enacted when bids are received or negotiations concluded for the Work provided by the Constructor.

3.16.3 If, in accordance with the Owner's direction, the Constructor claims an exemption for taxes, the Owner shall indemnify and hold the Constructor harmless from any liability, penalty, interest, fine, tax assessment, attorneys' fees, or other expense or cost incurred by the Constructor as a result of any such action.

3.17 CUTTING, FITTING, AND PATCHING

3.17.1 The Constructor shall perform cutting, fitting and patching necessary to coordinate the various parts of the Work and to prepare its Work for the work of the Owner or Others.

3.17.2 Cutting, patching or altering the work of the Owner or Others shall be done with the prior written approval of the Owner. Such approval shall not be unreasonably withheld.

3.18 CLEANING UP

3.18.1 The Constructor shall regularly remove debris and waste materials at the Worksite resulting from the Work. Prior to discontinuing Work in an area, the Constructor shall clean the area and remove all rubbish and its construction equipment, tools, machinery, waste, and surplus materials. The Constructor shall minimize and confine dust and debris resulting from construction activities. At the completion of the Work, the Constructor shall remove from the Worksite all construction equipment, tools, surplus materials, waste materials, and debris.

3.18.2 If the Constructor fails to commence compliance with cleanup duties within two (2) Business Days after written notification from the Project Architect of non-compliance, the Project Architect may implement appropriate cleanup measures without further notice and shall deduct the reasonable costs from any amounts due or to become due the Constructor in the next payment period.

3.19 ACCESS TO WORK The Constructor shall facilitate the access of the Project Architect, Owner, and Others to Work in progress.

3.20 COMPLIANCE WITH LAWS The Constructor shall comply with all Laws at its own costs. The Constructor shall be liable to the Owner for all loss, cost, or expense attributable to any acts or omissions by the Constructor, its employees, subcontractors, and agents for failure to comply with Laws, including fines, penalties, or corrective measures. However, liability under this section shall not apply if notice to the Project Architect was given, and advance approval by appropriate authorities, including the Owner, is received.

3.20.1 The Contract Price or Contract Time shall be equitably adjusted by Change Order for additional costs resulting from any changes in Laws, including increased taxes, which were not reasonably anticipated and then enacted after the date of this Agreement.

3.21 CONFIDENTIALITY Unless compelled by law, a governmental agency or authority, an order of a court of competent jurisdiction, or a validly issued subpoena, the Constructor shall treat as confidential and not disclose to third-persons, except Subcontractors, Subsubcontractors, and Material Suppliers as is necessary for the performance of the Work, or use for its own benefit, any of the Owner's confidential information, know-how, discoveries, production methods, and the like that may be disclosed to the Constructor or which the Constructor may acquire in connection with the Work. The Owner shall treat as confidential information, all of the Constructor's estimating systems and historical and parameter cost data that may be disclosed to the Owner in connection with the performance of this Agreement. The Owner and the Constructor shall each specify those items to be treated as confidential and shall mark them as "Confidential." In the event of a legal compulsion or other order seeking disclosure of any Confidential Information, the Constructor or Owner, as the case may be, shall promptly notify the other Party to permit that Party's legal objection, if necessary.

ARTICLE 4 OWNER'S RESPONSIBILITIES

4.1 INFORMATION AND SERVICES Any information or services to be provided by Owner shall be fulfilled with reasonable detail and in a timely manner.

4.2 WORKSITE INFORMATION To the extent the Owner has obtained, or is required elsewhere in the Contract Documents to obtain, the following Worksite information, the Owner shall provide at the Owner's expense and with reasonable promptness:

4.2.1 Information describing the physical characteristics of the Worksite, including surveys, Worksite evaluations, legal descriptions, data or drawings depicting existing conditions, subsurface conditions, and environmental studies, reports, and investigations. Legal descriptions shall include easements, title restrictions, boundaries, and zoning restrictions. Worksite descriptions shall include existing buildings and other construction and all other pertinent Worksite conditions. Adjacent property descriptions shall include structures, streets, sidewalks, alleys, and other features relevant to the Work. Utility details shall include available services, lines at the Worksite and adjacent thereto, and connection points. The information shall include public and private information, subsurface information, grades, contours, and elevations, drainage data, exact locations and dimensions, and benchmarks that can be used by the Constructor in laying out the Work;

4.2.2 Tests, inspections, and other reports dealing with environmental matters, Hazardous Material and other existing conditions, including structural, mechanical, and chemical tests, required by the Contract Documents or by Law; and

4.2.3 Any other information or services requested in writing by the Constructor which are required for the Constructor's performance of the Work and under the Owner's control.

4.3 OWNER'S CUTTING AND PATCHING Cutting, patching, or altering the Work by the Owner or Others shall be done with the prior written approval of the Constructor, which approval shall not be unreasonably withheld.

4.4 OWNER'S RIGHT TO CLEAN UP In case of a dispute between the Constructor and Others with regard to respective responsibilities for cleaning up at the Worksite, the Owner may implement appropriate cleanup measures after two (2) Business Days' notice and allocate the cost among those responsible during the following pay period.

4.5 COST OF CORRECTING DAMAGED OR DESTROYED WORK With regard to damage or loss attributable to the acts or omissions of the Owner or Others and not to the Constructor, the Owner may either (1) promptly remedy the damage or loss or (2) accept the damage or loss. If the Constructor incurs additional costs or is delayed due to such loss or damage, the Constructor shall be entitled to an equitable adjustment in the Contract Price or Contract Time.

ARTICLE 5 SUBCONTRACTS

5.1 SUBCONTRACTORS The Work not performed by the Constructor with its own forces shall be performed by Subcontractors holding valid Public Works Contractor licenses pursuant to Idaho Code § 54-1902. All subcontracts shall be issued on a lump sum basis unless the Owner has given prior written approval of a different method of payment to the Subcontractor.

5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK Promptly after the award of this Agreement, the Constructor shall provide the Project Architect and Owner’s Representative with a written list of the proposed Subcontractors and significant Material suppliers.

5.3 BINDING OF SUBCONTRACTORS AND MATERIAL SUPPLIERS The Constructor agrees to bind every Subcontractor and Material Supplier (and require every Subcontractor to so bind its subcontractors and material suppliers) to all the provisions of this Agreement and the Contract Documents as they apply to the Subcontractor's or Material Supplier's portions of the Work.

5.4 CONTINGENT ASSIGNMENT OF SUBCONTRACTS

5.4.1 If this Agreement is terminated, each subcontract and supply agreement shall be assigned by the Constructor to the Owner, subject to the prior rights of any surety, provided that:

5.4.1.1 this Agreement is terminated by the Owner pursuant to sections 11.3 or 11.4; and

5.4.1.2 the Owner accepts such assignment after termination by notifying the Subcontractor and Constructor in writing, and assumes all rights and obligations of the Constructor pursuant to each subcontract agreement.

5.4.2 If the Owner accepts such an assignment, and the Work has been suspended for more than thirty (30) consecutive Days, following termination, if appropriate, the Subcontractor's compensation shall be equitably adjusted as a result of the suspension.

ARTICLE 6 TIME

6.1 DATE OF COMMENCEMENT The Constructor shall not commence the Work until it receives a written notice to proceed from the Owner. The notice to proceed shall identify the Date of Commencement.

6.2 SUBSTANTIAL/FINAL COMPLETION Substantial Completion of the Work shall be achieved in TWO HUNDRED THIRTY-ONE (231) Days from the Date of Commencement. Unless otherwise specified in the Certificate of Substantial Completion, the Constructor shall achieve Final Completion within TWENTY-ONE (21) Days after the date of Substantial Completion. The deadlines for Substantial and Final Completion are subject to adjustments as provided for in the Contract Documents.

6.3 Time is of the essence for this Agreement and the Contract Documents.

6.4 Unless instructed by the Owner in writing, the Constructor shall not knowingly commence the Work before the effective date of insurance and bonds to be provided by the Constructor or the Owner as required by the Contract Documents.

6.5 SCHEDULE OF THE WORK

6.5.1 Before submitting the first application for payment, the Constructor shall submit to the Project Architect and Owner's Representative for approval a Schedule of the Work showing the dates on which the Constructor plans to commence and complete various parts of the Work, including dates on which information and approvals are required from the Project Architect. The Constructor shall comply with the approved Schedule of the Work, unless directed by the Project Architect to do otherwise or the Constructor is otherwise entitled to an adjustment in the Contract Time. The Constructor shall update the Schedule of the Work on a monthly basis or at appropriate intervals as required by the conditions of the Work and the Project.

6.5.2 The Project Architect may determine the sequence in which the Work shall be performed, provided it does not unreasonably interfere with the Schedule of the Work. The Owner may require the Constructor to make reasonable changes in the sequence at any time during the performance of the Work in order to facilitate the performance of work by the Owner or Others. To the extent such changes increase the Constructor's costs or time, the Contract Price and Contract Time shall be equitably adjusted.

6.6 DELAYS AND EXTENSIONS OF TIME

6.6.1 If the Constructor is delayed at any time in the commencement or progress of the Work by any cause beyond the control of the Constructor, the Constructor shall be entitled to an equitable extension of the Contract Time. Examples of causes beyond the control of the Constructor include, but are not limited to, the following: (a) acts or omissions of the Project Architect, Owner, or Others; (b) changes in the Work or the sequencing of the Work ordered by the Project Architect or Owner, or arising from decisions of the Project Architect or Owner that impact the time of performance of

the Work; (c) encountering Hazardous Materials, or concealed or unknown conditions; (d) delay authorized by the Project Architect or Owner pending dispute resolution or suspension by the Owner under section 11.1; (e) transportation delays not reasonably foreseeable; (f) labor disputes not involving the Constructor; (g) general labor disputes impacting the Project but not specifically related to the Worksite; (h) fire; (i) Terrorism; (j) epidemics; (k) adverse governmental actions; (l) unavoidable accidents or circumstances; (m) adverse weather conditions not reasonably anticipated. The Constructor shall submit any requests for equitable extensions of Contract Time in accordance with the provisions of ARTICLE 8.

6.6.2 In addition, if the Constructor incurs additional costs as a result of a delay that is caused by items (a) through (d) immediately above, the Constructor shall be entitled to an equitable adjustment in the Contract Price subject to section 6.9.

6.6.3 NOTICE OF DELAYS If delays to the Work are encountered for any reason, the Constructor shall provide prompt written notice to the Project Architect with a copy to the Owner's Representative of the cause of such delays after the Constructor first recognizes the delay. The Owner and the Constructor agree to take reasonable steps to mitigate the effect of such delays.

6.7 NOTICE OF DELAY CLAIMS If the Constructor requests an equitable extension of the Contract Time or an equitable adjustment in the Contract Price as a result of a delay described in the section above, the Constructor shall give the Owner written notice of the claim in accordance with section 8.4. If the Constructor causes delay in the completion of the Work, the Owner shall be entitled to recover its additional costs subject to section 6.9. The Owner shall process any such claim against the Constructor in accordance with ARTICLE 8.

6.8 LIQUIDATED DAMAGES

6.8.1 SUBSTANTIAL COMPLETION The Owner and the Constructor agree that this Agreement shall provide for the imposition of liquidated damages based on the Date of Substantial Completion.

6.8.1.1 The Constructor understands that if the Date of Substantial Completion established by this Agreement, as may be amended by subsequent Change Order, is not attained, the Owner will suffer damages which are difficult to determine and accurately specify. The Constructor agrees that if the Date of Substantial Completion is not attained, the Constructor shall pay the Owner THREE HUNDRED DOLLARS ($300.00) as liquidated damages and not as a penalty for each Day that Substantial Completion extends beyond the Date of Substantial Completion. The liquidated damages provided herein shall be in lieu of all liability for any and all extra costs, losses, expenses, claims, penalties, and any other damages of whatsoever nature incurred by the Owner which are occasioned by any delay in achieving the Date of Substantial Completion.

6.8.2 FINAL COMPLETION The Owner and the Constructor agree that this Agreement shall provide for the imposition of liquidated damages based on the Date of Final Completion.

6.8.2.1 The Constructor understands that if the Date of Final Completion established by this Agreement, as may be amended by subsequent Change Order, is not attained, the Owner will suffer damages which are difficult to determine and accurately specify. The Constructor agrees that if the Date of Final Completion is not attained, the Constructor shall pay the Owner THREE HUNDRED DOLLARS ($300.00) as liquidated damages and not as a penalty for each Day that Final Completion extends beyond the Date of Final Completion. The liquidated damages provided herein shall be in lieu of all liability for any and all extra costs, losses, expenses, claims, penalties, and any other damages of whatsoever nature incurred by the Owner which are occasioned by any delay in achieving the Date of Final Completion.

6.8.3 OTHER LIQUIDATED DAMAGES The Owner and the Constructor may agree upon the imposition of liquidated damages based on other project milestones or performance requirements. Such agreement shall be included as an exhibit to this Agreement.

6.9 LIMITED MUTUAL WAIVER OF CONSEQUENTIAL DAMAGES Except for damages mutually agreed upon by the Parties as liquidated damages in subsections 6.8 and excluding losses covered by insurance required by the Contract Documents, the Owner and the Constructor agree to waive all claims against each other for any consequential damages that may arise out of or relate to this Agreement, except for those specific items of damages excluded from this waiver as mutually agreed upon by the Parties and identified below. The Owner agrees to waive damages, including but not limited to the Owner's rental expenses incurred, loss of financing related to the Project, as well as the loss of financing not related to this Project, loss of reputation, or insolvency. The Constructor agrees to waive damages, including but not limited to loss of business, loss of financing, loss of profits not related to this Project, loss of bonding capacity, loss of reputation, or insolvency. The provisions of this section shall also apply to the termination of this Agreement and shall survive such termination.

6.9.1 The Owner and the Constructor shall require similar waivers in contracts with Subcontractors and Others retained for the Project.

ARTICLE 7 PRICE

7.1 LUMP SUM As full compensation for performance by the Constructor of the Work in conformance with the Contract Documents, the Owner shall pay the Constructor the lump sum price of _____ DOLLARS ($_____). The lump sum price is hereinafter referred to as the Contract Price, which shall be subject to increase or decrease as provided in ARTICLE 8.

ARTICLE 8 CHANGES

Changes in the Work that are within the general scope of this Agreement shall be accomplished, without invalidating this Agreement, by Change Order and Interim Directed Change.

8.1 CHANGE ORDER

8.1.1 The Constructor may request or the Owner may order changes in the Work or the timing or sequencing of the Work that impacts the Contract Price or the Contract Time. All such changes in the Work that affect Contract Time or Contract Price shall be formalized in a Change Order.

8.1.2 NO OBLIGATION TO PERFORM The Constructor shall not be obligated to perform changes in the Work that impact Contract Price or Contract Time until a Change Order has been executed or a written Interim Directed Change has been issued.

8.2 INTERIM DIRECTED CHANGE

8.2.1 The Owner may issue a written Interim Directed Change directing a change in the Work prior to reaching agreement with the Constructor on the adjustment, if any, in the Contract Price or the Contract Time.

8.2.2 The Owner and the Constructor shall negotiate expeditiously and in good faith for appropriate adjustments, as applicable, to the Contract Price or the Contract Time arising out of an Interim Directed Change. As the changed Work is performed, the Constructor shall submit its costs for such Work with its application for payment beginning with the next application for payment within thirty (30) Days of the issuance of the Interim Directed Change. If there is a dispute as to the cost to the Owner, the Owner shall pay the Constructor fifty percent (50%) of its estimated cost to perform such

Work. In such event, the Parties reserve their rights as to the disputed amount, subject to the requirements of ARTICLE 12.

8.2.3 When the Owner and the Constructor agree upon the adjustment in the Contract Price or the Contract Time, for a change in the Work directed by an Interim Directed Change, such agreement shall be the subject of a Change Order. The Change Order shall include all outstanding Interim Directed Changes on which the Owner and Constructor have reached agreement on Contract Price or Contract Time issued since the last Change Order.

8.3 DETERMINATION OF COST

8.3.1 An increase or decrease in the Contract Price or the Contract Time resulting from a change in the Work shall be determined by one or more of the following methods:

8.3.1.1 Unit prices set forth in this Agreement or as subsequently agreed;

8.3.1.2 A mutually accepted, itemized lump sum;

8.3.2 Cost of the Work shall include the following costs necessarily and reasonably incurred by Constructor to perform a change in the Work:

8.3.2.1 Wages paid for labor in the direct employ of the Constructor in the performance of the Work;

8.3.2.2 Salaries of the Constructor's employees when stationed at the field office or branch office to the extent necessary to complete the applicable Work and employees engaged on the road expediting the production or transportation of material and equipment;

8.3.2.3 Cost of applicable employee benefits and taxes, including but not limited to, workers' compensation, unemployment compensation, social security, health, welfare, retirement and other fringe benefits as required by law, labor agreements, or paid under the Constructor's standard personnel policy, insofar as such costs are paid to employees of the Constructor who are included in the Cost of the Work in subsections .1 and .2 immediately above;

8.3.2.4 Reasonable transportation, travel, and hotel expenses of the Constructor's personnel incurred in connection with the Work;

8.3.2.5 Cost of all materials, supplies, and equipment incorporated in the Work, including costs of inspection and testing if not provided by the Owner, transportation, storage, and handling;

8.3.2.6 Payments made by the Constructor to Subcontractors for Work performed under this Agreement;

8.3.2.7 Cost, including transportation and maintenance of all materials, supplies, equipment, temporary facilities, and hand tools not owned by the workers that are used or consumed in the performance of the Work, less salvage value or residual value; and cost less salvage value of such items used, but not consumed that remain the property of the Constructor;

8.3.2.8 Rental charges of all necessary machinery and equipment, exclusive of hand tools owned by workers, used at the Worksite, whether rented from the Constructor or Others, including installation, repair and replacement, dismantling, removal, maintenance, transportation, and delivery costs. Rental from unrelated third parties shall be reimbursed at actual cost. Rentals from the Constructor or its affiliates, subsidiaries, or related parties

shall be reimbursed at the prevailing rates in the locality of the Worksite up to eighty-five percent (85%) of the value of the piece of equipment;

8.3.2.9 Cost of the premiums for all insurance and surety bonds which the Constructor is required to procure or deems necessary, and approved by the Owner including any additional premium incurred as a result of any increase in the cost of the Work;

8.3.2.10 Sales, use, gross receipts or other taxes, tariffs, or duties related to the Work for which the Constructor is liable;

8.3.2.11 Permits, fees, licenses, tests, and royalties;

8.3.2.12 Reproduction costs, photographs, facsimile transmissions, long-distance telephone calls, data processing costs and services, postage, express delivery charges, data transmission, telephone service, and computer-related costs at the Worksite to the extent such items are used and consumed in the performance of the Work or are not capable of use after completion of the Work;

8.3.2.13 All water, power, and fuel costs necessary for the Work;

8.3.2.14 Cost of removal of all nonhazardous substances, debris, and waste materials;

8.3.2.15 All costs directly incurred to perform a change in the Work which are reasonably inferable from the Contract Documents for the Changed Work.

8.3.3 DISCOUNTS All discounts for prompt payment shall accrue to the Owner. All trade discounts, rebates and refunds, and all returns from sale of surplus materials and equipment, shall be credited to the Cost of the Work.

8.3.4 COST REPORTING The Constructor shall maintain in conformance with generally accepted accounting principles a complete and current set of records that are prepared or used by the Constructor to calculate the Cost of Work. The Owner shall be afforded access to the Constructor's records, books, correspondence, instructions, drawings, receipts, vouchers, memoranda and similar data relating to requested payment for Cost of the Work. The Constructor shall preserve all such records for a period of three years after the final payment or longer where required by law.

8.3.5 COST AND SCHEDULE ESTIMATES The Constructor shall use reasonable skill and judgment in the preparation of a cost estimate or schedule for a change to the Work, but does not warrant or guarantee their accuracy.

8.3.6 If an increase or decrease in the Contract Price or Contract Time cannot be agreed to as set forth in subsection 8.3.1, and the Owner issues an Interim Directed Change, the cost of the change in the Work shall be determined by the reasonable actual expense incurred and savings realized in the performance of the Work resulting from the change. If there is a net increase in the Contract Price, the Constructor's Overhead and profit shall be adjusted accordingly. In case of a net decrease in the Contract Price, the Constructor's Overhead and profit shall not be adjusted unless ten percent (10%) or more of the Project is deleted. The Constructor shall maintain a documented, itemized accounting evidencing the expenses and savings.

8.3.7 UNIT PRICES If unit prices are set forth in the Contract Documents or are subsequently agreed to by the Parties, but the character or quantity of such unit items as originally contemplated is so different in a proposed Change Order that the original unit prices will cause substantial inequity to the Owner or the Constructor, such unit prices shall be equitably adjusted.

8.3.8 If the Owner and the Constructor disagree as to whether work required by the Owner is within the scope of the Work, the Constructor shall furnish the Owner with an estimate of the costs to

perform the disputed work in accordance with the Owner's interpretations. If the Owner issues a written order for the Constructor to proceed, the Constructor shall perform the disputed work and the Owner shall pay the Constructor fifty percent (50%) of its estimated cost to perform the work. In such event, both Parties reserve their rights as to whether the work was within the scope of the Work, subject to the requirements of ARTICLE 12. The Owner's payment does not prejudice its right to be reimbursed should it be determined that the disputed work was within the scope of the Work. The Constructor's receipt of payment for the disputed work does not prejudice its right to receive full payment for the disputed work should it be determined that the disputed work is not within the scope of the Work.

8.4 CLAIMS FOR ADDITIONAL COST OR TIME

8.4.1 Except as provided in subsection 6.6.2 and section 6.7 for any claim for an increase in the Contract Price or the Contract Time, the Constructor shall give the Owner written notice of the claim, including appropriate supporting documentation, within five (5) Business Days after the occurrence giving rise to the claim or within five (5) Business Days after the Constructor first recognizes the condition giving rise to the claim, whichever is later. Except in an emergency, notice shall be given before proceeding with the Work.

8.4.2 Suspension of Work: Constructor shall not proceed with work which would alter, cover, damage or destroy evidence in support of Constructor's Claim. If Constructor proceeds to perform Work, with or without notice to Project Architect, that alters, covers, damages or destroys evidence in support of Constructor's Claim, Constructor is indicating by proceeding its acceptance and agreement that the work performed does not add to the Contract Sum or Contract Time.

8.4.3 Action on Change Order: Project Architect shall review the Claim and shall forward recommendations to Owner regarding the Claim within five (5) business days. Negotiation of changes to the Contract Sum and/or Contract Time between the Owner and Contractor shall follow the procedures set forth in the Contract Documents.

8.4.4 Owner and Project Architect shall respond in writing approving or denying the Constructor's claim no later than fourteen (14) Days after receipt of the Constructor's claim. Owner's failure to so respond shall be deemed a denial of the claim. Any change in the Contract Price or the Contract Time resulting from such claim shall be authorized by Change Order.

8.5 INCIDENTAL CHANGES The Project Architect may direct the Constructor to perform incidental changes in the Work, upon concurrence with the Constructor that such changes do not involve adjustments in the Contract Price or Contract Time. Incidental changes shall be consistent with the scope and intent of the Contract Documents. The Project Architect shall initiate an incidental change in the Work by issuing a written order to the Constructor. Such written notice shall be carried out promptly and is binding on the Parties.

ARTICLE 9 PAYMENT

9.1 SCHEDULE OF VALUES In accordance with requirements in Division 01 Section 01 29 00 for "Schedule of Values," the Constructor shall prepare and submit to the Project Architect a Schedule of Values apportioned to the various divisions or phases of the Work. Each line item contained in the Schedule of Values shall be assigned a value such that the total of all items shall equal the Contract Price. Maintain the Schedule of Values during the construction period. If the Schedule of Values is revised, submit the updated Schedule of Values for Project Architect's review and approval after each meeting or other activity where revisions have been recognized or made.

9.2 APPLICATIONS FOR PAYMENT

9.2.1 PROGRESS PAYMENTS In accordance with requirements in Division 01 Section 01 29 00 for “Applications for Payment”, the Constructor shall submit to the Project Architect a monthly application for payment no later than the 5th Business Day of the calendar month for the preceding thirty (30) Days. Constructor's applications for payment shall be itemized and supported by the Constructor's Schedule of Values and any other substantiating data as required by this Agreement. Applications for payment shall include payment requests on account of properly authorized Change Orders or Interim Directed Changes. The Owner shall pay the amount otherwise due on any payment application, as certified by the Project Architect, no later than thirty (30) Days after the Constructor has submitted a complete and accurate payment application and the Owner has approved the Constructor’s payment application, or such shorter time period as required by applicable state statute. The Owner may deduct from any progress payment amounts that may be retained pursuant to subsection 9.2.4. The initial Application for Payment and the Applications for Payment at Substantial Completion and Final Completion have additional requirements as stated in Division 01 Section 01 29 00 “Applications for Payment”.

9.2.2 STORED MATERIALS AND EQUIPMENT Unless otherwise provided in the Contract Documents, applications for payment may include materials and equipment not yet incorporated into the Work but delivered to and suitably stored onsite or offsite including applicable insurance, storage, and costs incurred in transporting the materials to an offsite storage facility. Approval of payment applications for stored materials and equipment stored offsite shall be conditioned on a submission by the Constructor of bills of sale and proof of required insurance, or such other documentation satisfactory to the Owner to establish the proper valuation of the stored materials and equipment, the Owner's title to such materials and equipment, and to otherwise protect the Owner's interests therein, including transportation to the Worksite.

9.2.3 LIEN WAIVERS AND LIENS Constructor acknowledges Owner is a public entity, that any property owned by Owner is considered public property, and that liens on public property are not enforceable. Constructor agrees that it shall not file any liens against property owned or controlled by Owner or by Ada County Highway District (“ACHD”) which is a part of the Worksite (the "Property"). Constructor agrees that no lien will be at any time be filed against the Property, or any part thereof, by any of Constructor’s subcontractors or other person employed by or furnishing labor, services, equipment, or materials to Constructor or any of its subcontractors for, in, or about the performance of the Work. The preceding clause will be inserted in all of the Constructor's or any of its subcontractor's purchase orders and material agreements. Subject to Owner's payment of the compensation in accordance with the terms of this Agreement, Constructor will promptly discharge all liens, if any, filed against the Property by Constructor’s subcontractors, suppliers and materialmen, and agents and persons employed by any of such persons.

9.2.4 RETAINAGE From each progress payment made prior to Substantial Completion, the Owner may retain FIVE percent (5%) of the amount otherwise due after deduction of any amounts as provided in section 9.3, and in no event shall such percentage exceed any applicable statutory requirements. If the Owner chooses to use this retainage provision:

9.2.4.1 the Owner may, in its sole discretion, reduce the amount to be retained at any time;

9.2.4.2 the Owner may release retainage on that portion of the Work a Subcontractor has completed in whole or in part, and which the Owner has accepted. In lieu of retainage, the Constructor may furnish a retention bond or other security interest acceptable to the Owner, to be held by the Owner.

9.3 ADJUSTMENT OF CONSTRUCTOR'S PAYMENT APPLICATION The Owner may adjust or reject a payment application or nullify a previously approved payment application, in whole or in part, as may reasonably be necessary to protect the Owner from loss or damage based upon the following, to the extent that the Constructor is responsible under this Agreement:

9.3.1 the Constructor's repeated failure to perform the Work as required by the Contract Documents;

9.3.2 Except as accepted by the insurer providing builders risk or other property insurance covering the project, loss or damage arising out of or relating to this Agreement and caused by the Constructor to the Owner or to Others to whom the Owner may be liable;

9.3.3 the Constructor's failure to properly pay Subcontractors and Material Suppliers following receipt of such payment from the Owner;

9.3.4 rejected, nonconforming or Defective Work not corrected in a timely fashion;

9.3.5 reasonable evidence of delay in performance of the Work such that the Work will not be completed within the Contract Time;

9.3.6 reasonable evidence demonstrating that the unpaid balance of the Contract Price is insufficient to fund the cost to complete the Work; and

9.3.7 uninsured third-party claims involving the Constructor, or reasonable evidence demonstrating that third-party claims are likely to be filed unless and until the Constructor furnishes the Owner with adequate security in the form of a surety bond, letter of credit, or other collateral or commitment sufficient to discharge such claims if established.

No later than seven (7) Days after receipt of an application for payment, the Project Architect shall give written notice to the Constructor, at the time of disapproving or nullifying all or part of an application for payment, stating its specific reasons for such disapproval or nullification, and the remedial actions to be taken by the Constructor in order to receive payment. When the above reasons for disapproving or nullifying an application for payment are removed, payment will be promptly made for the amount previously withheld.

9.4 ACCEPTANCE OF WORK Neither the Owner's payment of progress payments nor its partial or full use or occupancy of the Project constitutes acceptance of Work not complying with the Contract Documents.

9.5 PAYMENT DELAY If for any reason not the fault of the Constructor, the Constructor does not receive a progress payment from the Owner within seven (7) Days after the time such payment is due, then the Constructor, upon giving seven (7) Days' written notice to the Owner, and without prejudice to and in addition to any other legal remedies, may stop Work until payment of the full amount owing to the Constructor has been received. Interest shall not accrue on any unpaid amounts. The Contract Price and Contract Time shall be equitably adjusted by a Change Order for reasonable cost and delay resulting from shutdown, delay and start-up.

9.6 SUBSTANTIAL COMPLETION

9.6.1 CLOSEOUT PROCEDURES The Constructor shall comply with the requirements stated in Division 01 Section 01 77 00 CLOSEOUT PROCEDURES, in conjunction with Constructor’s compliance with the requirements in sections 9.6 and 9.7.

9.6.2 The Constructor shall notify the Project Architect and, if directed, the Owner, when it considers Substantial Completion of the Work or a designated portion to have been achieved. The Project Architect and Owner’s Representative shall promptly conduct an inspection to determine whether the Work or designated portion can be occupied or used for its intended use by the Owner without excessive interference in completing any remaining unfinished Work. If the Project Architect determines that the Work or designated portion has not reached Substantial Completion, the Project Architect shall promptly compile a list of items (“Punch List”) to be completed or corrected so the

Owner may occupy or use the Work or designated portion for its intended use. The Constructor shall promptly complete all items on the Punch List and the list compiled by the Project Architect.

9.6.3 When Substantial Completion of the Work or a designated portion is achieved, the Owner shall prepare a Certificate of Substantial Completion establishing the date of Substantial Completion and the respective responsibilities of the Owner and Constructor for interim items such as security, maintenance, utilities, insurance, and damage to the Work. In the absence of a clear delineation of responsibilities, the Owner shall assume all responsibilities for items such as security, maintenance, utilities, insurance, and damage to the Work. The Certificate of Substantial Completion shall also list any items to be completed or corrected, and establish the time for their completion or correction. The Certificate of Substantial Completion shall be submitted first to the Project Architect for written concurrence that Substantial Completion has been achieved and then to the Constructor for written acceptance of responsibilities assigned in the Certificate of Substantial Completion. The Certificate of Substantial Completion with signatures from the Project Architect and the Constructor shall be submitted to the Owner for Owner's signature indicating Owner's acceptance of responsibilities assigned to the Owner in the Certificate of Substantial Completion and approval of the Certificate. A copy of the signed Certificate of Substantial Completion shall be provided to the Constructor.

9.6.4 Unless otherwise provided in the Certificate of Substantial Completion, warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or a designated portion.

9.6.5 Upon the Owner's written acceptance and issuance of the Certificate of Substantial Completion, the Owner shall pay to the Constructor the remaining retainage held by the Owner for the Work described in the Certificate of Substantial Completion, less a sum equal to two hundred percent (200%) of the estimated cost of completing or correcting remaining items on that part of the Work, as agreed to by the Owner and Constructor as necessary to achieve Final Completion. Uncompleted items shall be completed by the Constructor in a mutually agreed upon timeframe. The Owner shall pay the Constructor monthly the amount retained for unfinished items as each item is completed.

9.7 PARTIAL OCCUPANCY OR USE

9.7.1 The Owner may occupy or use completed or partially completed portions of the Work when: (a) the portion of the Work is designated in a Certificate of Substantial Completion; (b) appropriate insurer(s) consent to the occupancy or use; and (c) appropriate public authorities authorize the occupancy or use. Such partial occupancy or use shall constitute Substantial Completion of that portion of the Work.

9.8 FINAL COMPLETION AND FINAL PAYMENT

9.8.1 CLOSEOUT PROCEDURES The Constructor shall comply with the requirements in Division 01 Section 01 77 00 CLOSEOUT PROCEDURES, in conjunction with Constructor's compliance with the requirements in this section.

9.8.2 INSPECTION Upon notification from the Constructor that the Work is complete and ready for final inspection and acceptance, the Project Architect and Owner's Representative shall promptly conduct an inspection to determine if the Work has been completed and is acceptable under the Contract Documents.

9.8.3 If the Project Architect and Owner's Representative determine that the Project has attained Final Completion, the Project Architect shall request the following submissions from the Constructor:

(a) an affidavit declaring any indebtedness connected with the Work, *e.g.* payrolls or invoices for materials or equipment, to have been paid, satisfied, or to be paid with the proceeds of final payment, so as not to encumber the Owner's property;

(b) as-built drawings and specifications, manuals, copies of warranties, and all other close-out documents required by the Contract Documents;

(c) release of any liens, conditioned on final payment being received;

(d) consent of any surety;

(e) any outstanding known and unreported accidents or injuries experienced by the Constructor or its Subcontractors at the Worksite; and

(f) any other submissions required by Section 01 77 00 CLOSEOUT PROCEDURES.

9.8.4 When Final Completion has been achieved, the Constructor shall prepare for the Owner's written acceptance a final application for payment stating that to the best of the Constructor's knowledge, and based on the Owner's inspections, the Work has reached Final Completion in accordance with the Contract Documents.

9.8.5 Upon receipt of a final application for payment and Constructor's satisfactory completion of closeout procedures stated in sections 9.6 and 9.8, the Project Architect shall prepare a Certificate of Final Completion establishing the date of Final Completion. Upon signature by the Project Architect, the Certificate of Final Completion shall be submitted to the Constructor for signature. The Certificate of Final Completion with signatures from the Project Architect and the Constructor shall be returned to the Owner for Owner's signature indicating Owner's approval of the Certificate of Final Completion. A copy of the signed Certification of Final Completion shall be provided to the Constructor. The Project Architect's signature on the Final Completion Certificate shall signify the following: (a) Final Completion has been achieved; (b) Project has been inspected and complies with the requirements of the Contract Documents; and (c) Constructor has submitted all required closeout submittals and completed all required closeout procedures.

9.8.6 Final payment of the balance of the Contract Price shall be made to the Constructor within thirty (30) Days after the Constructor has submitted a complete and accurate application for final payment, has satisfactorily completed the requirements as set forth in sections 9.6 and 9.8 above, and a Certificate of Final Completion has been executed by the Owner and the Constructor.

9.8.7 If, after Substantial Completion of the Work, the Final Completion of a portion of the Work is materially delayed through no fault of the Constructor, the Owner shall pay the balance due for portion(s) of the Work fully completed and accepted. If the remaining contract balance for Work not fully completed and accepted is less than the retained amount prior to payment, the Constructor shall submit to the Project Architect the written consent of any surety to payment of the balance due for portions of the Work that are fully completed and accepted. Such payment shall not constitute a waiver of claims, but otherwise shall be governed by these final payment provisions.

9.8.8 OWNER RESERVATION OF CLAIMS Claims not reserved in writing by the Owner with the making of final payment shall be waived except for claims relating to liens or similar encumbrances, warranties, Defective Work, and latent defects.

9.8.9 ACCEPTANCE OF FINAL PAYMENT Unless the Constructor provides written identification of unsettled claims with an application for final payment, its acceptance of final payment constitutes a waiver of such claims.

9.9 LATE PAYMENT Payments due but unpaid shall bear interest from the date payment is due at the rate allowed by the State of Idaho.

ARTICLE 10 INDEMNITY, INSURANCE, AND BONDS

10.1 INDEMNITY

10.1.1 To the fullest extent permitted by law, the Constructor shall indemnify and hold harmless the Owner, the Owner's officers, directors, members, consultants, agents, and employees, the Design Professionals and the Design Professionals' officers, directors, members, consultants, agents, and employees and Others (the Indemnitees) from all claims for bodily injury and property damage, other than to the Work itself and other property insured, including reasonable attorneys' fees, costs and expenses, that may arise from the performance of the Work, but only to the extent caused by the negligent or intentional acts or omissions of the Constructor, Subcontractors, or anyone employed directly or indirectly by any of them or by anyone for whose acts any of them may be liable. The Constructor shall be entitled to reimbursement of any defense costs paid above the Constructor's percentage of liability for the underlying claim to the extent provided for by the subsection 10.1.2 below.

10.1.2 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Constructor, its officers, directors, members, consultants, agents, and employees, Subcontractors, or anyone employed directly or indirectly by any of them or anyone for whose acts any of them may be liable from all claims for bodily injury and property damage, other than property insured, including reasonable attorneys' fees, costs and expenses, that may arise from the performance of work by the Owner, Owner's Representative, the Project Architect, and Others, but only to the extent caused by the negligent acts or omissions of the Owner, Owner's Representative, the Project Architect, or Others. The Owner shall be entitled to reimbursement of any defense costs paid above the Owner's percentage of liability for the underlying claim to the extent provided for by the subsection 10.1.1 above.

10.1.3 NO LIMITATION ON LIABILITY In any and all claims against the Indemnitees by any employee of the Constructor, anyone directly or indirectly employed by the Constructor or anyone for whose acts the Constructor may be liable, the indemnification obligation shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Constructor under workers' compensation acts, disability benefit acts, or other employment benefit acts.

10.2 INSURANCE

Constructor's insurance obligations are set forth in Division 01 Section 00 73 16 INSURANCE AND BONDING REQUIREMENTS.

10.3 BONDS

Constructor's bond obligations are set forth Division 01 Section 00 73 16 INSURANCE AND BONDING REQUIREMENTS.

ARTICLE 11 SUSPENSION, NOTICE TO CURE, AND TERMINATION

11.1 SUSPENSION BY OWNER FOR CONVENIENCE

11.1.1 OWNER SUSPENSION Should the Project Architect and/or Owner order the Constructor in writing to suspend, delay, or interrupt the performance of the Work for the convenience of the Owner and not due to any act or omission of the Constructor or any person or entity for whose acts or omissions the Constructor may be liable, then the Constructor shall immediately suspend, delay or interrupt that portion of the Work for the time period ordered by the Project Architect and/or Owner. The Contract Price and the Contract Time shall be equitably adjusted by Change Order for the cost and delay resulting from any such suspension.

11.1.2 Any action taken by the Project Architect and/or Owner that is permitted by any other provision of the Contract Documents and that result in a suspension of part or all of the Work does not constitute a suspension of Work under this section 11.1.

11.2 NOTICE TO CURE A DEFAULT If the Constructor persistently fails to supply enough qualified workers, proper materials, or equipment to maintain the approved Schedule of the Work, or fails to make prompt payment to its workers, Subcontractors, or Material Suppliers, disregards Laws or orders of any public authority having jurisdiction, or is otherwise guilty of a material breach of a provision of this Agreement, the Constructor may be deemed in default. If the Constructor fails within seven (7) Days after receipt of written notice to commence and continue satisfactory correction of such default with diligence and promptness, then the Owner shall give the Constructor a second notice to correct the default within a three (3) Day period. If the Constructor fails to promptly commence and continue satisfactory correction of the default following receipt of such second notice, the Owner without prejudice to any other rights or remedies may: (a) take possession of the Worksite; (b) complete the Work utilizing reasonable means; (c) withhold payment due to the Constructor; and (d) as the Owner deems necessary, supply workers and materials, equipment, and other facilities for the satisfactory correction of the default, and charge the Constructor the costs and expenses, including reasonable Overhead, profit, and attorneys' fees.

11.2.1 In the event of an emergency affecting the safety of persons or property, the Owner may immediately commence and continue satisfactory correction of such default without first giving written notice to the Constructor, but shall give prompt written notice of such action to the Constructor following commencement of the action.

11.3 OWNER'S RIGHT TO TERMINATE FOR DEFAULT

11.3.1 TERMINATION BY OWNER FOR DEFAULT If, within seven (7) Days of receipt of a notice to cure pursuant to section 11.2, the Constructor fails to commence and satisfactorily continue correction of the default set forth in the notice to cure, the Owner may notify the Constructor and, if applicable, the surety, that it intends to terminate this Agreement for default absent appropriate corrective action within fourteen (14) additional Days. After the expiration of the additional fourteen (14) Day period, the Owner may terminate this Agreement by written notice absent appropriate corrective action. Termination for default is in addition to any other remedies available to the Owner under section 11.2. If the Owner's costs arising out of the Constructor's failure to cure, including the costs of completing the Work and reasonable attorneys' fees, exceed the unpaid Contract Price, the Constructor shall be liable to the Owner for such excess costs. If the Owner's costs are less than the unpaid Contract Price, the Owner shall pay the difference to the Constructor. If the Owner exercises its rights under this section 11.3, upon the request of the Constructor, the Owner shall furnish to the Constructor a detailed accounting of the costs incurred by the Owner.

11.3.2 USE OF CONSTRUCTOR'S MATERIALS, SUPPLIES, AND EQUIPMENT If the Owner or Others perform work under this section 11.3, the Owner shall have the right to take and use any materials, supplies, and equipment belonging to the Constructor and located at the Worksite for the purpose of completing any remaining Work. Immediately upon completion of the Work, any remaining materials, supplies, or equipment not consumed or incorporated in the Work shall be returned to the Constructor in substantially the same condition as when they were taken, reasonable wear and tear excepted.

11.3.3 If the Constructor files a petition under the Bankruptcy Code, this Agreement shall terminate if the Constructor or the Constructor's trustee rejects the Agreement, or if there has been a default and the Constructor is unable to give adequate assurance that the Constructor will perform as required by this Agreement or otherwise is unable to comply with the requirements for assuming this Agreement under the applicable provisions of the Bankruptcy Code.

11.3.4 The Owner shall make reasonable efforts to mitigate damages arising from Constructor default, and shall promptly invoice the Constructor for all amounts due pursuant to sections 11.2 and 11.3.

11.3.5 If the Owner terminates this Agreement for default, and it is later determined that the Constructor was not in default, or that the default was excusable under the terms of the Contract Documents, then, in such event, the termination shall be deemed a termination for convenience, and the rights of the Parties shall be as set forth in section 11.4.

11.4 TERMINATION BY OWNER FOR CONVENIENCE

11.4.1 Upon written notice to the Constructor, the Owner may, without cause, terminate this Agreement. The Constructor shall immediately stop the Work, follow the Owner's instructions regarding shutdown and termination procedures, and strive to minimize any further costs.

11.4.2 If the Owner terminates this Agreement for Convenience, the Constructor shall be paid: (a) for the Work performed to date including Overhead and profit; and (b) for all demobilization costs and costs incurred as a result of the termination but not including Overhead or profit on Work not performed.

11.4.3 If the Owner terminates this Agreement, the Constructor shall:

11.4.3.1 Execute and deliver to the Owner all papers and take all action required to assign, transfer, and vest in the Owner the rights of the Constructor to all materials, supplies and equipment for which payment has been or will be made in accordance with the Contract Documents and all subcontracts, orders and commitments which have been made in accordance with the Contract Documents;

11.4.3.2 Exert reasonable effort to reduce to a minimum the Owner's liability for subcontracts, orders, and commitments that have not been fulfilled at the time of the termination;

11.4.3.3 Cancel any subcontracts, orders, and commitments as the Owner directs; and

11.4.3.4 Sell at prices approved by the Owner any materials, supplies, and equipment as the Owner directs, with all proceeds paid or credited to the Owner.

11.5 CONSTRUCTOR'S RIGHT TO TERMINATE

11.5.1 Upon seven (7) Days' written notice to the Owner, the Constructor may terminate this Agreement if the Work has been stopped for a thirty (30) Day period through no fault of the Constructor for any of the following reasons:

11.5.1.1 under court order or order of other governmental authorities having jurisdiction;

11.5.1.2 as a result of the declaration of a national emergency or other governmental act during which, through no act or fault of the Constructor, materials are not available; or

11.5.1.3 suspension by the Owner for convenience pursuant to section 11.1

11.5.2 In addition, upon seven (7) Days' written notice to the Owner, the Constructor may terminate this Agreement if the Owner:

11.5.2.1 assigns this Agreement over the Constructor's reasonable objection; or

11.5.2.2 fails to pay the Constructor in accordance with this Agreement and the Constructor has complied with section 9.5; or

11.5.2.3 otherwise materially breaches this Agreement.

11.5.3 Upon termination by the Constructor in accordance with section 11.5, the Constructor shall be entitled to recover from the Owner payment for all Work executed and for any proven loss, cost, or expense in connection with the Work, including all demobilization costs plus reasonable Overhead and profit on Work not performed.

11.6 OBLIGATIONS ARISING BEFORE TERMINATION Even after termination, the provisions of this Agreement still apply to any Work performed, payments made, events occurring, costs charged or incurred or obligations arising before the termination date.

ARTICLE 12 DISPUTE MITIGATION AND RESOLUTION

12.1 WORK CONTINUANCE AND PAYMENT Unless otherwise agreed in writing, the Constructor shall continue the Work and maintain the Schedule of the Work during any dispute mitigation or resolution proceedings. If the Constructor continues to perform, the Owner shall continue to make payments in accordance with this Agreement.

12.2 DIRECT DISCUSSIONS In the event that a dispute arises between Owner and Constructor regarding application or interpretation of any provision of this Agreement, the aggrieved Party shall promptly notify the other Party to this Agreement of the dispute within ten (10) days after such dispute arises. If the Parties shall have failed to resolve the dispute within thirty (30) days after delivery of such notice, the Parties may first endeavor to settle the dispute in an amicable manner by mediation. If the Parties elect to mediate their dispute, the Parties will select a mediator by mutual agreement and agree to each pay half of the mediator's costs and fees. The mediation will take place in Boise, Idaho, unless otherwise agreed by the Parties in writing. Should the Parties be unable to resolve the dispute to their mutual satisfaction within thirty (30) days after such completion of mediation, each Party shall have the right to pursue any rights or remedies it may have at law or in equity. If the Parties do not mutually agree to mediate the dispute, either Party may pursue any rights or remedies it may have at law.

ARTICLE 13 MISCELLANEOUS

13.1 EXTENT OF AGREEMENT Except as expressly provided, this Agreement is for the exclusive benefit of the Parties, and not for the benefit of any third party. This Agreement represents the entire and integrated agreement between the Parties, and supersedes all prior negotiations, representations, or agreements, either written or oral.

13.2 ASSIGNMENT Except as to the assignment of proceeds, the Parties shall not assign their interest in this Agreement without the written consent of the other. The terms and conditions of this Agreement shall be binding upon both Parties, their partners, successors, assigns, and legal representatives. Neither Party shall assign the Agreement as a whole without written consent of the other except that the Owner may assign the Agreement to a wholly owned subsidiary of the Owner when the Owner has fully indemnified the Constructor or to an institutional lender providing construction financing for the Project as long as the assignment is no less favorable to the Constructor than this Agreement. If such assignment occurs, the Constructor shall execute any consent reasonably required. In such event, the wholly owned subsidiary or lender shall assume the Owner's rights and obligations under the Contract Documents. If either Party attempts to make such an assignment, that Party shall nevertheless remain legally responsible for all obligations under this Agreement, unless otherwise agreed in writing by the other Party.

13.3 GOVERNING LAW This Agreement shall be governed by the laws of the State of Idaho.

13.4 SEVERABILITY The partial or complete invalidity of any one or more provisions of this Agreement shall not affect the validity or continuing force and effect of any other provision.

13.5 NO WAIVER OF PERFORMANCE The failure of either Party to insist, in any one or more instances, on the performance of any of the terms, covenants, or conditions of this Agreement, or to exercise any of its rights, shall not be construed as a waiver or relinquishment of such term, covenant, condition, or right with respect to further performance or any other term, covenant, condition, or right.

13.6 TITLES The titles given to the articles are for ease of reference only and shall not be relied upon or cited for any other purpose.

13.7 JOINT DRAFTING The Parties expressly agree that this Agreement was jointly drafted, and that both had opportunity to negotiate its terms and to obtain the assistance of counsel in reviewing its terms prior to execution. Therefore, this Agreement shall be construed neither against nor in favor of either Party, but shall be construed in a neutral manner.

13.8 RIGHTS AND REMEDIES The Parties' rights, liabilities, responsibilities and remedies with respect to this Agreement, whether in contract, tort, negligence or otherwise, shall be exclusively those expressly set forth in this Agreement.

ARTICLE 14 CONTRACT DOCUMENTS

14.1 EXISTING CONTRACT DOCUMENTS This Contract expressly incorporates the following documents, together with any amendments that may be agreed to in writing by both parties:

Project Manual dated JANUARY 30, 2020, including:

PROJECT MANUAL COVER PAGE
00 01 10 TABLE OF CONTENTS
00 11 16 INVITATION TO BID
00 21 13 INSTRUCTIONS TO BIDDERS
00 25 13 PRE BID MEETING
00 31 00 AVAILABLE PROJECT INFORMATIN
00 41 13 BID FORM
00 45 46 CONTRACTOR'S AFFIDAVIT CONCERNING TAXES
00 52 13 AGREEMENT BETWEEN OWNER AND CONTRACTOR
00 62 76 APPLICATION FOR PAYMENT FORM
00 73 00 SUPPLEMENTARY CONDITIONS
00 73 16 INSURANCE AND BONDING REQUIREMENTS
00 73 73 STATUTORY REQUIREMENTS – TAX COMMISSION

DIVISION 01 – GENERAL REQUIREMENTS

01 11 00 SUMMARY OF WORK
01 25 00 SUBSTITUTION PROCEDURES
01 26 00 CONTRACT MODIFICATION PROCEDURES
01 29 00 PAYMENT PROCEDURES
01 31 00 PROJECT MANAGEMENT AND COORDINATION
01 32 00 CONSTRUCTION PROGRESS DOCUMENTATION
01 33 00 SUBMITTAL PROCEDURES
01 40 00 QUALITY REQUIREMENTS
01 42 00 REFERENCES
01 50 00 TEMPORARY FACILITIES AND CONTROLS
01 60 00 PRODUCT REQUIREMENTS
01 73 00 EXECUTION

01 73 10 CUTTING AND PATCHING
01 77 00 CLOSEOUT PROCEDURES
01 78 23 OPERATION AND MAINTENANCE DATA
01 79 00 DEMONSTRATION AND TRAINING

DIVISION 08: OPENINGS

08 11 13 HOLLOW METAL DOORS AND FRAMES

DIVISION 09: FINISHES

09 91 23 INTERIOR PAINTING

DIVISION 14: CONVEYING EQUIPMENT

14 24 00 ELEVATOR MODERNIZATION

DIVISION 23: HEATING, VENTILATING, AND AIR CONDITIONING

23 05 00 COMMON WORK RESULTS FOR HVAC
23 34 23 POWER VENTILATORS
23 81 26 SPLIT SYSTEM HEAT PUMP AIR CONDITIONERS
23 82 39 WALL AND CEILING UNIT HEATERS

DIVISION 26: ELECTRICAL

26 05 00 COMMON WORK RESULTS FOR ELECTRICAL
26 05 19 LOW VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES
26 05 26 GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS
26 05 29 HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS
26 05 33 RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS
26 05 53 INDENTIFICATION FOR ELECTRICAL SYSTEMS
26 05 83 WIRING CONNECTIONS
26 28 00 LOW VOLTAGE CIRCUIT PROTECTIVE DEVICES

DRAWINGS

GENERAL
G0.00 Cover Sheet

ARCHITECTURAL
A2.01 COMPOSITE GROUND FLOOR PLAN
A5.01 ENLARGED PLANS

MECHANICAL
M0.01 MECHANICAL LEGEND & NOTES
M0.02 MECHANICAL SCHEDULES
M1.10 HVAC PLANS

ELECTRICAL
E0.01 ELECTRICAL LEGEND, NOTES & ONE-LINE
E1.20 POWER PLANS

Bid Addenda dated *xxxxxxxx*
Constructor's Bid dated *xxxxxx*
Payment and Performance Bonds dated *xxxxxx*
Insurance Certificates dated *xxxxxx*

14.2 INTERPRETATION OF CONTRACT DOCUMENTS

14.2.1 The drawings and specifications are complementary. If Work is shown only on one but not on the other, the Constructor shall perform the Work as though fully described on both, consistent with the Contract Documents and reasonably inferable from them.

14.2.2 In case of conflicts between the drawings and specifications, the specifications shall govern. In any case of omissions or errors in figures, drawings, or specifications, the Constructor shall immediately submit the matter to the Project Architect for clarification. The Project Architect shall confer with the Owner's Representative, and shall issue a clarification to the Constructor. Owner's clarifications are final and binding on all Parties, subject to an equitable adjustment in Contract Time or Contract Price or dispute mitigation and resolution.

14.2.3 Where figures are given, they shall be preferred to scaled dimensions.

14.2.4 Unless otherwise specifically defined in this Agreement, any terms that have well-known technical or trade meanings shall be interpreted in accordance with their well-known meanings.

14.2.5 ORDER OF PRECEDENCE In case of any inconsistency, conflict, or ambiguity among the Contract Documents, the documents shall govern in the following order: (a) Change Orders and written amendments to this Agreement; (b) this Agreement; (c) subject to subsection 14.2.2, the drawings (large scale governing over small scale), specifications, and addenda issued prior to the execution of this Agreement or signed by both Parties; (d) information furnished by the Owner pursuant to subsection 3.13.4 or designated as a Contract Document in section 14.1; (e) other documents listed in this Agreement. Among categories of documents having the same order of precedence, the term or provision that includes the latest date shall control. Information identified in one Contract Document and not identified in another shall not be considered a conflict or inconsistency.

End of Agreement | *Signatures appear on the following page.*

IN WITNESS WHEREOF, OWNER AND CONSTRUCTOR have executed this Agreement with an effective date as first written above.

OWNER: Capital City Development Corporation

BY: _____
John Brunelle, Executive Director

Date: _____

Approved as to Form

_____
Mary Watson, General Counsel | Contracts Manager

CONSTRUCTOR: [insert company name]

BY: _____
[insert name and title]

Date: _____

END OF DOCUMENT

Budget Info / For Office Use	
Fund / District	401
Account	6125
Activity Code	
PO #	
Contract Term	

END OF SECTION 00 52 13

SECTION 00 62 76 APPLICATION FOR PAYMENT FORM

APPLICATION FOR PAYMENT NO. _____

To: Capital City Development Corporation (OWNER)
From: _____
Contract: _____
Project: _____
OWNER's Contract No. _____
PROJECT ARCHITECT's Project No. _____

_____

For Work accomplished through the date of:

1.	Original Contract Price:	$ _____
2.	Net change by Change Orders and Written Amendments (+/-):	$ _____
3.	Current Contract Price (1 plus 2):	$ _____
4.	Total completed and stored to date:	$ _____
5.	Retainage (per Agreement): _____% of completed Work:	$_____
	_____% of stored material:	$_____
	Total Retainage:	$_____
6.	Total completed and stored to date less retainage (4 minus 5):	$_____
7.	Less previous Application for Payments:	$_____
8.	**DUE THIS APPLICATION (6 MINUS 7):**	**$_____**

Accompanying Documentation:

CONTRACTOR'S Certification: The undersigned CONTRACTOR certifies that: 1.) all previous progress payments received from OWNER on account of Work done under the Contract referred to above have been applied on account to discharge CONTRACTOR's legitimate obligations incurred in connection with Work covered by prior Applications for Payment numbered 1 through _____ inclusive; 2.) title of all Work, materials, and equipment incorporated in said Work or otherwise listed in or covered by this Application for Payment will pass to OWNER at time of payment free and clear of all Liens, security interests and encumbrances (except such as are covered by a Bond acceptable to OWNER indemnifying OWNER against any such Lien, security interest or encumbrance); and 3.) all Work covered by this Application for Payment is in accordance with the Contract Documents and not defective.

Dated: _____ _____
CONTRACTOR

Notarized By:
State of _____
County of _____
Subscribed and sworn to before me this _____ day of _____, _____.

_____
Notary Public
My Commission expires: _____

Payment of the above AMOUNT DUE THIS APPLICATION is recommended.

Dated: _____ _____
PROJECT ARCHITECT / OWNER'S PROJECTMANAGER

APPLICATION FOR PAYMENT – INSTRUCTIONS

A. GENERAL INFORMATION

The sample Schedule of Values (next page) is intended as a guide only. Many projects require a more extensive form with space for numerous items, descriptions of Change Orders, identification of variable quantity adjustments, summary of materials and equipment stored at the site and other information. It is expected that a separate form will be developed by Project Architect and Contractor at the time Contractor's Schedule of Values is finalized. Note also that the format for retainage must be changed if the Contract permits (or the law provides), and Contractor elects to deposit securities in lieu of retainage. *See* Division 01 Section 01 10 00 “Applications for Payment” for provisions concerning payments to Contractor.

B. COMPLETING THE FORM

The Schedule of Values, submitted and approved as provided in the General Conditions, should be reproduced as appropriate in the space indicated on the Application for Payment form. Note that the cost of materials and equipment is often listed separately from the cost of installation. Also, note that each Unit Price is deemed to include Contractor's overhead and profit.

All Change Orders affecting the Contract Price should be identified and included in the Schedule of Values as required for progress payments.

The form is suitable for use in the Final Application for Payment as well as for Progress Payments; however, the required accompanying documentation is usually more extensive for final payment. All accompanying documentation should be identified in the space provided on the form.

C. LEGAL REVIEW

All accompanying documentation of a legal nature, such as Lien waivers, should be reviewed by an attorney, and Project Architect should so advise Owner.

END OF SECTION 00 62 76

Project:	**9th & Main Garage - Elevator Modernization Project**						Application No.		1
Contractor:							Application Date		XX/XX/XX
Application for Payment								From	To
Continuation Sheet							Period	XX/XX/XX	XX/XX/XX
A	B	C	D	E	F	G	H	I	J
			Work Completed						
Item No.	Description of Work	Scheduled Value	Previous Application	This Pe…	Materials Presently Stored	Total Completed & Stored	%	Balance to Finish	Retainage to Date
	EXAMPLE ONLY *Contractor to List Based on Scope of Work*								
1	Mobilization, Bond					$0.00	#DIV/0!	$0.00	$0.00
2	Elevator Modernization					$0.00	#DIV/0!	$0.00	$0.00
3	Electrical					$0.00	#DIV/0!	$0.00	$0.00
4	Mechanical					$0.00	#DIV/0!	$0.00	$0.00
5						$0.00	#DIV/0!	$0.00	$0.00
6						$0.00	#DIV/0!	$0.00	$0.00
7						$0.00	#DIV/0!	$0.00	$0.00
	…tal	$0.00	$0.00	$0.00	$0.00	$0.00			$0.00
	Retainage for This Period			$0.00	$0.00				
	Application No.								
	Total Completed & Stored	$0.00							
	Less Retainage for this Period - Work Completed	$0.00							
	Less Retainage for this Period - Materials Presently Stored	$0.00							
	Total Requested for Payment	**$0.00**							

SECTION 00 73 00 SUPPLEMENTARY CONDITIONS

1. FEDERAL, STATE, AND LOCAL PAYROLL TAXES: Neither federal, state or local income taxes, nor payroll taxes of any kind shall be withheld and paid by Owner on behalf of Contractor or the employees of Contractor. Contractor shall not be treated as an employee with respect to the services performed hereunder for federal or state tax purposes. Contractor understands that Contractor is responsible to pay, according to law, Contractor's income tax. Contractor further understands that Contractor may be liable for self-employment (Social Security) tax to be paid by Contractor according to law.

2. LICENSES AND LAW: Contractor represents that it possesses the requisite skill, knowledge, and experience necessary, as well as all licenses required to perform the services under this Agreement. Contractor further agrees to comply with all applicable laws, ordinances, and codes of Federal, State and local governments in the performance of the services hereunder.

3. FRINGE BENEFITS: Because Contractor is engaged in its own independently established business, Contractor is not eligible for, and shall not participate in, any employee pension, health, or other fringe benefit plans of Owner.

4. AMENDMENTS: This Agreement, including the amount of compensation and the Scope of Work, may be amended only in writing, upon mutual agreement of both Owner and Contractor.

5. DISCRIMINATION PROHIBITED: In performing the services required herein, Contractor shall not discriminate against any person on the basis of race, color, religion, sex, sexual orientation, gender identity, national origin or ancestry, age, or handicap. Violation of this section shall constitute a material breach of this Agreement and be deemed grounds for cancellation, termination or suspension of the Agreement by Owner, in whole or in part, and may result in ineligibility for further work for Owner.

6. NUMERATION: Owner and Contractor acknowledge the Agreement may contain gaps in the numbering of the provisions. Despite the gaps in the numbering, Owner and Contractor acknowledge the Agreement is the complete Agreement between them.

7. SILENCE OF SPECIFICATION: The apparent silence of this specification and supplemental specifications as to any detail, or the apparent omission from it of a detailed description concerning any point shall be regarded as meaning that only best commercial practice is to be used. Any exception to this specification shall be cause for rejection. Owner reserves the right to verify specification compliance and other information with published sources as deemed necessary.

8. ACCIDENT PREVENTION: The Contractor shall provide and maintain work environments and procedures which will:

A. Safeguard the public and Government personnel, property, materials, supplies, and equipment exposed to Contractor operations and activities.

B. Comply with all local, County, State, or other applicable legal requirements and will exercise all legally required safety precautions at all times.

C. Ensure that all Contractor employees who are performing work in the streets wear an appropriate safety vest.

D. Avoid interruptions of Government operations and delays in Project completion dates; and will exercise due care during the performance of work to protect from damage all existing facilities, structures, landscaping and utilities on local jurisdiction and private property.

E. For these purposes on contracts for construction or dismantling, demolition, or removal of improvements, the Contractor shall:
   i) Provide appropriate safety barricades, signs, and signal lights;
   ii) Ensure that any additional measures the Owner determines to be reasonably necessary for the purposes are taken.
   iii) Take every reasonable effort to keep sidewalks, vehicle travel lanes, driveways and crosswalks open at all times.
   v) Report to Owner immediately any Contractor caused damages.
   vi) Effect the prompt repair any damage to any public property incurred while installing the required items. Repairs to be completed as quickly as is reasonably possible and as required by local ordinance.

9. EMPLOYMENT OF IDAHO RESIDENTS IN PUBLIC WORKS CONSTRUCTION. Contractor shall comply with Idaho Code § 44-1001 in performing the Work on the Project. **This Code provision is reproduced below for convenience from the State of Idaho website and shall be verified by Contractor.**

> 44-1001. EMPLOYMENT OF RESIDENTS OF IDAHO — WAGE SCALE — FEDERAL FUNDS. In all state, county, municipal, and school construction, repair, and maintenance work under any of the laws of this state the contractor, or person in charge thereof must employ ninety-five percent (95%) bona fide Idaho residents as employees on any such contracts except for procurement authorized in section 67-2808(2), Idaho Code, or where under such contracts fifty (50) or less persons are employed the contractor may employ ten percent (10%) nonresidents, provided however, in such a case employers must give preference to the employment of bona fide Idaho residents in the performance of such work; provided, that in work 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 members of the United States armed forces, including airmen, soldiers, sailors, and marines, prohibiting as unlawful any other preference or discrimination among the citizens of the United States.

END OF SECTION 00 73 00

SECTION 00 73 16 INSURANCE AND BONDING REQUIREMENTS

Insurance

Upon execution of the Contract and prior to commencing any Work under the Contract, Contractor shall obtain at its sole cost and expense and thereafter maintain, for the duration of the Contract, at least the minimum insurance coverages set forth below:

(a) Worker's compensation insurance as required by applicable law or regulation;

(b) Employer's liability insurance in the minimum amount of $100,000 each accident for bodily injury, $100,000 each employee for bodily injury by disease and $500,000 policy limit for bodily injury by disease;

(c) Commercial General Liability ("CGL") insurance covering all operations by or on behalf of Contractor with minimum limits of liability of $1,000,000 for each occurrence and $2,000,000 aggregate for both bodily injury and property damage. Contractor may provide insurance up to the required limits through a CGL policy or through a CGL policy and an umbrella policy.

The aggregate limits shall apply separately to the Project, or the Contractor shall obtain separate insurance to provide the required limit which shall not be subject to depletion because of claims arising out of any other project or activity of the Contractor.

The CGL insurance policy shall name Owner as Additional Insured and shall protect its officers, agents and employees from and against claims for bodily injury, property damage, personal injury and advertising injury that shall be no less comprehensive and no more restrictive than the coverage provided by Insurance Services Office (ISO) form for Commercial General (CG 00 01 04 13).

By its terms or appropriate endorsements such insurance shall include the following coverage, to wit: Bodily Injury, Property Damage, Fire Legal Liability (not less than the replacement value of the portion of the premises occupied), Personal Injury, Blanket Contractual, Independent Contractors, Premises Operations, Products and Completed Operations for a minimum of two (2) years following Final Completion of the Project. The policy cannot be endorsed to exclude the perils of explosion (x), collapse (c) and underground (u) exposures without the specific written approval of the Owner. Owner shall be named as an Additional Insured by the terms of the policy or by an endorsement issued by the insurer; and

(d) Automobile liability insurance including coverage for owned, hired, and non-owned automobiles. The limits of liability shall not be less than $1,000,000 combined single limit each accident for bodily injury and property damage combined. Contractor shall require each of its subcontractors to include in their liability insurance policies coverage for automobile contractual liability. The automobile liability insurance policy shall name Owner as Additional Insured and shall protect its officers, agents and employees from and against claims.

All insurance required in the Contract shall be occurrence based coverage as opposed to claims based coverage and shall be procured from companies which are authorized to do business in Idaho.

To the extent commercially available to the Contractor from its current insurance company, insurance policies required under the Contract shall contain a provision that the insurance company or its designee must give the Owner written notice transmitted in paper or electronic format: (a) 30 Days before coverage is non-renewed by the insurance company and (b) within 10 Business Days after cancelation of coverage by the insurance company. Prior to commencing the Work and upon renewal or replacement of the insurance policies, the Contractor shall furnish the Owner with certificates of insurance until two years after Substantial Completion or longer if required by the Contract. In addition, if any insurance policy required under the Contract is not to be immediately replaced without lapse in coverage when it expires, exhausts its limits, or is to be cancelled, the Contractor shall give Owner prompt written notice upon actual or constructive knowledge of such condition.

Contractor may include all subcontractors as insureds under the Contractor's policies in lieu of separate policies by each subcontractor.

Contractor shall furnish Owner with a copies of the CGL policies or endorsement naming Owner as an Additional Insured and certificates of insurance including the required endorsements for Contractor and all subcontractors not included under Contractor's policy prior to execution of the contract by Owner and prior to any work being performed.

All insurance provided by Contractor under the Contract shall include a waiver of subrogation by the insurers in favor of Owner. Contractor hereby releases CCDC, including its respective affiliates, directors, and employees, for losses or claims for bodily injury, property damage covered by Contractor's insurance or other insured claims arising out of Contractor's performance under the Contract.

The foregoing insurance coverage shall be primary and noncontributing with respect to any other insurance or self-insurance that may be maintained by Owner. The fact that the Contractor has obtained the insurance required shall in no manner lessen or affect the Contractor's other obligations or liabilities set forth in the Contract.

Payment and Performance Bonds

Payment and Performance Bonds are required of the Contractor. Such bonds shall be issued by a surety admitted in the state of Idaho, payable to Owner, and must be acceptable to the Owner to be valid. The Owner's acceptance shall not be withheld without a reasonable cause. The penal sum of the bonds shall each be one hundred percent (100%) of the original Contract Price. Any increase in the GMP that exceeds ten percent (10%) in the aggregate shall require a rider to the Bonds increasing penal sums accordingly. Up to such ten percent (10%) amount, the penal sum of the bond shall remain equal to one hundred percent (100%) of the Contract Price. The Contractor shall endeavor to keep its surety advised of changes potentially impacting the Contract Price and Contract Time, though the Contractor shall require that its surety waives any requirement to be notified of any alteration or extension of time within the scope of the initial Agreement. The performance bond shall include coverage in favor of Owner for correction of Defective Work by the Contractor for two years following Substantial Completion of the Work.

END OF SECTION 00 73 16

SECTION 00 73 73 STATUTORY REQUIREMENTS – TAX COMMISSION

Contractor shall complete the WH-5 PUBLIC WORKS CONTRACT REPORT and provide to Owner at the time of execution of the Contract. See WH-5 report on next page.

Do not file with the State Tax Commission; Owner will file the Report.

Idaho Code sections 54-1904A and 63-3624(g) require all public works contracts to be reported to the Tax Commission within thirty (30) days after a contract is awarded.

END OF SECTION 00 73 73

Idaho State Tax Commission

WH-5 Public Works Contract Report

Ref. No. (State use only)

Idaho Code sections 54-1904A and 63-3624(g) require all public works contracts to be reported to the Tax Commission. This form must be filed with the Tax Commission within 30 days after a contract is awarded.

Contract awarded by (public body and address)

Contract awarded to (contractor's name and address)

State of incorporation	Federal Employer Identification Number (EIN)	Date qualifed to do business in Idaho
Business operates as ☐ Sole proprietorship ☐ Partnership ☐ Corporation ☐ LLC		Public Works contractor license number
Sole proprietor's Social Security number	Idaho sales/use tax permit number	Idaho withholding tax permit number
Awarding agency project number		Amount of contract $

Description and location of work to be performed

PROJECT DATES

Scheduled project start date: ______________________ Completion date: ___________________________

If the following information is not available at this time, please indicate date it will be: ___________________________

ALL SUBCONTRACTORS

Name		Federal EIN
Address		Public works contractor number
City, State, ZIP	☐ LLC ☐ Corporation ☐ Sole proprietorship ☐ Partnership	Amount of subcontract $
Description of work		

Name		Federal EIN
Address		Public works contractor number
City, State, ZIP	☐ LLC ☐ Corporation ☐ Sole proprietorship ☐ Partnership	Amount of subcontract $
Description of work		

Name		Federal EIN
Address		Public works contractor number
City, State, ZIP	☐ LLC ☐ Corporation ☐ Sole proprietorship ☐ Partnership	Amount of subcontract $
Description of work		

Name		Federal EIN
Address		Public works contractor number
City, State, ZIP	☐ LLC ☐ Corporation ☐ Sole proprietorship ☐ Partnership	Amount of subcontract $
Description of work		

ALL SUBCONTRACTORS (CONTINUED)

Name			Federal EIN
Address			Public works contractor number
City, State, ZIP	☐ LLC ☐ Sole proprietorship	☐ Corporation ☐ Partnership	Amount of subcontract $
Description of work			

Name			Federal EIN
Address			Public works contractor number
City, State, ZIP	☐ LLC ☐ Sole proprietorship	☐ Corporation ☐ Partnership	Amount of subcontract $
Description of work			

Name			Federal EIN
Address			Public works contractor number
City, State, ZIP	☐ LLC ☐ Sole proprietorship	☐ Corporation ☐ Partnership	Amount of subcontract $
Description of work			

SUPPLIERS

Use the space below to report major suppliers of materials and supplies; items removed from inventory; equipment purchased, rented, or leased for use in project; materials provided by government agency. Please indicate how sales or use tax was paid.

Name		Federal EIN	Total value $
Address		Materials and equipment purchased and used	
City, State, ZIP	Phone	☐ Tax paid to supplier ☐ Tax paid to state*	☐ No tax paid

Name		Federal EIN	Total value $
Address		Materials and equipment purchased and used	
City, State, ZIP	Phone	☐ Tax paid to supplier ☐ Tax paid to state*	☐ No tax paid

Name		Federal EIN	Total value $
Address		Materials and equipment purchased and used	
City, State, ZIP	Phone	☐ Tax paid to supplier ☐ Tax paid to state*	☐ No tax paid

Name		Federal EIN	Total value $
Address		Materials and equipment purchased and used	
City, State, ZIP	Phone	☐ Tax paid to supplier ☐ Tax paid to state*	☐ No tax paid

* If tax was not paid to suppliers but **was** or **will be** reported as "items subject to use tax" under your permit number, indicate period of return on which payment **was** or **will be** reported: ________________________________

If tax was paid to a state **other** than Idaho, name state next to "total value" box(es) above. If tax is due and has **not previously been reported**, attach payment to this form. **If you need more room, please photocopy this page.**

SIGN HERE	Authorized signature	Print name	Phone number	Date

File with the Idaho State Tax Commission, PO Box 36, Boise ID 83722-2210.

For more information, call (208) 334-7618 • Fax: (208) 332-6619 • E-mail: Contractdesk@tax.idaho.gov.

SECTION 011000 - SUMMARY

GENERAL

1.1 SUMMARY

A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Phased construction.
4. Work under separate contracts.
5. Access to site.
6. Coordination with occupants.
7. Work restrictions.
8. Specification and Drawing conventions.

B. Related Requirements:

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

1.2 PROJECT INFORMATION

A. Project Identification: 9th and Main Parking Garage – Elevator Refurbishment Project.

1. Project Location: **848 W. Main Street; Boise, Idaho 83702**.

B. Owner: Capital City Development Corporation (CCDC).

1. Contact: Matt Edmond, medmond@ccdcboise.com, 208-319-1221

C. Architect: Hummel Architect, 2785 N. Bogus Basin Road; Boise, Idaho 83702

1. Contact: Brian Coleman, bcoleman@hummelarch.com, 208-343-7523

D. Parking Operator: ParkBOI

1. Contact: David Deignan, General Manager, ddeignan@thecarpark.com, 208-368-7944

1.3 WORK COVERED BY CONTRACT DOCUMENTS

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

1. Modernization of two existing hydraulic elevators and other Work indicated in the Contract Documents.
2. Project will be constructed under a single prime contract.

1.4 ACCESS TO SITE

A. General: Contractor shall have limited use of Project site for construction operations as indicated on Drawings by the Contract limits and as indicated by requirements of this Section.

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

1. Driveways, Walkways, and Entrances: Keep driveway, parking garage, 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 for storage of materials.

C. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations.

1.5 COORDINATION WITH OCCUPANTS

A. Partial Owner Occupancy: Owner will occupy the premises during entire construction period, with the exception of areas under construction. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's operations. Maintain existing exits unless otherwise indicated.

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

C. Limits: Confine construction operations to Work Areas as shown on Drawings.

D. Driveways, Entrances and Adjacent Sidewalks: Keep Garage driveways, entrances and adjacent sidewalks serving premises clear and available to access at all times. Do not use these areas for parking or storage of materials.

E. Schedule deliveries to minimize use of driveways and entrances by construction operations.

F. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

G. Storage outside Work Area: May be permitted on Level 5 (roof level) of the garage by cordoning off 1-2 parking stalls or other available floor area in coordination with and approval by the Parking Operator. Storage area shall not interfere with Owner’s operations. Limits of storage area shall be marked by fencing, barricades or similar method. Contractor accepts responsibility for the security of any materials or equipment kept in Contractor’s storage areas as part of Contract.

1.6 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. Date ranges the elevators **cannot** be down for schedule work:

1. June 3, 2020 through August 26, 2020: Alive after Five and Father’s Day Car Show
2. November 26, 2020 through January 3, 2021: Holiday shopping, New Years and Potato Bowl.

C. On-Site Work Hours: Any hours are acceptable unless otherwise indicated.

D. 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 Owner not less than two (2) days in advance of proposed utility interruptions.
2. Obtain Owner's written permission before proceeding with utility interruptions.

E. Restricted Substances: Use of tobacco products and other controlled substances within the existing building is not permitted.

1.7 SPECIFICATION AND DRAWING CONVENTIONS

A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.

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

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011000

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SECTION 012500 - SUBSTITUTION PROCEDURES

GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for substitutions.

B. Related Requirements:

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

1.2 DEFINITIONS

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

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

1.3 ACTION SUBMITTALS

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

1. Documentation: Show compliance with requirements for substitutions and the following, as applicable:

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

j. Detailed comparison of Contractor's construction schedule using proposed substitutions with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
k. Cost information, including a proposal of change, if any, in the Contract Sum.
l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents, except as indicated in substitution request, is compatible with related materials and is appropriate for applications indicated.
m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.

a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.4 QUALITY ASSURANCE

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

1.5 PROCEDURES

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

1.6 SUBSTITUTIONS

A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
b. Substitution request is fully documented and properly submitted.
c. Requested substitution will not adversely affect Contractor's construction schedule.
d. Requested substitution has received necessary approvals of authorities having jurisdiction.
e. Requested substitution is compatible with other portions of the Work.
f. Requested substitution has been coordinated with other portions of the Work.
g. Requested substitution provides specified warranty.
h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

B. Substitutions for Convenience: Architect will consider requests for substitution if received within 30 days after the Notice to Proceed. Requests received after that time may be considered or rejected at discretion of Architect.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
b. Requested substitution does not require extensive revisions to the Contract Documents.
c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
d. Substitution request is fully documented and properly submitted.
e. Requested substitution will not adversely affect Contractor's construction schedule.
f. Requested substitution has received necessary approvals of authorities having jurisdiction.
g. Requested substitution is compatible with other portions of the Work.
h. Requested substitution has been coordinated with other portions of the Work.
i. Requested substitution provides specified warranty.
j. 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.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012500

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SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

GENERAL

1.1 SUMMARY

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

1.2 MINOR CHANGES IN THE WORK (ASI)

A. Architect will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710.

1.3 PROPOSAL REQUESTS (PR)

A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.

1. Work Change Proposal Requests issued by Architect are not instructions either to stop work in progress or to execute the proposed change.
2. Within time specified in Proposal Request or 7 days, when not otherwise specified, after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.

    a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
    b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
    c. Include costs of labor and supervision directly attributable to the change.
    d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Architect.

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include costs of labor and supervision directly attributable to the change.
5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
6. Comply with requirements in Section 012500 "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.

1.4 CHANGE ORDER PROCEDURES

A. On Owner's approval of a Work Change Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on AIA Document G701.

1.5 CONSTRUCTION CHANGE DIRECTIVE (CCD)

A. Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.

1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012600

SECTION 012900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.

1.2 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule.

1. Coordinate line items in the schedule of values with items required to be indicated as separate activities in Contractor's construction schedule.
2. Submit the schedule of values to Architect at earliest possible date, but no later than seven (7) days before the date scheduled for submittal of initial Applications for Payment.

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. Use a Schedule of Values similar to the sample (associated Application for Payment Form) or use an alternate form acceptable to the Project Architect; Follow the format and submit complete information as indicated in the sample.
2. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Provide multiple line items for principal subcontract amounts in excess of five (5) percent of the Contract Sum.
3. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.

    a. Differentiate between items stored on-site and items stored off-site.

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 (5) percent of the Contract Sum and subcontract amount.
8. Schedule of Values Revisions: Revise the schedule of values when Change Orders or Construction Change Directives result in a change in the Contract Sum. Include at least one separate line item for each Change Order and Construction Change Directive.

1.3 APPLICATIONS FOR PAYMENT

A. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.

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 Application for Payment is the period indicated in the Agreement.

C. Payment Application Times: Submit Application for Payment to Architect by the 5th business days of the month. The period covered by each Application for Payment is one month, ending on the previous month**.**

1. Submit draft copy of Application for Payment seven (7) days prior to due date for review by Architect.

D. Application for Payment Forms: Use Application for Payment form provided or an equivalent form acceptable to the Project Architects.

E. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.

1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.

F. Transmittal: Submit three (3) signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.

1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.

G. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from [entities lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment] [subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application].

1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
2. When an application shows completion of an item, submit conditional final or full waivers.
3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
4. Submit final Application for Payment with or preceded by conditional final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
5. Waiver Forms: Submit executed waivers of lien on forms acceptable to Owner.

H. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:

1. List of subcontractors.
2. Schedule of values.
3. Contractor's construction schedule (preliminary if not final).
4. Products list (preliminary if not final).
5. Sustainable design action plans, including preliminary project materials cost data.
6. Schedule of unit prices.

7. Submittal schedule (preliminary if not final).
8. List of Contractor's staff assignments.
9. List of Contractor's principal consultants.
10. Copies of building permits.
11. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
12. Initial progress report.
13. Report of preconstruction conference.
14. Certificates of insurance and insurance policies.
15. Performance and payment bonds.
16. Data needed to acquire Owner's insurance.

I. Application for Payment at Substantial Completion: After Architect issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.

1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
2. Administrative actions and submittals that shall precede or coincide with this application include:
   a. Occupancy permits and similar approvals.
   b. Warranties (guarantees) and maintenance agreements.
   c. Test/adjust/balance records.
   d. Maintenance instructions.
   e. Changeover information related to Owner’s occupancy, use, operation, and maintenance.
   f. Final cleaning.
   g. Application for reduction of retainage and consent of surety.
   h. List of incomplete Work, recognized as exceptions to Project Architect Certificate of Substantial Completion.

J. Final Payment Application: Administrative actions and submissions that must precede or coincide with submittal of the final Application for Payment include the followings:

1. Completion of Project closeout requirements.
2. Completion of items specified for completion after Substantial Completion.
3. Transmittal of required Project construction records to the Owner.
4. Insurance certificates for products and completed operations where required.
5. Proof that taxes, fees, and similar obligations were paid.
6. Removal of temporary facilities and services.
7. Removal of surplus materials, rubbish, and similar elements.
8. Updated final statement, accounting for final changes to the Contract Sum.
9. Tax Release from the Idaho State Tax Commission.
10. AIA Document G706, “Contractor’s Affidavit of Payment of Debts and Claims”.
11. Evidence that claims have been settled, if applicable.
12. Final Liquidated damages settlement statement, if applicable.

I. Contractor shall execute an Acknowledge of Final Payment Form provided to Contractor by Owner in Exchange for the Final Payment.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012900

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SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:

1. General coordination procedures.
2. Coordination drawings.
3. RFIs.
4. Digital project management procedures.
5. Project meetings.
6. Project Phasing.

B. Related Requirements:

1. Section 017300 "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.

1.3 DEFINITIONS

A. BIM: Building Information Modeling.

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

1.4 INFORMATIONAL SUBMITTALS

A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:

1. Name, address, telephone number, and email address of entity performing subcontract or supplying products.
2. Number and title of related Specification Section(s) covered by subcontract.
3. Drawing number and detail references, as appropriate, covered by subcontract.

1.5 GENERAL COORDINATION PROCEDURES

A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations included in different Sections that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
3. Make adequate provisions to accommodate items scheduled for later installation.

B. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of Contractor's construction schedule.
2. Preparation of the schedule of values.
3. Installation and removal of temporary facilities and controls.
4. Delivery and processing of submittals.
5. Progress meetings.
6. Preinstallation conferences.
7. Project closeout activities.
8. Startup and adjustment of systems.

1.6 COORDINATION DRAWINGS

A. Coordination Drawings, General: Prepare coordination drawings according to requirements in individual Sections, and additionally where installation is not completely indicated on Shop Drawings, where limited space availability necessitates coordination, or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity.

1. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable:

a. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
b. 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 Architect 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 architectural and structural elements, and mechanical, plumbing, fire-protection, fire-alarm, and electrical Work. Show locations of visible ceiling-mounted devices relative to acoustical ceiling grid. Supplement plan drawings with section drawings where required to adequately represent the Work.
2. Plenum Space: Indicate sub-framing for support of ceiling and wall systems, mechanical and electrical equipment, and related Work. Locate components within plenums to accommodate layout of light fixtures and other components indicated on Drawings. Indicate areas of conflict between light fixtures and other components.
3. Mechanical Rooms: Provide coordination drawings for mechanical rooms showing plans and elevations of mechanical, plumbing, fire-protection, fire-alarm, and electrical equipment.
4. Structural Penetrations: Indicate penetrations and openings required for all disciplines.
5. Slab Edge and Embedded Items: Indicate slab edge locations and sizes and locations of embedded items for metal fabrications, sleeves, anchor bolts, bearing plates, angles, door floor closers, slab depressions for floor finishes, curbs and housekeeping pads, and similar items.

6. Review: Architect 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.

1.7 REQUEST FOR INFORMATION (RFI)

A. General: Immediately on discovery of the need for additional information, clarification, or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.

1. Architect will return without response those RFIs submitted to Architect by other entities controlled by Contractor.
2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:

1. Project name.
2. Project number.
3. Date.
4. Name of Contractor.
5. Name of Architect.
6. RFI number, numbered sequentially.
7. RFI subject.
8. Specification Section number and title and related paragraphs, as appropriate.
9. Drawing number and detail references, as appropriate.
10. Field dimensions and conditions, as appropriate.
11. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
12. Contractor's signature.
13. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.

C. RFI Forms: Software-generated form with substantially the same content as indicated above, acceptable to Architect.

D. Architect's Action: Architect will review each RFI, determine action required, and respond. Allow seven (7) working days for Architect's response for each RFI. RFIs received by Architect 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 Architect's actions on submittals.
g. Incomplete RFIs or inaccurately prepared RFIs.

2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt by Architect of additional information.
3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Section 012600 "Contract Modification Procedures."

a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within ten (10) days of receipt of the RFI response.

E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log Monthly. Include the following:

1. Project name.
2. Name and address of Contractor.
3. Name and address of Architect.
4. RFI number including RFIs that were returned without action or withdrawn.
5. RFI description.
6. Date the RFI was submitted.
7. Date Architect's response was received.

F. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within seven (7) days if Contractor disagrees with response.

1.8 DIGITAL PROJECT MANAGEMENT PROCEDURES

A. Architect's Data Files Not Available: Architect will not provide Architect's BIM model or CAD drawing digital data files for Contractor's use during construction.

B. PDF Document Preparation: Where PDFs are required to be submitted to Architect, prepare as follows:

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

1.9 PROJECT MEETINGS

A. General: Construction Manager will schedule and conduct meetings and conferences at Project site unless otherwise indicated.

B. Preconstruction Conference: Construction Manager will schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than **7** days after execution of the Agreement.

1. Attendees: Authorized representatives of Owner, Construction Manager, Architect, 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: Discuss items of significance that could affect progress, including the following:

a. Responsibilities and personnel assignments.
b. Tentative construction schedule.
c. Phasing.
d. Critical work sequencing and long lead items.
e. Designation of key personnel and their duties.
f. Lines of communications.
g. Use of web-based Project software.

h. Procedures for processing field decisions and Change Orders.
i. Procedures for RFIs.
j. Procedures for testing and inspecting.
k. Procedures for processing Applications for Payment.
l. Distribution of the Contract Documents.
m. Submittal procedures.
n. Preparation of Record Documents.
o. Use of the premises and existing building.
p. Work restrictions.
q. Working hours.
r. Owner's occupancy requirements.
s. Responsibility for temporary facilities and controls.
t. Procedures for moisture and mold control.
u. Procedures for disruptions and shutdowns.
v. Construction waste management and recycling.
w. Parking availability.
x. Office, work, and storage areas.
y. Equipment deliveries and priorities.
z. First aid.
aa. Security.
bb. Progress cleaning.

3. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.
4. Attendees: Authorized representatives of Owner, Construction Manager, Architect, and their consultants; Contractor and its superintendent and sustainable design coordinator; 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.
5. Agenda: Discuss items of significance that could affect meeting sustainable design requirements, including the following:

a. General requirements for sustainable design-related procurement and documentation.
b. Project closeout requirements and sustainable design certification procedures.
c. Role of sustainable design coordinator.
d. Construction waste management.
e. Construction operations and sustainable design requirements and restrictions.

6. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.

C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity when required by other sections and when required for coordination with other construction.

1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect, Construction Manager of scheduled meeting dates.
2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:

a. Contract Documents.
b. Options.
c. Related RFIs.
d. Related Change Orders.
e. Purchases.
f. Deliveries.

g. Submittals.
h. Sustainable design requirements.
i. Review of mockups.
j. Possible conflicts.
k. Compatibility requirements.
l. Time schedules.
m. Weather limitations.
n. Manufacturer's written instructions.
o. Warranty requirements.
p. Compatibility of materials.
q. Acceptability of substrates.
r. Temporary facilities and controls.
s. Space and access limitations.
t. Regulations of authorities having jurisdiction.
u. Testing and inspecting requirements.
v. Installation procedures.
w. Coordination with other work.
x. Required performance results.
y. Protection of adjacent work.
z. Protection of construction and personnel.

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

D. Progress Meetings: Conduct progress meetings at weekly intervals.

1. Coordinate dates of meetings with preparation of payment requests.
2. Attendees: In addition to representatives of Owner**,** and Architect, 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) Construction phasing.
4) Resolution of BIM component conflicts.

5) Status of submittals.
6) Deliveries.
7) Off-site fabrication.
8) Access.
9) Site use.
10) Temporary facilities and controls.
11) Progress cleaning.
12) Quality and work standards.
13) Status of correction of deficient items.
14) Field observations.
15) Status of RFIs.
16) Status of Proposal Requests.
17) Pending changes.
18) Status of Change Orders.
19) Pending claims and disputes.
20) Documentation of information for payment requests.

4. Minutes: Entity 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.

1.10 PROJECT PHASING

A. Preparation of project phasing plan: Prepare a plan showing the proposed locations and sequencing of work areas and construction zones (“Phasing Plan”). The Phasing plan shall explain how the contractor proposes to:

1. Sequence of construction activities so that one elevator is always operational.
2. Each elevator will be broken into an individual phase.

B. Submittal of Project Phasing Plan: Contractor shall submit a proposed phasing plan at the pre-construction meeting for review and approval by the architect and owner.

1. Architect and owner shall have the right to review and comment on the phasing plan and to work cooperatively with the contractor to arrive at a phasing plan that is mutually acceptable to owner and contractor prior to commencement of construction.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100

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SECTION 013200 - CONSTRUCTION PROGRESS DOCUMENTATION

GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:

1. Contractor's Construction Schedule.
2. Construction schedule updating reports.
3. Daily construction reports.
4. Site condition reports.

1.2 DEFINITIONS

A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction Project. Activities included in a construction schedule consume time and resources.

1. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
2. Predecessor Activity: An activity that precedes another activity in the network.
3. Successor Activity: An activity that follows another activity in the network.

B. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.

C. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.

D. Event: The starting or ending point of an activity.

E. Float: The measure of leeway in starting and completing an activity.

1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.
2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.

1.3 INFORMATIONAL SUBMITTALS

A. Format for Submittals: Submit required submittals in the following format:

1. Working electronic copy of schedule file, where indicated.
2. PDF file.

B. Startup Network Diagram: Of size required to display entire network for entire construction period. Show logic ties for activities.

C. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.

1. Submit a working digital copy of schedule, using software indicated, and labeled to comply with requirements for submittals.

D. CPM Reports: Concurrent with CPM schedule, submit each of the following reports. Format for each activity in reports shall contain activity number, activity description, original duration, remaining duration, early start date, early finish date, late start date, late finish date, and total float in calendar days.

1. Activity Report: List of activities sorted by activity number and then early start date, or actual start date if known.
2. Logic Report: List of preceding and succeeding activities for each activity, sorted in ascending order by activity number and then by early start date, or actual start date if known.
3. Total Float Report: List of activities sorted in ascending order of total float.

E. Construction Schedule Updating Reports: Submit with Applications for Payment.

F. Daily Construction Reports: Submit at weekly intervals.

G. Site Condition Reports: Submit at time of discovery of differing conditions.

1.4 COORDINATION

A. Coordinate Contractor's Construction Schedule with the schedule of values, list of subcontracts, submittal schedule, progress reports, payment requests, and other required schedules and reports.

1. Secure time commitments for performing critical elements of the Work from entities involved.
2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

1.5 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

A. Computer Scheduling Software: Prepare schedules using current version of a program that has been developed specifically to manage construction schedules.

B. Time Frame: Extend schedule from date established for commencement of the Work to date of final completion.

1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

C. Activities: Treat each floor or separate area as a separate numbered activity for each main element of the Work. Comply with the following:

1. Activity Duration: Define activities so no activity is longer than 20 days, unless specifically allowed by Architect.
2. Procurement Activities: Include procurement process activities for the following long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
3. Submittal Review Time: Include review and resubmittal times indicated in Section 013300 "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with submittal schedule.

4. Startup and Testing Time: Include no fewer than **15** days for startup and testing.
5. Commissioning Time: Include no fewer than **15** days for commissioning.
6. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.
7. Punch List and Final Completion: Include not more than **21** days for completion of punch list items and final completion.

D. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.

1. Phasing: Arrange list of activities on schedule by phase.
2. Owner-Furnished Products: Include a separate activity for each product. Include delivery date indicated in Section 011000 "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
3. Work Restrictions: Show the effect of the following items on the schedule:

    a. Coordination with existing construction.
    b. Limitations of continued occupancies.
    c. Uninterruptible services.
    d. Partial occupancy before Substantial Completion.
    e. Use-of-premises restrictions.
    f. Provisions for future construction.
    g. Seasonal variations.
    h. Environmental control.

E. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and final completion.

F. Upcoming Work Summary: Prepare summary report indicating activities scheduled to occur or commence prior to submittal of next schedule update. Summarize the following issues:

1. Unresolved issues.
2. Unanswered Requests for Information.
3. Rejected or unreturned submittals.
4. Notations on returned submittals.
5. Pending modifications affecting the Work and the Contract Time.

G. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.

1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
3. As the Work progresses, indicate final completion percentage for each activity.

H. Recovery Schedule: When periodic update indicates the Work is **14** or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, equipment required to achieve compliance, and date by which recovery will be accomplished.

I. Distribution: Distribute copies of approved schedule to Architect, Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.

1. Post copies in Project meeting rooms and temporary field offices.
2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

1.6 GANTT-CHART SCHEDULE REQUIREMENTS

A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal, Gantt-chart-type, Contractor's Construction Schedule within **30** days of date established for commencement of the Work.

B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.

1. For construction activities that require three months or longer to complete, indicate an estimated completion percentage in **10** percent increments within time bar.

1.7 CPM SCHEDULE REQUIREMENTS

A. General: Prepare network diagrams using AON (activity-on-node) format.

B. Startup Network Diagram: Submit diagram within **14** days of date established for commencement of the Work. Outline significant construction activities for the first **90** days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.

C. CPM Schedule: Prepare Contractor's Construction Schedule using a time-scaled CPM network analysis diagram for the Work.

1. Develop network diagram in sufficient time to submit CPM schedule so it can be accepted for use no later than **60** days after date established for commencement of the Work.

a. Failure to include any work item required for performance of this Contract shall not excuse Contractor from completing all work within applicable completion dates.

2. Conduct educational workshops to train and inform key Project personnel, including subcontractors' personnel, in proper methods of providing data and using CPM schedule information.
3. Establish procedures for monitoring and updating CPM schedule and for reporting progress. Coordinate procedures with progress meeting and payment request dates.
4. Use "one workday" as the unit of time for individual activities. Indicate nonworking days and holidays incorporated into the schedule to coordinate with the Contract Time.

D. CPM Schedule Preparation: Prepare a list of all activities required to complete the Work. Using the startup network diagram, prepare a skeleton network to identify probable critical paths.

1. Activities: Indicate the estimated time duration, sequence requirements, and relationship of each activity in relation to other activities. Include estimated time frames for the following activities:

a. Preparation and processing of submittals.

b. Mobilization and demobilization.
c. Purchase of materials.
d. Delivery.
e. Fabrication.
f. Utility interruptions.
g. Installation.
h. Work by Owner that may affect or be affected by Contractor's activities.
i. Testing and inspection.
j. Commissioning.
k. Punch list and final completion.
l. Activities occurring following final completion.

2. Critical Path Activities: Identify critical path activities, including those for interim completion dates. Scheduled start and completion dates shall be consistent with Contract milestone dates.
3. Processing: Process data to produce output data on a computer-drawn, time-scaled network. Revise data, reorganize activity sequences, and reproduce as often as necessary to produce the CPM schedule within the limitations of the Contract Time.
4. Format: Mark the critical path. Locate the critical path near center of network; locate paths with most float near the edges.

a. Subnetworks on separate sheets are permissible for activities clearly off the critical path.

E. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using a network fragment to demonstrate the effect of the proposed change on the overall Project schedule.

F. Initial Issue of Schedule: Prepare initial network diagram from a sorted activity list indicating straight "early start-total float." Identify critical activities. Prepare tabulated reports showing the following:

1. Contractor or subcontractor and the Work or activity.
2. Description of activity.
3. Main events of activity.
4. Immediate preceding and succeeding activities.
5. Early and late start dates.
6. Early and late finish dates.
7. Activity duration in workdays.
8. Total float or slack time.
9. Average size of workforce.
10. Dollar value of activity (coordinated with the schedule of values).

G. Schedule Updating: Concurrent with making revisions to schedule, prepare tabulated reports showing the following:

1. Identification of activities that have changed.
2. Changes in early and late start dates.
3. Changes in early and late finish dates.
4. Changes in activity durations in workdays.
5. Changes in the critical path.
6. Changes in total float or slack time.
7. Changes in the Contract Time.

H. Value Summaries: Prepare two cumulative value lists, sorted by finish dates.

1. In first list, tabulate activity number, early finish date, dollar value, and cumulative dollar value.
2. In second list, tabulate activity number, late finish date, dollar value, and cumulative dollar value.

3. In subsequent issues of both lists, substitute actual finish dates for activities completed as of list date.
4. Prepare list for ease of comparison with payment requests; coordinate timing with progress meetings.

    a. In both value summary lists, tabulate "actual percent complete" and "cumulative value completed" with total at bottom.
    b. Submit value summary printouts one week before each regularly scheduled progress meeting.

1.8 REPORTS

A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:

1. List of subcontractors at Project site.
2. List of separate contractors at Project site.
3. Approximate count of personnel at Project site.
4. Equipment at Project site.
5. Material deliveries.
6. High and low temperatures and general weather conditions, including presence of rain or snow.
7. Testing and inspection.
8. Accidents.
9. Meetings and significant decisions.
10. Stoppages, delays, shortages, and losses.
11. Meter readings and similar recordings.
12. Emergency procedures.
13. Orders and requests of authorities having jurisdiction.
14. Change Orders received and implemented.
15. Construction Change Directives received and implemented.
16. Services connected and disconnected.
17. Equipment or system tests and startups.
18. Partial completions and occupancies.
19. Substantial Completions authorized.

B. Site Condition Reports: Immediately on discovery of a difference between site conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013200

SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

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

B. Related Requirements:

1. Section 017823 "Operation and Maintenance Data" for submitting operation and maintenance manuals.
2. Section 017900 "Demonstration and Training" for submitting video recordings of demonstration of equipment and training of Owner's personnel.

1.3 DEFINITIONS

A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action.

B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements.

1.4 ACTION SUBMITTALS

A. Submittal Scheduling: Comply with Contractor’s Submittal Schedule, 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 Architect and additional time for handling and reviewing submittals required by those corrections.

1.5 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

A. Architect's Digital Data Files: Electronic copies of digital data files of the Contract Drawings will be provided by Architect for Contractor's use in preparing submittals.

1. Architect will furnish Contractor one set of digital data drawing files of the Contract Drawings for use in preparing Shop Drawings.

a. Architect makes no representations as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.

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. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.

    a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

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

1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
3. Resubmittal Review: Allow 15 days for review of each resubmittal.

D. Paper Submittals: Place a permanent label or title block on each submittal item for identification.

1. Indicate name of firm or entity that prepared each submittal on label or title block.
2. Provide a space approximately 6 by 8 inches on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
3. Include the following information for processing and recording action taken:

    a. Project name.
    b. Date.
    c. Name of Architect.
    d. Name of Construction Manager.
    e. Name of Contractor.
    f. Name of subcontractor.
    g. Name of supplier.
    h. Name of manufacturer.
    i. Submittal number or other unique identifier, including revision identifier.

        1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 061000.01.A).

    j. Number and title of appropriate Specification Section.
    k. Drawing number and detail references, as appropriate.
    l. Location(s) where product is to be installed, as appropriate.
    m. Other necessary identification.

4. Additional Paper Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.

    a. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Architect.

5. Transmittal for Paper Submittals: Assemble each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will discard submittals received from sources other than Contractor.

    a. Transmittal Form for Paper Submittals: Use AIA Document G810 or CSI Form 12.1A.

b. Transmittal Form for Paper Submittals: Provide locations on form for the following information:

1) Project name.
2) Date.
3) Destination (To:).
4) Source (From:).
5) Name and address of Architect.
6) Name of Construction Manager.
7) Name of Contractor.
8) Name of firm or entity that prepared submittal.
9) Names of subcontractor, manufacturer, and supplier.
10) Category and type of submittal.
11) Submittal purpose and description.
12) Specification Section number and title.
13) Specification paragraph number or drawing designation and generic name for each of multiple items.
14) Drawing number and detail references, as appropriate.
15) Indication of full or partial submittal.
16) Transmittal number, numbered consecutively.
17) Submittal and transmittal distribution record.
18) Remarks.
19) Signature of transmitter.

E. Electronic Submittals:

1. Where necessary, hard copy submittals can be submitted, although final documentation is required to be posted electronically for a project archive. See Section 013100 Project Management and Coordination.

F. Options: Identify options requiring selection by Architect.

G. Deviations: Identify deviations from the Contract Documents on submittals.

H. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.

1. Note date and content of previous submittal.
2. Note date and content of revision in label or title block and clearly indicate extent of revision.
3. Resubmit submittals until they are marked with approval notation from Architect's action stamp.

I. 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.

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

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

A. General Submittal Procedure Requirements:

1. Contractor, after review, will email electronic submittals as PDF electronic files, via email, to Architect's Project Manager.

a. Architect will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.

2. Action Submittals: Submit three paper copies of each submittal unless otherwise indicated. Architect will return two copies.
3. Informational Submittals: Submit two paper copies of each submittal unless otherwise indicated. Architect will not return copies.
4. Certificates and Certifications Submittals: Provide 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.

   a. Provide a digital signature with digital certificate on electronically-submitted certificates and certifications where indicated.
   b. Provide a notarized statement on original paper copy certificates and certifications where indicated.

B. 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 not suitable 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 showing 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 or concurrent with Samples.
6. Submit Product Data in the following format:

   a. PDF electronic file or three paper copies of Product Data unless otherwise indicated. Architect will return two copies.

C. 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, unless submittal based on Architect's digital data drawing files is otherwise permitted.

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.

2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches, but no larger than 30 by 42 inches.
3. Submit Shop Drawings in the following format:

a. PDF electronic file or three opaque copies of each submittal. Architect will retain two copies; remainder will be returned.

D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.

1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
2. Identification: Attach label on unexposed side of Samples that includes the following:

a. Generic description of Sample.
b. Product name and name of manufacturer.
c. Sample source.
d. Number and title of applicable Specification Section.

3. For projects where electronic submittals are required, provide corresponding electronic submittal of Sample transmittal, digital image file illustrating Sample characteristics, and identification information for record.
4. 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.

5. 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 one full set of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.

6. 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 sets of Samples. Architect will retain one Sample set; remainder will be returned. Mark up and retain one returned Sample set as a project record sample.

1) 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.

E. 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:

1. Submit product schedule in the following format:

a. PDF electronic file or three paper copies of product schedule or list unless otherwise indicated. Architect will return two copies.

F. Coordination Drawings Submittals: Comply with requirements specified in Section 013100 "Project Management and Coordination."

G. Application for Payment and Schedule of Values: Comply with requirements specified in Section 012900 "Payment Procedures.

H. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Section 017700 "Closeout Procedures."

I. Maintenance Data: Comply with requirements specified in Section 017823 "Operation and Maintenance Data."

J. 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 architects and owners, and other information specified.

K. 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.

L. 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.

M. 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.

N. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

O. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

P. 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.

Q. 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.

R. 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.

S. Schedule of Tests and Inspections: Comply with requirements specified in Section 014000 "Quality Requirements."

T. 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.

U. 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.

V. 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.

W. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

2.2 DELEGATED-DESIGN SERVICES

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.

B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF electronic file and three paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.

1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

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

B. Project Closeout and Maintenance Material Submittals: See requirements in Section 017700 "Closeout Procedures."

C. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of

Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT'S ACTION

A. General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.

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

C. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.

D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.

E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

END OF SECTION 013300

SECTION 014000 - QUALITY REQUIREMENTS

GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspection 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. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and quality-control procedures that facilitate compliance with the Contract Document requirements.
2. Requirements for Contractor to provide quality-assurance and quality-control services required by Architect, Owner or authorities having jurisdiction are not limited by provisions of this Section.

1.2 DEFINITIONS

A. Experienced: When used with an entity or individual, "experienced" unless otherwise further described means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

B. Field Quality-Control Tests: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

C. 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, assembly, 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).

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

E. 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.

F. Product Tests: Tests and inspections that are performed by a nationally recognized testing laboratory (NRTL) according to 29 CFR 1910.7, by a testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program (NVLAP), or by a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.

G. Source Quality-Control Tests: Tests and inspections that are performed at the source; for example, plant, mill, factory, or shop.

H. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

I. 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.

J. 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. Contractor's quality-control services do not include contract administration activities performed by Architect.

1.3 DELEGATED-DESIGN SERVICES

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1.4 CONFLICTING REQUIREMENTS

A. Conflicting Standards and Other Requirements: If compliance with two or more standards or requirements are specified and the standards or requirements establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Architect for direction 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 Architect for a decision before proceeding.

1.5 ACTION SUBMITTALS

A. Delegated-Design Services Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit a statement signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional, indicating that the products and systems are in compliance with performance and design criteria indicated. Include list of codes, loads, and other factors used in performing these services.

1.6 INFORMATIONAL SUBMITTALS

A. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility submitted to authorities having jurisdiction before starting work on the following systems:

1. Seismic-force-resisting system, designated seismic system, or component listed in the Statement of Special Inspections.
2. Main wind-force-resisting system or a wind-resisting component listed in the Statement of Special Inspections.

B. 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.

C. Permits, Licenses, and Certificates: For Owner's record, 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.

1.7 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, telephone number, and email address 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 inspection.
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. Statement on condition of substrates and their acceptability for installation of product.
2. Statement that products at Project site comply with requirements.
3. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
4. Results of operational and other tests and a statement of whether observed performance complies with requirements.
5. Other required items indicated in individual Specification Sections.

C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:

1. Statement that equipment complies with requirements.
2. Results of operational and other tests and a statement of whether observed performance complies with requirements.
3. Other required items indicated in individual Specification Sections.

1.8 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. As applicable, procure products from manufacturers able to meet qualification requirements, warranty requirements, and technical or factory-authorized service representative requirements.

C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

D. Installer Qualifications: A firm or individual experienced in installing, erecting, applying, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

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

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

1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.

G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspection indicated, as documented according to ASTM E329; and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.

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

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

J. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:

1. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.

1.9 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.

1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspection they are engaged to perform.
2. 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.

B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities, whether specified or not, to verify and document that the Work complies with requirements.

1. Engage a qualified testing agency to perform quality-control services.

    a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.

2. Notify testing agencies at least **24** hours in advance of time when Work that requires testing or inspection will be performed.
3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
4. Testing and inspection requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

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

D. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
2. Determine the locations 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 through 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 duties of Contractor.

E. 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."

F. 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 preinstallation 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.

G. Associated Contractor Services: Cooperate with agencies and representatives 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 inspection. Assist agency in obtaining samples.

4. Facilities for storage and field curing of test samples.
5. Preliminary design mix proposed for use for material mixes that require control by testing agency.
6. Security and protection for samples and for testing and inspection equipment at Project site.

H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspection.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

1.10 SPECIAL TESTS AND INSPECTIONS

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

1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviewing the completeness and adequacy of those procedures to perform the Work.
2. Notifying Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect with copy to Contractor and to authorities having jurisdiction.
4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
6. Retesting and re-inspecting corrected work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:

1. Date test or inspection was conducted.
2. Description of the Work tested or inspected.
3. Date test or inspection results were transmitted to Architect.
4. Identification of testing agency or special inspector conducting test or inspection.

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

1. Submit log at Project closeout as part of Project Record Documents.

3.2 REPAIR AND PROTECTION

A. General: On completion of testing, inspection, 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

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SECTION 014200 - REFERENCES

GENERAL

1.1 DEFINITIONS

A. General: Basic Contract definitions are included in the Conditions of the Contract.

B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.

C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."

D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."

E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.

F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

G. "Install": Unload, temporarily store, unpack, assemble, erect, place, anchor, apply, work to dimension, finish, cure, protect, clean, and similar operations at Project site.

H. "Provide": Furnish and install, complete and ready for the intended use.

I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

J. “Elevator 1”: Elevator requiring modernization under this project, located in the building’s North side.

K. “Elevator 2”: Elevator requiring modernization under this project, located in the building South side.

1.2 INDUSTRY STANDARDS

A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.

C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.

1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.3 ABBREVIATIONS AND ACRONYMS

A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Gale's "Encyclopedia of Associations: National Organizations of the U.S." or in Columbia Books' "National Trade & Professional Associations of the United States."

B. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. The information in this list is subject to change and is believed to be accurate as of the date of the Contract Documents.

1. AABC - Associated Air Balance Council; www.aabc.com.
2. AAMA - American Architectural Manufacturers Association; www.aamanet.org.
3. AAPFCO - Association of American Plant Food Control Officials; www.aapfco.org.
4. AASHTO - American Association of State Highway and Transportation Officials; www.transportation.org.
5. AATCC - American Association of Textile Chemists and Colorists; www.aatcc.org.
6. ABMA - American Bearing Manufacturers Association; www.americanbearings.org.
7. ABMA - American Boiler Manufacturers Association; www.abma.com.
8. ACI - American Concrete Institute; (Formerly: ACI International); www.concrete.org.
9. ACPA - American Concrete Pipe Association; www.concrete-pipe.org.
10. AEIC - Association of Edison Illuminating Companies, Inc. (The); www.aeic.org.
11. AF&PA - American Forest & Paper Association; www.afandpa.org.
12. AGA - American Gas Association; www.aga.org.
13. AHAM - Association of Home Appliance Manufacturers; www.aham.org.
14. AHRI - Air-Conditioning, Heating, and Refrigeration Institute (The); www.ahrinet.org.
15. AI - Asphalt Institute; www.asphaltinstitute.org.
16. AIA - American Institute of Architects (The); www.aia.org.
17. AISC - American Institute of Steel Construction; www.aisc.org.
18. AISI - American Iron and Steel Institute; www.steel.org.
19. AITC - American Institute of Timber Construction; www.aitc-glulam.org.
20. AMCA - Air Movement and Control Association International, Inc.; www.amca.org.
21. ANSI - American National Standards Institute; www.ansi.org.
22. AOSA - Association of Official Seed Analysts, Inc.; www.aosaseed.com.
23. APA - APA - The Engineered Wood Association; www.apawood.org.
24. APA - Architectural Precast Association; www.archprecast.org.
25. API - American Petroleum Institute; www.api.org.
26. ARI - Air-Conditioning & Refrigeration Institute; (See AHRI).
27. ARI - American Refrigeration Institute; (See AHRI).
28. ARMA - Asphalt Roofing Manufacturers Association; www.asphaltroofing.org.
29. ASCE - American Society of Civil Engineers; www.asce.org.
30. ASCE/SEI - American Society of Civil Engineers/Structural Engineering Institute; (See ASCE).
31. ASHRAE - American Society of Heating, Refrigerating and Air-Conditioning Engineers; www.ashrae.org.
32. ASME - ASME International; (American Society of Mechanical Engineers); www.asme.org.
33. ASSE - American Society of Safety Engineers (The); www.asse.org.
34. ASSE - American Society of Sanitary Engineering; www.asse-plumbing.org.
35. ASTM - ASTM International; www.astm.org.
36. ATIS - Alliance for Telecommunications Industry Solutions; www.atis.org.
37. AWEA - American Wind Energy Association; www.awea.org.
38. AWI - Architectural Woodwork Institute; www.awinet.org.
39. AWMAC - Architectural Woodwork Manufacturers Association of Canada; www.awmac.com.

40. AWPA - American Wood Protection Association; www.awpa.com.
41. AWS - American Welding Society; www.aws.org.
42. AWWA - American Water Works Association; www.awwa.org.
43. BHMA - Builders Hardware Manufacturers Association; www.buildershardware.com.
44. BIA - Brick Industry Association (The); www.gobrick.com.
45. BICSI - BICSI, Inc.; www.bicsi.org.
46. BIFMA - BIFMA International; (Business and Institutional Furniture Manufacturer's Association); www.bifma.org.
47. BISSC - Baking Industry Sanitation Standards Committee; www.bissc.org.
48. BWF - Badminton World Federation; (Formerly: International Badminton Federation); www.bissc.org.
49. CDA - Copper Development Association; www.copper.org.
50. CE - Conformite Europeenne; http://ec.europa.eu/growth/single-market/ce-marking/.
51. CEA - Canadian Electricity Association; www.electricity.ca.
52. CEA - Consumer Electronics Association; www.ce.org.
53. CFFA - Chemical Fabrics and Film Association, Inc.; www.chemicalfabricsandfilm.com.
54. CFSEI - Cold-Formed Steel Engineers Institute; www.cfsei.org.
55. CGA - Compressed Gas Association; www.cganet.com.
56. CIMA - Cellulose Insulation Manufacturers Association; www.cellulose.org.
57. CISCA - Ceilings & Interior Systems Construction Association; www.cisca.org.
58. CISPI - Cast Iron Soil Pipe Institute; www.cispi.org.
59. CLFMI - Chain Link Fence Manufacturers Institute; www.chainlinkinfo.org.
60. CPA - Composite Panel Association; www.pbmdf.com.
61. CRI - Carpet and Rug Institute (The); www.carpet-rug.org.
62. CRRC - Cool Roof Rating Council; www.coolroofs.org.
63. CRSI - Concrete Reinforcing Steel Institute; www.crsi.org.
64. CSA - CSA Group; www.csagroup.com.
65. CSA - CSA International; www.csa-international.org.
66. CSI - Construction Specifications Institute (The); www.csinet.org.
67. CSSB - Cedar Shake & Shingle Bureau; www.cedarbureau.org.
68. CTI - Cooling Technology Institute; (Formerly: Cooling Tower Institute); www.cti.org.
69. CWC - Composite Wood Council; (See CPA).
70. DASMA - Door and Access Systems Manufacturers Association; www.dasma.com.
71. DHI - Door and Hardware Institute; www.dhi.org.
72. ECA - Electronic Components Association; (See ECIA).
73. ECAMA - Electronic Components Assemblies & Materials Association; (See ECIA).
74. ECIA - Electronic Components Industry Association; www.eciaonline.org.
75. EIA - Electronic Industries Alliance; (See TIA).
76. EIMA - EIFS Industry Members Association; www.eima.com.
77. EJMA - Expansion Joint Manufacturers Association, Inc.; www.ejma.org.
78. ESD - ESD Association; (Electrostatic Discharge Association); www.esda.org.
79. ESTA - Entertainment Services and Technology Association; (See PLASA).
80. ETL - Intertek (See Intertek); www.intertek.com.
81. EVO - Efficiency Valuation Organization; www.evo-world.org.
82. FCI - Fluid Controls Institute; www.fluidcontrolsinstitute.org.
83. FIBA - Federation Internationale de Basketball; (The International Basketball Federation); www.fiba.com.
84. FIVB - Federation Internationale de Volleyball; (The International Volleyball Federation); www.fivb.org.
85. FM Approvals - FM Approvals LLC; www.fmglobal.com.
86. FM Global - FM Global; (Formerly: FMG - FM Global); www.fmglobal.com.
87. FRSA - Florida Roofing, Sheet Metal & Air Conditioning Contractors Association, Inc.; www.floridaroof.com.
88. FSA - Fluid Sealing Association; www.fluidsealing.com.
89. FSC - Forest Stewardship Council U.S.; www.fscus.org.
90. GA - Gypsum Association; www.gypsum.org.

91. GANA - Glass Association of North America; www.glasswebsite.com.
92. GS - Green Seal; www.greenseal.org.
93. HI - Hydraulic Institute; www.pumps.org.
94. HI/GAMA - Hydronics Institute/Gas Appliance Manufacturers Association; (See AHRI).
95. HMMA - Hollow Metal Manufacturers Association; (See NAAMM).
96. HPVA - Hardwood Plywood & Veneer Association; www.hpva.org.
97. HPW - H. P. White Laboratory, Inc.; www.hpwhite.com.
98. IAPSC - International Association of Professional Security Consultants; www.iapsc.org.
99. IAS - International Accreditation Service; www.iasonline.org.
100. ICBO - International Conference of Building Officials; (See ICC).
101. ICC - International Code Council; www.iccsafe.org.
102. ICEA - Insulated Cable Engineers Association, Inc.; www.icea.net.
103. ICPA - International Cast Polymer Alliance; www.icpa-hq.org.
104. ICRI - International Concrete Repair Institute, Inc.; www.icri.org.
105. IEC - International Electrotechnical Commission; www.iec.ch.
106. IEEE - Institute of Electrical and Electronics Engineers, Inc. (The); www.ieee.org.
107. IES - Illuminating Engineering Society; (Formerly: Illuminating Engineering Society of North America); www.ies.org.
108. IESNA - Illuminating Engineering Society of North America; (See IES).
109. IEST - Institute of Environmental Sciences and Technology; www.iest.org.
110. IGMA - Insulating Glass Manufacturers Alliance; www.igmaonline.org.
111. IGSHPA - International Ground Source Heat Pump Association; www.igshpa.okstate.edu.
112. ILI - Indiana Limestone Institute of America, Inc.; www.iliai.com.
113. Intertek - Intertek Group; (Formerly: ETL SEMCO; Intertek Testing Service NA); www.intertek.com.
114. ISA - International Society of Automation (The); (Formerly: Instrumentation, Systems, and Automation Society); www.isa.org.
115. ISAS - Instrumentation, Systems, and Automation Society (The); (See ISA).
116. ISFA - International Surface Fabricators Association; (Formerly: International Solid Surface Fabricators Association); www.isfanow.org.
117. ISO - International Organization for Standardization; www.iso.org.
118. ISSFA - International Solid Surface Fabricators Association; (See ISFA).
119. ITU - International Telecommunication Union; www.itu.int/home.
120. KCMA - Kitchen Cabinet Manufacturers Association; www.kcma.org.
121. LMA - Laminating Materials Association; (See CPA).
122. LPI - Lightning Protection Institute; www.lightning.org.
123. MBMA - Metal Building Manufacturers Association; www.mbma.com.
124. MCA - Metal Construction Association; www.metalconstruction.org.
125. MFMA - Maple Flooring Manufacturers Association, Inc.; www.maplefloor.org.
126. MFMA - Metal Framing Manufacturers Association, Inc.; www.metalframingmfg.org.
127. MHIA - Material Handling Industry of America; www.mhia.org.
128. MIA - Marble Institute of America; www.marble-institute.com.
129. MMPA - Moulding & Millwork Producers Association; www.wmmpa.com.
130. MPI - Master Painters Institute; www.paintinfo.com.
131. MSS - Manufacturers Standardization Society of The Valve and Fittings Industry Inc.; www.mss-hq.org.
132. NAAMM - National Association of Architectural Metal Manufacturers; www.naamm.org.
133. NACE - NACE International; (National Association of Corrosion Engineers International); www.nace.org.
134. NADCA - National Air Duct Cleaners Association; www.nadca.com.
135. NAIMA - North American Insulation Manufacturers Association; www.naima.org.
136. NBGQA - National Building Granite Quarries Association, Inc.; www.nbgqa.com.
137. NBI - New Buildings Institute; www.newbuildings.org.
138. NCAA - National Collegiate Athletic Association (The); www.ncaa.org.
139. NCMA - National Concrete Masonry Association; www.ncma.org.
140. NEBB - National Environmental Balancing Bureau; www.nebb.org.

141. NECA - National Electrical Contractors Association; www.necanet.org.
142. NeLMA - Northeastern Lumber Manufacturers Association; www.nelma.org.
143. NEMA - National Electrical Manufacturers Association; www.nema.org.
144. NETA - InterNational Electrical Testing Association; www.netaworld.org.
145. NFHS - National Federation of State High School Associations; www.nfhs.org.
146. NFPA - National Fire Protection Association; www.nfpa.org.
147. NFPA - NFPA International; (See NFPA).
148. NFRC - National Fenestration Rating Council; www.nfrc.org.
149. NHLA - National Hardwood Lumber Association; www.nhla.com.
150. NLGA - National Lumber Grades Authority; www.nlga.org.
151. NOFMA - National Oak Flooring Manufacturers Association; (See NWFA).
152. NOMMA - National Ornamental & Miscellaneous Metals Association; www.nomma.org.
153. NRCA - National Roofing Contractors Association; www.nrca.net.
154. NRMCA - National Ready Mixed Concrete Association; www.nrmca.org.
155. NSF - NSF International; www.nsf.org.
156. NSPE - National Society of Professional Engineers; www.nspe.org.
157. NSSGA - National Stone, Sand & Gravel Association; www.nssga.org.
158. NTMA - National Terrazzo & Mosaic Association, Inc. (The); www.ntma.com.
159. NWFA - National Wood Flooring Association; www.nwfa.org.
160. PCI - Precast/Prestressed Concrete Institute; www.pci.org.
161. PDI - Plumbing & Drainage Institute; www.pdionline.org.
162. PLASA - PLASA; (Formerly: ESTA - Entertainment Services and Technology Association); www.plasa.org.
163. RCSC - Research Council on Structural Connections; www.boltcouncil.org.
164. RFCI - Resilient Floor Covering Institute; www.rfci.com.
165. RIS - Redwood Inspection Service; www.redwoodinspection.com.
166. SAE - SAE International; www.sae.org.
167. SCTE - Society of Cable Telecommunications Engineers; www.scte.org.
168. SDI - Steel Deck Institute; www.sdi.org.
169. SDI - Steel Door Institute; www.steeldoor.org.
170. SEFA - Scientific Equipment and Furniture Association (The); www.sefalabs.com.
171. SEI/ASCE - Structural Engineering Institute/American Society of Civil Engineers; (See ASCE).
172. SIA - Security Industry Association; www.siaonline.org.
173. SJI - Steel Joist Institute; www.steeljoist.org.
174. SMA - Screen Manufacturers Association; www.smainfo.org.
175. SMACNA - Sheet Metal and Air Conditioning Contractors' National Association; www.smacna.org.
176. SMPTE - Society of Motion Picture and Television Engineers; www.smpte.org.
177. SPFA - Spray Polyurethane Foam Alliance; www.sprayfoam.org.
178. SPIB - Southern Pine Inspection Bureau; www.spib.org.
179. SPRI - Single Ply Roofing Industry; www.spri.org.
180. SRCC - Solar Rating & Certification Corporation; www.solar-rating.org.
181. SSINA - Specialty Steel Industry of North America; www.ssina.com.
182. SSPC - SSPC: The Society for Protective Coatings; www.sspc.org.
183. STI - Steel Tank Institute; www.steeltank.com.
184. SWI - Steel Window Institute; www.steelwindows.com.
185. SWPA - Submersible Wastewater Pump Association; www.swpa.org.
186. TCA - Tilt-Up Concrete Association; www.tilt-up.org.
187. TCNA - Tile Council of North America, Inc.; www.tileusa.com.
188. TEMA - Tubular Exchanger Manufacturers Association, Inc.; www.tema.org.
189. TIA - Telecommunications Industry Association (The); (Formerly: TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance); www.tiaonline.org.
190. TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance; (See TIA).
191. TMS - The Masonry Society; www.masonrysociety.org.
192. TPI - Truss Plate Institute; www.tpinst.org.
193. TPI - Turfgrass Producers International; www.turfgrasssod.org.

194. TRI - Tile Roofing Institute; www.tileroofing.org.
195. UL - Underwriters Laboratories Inc.; www.ul.com.
196. UNI - Uni-Bell PVC Pipe Association; www.uni-bell.org.
197. USAV - USA Volleyball; www.usavolleyball.org.
198. USGBC - U.S. Green Building Council; www.usgbc.org.
199. USITT - United States Institute for Theatre Technology, Inc.; www.usitt.org.
200. WA - Wallcoverings Association; www.wallcoverings.org.
201. WASTEC - Waste Equipment Technology Association; www.wastec.org.
202. WCLIB - West Coast Lumber Inspection Bureau; www.wclib.org.
203. WCMA - Window Covering Manufacturers Association; www.wcmanet.org.
204. WDMA - Window & Door Manufacturers Association; www.wdma.com.
205. WI - Woodwork Institute; www.wicnet.org.
206. WSRCA - Western States Roofing Contractors Association; www.wsrca.com.
207. WWPA - Western Wood Products Association; www.wwpa.org.

C. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is believed to be accurate as of the date of the Contract Documents.

1. DIN - Deutsches Institut fur Normung e.V.; www.din.de.
2. IAPMO - International Association of Plumbing and Mechanical Officials; www.iapmo.org.
3. ICC - International Code Council; www.iccsafe.org.
4. ICC-ES - ICC Evaluation Service, LLC; www.icc-es.org.

D. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Information is subject to change and is up to date as of the date of the Contract Documents.

1. COE - Army Corps of Engineers; www.usace.army.mil.
2. CPSC - Consumer Product Safety Commission; www.cpsc.gov.
3. DOC - Department of Commerce; National Institute of Standards and Technology; www.nist.gov.
4. DOD - Department of Defense; www.quicksearch.dla.mil.
5. DOE - Department of Energy; www.energy.gov.
6. EPA - Environmental Protection Agency; www.epa.gov.
7. FAA - Federal Aviation Administration; www.faa.gov.
8. FG - Federal Government Publications; www.gpo.gov/fdsys.
9. GSA - General Services Administration; www.gsa.gov.
10. HUD - Department of Housing and Urban Development; www.hud.gov.
11. LBL - Lawrence Berkeley National Laboratory; Environmental Energy Technologies Division; www.eetd.lbl.gov.
12. OSHA - Occupational Safety & Health Administration; www.osha.gov.
13. SD - Department of State; www.state.gov.
14. TRB - Transportation Research Board; National Cooperative Highway Research Program; The National Academies; www.trb.org.
15. USDA - Department of Agriculture; Agriculture Research Service; U.S. Salinity Laboratory; www.ars.usda.gov.
16. USDA - Department of Agriculture; Rural Utilities Service; www.usda.gov.
17. USDOJ - Department of Justice; Office of Justice Programs; National Institute of Justice; www.ojp.usdoj.gov.
18. USP - U.S. Pharmacopeial Convention; www.usp.org.
19. USPS - United States Postal Service; www.usps.com.

E. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the

following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.

1. CFR - Code of Federal Regulations; Available from Government Printing Office; www.gpo.gov/fdsys.
2. DOD - Department of Defense; Military Specifications and Standards; Available from DLA Document Services; www.quicksearch.dla.mil.
3. DSCC - Defense Supply Center Columbus; (See FS).
4. FED-STD - Federal Standard; (See FS).
5. FS - Federal Specification; Available from DLA Document Services; www.quicksearch.dla.mil.

    a. Available from Defense Standardization Program; www.dsp.dla.mil.
    b. Available from General Services Administration; www.gsa.gov.
    c. Available from National Institute of Building Sciences/Whole Building Design Guide; www.wbdg.org.

6. MILSPEC - Military Specification and Standards; (See DOD).
7. USAB - United States Access Board; www.access-board.gov.
8. USATBCB - U.S. Architectural & Transportation Barriers Compliance Board; (See USAB).

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 014200

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SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

GENERAL

1.1 SUMMARY

A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.

B. Related Requirements:

1. Section 011000 "Summary" for work restrictions and limitations on utility interruptions.

1.2 USE CHARGES

A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities engaged in the Project to use temporary services and facilities without cost, including, but not limited to, Owner's construction forces, Architect, 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.

C. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.

D. Moisture-and Mold-Protection Plan: Describe procedures and controls for protecting materials and construction from water absorption and damage and mold.

E. Dust- and HVAC-Control Plan: Submit coordination drawing and narrative that indicates the dust- and HVAC-control measures proposed for use, proposed locations, and proposed time frame for their operation. Include the following:

1. Locations of dust-control partitions at each phase of work.
2. HVAC system isolation schematic drawing.
3. Location of proposed air-filtration system discharge.
4. Waste-handling procedures.
5. Other dust-control measures.

1.4 QUALITY ASSURANCE

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

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

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

1.5 PROJECT CONDITIONS

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

PART 2 - PRODUCTS

2.1 MATERIALS

A. Contractor shall be responsible to select appropriate materials and methods for the following temporary installations and for advising the Owner of the materials and methods to be used prior to installation:

1. Securing each Work Area such that the general public does not enter a Work Area during the duration of construction in that Work Area. Contractor is responsible for the safety of each Work Area and protection of the Work from damage.
2. Delineating and securing temporary storage areas.
3. Delineating drive aisles that have been relocated through Work Areas or otherwise in the Garage in a manner that assures safe movement of vehicles.
4. Establishing temporary closures.

PART 3 - EXECUTION

3.1 TEMPORARY FACILITIES, GENERAL

A. Conservation: Coordinate construction and use of temporary facilities with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.

1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. See other Sections for disposition of salvaged materials that are designated as Owner's property.

3.2 INSTALLATION, GENERAL

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

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

3.3 TEMPORARY UTILITY INSTALLATION

A. General: Install temporary service or connect to existing service.

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

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

C. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.

D. Temporary Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.

1. Provide temporary dehumidification systems when required to reduce ambient and substrate moisture levels to level required to allow installation or application of finishes and their proper curing or drying.

E. Isolation of Work Areas in Occupied Facilities: Prevent dust, fumes, and odors from entering occupied areas.

F. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.

1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.

3.4 SUPPORT FACILITIES INSTALLATION

A. Parking: Owner will provide four (4) parking spaces for construction personnel at no charge on garage Level 5 when work is being performed. Contractor shall submit list of personnel working on the Project that will be authorized to use designated parking areas. Authorized construction personnel will be issued parking passes.

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 E136. Comply with NFPA 241.
2. Maintain support facilities until Architect 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. Traffic Controls: See Section 011000 for requirements related to traffic control in the Garage when Work is being performed.

1. Protect existing site improvements to remain including curbs, pavement, and utilities.
2. Maintain access for fire-fighting equipment and access to fire hydrants.

C. Parking: Contractor shall coordinate with the Parking Operator on parking logistics.

D. Project Signs: Provide Project signs as indicated. Unauthorized signs are not permitted.

1. Identification Signs: Provide Project identification signs as indicated on Drawings.
2. Temporary Signs: Provide other signs as indicated and as required to inform public and individuals seeking entrance to Project.

    a. Provide temporary, directional signs for construction personnel and visitors.

3. Maintain and touch up signs so they are legible at all times.

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

F. 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.

G. Existing Elevator Use: Use of Owner's existing elevators will be permitted, provided elevators are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore elevators to condition existing before initial use, including replacing worn cables, guide shoes, and similar items of limited life.

1. Do not load elevators beyond their rated weight capacity.
2. Provide protective coverings, barriers, devices, signs, or other procedures to protect elevator car and entrance doors and frame. If, despite such protection, elevators become damaged, engage elevator Installer to restore damaged work so no evidence remains of correction work. Return items that cannot be refinished in field to the shop, make required repairs and refinish entire unit, or provide new units as required.

H. Maintain normal stairwell operation and public access to stairs and stair landing in the Garage at all times.

1. Provide protective coverings, barriers, devices, signs, or other procedures to protect stairs and to maintain means of egress. If stairs become damaged, restore damaged areas so no evidence remains of correction work.

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

F. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.

1. Where heating or cooling is needed and permanent enclosure is incomplete, insulate temporary enclosures.

G. Temporary Partitions: Provide floor-to-ceiling dustproof partitions to limit dust and dirt migration and to separate areas occupied by Owner and tenants from fumes and noise.

1. Construct dustproof partitions with gypsum wallboard with joints taped on occupied side, and fire-retardant-treated plywood on construction operations side.
2. Where fire-resistance-rated temporary partitions are indicated or are required by authorities having jurisdiction, construct partitions according to the rated assemblies.
3. Provide walk-off mats at each entrance through temporary partition.

H. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire-prevention program.

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

3.6 MOISTURE AND MOLD CONTROL

A. Contractor's Moisture-Protection Plan: Describe delivery, handling, storage, installation, and protection provisions for materials subject to water absorption or water damage.

1. Indicate procedures for discarding water-damaged materials, protocols for mitigating water intrusion into completed Work, and replacing water-damaged Work.
2. Indicate sequencing of work that requires water, such as sprayed fire-resistive materials, plastering, and terrazzo grinding, and describe plans for dealing with water from these operations. Show procedures for verifying that wet construction has dried sufficiently to permit installation of finish materials.
3. Indicate methods to be used to avoid trapping water in finished work.

B. Exposed Construction Period: Before installation of weather barriers, when materials are subject to wetting and exposure and to airborne mold spores, protect as follows:

1. Protect porous materials from water damage.
2. Protect stored and installed material from flowing or standing water.
3. Keep porous and organic materials from coming into prolonged contact with concrete.
4. Remove standing water from decks.
5. Keep deck openings covered or dammed.

C. Partially Enclosed Construction Period: After installation of weather barriers but before full enclosure and conditioning of building, when installed materials are still subject to infiltration of moisture and ambient mold spores, protect as follows:

1. Do not load or install drywall or other porous materials or components, or items with high organic content, into partially enclosed building.
2. Keep interior spaces reasonably clean and protected from water damage.
3. Periodically collect and remove waste containing cellulose or other organic matter.
4. Discard or replace water-damaged material.
5. Do not install material that is wet.
6. Discard and replace stored or installed material that begins to grow mold.
7. Perform work in a sequence that allows wet materials adequate time to dry before enclosing the material in gypsum board or other interior finishes.

D. Controlled Construction Period: After completing and sealing of the building enclosure but prior to the full operation of permanent HVAC systems, maintain as follows:

1. Control moisture and humidity inside building by maintaining effective dry-in conditions.
2. Use temporary or permanent HVAC system to control humidity within ranges specified for installed and stored materials.
3. Comply with manufacturer's written instructions for temperature, relative humidity, and exposure to water limits.

3.7 OPERATION, TERMINATION, AND REMOVAL

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

B. Maintenance: Maintain facilities in good operating condition until removal.

1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.

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

D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
2. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Section 017700 "Closeout Procedures."

END OF SECTION 015000

SECTION 016000 - PRODUCT REQUIREMENTS

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 Architect 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. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product request within **15** days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.

a. Form of Architect's Approval of Submittal: As specified in Section 013300 "Submittal Procedures."
b. Use product specified if Architect 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," Architect will make selection.
5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.

B. Product Selection Procedures:

1. 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: …"

2. 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: …"

3. 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: …"

4. 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 Architect's sample," provide a product that complies with requirements and matches Architect's sample. Architect'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 Architect from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect 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: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect 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 architects and owners, if requested.
4. Samples, if requested.

PART 3 - EXECUTION (Not Used)

END OF SECTION 016000

SECTION 017300 - EXECUTION

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 INFORMATIONAL SUBMITTALS

A. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

1.3 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 Architect of locations and details of cutting and await directions from Architect 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 include the followings:
   a. Primary operational systems and equipment.
   b. Fire separation assemblies.
   c. Air or smoke barriers.
   d. Fire-suppression systems.
   e. Mechanical systems piping and ducts.
   f. Control systems.
   g. Communication systems.
   h. Fire-detection and -alarm systems.
   i. Conveying systems.
   j. Electrical wiring systems.
   k. Operating systems of special construction.
3. 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.

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 Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

B. 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.

1. For projects requiring compliance with sustainable design and construction practices and procedures, use products for patching that comply with sustainable design requirements.

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 Architect 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.

4. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
   a. Description of the Work.
   b. List of detrimental conditions, including substrates.
   c. List of unacceptable installation tolerances.
   d. Recommended corrections.

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 Owner that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

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

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

D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Architect 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 Architect promptly.

B. 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.

C. 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 Architect.

3.4 FIELD ENGINEERING

A. Identification: Owner will identify existing benchmarks, control points, and property corners.

B. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.

3.5 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.

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 Architect.
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.

3.6 CUTTING AND PATCHING

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

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

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

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

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

E. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching according to requirements in Section 011000 "Summary."

F. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to prevent interruption to occupied areas.

G. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.

1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
4. 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.
5. 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.
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.
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.

3.7 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.

1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.
3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

    a. Use containers intended for holding waste materials of type to be stored.

4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

1. Remove liquid spills promptly.
2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. 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.

H. 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.

I. Limiting Exposures: Supervise construction operations to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.8 STARTING AND ADJUSTING

A. 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."

3.9 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

B. Protection of Existing Items: Provide protection and ensure that existing items to remain undisturbed by construction are maintained in condition that existed at commencement of the Work.

C. Comply with manufacturer's written instructions for temperature and relative humidity.

END OF SECTION 017300

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SECTION 017329 - CUTTING AND PATCHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes procedural requirements for cutting and patching.

B. Related Sections include the following:
   1. Divisions 03 through 40 Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.

1.3 SUBMITTALS

A. Cutting and Patching Proposal: Submit a proposal describing procedures at least 10 days before the time cutting and patching will be performed, requesting approval to proceed. Include the following information:

   1. Extent: Describe cutting and patching, show how they will be performed, and indicate why they cannot be avoided.
   2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building's appearance and other significant visual elements.
   3. Products: List products to be used and firms or entities that will perform the Work.
   4. Dates: Indicate when cutting and patching will be performed.
   5. Utility Services and Mechanical/Electrical Systems: List services/systems that cutting and patching procedures will disturb or affect. List services/systems that will be relocated and those that will be temporarily out of service. Indicate how long services/systems will be disrupted.
   6. Structural Elements: Where cutting and patching involve adding reinforcement to structural elements, submit details and engineering calculations showing integration of reinforcement with original structure.
   7. Architect's Approval: Obtain approval of cutting and patching proposal before cutting and patching. Approval does not waive right to later require removal and replacement of unsatisfactory work.

1.4 QUALITY ASSURANCE

A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.

B. 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. Operating elements include, but are not limited to, the following:

   1. Primary operational systems and equipment.
   2. Air or smoke barriers.
   3. Fire-suppression systems.

4. Mechanical systems piping and ducts.
5. Control systems.
6. Communication systems.
7. Conveying systems.
8. Electrical wiring systems.
9. Operating systems of special construction in Division 13 Sections.

C. Miscellaneous Elements: Do not cut and patch miscellaneous elements or related 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. Miscellaneous elements include, but are not limited to, the following:

1. Water, moisture, or vapor barriers.
2. Membranes and flashings.
3. Exterior curtain-wall construction.
4. Equipment supports.
5. Piping, ductwork, vessels, and equipment.
6. Noise- and vibration-control elements and systems.

D. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

E. 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.

1.5 WARRANTY

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

PART 2 - PRODUCTS

2.1 MATERIALS

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

B. In-Place Materials: Use materials 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 match the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.

1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with in-place finishes or primers.
2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Temporary Support: Provide temporary support of Work to be cut.

B. 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.

C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

D. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to prevent interruption to occupied areas.

3.3 PERFORMANCE

A. 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. 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 as small as possible, neatly to 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 Division 31 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.

C. 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 possible. Provide materials and comply with installation requirements specified in other Sections.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate 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 eliminate 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, apply primer and intermediate paint coats 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.

D. Cleaning: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.

END OF SECTION 017329

SECTION 017700 - CLOSEOUT PROCEDURES

GENERAL

1.1 SUMMARY

A. 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.

B. 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. Certificate of Insurance: For continuing coverage.

1.4 SUBSTANTIAL COMPLETION PROCEDURES

A. Contractor shall comply with the procedures for Substantial and final completion set forth in this section, which apply when the contractor requests substantial completion and final completion inspections at the conclusion of the work on the project as a whole, unless the contractor exercises the option to request substantial and final completion occur by work phase, as described below.

1. Contractor shall have the option to request the project architect to inspect and certify attainment of substantial completion and final completion as work is concluded for each work phase identified in the contractor’s phasing plan prior to conclusion of the work on the project as a whole.

B. 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.

C. Submittals Prior to Substantial Completion: Complete the following a minimum of **10** days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
2. Submit closeout submittals specified in other Division 01 Sections, including project record 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.
4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Architect. Label with manufacturer's name and model number.
5. Submit testing, adjusting, and balancing records.
6. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.

D. Procedures Prior to Substantial Completion: Complete the following a minimum of **10** 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.

E. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of **10** days prior to date the Work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect 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 Architect, that must be completed or corrected before certificate will be issued.

1.5 FINAL COMPLETION PROCEDURES

A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:

1. Submit a final Application for Payment according to Section 012900 "Payment Procedures."
2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by

Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.

3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance 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, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

C. Acknowledgement of Final Payment: Contractor shall execute an Acknowledgment of Final Payment form provided by Owner in Exchange for Final Payment.

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, proceeding from lowest floor to highest floor.
2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.

1.7 SUBMITTAL OF PROJECT WARRANTIES

A. Time of Submittal: Submit written warranties on request of Architect 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. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.

C. 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 Architect.
2. 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.

D. 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 elevators and stair treads, and elevator vestibule and stair towers to remove construction residue and debris, and foreign substances.
b. 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.
c. Remove labels that are not permanent
d. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.

3.2 REPAIR OF THE WORK

A. Complete repair and restoration operations, before requesting inspection for determination of Substantial Completion.

B. Repair, or remove and replace, defective construction. Repairing 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.

END OF SECTION 017700

SECTION 017823 - OPERATION AND MAINTENANCE DATA

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. Architect 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 Architect. Enable reviewer comments on draft submittals.

C. Final Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least **15** days before commencing demonstration and training. Architect will return copy with comments.

1. Correct or revise each manual to comply with Architect's comments. Submit copies of each corrected manual within **15** days of receipt of Architect's 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.

1.4 REQUIREMENTS FOR EMERGENCY, OPERATION, AND MAINTENANCE MANUALS

A. Organization of Manuals: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:

1. Title page.
2. Table of contents.
3. Manual contents.

B. Title Page: Include the following information:

1. Subject matter included in manual.
2. Name and address of Project.
3. Name and address of Owner.
4. Date of submittal.
5. Name and contact information for Contractor.
6. Name and contact information for Construction Manager.
7. Name and contact information for Architect.
8. Name and contact information for Commissioning Authority.
9. Names and contact information for major consultants to the Architect that designed the systems contained in the manuals.
10. Cross-reference to related systems in other operation and maintenance manuals.

C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.

D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.

E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

1.5 EMERGENCY MANUALS

A. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.

B. Content: Organize manual into a separate section for each of the following:

1. Type of emergency.
2. Emergency instructions.
3. Emergency procedures.

C. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component:

1. Fire.
2. Flood.
3. Gas leak.

4. Water leak.
5. Power failure.
6. Water outage.
7. System, subsystem, or equipment failure.
8. Chemical release or spill.

D. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.

E. Emergency Procedures: Include the following, as applicable:

1. Instructions on stopping.
2. Shutdown instructions for each type of emergency.
3. Operating instructions for conditions outside normal operating limits.
4. Required sequences for electric or electronic systems.
5. Special operating instructions and procedures.

1.6 SYSTEMS AND EQUIPMENT OPERATION MANUALS

A. Systems and Equipment Operation Manual: Assemble a complete set of data indicating operation of each system, subsystem, and piece of equipment not part of a system. Include information required for daily operation and management, operating standards, and routine and special operating procedures.

B. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:

1. System, subsystem, and equipment descriptions. Use designations for systems and equipment indicated on Contract Documents.
2. Performance and design criteria if Contractor has delegated design responsibility.
3. Operating standards.
4. Operating procedures.
5. Operating logs.
6. Wiring diagrams.
7. Control diagrams.
8. Piped system diagrams.
9. Precautions against improper use.
10. License requirements including inspection and renewal dates.

C. Descriptions: Include the following:

1. Product name and model number. Use designations for products indicated on Contract Documents.
2. Manufacturer's name.
3. Equipment identification with serial number of each component.
4. Equipment function.
5. Operating characteristics.
6. Limiting conditions.
7. Performance curves.
8. Engineering data and tests.
9. Complete nomenclature and number of replacement parts.

D. Operating Procedures: Include the following, as applicable:

1. Startup procedures.
2. Equipment or system break-in procedures.

3. Routine and normal operating instructions.
4. Regulation and control procedures.
5. Instructions on stopping.
6. Normal shutdown instructions.
7. Seasonal and weekend operating instructions.
8. Required sequences for electric or electronic systems.
9. Special operating instructions and procedures.

E. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.

F. Piped Systems: Diagram piping as installed, and identify color coding where required for identification.

1.7 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

A. Systems and Equipment Maintenance Manuals: Assemble a complete set of data indicating maintenance of each system, subsystem, and piece of equipment not part of a system. Include manufacturers' maintenance documentation, preventive maintenance procedures and frequency, repair procedures, wiring and systems diagrams, lists of spare parts, and warranty information.

B. Content: For each system, subsystem, and 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.

1.8 PRODUCT MAINTENANCE MANUALS

A. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.

B. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.

C. Product Information: Include the following, as applicable:

1. Product name and model number.
2. Manufacturer's name.
3. Color, pattern, and texture.
4. Material and chemical composition.
5. Reordering information for specially manufactured products.

D. Maintenance Procedures: Include manufacturer's written recommendations and the following:

1. Inspection procedures.
2. Types of cleaning agents to be used and methods of cleaning.
3. List of cleaning agents and methods of cleaning detrimental to product.
4. Schedule for routine cleaning and maintenance.
5. Repair instructions.

E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.

F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

1. Include procedures to follow and required notifications for warranty claims.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 017823

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SECTION 017900 - DEMONSTRATION AND TRAINING

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 **two** copies within **seven** days of end of each training module.

1. At completion of training, submit complete training manual(s) for Owner's use prepared in same **paper and PDF file** format required for operation and maintenance manuals specified in Section 017823 "Operation and Maintenance Data."

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 Architect.

1.6 INSTRUCTION PROGRAM

A. Program Structure: Develop an instruction program that includes individual training modules for each system and for equipment not part of a system, as required by individual Specification Sections.

B. Training Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following as applicable to the system, equipment, or component:

1. Basis of System Design, Operational Requirements, and Criteria: Include the following:

a. System, subsystem, and equipment descriptions.
b. Performance and design criteria if Contractor is delegated design responsibility.
c. Operating standards.
d. Regulatory requirements.
e. Equipment function.
f. Operating characteristics.
g. Limiting conditions.
h. Performance curves.

2. Documentation: Review the following items in detail:

a. Emergency manuals.
b. Systems and equipment operation manuals.
c. Systems and equipment maintenance manuals.
d. Product maintenance manuals.
e. Project Record Documents.
f. Identification systems.
g. Warranties and bonds.
h. Maintenance service agreements and similar continuing commitments.

3. Emergencies: Include the following, as applicable:

a. Instructions on meaning of warnings, trouble indications, and error messages.
b. Instructions on stopping.
c. Shutdown instructions for each type of emergency.
d. Operating instructions for conditions outside of normal operating limits.
e. Sequences for electric or electronic systems.
f. Special operating instructions and procedures.

4. Operations: Include the following, as applicable:

a. Startup procedures.
b. Equipment or system break-in procedures.
c. Routine and normal operating instructions.
d. Regulation and control procedures.
e. Control sequences.
f. Safety procedures.
g. Instructions on stopping.
h. Normal shutdown instructions.
i. Operating procedures for emergencies.
j. Operating procedures for system, subsystem, or equipment failure.

k. Seasonal and weekend operating instructions.
l. Required sequences for electric or electronic systems.
m. Special operating instructions and procedures.

5. Adjustments: Include the following:

a. Alignments.
b. Checking adjustments.
c. Noise and vibration adjustments.
d. Economy and efficiency adjustments.

6. Troubleshooting: Include the following:

a. Diagnostic instructions.
b. Test and inspection procedures.

7. Maintenance: Include the following:

a. Inspection procedures.
b. Types of cleaning agents to be used and methods of cleaning.
c. List of cleaning agents and methods of cleaning detrimental to product.
d. Procedures for routine cleaning.
e. Procedures for preventive maintenance.
f. Procedures for routine maintenance.
g. Instruction on use of special tools.

8. Repairs: Include the following:

a. Diagnosis instructions.
b. Repair instructions.
c. Disassembly; component removal, repair, and replacement; and reassembly instructions.
d. Instructions for identifying parts and components.
e. Review of spare parts needed for operation and maintenance.

1.7 PREPARATION

A. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a training manual organized in coordination with requirements in Section 017823 "Operation and Maintenance Data."

B. Set up instructional equipment at instruction location.

1.8 INSTRUCTION

A. Facilitator: Engage a qualified facilitator to prepare instruction program and training modules, to coordinate instructors, and to coordinate between Contractor and Owner for number of participants, instruction times, and location.

B. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.

C. Scheduling: Provide instruction at mutually agreed-on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.

1. Schedule training with Owner with at least **seven** 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. Evaluation: At conclusion of each training module, assess and document each participant's mastery of module by use of a demonstration performance-based test.

F. Cleanup: Collect used and leftover educational materials and give to Owner. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.

1.9 DEMONSTRATION AND TRAINING VIDEO RECORDINGS

A. General: Recordings each training module separately. Include classroom instructions and demonstrations, board diagrams, and other visual aids.

1. At beginning of each training module, record each chart containing learning objective and lesson outline.

B. Digital Video Recordings: Provide digital video in MPEG format.

1. Submit video recordings on CD-ROM or thumb drive.

PART 2 - PRODUCTS

PART 3 - EXECUTION

END OF SECTION 017900

SECTION 081113 - HOLLOW METAL DOORS AND FRAMES

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. Exterior standard steel doors.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: Include the following:

   1. Elevations of each door type.
   2. Details of doors, including vertical- and horizontal-edge details and metal thicknesses.
   3. Frame details for each frame type, including dimensioned profiles and metal thicknesses.

C. Product Schedule: For hollow-metal doors and frames, prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings. Coordinate with final door hardware schedule.

1.4 INFORMATIONAL SUBMITTALS

A. Product test reports.

B. Field quality control reports.

1.5 CLOSEOUT SUBMITTALS

A. Record Documents: For fire-rated doors, list of door numbers and applicable room name and number to which door accesses.

1.6 QUALITY ASSURANCE

A. Egress Door Inspector Qualifications: Inspector for field quality control inspections of egress door assemblies shall meet the qualifications set forth in NFPA 101, Section 7.2.1.15.4 and the following:

   1. Door and Hardware Institute Fire and Egress Door Assembly Inspector (FDAI) certification.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: subject to compliance with requirements, provide products by one of the following:

1. Ceco Door Products; an Assa Abloy Group Company.
2. Curries Company; an Assa Abloy Group company.
3. Security Metal Products; A brand of Assa Abloy.

2.2 PERFORMANCE REQUIREMENTS

A. Thermally Rated Door Assemblies: Provide door assemblies with U-factor of not more than 0.38 deg Btu/F x h x sq. ft. when tested according to ASTM C518.

2.3 EXTERIOR STANDARD STEEL DOORS

A. Construct hollow-metal doors and frames to comply with standards indicated for materials, fabrication, hardware locations, hardware reinforcement, tolerances, and clearances, and as specified.

1. Doors:

a. Type: As indicated in the Door and Frame Schedule.
b. Thickness: 1-3/4 inches.
c. Face: Metallic-coated steel sheet, minimum thickness of 0.042 inch, with minimum A40 coating.
d. Edge Construction: Model 2, Seamless.
e. Edge Bevel: Provide manufacturer's standard beveled or square edges.
f. Top Edge Closures: Close top edges of doors with flush closures of same material as face sheets. Seal joints against water penetration.
g. Bottom Edges: Close bottom edges of doors where required for attachment of weather stripping with end closures or channels of same material as face sheets. Provide weep-hole openings in bottoms of exterior doors to permit moisture to escape.
h. Core: Polystyrene Polyurethane.
i. Louver: 24-inch x 18-inch.

2.4 MATERIALS

A. Cold-Rolled Steel Sheet: ASTM A1008/A1008M, Commercial Steel (CS), Type B; suitable for exposed applications.

B. Hot-Rolled Steel Sheet: ASTM A1011/A1011M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.

C. Metallic-Coated Steel Sheet: ASTM A653/A653M, Commercial Steel (CS), Type B.

D. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A153/A153M.

E. Mineral-Fiber Insulation: ASTM C665, Type I (blankets without membrane facing); consisting of fibers manufactured from slag or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively; passing ASTM E136 for combustion characteristics.

2.5 FABRICATION

1. Door Silencers: Except on weather-stripped frames, drill stops to receive door silencers as follows. Keep holes clear during construction.

a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.

B. Hardware Preparation: Factory prepare hollow-metal doors and frames to receive templated mortised hardware, and electrical wiring; include cutouts, reinforcement, mortising, drilling, and tapping according to ANSI/SDI A250.6, the Door Hardware Schedule, and templates.

1. Reinforce doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.
2. Comply with BHMA A156.115 for preparing hollow-metal doors and frames for hardware.

2.6 STEEL FINISHES

A. Prime Finish: Clean, pretreat, and apply manufacturer's standard primer.

1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with ANSI/SDI A250.10; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.

PART 3 - EXECUTION

3.1 PREPARATION

A. Remove welded-in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces. Touch up factory-applied finishes where spreaders are removed.

B. Drill and tap doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.

3.2 INSTALLATION

A. Hollow-Metal Doors: Fit and adjust hollow-metal doors accurately in frames, within clearances specified below.

1. Non-Fire-Rated Steel Doors: Comply with ANSI/SDI A250.8.

3.3 FIELD QUALITY CONTROL

A. Inspections:

1. Egress Door Inspections: Inspect each door equipped with panic hardware, each door equipped with fire exit hardware, each door located in an exit enclosure, each electrically controlled egress door, and each door equipped with special locking arrangements according to NFPA 101, Section 7.2.1.15.

B. Repair or remove and replace installations where inspections indicate that they do not comply with specified requirements.

C. Reinspect repaired or replaced installations to determine if replaced or repaired door assembly installations comply with specified requirements.

3.4 REPAIR

A. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.

B. Metallic-Coated Surface Touchup: Clean abraded areas and repair with galvanizing repair paint according to manufacturer's written instructions.

C. Touchup Painting: Cleaning and touchup painting of abraded areas of paint are specified in painting Sections.

END OF SECTION 081113

SECTION 099123 - INTERIOR PAINTING

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. This Section includes surface preparation and the application of paint systems on the following interior substrates:

1. Steel

B. Related Sections include the following:

1. Division 08 Sections for factory priming windows and doors with primers compatible with finish coats specified in this Section.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples for Initial Selection: For each type of topcoat product indicated.

C. Samples for Verification: For each type of paint system and in each color and gloss of topcoat indicated.

1. Submit Samples on rigid backing, 8 inches square.
2. Step coats on Samples to show each coat required for system.
3. Label each coat of each Sample.
4. Label each Sample for location and application area.

D. Product List: For each product indicated, include the following:

1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.
2. Printout of current "MPI Approved Products List" for each product category specified in Part 2, with the proposed product highlighted.

1.4 QUALITY ASSURANCE

A. MPI Standards:

1. Preparation and Workmanship: Comply with requirements in "MPI Architectural Painting Specification Manual" for products and paint systems indicated.

B. Mockups: Apply benchmark samples of each paint system indicated and each color and finish selected to verify preliminary selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Architect will select one surface to represent surfaces and conditions for application of each paint system specified in Part 3.
   a. Other Items: Architect will designate items or areas required.

2. Apply benchmark samples after permanent lighting and other environmental services have been activated.
3. Final approval of color selections will be based on benchmark samples.

   a. If preliminary color selections are not approved, apply additional benchmark samples of additional colors selected by Architect at no added cost to Owner.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.

1. Maintain containers in clean condition, free of foreign materials and residue.
2. Remove rags and waste from storage areas daily.

1.6 PROJECT CONDITIONS

A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.

B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

1.7 EXTRA MATERIALS

A. Furnish extra materials described below that are from same production run (batch mix) as materials applied and that are packaged for storage and identified with labels describing contents.

1. Quantity: Furnish an additional 5 percent, but not less than 1 gal. of each material and color applied.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Benjamin Moore & Co.
2. Columbia Paint & Coatings.
3. Coronado Paint.
4. Kelly-Moore Paints.
5. Kwal-Howells Paint.
6. Sherwin-Williams Company (The).

2.2 PAINT, GENERAL

A. Material Compatibility:

1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

B. Chemical Components of Field-Applied Interior Paints and Coatings: Provide products that comply with the following limits for VOC content, exclusive of colorants added to a tint base, when calculated according to 40 CFR 59, Subpart D (EPA Method 24) and the following chemical restrictions; these requirements do not apply to primers or finishes that are applied in a fabrication or finishing shop:

1. Flat Paints and Coatings: VOC content of not more than 50 g/L.
2. Nonflat Paints and Coatings: VOC content of not more than 150 g/L.
3. Aromatic Compounds: Paints and coatings shall not contain more than 1.0 percent by weight of total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).
4. Restricted Components: Paints and coatings shall not contain any of the following:

    a. Acrolein.
    b. Acrylonitrile.
    c. Antimony.
    d. Benzene.
    e. Butyl benzyl phthalate.
    f. Cadmium.
    g. Di (2-ethylhexyl) phthalate.
    h. Di-n-butyl phthalate.
    i. Di-n-octyl phthalate.
    j. 1,2-dichlorobenzene.
    k. Diethyl phthalate.
    l. Dimethyl phthalate.
    m. Ethylbenzene.
    n. Formaldehyde.
    o. Hexavalent chromium.
    p. Isophorone.
    q. Lead.
    r. Mercury.
    s. Methyl ethyl ketone.
    t. Methyl isobutyl ketone.
    u. Methylene chloride.
    v. Naphthalene.
    w. Toluene (methylbenzene).
    x. 1,1,1-trichloroethane.
    y. Vinyl chloride.

C. Interior Paint Colors - **PC-#**:

1. **PC-1** (HM Doors/ Frames): As selected by Architect from manufacturer's full range.

2.3 METAL PRIMERS

A. Approved Products, Rust-Inhibitive Primer (Water Based) - (Use only where intermediate/topcoat are not self-priming):

1. Benjamin Moore & Co.: Moorecraft Super Spec DTM Alkyd Low Luster Enamel # Z163-01.
2. Columbia Paint & Coatings: Professional Metal Prime #05-255-PP.
3. Coronado Paint: H. P. Acrylic Rust Inhibitive Primer, MC-Series.
4. Kelly-Moore Paints: DTM Acrylic Metal Primer #5725.

5. Kwal-Howells Paint: Accu-Guard DTM Primer #5821.
6. Sherwin-Williams Co.: Industrial & Marine DTM Acrylic Primer #B66W1.

2.4 LATEX PAINTS

A. Approved Products, Institutional Low-Odor/VOC Latex (Flat) - (Gloss Level 1):

1. Benjamin Moore & Co.: Pristine Eco Spec Interior Latex Flat #219.
2. Columbia Paint & Coatings: Purecoat Low Odor Acrylic Flat #05-578-WB.
3. Coronado Paint: Air Care Zero VOC Interior Acrylic Flat #1226-1.
4. Kelly-Moore Paints: Enviro-Cote Interior Acrylic Flat #1500.
5. Kwal-Howells Paint: N/A.
6. Sherwin-Williams Co.: N/A.

B. Approved Products, Institutional Low-Odor/VOC Latex (Low Sheen - Gloss Level 2):

1. Benjamin Moore & Co.: Pristine Eco Spec Interior Latex Eggshell Enamel #223.
2. Columbia Paint & Coatings: Purecoat Low Odor Acrylic Eggshell #05-575-WB.
3. Coronado Paint: N/A.
4. Kelly-Moore Paints: Enviro-Cote Interior Acrylic Satin #1510.
5. Kwal-Howells Paint: EnviroKote Interior Satin Enamel #2510.
6. Sherwin-Williams Co.: Harmony Interior Latex Eg-Shel #B9W951.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of work.

B. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

C. Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry.

1. Beginning coating application constitutes Contractor's acceptance of substrates and conditions.

3.2 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates indicated.

B. Remove plates, machined surfaces, and similar items already in place that are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.

1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
2. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.

C. Clean substrates of substances that could impair bond of paints, including dirt, oil, grease, and incompatible paints and encapsulants.

1. Remove incompatible primers and reprime substrate with compatible primers as required to produce paint systems indicated.

D. Steel Substrates: Remove rust and loose mill scale. Clean using methods recommended in writing by paint manufacturer.

E. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal fabricated from coil stock by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.

3.3 APPLICATION

A. Apply paints according to manufacturer's written instructions.

1. Use applicators and techniques suited for paint and substrate indicated.
2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.

B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.

C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

D. Apply gypsum board primer/sealer to all gypsum wallboard surfaces indicated to receive wallcoverings.

E. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.4 FIELD QUALITY CONTROL

A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure at any time and as often as Owner deems necessary during the period when paints are being applied:

1. Owner may engage the services of a qualified testing agency to sample paint materials being used. Samples of material delivered to Project site will be taken, identified, sealed, and certified in presence of Contractor.
2. Testing agency will perform tests for compliance with product requirements.
3. Owner may direct Contractor to stop applying paints if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying-paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

3.5 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.6 INTERIOR PAINTING SCHEDULE

A. Steel Substrates:

1. Other Exposed Metal - Waterborne Light Industrial Coating System:

a. Prime Coat: Where intermediate/topcoat are not self-priming, use Rust-Inhibitive primer (water based).
b. Intermediate Coat: Waterborne Light Industrial Coating matching topcoat.
c. Topcoat: Waterborne Light Industrial Coating (semigloss).

END OF SECTION 099123

SECTION 14 24 00 - HYDRAULIC ELEVATORS

PART 1 - GENERAL

1.01 SCOPE

A. This section includes all work required in completing the Elevator Modernization of two (2) existing Dover Elevator passenger elevators, as stated in the Contract Documents. Project also includes all ASME A17.1, Firefighters' Service, Seismic and the Americans with Disability Act (ADA) requirements. The project: 9th and Main Garage Elevator Refurbishment, elevators #1 and #2. Location:9th and Main Parking Garage, Boise ID.

B. Applicable Documents
   1. Americans with Disabilities Act Accessibility Guidelines (ADAAG).
   2. ASME A17.1 - (Latest Adopted Edition) Safety Code for Elevators and Escalators including Part XXIV Elevator Safety Requirements for Seismic Risk Zone 3 or Greater (Also stated in these specifications as Elevator Safety Code).
   3. ASME A17.2 2012 - Guide for Inspection of Elevators, Escalators and Moving Walks (or latest adopted edition).
   4. ASME A17.3 - Safety Code for Existing Elevators and Escalators (latest adopted edition).
   5. NFPA 70 - National Electrical Code (current adopted version).
   6. NFPA 72 - National Fire Alarm and Signaling Code (current adopted version).
   7. NFPA 13 - Standard for the Installation of Sprinkler Systems.
   8. IBC International Building Code (current adopted edition).

C. Definitions
   1. AHJ: Regulatory Authority Having Jurisdiction. (Idaho State L&I Elevator Division)
   2. MCP: Maintenance Control Program
   3. ASME: American Society of Mechanical Engineers.
   4. NFPA: National Fire Protection Association.
   5. NRTL: Nationally Recognized Testing Laboratory.
   6. Where "as shows", "as indicated", "as detailed" or words of similar meaning are used, it shall be understood that reference to the Specifications are made unless otherwise stated. Where "as directed", "as required", "as authorized", "as reviewed", "as accepted" or words of similar meaning are used, it shall be understood that the direction, requirement, permission, authorization, review or acceptance of Architect is intended, unless otherwise stated.
   7. When used in the Contract Documents, "provide" shall be understood to mean "provide complete, furnish and install".
   8. Terms used are defined in the latest edition of the Safety Code for Elevators and Escalators, ASME A17.1. Any reference to Code in the technical sections shall refer to ASME A17.1.
   9. Reference to a device or a part of the equipment applies to the number of devices or parts required to complete the installation.

D. Permits, Codes and Tests
   1. All equipment and Elevator Modernization work shall comply with requirements of the Elevator Safety Code, and other applicable Codes/Rules/Regulations of Idaho State.
   2. Obtain all licenses and permits, and pay all fees and all other costs, including making arrangements for all inspections and tests required by regulating agencies (AHJ - Idaho State Elevator Division), in accordance with this Elevator Specifications.
   3. File necessary plans prepare documents, and obtain necessary approval of governmental departments having jurisdiction and required certificates of inspection for work (AHJ), in accordance with the Elevator Specification.
   4. Contractor is not relieved from furnishing and installing work shown or specified which may be beyond requirements of ordinances, laws, regulations and codes.
   5. Perform tests required by Architect., AHJ and/or the ASME A17.1- with procedures described in ASME A17.2 Guide for the Inspection of Elevators, Escalators, and Moving

Walks, in the presence of Idaho State Elevator Inspector and Architect, and all other required tests for all equipment/material installed under this Specification.

6. Supply personnel and equipment for all tests and final inspections. All cost of such testing and inspections shall be included in the Base Bid.
7. Furnish/provide/install all elevator components as required by Idaho State.

1.02 GENERAL REQUIREMENTS

A. **Scope of Work Required by Contractor and Contractor's Subcontractors**

1. Provide one 20A GFCI duplex receptacle in the elevator machine room. Existing may be retained.
2. Provide illumination in the elevator machine room sufficient to meet code; currently a minimum of 200 lx (19 fc). Add one additional light in the center of the room.
3. The light switch to be installed adjacent to the lock side of the machine room access door.
4. The machine room must have a self-closing/self-locking fire rated door.
5. The room must be mechanically or naturally vented to keep the equipment operating within the temperature range specified by the equipment manufacturer. HVAC is recommended. Add AC for machine room cooling.
6. Provide a Class ABC fire extinguisher (approx. 15#) in the new machine room located within easy reach of the lock side of the machine room door. It shall be security mounted to the wall with suitable brackets. Retain existing.
7. Replace main line disconnects and add auxiliary contacts to accommodate the Battery lowering device on new elevator controls. Provide wiring, including an electrical ground conductor, from the disconnecting means to the new controller.
8. Provide and interface smoke detectors with the elevator recall system. A fire recall initiation device will be required at each elevator lobbies and one in the elevator machine room. Each detector is required to be connected to the building fire alarm system providing the system is capable of handling elevator recall signals. .
9. Provide a 20A GFCI duplex receptacle in the elevator pit.
10. Provide one utilization circuit for an intercom. Locate the disconnect in the elevator machine room. Disconnect shall be lockable and fused. (ref. NFPA 70 Art. 620-25 & 620-55).
11. Provide a car lighting, and intercom circuits with over current protection in the elevator machine room. The disconnecting means shall be located in the elevator machine room (ref. NFPA 70 Art. 620-22 & 620-53). Provide wiring from the disconnect to the new elevator controller. Disconnect shall be lockable and fused. Breaker type also acceptable.
12. Provide a telephone line to the elevator machine room. All wiring in the machine room must be in conduit or other approved raceway. Retain existing ok.
13. Provide new code compliant Pit ladders.
14. Remove and install new elevator finish flooring. Style and design to be determined by architect and owner during submittal phase.
15. Cutting and Patching
    a. All repairs shall be made as necessary to complete the entire Elevator Modernization in original condition, including all cutting, fitting and drilling of masonry, concrete, metal and other materials as specified or required for proper assembly, fabrication, installation and completion of all Work under the Contract, and including any patching and redecorating as may be necessary. This includes all work in the elevator machine room, hoistway, pit, car, guide rails brackets/fastenings, lobby hall station and all others areas of the Elevator Modernization.
    b. Any provision that requires facilitating removal of existing equipment and installation of new equipment in the machine room, lobbies, pit, hoistway, cab and repair thereof shall be the total responsibility of Contractor.
    c. All holes/cracks in the hoistway shall be sealed. All hoistway sides of the hall station boxes shall be sealed. All sealed areas shall meet fire rating equivalent to existing hoistway.

B. **Work Also Included in Contractor Scope**
   1. Furnish, provide, car station, hall stations, controller/selector, power unit, electrical wiring in machine room/car/hoistway, seismic requirements for over speed, traveling cables, car door operator, complete car door package, car top inspection station, hoistway interlocks/tracks/hangers/door gibs, intercoms, Firefighters' Emergency Operation, Seismic requirements, oil cooler, all requirements of The Americans with Disability Act (ADA) and all other elevator components as listed in this Elevator Specification.
   2. Retain existing car speed, capacity, and elevator entrance size.
   3. The Owner shall incur no extra cost for the Elevator Modernization stated in the elevator specifications. Provide any and all overtime work in order to complete the total Elevator Modernization on schedule. Cost, if any, to Owner for the above stated items shall be included in Base Bid.
   4. All existing elevator equipment that is being retained/reused shall be placed in first-class operating condition by the Contractor at no extra cost to the Owner.
   5. Main Line Electrical Power Requirements
      a. All main line electrical power and electrical ground requirements shall be verified by Contractor. Contractor shall notify, via clarification prior to bid, to Architect if their electrical equipment will not be compatible with the existing electrical main line feeders. If the electrical feeders are not of sufficient size, Contractor shall state what size feeders are required. This information must be submitted with the Contractors Bid.
      b. If new electrical disconnects, feeders and a dedicated ground are required Contractors shall provide all engineering and design of all new equipment.
   6. Welding
      a. All welding shall comply with ASME A17.1 -Design for welding, repair, cutting or splicing of members upon which the support of the car, counterweight shall be prepared by a licensed professional engineer.
      b. Welding shall be by welders qualified in accordance with the requirements of Section 5 of ANSI/AWS D1.1.
      c. At the option of Contractor, the welders may be qualified by one of the following: (a) the manufacturer contractor. (b) A professional consulting engineer. (c) A recognized testing laboratory.
      d. Contractor shall furnish all required documentation to Architect before starting the Elevator Modernization.
   7. SDS Information
      a. Contractor shall provide General Contractor Safety Data Sheets for products Contractor intends to employ under this Contract prior to commencement of the Elevator Modernization. It shall remain the responsibility of Contractor to inform and train Contractor's employees on the use of the SDS requirements.

1.03 ELEVATOR MODERNIZATION ITEMS

A. All existing elevator equipment that is not being retained shall be removed from the job-site by the Contractor at the sole cost to the Contractor. This includes all existing machine room, hoistway and car elevator equipment.

B. Contractor shall verify exact distances between points shown on their shop drawings by actual measurements at the site. This includes fit and finish of surface mount hall fixtures and lanterns covering existing cutouts.

C. Standard Products: Unless otherwise indicated, the equipment to be furnished under these Specifications shall be the standard products of manufacturers regularly engaged in the production of such equipment. Apparatus, equipment and systems furnished must be similar and equal thereto with respect to quality, functional performance, capacity and efficiency.

D. Submittals: Submit shop drawings to Architect for approval. The shop drawings shall contain detailed information to determine that the equipment conforms to the requirements of this Specification and not less than the following information.

1. Plan view of the elevator machine room. Show location of machinery and controls in machine rooms.
2. Include all clearance dimensions required by the Elevator Safety Code.
3. The elevator equipment is to be arranged in a neat and professional manner so that all elevator equipment is readily accessible.
4. Submit layout drawings as required by the Authority Having Jurisdiction (AHJ). Submittals to the AHJ shall have all information pertinent to the Elevator Modernization to determine whether the Elevator Modernization complies with all applicable Codes.
5. Provide Shop Drawings and catalog cuts for all Contractor furnished material and equipment, including but not limited to doors, car enclosure, car and hall fixtures, controls and motors.
6. Complete information on motor, electrical services, controls, and all other coordination information.

E. Wiring Diagrams, Maintenance Manuals
   1. Wiring Diagrams
      a. Provide complete "As Built and Installed" straight-line wiring diagrams showing the electrical connections, functions, and sequence of operation of all apparatus connected with the elevator, in the machine room, hoistway and car.
      b. Provide two (2) electronic copies.
      c. Furnish one complete draft electronic set to Architect. Review not later than one (1) week before issue of the permanent Idaho State Elevator Operating Permit.
   2. Modernization Data
      a. Provide "As Built and Installed" wireman's original pull sheets showing raceway, junction box, traveling cable wire nomenclature and origination and termination locations.
      b. Provide a legible copy of the elevator adjuster's final control settings, such as feet per minute, door open, door close, car door nudging time, door dwell times and all other adjustable features and/or timers.
   3. Operations and Maintenance Manuals
      a. Furnish two (2) complete electronic Operation and Maintenance Manuals covering the stipulated mechanical systems and equipment. The manual shall comply with all requirements indicated in the Project Closeout section of the Specifications.
      b. Furnish one (1) complete electronic draft manual for Architect to review no later than one (1) week before issue of the permanent Idaho State Elevator Operating Permit.
   4. The manual shall be complete in all respects for all equipment furnished and installed, controls, accessories and appurtenances stipulated. Include as a minimum the following:
      a. Machine room drawing showing equipment location of controller, machine, transformer, governor, main line electrical disconnects, machine room light switch.
      b. The original factory Adjustor's Manual used to adjust the specific modernization including "As Built, As Installed and As Adjusted" field notes.
      c. Step-by-step procedure for elevator start-up, operation and shutdown.
      d. Maintenance instructions listing routine maintenance procedures, possible breakdowns and repairs, and troubleshooting guides for all elevator equipment.
      e. Preventive maintenance schedule.
      f. Lubrication schedule including type, grade, temperature, range and frequency.
      g. Safety precautions, including diagrams and illustrations as needed for clarity.
      h. All testing procedures, including no-load, full-load safety tests, Seismic and Firefighters' Service.
      i. Parts list, with manufacturers' names and catalog numbers. Lists shall be complete for the materials installed.
      j. Serial number of all equipment furnished and installed.
      k. Service organizations and sources of replacement parts with company names, addresses, fax and telephone numbers.

1.05 INTERIM MAINTENANCE

A. Interim maintenance shall commence on elevators #1 and #2 upon Notification to proceed to the awarded contractor.

B. Elevators taken out of service for modernization shall not be part of any maintenance billing cycle.

C. Interim maintenance shall remain in effect until substantial complete has been awarded by Architect and Owner for Elevators #1 and #2. Warranty period will begin upon the date of substantial completion of both elevators.

1.06 WARRANTY MAINTENANCE

A. Warranty the completed elevator in accordance with Idaho State law and regulation, but in no case less than complete coverage of parts and labor for one (1) year after substantial completion.

B. Contractor shall furnish Owner with all special tools, meters, diagnostic tools/devices, troubleshooting special hand-held tools/devices, printed information, adjusting information and all other special tools/devices to perform maintenance, troubleshooting, repairing and adjusting at conclusion of Elevator Modernization. If any special tool, meter, diagnostic tools/device requires readjusting or re-programming Contractor shall pay for all costs including freight for a period of one (1) year from date of elevator substantial completion. Cost, if any to Owner, for the above stated items shall be included in Base Bid. After the initial one (1) year period all upgrades, readjustments or reprogramming of any or all diagnostic tools or devices will be provided as needed or required on basis with the original Contractor that installed/ manufactured the elevator equipment.

C. Elevator Manufacturer shall provide and install all software improvement up-grades for a period of one (1) year from date of substantial completion. The up-grades are defined as improvements for the elevator operation. If any elevator safety software up-grades are designed or discovered by the elevator manufacturer, the elevator manufacturer shall install the up-grades immediately. Contractor shall pay all costs of software upgrades.

D. Twelve (12) Month Period: Elevator Preventive Maintenance Technical Specifications
   1. Contractor shall provide Full Preventive Maintenance service for all elevator systems as stated in the contract documents for the 12-month warranty period. This includes all labor and material to perform routine preventative maintenance, as well as any required callbacks, adjustments, lubrication, repairs, parts replacements, testing and cleaning as required to maintain all elevator equipment in first class condition and safe operating order, at all times.
   2. Provide twenty-four (24) hours a day, seven (7) days a week, all elevator callback service at no additional cost to the Owner.
   3. Contractor shall perform a minimum of four (4) preventive maintenance hours per month, two (2) mechanic hours per elevator per month.
      a. The above noted hours shall be the minimum actual hours performing full preventive maintenance duties. The preventive maintenance specified is considered the minimum for all equipment. If equipment included in the contract documents requires additional maintenance for safe and reliable operation, Contractor shall perform the required maintenance. These hours do not include; travel, call-backs, repairs, adjustments or testing. Documentation of hours showing date, elevator name and number, time working on site, mechanic name, description of work performed is required for monthly payment due Contractor. For any time less than the required time not spent on Preventive Maintenance will be prorated at the rate of $300.00 per hour and will be deducted from that months invoice.
   4. Contractor shall maintain all elevator equipment in a safe condition within proper operating limits, as originally specified, with minimum elevator callbacks and shutdowns.
   5. The work shall be performed in a proper workmanlike manner to the entire satisfaction of Owner and Architect.

6. In performance of this contract, Contractor agrees to carry out all work in strict compliance with all laws, codes, rules and regulations set forth with regard to the equipment by City, State and Federal authorities having jurisdiction in effect on the date of substantial completion.
7. Contractor shall protect all building equipment, surfaces, etc. from damage and shall perform repairs/replacement of any damaged items to as new condition thereto at their own expense to the entire satisfaction of Owner and Architect.
8. Contractor shall clean up all work areas and shall remove from the premises all debris resulting from their operations. Adequate precautions shall be taken by Contractor to prevent any injury to building users while Contractor's work is in progress.
9. Contractor's field personnel shall wear uniforms identifying them as employees of Contractor for ease of identification by Owner. Contractor shall enforce strict discipline and order among their employees while on Owner premises, and shall be subject to the rules and regulations established by Owner. Personnel deemed unacceptable by Owner, for any reason, will not be allowed to perform work under this contract with Owner.
10. Contractor shall provide Owner with the names of Service Technician that will be assigned to the project. List shall be up-graded to current if Service Technician changes routes or assignments.
11. A Contractors representative shall be designated who shall be the main contact person relating to all information, requests or any other items relating to the contract.
12. Owner keys for elevator control rooms shall be checked out from the Owner. A signature log of key use shall be maintained. All keys shall be returned after work is completed. Contractor's Service Technician assigned to Owner shall be issued keys for the elevator control room. Duplication of any Owner key is not allowed. Any and all costs occurring due to the loss of keys by Contractor, including the changing of locks shall be paid at the sole cost and expense of Contractor.
13. All labor furnished by Contractor shall be trained journeyman level mechanics and apprentices, thoroughly skilled in Elevator Preventive Maintenance and directly employed and supervised by Contractor. They will use all reasonable care to maintain the elevator equipment in a proper and safe operating condition at all times.
14. Contractor shall post a Maintenance Schedule and Work Log in the control room. The log shall include all entries for routine maintenance and repairs. Entries shall include date work is completed, brief description of work completed and the Mechanic's name. Owner may review and copy the log and maintenance schedule at any time. In addition to the maintenance Log, the owner Requires Contractor to document any and all repairs in the Engineering/Elevator Log. Contractor will Check in with Owner prior to performing any repairs or Maintenance on elevators.
15. Contractor shall maintain a complete set of wiring diagrams showing "as built" conditions with any changes or modifications to circuits resulting from control modifications, parts replacement or equipment Up-Grade. Owner retains sole possession of these wiring diagrams. Wiring diagrams shall be kept in a neat and orderly fashion and be located in the elevator control room.
16. If any elevator is shut down for more than twenty-four (24) continuous hours from the date and time of notification from Owner or from building personnel, except for pre-scheduled or major equipment repairs, monthly billing shall be suspended until the elevator is restored to service.
17. Contractor shall not perform any alterations or additions to the elevator equipment without Owner's prior written approval. Contractor shall, in writing, provide Owner with a scope of work description if alterations or additions are necessary for the continued operation of the elevator equipment.
18. During the course of each visit, all accumulated refuse in the hoistway, pit areas and elevator control room will be removed by the Contractor.

19. Contractor shall mark and identify all lubricating oils and cleaning solvents that are stored on-site. All storage shall be Code approved. All unmarked cans shall be removed from Owner premises. Elevator control room shall not be used for storage of materials or items that do not pertain to the elevator maintenance of Owner elevators.
20. Check the operating system for each elevator continuously and perform necessary tests and corrections to ensure all circuits are operating and time settings are properly adjusted.
21. Check the group dispatching systems and make necessary tests to insure that all circuits and time settings are properly adjusted, and all systems are performing as designed and installed.
22. Contractor shall conduct every six (6) months evaluations of equipment performance, including car speed, door operations, ride quality, and car leveling. Following such evaluations, Contractor shall perform adjustment, repairs and replacements required to maintain manufacturer's operating performance. A copy of evaluation will be delivered to Architect and reviewed with Architect.
23. Contractor shall immediately shut down and remove any elevator equipment from service when it appears to Contractor to be unsafe or operating in a manner which might cause injury to anyone using said elevator equipment. Contractor shall provide Owner written notice of such action immediately, in writing, stating the reason the elevator was placed out of service and measures required to place the elevator in service.
24. Maintain hoistway, pit, machinery, elevator control room and any assigned Contractor work space in a clean, orderly condition, free of dirt, dust, oil and grease spills, trash and debris, at all times.
25. Replace burned out indicator lamps in cars and hall call stations during Preventive Maintenance visits.
26. Contractor shall conduct the following tests and any other tests required by City, State, Federal and any other Governing or Code Agency that is in effect at the date of substantial completion.
    a. Annual no-load safety tests.
    b. Written signed reports of all tests shall be submitted to Owner within five (5) days from completion and also as required to the State of Idaho Elevator Inspection Department. Seven (7) days prior written notification shall be given so that a representative of Owner may witness said test or tests.
    c. Contractor shall perform all required Firefighters' Emergency Operation tests and maintain all required documentation. Results of such testing shall be submitted to Owner on a quarterly basis.
    d. Contractor shall “standby on-site” during Emergency Generator and Fire Alarm Initiating Devices Testing, at no extra cost to the Owner.
27. Renew car slide, or roller guides components to insure a smooth and quiet operation.
28. State of Idaho Elevator Inspection fees shall be paid by Owner. Owner shall notify Contractor, in writing, of items required to be completed and the responsibly of Contractor. Fees for re-inspection due to failure to eliminate deficiencies included in this contract and the responsibility of Contractor shall be paid by Contractor. Contractor shall correct all deficiencies immediately if items are included in the contract documents, upon written notice from Owner. Contractor shall notify State of Idaho Elevator Inspector, in writing, of items completed with copy of report to Owner.
29. Contractor shall be responsible for maintaining exterior of the elevator machinery and other parts of the elevator equipment properly painted, identified, and presentable at all times.
30. Repairs required because of negligence, accident or misuse of the equipment by anyone other than Contractor, their employees, subcontractors, agents or other causes beyond Contractors control except ordinary use shall be an extra cost to the Owner.
31. Repairs and parts replacement pertaining to the car enclosure including removable panels, door panels, car gates, suspended ceilings, light fixtures, tubes and bulbs for general lighting, handrails, car finish, flooring coverings, hoistway enclosures, hoistway

entrance frames and sills and emergency telephone instruments are not the responsibility of Contractor.

32. Owner agrees to maintain the elevator pits and control room free from water and from unauthorized use.
33. Contractor agrees to provide only genuine parts recommended by the manufacturers of the equipment for replacement or repair, and to use only those lubricants obtained from and/or recommended by the manufacturer of the equipment. If Contractor wishes to provide parts or lubricants other than recommended by the Elevator Manufacture, Contractor shall, in writing, state the type proposed and the lubrication specifications to Owner and Architect for review. Equivalent parts or lubricants may be used if approved in writing by Owner and Architect.
34. Contractor shall maintain an inventory level of replacement elevator parts, in the control room, which will permit prompt repair or replacement of components that fail or become worn. No elevator shall be left shut down more than four (4) hours, except for pre-scheduled repairs.
35. Safety Data Sheets for products Contractor intends to employ under this contract will be provided to Owner prior to commencement of work. It will remain the responsibility of Contractor to inform and train the Contractor's employees on the use of Safety Data Sheets.
36. Contractor shall be fully responsible for removal and disposal of all oils, greases, solvents and soiled cleaning cloths/rags that are used in their duties. All items will be disposed in accordance with all present or future City, State, Federal Laws and Regulations, which may be applicable.
37. In the event of an elevator failure to operate properly, Owner will notify Contractor by telephone and request immediate repair. For this purpose, Contractor shall maintain, at all times, office facilities, a twenty-four (24) hour telephone service and personnel to promptly dispatch competent mechanics to repair any reported elevator.
38. Removal of elevators for Preventive Maintenance shall be approved by Owner. Contractor shall provide Owner with a written schedule of when each elevator shall be taken out of service for Preventive Maintenance.
39. A maximum of thirty (30) minute service availability time shall be provided during weekdays, Monday through Friday, 7:30 a.m. to 4:30 p.m. A maximum thirty (30) minute response time will be allowed at all other times unless a person is trapped in the elevator. If a person is trapped all reasonable measures shall be taken to arrive on job-site with-in sixty (60) minutes on overtime.
40. All normal work is to be performed during regular working days of the elevator trade, Contractor shall pay all parking expenses.
41. After each service/trouble call and regularly scheduled maintenance, a legible work ticket will be completed indicating the elevator serviced, work performed, parts replaced, total hours on the job and the serviceman performing the work. In the case of an elevator shutdown or repair, the work ticket will describe the cause of the elevator failure and the action taken to correct the failure.
42. All Work tickets shall be sent to Owner on a monthly basis. Preventive Maintenance tickets shall be separated for work completed.
43. Owner reserves the right to make surveys, inspections and tests at their expense when deemed necessary to ascertain if the requirements of the contract documents are being fulfilled. Deficiencies noted of items that are included in the contract shall be expeditiously corrected at Contractor's expense.
44. If Contractor fails to perform the work required by the terms of the contract in a diligent and satisfactory manner, Owner may after ten (10) days written notice to Contractor, perform or cause to be performed all or part of the work required thereunder. Contractor shall reimburse Owner for any expense incurred therefore or Owner at its election may deduct the amount from any sum owed or to be owed Contractor.

45. When work is determined not to be Contractor's responsibility, a written report signed by Contractor shall be delivered within twenty-four (24) hours to Owner for further action.
46. If a safety or potential safety problem exists, Contractor shall immediately correct the problem. A written report shall be delivered to Owner within twelve hours (12) hours stating the work performed.
47. In case of an elevator accident, Contractor shall be notified immediately by Owner. The elevator will not be placed in operation until an investigation is performed by Owner's representative and State of Idaho Elevator Inspector. Contractor shall provide a written report to Owner before the elevator mechanic leaves the building.
48. Inspections and tests may be completed by Owner to ascertain that requirements of the contract documents are being fulfilled by Contractor. Deficiencies noted shall be promptly corrected at Contractor's total expense.

1.07 MATERIAL AND EQUIPMENT

A. Transportation and Handling
   1. Materials, products and equipment shall be properly packaged and protected to prevent damage during transportation and handling.

B. Storage and Protection
   1. Provide suitable temporary weather-tight storage facilities as may be required for materials that may be damaged by storage in the open.
   2. Available storage space inside the building is limited. Coordinate with Park BOI representative for storage space.
   3. If off-site storage of equipment is required, Contractor shall pay for all costs incurred.
   4. Store and protect delivered materials from damage. Do not use any damaged material in the Elevator Modernization.

C. Installation Requirements
   1. A complete Elevator Technical Specification shall be on-site, at all times, during the entire Elevator Modernization.
   2. Manufactured articles, materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the respective manufacturer's instructions unless more stringent requirements are specified.
   3. Contractor shall provide written documentation that Contractor has installed and adjusted the elevator controller/selector as specified in these Specifications. Contractor shall evidence, in writing, that Contractor's Adjustor has attended the controller/selector manufacturer's training. Contractor shall provide controller/selector installation/troubleshooting training to their on-site Journeymen/Apprentices that will be installing and servicing/maintaining all the elevator equipment.
   4. On-site Installation and Maintenance Technicians shall always have, on-site, a working cell phone. The phone number(s) shall be provided to the Owner before the Elevator Modernization begins.

D. Manufacturers' Names and Data Plates
   1. Manufacturers' data plates and other identifying markings shall not be affixed on exposed surfaces to public view unless approved by Owner.
   2. Each major component of mechanical and electrical equipment shall have, on a securely attached plate, the manufacturer's name, address, model number rating and any other information required by governing codes.
   3. This requirement does not apply to Nationally Recognized Testing Laboratories (NRTL) and code required data labels.

E. Colors of Factory-Finished Equipment
   1. All colors will be selected by Owner from the manufacturer's standard color charts.
   2. Contractor shall submit samples of all colors available for review to Architect and Owner.

1.08 PROJECT CLOSEOUT

A. Final Cleaning
   1. Elevator hoistway and equipment shall be cleaned and free from rust, rubbish, loose plaster, mortar drippings, extraneous construction materials, dirt and dust.
   2. Care shall be taken by workers not to mark, soil, or otherwise deface existing surfaces. In the event that finished surfaces become defaced, clean and restore such surfaces to the original condition at the total cost of Contractor.
   3. Clean areas in which painting and finishing work is to be performed just prior to the start of this Elevator Modernization, and maintain these areas in a clean condition. Cleaning includes the removal of rubbish, broom cleaning of floors, the removal of any plaster, mortar, dust and other extraneous materials from finish surfaces, and surfaces that will remain visible after the Elevator Modernization is complete.
   4. Clean machine room equipment and floor of dirt, oil, and grease. Paint machine room floor with dark gray enamel.
   5. Clean car, entrances, operating, signal fixtures and all elevator equipment of dirt, lint, oil, grease, and finger marks.

B. Cleaning During the Elevator Modernization
   1. Total project shall be cleaned on a daily basis by Contractor. Dust must be kept at a minimum at all times, especially in the hoistways.

C. Punch Listing; Final Observation and Review
   1. Contractor shall complete the entire Elevator Modernization prior to requesting Architect final inspection.
   2. Architect will attempt to schedule the final inspection during the same period the State of Idaho Elevator Inspector inspects the elevator. Provide Architect with copies of the Elevator Inspectors Report within two (2) calendar days of the on-site Elevator Inspectors visit. Provide a written report of all items which have been corrected by Contractor.
   3. If a second (2nd) follow-up inspection is required of Architect or State of Idaho Elevator Inspector, the Contractor shall pay all costs for such inspections/surveys including all expenses for the Elevator Inspector, Architect.

1.09 ALTERATIONS

A. Description
   1. General: Perform alterations and related Work in accordance with requirements of all Contract Documents.

B. Scheduling
   1. Before commencing any alteration Work, submit for review and approval by and Architect, a schedule showing the material ship dates, time of material on-site, commencement of work, the order and the completion dates for the various parts of the elevator modernization.
   2. Provide a monthly updated schedule to Architect with payment application.
   3. Provide a list of names of Adjustors, Journeymen, and Apprentices on-site.
   4. Update list when Adjustors, Journeymen and/or Apprentices are changed.
   5. All information shall be delivered to Owner.
   6. Contractor is required to submit a three (3)-week look-ahead schedule to Architect every week, and a full project schedule with each pay request.

C. Protection
   1. Provide, erect, and maintain lights, barriers, weather protection, warning signs, and other items as required for proper protection of building tenants, visitors and all workers engaged in Elevator Modernization, either directly or indirectly for the Elevator Modernization.
   2. Provide and maintain temporary protection of the existing structure designated to remain where removal and new work is being completed, connections made, materials handled or equipment moved.

3. Take necessary precautions to prevent dust from rising by wetting removed masonry, concrete, plaster and similar debris. Protect unaltered portions of the existing building affected by the operations under this section by dust-proof partitions and other adequate means.
4. Provide adequate fire protection in accordance with State of Idaho Fire Department rules and requirements.
5. Do not close or obstruct walkways, passageways or stairways. Do not store or place materials in passageways, stairs or other means of egress. Conduct operations with minimum traffic interference.
6. Be responsible for any damage to the existing structure or contents by reason of the insufficiency of protection provided. Contractor shall repair or replace any damaged building equipment that is damaged by Contractor.

D. Quality of Work
1. Perform removal and alteration Elevator Modernization as shown, with due care, including shoring, bracing, etc. Be responsible for damage, which may be caused by such Work, to any part or parts of existing structures or items designated for reuse. Perform patching restoration and new Work in accordance with the Contract Documents.
2. Materials or items designated to be reinstalled, as stated in Section 14 24 00, shall be removed with care, under the supervision of the Contractor and protected and stored until reinstalled. Replace any material or items damaged in its removal or reinstallation.
3. Materials or items removed and not designated to become the property of Owner shall be removed and property disposed of from the job site by Contractor.
4. Execute the Elevator Modernization in a careful and orderly manner, with the least possible disturbance to the building occupants.
5. Where alterations occur, or new and old Work join, cut, remove, patch, repair or refinish the adjacent surfaces or so much thereof as is required by the involved conditions, and leave in the condition which existed prior to the commencing of the Elevator Modernization.
6. Finish new and adjacent existing surfaces as specified for Elevator Modernization. Clean existing surfaces of dirt, grease, loose paint, etc. before refinishing. Where any existing equipment is to be re-used; repair/renovate such equipment to place in perfect working order.

1.10 ELECTRICAL

A. Provide electrical components of the elevator equipment and systems, including motors, motor starters, controllers, control instruments, switches, conduit, wire and relays as specified herein and as necessary for complete and operable systems.

B. Furnish interconnecting wiring for components of equipment as an integral part of the equipment.

C. Electrical equipment and wiring shall conform to NFPA 70 - National Electrical Code, current adopted edition.

D. For equipment with electrical components, provide an NRTL label on each component for which published standards exist.

E. The frames of all motors, pump unit, controller, transformers, and the metal enclosures for all electrical equipment in or on the car, hoistway and machine room shall be grounded in accordance with NFPA 70-Article 250.

F. Provide "daisy chain" electrical grounding for all machine room electrical cabinets.

G. Provide required and adequate electrical wiring gauge sizing and number of electrical conductors to totally eliminate any voltage/amperage drop/variation for all the machine room equipment, hoistway switches; door interlocks; car operating fixtures; positions indicators; exhaust fan; car lighting; inspection station; leveling devices, hall stations; position indicators, and all other elevator electrical equipment.

H. Conductors and Connections
1. Provide new wiring in machine room, hoistway and car. Copper throughout with individual wires coded and connections on identified studs or terminal blocks.
2. Use no splices or similar connections in wiring except at terminal blocks, control cabinets, and junction boxes.
3. Provide 10% spare wires in all wiring runs. Separate and mark all spare wires. All spare wire ends shall be turned back or protected against accidental exposure to any live electrical circuit or electrical ground.
4. Provide all material and labor to connect machine room telephone wires to elevator controller and to the in-car emergency telephone. Owner to provide telephone wires to elevator machine room. All wiring shall be enclosed in EMT.

I. Conduit and Raceway
1. Provide new painted or galvanized steel conduit (EMT) and duct. Conduit size, one-half (1/2") minimum.
2. Do not use flexible conduit exceeding thirty-six inches (36") in length.
3. Flexible heavy-duty service cord may be used between fixed car wiring and car door switches for door protection devices.
4. Plastic wire ties shall not be allowed for conduit fastening.

J. Traveling Cables
1. Traveling cables shall comply with NFPA 70, Article 400.
2. Provide new with flame and moisture-resistant outer cover.
3. Traveling cables shall terminate in the elevator machine room controller and on the elevator car top junction box with marked terminals.
4. Prevent traveling cables from rubbing or chafing against hoistway or elevator equipment within hoistway.
5. Provide ten percent (10%) spare conductors in each traveling cable.
6. Provide two (2) spare conductors of coaxial traveling cables.
7. Provide four (4) spare pair of twisted/shielded conductors in traveling cables.
8. Provide two (2) spare pair of number fourteen (#14) conductors.
9. All spare wire ends shall be turned back or protected against accidental exposure to any live electrical circuit or electrical ground.
10. Tag all spare conductors indicating termination points at each end. Provide all wiring for car lighting, fan and emergency communication from elevator controller to car.
11. Provide traveling cable for in-car lighting, fan, emergency communication device and intercom to main floor and elevator machine room.

1.11 PAINTING

A. All exposed metal work furnished in these specifications, except as otherwise specified, shall be properly painted after Elevator Modernization.

B. Paint machine room and pit floors with light gray enamel.

1.12 QUALITY ASSURANCE

A. Contractor shall furnish all special tools, meters, diagnostic tools/devices, troubleshooting special hand-held tools/devices, printed information, adjusting information and all other special tools/devices to perform maintenance, testing, troubleshooting, repairing and adjusting, before starting the elevator project. No substitutions of proprietary circuit boards, EPROMS, hardware locks, software passwords or coding shall be allowed. All tools and software necessary to diagnose problems and/or change operational parameters of the elevator system shall be retained by the Owner and shall function for the life of the installed equipment. Hardware and software required for diagnosis and operating parameter modification shall be products offered as standard by the manufacturer of the control system.

B. Contractor shall provide and install all software improvement up-grades for a period of five (5) years from date of Elevator Modernization final acceptance by the Owner. The up-grades are

defined as improvements for the elevator operation. If any elevator safety software up-grades are designed or discovered by Contractor, Contractor shall install the up-grades immediately. All costs of the software up-grades shall be paid by Contractor.

C. Contractor shall provide the availability of any spare parts within seventy- two (72) hours from date of parts order by the Owner. Replacement and spare parts are defined as any and all items required to maintain, test, service, repair, adjust and operate the elevator as designed and installed, in a safe and trouble free manner. Contractor shall sell any and all spare parts including proprietary parts to the Owner or an Elevator Maintenance Contractor employed by the Owner, during the entire life cycle of the elevator equipment.

D. Contractor shall provide, in writing, all equipment that will be provided for this Elevator Modernization. The list shall include individual item cost and part numbers or coding. Parts ordering information shall be provided. A list of these items shall be provided together with a guarantee of availability. This guarantee shall specify that all parts shall be available within a twenty-four (24) hour period of order placed. The Owner may return the worn or defective part to Contractor after the replaced part is delivered to and the elevator has been placed in normal operation. The final Elevator Modernization shall be maintainable by a trained Elevator Mechanic without the need to purchase or lease additional tools or software to diagnose problems and/or change operational parameters of the elevator system. As a condition of the Elevator Modernization, Contractor shall guarantee to sell and deliver, on a timely basis, replacement parts and software updates to the Owner and/or to a third-party elevator maintenance company at a fair market price.

1.13 ACCEPTABLE ELEVATOR MANUFACTURERS

A. Acceptable Elevator Manufacturers
   1. Controls
      a. Motion Control Engineering, Inc. Motion 2000
      b. Elevator Controls Company
      c. Smart Rise
      d. VMI
      e. Or Approved Equivalent
   2. Hydraulic Pump Unit, Cab, Limit Switches, Hydraulic Jack Unit
      a. Canton Elevator Company
      b. EECO-Elevator Equipment Company, Inc.
      c. Minnesota Elevator, Inc.
      d. Or approved equivalent.
   3. Hydraulic Valve
      a. Maxton Manufacturing Company
      b. EECO-Elevator Equipment Company, Inc.
      c. Or approved equivalent.
   4. Muffler
      a. MEI - Gas Charged Silencer
      b. No approved equivalent
   5. Car Door Operator
      a. GAL Manufacturing Corporation-Linear
      b. Otis Elevator Company - Linear
      c. KONE Elevator Company - Linear
      d. Thyssenkrupp Elevator Company - Linear
      e. Or Approved Equivalent
   6. Door Tracks, Hangers, Interlocks, Gate Switch
      a. GAL Manufacturing Corporation
      b. Otis Elevator Company
      c. KONE Elevator Company
      d. Thyssenkrupp Elevator Company

e. Or Approved Equivalent
7. Hoistway and Car Door Gibs
   a. SEES-Enforcer Safety Door Gib
   b. No Approved Equivalent
8. Car Roller Guides
   a. Elevator Safety Company-(ELSCO)-Model "B"
   b. No Approved Equivalent
9. Car Door Protective Device
   a. Janus "Panachrome-3D"
   b. Or Approved Equivalent
10. Hall Station Fixtures - Vandal Resistant
    a. Innovation Industries Incorporated "The Bruiser Vandal Resistant" Low profile surface mount. Contractor to field measure and verify to cover all existing cutouts.
    b. Or Approved Equivalent
11. Car Fixtures, including In-Car Directional Lanterns
    a. Innovation Industries Incorporated “The Bruiser-Vandal Resistant"
    b. Or Approved Equivalent
12. Car/Surface Mount Hall Position Indicators/Signals
    a. C. E. Electronics, Inc.
    b. Or Approved Equivalent
13. Alarm Bell
    a. Nylube Model ELB-6
    b. Or Approved Equivalent
14. In-Car Emergency Light
    a. Nylube Products Model EL-SS
    b. Or Approved Equivalent

PART 2 - PRODUCTS

2.01 GENERAL

A. The completed elevator modernization shall conform to the elevator safety code except as specifically otherwise indicated or specified.

B. The Elevator Modernization, including equipment, material, workmanship, design, and tests shall be in accordance with the standards, rules and specifications referenced.

C. All material and equipment shall be new.

D. Electrical materials shall meet and bear evidence of meeting the requirements of a Nationally Recognized Testing Laboratory (NRTL).

E. The equipment shall be the product of a manufacturer regularly engaged in the manufacture and modernization of this type of equipment.

F. Working parts shall be accessible for inspection, servicing and repair.

G. Adequate means shall be provided for the lubrication of all wearing parts that require lubrication.

H. Description and Performance: Modernization will be in accordance with the following details and consist of the following; all dimensions to be verified by the contractor.

Two (2) In Ground Hydraulic Elevator (elevators #1 and #2)

Installed:	1990
Manufacturer:	Dover Elevator
Control System:	Simplex Selective Collective
Controller/Selector:	US relay logic
Door Equipment:	GAL
Door Size:	3'-6" wide x 7'-0" high

Door Type:	Single Speed/Center Opening
Door Operation:	Automatic
Stops:	4
Landings:	5-All in Line
Floor Designation:	*1,2,3,4,5
Rated Speed (fpm):	150
Capacity:	2500 pounds
Machine Location:	Adjacent Bottom Landing
Disconnect (VAC):	480 (Contractor to verify)
Motor (HP/AMPS/VAC):	40/47/480 (Contractor to verify)

2.02 MATERIALS

A. Steel
   1. Sheet Steel-Furniture Steel for Exposed Work: Stretcher-leveled, cold-rolled, commercial-quality carbon steel, complying with ASTM A366, matte finish.
      a. Sheet Steel for Unexposed Work: Hot-rolled, commercial-quality carbon steel, pickled and oiled, complying with ASTM A569.
      b. Structural Steel and Plates: ASTM A6, ASTM A36 AND ASTM A108.

B. Stainless Steel
   1. Type 302 or 304 complying with ASTM A167, with standard tempers and hardness required for fabrication, strength and durability.
      a. Apply mechanical finish on fabricated Work in the locations shown or specified. Federal Standard and NAAMM nomenclature, with texture and reflectivity required matching sample. Protect with adhesive-paper covering until final inspection.
      b. No. 4: Bright directional polish (satin finish). Graining directions as shown or, if not shown, in longest dimension.
      c. Rimex-texture 5-SM-304 Stainless Steel. Thickness .032. Manufactured by Rimex Metals, Inc.-2850 Woodbridge Ave.-Edison, New Jersey, 08837. (732)549-3800.

C. Aluminum
   1. Extrusions per ASTM B221; sheet and plate per ASTM B209.
   2. Plastic Laminate: ASTM E84 Class A and NEMA LD3, Fire-Rated Grade (FR-50), Type 7, 0.050" +/- .005" thick; color and texture as follows.
      a. Exposed Surfaces: Color and texture selected by Owner.
      b. Concealed Surfaces: Manufacturer's standard color and finish.

D. Fire Retardant-Treated Particleboard Panels
   1. Minimum 3/4" thick backup for natural finished wood and plastic laminate veneered panels, edged and faced. Provide with suitable anti-warp backing; meet ASTM E84 Class "I" rating with a flame-spread rating of 25 or less.

E. Baked Enamel
   1. Apply factory applied baked enamel in the selected solid color.

2.03 OPERATION

A. Simplex Automatic Operation
   1. Automatic operation by means of a car button in the car for each landing served and an up and down button at each landing except for the terminal landing that shall have only one button.
   2. When elevator is idle, automatically start car and dispatch it to floor corresponding to registered car or hall call. Slow down and stop car automatically at floor corresponding to registered call.
   3. As slowdown is initiated for a hall call, automatically cancel the call and render the hall button for that direction of travel ineffective until the car leaves the floor.
   4. Cancel car calls in same manner.
   5. Hold car at arrival floor an adjustable time interval to allow passenger transfer.

6. Illuminate appropriate button to indicate call registration.
7. Extinguish light when call is answered.

B. Door Operation
1. Open doors automatically when the car arrives at a floor to permit transfer of passengers. Automatically close doors after a timed interval.

C. Automatic Stopping Accuracy
1. Two-way automatic leveling feature shall stop the car within 1/4" regardless of load or direction of travel. Landing level will be maintained within the leveling zone irrespective of the hoistway doors being open or closed.

D. Hydraulic Control System
1. The hydraulic control system shall be designed suitable for operation under the required pressure and shall be mounted in the storage tank. The control valve will be a unit type with UP, DOWN and check valve included. All of the functions shall be fully adjustable for maximum smoothness and to meet contract conditions.
2. A manual-lowering valve will be provided to lower the elevator at slow speed.
3. The hydraulic valve shall have the capability of providing a smooth, comfortable acceleration, retardation and final stop.

E. Emergency Car Lighting and Alarm
1. Car-mounted, battery unit with solid-state charger to operate alarm bell and lighting, per Code. Battery to be rechargeable with 5-year minimum life expectancy. Provide test button in service cabinet of car station, which causes illumination of standby lighting bulbs.
2. Emergency lighting fixture shall be integral part of car operating station.

F. Automatic Shut Down Timer
1. Elevator controls will be equipped with a shut down external device or internal software that will return elevators to lowest landing and turn off elevators during garage non open hours. Timers can be adjusted to fit garage working hours.
2. System shall be overridden and elevators shall become active in the event of Phase 1 activation.

2.04 MACHINE ROOM EQUIPMENT

A. Hydraulic Pump Unit
1. Provide new "wet type" of positive-displacement pump, induction motor, master-type control valves combining safety features, holding, direction, bypass, stopping and manual-lowering functions, shut-off valve, oil reservoir with protected-vent opening, oil gauge and outlet strainer, drip pan and connections all mounted on isolating pads.

B. Controller
1. Provide reduced voltage (solid state) motor starting circuits.
2. Provide Independent Service feature.
3. Provide viscosity control unit.

C. Provide battery-lowering device.
1. If normal electrical building power is not in operation the car shall close the doors and return to the main lobby and open the doors. All safety circuits shall be monitored.
2. Car shall remain out of service until normal electrical building power is restored.

D. Firefighters' Emergency Operation
1. Operate and recall elevator to designated floor during fire. Provide sensor signal wiring from hoistway or machine room connection point to controller terminals. Operate visual/audible signal until return is complete or automatic operation restored. Provide Phase I key switch with engraved instruction at main recall floor hall station.

E. Low-Oil Control

1. In the event hydraulic oil level is insufficient for travel to the top floor, provide controls to return elevator to the main level and park with car doors open, until oil is added and elevator is manually re-set.

F. Elevator Control system must be capable of generating reports on demand from service provider. No on site computer required See reports listed below.
   1. As a minimum, the following reports shall be provided
      a. Job Configuration-This report shall provide a brief description of the system, including the job number, programmable job name, number of landings, openings per landing for the car, programmable car designation, programmable landing designation, Firefighters' Service, Seismic operation, serial communication port definitions and other system options.
      b. System Performance Graph-This report shall provide elevator system performance data based on hall call waiting times. At the end of each hour, the quantity of up and down hall calls and up and down waiting time averages shall be calculated and saved in the controller's non-volatile memory. This information shall be stored for a minimum of seven (7) days.
   2. Special Event Calendar Menu
      a. The special event calendar menu shall provide three options. The first display of Special Events Entries allows the user to examine the documented faults or events. The second, List, and Description of Events, allows the user to examine the faults and events, which are monitored. The third, Initialize the Special Event Calendar, allows the user to clear all the documented faults and events.

G. Muffler
   1. A gas charged blowout-proof muffler shall be installed in the discharge oil line near the hydraulic pump unit.
   2. Muffler shall be designed to dampen and absorb pulsation and noise in the flow of hydraulic oil fluid.

H. Piping and Oil
   1. Provide Schedule 80 steel piping and connections for all exposed sections of pipe. With new Victaulic couplings. Ok to retain existing if no visible leaks exist.
   2. Provide "ISO 32 Hydraulic oil.
   3. Provide rolled or cut groove type pipe joint for Victaulic couplings.
   4. Provide isolation couplings between the pump unit and oil line.
   5. Provide isolation brackets attached to wall or floor to eliminate sound/vibration from pump unit to building structure.
   6. Provide isolation around piping in hoistway/machine room wall.
   7. Provide a new shutoff ball valve in the elevator machine room. Ok to retain existing.

I. Shutoff Valve
   1. Provide shutoff ball valve in oil line.

J. Seismic Safety Valve
   1. Provide Seismic Safety Valve in oil line in pit area.
   2. Install Seismic Safety Valve adjacent to hydraulic cylinder inlet-outlet connection.
   3. Provide seal on Seismic Safety Valve after adjusting for correct setting.

K. Noise and Vibration Control
   1. To minimize noise and vibration, mechanically isolate elevator equipment from the structure; electrically isolate controller and motor. Limit noise level relating to elevator equipment and its operation to no more than 60 decibels in elevator car under any condition including door operation and exhaust fan on highest speed.

L. Signs
   1. Provide sign on outside of machine room door stating "Authorized Personnel Only-Storage or Installation of Equipment Not Pertaining to the Elevator is prohibited".
   2. Letters shall be not less than 3/8" high.

3. Sign shall be plastic or metal and securely fastened so as not be readily removed without the use of special tools.

M. Keys
1. Key Box
a. Provide approved key lock box, located as per requirements of Idaho State Elevator Inspector and State of Idaho Fire Department. Provide in this lock box, one (1) Phase I re-call key, one (1) Phase II operation key, one (1) stop switch keys, one (1) access plug lock key, one (1) door unlocking device and one (1) machine room key and any other keys required by Idaho State Elevator Inspector and City of Boise Fire Department.
b. Provide three (3) sets of "all" keys for the operation of the elevator. Provide a metal tag on each set of keys noting what function of each key.
2. Keys Required in Machine Room
a. Three (3) sets of keys to operate all keyed switches and locks shall be furnished upon completion. Keys shall be properly marked with metal tags. Each tag shall include ¼" letters or numbers as to the function of each key set. Each set shall be separated as a total group.
b. Provide all required sets of keys with marking tags as required by the Idaho State Elevator Inspector and ASME A17.1-2010/CSA B44-10, Section 8.1.
c. Keys shall be separated into groups as required by ASME A17.1-2010/CSA B44-10, Section 8.1.

2.05 HOISTWAY EQUIPMENT

A. Guide Rails
1. Existing guide rails shall be retained.
2. Realign guide rails to within one-sixteenth of an inch (1/16") vertical and one thirty-second of an inch (1/32") (DBG) tram.
3. File all joints-area to file shall be at least 16" above and 16" below each joint. Power disk sander shall not be allowed to file joints. Flat file that is enclosed in a rail file holder shall be the method of filing rail joints.
4. Replace any missing or broken fastening devices.
5. Provide bevel washers for any bolt/nut that is installed in a plane of 5 degrees or greater.
6. Paint guide rails and brackets with one coat of light gray enamel.

B. Guide Rail Fishplates
1. Retain

C. Spring Buffers
1. Retain existing.
2. Provide required tags on the new buffers as required by Code.
3. Paint with one coat of light gray enamel.

D. Jack Assembly
1. Retain existing Jack system and paint with one coat of light grey enamel.

E. Plunger
1. Repack jack seal after mod is complete. Ensure plunger is free of all scratches and burrs that could damage new seals.

F. Hydraulic Jack Support
1. Retain existing. Clean and paint with gray enamel paint.

G. Terminal Stopping Devices
1. Provide new upper and lower normal terminal stopping devices. Provide switches that will not cause high noise level when activated by car cam.

H. Entrance Equipment
1. Door Hangers
a. New

b. Provide safety retainer plates for the top and bottom of the door panels.

2. Door Tracks
   a. New
3. Interlocks
   a. New
   b. Provide "Fire Rated" wires from interlock to elevator controller. Interlock wires shall be flame retardant and suitable for a temperature of not less than 392 degrees F. Conductors shall be Type SF or equivalent.
   c. Provide electrical ground wire to each interlock. Electrical ground wire shall terminate at elevator controller at an electrical ground stud or connection as defined by NFPA 70.
4. Emergency Access
   a. Access to all hoistway doors shall be provided by mechanical lunar key.
   b. Provide hoistway door lunar key holes with Safety Plug Locks at all floors.
   c. Provide keyed hoistway access control at top and bottom landings.

I. Door Closers
   1. New

J. Pit Stop Switch
   1. An emergency type stop switch shall be located in the pit as to be accessible from the hoistway access door, per ASME A17.1/CSA B44. Locate stop switch adjacent to the pit ladder.

K. Pit
   1. Extend the vertical pit ladder to a height of 48" above the hoistway sill of lowest level/landing. Maintain rung spacing and spacing from pit wall.
   2. Provide a horizontal hand-hold at the top of the ladder.

L. Pit ladders to be provided. Reference Work by Others section.

M. Floor Numbers
   1. Paint 4" high floor numbers within the hoistway as required by ASME A17.1/CSA B44. Color to be in contrast with the surrounding background.

2.06 HOISTWAY ENTRANCES

A. Frames
   1. Retain existing.
   2. Provide all new mechanically attached floor plates with Braille white on black.

B. Door Panels
   1. Retain door panels. Field paint doors covered in another spec section. Color to be selected during submittal phase.
   2. Provide two (2) gibs per door panel-one at the leading edge and one at the trailing edge.
   3. Provide steel safety retainer plates between each standard door gib. Plate shall be minimum of 4 " long and centered between gigs. Plates shall vertically penetrate into the hoistway door sill groove the maximum vertical depth without bottoming out on the groove.
   4. Provide drop-leaf key access at all landings.

C. Sight Guards
   1. Retain. Match door finishes. Paint in field.

D. Sills
   1. Retain existing and clean.

E. Fascia, and Hanger Covers
   1. Retain existing. Clean and Paint light gray enamel.

F. Toe Guard
   1. Retain existing. Clean and paint with one coat of gray enamel.

G. Dust Cover
   1. Retain existing. Clean and paint with one coat of gray enamel.

H. Struts
   1. Retain existing. Clean and paint with one coat of gray enamel.

I. Headers
   1. Retain existing.

2.07 CAR EQUIPMENT

A. Car Sling
   1. Retain existing. Replace any missing or broken components.

B. Buffer Striking Plates
   1. Retain existing. Ensure plates are securely mounted to bolster channel.

C. Platform
   1. Retain existing platform. Replace any damaged or missing component.

D. Slide Guides
   1. New

E. Toe Guard
   1. Retain existing. Paint front with one coat of black enamel.

F. Hangers, Rollers, Upthrust and Tracks
   1. New

G. Header
   1. New

H. Car Door Electrical Contact
   1. New

I. Car Door Clutch
   1. New

J. Door Operator
   1. Provide new, linear door operator. Car door operator shall mechanically drive the top of the car doors and hoistway doors.
   2. Open doors automatically when car arrives at a floor to permit egress of passengers.
   3. Close doors automatically after a timed interval.

K. Door Control Device
   1. Car Door Protective Device: Provide new proximity-type car door protective device. The detection zone moves with the car door so that if a person or object enters the zone after the doors have started to close, the doors shall stop, and then reverse to re-open. The doors shall re-close after a scheduled time.

L. Nudging Action
   1. If the safety device is obstructed for a predetermined adjustable time (10-30 seconds), sound buzzer and attempt to close doors with a not more than 3.5 J (2.5 ft-lbf) kinetic energy.
   2. Stop and hold doors during closing if detector zone is entered.
   3. Allow door to close after obstruction is removed.

M. Elevator Car Station
   1. Provide new, Vandal Resistant, one elevator control station with faceplate, consisting of a metal box containing the operating fixtures, mounted behind the car enclosure fixed front return panel.
   2. Provide car position indicator as part of the upper area of the car station. Provide 50 mm (2.0 in.) high digital-type indications representing the floor served. Provide a floor passing audible signal. Signal shall be no less than 20 decibels with a frequency no higher than 1500 Hz.

3. Suitably identify floor buttons, alarm button, door open and door close buttons and emergency stop switch by engraved and painted letters or symbols per Local Handicapped Standards and ADA requirements. Engrave in ¼" letters "DOOR OPEN" and "DOOR CLOSE" below each of the assigned buttons. Provide flush inset, back fastened handicapped markings. Locate vertical height from car floor to operating controls as per ADA requirements.
4. Provide hands free emergency communication fixture that complies with The Americans with Disabilities Act (ADA).
    a. The communication device shall be an integral part of the car operating panel. Operating fixture call button and other features, including engraved instructions shall be part of and built into the car operating station cover plate.
5. Provide all necessary wiring between the elevator car and elevator machine room.
6. Program phone to comply with all Code and ADA requirements.
7. Provide in-car Emergency Lighting device at upper area and an integral part of the car operating station.
    a. An emergency power unit shall be provided to illuminate the elevator car and provide current to the alarm bell in the event of power failure. Provide Vandal Resistant plastic clear lens over device.
    b. Device shall provide a minimum illumination of 2 lx (0.2 fc) at a distance of 1200 mm (48-in.) above the car floor and 300 mm (12-in.) in front of the car operating station.
    c. The emergency lighting shall maintain the light intensity for a minimum of four (4) hours.
8. Provide 1/8" raised floor pushbuttons, which illuminate to indicate LED call registration. Provide floor designation to the left of each button.
9. Provide illuminated alarm button at bottom of station to ring bell located on elevator, and sound distress signal. Engrave in ¼" letters "ALARM" below button.
10. Provide keyed stop switch in panel faceplate with engraved in ¼" letters to indicate the "Run" and "Stop" positions.
11. Provide door open button to stop and reopen closing doors. Make button operable while car is stopped at landing, regardless of special operational features, except Firefighters' Service. Provide a key operated switch for an extended Door Open feature. Engrave below switch in ¼” letters - Door Hold Switch. Engrave above switch in ¼” letters - Off-On. On is to the right. Key shall be removable in the OFF position only.
12. Provide Phase II Firefighters' Emergency Operation panel.
    a. The panel shall contain the visual signal (fire hat symbol), door open and close buttons, call cancel button, emergency stop switch and a Firefighters’ In-car Operation keyed switch.
13. Provide lockable service panel in car station with recessed, flush cover plate matching return panel. Include the following controls, with purpose and operating positions identified by engraved letters painted black.
    a. Car light switch and emergency light test switch. Emergency light test switch will disconnect the electrical power supply to the car lighting electrical circuit.
    b. Three position fan switch-off-low speed-high speed.
    c. Independent-service switch to permit selection of independent or automatic operation.
    d. Provide a GFCI duplex 120 VAC electrical convenience outlet.
14. Provide black paint filled engraving in ½” letters:
    a. Elevator number on car station.
    b. Elevator capacity in pounds on car station.
15. Faceplate Material and Finish: #4 Brushed Stainless Steel. Provide vandal resistant fastening screws.
16. Provide any other features as required by the Idaho State Elevator Inspection Department.

N. Car Top Control Station
   1. Operating fixture shall be provided containing continuous pressure Up, Down and Safe buttons, emergency stop switch, inspection/run switch, and 110 VAC duplex outlet with GFCI protection.
   2. Toggle switches shall not be provided for the Stop, Run and Inspection switches unless the switches are guarded against accidental activation. Fasten car top station to car crosshead.

O. Car Top Illumination
   1. Work light shall be encased in a total glass enclosure including a wire guard cover.
   2. Rating of light to be sufficient to maintain the illumination required by ASME A17.1/CSA B44.
   3. The lamp(s) shall be guarded to prevent incidental contact.
   4. Provide an additional light fixture on a 2400 mm (96-in.) flexible cord. Cord to be hard wired into car top fixed work light.
      a. Provide fixed metal bracket to store cord when not in use. Locate bracket to avoid stepping on cord when attached to bracket.
   5. The lamp(s) shall be guarded to prevent incidental contact.
   6. ON-OFF car top light switch shall control both fixtures.

P. Car Top Emergency Exit
   1. Provide car top emergency escape hatch to comply with ASME A17.1/CSA B44.

2.08 CAR ENCLOSURES

A. Car Enclosure
   1. Retain and clean all glass inside and out.

B. Car interior Finishes
   1. Front returns and transoms shall have stainless steel #4 finish with swirl peanut grinder effect to hide future scratches.
   2. Car ceiling shall be stainless steel #4 finish.

C. Car Doors
   1. New stainless steel with 5WL finishes.
   2. Bottom of doors shall be provided with removable phenol guides, which run in the sill slots with minimum clearance.
   3. Provide steel safety retainer plates that will be installed between each of the two (2) standard gibs. The steel plate gib shall span minimum 4” and centered between each of the standard gibs.
   4. Provide zone restrictors, designed to prevent car doors from being opened when the car is outside a landing zone.

D. Door Edge Protective Device
   1. Provide car door with infrared type reopening device extending the full height of the car door.

E. Lighting
   1. Flush mount LED Lighting
   2. Car lighting shall be sufficient to produce the minimum illumination required at floor level in the elevator car.

F. Car Sill
   1. Retain existing

G. Car Handrails
   1. New 1.5” diameter round. Standoffs through bolted through cab wall.
   2. Stainless steel #4 brushed finish.

H. Pad and Pad Hooks

1. Provide stainless steel pad buttons on all walls. Pad buttons shall be through bolted to cab walls. Pad buttons and mounting stud shall be one piece. Provide three-section fire retardant pad with metal grommet holes for the pad hooks fastening. Mark on backside of pad the left, right or back wall side. Ok to reuse existing as long as new pads are constructed to fit current button locations. One set of Cab pads.

I. Exhaust Fan
1. Provide a two-speed exhaust fan, to be mounted on the car top. Provide flat ¼" thick, Stainless Steel round cover plate with adequate number of ¼" holes for air movement. Fasten cover plate to ceiling with six (6) (1/8") Stainless Steel pop rivets. Retain existing ok

J. Escape Hatch
1. Provide electrical contact and latch per code.

2.09 LANDING CONTROL STATIONS

A. Pushbuttons
1. Provide "Surface Mounted" vandal resistant fixtures at each landing. Include pushbuttons for direction of travel, which illuminate LEDs to indicate call registration. Engrave safety message, "In Case of Fire..." (Ref. ASME A17.1-2010/CSA B44-10, 2.27.9) in pushbutton faceplate and fill black. Center of buttons to be 42" from finish floor.

B. Provide UP or DOWN markings to the left of each button together with Braille markings. Marking plates shall be built into the cover plates.

C. Provide Firefighters' Emergency Operation Phase I key switch with engraved instructions at main Recall floor hall station.

D. Provide visual and audible signals for communication device to comply with ASME A17.1/CSA B44, 2.27.1.1.6.

E. Faceplate Material and Finish
1. Hall Pushbutton Station: Surface mount #4 Brushed Stainless Steel. Provide vandal resistant Stainless Steel fastening devices. Must be field measured and verified by contractor so new fixture covers existing cutouts and buttons are placed at code height.

2.10 SIGNALS

A. Car Traveling Lanterns
1. Provide Vandal Resistant type in both sides of car entrance columns. Provide #4 Brushed Stainless Steel cover plate with vandal resistant Stainless Steel fastenings. Illuminate appropriate direction light and sound electronic tone as hall call is answered to indicate intended car travel. Tone shall sound once for UP direction, twice for DOWN direction.

B. Car Position Indicator
1. Include as part of car station. Provide 2" high digital-type indications representing the floor served. Provide a floor passing audible signal. Signal shall be no less than 20 decibels with a frequency no higher than 1500 Hz.

PART 3 - EXECUTION

3.01 SITE CONDITION INSPECTION

A. Prior to beginning the Elevator Modernization, Contractor shall survey the machine room, hoistway and pit. Contractor shall verify, in writing, that no conditions exist which adversely could affect their Work. The Contractor shall verify all existing dimensions relevant to the scope of work.

B. Do not proceed with Elevator Modernization until possible concerns/problems conforms to project requirements.

3.02 INSTALLATION

A. Install all elevator equipment in accordance with Manufacturer's direction, referenced Codes, and Specifications.

B. Install all elevator equipment so they may be easily removed for maintenance and repair.

C. Install all elevator equipment so that access for maintenance is safe and readily available.

3.03 FIELD QUALITY CONTROL

A. Work at the jobsite will be checked during the time of Elevator Modernization.

B. Accomplish corrective Work required by Architect prior to performing further installation.

3.04 ADJUSTMENTS

A. Adjust all elevator equipment to achieve required performance levels.

B. Meet performance levels described in 3.07 A-C

3.05 PAINTING AND FINISHES

A. All natural metals shall be of the best grade and shall have the grain of belting in the direction of the longest dimension with a fine, brushed finish. All surfaces shall be perfectly smooth and without waves.

3.06 RIDE QUALITY

A. Horizontal vibration, side to side and front to back with car during normal operation shall not exceed 30 mg in the 1-10 Hz range.

B. Vertical vibration not more than 25 mg. Provide smooth and constant acceleration and deceleration of not more than 2.8 feet/second/second with an initial ramp between 0.5 and 0.75 second.

C. Provide smooth and constant acceleration and deceleration of not more than 2.8 feet/second/second with an initial ramp between 0.5 and 0.75 second.

D. Provide no more than 12 ft/sec3 of maximum jerk.

3.07 PERFORMANCE

A. Speed: +/- 10% of contract speed under any loading condition or direction of travel.

B. Stopping Accuracy: +/- 1/8" under any loading condition or direction of travel.

C. Door Opening Time: Seconds from start of opening to fully open
   1. 2.5 seconds

D. Door Closing Time: Seconds from start of car door closing until car doors are in the fully closed position and the elevator can start.
   1. As per ASME A17.1 requirements

E. Floor-to-Floor Performance Time: Seconds from start of car doors closing until car doors are 3/4 open and car level and stopped at next successive floor under any loading condition or travel direction.
   1. 10.5 seconds (based on 12' travel)
   2. Provide a smooth start, acceleration, high speed operation, deceleration and final stop in both directions.

3.08 ACCEPTANCE INSPECTION AND TESTS

A. Furnish labor, materials and equipment necessary for all tests. Notify Architect seven (7) days in advance when ready for final inspection. Final acceptance of Elevator Modernization shall be considered only after all field-quality control reviews have been completed, identified deficiencies have been corrected, all submittals and certificates have been received and the following items have been completed to the satisfaction of Architect.

B. Quality of Work and equipment comply with specification.

C. Performance of following are satisfactory:
   1. Door operation and closing force.
   2. Signal fixtures.
   3. Firefighters Service Emergency Operation.

4. Performance times.
5. Car speed.
6. Seismic testing.
7. Conduct the following tests: one-hour running test stopping at each floor in up and down directions. The doors are to complete a full open and close cycle with the standard door dwell time operating.
    a. Rated (full) capacity.
    b. Balanced car.
    c. Empty car.

D. Performance Guarantee: Should tests reveal defects, poor quality of Work, variance or noncompliance with requirements of specified Codes and/or ordinances, or variance or noncompliance with the requirements of specifications, complete corrective Work to satisfaction of Architect, at no additional cost to the Owner.
    1. Replace equipment that does not meet Code or Specification requirements.
    2. Perform Elevator Modernization including all labor, materials and equipment necessary to meet specified operation and performance.
    3. Perform and assume cost, including expenses, for re-testing and re-inspections required by State of Idaho Elevator Inspector and Architect to verify specified operation, performance and requirements of all contract documents have been completed to the total satisfaction of, State of Idaho Elevator Inspector and Architect.

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SECTION 230500 - COMMON WORK RESULTS FOR HVAC

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. This Section includes the following:

1. Equipment installation requirements common to equipment sections.
2. Painting and finishing.
3. Supports and anchorages.

1.3 DEFINITIONS

A. Finished Spaces: Spaces other than mechanical and electrical equipment rooms, furred spaces, pipe and duct chases, unheated spaces immediately below roof, spaces above ceilings, unexcavated spaces, crawlspaces, and tunnels.

B. Exposed, Interior Installations: Exposed to view indoors. Examples include finished occupied spaces and mechanical equipment rooms.

C. Exposed, Exterior Installations: Exposed to view outdoors or subject to outdoor ambient temperatures and weather conditions. Examples include rooftop locations.

D. Concealed, Interior Installations: Concealed from view and protected from physical contact by building occupants. Examples include above ceilings and chases.

E. Concealed, Exterior Installations: Concealed from view and protected from weather conditions and physical contact by building occupants but subject to outdoor ambient temperatures. Examples include installations within unheated shelters.

1.4 QUALITY ASSURANCE

A. Steel Support Welding: Qualify processes and operators according to AWS D1.1, "Structural Welding Code--Steel."

B. Electrical Characteristics for HVAC Equipment: Equipment of higher electrical characteristics may be furnished provided such proposed equipment is approved in writing and connecting electrical services, circuit breakers, and conduit sizes are appropriately modified at no cost to the Owner. If minimum energy ratings or efficiencies are specified, equipment shall comply with requirements.

1.5 COORDINATION

A. Coordinate requirements for access panels and doors for HVAC items requiring access that are concealed behind finished surfaces. Provide and install access panels and doors. Access dors to have keylock hinged metal door and frame.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where subparagraph titles below introduce lists, the following requirements apply for product selection:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the manufacturers specified.

PART 3 - EXECUTION

3.1 PIPING SYSTEMS - COMMON REQUIREMENTS

A. Verify final equipment locations for roughing-in.

B. Refer to equipment specifications in other Sections of these Specifications for roughing-in requirements.

3.2 EQUIPMENT INSTALLATION - COMMON REQUIREMENTS

A. Install equipment to allow maximum possible headroom unless specific mounting heights are not indicated.

B. Install equipment level and plumb, parallel and perpendicular to other building systems and components in exposed interior spaces, unless otherwise indicated.

C. Install HVAC equipment to facilitate service, maintenance, and repair or replacement of components. Connect equipment for ease of disconnecting, with minimum interference to other installations. Extend grease fittings to accessible locations.

D. Install equipment to allow right of way for piping installed at required slope.

3.3 PAINTING

A. Damage and Touchup: Repair marred and damaged factory-painted finishes with materials and procedures to match original factory finish.

3.4 ERECTION OF WOOD SUPPORTS AND ANCHORAGES

A. Cut, fit, and place wood grounds, nailers, blocking, and anchorages to support, and anchor HVAC materials and equipment.

B. Select fastener sizes that will not penetrate members if opposite side will be exposed to view or will receive finish materials. Tighten connections between members. Install fasteners without splitting wood members.

C. Attach to substrates as required to support applied loads. Verify requirements with joist manufacturer. Do not install hangers in bottom of joists. Spread load across joists per manufacturer.

3.5 GROUTING

A. Mix and install grout for HVAC equipment base bearing surfaces, pump and other equipment base plates, and anchors.

B. Clean surfaces that will come into contact with grout.

C. Provide forms as required for placement of grout.

D. Avoid air entrapment during placement of grout.

E. Place grout, completely filling equipment bases.

F. Place grout on concrete bases and provide smooth bearing surface for equipment.

G. Place grout around anchors.

H. Cure placed grout.

END OF SECTION 230500

SECTION 233423 - POWER VENTILATORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:

1. Ceiling mounted ventilators.

1.3 PERFORMANCE REQUIREMENTS

A. Project Altitude: Base fan-performance ratings on actual Project site elevations.

B. Operating Limits: Classify according to AMCA 99.

1.4 SUBMITTALS

A. Product Data: Include rated capacities, furnished specialties, and accessories for each type of product indicated and include the following:

1. Certified fan performance curves with system operating conditions indicated.
2. Certified fan sound-power ratings.
3. Motor ratings and electrical characteristics, plus motor and electrical accessories.
4. Material thickness and finishes, including color charts.
5. Dampers, including housings, linkages, and operators.
6. Fan speed controllers.

B. Shop Drawings: Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.

1. Wiring Diagrams: Power, signal, and control wiring.

C. Field quality-control test reports.

D. Operation and Maintenance Data: For power ventilators to include in emergency, operation, and maintenance manuals.

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. AMCA Compliance: Products shall comply with performance requirements and shall be licensed to use the AMCA-Certified Ratings Seal.

C. NEMA Compliance: Motors and electrical accessories shall comply with NEMA standards.

D. UL Standard: Power ventilators shall comply with UL 705.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver fans as factory-assembled unit, to the extent allowable by shipping limitations, with protective crating and covering.

B. Disassemble and reassemble units, as required for moving to final location, according to manufacturer's written instructions.

C. Lift and support units with manufacturer's designated lifting or supporting points.

1.7 COORDINATION

A. Coordinate size and location of structural-steel support members.

PART 2 - PRODUCTS

2.1 CEILING-MOUNTING VENTILATORS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Breidert Air Products.
2. Broan Mfg. Co., Inc.
3. Carnes Company HVAC.
4. Greenheck.
5. Loren Cook Company.
6. Penn Ventilation.

B. Description: Centrifugal fans designed for installing in ceiling or wall or for concealed in-line applications.

C. Housing: Steel, lined with acoustical insulation.

D. Fan Wheel: Centrifugal wheels directly mounted on motor shaft. Fan shrouds, motor, and fan wheel shall be removable for service.

E. Grille: Plastic, Stainless steel or Aluminum, louvered grille with flange or for inline bottom access panel on intake and thumbscrew attachment to fan housing.

F. Electrical Requirements: Junction box for electrical connection on housing and receptacle for motor plug-in.

G. Accessories:

1. Isolation: Rubber-in-shear vibration isolators.
2. Manufacturer's standard roof jack or wall cap, and transition fittings.
3. Access panel bottom for inline ceiling mounted access if required.

H. Capacities and Characteristics: As scheduled.

2.2 MOTORS

A. Enclosure Type: Totally enclosed, fan cooled.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install units level and plumb.

B. Ceiling Units: Suspend units from structure; use allthread and unistrut.

C. Install units with clearances for service and maintenance.

3.2 CONNECTIONS

A. Install ducts adjacent to power ventilators to allow service and maintenance.

B. Ground equipment according to Division 26.

C. Connect wiring according to Division 26.

3.3 FIELD QUALITY CONTROL

A. Perform the following field tests and inspections and prepare test reports:

1. Verify that shipping, blocking, and bracing are removed.
2. Verify that unit is secure on mountings and supporting devices and that connections to ducts and electrical components are complete. Verify that proper thermal-overload protection is installed in motors, starters, and disconnect switches.
3. Verify that cleaning and adjusting are complete.
4. Disconnect fan drive from motor, verify proper motor rotation direction, and verify fan wheel free rotation and smooth bearing operation. Reconnect fan drive system, align and adjust belts, and install belt guards.
5. Verify lubrication for bearings and other moving parts.

6. Verify that manual and automatic volume control and fire and smoke dampers in connected ductwork systems are in fully open position.
7. Disable automatic temperature-control operators, energize motor and adjust fan to indicated rpm, and measure and record motor voltage and amperage.
8. Shut unit down and reconnect automatic temperature-control operators.
9. Remove and replace malfunctioning units and retest as specified above.

B. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

3.4 ADJUSTING

A. Adjust damper linkages for proper damper operation.

B. Replace fan and motor pulleys as required to achieve design airflow.

C. Lubricate bearings.

END OF SECTION 233423

SECTION 238126 - SPLIT-SYSTEM HEAT PUMP AIR-CONDITIONERS

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 invertor duty, split-system multi-port heat pump air-conditioning units consisting of multiple separate evaporator-fan units and packaged heat pumps compressor-condenser components.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated. Include rated capacities, operating characteristics, and furnished specialties and accessories. Include performance data in terms of capacities, outlet velocities, static pressures, sound power characteristics, motor requirements, and electrical characteristics.

B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.

1. Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
2. Wiring Diagrams: For power, signal, and control wiring.

C. Field quality-control reports.

D. Operation and Maintenance Data: For split-system air-conditioning units to include in emergency, operation, and maintenance manuals.

E. Warranty: Sample of special warranty.

1.4 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. ASHRAE Compliance:

1. Fabricate and label refrigeration system to comply with ASHRAE 15, "Safety Standard for Refrigeration Systems."
2. ASHRAE Compliance: Applicable requirements in ASHRAE 62.1-2004, Section 4 - "Outdoor Air Quality," Section 5 - "Systems and Equipment," Section 6 - " Procedures," and Section 7 - "Construction and System Start-Up."

C. ASHRAE/IESNA Compliance: Applicable requirements in ASHRAE/IESNA 90.1-2004.

1.5 COORDINATION

A. Coordinate sizes and locations of roof pad, equipment supports, and roof penetrations with actual equipment provided.

1.6 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of split-system air-conditioning units that fail in materials or workmanship within specified warranty period.

1. Warranty Period:

a. For Compressor: Five year(s) from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Mitsubishi Electric & Electronics USA, Inc.; HVAC Advanced Products Division.
2. Mitsubishi Heavy Industries America, Inc.
3. Daikin
4. LG
5. Fujitsu

2.2 INDOOR UNITS 5 TONS (18 kW) OR LESS

A. Wall Mounted Unit

1. General: Wall mounted fan coil unit shall be operable with refrigerant R-410A, equipped with an electronic expansion valve, for within a conditioned space. Computerized control shall be used to control superheat to deliver a comfortable room temperature condition. A mildew-proof polystyrene condensate drain pan and resin net mold resistant filter shall be included as standard equipment. The indoor units sound pressure shall range from 32 dB(A) to 38 dB(A) at low speed measured at 3.3 feet below and from the unit.

2. The indoor unit:

a. Shall be completely factory assembled and tested. Included in the unit is factory wiring, piping, electronic proportional expansion valve, control circuit board, fan motor thermal protector, flare connections, condensate drain pan, self-diagnostics, auto restart function, 3-minute fused time delay and test run switch. The unit shall have an auto-swing louver which ensures efficient air distribution, which closes automatically when the unit stops. The controller shall be able to set five (5) steps

of discharge angle. The front grille shall be easily removed for washing. The discharge angle shall automatically set at the same angle as the previous operation upon restart. The drain pipe can be fitted to and from the rear, top or left and right sides of the unit.

b. Indoor unit and refrigerant pipes will be charged with dehydrated air prior to shipment from the factory.
c. Both refrigerant lines shall be insulated from the outdoor unit
d. Return air shall be through a resin net mold resistant filter.
e. The units shall be equipped with a condensate pan and lift pump.
f. The units shall be equipped with a return air thermistor but be controlled from room stat.

3. Cabinet

a. The cabinet shall be affixed to a factory supplied ceiling hanging brackets and located in the conditioned space.
b. The cabinet shall be constructed with a sound absorbing foamed polystyrene and polyethylene insulation.

4. Fan:

a. The fan shall be a direct-drive cross-flow fan, statically and dynamically balanced impeller with high and low fan speeds available.
b. The fan motor shall operate on voltage as scheduled.
c. The airflow rate shall be available in high and low settings.
d. The fan motor shall be thermally protected.

5. Coil:

a. Coils shall be of the direct expansion type constructed from copper tubes expanded into aluminum fins to form a mechanical bond.
b. The coil shall be of a waffle louver fin and high heat exchange, rifled bore tube design to ensure highly efficient performance.
c. The coil shall be a 2-row cross fin copper evaporator coil with 15 fpi design completely factory tested.
d. The refrigerant connections shall be flare connections and the condensate will be minimum 1 inch outside diameter PVC.
e. A thermistor will be located on the liquid and gas line.
f. A condensate pan shall be located in the unit.

6. Electrical:

a. Verify if separate power supply will be required or if unit is powered from outdoor unit.

7. Control:

a. The unit shall have controls provided to perform input functions necessary to operate the system.

8. Provide the following accessories:

a. Remote “in-room” sensor
b. A condensate pump

2.3 OUTDOOR UNITS (5 TONS (18 kW) OR LESS)

A. Air-Cooled, Inverter Type Compressor-Condenser Components (Heat Pump):

1. Casing: Steel, finished with baked enamel in color selected by Architect, with removable panels for access to controls, weep holes for water drainage, and mounting holes in base. Provide brass service valves, fittings, and gage ports on exterior of casing.
2. Compressor: Hermetically sealed with crankcase heater and mounted on vibration isolation device. Compressor motor shall have thermal- and current-sensitive overload devices, start capacitor, relay, and contactor.

    a. Compressor Type: Inverter Duty Scroll.
    b. Refrigerant Charge: R-410A.
    c. Refrigerant Coil: Copper tube, with mechanically bonded aluminum fins and liquid subcooler. Comply with ARI 210/240.

3. Fan: Aluminum-propeller type, directly connected to motor.
4. Motor: Permanently lubricated, with integral thermal-overload protection.
5. Low Ambient Kit: Permits operation down to 20 deg F in cooling
6. Mounting Base: Polyethylene.
7. Wind baffle for heating operation down to 0°F OAT.
8. Reversing valve.

2.4 ACCESSORIES

A. Thermostat: Hardwired functioning to remotely control units, with the following features:

1. Compressor time delay.
2. 24-hour time control of system stop and start.
3. Liquid-crystal display indicating temperature, set-point temperature, time setting, operating mode, and fan speed.
4. Fan-speed selection including auto setting.

B. Automatic-reset timer to prevent rapid cycling of compressor.

C. Refrigerant Line Kits: Soft-annealed copper suction and liquid lines factory cleaned, dried, pressurized, and sealed; factory-insulated suction line with flared fittings at both ends.

D. Factory Condensate Pump, Ball Check and Drain Hose: For condensate removal

E. Manufacturers Condenser Wall Mount Kit

2.5 CAPACITIES AND CHARACTERISTICS

A. As scheduled on Drawings.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install units level and plumb.

B. Install evaporator-fan components using manufacturer's standard mounting devices securely fastened to building structure.

C. Install wall-mounted, compressor-condenser components on manufacturers wall mount. Anchor units to supports with removable, cadmium-plated fasteners.

D. Install and connect precharged refrigerant tubing to component's quick-connect fittings. Install tubing to allow access to unit.

3.2 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections.

B. Perform tests and inspections.

1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.

C. Tests and Inspections:

1. Leak Test: After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist.
2. Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation.
3. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

D. Remove and replace malfunctioning units and retest as specified above.

E. Prepare test and inspection reports.

3.3 STARTUP SERVICE

A. Perform startup service.

1. Complete installation and startup checks according to manufacturer's written instructions.

3.4 DEMONSTRATION

A. Train Owner's maintenance personnel to adjust, operate, and maintain units.

END OF SECTION 238126

SECTION 238239.19 - WALL AND CEILING UNIT HEATERS

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 wall and ceiling heaters with propeller fans and electric-resistance heating coils.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include rated capacities, operating characteristics, furnished specialties, and accessories.

B. Shop Drawings:

1. Include plans, elevations, sections, and details.
2. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
3. Include details of anchorages and attachments to structure and to supported equipment.
4. Include equipment schedules to indicate rated capacities, operating characteristics, furnished specialties, and accessories.
5. Wiring Diagrams: Power, signal, and control wiring.

1.4 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For wall and ceiling unit heaters to include in emergency, operation, and maintenance manuals.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Berko; Marley Engineered Products.
2. Chromalox, Inc.
3. Indeeco.

4. Markel Products Company; TPI Corporation.
5. Marley Engineered Products.
6. Ouellet Canada Inc.
7. QMark; Marley Engineered Products.
8. Trane Inc.

2.2 DESCRIPTION

A. Assembly including chassis, electric heating coil, fan, motor, and controls. Comply with UL 2021.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.3 CABINET

A. Front Panel: Extruded-aluminum bar grille, with removable panels fastened with tamperproof fasteners.

B. Finish: Baked enamel over baked-on primer with manufacturer's standard color selected by Architect, applied to factory-assembled and -tested wall and ceiling heaters before shipping.

C. Airstream Surfaces: Surfaces in contact with the airstream shall comply with requirements in ASHRAE 62.1.

D. Surface-Mounted Cabinet Enclosure: Steel with finish to match cabinet.

2.4 COIL

A. Electric-Resistance Heating Coil: Nickel-chromium heating wire, free from expansion noise and 60-Hz hum, embedded in magnesium oxide refractory and sealed in corrosion-resistant metallic sheath. Terminate elements in stainless-steel, machine-staked terminals secured with stainless-steel hardware, and limit controls for high-temperature protection. Provide integral circuit breaker for overcurrent protection and factory mounted disconnect.

2.5 FAN AND MOTOR

A. Fan: Aluminum propeller directly connected to motor.

B. Motor: Permanently lubricated.

2.6 CONTROLS

A. Controls: Unit-mounted thermostat or if shown with remote t-stat, provide low-voltage relay with transformer kit.

B. Electrical Connection: Factory wire motors and controls for a single field connection with disconnect switch.

2.7 CAPACITIES AND CHARACTERISTICS

A. As scheduled on drawings.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas to receive wall and ceiling unit heaters for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Examine roughing-in for electrical connections to verify actual locations before unit-heater installation.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install wall and ceiling unit heaters to comply with NFPA 90A.

B. Install wall and ceiling unit heaters level and plumb.

C. Install wall-mounted thermostats and switch controls in electrical outlet boxes at heights to match lighting controls. Verify location of thermostats and other exposed control sensors with Drawings and room details before installation.

D. Ground equipment according to Division 26.

E. Connect wiring according to Division 26.

END OF SECTION 238239.19

SECTION 260500 – COMMON WORK RESULTS FOR ELECTRICAL

PART 1 - GENERAL:

1.1 RELATED DOCUMENTS:

A. All drawings associated with the entire project, including general provisions of the Contract, including The General Conditions of the Contract for Construction, General and Supplementary Conditions and Division-1 Conditions specification sections shall apply to the Division 26 specifications and drawings. The Contractor shall be responsible for reviewing and becoming familiar with the aforementioned and all other Contract Documents associated with the project.

B. Where contradictions occur between this section and Division 1, the more stringent requirement shall apply.

C. Contractor shall be defined as any and all entities involved with the construction of the project.

1.2 SUMMARY:

A. This Section specifies the basic requirements for electrical installations and includes requirements common to more than one section of Division 26 and Division 28. It expands and supplements the requirements specified in sections of Division 1 through 50.

1.3 ELECTRICAL INSTALLATIONS:

A. Drawings are diagrammatic in character and do not necessarily indicate every required conduit, box, fitting, etc.

B. Drawings and specifications are complementary. Whatever is called for in either is binding as though called for in both. Report any discrepancies to the Engineer and obtain written instructions before proceeding. Where any contradictions occur between the specifications and the drawings the more stringent requirement shall apply. The contractor shall include pricing for the more stringent and expensive requirements.

C. Drawings shall not be scaled for rough-in measurements or used as shop drawings. Where drawings are required for these purposes or have to be made from field measurement, take the necessary measurements and prepare the drawings.

D. The exact location for some items in this specification may not be shown on the drawings. The location of such items may be established by the Engineer during the progress of the work.

E. The contractor shall make the installation in such a manner as to conform to the structure, avoid obstructions, preserve headroom and keep openings and passageways clear, without further instructions or costs to the Owner. All equipment shall be installed so access is maintained for serviceability.

F. Before any work is begun, determine that equipment will properly fit the space and that conduit can be run as contemplated without interferences between systems, with structural elements or with the work of other trades.

G. Verify all dimensions by field measurements.

H. Arrange for chases, slots, and openings in other building components to accommodate electrical installations.

I. Sequence, coordinate, and integrate installations of electrical materials and equipment for efficient flow of the work. Give particular attention to large equipment requiring an access path for positioning prior to closing-in the building or space.

J. Where mounting heights are not detailed or dimensioned, install electrical conduits, boxes, and overhead equipment to provide the maximum headroom possible. In general, keep installations tight to structure.

K. Install electrical equipment to facilitate maintenance and repair or replacement of equipment components as much as practical, and connect equipment for ease of disconnecting and removal with minimum of interference with other installations.

L. Make allowance for expansion and contraction for all building electrical components and conduit systems that are subject to such.

M. The ceiling space shall not be “layered”. It is the contractor’s responsibility to offset and coordinate any systems as required to allow installation within the identified ceiling cavity. The contractor shall include labor and material in the base bid to accommodate such offsets.

N. In general, all conduit systems shall be routed as high as possible. Keep all equipment in accessible areas such as corridors and coordinate with systems and equipment from other sections.

O. Coordinate the installation of required supporting devices and sleeves to be set in poured-in-place concrete and other structural components, as they are constructed.

P. Coordinate the installation of electrical materials and equipment above and below ceilings with suspension system, luminaires and other building components. Ductwork and piping shall not be installed above electrical panelboards, switchboards, motor control centers, and transformers.

1.4 COORDINATION:

A. Work out all installation conditions in advance of installation. The Contractor shall be responsible for preparing coordination drawings, showing all work, in all areas. The Contractor shall be responsible for providing all labor and material, including but not limited to all fittings, hangers, control devices, lighting, low voltage equipment, cable tray, conduit, transformers, disconnects, etc., necessary to overcome congested conditions at no increase in contact sum. The Contractors base bid shall include any and all time and manpower necessary to develop such coordination efforts and drawings. Increases to contract sum or schedule shall not be considered for such effort.

B. Provide proper documentation of equipment, product data and shop drawings to all entities involved in the project. Coordination shall include, but not be limited to the following:

1. Automatic Temperature Controls, Building Management and Testing, Adjusting and Balancing Contractors shall be provided with equipment product data and shop drawings from other Division 23 and Division 26 Contractors and shall furnish the same information involving control devices to the appropriate Contractor.
2. Automatic Doors and controls, Elevators and other building access equipment shall have cut sheets reviewed and shall furnish the same information to the appropriate Contractor.

C. Existing Conditions:

1. Contractor shall carefully survey existing conditions prior to bidding work. In addition, Contractor shall complete a thorough ceiling cavity survey prior to developing Coordination drawings.
2. Contractor shall be responsible for showing all existing conditions on the coordination drawings.
3. Provide proper coordination of electrical work with existing conditions.
4. Contactor shall report any issues or conflicts immediately to Engineer before commencing with work and prior to purchasing equipment and materials.

1.5 COORDINATION WITH OTHER DIVISIONS:

A. General:

1. Coordinate all work to conform to the progress of the work of other trades.
2. Complete the entire installation as soon as the condition of the building will permit. No extras will be allowed for corrections of ill-timed work, when such corrections are required for proper installation of other work.

B. Coordinate ceiling cavity space carefully with all trades. In the event of conflict, install mechanical and electrical systems within the cavity space allocation in the following order of priority:

1. Equipment and required clearances
2. Plumbing waste, cooling coil drain piping and roof drain mains and leaders.
3. Ductwork mains.
4. Plumbing vent piping.
5. Low pressure ductwork and air devices.
6. Electrical and communication conduits, raceways and cable tray.
7. Domestic hot and cold water.
8. Hydronic piping.
9. Fire sprinkler mains, branch piping and drops (locate as tight to structure as possible).
10. DDC control wiring and other low voltage systems.
11. Fire alarm systems.

C. Chases, Inserts and Openings:

1. Provide measurements, drawings and layouts so that openings, inserts and chases in new construction can be built in as construction progresses.
2. Check sizes and locations of openings provided, including the access panels for equipment in hard lid ceilings and wall cavities.
3. Any cutting and patching made necessary by failure to provide measurements, drawings and layouts at the proper time shall be done at no additional cost in contract sum.

D. Support Dimensions: Provide dimensions and drawings so that concrete bases and other equipment supports to be provided under other sections of the specifications can be built at the proper time.

E. Coordinate the installation of required supporting devices and sleeves to be set in poured in place concrete and other structural components, as they are constructed.

F. Coordinate the cutting and patching of building components to accommodate the installation of electrical equipment and materials.

G. Modifications required as result of failure to resolve interferences, provide correct coordination drawings or call attentions to changes required in other work as result of modifications shall be paid for by responsible Contractor/Subcontractor.

1.6 DESIGN WORK REQUIRED BY CONTRACTOR:

A. The construction of this project requires the Contractor to include the detailing and design of several systems and/or subsystems. All such design work associated with the development of the coordination drawings shall be the complete responsibility of the Contractor.

B. The Contractor shall take the full responsibility to develop and complete routing strategies which will allow fully coordinated system to be installed in a fully functional manner. The Engineers contract drawings shall be for system design intent and general configurations.

C. Systems or subsystems which require design responsibility by the contractor include but are not limited to:

1. Temporary Facilities.
2. Final coordinated distribution systems within the ceiling cavity.
3. Any system not fully detailed.
4. Equipment supports, hangers, anchors and seismic systems not fully detailed nor specified in these documents, or catalogued by the manufacturer.
5. Seismic restraint systems.

1.7 PROJECT CONDITIONS:

A. The contractor shall be required to attend a pre-bid walk-thru if required and shall make themselves familiar with the existing conditions. No additional costs to the Owner shall be accepted for additional work for existing conditions.

B. Field verify all conditions prior to submitting bids.

C. Report any damaged equipment or systems to the Owner prior to any work.

D. Protect all work against theft, injury or damage from all causes until it has been tested and accepted.

E. Be responsible for all damage to the property of the Owner or to the work of other contractors during the construction and guarantee period. Repair or replace any part of the work which may show defect during one year from the final acceptance of all work, provided such defect is, in the opinion of the Architect, due to imperfect material or workmanship and not due to the Owner's carelessness or improper use.

F. The Contractor shall coordinate and co-operate with Owner at all times for all new to existing connections.

G. Provide temporary electrical connections where required to maintain existing areas operable.

H. Coordinate all services shut-down with the Owner; provide temporary services. Coordinate any required disruptions with Owner, at a minimum one week in advance.

I. Minimize disruptions to operation of electrical systems in occupied areas.

1.8 SAFETY:

A. Refer to Division 1.

1.9 EQUAL EMPLOYMENT OPPORTUNITY REQUIREMENTS:

A. Refer to Division 1 and conform with the Owners requirements.

1.10 REQUIREMENTS OF REGULATORY AGENCIES:

A. Refer to Division 1.

B. Execute and inspect all work in accordance with Underwriters Laboratories (UL), and all local and state codes, rules and regulations applicable to the trade affected as a minimum, but if the plans and/or specifications call for requirements that exceed these rules and regulations, the more stringent requirement shall be followed. Follow application sections and requirements and testing procedures of NFPA, IEEE, NEMA, CBM, ANSI, NECA, ICEA, NETA, and IETA.

C. Comply with standards in effect at the date of these Contract Documents, except where a standard or specific date or edition is indicated.

D. Energy Codes: All equipment and installations shall conform to Federal, State, and local Energy Conservation Standards.

E. The handling, removal and disposal of regulated liquids or other materials shall be in accordance with U.S. EPA, state and local regulations.

F. The handling, removal and disposal of lead based paint and other lead containing materials shall comply with EPA, OSHA, and any other Federal, State, or local regulations.

G. After entering into contract, Contractor will be held to complete all work necessary to meet these requirements without additional expense to the Owner.

H. All material used on this project shall be UL listed and labeled and be acceptable to the authority having jurisdiction as suitable for the use intended.

1.11 PERMITS AND FEES:

A. Refer to Division 1.

B. **Contractor** shall pay all fees required for connection to municipal and public utility facilities.

C. Contractor shall arrange for and pay for all inspections, licenses and certificates required in connection with the work.

1.12 PROJECT SEISMIC REQUIREMENTS:

A. Installation shall comply with the local seismic requirements for the area of installation. Provide restraints, bracing, anchors, vibration isolation, seismic snubbers, and all other components required for the installation.

B. All electrical and fire alarm systems shall be installed to meet NFPA and IBC Seismic requirements.

1. Where any conflicts arise the more stringent requirements shall be applicable.
2. The design of the seismic requirements shall be the responsibility of the contractor.

1.13 TEMPORARY FACILITIES:

A. Light, Heat, Power, Etc. Responsibility for providing temporary electricity, heat and other facilities shall be as identified in these specifications, as shown on the drawings and as specified in Division 1.

B. Building distribution equipment and devices (existing or new) shall not be used without written permission of the Owner. If used for temporary power, the equipment shall be properly maintained and any damage resulting from use shall be repaired by the Contractor. The guarantee period for new equipment shall not begin until the equipment is turned over to the Owner.

C. If AC power systems or their backup systems serving telecommunications, computer equipment, or their associated HVAC equipment and controls are taken out of service, for any reason, the Contractor shall be responsible for providing temporary systems during the period when the AC power systems or their backup systems are out of service. The Contractor shall be responsible for providing temporary power to all loads being interrupted.

1.14 PRODUCT OPTIONS AND SUBSTITUTIONS:

A. Refer to the Instructions to Bidders and Division 1.

B. The burden of proof that proposed equipment is equal in size, capacity, performance, and other pertinent criteria for this specific installation, or superior to that specified is up to the Contractor. If substitutions are not granted, the specified materials and equipment must be installed. Where substituted equipment is allowed, it shall be the Contractor's responsibility to notify all related trades of the accepted substitution and to assume full responsibility for all costs caused as a result of the substitution.

C. Materials and equipment of equivalent quality shall be submitted for substitution prior to bidding. This may be done by submitting to the Architect/Engineer at least ten (10) working days prior to the bid date requesting prior review. This submittal shall include all data necessary for complete evaluation of the product.

1. Substitutions shall be allowed only upon the written approval of the Architect/Engineer NO EXCEPTIONS.

2. The Contractor shall be responsible for removal, replacement and remedy of any system or equipment which has been installed which does not meet the specifications and scheduled performance or which does not have prior approval.

D. Bidders opting to bid or propose comparable products (either a product by a listed acceptable manufacturer in the respective specification section or a substitution request) are responsible for:

1. Confirming the equipment they are bidding will fit in the space available, incorporating equipment's clearance requirements.
2. Coordination of any variance from basis-of-design in weight, electrical requirements, other utility requirements, etc. with other trades.
3. Inclusion in the bid of any applicable costs for changes in prime bidder's and their sub bidders' work required to accommodate the utilization of the comparable product.
4. The contractor shall bear any and all responsibility including any changes to mechanical, plumbing, electrical, structural or architectural design. These changes shall be clearly identified and presented to the Design Team.

1.15 SUBMITTALS:

A. General

1. Refer to the Conditions of the Contract (General and Supplementary), Division 1.
2. Contractor shall provide a submittal schedule appropriate for the size and schedule of the project. Limit the number of large submittals being reviewed at one time and coordinate timing of sections that are dependent on each other i.e. submit coordination and short circuit study prior to or together with gear, overcurrent protection devices, ATS, etc.
3. The Contractor shall identify any "long lead time" items which may impact the overall project schedule. If these submittal requirements affect the schedule, the Contractor shall identify the impacts and confer with the Engineer within two weeks of entering into the contract.
4. The front of each submittal package shall be identified with the specification section number, job name, Owner's project number, date, Prime Contractor and Subcontractor's names, addresses, and contact information, etc. Each Specification Section shall be submitted individually and submittal shall be tabbed for the equipment/materials/etc. within the section. Submittals that are not complete with the required information will not be reviewed and will be sent back to be corrected.
5. Submittals shall be provided electronically. All electronic submittals need to be complete with all design information and stamped for conformity by the contractor. Submittals will be reviewed, marked appropriately and returned by the same means received.
6. An index shall be provided which includes:

    a. Product
    b. Plan Code (if applicable)
    c. Specification Section
    d. Manufacturer and Model Number

7. Submittal schedule shall be provided for review within four (4) working weeks from award of contract to successful bidder.

B. Basis of Design: The manufacturer's material or equipment listed first in the specifications or on the drawings are the basis of design and are provided for the establishment of size, capacity, grade and quality. If the contractor proposes alternates

or substitutions in lieu of the first names, the cost of any changes in construction required by their use shall be borne by this Contractor.

C. All equipment shall conform to the State and/or local Energy Conservation Standards

D. Contractor Review: Submittal of shop drawings, product data, and samples will be accepted only when submitted by the Contractor. Each submittal shall be reviewed by the contractor for general conformance with contract requirements and stamped by the respective contractor prior to submittal to the Architect/Engineer. Any submittal not stamped or complete will be sent back. Data submitted from subcontractors and material suppliers directly to the Architect/Engineer will not be processed unless written prior approval is obtained by the Contractor.

E. Submittal Review Process: Before starting work, prepare and submit to the Architect/Engineer shop drawings and descriptive product data required for the project. Continue to submit in the stated format after each Architect/Engineer's action until a "No Exception Taken" or "Make Correction Noted" action is received. When a "Make Corrections Noted" is received, make the required corrections for inclusion in the operation and maintenance manual (O&M). Submittals marked "Make Corrections Noted" shall not be resubmitted during the submittal process. Unless each item is identified with specification section and sufficient data to identify its compliance with the specifications and drawings, the item will be returned "Revise and Resubmit". Where an entire submittal package is returned for action by the Contractor, the Engineer may summarize comments in letter format and return the entire set. Submittals shall be prepared per the ELECTRICAL SUBMITTAL CHECKLIST, at the end of this section; supplemental requirements are listed in each Division 26 Section.

F. The Design Professional’s review and appropriate action on all submittals and shop drawings is only for the limited purpose of checking for conformance with the design concept and the information expressed in the contract documents. This review shall not include:

1. Accuracy or completeness of details, such as quantities, dimensions, weights or gauges, fabrication processes
2. Construction means or methods
3. Coordination of the work with other trades
4. Construction safety precautions

G. The Design Professional’s review shall be conducted with reasonable promptness while allowing sufficient time in the Design Professional’s judgment to permit adequate review. Review of a specific item shall not indicate that the Design Professional has reviewed the entire assembly of which the item is a component.

H. The Design Professional shall not be responsible for any deviations from the contract documents not brought specifically to the attention of the Design Professional in writing by the Contractor. This shall clearly identify the design and the specific element which vary from the Design. The Contractor shall be responsible for all remedy for lack of strict conformance associated with this criteria.

I. The Design Professional shall not be required to review partial submissions or those for which submissions of correlated items have not been received.

J. If more than two submittals (either for product data, shop drawings, record drawings, test reports, or O&M’s are made by the Contractor, the Owner reserves the right to

charge the Contractor for subsequent reviews by their consultants. Such extra fees shall be deducted from payments by the Owner to the Contractor.

K. The contractor shall cloud all changes made on submittals that are marked “Revise and Resubmit.”

L. Required Submittals: Provide submittals for each item of equipment specified or scheduled in the contract documents. See table at the end of this section.

M. Submit letters certifying compliance with ANSI standards for medium or high voltage gear. These letters shall be signed by a corporate officer and shall list applicable standards. Letters signed by local representatives will not be acceptable.

N. Submit proposed changes to electrical room or other equipment room layouts when revised from contract documents prior to installation.

O. Mark submittals with designations as shown on the drawings and identify as required by Specification Sections. Identification shall contain the information as required in details and each label shall be submitted in list form with disconnects, MCC's, panelboards, switchboards, overcurrent protection devices and utilization equipment.

1.16 SPECIFIC CATEGORY SUBMITTAL REQUIREMENTS:

A. Product Listing:

1. Prepare listing of major electrical equipment and materials for the project, within (2) two weeks of signing the Contract Documents and transmit to the Architect

   a. Provide all information requested.
   b. Submit this listing as a part of the submittal requirement; see Paragraph 1.15 "PRODUCT OPTIONS AND SUBSTITUTIONS."

2. Unless otherwise specified, all materials and equipment shall be of domestic (USA) manufacture and shall be of the best quality used for the purpose in commercial practice.
3. When two or more items of same material or equipment are required (lighting, wiring devices, switchgear, panelboards, protective devices, etc.) they shall be of the same manufacturer. Product manufacturer uniformity does not apply to raw materials, bulk materials steel bar stock, welding rods, solder, fasteners, except as otherwise indicated.

   a. Provide products which are compatible within systems and other connected items.

4. For conduit, wire and fittings, the Contractor shall select a prime and alternate manufacturer from the list of acceptable manufacturers provided in the appropriate sections of this Division. The prime and alternate manufacturers shall be identified in the product listing. The contractor shall make every effort to use the prime manufacturer for the entire project. If products from this manufacturer are unavailable, the Contractor shall use the listed alternate with the following provisions.

   a. Wire: All wire placed in a single conduit or installed in multiple conduits making up parallel feeders shall be of the same manufacturer.
   b. Conduit and Fittings: All conduits and fittings installed exposed within the same room or immediate area shall be of the same manufacturer.

B. Schedule of Values

1. Provide Preliminary Schedule of Values to Engineer with product data submittal within four (4) weeks from award of contract to successful bidder. Provide according to the following descriptions:

    a. General Construction (total)
    b. Demolition
    c. Basic Materials/Devices/Equipment Connections (Mechanical)

2. Provide a final Schedule of Values at close-out of project including updated values based on actual installation.

C. Product Data:

1. Where pre-printed data covers more than one distinct product, size, type, material, trim, accessory group or other variation, mark submitted copy with black pen to indicate which of the variations is to be provided.
2. Delete or mark-out portions of pre-printed data which are not applicable.
3. Where operating ranges are shown, mark data to show portion of range required for project application.
4. For each product, include the following:

    a. Sizes.
    b. Weights.
    c. Speeds.
    d. Capacities.
    e. Conduit and electrical connection sizes and locations.
    f. Statements of compliance with the required standards and regulations.
    g. Performance data.
    h. Manufacturer's specifications.
    i. Housing and proposed Finishes.
    j. NEMA or other ratings that apply.

5. Checklist: Where identified in ELECTRICAL SUBMITTAL CHECKLIST or within individual Division 26 Sections or necessary for confirmation of products, submit a detailed checklist which acknowledges compliance or a reason for non-compliance to each of the specification requirements. Arrange the checklist according to the headings of each item identified in each specification (i.e. Shop Drawings, Wiring Diagrams, Product requirements, individual line items, etc.) Mark items as "N/A" where the item is not applicable.

D. Shop Drawings:

1. Shop Drawings are defined as electrical system layout drawings prepared specifically for this project, or fabrication and assembly type drawings of system components to show more detail than typical pre-printed materials.
2. Prepare Electrical Shop Drawings, except diagrams, to accurate scale, min 1/8”-1'-0", Electrical rooms shall be ¼”-1’-0” unless otherwise noted.
3. Shop drawings shall include:

    a. Proposed equipment installations.
    b. Electrical characteristics and connection requirements.
    c. Clearance dimensions at critical locations.
    d. Dimensions of spaces required for operation and maintenance.
    e. Interfaces with other work, including structural support.

f. Elevations when necessary in areas with multiple pieces of equipment on common walls or to clarify incoming/exiting methods/clearances, etc.
g. Wall and floor penetrations.
h. Wiring diagrams shall showing all components, internal connecting wiring, and contractor connection requirements including terminal blocks/lugs, wire sizes, etc.

E. Coordination Drawings: See separate paragraph of this specification section.

F. Test Reports:

1. Submit test reports which have been signed and dated by the accredited firm or testing agency performing the test.
2. Prepare test reports in the manner specified in the standard or regulation governing the test procedure (if any) as indicated.
3. Submit test reports as required for O & M manuals.

G. Operation and Maintenance Data: See separate paragraph of this specification section.

H. Equipment Settings Report: Where identified in the ELECTRICAL SUBMITTAL CHECKLIST or within individual Division 26 Sections or necessary for confirmation of products, submit Equipment Settings Report for each device indicating final configurations and settings.

1. Provide report of settings, parameters, programing inputs and parameters, etc., installed at each piece of electrical equipment that allows adjustments to be made in the field and those set at the factory. The report shall be arranged by specification section and each piece of equipment broken out individually or by listing of equipment if the same settings are installed in multiple pieces of equipment.
2. In addition to the requirements above, include within this report any individual ground fault system settings; zone interlock operational settings; Arc Flash reduction schemes and levels; transfer switch settings including time delays and upstream protection device settings with copies of listed OCPD's for each ATS; settings of monitoring equipment including trip levels and alarm levels; Generator settings and parameters; UPS settings and parameters; relay settings; transformer tap settings; phase rotation documentation; lighting control settings with associated timer settings; electrical interlock and/or kirk key system descriptions; posted operational signage; and any other pertinent information.
3. Report shall be submitted and received by the Engineer at least fifteen calendar days prior to the contractor's request for final observation. Include in the O & M Manual after review and "No Exceptions Taken" has been accomplished.

I. Software Licenses: Provide documentation of ownership under the owner's corporate name (coordinate with owner's representative for exact ownership wording) for Software Licenses provided as part of the work. Include information for updates, subscription requirements if applicable, backup, support, login, passwords, date when purchased, expiration date if applicable, version, etc. Include in the O & M Manual after review and "No Exceptions Taken" has been accomplished.

J. Record Drawings: See separate paragraph of this specification section.

1.17 DELIVERY, STORAGE AND HANDLING:

A. Refer to the Division 1, Sections on Transportation and Handling and Storage and Protection.

B. Deliver products to project properly identified with names, model numbers, types, grades, compliance labels, and similar information needed for distinct identifications; adequately packaged and protected to prevent damage during shipment, storage, and handling.

C. Check delivered equipment against contract documents and submittals.

D. Store equipment and materials at the site, unless off-site storage is authorized in writing. Protect stored equipment and materials from damage and weather.

E. Coordinate deliveries of electrical materials and equipment to minimize construction site congestion. Limit each shipment of materials and equipment to the items and quantities needed for the smooth and efficient flow of installations.

1.18 DEMOLITION/REMODEL WORK:

A. Refer to Division 1 Section on Summary of work for requirements on working in Owner-occupied areas of the existing building and Division 2 section on selective demolition. The following paragraphs supplement the requirements of other Divisions.

B. During the demolition phase of this contract it is the responsibility of this Contractor to carefully remove existing equipment, conduits, boxes, and related items either as shown on the demolition drawings as being removed, or as required for the work. These items shall be tagged, protected from damage and stored as directed by the Owner. A list of all items stored shall be turned over to the Architect/Engineer. At the completion of the remodeling work or when directed by the Architect, all stored items not reused or wanted by the Owner shall be removed from the premises.

C. The project involves renovation and remodel of the existing building. On the drawings, work may be denoted by showing items as bold or light line weight and certain renovation symbols are used. These indications and symbols are amplified as follows:

1. **Bold Print** (when used): Work included in this contract is denoted in bold print or darker line weight.

D. Existing equipment that is removed and not scheduled to be reused shall remain the property of the Owner and be delivered for disposition unless specifically indicated otherwise and shall be stored in a location designated by the Owner. Items which are removed and not wanted by the Owner shall become the property of the Contractor and shall be removed from the site.

E. Existing equipment that is removed and is to be reused shall be cleaned, serviced and operable before being reinstalled.

F. Revise panelboard schedules to reflect removal or relocation of equipment. Circuit integrity of equipment in adjacent areas shall be left intact.

G. Where remodeling interferes with existing circuits and equipment which are not to be removed, such circuits and equipment shall be reworked and relocated as required to complete the project.

H. The Contractor shall remove all distribution equipment, conductors, etc., which are indicated to be removed or which must be removed to accommodate demolition.

Equipment to be removed may require reworking conduit and wiring in order to maintain service to other equipment.

I. Where remodeling interferes with circuits serving areas outside of the project or phase limits or which are remodeled in later phases of the project, circuits shall be reworked or temporary circuits provided as required.

J. Existing equipment and circuiting shown are based on field surveys and/or Owner furnished drawings. The Contractor shall verify conditions as they exist with necessary adjustments being made to the drawing information.

K. Coordinate the routing of all conduits with the existing mechanical and plumbing systems in order to avoid conflicts with ducts, pipes, etc. Where existing electrical boxes, conduit, or equipment interfere with installation of new ducts, plumbing, walls, soffits, luminaires, outlets, etc., the Contractor shall resolve the conflict with the appropriate trade.

L. Reuse of existing luminaires, devices, conduits, boxes, or equipment will be permitted only where specifically indicated on the drawings or allowed under the appropriate section of the specifications.

M. Electrical Outages: Electrical outages must be held to a minimum. The Contractor shall submit a Method of Procedure (MOP) for each outage to the Owner, detailing the reasons for the outage, areas affected, sequence of procedures to accomplish work, estimated maximum length of time along with the date and time of day outage will occur. The Contractor shall meet with the Owner to set a schedule and date for the outage based on the MOP. Due to the critical implications of power outages, the Owner may direct the Contractor as to the time of day or night and date an outage may take place.

1. The Contractor will be responsible for providing temporary power required for the duration of the outages. The required outages to connect and disconnect the temporary power will require a MOP as described above.
2. Log each approved and implemented MOP and submit with O&M Manuals.

N. Hazardous Material: If suspected hazardous material, in any form, is discovered by this Contractor in the process of his work, he shall report such occurrence to the Owner immediately. The Owner will determine the action to be taken. Hazardous material removed is not a part of the work to be done under this Division.

O. On Site Metering: When called for in the specifications or on the drawings, the Contractor shall meter the points indicated for a period of 30 days prior to start of construction to verify existing load. Meter shall record voltage; amperage; KVA; and Power Factor for each phase and sum of the phases. The meter shall continually average the power demand over maximum 15 minute intervals as required by NEC 220.87. Compile a metering summary report and deliver results to engineer after 7 days and after 30 days. Verify existing loads at and downstream of the metering location and provide list to engineer of what loads are not on during the 30 day metering and the reason why. Organize list by equipment name. If any loads have been removed or permanently abandoned, Turn circuit breaker off and relabel as SPARE.

1.19 CUTTING AND PATCHING:

A. Cutting and patching of electrical equipment, components, and materials may be required for removal and legal disposal of selected materials, components, and

equipment. Coordinate the cutting and patching of building components to accommodate the installation of electrical equipment and materials.

B. Refer to the Division 1 Section covering cutting and patching for general requirements.

C. Do not endanger or damage installed Work through procedures and processes of cutting and patching.

D. Arrange for repairs required to restore other work, because of damage caused as a result of electrical installations.

E. No additional compensation will be authorized for cutting and patching Work that is necessitated by ill-timed, defective, or non-conforming installations.

F. Perform cutting, fitting, and patching of electrical equipment and materials required to:

1. Uncover Work to provide for installation of ill-timed Work;
2. Remove and replace defective Work;
3. Remove and replace Work not conforming to requirements of the Contract Documents;
4. Remove samples of installed Work as specified for testing;
5. Install equipment and materials in existing structures;
6. Upon written instructions from the Architect/Engineer, uncover and restore Work to provide for Architect/Engineer observation of concealed Work.

G. Cut, remove and legally dispose of selected electrical equipment, components, and materials as indicated, including, but not limited to removal of conductors, conduit, luminaires, boxes, devices and other electrical items made obsolete by the new Work.

H. Protect the structure, furnishings, finishes, and adjacent materials not indicated or scheduled to be removed.

I. Provide and maintain temporary partitions or dust barriers adequate to prevent the spread of dust and dirt to adjacent areas.

J. Locate, identify, and protect electrical services passing through remodel or demolition area and serving other areas required to be maintained operational.

K. When coring is required or identified, an x-ray of the area is to be taken prior to the performance of the work operation. X-ray work requires an MOP and protection.

1.20 ROUGH-IN:

A. Verify final locations for rough-ins with field measurements and with the requirements of the actual equipment to be connected.

B. Refer to equipment shop drawings and manufacturer's requirements for actual provided equipment for rough in requirements.

C. Work through all coordination before rough-in begins.

1.21 ACCESSIBILITY:

A. Install equipment and materials to provide required code clearances and access for servicing and maintenance. Coordinate the final location with piping, ducts, and

equipment of other trades to insure proper access for all trades. Coordinate locations of concealed equipment, disconnects, and boxes with access panels and doors. Allow ample space for removal of parts, fuses, lamps, etc. that require replacement or servicing.

B. Extend all conduits so that junction and pull boxes are in accessible locations.

C. Provide access panel or doors where equipment or boxes are concealed behind finished surfaces.

D. Furnish hinged steel access doors with concealed latch, whether shown on drawings or not, in all walls and ceilings for access to all concealed valves, shock absorbers, air vents, motors, fans, balancing cocks, and other operating devices requiring adjustment or servicing. Refer to Division 1 for access door specification and requirements.

E. The minimum size of any access door shall not be less than the size of the equipment to be removed or 12 inches x 12 inches if used for service only.

F. Furnish doors to trades performing work in which they are to be built, in ample time for building in as the work progresses. Whenever possible, group valves, cocks, etc., to permit use of minimum number of access doors within a given room or space.

G. Factory manufactured doors shall be of a type compatible with the finish in which they are to be installed. In lieu of these doors, approved shop fabricated access doors with DuroDyne hinges may be used.

H. Access doors in fire rated walls and ceilings shall have equivalent U.L. label and fire rating.

1.22 TESTING:

A. Submit test reports as outlined in Division 1 Sections on Quality Control Services and each Division 26 Section.

B. Testing as required by these specifications shall pertain to all equipment, wiring, devices, etc. installed under this contract and being reused.

C. General Scope:

1. Perform all tests and operational checks to assure that all electrical equipment, both Contractor and Owner-supplied, is operational within industry and manufacturer's tolerances and is installed in accordance with design specifications.
2. The tests and operational checks shall determine the suitability for energization.
3. Schedule tests and give a minimum of two weeks advance notice to the Architect/Engineer. Reschedule testing for Owner convenience if required.

D. Test Report: Submit the completed report to the Architect/Engineer no later than fifteen (15) days after completion of test unless directed otherwise. The test report shall be bound and its contents certified. A final compilation of all Test Reports shall be submitted with the Testing and Equipment Settings Report (Refer to Operation and Maintenance Data paragraphs).

E. Each test report shall include the following:

1. Project information including: Building, name, address, date, and other pertinent information.
2. List of equipment tested.
3. Description of test.
4. List of test equipment used and calibration date.
5. Baseline, acceptable, or published target value for test with code or standard reference indicating where value was derived.
6. Test results that summarize all measured values with baseline values.
7. Conclusions and recommendations.
8. Appendix, including appropriate test forms that show all measured values.

F. Failure to Meet Test:

1. Any system material or workmanship which is found defective on the basis of performance tests shall be reported directly to the Architect/Engineer.
2. All failed tests shall be sent immediately by email to Architect/Engineer with proposed corrective action and proposed re-test date and time.
3. Contractor shall replace the defective material or equipment as necessary, and have test repeated until test proves satisfactory without additional cost to the Owner.

G. The testing agency shall have a calibration program which maintains all applicable test instrumentation within rated accuracy. The accuracy shall be traceable to the National Institute of Standards and Technology (NIST) in an unbroken chain. Instruments shall be calibrated in accordance with the following frequency schedule:

1. Field Instruments: 6 months
2. Laboratory Instruments: 12 months
3. Leased specialty equipment: 12 months. (Where accuracy is guaranteed by lessor
4. Dated calibration labels shall be visible on all test equipment.

1.23 NAMEPLATE DATA:

A. Provide equipment with permanent operational data nameplate on each item of power operated equipment, indicating manufacturer, product name, model number, serial number, capacity, operating and power characteristics, labels of tested compliances, and similar essential data. Install equipment so that nameplate is readily visible.

1.24 CLEANING:

A. Refer to the Division 1 Section on project closeout or final cleaning for general requirements for final cleaning.

1.25 RECORD DOCUMENTS:

A. Refer to the Division 1 Section on Project Closeout or Project Record Documents for requirements. The following paragraphs supplement the requirements of Division 1.

B. Keep a complete set of record document prints in custody during entire period of construction at the construction site. Documents shall be updated on a weekly basis.

C. Mark Drawings to indicate revisions to conduit size and location both exterior and interior; actual equipment locations, dimensioned from column lines; concealed equipment, dimensioned to column lines; distribution and branch electrical circuitry; fuse and circuit breaker size and arrangements; support and hanger details; concealed

control system devices, and any other relevant deviations from the Contract Documents.

D. Mark shop drawings to indicate approved substitutions; Addenda; Change Orders; actual equipment and materials used.

E. Schedules:

1. Mark schedules including panelboard, switchboard, and mechanical equipment schedules on drawings to indicate installed equipment and materials used, and any deviations or revisions to electrical load data and calculations.

F. Revisions to the Contract Documents shall be legible and shall be prepared using the following color scheme.

1. Red shall indicate new items, deviations and routing.
2. Green shall indicate items removed or deleted.
3. Blue shall be used for relevant notes and descriptions.

G. At the completion of the project, obtain from the Architect a complete set of the Contract Documents in a read-only electronic format (.pdf unless otherwise noted). This set will include all revisions officially documented through the Architect/Engineer. Using the above color scheme, transfer any undocumented revisions from the construction site record drawings to this complete set. Submit marked up and completed documents to the Architect/Engineer. This contract will not be considered completed until these record documents have been received and reviewed by the Architect/Engineer.

H. Contractor may propose methods of maintaining record documents on electronic media. Obtain approval of Engineer and Owner prior to proceeding. Marked-up .pdf format readable by Bluebeam is preferred.

I. One full size set of record drawing one line diagrams shall be posted in the electrical room and one half size set of the remaining electrical record drawings shall be bound with 3 Hole inserts and plastic cover and stored in the electrical room.

1.26 OPERATION AND MAINTENANCE DATA:

A. Refer to the Division 1 Section on project closeout or operation and maintenance data for procedures and requirements for preparation and submittal of maintenance manuals.

B. No later than four (4) weeks prior to the completion of the project provide complete set of operating and maintenance manuals, or as specified in Sections of Division 1 (whichever is more stringent). Operation and Maintenance Data shall be submitted in electronic format.

C. Operation and Maintenance Data: Submit operation and maintenance data in maintenance manual in accordance with requirements of applicable Division 26 Sections and Division 1. Provide Operating and Maintenance Instructions in electronic format covering all equipment furnished. Manuals shall include all information required below, as indicated in each Division 26 Section, and the following for each piece of equipment:

1. The job name and address, contractor's name, address, and phone number, and each subcontractor's name, address, and phone number shall be identified at the front of the electronic submittal.
2. Name, address and telephone number to be contacted of the local authorized service organization/company and individual to be contacted for service and maintenance for each item of equipment.
3. Submit operation and maintenance data, schedule of recommended service and parts lists for all materials and products specified and intended for installation. Include description of function, normal operating characteristics and limitations, fuse curves, engineering data and tests, and complete nomenclature and commercial numbers of all replaceable parts.
4. Manufacturer's printed operating procedures to include start-up, break-in, routine and normal operating instructions; regulation, control, stopping, shut-down, and emergency instructions; and summer and winter operating instructions.
5. Maintenance procedures for routine preventative maintenance and troubleshooting; disassembly, repair, and reassembly; aligning and adjusting instructions.
6. Servicing instructions and lubrication charts and schedules.
7. Manufacturer's service manuals for all electrical equipment provided under this contract.
8. Complete equipment and protection wiring diagrams. All wiring diagrams shall show color coding of all connections and mounting dimensions of equipment.
9. Equipment identification numbers and adjustment clearly indicated for each piece of equipment.
10. Electrical System and Equipment Warranties.
11. Provide manuals tabbed and divided into major sections and special equipment. Mark the individual equipment when more than one model or make is listed on a page. Provide detailed table of contents.
12. Record Set of Shop Drawings: Shop drawings corrected to show as-built conditions. Transfer modifications from field set.
13. Equipment Testing Report including all test reports and Equipment Settings Report indicating final configurations and settings.

D. This contract will not be considered completed nor will final payment be made until all specified material, including test reports, settings reports, and final Schedule of Values with all Electrical and Information Technology change order costs included and identified is provided and the manual is reviewed by the Architect/Engineer.

1.27 PROJECT CLOSEOUT LIST:

A. In addition to the requirements specified in Division 1, complete the requirements listed below.

1. The contractor shall be responsible for providing the items listed on the Electrical Submittal Checklist prior to applying for certification of substantial completion. Refer to individual specification sections for additional requirements (Checklist is located at the end of this section.)
2. Final payment will not be authorized until all items on the final punch list have been complete.

1.28 WARRANTIES:

A. Refer to the Division 1 Section on Warranties and Bonds for procedures and submittal requirements for warranties. Refer to individual equipment specifications for warranty requirements. In no case shall the warranty for the total electrical system be less than one year from date of acceptance by the Owner.

B. Compile and assemble the warranties specified in Division 26, into a separated set of vinyl covered, three ring binders, tabulated and indexed for easy reference.

C. Provide complete warranty information for each item. Information to include product or equipment description, date of beginning of warranty or bond; duration of warranty or bond; and names, addresses, and telephone numbers and procedures for filing a claim and obtaining warranty services.

1.29 CONSTRUCTION REQUIREMENTS:

A. The contractor shall maintain and have available at the jobsite current information on the following at all times:

1. Up to date record drawings.
2. Addenda
3. Change Orders
4. Submittals
5. Site observation reports with current status of all action items.
6. Test results; including recorded values, procedures, and other findings.
7. Outage information.

1.30 ELECTRICAL SUBMITTAL CHECKLIST:

A. Provide submittals including shop drawings, product data, product checklists, tests and reports, training, extra material, coordination drawings, record drawings, O&M manuals, device setting reports, and software licenses per the following schedule:

Division 26

C – Product Checklist; Q – Qualifications, CD – Coordination Drawings, RD - Record Drawings, D – Device Setting Report; S – Software License, W – Special Project Warranty

SPEC Section	TITLE	Requirements									
		Report Data		Test	Factory Test	Report	Factory Rep Supervision at Site	Training Req'd at Site	Extra Material	O&M	Other
		Shop Drawings	Product Data								
26 05 00	Common Work Results For Electrical										
	Electrical Coordination Drawings	X									
	Existing Conditions Survey Drawings	X									
	Seismic Design Parameters per Local Authority	X	X			X				X	
	Temporary Facilities	X	X			X					
	Product Listing		X							X	C
	Preliminary Schedule Of Values					X					
	Final Schedule Of Values					X				X	
	Electrical On-Site Metering Reports			X		X				X	

C – Product Checklist; Q – Qualifications, CD – Coordination Drawings, RD - Record Drawings, D – Device Setting Report; S – Software License, W – Special Project Warranty

SPEC Section	TITLE	Requirements									
		Report Data		Test	Factory Test	Report	Factory Rep Supervision at Site	Training Req'd at Site	Extra Material	O&M	Other
		Shop Drawings	Product Data								
	Record Drawings including changes to existing Equip.	X								X	
	O&M Manuals	X	X	X	X	X			X	X	C,D,S
	Project Closeout List					X				X	
	Contractor/Equipment Warranties					X				X	
26 05 19	Low Voltage Electrical Power Conductors And Cables		X	X		X				X	
26 05 26	Grounding And Bonding For Electrical Systems	X	X	X		X				X	
26 05 29	Hangers And Supports For Electrical Systems	X	X							X	
26 05 33	Raceway And Boxes For Electrical Systems	X	X								CD, RD
	Electrical Metallic Tubing		X								CD, RD
	Flexible Metal Conduit		X								CD, RD
	Intermediate Metal Conduit		X								CD, RD
	Liquid-Tight Flexible Conduit		X								CD, RD
	Non-Metallic Conduit PVC		X								CD, RD
	Rigid Metal Conduit		X								CD, RD
	Surface Metal Raceway	X	X							X	CD, RD
	Wireways	X	X							X	CD, RD
	Rigid Aluminum Conduit		X								CD, RD
26 05 34	Cabinets, Boxes & Fittings	X	X								CD, RD
26 05 53	Identification For Electrical Systems	X	X							X	
26 05 83	Wiring Connections	X	X	X							D
26 27 26	Wiring Devices		X	X		X				X	
26 28 00	Low Voltage Circuit Protective Devices	X	X	X		X		X	X	X	C, D.S

END SECTION 260500

SECTION 260519 – LOW VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 SUMMARY:

A. This section includes wires, cables, and connectors for power, lighting, signal, control, and related systems rated 600 volts and less.

1.2 QUALITY ASSURANCE:

A. Manufacturers: Firms regularly engaged in manufacture of electrical wire and cable products of types, sizes, and ratings required, whose products have been in satisfactory use in similar service for not less than 5 years.

B. Installer's Qualifications: Firm with at least 3 years of successful installation experience with projects utilizing electrical wiring and cabling work similar to that required for this project.

C. Conform to applicable code regulations regarding toxicity of combustion products of insulating materials.

1.3 SUBMITTALS:

A. See Section 260500 Common Work Results for Electrical for Submittal requirements. Supplemental information is listed within this section.

B. Product Data: Submit manufacturer's data on electrical wires, cables and connectors.

1.4 DELIVERY, STORAGE, AND HANDLING:

A. Deliver wire and cable properly packaged in factory- fabricated type containers, or wound on NEMA-specified type wire and cable reels.

B. Store wire and cable in clean dry space in original containers. Protect products from weather, damaging fumes, construction debris and traffic.

C. Handle wire and cable carefully to avoid abrading, puncturing and tearing wire and cable insulation and sheathing. Ensure that dielectric resistance integrity of wires/cables is maintained.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS:

A. Manufacturers: Subject to compliance with requirements, provide products by the following (for each type of wire, cable, and connector):

1. Wire and Cable:

    a. American Insulated Wire
    b. Belden
    c. Cerrowire
    d. Encore Wire
    e. General Cable Corporation.

f. Southwire Company
g. Okonite
h. Superior Essex:

1) Triangle
2) Excel
3) Royal

2. Connectors:

a. O-Z/Gedney Co.
b. AMP, Inc.
c. Burndy Corporation.
d. Ideal Industries, Inc.
e. 3M Company
f. Thomas and Betts Corp.

2.2 WIRES AND CABLES:

A. General: Provide wire and cable suitable for the temperature, conditions, and location where installed.

B. Conductors: Provide solid conductors and approved connectors for power, control, and lighting circuits 10 AWG and smaller. Provide stranded conductors for 8 AWG and larger.

C. Conductor Material: Provide copper for all wires and cables.

1. Metal Clad Cable - Type MC: Sizes 12 AWG and 10 AWG, copper conductors with 600 volt thermoplastic insulation rated 90 degrees C, **galvanized steel or aluminum** interlocked metal type covering. Fitting shall be steel with double grip saddle and locking nut.
2. Portable Cord:

a. Type SO: Sizes 12 AWG through 2 AWG, copper conductors with 600 volt thermoset insulation 0.1 resistant insulation.
b. Type G-GC: Sizes 1 AWG through 500 KCMIL, copper conductors with 600/2000 volt, 90 degrees C, ethylene-propylene insulation.

3. Cables: Provide the following types of cables in NEC approved locations and applications where permitted by the contract documents. Cables shall be U.L. listed and approved by the local building authority. All cables shall contain a green insulated equipment ground conductor of the same size as the neutral conductor.

2.3 CONNECTORS:

A. Description: Provide UL-type factory-fabricated, solderless metal connectors of sizes, ampacity ratings, materials, types and classes for applications and for services indicated. Use connectors with temperatures equal to or greater than those of the wires upon which used.

B. Provide 2-hole compression lugs for all power feeder, neutral, and grounding connections when installed on bus bars. (Including phase, neutral and grounding conductors).

C. Provide connectors that are designed to accept stranded conductors where stranded conductors are used.

PART 3 - EXECUTION

3.1 WIRE AND CABLE INSTALLATION SCHEDULE:

A. Building Wire: Install all building wire in raceway regardless of location.

B. Metal Clad Cable:

1. Maximum of 6 feet unsupported length for connecting luminaires in accessible ceilings to the local junction box.
2. Maximum of 6 feet unsupported length for connecting luminaires in non-accessible ceilings to the local junction box.
3. In stud walls and casework for horizontal branch circuit runs between devices.
4. For vertical branch circuit drops from a local junction box in each room above an accessible ceiling to the direct or single device in a stud wall, casework, under counter lighting.
5. May not be used for branch circuit home runs, feeders, motor feeder circuits or in the following locations:

    a. Hazardous locations
    b. Emergency Systems

6. Branch circuit conductors shall match color coding schedule within this specification section.

C. Portable Cord: Use for flexible pendant leads to luminaires, outlets, and equipment where indicated and in compliance with codes.

3.2 INSTALLATION OF WIRES AND CABLES:

A. General: Install electrical cables, wires and connectors in compliance with applicable requirements of NEC, NEMA, UL, and NECA's "Standard of Installation", and in accordance with recognized industry practices.

B. Coordinate wire/cable installation work, including electrical raceway and equipment connection work, with other work.

C. Pull conductors simultaneously where more than one is being installed in same raceway. Use pulling compound or lubricant, where necessary; compound used must not deteriorate conductor or insulation.

D. Use pulling means including, fish tape, cable, rope and basket weave wire/cable grips which will not damage cables or raceway. Do not use rope hitches for pulling attachment to wire or cable.

E. Keep conductor splices to minimum. Splice only in accessible junction boxes. No splices are allowed in feeder, control or fire alarm wiring. Connect unspliced wire to numbered terminal strips at each end.

F. Install splices and taps which possess equivalent or better mechanical strength and insulation ratings than conductors being spliced.

G. Use splice and tap connectors which are compatible with conductor material.

H. Tighten electrical connectors and terminals, including screws and bolts, in accordance with manufacturer's published torque tightening values. Where manufacturer's torqueing requirements are not indicated, tighten connectors and terminals to comply with tightening torques specified in UL Std. 486A for copper and 486B for aluminum.

I. Support cables above accessible ceilings. Independent from the ceiling suspension system to support cables from structure, do not rest on ceiling tiles.

J. Provide adequate length of conductors within electrical enclosures and train the conductors to terminal points with no excess. Bundle multiple conductors, with conductors larger than No. 10 AWG cabled to individual circuits. Make terminations so there is no bare conductor at the terminal.

K. Use solderless pressure connectors with insulating covers for copper wire splices and taps, 8 AWG and larger. For 10 AWG and smaller, use insulated screw on type spring wire connectors with plastic caps, push on type are not acceptable.

L. Use copper compression connectors for copper wire splices and taps, 1/0 AWG and larger. Tape uninsulated conductors and connectors with electrical tape to 150 percent of the insulation value of the conductor.

M. Make splices, taps and terminations to carry full ampacity of conductors without perceptible temperature rise.

N. Thoroughly tape the ends of spare conductors in boxes and cabinets.

O. Install exposed cable, parallel and perpendicular to surfaces, or exposed structural members, and follow surface contours, where possible.

P. Make all ground, neutral and line connections to receptacle and wiring device terminals as recommended by manufacturer. Provide ground jumper from outlet box to individual ground terminal of devices.

Q. Branch circuits whose length from panel to first outlet exceeds 100 feet for 120 volt circuits or 175 feet for 277 volt circuit shall be #10 or larger, as required to comply with the National Electrical Code.

R. Parallel conductors shall be cut to the same length.

S. All splices in control panels, terminal junction boxes, low voltage control circuits, fire alarm, etc., conductors shall be on numbered terminal strip.

T. Where conduit is not required, plenum rated cable shall be provided in ceiling, floor or other air plenum spaces.

U. Provide wire training, lacing, labeling, and terminal blocks as required in panelboards and all control cabinets including, but not limited to, lighting, transfer switch, fire alarm, and security cabinets. All wiring shall be installed neat and be labeled to match wiring diagrams, control devices, etc.

1. Make temporary connections to panelboard devices with sufficient slack conductor to facilitate reconnections required for balancing loads between phases.

V. Color coding of switch legs, travelers, etc. shall be different and distinct from phase and neutral conductors. Where systems utilize two (2) different voltages, the color coding of switch legs, travelers, etc. shall be different and distinct for each voltage system.

3.3 FIELD QUALITY CONTROL:

A. Test installed wires and cables with 1000 VDC megohm meter to determine insulation resistance levels to ensure requirements are fulfilled. Test shall be made on all feeders regardless of size and on all branch circuits with No. 4 AWG and larger conductors. The megger values obtained shall be compared to the minimum values listed in NETA. All phase conductors and cables shall be meggered after installation, and prior to termination. Submit test report.

B. Prior to energization, test wires and cables for electrical continuity and for short-circuits.

C. Subsequent to wire and cable hook-ups, energize circuitry and demonstrate functioning in accordance with requirements. Where necessary, correct malfunctioning units, and then retest to demonstrate compliance.

3.4 COLOR CODING SCHEDULE:

A. Color code secondary service, feeder, and branch circuit conductors as follows:

120/208 Volts	Phase	277/480 Volts
Black	A	Brown
Red	B	Orange
Blue	C	Yellow
White	Neutral	Gray
Green	Ground	Green

B. Conductors shall be solid color for entire length.

C. If solid color conductor insulation is not available and specific acceptance is given by the engineer for use of black conductor insulation, provide the following:

1. Conductors 6 AWG and smaller shall be solid color for the entire length.
2. Conductors 4 AWG and larger shall have either solid color insulation as specified above for the entire length or be black with color coding at each termination and in each box or enclosure. For a distance of 6 inches use half-lapped ¾ inch plastic tape in the above specified color. Do not cover cable identification markings. Adjust tape locations to prevent covering of markings.

3.5 METAL CLAD WIRING INSTALLATION:

A. The location of system components, including cable routing shown on the plans, are approximate. Use good judgment in their placement to eliminate all interference with ducts, piping, etc.

B. All cable routing shall be done in a neat and workmanlike manner, consistent with recognized good practice and in accordance with the manufacturer's instructions.

C. Route the cables along the grid system. Do not route cables diagonally or in any way which restricts removal of lay-in ceiling material.

D. Support cable on ceiling wires adjacent to each luminaire and at four foot intervals using clamp supports manufactured specifically for that purpose.

END OF SECTION 260519

SECTION 26 05 26 – GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY:

A. This Section includes solid grounding of electrical systems and equipment. It includes basic requirements for grounding for protection of life, equipment, circuits, and systems. Grounding requirements specified in this Section may be supplemented in other sections of these Specifications.

1.2 SUBMITTALS:

A. See Section 26 05 00 Common Work Results for Electrical for Submittal requirements. Supplemental information is listed within this section.

B. Product data for ground rods, connectors and connection materials, and grounding fittings.

C. Wiring Diagrams: Submit wiring diagrams for electrical grounding and bonding work which indicates layout of ground rings, location of system grounding electrode connection, routing of grounding electrode conductors, also include diagrams for circuits and equipment grounding connections.

1.3 QUALITY ASSURANCE:

A. Listing and Labeling: Provide products specified in this Section that are listed and labeled. The terms "listed" and "labeled" shall be defined as they are in the National Electrical Code, Article 100.

B. Manufacturer's Qualifications: Firms regularly engaged in manufacture of grounding and bonding products, of types, and ratings required, and ancillary grounding materials, including stranded cable, copper braid and bus, grounding electrodes and plate electrodes, and bonding jumpers whose products have been in satisfactory use in similar service for not less than 5 years.

C. Installer's Qualifications: Firm with at least 3 years of successful installation experience on projects with electrical grounding work similar to that required for project.

PART 2 - PRODUCTS

2.1 MANUFACTURERS:

A. Manufacturers: Subject to compliance with requirements, provide products by the following:

1. Burndy Corporation
2. Cadweld Div.; Erico Products Inc.
3. Ideal Industries
4. OZ Gedney Div.
5. Thermoweld
6. Thomas and Betts Corp.

2.2 GROUNDING AND BONDING PRODUCTS:

A. Products: Of types indicated and of sizes and ratings to comply with NEC. Where types, sizes, ratings, and quantities indicated are in excess of NEC requirements, the more stringent requirements and the greater size, rating, and quantity indications govern.

B. Conductor Materials: Copper.

2.3 WIRE AND CABLE CONDUCTORS:

A. General: Comply with Division 26 Section on Wires and Cables. Conform to NEC, except as otherwise indicated, for conductor properties, including stranding.

B. Equipment Grounding Conductor: Green insulated.

2.4 MISCELLANEOUS CONDUCTORS:

A. Ground Bus: Bare annealed copper bars of rectangular cross section.

B. Braided Bonding Jumpers: Copper tape, braided No. 30 gage bare copper wire, terminated with copper ferrules.

C. Bonding Strap Conductor/Connectors: Soft copper, 0.05 inch thick and 2 inches wide, except as indicated.

2.5 CONNECTOR PRODUCTS:

A. General: Listed and labeled as grounding connectors for the materials used.

B. Pressure Connectors: High-conductivity-plated units.

C. Bolted Clamps: Heavy-duty units listed for the application.

PART 3 - EXECUTION

3.1 APPLICATION:

A. Equipment Grounding Conductor Application: Comply with NEC for sizes and quantities of equipment grounding conductors, except where larger sizes or more conductors are indicated.

1. Install separate insulated equipment grounding conductors with circuit conductors for the following in addition to those locations where required by Code:

a. Feeders and branch circuits.
b. Provide individual grounding and neutral conductors for each isolated ground receptacle. When individual or groups of isolated ground receptacles are on dedicated circuits, individual ground and neutral conductors for each circuit is acceptable.

B. Underground Conductors: Bare, tinned, stranded copper except as otherwise indicated.

C. Signal and Communications: For telephone, alarm, and communication systems, provide a #6 AWG minimum green insulated copper conductor in raceway from the grounding electrode system to each terminal cabinet or central equipment location.

D. All systems shall be grounded in accordance with the NEC.

3.2 INSTALLATION:

A. General: Ground electrical systems and equipment in accordance with NEC requirements except where the Drawings or Specifications exceed NEC requirements. Connect together system neutral, service equipment enclosures, exposed noncurrent carrying metal parts of electrical equipment, metal raceway systems, grounding conductor in raceways and cables, receptacle ground connectors, and plumbing systems.

B. Labeling: Provide a phenolic tag for all grounding electrode conductors as described in section on Electrical Identification.

C. Where grounding conductors, grounding electrode conductors, or bonding conductors are non-exposed, identify each with a 6-inch band of green tape at each end and at 10 foot intervals. When run in conduits, provide color banding on conduit per section on Electrical Identification.

3.3 CONNECTIONS:

A. General: Make connections in such a manner as to minimize possibility of galvanic action or electrolysis. 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 assure high conductivity and make contact points closer in order of galvanic series.
2. Make connections with clean bare metal at points of contact.
3. Coat and seal connections involving dissimilar metals with inert material such as red lead paint to prevent future penetration of moisture to contact surfaces.

B. Terminate insulated equipment grounding conductors for feeders and branch circuits with pressure-type grounding lugs. Where metallic raceways terminate at metallic housings without mechanical and electrical connection to the housing, terminate each conduit with a grounding bushing. Connect grounding bushings with a bare grounding conductor to the ground bus in the housing. Bond electrically non-continuous conduits at both entrances and exits with grounding bushings and bare grounding conductors. Terminate each conductor on an individual ground lug terminal.

C. Tighten grounding and bonding connectors and terminals, including screws and bolts, in accordance with manufacturer's published torque tightening values for connectors and bolts. Where manufacturer's torqueing requirements are not indicated, tighten connections to comply with torque tightening values specified in UL 486A.

D. Compression-Type Connections: Use hydraulic compression tools to provide the correct circumferential pressure for compression connectors. Use tools and dies recommended by the manufacturer of the connectors. Provide embossing die code or other standard method to make a visible indication that a connector has been adequately compressed on the ground conductor.

E. Moisture Protection: Where insulated ground conductors are connected to ground rods or ground buses, insulate the entire area of the connection and seal against moisture penetration of the insulation and cable.

3.4 FIELD QUALITY CONTROL:

A. Upon completion of installation of electrical grounding and bonding systems, test ground resistance with ground resistance tester. Where tests show resistance-to-ground is over 5 ohms, take appropriate action to reduce resistance to 5 ohms, or less, by driving additional ground rods; then retest to demonstrate compliance.

B. Ground Resistance Test:

1. Grounding electrode resistance testing shall be accomplished with a ground resistance direct-reading single test meter utilizing the fall-of-potential method and two reference electrodes. Perform test prior to interconnection to other grounding systems. Orient the ground electrode to be tested and the two reference electrodes in a straight line spaced fifty (50) feet apart. Drive the two reference electrodes five (5) feet deep.

C. Correct Deficiencies, Retest and Report:

1. Correct unsatisfactory conditions and retest to demonstrate compliance; replace conductors, units and rods as required to bring system into compliance.
2. Prepare a written report and show temperature, humidity and condition of soil at time of tests. Report shall be certified by testing agency that identifies components checked and describes results. Include notation of deficiencies detected, remedial action taken, and observations and test results after remedial action.

3.5 CLEANING AND ADJUSTING:

A. Restore surface features at areas disturbed by excavation and reestablish original grades except as otherwise indicated. Where sod has been removed, replace it as soon as possible after backfilling is completed. Restore areas disturbed by trenching, storing of dirt, cable laying, and other Work to their original condition. Include necessary top-soiling, fertilizing, liming, seeding, sodding, sprigging, or mulching. Restore vegetation and disturbed paving to original condition.

END OF SECTION 260526

SECTION 260529 – HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY:

A. This Section includes secure support from the building structure for electrical items by means of hangers, supports, anchors, sleeves, inserts, seals, and associated fastenings.

1.2 SUBMITTALS:

A. See Section 26 05 00 Common Work Results for Electrical for Submittal requirements. Supplemental information is listed within this section.

B. Product data for each type of product specified.

1. Hanger and support schedule showing manufacturer's figure number, size, spacing, features, and application for each required type of hanger, support, sleeve, seal, and fastener to be used.

C. Shop drawings indicating details of fabricated products and materials.

D. Engineered Design consisting of details and engineering analysis for supports for the following items:

1. Trapeze hangers for multiple conduit runs.

PART 2 - PRODUCTS

2.1 MANUFACTURERS:

A. Manufacturers: Subject to compliance with requirements, provide products by the following:

1. Slotted Metal Angle and U-Channel Systems:

a. Allied Tube & Conduit
b. B-Line Systems, Inc.
c. Unistrut Diversified Products

2. Conduit Sealing Bushings:

a. O-Z/Gedney
b. Cooper Industries, Inc.
c. Killark Electric Mfg. Co.
d. Madison Equipment Co.
e. Raco, Inc.
f. Spring City Electrical Mfg. Co.
g. Thomas & Betts Corp.

2.2 COATINGS:

A. Coating: Supports, support hardware, and fasteners shall be protected with zinc coating or with treatment of equivalent corrosion resistance using approved alternative treatment, finish, or inherent material characteristic. Products for use outdoors shall be hot-dip galvanized.

2.3 MANUFACTURED SUPPORTING DEVICES:

A. Raceway Supports: Clevis hangers, riser clamps, conduit straps, threaded C-clamps with retainers, ceiling trapeze hangers, wall brackets, and spring steel clamps.

B. Fasteners: Types, materials, and construction features as follows:

1. Expansion Anchors: Carbon steel wedge or sleeve type.
2. Toggle Bolts: All steel springhead type.
3. Powder-Driven Threaded Studs: Heat-treated steel, designed specifically for the intended service.

C. Conduit Sealing Bushings: Factory-fabricated watertight conduit sealing bushing assemblies suitable for sealing around conduit, or tubing passing through concrete floors and walls. Construct seals with steel sleeve, malleable iron body, neoprene sealing grommets or rings, metal pressure rings, pressure clamps, and cap screws.

D. U-Channel Systems: 12-gage steel channels, with 9/16 inch-diameter holes, at a minimum of 8 inches on center, in top surface. Provide fittings and accessories that mate and match with U-channel and are of the same manufacture.

E. Supports: Provide supporting devices of types, sizes and materials indicated; and having the following construction features:

1. One-Hole Conduit Straps: For supporting 1 inch and smaller rigid metal conduit; galvanized steel.
2. Two-Hole Conduit Straps: For supporting 1 inch and larger rigid metal conduit, galvanized steel; ¾ inch strap width; and 2-1/8 inch between center of screw holes.

2.4 FABRICATED SUPPORTING DEVICES:

A. General: Shop- or field-fabricated supports or manufactured supports assembled from U-channel components.

B. Steel Brackets: Fabricated of angles, channels, and other standard structural shapes. Connect with welds and machine bolts to form rigid supports.

C. Pipe Sleeves: Provide pipe sleeves of one of the following:

1. Steel Pipe: Fabricate from Schedule 40 galvanized steel pipe.
2. EMT, IMC, or Rigid Conduit.

2.5 FIRE SEALS:

A. Material: Fire stopping material shall be asbestos free, 100 percent intumescent, have code approval under BOCA, ICBO, SSBC, NFPA 101, NFPA 70, and be capable of maintaining an effective barrier against flame and gases in compliance with the following requirements.

B. Flame Spread: 25 or less, ASTM E84

C. Fire Resistance and Hose Stream Tests: Fire stopping materials shall be rated "F" and "T" in accordance with ASTM E 814 or UL 1479. Rating periods shall conform to the following:

(F) 3 (T) 3 Time-rated floor or wall assemblies.

(F) 3 (T) 3 Openings between floor slabs and curtain wall.

D. Manufacturers: Subject to compliance with requirements, provide fire seals of the following:

1. 3M Company
2. STI
3. Tremco
4. Hilti

PART 3 - EXECUTION

3.1 INSTALLATION:

A. Install supporting devices to fasten electrical components securely and permanently in accordance with NEC requirements.

B. Coordinate with the building structural system and with other electrical installation.

C. Junction Box Supports: Comply with the NEC and the following requirement:

1. Use ¼" all-thread rod from structure to support junction boxes.

D. Raceway Supports: Comply with the NEC and the following requirements:

1. Conform to manufacturer's recommendations for selection and installation of supports.
2. Strength of each support shall be adequate to carry present and future load multiplied by a safety factor of at least four. Where this determination results in a safety allowance of less than 200 lbs., provide additional strength until there is a minimum of 200 lbs. safety allowance in the strength of each support.
3. Install individual and multiple (trapeze) raceway hangers and riser clamps as necessary to support raceways. Provide U-bolts, clamps, attachments, and other hardware necessary for hanger assembly and for securing hanger rods and conduits.
4. Use #9 ceiling wire to support individual conduits up to 3/4inch with spring steel fasteners. Use of ceiling support wires is unacceptable.
5. Support parallel runs of horizontal raceways together on trapeze-type hangers. Use 3/8 inch diameter or larger threaded steel rods for support.
6. Support individual horizontal raceways by separate pipe hangers. Spring steel fasteners may be used in lieu of hangers only for 1-1/2 inch and smaller raceways serving lighting and receptacle branch circuits above suspended ceilings only. For hanger rods with spring steel fasteners, use ¼ inch-diameter or larger threaded steel. Use spring steel fasteners that are specifically designed for supporting single conduits or tubing. For hanger rods supporting 1-1/2 inch or larger conduits provide 3/8 inch minimum threaded steel rods with pipe hangers.
7. Space supports for raceways in accordance with NEC. When there are 4 or more 2 inch conduits in a trapeze, supports shall be spaced 5 feet O.C.
8. In all runs, arrange support so the load produced by the weight of the raceway and the enclosed conductors is carried entirely by the conduit supports with no weight load on raceway terminals.
9. Threaded rod supports to have bottoms cut off at a maximum length equal to rod diameter below bottom nut.
10. Attachment of electrical supports to piping, ductwork, mechanical equipment or conduit is not allowed.

E. Conductor or Cable Supports: Comply with the NEC and the following requirements:

1. Support individual conductors or cables by separate clamps with rubber or plastic grommet, fasten using a non-metallic bolt and nut, and secure clamps to unistrut supports anchored to structure (multiple clamps may be secured to a single unistrut support). Individual conductors or cables may be served utilizing a vinyl or fiberglass clamp which shall be anchored to the structure.
2. Space supports as follows:

    a. Horizontal conductors not more than 3 feet o.c.
    b. Vertical conductors not more than 5 feet o.c.

3. Install simultaneously with installation of conductors.
4. MC Cable shall be supported by UL listed clip or clamp. Cable tie support is not acceptable.

F. Miscellaneous Supports: Support miscellaneous electrical components separately and as required to produce the same structural safety factors as specified for raceway supports. Install metal channel racks for mounting cabinets, panelboards, disconnects, control enclosures, pull boxes, junction boxes, transformers, and other devices.

G. In overhead spaces, support metal boxes directly from the building structure via 1/4" minimum all-thread or by bar hangers. Where bar hangers are used, attach the bar to raceways on opposite sides of the box and support the raceway with an approved type of fastener not more than 24 inches from the box. Supporting metal boxes utilizing ceiling type wire is not acceptable.

H. Sleeves: Install in concrete slabs and walls and all other fire-rated floors and walls for cable installations as required. Where sleeves through floors are installed, extend above finish floor. For sleeves through fire rated-wall or floor construction, apply UL-listed fire stopping sealant in gaps between sleeves and cables in accordance with "Fire Resistant Joint Sealers" requirement of Division 7 Section "Joint Sealers." See Architectural plans for location and extent of fire rated assemblies.

I. Conduit Seals: Install seals for conduit penetrations of exterior walls below grade. Tighten sleeve seal screws until sealing grommets have expanded to form watertight seal.

J. Fastening: Unless otherwise indicated, fasten electrical items and their supporting hardware securely to the building structure, including but not limited to conduits, raceways, cables, cable trays, busways, cabinets, panelboards, transformers, boxes, disconnect switches, and control components in accordance with the following:

1. Fasten by means of wood screws on wood, toggle bolts on hollow masonry units, concrete inserts or expansion bolts or self-drilling masonry anchors on concrete or solid masonry, cast in inserts on precast structures, spring-tension clamps on steel. Drilling of structural steel members is prohibited. Threaded studs driven by a powder charge and provided with lock washers and nuts may be used instead of expansion bolts and machine or wood screws, where authorized by the Owner and structural engineer. Do not weld conduit, pipe straps, or items other than threaded studs to steel structures. In partitions of light steel construction, use sheet metal screws.
2. Coordinate with the owner and structural engineer and obtain written prior approval of all work on concrete beams. Holes cut to depth of more than 1-1/2 inches in reinforced concrete beams or to depth of more than 3/4 inch in concrete shall not cut the main reinforcing bars. Fill holes that are not used.
3. Ensure that the load applied to any fastener does not exceed 25 percent of the proof test load. Use vibration- and shock-resistant fasteners for attachments to concrete slabs.

3.2 PERSONNEL PROTECTION:

A. Where U-channel systems, angles, brackets or other standard structural metal shapes are readily accessible and exposed to personnel, provide plastic or rubber end caps.

B. Where threaded rod supports are readily accessible and exposed to personnel, provide plastic or rubber end caps.

3.3 FIRE STOPPING LOCATIONS:

A. Preparation:

1. Coordination: Coordinate the work with other trades. Fire stopping materials at penetrations of insulated pipes and ducts can be applied after insulation is in place. If insulation is composed of combustible material, the thickness of fire stopping materials must be equivalent to that of the insulation. If the insulation is composed of non-combustible material, it may be considered as part of the penetrating item.
2. Surface Preparation: Surface Preparation to be in contact with fire stopping materials shall be free of dirt, grease, oil, loose material or other substances that may affect proper fitting or the required fire resistance.

B. Installation: Install fire stopping materials in accordance with the manufacturer's instructions.

C. Cleaning: After completion of fire stopping work in any area, equipment shall be reviewed and walls, ceilings and all other surfaces shall be cleaned of deposits of firestop materials.

D. Inspection: The architect may select and the Owner will pay an independent testing laboratory to examine fire stopped areas to ensure proper installation prior to concealing or enclosing the fire stopped areas.

END OF SECTION 260529

SECTION 260533 RACEWAY AND WIREWAY FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY:

A. Extent of raceway work is indicated by drawings and schedules. Provide complete conduit systems for all conductors unless otherwise specified.

B. Types of raceways specified in this section include the following:

1. Electrical metallic tubing (EMT).
2. Flexible metal conduit.
3. Intermediate metal conduit (IMC).
4. Liquid-tight flexible metal conduit.
5. Rigid metal conduit (RGC).
6. Wireways.
7. Rigid Aluminum Conduit.

1.2 QUALITY ASSURANCE:

A. Manufacturers: Firms regularly engaged in manufacture of raceway systems of types and sizes required, whose products have been in satisfactory use in similar service for not less than 5 years.

B. Installer's Qualifications: Firm with at least 3 years of successful installation experience on projects with electrical raceway work similar to that required for this project.

1.3 SUBMITTALS:

A. See Section 26 05 00 Common Work Results for Electrical for Submittal requirements. Supplemental information is listed within this section.

B. Product Data: Submit manufacturer's technical product data, including specifications and installation instructions, for each type of raceway system required. Include data substantiating that materials comply with requirements.

C. Shop Drawings: Submit dimensioned drawings of surface metal raceway systems showing layout of raceways and fittings, spatial relationships to associated equipment, and adjoining raceways, if any. Show connections to electrical power panels and feeders.

PART 2 - PRODUCTS

2.1 MANUFACTURERS:

A. Subject to compliance with requirements, provide products by the following:

1. Rigid Metal Conduit:

a. Allied
b. Wheatland
c. Triangle
d. Western Tube & Conduit

2. Intermediate Metal Conduit (IMC):

   a. Allied
   b. Triangle
   c. Western Tube & Conduit

3. EMT Conduit:

   a. Allied
   b. Republic
   c. Triangle
   d. LTV
   e. Western Tube & Conduit

4. Non-Metallic Conduit:

   a. Carlon
   b. MPF
   c. Can-Tex
   d. PW

5. Steel Fittings:

   a. O/Z Gedney
   b. Raco
   c. Appleton
   d. EPT
   e. Midwest
   f. Picoma
   g. Steel City

6. Conduit Bodies:

   a. O/Z Gedney
   b. Killark
   c. Regal
   d. Appleton
   e. Crouse Hinds

7. Wireway:

   a. Square D. Co.
   b. Circle AW Products
   c. Erickson Electric Equipment Co.
   d. G.S. Metals Corp.
   e. Hoffman Engineering Co.
   f. Wadsworth Electric Mfg. Co., Inc.

2.2 METAL CONDUIT AND TUBING:

A. Rigid Galvanized Steel Conduit (RGC):

1. Conduit: Rigid steel, zinc-coated inside and outside, threaded ends.
2. Fittings: Threaded galvanized steel, bushings shall have nylon insulated throat.

B. Intermediate Metal Conduit (IMC):

1. Conduit: Rigid intermediate grade galvanized inside and outside, threaded ends.
2. Fittings: Threaded galvanized steel, bushings shall have nylon insulated throat.

C. Electrical Metallic Tubing (EMT):

1. Conduit: Galvanized steel tubing.
2. Fittings: Steel compression fittings for rain-tight and concrete-tight applications. Steel set-screw for all other connections. Set-screw quick fit type for 2-1/2 inches and larger may be used. Bushings shall be threaded and have nylon insulated throat or nylon bushing.

D. Rigid Aluminum Conduit:

1. Not allowed unless otherwise noted.

E. Flexible Metal Conduit:

1. Conduit: Continuous spiral wound, interlocked, zinc-coated steel, approved for grounding.
2. Fittings: Zinc coated, malleable iron. Straight connector shall be one-piece body, female end with clamp and deep slotted machine screw for securing conduit, and threaded male end provided with a locknut. Angle connectors shall be two piece body with removable upper section, female end with clamp and deep slotted machine screw for securing conduit, and threaded male end provided with a locknut. All fittings shall be terminated with threaded bushings having nylon insulated throats.

F. Liquid-Tight Flexible Metal Conduit:

1. Conduit: Continuous spiral wound, interlocked zinc-coated steel with polyvinyl chloride (PVC) jacket, approved for grounding.
2. Fittings: Zinc coated malleable iron. Straight and angle connectors shall be the same as used with flexible metal conduit but shall be provided with a compression type steel ferrule and neoprene gasket sealing rings.

2.3 CONDUIT BODIES:

A. General: Types, shapes and sizes, as required to suit individual applications and NEC requirements. Provide matching gasketed covers secured with corrosion-resistant screws.

B. Metallic Conduit and Tubing: Use malleable iron conduit bodies. Use bodies with threaded hubs for threaded raceways and in hazardous locations.

C. Nonmetallic Conduit: Use nonmetallic conduit bodies.

2.4 WIREWAYS:

A. General: Provide electrical wireways of types, grades, sizes, and number of channels for each type of service as indicated. Provide complete assembly of raceway including, but not limited to, couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other components and accessories as required for complete system.

B. Lay-In Wireways: Construct lay-in wireways with hinged covers in accordance with UL 870 with components UL listed. Construct units to be capable of sealing cover in closed position with sealing wire.

1. Connectors: Provide wireway connectors suitable for "lay-in" conductors, with connector covers permanently attached so that removal is not necessary to utilize the lay-in feature.
2. Finish: Protect sheet metal parts with rust inhibiting coating and baked enamel finish. Plate finish hardware to prevent corrosion. Protect screws installed toward inside of wireway with spring nuts to prevent wire insulation damage.

C. Rain-tight Troughs: Construct in accordance with UL 870, with components UL listed.

1. Construction: 16-gauge galvanized sheet metal parts for 4" x 4" to 6" x 6" sections, and 14 gauge parts for 8" x 8" and larger sections. Provide knockouts only in bottom of troughs, with suitable adapters to facilitate attaching to other NEMA 3R enclosures. Do not use Gasketing that can rip or tear during installation, or would compromise rain-tight capability of the trough. Do not use cover screws that will protrude into the trough area and damage wire insulation.
2. Finish: Provide 14-gauge and 16-gauge galvanized sheet metal parts with corrosion-resistant phosphate primer and baked enamel finish. Plate hardware to prevent corrosion.

2.5 CONDUIT SIZES:

A. Conduit sizes shall be as shown on the drawings. If the conduit size is not given on the drawings, the conduit shall be sized in accordance with NEC based on the number of conductors enclosed plus a parity sized equipment ground conductor and be subject to the following minimum sizes:

1. Rigid, Intermediate, and EMT Conduit: ¾” for all runs except lighting switch legs, 277 volt lighting branch circuits, temperature control and fire alarm which may be 1/2inch.
2. Flexible and Liquid-Tight Flexible Conduit: ½” for all runs.
3. MC Cable: 3/8” to under-counter luminaires, ½” for all other runs.
4. Underground or Concrete Encased Nonmetallic Conduit: ¾” for all runs.
5. Conduits used for home runs shall contain only the conductors for the circuits indicated on the drawings. Combining multiple home runs into a single conduit will not be permitted.

2.6 RACEWAY SEALING COMPOUND:

A. Non-hardening, safe for human skin contact, not deleterious to cable insulation, workable at temperatures as low as 35 deg. F (1 deg. C), withstands temperature of 300 deg. F (149 deg. C) without slump, and adheres to clean surfaces of plastic ducts, metallic conduits, conduit coatings, concrete, masonry, lead, cable sheaths, cable jackets, insulation materials and the common metals.

PART 3 - EXECUTION

3.1 INSPECTION:

A. Examine areas and conditions under which raceways are to be installed, and substrate which will support raceways. Provide notification in writing of conditions detrimental to proper completion of the work. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Installer.

3.2 CONDUIT SCHEDULE:

A. Hazardous areas: Rigid steel galvanized conduit.

B. Raceways in locations subject to mechanical injury**:** Rigid steel galvanized conduit or intermediate metal conduit. Locations subject to mechanical injury include, but are not limited to, the following:

1. Exposed conduits outdoors up to 8’ A.F.G.
2. Exposed conduits in dock areas and high/medium bay locations up to 25 feet above finished floor.
3. Exposed conduits in parking garages.
4. Exposed conduits in a Fire Pump Room.
5. Exposed service entrance feeders.

C. Motor and equipment connections: Flexible metal conduit or PVC jacketed liquid-tight flexible metallic conduit with liquid tight connectors.

D. Raceways in all other areas shall be electrical metallic tubing unless otherwise noted.

E. Rework or extensions of existing conduit shall include the use of similar materials to the existing conduit type unless otherwise noted.

3.3 INSTALLATION OF CONDUITS:

A. General: Install electrical raceways in accordance with manufacturer's written installation instruction, applicable requirements of NEC, and as follows:

1. Conceal all conduits unless indicated otherwise, within finished walls, ceilings, and floors. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot water pipes. Install raceways level and square and at proper elevations.
2. Elevation of Raceway:
    a. Where horizontal raceway is installed near water and steam piping, route raceway above piping and as close to structure as possible and practical.
    b. Route raceway as close to structure as possible.
3. Complete installation of electrical raceways before starting installation of conductors within raceways.
4. Provide supports for raceways as specified elsewhere in Division 26.
5. Prevent foreign matter from entering raceways by using temporary closure protection.
6. Protect stub-ups from damage where conduits rise from floor slabs. Arrange so curved portion of bend is not visible above the finished slab.
7. Make bends and offsets so the inside diameter is not effectively reduced. Unless otherwise indicated, keep the legs of a bend in the same plane and the straight legs of offsets parallel.
8. Use raceway fittings that are types compatible with the associated raceway and suitable for the use and location. Install expansion fittings across all structural construction joints and expansion/deflection couplings across all structural expansion joints.
9. Run raceways parallel and perpendicular to building elements and other equipment with a minimum of bends in the shortest practical distance considering the type of building construction and obstructions except as otherwise indicated.
10. Install exposed raceways parallel and perpendicular to nearby surfaces or structural members and follow the surface contours as much as practical.

11. Install vertical feeder conduits in exterior walls, core walls, or chase spaces. Do not install in interior wall partition areas.
12. Run exposed and parallel raceways together. Make bends in parallel runs from the same center line so that the bends are parallel. Factory elbows may be used only where they can be installed parallel. In other cases provide field bends for parallel raceways.
13. Make raceway joints tight. Where joints cannot be made tight, use bonding jumpers to provide electrical continuity of the raceway system. Make raceway terminations tight. Where terminations are subject to vibration, use bonding bushings or wedges to assure electrical continuity. Where subject to vibration or dampness, use insulating bushings to protect conductors. Joints in non-metallic conduits shall be made with solvent cement in strict accordance with manufacturer's recommendations.
14. Tighten set screws of thread less fittings with suitable tool.
15. Terminations: Where raceways are terminated with locknuts and bushings, align the raceway to enter squarely and install the locknuts with dished part against the box. RGC and IMC shall be secured with double locknuts and an insulated metallic bushing. EMT shall be secured with one locknut and shall have nylon insulated throats or threaded nylon bushings from 1/2" to 1". 1-1/4" and above shall be metal with nylon insulated throats. Use grounding type bushings for feeder conduits at switchboards, panelboards, pull boxes, transformers, motor control centers, VFD's, etc.
16. Where terminating in threaded hubs, screw the raceway or fitting tight into the hub so the end bears against the wire protection shoulder. Where chase nipples are used, align the raceway so the coupling is square to the box, and tighten the chase nipple so no threads are exposed.
17. Provide nylon pull string with printed footage indicators having not less than 200 pounds tensile strength. Leave not less than 12 inches of slack at each end of the pull string. Identify with tags at each end the origin and destination of each empty conduit and indicate same on all empty or spare conduits on the as-built drawings.
18. Telephone and Signal System Raceways: Install raceways with maximum lengths at 100 feet and with a maximum of two, 90 degrees radiused bends or equivalent. Install 2' x 2' pull boxes where necessary to comply with these requirements. Install long sweep bends for all data and voice raceways.
19. Install raceway sealing fittings in accordance with the manufacturer's written instructions. Locate fittings at suitable, approved, 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 and elsewhere as indicated:

    a. Where conduits enter or leave hazardous locations.
    b. Where conduits pass from warm locations to cold locations, such as the boundaries of refrigerated spaces and air-conditioned spaces.
    c. Where conduits enter through a foundation wall or stub-up through a slab on grade floor.
    d. Where required by the NEC.

20. Flexible Connections: Use short length (maximum of 6 feet) of flexible conduit for recessed and semi-recessed luminaires, for equipment subject to vibration, noise transmission, or movement; and for all motors. Use liquid-tight flexible conduit in wet locations. Install separate ground conductor across flexible connections. Where PVC conduit/couplings have been approved for exterior use and are exposed to sunlight, provide UV rated PVC coatings or protect with 2 coats of water based latex paint that is chemically compatible with the PVC products. Color selection shall be by Architect.
21. PVC externally coated rigid steel conduit: Patch all nicks and scrapes in PVC coating after installing conduit.

22. Where conduits are to be installed through structural framing members, the Contractor shall provide sleeves. The Architect/Engineer's written approval must be obtained prior to cutting, notching or drilling of structural framing members.
23. Ream the ends of all cut and/or threaded conduit. Ends shall be cut square.
24. Use of running threads for rigid or intermediate metallic conduit are not permitted. When threaded couplings cannot be used, provide 3 piece union or solid coupling.
25. Route conduit through roof openings for piping and ductwork where possible; otherwise, rout through jack with pitch pocket.
26. Conduit stub-ups from below grade or thru the slab shall be PVC coated or PVC taped rigid steel galvanized conduit and shall extend 6 inches above grade.
27. Wherever conduits enter a structure through a foundation or basement wall below grade, grout around the conduit with water-proof grout or install entrance seals. Seals shall be OZ Type WS or approved equivalent for new construction and OZ type CSM Series for existing structures.
28. Conduits shall not cross pipe shafts or ventilation duct openings. Where conduits must penetrate air-tight spaces or plenums, seal around the conduit with a mastic acceptable to the Architect/Engineer.
29. Install an insulated ground conductor in all conduits.
30. Where individual conduits penetrate existing fire-rated walls and floors, pack void around conduit with fire rated insulation and seal opening around conduit with UL listed foamed silicone elastomer compound. Where conduits penetrate exterior walls, new floors, or roof, provide pipe sleeve one size larger than conduit, pack void around conduit with fire rated insulation, and seal opening around conduit with UL listed foam silicone elastomer compound.
31. Where conduit sleeves penetrate fire rated floors or walls for installation of system cables, MC cables, or modular wiring cables pack void around cables or empty sleeve with fire rated insulation and fill ends with fire-resistive compound. Seal opening around sleeve with UL listed foam silicone elastomer compound.
32. Wipe plastic conduit clean and dry before joining. Apply full even coat of cement to entire area that will be inserted into fitting. Let joint cure for 20 minutes minimum.
33. No PVC conduit shall be run exposed or inside stud or masonry walls unless specifically called for on the drawings. Transition from PVC to metal conduit shall be made below grade.
34. Provide separate raceway systems for each of the following:

    a. Lighting
    b. Power Distribution
    c. Temperature Control

35. Paint new exposed conduits to match existing exposed conduits where installed in areas with existing painted conduits or where otherwise indicated.
36. Provide rebar and tie downs for all conduits and conduit racks to be installed with concrete or slurry to prevent conduit “float”.

B. Install buried electrical line warnings per Division 26 section - “Electrical identification”.

C. Install labeling as required in Division 26 section - “Electrical Identification”.

3.4 INSTALLATION OF WIREWAYS:

A. Wireways: Mechanically assemble metal enclosures and raceways to form continuous electrical conductor and connect to electrical boxes, fittings and cabinets as to provide effective electrical continuity and rigid mechanical assembly.

1. Where practicable, avoid use of dissimilar metals throughout system to eliminate possibility of electrolysis. Where dissimilar metals are in contact, coat all surfaces with corrosion inhibiting compound before assembling.
2. Install expansion fittings in all raceways wherever structural expansion joints are crossed.
3. Make changes in direction of raceway run with proper fittings, supplied by raceway manufacturer. Field bends of raceway sections are not permitted.
4. Properly support and anchor raceways for their entire length by structural materials. Raceways are not to span any space unsupported.
5. Use boxes as supplied by raceway manufacturer wherever junction, pull or device boxes are required. Standard electrical "handy" boxes, etc., are not permitted for use with surface raceway installations.
6. Install an insulated grounding conductor in all wireways and surface raceways. Bond grounding conductor to all wireways and surface raceways.
7. Paint new exposed surface metal raceway to match adjacent surfaces where raceway is installed in finished areas such as lobbies, corridors, and normally occupied spaces.
8. Surface raceways and wireways are acceptable only where specifically indicated on the drawings. The proposed use of surface raceways and wireways shall be submitted for review by the Engineer prior to installation.
9. Common wireways are not acceptable for convergence of multiple circuits unless specifically indicated on the drawings. The proposed use of a common wireway shall be submitted for review by the Engineer prior to installation.
10. The proposed use of wireways above or below panelboards, switchboards, motor control centers, and other electrical equipment shall be submitted along with a layout drawing for review by the Engineer prior to installation.

3.5 ADJUSTING AND CLEANING:

A. Upon completion of installation of raceways, inspect interiors of raceways; clear all blockages and remove burrs, dirt and construction debris.

END OF SECTION 260533

SECTION 260553 – IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY:

A. This Section includes identification of electrical materials, equipment, and installations. It includes requirements for electrical identification components including but not limited to the following:

1. Identification labeling for raceways, cables, and conductors.
2. Operational instruction signs.
3. Warning and caution signs.
4. Equipment labels and signs.

B. Identification required in this section shall apply to equipment furnished in Division 26 and any other applicable Divisions including Division 23.

1.2 SUBMITTALS:

A. See Section 26 05 00 Common Work Results for Electrical for Submittal requirements. Supplemental information is listed within this section.

B. Product Data for each type of product specified.

C. Submit schedule of identification nomenclature to be used for identification signs and labels for each piece of equipment including, but not be limited to, the following equipment types as specified in Division 26.

1. Cabinets and enclosures
2. Disconnect switches
3. Circuit breakers and switches

D. Submit samples of each color, lettering style and other graphic representation required for identification materials including samples of labels and signs.

1.3 QUALITY ASSURANCE:

A. ANSI Compliance: Comply with requirements of ANSI Standard A13.1, "Scheme for the Identification of Piping Systems," with regard to type and size of lettering for raceway and cable labels.

PART 2 - PRODUCTS

2.1 MANUFACTURERS:

A. Manufacturers: Subject to compliance with requirements, provide products by the following:

1. Ideal Industries, Inc.
2. LEM Products, Inc.
3. Markal Corp.
4. Panduit Corp.
5. W.H. Brady, Co.
6. 3M Company

2.2 ELECTRICAL IDENTIFICATION PRODUCTS:

A. Provide colored Adhesive Marking Tape for banding Wires and Cables: Self-adhesive vinyl tape not less than 3 mils thick by 1 inch to 2 inches in width. Make each color band completely encircling cables, at penetrations of walls and floors, at each junction box and at 20-foot maximum intervals in straight runs.

B. Wire/Cable Designation Tape Markers: Vinyl or vinyl-cloth, self-adhesive, wraparound, cable/conductor markers with preprinted numbers and letter.

C. Engraved, Plastic-Laminated Labels, Signs and Instruction Plates: Engraving stock melamine plastic laminate, 1/16 inch minimum thick for signs up to 20 square inches, or 8 inches in length; 1/8 inch thick for larger sizes. Engraved legend in white letters on black face for normal and white letters on red face for emergency, black letters on yellow face for UPS and punched for mechanical fasteners. Where required for ground connections, provide engraved legend in white letters on green face.

D. Fasteners for Plastic-Laminated and Metal Signs: Self-tapping stainless steel screws when screw ends do not protrude into working areas of equipment otherwise use number 10/32 stainless steel machine screws with nuts and flat and lock washers or rivets.

E. Cable Ties: Fungus-inert, self-extinguishing, one-piece, self-locking nylon cable ties, 0.18-inch minimum width, 50 lb. minimum tensile strength, and suitable for a temperature range from minus 50 degrees F to 350 degrees F. Provide ties in specified colors when used for color coding.

F. Adhesive Marking Tape for Device Cover Plates: 3/8 inch Kroy tape or Brother labels with 3/16 inch minimum height letters. Tape shall have black letters on clear background for normal and red letters on clear background for emergency. Embossed Dymo-Tape labels are not acceptable.

PART 3 - EXECUTION

3.1 INSTALLATION:

A. Lettering and Graphics: Coordinate names, abbreviations, colors, and other designations used in electrical identification work with corresponding designations specified or indicated. Install numbers, lettering, and colors as approved in submittals and as required by code. Clean surfaces to receive nameplates and labels and install nameplates and labels on front of equipment parallel with equipment/raceway/cable/wire/etc. lines.

B. Install identification devices in accordance with manufacturer's written instructions and requirements of NEC.

C. Sequence of Work: Where identification is to be applied to surfaces that require finish, install identification after completion of finish work.

D. Identify Junction, Pull and Connection Boxes: Identification of systems and circuits shall indicate system voltage and identity of contained circuits on outside of box cover. Color code shall be same as raceway systems. Use self-adhesive marking tape labels at exposed locations and indelible black marker at concealed boxes.

E. Circuit Identification: Tag or label conductors as follows:

1. Multiple Circuits: Where multiple branch circuits, control wiring or communications/signal conductors are terminated or spliced in a box or enclosure, label each conductor or cable with circuit number. For control and communications/signal wiring, use wire/cable marking tape at terminations in wiring boxes, troughs and control cabinets. Use consistent letter/number conductor designations throughout on wire/cable marking tapes.
2. Match identification markings with designations used in panelboards shop drawings, Contract Documents, and similar previously established identification schemes for the facility's electrical installations.

F. Apply warning, caution and instruction signs and stencils as follows:

1. Install warning, caution or instruction signs where required by NEC, where indicated, or where reasonably required to assure safe operation and maintenance of electrical systems and of the items to which they connect. Install engraved plastic-laminated instruction signs with approved legend where instructions or explanations are needed for system or equipment operation. Install butyrate signs with metal backing for outdoor items.
2. Emergency Operating Signs: Install, where required by NEC, where indicated, or where reasonably required to assure safe operation and maintenance of electrical systems and of the items to which they connect, engraved laminate signs with white legend on red background with minimum 3/8 inch high lettering for emergency instructions on power transfer, load shedding, or other emergency operations.

    a. Provide sign at main service entrance switch, indicating type and location of on-site stand-by generator as required by NEC. Sign shall read “Secondary Source Provided by Engine Generator Located in Room NAME and NUMBER”.

G. Install equipment/system circuit/device identification as follows:

1. Apply equipment identification labels of engraved plastic-laminate on each major unit of electrical equipment in building, including central or master unit of each electrical system. This includes communication/signal/alarm systems, unless unit is specified with its own self-explanatory identification. Text shall match terminology and numbering of the Contract Documents and shop drawings. Apply labels for each unit of the following categories of electrical equipment.

    a. Electrical cabinets and enclosures.
    b. Access doors and panels for concealed electrical items.

H. Apply circuit/control/item designation labels of engraved plastic laminate for disconnect switches, breakers, pushbuttons, pilot lights, motor control centers, and similar items for power distribution and control components above, except panelboards and alarm/signal components, where labeling is specified elsewhere.

I. For panelboards, provide framed, typed circuit schedules (label all spares and spaces in pencil) with explicit description and identification of items controlled by each individual breaker.

J. Tag all grounding electrode conductors, associated bonding conductors, and grounding conductors at their point of attachment to any ground bus and grounding electrode (where possible) with a 2 inch diameter round green phenolic nameplate. Lettering shall be 1/4 inch high with 1/5 inch between lines centered on the tag stating "DO NOT DISCONNECT," "MAIN GROUND." Nameplate shall attach to conductor with a short length of small chain.

K. Install labels at locations as required and at locations for best convenience of viewing without interference with operation and maintenance of equipment.

L. Provide adhesive marking tape labels for identification of individual receptacles including receptacles in furniture systems and light switch wall-plates. Locate tape on front of plate and identify panel and branch circuit serving the receptacle. Provide tape labels for identification of individual switches or thermal overload switches which serve as equipment disconnects. Locate the tape on the front of the cover-plate and identify panel and branch circuit serving the equipment.

END OF SECTION 260553

SECTION 26 05 83 – WIRING CONNECTIONS

PART 1 - GENERAL

1.1 SUMMARY:

A. Extent of electrical connections for equipment is indicated by drawings and schedules. Electrical connections are hereby defined to include connections used for providing electrical power to equipment.

B. Applications of electrical power connections specified in this section include the following:

1. To resistive heaters.
2. Other connections as shown.

1.2 QUALITY ASSURANCE:

A. Manufacturers: Firms regularly engaged in manufacture of electrical connectors and terminals, of types and ratings required, and ancillary connection materials, including electrical insulating tape, soldering fluxes, and cable ties, whose products have been in satisfactory use in similar service for not less than 5 years.

B. Installer's Qualifications: Firms with at least 2 years of successful installation experience with projects utilizing electrical connections for equipment similar to that required for this project.

1.3 SUBMITTALS:

A. See Section 26 05 00 Common Work Results for Electrical for Submittal requirements. Supplemental information is listed within this section.

B. Product Data: Submit manufacturer's data on electrical connections for equipment products and materials. All mechanical and plumbing equipment shall be coordinated with unit nameplate information per the actual nameplate to be included on the equipment. As a minimum, information shall include: Operating Voltage; MCA (Min. circuit amperes); FLA (Full load amperes); MFS (Max. fuse size) or MOP (Max. overcurrent protection); and SCCR (Short Circuit Current Rating) and shall match electrical equipment and protection/distribution sizes and be rated for available short circuit currents as shown on the drawings. Bracing for equipment shall be provided at incoming terminals and as an option throughout the equipment for the available fault current or downstream equipment and devices shall be protected by current limiting fuses.

1.4 DEFINITIONS:

A. Load voltage wiring shall be defined as:

1. Conduit and wiring required to carry power to motors and other equipment or devices. Wiring from control devices to equipment that carry power to drive that equipment such as line voltage thermostats, etc., shall be included as load voltage wiring. Wiring that provides power to control panels, control transformers, control relays, time clocks, etc., shall also be included as load voltage wiring.

1.5 DELIVERY, STORAGE, AND HANDLING:

A. Deliver electrical connection products wrapped in proper factory fabricated type containers.

B. Store electrical connection products in original cartons and protect from weather, construction traffic and debris.

C. Handle electrical connection products carefully to prevent breakage, denting, and scoring finish.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS:

A. Manufacturer: Subject to compliance with requirements, provide circuit and motor disconnects by one of the following:

1. General Electric Co.
2. Eaton
3. Square D Company
4. Siemens Energy & Automation, Inc.
5. Westinghouse Electric Corp.

2.2 GENERAL:

A. Overcurrent Protective Devices (OCPDs): Provide type, rating, and features as indicated. Comply with Division 26 Section on Low Voltage Circuit Protective Devices, with OCPDs adapted to equipment connection installation. Tandem circuit breakers shall not be used. Multiple breakers shall have common trip.

B. Provide motor controllers that are horsepower rated to suit the motor controlled.

C. Contacts shall open each ungrounded connection to the motor. Contacts shall be NEMA rated, 75 degrees C.

D. Overload relays shall be ambient-compensated type with inverse-time-current characteristic. Provide with heaters or sensors in each phase matched to nameplate full load current of the specific motor to which connected with appropriate adjustment for duty cycle and power factor correction supplied with the motor.

2.3 MATERIALS AND COMPONENTS:

A. General: For each electrical connection indicated, provide complete assembly of materials, including but not necessarily limited to, pressure connectors, terminals (lugs), electrical insulating tape, electrical solder, electrical soldering flux, heat-shrinkable insulating tubing, cable ties, solderless wire-nuts, disconnect, starter, contactor, relays, etc., and other items and accessories as needed to complete splices and terminations of types indicated.

B. Metal Conduit, Tubing and Fittings:

1. General: Provide metal conduit, tubing and fittings of types, grades, sizes and weights (wall thicknesses) indicated for each type service. Provide products complying with Division-26 section on Raceways.

C. Wires, Cables, and Connectors:

1. General: Provide wires, cables, and connectors complying with Division-26 section on Wires and Cables.

2. Wires/Cables: Unless otherwise indicated, provide wires/cables (conductors) for electrical connections which match, including sizes, ratings, and material of wires/cables which are supplying electrical power.
3. Connectors and Terminals: Provide electrical connectors and terminals which mate and match, including sizes and ratings, with equipment terminals and are recommended by equipment manufacturer for intended applications.
4. Electrical Connection Accessories: Provide electrical insulating tape, heat-shrinkable insulating tubing and boots, electrical solder, electrical soldering flux, wire-nuts and cable ties as recommended for use by accessories manufacturers for type services indicated.
5. Cord and Plug Connected Equipment: Where indicated, contractors shall provide a length of SO cord complete with a straight blade or twist-lock receptacle for connection of equipment. Cord and plug rating shall be suitable for the connected equipment load and rating of the branch circuit overcurrent protective device. Plug shall match receptacle configuration included on the plans and cord length shall be as required. Contractor shall connect cord to equipment.

2.4 CIRCUIT AND MOTOR DISCONNECT SWITCHES:

A. General: Provide circuit and motor disconnect switches in types, sizes, duties, features, ratings, and enclosures as indicated. All equipment with maximum fuse size listed in nameplate shall have fusible disconnect switch provided. Provide NEMA 1 enclosure. For outdoor switches and switches indicated as weatherproof, provide NEMA 3R enclosures with rain-tight hubs. For motor and motor starter disconnects, provide units with horsepower ratings suitable to the loads.

B. Fusible Switches: Provide UL type "HD" 100 percent duty rated switches, with fuses of classes and current ratings indicated. Where current limiting fuses are indicated, provide switches with non-interchangeable feature suitable only for current limiting type fuses. All disconnect switches shall be fusible unless otherwise noted.

C. Accessories:

1. Electrical Interlocks: Provide number and arrangement of interlock contacts in switches as indicated or required.
2. Handles shall be lockable in open and closed position without modification.
3. Disconnect switches provided in the motor feeders between a VFD and the motor shall be provided with auxiliary contacts at the disconnect that de-energizes power to the VFD.

2.5 MOTOR STARTERS:

A. See Division 23 for Requirements

2.6 AUXILIARY CONTROL DEVICES:

1. Built in 120 volts control circuit transformer, fused from line side, where service exceeds 120 volts.
2. Ammeters, Voltmeters, and Frequency Meters: Panel type, 2-1/2 inch minimum size with 90 degree or 120 degree scale and plus or minus 2 percent accuracy. Where indicated. Current Sensors: Rated to suit application.

PART 3 - EXECUTION

3.1 INSPECTION:

A. Inspect area and conditions under which electrical connections for equipment are to be installed and notify Contractor in writing of conditions detrimental to proper completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to Installer.

3.2 INSTALLATION OF ELECTRICAL CONNECTIONS:

A. Furnish, set in place, and wire (except as may be otherwise indicated) all heating, ventilating, air conditioning, plumbing and fire protection, elevator, etc., motors and controls in accordance with the following schedule and in accordance with equipment manufacturer's written instructions and with recognized industry practices, and complying with applicable requirements of UL, NEC and NECA's "Standard of Installation" to ensure that products fulfill requirements. Carefully coordinate with work performed under the Mechanical Division of these Specifications.

B. Coordinate with other work, including wires/cables, raceway and equipment installation, as necessary to properly interface installation of electrical connections for equipment with other work.

C. Connect electrical power supply conductors to equipment conductors in accordance with equipment manufacturer's written instructions and wiring diagrams. Mate and match conductors of electrical connections for proper interface between electrical power supplies and installed equipment.

D. Maintain existing electrical service and feeders to equipment serving occupied areas and operational facilities, unless otherwise indicated, or when authorized otherwise in writing by Owner, or Architect/Engineer. Provide temporary service during interruptions to existing facilities. When necessary, schedule momentary outages for replacing existing wiring systems with new wiring systems. When that "cutting over" has been successfully accomplished, remove, relocate, or abandon existing wiring as indicated.

E. Cover splices with electrical insulating material equivalent to, or of greater insulation resistivity rating, than electrical insulation rating of those conductors being spliced.

F. Prepare cables and wires, by cutting and stripping covering armor, jacket, and insulation properly to ensure uniform and neat appearance where cables and wires are terminated. Exercise care to avoid cutting through tapes which will remain on conductors. Also avoid "ringing" copper conductors while skinning wire.

G. Trim cables and wires as short as practicable and arrange routing to facilitate inspection, testing and maintenance.

H. Tighten connectors and terminals, including screws and bolts, in accordance with equipment manufacturers published torque tightening values for equipment connectors. Accomplish tightening by utilizing proper torqueing tools, including torque screwdriver, beam-type torque wrench, and ratchet wrench with adjustable torque settings. Where manufacturer's torqueing requirements are not available, tighten connectors and terminals to comply with torqueing values contained in UL's 486A.

I. Install pre-finished cord set where connection with attachment plug is indicated or specified, or use attachment plug with suitable strain-relief clamps.

J. Provide suitable strain relief clamps for cord connection to outlet boxes and equipment connection boxes.

K. Make wiring connections in control panel or in wiring compartment of pre-wired equipment and interconnecting wiring in accordance with manufacturer's instructions.

L. Install disconnect switches, controllers, control stations, and control devices such as limit switches and temperature switches as indicated or per manufacturer's instructions.

M. Provide each motor with a fused disconnect switch for 3 phase motors and horsepower rated and/or thermal rated disconnect switch for single phase motors as shown on schedules or required. Coordinate with manufacturers of standalone, packaged and other equipment for factory installed and field installed motors and controllers.

N. Provide circuit and motor disconnect switches as indicated and where required by Code. Comply with switch manufacturers printed installation instructions. Install within sight of motors.

O. All splices in control panels, terminal junction boxes, low voltage control circuits and fire alarm conductors shall be on numbered terminal strip.

P. Each branch circuit serving dedicated, isolated or emergency receptacles, multi-outlet assemblies or equipment connections shall be furnished with a dedicated neutral conductor. Neutrals common to more than one circuit shall only be permitted where specifically noted.

Q. Where conduit is not required, plenum rated cable shall be provided in ceiling, floor or other air plenum spaces.

3.3 FIELD QUALITY CONTROL:

A. Upon completion of installation of electrical connections, and after circuitry has been energized with rated power source, test connections to demonstrate capability and compliance with requirements. Ensure that direction of rotation of each motor fulfills requirement. Correct malfunctioning units at site, then retest to demonstrate compliance.

3.4 EQUIPMENT CONNECTION SCHEDULES:

A. Mechanical Equipment:

1. Refer to Mechanical Equipment Schedule on the drawings.
2. It is suggested that all load voltage wiring shall be provided under Division 26.
3. Unless otherwise indicated, it is suggested that all equipment motors and control shall be furnished, set in place, and wired in accordance with the schedule contained herein. The exact furnishing and installation of the equipment is left to the Contractors involved. Contractor should note that the intent of this schedule is to have the Contractor responsible for coordinating all wiring as outlined, whether or not specifically called for by the Division 23 or Division 26 drawings and specifications. Comply with the applicable requirements of Division 26 for all electrical work which is not otherwise specified. No extras will be allowed for contractor's failure to provide for these required items. Contractor shall refer to the Division 26 and Division 23 specifications and plans for all power and control wiring and shall advise the Architect/Engineer of any discrepancies prior to bidding.

ITEM	FURNISHED BY	SET BY	CONTROL WIRING (non-load voltage)
1. Mechanical Equipment Motors	M	M	--
2. Special Equipment (i.e., elevators, etc.)			
a. Motors	G	G	--
b. Magnetic Motor Starters	G	E*	--
c. Disconnect Switches	E	E	--
d. Thermal OL Switches			
e. Manual Operating Switches			
3. Motor Starters, combination motor starter/disconnect and Variable Frequency Drives			
a. Automatically controlled, with or without HOA switches.	M	E*	M
b. Manually controlled.	M	E*	--
c. Starters integral with motor control center including control relays and transformers.	E	E	--
d. Combination Starter/Disconnects	M	E*	M
4. Disconnect switches, thermal overload switches, manual operating switches.	E	E*	M
5. Multi-speed switches	M	E*	M
6. Control relays, transformers.	M	M	M
7. Load voltage control items such as line voltage thermostats not connected to control panel systems.	M	M	E
8. Non-load voltage control items.	M	M	M
9. Electric thermostats, remote bulb thermostats, motor valves, float controls, etc., which are an integral part of mechanical equipment or directly attached to ducts, pipes, etc.	M	M	M
10. Control circuit outlets	E	E	--
a. Load voltage control items such as line voltage thermostats not connected to control panel systems.	M	M	E
b. Non-load voltage control items.	M	M	M
c. Electric thermostats, remote bulb thermostats, motor valves, float controls, etc., which are an integral part of mechanical equipment or directly attached to ducts, pipes, etc.	M	M	M
d. Control circuit outlets	E	E	--
11. Load voltage control items such as line voltage thermostats not connected to control panel systems.	M	M	E
12. Non-load voltage control items.	M	M	M

ITEM	FURNISHED BY	SET BY	CONTROL WIRING (non-load voltage)
13. Electric thermostats, remote bulb thermostats, motor valves, float controls, etc., which are an integral part of mechanical equipment or directly attached to ducts, pipes, etc.	M	M	M
14. Control circuit outlets	E	E	--
15. Load voltage control items such as line voltage thermostats not connected to control panel systems.	M	M	E
16. Non-load voltage control items.	M	M	M
17. Temperature Control Panel	M	M	M
18. Interlocks	M	M	M

G = General, Division 13 or 14
M = Mechanical, Division 23
E = Electrical, Division 26

* For factory pre-wired equipment specified under other Divisions, all wiring within the equipment shall be by the manufacturer. All required field wiring between sections or other field connection details for power and/or control shall be clearly identified on shop drawings for contractor installation. Division 26 drawings show the provided electrical characteristics for equipment.

Manufacturer's equipment provided under other divisions which varies from what is shown on Division 26 drawings shall be the responsibility of the Contractor to complete and pay for any costs for those variations.

END OF SECTION 260583

SECTION 262800 - LOW-VOLTAGE CIRCUIT PROTECTIVE DEVICES

PART 1 - GENERAL

1.1 SUMMARY:

A. This section includes overcurrent protective devices (OCPD's) rated 600 V and below and switching devices commonly used with them.

B. Panelboards, Switchboards, and Motor Control Centers: Application, installation, and other related requirements for overcurrent protective device installations in distribution equipment are specified in other Division 26 sections.

1.2 DEFINITIONS:

A. Overcurrent Protective Device (OCPD): A device operative on excessive current that causes and maintains the interruption of power in the circuit it protects.

B. Ampere-Squared-Seconds: An expression of available thermal energy resulting from current flow. With regard to current-limiting fuses and circuit breakers, the ampere-squared-seconds during fault current interruption represents the energy allowed to flow before the fuse or breaker interrupts the fault current within its current limiting range.

1.3 SUBMITTALS:

A. See Section 26 05 00 Common Work Results for Electrical for Submittal requirements. Supplemental information is listed within this section.

B. Product data for fuses, fusible switches, circuit breakers, and OCPD accessories specified in this Section, including descriptive data and time-current curves for all protective devices and let-through current curves for those with current limiting characteristics. Include coordination charts and tables and related data.

C. Submit documentation of compliance with Code and Specification requirements for circuit protective devices including but not limited to SCCR, Listings for use with downstream breakers/fuses and equipment where required, Ground Fault protection; Arc Flash reduction for breakers above 1200A; Surge Protection; Metering; Relaying; etc.

1.4 QUALITY ASSURANCE:

A. Manufacturers: Firms regularly engaged in manufacture of overcurrent protective devices of types, sizes, and ratings required, whose products have been in satisfactory use in similar service for not less than 5 years.

B. Each type of OCPD shall be the product of a single manufacturer.

PART 2 - PRODUCTS:

2.1 MANUFACTURERS:

A. Manufacturers: Subject to compliance with requirements, provide products by the following:

1. Cartridge Fuses:

a. Bussmann Div., Cooper Industries, Inc.
b. Littelfuse Inc.
c. Mersen

2. Fusible Switches:

a. General Electric Co.
b. Square D Co.
c. Allen-Bradley Co.
d. Siemens Energy & Automation, Inc.
e. Eaton

3. Molded-Case Circuit Breakers:

a. Square D Co.
b. General Electric Co.
c. Siemens Energy & Automation, Inc.
d. Eaton

4. When mounting overcurrent protective devices in switchboards, switchgear, panelboards, MCC's, etc., provide equipment of same manufacturer as equipment into which they are being mounted.

2.2 OVERCURRENT PROTECTIVE DEVICES (OCPDS), GENERAL:

A. General: Provide OCPDs in indicated types, as integral components of panelboards, switchboards, motor control centers, and other related equipment; and also as individually enclosed and mounted single units.

B. Enclosures: NEMA 250 "Enclosures for Electrical Equipment (1,000 Volts Maximum)."

C. Where OCPD's are to be installed in existing panelboards, switchboards, and motor control centers, they shall be of the same manufacture and type as those existing in the equipment. If this is not possible, provide devices which are compatible with the existing equipment and when installed will not void the U.L. label or reduce the short circuit rating of the equipment.

D. All overcurrent devices shall be individually rated for the available fault current unless otherwise noted. Series ratings of equipment will only be allowed where specifically called out.

E. Ground Fault Protection: Distribution circuit breakers: provide integral, self-powered type with mechanical ground fault indicator, test function, adjustable pick-up current and delay time with inverse and constant time characteristics, internal memory arranged to integrate intermittent arcing ground faults, and ground fault current sensor located as indicated or required. Provide combination devices for branch circuit protection as follows; where shown or required provide 30 mA Ground Fault circuit breakers for each circuit feeding Electrical Heat Trace to protect from overheating and fire and 5 mA Ground Fault circuit breakers for each circuit feeding receptacles to protect personnel. Coordinate with manufacturer’s instructions.

2.3 CARTRIDGE FUSES:

A. General: NEMA Standard FU1, "Low-Voltage Cartridge Fuses." Unless indicated otherwise, provide nonrenewable cartridge fuses of indicated types, classes, and current ratings that have voltage ratings consistent with the circuits on which used.

B. All fuses used for main, feeder, or branch-circuit protection shall be Underwriters Laboratories listed, current-limiting fuses with 200,000 ampere interrupting rating and shall be so labeled. Fuses used for supplementary protection (other than branch circuit protection) shall be as specified above or shall be U.L. approved or component recognized for such purposes. All fuses provided shall be furnished by the same manufacturer. Should equipment provided require a different U.L. Class or size of fuse, the engineer shall be furnished sufficient data to ascertain that system function will not be adversely affected.

C. In order to simplify fuse replacement, reduce spare fuse inventory and insure adequate thermal protection, all fuses 600 amperes and below shall be true dual-element time-delay fuses with separate spring-loaded thermal overload elements in all ampere ratings. All ampere ratings shall be designed to open at 400 degrees F or less when subjected to a non-load oven test.

D. To eliminate induction heating, all fuse ferrules and end caps shall be non-ferrous and shall be bronze or other alloy not subject to stress cracking.

E. Class L Fuses: UL 198C, "High-Interrupting Capacity Fuses, Current-Limiting Type."

F. Class RK1 Dual Element Time-Delay Fuses: UL 198E, "Class R Fuses."

G. Class J Low-Peak dual Element Fuse: UL 198C

2.4 FUSIBLE SWITCHES:

A. General: UL 98 "Enclosed and Dead Front Switches" and NEMA KS 1 "Enclosed Switches," quick-make, quick-break heavy-duty units.

B. Rating: Load-breaking capacity in excess of the normal horsepower rating for the switch.

C. Withstand Capability: In excess of the let-through current permitted by its fuse when subject to faults up to 100,000 RMS symmetrical amperes.

D. Operation: By means of external handle.

E. Interlock: Prevents access to switch interior except when in "off" position.

F. Fuse Clips: Rejection type.

G. Enclosure for Switchboard or Panel board Mounting: Suitable for panel mounting where indicated.

H. Enclosure for Independent Mounting: Provide NEMA Type 1 enclosure except as otherwise indicated or required to suit environment where located.

I. Contacts shall be NEMA rated 75 degrees C.

J. Provide fuses for safety switches and other equipment of classes, types, and rating needed to fulfill electrical requirements for services indicated.

K. Provide auxiliary contacts for disconnects serving elevator for battery lowering capability. Coordinate with elevator supplier.

2.5 MOLDED-CASE CIRCUIT BREAKERS:

A. General: UL 489, "Molded Case Circuit Breakers and Circuit Breaker Enclosures," and NEMA AB 1, "Molded Case Circuit Breakers."

B. Construction: Provide bolt-in type, except breakers 225-ampere frame size and larger which may be plug-in type if held in place by positive locking device requiring mechanical release for removal.

C. Characteristics: Indicated frame size, trip rating, number of poles, and a short-circuit interrupting capacity rating as indicated or required to match existing devices or equipment.

D. Tripping Device: Quick-make, quick-break toggle mechanism with inverse-time delay and instantaneous overcurrent trip protection for each pole. All 120/208 volt rated breakers shall be rated and labeled "High Magnetic".

E. Enclosure for Panelboard Mounting: Suitable for panel mounting in switchboard or panelboards where indicated.

PART 3 - EXECUTION:

3.1 INSTALLATION:

A. Independently Mounted OCPDs: Locate as indicated and install in accordance with manufacturer's written installation instructions. Install OCPDs level and plumb.

B. OCPDs in new distribution and branch circuit equipment shall be factory installed. OCPD's in existing distribution and branch circuit equipment shall match existing for type and be provided with features as listed herein.

C. Install fuses in fusible devices as indicated. Arrange fuses so that fuse ratings are readable without removing fuse.

D. All fuses for new disconnect switches or MCC’s feeding motors or motor starters shall be provided with Class J fuses.

E. OCPDs and mounting accessories installed in existing equipment shall match the existing manufacturer and be rated for the available fault current.

3.2 IDENTIFICATION:

A. Identify components in accordance with Division 26 Section on electrical identification.

3.3 CONTROL WIRING INSTALLATION:

A. Install wiring between OCPDs and control/indication devices.

3.4 CONNECTIONS:

A. Check connectors, terminals, bus joints, and mountings for tightness. Tighten field-connected connectors and terminals, including screws and bolts, in accordance with equipment manufacturer's published torque tightening values. Where manufacturer's torqueing requirements are not indicated, tighten connectors and terminals to comply with tightening torques specified in UL 486A and UL 486B.

3.5 GROUNDING:

A. Provide equipment grounding connections for individually mounted OCPD units as indicated and as required by NEC. Tighten connectors to comply with tightening torques specified in UL Standard 486A to assure permanent and effective grounding.

3.6 FIELD QUALITY CONTROL:

A. Reports: Prepare written reports on tests and observations. Report defective materials and workmanship, and unsatisfactory test results. Include complete records of repairs and adjustments made. Tests shall be made on all new and existing OCPD's provided and/or connected under this project in accordance with this section.

B. Labeling: Upon satisfactory completion of tests and related effort, apply a label to tested components indicating test results, date, and responsible organization and person.

C. Schedule visual and mechanical inspections and electrical tests with at least one week's advance notification.

D. Upon completing installation of the system, perform the following tests on all new equipment and existing equipment as indicated on the drawings:

1. Visual and mechanical inspection: Include the following inspections and related work.

a. Overcurrent-Protective-Device Ratings and Settings: Verify indicated ratings and settings to be appropriate for final system arrangement and parameters.
b. Inspect for defects and physical damage, NRTL labeling, and nameplate compliance with current single line diagram.
c. Exercise and perform operational tests of all mechanical components and other operable devices in accordance with manufacturer's instruction manual.
d. Check tightness of electrical connections of OCPD’s with calibrated torque wrench. Refer to manufacturer's instructions for proper torque values.
e. Clean OCPD’s using manufacturer's approved methods and materials.
f. Verify installation of proper fuse types and ratings in fusible OCPD’s.

2. Electrical Tests: Perform the following tests in accordance with manufacturer's instructions:

a. Insulation resistance test of fused power circuit devices, insulated-case, and molded-case circuit breakers, 600-ampere frame size and over at 1000 degree V D.C. for one minute from pole to pole and from each pole to ground with breaker closed and across open contacts of each phase. Insulation resistance less than 100 megohms is not acceptable.
b. Make insulation resistance tests of OCPD buses, components, and connecting supply, feeder, and control circuits.
c. Make continuity tests of circuits.

E. Check stored-energy charging motors for proper operation of motor, mechanism, and limit switches.

F. Check operation of electrically operated OCPDs in accordance with manufacturer's instructions.

G. Check key and other interlock and safety devices for operation and sequence. Make closing attempts on locked-open and opening attempts on locked-closed devices including moveable barriers and shutters.

H. Retest: Correct deficiencies identified by tests and observations and provide retesting of OCPDs by testing organization. Verify by the system tests that specified requirements are met.

3.7 CLEANING:

A. Upon completion of installation, inspect OCPD’s. Remove paint splatters and other spots, dirt, and debris. Touch up scratches and mars of finish to match original finish.

3.8 DEMONSTRATION:

A. Training**:** Demonstrate OCPD’s and train Owner's maintenance personnel.

B. Schedule training with at least seven days' advance notification.

END OF SECTION 262800

PROJECT:

9TH AND MAIN GARAGE - ELEVATOR REFURBISHMENT PROJECT

848 W. Main St
Boise, ID 83702

CLIENT:

H.A.-JOB # 19033

CAPITAL CITY DEVELOPMENT CORP. (CCDC)

121 N. 9TH ST. SUITE 501
BOISE, ID 83702

HUMMEL

A 2785 N. Bogus Basin Rd. Boise, ID 83702
P 208.343 7523 W www.hummelarch.com
F 208.343 0940

CONSULTANTS:

MECHANICAL ENGINEER
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ELECTRICAL ARCHITECT
CATOR RUMA & ASSOCIATES CO
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DRAWING INDEX:

VICINITY MAP :

PROJECT LOCATION

BID SET - 01.30.2020

DRAWING SET NO.

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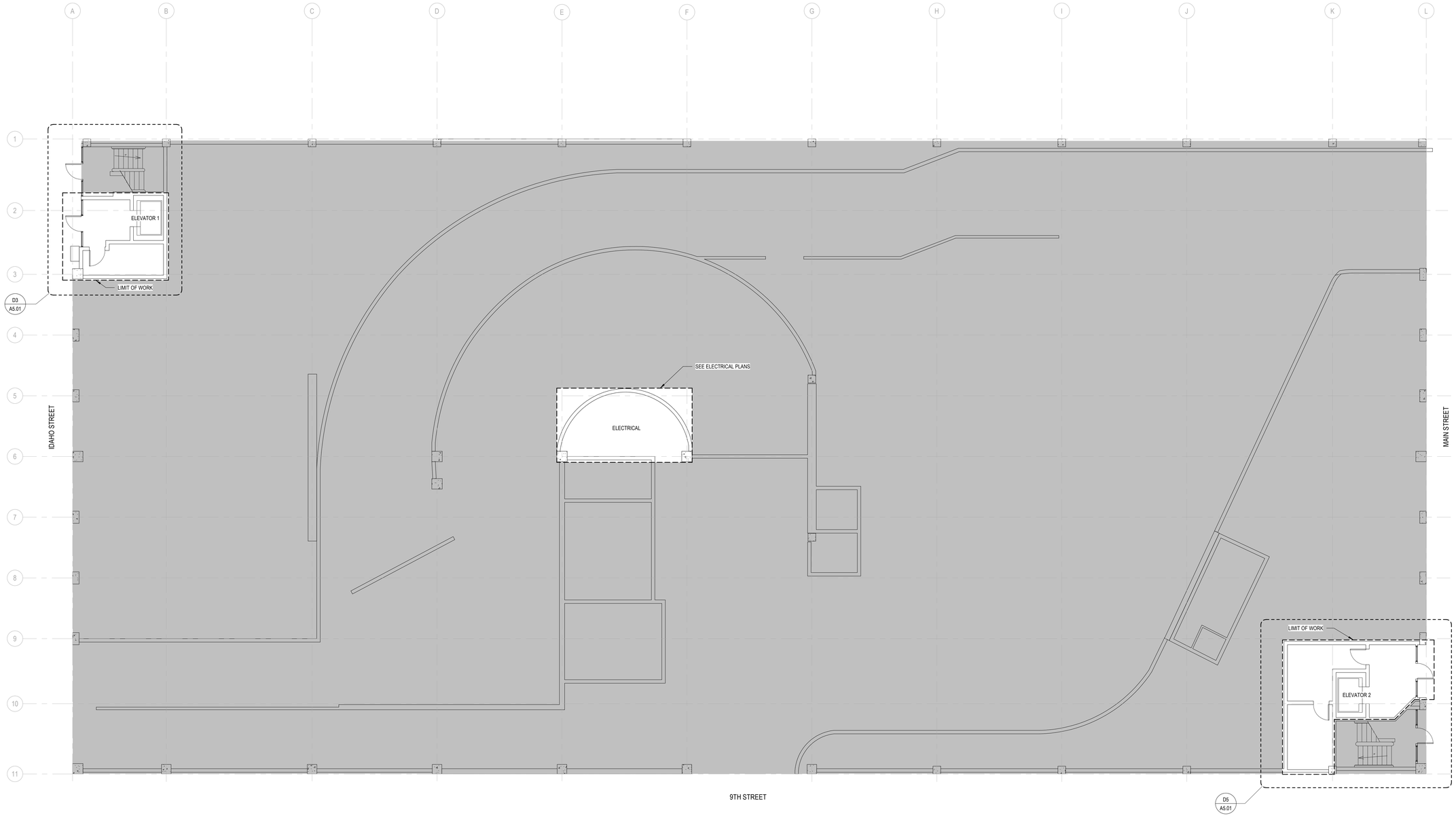

A1 / A2.01 **LEVEL 01 - COMPOSITE GROUND FLOOR PLAN**
1/8" = 1'-0"

NORTH

KEYNOTES

REFERENCE NOTES

GENERAL NOTES

1. PRIOR TO START OF CONSTRUCTION, CONTRACTOR TO VERIFY POSITION AND CONDITION OF ALL EXISTING BENCHMARKS.
2. EXISTING BENCHMARKS ARE NOT TO BE DISTURBED.
3. ANY DISCREPANCIES IN ACTUAL FIELD CONDITIONS, IF AT ODDS WITH INDICATIONS IN THESE DOCUMENTS, SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ARCHITECT OR CONSTRUCTION MANAGER.
4. FINAL POSITIONING OF ALL SITE FIRE UTILITIES SHALL BE SUBJECT TO THE APPROPRIATE FIRE AUTHORITIES. CONTRACTOR SHALL VERIFY.
5. RE: DOOR HARDWARE SPECIFICATIONS AND DOOR SCHEDULE FOR HARDWARE GROUP INFORMATION.
6. COORDINATE WITH MECHANICAL AND ELECTRICAL DRAWINGS.

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Project:
9TH AND MAIN GARAGE - ELEVATOR REFURBISHMENT PROJECT
848 W. Main St
Boise, ID 83702

Sheet:
LEVEL 01 - COMPOSITE GROUND FLOOR PLAN

BID SET - 01.30.2020

Revisions:

Project No:	19033
Drawn By:	SA
Checked By:	BC
Date:	01/30/2020

Sheet No:
A2.01

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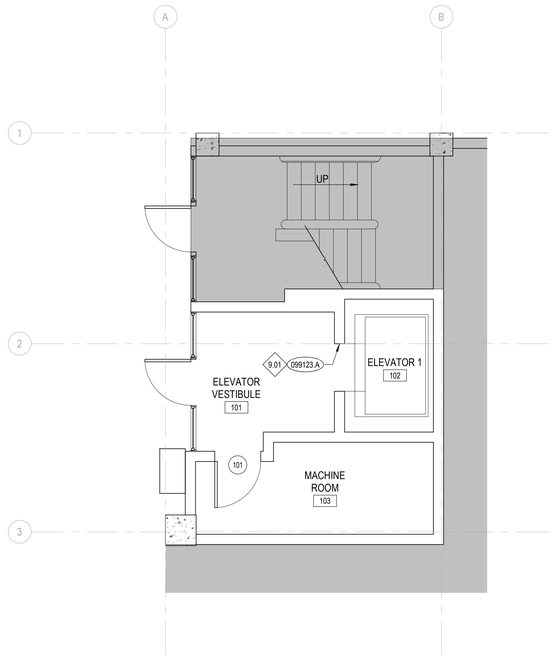
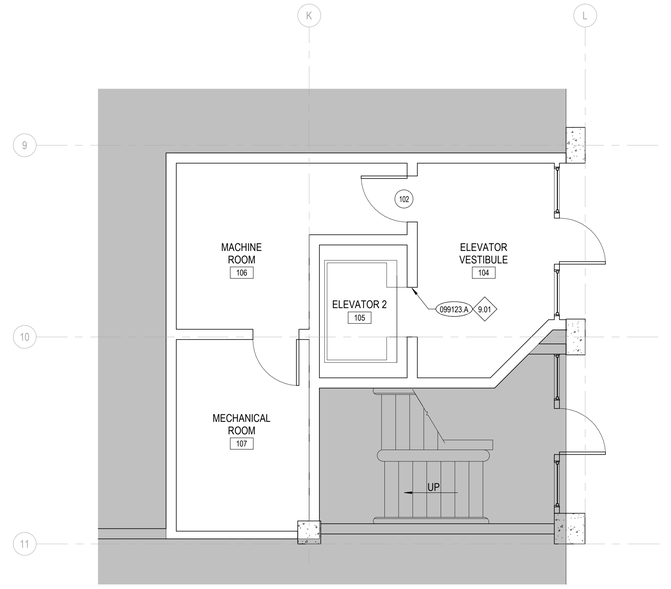


D3 A5.01 **LEVEL 1 - GROUND FLOOR PLAN - ELEVATOR 1**

1/4" = 1'-0"

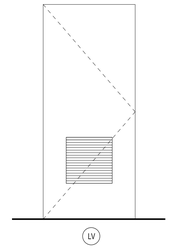


D5 A5.01 **LEVEL 1 - GROUND FLOOR PLAN -ELEVATOR 2**

1/4" = 1'-0"

SCHEDULE - DOOR

	DOOR					FRAME				
DOOR #	TYPE	WIDTH	HEIGHT	MATERIAL	FINISH	TYPE	MATERIAL	FINISH	DOOR HARDWARE	REMARKS
101	LV	3' - 0"	7' - 0"	HM	MATCH EXISTING	EXISTING	HM	MATCH EXISTING	REPLACE DOOR HARDWARE WITH NEW. MATCH EXISTING FUNCTIONS.	
102	LV	3' - 0"	7' - 0"	HM	MATCH EXISTING	EXISTING	HM	MATCH EXISTING	REPLACE DOOR HARDWARE WITH NEW. MATCH EXISTING FUNCTIONS.	



DOOR TYPE

1/2" = 1'-0"

KEYNOTES

099123.A INTERIOR PAINT

REFERENCE NOTES

9.01 PREP AND REPAINT HOISTWAY DOORS AND FRAMES ON EACH LEVEL. COLOR TO MATCH EXISTING.

GENERAL NOTES

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3. ANY DISCREPANCIES IN ACTUAL FIELD CONDITIONS, IF AT ODDS WITH INDICATIONS IN THESE DOCUMENTS, SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ARCHITECT OR CONSTRUCTION MANAGER.
4. FINAL POSITIONING OF ALL SITE FIRE UTILITIES SHALL BE SUBJECT TO THE APPROPRIATE FIRE AUTHORITIES. CONTRACTOR SHALL VERIFY.
5. RE: DOOR HARDWARE SPECIFICATIONS AND DOOR SCHEDULE FOR HARDWARE GROUP INFORMATION.
6. COORDINATE WITH MECHANICAL AND ELECTRICAL DRAWINGS.

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Project:
9TH AND MAIN GARAGE - ELEVATOR REFURBISHMENT PROJECT
848 W. Main St
Boise, ID 83702

Sheet:
ENLARGED PLANS

BID SET - 01.30.2020

Revisions:

Project No:	19033
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Checked By:	BC
Date:	01/30/2020

Sheet No: A5.01

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GENERAL LEGEND
(Not all symbols listed below are used on these drawings)

ABBR.	SYMBOL	DESCRIPTION	ABBR.	SYMBOL	DESCRIPTION
	X / X-X	SECTION DESIGNATION SECTION CUT ON THIS SHEET	(E)		EXISTING
			(N)		NEW
			(R)		RELOCATED
	X / X-X	VIEW REFERENCE DESIGNATION VIEW REFERENCE ON THIS SHEET	(F)		FUTURE
			DIA	Ø	DIAMETER
	A / 1-2-3	EQUIPMENT UNIT IDENTIFICATION EQUIPMENT UNIT NUMBER (UNIT SERVED - FLOOR - SEQUENCE #)	WAD		WALL ACCESS DOOR
			NIC		NOT IN CONTRACT
☒	A 10 / 250	DIFFUSER IDENTIFICATION DIFFUSER NECK DIAMETER DIFFUSER CFM	AFF		ABOVE FINISHED FLOOR
			GC		GENERAL CONTRACTOR
	B 8x24"L / 9999	LINEAR DIFFUSER IDENTIFICATION LINEAR DIFFUSER NECK DIAMETER LINEAR DIFFUSER LENGTH LINEAR DIFFUSER CFM	MC		MECHANICAL CONTRACTOR
			EC		ELECTRICAL CONTRACTOR
			UNO		UNLESS NOTED OTHERWISE
	2'-6" / 3'-6" FTR 28	FINNED TUBE RADIATOR ACTIVE ELEMENT LENGTH EQUIPMENT UNIT IDENTIFICATION EQUIPMENT UNIT NUMBER RADIATOR ENCLOSURE LENGTH (OR W-W=WALL-TO-WALL)	C		COMMON
			NC		NORMALLY CLOSED
			NO		NORMALLY OPEN
	K	KEY NOTE REFERENCE			
	1	KITCHEN/OWNER/MEDICAL EQUIPMENT REFERENCE			
		TYPICAL ROOM REFERENCE (TOP = RM #, BOTTOM = FLR)			
		POINT OF CONNECTION, NEW TO EXISTING			
		POINT OF DISCONNECTION, DEMO			
		DIRECTION OF FLOW IN PIPE			
		DUCTWORK, PIPING AND EQUIPMENT TO BE REMOVED			

HVAC LEGEND
(Not all symbols listed below are used on these drawings)

ABBR.	SYMBOL	DESCRIPTION	ABBR.	SYMBOL	DESCRIPTION
D	—D—	COOLING COIL DRAIN PAN PIPING			SUPPLY DUCT UP / DOWN
RL	—RL—	REFRIGERANT LIQUID PIPING			RETURN DUCT UP / DOWN
RS	—RS—	REFRIGERANT SUCTION PIPING			EXHAUST DUCT UP / DOWN
					ROUND DUCT UP / ROUND DUCT DOWN
			SD	☒	SUPPLY AIR DEVICE
			EG	☒	EXHAUST AIR DEVICE

DOUBLE/SINGLE LINE DUCT LEGEND
(Not all symbols listed below are used on these drawings)

SINGLE LINE	DOUBLE LINE	SINGLE LINE	DOUBLE LINE	SINGLE LINE	DOUBLE LINE	SINGLE LINE	DOUBLE LINE
45° TEE (ROUND)		90° TEE (RECTANGULAR) (SEE DETAIL)		FLEX DUCT (RIGID, FLEX, RIGID, FLEX)		90° RADIUS ELBOW	
45° TEE (RECTANGULAR)		90° TEE (ROUND) (CONICAL TEE)		MANUAL VOLUME DAMPER		90° ELBOW	
DUCT SPLIT		GRD RUNOUT (TAKEOFF WITH VOLUME DAMPER; RND; REC)		REDUCER (20, 8)		45° ELBOW	

GENERAL NOTES:

1. WORK INCLUDED IN THE CONTRACT IS DENOTED IN BOLD. EXISTING CONDITIONS TO REMAIN ARE DENOTED LIGHTLY.
2. A DETAILED METHOD OF PROCEDURE IS REQUIRED WHEN A CONSTRUCTION ACTIVITY AFFECTS THE SAFETY OF THE OCCUPANTS, OWNER'S EQUIPMENT OR VALUABLE CONTENTS OR ANY SYSTEM WHICH SUPPORTS THESE SYSTEMS; OR ESSENTIALLY AFFECTS THE BUILDING MANAGEMENT, OPERATIONS OR SECURITY.
3. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFICATION OF ALL EXISTING CONDITIONS PRIOR TO COMMENCEMENT OF ANY WORK AND SHALL NOTIFY THE ENGINEER/ARCHITECT OF ANY DISCREPANCIES FOR RESOLUTION.
4. COORDINATE WORK WITH ALL TRADES.
5. COORDINATE ALL DUCTWORK AND PIPING WITH EQUIPMENT, STRUCTURE, ETC.
6. CONTRACTOR SHALL NOT SHUT DOWN / TAKE OUT OF SERVICE ANY SYSTEMS WITHOUT FIRST COORDINATING WITH OWNER AND PREPARING M.O.P.

DEMOLITION GENERAL NOTES:

1. EXISTING ITEMS TO REMAIN ARE DENOTED LIGHTLY UNLESS OTHERWISE NOTED. ALL ITEMS SHOWN DASHED & BOLD SHALL BE REMOVED UNLESS OTHERWISE NOTED.
2. CONTRACTOR SHALL NOT SHUT-OFF OR PUT-OUT OF SERVICE ANY SYSTEMS OR SERVICE WITHOUT FIRST COORDINATING WITH THE OWNER.
3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VISIT THE SITE AND UNDERSTAND THE EXTENT OF THE REMODEL WORK REQUIRED PRIOR TO BID. NO EXTRAS WILL BE ALLOWED FOR WORK REQUIRED TO ACHIEVE THE END RESULT AS INDICATED BY THE CONTRACT DOCUMENT.
4. CONTRACTOR SHALL DETERMINE AND COORDINATE THE EXACT EXTENT OF DEMOLITION TO FACILITATE ALL WORK INDICATED BY THE CONTRACT DOCUMENT.
5. PRIOR TO COMMENCEMENT OF ANY DEMOLITION WORK, VERIFY EXISTING CONDITIONS AND NOTIFY ENGINEER OF ANY DISCREPANCIES FOR RESOLUTION.
6. ALL ITEMS IDENTIFIED TO BE REMOVED SHALL BE REMOVED IN THEIR ENTIRETY UNLESS OTHERWISE NOTED. REMOVED ITEMS SHALL BE TURNED OVER TO THE OWNER UNLESS OTHERWISE NOTED AND STORED IN THE AREA DESIGNATED BY THE OWNER. REMOVE FROM SITE AND LEGALLY DISPOSE OF ALL ITEMS THE OWNER CHOOSES NOT TO ACCEPT.
7. WHERE EXISTING PIPING, T.C. TUBING/WIRING ETC. ARE TO BE REMOVED FROM WALLS WHICH ARE REMAINING, THE WALLS SHALL BE REPAIRED TO MATCH ORIGINAL CONDITIONS.

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#2020-006

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Project:
9TH AND MAIN GARAGE - ELEVATOR REFURBISH

848 W. Main St
Boise, ID 83702

Sheet:
MECHANICAL LEGENDS & NOTES

Revisions:

PROFESSIONAL ENGINEER LICENSED 16682 STATE OF IDAHO SEAN P. DRANE
1/24/20

Project No:	2020-006
Drawn By:	NAH
Checked By:	SD
Date:	1/24/20

Sheet No:
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FAN SCHEDULE

NOTE: UNO ALL DATA IS LISTED AT ELEVATION 2700 FT

GENERAL REMARKS:

A. REFER TO ELECTRICAL DRAWINGS FOR POWER REQUIREMENTS, INCLUDING COORDINATION OF VOLTAGE, PHASE, SCCR, WIRE SIZES, AND OVERCURRENT PROTECTIVE DEVICES. REFER TO ELECTRICAL ONE-LINE DIAGRAM FOR MINIMUM FAULT CURRENT RATING THAT EACH UNIT SHALL EXCEED. UNIT NAMEPLATE SHALL INDICATE THE SHORT CIRCUIT CURRENT RATING.
B. PROVIDE SHAFT GROUNDING RINGS FOR EACH BEARING ON MOTORS POWERED THROUGH VARIABLE FREQUENCY DRIVES.
C. FEG = FAN EFFICIENCY GRADE IN ACCORDANCE WITH AMCA 205.
D. FAN E.S.P. INCLUDES DAMPER PRESSURE DROP. INCLUDE DAMPER PRESSURE DROP IN SUBMITTAL.
E. REFER TO SOUND DATA SCHEDULE FOR SOUND INFORMATION.

SPECIFIC REMARKS:

1. SUPPLY WITH MANUFACTURERS SPEED CONTROLLER. CONTROLLER SUPPLIED AND INSTALLED BY MECHANICAL, WIRED BY ELECTRICAL.
2. SUPPLY WITH GRAVITY BACKDRAFT DAMPER IN DISCHARGE.
3. PROVIDE WITH MAKE ON RISE THERMOSTAT. THERMOSTAT SUPPLIED AND INSTALLED BY MECHANICAL, WIRED BY ELECTRICAL.

DESIG.											MOTOR				BACKDRAFT DAMPER (BDD)		SIZE (INCHES)						
NAME	NO.	MFR	MODEL	FAN TYPE	SERVICE	CFM AT ELEV.	E.S.P. (IN. W.C.)	APPROX. RPM	TIP SPEED (FPM)	OUTLET VELOCITY (FPM)	WATTS	VOLTAGE	PHASE	DRIVE TYPE	TYPE & LOCATION	SONES	L	W	H	OPER. WEIGHT (LBS.)	CONTROL	REMARKS
EF	1	COOK	GC-622	CEILING CENTRIFUGAL	MECH ROOM EXHAUST	370	0.30	1240	2049	843	103	120	1	DIRECT	GRAVITY DISCHARGE	2.5	12	17	12	27	T-STAT	1,2,3

DUCTLESS SPLIT SYSTEM INDOOR UNIT SCHEDULE

REMARKS:

GENERAL: UNITS SUPPLIED ON THE PROJECT SHALL BE THE MOST RECENT SERIES CURRENTLY MANUFACTURED.

1. REFER TO ELECTRICAL DRAWINGS FOR POWER REQUIREMENTS, INCLUDING COORDINATION OF VOLTAGE, PHASE, SCCR, WIRE SIZES, AND OVERCURRENT PROTECTIVE DEVICES. REFER TO ELECTRICAL ONE-LINE DIAGRAM FOR MINIMUM FAULT CURRENT RATING THAT EACH UNIT SHALL EXCEED. UNIT NAMEPLATE SHALL INDICATE THE SHORT CIRCUIT CURRENT RATING.
2. POWER FOR LINE VOLTAGE SOURCE MAY ROUTE THROUGH OUTDOOR UNIT FOR CONTROL AND MAIN SWITCH PURPOSES. MECHANICAL CONTRACTOR SHALL COORDINATE MFR REQUIREMENTS WITH ELECTRICAL CONTRACTOR.
3. REFRIGERANT CHARGE VARIES DEPENDENT UPON SIZE & LENGTH OF RUN OF PIPING.
4. PROVIDE CONDENSATE PUMP FOR EACH UNIT.
5. PROVIDE DRAIN PAN LEVEL SENSOR AT INDOOR UNIT FOR SHUTDOWN UPON OVERFLOW OF CONDENSATE PAN.

DESIG.					SUPPLY FAN						COOLING COIL - REFRIGERANT (AHRI)					FILTER		SIZE (INCHES)					
														ENTERING AIR								
NAME	NO.	MFR	MODEL	MOUNTING STYLE	CFM (SL)	FAN SPEED	WATTS	SOUND POWER (dBA)	VOLTAGE	PHASE	TOTAL MBH (SL)	SENS HEAT RATIO	SENS. MBH (SL)	DB (°F)	WB (°F)	STYLE	TYPE	L	W	H	OPER WEIGHT (LBS)	POWER SOURCE COMMENT	REMARKS
AC	1	DAIKIN	FTK24NMVJU	HIGH WALL	713	HIGH	46	53	208	1	21.2	0.74	15.8	80	67	WASHABLE	SYNTHETIC	39	10	12	27	LINE-VOLTAGE POWER FROM OUTDOOR UNIT	1,2,3,4,5,6
AC	2	DAIKIN	FTK30NMVJU	HIGH WALL	890	HIGH	64	53	208	1	31.4	0.74	21.3	80	67	WASHABLE	SYNTHETIC	47	10	13	38	LINE-VOLTAGE POWER FROM OUTDOOR UNIT	1,2,3,4,5,6

DUCTLESS SPLIT SYSTEM OUTDOOR UNIT SCHEDULE

REMARKS:

GENERAL: UNITS SUPPLIED ON THE PROJECT SHALL BE THE MOST RECENT SERIES CURRENTLY MANUFACTURED.

1. REFER TO ELECTRICAL DRAWINGS FOR POWER REQUIREMENTS, INCLUDING COORDINATION OF VOLTAGE, PHASE, SCCR, WIRE SIZES, AND OVERCURRENT PROTECTIVE DEVICES. REFER TO ELECTRICAL ONE-LINE DIAGRAM FOR MINIMUM FAULT CURRENT RATING THAT EACH UNIT SHALL EXCEED. UNIT NAMEPLATE SHALL INDICATE THE SHORT CIRCUIT CURRENT RATING.
2. REFRIGERANT CHARGE VARIES DEPENDENT UPON SIZE & LENGTH OF RUN OF PIPING.
3. PROVIDE FACTORY-SUPPLIED, FIELD-INSTALLED INTAKE AND DISCHARGE WIND BAFFLES FOR LOW AMBIENT OPERATION OF OUTDOOR UNIT AS REQUIRED BY THE MANUFACTURER OR SHOP-FABRICATED PER MANUFACTURER'S INSTRUCTIONS.
4. PROVIDE WIRED REMOTE CONTROL PANEL WITH INTEGRAL SPACE TEMPERATURE SENSOR. PROVIDE SETUP PER MANUFACTURER'S INSTRUCTIONS AND TEMPERATURE SETPOINTS REQUIRED BY THESE PLANS AND SPECIFICATIONS.
5. PROVIDE WITH MANUFACTURERS REFRIGERANT LINE SET.
6. PROVIDE WITH MANUFACTURER'S CONDENSER WALL MOUNT KIT.

DESIG.				MATCHED SYSTEM COMPONENT	COOLING CAPACITY						REFRIGERANT		SIZE (INCHES)			OPER WEIGHT (LBS)	ELECTRICAL					
NAME	NO.	MFR	MODEL		NOMINAL TONS (SL)	TOTAL MBH (SL)	AMBIENT AIR (°F)	LOW AMBIENT (°F)	AHRI SEER	SOUND POWER (dBA)	TYPE	CHARGE (LBS)	L	W	H		VOLTAGE	PHASE	MCA	MOCP	CONTROL	REMARKS
CU	1	DAIKIN	RK24NMVJU	AC-1	2.0	21.2	95	-4	18	55	R410A	3.20	34	13	29	108	208	1	18.3	20	WALL MTD WIRED REMOTE CONTROLLER	1,2,3,4,5
CU	2	DAIKIN	RK30NMVJU	AC-2	2.5	31.4	95	-22	17.5	56	R410A	3.64	34	13	29	133	208	1	17	20	WALL MTD WIRED REMOTE CONTROLLER	1,2,3,4,5

UNIT HEATER SCHEDULE (ELECTRIC)

REMARKS:

1. REFER TO ELECTRICAL DRAWINGS FOR POWER REQUIREMENTS, INCLUDING COORDINATION OF VOLTAGE, PHASE, SCCR, WIRE SIZES, AND OVERCURRENT PROTECTIVE DEVICES. REFER TO ELECTRICAL ONE-LINE DIAGRAM FOR MINIMUM FAULT CURRENT RATING THAT EACH UNIT SHALL EXCEED. UNIT NAMEPLATE SHALL INDICATE THE SHORT CIRCUIT CURRENT RATING.
2. PROVIDE WITH SURFACE MOUNTING FRAME.
3. PROVIDE WITH INTEGRAL THERMOSTAT.

DESIG.				HEATING CAPACITY			FAN MOTOR		AIR TEMP		SIZE (INCHES)			OPER. WEIGHT (LBS)	ELECTRICAL			
NAME	NO.	MFR	MODEL	KW	MBH	STAGES	AIRFLOW (CFM)	NO.	EAT (°F)	LAT (°F)	L	D	H		VOLTAGE	PHASE	CONTROL	REMARKS
EUH	1	QMARK	CWH3407F	2.0	6.8	1	300	1	60	84	16	4	16	22	277	1	SEE SPEC	1,2,3
EUH	2	QMARK	CWH3407F	2.0	6.8	1	300	1	60	84	16	4	16	22	277	1	SEE SPEC	1,2,3
EUH	3	QMARK	CWH3407F	2.0	6.8	1	300	1	60	84	16	4	16	22	277	1	SEE SPEC	1,2,3

ENERGY CODE COMPLIANCE NOTES

1. HVAC HEATING & COOLING LOADS ARE CALCULATED IN ACCORDANCE WITH THE ASHRAE FUNDAMENTALS HANDBOOK.
2. REFER TO CONTRACT DOCUMENTS (DRAWINGS & SPECIFICATIONS) FOR MORE DETAILED INFORMATION ON THE FOLLOWING ITEMS: SEQUENCES OF OPERATION, INSULATION THICKNESSES AND R-VALUES, SEALANT MATERIALS AND INSTALLATION, AND SPECIFIC EQUIPMENT COMPONENTS.

COMcheck Software Version 4.1.1.0

Mechanical Compliance Certificate

Project Information

Energy Code:	2015 IECC
Project Title:	9th and Main Garage Elevator Refurbish
Location:	Boise, Idaho
Climate Zone:	5b
Project Type:	Alteration

Construction Site:
848 W. Main St.
Boise, ID 83702

Owner/Agent:
Capitol City Development Corp
848 W. Main St.
Bosie, ID 83702
208-384-4264

Designer/Contractor:
Sean Drake
Cator Ruma and Associates
420 S. Orchard St.
Boise, ID 83705
208-343-3663

Mechanical Systems List

Quantity — System Type & Description

1 AC-1,CU-1 (Single Zone):
Cooling: 1 each - Split System, Capacity = 21 kBtu/h, Air-Cooled Condenser, No Economizer, Economizer exception: None
Proposed Efficiency = 18.00 SEER, Required Efficiency: 13.00 SEER
Fan System: FAN SYSTEM 1 -- Compliance (Motor nameplate HP method) : Passes

Fans:
FAN 1 Supply, Constant Volume, 718 CFM, 0.1 motor nameplate hp, 0.0 fan efficiency grade

1 AC-2,CU-2 (Single Zone):
Cooling: 1 each - Split System, Capacity = 31 kBtu/h, Air-Cooled Condenser, No Economizer, Economizer exception: None
Proposed Efficiency = 17.50 SEER, Required Efficiency: 13.00 SEER
Fan System: FAN SYSTEM 2 -- Compliance (Motor nameplate HP method) : Passes

Fans:
FAN 2 Supply, Constant Volume, 890 CFM, 0.1 motor nameplate hp, 0.0 fan efficiency grade

3 EUH-1,2,3 (Single Zone):
Heating: 1 each - Unit Heater, Electric, Capacity = 7 kBtu/h
No minimum efficiency requirement applies
Fan System: FAN SYSTEM 3 -- Compliance (Motor nameplate HP method) : Passes

Fans:
FAN 3 Supply, Constant Volume, 300 CFM, 0.1 motor nameplate hp, 0.0 fan efficiency grade

Mechanical Compliance Statement

Compliance Statement: The proposed mechanical alteration project represented in this document is consistent with the building plans, specifications, and other calculations sub echanical systems have been designed to meet the 2015 IECC requirements i r applicable mandatory requirements listed in the Inspection Checklist.

Sean Drake PE
Name - Title

1/24/20
Date

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#2020-006

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Project:
9TH AND MAIN GARAGE - ELEVATOR REFURBISH

848 W. Main St
Boise, ID 83702

Sheet:
MECHANICAL SCHEDULES

Revisions:

PROFESSIONAL ENGINEER LICENSED 18682 STATE OF IDAHO SEAN P. DRAKE

1/24/20

Project No:	2020-006
Drawn By:	NAH
Checked By:	SD
Date:	1/24/20

Sheet No:
M0.02

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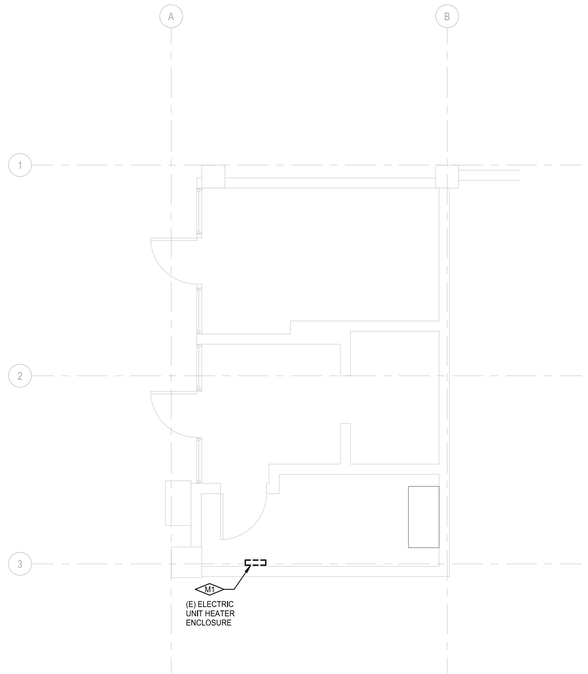
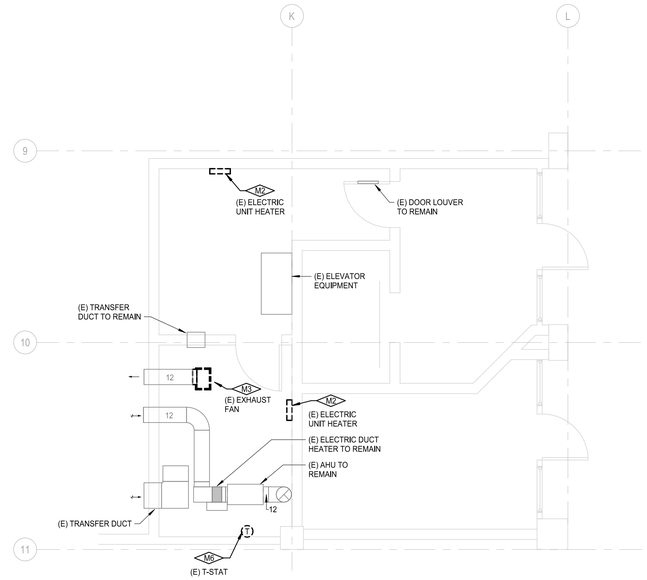


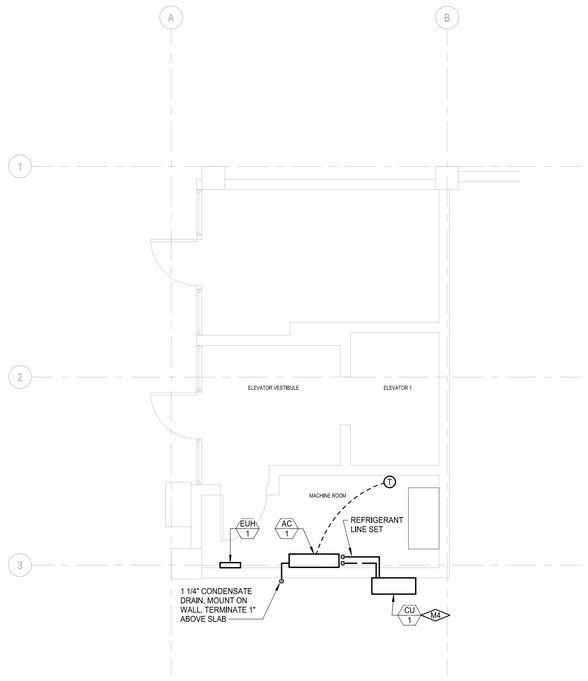
LEVEL 1 HVAC DEMOLITION PLAN - ELEVATOR 1

SCALE: 1/4" = 1'-0"



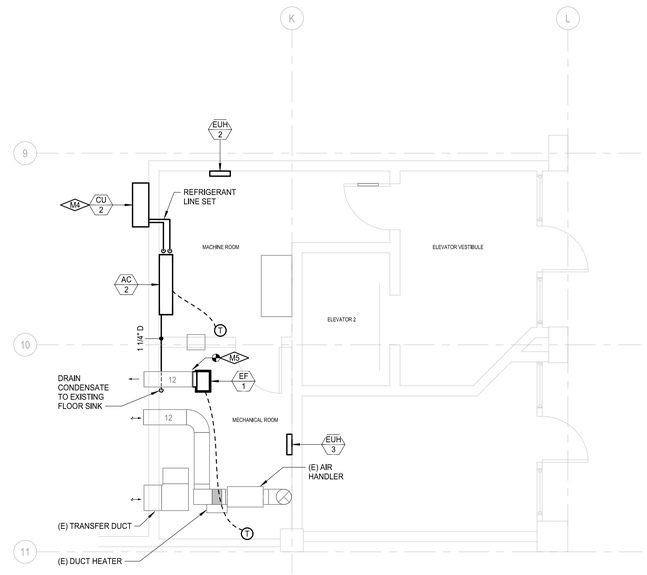
LEVEL 1 HVAC DEMOLITION PLAN - ELEVATOR 2

SCALE: 1/4" = 1'-0"



LEVEL 1 HVAC PLAN - ELEVATOR 1

SCALE: 1/4" = 1'-0"



LEVEL 1 HVAC PLAN - ELEVATOR 2

SCALE: 1/4" = 1'-0"

KEYNOTES

M1	REMOVE EXISTING UNIT HEATER ENCLOSURE (UNIT HEATER HAS BEEN PREVIOUSLY REMOVED), COORDINATE WITH ELECTRICAL.
M2	REMOVE AND LEGALLY DISPOSE OF EXISTING ELECTRIC UNIT HEATER.
M3	REMOVE AND LEGALLY DISPOSE OF EXISTING EXHAUST FAN. MAKE EXHAUST READY FOR CONNECTION TO NEW EXHAUST FAN.
M4	MOUNT CONDENSING UNIT HIGH ON WALL WITH MANUFACTURERS WALL MOUNTING KIT.
M5	CONNECT NEW EXHAUST FAN TO EXISTING DUCT. WIRE EXISTING THERMOSTAT TO FAN. COORDINATE WITH ELECTRICAL.
M6	REMOVE AND LEGALLY DISPOSE OF EXISTING THERMOSTAT.

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Project:
9TH AND MAIN GARAGE - ELEVATOR REFURBISH

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Boise, ID 83702

Sheet:
HVAC PLANS

Revisions:

PROFESSIONAL ENGINEER LICENSED 16682 STATE OF IDAHO SEAN P. DRAKE
1/27/20

Project No:	2020-006
Drawn By:	NAH
Checked By:	SD
Date:	1/24/20

Sheet No:
M1.10

1/27/2020 8:39:37 AM

POWER LEGEND
(Not all symbols listed below are used on these drawings)

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	SINGLE RECEPTACLE	PM	PLUG MOLD (MULTI-OUTLET ASSEMBLY)
	DUPLEX RECEPTACLE	WM	WIREMOLD (SURFACE RACEWAY)
	DOUBLE DUPLEX RECEPTACLE		CONDUIT CONCEALED
	DUPLEX RECEPTACLE, HALF SWITCHED		CONDUIT EXPOSED
CLG	DUPLEX RECEPTACLE, CEILING MOUNTED		CONDUIT, UNDERGROUND OR CONCEALED IN FLOOR AS ALLOWED PER SPECIFICATIONS
	DUPLEX RECEPTACLE, FLOOR MOUNTED		CONDUIT TURNING DOWN
	DOUBLE DUPLEX RECEPTACLE, FLOOR MOUNTED		CONDUIT TURNING UP
	SPECIAL RECEPTACLE		CONDUIT CAPPED
	SPECIAL RECEPTACLE, FLOOR MOUNTED	A-1, 3, 5	BRANCH CIRCUIT HOME RUN, NUMBER OF ARROWS INDICATES NUMBER OF CIRCUITS, SUBSCRIPTS INDICATE PANEL & CIRCUITS
	JUNCTION BOX, FLOOR OR CEILING MOUNTED		GROUND BAR
	JUNCTION BOX, WALL MOUNTED		MAIN SWITCHBOARD/DISTRIBUTION CENTER
M	MOTOR	T	TRANSFORMER
	DISCONNECT SWITCH (NON-FUSED)	CT	CURRENT TRANSFORMER
	DISCONNECT SWITCH (FUSED)	T	THERMOSTAT
	VARIABLE SPEED DRIVE WITH DISCONNECT	GAWN	GENERATOR ANNUNCIATOR PANEL
M	UTILITY METER	A-1	SHADING INDICATES EMERGENCY SYSTEM TEXT INDICATES PANEL AND CIRCUIT DESIGNATION
	ELECTRICAL PANELBOARD, CONTROL PANEL, OR OTHER CABINET AS NOTED		

ABBREVIATIONS LEGEND
(Not all symbols listed below are used on these drawings)

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
A	AMPERES	MCP	MOTOR CIRCUIT PROTECTOR
AC	ABOVE COUNTER; MOUNT HORIZONTALLY TO CENTERLINE OF DEVICE, +6" ABOVE COUNTER OR BACK SPLASH	MEC	SEE MECHANICAL EQUIPMENT SCHEDULE
AFF	ABOVE FINISHED FLOOR	MIN	MINIMUM
AFG	ABOVE FINISHED GRADE	MLO	MAIN LUGS ONLY
ANN	ANNUNCIATOR	MTS	MANUAL TRANSFER SWITCH
ARF	ABOVE RAISED FLOOR	NC	NORMALLY CLOSED
ASSD	AIR SAMPLING SMOKE DETECTION	NIC	NOT IN CONTRACT
ATS	AUTOMATIC TRANSFER SWITCH	NL	NIGHT LIGHT
BFG	BELOW FINISHED GRADE	NO	NORMALLY OPEN
C	CONDUIT	NTS	NOT TO SCALE
CATV	CABLE TELEVISION	OC	ON CENTER
CB	CIRCUIT BREAKER	OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
CCTV	CLOSED CIRCUIT TELEVISION	OFOI	OWNER FURNISHED, OWNER INSTALLED
(E)	EXISTING	OSWF	ON SITE WORK FORCE
EM	EMERGENCY	PB	PULL BOX
EMDC	EMERGENCY MAIN DISTRIBUTION CENTER	SB	STAND-BY
EP	EXPLOSION PROOF	SDC	SUB-DISTRIBUTION CENTER
EPO	EMERGENCY POWER OFF	TP	TAMPER PROOF
EVO	EMERGENCY VENTILATION ON/OFF	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSER
EWC	ELECTRIC WATER COOLER	TYP	TYPICAL
FA	FIRE ALARM	UF	UNDER FLOOR
G	GROUND	UG	UNDER GROUND
GCP	GENERATOR CONTROL PANEL	UON	UNLESS OTHERWISE NOTED
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	UPS	UNINTERRUPTIBLE POWER SUPPLY
HOA	HAND OFF AUTOMATIC	V	VOLTS
IG	ISOLATED GROUND	VFD	VARIABLE FREQUENCY DRIVE
MAX	MAXIMUM	W/	WITH
MCB	MAIN CIRCUIT BREAKER	W/O	WITHOUT
MCC	MOTOR CONTROL CENTER	WP	WEATHER PROOF
MDC	MAIN DISTRIBUTION CENTER	XFMR	TRANSFORMER

REFERENCE SYMBOLS LEGEND
(Not all symbols listed below are used on these drawings)

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
K	KEY NOTE REFERENCE	1	KITCHEN/OWNER/MEDICAL EQUIPMENT REFERENCE
LPA#	TYPICAL CIRCUIT NUMBER	1	EXISTING TO REMAIN
TG#	TYPICAL LUMINAIRE TYPE	1	EXISTING TO BE REMOVED
	TYPICAL ROOM REFERENCE (TOP = RM #, BOTTOM = FLR)	1	EXISTING TO BE RELOCATED
MR	MECHANICAL EQUIPMENT REFERENCE	1	EXISTING TO REMAIN - REPLACE DEVICE
LC1	LIGHTING CONTROL / EQUIPMENT REFERENCE	1	EXISTING TO BE REMOVED AND REPLACED

ONE-LINE DIAGRAM LEGEND
(Not all symbols listed below are used on these drawings)

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	DISCONNECT SWITCH	A	PANELBOARD "A"
	DISCONNECT SWITCH, FUSED	PM	EM=ENERGY METER, PM=POWER METER, CM=CIRCUIT MONITOR
	CIRCUIT BREAKER	VS	VOLTMETER TEST SWITCH
	FUSE	AS	AMMETER TEST SWITCH
	GROUND	V	VOLTMETER
##	STEP DOWN TRANSFORMER, ## INDICATES KVA	A	AMMETER
TX ##	K-RATED STEP DOWN TRANSFORMER ## INDICATES KVA, # INDICATES K RATING	XXX	SEE FEEDER/MEC/TRANSFORMER SCHEDULES FOR FEEDER SIZE
	CURRENT TRANSFORMER	G	ENGINE GENERATOR
	POTENTIAL TRANSFORMER		CONTACTOR/RELAY/CAPACITOR (AS NOTED)
OR	SERVICE ENTRANCE TRANSFORMER		TRANSFER SWITCH - ATS=AUTOMATIC, MTS=MANUAL
M	METER	GFI	GROUND FAULT INTERRUPTER
	EQUIPMENT ENCLOSURE	SPD	SURGE PROTECTIVE DEVICE
	SERVICE WEATHERHEAD	ST	SHUNT TRIP
##CA	SHORT CIRCUIT CURRENT AVAILABLE		TERMINATIONS LB=LOAD BREAK, NLB=NO LOAD BREAK
K	KIRK KEY INTERLOCK, SUBSCRIPT INDICATES INTERLOCKED GROUP		DRAW-OUT DEVICE
K	ELECTRICAL INTERLOCK, SUBSCRIPT INDICATES INTERLOCKED GROUP		PLUG-IN DEVICE
M	MECHANICAL INTERLOCK	EO	ELECTRICALLY OPERATED

MECHANICAL EQUIPMENT SCHEDULE

GENERAL NOTES:
A. PRIOR TO WORK, VERIFY ELECTRICAL REQUIREMENTS (VOLTAGE, AMPERAGE, RECOMMENDED OCPD, CONDUCTORS, AND DISCONNECT) FOR EACH PIECE OF EQUIPMENT.
B. PRIOR TO WORK, VERIFY EXACT LOCATION FOR EACH PIECE OF EQUIPMENT.
C. COORDINATE AND PROVIDE ALL FIELD CONNECTIONS AS REQUIRED.
D. COORDINATE 120V POWER CONNECTIONS TO DAMPERS AND OTHER CONTROL CIRCUITS. GROUP EQUIPMENT CONTROL CIRCUITS SUCH THAT FAILURE OF ONE CONTROL CIRCUIT DOES NOT AFFECT OPERATION OF OTHER EQUIPMENT. FOR EXAMPLE, DO NOT CONNECT A DAMPER ASSOCIATED WITH ONE AIR HANDLING UNIT TO THE SAME BRANCH CIRCUIT AS DAMPERS ASSOCIATED WITH A DIFFERENT AIR HANDLING UNIT.
E. FEEDERS, BREAKERS, DISCONNECTS, AND FUSING APPLIES TO FIELD-INSTALLED AND/OR FACTORY-INSTALLED EQUIPMENT.
F. COORDINATE LOCATION OF VFD(S) AND WORKING SPACE CLEARANCES. IF INSTALLED REMOTE FROM EQUIPMENT, PROVIDE CIRCUIT CONNECTION FROM VFD TO MOTOR(S).
G. WHERE MULTIPLE MOTORS ARE SERVED BY A SINGLE VFD, COORDINATE FIELD-WIRING REQUIREMENTS WITH EQUIPMENT VENDOR.

SPECIFIC NOTES:
1. INDOOR UNIT LINE VOLTAGE PROVIDED VIA OUTDOOR UNIT. MATCHED SYSTEM COMPONENT:CU-X
2. MATCHED SYSTEM COMPONENT: AC-X

Key	#	Item	HP	FLA	Load	Eq Load (VA)	Voltage	Feeders: Wire	Feeders: Ground	Feeders: Conduit	Protection: Breaker	Protection: Disconnect	Protection: Fuse	Notes
AC	1	AC SPLIT SYSTEM - INDOOR	0	0 A	46 VA	46 VA	208V 1ph	2#10	#10G	3/4"	20A	30A		1
AC	2	AC SPLIT SYSTEM - INDOOR	0	0 A	64 VA	64 VA	208V 1ph	2#10	#10G	3/4"	20A	30A		1
CU	1	CONDENSING UNIT - OUTDOOR	0	18 A	0 VA	3806 VA	208V 1ph	2#10	#10G	3/4"	20A	30A		2
CU	2	CONDENSING UNIT - OUTDOOR	0	17 A	0 VA	3536 VA	208V 1ph	2#10	#10G	3/4"	20A	30A		2
EF	1	EXHAUST FAN	0	0 A	103 VA	103 VA	120V 1ph	2#12	#12G	3/4"	20 A	S		
EM	1	ELEVATOR MOTOR	40	0 A	0 VA	43232 VA	480V 3ph	3#4	#8G	1-1/4"	100 A	100 A	90 A	
EM	2	ELEVATOR MOTOR	40	0 A	0 VA	43232 VA	480V 3ph	3#4	#8G	1-1/4"	100 A	100 A	90 A	
EUH	1	ELECTRIC UNIT HEATER	0	0 A	2000 VA	2000 VA	277V 1ph	2#12	#12G	3/4"	20 A	S		
EUH	2	ELECTRIC UNIT HEATER	0	0 A	2000 VA	2000 VA	277V 1ph	2#12	#12G	3/4"	20 A	S		
EUH	2	ELECTRIC UNIT HEATER	0	0 A	2000 VA	2000 VA	277V 1ph	2#12	#12G	3/4"	20 A	S		

Panel A

Location:
Supply From:
Mounting: Surface
Enclosure: Type 1

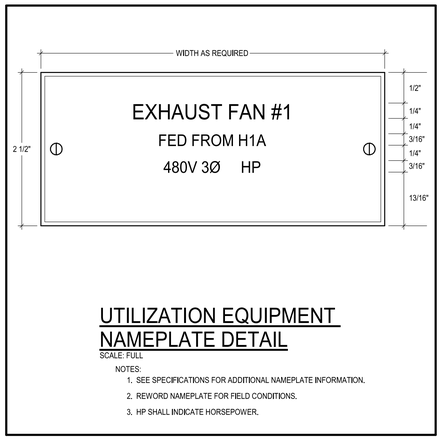
Voltage: 120/208 Wye
Phase: 3
Wire: 4

A.I.C. Rating: 10kAIC
Mains Type: MCB
Bus Rating: 225 A
MCB Rating: 225 A

Circuit Notes:
1. Provide new 2-pole breaker to match existing at capacity indicated

Note	Circ...	Load	Type	Trip	Po...	A	B	C	Po...	Trip	Type	Load	Circ...	Note
	1	Telephone Board	--	20 A	1	0 VA	0 VA		1	20 A	--	L- S Elev corridor	2	
	3	Fire Alarm Panel	--	20 A	1		0 VA	0 VA	1	20 A	--	R- Mech Rm & S Stair	4	
	5	FRESCO Ltg	--	20 A	1			0 VA	0 VA	1	20 A	--	South POF	6	
	7	Fresh Air North	--	20 A	1	0 VA	0 VA			1	20 A	--	Fire Pump comp & alarm	8	
	9	Heater Employee RR	--	20 A	1		0 VA	0 VA		1	20 A	--	EF grease pit	10	
	11	Water Heater RR	--	20 A	1			0 VA	0 VA	1	20 A	--	N Elev car lights,blade...	12	
	13	EF Storage & Trash	--	20 A	1	0 VA	0 VA			1	20 A	--	R-North Stair	14	
	15	R-Storage Rm	--	20 A	1		0 VA	0 VA		1	20 A	--	North POF	16	
	17	R-Storage Rm	--	20 A	1			0 VA	0 VA	1	20 A	--	R-each floor	18	
	19	S Entry Sign & Counter	--	20 A	1	0 VA	0 VA			1	20 A	--	EF RR - S Gate Entry	20	
	21	Sign	--	20 A	1		0 VA	1800 VA						
	23	N Entry Sign & Counter	--	20 A	1			0 VA	1800 VA	2	20 A	M	SPLIT SYSTEM SOUTH ELEVATOR	22 24	1
	25	Parking Gate/Grnd S Exit	--	20 A	1	0 VA	1926 VA								
	27	Warning Signs	--	20 A	1		0 VA	1926 VA		2	20 A	M	SPLIT SYSTEM NORTH ELEVATOR	26 28	1
	29	Warning Signs	--	20 A	1			0 VA	0 VA	1	20 A	--	R-Attendant	30	
	31	Spare in TDE	--	20 A	1	0 VA	0 VA			1	20 A	--	2nd floor POF	32	
	33	Entry Lane	--	20 A	1		0 VA	0 VA		1	20 A	--	2nd floor CC	34	
	35	A/C Att Office heat pump	--	30 A	2				0 VA	0 VA				36
	37					0 VA	0 VA							38
	39	Bike Cage exit	--	20 A	1		0 VA	0 VA		3	60 A	--	Panel A3	40
	41	Bike Cage outlet	--	20 A	1			0 VA	0 VA	1	20 A	--	Spare	42
	43	S Stairwell Disconnect	--	60 A	3	0 VA	0 VA							44
	45						0 VA	0 VA		3	20 A	--	N Stairs Disconnect 60A Multi	46
	47							0 VA	0 VA					48
	49	Booth Panel	--	20 A	2	0 VA	0 VA			1	20 A	--	EF Storage	50
	51						0 VA	0 VA		1	20 A	--	Water Heater Storage	52
	53	Car Coming Sign	--	20 A	1			0 VA	0 VA	1	20 A	--	Bike Cage Opener	54
	55	North Exit	--	20 A	1	0 VA	0 VA			1	20 A	--	Bike Cage	56
	57	Air Compressor Maint Shop	--	20 A	2			0 VA	0 VA	1	20 A	--	Elec Rm outlet	58
	59							0 VA	0 VA	1	20 A	--	MCC Control Panel	60
				Total Load:		1926 VA	3726 VA	1800 VA						
				Total Amps:		16 A	31 A	15 A						
				Phase Balance:		93 % A-B	108 % B-C	8 % C-A						

Load Type		Connected Load	Demand Factor	Demand Load	Panel Totals	
L	Lighting	0 VA	0.00%	0 VA	**Power Factor:**	1
R	Receptacle	0 VA	0.00%	0 VA		
M	Motor	7452 VA	112.77%	8404 VA	**Total Connected Load:**	7452 VA
C	Continuous	0 VA	0.00%	0 VA	**Total Connected Current:**	21 A
G	General	0 VA	0.00%	0 VA		
K	Kitchen	0 VA	0.00%	0 VA	**Total Demand Load:**	8404 VA
E	Existing	0 VA	0.00%	0 VA	**Total Demand Current:**	23 A
O	Other	0 VA	0.00%	0 VA		



UTILIZATION EQUIPMENT NAMEPLATE DETAIL
SCALE: FULL

NOTES:
1. SEE SPECIFICATIONS FOR ADDITIONAL NAMEPLATE INFORMATION.
2. REWORD NAMEPLATE FOR FIELD CONDITIONS.
3. HP SHALL INDICATE HORSEPOWER.

PANEL 'A' LOAD SUMMARY

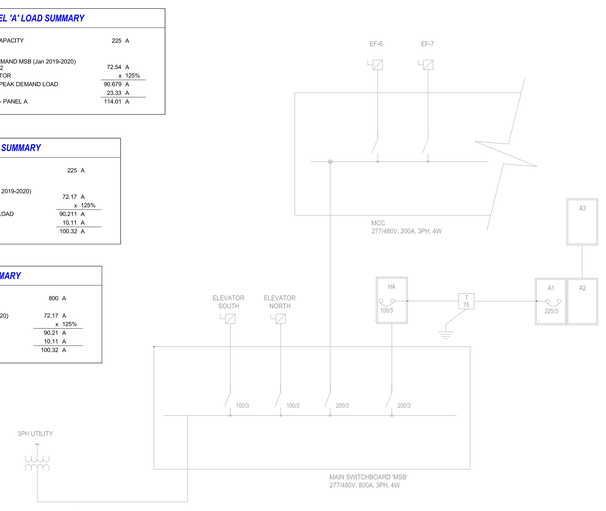
PANEL 'A1' & 'A2' CAPACITY	225 A
EXISTING PEAK DEMAND MSB (Jan 2019-2020)	72.54 A
Less Elevator 1 and 2	
NEC DEMAND FACTOR	x 125%
NEC CORRECTED PEAK DEMAND LOAD	90.679 A
NEW LOAD ADDED	23.33 A
NEW TOTAL LOAD - PANEL A	114.01 A

PANEL HA LOAD SUMMARY

PANEL 'HA' RATING	225 A
EXISTING PEAK DEMAND MSB (Jan 2019-2020)	72.17 A
Less Elevator 1 and 2	
NEC DEMAND FACTOR	x 125%
NEC CORRECTED PEAK DEMAND LOAD	90.211 A
NEW LOAD ADDED	10.11 A
NEW TOTAL LOAD - PANEL HA	100.32 A

PANEL MSB LOAD SUMMARY

SWITCHBOARD 'MSB' RATING	800 A
EXISTING PEAK DEMAND (Jan 2019 - Jan 2020)	72.17 A
NEC DEMAND FACTOR	x 125%
NEC CORRECTED PEAK DEMAND LOAD	90.21 A
NEW LOAD ADDED	10.11 A
NEW TOTAL LOAD - MSB	100.32 A



Partial One-Line Diagram
SCALE: NONE

POWER PLAN NOTES:

1. MAKE ALL FINAL ELECTRICAL CONNECTIONS TO EQUIPMENT REQUIRING ELECTRICAL CONNECTION. THIS SHALL INCLUDE BUT NOT BE LIMITED TO ALL MECHANICAL AND OTHER EQUIPMENT INCLUDED IN THIS PROJECT.
2. COORDINATE EXACT REQUIREMENTS AND LOCATIONS OF MECHANICAL EQUIPMENT WITH MECHANICAL DRAWINGS AND MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN.
3. PROVIDE FUSES SIZED PER EQUIPMENT MANUFACTURER'S REQUIREMENTS.
4. DISCONNECT SWITCH LOCATIONS ARE SHOWN DIAGRAMMATICALLY AND SHALL BE INSTALLED IN ACCESSIBLE LOCATIONS TO SUIT EQUIPMENT AND SPACE. DISCONNECT SWITCHES SHALL BE WITHIN SIGHT OF THE EQUIPMENT THEY SERVE AND MOUNTED AT 6'-3", MAXIMUM, TO TOP OF CABINET. MAINTAIN NEC WORK SPACE REQUIREMENTS.
5. RECEPTACLES INDICATED TO BE MOUNTED ABOVE COUNTER ARE TO BE MOUNTED HORIZONTALLY 6" ABOVE COUNTER UNLESS OTHERWISE NOTED.
6. COORDINATE AND VERIFY EXACT MOUNTING LOCATIONS OF WALL AND FLOOR DEVICES WITH ARCHITECTURAL ELEVATIONS, AND ANY FURNITURE OR SPECIALTY EQUIPMENT SUPPLIER DRAWINGS PRIOR TO ROUGH-IN.
7. PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR EACH 120V CIRCUIT.
8. CIRCUITS MAY BE COMBINED INTO HOMERUNS OF UP TO SIX (6) CURRENT CARRYING CONDUCTORS, INCLUDING NEUTRALS, UNLESS OTHERWISE INDICATED. WHERE CIRCUITS ARE COMBINED WITHIN A SINGLE CONDUIT, PROVIDE STRIPING FOR FULL LENGTH OF NEUTRAL CONDUCTOR INSULATION TO MATCH THE COLOR CODE OF THE ASSOCIATED PHASE CONDUCTOR. SEE SPECIFICATION FOR COLOR CODES.
9. GFCI RECEPTACLES ARE NOT GENERALLY SHOWN ON DRAWINGS. ALL RECEPTACLE OUTLETS LOCATED IN TOILET ROOMS, SHOWER ROOMS, LOCKER ROOMS, GARAGES, SERVICE BAYS, ROOFTOPS, OUTDOOR LOCATIONS, MECHANICAL ROOMS, WITHIN 6 FEET OF A SINK, AT ELECTRIC WATER COOLERS, OR OTHER WET LOCATIONS SHALL BE PROVIDED WITH GFCI PROTECTION PER NEC ARTICLE 210 AND NEC SECTION 422.5. PROVIDE GFCI RECEPTACLES IN ELEVATOR PITS, HOISTWAYS, MACHINE ROOMS, CONTROL SPACES, AND CONTROL ROOMS PER NEC SECTION 620.85. ADDITIONAL GFCI PROTECTION TO BE PROVIDED AS INDICATED. WHERE GFCI DEVICES ARE REQUIRED AND/OR SHOWN BUT ARE NOT ACCESSIBLE WHEN EQUIPMENT IS INSTALLED, I.E. VENDING MACHINES, ETC., PROVIDE BLANK FACE GFCI DEVICE AND COVERPLATE AHEAD OF INACCESSIBLE RECEPTACLES. MOUNT ADJACENT TO EQUIPMENT AT SWITCH HEIGHT UNLESS OTHERWISE SHOWN.

ONE-LINE DIAGRAM NOTES:

1. PANELBOARDS INDICATED ON ONE LINE DIAGRAMS DO NOT SHOW ALL BRANCH CIRCUITS. REFER TO PANELBOARD SCHEDULE(S).
2. EXISTING ONE-LINE DIAGRAM TAKEN FROM OWNER FURNISHED DRAWINGS. EXISTING INFORMATION SHOWN OTHER THAN LOCATIONS IMPACTED BY NEW WORK HAS NOT BEEN VERIFIED.

GENERAL NOTES:

1. FOR REMODELING, WORK INCLUDED IS DENOTED IN BOLD. EXISTING CONDITIONS TO REMAIN ARE DENOTED LIGHTLY.
2. PROTECT STRUCTURE AND OWNER EQUIPMENT FROM DAMAGE. IMMEDIATELY REPLACE OR REPAIR, TO ORIGINAL CONDITION, DAMAGE CAUSED BY THE CONTRACTOR WHETHER EQUIPMENT APPEARS TO BE CURRENTLY IN USE OR NOT, UNLESS WRITTEN AUTHORIZATION FROM THE OWNER INDICATED OTHERWISE. PREPARE LISTING OF ALL EXISTING DAMAGED ITEMS AND SUBMIT TO OWNER PRIOR TO BEGINNING WORK.
3. INSTALL CONDUIT CONCEALED IN FINISHED AREAS UNLESS OTHERWISE NOTED. PAINT EXPOSED CONDUIT TO MATCH EXISTING FINISHES WITHIN THE SURROUNDING AREA.
4. DO NOT ROUTE CONDUIT WITHIN STRUCTURAL OR TOPPING SLABS OF FLOORS UNLESS SPECIFICALLY NOTED OTHERWISE AND WRITTEN APPROVAL IS OBTAINED FROM THE STRUCTURAL ENGINEER.
5. FIRE SEAL ALL FIRE RATED WALL AND FLOOR PENETRATIONS. REFER TO ARCHITECTURAL DRAWINGS FOR FIRE RATED WALLS.
6. COORDINATE EXACT REQUIREMENTS AND LOCATIONS OF MECHANICAL EQUIPMENT WITH MECHANICAL DRAWINGS AND MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN AND ORDERING MATERIALS OR EQUIPMENT.
7. A DETAILED WRITTEN METHOD OF PROCEDURE IS REQUIRED WHEN A CONSTRUCTION ACTIVITY OR AN OUTAGE AFFECTS THE SAFETY OF OCCUPANTS, TELEPHONE/DATA/FIRE ALARM EQUIPMENT OR COMPONENTS OF ANY SYSTEM WHICH SUPPORTS THIS EQUIPMENT OR ESSENTIALLY AFFECTS THE BUILDING MANAGEMENT, OPERATIONS OR SECURITY. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
8. EXISTING INFORMATION SHOWN ON THE DRAWINGS HAS BEEN TAKEN FROM OWNER FURNISHED DRAWINGS AND/OR LIMITED FIELD OBSERVATIONS. CATOR, RUMA & ASSOCIATES IS NOT RESPONSIBLE FOR THE ACCURACY OF ANY INFORMATION OR THE ADEQUACY, SAFETY AND CONFORMANCE TO CURRENT PREVAILING CODES OF ANY WORK SHOWN AS EXISTING ON THESE DRAWINGS.
9. PROVIDE SEPARATE INSULATED GROUNDING CONDUCTOR IN ALL FEEDER, HOMERUN AND BRANCH CIRCUITS.

DEMOLITION NOTES:

1. UNLESS NOTED OTHERWISE, BOLD ITEMS INDICATE EQUIPMENT, DEVICES, ETC. TO BE REMOVED. SEE SPECIFICATION SECTION 260500 FOR REMODEL/DEMOLITION DETAILED REQUIREMENTS.
2. DEMOLITION DRAWINGS MAY NOT SHOW EVERY ITEM TO BE DEMOLISHED. CONTRACTOR SHALL VISIT SITE TO DETERMINE AND COORDINATE THE EXACT EXTENT OF DEMOLITION TO FACILITATE ALL WORK INDICATED BY THE CONTRACT DOCUMENTS PRIOR TO QUOTATION. NO EXTRAS WILL BE ALLOWED FOR WORK REQUIRED TO ACHIEVE THE END RESULT AS INDICATED BY THE CONTRACT DOCUMENTS. REWORK EXISTING TERMINATIONS, CONNECTIONS, CONDUIT, WIRING, ETC. TO ACCEPT NEW WORK. MAINTAIN CIRCUIT CONTINUITY TO EXISTING CIRCUITS AND DEVICES TO REMAIN OR REMODEL/DEMOLITION DETAILED REQUIREMENTS TO BE RELOCATED. PRIOR TO COMMENCEMENT OF ANY DEMO WORK, CONFIRM EXISTING CONDITIONS AND NOTIFY ENGINEER OF ANY DISCREPANCIES FOR RESOLUTION.
3. ALL ITEMS IDENTIFIED TO BE REMOVED SHALL BE REMOVED IN THEIR ENTIRETY INCLUDING ALL WIRING AND EXPOSED CONDUIT AND CONDUIT SUPPORTS BACK TO POINT OF ORIGIN OR NEXT DEVICE TO REMAIN. REMOVED ITEMS SHALL BE TURNED OVER TO THE OWNER, UNLESS NOTED OTHERWISE, AND STORED IN THE AREA DESIGNATED BY THE OWNER. REMOVE FROM SITE AND LEGALLY DISPOSE OF ALL ITEMS THE OWNER CHOOSES NOT TO ACCEPT.
4. WHERE EXISTING CONDUITS ARE SHOWN TO BE REMOVED AND HAVE BEEN ROUTED IN CONCRETE FLOOR SLABS, CONCRETE WALLS OR CONCRETE CEILINGS, THEY SHALL BE CUT BACK FLUSH WITH CONCRETE. FILL WITH GROUT TO ACHIEVE A SMOOTH AND EVEN FINISH FLUSH WITH CONCRETE SURFACE AFTER CONDUCTORS HAVE BEEN REMOVED.
5. REUSE EXISTING CONDUIT WHERE CURRENT NEC AND LOCAL CODE REQUIREMENTS ARE MAINTAINED. PROVIDE NEW CONDUIT AND WIRE FOR NEW INSTALLATIONS AND EXTENSION OF EXISTING INSTALLATIONS. REUSE EXISTING CONDUIT IN PLACE. DO NOT REINSTALL EXISTING CONDUIT. PROVIDE LABELING PER SPECIFICATIONS FOR REUSED CONDUIT.
6. RELOCATED EQUIPMENT AND DEVICES ARE TO BE CLEANED OF ALL FOREIGN MATERIAL. REPLACE EQUIPMENT OR DEVICES WHICH ARE DEFECTIVE OR DAMAGED DURING RELOCATION.
7. WHERE EXISTING DEVICES, SWITCHES, MOTOR CONNECTIONS, ETC. ARE TO BE REMOVED FROM WALLS WHICH ARE REMAINING, WALLS SHALL BE PATCHED TO MATCH ORIGINAL FINISH. BLANK COVERPLATES OVER EXISTING BOXES ARE NOT ACCEPTABLE, UNLESS NOTED OTHERWISE.

KEYNOTES

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#2020-006

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Project:
9TH AND MAIN GARAGE - ELEVATOR REFURBISH

848 W. Main St
Boise, ID 83702

Sheet:
ELECTRICAL LEGENDS, NOTES & ONE-LINE

PROFESSIONAL ENGINEER LICENSED 17703 01/27/2020 STATE OF IDAHO KYLE E. OLSON
Electrical

Revisions: △

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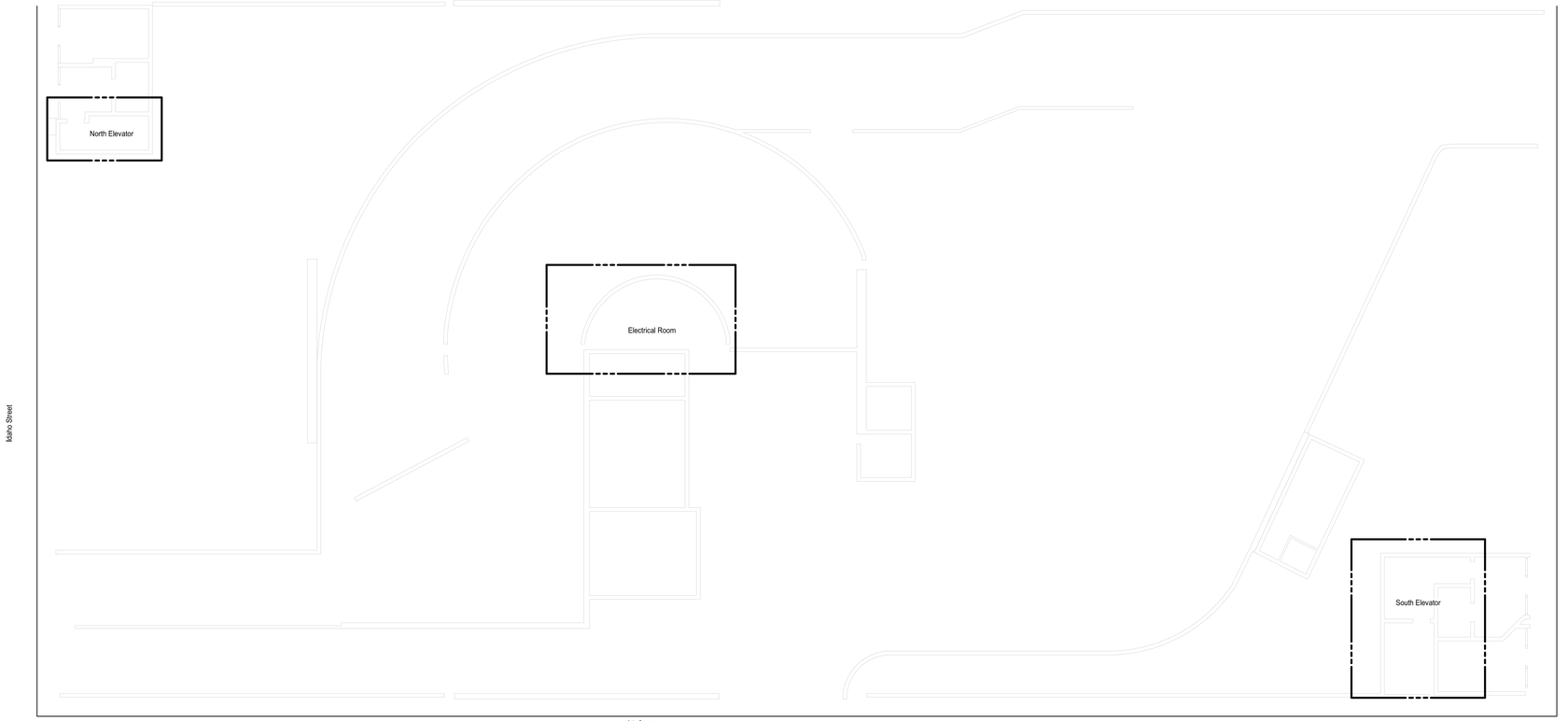


NORTH

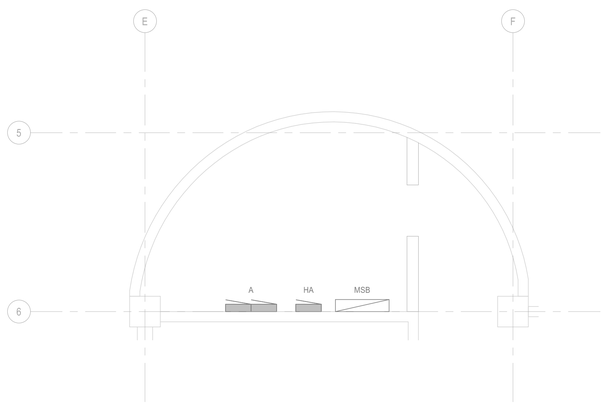
ELECTRICAL SITE PLAN

SCALE: 1" = 10'-0"

NORTH

LEVEL 1 POWER PLAN - NORTH ELEVATOR

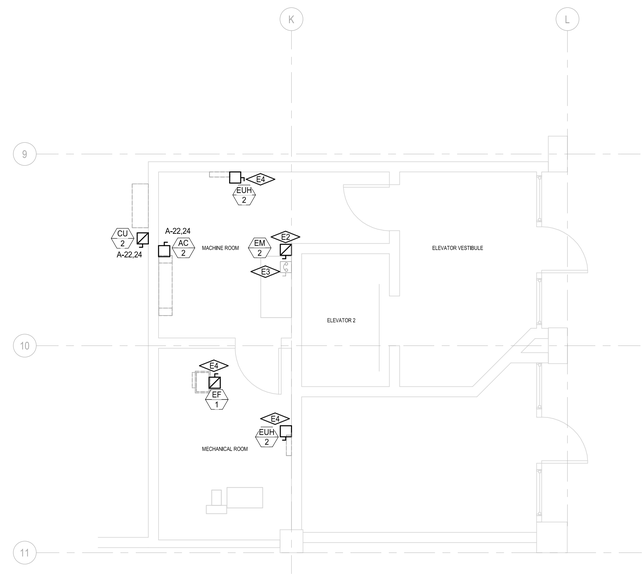
SCALE: 1/4" = 1'-0"



NORTH

LEVEL 1 POWER PLAN - ELECTRICAL ROOM

SCALE: 1/4" = 1'-0"



NORTH

LEVEL 1 POWER PLAN - SOUTH ELEVATOR

SCALE: 1/4" = 1'-0"

KEYNOTES

E2	PROVIDE 480V FUSED DISCONNECT AND CONNECTION TO ELEVATOR EQUIPMENT. PROVIDE DISCONNECT WITH AUXILIARY CONTACTS. REFER TO SPECIFICATION FOR DETAILS. REUSE EXISTING CABLE AND CONDUIT WHERE POSSIBLE. REUSE EXISTING BRANCH CIRCUIT. FIELD VERIFY EXISTING WIRE SIZE AND CONDITION FOR RE-USE.
E3	EXISTING TO REMAIN - 120V ENCLOSED CIRCUIT BREAKER FOR ELEVATOR LIGHTS.
E4	DISCONNECT AND RECONNECT MECHANICAL EQUIPMENT INDICATED. REUSE EXISTING BRANCH CIRCUIT. FIELD VERIFY EXISTING WIRE SIZE AND CONDITION FOR RE-USE.

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Sheet:
POWER PLANS

PROFESSIONAL ENGINEER LICENSED 17703 01/21/2020 STATE OF IDAHO KYLE E. OLSON
Electrical

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