BIDDING/CONTRACT DOCUMENTS

For The
"Ice and Events Center Roof Replacement"
Project

Bid No. S-8-22

BID OPENING: January 6, 2022 at 2:00 p.m.

In the
City Purchasing Office
Room 307, Municipal Building
2101 O'Neil Avenue
Cheyenne, WY 82001

Inquiries Regarding This Bid Should Be Directed To:

City of Cheyenne, Purchasing Manager, TJ Barttelbort
Phone: (307) 773-1045, Email: tbarttelbort@cheyennecity.org

INVITATION FOR BID
S-8-22

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FY 2022

PART 1 – INVITATION FOR BIDS

CITY OF CHEYENNE, WYOMING

	CITY OF CHEYENNE INVITATION FOR BIDS
NAME OF JOB:	Ice and Events Center Roof Replacement
BID NUMBER:	S-8-22

The Governing Body of the City of Cheyenne, Wyoming ("the Governing Body") will receive sealed bid proposals at the Office of the City Purchasing Agent, located in Room 309 of the Municipal Building at 2101 O'Neil Avenue, Cheyenne, WY 82001, until 2:00 p.m. local time on the 6th day of January, 2022 for the **"Ice and Events Center Roof Replacement"** project.

At the aforementioned time and place, such bids that are received for the project shall be publicly opened and read aloud.

The work to be performed will be in accordance with the plans and specifications on file in the City Purchasing Agent's office. Bidding documents may be downloaded online at https://www.cheyennecity.org/Bids-and-Proposals.

A MANDATORY pre-bid meeting will be held at 10:00 AM on Wednesday, December 8, 2021, at the Cheyenne Ice & Events Center, 1530 W Lincolnway, Cheyenne, WY 82001. The City will reject bids from any company who has not signed the attendance sheet prior to the commencement of the mandatory pre-bid meeting.

A bid guarantee in the amount of five percent (5%) of the total bid shall accompany any bid submitted. *See* Section 8.00 of Instructions to Bidders. The successful bidder shall furnish and pay for satisfactory performance and payment bonds in the amount of one hundred percent (100%) of the accepted bid. *See* Section 19.00 of Instructions to Bidders.

The City of Cheyenne ("the City") reserves the right to reject any or all bids or to waive any formalities in the bidding.

Prior to the award of the contract, the City may hold bids for a period not to exceed sixty (60) calendar days from the date of opening of bids for the purpose of reviewing the bids and investigating the qualifications of the bidders. Provisions of Wyo. Stat. § 15-1-113, incorporated by reference, are made an express part of the Contract Documents.

TJ Barttelbort
Purchasing Division

Publication Dates: November 26 & December 3, 2021
Published in: Wyoming Tribune Eagle

PART 2 - INSTRUCTIONS TO BIDDERS

CITY OF CHEYENNE, WYOMING

1.00 USE OF SEPARATE BID FORMS

These Contract Documents include a complete set of bidding and contract forms which are for the convenience of bidders. Bidders shall make proposals upon the forms furnished herein and pursuant to the instructions and requirements set forth herein.

2.00 INTERPRETATION OF DOCUMENTS

The City will not provide oral interpretations to any bidder as to the meaning of the Contract Documents or any part thereof. If any person contemplating submitting a proposal requires interpretation or clarification regarding the meaning of any part of the drawings, specifications, or other portions of the contract documents, or finds discrepancies in or omissions from the drawings or specifications, that bidder shall submit a written request for interpretation, clarification, or correction thereof to the City of Cheyenne, hereinafter "City". The bidder submitting the request will be responsible for its prompt delivery. Questions shall be directed to the City Purchasing Manager, by e-mail at tbarttelbort@cheyennecity.org.

Questions will be received until 5:00 pm local time on December 14, 2021, after which no additional questions will be accepted.

The City will respond via Addendum, no-later-than 5:00 pm local time on December 21, 2021.

3.00 ADDENDA

The City will make every interpretation, clarification, or correction to bidders by written addendum to the Contract Documents. The City will make reasonable efforts to mail, e-mail, or fax addenda to persons identified on the City's plan-holders list, but it shall be the bidder's responsibility to make inquiry as to the addenda issued. It shall also be the bidder's responsibility to confirm that it is included on the City's plan-holders list. The bidder shall acknowledge all addenda issued during the time of bidding in the bid proposal and shall be made a part of the Contract. The City will consider as incomplete any bid proposal in which all addenda are not acknowledged.

4.00 DEFINITIONS AND TERMS

Contract Documents: All documents in the bidding packet, including addenda, as identified in Part V, Article 5.

Contract Modification: A written document that must, at minimum, be executed by the Contractor and by the Mayor of the City of Cheyenne. A Contract Modification may require the approval of the City's Governing Body. A contract modification must be executed to change the Contract Price, Contract Time, or to otherwise modify the Contract Agreement.

Contract Price: The original amount bid by the contractor, as specified in Article 4 of the Agreement and modified by any Contract Modifications.

Contract Time: Begins upon the date specified in the Notice to Proceed and consists of the number of calendar days up to and including the date specified in Part V, Article 3.

Field Order: A form issued by the City Engineer ("Engineer") to authorize the Contractor to proceed with changes or additions to the work as described in a Work Directive or a Request for Adjustment. A Field Order may either increase or decrease quantities or authorize work for payment under a Force Account, if included in the bid, but cannot increase the Contract Price.

Force Account: A method of payment for work performed by the Contractor at the Engineer's discretion and calculated in accordance with Part VI, Section 14.

Request for Adjustment: A form issued by the Engineer to allow the Contractor to request an adjustment of the Contract Time, the Contract Price, or to request any other modification of the Contract Agreement. The Contractor shall also use this form for submitting pricing as a result of a Work Directive.

Work Directive: A form issued by the Engineer to inform the Contractor of a change in the Work which does not alter the Contract Time, the Contract Price, or any other provisions of the Contract Agreement. If a change in the Work will increase the Contract Price, the City must approve and execute a Contract Modification before the Contractor may proceed with the Work as modified.

5.00 SITE INSPECTION AND CONTRACT DOCUMENTS EXAMINATION

Each bidder shall visit the proposed work site and become acquainted with the existing conditions of the site. Then, in preparing and submitting bids, contractors should take into account the observed existing conditions, construction necessities, required labor, facilities involved, and difficulties and restrictions that may be encountered in contract performance. If possible, the City will conduct a tour of the work areas. All interested parties should contact **Steve Gaer in the City's Facility Maintenance Office, at 307-637-6498.**

Each bidder should also thoroughly examine and become familiar with the Drawings, Technical Specifications, and all other Contract Documents.

The selected bidder, by executing a contract, shall in no way be relieved of any obligation under it due to the selected bidder's failure to review or examine any form, legal instrument, or to become acquainted with existing conditions in the work area. The City will be justified in rejecting any claim based on facts which the selected bidder knew or should have been aware of as a result of inspecting the site and Contract Documents.

6.00 ALTERNATE BIDS

The City **will not consider** alternate bids unless alternate bid items are specifically requested by the Specifications and the bid proposal.

7.00 BID PROPOSAL REQUIREMENTS

Bidders shall submit all bids on forms supplied by the City, and all such bids are subject to the Contract Documents requirements. All bids shall be regular in every respect. The bidder shall not make or include any interlineation, excisions, or special conditions in the bid forms. The bidder shall explain or note, in conjunction with its signature, any erasures or other changes in the bids.

The bidder shall submit bid documents, including the Bid Proposal, Bid Guarantee, Non-Collusion Affidavit of Prime Bidders, and Sub-Contractors and Material Suppliers List, and all other required forms, to the City Purchasing Division in a sealed envelope. The envelope shall bear the bidder's name and address, the project name, bid number, and the date and time of bid opening in order to guard against premature opening of the bid proposal.

The City may consider as irregular any bid on which there is an alteration of or departure from the bid form provided and, at its option, may reject the bid.

Award of a contract resulting from this bid will be based on Section 15.00 below.

The bidder shall correctly fill in the blank spaces on the proposal form and state the unit or lump sum prices in the spaces provided. All proposals shall be totaled, and in the case of errors or discrepancies, the unit or lump sum prices shall govern.

Each bidder shall sign and display the name and address of the bidder in the blank spaces provided. If the bid is made by a sole proprietorship or partnership, the name and address of the sole proprietorship or partnership shall be shown, together with the names and addresses of the proprietor or partners. If the proposal is made by a corporation or other business entity, an official who is authorized to bind the corporation or other business entity shall sign in the name of such corporation or business entity.

The City will consider as incomplete and may reject any bid not displaying the information required by this Section.

City representatives and the successful bidder shall hold a pre-construction conference upon contract award. This conference will be for the purpose of reaching a complete understanding with the successful bidder concerning quality of work expected, work schedule and time of completion, work progress, and coordination of all construction.

8.00 BID GUARANTEE

Each bid proposal shall be accompanied by a bid guarantee which shall not be less than five percent (5%) of the bid amount.

The 5% bid guarantee may be in the form a bid bond secured and issued by a surety or guaranty company authorized to do business in the State of Wyoming or a cashier's check made payable to the City of Cheyenne. Cash deposits, personal checks or company checks (unless certified) will not be accepted.

If the bid guarantee is to be submitted in the form of a bid bond, bidders must use the attached bid bond form. No deviation from the attached form will be allowed. If a surety company's bid bond form is used, the wording shall be exactly as shown on the City's bid bond form. No bid will be considered unless it is accompanied by the required guarantee. The bid guarantee shall ensure the execution of the agreement. The successful bidder shall furnish a surety bond as required by the Contract Documents.

If the Contractor (i) withdraws the bid within sixty (60) calendar days after bid opening, (ii) fails to provide performance and payment bonds, (iii) or fails to provide the minimum insurance certificates within the time required by Wyo. Stat. § 15-1-113 after the City accepts the proposal, then the bidder shall be liable to the City for default in the amount set forth on the bid bond as liquidated damages for said default.

Bid guarantees of unsuccessful bidders will be returned as soon as practicable after bid proposals are opened.

9.00 COLLUSIVE AGREEMENTS

Each bidder submitting a bid to the City for any portion of the work contemplated by the documents on which bidding is based shall execute and attach thereto an affidavit substantially in the form herein provided to the effect that he or she has not colluded with any other person, firm, or corporation in regard to any bid submitted.

10.00 STATEMENT OF BIDDER QUALIFICATIONS

Each bidder shall, upon the City's request, submit satisfactory evidence that the bidder has practical knowledge of the particular work being bid upon, and has the necessary financial resources required to complete the proposed work. In awarding the contract, the City will give due consideration to the ability, reliability, work load, and general reputation of each bidder, as well as the City's past experience with the bidders.

Each bidder, upon the City's request, shall show that prior work performed by the bidder has been handled in such a manner that there are no just or proper claims against such work.

No bid proposal will be acceptable if the bidder is engaged in any other work which impairs his or her ability to finance this contract or provide equipment for the proper execution of the contract.

11.00 UNIT PRICES

If unit prices are called for, the unit price of each item in the proposal shall include the *pro rata* share of overhead and profit. As such, the sum of the products obtained by multiplying the quantity shown for each item by the unit price bid equals the total bid. The City may reject as irregular any bid not conforming to this requirement. Bidders should pay special attention to this provision.

If conditions make it necessary to revise bid quantities, no limit will be fixed for such quantity revisions, provided the net cash value of all such additive and subtractive changes

shall not change the original, total contract price by more than twenty percent (20%). The quantities appearing on the proposal form are approximate and are prepared for the comparison of bids. Payment to the contractor will be made only for the actual, accepted quantities of work performed and materials furnished in accordance with the contract.

The presence of any unit bid price that generates reasonable doubt that award to that bidder would result in the lowest ultimate cost to the City may be rejected as irregular.

12.00 TIME FOR RECEIVING BIDS

Bid proposals received before the advertised time for opening bids will be kept securely sealed until the time arrives to open bids. The officer whose duty it is to open bids will decide when the specified time has arrived, and no bid received thereafter will be considered.

13.00 BID OPENING

At the time and place fixed for opening bids, the City will open and publicly read aloud every bid received within the time set for receiving bids, irrespective of any irregularities therein. Bidders and other persons properly interested may be present in person or by representative.

14.00 BID WITHDRAWAL

Bids may be withdrawn by written or faxed request at any time prior to the scheduled closing time for receipt of proposals.

15.00 CONTRACT AWARD AND BID REJECTION

The City will award the contract to the most qualified and responsible bidder, as determined in the City's sole discretion, who submits the lowest total responsive bid shown on Itemized Bid Sheet "A" plus "B". This bid must also be less than funds available for this project. The City reserves the right to reject a bid if the total bid shown on the last Itemized Bid Sheet is not identical to the total bid shown on the Bid Proposal Sheet, included in this Bid Packet. The City reserves the right to reject a bid if the total bid price shown on the last Itemized Bid Sheet is not calculated correctly.

The City reserves the right to reject any or all proposals or to waive any formality or irregularity in any proposal in the interest of the City. No bidder may withdraw his proposal for a period of sixty (60) calendar days after the date of opening thereof.

16.00 FUNDS PROGRAMMED

The funds programmed for construction are estimated to be sufficient to provide for the proposed work shown on the plans. In the event contract unit prices indicate a total cost of the project in excess of the allotted funds, the project length may be shortened or quantities decreased to keep the cost of work within the funds allocated to the project. Similarly, if the contract unit prices indicate a total cost of the project less than the allotted

funds, the length of the project may be increased and quantities added to ensure the allotted funds for the project are used.

17.00 PREFERENCE FOR STATE LABOR AND MATERIALS

Pursuant to Wyo. Stat. § 16-6-104, Wyoming made materials and products, and Wyoming suppliers of products and materials of equal quality and desirability shall have preference over materials or products produced or supplied outside the state and any contract let shall so provide. The City shall apply the preference created by Wyo. Stat. § 16-6-104 in a manner identical to the preference for resident contractors in Wyo. Stat. § 16-6-102.

Pursuant to Wyo. Stat. § 16-6-102, the City shall award the contract to the responsible, certified resident making the lowest responsible bid, if the certified resident's bid is not more than five percent (5%) higher than the lowest responsible, nonresident bidder.

Pursuant to Wyo. Stat. § 16-6-103, a successful resident bidder shall not subcontract more than thirty percent (30%) of the work covered by the contract to nonresident contractors.

Pursuant to Wyo. Stat. § 16-6-106, preference is hereby given to materials, supplies, agricultural products, equipment, machinery, and provisions produced, manufactured, or grown in Wyoming, or supplied by a state resident, quality being equal to articles offered by the competitors outside of the state.

Pursuant to W.S.§ 16-6-107, the structure or structures to be constructed pursuant to this invitation to bidders shall be constructed and maintained by materials produced or manufactured in Wyoming if Wyoming materials are suitable and can be furnished in marketable quantities. Preference shall not be granted for materials of an inferior quality to those offered by competitors outside of the state, but a differential of five percent (5%) shall be allowed in cost of contracts Wyoming materials produced or manufactured in Wyoming.

Pursuant to Wyo. Stat. § 16-6-203, the successful bidder shall employ only Wyoming laborers on the project, and the contract awarded to the successful bidder shall contain a provision requiring that Wyoming labor be used, except other laborers may be used when Wyoming laborers are not available for employment within the state, or are not qualified to perform the work involved. In addition, the contract shall contain a provision requiring specific acknowledgement of the requirements of this section. The successful bidder may employ laborers other than Wyoming laborers if:

(i) The successful bidder informs the nearest state workforce center of his employment needs at least eleven (11) calendar days before work is commenced;

(ii) The state workforce center certifies that the bidder's need for laborers cannot be filled from those Wyoming laborers listed with the Wyoming Department of Workforce Services. The department shall respond to a bidder's request for certification within ten (10) calendar days of the date the information is filed; and

(iii) The successful bidder shall also agree to promptly respond to requests from the Wyoming Department of Workforce Services for the most recent construction schedule for the project.

18.00 CERTIFICATE OF RESIDENCY STATUS FOR IN-STATE PREFERENCE

Wyoming Contractors desiring residency status for the purpose of obtaining the five percent (5%) preference for resident bidders on public works projects must be so certified by the Wyoming Department of Workforce Services. No bidder may be considered a resident for the purpose of the five percent (5%) preference unless his residency has been certified as provided in Wyo. Stat. § 16-6-101.

19.00 AGREEMENT EXECUTION, PERFORMANCE, AND PAYMENT BONDS

Subsequent to the award and within fifteen (15) calendar days after the prescribed forms are presented for signature, the successful bidder shall execute and deliver to the City an agreement in the form included in the Contract Documents in such number of copies as the City may require and at the same time shall also provide the insurance, Workers Compensation and Unemployment insurance certificates, and the performance and payment bonds. The performance and payment bonds will remain active for the two (2) year warranty period, which is the two (2) year period following the City's acceptance of the substantial completion certificate. If the Contractor is required to perform corrections in the work of the project in the two (2) year warranty period, the Contractor shall provide copies of their current insurance, Worker's Compensation, and Unemployment Insurance Certificates as required in the original project.

Having satisfied all conditions of award as set forth elsewhere in these documents, the successful bidder shall, within the period specified in paragraph "a." above, furnish a surety bond, not less than the amount of the contract as awarded, as security for the faithful performance of the contract and a bond in an equal sum as surety for the payment of all persons, firms, or corporations to whom the successful bidder may become legally indebted for labor, materials, tools, equipment, or services of any nature, including utilities and transportation services employed or used by him in performing the work. Such bond or bonds shall be in the same form as that included in the Contract Documents and shall bear the same date as that of the agreement. The current power of attorney for the person who signs for any surety company shall be attached to such bonds. These bonds shall be signed by an authorized agent of the surety company qualified to do business in the State of Wyoming. The successful bidder shall notify the surety of any changes affecting the general scope of the project or change in the Contract Price, and the amount of the bonds shall be adjusted accordingly. The successful bidder shall furnish proof of such adjustment to the City.

The successful bidder's failure to execute such agreement, or to supply the required bond or bonds within thirty (30) calendar days after the prescribed forms are presented for signature, or within such extended period as the City may grant based upon reasons determined sufficient by the City, shall constitute a default. The City may then award the contract to the next lowest, responsible bidder or re-advertise for bids, and the bid guarantee of the bidder shall be forfeited to the City as liquidated damages as per Wyo. Stat. § 15-1-113(f). The City may also charge against the defaulting bidder the additional

difference between the amount of the original low bid and the amount for which the contract is subsequently let, if the amount exceeds the amount of the bid bond. If a more favorable bid is received by re-advertising, the defaulting bidder shall have no claim against the City for a refund.

If the cost of a payment and performance bond is included in the bid, the successful bidder may receive reimbursement for the costs of the bonds subject to the following requirements. If the bond cost is not included as a bid item, the bond cost shall be deemed to have been included in the Contract Price.

Subsequent to the contract award and compliance with the conditions stated in the preceding paragraph, the successful bidder may submit a written request to the engineer in charge of the project requesting the payment and performance bid item. The successful bidder shall include with this written request, a statement from the insuring firm, indicating the bond cost based on the preliminary estimate of the cost of the contract or as adjusted by the final contract price. Payment for the bond cost will be computed on the basis of the final Contract Price or on the basis of the preliminary cost estimate of the contract, whichever is less. The payment for a payment and performance bond may be adjusted upon project completion based on approved modifications to the Contract Price.

20.00 SALES AND USE TAX PROVISIONS

The successful bidder shall abide by Wyo. Stat. § 39-15-101 *et seq.*, and Wyo. Stat. § 39-16-101 *et seq.*, relating to Sales and Use Taxes. In particular, the successful bidder shall abide by the guidance provided in State of Wyoming, Department of Revenue Bulletin, "Use Tax and You" issued December 5, 2012, revised July 1, 2014. This Bulletin is available on-line through the Wyoming Department of Revenue's website. If the Contractor has difficulty locating the Bulletin, they may contact the Wyoming Department of Revenue for assistance.

The successful bidder shall cause all subcontractors to abide by and perform their work on the same terms and conditions as provided above. The successful bidder shall cause the above statements to be inserted in any contract or agreement between the successful bidder and subcontractors.

The successful bidder shall notify the Wyoming Department of Revenue, Excise Tax Division, when they begin work on any project in the State of Wyoming. The notice shall include the project name, specific project location and contract amount. Questions regarding sales and use taxes should be directed to the Wyoming Department of Revenue, Excise Tax Division at (307) 777-5204.

21.00 TRADE NAME PROVISIONS

When in the specifications or drawings, an item is identified by a manufacturer's name, trade name, catalog number, or reference, the bidder proposes to furnish the item so identified and does not propose to furnish an "equal" unless the proposed "equal" is clearly communicated to the City by the bidder, and the bidder has obtained prior certification from the City for approval of the proposed "equal".

The reference to a manufacturer's name, trade name, or catalog number is intended to be descriptive, but not restrictive, and only to indicate to the bidder articles that will be satisfactory. Bids on other makes, catalog numbers, etc., will be considered, provided each bidder clearly states on the bid proposal exactly what the bidder proposes to furnish, and has submitted to the City, at least seven (7) calendar days prior to the bid opening date, illustrations, specifications, or other descriptive matter which clearly indicate the character of the article(s) to be covered by the bid, and has obtained the prior approval of the City for the proposed "equal".

The City reserves the right to approve as an equal, or to reject as not being equal, any article the bidder proposes to furnish which contains major or minor variations from specifications but which may comply substantially therewith.

22.00 RETAINAGE ADMINISTRATION FOR CONTRACTS EXCEEDING $50,000.00

The City will withhold five percent (5%) of the work's dollar value completed throughout the contract term.

If requested by the general contractor, the City shall enter into an interest bearing deposit agreement with any depository designated by the general contractor, after notice to the surety, to provide an agent for the custodial care and servicing of any deposits placed with it pursuant to this act on any contract of more than fifty thousand dollars ($50,000.00) pursuant to Wyo. Stat. § 16-6-704. Interest income will be paid to the successful bidder as collected or as otherwise instructed by the successful bidder. All expenses incurred for this service will be charged to the successful bidder and deducted from payments due and retained funds.

If the City finds that satisfactory progress is being made in all phases of the contract it may, upon written request by the contractor, authorize payment from the withheld percentage. Before the payment is made, the public entity shall determine that satisfactory and substantial reasons exist for the payment and shall require written approval from any surety furnishing bonds for the contract work in accordance with Wyo. Stat. § 16-6-116.

No payments returning retainage from this fund will be made until the City has determined that satisfactory and substantial reasons exist for the payment, and the required Certificate of Completion; Affidavit of Release of Liens; Contractor's Final Waiver of Liens; Sub-Contractor's Final Waiver of Liens; Consent of Surety for final payment; Sworn Statement for Final Payment Pursuant to Wyo. Stat. § 16-6-116 and § 16-6-117; and Engineer's Certificate of Completion have all been received by the City, and all the items on the punch list have been completed.

23.00 SUB-CONTRACTORS, MATERIALMEN PROTECTION UNDER A BOND OR GUARANTEE; LIMITATIONS.

For contracts of $150,000.00 or more, the Contractor shall post on the construction site a prominent sign citing Wyo. Stat. § 16-6-121 and stating that any Sub-Contractor or materialmen shall give notice to the Contractor of a right to protection under the bond or guarantee and that failure to provide the notice shall waive the Sub-Contractor or materialmen's protection under the bond or guarantee and shall waive any right to a lien

for material or services provided. The general contractor shall post on the construction site a prominent sign citing this section and stating that any subcontractor or materialman shall give notice to the general contractor of a right to protection under the bond or guarantee and that failure to provide the notice shall waive the subcontractor or materialman's protection under the bond or guarantee.

24.00 PERMITS AND LICENSES

The Contractor shall obtain all permits necessary to execute the work. Fees will be waived for permits issued by the City. Permits may be required by other entities which are not furnished or paid for by the City. The successful bidder and its subcontractors shall be required to hold and pay for any licenses required and shall also pay for all public utility charges.

25.00 PRE-BID CONFERENCE

A MANDATORY pre-bid meeting will be held at 10:00 AM on Wednesday, December 8, 2021, at the Cheyenne Ice & Events Center, 1530 W Lincolnway, Cheyenne, WY 82001. The City will reject bids from any company who has not signed the attendance sheet prior to the commencement of the mandatory pre-bid meeting.

PART 3 – PROPOSAL FORMS

CITY OF CHEYENNE, WYOMING

	CITY OF CHEYENNE BID PROPOSAL FORM
BID NO.	S-8-22
OPEN DATE:	January 6, 2022
TIME:	2:00 PM
PROJECT:	Ice and Events Center Roof Replacement

TO: GOVERNING BODY
CITY OF CHEYENNE
2101 O'NEIL AVENUE
CHEYENNE, WY 82001

(Submit bids to the City Purchasing Division, Room 309, Municipal Bldg. at 2101 O'Neil Avenue)

1. Pursuant to and in full compliance with all Bidding Documents, the undersigned Bidder hereby proposes to furnish all the labor and materials and to perform all the work required for the complete and prompt execution of everything described or shown in or reasonably implied by the Bidding Documents, including the Drawings and Specifications, for the work above indicated for the monies stated herein, which includes all State, County and local taxes normally payable in respect to such work when done for an entity not entitled to any exemption from such taxes. The amounts stated include all allowances for profit and overhead, taxes, fees and permits, transportation, services, tools and equipment, labor and materials and other incidental costs.

2. The Bidder has carefully examined the Bidding Documents, including the Drawings and Specifications and the work site, and has fully apprised him/her -self of the conditions affecting the work to be executed, and hereby proposes to construct and complete the above-referenced project, all in accordance with the Bidding Documents, at and for the following sum, as reflected in the total on the attached itemized bid sheets:

   _____Dollars

   ($_____).

3. This Bid Proposal is accompanied by the required Bid Guarantee of five percent (5%) based upon the total cost of all items required to be bid. The City of Cheyenne is authorized to hold said Bid Guarantee for a period of not more than sixty (60) calendar days after the opening of the bids for the purpose of evaluating bids prior to award. If awarded the contract for this work, the undersigned Bidder agrees to execute the Agreement and furnish the required Bonds and Insurance Certificates within thirty (30) calendar days from the date of Notice of Award.

4. Attached hereto is an affidavit in proof that the undersigned has not entered into a collusive agreement with any person in respect to this bid or any other bid or the submitting of bids for which this bid is submitted.

5. The undersigned bidder **has [ ] has not [ ]** been granted a State of Wyoming Certificate of Residency Status. If the bidder has been granted a State of Wyoming Certificate of Residency Status, the undersigned **bidder has [ ] has not [ ]** subcontracted more than thirty percent (30%) of the work covered by this contract to nonresident bidders, as per Wyo. Stat. § 16-6-103 regarding limitations on subcontracting by resident contractors.

Dated this _____ day of _____, _____
(Month) (Year)

FIRM NAME:_____

Bidder's Legal Stature: ☐Corporation
☐Partnership
☐Individual Sole Proprietorship
☐L.L.C.
☐Other:_____

State of Incorporation:_____

Bidder's Address:_____

_____

_____

Telephone Number:_____

Email Address: _____

By:_____
(Bidder's Signature)

Title:_____

_____
Witness

The Bidder acknowledges receipt of the following addenda to the Bid Documents (if none, so state):_____.

Addendum No. Dated

_____

_____

_____

	CITY OF CHEYENNE ITEMIZED BID SHEET FORM
BID SHEET, BASE BID	
BID PROPOSAL	
PROJECT	Ice and Events Center Roof Replacement

Item No.	Description	Unit	Est. Qty	Unit Price (in figures)	Total Price
1	**Ice and Events Center Roof Replacement**	LS	1		

BIDDER: _____ TOTAL BID:_____

	CITY OF CHEYENNE NON-COLLUSION AFFIDAVIT OF PRIME BIDDERS FORM
State of:	
County of:	

_____, being first duly sworn, deposes and says that:

(1) S/he is (owner, partner, officer, representative, or agent) of _____, the bidder that has submitted the attached bid;

(2) S/he is fully informed respecting the preparation and contents of the attached bid and of all pertinent circumstances respecting such bid;

(3) Such bid is genuine and is not a collusive or sham bid;

(4) Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees, or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly with any other bidder, firm, or person to submit a collusive or sham bid in connection with the contract of which the attached bid has been submitted or to refrain from bidding in connection with such contract, or has in any manner, directly or indirectly, sought by agreement, collusion, communication, or conference with any other bidder, firm or person to fix the price or prices in the attached bid or of any other Bidder; to fix any overhead, profit, or cost element of the bid price or the bid price of any other Bidder; or to secure through any collusion, conspiracy, connivance, or unlawful agreement any advantage against the City or any person interested in the proposed contract; and

(5) The price or prices quoted in the attached bid are fair and proper and are not tainted by any collusion, conspiracy, connivance, or unlawful agreement on the part of the bidder or any of the bidder's agents, representatives, owners, employees, or parties in interest, including this affiant.

Signed_____

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

_____

(Title) (Signature)

My Commission expires_____

CITY OF CHEYENNE BID BOND FORM

PROJECT	Ice and Events Center Roof Replacement
BID NUMBER	S-8-22

KNOW ALL MEN BY THESE PRESENTS, that_____, as Principal, and_____, as Surety, a corporation duly organized under the laws of the State of _____ and authorized to do business within the State of Wyoming, are held and firmly bound unto the City of Cheyenne, Wyoming, in the full and just sum of _____Dollars ($_____), lawful money of the United States, for the payment of which sum, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, said Principal is herewith submitting a Proposal for_____ _____, and the City of Cheyenne, Wyoming has required as a condition for submitting said Proposal, that said Principal deposit specified Bid Security in an amount not less than five percent (5%) of the amount of said Proposal, conditioned that in event of failure of Principal to execute the contract and furnish the required performance and payment bonds if the contract is awarded to said Principal, that said sum be paid immediately to the City of Cheyenne, Wyoming as liquidated damages, and not as penalty, for the Principal's failure to perform.

The condition of this obligation is such that if the aforesaid Principal will, within the time required, enter into a formal contract and give such bonds as are specified in the bidding documents with surety acceptable to the City; or if Principal shall fail to do so, pay to the City the sum determined herein as liquidated damages and not as a penalty, then this obligation shall be void; otherwise to remain in full force and effect.

Signed, sealed, and delivered this _____day of_____, _____.

_____ _____

Witness Principal (seal)

by_____

Title_____

_____ _____

Witness Surety (seal)

by_____

(Attach Power of Attorney) Attorney-in-fact

	CITY OF CHEYENNE SUBCONTRACTORS AND MATERIALS SUPPLIERS LIST FORM
BIDDER'S NAME	

List all materials suppliers and subcontractors proposed for this project and return list with bid:

ATTENTION!
Any Resident Bidder using Non-Resident subcontractors must fill in the percentage of work being done by the subcontractor.

WORK	SUBCONTRACTOR OR MATERIAL SUPPLIER	CITY/STATE	% OF WORK

BID SUBMISSION CHECKLIST

THE FOLLOWING CHECKLIST REPRESENTS THE REQUIRED FORMS TO BE EXECUTED AND DOCUMENTS TO PREPARE. THESE FORMS AND DOCUMENTS ARE TO BE INCLUDED IN THE CONTRACTOR'S SUBMITTED BID PACKAGE.

COMPLETED & INCLUDED

1. City of Cheyenne Bid Proposal Form [ ]
2. Bid Price Total [ ]
3. Itemized Bid Schedule [ ]
4. Sub-Contractors and Material Suppliers List [ ]
5. Non-Collusion Affidavit of Prime Bidders [ ]
6. Bid Security / Bid Guarantee [ ]
7. Acknowledgement of Addenda (If Any) [ ]

	CITY OF CHEYENNE **BID ACCEPTANCE FORM**
BID NUMBER:	**S-8-22**
DATE:	
TO:	

To Whom It May Concern:

The City of Cheyenne, having duly considered the proposals submitted on ___/____/____ for the construction of **"Ice and Events Center Roof Replacement",** as outlined in these Contract Documents, and it appearing that your Proposal for performing the work outlined is fair, equitable, and in the City's best interest, the bid items are hereby accepted at the bid prices contained therein.

In accordance with the terms of these Contract Documents, you are required to execute the formal Agreement and furnish the required Performance and Payment Bonds within thirty (30) calendar days from and including the date of this notice.

In addition, you are required to furnish at the same time a copy of Certificate of Insurance evidencing compliance with the requirements for insurance stated in the Bidding Documents, including unemployment insurance, and a copy of your Worker's Compensation Certificate.

The Bid Guarantee submitted with your Proposal will be retained until the Agreement has been executed and the required Performance and Payment Bonds have been furnished and approved. In event that you should fail to execute the contract and furnish the Performance and Payment Bonds within the time limit specified, the said bid security will be retained as liquidated damages and not as penalty for the delay and extra work caused thereby.

CITY OF CHEYENNE, WYOMING

By_____
Purchasing Manager

	CITY OF CHEYENNE **NOTICE TO PROCEED FORM**
BID NUMBER:	**S-8-22**
DATE:	
TO:	

You are hereby authorized to proceed on this date, _____ with the construction of **"Ice and Events Center Roof Replacement"** as set forth in detail in the Contract Documents. No work may be done at the site prior to the date stated above.

CITY OF CHEYENNE, WYOMING

By_____
Purchasing Manager

The Contractor is required to return an acknowledged copy of this Notice to the City.

Acknowledged:

Contractor:	
By [Printed Name]:	
By: [Signature]:	
Title:	
Date:	

	CITY OF CHEYENNE CONTRACTOR'S CERTIFICATION OF COMPLETION FORM
DATE:	
PROJECT:	Ice and Events Center Roof Replacement
JOB NUMBER:	
CONTRACT NUMBER:	
OWNER:	
FROM:	

This is to certify that I, _____, am an authorized official of _____, working in the capacity of _____, and have been properly authorized by said firm or corporation to sign the following statements pertaining to the subject contract:

> I know of my own personal knowledge, and do hereby certify, that the work of the contract described above has been performed, and materials used and installed in every particular, in accordance with, and in conformity to, the contract drawings and specifications.
>
> The contract work is now complete in all parts and requirements, and ready for your final inspection.
>
> I understand that neither the determination by the Engineer/Architect that the work is complete, nor the acceptance thereof by the Owner, shall operate as a bar to claim against the Contractor under the terms of the guarantee provisions of the Contract Documents.

BY:_____

TITLE:_____

FOR:_____

	CITY OF CHEYENNE **CONSENT OF SURETY FOR FINAL PAYMENT FORM**
PROJECT NAME:	Ice and Events Center Roof Replacement
LOCATION:	
PROJECT NUMBER:	**S-8-22**
TYPE OF CONTRACT:	
AMOUNT OF CONTRACT:	

In accordance with the provisions of the above-named contract between the Owner and the Contractor, the following named surety:

_____
_____
_____

On the Payment Bond of the following named Contractor:

_____
_____
_____

hereby approves of final payment to the Contractor, and further agrees that said final payment to the Contractor shall not relieve the Surety Company named herein of any of its obligations to the following named Owner as set forth in said Surety company's bond:

_____
_____
_____

IN WITNESS WHEREOF, the Surety Company has hereunto set its hand and seal this _____ day of _____, _____.

_____
(Name of Surety Company)

_____
(Signature of Authorized Representative)

(Affix corporate seal here)

Title _____

CITY OF CHEYENNE
FINAL WAIVER OF LIEN
FORM

(Instructions at bottom of form)

TO ALL WHOM IT MAY CONCERN:

WHEREAS, the undersigned has been employed by	
A.	
to furnish labor and materials for	
B.	
work, under a contract	
C.	
for the improvement of the premises described as	
D.	
in the City of Cheyenne, Laramie County, Wyoming, of which the City of Cheyenne is the Owner.	

NOW, THEREFORE, this ____ day of _____, _____, for and in consideration of the sum of	
E.	
dollars, paid simultaneously herewith, the receipt whereof is hereby acknowledged by the undersigned, the undersigned does hereby waive and release any lien rights to, or claim of lien with respect to and on said above-described premises, and the improvements thereon, and on the monies or other considerations due or to become due from the owner, on account of labor, services, material, fixture, apparatus or machinery heretofore or which may hereafter be furnished by the undersigned to or for the above described premises by virtue of said contract.	

(F)_____ (SEAL)
(Name of sole ownership, corporation or partnership)

_____
(Signature of Authorized Representative)

TITLE: _____

INSTRUCTIONS FOR FINAL WAIVER:	
A.	Person or firm with whom you agreed to furnish either labor, or services, or materials, or both.
B.	Fill in nature and extent of work; strike the word labor or the word materials if not in your contract.
C.	If you have more than one contract on the same premises, describe the contract by number if available, date and extent of work.
D.	Furnish an accurate enough description of the improvement and location of the premises so that it can be distinguished from any other property.
E.	Amount shown should be the amount actually received and equal to total amount of contract as adjusted.
F.	If waiver is for a corporation, corporate name should be used, corporate seal affixed and title of officer signing waiver should be set forth; if waiver is for a partnership, the partnership name should be used, partner should sign and designate himself as partner.

CITY OF CHEYENNE
AFFIDAVIT OF RELEASE OF LIENS FORM

TO ALL WHOM IT MAY CONCERN:

WHEREAS, the undersigned has been employed by _____ to furnish labor and materials for _____work, under a contract _____ for the improvement of the property described as _____ _____ in the city/town of _____, County of _____ , State of _____ of which _____ _____ is the Owner.

NOW, THEREFORE, this _____ day of _____, _____, the undersigned, as the Contractor for the above-named contract pursuant to the conditions of the contract hereby certifies that to the best of his knowledge, information and belief, except as listed below, the Releases or Waivers of Lien attached hereto include the Contractor, all Subcontractors, all suppliers of materials and equipment, and all performers of work, labor or services, who have or may have liens against any property of the Owner arising in any manner out of the performance of the contract referenced above.

Exceptions: (List names of suppliers and/or subcontractors and amounts owed. If none, write "None.") The City will withhold the amounts listed below from final payment due the Contractor until these obligations have been satisfied.

CONTRACTOR _____ (SEAL)
(Name of sole ownership, corporation or partnership)

(Affix corporate seal here)

_____(SEAL)
(Signature of Authorized Representative)

TITLE:_____

ATTACHMENTS:

1. Contractor's Release or Waiver of Liens, conditional upon receipt of final payment.
2. Separate Releases or Waivers of Liens from Subcontractors and material and equipment suppliers.

CITY OF CHEYENNE
AFFIDAVIT OF PAYMENT
FORM

TO ALL WHOM IT MAY CONCERN:

WHEREAS, the undersigned has been employed by _____ to furnish labor and materials for _____ (work) under contract #_____ for the improvement of the property described as _____ _____ in the city/town of _____, County of _____, State of _____ of which _____ is the Owner.

NOW, THEREFORE, this ____ day of _____, _____, the undersigned, as the Contractor for the above-named Contract pursuant to the Conditions of the Contract hereby certifies that, except as listed below, he has paid in full or has otherwise satisfied all obligations for all materials and equipment furnished, for all work, labor, and services performed, and for all known indebtedness and claims against the Contractor for damages arising in any manner in connection with the performance of the Contract referenced above for which the Owner or his property might in any way be held responsible.

EXCEPTIONS: (If none, write "None." If required by the Owner, the Contractor shall furnish bond satisfactory to the Owner for each exception.)

ATTACHMENTS:

I. Consent of Surety to Final Payment. (Whenever Surety is involved, Consent Of Surety is required.)
II. Contractor's Release or Waiver of Liens, conditional upon receipt of final payment.
III. Separate Releases or Waivers of Liens from Subcontractors and material and equipment suppliers.
IV. Contractor's Affidavit of Release of Liens.

CONTRACTOR_____(SEAL)
(Name of sole ownership, corporation or partnership)

(Affix corporate seal here)

_____(SEAL)
(Signature of Authorized Representative)

TITLE: _____

	CITY OF CHEYENNE **CONTRACT PAYMENT REQUEST FORM**
DATE:	
PROJECT:	Ice and Events Center Roof Replacement
CITY BID NUMBER:	**S-8-22**
CITY CONTRACT NUMBER:	
CONTRACTOR:	
CONTRACT PAYMENT REQUEST NUMBER:	
FOR WORK COMPLETED THROUGH DATE OF:	

The present status of the account for this contract is as follows:

Original Contract Amount	$
Net Change by Change Orders to Date	$
Current Contract Amount	$
Total Completed to Date	$
Less 5% Retainage	$
Total Earned Less Retainage	$
Less Previous Payments	$
Total Payment Due	$
Total Retainage Due	$

Contractor's Certification:

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

_____ _____

Date Contractor

_____ _____

Authorized Signature Print Name and Title

Payment of the above AMOUNT DUE THIS PAY REQUEST is recommended.

_____ _____

Project Manager Signature Print Name and Title

Authorization by City Representative

_____ _____

City Representative Signature Print Name and Title

	CITY OF CHEYENNE **ITEMIZED PAY REQUEST FORM**
CONTRACTOR:	
PROJECT:	Ice and Events Center Roof Replacement
PAY REQUEST NUMBER:	
This form must be submitted with the above pay request, or submit AIA document G702 and G703.	

A	B	C	D	E	F	G	H	I	J	K
					Work Completed					
Description of Work/Material	Unit	Original QTY	Contract Unit Price	Original Contract Price	QTY Complete This period	Total Complete This period	QTY Complete from Previous Period	Total Complete From Previous Period	Total Complete (G+I)	Balance to finish

Signature:_____ Print Name:_____

PART 5 - AGREEMENT AND PERFORMANCE PAYMENT BONDS

CITY OF CHEYENNE, WYOMING

	CITY OF CHEYENNE AGREEMENT FORM
BID NUMBER:	**S-8-22**
CONTRACT NUMBER:	

THIS AGREEMENT, entered into this ____ day of _____, _____, by and between the CITY OF CHEYENNE, WYOMING, hereinafter referred to as the "CITY", and _____, hereinafter referred to as the "CONTRACTOR".

WITNESSETH that the Contractor and the City, for the considerations stated herein, mutually agree as follows:

ARTICLE 1. STATEMENT OF WORK. The Contractor shall furnish all supervision, technical personnel, labor, materials, machinery, tools, equipment, and services, including utility and transportation services, and perform and complete all work in an efficient and workmanlike manner in the construction of the **"Ice and Events Center Roof Replacement"** project all in strict accordance with the Contract Documents including all addenda thereto, numbered and dated:

ARTICLE 2. RESPONSIBLE DESIGNEE FOR THE CITY. The Contractor shall in any and all matters relating to the scope of services to be provided under this Contract or any other provisions herein, contact the City Engineer, or his/her designated representative.

ARTICLE 3. TIME FRAME FOR COMPLETION. The services to be performed under this Agreement shall commence on the date stipulated in the "Notice to Proceed" that will be issued by the City. The work shall be completed by _____**.** If the work has not been completed within the time stipulated above, including any extensions of time issued by the City for excusable delays, the Contractor and his/her sureties shall pay the City fixed, agreed liquidated damages, as stipulated in the Supplemental Conditions, for each calendar day of delay until the work is completed.

ARTICLE 4. COMPENSATION AND METHOD OF PAYMENT. The CITY will pay the Contractor for the performance of the Contract in current funds, the sum of _____Dollars ($_____). In the event there are changes in the estimated quantities shown on the Bid Proposal, the unit prices multiplied by the actual quantities shall govern, and the total contract amount will be adjusted accordingly. The City agrees to pay the above amount for contractual services in the following manner, upon receipt of appropriate documentation:

a. The Contractor will be paid on a monthly basis for percentage of estimated work completed. Submittal will be at least seven (7) business days prior to the payable due date as established annually by the City Treasurer's Office. The pay request shall be submitted on the Contract

Payment Request Form and Itemized Pay Request or the AIA Documents G702 and G703. The engineer will review the estimate for approval prior to payment.

b. The City will withhold five percent (5%) of the dollar value of the work completed for a minimum of forty-one (41) calendar days after Notice of Final Settlement has been published in accordance with Wyo. Stat. §15-1-113(h). Upon completion of the work under this Contract, the Contractor shall submit a Contractor's Certificate of Completion; the Consent of Surety; Final Waivers of Lien from the Contractor, and all Sub-Contractors, Suppliers and Materialmen; Affidavit of Release of Liens; Affidavit of Payment; and a current Workers Compensation Certificate. Final payment will not be made until the above documents have been received by the City and all items on the Punch List have been completed, and the advertising requirements have been met.

ARTICLE 5. CONTRACT. The executed Contract Documents shall consist of the following:

1. This Agreement;
2. Addenda;
3. Invitation for Bids;
4. Instructions to Bidders;
5. Signed Bid Proposal;
6. General Conditions and Insurance;
7. Supplemental Conditions;
8. Part IV Forms & Notices;
9. Specifications and Special Provisions;
10. Drawings.

This Agreement, together with other documents enumerated in this Article 5, which said other documents are as fully a part of the Contract as if hereto attached or herein repeated, forms the Contract between the parties hereto.

IN WITNESS WHEREOF, THAT the governing body of the City of Cheyenne has authorized the Mayor as Executive Officer of the City to enter into this Agreement, and that the parties hereto have caused this Agreement to be executed on the day and year in the first part herein written.

ATTEST:

CITY OF CHEYENNE, WYOMING

_____
Kristina F. Jones, City Clerk

_____
Patrick Collins, Mayor

_____
Contractor
By
_____
_____
Title
_____
Address

Notary or Corporation Secretary:
SUBSCRIBED AND SWORN TO BEFORE ME
this ___ day of _____, ____
by_____
My Commission expires:_____

CITY OF CHEYENNE
PERFORMANCE AND PAYMENT BOND REQUIREMENTS

1.	Signature of principal must be affixed to the bond.
2.	Signature of principal must be witnessed.
3.	Name of principal must be witnessed.
4.	The legal capacity of the principal must be stated in the caption of the bond (i.e., corporation, partnership or sole proprietorship).
5.	If the principal is jointly owned, all owners must sign the bond.
6.	If the principal is a partnership, at least two partners must sign the bond.
7.	Signature of the attorney-in-fact acting on behalf of the surety company must appear on the bond.
8.	The surety's seal must be affixed to the signature of the attorney-in-fact (Facsimile seals are NOT acceptable).
9.	The surety company must be registered with the state insurance commission and qualified to do business in the State of Wyoming.
10.	Power of Attorney/Acknowledgment of Surety must be signed, sealed and dated with the same date as execution of bond.
11.	Date of written Agreement and date of bond must be same. Post-dated bonds are not acceptable.
12.	Bond form must be completely executed. Bonds with blank spaces, including dates, are unacceptable.
13.	The bond must be accompanied by a properly executed authorization of Power of Attorney. ***Note***: The bond shall continue in force throughout the project and a two-year warranty period; and at the discretion of the City, for any additional warranty period specified in the contract documents.
CORPORATE PRINCIPALS ONLY	
14.	The person signing on behalf of the corporate principal must state his/her legal capacity and he/she must be either the president or the vice-president if it is a corporation. If the officer or person signing on behalf of the corporate principal is other than the president or vice-president, there must be attached to the bond a resolution or certified evidence of authority that such officer or person has authority to sign in behalf of the principal.
15.	The signature of the principal must be witnessed, or attested to if it is a corporate principal by ONLY the secretary or assistant secretary of the corporation.
16.	The corporate seal must be affixed to the signature of the principal. (Facsimile seals are NOT accepted).
17.	Each party is required to sign his/her own name.
18.	All changes or strike-throughs must be initialed by the resident agent or attorney-in-fact of the surety company. The surety company must be notified of such changes.

CITY OF CHEYENNE PERFORMANCE AND PAYMENT BOND FORM

KNOW ALL MEN BY THESE PRESENTS:

That

_____

(Name of Contractor)

_____

(Address of Contractor)

a _____, hereinafter called Principal,

and _____ hereinafter called Surety, are

(Name of Surety)

held and firmly bound unto the City of Cheyenne, Wyoming, Municipal Building, 2101 O'Neil Avenue, hereinafter called City, in the penal sum of:

_____ Dollars

($_____), in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that Whereas, the Principal entered into a certain contract with the City, dated the _____ day of _____, _____, a copy of which is hereto attached and made a part hereof for the

_____

_____.

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms and conditions, and agreements, of said contract during the original term thereof, and any extensions thereof which may be granted by the City, with or without notice to the Surety and during the two-year guarantee period, and if the Principal shall satisfy all the claims and demands incurred under such contact, and shall fully indemnify and save harmless the City from all costs and damages which the City may suffer by reason of failure to do so, and shall reimburse and repay the City all outlay and expense which the City may incur in making good any default, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to work to be performed thereunder or the specifications accompanying the same shall in any wise affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of this contract or to the work or to the specifications.

PROVIDED, FURTHER, that no final settlement between the City and the Contractor shall abridge the right of any beneficiary hereunder whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in ___ counterparts, each one of which shall be deemed an original, this the ___ day of _____, _____.

_____ (Witness)

_____
(Principal) (Seal)
By_____
_____
(Title)
_____
_____
(Address)

_____ (Witness)

_____
(Surety) (Seal)

By_____
_____
(Attorney-in-fact)
_____
_____
(Address)

Countersigned by:

By_____
(Wyoming Resident Agent)
_____
_____
(Address)

NOTE: Date of Bond must be same date as date of Contract. If Contractor is a partnership, all partners must execute bond.

IMPORTANT: Surety companies executing bonds must hold a Certificate of Authority issued by the State of Wyoming Insurance Department.

PART 6 – GENERAL CONDITIONS

CITY OF CHEYENNE, WYOMING

1.00 PROJECT SITE

City of Cheyenne Ice and Events Center. 1530 W Lincolnway, Cheyenne, WY 82001.

2.00 NOTICES

Any notice, correspondence, or billing required by the terms of this Agreement shall be delivered by hand or mail, prepaid, to the address of the respective party representative(s) named below:

CITY: Steve Gaer
Facilities Manager
2101 O'Neil Ave.
Cheyenne, WY 82001
Ph: 307-637-6498

3.00 DRUG-FREE WORKPLACE

In compliance with the Drug Free Work Place Act of November 1988, the City has established an "Alcohol and Controlled Substance Policy" that pertains to alcohol and drug usage by City employees. All independent contractors under contract with the City and their employees and subcontractors are required to comply with the provisions of this policy for drug and/or alcohol usage on City property or other sites occupied by the Contractor while performing the duties and responsibilities of the contract. It is the responsibility of the Contractor to become familiar with the requirements of this policy and to inform all subcontractors and employees of their obligation to comply and to ensure their compliance therewith. If the Contractor, the Contractor's employees, or subcontractors are found in violation of this policy, the contract may be terminated. The Contractor is an independent Contractor and shall comply with the City's Alcohol and Controlled Substance Policy and the provisions of this section.

4.00 NONDISCRIMINATION

The parties shall comply with the Civil Rights Act of 1964, the Wyoming Fair Employment Practices Act (Wyo. Stat. § 27-9-105 *et seq.*), the Americans With Disabilities Act (ADA (42 U.S.C. § 12101 *et seq.*)), the Age Discrimination Act of 1975, and any properly promulgated rules and regulations thereto and all parties to this Agreement assure that no person shall be excluded from participation in, denied the benefits of, or otherwise discriminated against in connection with the award and performance of this Agreement on the grounds of age, sex, race, creed, color, national origin, ancestry, religion, pregnancy, qualifying disability, sexual orientation, or gender identity. The parties further assure that they will include the language of this paragraph in all agreements associated or connected in any way with this Agreement and shall cause all existing Agreements to similarly include this clause therein.

5.00 CONTRACTS FOR PUBLIC IMPROVEMENTS

Wyo. Stat. § 15-1-113 is expressly incorporated herein by this reference as though fully set forth herein.

6.00 SAFETY PROGRAMS

The City, as mandated by Occupational Safety and Health Administration ("OSHA"), has in place many safety programs. All independent contractors, their employees, and their subcontractors, under contract with the City, must be familiar with and comply with any and all applicable OSHA standards, regulations, and provisions.

7.00 INDEPENDENT CONTRACTOR

At all times during the term of this Agreement, the Contractor shall be considered an independent contractor. Neither Contractor nor any one employed by it shall represent, act, purport to act, or be deemed to be the agent, representative, employee, or servant of the City.

8.00 CONFIDENTIALITY

To the extent allowed by law, the City and the Contractor shall treat as confidential and not disclose to others information (including technical information, experience, or data) regarding either party's plans, programs, plants, processes, products, costs, equipment, operations, or customers which come within the knowledge of the parties, without in each instance securing the prior written consent of the other party, unless such disclosure is required by law or legal process. However, nothing shall prevent either Contractor or the City from disclosing to others, or using in any manner, information which either party can show (a) has been published or has become part of the public domain other than by acts of Contractor or the City; (b) has been furnished or made known to Contractor or the City by third parties without restrictions on its disclosure; or (c) was in either party's possession prior to the disclosure thereof by the City or Contractor to each other. Contractor shall not be restricted in any way from releasing information in response to a subpoena, court order, or legal process, but shall notify City of the demand for information before Contractor responds to such demand. The City reserves the right to prohibit the release of said information as provided by law.

9.00 CONFLICT OF INTEREST

In entering this Agreement, the Contractor covenants that it presently has no interest, and shall not acquire any interest, direct, indirect, financial, or otherwise, which would conflict in any manner or degree with performance of the services hereunder. Contractor further covenants that in the performance of the Agreement, no subcontractor, or person having such an interest, shall be employed by the City. Contractor certifies that no one who has or will have any financial interest under this Agreement is an officer or employee of the City.

10.00 ACCEPTANCE NOT WAIVER

The City's approval of drawings, plans, specifications, reports, and incidental work, or materials furnished hereunder shall not in any way relieve Contractor from responsibility for the technical accuracy of the work. The City's approval or acceptance of, or payment for, any services shall not be construed to operate as a waiver of any of the City's rights under this Agreement or any of its legal rights under statute and common law arising out of the performance of this Agreement.

11.00 INSURANCE REQUIREMENTS

The Contractor shall file a Certificate of Insurance with the City verifying each type of insurance coverage listed below.

The Certificate of Insurance shall be submitted to and approved by the City before the Contractor begins to perform under this bid and the subsequent contract.

TYPE OF COVERAGE	**MINIMUM POLICY REQUIREMENTS**
Commercial General Liability (*Including Products and Completed Operations; Explosion, Collapse and Underground if applicable to the hazards of a specific project*.)	$1,000,000 per Occurrence $2,000,000 Aggregate
Business Automobile Liability	$1,000,000 (Combined Single Limit)
Workers' Compensation *OR* Employer's Liability	Statutory $500,000 Each Accident $500,000 Each Disease-Policy Limit $500,000 Disease/Each Employee

It is understood and agreed that these policies are primary and non-contributory. All policies required under this contract shall be in effect for the duration of the project and contract. The Contractor shall immediately notify in writing the City Risk Manager, City Clerk, and City Attorney of any fact, circumstance, or occurrence that has resulted in, or may result in, the cancellation or substantive change of any insurance coverage required by this contract, and failure to do so shall be construed to be a breach of this contract.

The Contractor shall name the City as an additional insured on the Contractor's insurance policies, except workers' compensation, and the Contractor shall provide a copy of the endorsements providing this coverage.

The City has the right to reject a certificate of insurance if the City determines that the Contractor's insurance company is widely regarded in the insurance industry as financially unstable. Any insurance company providing coverage under this contract shall have a minimum A.M. Best rating of A- (excellent).

The City has the right to review the insurance certificates of any or all Sub-Contractors used by the Contractor. Further, the City requires that the Sub-Contractors' insurance coverages be at least equivalent to that required of the Contractor.

The City has the right to increase the required minimum limit of liability on any contract project as warranted by an increase in hazard. Examples of increased hazard include, but are not limited to, handling of hazardous materials and activities involving large congregations of people.

The City shall have the right to consult with the Contractor's insurance agent for disclosure of relevant policy information, but the City's non-request or non-review such policies, endorsements, or certificates shall not affect the City's rights or Contractor's obligations hereunder. Disclosure of relevant policy information would specifically involve, but is not limited to, exclusions, deductibles, and claims in progress which could significantly reduce the annual aggregate limit.

12.00 INDEMNITY

In entering into the Agreement, the Contractor agrees to hold harmless, defend, and indemnify the City of Cheyenne, its officials, employees, agents, and authorized volunteers against any and all claims and costs, including attorneys' fees, arising during or resulting from the Contractor's performance of the contract. The Contractor shall carry insurance as set forth in these Contract Documents. The Contractor acknowledges its understanding of this paragraph and realizes it may have a financial responsibility to the City. The City does not waive any applicable defenses and expressly reserves the right to invoke governmental immunity pursuant to the Wyoming Governmental Claims Act, Wyo. Stat. § 1-39-101, *et seq*. for any claim arising out of performance of this agreement.

The Contractor expressly understands and agrees that although the City and the Engineer have the right under this Contract to observe and review the Contractor's work and operations, this right shall not relieve the Contractor from any of its covenants, obligations, or duties hereunder. The Contractor shall be responsible for and hold harmless the City, the Engineer, and their representatives from all suits, actions, or claims of any character, due to injuries or damages sustained by any person or property, in consequence of any neglect in performing the work, observing safety standards or regulations, through the use of unsafe or unacceptable practices or materials in the performance of the work, the Contractor's failure to comply with any law, ordinance or regulation or otherwise.

13.00 PROJECT RECORD DOCUMENTS

The Contractor shall maintain at the job site one copy of all Contract and project documents, each portion of which shall be clearly marked, "Project Record Copy". These documents, including drawings, specifications, addenda, approved shop drawings, change orders, field orders, other Contract Modifications, and other approved documents submitted by the Contractor in compliance with various sections of the Contract Documents, shall be maintained in good condition, available at all times for inspection by the City, and not used for construction purposes.

The Contractor shall mark up the most appropriate document to show significant changes made during construction progress, and significant detail not shown in the original Contract Documents. The information shall include, but shall not be limited to, location of underground utilities and appurtenances referenced to permanent surface improvements, and location of internal utilities and appurtenances concealed in building structures referenced to visible and accessible features of structures.

The Contractor shall keep the project record documents current and not permanently conceal any work until required information has been recorded. Upon completion of the project and prior to final acceptance, the Contractor shall submit the marked up set of project record documents to the Engineer for the City along with the "Contractor's Certificate of Completion" found in the bidding documents. After the Engineer has inspected the work and has determined it to be substantially complete, the City will issue a "Certificate of Substantial Completion", which will establish the date of commencement of the warranty period.

14.00 CONTRACT DOCUMENTS

The City will furnish to the Contractor, without charge, two (2) copies of the Contract Documents including technical specifications and drawings. Additional copies requested by the Contractor will be furnished at cost.

15.00 TIME FOR COMPLETION

The Contractor shall commence the work required under this contract at the time stipulated by the City in the Notice to Proceed. The Contractor shall complete the work by **June 30, 2022**. Time will not be counted when the project is officially suspended by the City due to acts of God, winter shutdown, and City-originated suspensions that are necessary through no fault of the Contractor. In the latter instance, if the City suspends the work for more than ninety (90) calendar days, the Contractor may apply for a price adjustment to compensate for reasonable expenses caused by the suspension. Any application for price adjustment or Contract Time extension will be submitted to the Governing Body of the City for its consideration in the form of a Contract Modification. It will be the responsibility of the Contractor to provide sufficient documentation to substantiate any claim.

16.00 JOB OFFICES AND STAGING AREA

The Contractor and Sub-Contractor(s) may maintain office and storage facilities on the site which are necessary to properly conduct the work. These facilities' locations shall not cause any interference to any work performed on the site. The Contractor shall consult with the City regarding the locations. Upon completion of the improvements, or as directed by the City, the Contractor shall remove all such temporary structures and facilities from the site. The Contractor shall leave the site of the work in the condition required by the Contract.

On-site toilet facilities for employees of Contractors and Sub-Contractor(s) shall be provided and maintained in a sanitary condition. The Contractor shall remove all trace of these facilities prior to completion of the project.

17.00 THE USE OF CITY OWNED REFUSE CONTAINERS

All City contracts shall require all Contractors to use City-provided Sanitation services if available.

18.00 REFERENCE POINTS

Project survey points are provided by the City one time only, unless otherwise noted by the City in the appropriate project manual.

The Contractor shall make all surveys that will be necessary for the proper construction. The Contractor shall preserve all property pins and control points. If any of these are destroyed or disturbed due to the Contractor's construction activities or negligence, the Contractor will be charged at the Engineer's established hourly crew rate for replacing them, with payment for this extra work to be made directly to the Engineer by deduction from the monthly periodic estimate payments to the Contractor. The Contractor shall also be responsible for any mistakes or damage resulting from the unnecessary loss or disturbances of control points.

19.00 SEQUENCE OF WORK

The Contractor shall make every effort to complete the work in a manner and fashion that minimizes roadway closures and inconveniences to the traveling public and adjacent property owners. Once barricades are placed in the right-of-way, the Contractor shall show progress of work during normal Working Days and hours. If no progress of work is recorded for twenty-four (24) hours and no concrete is waiting for strength, the Contractor shall remove barricades, re-open the right-of-way, and provide a safe travel way for the public. If the Contractor does not re-open the right-of-way or show progress of work within twenty-four (24) hours, the City shall use any and all means necessary to re-open the area at the Contractor's expense. The Contract Documents are compiled to support the efficient operations of the Contractor and are not intended to supplant the Contractor's responsibility of superintendence. Special consideration regarding schedules or work sequences necessary or anticipated during the course of the project will be identified in the Special Provisions.

20.00 GENERAL TRAFFIC REQUIREMENTS

The Contractor shall provide adequate signs, barricades, lights, and flaggers, and take all necessary precautions to prevent accident or injury and to minimize inconvenience to the public during the progress of the work.

All traffic control or other protective devices shall be installed and maintained in accordance with the Uniform Manual of Traffic Control Devices or in conformance with the applicable requirements of the authority having jurisdiction in such matters. The Contractor shall provide an American Traffic Safety Services Association ("ATSSA") certified work site supervisor to supervise all traffic control operations if the City deems necessary.

Material stored on or adjacent to public streets shall not obstruct or inconvenience the traveling public.

Streets, driveways, or other access points shall not be closed without the prior consent of the City, Engineer, and proper governmental authorities. Fire hydrants on or near the site of the work shall be accessible at all times. The Contractor shall notify affected property owners, the City and the Engineer at least 48 hours in advance of any proposed closure for construction operations including any work to be done by utility companies.

The Contractor shall submit a traffic control diagram to the City for approval before work begins. The diagram shall indicate location and type of signs, cones, flashers, flagging, reflective barricades, and all other devices deemed necessary for the proper protection of the work area.

21.00 EXISTING ROADWAYS AND OTHER PROPERTY

The Contractor shall take all necessary precautions to protect adjacent roadways, properties, improvements, and underground facilities affected by the Contractor's operations, regardless of the facilities' ownership.

Any existing improvements or facilities damaged by the Contractor's operations in the performance of the work under this Agreement shall be repaired or replaced by and at the expense of the Contractor to the satisfaction of the City.

The Contractor shall be responsible for the preservation and maintenance of all existing roadways affected but not directly disturbed by the work. The Contractor shall repair, replace, or clean any roadway indirectly affected by his or her operations during the course of the project. Such work shall be accomplished by and at the expense of the Contractor without reimbursement by the City.

22.00 FINAL CLEANUP

The Contractor shall clean all sidewalks, streets and other areas affected by construction and ensure removal of all loose surface materials. All piles of excess excavation, rocks, rubbish, or other debris shall be cleaned up and disposed of. Damage to any areas by the Contractor will be repaired or replaced by the Contractor at no expense to the City. No extra compensation will be allowed for final cleaning of the site, but the cost thereof shall be included in the unit price bid for other items in the Proposal. If work is suspended for any reason, the Contractor will be required at the Contractor's expense, prior to shut down, to provide for the public's safety and use as directed by the City or Engineer.

23.00 ENGINEER OR INSPECTOR OVERTIME AND USE OF CITY RESOURCES:

Inspection work required beyond normal working hours by any Engineer or Inspector having authority on the project must have the City's written approval twenty-four (24) hours in advance of scheduled work. In emergency situations, verbal approval may be given followed by written approval on the next working day. In an emergency situation, verbal approval will suffice until the next working day at which time written approval will be obtained.

The City of Cheyenne Board of Public Utilities ("BOPU") requires that requests for services on the weekend be made not later than 4:30 p.m. on the Thursday prior to need so that appropriate personnel arrangements can be made.

All costs for overtime inspection or professional services associated with the work will be paid for by the Contractor.

No City services, equipment, or personnel will be provided for this project unless specifically defined and stated in the bidding or contract documents, nor will any be provided free of charge unless expressly stated in these documents.

24.00 FORCE ACCOUNT, EXTRA WORK, AND WORK CHANGES

When the Contractor is required to do work or services under the force account or extra work, the cost for said work will be calculated using the provisions of the Wyoming Department of Transportation system for determining costs for equipment, operators and labor involved. Any extra work, additions, deletions or revisions in the work will be authorized by written Contract Modification or change orders. The Engineer may authorize minor changes or alterations in the work not involving extra cost and not inconsistent with the overall intent of the Contract Documents in the form of a Field Order.

25.00 CONTRACT MODIFICATIONS

a. General: Contract Modifications are used to increase or decrease the total Contract Price, to alter the Contract Time, or to alter any other contract agreement provision. Each Contract Modification must be in writing, approved by the City's Governing Body, and executed by the Mayor and Contractor.

b. A Contract Modification does not invalidate the contract or release the surety. If the parties agree to a Contract Modification, the Contractor shall perform the work in the manner required by the contract as modified, except that the Contractor shall not perform any work which is subject to the Contract Modification, until such time as the City Engineer authorizes the Contractor to proceed. The City will initiate a request to modify the Contract by submitting the proposed Contract Modification to the Contractor for review and approval.

The City Engineer or agent thereof, *e.g.*, a project manager, may issue a Field Order to authorize the work to be paid for under the Force Account bid item or to adjust existing bid item quantities without increasing the total Contract Price. *See* Section 24.00. The Contractor may not begin work under any Contract Modification until the City Engineer has authorized the Contractor to proceed.

The Contractor shall use a Request for Adjustment form to request an adjustment of the Contract Time or Contract Price. The City shall have no obligation to process oral requests for modification of the Contract Time or Contract Price, and no City official shall have the authority to approve oral modification requests. Proposed adjustments may be based upon extra work necessitated by an emergency, a change of conditions, or the City Engineer's

interpretation of the contract requirements. Requests for Adjustments shall not be valid unless the Contractor has filed the request with the Engineer within:

1. Two (2) Working Days after the occurrence of the emergency or the discovery of any change in conditions which necessitates Additional Work; or

2. Five (5) Working Days after the effective date of a Work Directive.

The City will pay for adjustments and modifications based on contract unit bid prices. If the Contractor's cost of production or the character of the work is materially changed, the City may adjust the contract as specified in this section or seek a Contract Modification. The City will not pay for loss of anticipated profits resulting from adjustments or modifications, unless so specified in the adjustment or modification.

Differing Site Conditions: Before the conditions are disturbed or the affected work is performed or continued, the Contractor shall notify the City in writing if either of the following is encountered: (1) latent physical conditions that differ materially from those indicated in the contract; or (2) unusual physical conditions that differ materially from those ordinarily encountered and generally recognized as inherent in the work provided for in the contract. The City will not grant or consider Contract Modifications based on differing site conditions if the Contractor does not timely notify the City within two (2) Working Days after discovering latent or unusual physical conditions.

Significant Changes in the Character of Work: The Contract Unit Price of each bid item in the proposal shall include the *pro rata* share of overhead and profit so that the sum of the products obtained by multiplying the quantity shown for each item by the unit price bid represents the total bid. The City may alter the contract quantities, the Work, or both as necessary to complete the project, subject to the requirement that modifications to the Contract Price may be necessary in the event the alterations significantly change the character of the work. If alterations do not significantly change the character of the work specified in the contract, the City will pay for the altered work at contract unit prices and additional mark-ups for overhead and profit are not allowed.

Either of the following constitutes a "significant change" (1) when the character of the work, as altered, differs materially in kind or nature from that specified in the contract; or (2) in accordance with the relevant section in the Instruction to Bidders, when the net monetary value of all such additive and subtractive changes in quantities of such items increases or decreases the original total Contract Price by more than twenty percent (20%).

Extra and Force Account Work: When necessary or desirable to complete the project, the City may direct the Contractor to perform unforeseen work for which there is no pay item or unit price in the contract. The City shall seek a Contract Modification in the event the City's direction to perform unforeseen work results in an increase in the Contract Price, the alteration of the Contract Time or required any other modification of the Contract Agreement. The City Engineer may direct the Contractor to perform work under the Force Account item for minor changes or alterations in the work that do not increase the original Contract Price. All Force Account Work shall be approved with a Field Order in accordance with the above procedures.

Extra work under the Force Account item shall be paid by one of the following methods: (1) Contract unit bid prices that are representative of the work being performed, as specified in item Significant Changes in the Character of Work; and (2) Negotiated unit bid prices for items where the Contractor's cost of production or the character of the work is materially changed. The negotiated unit bid prices shall include the *pro rata* share of overhead and profit. Overhead and profit mark-up on Sub-Contractor unit bid prices shall be limited to five percent (5%); (3) lump sum, as stipulated in the order authorizing the work. Documentation for lump sum pricing shall be provided to a degree sufficient for the City Engineer to review for acceptability. Overhead and profit shall be limited to five percent (5%) on Sub-Contractor work and fifteen percent (15%) on work by Contractor's own forces; and (4) Time and material basis utilizing approved materials, equipment, and labor costs calculated under the provisions of the latest edition of the Wyoming Department of Transportation Specifications Subsection 109.4.4.

26.00 PARTIAL USE OF SITE IMPROVEMENTS

The City may give notice to the Contractor and place in use those sections of the improvements which have been completed, inspected, and can be accepted as complying with the Contract Documents if, in its opinion, each section is reasonably safe, fit and convenient for the use and accommodation for which it was intended, provided:

The use of such sections of the improvements shall in no way impede the completion of the remainder of the work by the Contractor;

The Contractor will not be responsible for any damages or maintenance costs due directly to the use of such sections;

The use of such sections shall in no way relieve the Contractor of liability arising from having used defective materials or to poor workmanship.

Any guarantee period shall not commence until the date of the final acceptance of all work which the Contractor is required to construct under this contract.

27.00 TWO YEAR WARRANTY PERIOD

If after the approval of final payment and prior to the expiration of two (2) years after the date of Substantial Completion or such longer period as may be prescribed by law or by the terms of any applicable special guarantee, the Contractor shall promptly, without cost to the City and in accordance with the City's written instructions, either correct such defective work or, if it has been rejected by the City, remove it from the site and replace it with non-defective work within thirty (30) calendar days of written notification by the City. If the Contractor does not promptly comply with the terms of such instruction, the City may have the defective work corrected or the rejected work removed and replaced, and all costs incurred therefore, including compensation for additional professional services, shall be paid by the Contractor and its sureties. The remedies provided in this section are in addition to all other remedies available to the City under applicable law and shall not be construed as exclusive of any other legal right or remedy available to the City.

28.00 COMPLETION AND WARRANTY

The following replaces the City of Cheyenne & Board of Public Utilities Standard Construction Specifications and Standard Drawings, 2014 Edition, Section 01054.1.10-Acceptance of the Standard Specification.

Substantial Completion. Shall be defined as when the project can be safely and effectively used by the public for its intended use, without further delays, disruptions, or other impediments and only clean up and work of a minor nature remains to be finished, as agreed to by the City Engineer or as otherwise specified. After written notice from the Contractor of Substantial Completion, the Engineer and the City shall make a determination of acceptance of substantial completion. If in agreement, the City will issue written notice of Substantial Completion at which date the contract time will stop. The Engineer will then make an inspection of the project and develop a punch list of items to be completed. The Contractor will have thirty (30) calendar days to complete all punch list items, with the exception of seasonal work item, which will be as agreed by the Engineer and the City. Liquidated damages may be assessed by the City, in accordance with Section 29.00, for every day that expires after the allotted time for the completion of the punch list.

Warranty. The specified date in the City's Notice of Substantial Completion issued to the Contractor shall be the effective date for the beginning of the two-year warranty period.

Final Completion. After completion of the punch list, the Contractor shall issue the Contractor's Certificate of Completion along with the marked-up Project Record Drawings in accordance with Project Documents. At that time the Engineer and the City shall inspect and if all construction provided for and contemplated by the contract is found to be complete to their satisfaction, this inspection shall constitute the final inspection and the Engineer shall make the final acceptance. The Contractor shall be notified in writing as to the date of the Final Completion.

Prior to the end of the Warranty Period, the City shall inspect the Project for defects in the workmanship or material. A written deficiency list shall be developed and provided to the Contractor. Normal wear and tear shall not be considered a deficiency. The Contractor shall promptly, without cost to the City and in accordance with the City's written instructions, either correct such defective work or, if it has been rejected by the City, remove it from the site and replace it with non-defective work within thirty (30) calendar days of written notification by the City.

29.00 LIQUIDATED DAMAGES

For each calendar day that any work shall remain uncompleted after the contract time specified for the completion of the work provided for in the contract, the following liquidated damages charges will be deducted from any monies due the Contractor:

ORIGINAL CONTRACT AMOUNT		LIQUIDATED DAMAGE CHARGE
From ($)	To and including ($)	Charge per calendar day ($)
0.00	25,000.00	250.00

25,000.01	50,000.00	500.00
50,000.01	100,000.00	1000.00
100,000.01	500,000.00	1500.00
500,000.01	1,000,000.00	2000.00
1,000,000.01	1,500,000.00	3000.00
1,500,000.01	and greater	3500.00

Permitting the Contractor to continue and finish the work or any part of it after the time fixed for its completion, or after the use of additional contract time, will in no way constitute a waiver on the part of the City to any of its rights under the contract.

Unless otherwise provided in the contract, liquidated damage charges will be calculated in accordance with the table. All time in excess of the required Contract Time will be calculated on a calendar day basis.

30.00 GOVERNMENTAL IMMUNITY

The City and its officials and employees do not waive governmental immunity by entering into this Agreement and specifically retain all immunities and defenses available to them as Governmental Entities pursuant to Wyo. Stat. § 1-39-101, *et seq*, and all other applicable laws. Further, the City fully retains all immunities and defenses provided by law with regard to any action, whether in tort, contract. or any other theory of law, based on this Agreement. The City does waive its governmental immunities solely for the enforcement of the terms and conditions of this Agreement.

31.00 GOVERNING LAW, JURISDICTION, AND VENUE

The construction, interpretation, and enforcement of this Agreement shall be governed by the laws of the State of Wyoming. The courts of the State of Wyoming shall have jurisdiction over any action arising out of this Agreement and over the parties, and the venue shall be the First Judicial District, Laramie County, Wyoming.

32.00 COMPLIANCE WITH LAWS

This Agreement shall be governed in all respects by the laws of the State of Wyoming. The parties hereto shall comply with all applicable federal, state, and local laws, rules, and regulations in the performance of this contract. The identified laws or regulations are included in this Agreement as mandated by statute or for the convenience of the Contractor. The Contractor's attention is directed to the fact that all applicable federal and state laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over design and construction of the project shall apply to the Agreement throughout, and they are deemed incorporated herein. Other laws and regulations apply which are not included herein, and are within the Contractor's duty and responsibility for compliance therewith.

33.00 DEFAULT

Each and every term and condition herein shall be deemed a material element of this Agreement. In the event either party shall fail or refuse to perform according to the terms of this Agreement, such party may be declared in default.

34.00 REMEDIES

In the event a party declares the other party in default hereof, said party declaring default shall notify the defaulting party in writing, and such defaulting party shall be allowed a period of fifteen (15) calendar days to cure said default. In the event that the default remains uncorrected, the party not in default may elect to: (a) terminate this Agreement and seek damages; (b) treat this Agreement as continuing and require specific performance; or (c) avail itself of any other remedy at law or equity.

In the event Contractor fails to strictly perform in accordance with this Agreement, the City may elect to make good such deficiencies and charge Contractor therefore.

35.00 TERMINATION

The City may, by written notice to Contractor, terminate this Agreement, in whole or in part, by giving Contractor fifteen (15) calendar days written notice. Upon receipt of such notice, Contractor shall discontinue all services affected (unless the notice directs otherwise), and deliver to the City representative within five (5) calendar days all documents belonging to the City, including but not limited to, data, drawings, specifications, reports, estimates, and summaries accumulated by the Contractor in the performance of this Agreement, whether completed or in progress. In the event of termination, the City shall pay Contractor for all work accepted as of the date of termination.

36.00 WAIVER

The waiver by either party of any term, condition, or covenant, or breach of any term, condition, or covenant, shall not constitute a waiver of any other term, condition, or covenant, or breach thereof.

37.00 SEVERABILITY

If any provision, section, subsection, sentence, clause, or phrase of this Agreement is invalidated by any court of competent jurisdiction, such holding shall not affect the validity of the remainder of the Agreement, which shall continue in full force and affect.

38.00 SUCCESSORS AND ASSIGNS

All the terms, conditions, and provisions herein shall inure to the benefit of and be binding upon the parties hereto and their respective successors and assigns.

39.00 ASSIGNMENT

Neither party shall assign this Agreement without prior written consent of the other party. Any delegation or assignment shall not operate to relieve either party of its responsibilities hereunder.

40.00 THIRD PARTY RIGHTS

The parties do not intend to create in any other individual or entity the status of third party beneficiary, and this Agreement shall not be construed so as to create such status. The rights, duties and obligations contained in this Agreement shall operate only between the parties to this Agreement, and shall inure solely to the benefit of the parties to this Agreement. The parties to this Agreement intend and expressly agree that only the parties signatory to this Agreement shall have any legal or equitable right to seek to enforce this Agreement, to seek any remedy arising out of a party's performance or failure to perform any term or condition of this Agreement. This paragraph is not intended nor shall it be construed to waive all the parties' immunities.

41.00 FORCE MAJEURE

The performance of the Agreement by either party shall be subject to force majeure including, but not limited to, acts of God, fire, flood, natural disaster, war or threat of war, acts or threats of terrorism, civil disorder, unauthorized strikes, governmental regulation or advisory, recognized health threats as determined by the World Health Organization, the Centers for Disease Control, or local government authority or health agencies (including, but not limited to, the health threats of COVID-19, H1N1, or similar infectious diseases), curtailment of transportation facilities, or other similar occurrence beyond the control of the parties, where any of those factors, circumstances, situations, or conditions or similar ones prevent, dissuade, or unreasonably delay the performance required by this Agreement. The Agreement may be cancelled by either party, without liability, damages, fees, or penalty, and any unused deposits or amounts paid shall be refunded, for any one or more of the above reasons, by written notice to the other party.

PART 7 - SPECIFICATIONS

CITY OF CHEYENNE, WYOMING

THE STANDARD SPECIFICATIONS GOVERNING THIS PROJECT SHALL BE THE "CITY OF CHEYENNE/BOARD OF PUBLIC UTILITIES CONSTRUCTION SPECIFICATIONS AND STANDARD DRAWINGS, 2014" WITH APPROVED AMENDMENTS ISSUED BY THE CITY ENGINEER AT THE TIME OF THIS CONTRACT.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO KEEP CURRENT ON THESE AMENDMENTS. COPIES OF THESE AMENDMENTS ARE AVAILABLE ON THE CITY'S WEBSITE AT http://www.cheyennecity.org.

SPECIAL PROVISIONS

THE SPECIAL PROVISIONS WILL ADD TO OR REVISE CERTAIN SECTIONS OF THE "CITY OF CHEYENNE/BOARD OF PUBLIC UTILITIES CONSTRUCTION SPECIFICATIONS AND STANDARD DRAWINGS, 2014". REVISED PARAGRAPHS AND ADDITIONS WILL CORRESPOND TO THE STANDARD NUMERICAL AND TITLE DESIGNATIONS.

THE SPECIAL PROVISIONS MAY ALSO INCLUDE NEW SECTIONS OF SPECIFICATIONS NOT COVERED IN THE STANDARD SPECIFICATIONS AND WILL BE NUMBERED STARTING FROM SECTION 04000.

Ice and Events Center Roof Replacement

TENTATIVE PROJECT TIMELINE

Legal Advertisement:	November 26 & December 3, 2021
MANDATORY Pre-Bid Meeting:	December 8, 2021
Question Submission Date:	December 14, 2021
Addendum Response Deadline:	December 21, 2021
Bid Opening:	January 6, 2022
City Council 1st Reading:	January 24, 2022
Finance Committee:	February 7, 2022
City Council Final Approval:	February 14, 2022
Contract Signature Processing:	February 15-18, 2022
Notice to Proceed (Estimated):	February 22, 2022
Final Completion:	June 30, 2022

PROJECT MANUAL

CITY OF CHEYENNE
Ice and Event Center Roof Replacement
DIVISION 1-9

Architects Project No. 2145

Owner:
City of Cheyenne, Wyoming
2101 O'Neil Ave.
Cheyenne, WY 82001

Architect:
Plan One/Architects

4020 Dewar Drive, Suite A
Rock Springs, Wyoming 82901

325 West 18th Street, Suite 3
Cheyenne, Wyoming 82001

1001 12th St.
Cody, Wyoming 82414

Set No:

Date: October 13, 2021

PROJECT MANUAL INDEX

END OF INDEX

SECTION 011000 - SUMMARY

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:

1. Project information.
2. Work covered by Contract Documents.
3. Contractor's use of site and premises.
4. Coordination with occupants.
5. Work restrictions.
6. 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.

1.3 PROJECT INFORMATION

A. Project Identification: City of Cheyenne, Miscellaneous Facility Roof Replacements.

1. Project Locations:

a. City of Cheyenne Ice and Event Center
1530 West Lincolnway, Cheyenne, WY 82001

B. Owner: City of Cheyenne, Wyoming

1. Owner's Representative:
a. Steve Gaer, Director of Facilities Maintenance.
2101 O'Neil Ave, Cheyenne, WY 82001.

C. Architect: Plan One/Architects, 325 West 18th St., Suite 3, Cheyenne, WY 82001.

1.4 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of Project is defined by the Contract Documents and includes, but is not limited to, the following:

1. Removal of existing roof systems and components as called out on the contract documents.
2. Installation of a new roof system in its entirety. Includes the installation of rigid insulation, single-ply membrane, standing seam metal barrel roof system including all necessary flashings as indicated within the contract documents. Also includes the modification of existing parapet walls, curbing, and flashings to increase the depth of the roofing system.

B. Type of Contract:

1. Project will be constructed under a single prime contract.

1.5 CONTRACTOR'S USE OF SITE AND PREMISES

A. Restricted Use of Site: 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 within the Contract Documents as areas of renovation or addition. Do not disturb portions of Project site beyond areas in which the Work is indicated.

1. Limits: Confine construction operations to areas designated in the contract documents as well as areas noted as acceptable Owner. Work performed shall not impede use of surrounding areas outside those included for renovation or addition in these contract documents.
2. Driveways, Walkways and Entrances: Keep driveways, loading areas, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.

    a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
    b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

C. 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.

D. Condition of Existing Grounds: Maintain portions of existing grounds, landscaping, and hardscaping affected by construction operations throughout construction period. Repair damage caused by construction operations.

1.6 COORDINATION WITH OCCUPANTS

A. Full Owner Occupancy: Owner will occupy Project site and existing building(s) during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's day-to-day operations. Maintain existing exits unless otherwise indicated.

1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and approval of authorities having jurisdiction.
2. Notify Owner not less than 72 hours in advance of activities that will affect Owner's operations.

1.7 WORK RESTRICTIONS

A. Comply with restrictions on construction operations.

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

B. On-Site Work Hours: Limit work on buildings to normal business working hours of 5:00 a.m. to 7:00 p.m., Monday through Friday, unless otherwise indicated or as approved by the City of Cheyenne.

1. Weekend Hours: 5:00 a.m. to 7:00 p.m.
2. Early Morning Hours: Cutting and Drilling or other noisy work which occurs within the facility must occur from 5:00 a.m. to 7:00 a.m. Cutting and Drilling or other noisy work may occur outside the facility as required from 7:00 a.m. to 7:00 p.m.
3. Hours for Utility Shutdowns: Coordinate any required utility shutdown with Owner. Provide a 72 hour notification prior to shutdown.

C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:

1. Notify Architect and Owner not less than two days in advance of proposed utility interruptions.
2. Obtain Owner's written permission before proceeding with utility interruptions.

D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner.

1. Notify Architect and Owner not less than two days in advance of proposed disruptive operations.
2. Obtain Owner's written permission before proceeding with disruptive operations.

E. Controlled Substances: Use of tobacco products and other controlled substances within the existing building and on Project site is not permitted.

1.8 PROJECT PHASING AND SEQUENCING

A. Project Phasing and Sequencing, General: Perform necessary operations to demolish materials and reroof areas indicated in the following sequences:

1. Existing Roof System: Remove and dispose of first in sequencing, any other roofing system identified on drawings may then follow.
2. New Roof System: Install new roof system first in sequencing, any other roofing system identified on drawings may then follow.

1.9 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. Text Color: Text used in the Specifications, including units of measure, manufacturer and product names, and other text may appear in multiple colors or underlined as part of a hyperlink; no emphasis is implied by text with these characteristics.
3. Hypertext: Text used in the Specifications may contain hyperlinks. Hyperlinks may allow for access to linked information that is not residing in the Specifications. Unless otherwise indicated, linked information is not part of the Contract Documents.
4. Specification requirements are to be performed by Contractor unless specifically stated otherwise.

B. Division 00 Contracting Requirements: General provisions of the Contract, including General and Supplementary Conditions, apply to all Sections of the Specifications.

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

D. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:

1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
2. Abbreviations: Materials and products are identified by abbreviations scheduled on Drawings and published as part of the U.S. National CAD Standard.
3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

END OF SECTION 011000

SECTION 012500 - SUBSTITUTION 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 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.

1.3 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.

1.4 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. Substitution Request Form: Use facsimile of form provided in Project Manual.
2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:

a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
b. Coordination 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 substitution 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 and 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 substitution 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.

3. 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.

1.5 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.

1.6 PROCEDURES

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

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

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

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

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

B. Substitutions for Convenience: Not allowed unless otherwise indicated.

PART 3 - EXECUTION (Not Used).

END OF SECTION 012500

SUBSTITUTION REQUEST FORM

ONE SUBSTITUTION PER FORM. FILL IN ALL BLANKS.

PROJECT NO.:_____ PROJECT TITLE:_____

We hereby submit for your review the following substitution for the following specified material for the project referenced above.

Section	Page	Specified Material
_____	____	_____

Proposed Substitution: _____

_____

Attach duplicate copies of this form, complete technical data, specifications, colors, laboratory tests and any other information applicable to the proposed substitution, see Section 01600.

Include complete information on changes to Drawings and/or Specifications which the proposed substitution will require for its proper installation.

1. Does the substitution affect dimensions shown or indicated on drawings?

   _____

2. Will the undersigned pay for any changes to the building design, including engineering and detailing costs caused or required by the requested substitution?

   _____

3. What effect does the proposed substitution have on other trades?

   _____

4. What are the differences between the proposed substitution and the item/product/material specified?

   _____

   _____

5. Guarantees/Warranties of the proposed substitution and specified item/product/material are:
   (Attach copies of Guarantees/Warranties)

   ____Same ____Different (Explain)

   _____

6. Will the proposed substitution have any effect on the contract time?

   ____No ____Yes (Explain)

   _____

7. Will the proposed substitution have any effect on the contract Price?

____No ____Yes (Explain)

_____

____This request is accompanied by a self-addressed, stamped envelope.

The undersigned states that the function, appearance and quality are equivalent or superior to the specified item/product/material.

All requests for substitutions must be submitted through and approved by the General Contractor.

Submitted By:	General Contractor Approval:
_____ Signature	_____ Signature
_____ Type or Print Name & Title	_____ Type or Print Name & Title
_____ Firm	_____ Firm
_____ Address	_____ Address
_____ Date	_____ Date
_____ Phone	_____ Phone

For Use By Architect/Engineer:

____ Received too Late to Review ____ Incomplete Submittal.

____ Not Accepted

____ Approved, Except as Noted: _____

_____

_____ Signature	_____ Signature
_____ Consultant	Plan One/Architects
_____ Date	_____ Date

SECTION 012600 - CONTRACT MODIFICATION 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 administrative and procedural requirements for handling and processing Contract modifications.

B. Related Requirements:

1. Section 012500 "Substitution Procedures" for administrative procedures for handling requests for substitutions made after the Contract award.

1.3 MINOR CHANGES IN THE WORK

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

1.4 PROPOSAL REQUESTS

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

1. Work Change Proposal Requests issued by Architect are not instructions either to stop work in progress or to execute the proposed change.
2. Within time specified in Proposal Request or 20 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.

C. Proposal Request Form: Use AIA Document G709 for Proposal Requests.

1.5 CHANGE ORDER PROCEDURES

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

1.6 CONSTRUCTION CHANGE DIRECTIVE

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

1. Work 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 Work 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 RELATED DOCUMENTS

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

1.2 SUMMARY

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

B. Related Requirements:

1. Section 012600 "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
2. Section 013200 "Construction Progress Documentation" for administrative requirements governing the preparation and submittal of the Contractor's construction schedule.

1.3 DEFINITIONS

A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.4 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule. Cost-loaded Critical Path Method Schedule may serve to satisfy requirements for the schedule of values.

1. Coordinate line items in the schedule of values with other required administrative forms and schedules, including the following:

a. Application for Payment forms with continuation sheets.
b. Submittal schedule.
c. 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 days before the date scheduled for submittal of initial Applications for Payment.
3. Subschedules for Separate Elements of Work: Where the Contractor's construction schedule defines separate elements of the Work, provide subschedules showing values coordinated with each element.

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. Identification: Include the following Project identification on the schedule of values:

    a. Project name and location.
    b. Name of Architect.
    c. Architect's project number.
    d. Contractor's name and address.
    e. Date of submittal.

2. Arrange schedule of values consistent with format of AIA Document G703.
3. Arrange the schedule of values in tabular form with separate columns to indicate the following for each item listed:

    a. Related Specification Section or Division.
    b. Description of the Work.
    c. Name of subcontractor.
    d. Name of manufacturer or fabricator.
    e. Name of supplier.
    f. Change Orders (numbers) that affect value.
    g. Dollar value of the following, as a percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.

        1) Labor.
        2) Materials.
        3) Equipment.

4. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with Project Manual table of contents. Provide multiple line items for principal subcontract amounts in excess of five percent of the Contract Sum.
5. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
6. 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. If required, include evidence of insurance.

7. Provide separate line items in the schedule of values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
8. 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.
9. Each item in the schedule of values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.

a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the schedule of values or distributed as general overhead expense, at Contractor's option.

10. Schedule Updating: Update and resubmit the schedule of values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.5 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.

1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.

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.

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

C. Application for Payment Forms: Use AIA Document G702 and AIA Document G703 as form for Applications for Payment.

D. 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.
4. Indicate separate amounts for work being carried out under Owner-requested project acceleration.

E. Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.

1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment, for stored materials.
2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
3. Provide summary documentation for stored materials indicating the following:

a. Value of materials previously stored and remaining stored as of date of previous Applications for Payment.
b. Value of previously stored materials put in place after date of previous Application for Payment and on or before date of current Application for Payment.
c. Value of materials stored since date of previous Application for Payment and remaining stored as of date of current Application for Payment.

F. Transmittal: Submit three signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt. 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 liens from 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. Schedule of unit prices.
6. Submittal schedule (preliminary if not final).
7. List of Contractor's staff assignments.
8. List of Contractor's principal consultants.
9. Copies of building permits.
10. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
11. Initial progress report.
12. Report of preconstruction conference.
13. Certificates of insurance and insurance policies.
14. Performance and payment bonds.
15. 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. This application shall reflect Certificate(s) of Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

J. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:

1. Evidence of completion of Project closeout requirements.
2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
3. Updated final statement, accounting for final changes to the Contract Sum.
4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
6. AIA Document G707, "Consent of Surety to Final Payment."
7. Evidence that claims have been settled.
8. Final liquidated damages settlement statement.

PART 2 - PRODUCTS (Not Used).

PART 3 - EXECUTION (Not Used).

END OF SECTION 012900

SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

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

1. General coordination procedures.
2. Coordination drawings.
3. Requests for Information (RFIs).
4. Project meetings.

B. Related Requirements:

1. Section 013200 "Construction Progress Documentation" for preparing and submitting Contractor's construction schedule.
2. Section 017300 "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
3. Section 017700 "Closeout Procedures" for coordinating closeout of the Contract.

1.3 DEFINITIONS

A. RFI: 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, and telephone number 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.

B. Key Personnel Names: Within 15 days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone

numbers, including home, office, and cellular telephone numbers and e-mail addresses. Provide names, addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.

1. Post copies of list in project meeting room, in temporary field office, and by each temporary telephone. Keep list current at all times.

1.5 GENERAL COORDINATION PROCEDURES

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

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

B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.

C. 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.

D. Conservation: Coordinate construction activities to ensure that operations are carried out 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.

1.6 COORDINATION DRAWINGS

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

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

a. Use applicable Drawings as a basis for preparation of coordination drawings. Prepare sections, elevations, and details as needed to describe relationship of various systems and components.
b. Coordinate the addition of trade-specific information to the coordination drawings by multiple contractors in a sequence that best provides for coordination of the information and resolution of conflicts between installed components before submitting for review.
c. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
d. Indicate space requirements for routine maintenance and for anticipated replacement of components during the life of the installation.
e. Show location and size of access doors required for access to concealed dampers, valves, and other controls.
f. Indicate required installation sequences.
g. Indicate dimensions shown on the Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate 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. Mechanical Rooms: Provide coordination drawings for mechanical rooms showing plans and elevations of mechanical, plumbing, fire-protection, fire-alarm, and electrical equipment.
3. Review: Architect will review coordination drawings to confirm that the Work is being coordinated, but not for the details of the coordination, which are Contractor's responsibility. If Architect determines that coordination drawings are not being prepared in sufficient scope or detail, or are otherwise deficient, Architect will so inform Contractor, who shall make changes as directed and resubmit.
4. Coordination Drawing Prints: Prepare coordination drawing prints according to requirements in Section 013300 "Submittal Procedures."

1.7 REQUESTS FOR INFORMATION (RFIs)

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

1. Architect will return RFIs submitted to Architect by other entities controlled by Contractor with no response.
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.

    a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.

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

1. Attachments shall be electronic files in Adobe Acrobat PDF format.

D. Architect's Action: Architect will review each RFI, determine action required, and respond. Allow seven 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 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 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.
8. Identification of related minor change in the work, Construction Change Directive, and Proposal Request, as appropriate.
9. Identification of related Field Order, Work Chang Directive, and Proposal Request, as appropriate.

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 days if Contractor disagrees with response.

1. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.

1.8 DIGITAL PROJECT MANAGEMENT PROCEDURES

A. Use of Architects Digital Data Files: Digital data files of Architects will be provided by Architect for Contractor’s use during construction upon request and signed electronic indemnification form.

1. Digital data files may be used by Contractor in preparing coordination drawings, shop drawings and project record drawings.
2. Architect makes no representations as to the accuracy or completeness of digital data files as they relate to Contract Drawings.
3. The following digital data files will be furnished for each appropriate discipline:

a. Floor plans.

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: Schedule and conduct meetings and conferences at Project site unless otherwise indicated.

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.
2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
3. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within three days of the meeting.

B. Preconstruction Conference: Contractor shall schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 15 days after execution of the Agreement.

1. Conduct the conference to review responsibilities and personnel assignments.
2. Attendees: Authorized representatives of Owner, 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.
3. Agenda: Discuss items of significance that could affect progress, including the following:

    a. Tentative construction schedule.
    b. Phasing.
    c. Critical work sequencing and long-lead items.
    d. Designation of key personnel and their duties.
    e. Lines of communications.
    f. Procedures for processing field decisions and Change Orders.
    g. Procedures for RFIs.
    h. Procedures for testing and inspecting.
    i. Procedures for processing Applications for Payment.
    j. Distribution of the Contract Documents.
    k. Submittal procedures.
    l. Preparation of record documents.
    m. Use of the premises and existing building.
    n. Work restrictions.
    o. Working hours.
    p. Owner's occupancy requirements.
    q. Responsibility for temporary facilities and controls.
    r. Procedures for moisture and mold control.
    s. Procedures for disruptions and shutdowns.

t. Construction waste management and recycling.
u. Parking availability.
v. Office, work, and storage areas.
w. Equipment deliveries and priorities.
x. First aid.
y. Security.
z. Progress cleaning.

4. Minutes: Contractor will record and distribute meeting minutes.

C. Preinstallation Conferences: Contractor shall conduct a preinstallation conference at Project site where required by other sections.

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

3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.

5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.

D. Progress Meetings: Contractor shall coordinate and conduct progress meetings at monthly intervals.

1. Coordinate dates of meetings with preparation of payment requests.
2. Attendees: In addition to representatives of Owner and 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) Status of submittals.
        4) Deliveries.
        5) Off-site fabrication.
        6) Access.
        7) Site utilization.
        8) Temporary facilities and controls.
        9) Progress cleaning.
        10) Quality and work standards.
        11) Status of correction of deficient items.
        12) Field observations.
        13) Status of RFIs.
        14) Status of proposal requests.
        15) Pending changes.
        16) Status of Change Orders.
        17) Pending claims and disputes.
        18) Documentation of information for payment requests.

4. Minutes: Contractor 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.

E. Coordination Meetings: Contractor shall conduct Project coordination meetings at monthly intervals. Project coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and preinstallation conferences.

1. 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 meetings shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Review and correct or approve minutes of the previous coordination meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

    a. Combined Contractor's Construction Schedule: Review progress since the last coordination meeting. Determine whether each contract is on time, ahead of schedule, or behind schedule, in relation to combined 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.
    b. Schedule Updating: Revise combined Contractor's construction schedule after each coordination meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with report of each meeting.
    c. Review present and future needs of each contractor present, including the following:

        1) Interface requirements.
        2) Sequence of operations.
        3) Status of submittals.
        4) Deliveries.
        5) Off-site fabrication.
        6) Access.
        7) Site utilization.
        8) Temporary facilities and controls.
        9) Work hours.
        10) Hazards and risks.
        11) Progress cleaning.
        12) Quality and work standards.
        13) Change Orders.

3. Reporting: Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

PART 2 - PRODUCTS (Not Used).

PART 3 - EXECUTION (Not Used).

END OF SECTION 013100

SECTION 013200 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

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

1. Startup construction schedule.
2. Contractor's construction schedule.
3. Construction schedule updating reports.
4. Daily construction reports.
5. Material location reports.
6. Site condition reports.
7. Special reports.

B. Related Requirements:

1. Section 013300 "Submittal Procedures" for submitting schedules and reports.
2. Section 014000 "Quality Requirements" for submitting a schedule of tests and inspections.

1.3 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. Cost Loading: The allocation of the schedule of values for the completion of an activity as scheduled. The sum of costs for all activities must equal the total Contract Sum unless otherwise approved by Architect.

C. 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.

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

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

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

1. Float time belongs to Owner.
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.

G. Resource Loading: The allocation of manpower and equipment necessary for the completion of an activity as scheduled.

1.4 INFORMATIONAL SUBMITTALS

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

1. Five (5) paper copies or PDF electronic file.

B. Startup construction schedule.

1. Approval of cost-loaded, startup construction schedule will not constitute approval of schedule of values for cost-loaded activities.

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

D. Construction Schedule Updating Reports: Submit one (1) copy or PDF copy with Applications for Payment.

E. Daily Construction Reports: Submit two (2) copies or PDF copies at monthly intervals.

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

G. Special Reports: Submit at time of unusual event.

1.5 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.

PART 2 - PRODUCTS

2.1 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

A. Time Frame: Extend schedule from date established for the Notice to Proceed to date of Substantial 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.

B. Activities: Treat each story 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. 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.
5. Punch List and Final Completion: Include not more than 30 days for completion of punch list items and final completion.

C. 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. Work under More Than One Contract: Include a separate activity for each contract.
2. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.

3. Work Restrictions: Show the effect of the following items on the schedule:

a. Coordination with existing construction.
b. Use of premises restrictions.
c. Seasonal variations.
d. Environmental control.

4. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:

a. Submittals.
b. Mockups.
c. Fabrication.
d. Deliveries.
e. Installation.

f. Tests and inspections.
g. Adjusting.
h. Curing.
i. Startup and placement into final use and operation.

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

E. Recovery Schedule: When periodic update indicates the Work is seven (7) 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, and equipment required to achieve compliance, and date by which recovery will be accomplished.

2.2 STARTUP CONSTRUCTION SCHEDULE

A. Bar-Chart Schedule: Submit startup, horizontal, bar-chart-type construction schedule within seven days of date established for the Notice to Proceed.

B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line. Outline significant construction activities for first 90 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.

2.3 CONTRACTOR'S CONSTRUCTION SCHEDULE (GANTT CHART)

A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal, Gantt-chart-type, Contractor's construction schedule within 30 days of date established for the Notice to Proceed. Base schedule on the startup construction schedule and additional information received since the start of Project.

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

C. 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.

D. 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.

E. 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.

2.4 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. Accidents.
8. Meetings and significant decisions.
9. Unusual events (see special reports).
10. Stoppages, delays, shortages, and losses.
11. Emergency procedures.
12. Orders and requests of authorities having jurisdiction.
13. Change Orders received and implemented.
14. Work Change Directives received and implemented.
15. Services connected and disconnected.
16. Partial completions and occupancies.
17. 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.

2.5 SPECIAL REPORTS

A. General: Submit special reports directly to Owner within one day(s) of an occurrence. Distribute copies of report to parties affected by the occurrence.

B. Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. 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.

B. 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.

END OF SECTION 013200

SECTION 013233 - PHOTOGRAPHIC DOCUMENTATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for the following:

1. Preconstruction photographs.
2. Concealed Work photographs.
3. Periodic construction photographs.
4. Final completion construction photographs.

B. Related Requirements:

1. Section 017700 "Closeout Procedures" for submitting photographic documentation as Project Record Documents at Project closeout.
2. Section 024119 "Selective Demolition" for photographic documentation before selective demolition operations commence.

1.2 INFORMATIONAL SUBMITTALS

A. Key Plan: Submit key plan of Project site and building with notation of vantage points marked for location and direction of each photograph. Indicate elevation or story of construction. Include same information as corresponding photographic documentation.

B. Digital Photographs: Submit image files within three days of taking photographs.

1. Submit photos by email to an address indicated by Plan One/Architects or via use of a Web-Based Project Management Software. Include copy of key plan indicating each photograph's location and direction.
2. Identification: Provide the following information with each image:

a. Name of Project.
b. Name and contact information for photographer.
c. Name of Architect.
d. Name of Contractor.
e. Date photograph was taken.
f. Description of location, vantage point, and direction.
g. Unique sequential identifier keyed to accompanying key plan.

1.3 FORMATS AND MEDIA

A. Digital Photographs: Provide color images in JPG format, produced by a digital camera with minimum sensor size of 12 megapixels, and at an image resolution of not less than 3200 by 2400 pixels, and with vibration-reduction technology. Use flash in low light levels or backlit conditions.

B. Digital Images: Submit digital media as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.

C. Metadata: Record accurate date and time and GPS location data from camera.

D. File Names: Name media files with date, Project area, Project Site and sequential numbering suffix.

1.4 CONSTRUCTION PHOTOGRAPHS

A. General: Take photographs with maximum depth of field and in focus.

1. Maintain key plan with each set of construction photographs that identifies each photographic location.

B. Concealed Work Photographs: Before proceeding with installing work that will conceal other work, take photographs sufficient in number, with annotated descriptions, to record nature and location of concealed Work, including, but not limited to, the following:

1. Waterproofing and weather-resistant barriers.
2. Insulation, Decking, and other roofing substrates.

C. Periodic Construction Photographs: Take no less than 10 photographs weekly and additional as required coinciding with the cutoff date associated with each Application for Payment. Select vantage points to show status of construction and progress since last photographs were taken.

D. Final Completion Construction Photographs: Take 20 photographs after date of Substantial Completion for submission as Project Record Documents. Architect will inform photographer of desired vantage points.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013233

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 1 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 012900 "Payment Procedures" for submitting Applications for Payment and the schedule of values.
2. Section 013200 "Construction Progress Documentation" for submitting schedules and reports, including Contractor's construction schedule.
3. Section 017823 "Operation and Maintenance Data" for submitting operation and maintenance manuals.
4. Section 017839 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.

1.3 DEFINITIONS

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

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

C. File Transfer Protocol (FTP): Communications protocol that enables transfer of files to and from another computer over a network and that serves as the basis for standard Internet protocols. An FTP site is a portion of a network located outside of network firewalls within which internal and external users are able to access files.

D. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

1.4 ACTION SUBMITTALS

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

1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
2. Initial Submittal: Submit concurrently with startup construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.

    a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.

4. Format: Arrange the following information in a tabular format:

    a. Scheduled date for first submittal.
    b. Specification Section number and title.
    c. Submittal category: Action; informational.
    d. Name of subcontractor.
    e. Description of the Work covered.
    f. Scheduled date for Architect's final release or approval.
    g. Scheduled date of fabrication.
    h. Scheduled dates for purchasing.
    i. Scheduled dates for installation.
    j. Activity or event number.

1.5 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

A. Submittal Procedure Timeline: The Contractor shall submit all submittals requiring material and/or color selection to the Architect in a timely manner.

1. Initial Submittals shall be submitted within 45 days of the Notice to Proceed or in a timely manner which does not cause delays in the project schedule.
2. All samples for color selections shall be submitted to Architect ASAP and in a timely manner which does not cause delays in the project schedule. No individual color selections will be made.
3. Work delayed due to the untimely submission by the Contractor of items requiring review and/or selection will not be an acceptable cause for an extension in contract time.

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.

        1) Exterior Colors (all color submittals to be received at one time before any color selections are made).
        2) Contractor shall submit materials for color selection in timely manner so as to not delay ordering of materials. Any incurred delays shall not be grounds for extension of contract time.

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.
4. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow 21 days for initial review of each submittal.
5. Concurrent Consultant Review: Where the Contract Documents indicate that submittals may be transmitted simultaneously to Architect and to Architect's consultants, allow 15 days for review of each submittal. Submittal will be returned to Architect before being returned to Contractor.

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 Contractor.
    e. Name of subcontractor.
    f. Name of supplier.
    g. Name of manufacturer.
    h. 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., 06100.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 06100.01.A).

i. Number and title of appropriate Specification Section.
j. Drawing number and detail references, as appropriate.
k. Location(s) where product is to be installed, as appropriate.
l. 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 return without review submittals received from sources other than Contractor.

a. 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) Names of subcontractor, manufacturer, and supplier.
6) Category and type of submittal.
7) Submittal purpose and description.
8) Specification Section number and title.
9) Specification paragraph number or drawing designation and generic name for each of multiple items.
10) Drawing number and detail references, as appropriate.
11) Indication of full or partial submittal.
12) Transmittal number, numbered consecutively.
13) Submittal and transmittal distribution record.
14) Remarks.
15) Signature of transmitter.

E. Electronic Submittals: Will only be allowed for project data and informational submittals. Shop drawings larger than 8 ½”x11” are to be submitted as paper submittals. Architect reserves the right to request any electronic submittals to be submitted as paper submittals. Identify and incorporate information in each electronic submittal file 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.

a. File name shall use project identifier and Specification Section number followed by a decimal point and then a sequential number (e.g., LNHS-061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., LNHS-061000.01.A).

3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Architect.
4. Transmittal Form for Electronic Submittals: Use electronic form acceptable to Owner**,** containing the following information:

a. Project name.
b. Date.
c. Names of subcontractor, manufacturer, and supplier.
d. Category and type of submittal.
e. Submittal purpose and description.
f. Specification Section number and title.
g. Specification paragraph number or drawing designation and generic name for each of multiple items.
h. Drawing number and detail references, as appropriate.
i. Location(s) where product is to be installed, as appropriate.
j. Related physical samples submitted directly.
k. Indication of full or partial submittal.
l. Transmittal number**,** numbered consecutively.
m. Submittal and transmittal distribution record.
n. Other necessary identification.
o. Remarks.

F. Options: Identify options requiring selection by Architect.

G. Deviations and Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.

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.

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: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.

1. Submit electronic submittals via email as PDF electronic files.

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

2. 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.

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. Five paper copies of Product Data unless otherwise indicated. Architect will return two copies. PDF electronic files are also acceptable.

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.

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. Five opaque copies of each submittal. Architect will retain two copies; remainder will be returned.

4. Electronic submittals will not be accepted and will not be acknowledged as submittals received.

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. 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.

4. 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.
b. Color selections will not be made until all color samples for all materials are received by the Architect.

5. 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 two sets of Samples. Architect will retain one Sample set; remainder will be returned.

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

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. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.
2. Number and name of room or space.
3. Location within room or space.
4. Submit product schedule in the following format:

a. Three paper copies of product schedule or list unless otherwise indicated. Architect will return one copy.

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

G. Contractor's Construction Schedule: Comply with requirements specified in Section 013200 "Construction Progress Documentation."

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

I. Test and Inspection Reports and Schedule of Tests and Inspections Submittals: Comply with requirements specified in Section 014000 "Quality Requirements."

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

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

L. 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.

M. 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.

N. 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.

O. 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.

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

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

R. 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.

S. 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.

T. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:

1. Name of evaluation organization.
2. Date of evaluation.
3. Time period when report is in effect.
4. Product and manufacturers' names.
5. Description of product.
6. Test procedures and results.
7. Limitations of use.

U. 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.

V. 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.

W. 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.

X. 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.

Y. Material Safety Data Sheets: Do not supply MSDS information in submittals or individually. Submittals containing MSDS will not be reviewed and will be grounds for rejection of the submittal in its entirety. Architect accepts no liability for Material Safety Data.

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 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. 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, as follows:

1. Final Unrestricted Release: When the Architect marks a submittal "Approved," the Work covered by the submittal may proceed provided it complies with requirements of the Contract Documents. Final payment depends on that compliance.
2. Final-But-Restricted Release: When the Architect marks a submittal "Approved as Noted," the Work covered by the submittal may proceed provided that it complies with notations or corrections on the submittal and requirements of the Contract Documents. Final payment depends on that compliance.
3. Returned for Resubmittal: When the Architect marks a submittal "Not Approved, Revise and Resubmit," do not proceed with Work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise or prepare a new submittal according to the notations; resubmit without delay. Repeat if necessary to obtain different action mark.

    a. Do not use, or allow others to use, submittals marked “not Approved, Revise and Resubmit” at the Project Site or elsewhere where Work is in progress.

B. 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.

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

D. Submittals not required by the Contract Documents may be returned by the Architect without action.

END OF SECTION 013300

SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

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

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

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

1.3 DEFINITIONS

A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect.

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

1. Integrated Exterior Mockups: Mockups of the exterior envelope erected separately from the building but on Project site, consisting of multiple products, assemblies, and subassemblies.

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

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

F. Source Quality-Control Testing: Tests and inspections that are performed at the source, e.g., plant, mill, factory, or shop.

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

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

I. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.

1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).

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

1.4 CONFLICTING REQUIREMENTS

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

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

1.5 INFORMATIONAL SUBMITTALS

A. Contractor's Quality-Control Plan: For quality-assurance and quality-control activities and responsibilities.

B. Qualification Data: For Contractor's quality-control personnel.

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

1. Seismic-force-resisting system, designated seismic system, or component listed in the designated seismic system quality-assurance plan prepared by Architect.
2. Main wind-force-resisting system or a wind-resisting component listed in the wind-force-resisting system quality-assurance plan prepared by Architect.

D. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

E. Schedule of Tests and Inspections: Prepare in tabular form and include the following:

1. Specification Section number and title.
2. Entity responsible for performing tests and inspections.
3. Description of test and inspection.
4. Identification of applicable standards.
5. Identification of test and inspection methods.
6. Number of tests and inspections required.
7. Time schedule or time span for tests and inspections.
8. Requirements for obtaining samples.
9. Unique characteristics of each quality-control service.

1.6 CONTRACTOR'S QUALITY-CONTROL PLAN

A. Quality-Control Plan, General: Submit quality-control plan within 10 days of Notice to Proceed, and not less than five days prior to preconstruction conference. Submit in format acceptable to Architect. Identify personnel, procedures, controls, instructions, tests, records, and forms to be used to carry out Contractor's quality-assurance and quality-control responsibilities. Coordinate with Contractor's construction schedule.

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

1. Project quality-control manager may also serve as Project superintendent.

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

D. Testing and Inspection: In quality-control plan, include a comprehensive schedule of Work requiring testing or inspection, including the following:

1. Contractor-performed tests and inspections including subcontractor-performed tests and inspections. Include required tests and inspections and Contractor-elected tests and inspections.
2. Special inspections required by authorities having jurisdiction and indicated on the "Statement of Special Inspections."
3. Owner-performed tests and inspections indicated in the Contract Documents.

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

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

1.7 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, and telephone number of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and reinspecting.

B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:

1. Name, address, and telephone number of technical representative making report.
2. Statement on condition of substrates and their acceptability for installation of product.
3. Statement that products at Project site comply with requirements.

4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
6. Statement whether conditions, products, and installation will affect warranty.
7. Other required items indicated in individual Specification Sections.

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

1. Name, address, and telephone number of factory-authorized service representative making report.
2. Statement that equipment complies with requirements.
3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
4. Statement whether conditions, products, and installation will affect warranty.
5. Other required items indicated in individual Specification Sections.

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

1.8 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.

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

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

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

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

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

G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 329; and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.

1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.

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

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

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

1. Contractor responsibilities include the following:

a. Provide test specimens representative of proposed products and construction.
b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
c. Provide sizes and configurations of test assemblies, mockups, and laboratory mockups to adequately demonstrate capability of products to comply with performance requirements.
d. Build laboratory mockups at testing facility using personnel, products, and methods of construction indicated for the completed Work.
e. When testing is complete, remove test specimens, assemblies; do not reuse products on Project.

2. 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 inspecting they are engaged to perform.
2. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.

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

1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
2. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.

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

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

C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Section 01 33 00 "Submittal Procedures."

D. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in 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.

E. 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.

F. 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 location from which test samples will be taken and in which in-situ tests are conducted.

3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service 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 any duties of Contractor.

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

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

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

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

I. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents as a component of Contractor's quality-control plan. Coordinate and submit concurrently with Contractor's construction schedule. Update as the Work progresses.

1. Distribution: Distribute schedule to Owner, Architect, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

PART 2 - PRODUCTS (Not Used).

PART 3 - EXECUTION

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.

3.2 REPAIR AND PROTECTION

A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 017300 "Execution."

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

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

END OF SECTION 014000

SECTION 014200 – REFERENCES

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 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.

1.3 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.

1.4 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."

PART 2 - PRODUCTS (Not Used).

PART 3 - EXECUTION (Not Used).

END OF SECTION 014200

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

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 temporary utilities, support facilities, and security and protection facilities.

B. Related Requirements:

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

1.3 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 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.

1.4 INFORMATIONAL SUBMITTALS

A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.

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

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

1. Describe delivery, handling, and storage provisions for materials subject to water absorption or water damage.
2. Indicate procedures for discarding water-damaged materials, protocols for mitigating water intrusion into completed Work, and replacing water-damaged Work.

1.5 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.

1.6 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. Polyethylene Sheet: Reinforced, fire-resistive sheet, 10-mil minimum thickness, with flame-spread rating of 15 or less per ASTM E 84 and passing NFPA 701 Test Method 2.

2.2 TEMPORARY FACILITIES

A. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.

1. Store combustible materials apart from building.

2.3 EQUIPMENT

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

PART 3 - EXECUTION

3.1 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.

3.2 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: Connect to Owner's existing water service facilities. Clean and maintain water service facilities in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.

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. Isolation of Work Areas in Occupied Facilities: Prevent dust, fumes, and odors from entering occupied areas. Contractor shall also provide temporary protection as required to prevent water and moisture infiltration into the facilities during work.

E. Electric Power Service: Connect to Owner's existing electric power service. Maintain equipment in a condition acceptable to Owner.

F. Telephone Service: Provide temporary telephone service in common-use facilities for use by all construction personnel. Install one telephone line(s) for each field office.

1. Provide superintendent with cellular telephone or portable two-way radio for use when away from field office.

3.3 SUPPORT FACILITIES INSTALLATION

A. General: Comply with the following:

1. Provide construction for temporary offices, shops, and sheds located within construction area or within 30 feet of building lines that is noncombustible according to ASTM E 136. Comply with NFPA 241.
2. Maintain support facilities until 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. Parking: Provide temporary parking areas for construction personnel.

C. Traffic Controls: Comply with requirements of authorities having jurisdiction.

1. Protect existing site improvements to remain including curbs, pavement, and utilities.
2. Maintain access for fire-fighting equipment and access to fire hydrants.

D. Project Signs: Provide Project signs as indicated. Unauthorized signs are not permitted.

1. 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.

2. Maintain and touchup 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.

3.4 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.

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.

1. Comply with work restrictions specified in Section 011000 "Summary."

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

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

E. 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.

3.5 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. 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

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes administrative and procedural requirements for 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.
2. Section 014200 "References" for applicable industry standards for products specified.

1.3 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 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 specific manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of additional manufacturers named in the specification.

1.4 ACTION SUBMITTALS

A. Comparable Product Requests: Submit request for consideration of each comparable product. Identify 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 one week 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 Approval: 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.

1.5 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. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
2. If a dispute arises between contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.

1.6 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.
7. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.7 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.

C. Submittal Time: Comply with requirements in Section 017700 "Closeout Procedures."

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 not in conflict with 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.
6. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.

B. Product Selection Procedures:

1. Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
2. 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.
3. Products:

    a. Restricted List: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered unless otherwise indicated.
    b. Nonrestricted List: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product.

4. Manufacturers:

    a. Restricted List: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered unless otherwise indicated.
    b. Nonrestricted List: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed manufacturer's product.

5. 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.

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: 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 the proposed product does not require revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
3. Evidence that proposed product provides specified warranty.
4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
5. Samples, if requested.

PART 3 - EXECUTION (Not Used).

END OF SECTION 016000

SECTION 017300 - EXECUTION

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 general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:

1. Installation of the Work.
2. Cutting and patching.
3. Progress cleaning.
4. Starting and adjusting.
5. Protection of installed construction.

B. Related Requirements:

1. Section 011000 "Summary" for limits on use of Project site.
2. Section 013300 "Submittal Procedures" for submitting surveys.
3. Section 017700 "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.
4. Section 024119 "Selective Demolition" for demolition and removal of selected portions of the building.
5. Section 078413 "Penetration Firestopping" for patching penetrations in fire-rated construction.

1.3 DEFINITIONS

A. Cutting: Removal of in-place construction necessary to permit installation or performance of other work.

B. Patching: Fitting and repair work required to restore construction to original conditions after installation of other work.

1.4 INFORMATIONAL SUBMITTALS

A. Cutting and Patching Plan: Submit plan describing procedures at least 10 days prior to the time cutting and patching will be performed. Include the following information:

1. Extent: Describe reason for and extent of each occurrence of cutting and patching.

2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building appearance and other significant visual elements.
3. Products: List products to be used for patching and firms or entities that will perform patching work.
4. Dates: Indicate when cutting and patching will be performed.
5. Utilities and Mechanical and Electrical Systems: List services and systems that cutting and patching procedures will disturb or affect. List services and systems that will be relocated and those that will be temporarily out of service. Indicate length of time permanent services and systems will be disrupted.

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

B. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

1.5 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: 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. Operational elements include the following:

    a. Primary operational systems and equipment.
    b. Mechanical systems piping and ducts.
    c. Fire separation assemblies.
    d. Electrical wiring systems.

3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. Other construction elements include but are not limited to the following:

    a. Water, moisture, or vapor barriers.
    b. Membranes and flashings.
    c. Sprayed fire-resistive material.
    d. Equipment supports.
    e. Piping, ductwork, vessels, and equipment.
    f. Noise- and vibration-control elements and systems.

4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in 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. Cutting and Patching Conference: Before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

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

PART 2 - PRODUCTS

2.1 MATERIALS

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

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

1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to 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.

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 walls, floors, and roofs for suitable conditions where products and systems are to be installed.
2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.

C. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:

1. Description of the Work.
2. List of detrimental conditions, including substrates.
3. List of unacceptable installation tolerances.
4. Recommended corrections.

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

3.2 PREPARATION

A. 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.

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

C. 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."

D. Surface and Substrate Preparation: Comply with manufacturer's written recommendations for preparation of substrates to receive subsequent work.

3.3 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.

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: Do not use tools or equipment that produce harmful noise levels within the building. If excessive noise occurs, notify Owner 24 hours ahead of time where noise resulting from work may adversely affect operations.

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 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. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.4 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. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, 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.

G. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.

    a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
    b. Restore damaged pipe covering to its original condition.

3. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.

H. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.5 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.

1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.
3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

    a. Use containers intended for holding waste materials of type to be stored.

4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

1. Remove liquid spills promptly.
2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Section 015000 "Temporary Facilities and Controls."

H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.6 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."

3.7 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. Comply with manufacturer's written instructions for temperature and relative humidity.

END OF SECTION 017300

SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 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. List of incomplete items ("punch list").
4. Warranties.
5. Final cleaning.
6. Repair of the Work.

B. Related Requirements:

1. Section 017300 "Execution" for progress cleaning of Project site.
2. Section 017823 "Operation and Maintenance Data" for operation and maintenance manual requirements.
3. Section 017839 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.
4. Divisions 2 through 8 Sections for specific closeout and special cleaning requirements for the Work in those Sections.

1.3 ACTION SUBMITTALS

A. Product Data: For cleaning agents.

B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.

C. Certified List of Incomplete Items: Final submittal at Final Completion.

1.4 CLOSEOUT SUBMITTALS

A. Certificates of Release: From authorities having jurisdiction.

B. Certificate of Insurance: For continuing coverage.

1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

1.6 SUBSTANTIAL COMPLETION PROCEDURES

A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.

B. Submittals Prior to Substantial Completion: Complete the following a minimum of 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 1 Sections, including project record documents, operation and maintenance manuals, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information.
3. Submit closeout submittals specified in individual Divisions 2 through 33 Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
4. Submit maintenance material submittals specified in individual Divisions 2 through 33 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 where applicable.

    a. Schedule of Maintenance Material Items: Prepare and submit schedule of maintenance material submittal items, including name and quantity of each item and name and number of related Specification Section. Obtain Architect's signature for receipt of submittals.

5. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.

C. 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. Perform preventive maintenance on equipment used prior to Substantial Completion.
3. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
4. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
5. Complete final cleaning requirements, including touchup painting.

6. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 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. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for final completion.

1.7 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.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.8 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, starting with exterior areas first.
2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
3. Include the following information at the top of each page:

a. Project name.
b. Date.
c. Name of Architect.
d. Name of Contractor.
e. Page number.

4. Submit list of incomplete items in the following format:

a. MS Excel electronic file. Architect will return annotated file.
b. PDF electronic file. Architect will return annotated file.
c. Three paper copies. Architect will return one copy.

1.9 SUBMITTAL OF PROJECT WARRANTIES

A. Time of Submittal: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated, 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.

1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
4. Warranty Electronic File: Scan warranties and bonds and assemble complete warranty and bond submittal package into a single indexed electronic PDF file with links enabling navigation to each item. Provide bookmarked table of contents at beginning of document.

C. Provide PDF copy on electronic media of all warranties to be included in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 FINAL CLEANING

A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:

a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
c. Remove tools, construction equipment, machinery, and surplus material from Project site.
d. Remove snow and ice to provide safe access to building.
e. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
f. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
g. Remove labels that are not permanent.
h. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
i. Leave Project clean and ready for occupancy.

C. Construction Waste Disposal: Comply with waste disposal requirements in Section 015000 "Temporary Facilities and Controls."

3.2 REPAIR OF THE WORK

A. Complete repair and restoration operations 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.

1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that that already show evidence of repair or restoration.

    a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.

3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.

END OF SECTION 017700

PROJECT CLOSE OUT CHECK LIST
PLAN ONE/ARCHITECTS

Project Title_____
Project #_____
Date: _____

This appendix serves as a check list of the items that should be either in the Owners position or functions that should be performed prior to processing the Contractors final payment.

☐ **Warranties:** Documentation that all applicable manufacturer and equipment warranties have been transferred to the owner.

☐ **Manufacturers Operation and Maintenance Manuals:**
Received Date: _____

☐ **Record of Project Quality Control:**
System Startup and Testing Documentation
Received Date: _____

☐ **Training and System Startup:** **Warranty Start Date:**
Training Date (s)

Electrical _____	_____
Mechanical _____	_____
Plumbing _____	_____
Carpet _____	_____
Fire Alarm Systems _____	_____
HVAC _____	_____
PA Systems _____	_____
Other _____	

☐ **State Electrical Inspectors Final Inspection:**
Date: _____

☐ **State or Local Fire Marshals Final Inspection:**
Date: _____

☐ **Specialties Inspections:**
Date: _____

☐ **Substantial Completion:**
Date: _____

☐ **Final Building Inspection:**
Date: _____

☐ **Issuance of Certificate of Occupancy:**
Date: _____

☐ **Sign Off of Final Completion:**
Contractors will certify in writing that he has constructed the facility in accordance to the plans and specifications.
Date: _____

☐ **Release of Claims (Subcontractors& Suppliers):**
Verification that all Subcontractors have submitted affidavit verification that no claims are pending.
Date: _____

☐ **Release of Liens from Contractors:**
Date: _____

☐ **Contractor Turns over keys and lock combinations:**
Date: _____

☐ **Contractors Letter of Construction Warranty:**
Start Date: _____
Completion Date: _____

☐ **Warranty Eleven (11) Month Inspection:**
Scheduled date: _____

☐ **Contractors "Request for Retainage Release"**
Date: _____

☐ **Public Advertisement Final Notice of Acceptance:**
Date: _____

☐ **Project Turnover Memorandums:**
Utilities Date: _____
Communications Date: _____
Building Insurance Date: _____
Others Date: _____

☐ **As-Build Drawings:**
Received date: _____

☐ **Request of Final Payment**:
Date: _____

☐ **Consent of Surety:**
Name of Surety:
Address of Surety:
Telephone Number of Surety:
Date: _____

__

☐ **Project Accounts:**

Release of retainage Account to Contractor
Finalize all billings

☐ **Archive Project Records:**

Scheduled date: _____
__ (Thirty days after last activity)

SECTION 017823 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:

1. Operation and maintenance documentation directory.
2. Operation manuals for systems, subsystems, and equipment.
3. Product maintenance manuals.
4. Systems and equipment maintenance manuals.

B. Related Requirements:

1. Division 013300 Section "Submittal Procedures" for submitting copies of submittals for operation and maintenance manuals.
2. Divisions 2 through 8 Sections for specific operation and maintenance manual requirements for the Work in those Sections.

1.3 DEFINITIONS

A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.

B. Subsystem: A portion of a system with characteristics similar to a system.

1.4 CLOSEOUT SUBMITTALS

A. Manual Content: Operations and maintenance manual content is specified in individual Specification Sections to be reviewed 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 operations and maintenance submittals are acceptable.
2. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.

B. Format: Submit operations and maintenance manuals in the following format:

1. Three paper copies. Include a complete operation and maintenance directory. Enclose title pages and directories in clear plastic sleeves. Architect will return one copy.

C. Initial Manual Submittal: Submit draft copy of each manual at least 30 days before commencing demonstration and training. Architect will comment on whether general scope and content of manual are acceptable.

D. 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 comments and prior to commencing demonstration and training.

PART 2 - PRODUCTS

2.1 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY

A. Directory: Prepare a single, comprehensive directory of emergency, operation, and maintenance data and materials, listing items and their location to facilitate ready access to desired information. Include a section in the directory for each of the following:

1. List of documents.
2. List of systems.
3. List of equipment.
4. Table of contents.

B. List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.

C. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.

D. Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.

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."

2.2 REQUIREMENTS FOR OPERATION, AND MAINTENANCE MANUALS

A. Organization: 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 Architect.
7. 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.

1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.

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. Manuals, Paper Copy: Submit manuals in the form of hard copy, bound and labeled volumes.

1. Binders: Heavy-duty, three-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.

    a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
    b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents. Indicate volume number for multiple-volume sets.

2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section of the manual. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
3. Supplementary Text: Prepared on 8-1/2-by-11-inch white bond paper.
4. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.

    a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.

b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

F. PDF on Electronic Media

1. PDF shall be provided in a format similar to hard copy requirements noted within this section.
2. Electronic media shall be universal and contain all files required to be submitted. Provide duplicate copies of media, provide 3 copies in total to be distributed by Architect.

2.3 OPERATION MANUALS

A. 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.

B. 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.

C. 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.

D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.

E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

2.4 PRODUCT MAINTENANCE MANUALS

A. 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.

B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.

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.

2.5 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

A. 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 warranty and bond information, as described below.

B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.

C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:

1. Standard maintenance instructions and bulletins.
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.

1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.

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. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.

H. 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 3 - EXECUTION

3.1 MANUAL PREPARATION

A. Operation and Maintenance Documentation Directory: Prepare a separate manual that provides an organized reference to operation, and maintenance manuals.

B. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.

C. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.

1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.

D. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, 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.

1. 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.

E. 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. Do not use original project record documents as part of operation and maintenance manuals.
2. Comply with requirements of newly prepared record Drawings in Section 017839 "Project Record Documents."

F. Comply with Section 017700 "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

G. PDF on Electronic Media

1. PDF shall be provided in a format similar to hard copy requirements noted within this section.
2. Electronic media shall be universal and contain all files required to be submitted. Provide duplicate copies of media, provide 3 copies in total to be distributed by Architect.

END OF SECTION 017823

SECTION 017839 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes administrative and procedural requirements for project record documents, including the following:

1. Record Drawings.
2. Record Specifications.
3. Record Product Data.

B. Related Requirements:

1. Section 017300 "Execution" for final property survey.
2. Section 017700 "Closeout Procedures" for general closeout procedures.
3. Section 017823 "Operation and Maintenance Data" for operation and maintenance manual requirements.
4. Divisions 2 through 8 Sections for specific requirements for project record documents of the Work in those Sections.

1.3 CLOSEOUT SUBMITTALS

A. Record Drawings: Comply with the following:

1. Number of Copies: Submit one set of marked-up record prints.
2. Number of copies: Submit copies of record drawings as follows:

a. Submit one PDF electronic file, scanned of all record prints and one full set of prints to the architect at the end of the project.
b. Print each drawings, whether or not changes and additional information were recorded.

B. Record Specifications: Submit one copy of Project's Specifications, including addenda and contract modifications.

C. Record Product Data: Submit one copy of each submittal.

1. Where record Product Data are required as part of operation and maintenance manuals, submit duplicate marked-up Product Data as a component of manual.

PART 2 – PRODUCTS

2.1 RECORD DRAWINGS

A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.

1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.

a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
b. Accurately record information in an acceptable drawing technique.
c. Record data as soon as possible after obtaining it.
d. Record and check the markup before enclosing concealed installations.

2. Content: Types of items requiring marking include, but are not limited to, the following:

a. Dimensional changes to Drawings.
b. Revisions to details shown on Drawings.
c. Depths of foundations below first floor.
d. Locations and depths of underground utilities.
e. Revisions to routing of piping and conduits.
f. Revisions to electrical circuitry.
g. Actual equipment locations.
h. Duct size and routing.
i. Locations of concealed internal utilities.
j. Changes made by Change Order or Construction Change Directive.
k. Changes made following Architect's written orders.
l. Details not on the original Contract Drawings.
m. Field records for variable and concealed conditions.
n. Record information on the Work that is shown only schematically.

3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
5. Mark important additional information that was either shown schematically or omitted from original Drawings.
6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

B. Format: Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.

1. Record Prints: Organize record prints and newly prepared record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
2. Identification: As follows:

    a. Project name.
    b. Date.
    c. Designation "PROJECT RECORD DRAWINGS."
    d. Name of Architect.
    e. Name of Contractor.

2.2 RECORD SPECIFICATIONS

A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
4. For each principal product, indicate whether record Product Data has been submitted in operation and maintenance manuals instead of submitted as record Product Data.
5. Note related Change Orders, record Product Data, and record Drawings where applicable.

2.3 RECORD PRODUCT DATA

A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
3. Note related Change Orders, record Specifications, and record Drawings where applicable.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project.

B. Maintenance of Record Documents and Samples: Store record documents and Samples in the field office apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Architect's reference during normal working hours.

END OF SECTION 017839

SECTION 024119 - SELECTIVE DEMOLITION

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. Demolition and removal of selected portions of building or structure.
2. Salvage of existing items to be reused or recycled.

B. Related Requirements:

1. Section 011000 "Summary" for restrictions on use of the premises, Owner-occupancy requirements, and phasing requirements.
2. Section 017300 "Execution" for cutting and patching procedures.

1.3 DEFINITIONS

A. Remove: Detach items from existing construction and dispose of them off-site unless indicated to be salvaged or reinstalled.

B. Remove and Salvage: Detach items from existing construction, in a manner to prevent damage, and store.

C. Remove and Reinstall: Detach items from existing construction, in a manner to prevent damage, prepare for reuse, and reinstall where indicated.

D. Existing to Remain: Leave existing items that are not to be removed and that are not otherwise indicated to be salvaged or reinstalled.

E. Dismantle: To remove by disassembling or detaching an item from a surface, using gentle methods and equipment to prevent damage to the item and surfaces; disposing of items unless indicated to be salvaged or reinstalled.

1.4 MATERIALS OWNERSHIP

A. Unless otherwise indicated, demolition waste becomes property of Contractor.

B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.

1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.5 PREINSTALLATION MEETINGS

A. Predemolition Conference: Conduct conference at Project site.

1. Inspect and discuss condition of construction to be selectively demolished.
2. Review structural load limitations of existing structure.
3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
5. Review areas where existing construction is to remain and requires protection.

1.6 INFORMATIONAL SUBMITTALS

A. Proposed Protection Measures: Submit report, including Drawings, that indicates the measures proposed for protecting individuals and property, for environmental protection, for dust control and, for noise control. Indicate proposed locations and construction of barriers.

B. Schedule of Selective Demolition Activities: Indicate the following:

1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's on-site operations are uninterrupted.
2. Interruption of utility services. Indicate how long utility services will be interrupted.
3. Coordination for shutoff, capping, and continuation of utility services.
4. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.

C. Predemolition Photographs or Video: Show existing conditions of adjoining construction, including finish surfaces that might be misconstrued as damage caused by demolition operations. Submit before Work begins and confirm with Architect adequate photo documentation has been completed.

D. Warranties: Documentation indicating that existing warranties are still in effect after completion of selective demolition.

1.7 CLOSEOUT SUBMITTALS

A. Inventory: Submit a list of items that have been removed and salvaged.

1.8 FIELD CONDITIONS

A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.

B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.

1. If suspected hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.

E. Storage or sale of removed items or materials on-site is not permitted.

F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

1. Maintain fire-protection facilities in service during selective demolition operations.

1.9 COORDINATION

A. Arrange selective demolition schedule so as not to interfere with Owner's operations.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ASSE A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and capped before starting selective demolition operations.

B. Review Project Record Documents of existing construction or other existing condition and hazardous material information provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in Project Record Documents.

C. Verify that hazardous materials have been remediated before proceeding with building demolition operations.

D. Survey of Existing Conditions: Record existing conditions by use of measured drawings and preconstruction photographs or video.

1. Inventory and record the condition of items to be removed and salvaged. Provide photographs or video of conditions that might be misconstrued as damage caused by salvage operations.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.

B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off utility services and mechanical/electrical systems serving areas to be selectively demolished.

1. Owner will arrange to shut off indicated services/systems when requested by Contractor.
2. Arrange to shut off utilities with utility companies.
3. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
4. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated on Drawings to be removed.

    a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
    b. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material and leave in place.
    c. Equipment to Be Removed: Disconnect and cap services and remove equipment.
    d. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
    e. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.
    f. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
    g. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material and leave in place.

3.3 PROTECTION

A. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
4. Cover and protect furniture, furnishings, and equipment that have not been removed.
5. Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Section 015000 "Temporary Facilities and Controls."

B. Remove temporary barricades and protections where hazards no longer exist.

3.4 SELECTIVE DEMOLITION, GENERAL

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
5. Maintain fire watch during and for at least 4 hours after flame-cutting operations.
6. Maintain adequate ventilation when using cutting torches.
7. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
8. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
9. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
10. Dispose of demolished items and materials promptly.

B. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

C. Removed and Reinstalled Items:

1. Clean and repair items to functional condition adequate for intended reuse.
2. Pack or crate items after cleaning and repairing. Identify contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

3.5 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

A. Roofing: Remove no more existing roofing than what can be covered in one day by new roofing and so that building interior remains watertight and weathertight. See Section 075323 "Ethylene-Propylene-Diene-Monomer (EPDM) Roofing" for new roofing requirements.

1. Remove existing roof membrane and substrate as required for installation of new roof penetrations, flashings and roof accessories.
2. Remove existing roofing system down to substrate.

3.6 DISPOSAL OF DEMOLISHED MATERIALS

A. Remove demolition waste materials from Project site and dispose of them in an EPA-approved construction and demolition waste landfill acceptable to authorities having jurisdiction.

1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.

B. Burning: Do not burn demolished materials.

3.7 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 024119

SECTION 061053 - MISCELLANEOUS ROUGH CARPENTRY

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. Rooftop equipment bases, skylight curbs, and support curbs.
2. Wood blocking, cants, and nailers.
3. Wood furring and grounds.
4. Wood sleepers.

B. Related Requirements:

1. Section 061600 "Sheathing" for sheathing.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.
2. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.

1.4 INFORMATIONAL SUBMITTALS

A. Evaluation Reports: For the following, from ICC-ES:

1. Preservative-treated wood.
2. Engineered wood products.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Stack lumber flat with spacers beneath and between each bundle to provide air circulation. Protect lumber from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

1. Factory mark each piece of lumber with grade stamp of grading agency.
2. Dress lumber, S4S, unless otherwise indicated.

B. Maximum Moisture Content of Lumber: 19 percent for 2-inch nominal thickness or less; no limit for more than 2-inch nominal thickness unless otherwise indicated.

2.2 WOOD-PRESERVATIVE-TREATED MATERIALS

A. Preservative Treatment by Pressure Process: AWPA U1; Use Category UC2 for interior construction not in contact with ground, Use Category UC3b for exterior construction not in contact with ground, and Use Category UC4a for items in contact with ground.

1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium. Do not use inorganic boron (SBX) for sill plates.
2. For exposed items indicated to receive a stained or natural finish, chemical formulations shall not require incising, contain colorants, bleed through, or otherwise adversely affect finishes.

B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or does not comply with requirements for untreated material.

C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.

D. Application: Treat [all miscellaneous carpentry unless otherwise indicated.] [items indicated on Drawings, and the following:]

1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
2. Wood sills, sleepers, blocking, furring, and similar concealed members in contact with masonry or concrete.

2.3 MISCELLANEOUS LUMBER

A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:

1. Rooftop equipment bases, skylight curbs, and support curbs.
2. Wood blocking, cants, and nailers.
3. Wood furring and grounds.

B. Dimension Lumber Items: Construction or No. 2 grade lumber of any of the following species:

1. Western woods; WCLIB or WWPA.
2. Northern species; NLGA.

C. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.

2.4 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.

1. Where carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A153/A153M.

B. Power-Driven Fasteners: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.

B. Set carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit carpentry accurately to other construction. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.

C. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.

1. Provide metal clips for fastening gypsum board or lath at corners and intersections where framing or blocking does not provide a surface for fastening edges of panels. Space clips not more than 16 inches o.c.

D. Sort and select lumber so that natural characteristics do not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.

E. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.

1. Use inorganic boron for items that are continuously protected from liquid water.

F. Where wood-preservative-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking.

G. Securely attach carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

1. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code (IBC).

3.2 INSTALLATION OF WOOD BLOCKING AND NAILER

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

B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces unless otherwise indicated.

C. Provide permanent grounds of dressed, pressure-preservative-treated, key-beveled lumber not less than 1-1/2 inches wide and of thickness required to bring face of ground to exact thickness of finish material. Remove temporary grounds when no longer required.

3.3 PROTECTION

A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 061053

SECTION 061600 - SHEATHING

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. Parapet sheathing.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated plywood complies with requirements. Indicate type of preservative used and net amount of preservative retained.
2. For products receiving waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.

1.4 INFORMATIONAL SUBMITTALS

A. Evaluation Reports: For the following, from ICC-ES:

1. Wood-preservative-treated plywood.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Stack panels flat with spacers beneath and between each bundle to provide air circulation. Protect sheathing from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 WOOD PANEL PRODUCTS

A. Thickness: As needed to comply with requirements specified, but not less than thickness indicated.

B. Factory mark panels to indicate compliance with applicable standard.

2.2 PRESERVATIVE-TREATED PLYWOOD

A. Preservative Treatment by Pressure Process: AWPA U1; Use Category UC2 for interior construction not in contact with ground, Use Category UC3b for exterior construction not in contact with ground, and Use Category UC4a for items in contact with ground.

1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.

B. Mark plywood with appropriate classification marking of an inspection agency acceptable to authorities having jurisdiction.

C. Application: Treat all plywood unless otherwise indicated and plywood in contact with masonry or concrete or used with roofing, flashing, vapor barriers, and waterproofing.

2.3 PARAPET SHEATHING

A. Plywood Sheathing: Exterior sheathing.

1. Span Rating: Not less than 48/24.
2. Nominal Thickness: Not less than 15/32 inch.

2.4 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.

1. For roof and parapet sheathing, provide fasteners with hot-dip zinc coating complying with ASTM A153/A153M.

B. Nails, Brads, and Staples: ASTM F1667.

C. Power-Driven Fasteners: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.

D. Screws for Fastening Sheathing to Wood Framing: ASTM C1002.

E. Screws for Fastening Wood Structural Panels to Cold-Formed Metal Framing: ASTM C954, except with wafer heads and reamer wings, length as recommended by screw manufacturer for material being fastened.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Do not use materials with defects that impair quality of sheathing or pieces that are too small to use with minimum number of joints or optimum joint arrangement. Arrange joints so that pieces do not span between fewer than three support members.

B. Cut panels at penetrations, edges, and other obstructions of work; fit tightly against abutting construction unless otherwise indicated.

C. Securely attach to substrate by fastening as indicated, complying with the following:

1. Table 2304.9.1, "Fastening Schedule," in the ICC's International Building Code.

D. Use common wire nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections. Install fasteners without splitting wood.

E. Coordinate parapet and roof sheathing installation with flashing and joint-sealant installation so these materials are installed in sequence and manner that prevent exterior moisture from passing through completed assembly.

F. Do not bridge building expansion joints; cut and space edges of panels to match spacing of structural support elements.

G. Coordinate sheathing installation with installation of materials installed over sheathing so sheathing is not exposed to precipitation or left exposed at end of the workday when rain is forecast.

END OF SECTION 061600

SECTION 070150.19 - PREPARATION FOR REROOFING

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. Full tear-off of roof system at areas indicated on Drawings.
2. Removal of flashings and counterflashings.

B. Related Requirements:

1. Section 011000 "Summary" for use of premises and for phasing requirements.
2. Section 015000 "Temporary Facilities and Controls" for temporary construction and environmental-protection measures for reroofing preparation.

1.3 DEFINITIONS

A. Full Roof Tear-off: Removal of existing roofing system down to existing roof deck.

B. Roofing Terminology: Definitions in ASTM D1079 and glossary of NRCA's "The NRCA Roofing Manual: Membrane Roof Systems" apply to work of this Section.

1.4 PREINSTALLATION MEETINGS

A. Preliminary Roofing Conference: Before starting removal Work, conduct conference at Project site.

1. Meet with Owner, Architect, Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
2. Review methods and procedures related to roofing tear-off, including, but not limited to, the following:

a. Reroofing preparation, including roofing system manufacturer's written instructions.
b. Temporary protection requirements for existing roofing system components that are to remain.
c. Existing roof drains and roof drainage during each stage of reroofing, and roof-drain plugging and plug removal.

d. Construction schedule and availability of materials, Installer's personnel, equipment, and facilities needed to avoid delays.
e. Existing roof deck conditions requiring Architect notification.
f. Condition and acceptance of existing roof deck and base flashing substrate for reuse.
g. Structural loading limitations of roof deck during reroofing.
h. Base flashings, special roofing details, drainage, penetrations, equipment curbs, and condition of other construction that affect reroofing.
i. HVAC shutdown and sealing of air intakes.
j. Shutdown of fire-suppression, -protection, and -alarm and -detection systems.
k. Governing regulations and requirements for insurance and certificates if applicable.
l. Existing conditions that may require Architect notification before proceeding.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

1. Include certificate that Installer is approved by warrantor of existing roofing system.

B. Field Test Reports:

1. Fastener pull-out test report.

C. Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including exterior and interior finish surfaces, that might be misconstrued as having been damaged by reroofing operations.

1. Submit before Work begins.

D. Landfill Records: Indicate receipt and acceptance of demolished roofing materials and hazardous wastes, such as asbestos-containing materials, by a landfill facility licensed to accept them.

1.7 QUALITY ASSURANCE

A. Regulatory Requirements:

1. Comply with governing EPA notification regulations before beginning roofing removal.
2. Comply with hauling and disposal regulations of authorities having jurisdiction.

1.8 FIELD CONDITIONS

A. Existing Roofing System: EPDM roofing.

B. Owner will occupy portions of building immediately below reroofing area.

1. Conduct reroofing so Owner's operations are not disrupted.
2. Provide Owner with not less than 72 hours' written notice of activities that may affect Owner's operations.
3. Coordinate work activities daily with Owner so Owner has adequate advance notice to place protective dust and water-leakage covers over sensitive equipment and furnishings, shut down HVAC and fire-alarm or -detection equipment if needed, and evacuate occupants from below work area.
4. Before working over structurally impaired areas of deck, notify Owner to evacuate occupants from below affected area.

    a. Verify that occupants below work area have been evacuated before proceeding with work over impaired deck area.

C. Protect building to be reroofed, adjacent buildings, walkways, site improvements, exterior plantings, and landscaping from damage or soiling from reroofing operations.

D. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities.

E. Conditions existing at time of inspection for bidding will be maintained by Owner as far as practical.

1. The results of an analysis of test cores from existing roofing system are available for Contractor's reference.
2. Construction Drawings and Project Manual for existing roofing system are provided for Contractor's convenience and information, but they are not a warranty of existing conditions. They are intended to supplement rather than serve in lieu of Contractor's own investigations. Contractor is responsible for conclusions derived from existing documents.

F. Limit construction loads on existing roof areas to remain, and existing roof areas scheduled to be reroofed.

G. Weather Limitations: Proceed with reroofing preparation only when existing and forecasted weather conditions permit Work to proceed without water entering existing roofing system or building.

1. Remove only as much roofing in one day as can be made watertight in the same day.

H. Hazardous Materials: It is not expected that hazardous materials, such as asbestos-containing materials, will be encountered in the Work.

1. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner.

    a. Hazardous materials will be removed by Owner under a separate contract.

PART 2 - PRODUCTS

2.1 TEMPORARY PROTECTION MATERIALS

A. EPS Insulation: ASTM C578.

B. Plywood: DOC PS 1, Grade CD, Exposure 1.

C. OSB: DOC PS 2, Exposure 1.

2.2 TEMPORARY ROOFING MATERIALS

A. Design and selection of materials for temporary roofing are Contractor's responsibilities.

B. Sheathing Paper: Red-rosin type, minimum 3 lb/100 sq. ft..

C. Base Sheet: ASTM D4601/D4601M, Type II, nonperforated, asphalt-impregnated and -coated, glass-fiber sheet.

D. Glass-Fiber Felts: ASTM D2178/D2178M, Type IV, asphalt-impregnated, glass-fiber felt.

E. Asphalt Primer: ASTM D41/D41M.

F. Roofing Asphalt: ASTM D312/D312M, Type III or IV.

G. Base Sheet Fasteners: Capped head, factory-coated steel fasteners, listed in FM Approvals' RoofNav.

2.3 INFILL AND REPLACEMENT MATERIALS

A. Use infill materials matching existing roofing system materials unless otherwise indicated.

1. Infill materials are specified in Section 075323 "Ethylene-Propylene-Diene-Monomer (EPDM) Roofing" unless otherwise indicated.

B. Wood blocking, curbs, and nailers are specified in Section 061053 Miscellaneous Rough Carpentry."

C. Plywood roof sheathing is specified in Section 061600 "Sheathing."

D. Parapet Sheathing:

1. ASTM C1177/C1177M or ASTM C1278/C1278M water-resistant gypsum substrate; 1/2 inch thick.
2. Exterior fire-retardant-treated plywood wall sheathing, 19/32 inch thick, complying with Section 061600 "Sheathing."

E. Fasteners: Factory-coated steel fasteners with metal or plastic plates listed in FM Approvals' RoofNav, and acceptable to new roofing system manufacturer.

2.4 AUXILIARY REROOFING MATERIALS

A. General: Use auxiliary reroofing preparation materials recommended by roofing system manufacturer for intended use and compatible with components of existing and new roofing system.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protection of In-Place Conditions:

1. Protect existing roofing system that is not to be reroofed.
2. Loosely lay 1-inch-minimum thick, EPS insulation over existing roofing in areas not to be reroofed.

    a. Loosely lay 15/32-inch plywood or OSB panels over EPS. Extend EPS past edges of plywood or OSB panels a minimum of 1 inch.

3. Limit traffic and material storage to areas of existing roofing that have been protected.
4. Maintain temporary protection and leave in place until replacement roofing has been completed. Remove temporary protection on completion of reroofing.
5. Comply with requirements of existing roof system manufacturer's warranty requirements.

B. Seal or isolate windows that may be exposed to airborne substances created in removal of existing materials.

C. Shut off rooftop utilities and service piping before beginning the Work.

D. Test existing roof drains to verify that they are not blocked or restricted.

1. Immediately notify Architect of any blockages or restrictions.

E. Coordinate with Owner to shut down air-intake equipment in the vicinity of the Work.

1. Cover air-intake louvers before proceeding with reroofing work that could affect indoor air quality or activate smoke detectors in the ductwork.

F. During removal operations, have sufficient and suitable materials on-site to facilitate rapid installation of temporary protection in the event of unexpected rain.

G. Maintain roof drains in functioning condition to ensure roof drainage at end of each workday.

1. Prevent debris from entering or blocking roof drains and conductors.

    a. Use roof-drain plugs specifically designed for this purpose.
    b. Remove roof-drain plugs at end of each workday, when no work is taking place, or when rain is forecast.

2. If roof drains are temporarily blocked or unserviceable due to roofing system removal or partial installation of new roofing system, provide alternative drainage method to remove water and eliminate ponding.

    a. Do not permit water to enter into or under existing roofing system components that are to remain.

3.2 ROOF TEAR-OFF

A. Notify Owner each day of extent of roof tear-off proposed for that day.

B. Lower removed roofing materials to ground and onto lower roof levels, using dust-tight chutes or other acceptable means of removing materials from roof areas.

C. Full Roof Tear-off: Where indicated on Drawings, remove existing roofing and other roofing system components down to the existing roof deck.

1. Remove vapor retarder roof insulation and cover board.
2. Remove base flashings and counter flashings.
3. Remove gutters and downspouts.
4. Remove perimeter edge flashing.
5. Remove copings where indicated.
6. Remove flashings at pipes, curbs, mechanical equipment, and other penetrations.
7. Remove wood blocking, curbs, and nailers.
8. Remove fasteners from deck or cut fasteners off slightly above deck surface.

3.3 DECK PREPARATION

A. Inspect deck after tear-off of roofing system.

B. If broken or loose fasteners that secure deck panels to one another or to structure are observed, or if deck appears or feels inadequately attached, immediately notify Architect.

1. Do not proceed with installation until directed by Architect.

C. If deck surface is unsuitable for receiving new roofing or if structural integrity of deck is suspect, immediately notify Architect.

1. Do not proceed with installation until directed by Architect.

D. Provide additional deck securement as indicated on Drawings.

3.4 INFILL MATERIALS INSTALLATION

A. Immediately after roof tear-off, and inspection and repair, if needed, of deck, fill in tear-off areas to match existing roofing system construction.

1. Installation of infill materials is specified in Section 075323 "Ethylene-Propylene-Diene-Monomer (EPDM) Roofing."

2. Installation of wood blocking, curbs, and nailers is specified in Section 061053 Miscellaneous Rough Carpentry."

3.5 TEMPORARY ROOFING

A. Install approved temporary roofing over area to be reroofed.

B. Install temporary roofing over area to be reroofed.

1. Install two glass-fiber felts, lapping each sheet 19 inches over preceding sheet.
2. Embed glass-fiber felt in a solid mopping of hot roofing asphalt applied within equiviscous temperature range.
3. Glaze-coat completed surface with hot roofing asphalt.

C. Remove temporary roofing before installing new roofing.

3.6 BASE FLASHING REMOVAL

A. Remove existing base flashings.

1. Clean substrates of contaminants, such as asphalt, sheet materials, dirt, and debris.

B. Do not damage metal counterflashings that are to remain.

1. Replace metal counterflashings damaged during removal with counterflashings specified in Section 076200 "Sheet Metal Flashing and Trim."

C. Inspect parapet sheathing, wood blocking, curbs, and nailers for deterioration and damage.

1. If parapet sheathing, wood blocking, curbs, or nailers have deteriorated, immediately notify Architect.

D. Remove existing parapet sheathing and replace with new parapet sheathing to comply with Section 061600 "Sheathing."

1. If parapet framing, wood blocking, curbs, or nailers have deteriorated, immediately notify Architect.

E. When directed by Architect, replace parapet framing, wood blocking, curbs, and nailers to comply with Section 061053 Miscellaneous Rough Carpentry."

3.7 DISPOSAL

A. Collect demolished materials and place in containers.

1. Promptly dispose of demolished materials.
2. Do not allow demolished materials to accumulate on-site.
3. Storage or sale of demolished items or materials on-site is not permitted.

B. Transport and legally dispose of demolished materials off Owner's property.

END OF SECTION 070150.19

SECTION 072419 - WATER-DRAINAGE EXTERIOR INSULATION AND FINISH SYSTEM (EIFS)

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. EIFS-clad drainage-wall assemblies that are field applied over substrate.
2. Water-resistive coatings.

B. Related Requirements:

1. Section 079200 "Joint Sealants" for sealing joints in EIFS with elastomeric joint sealants and for perimeter joints between system and other materials.

1.3 DEFINITIONS

A. Definitions in ASTM E 2110 apply to Work of this Section.

B. EIFS: Exterior insulation and finish system(s).

C. IBC: International Building Code.

1.4 ACTION SUBMITTALS

A. Product Data: For each EIFS component, trim, and accessory, including water-resistive coatings.

B. Samples for Initial Selection: For each type of finish-coat color and texture indicated.

1. Include similar Samples of exposed accessories involving color selection.

C. Samples for Verification: 24-inch- square panels for each type of finish-coat color and texture indicated, prepared using same tools and techniques intended for actual work including custom trim, each profile, and an aesthetic reveal.

1. Include exposed trim and accessory Samples to verify color selected.
2. Include a typical control joint filled with sealant of color selected, as specified in Section 079200 "Joint Sealants."

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Manufacturer Certificates: Signed by EIFS manufacturer certifying the following:

1. EIFS complies with requirements.
2. Substrates to which EIFS is indicated to be attached are acceptable to EIFS manufacturer.
3. Accessory products installed with EIFS, including joint sealants, flashing, water-resistive coatings, trim, whether or not furnished by EIFS manufacturer and whether or not specified in this Section, are acceptable to EIFS manufacturer.

C. Product Certificates: For insulation and joint sealant, from manufacturer.

D. Product Test Reports: For each EIFS assembly and component, and for water-resistive coatings, for tests performed by a qualified testing agency.

E. Field quality-control reports.

F. Evaluation Reports: For EIFS, including insulation fasteners, water-resistive coatings, flexible membrane flashing, from ICC-ES.

G. Sample Warranty: For manufacturer's special warranty.

1.6 CLOSEOUT SUBMITTALS

A. Maintenance Data: For EIFS to include in maintenance manuals.

1.7 QUALITY ASSURANCE

A. Installer Qualifications: An installer who is certified in writing by EIFS manufacturer as qualified to install manufacturer's system using trained workers.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in original, unopened packages with manufacturers' labels intact and clearly identifying products.

B. Store materials inside and under cover; keep them dry and protected from weather, direct sunlight, surface contamination, aging, corrosion, damaging temperatures, construction traffic, and other causes.

1. Stack insulation board flat and off the ground.
2. Protect plastic insulation against ignition at all times. Do not deliver plastic insulating materials to Project site before installation time.
3. Complete installation and concealment of plastic materials as rapidly as possible in each area of construction.

1.9 FIELD CONDITIONS

A. Weather Limitations: Maintain ambient temperatures above 40 deg F for a minimum of 24 hours before, during, and after adhesives or coatings are applied. Do not apply EIFS adhesives or coatings during rainfall. Proceed with installation only when existing and forecasted weather conditions and ambient outdoor air, humidity, and substrate temperatures permit EIFS to be applied, dried, and cured according to manufacturers' written instructions and warranty requirements.

1.10 WARRANTY

A. Manufacturer's Special Warranty: Manufacturer agrees to repair or replace components of EIFS-clad drainage-wall assemblies that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Bond integrity and weathertightness.
b. Deterioration of EIFS finishes and other EIFS materials beyond normal weathering.

2. Warranty coverage includes the following components of EIFS-clad drainage-wall assemblies:

a. EIFS finish, including base coats, finish coats, and reinforcing mesh.
b. Insulation installed as part of EIFS.
c. Insulation adhesive and mechanical fasteners.
d. EIFS accessories, including trim components and flashing.
e. Water-resistive coatings.
f. EIFS drainage components.

3. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis-of-Design Product: Subject to compliance with requirements, provide Dryvit Systems, Inc.; Outsulation MD or comparable product by one of the following:

1. Corev America, Inc.
2. Dryvit Systems, Inc.
3. Master Wall Inc.
4. Parex USA, Inc.
5. Sto Corp.
6. Total Wall, Inc.

B. Source Limitations: Obtain EIFS from single source from single EIFS manufacturer and from sources approved by EIFS manufacturer as compatible with EIFS components.

2.2 PERFORMANCE REQUIREMENTS

A. EIFS Performance: Comply with ASTM E 2568 and ICC-ES AC219 and with the following:

1. Weathertightness: Resistant to uncontrolled water penetration from exterior, with a means to drain water entering EIFS to the exterior.
2. Structural Performance: EIFS assembly and components shall comply with ICC-ES AC219 when tested according to ASTM E 2568.

    a. Wind Loads: Uniform pressure of 20 lbf/sq. ft., acting inward or outward.

3. Impact Performance: ASTM E 2568, Standard impact resistance.
4. Bond Integrity: Free from bond failure within EIFS components or between EIFS and substrates, resulting from exposure to fire, wind loads, weather, or other in-service conditions.
5. Abrasion Resistance of Finish Coat: Sample consisting of 1-inch- thick EIFS mounted on 1/2-inch- thick gypsum board; cured for a minimum of 28 days and shows no cracking, checking, or loss of film integrity after exposure to 528 quarts of sand when tested according to ASTM D 968, Method A.
6. Mildew Resistance of Finish Coat: Sample applied to 2-by-2-inch clean glass substrate; cured for 28 days and shows no growth when tested according to ASTM D 3273 and evaluated according to ASTM D 3274.

2.3 EIFS MATERIALS

A. Primer/Sealer: EIFS manufacturer's standard substrate conditioner designed to protect substrates from moisture penetration and to improve the bond between substrate and insulation adhesive.

B. Water-Resistive Coatings: EIFS manufacturer's standard formulation and accessories for use as water-resistive barriers; compatible with substrate and complying with physical and performance criteria of ASTM E 2570.

C. Flexible-Membrane Flashing: Cold-applied, self-adhering, self-healing, rubberized-asphalt and polyethylene-film composite sheet or tape and primer; EIFS manufacturer's standard or product recommended in writing by EIFS manufacturer.

D. Insulation Adhesive: EIFS manufacturer's standard formulation designed for indicated use; specifically formulated to be applied to back side of insulation in a manner that creates open vertical channels designed to serve as an integral part of the water-drainage system of the EIFS-clad drainage-wall assembly; compatible with substrate; and complying with one of the following:

1. Job-mixed formulation of portland cement complying with ASTM C 150/C 150M, Type I, and polymer-based adhesive specified for base coat.
2. Factory-blended dry formulation of portland cement, dry polymer admixture, and fillers specified for base coat.
3. Factory-mixed noncementitious formulation designed for adhesive attachment of insulation to substrates of type indicated, as recommended by EIFS manufacturer.

E. Drainage Mat: Three-dimensional, nonwoven, entangled filament, nylon or plastic or Woven or fused, self-furring, PVC mesh lath mat designed to drain incidental moisture by gravity; EIFS manufacturer's standard or product recommended in writing by EIFS manufacturer with manufacturer's standard corrosion-resistant mechanical fasteners suitable for intended substrate.

F. Molded, Rigid Cellular Polystyrene Board Insulation: Comply with ASTM C 578, Type I; and EIFS manufacturer's requirements for most stringent requirements for material performance and qualities of insulation, including dimensions and permissible variations, and the following:

1. Aging: Before cutting and shipping, age insulation in block form by air drying for not less than six weeks.
2. Flame-Spread and Smoke-Developed Indexes: 25 and 450 or less, respectively, according to ASTM E 84.
3. Dimensions: Provide insulation boards of not more than 24 by 48 inches thick or in other thickness indicated, but not more than 4 inches thick or less than the thickness allowed by ASTM C 1397.
4. Channeled Board Insulation: EIFS manufacturer's standard factory-fabricated profile with linear, vertical-drainage channels, slots, or waves on the back side of board.

G. Reinforcing Mesh: Balanced, alkali-resistant, open-weave, glass-fiber mesh treated for compatibility with other EIFS materials, made from continuous multiend strands with retained mesh tensile strength of not less than 120 lbf/in. according to ASTM E 2098 and the following:

1. Reinforcing Mesh for EIFS, General: Not less than weight required to meet impact-performance level specified in "Performance Requirements" Article.
2. Strip Reinforcing Mesh: Not less than 3.75 oz./sq. yd..
3. Detail Reinforcing Mesh: Not less than 4.0 oz./sq. yd..
4. Corner Reinforcing Mesh: Not less than 7.2 oz./sq. yd..

H. Base-Coat Materials: EIFS manufacturer's standard mixture complying with one of the following:

1. Job-mixed formulation of portland cement complying with ASTM C 150/ C 150M, Type I, white or natural color; and manufacturer's standard polymer-emulsion adhesive designed for use with portland cement.
2. Job-combined formulation of manufacturer's standard polymer-emulsion adhesive and manufacturer's standard dry mix containing portland cement.
3. Factory-blended dry formulation of portland cement, dry polymer admixture, and inert fillers to which only water is added at Project site.
4. Factory-mixed noncementitious formulation of polymer-emulsion adhesive and inert fillers that is ready to use without adding other materials.

I. Waterproof Adhesive/Base-Coat Materials: EIFS manufacturer's standard waterproof formulation and complying with one of the following:

1. Job-mixed formulation of portland cement complying with ASTM C 150/C 150M, Type I, white or natural color; and manufacturer's standard polymer-emulsion adhesive designed for use with portland cement.
2. Job-combined formulation of manufacturer's standard polymer-emulsion adhesive and manufacturer's standard dry mix containing portland cement.

J. Mechanical Fasteners: EIFS manufacturer's standard corrosion-resistant fasteners consisting of thermal cap, standard washer and shaft attachments, and fastener indicated below; designed to resist Project's design loads; capable of pulling fastener head below surface of insulation board; and complying with the following:

1. For attachment to steel studs from 0.033 to 0.112 inch in thickness, provide steel drill screws complying with ASTM C 954.
2. For attachment to light-gage steel framing members not less than 0.0179 inch in thickness, provide steel drill screws complying with ASTM C 1002.
3. For attachment to wood framing members and plywood sheathing, provide steel drill screws complying with ASTM C 1002, Type W.
4. For attachment to masonry and concrete substrates, provide sheathing dowel in form of a plastic wing-tipped fastener with thermal cap, sized to fit insulation thickness indicated and to penetrate substrate to depth required to secure anchorage.

K. Primer: EIFS manufacturer's standard factory-mixed, elastomeric-polymer primer for preparing base-coat surface for application of finish coat.

L. Finish-Coat Materials: EIFS manufacturer's standard acrylic-based coating complying with the following:

1. Factory-mixed formulation of polymer-emulsion binder, colorfast mineral pigments, sound stone particles, and fillers.
2. Factory-mixed formulation of polymer-emulsion binder, colorfast mineral pigments, and fillers used with stone particles for embedding in finish coat to produce an applied-aggregate finish.

    a. Aggregate: Marble chips of size and color as selected by Architect from manufacturer's full range.

3. Colors: As selected by Architect from manufacturer's full range.
4. Textures: As selected by Architect from manufacturer's full range.

M. Sealer: Manufacturer's waterproof, clear acrylic-based sealer for protecting finish coat.

N. Water: Potable.

O. Trim Accessories: Type as designated or required to suit conditions indicated and to comply with EIFS manufacturer's written instructions; manufactured from UV-stabilized PVC; and complying with ASTM D 1784, manufacturer's standard cell class for use intended, and ASTM C 1063.

1. Casing Bead: Prefabricated, one-piece type for attachment behind insulation, of depth required to suit thickness of coating and insulation, with face leg perforated for bonding to coating and back leg.
2. Drip Screed/Track: Prefabricated, one-piece type for attachment behind insulation with face leg extended to form a drip, of depth required to suit thickness of coating and insulation, with face leg perforated for bonding to coating and back leg.
3. Weep Screed/Track: Prefabricated, one-piece type for attachment behind insulation with perforated face leg extended to form a drip and weep holes in track bottom, of depth required to suit thickness of coating and insulation, with face leg perforated for bonding

to coating and back leg; designed to drain incidental moisture that gets into wall construction to the exterior at terminations of EIFS with drainage.

4. Expansion Joint: Prefabricated, one-piece V profile; designed to relieve stress of movement.
5. Windowsill Flashing: Prefabricated type for both flashing and sloping sill over framing beneath windows; with end and back dams; designed to direct water to exterior.
6. Parapet Cap Flashing: Type for both flashing and covering parapet top with design complying with ASTM C 1397.

2.4 MIXING

A. Comply with EIFS manufacturer's requirements for combining and mixing materials. Do not introduce admixtures, water, or other materials except as recommended by EIFS manufacturer. Mix materials in clean containers. Use materials within time period specified by EIFS manufacturer or discard.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Examine roof edges, wall framing, flashings, openings, substrates, and junctures at other construction for suitable conditions where EIFS will be installed.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

1. Begin coating application only after surfaces are dry.
2. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Protect contiguous work from moisture deterioration and soiling caused by application of EIFS. Provide temporary covering and other protection needed to prevent spattering of exterior finish coats on other work.

B. Protect EIFS, substrates, and wall construction behind them from inclement weather during installation. Prevent penetration of moisture behind drainage plane of EIFS and deterioration of substrates.

C. Prepare and clean substrates to comply with EIFS manufacturer's written instructions to obtain optimum bond between substrate and adhesive for insulation.

1. Concrete Substrates: Provide clean, dry, neutral-pH substrate for insulation installation. Verify suitability of substrate by performing bond and moisture tests recommended by EIFS manufacturer.

3.3 EIFS INSTALLATION, GENERAL

A. Comply with ASTM C 1397, ASTM E 2511, and EIFS manufacturer's written instructions for installation of EIFS as applicable to each type of substrate indicated.

3.4 SUBSTRATE PROTECTION APPLICATION

A. Primer/Sealer: Apply over substrates and where required by EIFS manufacturer for improving adhesion of insulation to substrate.

B. Water-Resistive Coating: Apply over sheathing to provide a water-resistive barrier.

1. Tape and seal joints, exposed edges, terminations, and inside and outside corners of sheathing unless otherwise indicated by EIFS manufacturer's written instructions.

C. Flexible-Membrane Flashing: Install over weather-resistive barrier, applied and lapped to shed water; seal at openings, penetrations, terminations, and where required by EIFS manufacturer. Prime substrates if required and install flashing to comply with EIFS manufacturer's written instructions and details.

3.5 TRIM INSTALLATION

A. Trim: Apply trim accessories at perimeter of EIFS, at expansion joints, at windowsills, and elsewhere as indicated. Coordinate with installation of insulation.

1. Weep Screed/Track: Use at bottom termination edges, at window and door heads, and at floor line expansion joints of water-drainage EIFS unless otherwise indicated.
2. Windowsill Flashing: Use at windows unless otherwise indicated.
3. Expansion Joint: Use where indicated on Drawings.
4. Casing Bead: Use at other locations.
5. Parapet Cap Flashing: Use where indicated on Drawings.

3.6 DRAINAGE MAT INSTALLATION

A. Drainage Mat: Apply wrinkle free, continuously, with edges overlapped and mechanically secured with fasteners over water-resistive barrier.

3.7 INSULATION INSTALLATION

A. Board Insulation: Mechanically attach insulation to substrate in compliance with ASTM C 1397 and the following:

1. Mechanically attach insulation to substrate. Install top surface of fastener heads flush with plane of insulation. Install fasteners into or through substrates with the following minimum penetration:

a. Steel Framing: 5/16 inch.
b. Concrete and Masonry: 1 inch.

2. Apply insulation over substrates in courses with long edges of boards oriented horizontally.
3. Begin first course of insulation from screed/track and work upward. Work from perimeter casing beads toward interior of panels if possible.
4. Stagger vertical joints of insulation boards in successive courses to produce running bond pattern. Locate joints so no piece of insulation is less than 12 inches wide or 6 inches high. Offset joints not less than 6 inches from corners of window and door openings and not less than 4 inches from aesthetic reveals.

    a. Mechanical Attachment: Offset joints of insulation from horizontal joints in sheathing.

5. Apply channeled insulation with drainage channels aligned vertically.
6. Interlock ends at internal and external corners.
7. Abut insulation tightly at joints within and between each course to produce flush, continuously even surfaces without gaps or raised edges between boards. If gaps greater than 1/16 inch occur, fill with insulation cut to fit gaps exactly; insert insulation without using adhesive or other material.
8. Cut insulation to fit openings, corners, and projections precisely and to produce edges and shapes complying with details indicated.
9. Rasp or sand flush entire surface of insulation to remove irregularities projecting more than 1/32 inch from surface of insulation and to remove yellowed areas due to sun exposure; do not create depressions deeper than 1/16 inch. Prevent airborne dispersal and immediately collect insulation raspings or sandings.
10. Cut aesthetic reveals in outside face of insulation with high-speed router and bit configured to produce grooves, rabbets, and other features that comply with profiles and locations indicated. Do not reduce insulation thickness at aesthetic reveals to less than 3/4 inch.
11. Interrupt insulation for expansion joints where indicated.
12. Form joints for sealant application by leaving gaps between adjoining insulation edges and between insulation edges and dissimilar adjoining surfaces. Make gaps wide enough to produce joint widths indicated after encapsulating joint substrates with base coat and reinforcing mesh.
13. Form joints for sealant application with back-to-back casing beads for joints within EIFS and with perimeter casing beads at dissimilar adjoining surfaces. Make gaps between casing beads and between perimeter casing beads and adjoining surfaces of width indicated.
14. After installing insulation and before applying field-applied reinforcing mesh, fully wrap board edges. Cover edges of board and extend encapsulating mesh not less than 2-1/2 inches over front and back face unless otherwise indicated on Drawings.
15. Treat exposed edges of insulation as follows:

    a. Except for edges forming substrates of sealant joints, encapsulate with base coat, reinforcing mesh, and finish coat.
    b. Encapsulate edges forming substrates of sealant joints within EIFS or between EIFS and other work with base coat and reinforcing mesh.
    c. At edges trimmed by accessories, extend base coat, reinforcing mesh, and finish coat over face leg of accessories.

16. Coordinate installation of flashing and insulation to produce wall assembly that does not allow water to penetrate behind flashing and water-resistive barrier.

B. Expansion Joints: Install at locations indicated, where required by EIFS manufacturer, and as follows:

1. At expansion joints in substrates behind EIFS.
2. Where EIFS adjoin dissimilar substrates, materials, and construction, including other EIFS.
3. Where wall height or building shape changes.
4. Where EIFS manufacturer requires joints in long continuous elevations.

3.8 BASE-COAT INSTALLATION

A. Base Coat: Apply to exposed surfaces of insulationin minimum thickness recommended in writing by EIFS manufacturer, but not less than 1/16-inch dry-coat thickness.

B. Reinforcing Mesh: Embed reinforcing mesh in wet base coat to produce wrinkle-free installation with mesh continuous at corners, overlapped not less than 2-1/2 inches or otherwise treated at joints to comply with ASTM C 1397 and EIFS manufacturer's written instructions. Do not lap reinforcing mesh within 8 inches of corners. Completely embed mesh, applying additional base-coat material if necessary, so reinforcing-mesh color and pattern are invisible.

C. Double-Layer Reinforcing-Mesh Application: Where indicated or required, apply second base coat and second layer of reinforcing mesh, overlapped not less than 2-1/2 inches or otherwise treated at joints to comply with ASTM C 1397 and EIFS manufacturer's written instructions in same manner as first application. Do not apply until first base coat has cured.

D. Additional Reinforcing Mesh: Apply strip reinforcing mesh around openings, extending 4 inches beyond perimeter. Apply additional 9-by-12-inch strip reinforcing mesh diagonally at corners of openings (re-entrant corners). Apply 8-inch- wide, strip reinforcing mesh at both inside and outside corners unless base layer of mesh is lapped not less than 4 inches on each side of corners.

1. At aesthetic reveals, apply strip reinforcing mesh not less than 8 inches wide.
2. Embed strip reinforcing mesh in base coat before applying first layer of reinforcing mesh.

E. Double Base-Coat Application: Where indicated, apply second base coat in same manner and thickness as first application, except without reinforcing mesh. Do not apply until first base coat has cured.

3.9 FINISH-COAT INSTALLATION

A. Primer: Apply over dry base coat according to EIFS manufacturer's written instructions.

B. Finish Coat: Apply over dry primed base coat, maintaining a wet edge at all times for uniform appearance, in thickness required by EIFS manufacturer to produce a uniform finish of color and texture matching approved sample and free of cold joints, shadow lines, and texture variations.

1. Embed aggregate in finish coat according to EIFS manufacturer's written instructions to produce a uniform applied-aggregate finish of color and texture matching approved sample.

C. Sealer Coat: Apply over dry finish coat, in number of coats and thickness required by EIFS manufacturer.

3.10 FIELD QUALITY CONTROL

A. Special Inspections: Owner will engage a qualified special inspector to perform the following special inspections:

1. As stipulated in Ch. 17 of the IBC.

B. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.

C. EIFS Tests and Inspections: According to ASTM E 2359.

D. EIFS will be considered defective if it does not pass tests and inspections.

E. Prepare test and inspection reports.

3.11 CLEANING AND PROTECTION

A. Remove temporary covering and protection of other work. Promptly remove coating materials from window and door frames and other surfaces outside areas indicated to receive EIFS coatings.

END OF SECTION 072419

SECTION 074113.16 - STANDING-SEAM METAL ROOF PANELS

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 standing-seam metal roof panels.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1. Meet with Owner, Architect, Owner's insurer if applicable, metal panel Installer, metal panel manufacturer's representative, structural-support Installer, and installers whose work interfaces with or affects metal panels, including installers of roof accessories and roof-mounted equipment.
2. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
3. Review methods and procedures related to metal panel installation, including manufacturer's written instructions.
4. Examine support conditions for compliance with requirements, including alignment between and attachment to structural members.
5. Review structural loading limitations of purlins and rafters during and after roofing.
6. Review flashings, special details, drainage, penetrations, equipment curbs, and condition of other construction that affect metal panels.
7. Review governing regulations and requirements for insurance, certificates, and tests and inspections if applicable.
8. Review temporary protection requirements for metal panel systems during and after installation.
9. Review procedures for repair of metal panels damaged after installation.
10. Document proceedings, including corrective measures and actions required, and furnish copy of record to each participant.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of panel and accessory.

B. Shop Drawings:

1. Include fabrication and installation layouts of metal panels; details of edge conditions, joints, panel profiles, corners, anchorages, attachment system, trim, flashings, closures, and accessories; and special details.
2. Accessories: Include details of the flashing, trim, and anchorage systems, at a scale of not less than 1-1/2 inches per 12 inches.

C. Samples for Initial Selection: For each type of metal panel indicated with factory-applied color finishes.

1. Include similar Samples of trim and accessories involving color selection.

D. Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below.

1. Metal Panels: 12 inches long by actual panel width. Include clips, fasteners, closures, and other metal panel accessories.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Product Test Reports: For each product, for tests performed by a qualified testing agency.

C. Field quality-control reports.

D. Sample Warranties: For special warranties.

1.6 CLOSEOUT SUBMITTALS

A. Maintenance Data: For metal panels to include in maintenance manuals.

1.7 QUALITY ASSURANCE

A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver components, metal panels, and other manufactured items so as not to be damaged or deformed. Package metal panels for protection during transportation and handling.

B. Unload, store, and erect metal panels in a manner to prevent bending, warping, twisting, and surface damage.

C. Stack metal panels horizontally on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal panels to ensure dryness, with positive slope for drainage of water. Do not store metal panels in contact with other materials that might cause staining, denting, or other surface damage.

D. Retain strippable protective covering on metal panels during installation.

1.9 FIELD CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit assembly of metal panels to be performed according to manufacturers' written instructions and warranty requirements.

1.10 COORDINATION

A. Coordinate sizes and locations of roof curbs, equipment supports, and roof penetrations with actual equipment provided.

B. Coordinate metal panel installation with rain drainage work, flashing, trim, construction of soffits, and other adjoining work to provide a leakproof, secure, and noncorrosive installation.

1.11 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of metal panel systems that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Structural failures including rupturing, cracking, or puncturing.
b. Deterioration of metals and other materials beyond normal weathering.

2. Warranty Period: Five years from date of Substantial Completion.

B. Special Warranty on Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal panels that show evidence of deterioration of factory-applied finishes within specified warranty period.

1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:

a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.

2. Finish Warranty Period: 20 years from date of Substantial Completion.

C. Special Weathertightness Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace standing-seam metal roof panel assemblies that fail to remain weathertight, including leaks, within specified warranty period.

1. Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

A. Structural Performance: Provide metal panel systems capable of withstanding the effects of the following loads, based on testing according to ASTM E 1592:

1. Wind Loads: As indicated on Structural Drawings.

B. Air Infiltration: Air leakage of not more than 0.06 cfm/sq. ft. when tested according to ASTM E 1680 or ASTM E 283 at the following test-pressure difference:

1. Test-Pressure Difference: 6.24 lbf/sq. ft..

C. Water Penetration under Static Pressure: No water penetration when tested according to ASTM E 1646 or ASTM E 331 at the following test-pressure difference:

1. Test-Pressure Difference: 6.24 lbf/sq. ft..

D. Wind-Uplift Resistance: Provide metal roof panel assemblies that comply with UL 580 for wind-uplift-resistance class indicated.

1. Uplift Rating: UL 90.

E. FM Global Listing: Provide metal roof panels and component materials that comply with requirements in FM Global 4471 as part of a panel roofing system and that are listed in FM Global's "Approval Guide" for Class 1 or noncombustible construction, as applicable. Identify materials with FM Global markings.

1. Fire/Windstorm Classification: Class 1A-90.

F. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.

2.2 STANDING-SEAM METAL ROOF PANELS

A. General: Provide factory-formed metal roof panels designed to be installed by lapping and interconnecting raised side edges of adjacent panels with joint type indicated and mechanically attaching panels to supports using concealed clips in side laps. Include clips, cleats, pressure plates, and accessories required for weathertight installation.

1. Aluminum Panel Systems: Unless more stringent requirements are indicated, comply with ASTM E 1637.

B. Mechanically-Seamed, Concealed Fastener, Standing-Seam Metal Roof Panels: Formed with vertical ribs at panel edges and a flat pan between ribs; designed for sequential installation by mechanically attaching panels to supports using concealed clips located under one side of panels, engaging opposite edge of adjacent panels, and mechanically seaming panels together.

1. Basis-of-Design Product: Subject to compliance with requirements, provide MBCI; Curved BattenLok or comparable product by one of the following:

    a. Advanced Architectural Products.
    b. AEP Span; a BlueScope Steel company.
    c. Architectural Building Components.
    d. Architectural Metal Systems; a Nucor company.
    e. CENTRIA Architectural Systems.
    f. Dimensional Metals, Inc.
    g. Englert, Inc.
    h. Fabral.
    i. Garland Company, Inc. (The)
    j. IMETCO.
    k. MBCI; a division of NCI Building Systems, L.P.*
    l. McElroy Metal, Inc.
    m. Merchant & Evans.
    n. Metal-Fab Manufacturing, LLC.
    o. Metal Sales Manufacturing Corporation.
    p. Morin; a Kingspan Group company.
    q. Petersen Aluminum Corporation.
    r. Ryerson, Inc.
    s. Ultra Seam, Inc.
    t. Union Corrugating Company.
    u. VICWEST.

1. Aluminum-Zinc Alloy-Coated Steel Sheet: ASTM A 792/A 792M, structural quality, Grade 50, Coating Class AZ50, prepainted by the coil-coating process per ASTM A 755/A 755M.

2. Clips: One-piece fixed to accommodate thermal movement.

    a. Material: 0.062-inch- thick, stainless-steel sheet.

3. Joint Type: As standard with manufacturer.
4. Panel Coverage: 16 inches.
5. Panel Height: 2.0 inches.

2.3 UNDERLAYMENT MATERIALS

A. Self-Adhering, High-Temperature Underlayment: Provide self-adhering, cold-applied, sheet underlayment, a minimum of 30 mils thick, consisting of slip-resistant, polyethylene-film top surface laminated to a layer of butyl or SBS-modified asphalt adhesive, with release-paper backing. Provide primer when recommended by underlayment manufacturer.

B. Slip Sheet: Manufacturer's recommended slip sheet, of type required for application.

2.4 MISCELLANEOUS MATERIALS

A. Miscellaneous Metal Subframing and Furring: ASTM C 645; cold-formed, metallic-coated steel sheet, ASTM A 653/A 653M, G90 coating designation or ASTM A 792/A 792M, Class AZ50 coating designation unless otherwise indicated. Provide manufacturer's standard sections as required for support and alignment of metal panel system.

B. Panel Accessories: Provide components required for a complete, weathertight panel system including trim, copings, fasciae, mullions, sills, corner units, clips, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal panels unless otherwise indicated.

1. Closures: Provide closures at eaves and ridges, fabricated of same metal as metal panels.
2. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.
3. Closure Strips: Closed-cell, expanded, cellular, rubber or crosslinked, polyolefin-foam or closed-cell laminated polyethylene; minimum 1-inch- thick, flexible closure strips; cut or premolded to match metal panel profile. Provide closure strips where indicated or necessary to ensure weathertight construction.

C. Flashing and Trim: Provide flashing and trim formed from same material as metal panels as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, eaves, rakes, corners, bases, framed openings, ridges, fasciae, and fillers. Finish flashing and trim with same finish system as adjacent metal panels.

D. Gutters: Formed from same material as roof panels, complete with end pieces, outlet tubes, and other special pieces as required. Fabricate in minimum 96-inch- long sections, of size and metal thickness according to SMACNA's "Architectural Sheet Metal Manual." Furnish gutter supports spaced a maximum of 30 inches o.c., fabricated from same metal as gutters. Provide wire ball strainers of compatible metal at outlets. Finish gutters to match roof fascia and rake trim.

E. Downspouts: Formed from same material as roof panels. Fabricate in 10-foot- long sections, complete with formed elbows and offsets, of size and metal thickness according to SMACNA's "Architectural Sheet Metal Manual." Finish downspouts to match gutters.

F. Panel Fasteners: Self-tapping screws designed to withstand design loads.

G. Panel Sealants: Provide sealant type recommended by manufacturer that are compatible with panel materials, are nonstaining, and do not damage panel finish.

1. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch wide and 1/8 inch thick.
2. Joint Sealant: ASTM C 920; elastomeric polyurethane or silicone sealant; of type, grade, class, and use classifications required to seal joints in metal panels and remain weathertight; and as recommended in writing by metal panel manufacturer.
3. Butyl-Rubber-Based, Solvent-Release Sealant: ASTM C 1311.

2.5 FABRICATION

A. General: Fabricate and finish metal panels and accessories at the factory, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles and with dimensional and structural requirements.

B. Provide panel profile, including major ribs and intermediate stiffening ribs, if any, for full length of panel.

C. Fabricate metal panel joints with factory-installed captive gaskets or separator strips that provide a weathertight seal and prevent metal-to-metal contact, and that minimize noise from movements.

D. Sheet Metal Flashing and Trim: Fabricate flashing and trim to comply with manufacturer's recommendations and recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item indicated.

1. Form exposed sheet metal accessories that are without excessive oil canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.
2. Seams for Aluminum: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints for additional strength.
3. Seams for Other Than Aluminum: Fabricate nonmoving seams in accessories with flat-lock seams. Tin edges to be seamed, form seams, and solder.
4. Sealed Joints: Form nonexpansion, but movable, joints in metal to accommodate sealant and to comply with SMACNA standards.
5. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of accessories exposed to view.
6. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal recommended in writing by metal panel manufacturer.

    a. Size: As recommended by SMACNA's "Architectural Sheet Metal Manual" or metal panel manufacturer for application, but not less than thickness of metal being secured.

2.6 FINISHES

A. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

B. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in same piece are unacceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

C. Aluminum Panels and Accessories:

1. Three-Coat Fluoropolymer: AAMA 2605. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in both color coat and clear topcoat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, metal panel supports, and other conditions affecting performance of the Work.

1. Examine primary and secondary roof framing to verify that rafters, purlins, angles, channels, and other structural panel support members and anchorages have been installed within alignment tolerances required by metal roof panel manufacturer.
2. Examine solid roof sheathing to verify that sheathing joints are supported by framing or blocking and that installation is within flatness tolerances required by metal roof panel manufacturer.

    a. Verify that air- or water-resistive barriers have been installed over sheathing or backing substrate to prevent air infiltration or water penetration.

B. Examine roughing-in for components and systems penetrating metal panels to verify actual locations of penetrations relative to seam locations of metal panels before installation.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Miscellaneous Supports: Install subframing, furring, and other miscellaneous panel support members and anchorages according to ASTM C 754 and metal panel manufacturer's written recommendations.

3.3 SUBSTRATE BOARD INSTALLATION

A. Install substrate board with long joints in continuous straight lines, perpendicular to roof slopes with end joints staggered between rows. Tightly butt substrate boards together.

1. Fasten substrate board to top flanges of wood trusses according to recommendations in FM Global's "RoofNav" and FM Global Loss Prevention Data Sheet 1-29 for specified Windstorm Resistance Classification.
2. Fasten substrate board to top flanges of wood trusses to resist uplift pressure at corners, perimeter, and field of roof according to roofing system manufacturers' written instructions.

3.3 UNDERLAYMENT INSTALLATION

A. Self-Adhering Sheet Underlayment: Apply primer if required by manufacturer. Comply with temperature restrictions of underlayment manufacturer for installation. Apply at locations indicated below, wrinkle free, in shingle fashion to shed water, and with end laps of not less than 6 inches staggered 24 inches between courses. Overlap side edges not less than 3-1/2 inches. Roll laps with roller. Cover underlayment within 14 days.

1. Apply over the entire roof surface.

B. Slip Sheet: Apply slip sheet over underlayment before installing metal roof panels.

C. Flashings: Install flashings to cover underlayment to comply with requirements specified in Section 076200 "Sheet Metal Flashing and Trim."

3.4 METAL PANEL INSTALLATION

A. General: Install metal panels according to manufacturer's written instructions in orientation, sizes, and locations indicated. Install panels perpendicular to supports unless otherwise indicated. Anchor metal panels and other components of the Work securely in place, with provisions for thermal and structural movement.

1. Shim or otherwise plumb substrates receiving metal panels.
2. Flash and seal metal panels at perimeter of all openings. Fasten with self-tapping screws. Do not begin installation until air- or water-resistive barriers and flashings that will be concealed by metal panels are installed.
3. Install screw fasteners in predrilled holes.
4. Locate and space fastenings in uniform vertical and horizontal alignment.
5. Install flashing and trim as metal panel work proceeds.
6. Locate panel splices over, but not attached to, structural supports. Stagger panel splices and end laps to avoid a four-panel lap splice condition.
7. Align bottoms of metal panels and fasten with blind rivets, bolts, or self-tapping screws. Fasten flashings and trim around openings and similar elements with self-tapping screws.
8. Provide weathertight escutcheons for pipe- and conduit-penetrating panels.

B. Fasteners:
1. Aluminum Panels: Use aluminum or stainless-steel fasteners for surfaces exposed to the exterior; use aluminum or galvanized-steel fasteners for surfaces exposed to the interior.

C. Anchor Clips: Anchor metal roof panels and other components of the Work securely in place, using manufacturer's approved fasteners according to manufacturers' written instructions.

D. Metal Protection: Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action as recommended in writing by metal panel manufacturer.

E. Standing-Seam Metal Roof Panel Installation: Fasten metal roof panels to supports with concealed clips at each standing-seam joint at location, spacing, and with fasteners recommended in writing by manufacturer.

1. Install clips to supports with self-tapping fasteners.

2. Install pressure plates at locations indicated in manufacturer's written installation instructions.
3. Snap Joint: Nest standing seams and fasten together by interlocking and completely engaging factory-applied sealant.
4. Watertight Installation:

    a. Apply a continuous ribbon of sealant or tape to seal joints of metal panels, using sealant or tape as recommend in writing by manufacturer as needed to make panels watertight.
    b. Provide sealant or tape between panels and protruding equipment, vents, and accessories.
    c. At panel splices, nest panels with minimum 6-inch end lap, sealed with sealant and fastened together by interlocking clamping plates.

F. Accessory Installation: Install accessories with positive anchorage to building and weathertight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.

1. Install components required for a complete metal panel system including trim, copings, corners, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items. Provide types indicated by metal roof panel manufacturers; or, if not indicated, types recommended by metal roof panel manufacturer.

G. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.

1. Install exposed flashing and trim that is without buckling and tool marks, and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and achieve waterproof and weather-resistant performance.
2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet with no joints allowed within 24 inches of corner or intersection. Where lapped expansion provisions cannot be used or would not be sufficiently weather resistant and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with mastic sealant (concealed within joints).

H. Gutters: Join sections with riveted and soldered or lapped and sealed joints. Attach gutters to eave with gutter hangers spaced not more than 30 inches o.c. using manufacturer's standard fasteners. Provide end closures and seal watertight with sealant. Provide for thermal expansion.

I. Downspouts: Join sections with telescoping joints. Provide fasteners designed to hold downspouts securely 1 inch away from walls; locate fasteners at top and bottom and at approximately 60 inches o.c. in between.

1. Provide elbows at base of downspouts to direct water away from building.
2. Connect downspouts to underground drainage system indicated.

J. Pipe Flashing: Form flashing around pipe penetration and metal roof panels. Fasten and seal to metal roof panels as recommended by manufacturer.

3.5 ERECTION TOLERANCES

A. Installation Tolerances: Shim and align metal panel units within installed tolerance of 1/4 inch in 20 feet on slope and location lines as indicated and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.

3.6 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect metal roof panel installation, including accessories. Report results in writing.

B. Remove and replace applications of metal roof panels where tests and inspections indicate that they do not comply with specified requirements.

C. Additional tests and inspections, at Contractor's expense, are performed to determine compliance of replaced or additional work with specified requirements.

D. Prepare test and inspection reports.

3.7 CLEANING AND PROTECTION

A. Remove temporary protective coverings and strippable films, if any, as metal panels are installed, unless otherwise indicated in manufacturer's written installation instructions. On completion of metal panel installation, clean finished surfaces as recommended by metal panel manufacturer. Maintain in a clean condition during construction.

B. Replace metal panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 074113.16

SECTION 075323 - ETHYLENE-PROPYLENE-DIENE-MONOMER (EPDM) ROOFING

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. Adhered Ethylene-propylene-diene-terpolymer (EPDM) roofing system.
2. Vapor retarder.
3. Roof insulation.
4. Cover board.

B. Section includes installation of sound-absorbing insulation strips in ribs of roof deck. Sound-absorbing insulation strips are furnished under Section 053100 "Steel Decking."

C. Related Requirements:

1. Section 061053 "Miscellaneous Rough Carpentry" for wood nailers, curbs, and blocking.
2. Section 076200 "Sheet Metal Flashing and Trim" for metal roof flashings and counterflashings.
3. Section 077200 "Roof Accessories" for manufactured copings and roof edge flashings.
4. Section 079200 "Joint Sealants" for joint sealants, joint fillers, and joint preparation.

1.3 DEFINITIONS

A. Roofing Terminology: Definitions in ASTM D1079 and glossary of NRCA's "The NRCA Roofing Manual: Membrane Roof Systems" apply to work of this Section.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: Include roof plans, sections, details, and attachments to other work.

C. Samples for Verification: For the following products:

1. Roof membrane and flashings of color required.
2. Aggregate surfacing material in gradation and color required.
3. Roof paver, full sized, in each color and texture required.

D. Wind Uplift Resistance Submittal: For roofing system, indicating compliance with wind uplift performance requirements.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Evaluation Reports: For components of roofing system, from ICC-ES.

1. Field Test Reports:
2. Fastener-pullout test results and manufacturer's revised requirements for fastener patterns.

C. Sample Warranties: For manufacturer's special warranties.

1.6 CLOSEOUT SUBMITTALS

A. Maintenance Data: For roofing system to include in maintenance manuals.

1.7 QUALITY ASSURANCE

A. Installer Qualifications: A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's special warranty.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, approval or listing agency markings, and directions for storing and mixing with other components.

B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.

1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.

C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.

D. Handle and store roofing materials, and place equipment in a manner to avoid permanent deflection of deck.

1.9 FIELD CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.

1.10 WARRANTY

A. Manufacturer’s Warranty: Submit Manufacturer’s Warranty, on Manufacturer’s standard form stating manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship within specified warranty period.

1. Warranty includes roof membrane, base flashings, roof insulation, fasteners, cover boards, substrate board, and other components of roofing system.
2. Warranty Period: 20 years from Date of Substantial Completion.

B. Special Project Warranty: Submit Roofing Installer's warranty, on warranty form at end of this Section, signed by Installer, covering the Work of this Section, including all components of roofing system such as roof membrane, base flashing, roof insulation, fasteners, cover boards, substrate boards, vapor retarders, roof pavers, and walkway products, for the following warranty period:

1. Warranty Period: Two years from Date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. General Performance: Installed roofing system and base flashings shall withstand specified uplift pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Roofing and flashings shall remain watertight.

1. Accelerated Weathering: Roof membrane shall withstand 2000 hours of exposure when tested according to ASTM G152, ASTM G154, or ASTM G155.
2. Impact Resistance: Roof membrane shall resist impact damage when tested according to ASTM D3746, ASTM D4272, or the Resistance to Foot Traffic Test in FM Approvals 4470.

B. Material Compatibility: Roofing materials shall be compatible with one another and adjacent materials under conditions of service and application required, as demonstrated by roof membrane manufacturer based on testing and field experience.

C. Wind Uplift Resistance: Design roofing system to resist the following wind uplift pressures when tested according to FM Approvals 4474, UL 580, or UL 1897:

1. Zone 1 (Roof Area Field): 10 lbf/sq. ft..
2. Zone 2 (Roof Area Perimeter): 13 lbf/sq. ft..

a. Location: From roof edge to 10 feet inside roof edge.

3. Zone 3 (Roof Area Corners): 13 lbf/sq. ft..

a. Location: 10 feet in each direction from building corner.

D. Exterior Fire-Test Exposure: ASTM E108 or UL 790, Class A; for application and roof slopes indicated; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

E. Fire-Resistance Ratings: Comply with fire-resistance-rated assembly designs indicated. Identify products with appropriate markings of applicable testing agency.

2.2 ETHYLENE-PROPYLENE-DIENE-TERPOLYMER (EPDM) ROOFING

A. EPDM Sheet: ASTM D4637/D4637M, Type I, nonreinforced, flexible EPDM sheet.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Carlisle SynTec Incorporated or a comparable product by one of the following:

a. Firestone Building Products.
b. Carlisle SynTec Incorporated.
c. GenFlex Building Systems, a Division of Firestone Building Products
d. Versico Roofing Systems.

2. Thickness: 60 mils, nominal.
3. Exposed Face Color: Black.
4. Source Limitations: Obtain components for roofing system from roof membrane manufacturer or manufacturers approved by roof membrane manufacturer.

2.3 AUXILIARY ROOFING MATERIALS

A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with other roofing components.

1. Adhesive and Sealants: Comply with VOC limits of authorities having jurisdiction.

B. Sheet Flashing: 60-mil-thick EPDM, partially cured or cured, according to application.

C. Protection Sheet: Epichlorohydrin or neoprene nonreinforced flexible sheet, 55 to 60 mils thick, recommended by EPDM manufacturer for resistance to hydrocarbons, non-aromatic solvents, grease, and oil.

D. Slip Sheet: Manufacturer's standard, of thickness required for application.

E. Prefabricated Pipe Flashings: As recommended by roof membrane manufacturer.

F. Bonding Adhesive: Manufacturer's standard.

A. Seam Tape: Manufacturer's standard, synthetic-rubber polymer primer and 3 inch wide minimum, self-adhering tape.

B. Flashing Strip: Manufacturer's standard, synthetic-rubber polymer primer and 9 inch (229-mm) wide minimum, self-adhering uncured flashing strips.

C. Seam Overlay Strip: Manufacturer's standard, synthetic-rubber polymer primer and 10 inch wide minimum, self-adhering reinforced strips.

D. Metal Termination Bars: Manufacturer's standard, predrilled stainless steel or aluminum bars, approximately 1 by 1/8 inchthick; with anchors.

E. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening components to substrate, and acceptable to roofing system manufacturer.

F. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, molded pipe boot flashings, preformed inside and outside corner sheet flashings, reinforced EPDM securement strips, T-joint covers, in-seam sealants, termination reglets, cover strips, and other accessories.

2.4 VAPOR RETARDER

A. Polyethylene Film: ASTM D4397, 40 mil thick, minimum, as required by manufacturer, with maximum permeance rating of 0.13 perm.

1. Self-adhering.

2.5 ROOF INSULATION

A. General: Preformed roof insulation boards manufactured or approved by EPDM roof membrane manufacturer.

B. Polyisocyanurate Board Insulation: ASTM C1289, Type II, Class 2, Grade 2, felt or glass-fiber mat facer on both major surfaces.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Carlisle SynTec Incorporated; or a comparable product by one of the following:

    a. Firestone Building Products.
    b. Insulfoam; Carlisle Construction Materials Company.
    c. Or as approved by Membrane Manufacturer.

2. Compressive Strength: 20 psi.
3. Size: 48 by 96 inches.
4. Thickness: As indicated on drawings

C. Tapered Insulation: Provide factory-tapered insulation boards.

1. Material: Match roof insulation.
2. Minimum Thickness: 1/4 inch.
3. Slope:
    a. Saddles and Crickets: 1/2 inch per foot unless otherwise indicated on Drawings.

2.6 INSULATION ACCESSORIES

A. General: Roof insulation accessories recommended by insulation manufacturer for intended use and compatibility with other roofing system components.

B. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening roof insulation to substrate, and acceptable to roofing system manufacturer.

C. Insulation Adhesive: Insulation manufacturer's recommended adhesive formulated to attach roof insulation to substrate or to another insulation layer as follows:

1. Modified asphaltic, asbestos-free, cold-applied adhesive.
2. Bead-applied, low-rise, one-component or multicomponent urethane adhesive.
3. Full-spread, spray-applied, low-rise, two-component urethane adhesive.

D. Cover Board: ASTM C 1177/C 1177M, glass-mat, water-resistant gypsum substrate, 1/2 inch thick, factory primed. Verify that coverboard used is compatible with specified product and will result in the required warranty.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Georgia-Pacific Building Products; Dens Deck Prime or a comparable product by one of the following:

    a. American Gypsum
    b. CertainTeed Corporation.
    c. National Gypsum Company.
    d. Temple-Inland Building Products by Georgia-Pacific.
    e. United States Gypsum Company.

E. Protection Mat: Woven or nonwoven polypropylene, polyolefin, or polyester fabric; water permeable and resistant to UV degradation; type and weight as recommended by roofing system manufacturer for application.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of the Work.

1. Verify that roof openings and penetrations are in place, curbs are set and braced, and roof-drain bodies are securely clamped in place.

2. Verify that wood blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.
3. Verify that surface plane flatness and fastening of steel roof deck complies with requirements.
4. Verify any damaged sections of tongue and groove decks have been repaired or replaced.
5. Verify adjacent cementitious wood-fiber panels are vertically aligned to within 1/8 inch at top surface.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing system installation according to roofing system manufacturer's written instructions. Remove sharp projections.

B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.

C. Perform fastener-pullout tests according to roof system manufacturer's written instructions.

1. Submit test result within 24 hours of performing tests.

a. Include manufacturer's requirements for any revision to previously submitted fastener patterns required to achieve specified wind uplift requirements.

D. Install sound-absorbing insulation strips according to acoustical roof deck manufacturer's written instructions.

3.3 INSTALLATION OF ROOFING, GENERAL

A. Install roofing system according to roofing system manufacturer's written instructions, assembly requirements, and FM Global Property Loss Prevention Data Sheet 1-29.

B. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at end of workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.

C. Install roof membrane and auxiliary materials to tie in to existing roofing to maintain weathertightness of transition and to not void warranty for existing roofing system.

D. Coordinate installation and transition of roofing system component serving as an air barrier with air barrier specified this section.

3.4 INSTALLATION OF VAPOR RETARDER

A. Self-Adhering-Sheet Vapor Retarder: Prime substrate if required by manufacturer. Install self-adhering-sheet vapor retarder over area to receive vapor retarder, side and end lapping each sheet a minimum of 3-1/2 and 6 inches, respectively.

1. Extend vertically up parapet walls and projections to a minimum height equal to height of insulation and cover board.
2. Seal laps by rolling.

B. Completely seal vapor retarder at terminations, obstructions, and penetrations to prevent air movement into roofing system.

3.5 INSTALLATION OF INSULATION

A. Coordinate installing roofing system components so insulation is not exposed to precipitation or left exposed at end of workday.

B. Comply with roofing system and insulation manufacturer's written instructions for installing roof insulation.

C. Installation Over Metal Decking:

1. Install base layer of insulation with joints staggered not less than 24 inches in adjacent rows and with long joints continuous at right angle to flutes of decking.

a. Locate end joints over crests of decking.
b. Where installing composite and noncomposite insulation in two or more layers, install noncomposite board insulation for bottom layer and intermediate layers, if applicable, and install composite board insulation for top layer.
c. Trim insulation neatly to fit around penetrations and projections, and to fit tight to intersecting sloping roof decks.
d. Make joints between adjacent insulation boards not more than 1/4 inch in width.
e. At internal roof drains, slope insulation to create a square drain sump with each side equal to the diameter of the drain bowl plus 24 inches.

1) Trim insulation so that water flow is unrestricted.

f. Fill gaps exceeding 1/4 inch with insulation.
g. Cut and fit insulation within 1/4 inch of nailers, projections, and penetrations.
h. Lay each layer of insulation units over substrate as indicated on drawings.

2. Install upper layers of insulation with joints of each layer offset not less than 12 inches from previous layer of insulation.

a. Staggered end joints within each layer not less than 24 inches in adjacent rows.
b. Install with long joints continuous and with end joints staggered not less than 12 inches in adjacent rows.
c. Trim insulation neatly to fit around penetrations and projections, and to fit tight to intersecting sloping roof decks.

d. Make joints between adjacent insulation boards not more than 1/4 inch in width.
e. At internal roof drains, slope insulation to create a square drain sump with each side as indicated on drawings.

1) Trim insulation so that water is unrestricted.

f. Fill gaps exceeding 1/4 inch with insulation.
g. Cut and fit insulation within 1/4 inch of nailers, projections, and penetrations.
h. Lay each layer of insulation units over substrate as indicated on drawings.

D. Installation Over Wood Decking:

1. Mechanically fasten slip sheet to roof deck using mechanical fasteners specifically designed and sized for fastening slip sheet to wood decks.

a. Fasten slip sheet according to requirements in FM Approvals' RoofNav for specified Windstorm Resistance Classification.
b. Fasten slip sheet to resist specified uplift pressure at corners, perimeter, and field of roof.

2. Install base layer of insulation with joints staggered not less than 24 inches in adjacent rows end joints staggered not less than 12 inches in adjacent rows.

a. Where installing composite and noncomposite insulation in two or more layers, install noncomposite board insulation for bottom layer and intermediate layers, if applicable, and install composite board insulation for top layer.
b. Trim insulation neatly to fit around penetrations and projections, and to fit tight to intersecting sloping roof decks.
c. Make joints between adjacent insulation boards not more than 1/4 inch in width.
d. At internal roof drains, slope insulation to create a square drain sump with each side equal to the diameter of the drain bowl plus 24 inches.

1) Trim insulation so that water flow is unrestricted.

e. Fill gaps exceeding 1/4 inch with insulation.
f. Cut and fit insulation within 1/4 inch of nailers, projections, and penetrations.
g. Loosely lay base layer of insulation units over substrate.
h. Mechanically attach base layer of insulation using mechanical fasteners specifically designed and sized for fastening specified board-type roof insulation to wood decks.

1) Fasten insulation according to requirements in FM Approvals' RoofNav for specified Windstorm Resistance Classification.
2) Fasten insulation to resist specified uplift pressure at corners, perimeter, and field of roof.

3. Install upper layers of insulation and tapered insulation with joints of each layer offset not less than 12 inches from previous layer of insulation.

a. Staggered end joints within each layer not less than 24 inches in adjacent rows.

b. Install with long joints continuous and with end joints staggered not less than 12 inches in adjacent rows.
c. Trim insulation neatly to fit around penetrations and projections, and to fit tight to intersecting sloping roof decks.
d. Make joints between adjacent insulation boards not more than 1/4 inch in width.
e. At internal roof drains, slope insulation to create a square drain sump with each side equal to the diameter of the drain bowl plus 24 inches.

    1) Trim insulation so that water flow is unrestricted.

f. Fill gaps exceeding 1/4 inch with insulation.
g. Cut and fit insulation within 1/4 inch of nailers, projections, and penetrations.
h. Loosely lay each layer of insulation units over substrate.
i. Adhere each layer of insulation to substrate using adhesive according to FM Approvals' RoofNav assembly requirements and FM Global Property Loss Prevention Data Sheet 1-29 for specified Windstorm Resistance Classification, as follows:

    1) Set each layer of insulation in a solid mopping of hot roofing asphalt, applied within plus or minus 25 deg F of equiviscous temperature.
    2) Set each layer of insulation in ribbons of bead-applied insulation adhesive, firmly pressing and maintaining insulation in place.
    3) Set each layer of insulation in a uniform coverage of full-spread insulation adhesive, firmly pressing and maintaining insulation in place.

3.6 INSTALLATION OF COVER BOARDS

A. Install cover boards over insulation with long joints in continuous straight lines with end joints staggered between rows. Offset joints of insulation below a minimum of 6 inches in each direction.

1. Trim cover board neatly to fit around penetrations and projections, and to fit tight to intersecting sloping roof decks.
2. At internal roof drains, conform to slope of drain sump.

    a. Trim cover board so that water flow is unrestricted.

3. Cut and fit cover board tight to nailers, projections, and penetrations.
4. Loosely lay cover board over substrate.
5. Adhere cover board to substrate using adhesive according to FM Approvals' RoofNav assembly requirements and FM Global Property Loss Prevention Data Sheet 1-29 for specified Windstorm Resistance Classification, as follows:

    a. Set cover board in a solid mopping of hot roofing asphalt, applied within plus or minus 25 deg F of equiviscous temperature.
    b. Set cover board in ribbons of bead-applied insulation adhesive, firmly pressing and maintaining insulation in place.
    c. Set cover board in a uniform coverage of full-spread insulation adhesive, firmly pressing and maintaining insulation in place.

B. Install slip sheet over cover board and immediately beneath roofing.

3.7 INSTALLATION OF ADHERED ROOFING

A. Adhere roof membrane over area to receive roofing according to roofing system manufacturer's written instructions.

B. Unroll membrane roof membrane and allow to relax before installing.

C. Start installation of roofing in presence of roofing system manufacturer's technical personnel.

D. Accurately align roof membrane, and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.

E. Bonding Adhesive: Apply to substrate and underside of roof membrane at rate required by manufacturer, and allow to partially dry before installing roof membrane. Do not apply to splice area of roof membrane.

F. In addition to adhering, mechanically fasten roof membrane securely at terminations, penetrations, and perimeters.

G. Apply roof membrane with side laps shingled with slope of roof deck where possible.

H. Tape Seam Installation: Clean and prime both faces of splice areas, apply splice tape.

1. Firmly roll side and end laps of overlapping roof membrane to ensure a watertight seam installation.
2. Apply lap sealant and seal exposed edges of roofing terminations.

I. Repair tears, voids, and lapped seams in roof membrane that do not comply with requirements.

J. Spread sealant or mastic bed over deck-drain flange at roof drains, and securely seal roof membrane in place with clamping ring.

K. Adhere protection sheet over roof membrane at locations indicated.

3.8 INSTALLATION OF BASE FLASHING

A. Install sheet flashings and preformed flashing accessories, and adhere to substrates according to roofing system manufacturer's written instructions.

B. Apply bonding adhesive to substrate and underside of sheet flashing at required rate, and allow to partially dry. Do not apply to seam area of flashing.

C. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing.

D. Clean splice areas, apply splicing cement, and firmly roll side and end laps of overlapping sheets to ensure a watertight seam installation. Apply lap sealant and seal exposed edges of sheet flashing terminations.

E. Terminate and seal top of sheet flashings and mechanically anchor to substrate through termination bars.

3.9 PROTECTING AND CLEANING

A. Protect roofing system from damage and wear during remainder of construction period. When remaining construction does not affect or endanger roofing system, inspect roofing system for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner.

B. Correct deficiencies in or remove roofing system that does not comply with requirements, repair substrates, and repair or reinstall roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.

C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

3.10 ROOFING INSTALLER'S WARRANTY

A. WHEREAS _____ of _____, herein called the "Roofing Installer," has performed roofing and associated work ("work") on the following project:

1. Owner: _____.
2. Address: _____.
3. Building Name/Type: _____.
4. Address: _____.
5. Area of Work: _____.
6. Acceptance Date: _____.
7. Warranty Period: _____.
8. Expiration Date: _____.

B. AND WHEREAS Roofing Installer has contracted (either directly with Owner or indirectly as a subcontractor) to warrant said work against leaks and faulty or defective materials and workmanship for designated Warranty Period,

C. NOW THEREFORE Roofing Installer hereby warrants, subject to terms and conditions herein set forth, that during Warranty Period Roofing Installer will, at Roofing Installer's own cost and expense, make or cause to be made such repairs to or replacements of said work as are necessary to correct faulty and defective work and as are necessary to maintain said work in a watertight condition.

D. This Warranty is made subject to the following terms and conditions:

1. Specifically excluded from this Warranty are damages to work and other parts of the building, and to building contents, caused by:

    a. lightning;
    b. peak gust wind speed exceeding 90 mph;

c. fire;
d. failure of roofing system substrate, including cracking, settlement, excessive deflection, deterioration, and decomposition;
e. faulty construction of parapet walls, copings, chimneys, skylights, vents, equipment supports, and other edge conditions and penetrations of the work;
f. vapor condensation on bottom of roofing; and
g. activity on roofing by others, including construction contractors, maintenance personnel, other persons, and animals, whether authorized or unauthorized by Owner.

2. When work has been damaged by any of foregoing causes, Warranty shall be null and void until such damage has been repaired by Roofing Installer and until cost and expense thereof have been paid by Owner or by another responsible party so designated.
3. Roofing Installer is responsible for damage to work covered by this Warranty but is not liable for consequential damages to building or building contents resulting from leaks or faults or defects of work.
4. During Warranty Period, if Owner allows alteration of work by anyone other than Roofing Installer, including cutting, patching, and maintenance in connection with penetrations, attachment of other work, and positioning of anything on roof, this Warranty shall become null and void on date of said alterations, but only to the extent said alterations affect work covered by this Warranty. If Owner engages Roofing Installer to perform said alterations, Warranty shall not become null and void unless Roofing Installer, before starting said work, shall have notified Owner in writing, showing reasonable cause for claim, that said alterations would likely damage or deteriorate work, thereby reasonably justifying a limitation or termination of this Warranty.
5. During Warranty Period, if original use of roof is changed and it becomes used for, but was not originally specified for, a promenade, work deck, spray-cooled surface, flooded basin, or other use or service more severe than originally specified, this Warranty shall become null and void on date of said change, but only to the extent said change affects work covered by this Warranty.
6. Owner shall promptly notify Roofing Installer of observed, known, or suspected leaks, defects, or deterioration and shall afford reasonable opportunity for Roofing Installer to inspect work and to examine evidence of such leaks, defects, or deterioration.
7. This Warranty is recognized to be the only warranty of Roofing Installer on said work and shall not operate to restrict or cut off Owner from other remedies and resources lawfully available to Owner in cases of roofing failure. Specifically, this Warranty shall not operate to relieve Roofing Installer of responsibility for performance of original work according to requirements of the Contract Documents, regardless of whether Contract was a contract directly with Owner or a subcontract with Owner's General Contractor.

E. IN WITNESS THEREOF, this instrument has been duly executed this _____ day of _____, _____.

1. Authorized Signature: _____.
2. Name: _____.
3. Title: _____.

END OF SECTION 075323

SECTION 076200 - SHEET METAL FLASHING AND TRIM

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. Manufactured through-wall flashing with counterflashing.
2. Formed roof-drainage sheet metal fabrications.
3. Formed low-slope roof sheet metal fabrications.
4. Formed wall sheet metal fabrications.
5. Formed equipment support flashing.
6. Parapet flashing
7. Fascia
8. Equipment Caps

B. Related Requirements:

1. Section 017823 “Operation and Maintenance Data” for warranty documentation.
2. Section 061053 "Miscellaneous Rough Carpentry" for wood nailers, curbs, and blocking.
3. Section 075323 "Ethylene-Propylene-Diene-Monomer (EPDM) Roofing" for roofing requirements.
4. Section 077200 "Roof Accessories" for set-on-type curbs, equipment supports, roof hatches, vents, and other manufactured roof accessory units.

1.3 COORDINATION

A. Coordinate sheet metal flashing and trim layout and seams with sizes and locations of penetrations to be flashed, and joints and seams in adjacent materials.

B. Coordinate sheet metal flashing and trim installation with adjoining roofing and wall materials, joints, and seams to provide leakproof, secure, and noncorrosive installation.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each manufactured product and accessory.

B. Shop Drawings: For sheet metal flashing and trim.

1. Include plans, elevations, sections, and attachment details.
2. Detail fabrication and installation layouts, expansion-joint locations, and keyed details. Distinguish between shop- and field-assembled Work.
3. Include identification of material, thickness, weight, and finish for each item and location in Project.
4. Include details for forming, including profiles, shapes, seams, and dimensions.
5. Include details for joining, supporting, and securing, including layout and spacing of fasteners, cleats, clips, and other attachments. Include pattern of seams.
6. Include details of termination points and assemblies.
7. Include details of expansion joints and expansion-joint covers, including showing direction of expansion and contraction from fixed points.
8. Include details of roof-penetration flashing.
9. Include details of edge conditions, including eaves, ridges, valleys, rakes, crickets, flashings, and counterflashings.
10. Include details of special conditions.
11. Include details of connections to adjoining work.

C. Samples: For each exposed product, 12 inches long by actual width.

D. Samples for Initial Selection: For each type of sheet metal and accessory indicated with factory-applied finishes.

E. Samples for Verification: For each type of exposed finish.

1. Sheet Metal Flashing: 12 inches long by actual width of unit, including finished seam and in required profile. Include fasteners, cleats, clips, closures, and other attachments.
2. Trim, Metal Closures, Expansion Joints, Joint Intersections, and Miscellaneous Fabrications: 12 inches long and in required profile. Include fasteners and other exposed accessories.
3. Unit-Type Accessories and Miscellaneous Materials: Full-size Sample.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For fabricator.

B. Product Test Reports: For each product, for tests performed by a qualified testing agency.

C. Sample Warranty: For special warranty.

1.6 CLOSEOUT SUBMITTALS

A. Maintenance Data: For sheet metal flashing and trim, and its accessories, to include in maintenance manuals.

1.7 QUALITY ASSURANCE

A. Fabricator Qualifications: Employs skilled workers who custom fabricate sheet metal flashing and trim similar to that required for this Project and whose products have a record of successful in-service performance.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage. Protect stored sheet metal flashing and trim from contact with water.

B. Protect strippable protective covering on sheet metal flashing and trim from exposure to sunlight and high humidity, except to extent necessary for period of sheet metal flashing and trim installation.

1.9 WARRANTY

A. Special Warranty on Finishes: Manufacturer agrees to repair finish or replace sheet metal flashing and trim that shows evidence of deterioration of factory-applied finishes within specified warranty period.

1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:

    a. Color fading more than 5 Delta E units when tested in accordance with ASTM D2244.
    b. Chalking in excess of a No. 8 rating when tested in accordance with ASTM D4214.
    c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.

2. Finish Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Sheet metal flashing and trim assemblies, including cleats, anchors, and fasteners, shall withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Completed sheet metal flashing and trim shall not rattle, leak, or loosen, and shall remain watertight.

B. Sheet Metal Standard for Flashing and Trim: Comply with NRCA's "The NRCA Roofing Manual: Architectural Metal Flashing, Condensation and Air Leakage Control, and Reroofing" and SMACNA's "Architectural Sheet Metal Manual" requirements for dimensions and profiles shown unless more stringent requirements are indicated.

C. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes to prevent buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

2.2 SHEET METALS

A. Protect mechanical and other finishes on exposed surfaces from damage by applying strippable, temporary protective film before shipping.

B. Metallic-Coated Steel Sheet: Provide zinc-coated (galvanized) steel sheet in accordance with ASTM A653/A653M, G90 coating designation or aluminum-zinc alloy-coated steel sheet in accordance with ASTM A792/A792M, Class AZ50 coating designation, Grade 40; prepainted by coil-coating process to comply with ASTM A755/A755M.

1. Surface: Smooth, flat.
2. Exposed Coil-Coated Finish:

a. Three-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent polyvinylidene fluoride (PVDF) resin by weight in both color coat and clear topcoat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

3. Color: As selected by Architect from manufacturer's full range.
4. Concealed Finish: Pretreat with manufacturer's standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with minimum total dry film thickness of 0.5 mil.

2.3 UNDERLAYMENT MATERIALS

A. Synthetic Underlayment: Laminated or reinforced, woven polyethylene or polypropylene, synthetic roofing underlayment; bitumen free; slip resistant; suitable for high temperatures over 220 deg F; and complying with physical requirements of ASTM D226/D226M for Type I and Type II felts.

B. Slip Sheet: Rosin-sized building paper, 3 lb/100 sq. ft. minimum.

2.4 MISCELLANEOUS MATERIALS

A. Provide materials and types of fasteners, solder, protective coatings, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and as recommended by manufacturer of primary sheet metal or manufactured item unless otherwise indicated.

B. Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal or manufactured item.

1. General: Blind fasteners or self-drilling screws, gasketed, with hex-washer head.

    a. Exposed Fasteners: Heads matching color of sheet metal using plastic caps or factory-applied coating. Provide metal-backed EPDM or PVC sealing washers under heads of exposed fasteners bearing on weather side of metal.
    b. Blind Fasteners: High-strength aluminum or stainless steel rivets suitable for metal being fastened.
    c. Spikes and Ferrules: Same material as gutter; with spike with ferrule matching internal gutter width.

2. Fasteners for Zinc-Coated (Galvanized) Steel Sheet: Series 300 stainless steel or hot-dip galvanized steel in accordance with ASTM A153/A153M or ASTM F2329.

C. Solder:

1. For Zinc-Coated (Galvanized) Steel: ASTM B32, Grade Sn50, 50 percent tin and 50 percent lead or Grade Sn60, 60 percent tin and 40 percent lead.

D. Sealant Tape: Pressure-sensitive, 100 percent solids, polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch wide and 1/8 inch thick.

E. Elastomeric Sealant: ASTM C920, elastomeric polyurethane or silicone polymer sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.

F. Butyl Sealant: ASTM C1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied for hooked-type expansion joints with limited movement.

G. Bituminous Coating: Cold-applied asphalt emulsion in accordance with ASTM D1187/D1187M.

H. Asphalt Roofing Cement: ASTM D4586, asbestos free, of consistency required for application.

2.5 FABRICATION, GENERAL

A. Custom fabricate sheet metal flashing and trim to comply with details indicated and recommendations in cited sheet metal standard that apply to design, dimensions, geometry, metal thickness, and other characteristics of item required.

1. Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance requirements, but not less than that specified for each application and metal.
2. Form sheet metal flashing and trim to fit substrates without excessive oil-canning, buckling, and tool marks; true to line, levels, and slopes; and with exposed edges folded back to form hems.
3. Conceal fasteners and expansion provisions where possible. Do not use exposed fasteners on faces exposed to view.

B. Fabrication Tolerances:

1. Fabricate sheet metal flashing and trim that is capable of installation to a tolerance of 1/4 inch in 20 feet on slope and location lines indicated on Drawings and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.

C. Expansion Provisions: Form metal for thermal expansion of exposed flashing and trim.

1. Form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with butyl sealant concealed within joints.
2. Use lapped expansion joints only where indicated on Drawings.

D. Sealant Joints: Where movable, nonexpansion-type joints are required, form metal in accordance with cited sheet metal standard to provide for proper installation of elastomeric sealant.

E. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal.

F. Seams:

1. Fabricate nonmoving seams with flat-lock seams. Tin edges to be seamed, form seams, and solder.

G. Do not use graphite pencils to mark metal surfaces.

2.6 ROOF-DRAINAGE SHEET METAL FABRICATIONS

A. Downspouts: Fabricate open-face downspouts to dimensions indicated on Drawings, complete with mitered elbows. Furnish with metal hangers from same material as downspouts and anchors.

1. Fabricate from the following materials:

a. Galvanized Steel: 0.022 inch thick.

2.7 LOW-SLOPE ROOF SHEET METAL FABRICATIONS

A. Roof Edge Flashing (Gravel Stop) and Fascia Cap: Fabricate in minimum 96 inch long, but not exceeding 12 foot long sections. Furnish with 6-inch- wide, joint cover plates.

1. Joint Style: Butted with expansion space and 6 inch wide, exposed cover plate.
2. Fabricate with scuppers spaced 10 feet apart, to dimensions required with 4 inch wide flanges and base extending 4 inches beyond cant or tapered strip into field of roof. Fasten gravel guard angles to base of scupper.
3. Fabricate from the following materials:

a. Galvanized Steel: 0.028 inch thick.

B. Copings: Fabricate in minimum 96 inch long, but not exceeding 12 foot long, sections. Fabricate joint plates of same thickness as copings. Furnish with continuous cleats to support

edge of external leg and drill elongated holes for fasteners on interior leg. Miter corners, fasten and seal solder or weld watertight.

1. Coping Profile: As indicated on drawings.
2. Joint Style: Butted with expansion space and 6 inch wide, exposed cover plate.
3. Fabricate from the following materials:

    a. Galvanized Steel: 0.040 inch thick.

C. Roof-to-Wall Transition Roof-to-Roof Edge-Flashing (Gravel-Stop) and Fascia-Cap Transition Expansion-Joint Cover: Fabricate from the following materials:

1. Galvanized Steel: 0.034 inch thick.

D. Base Flashing: Shop fabricate interior and exterior corners. Fabricate from the following materials:

1. Galvanized Steel: 0.028 inch thick.
2. Aluminum-Zinc Alloy-Coated Steel: 0.028 inch thick.

E. Counterflashing: Shop fabricate interior and exterior corners. Fabricate from the following materials:

1. Galvanized Steel: 0.022 inch (0.56 mm) thick.
2. Aluminum-Zinc Alloy-Coated Steel: 0.022 inch (0.56 mm) thick.

F. Flashing Receivers: Fabricate from the following materials:

1. Galvanized Steel: 0.022 inch (0.56 mm) thick.
2. Aluminum-Zinc Alloy-Coated Steel: 0.022 inch (0.56 mm) thick.

G. Roof-Penetration Flashing: Fabricate from the following materials:

1. Galvanized Steel: 0.022 inch thick.
2. Aluminum-Zinc Alloy-Coated Steel: 0.022 inch thick.

H. Roof-Drain Flashing: Fabricate from the following materials:

1. Galvanized Steel: 0.022 inch thick.
2. Aluminum-Zinc Alloy-Coated Steel: 0.022 inch thick.

I. Parapet Cap: Fabricate from the following materials:

1. Galvanized Steel: 0.022 inch thick.
2. Aluminum-Zinc Alloy-Coated Steel: 0.022 inch thick.

J. Fascia: Fabricate from the following materials:

1. Galvanized Steel: 0.022 inch thick.
2. Aluminum-Zinc Alloy-Coated Steel: 0.022 inch thick.

K. Equipment Caps: Fabricate from the following materials:

1. Galvanized Steel: 0.022 inch thick.
2. Aluminum-Zinc Alloy-Coated Steel: 0.022 inch thick.

2.8 MISCELLANEOUS SHEET METAL FABRICATIONS

A. Equipment Support Flashing: Fabricate from the following materials:

1. Galvanized Steel: 0.028 inch thick.
2. Aluminum-Zinc Alloy-Coated Steel: 0.028 inch thick.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with installer present, for compliance with requirements for installation tolerances, substrate, and other conditions affecting performance of the Work.

1. Verify compliance with requirements for installation tolerances of substrates.
2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
3. Verify that air- or water-resistant barriers have been installed over sheathing or backing substrate to prevent air infiltration or water penetration.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION OF UNDERLAYMENT

A. Felt Underlayment: Install felt underlayment, wrinkle free, using adhesive to minimize use of mechanical fasteners under sheet metal flashing and trim.

1. Install in shingle fashion to shed water.
2. Lap joints not less than 2 inches.

B. Synthetic Underlayment: Install synthetic underlayment, wrinkle free, in accordance with manufacturers' written instructions, and using adhesive where possible to minimize use of mechanical fasteners under sheet metal.

1. Lap horizontal joints not less than 4 inches.
2. Lap end joints not less than 12 inches.

C. Install slip sheet, wrinkle free, over underlayment before installing sheet metal flashing and trim.

1. Install in shingle fashion to shed water.
2. Lapp joints not less than 4 inches.

3.3 INSTALLATION, GENERAL

A. Install sheet metal flashing and trim to comply with details indicated and recommendations of cited sheet metal standard that apply to installation characteristics required unless otherwise indicated on Drawings.

1. Install sheet metal flashing and trim true to line, levels, and slopes. Provide uniform, neat seams with minimum exposure of solder, welds, and sealant.
2. Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement.
3. Install sheet metal flashing and trim to fit substrates and to result in watertight performance.
4. Space individual cleats not more than 12 inches apart. Attach each cleat with at least two fasteners. Bend tabs over fasteners.
5. Install exposed sheet metal flashing and trim with limited oil-canning, and free of buckling and tool marks.
6. Torch cutting of sheet metal flashing and trim is not permitted.
7. Do not use graphite pencils to mark metal surfaces.

B. Metal Protection: Where dissimilar metals contact each other, or where metal contacts pressure-treated wood or other corrosive substrates, protect against galvanic action or corrosion by painting contact surfaces with bituminous coating or by other permanent separation as recommended by sheet metal manufacturer or cited sheet metal standard.

1. Underlayment: Where installing sheet metal flashing and trim directly on cementitious or wood substrates, install underlayment and cover with slip sheet.

C. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim.

1. Form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with sealant concealed within joints.
2. Use lapped expansion joints only where indicated on Drawings.

D. Fasteners: Use fastener sizes that penetrate substrate not less than recommended by fastener manufacturer to achieve maximum pull-out resistance.

E. Conceal fasteners and expansion provisions where possible in exposed work and locate to minimize possibility of leakage. Cover and seal fasteners and anchors as required for a tight installation.

F. Seal joints as required for watertight construction.

1. Use sealant-filled joints unless otherwise indicated.

a. Embed hooked flanges of joint members not less than 1 inch into sealant.
b. Form joints to completely conceal sealant.
c. When ambient temperature at time of installation is between 40 and 70 deg F, set joint members for 50 percent movement each way.
d. Adjust setting proportionately for installation at higher ambient temperatures.

1) Do not install sealant-type joints at temperatures below 40 deg F.

2. Prepare joints and apply sealants to comply with requirements in Section 079200 "Joint Sealants."

G. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter.

1. Do not solder metallic-coated steel sheet.
2. Do not use torches for soldering.
3. Heat surfaces to receive solder, and flow solder into joint.

a. Fill joint completely.
b. Completely remove flux and spatter from exposed surfaces.

3.4 INSTALLATION OF ROOF-DRAINAGE SYSTEM

A. Install sheet metal roof-drainage items to produce complete roof-drainage system in accordance with cited sheet metal standard unless otherwise indicated. Coordinate installation of roof perimeter flashing with installation of roof-drainage system.

B. Downspouts:

1. Join sections with 1-1/2-inch telescoping joints.
2. Provide hangers with fasteners designed to hold downspouts securely to walls.
3. Locate hangers at top and bottom and at approximately 60 inches o.c.
4. Provide elbows at base of downspout to direct water away from building.
5. Connect downspouts to underground drainage system.

C. Parapet Scuppers:

1. Continuously support scupper, set to correct elevation, and seal flanges to interior wall face, over cants or tapered edge strips, and under roofing membrane.
2. Anchor scupper closure trim flange to exterior wall and seal with elastomeric sealant to scupper.
3. Loosely lock front edge of scupper with conductor head.
4. Seal with elastomeric sealant exterior wall scupper flanges into back of conductor head.

3.5 INSTALLATION OF ROOF FLASHINGS

A. Install sheet metal flashing and trim to comply with performance requirements, sheet metal manufacturer's written installation instructions, and cited sheet metal standard.

1. Provide concealed fasteners where possible, and set units true to line, levels, and slopes.
2. Install work with laps, joints, and seams that are permanently watertight and weather resistant.

B. Copings:

1. Install roof edge flashings in accordance with ANSI/SPRI/FM 4435/ES-1.
2. Anchor to resist uplift and outward forces in accordance with recommendations in cited sheet metal standard unless otherwise indicated.

a. Interlock exterior bottom edge of coping with continuous cleat anchored to substrate at 16-inch centers.
b. Anchor interior leg of coping with washers and screw fasteners through slotted holes at 16-inch centers.

C. Pipe or Post Counterflashing: Install counterflashing umbrella with close-fitting collar with top edge flared for elastomeric sealant, extending minimum of 4 inches over base flashing. Install stainless steel draw band and tighten.

D. Counterflashing: Coordinate installation of counterflashing with installation of base flashing.

1. Insert counterflashing in reglets or receivers and fit tightly to base flashing.
2. Extend counterflashing 4 inches over base flashing.
3. Lap counterflashing joints minimum of 4 inches.

E. Roof-Penetration Flashing: Coordinate installation of roof-penetration flashing with installation of roofing and other items penetrating roof. Seal with elastomeric or butyl sealant and clamp flashing to pipes that penetrate roof.

3.6 INSTALLATION OF WALL FLASHINGS

A. Install sheet metal wall flashing to intercept and exclude penetrating moisture in accordance with cited sheet metal standard unless otherwise indicated. Coordinate installation of wall flashing with installation of wall-opening components such as windows, doors, and louvers.

B. Opening Flashings in Frame Construction: Install continuous head, sill, jamb, and similar flashings to extend 4 inches beyond wall openings.

3.7 INSTALLATION OF MISCELLANEOUS FLASHING

A. Equipment Support Flashing:

1. Coordinate installation of equipment support flashing with installation of roofing and equipment.
2. Weld or seal flashing with elastomeric sealant to equipment support member.

3.8 INSTALLATION TOLERANCES

A. Installation Tolerances: Shim and align sheet metal flashing and trim within installed tolerance of 1/4 inch in 20 feet on slope and location lines indicated on Drawings and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.

3.9 CLEANING

A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.

B. Clean and neutralize flux materials. Clean off excess solder.

C. Clean off excess sealants.

3.10 PROTECTION

A. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed unless otherwise indicated in manufacturer's written installation instructions.

B. On completion of sheet metal flashing and trim installation, remove unused materials and clean finished surfaces as recommended in writing by sheet metal flashing and trim manufacturer.

C. Maintain sheet metal flashing and trim in clean condition during construction.

D. Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touchup or similar minor repair procedures, as determined by Architect.

END OF SECTION 076200

SECTION 077200 - ROOF ACCESSORIES

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. Pipe and duct supports.
2. Preformed flashing sleeves.
3. Ladder-Assist Post.

B. Related Requirements:

1. Section 075323 "Ethylene-Propylene-Diene-Monomer (EPDM) Roofing" for roofing requirements.
2. Section 076200 "Sheet Metal Flashing and Trim" for shop- and field-formed metal flashing, roof-drainage systems, roof expansion-joint covers, and miscellaneous sheet metal trim and accessories.

1.3 COORDINATION

A. Coordinate layout and installation of roof accessories with roofing membrane and base flashing and interfacing and adjoining construction to provide a leakproof, weathertight, secure, and noncorrosive installation.

B. Coordinate dimensions with rough-in information or Shop Drawings of equipment to be supported.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of roof accessory.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

B. Shop Drawings: For roof accessories.

1. Include plans, elevations, keyed details, and attachments to other work. Indicate dimensions, loadings, and special conditions. Distinguish between plant- and field-assembled work.

C. Samples: For each exposed product and for each color and texture specified, prepared on Samples of size to adequately show color.

1.5 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Roof plans, drawn to scale, and coordinating penetrations and roof-mounted items. Show the following:

1. Size and location of roof accessories specified in this Section.
2. Method of attaching roof accessories to roof or building structure.
3. Other roof-mounted items including mechanical and electrical equipment, ductwork, piping, and conduit.
4. Required clearances.

B. Sample Warranties: For manufacturer's special warranties.

1.6 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For roof accessories to include in operation and maintenance manuals.

1.7 WARRANTY

A. Special Warranty on Painted Finishes: Manufacturer's standard form in which manufacturer agrees to repair finishes or replace roof accessories that show evidence of deterioration of factory-applied finishes within specified warranty period.

1. Fluoropolymer Finish: Deterioration includes, but is not limited to, the following:

a. Color fading more than 5 Delta E units when tested according to ASTM D2244.
b. Chalking in excess of a No. 8 rating when tested according to ASTM D4214.
c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.

2. Finish Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. General Performance: Roof accessories shall withstand exposure to weather and resist thermally induced movement without failure, rattling, leaking, or fastener disengagement due to defective manufacture, fabrication, installation, or other defects in construction.

B. Wind-Restraint Performance: As indicated on Drawings.

2.2 PIPE AND DUCT SUPPORTS

A. Adjustable-Height Roller-Bearing Pipe Supports: Polycarbonate pipe stand base, pipe support, and roller housing, with stainless steel threaded rod designed for adjusting support height, accommodating up to 18 inch diameter pipe or conduit; with provision for pipe retainer and with manufacturer's support pad or deck plate as recommended for penetration-free installation over roof membrane type; as required for quantity of pipe runs and sizes.

B. Adjustable-Height Structure-Mounted Pipe Supports: Extruded-aluminum tube, filled with urethane insulation; 2 inches in diameter; accommodating up to 7 inch diameter pipe or conduit, with provision for pipe retainer; with aluminum baseplate, EPDM base seal, manufacturer's recommended hardware for mounting to structure or structural roof deck as indicated, stainless steel roller and retainer, and extruded-aluminum carrier assemblies; as required for quantity of pipe runs and sizes.

C. Duct Supports: Extruded-aluminum, urethane-insulated supports, 2 inches in diameter; with manufacturer's recommended hardware for mounting to structure or structural roof deck.

2.3 PREFORMED FLASHING SLEEVES

A. Exhaust Vent Flashing: Double-walled metal flashing sleeve or boot, insulation filled, with integral deck flange, 12 inches high, with removable metal hood and metal collar.

1. Metal: Aluminum sheet, 0.063 inch thick.
2. Diameter: To coordinate with existing vent.
3. Finish: Manufacturer's standard.

B. Vent Stack Flashing: Metal flashing sleeve, uninsulated, with integral deck flange.

1. Metal: Aluminum sheet, 0.063 inch thick.
2. Height: 13 inches.
3. Diameter: To coordinate with existing vent.
4. Finish: Manufacturer's standard.

2.4 ROOF LADDER-ASSIST POST

A. Ladder-Assist Post: Roof-hatch manufacturer's standard device for attachment to roof-access ladder.

1. Operation: Post locks in place on full extension; release mechanism returns post to closed position.
2. Height: 42 inches above finished roof deck.
3. Material: Steel tube.
4. Post: 1-5/8-inch diameter pipe.
5. Finish: Manufacturer's standard baked enamel or powder coat.

    a. Color: As selected by Architect from manufacturer's full range.

2.5 METAL MATERIALS

A. Zinc-Coated (Galvanized) Steel Sheet: ASTM A653/A653M, G90 coating designation.

1. Exposed Coil-Coated Finish: Prepainted by the coil-coating process to comply with ASTM A755/A755M. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

a. Two-Coat Fluoropolymer Finish: AAMA 621. System consisting of primer and fluoropolymer color topcoat containing not less than 70 percent polyvinylidene fluoride (PVDF) resin by weight.

2. Concealed Finish: Pretreat with manufacturer's standard white or light-colored acrylic or polyester-backer finish consisting of prime coat and wash coat, with a minimum total dry film thickness of 0.5 mil.

B. Aluminum-Zinc Alloy-Coated Steel Sheet: ASTM A792/A792M, AZ50 coated.

1. Exposed Coil-Coated Finish: Prepainted by the coil-coating process to comply with ASTM A755/A755M. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

a. Two-Coat Fluoropolymer Finish: AAMA 621. System consisting of primer and fluoropolymer color topcoat containing not less than 70 percent polyvinylidene fluoride (PVDF) resin by weight.

2. Concealed Finish: Pretreat with manufacturer's standard white or light-colored acrylic or polyester-backer finish consisting of prime coat and wash coat, with a minimum total dry film thickness of 0.5 mil.

C. Aluminum Sheet: ASTM B209, manufacturer's standard alloy for finish required, with temper to suit forming operations and performance required.

D. Aluminum Extrusions and Tubes: ASTM B221, manufacturer's standard alloy and temper for type of use, finished to match assembly where used; otherwise mill finished.

E. Steel Shapes: ASTM A36/A36M, hot-dip galvanized according to ASTM A123/A123M unless otherwise indicated.

F. Galvanized-Steel Tube: ASTM A500/A500M, round tube, hot-dip galvanized according to ASTM A123/A123M.

G. Steel Pipe: ASTM A53/A53M, galvanized.

2.6 MISCELLANEOUS MATERIALS

A. Provide materials and types of fasteners, protective coatings, sealants, and other miscellaneous items required by manufacturer for a complete installation.

B. Polyisocyanurate Board Insulation: ASTM C1289, thickness and thermal resistivity as indicated.

C. Wood Nailers: Softwood lumber, pressure treated with waterborne preservatives for aboveground use, acceptable to authorities having jurisdiction, and complying with AWPA C2; not less than 1-1/2 inches thick.

D. Bituminous Coating: Cold-applied asphalt emulsion complying with ASTM D1187/D1187M.

E. Underlayment:

1. Felt: ASTM D226/D226M, Type II (No. 30), asphalt-saturated organic felt, nonperforated.
2. Polyethylene Sheet: 6 mil thick polyethylene sheet complying with ASTM D4397.
3. Slip Sheet: Building paper, 3 lb/100 sq. ft. minimum, rosin sized.
4. Self-Adhering, High-Temperature Sheet: Minimum 30 to 40 mils thick, consisting of slip-resisting polyethylene-film top surface laminated to layer of butyl or SBS-modified asphalt adhesive, with release-paper backing; cold applied. Provide primer when recommended by underlayment manufacturer.

F. Fasteners: Roof accessory manufacturer's recommended fasteners suitable for application and metals being fastened. Match finish of exposed fasteners with finish of material being fastened. Provide nonremovable fastener heads to exterior exposed fasteners. Furnish the following unless otherwise indicated:

1. Fasteners for Zinc-Coated or Aluminum-Zinc Alloy-Coated Steel: Series 300 stainless steel or hot-dip zinc-coated steel according to ASTM A153/A153M or ASTM F2329.
2. Fasteners for Aluminum Sheet: Aluminum or Series 300 stainless steel.

G. Gaskets: Manufacturer's standard tubular or fingered design of neoprene, EPDM, PVC, or silicone or a flat design of foam rubber, sponge neoprene, or cork.

H. Elastomeric Sealant: ASTM C920, elastomeric polyurethane polymer sealant as recommended by roof accessory manufacturer for installation indicated; low modulus; of type, grade, class, and use classifications required to seal joints and remain watertight.

I. Butyl Sealant: ASTM C1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied for expansion joints with limited movement.

J. Asphalt Roofing Cement: ASTM D4586/D4586M, asbestos free, of consistency required for application.

2.7 GENERAL FINISH REQUIREMENTS

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions, and other conditions affecting performance of the Work.

B. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.

C. Verify dimensions of roof openings for roof accessories.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install roof accessories according to manufacturer's written instructions.

1. Install roof accessories level; plumb; true to line and elevation; and without warping, jogs in alignment, buckling, or tool marks.
2. Anchor roof accessories securely in place so they are capable of resisting indicated loads.
3. Use fasteners, separators, sealants, and other miscellaneous items as required to complete installation of roof accessories and fit them to substrates.
4. Install roof accessories to resist exposure to weather without failing, rattling, leaking, or loosening of fasteners and seals.

B. Metal Protection: Protect metals against galvanic action by separating dissimilar metals from contact with each other or with corrosive substrates by painting contact surfaces with bituminous coating or by other permanent separation as recommended by manufacturer.

1. Coat concealed side of uncoated aluminum roof accessories with bituminous coating where in contact with wood, ferrous metal, or cementitious construction.
2. Underlayment: Where installing roof accessories directly on cementitious or wood substrates, install a course of underlayment and cover with manufacturer's recommended slip sheet.
3. Bed flanges in thick coat of asphalt roofing cement where required by manufacturers of roof accessories for waterproof performance.

C. Pipe Support Installation: Comply with MSS SP-58 and MSS SP-89. Install supports and attachments as required to properly support piping. Arrange for grouping of parallel runs of horizontal piping, and support together.

1. Pipes of Various Sizes: Space supports for smallest pipe size or install intermediate supports for smaller diameter pipes as specified for individual pipe hangers.

D. Preformed Flashing-Sleeve Installation: Secure flashing sleeve to roof membrane according to flashing-sleeve manufacturer's written instructions; flash sleeve flange to surrounding roof membrane according to roof membrane manufacturer's instructions.

E. Ladder-Assist Installation:

1. Attach ladder-assist post according to manufacturer's written instructions.

F. Seal joints with elastomeric or butyl sealant as required by roof accessory manufacturer.

3.3 REPAIR AND CLEANING

A. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing according to ASTM A780/A780M.

B. Touch up factory-primed surfaces with compatible primer ready for field painting according to manufacturer’s written recommendation.

C. Clean exposed surfaces according to manufacturer's written instructions.

D. Clean off excess sealants.

E. Replace roof accessories that have been damaged or that cannot be successfully repaired by finish touchup or similar minor repair procedures.

END OF SECTION 077200

SECTION 079200 - JOINT SEALANTS

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. Silicone joint sealants.
2. Butyl joint sealants.

1.3 ACTION SUBMITTALS

A. Product Data: For each joint-sealant product.

B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.

C. Samples for Verification: For each kind and color of joint sealant required, provide Samples with joint sealants in 1/2-inch-wide joints formed between two 6-inch-long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.

D. Joint-Sealant Schedule: Include the following information:

1. Joint-sealant application, joint location, and designation.
2. Joint-sealant manufacturer and product name.
3. Joint-sealant formulation.
4. Joint-sealant color.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified testing agency.

B. Sample Warranties: For special warranties.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: An authorized representative who is trained and approved by manufacturer.

1.6 FIELD CONDITIONS

A. Do not proceed with installation of joint sealants under the following conditions:

1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F.
2. When joint substrates are wet.
3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.7 WARRANTY

A. Special Installer's Warranty: Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Two years from date of Substantial Completion.

B. Special Manufacturer's Warranty: Manufacturer agrees to furnish joint sealants to repair or replace those joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Five years from date of Substantial Completion.

C. Special warranties specified in this article exclude deterioration or failure of joint sealants from the following:

1. Movement of the structure caused by stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression.
2. Disintegration of joint substrates from causes exceeding design specifications.
3. Mechanical damage caused by individuals, tools, or other outside agents.
4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PART 2 - PRODUCTS

2.1 JOINT SEALANTS, GENERAL

A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.

B. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

2.2 SILICONE JOINT SEALANTS

A. Silicone, S, NS, 50, NT: Single-component, nonsag, plus 50 percent and minus 50 percent movement capability, nontraffic-use, neutral-curing silicone joint sealant; ASTM C920, Type S, Grade NS, Class 50, Use NT.

1. Basis-of-Design Product: Subject to compliance with requirements, provide The Dow Chemical Company ; Dow Corning® 791 Silicone Weatherproofing Sealant. or a comparable product by one of the following:

a. GE Construction Sealants; Momentive Performance Materials Inc.
b. May National Associates, Inc.; a subsidiary of Sika Corporation.
c. Pecora Corporation.
d. Sika Corporation; Joint Sealants.
e. Manufacturers standard Silicone Sealant

B. Silicone, S, NS, 50, T, NT: Single-component, nonsag, plus 50 percent and minus 50 percent movement capability, traffic- and nontraffic-use, neutral-curing silicone joint sealant; ASTM C920, Type S, Grade NS, Class 50, Uses T and NT.

1. Basis-of-Design Product: Subject to compliance with requirements, provide The Dow Chemical Company; DOW CORNING® 799 SILICONE GLASS AND METAL BUILDING SEALANT or a comparable product by one of the following:

a. Soudal USA.
b. Manufacturers standard Silicone Sealant

2.3 BUTYL JOINT SEALANTS

A. Butyl-Rubber-Based Joint Sealants: ASTM C1311.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Pecora Corporation ; BC-158. or a comparable product by one of the following:

a. Bostik, Inc.
b. Manufacturer’s standard Butyl-Rubber-Based joint sealant.

2.4 JOINT-SEALANT BACKING

A. Sealant Backing Material, General: Nonstaining; compatible with joint substrates, sealants, primers, and other joint fillers; and approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

B. Cylindrical Sealant Backings: ASTM C1330, Type C (closed-cell material with a surface skin) or any of the preceding types, as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint. Provide self-adhesive tape where applicable.

2.5 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.

C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:

    a. Concrete.

3. Remove laitance and form-release agents from concrete.

4. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:

    a. Metal.

B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

B. Sealant Installation Standard: Comply with recommendations in ASTM C1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

C. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of sealant backings.
2. Do not stretch, twist, puncture, or tear sealant backings.
3. Remove absorbent sealant backings that have become wet before sealant application, and replace them with dry materials.

D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:

1. Place sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

1. Remove excess sealant from surfaces adjacent to joints.

2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
3. Provide concave joint profile per Figure 8A in ASTM C1193 unless otherwise indicated.

3.4 CLEANING

A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.5 PROTECTION

A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out, remove, and repair damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

3.6 JOINT-SEALANT SCHEDULE

A. Joint-Sealant Application: Exterior joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Locations:

    a. At termination bars and reglets.
    b. Perimeter joints between materials and flashings..
    c. Other joints as indicated on Drawings.

2. Joint Sealant: Silicone, nonstaining, S, NS, 50, NT or as required per manufacturer.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

B. Joint-Sealant Application: Concealed mastics.

1. Joint Locations:

    a. Mechanical curbs and flashings.
    b. Where required by manufacturer.

2. Joint Sealant: Butyl-rubber based or as required per manufacturer.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

END OF SECTION 079200

SECTION 099113 - EXTERIOR 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. Section includes surface preparation and the application of paint systems on exterior substrates, including but not limited to the following:

1. Steel and iron.
2. Galvanized metal.
3. Aluminum (not anodized or otherwise coated).

B. Related Requirements:

1. Section 055000 "Metal Fabrications" for shop priming metal fabrications.

1.3 DEFINITIONS

A. MPI Gloss Level 1: Not more than five units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.

B. MPI Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.

C. MPI Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.

D. MPI Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.

E. MPI Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.

F. MPI Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product. Include preparation requirements and application instructions.

B. Samples for Initial Selection: For each type of topcoat product.

C. Samples for Verification: For each type of paint system and each color and gloss of topcoat.

1. Submit Samples on rigid backing, 8 inches square.
2. Apply coats on Samples in steps 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: Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules. Include color designations.

1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Paint: 5 percent, but not less than 1 gal. of each material and color applied.

1.6 QUALITY ASSURANCE

A. MPI Standards: Products shall comply with MPI standards indicated and shall be listed in its "MPI Approved Products Lists."

B. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.

1.7 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.

1.8 FIELD 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 in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Benjamin Moore & Co.
2. Coronado Paint; Benjamin Moore Company.
3. PPG Architectural Coatings.
4. Rust-Oleum Corporation; a subsidiary of RPM International, Inc.
5. Sherwin-Williams Company (The).
6. Zinsser; Rust-Oleum Corporation.

B. Products: Subject to compliance with requirements, provide one of the products listed in the Exterior Painting Schedule for the paint category indicated.

2.2 PAINT, GENERAL

A. MPI Standards: Products shall comply with MPI standards indicated and shall be listed in its "MPI Approved Products Lists."

B. Material Compatibility:

1. Materials for use within each paint system shall be 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, products shall be recommended in writing by topcoat manufacturers for use in paint system and on substrate indicated.

C. Colors: As selected by Architect from manufacturer's full range.

1. Contractor shall anticipate multiple colors to be applied in each room of the facility.
2. Additional colors as selected by Architect from Manufacturer’s full range.

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 the Work.

B. Verify suitability of substrates, including surface conditions and compatibility, with existing finishes and primers.

C. Proceed with coating application only after unsatisfactory conditions have been corrected.

1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.

B. Remove hardware, covers, plates, and similar items already in place that are removable and 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.

C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.

1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.

D. Steel Substrates: Remove rust, loose mill scale, and shop primer if any. Clean using methods recommended in writing by paint manufacturer.

E. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and areas where shop paint is abraded. Paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.

F. Aluminum Substrates: Remove loose surface oxidation.

G. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal 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 and recommendations in "MPI Architectural Painting Specification Manual."

1. Use applicators and techniques suited for paint and substrate indicated.
2. Paint surfaces behind movable items same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed items with prime coat only.
3. Paint both sides and edges of exterior doors and entire exposed surface of exterior door frames.
4. Paint entire exposed surface of window frames and sashes.
5. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
6. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.

B. Tint undercoats same color as topcoat, but tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. 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 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.

E. Painting Fire Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:

1. Paint the following work where exposed to view:

a. Equipment, including panelboards and switch gear.
b. Uninsulated metal piping.
c. Uninsulated plastic piping.
d. Pipe hangers and supports.
e. Metal conduit.
f. Plastic conduit.
g. Tanks that do not have factory-applied final finishes.

3.4 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.

3.5 EXTERIOR PAINTING SCHEDULE

A. Steel and Iron Substrates:

1. Alkyd System MPI EXT 5.1D:

a. Prime Coat: Primer, alkyd, anticorrosive, for metal, MPI #79.
b. Intermediate Coat: Exterior, alkyd enamel, matching topcoat.
c. Topcoat: Alkyd, exterior, semi-gloss (MPI Gloss Level 5), MPI #94.

2. Quick-Dry Enamel System MPI EXT 5.1A:

a. Prime Coat: Primer, alkyd, quick dry, for metal, MPI #76.
b. Intermediate Coat: Alkyd, quick dry, matching topcoat.
c. Topcoat: Alkyd, quick dry, semi-gloss (MPI Gloss Level 5), MPI #81.

B. Galvanized-Metal Substrates:

1. Latex System MPI EXT 5.3H:

a. Prime Coat: Primer, galvanized, water based, MPI #134.
b. Intermediate Coat: Latex, exterior, matching topcoat.
c. Topcoat: Latex, exterior, semi-gloss (MPI Gloss Level 5), MPI #11.

C. Aluminum Substrates:

1. Alkyd System MPI EXT 5.4A:

a. Pretreatment Prime Coat: Vinyl wash primer, MPI #80.

b. Prime Coat: Primer, quick dry, for aluminum, MPI #95.

c. Intermediate Coat: Exterior, alkyd enamel, matching topcoat.

d. Topcoat: Alkyd, exterior, semi-gloss (MPI Gloss Level 5), MPI #94.

END OF SECTION 099113

CITY OF CHEYENNE, WY

CHEYENNE ICE AND EVENT CENTER ROOF REPLACEMENT

CHEYENNE, WYOMING

STANDARD ABBREVIATIONS

ABV	Above	EL	Elevation	MASNRY	Masonry Block		
A/C	Air Conditioning	ELEC	Electrical/Electric	MAT/MATL	Material	SHT	Sheet
ACT	Acoustical Ceiling Tile	ELEV	Elevator/Elevation	MAX	Maximum	SHTG	Sheathing
ADJ	Adjustable, Adjacent	E/O	Equipment by Owner	MECH	Mechanical	SIM	Similar
A.F.F.	Above Finish Floor	E.P.D.M.	Ethylene Propylene Diene Monomer	MEMBR.WP.	Waterproofing	SPECS	Specifications
A.I.B.	Air Infiltration Barrier	E.P.S.	Expanded Polystyrene	MEZZ.	Mezzanine	SQ	Square
ALT	Alternate	EQ	Equal	MFR/MFG	Manufacturer	S.S.	Stainless Steel
ALUM	Aluminum	EQUIP	Equipment	M.H.	Manhole	STD	Standard
APPROX	Approximate	EQUIP	Equipment	MIN	Minimum	STL	Steel
ARCH	Architect	E.W.C.	Electric Water Cooler	MISC	Miscellaneous	STOR	Storage
ATH	Aluminum Threshold	EXIS.	Exterior Wall System	M.L.P.	Metal Liner Panel	STRUCT	Structural
		EXIST or (e)	Existing	M.O.	Masonry Opening	SUSP	Suspended
BD	Board	EXP	Expansion	M.T.	Metal Threshold	S.W.C.	Special Wall Coating
BLDG	Building	EXT	Exterior	MTL	Metal		
BLK	Block			M.T.P.	Metal Toilet Partition	TEL	Telephone
BLKG	Blocking	F.D.	Floor Drain			TEMP	Tempered
BM	Beam	FDN	Foundation	(N)	New	T.O.BM.	Top of Beam
B.M.	Bench Mark	F.E.	Fire Extinguisher	NECY	Necessary	T.O.C.	Top of Concrete
BN	Bullnose	FIN	Finish	N.I.C.	Not in Contract	T.O.F.	Top of Footing
B.O.F.	Bottom of Footing	FLR/FL	Floor	NOM	Nominal	TOIL	Toilet
BRG	Bearing	F.N.D.	Feminine Napkin Dispenser	N.T.S.	Not To Scale	T.O.J.	Top of Joist
BSMNT	Basement	F.N.V.	Feminine Napkin Receptacle			T.O.M.	Top of Masonry
BTM	Bottom	F.O.B.	Face of Brick	O.A.F.	Overall Frame	T.O.S.	Top of Steel
BTWN	Between	F.O.F.	Face of Foundation	O.C.	On Center	T.P.D.	Toilet Paper
B.U.	Built-up	F.O.S.	Face of Stud	O.D.	Outside Diameter	TRTD	Treated
B.L.	Borrowed Lite	FR	Frame	O.H.	Overhead	TYP	Typical
		F.R.S.	Flushing Rim Sink	OPNG	Opening		
CAB	Cabinet	F.S.	Floor Sink	OPP	Opposite	U.G.	Underground
CEM	Cement	FT	Feet/Foot	OPP.H.	Opposite Hand	U.L.	Underwriters Laboratory
C.I.	Cast Iron	FTG	Footing	ORIG	Original	UNEXC	Unexcavated
C.J.	Control Joint	FURR	Furring	O/	OVER	UNFIN	Unfinished
CLG	Ceiling					U.S.	Underside
CLO	Closet	GA	Gauge	PR	PAIR	U.N.O.	Unless Noted Otherwise
C.M.	Construction Manager	GALV	Galvanized	PL	Plate		
C.M.U.	Concrete Masonry Unit	G.B.	Grab Bar	P.LAM.	Plastic Laminate		
C.O.	Cleanout	GEN	General	PLAS	Plaster		
COL	Column	G.I.	Galvanized Iron	PLAS.LAM.	Plastic Laminate	(V)	Verify
CONC	Concrete	GL	Glass	PLYWD	Plywood	V.C.T.	Vinyl Composition Tile
CONST.JT.	Construction Joint	G.W.B.	Gypsum Wallboard	PREFAB	Prefabricated	VENT.	Ventilation/Ventilator
CONT	Continuous			PT	Paint	VERT.	Vertical
CONTR	Contractor	H	High	P.T.D.	Paper Towel Dispenser	V.I.F.	Verify in Field
COORD	Coordinate	H.B.	Hose Bibb	PTN	Partition	V.B.G.	Visqueen Vapor Barrier
CORR	Corridor	H/C	Handicapped	PTKN	Pressure Treated Wood	V.S.G.	Vinyl Sheet Goods
CPT	Carpet	H.C.	Hollow Core			V.T.R.	Vent Thru Roof
C.R.A.	Cold Rolled Angle	H.D.	Heavy Duty	QT	Quarry Tile	VNG	Vinyl Wallcovering
C.T.	Ceramic Tile	HDNR	Hardener				
CTR	Center	HDW	Hardware	(R)	Remove	W/	With
C.W.	Cold Water	H.M.	Hollow Metal	RAD	Radius	W.C.	Water Closet
		HORIZ	Horizontal	R.D.	Roof Drain	WD	Wood
DBL	Double	HR	Hour	RECMND	Recommendation	WDW/WNDO	Window
DET	Detail	H.R.D.	Hair Dryer	REF	Reference	W/O	Without
D.F.	Drinking Fountain	HT	Height	REINF	Reinforce/Reinforcing	W.P.	Waterproof
DIA	Diameter	H.W.	Hot Water	REQ'D	Required	W.R.	Water Receptacle
DIM	Dimension			RET	Retain/Retained	W.W.F.	Welded Wire Fabric
DISP	Dispenser/Disposal	I.D.	Inside Diameter	REV	Revisions		
DN	Down	IN	Inch/Inches	R.F.	Resilient Flooring		
D.P.	Dampproofing	INCL	Including	RM	Room		
DR	Door	INFO	Information	R.O.	Rough Opening		
DRF	Draftstopping	INSUL	Insulation	RTG	Rating		
D.S.	Downspout	INT	Interior				
DWG	Drawing	INV	Invert	S.C.	Solid Core		
				SCHED	Schedule		
EA	Each	JAN	Janitor	S.C.W.	Solid Core Wood		
E.C.	Electrical Contractor	JT	Joint	S.D.	Soap Dispenser		
E.E.	Each End			SECT	Section		
E.I.F.S.	Exterior Insulation and Finish System	LKRS	Lockers	S.F.	Square Feet		
		L.L.H.	Long Leg Horizontal	S.F.C.	Special Floor Coating		
E.J.	Expansion Joint	L.L.V.	Long Leg Vertical	S.G.T.	Structural Glazed Tile		
E.J.C.	Expansion Joint Cover	LOC	Location	SHWR.	Shower		

NOTE: NOT ALL ABBREVIATIONS ARE USED

KEY TO SYMBOLS

- EARTH IN SECTION
- GRAVEL IN SECTION
- CONCRETE IN LARGE SCALE SECT.
- CONCRETE IN SMALL SCALE SECT.
- GMU IN SECTION
- METAL
- FRAMING OR CONTINUOUS WOOD BLOCKING IN SECTION
- INTERMEDIATE WOOD BLOCKING IN SECTION
- FINISH WOOD IN SECTION
- PLYWOOD IN SECTION
- SOUNDBOARD IN SECTION
- BATT INSULATION IN SECTION
- E.I.F.S. IN SECTION
- BRICK IN SECTION
- METAL STUD PARTITION
- DRYWALL OR PLASTER IN SECTION
- ACOUSTICAL TILE IN SECTION
- RIDGED INSULATION IN SECTION

- BUILDING SECTION LETTER
- SHEET DRAWN ON
- WALL SECTION NUMBER
- SHEET DRAWN ON
- DETAIL NUMBER
- SHEET DRAWN ON
- EXTERIOR ELEVATION NUMBER
- SHEET DRAWN ON
- INTERIOR & EXTERIOR DOOR OR GATE NUMBER
- ROOMNAME & NUMBER
- KEYED NOTE NUMBER
- EXTERIOR WINDOW LETTER
- WALL TYPE LETTER
- BORROWED LITE SYMBOLS
- TOILET ACCESSORY
- CEILING TYPE
- CEILING HEIGHT
- INTERIOR ELEV. NUMBER
- SHEET DRAWN ON
- INDICATES CENTER LINE

NOTE: NOT ALL SYMBOLS ARE USED

PROJECT TEAM

CITY OF CHEYENNE
2101 O'NEIL AVE, ROOM 102
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CONTACT: STEVE GAER, FACILITIES MANAGER

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INDEX TO DRAWINGS

BUILDING DATA

PROJECT ADDRESS
CHEYENNE ICE AND EVENT CENTER
1530 N. LINCOLNWAY
CHEYENNE, WY 82001

OCCUPANCY
CHEYENNE ICE AND EVENT CENTER A-3

NUMBER OF STORIES 1

GROSS AREA	42,791 SF
FIRST FLOOR	37,856 SF
MEZZANINE	4,941 SF

TYPE OF CONSTRUCTION
TYPE II-A ONE HOUR

BUILDING CODE APPLICABLE
2018 INTERNATIONAL BUILDING CODE

AUTHORITY HAVING JURISDICTION
CITY OF CHEYENNE

PROJECT SUMMARY

THIS PROJECT IS A RE-ROOFING PROJECT FOR THE CHEYENNE ICE AND EVENT CENTER. ALL LOWER ROOFS TO BE REPLACED WITH EQUAL OR EQUIVALENT MATERIALS. THE MAIN ROOF OVER THE EVENT CENTER WILL REMAIN AND THE ADJACENT LOWER ROOFS WILL GET REPLACED. INCLUDING THE BARREL ROOF PORTION WHICH IS STANDING SEAM METAL PANEL. APPROXIMATELY 7,500 SF OF ROOFING TO BE REPLACED. PROJECT ALSO INCLUDES ADDED LADDER-UP FEATURE FOR ROOF HATCH. GUTTERS AND DOWNSPOUTS TO BE REPLACED AS WELL AS SOME PAINTING OF EXISTING WINDOW FRAMES AND STUCCO WORK.

PROJECT SCHEDULE

50% CONSTRUCTION DOCUMENTS	9.21.21
100% CONSTRUCTION DOCUMENTS	10.13.21

VICINITY MAP

CONSTRUCTION DOCUMENTS

SET NO.

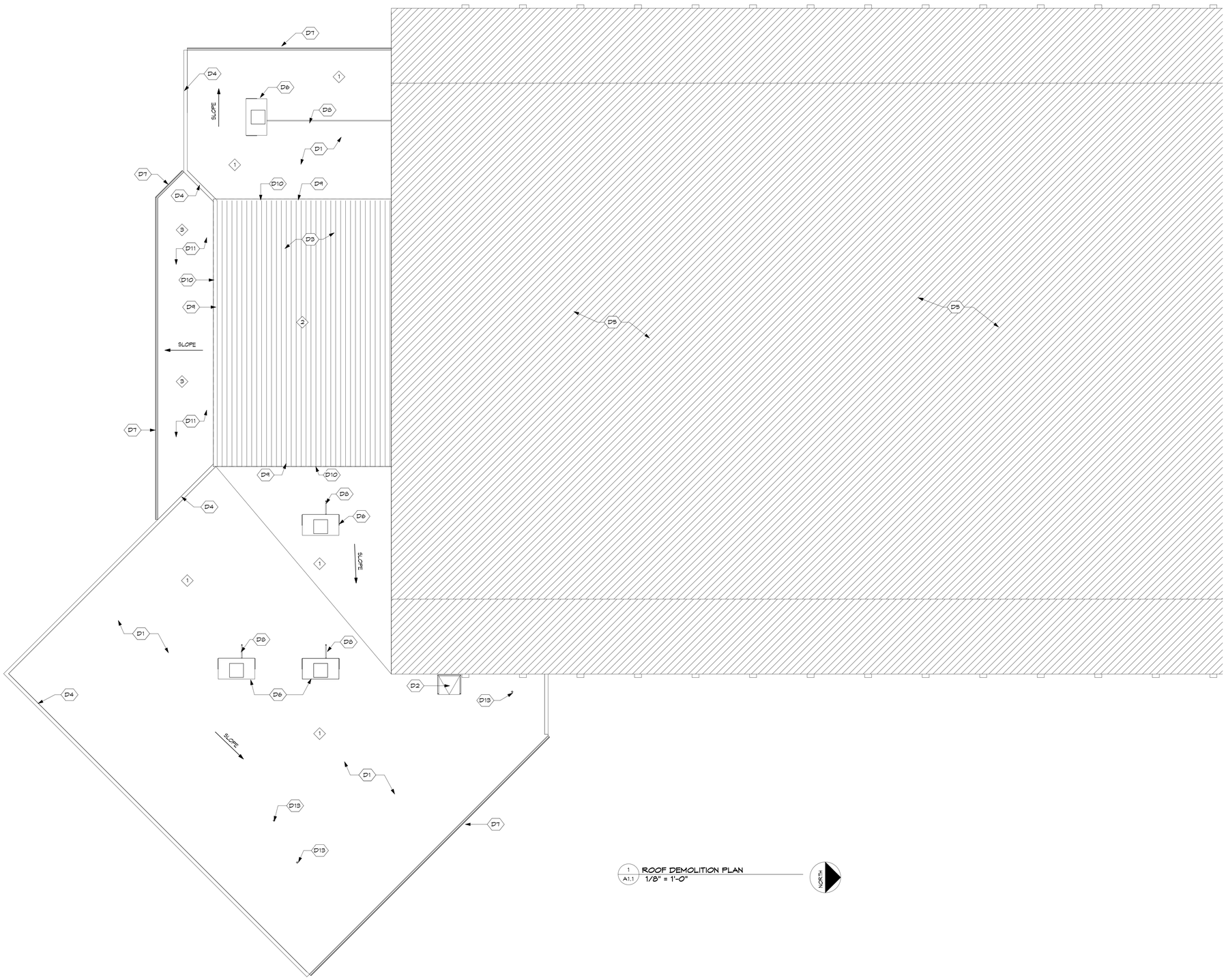
CITY OF CHEYENNE
CHEYENNE ICE AND EVENT CENTER ROOF REPLACEMENT
plan one / architects
~ cody, wyoming, 1001 12th st., 82414 (307) 587-8646 ~ rock springs, wyoming, 4020 dewar dr., suite a, 82901 (307) 352-2954, ~ cheyenne, wyoming, 325 w 18th st, suite 3, 82001 (307) 514-4575~

PLAN ONE ARCHITECTS

LICENSED ARCHITECT
DANIEL J. ODASZ
C1764
STATE OF WYOMING

project: 2145
date: 10/13/2021
revisions:

T1.1



1 A1.1 ROOF DEMOLITION PLAN
1/8" = 1'-0"

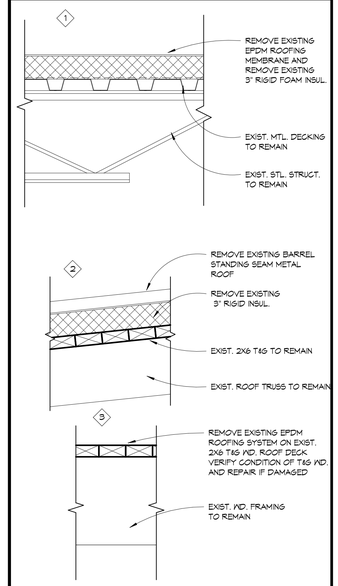
GENERAL NOTES

1. CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS.
2. LEGALLY DISPOSE OF ALL DEMOLISHED MATERIALS.
3. PROVIDE COMPONENTS AS REQUIRED TO MEET CLASS "A" ROOF ASSEMBLY FOR ALL ROOF AREAS.
4. THE CONTRACTOR SHALL FIELD VERIFY ALL CONDITIONS - RAISE CURBS, PIPING AND STANDS AS REQUIRED TO MEET MANUFACTURES MINIMUM FLASHING REQUIREMENTS.
5. WHERE SLOPE TO GUTTERS CANNOT BE ACHEVED WITH MINIMUM 1/4" PER FOOT SLOPE, CONTACT ARCHITECT FOR CLARIFICATIONS. THE SLOPE MUST BE MAINTAINED FOR ADEQUATE DRAINAGE AND INSTALLED WITH RECOVERY BOARD TO THE DRAIN TO PREVENT HAIL DAMAGE IN COMPLIANCE WITH THE MANUFACTURERS WARRANTY.
6. THE BASIS OF DESIGN AND DETAILS SHOWN ARE BASED ON CARLISLE ROOFING PRODUCTS, OTHER ROOFING EPDM SYSTEMS SPECIFIED MAY BE BID UPON APPROVAL HOWEVER IT SHALL BE THE RESPONSIBILITY OF THE SYSTEMS MANUFACTURER AND THE CONTRACTOR TO MODIFY DETAILS AS REQUIRED FOR THEIR SYSTEM. THERE WILL BE NO ADDITIONAL COMPENSATION AFTER THE BID OPENING FOR ANY REQUIRED CHANGES.

DEMOLITION NOTES

D1	REMOVE ROOFING SYSTEM DOWN TO STEEL DECKING
D2	EXISTING ROOF ACCESS DOOR TO REMAIN, SEE SPECIFICATION FOR LADDER ASSIST ACCESSORY
D3	REMOVE EXISTING METAL BARREL ROOFING AND VERTICAL FLASHING
D4	REMOVE EXISTING PARAPET COPING
D5	EXISTING ROOF TO REMAIN
D6	EXISTING MECHANICAL UNITS TO REMAIN
D7	REMOVE EXISTING GUTTERS AND DOWNSPOUTS
D8	EXISTING GAS LINES TO REMAIN AND RE-SUPPORT WITH NEW PIPE SUPPORTS
D9	EXISTING WINDOWS TO REMAIN, REPLACE FLASHING AT SILLS
D10	REPAIR MINOR PORTIONS OF EIFS THAT ARE DAMAGED ON VERTICAL EXISTING WALLS AND RE-PAINT - SPECS
D11	REMOVE ROOFING SYSTEM DOWN TO 2 X 6 T&G WOOD ROOF DECK AND PRE-FINISHED VERTICAL FLASHING
D13	EXISTING 3" ROOF VENT TO REMAIN

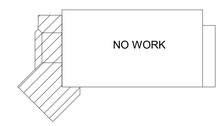
EXISTING ROOF SYSTEMS



EXISTING ROOF LEGEND

- EXISTING MECH. UNIT, TO REMAIN
- EXISTING ROOF VENT, TO REMAIN
- EXISTING GAS PIPING, TO REMAIN
- EXISTING ROOF ACCESS DOOR, TO REMAIN

KEY PLAN



CITY OF CHEYENNE

ICE AND EVENT CENTER ROOF REPLACEMENT

plan one

~ cody, wyoming, 1001 12th st., 82414 (307) 587-8646 ~ rock springs, wyoming, 4020 dewar dr., suite a, 82901 (307) 352-2954, ~ cheyenne, wyoming, 325 w 18th st, suite 3, 82001 (307) 514-4575~

PLAN ARCHITECTS

LICENSED ARCHITECT
DANIEL J. ODASZ
C1764
STATE OF WYOMING

project: 2145

date: 10/13/2021

revisions:

A1.1

PREP AND PAINT EXIST. HOLLOW MTL. WINDOWS

REMOVE AND EXISTING CANOPY ROOFING SYSTEM AND REPLACE WITH NEW

REPLACE EXIST. GUTTER AND DOWNSPOUT WITH NEW AT CANOPY

3 A1.2 EXISTING FRONT CANOPY
1/2" = 1'-0"

PROVIDE SEALANT AROUND PENETRATIONS INTO THE MAIN BUILDING

REMOVE AND REPLACE TERMINATION BAR AND ROOFING SYSTEM

REPLACE GUTTERS AT LOWER ROOFS

MAIN BUILDING NO WORK ON HIGHER ROOF

2 A1.2 PRE-FINISHED GUTERS
1/2" = 1'-0"

REPLACE PRE-FINISHED METAL ROOFING AT BARREL ROOF AND VERTICAL PRE-FINISHED FLASHING

PAINT EFIS FINISH AFTER FIXING CRACK REPAIR

PREP AND PAINT HOLLOW METAL WINDOW FRAMES, TYP.

REMOVE AND REPLACE PRE-FINISHED METAL AT EXISTING WINDOWS, TYP.

REMOVE AND REPLACE EPDM ROOFING SYSTEM - SEE A1.3 FOR SYSTEM

1 A1.2 EFIS REPAIR AT WINDOWS
1/2" = 1'-0"

METAL BARREL ROOF SYSTEM TO REMOVED AND REPLACED

PREP AND PAINT EXIST. HOLLOW METAL WINDOW FRAMES AND REPLACE FLASHING AT SILL

OWNER TO REMOVE EXIST. EQUIPMENT AS NEEDED FOR ROOFING REPLACEMENT

EXIST. ROOFING SYSTEM TO BE REMOVED AND REPLACED

6 A1.2 OWNER EQUIPMENT
1/2" = 1'-0"

EXIST. MECH. UNITS TO REMAIN PROVIDE CRICKETS AT HIGH END OF ROOF (4) TOTAL

EXIST. VTR TO REMAIN, REPLACE BOOT

EXIST. PRE-FINISHED METAL COPING TO BE REPLACED

EXIST. ROOF SYSTEM TO BE REPLACED W/ NEW ROOF SYSTEM SEE A1.3

5 A1.2 ROOF ABOVE GAME AREA
1/2" = 1'-0"

EXISTING ROOF HATCH TO GET LADDER UP FOR ASSISTANCE TO ACCESS ROOF

EXIST. WALL TO REMAIN

EXIST. WIRING TO REMAIN

REMOVE AND REPLACE TERMINATION BAR AND EXIST. ROOF SYSTEM

EXIST. VTR TO REMAIN BUT RECEIVE A NEW BOOT

4 A1.2 EXISTING ROOF ACCESS
1/2" = 1'-0"

NO WORK ON HIGH ROOF

REMOVE AND REPLACE GUTTER AND DOWNSPOUT, REPLACE DOWNSPOUT IN THE SAME PLACE AS EXIST.

EXIST. WALL TO REMAIN

EXIST. CONC. SIDEWALK TO REMAIN

9 A1.2 EXIST. EAST ELEVATION
1/2" = 1'-0"

REMOVE AND REPLACE EXIST. PRE-FINISHED METAL COPING

REMOVE AND REPLACE EXIST. GUTTER AND DOWNSPOUT

8 A1.2 LOW CANOPY DOWNPOUTS AND GUTTER
1/2" = 1'-0"

SAND EXIST. WINDOWS SMOOTH AND RE-PAINT MATCH EXIST. COLOR

REMOVE AND REPLACE SILL FLASHING

7 A1.2 ENLARGED EXIST. WINDOW
1/2" = 1'-0"

CITY OF CHEYENNE

ICE AND EVENTS CENTER ROOF REPLACEMENT

plan one / architects

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PLAN ONE ARCHITECTS

LICENSED ARCHITECT
DANIEL J. ODASZ
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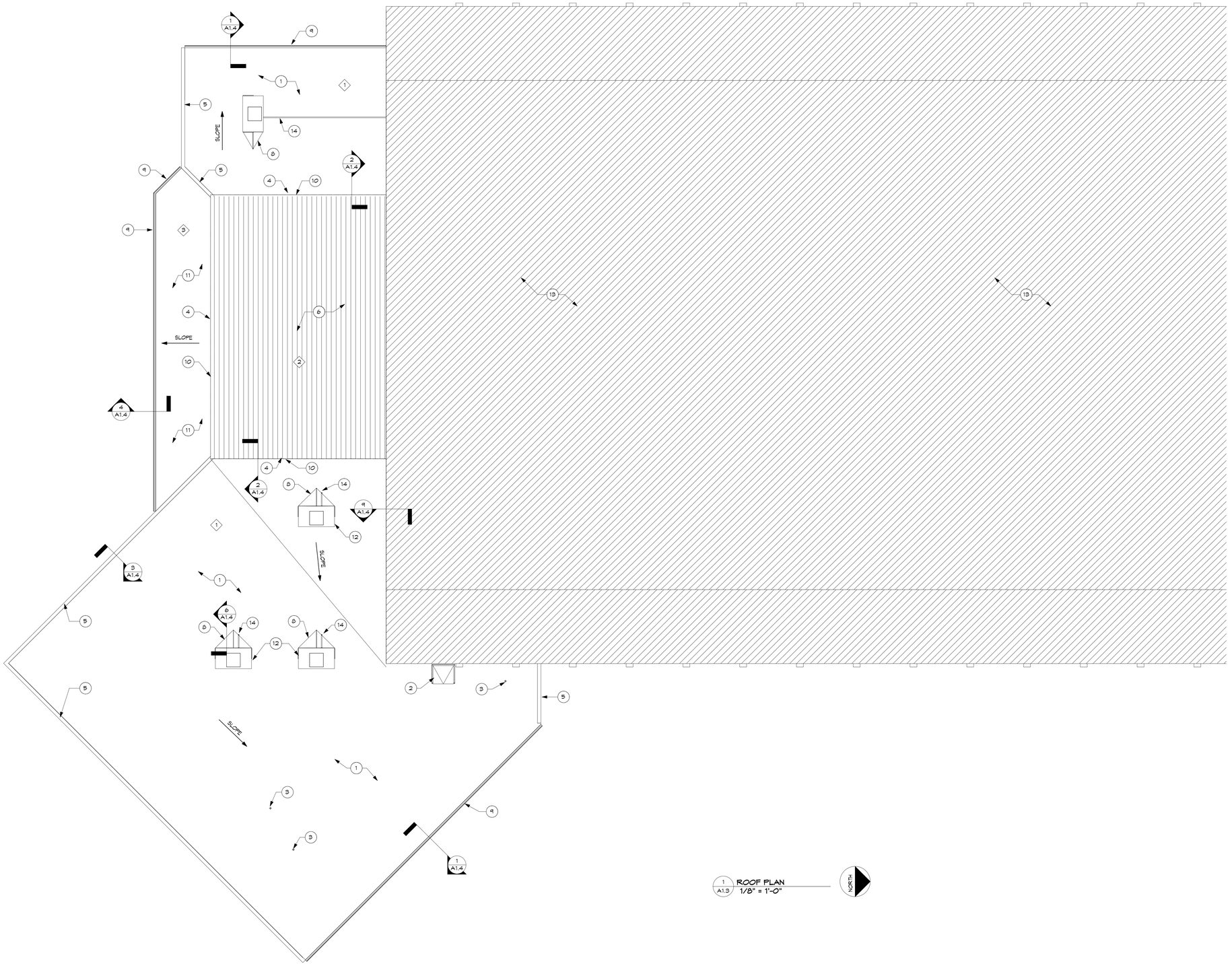
STATE OF WYOMING

project: 2145

date: 10/13/2021

revisions:

A1.2



1 A1.3 ROOF PLAN
1/8" = 1'-0"

NORTH

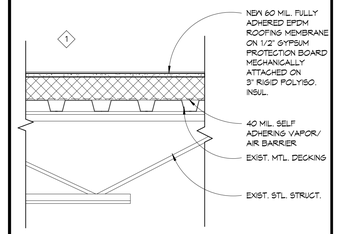
GENERAL NOTES

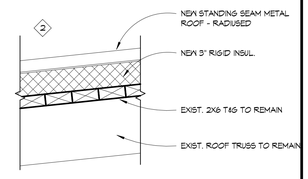
1. CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS.
2. LEGALLY DISPOSE OF ALL DEMOLITISHED MATERIALS.
3. PROVIDE COMPONENTS AS REQUIRED TO MEET CLASS "A" ROOF ASSEMBLY FOR ALL AREAS.
4. PROVIDE A 90 M.P.H. WIND SPEED WARRANTY FOR ALL ROOF SYSTEMS.
5. CONTRACTOR TO FIELD VERIFY ALL CONDITIONS - RAISED CURBS, PIPING AND STAND AS REQUIRED TO MEET MANUFACTURERS MINIMUM FLASHING REQUIREMENTS
6. THE CONTRACTOR SHALL FUNCTIONALITY OF ALL GUTTERS AND DOWNSPOUTS UPON COMPLETION AND WALK THE SITE WITH THE OWNER UPON COMPLETION.
7. PROVIDE CRICKETS BEHIND CURB AT HIGH SIDE OF ROOF.

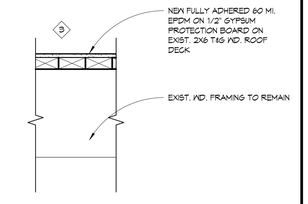
KEYED NOTES

1. NEW FULLY ADHERED EPDM ROOFING SYSTEM OVER METAL DECKING SEE DETAIL ON A1.3
2. EXISTING ROOF ACCESS DOOR TO REMAIN, SEE SPECIFICATION FOR LADDER ASSIST ACCESSORY
3. EXISTING ROOF VENT WITH NEW BOOT SEE 5/A1.4
4. EXISTING HOLLOW METAL WINDOWS TO BE PAINTED, MATCH EXISTING COLOR
5. NEW METAL PARAPET COPING, PROVIDE MANUFACTURERS STANDARD "WELDABLE" METAL COPING, COLOR TO MATCH EXISTING
6. NEW METAL BARREL ROOF ON EXISTING 2 X 6 T&G WOOD ROOF DECK
8. NEW ROOF CRICKETS AT EXISTING MECH. UNITS, COORDINATE WITH EXISTING GAS LINES AND ELECTRICAL CONNECTIONS
9. NEW GUTTERS AND DOWNSPOUTS ARE TO BE INSTALLED AT THE SAME EXISTING LOCATIONS THAT WERE TAKEN OUT
10. PATCH AND PAINT EXISTING EIFS AT CRACKED WINDOW OPENINGS SEE PHOTO SHEET FOR LOCATIONS
11. NEW FULLY ADHERED EPDM ROOFING SYSTEM OVER EXISTING 2 X 6 T&G WOOD ROOF DECK
12. EXISTING MECHANICAL UNIT TO REMAIN
13. EXISTING METAL ROOF TO REMAIN
14. EXISTING GAS PIPING COORDINATE WITH ROOF CRICKETS AND PROVIDE NEW SUPPORTS

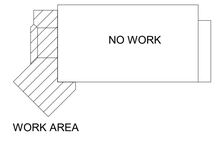
ROOF SYSTEMS







KEY PLAN



CITY OF CHEYENNE

ICE AND EVENT CENTER ROOF REPLACEMENT

plan one

~ cody, wyoming, 1001 12th st., 82414 (307) 587-8646 ~ rock springs, wyoming, 4020 dewar dr., suite a, 82901 (307) 352-2954, ~ cheyenne, wyoming, 325 w 18th st, suite 3, 82001 (307) 514-4575~

PLAN ARCHITECTS

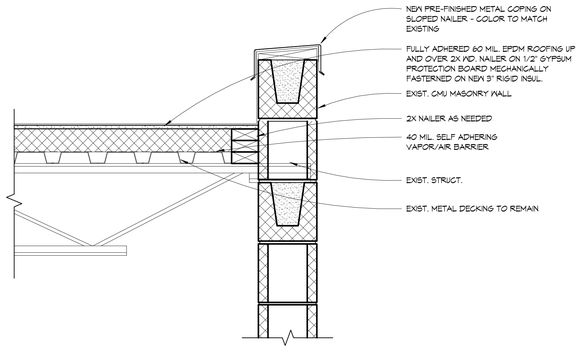
LICENSED ARCHITECT
DANIEL J. ODASZ
C1764
STATE OF WYOMING

project: 2145

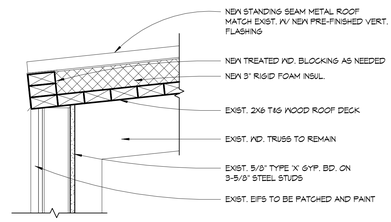
date: 10/13/2021

revisions:

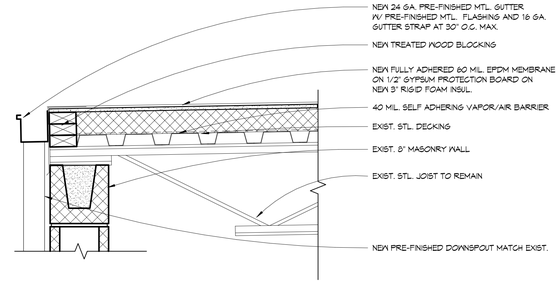
A1.3



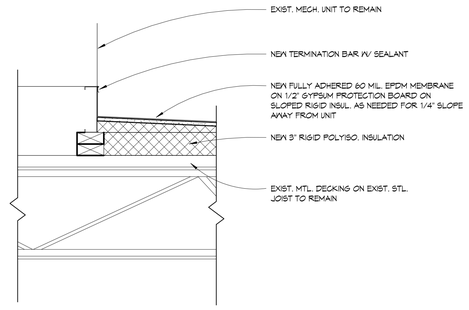
3 A1.4 **PARAPET DETAIL**
1 1/2" = 1'-0"



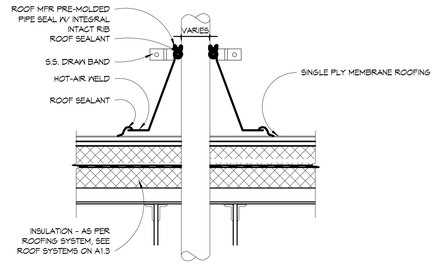
2 A1.4 **DETAIL AT BARREL ROOF**
1 1/2" = 1'-0"



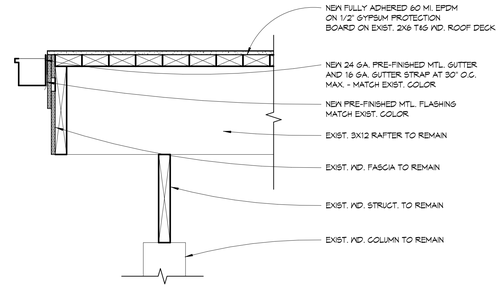
1 A1.4 **DETAIL AT GUTTER**
1 1/2" = 1'-0"



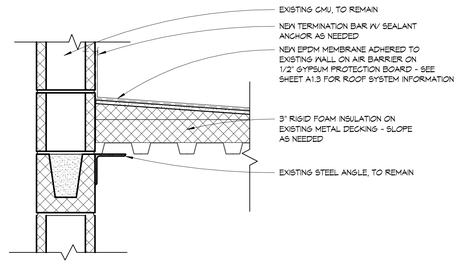
6 A1.4 **MECH. CURB DETAIL**
1 1/2" = 1'-0"



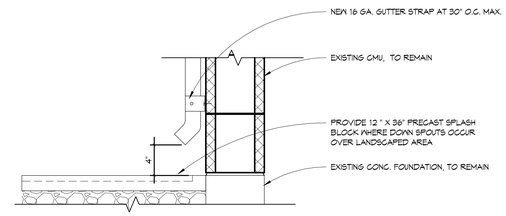
5 A1.4 **ROOF VENT DETAIL**
1 1/2" = 1'-0"



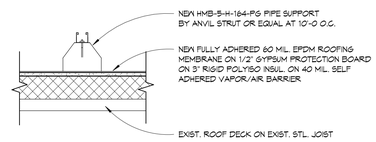
4 A1.4 **CANOPY DETAIL**
1 1/2" = 1'-0"



9 A1.4 **LOW ROOF DETAIL**
1 1/2" = 1'-0"



8 A1.4 **GUTTER DETAIL**
1 1/2" = 1'-0"



7 A1.4 **PIPE SUPPORT DETAIL**
1 1/2" = 1'-0"

CITY OF CHEYENNE
ICE AND EVENTS CENTER ROOF REPLACEMENT
plan one / architects
~ cody, wyoming, 1001 12th st., 82414 (307) 587-8646 ~ rock springs, wyoming, 4020 dewar dr., suite a, 82901 (307) 352-2954, ~ cheyenne, wyoming, 325 w 18th st, suite 3, 82001 (307) 514-4575~

PLAN ARCHITECTS

LICENSED ARCHITECT
DANIEL J. ODASZ
C1764
STATE OF WYOMING

project: 2145
date: 10/13/2021
revisions:

A1.4

ADMINISTRATIVE INSTRUCTIONS

TABLE OF CONTENTS

1.00 VALUE ENGINEERING

A Value Engineering Proposal ("VEP") is a creative proposal initiated by the Contractor to amend the Contract to use an alternate method, design, material, or similar element, to reduce the project's cost or improve its outcome for both the City of Cheyenne's (the "City's") and the Contractor's benefit.

The Contractor may submit a VEP for consideration by the City and the City Engineer (the "Engineer") after the City awards the contract. The Contractor shall submit a VEP in accordance with the procedure outlined in the current edition of the Wyoming Department of Transportation Standard Specifications for Road and Bridge Construction ("WYDOT Standard Specifications for Road and Bridge Construction"), Subsection 104.3.4, "Submitting a VECP".

The City will not consider VEPs that are cost reductions resulting from corrections to design errors; that are inconsistent with the City's design policies and criteria for the project; or that may require excessive time or cost for review.

If the City and the Engineer accept a VEP which results in a net reduction in the contract price, the Contractor will share proportionally with the City in the net savings (City 50%; Contractor 50%), less the cost of the Engineer's time required to evaluate the VEP. Net savings are defined as savings available after deducting VEP evaluation costs.

2.00 REFERENCES

2.01 **Coordination of Contract Documents.** Revise City of Cheyenne & Board of Public Utilities Standard Construction Specifications and Standard Drawings, 2014 Edition ("City Standard Specifications and Drawings" or separately as "Standard Specifications" or "Standard Drawings") Section 01090, REFERENCES, item 1.01.A. as follows, by deleting the hierarchy list included (items 1 thru 4), and replace with the following in order of precedence:

1. Permits from other agencies as required by law;
2. Successive change orders and contract modifications in order of issuance, most recent first;
3. Addenda;
4. Contract;
5. City-obtained agreements;
6. Special Provisions;
7. General Conditions;
8. Project Plans;
9. Standard Drawings;

10. Standard Specifications;
11. Electronic CADD Files; and
12. Reference Specifications.

Detailed plans shall have precedence over general plans.

2.02 **Reference Specifications.** The City Standard Specifications and Drawings, and all revisions through the advertisement date, constitute the current Standard Specifications and Standard Drawings for this project. They are an integral part of the Contract and are incorporated herein by reference. The Contractor shall adhere to all requirements and provisions of said City Standard Specifications and Standard Drawings in the performance of this Contract, except where otherwise provided herein or otherwise shown on the Contract Drawings.

Contract references to standard test methods or specifications such as those from the American Association of State Highway and Transportation Officials ("AASHTO"), the American Society for Testing and Materials ("ASTM"), or similar professional organizations, refer to the methods and specifications in effect on the advertised date of the public bid opening. If a later change to a cited document affects successful completion of the project, the City will incorporate the new reference with a contract modification.

All work shown on the Contract Drawings and Standard Specifications which refer to the Wyoming Department of Transportation ("WYDOT") shall be constructed in accordance with the current editions of the WYDOT Standard Specifications for Road and Bridge Construction and WYDOT Standard Plans and all revisions through the date of advertisement.

It is the bidder's responsibility to acquire the latest editions of all the Specifications, Standard Drawings, and Manuals.

3.00 TRAFFIC CONTROL

3.01 **Construction Phasing.** When a construction phasing or traffic control plan is included in the project plans, this plan shall govern unless an alternate plan, acceptable to the City, is submitted to the Engineer by the Contractor. If no traffic control plan is provided or if the Contractor desires to deviate from the provisions for maintaining traffic as described in the contract documents, the Contractor shall submit to the Engineer for approval a proposed sequence of operations and a compatible method of maintaining vehicle, pedestrian, and bicycle traffic. The Contractor shall submit the proposal for review and approval at least ten (10) Working Days prior to its intended implementation. The City reserves the right, in its sole discretion, to reject any construction phasing or traffic control proposal for any reason whatsoever.

3.02 **Traffic Control Requirements.** The Contractor shall provide adequate signs, barricades, lights, flares, flaggers, take all necessary precautions to prevent accident or injury, and minimize the public's inconvenience while the work is in progress. Any traffic control or construction phasing drawings shown in the project plans are conceptual only. The Contractor shall submit a detailed traffic control diagram to the City for prior approval before work begins. The diagram shall indicate location and type of signs, cones, flashers, flagging, reflective barricades, and all other devices the Contractor deems necessary for the proper protection of the work area. The Contractor shall install and maintain all traffic control and protective devices in accordance with the current edition of the Manual on Uniform Traffic Control Devices for Streets and Highways ("MUTCD").

3.03 **Notifying Affected Parties.** The Contractor shall notify all homeowners and businesses it anticipates will be affected by any work no less than two (2) Working Days, as defined by section 7.04, "Working Days and Time", before work is scheduled to commence. All written notifications shall be approved by the City prior to distribution. The Contractor shall notify all homeowners and businesses again if the work does not begin on the specified day, as anticipated. The notice shall be a written posting, hand delivered to the property, stating the anticipated start-date and duration of such work containing parking restriction information, and a phone number for the Superintendent or Project Manager. The Contractor shall not place notices in mailboxes.

3.04 **Parking Restrictions.** If work requires parking restrictions, the Contractor shall place "No Parking" signs along the affected area a minimum of forty-eight (48) hours prior to the beginning of work. The Contractor shall place "No Parking" signs a maximum of seventy-five (75) feet apart, but at no time fewer than two per block, per side. The City will only tow vehicles from the work area if they remain parked on the street after the Contractor provided proper written notice and placed "No Parking" signs. If the Contractor provides insufficient notice to affected parties, the Engineer must approve towing vehicles parked on the street, and such towing shall be at the Contractor's expense.

3.05 **Traffic Disruption and Obstructions.** The Contractor shall minimize obstructions to vehicle, pedestrian, and bicycle traffic; minimize disruption to transit routes; and give consideration to the location of detours and provisions for handling traffic. The Contractor shall provide for the safety and convenience of both the general public and residents near the work. The Contractor's travel rights do not supersede the public's travel rights.

Whenever, in the Engineer's opinion, the Contractor has not provided sufficient or proper safety precautions, the Contractor shall do so immediately and to whatever extent the Engineer requires. This provision shall not be construed as creating any duty on the part of the Engineer for traffic safety.

Fire hydrants on or near the site of the work shall be accessible at all times.

The Contractor shall not close any streets, driveways, access points, or any transit stops without prior consent of the City, Engineer, and proper governmental authorities affected by the closure or having authority over such area. The Contractor is required to request approval from the Engineer at least five (5) Working Days prior to the planned date of physical closure of any street or transit stop. Submittal or approval of a traffic control plan alone does not constitute notice or approval of the date of start of closure.

3.06 **Property Access.** The Contractor shall provide temporary approaches to businesses and residences adjacent to the roadway, intersections, detours, crossings, or similar features or facilities to safely accommodate customary vehicular or pedestrian traffic affected by the work.

3.07 **Emergency Access.** The Contractor shall be prepared at all times to provide immediate access for emergency vehicles to any buildings or other areas adjacent to the project and shall, upon emergency personnel request, construct temporary ramps and other facilities required for such emergency access. The City will make no additional payment to the Contractor for any delays or cost incurred by the Contractor in providing such emergency access.

4.00 CONTROL OF WORK

4.01 **Construction Stakes, Lines, and Grades.** The Contractor shall provide all construction surveying and stakeout required to accurately build and complete the project. The Engineer will establish primary project control only, but if the Engineer determines that additional project control is needed, the Engineer may direct the Contractor to establish additional project control under the direct supervision of a licensed Wyoming Professional Land Surveyor. The Engineer may provide an electronic point file or CADD files to the Contractor for use in construction staking.

The Contractor shall preserve all survey stakes and marks. If any of the primary project control survey marks are destroyed or disturbed due to the Contractor's construction activities or negligence, the Contractor shall be charged at the Engineer's established hourly crew rate for replacing them, with payment for this extra work made directly to the City's Consultant by deduction from the monthly periodic estimate payments to the Contractor. The Contractor shall also be responsible for any mistakes or damage resulting from the unnecessary loss or disturbances of control points, offset line points, and stakes.

The Contractor is responsible for scheduling all surveying and shall consider all phasing, sequencing, and construction limits required by all specifications. The Contractor shall review the survey stakes to ensure there is no discrepancy between the drawings and the survey stakes. If there is a discrepancy, the Contractor shall stop work immediately and notify the Engineer without delay.

The Contractor shall provide the survey data to the Engineer to verify elevations, resolve grade issues, and to otherwise use as the Engineer deems necessary or appropriate. The Engineer has the right to review the project stakeout prior to staking. The Contractor shall arrange work to allow forty-eight (48) hours advance notice for the Engineer to review the lines and grades of those stakes set for the next step of the Contractor's work. The Engineer shall have the right to make reasonable changes in the grades as shown on the drawings. The Engineer will be available for consultation and interpretations for staking operations.

The Contractor shall call to the Engineer's attention any reference lines, points, or bench marks, which may have been disturbed or appear off line or grade.

A licensed Wyoming Professional Land Surveyor shall directly supervise all construction surveys. The costs for providing all construction surveying and staking shall be considered included in the cost of contract items.

4.02 **Land Provided by the City.** The City or Engineer will obtain all easements and franchises required for the work. The Contractor shall limit operations to the area obtained and shall not trespass on private property. The City may provide access to certain lands, as indicated in connection with the work under the contract. The Contractor shall not conduct any activity on any land which may result in the imposition of any lien or encumbrance. The Contractor shall use said land in accordance with conditions established by the City.

4.03 **Land Provided by the Contractor.** If the Contractor requires additional area required for temporary construction facilities or storage of materials, the Contractor shall obtain written consent and agreement from the landowner on whose land the Contractor seeks to expand the Contractor's operation. The Contractor must provide a copy of this agreement to the Engineer, who may grant or deny permission to expand to additional land. The agreement, if accepted by the Engineer, must describe the activity for which the land will be used and how the Contractor will restore the land.

The Contractor shall construct all access roads, detour roads, or other temporary works, as required by the operations. The Contractor shall confine its equipment, materials storage, and worker operations to those areas shown and described, and such additional areas as the Contractor may provide. The Contractor shall provide such land, and access thereto, without liability to the City.

Prior to final payment, the Contractor shall furnish the Engineer with a written statement of clearance from the landowner for those properties on which work, equipment, or material staging took place.

4.04 Protection and Restoration of Property, Markers, and Landscape.

General: All construction work under this contract on rights-of-way, easements, or franchise, shall be confined to the limits of such rights-of-way, easements, or franchise. The Contractor shall accomplish all work so as to cause the least amount of disturbance and a minimum amount of damage. The Contractor shall take all necessary precautions to preserve and protect adjacent roadways, public and private properties and improvements, and underground facilities during work on the project. The Contractor shall take responsibility for any damage or injury resulting from:

1. Any act, omission, negligence, or misconduct in the execution of the work;
2. Defective work or materials; and
3. The work of a Subcontractor.

Except for damage due to unforeseeable causes beyond the control of, and without fault of negligence of the Contractor, the Contractor shall rebuild, repair, restore, and make good damages to any portion of the project or real property injured in the course of the work, from any cause before final acceptance, and without additional cost to the City.

The Contractor shall coordinate such repairs, replacements, or both, of real property with the affected property owner, and obtain the property owner's written approval when the final work is complete. A copy of the property owner's approval shall be submitted to the City. If the Contractor fails to perform such restoration within a reasonable time, the City may do so and deduct the cost from monies due the Contractor or bill the Contractor, as appropriate.

The Contractor's responsibility for the work lasts until final written acceptance of the project by the City, in accordance with General Conditions regarding Completion and Warranty.

Site security: The Contractor shall provide site security in accordance with Special Provisions Section 01231, SAFETY. Suspension of work does not relieve the Contractor of responsibility for the project, except in accordance with General Conditions provisions on Suspension of Work**.**

Vehicle Damage Claims: If a vehicle owner makes a vehicle damage claim, the Contractor shall send a written response to the claimant addressing the claim and the actions the Contractor has taken or intends to take. The Contractor shall send a copy of the response letter to the following address:

City of Cheyenne Risk Management
Attn: Risk Manager
2101 O'Neil Ave
Cheyenne, WY 82001

Trenches: The Contractor shall not leave trenches open across travel ways for more than twenty-four (24) hours or over weekends or holidays. Trenches that present a danger to vehicular or pedestrian traffic shall be backfilled or barricaded at the end of each day's work.

Structures: The Contractor shall remove such existing structures as may be necessary for the performance of the work and, if required, shall rebuild the structures thus removed in as good a condition as found with minimum requirements as herein specified. The Contractor shall also repair all existing structures damaged as a result of the work under this contract.

Cultivated Areas and Other Surface Improvements: All cultivated areas, either agricultural or lawns, and other surface improvements damaged by Contractor's actions shall be restored as nearly as possible to their original condition and in accordance with Standard Specification, Section 02900, Landscaping. Prior to excavation on an easement or private right-of-way, the Contractor shall strip topsoil from the trench or construction area and stockpile it in such a manner that it may be replaced by the Contractor upon completion of construction. Ornamental trees and shrubbery shall be carefully removed, with the earth surrounding their roots, wrapped in burlap and replanted in their original positions within twenty-four (24) hours. The Contractor shall replace all shrubbery or trees destroyed or damaged with material of equal quality at no additional cost to the City or property owner.

In the event that it is necessary to trench through any lawn areas, the sod shall be carefully cut, rolled, and replaced after the trenches are backfilled. The Contractor shall then clean the lawn area of debris by raking or other means. All fences, markers, mail boxes, or other temporary structures shall be removed by the Contractor and immediately replaced after the trench has been backfilled, in their original positions. The Contractor shall notify the Engineer and property owner at least twenty-four (24) hours in advance of any work done on easements or private rights-of-way.

Streets: The Contractor shall assume all responsibility for restoration of the surface of all streets (travel ways) used by the Contractor and damaged.

4.05 **Cooperation by the Contractor.** Contact and Emergency Response: The Contractor shall maintain a telephone for the duration of the contract, at the Contractor's own expense, where the Contractor or the Contractor's authorized representative may be reached directly or by message at all times, including weekends and holidays. The Contractor shall cooperate with the Engineer and inspectors at all times and shall respond to requests for emergency repairs to the contract work no later than two (2) hours of the request.

If the Contractor does not respond to requests for emergency repairs within the time allotted, the City reserves the right to enter the work area and conduct repairs with

City forces or City-hired forces. The Contractor will be responsible for all costs incurred by the City in responding to the emergency repairs and will also be responsible for restoring all work back to the required contract conditions. The City will not be responsible for any damages to the Contractor's work or equipment that results from the City responding to the emergency repair.

Superintendence: When work is underway, including work by a Subcontractor, the Contractor shall ensure the presence of a competent project superintendent, who is an employee of the Contractor, at the worksite at all times, unless otherwise agreed to by the City. The project superintendent shall have the ability to communicate clearly; to read, interpret, and implement the relevant contract documents; have experience in the work included in the project; have authority to represent and act for the Contractor, including authority to execute the Engineer's directions; and authority to obtain and provide sufficient materials, equipment, tools, labor, and incidentals to complete the project as specified.

4.06 **Cooperation between Contractors**. The City may contract with separate Contractors for additional work on or near the worksite. When separate contracts are let, the City requires each Contractor to cooperate with and work without hindering each other.

Each Contractor assumes liability, financial or otherwise, for its own errors, acts, or omissions and holds the City harmless, in accordance with the General Conditions of the Contract, from damages or disputes arising from inconvenience, delay, or loss due to the presence and operations of other persons, contractors or public entities on or near the worksite.

4.07 **Maintenance during Construction.** The following shall be added to Standard Specification Section 01054.1.09:

The Contractor is responsible for snow removal within all barricaded areas of the project. The Contractor will be responsible for snow removal within the travel way of the project area unless a minimum of a 16' lane is provided for the City plows.

5.00 CONTROL OF MATERIAL

5.01 **Inspection and Testing for Quality Control.** Requirements: All materials and work shall be tested and inspected in accordance with the specifications. The Contractor shall provide testing and inspection services to verify compliance with requirements specified or indicated. The Contractor shall be responsible for scheduling inspections and tests and notifying the laboratory.

The Contractor shall provide advance notification to the Engineer of any testing or sampling to be conducted. The Engineer may provide Quality Assurance testing to prevent against defects and deficiencies in the Contractor's work by verifying that

the Contractor's Quality Control testing is accurate and adequate. However, furnishing such Quality Assurance testing shall not relieve the Contractor of responsibility for providing Quality Control testing or responsibility for the Contractor's failure to perform the work in accordance with the contract documents.

Laboratory Requirements: The Contractor shall retain the services of an Independent AASHTO-accredited testing laboratory to inspect, sample and test the related work. The testing laboratory shall cooperate with the Engineer and the Contractor in performing its duties and shall provide qualified and/or certified personnel to perform inspections and tests.

Tests shall be performed in accordance with the most recent cited standard methods of AASHTO or ASTM, approved AASHTO Interim Specifications, or ASTM Tentative Specifications in effect on the advertised date of the public bid opening or more stringent Quality Control requirements where specified in the Special Provisions.

The testing laboratory shall promptly notify the Engineer and the Contractor of deficiencies in the work observed during the performance of its duties. The testing laboratory shall not approve or accept any portion of the work nor shall it perform any duties of the Contractor.

Submittals: The testing laboratory shall submit a certified written report of each inspection and test to the Engineer, Contractor, and any other entities designated by the City. Copies of all test results shall be provided to the City within twenty-four (24) hours of the availability of the test results with written report to follow within seven (7) Working Days. Reports of each inspection, test, or similar service shall include the following:

1. Name, address, and telephone number of testing laboratory.
2. Project title and project number.
3. Date of report and designation (number).
4. Dates of testing and maps with sufficient detail to accurately identify locations where samples were taken or inspections and field tests made.
5. Ambient conditions at the time of sample taking and inspecting, or field testing.
6. Names of individuals taking the sample or making the inspection or test.
7. Product and test method.
8. Inspection or test data including interpretation of test results and comments or professional opinion on whether inspected or tested work complies with requirements.
9. Recommendations on retesting or re-inspections.
10. Name and signature of laboratory inspector.

5.02 **Unacceptable Materials.** The Contractor shall not undertake any work in which untested or non-conforming materials are used without prior, written, express approval from the Engineer. Any such work undertaken using untested or non-

conforming materials without the prior, written, express approval of the Engineer may be considered in material breach of this contract and, if directed by the City, shall be removed at no additional cost to the City.

5.03 **Storage of Materials.** Materials shall be stored, in accordance with manufacturer's recommendations, and handled in a manner that facilitates inspections and preserves the materials' quality and suitability for use. Material shall be transported in vehicles built to prevent loss, contamination, or segregation after loading and measuring. The Engineer may re-inspect stored, previously inspected materials before approving their use in the work.

As approved by the City, that portion of the right-of-way within the project limits not required for public travel may be used for storage purposes and for placing of the Contractor's plant and equipment. Material stored on or adjacent to public streets shall not create a safety hazard, obstruct, or inconvenience the traveling public. Any additional space required must be provided by the Contractor at the Contractor's expense. Private or public property shall not be used for storage purposes without written permission of the owner or lessee. All storage sites shall be restored to their original condition by the Contractor at the Contractor's sole expense. Construction materials may not be stored in streets, roads, or highways for more than five (5) days after unloading. All materials or equipment not installed or used in the construction within five (5) days after unloading shall be stored elsewhere by the Contractor at the Contractor's expense, unless the Engineer authorizes additional storage time.

Excavated material, except that which is to be used as backfill in the adjacent trench, may not be stored in public streets, roads, or highways unless the Engineer authorizes such storage. Erosion control shall be provided around all excavated or backfill material. After placing backfill, all excess material shall be removed immediately from the site.

5.04 **City-Furnished Material**. If specified in the Special Provisions, the City will provide material for incorporation into the project. Materials furnished by the City will be delivered, or made available to the Contractor, at the locations specified in the Special Provisions.

The cost of handling and placing all materials supplied by the City shall be considered as included in the contract price for the item in connection with which they are used.

The Contractor shall be held responsible for all material delivered to him, and deductions shall be made from any money due to make good any shortages or deficiencies, from any cause whatsoever and for any damage which may occur after such delivery and for any demurrage charges.

5.05 **Rights In and Use of Material Found in the Work.** The City may authorize the

use of aggregate or other material found in excavation for use in another pay item. The City will pay the established contract unit price for excavation of such material and for the pay item for which it was used. If the excavated material is used for another pay item but was otherwise needed for embankments, backfills, approaches, or other purposes, the Contractor shall provide an acceptable replacement at no additional cost to the City.

The Contractor shall not excavate or take material outside the slope stake limits without the City's prior written approval. The right to use and process material found within the project limits excludes use and processing for noncontract work. If the Contractor produces or processes more material from the project than is required for the contract, without additional compensation to the Contractor, the City may take possession of the excess material and direct its use; or require removal of the material and restoration of the land to a satisfactory condition.

5.06 **Removal and Salvage of Materials**. Any equipment, hardware, structures, inlet grates, valve boxes, manhole rings, covers and lids, traffic control standards, signs and posts, fence and any other miscellaneous items designated for removal from the site and salvage to the City shall be removed from the site and taken to a location designated by the City. All such materials shall be the property of the City unless otherwise specified. Diligent care shall be taken during the removal of all materials to prevent damage.

Manhole covers and manhole rings designated for salvage shall be both plainly marked with a durable, exterior paint for easy identification as individual pairs.

5.07 **Material Spoil Area/Waste Site.** The Contractor shall notify the Engineer at the preconstruction conference as to the location selected to dispose of the excess, waste and unsuitable materials and a map indicating the haul route for the removal from the project.

Lost and spilled materials onto the route taken by the Contractor shall be promptly removed. The route shall be maintained as deemed necessary by the Engineer by the use of water trucks, motor grader, hand labor and related equipment to alleviate the problem of lost spills, tracked mud, and dust control. Prompt restoration of the route is required.

No extra compensation shall be allowed for the disposal of the waste and surplus material; including but not exclusively; dump fees, extra haul distances and time, changed haul routes, and haul road maintenance.

5.08 **Load Restrictions.** The Contractor shall be responsible for all damage to the work caused by the Contractor's hauling equipment. The Contractor shall comply with legal load restrictions when moving equipment or hauling materials on public roads that remains in service. A permit to operate an overweight, oversized, or over-width vehicle does not relieve the Contractor of liability for damage to public roads due

to the moving of equipment or materials.

The Contractor shall not allow loads on concrete pavement, base, or structures before the strength or time requirements for the concrete have been met. In case of pipes, the Contractor shall not allow loads before placing the specified cover fill.

6.00 RESPONSIBILBILTY FOR UTILITY PROCEDURES AND SERVICES

6.01 **Location.** Where underground main distribution conduits such as water, gas, sewer, electric power, telephone or cable are shown on the plans, the Contractor, for the purpose of preparing the Contractor's bid, shall assume that every property parcel is served by a service connection for each type of utility. Failure by the Engineer to show the location of any utility on the plans shall not relieve the Contractor from the responsibilities below.

Before proceeding with the work, the Contractor shall confirm the final grade and locations of such facilities in accordance with the "Wyoming Underground Facilities Notification Act" and the "Wyoming High Voltage Power Lines and Safety Restrictions Act."

The Contractor shall notify utility and pipeline companies of the proposed construction schedule at least two (2) Working Days before the start of work. The Contractor shall ask for the nature, location, and depth of pipes and cables and areas where they may conflict with the work. If a company cannot or will not provide this information, the Contractor shall obtain it by alternate means. Where conflicts may exist, the Contractor shall locate the relevant pipes or cables in three dimensions.

The Contractor shall not begin excavation until all such features have been located, their owners notified, and the Engineer has approved. The Contractor shall not interrupt the service function or disturb the supporting base of any utility without authority from the utility owner or an order from the City. Where protection is required to ensure support of utilities, the Contractor shall, unless otherwise provided, furnish and place the necessary protection at no cost to the City.

6.02. **Utility Line Conflicts and Damage.** If utility lines are determined to be in conflict with or are damaged during the work, the Contractor shall stop work in the immediate area, notify the Engineer and the utility owner, and cooperate with the owner to move or repair the utility. The Contractor shall be solely responsible for any damage done to such utilities due to failure to preserve original locate marks or to properly protect the utilities when their location is known.

7.00 WORK SCHEDULE AND CONDITIONS

7.01 **Pre-Construction Conference.** The Contractor will schedule and convene, at a mutually convenient time before the start of work, a Preconstruction Conference with, all Subcontractors, Design Engineer and/or City's Representative, Board of Public Utilities, Power Company, Telephone Company, Gas Company, Cable Television, and other interested parties. Before or at the meeting, the Contractor shall provide the following, if applicable:

1. A letter providing the names, phone numbers and addresses, of material suppliers and Subcontractors;
2. Project Schedule in accordance with the item **7.05 Schedule** below;
3. Spill contingency and storm water pollution prevention plans in accordance with Standard Specification Section 01563 Erosion Control and Storm Water Management;
4. A traffic control plan in accordance with Section 01050 Traffic Control;
5. A list with names and phone numbers of key personnel, including the project superintendent and subordinates, authorized to sign contract documents and project records;
6. A list of phone numbers for the Contractor's personnel the Engineer should call in case of emergency in accordance with item **4.05 Cooperation by the Contractor** above; and
7. Other items the Engineer may request.

7.02 **Weekly Conference**. Subsequently a representative of the Contractor and the Contractor's Subcontractors (if requested) shall attend a weekly conference at a mutually convenient time and at a place designated by the City to review progress and discuss any problems that may arise or have incurred.

7.03 **Work Progress.** The Contractor shall make every effort to complete work in a manner and fashion that minimizes roadway closures and inconveniences to the traveling public and adjacent property owners. Progress will be continuously prosecuted on all roadways and drive approaches that have been closed for construction in accordance with Section 01041.1.01.I. of the Standard Specifications.

The Contractor shall not open up work to the prejudice or detriment of work already started. The City may require the Contractor to finish a section on which the work is in progress before work is started on any additional sections if the opening of such section is essential to public convenience.

7.04 **Working Days and Time.** Normal working hours shall be 7:00 am to 6:00 pm. No work shall be allowed on Saturdays without the City's prior written permission. For the purposes of time limitations specified in these instructions, a Saturday shall count as a "Working Day" if the City has approved work on that Saturday. No work, except for City-approved emergency repairs, shall be allowed on Sundays or

Holidays. For the purposes of the time limitations in these instructions, neither a Sunday nor a Holiday will count as a "Working Day" even if the City has authorized emergency repairs to be performed on that Sunday or Holiday. If the Contractor desires to perform work beyond the City's normal working hours, the Contractor must obtain the City's written approval forty-eight (48) hours in advance of scheduled work. In an emergency situation, verbal approval will suffice until the next working day at which time written approval shall be obtained before further inspection work beyond normal working hours will be provided.

Holidays. Normal City holidays are as follows:

HOLIDAY	DATE
New Year's Day	January 1st
Martin Year's Day	Third Monday in January
President's Day	Third Monday in February
Memorial Day	Last Monday of May
Independence Day	July 4th
Labor Day	First Monday in September
Veteran's Day	November 11th
Thanksgiving Day	Fourth Thursday in November
Day after Thanksgiving	Day after Thanksgiving
Christmas Day	December 25th

With the Engineer's prior written approval, no work shall be permitted the day before, during, and the day after said holidays. The Engineer may require the Contractor to cease construction operations at any other time if the Contractor's operations are of such nature, the project is so located, or the traffic is of such volume that the Engineer deems it expedient to do so.

Frontier Days. During Cheyenne Frontier Days (CFD), typically the last full week in July, and the week immediately preceding, special rules shall apply in the following designated areas:

1. All roadways contained in the area bounded by 15th St. on the south, Snyder Ave. on the west, Pershing Blvd. on the north, and Van Lennen Ave. on the east, including the roadways making up the boundaries.

2. All roadways contained in the area bounded by Pershing Blvd. on the south, Interstate 25 on the west, the extensions of Manewal Dr. on the north, and Warren Ave./Yellowstone Rd. on the east, including the roadways making up the boundaries.

3. All roadways designated on the functional classification map as "Principal Arterial" or "Minor Arterial".

4. All roadways located north of the Union Pacific Railroad tracks designated on the functional classification map as "Major Collector" or "Minor Collector".

Functional classification maps are available from the Engineer's Office or the Cheyenne Metropolitan Planning Organization's website at www.plancheyenne.org.

During the week immediately preceding CFD, the special rules are as follows:

1. Work in the designated areas shall be in a state whereby all facilities are available to the public no later than 5 pm Wednesday of the week immediately preceding CFD;

2. After Wednesday of the week immediately preceding CFD, the only work allowed in designated areas are emergency repairs and operations having a duration of less than one (1) hour (including moving operations, such as striping or street sweeping).

3. All equipment, materials, traffic control devices, and other construction items shall be removed from the designated areas prior to 5 pm Wednesday of the week immediately preceding CFD.

4. All roadways and pedestrian ways shall be in such a condition that there shall be no interference with parades or other CFD event operations.

During CFD:

1. No work will be allowed in the designated areas with the exception of City-approved emergency repairs and moving operations, such as striping or street sweeping.

2. All moving operations must be approved in writing, in advance by the Engineer.

3. Work and traffic control operations can recommence during normal working hours on the Monday morning following the end of CFD.

Exceptions to the above will be made at the Engineer's sole discretion.

7.05 **Schedule.** The Contractor shall submit a project schedule to the Engineer for review and discussion at the Pre-Construction meeting. This schedule shall be sufficiently detailed to show the following:

1. The activities needed to perform and complete the work, activities that might delay contract completion, and critical activities such as street closures or major traffic restrictions.

2. Sequence of each activity required to complete the project within the contract time allotted and in the manner specified. Interrelationships among activities shall be shown without lead or lag time.

3. The planned start and completion dates for each activity, the duration of each activity with activities of more than fifteen (15) Working Days in duration broken into two or more activities distinguished by location or some other feature.

4. Interim, milestone, and project completion dates specified in the contract.

5. An indication of how the schedule accommodates adverse weather days for each month.

6. Dates related to the procurement of materials, equipment, articles of special manufacture, etc.

7. Dates related to the submission of working drawings, plans, and other data specified for review or approval by the Engineer.

8. Dates related to required special inspections of structural steel fabrications and other specified activities by the City or third parties.

The Contractor shall submit monthly updates to the Project Schedule at the time of the submittal of the monthly Pay Estimate. The schedule update shall include any revised planned start and finish dates for each activity shown on the most recent accepted schedule. For newly started or finished activities, the Contractor shall include the actual start or finish date. For activities previously started and still ongoing, the Contractor shall show the remaining duration and planned finish dates. The City may withhold processing the monthly Pay Estimate until the Contractor submits the monthly update to the Project Schedule.

The Engineer may request a schedule revision at any time for any reason. Circumstances leading to such a request include, but are not limited to, the following:

1. A delay (actual or projected) of partial or contract completion dates by fourteen (14) calendar days or more;

2. A difference between the actual rate of progress and that depicted in the schedule; and

3. Issuance of a contract modification that, by adding, deleting, or revising activities, changes the planned sequence of work or the method and manner of its performance.

7.06 **Requirements for Workers, Methods, and Equipment.** The Contractor shall at all times provide enough qualified labor and enough capable equipment to complete the project in accordance with the contract.

The Contractor shall provide workers that are sufficiently skilled to perform the work assigned to them. In writing, the City may direct removal from the project of any person, regardless of employer, who is unsafe, incompetent, intemperate, disorderly, or insubordinate. Through written notice, the City may suspend the work for failure of the Contractor to comply with such a directive or for failure to provide enough qualified workers.

All equipment proposed to be used on the work shall be of sufficient size and in such mechanical condition as to meet requirements of the work and to produce a satisfactory quality of work. Equipment used on any portion of the project shall be such that no injury to the roadway, adjacent property, or other improvement will result from its use.

When the methods and equipment to be used by the Contractor in accomplishing the construction are not prescribed in the contract, the Contractor is free to use any methods or equipment that the Contractor demonstrates to the satisfaction of the Engineer will accomplish the contract work in conformity with the requirements of the contract. When the contract specifies that the construction be performed by the use of certain methods and equipment, such methods and equipment shall be used unless others are authorized by the Engineer.

If the Contractor desires to use methods or types of equipment other than those specified in the contract, the Contractor may request authority from the Engineer to do so. The request shall be in writing and shall include a full description of the methods and equipment proposed to be used and an explanation of the reasons for desiring to make the change. Approval does not relieve the Contractor from the requirement to produce work in accordance with the contract documents. The use of alternative methods or equipment resulting in work that fails to meet contract requirements may lead the Engineer to, in writing:

1. Direct a stop in their use;

2. Order the completion of remaining work using the original specified methods or equipment; or

3. Require the removal, at no additional cost to the City, of the unsatisfactory work and its replacement using the original specified methods and equipment.

7.07 **Suspension of Work.** The City shall have the authority to suspend the work wholly or in part, for such period as may be deemed necessary due to unsuitable weather, due to such other conditions as are considered unfavorable for the suitable prosecution of the work, for failure of the Contractor to correct unsafe conditions,

for failure of the Contractor to carry out orders given, or for failure of the Contractor to perform any provision of the contract.

If the City suspends the work for more than ninety (90) days, through no fault of the Contractor, the Contractor may apply, in writing, for a price adjustment to compensate for reasonable expenses caused by the suspension. Any application for price adjustment or contract time extension will be submitted to the governing body of the City for its consideration in the form of a Contract Modification. It will be the responsibility of the Contractor to provide sufficient documentation to substantiate any claim.

The City will not grant or consider contract modifications based upon City-ordered suspension:

1. Without timely written notice from the Contractor;

2. To the extent that the suspension is overlapped or falls within a suspension or delay due to any other cause, including delays caused by the Contractor; or

3. That includes profit.

The Contractor may ask the City to suspend the project in writing due to unsuitable weather or due to such other conditions as are considered unfavorable for the suitable prosecution of the work. The Contractor shall not suspend operations or remove necessary equipment or materials without approval from the City.

During delays or suspensions, if the traveling surface is a leveling course or non-paved surface, the Contractor shall maintain the roadway for traffic use (including snow removal and placing of sand) and the quality of the surface course until the placement of additional course or temporary surfacing, at no additional cost to the City. If placement of concrete pavement or a full lift of plant mix pavement is not completed before delays or suspension of work, the Contractor shall provide, place, and maintain the temporary plant mix pavement and then remove it at the end of the suspension.

During suspensions, the Contractor shall store materials and equipment, at no additional cost to the City as far from the travel way as possible; at a location that will not cause maintenance or safety problems for the roadway; and at a location where they will be protected from damage. The Contractor shall maintain all living material in new plantings, seeding, and sods in an acceptable growing condition and protect from injury, at no additional cost to the City.

During suspensions, the Contractor shall provide roadway drainage, temporary structures needed for public travel throughout the project, any required temporary traffic control, along with removal of such temporary structures, traffic control, and surfacing, at the end of the suspension at no additional cost to the City. Before

suspension, the Contractor shall protect slopes without vegetation in accordance with Section 01563 Erosion Control and Storm Water Management.

If during a suspension the Contractor fails to accommodate traffic or maintain the project, including temporary traffic control devices, the Engineer may direct other organizations to do so. The City shall deduct the cost from monies due the Contractor or bill the Contractor, as appropriate.

During suspensions, the Contractor shall complete necessary measures to protect the work and the roadway during the suspension. The Contractor shall repair or replace materials lost or damaged during the suspension at no additional cost to the City.

The Contractor shall resume work when conditions are favorable or when approved by the Engineer.

7.08 **Extension of Contract Completion Date.** The contract time for completion shall be fixed by the City and stated in the Contract Agreement, either as a calendar date or as a specified number of calendar days.

The Contractor shall perform the work in an acceptable manner within the time stated in the contract except that the contract time for completion may be adjusted as follows:

1. If the satisfactory completion of the contract shall require performance of work in greater quantities than those set forth in the proposal, the time allowed for performance shall be increased in the same ratio as the final estimate bears to the original contract amount, except that the final monetary amount of any contract modification for which an extension of contract time was previously allowed shall be deducted from the final estimate prior to making the pro-rata time adjustment.

2. If delays beyond the Contractor's control are caused solely by action or inaction by the City, or are for unforeseen causes beyond the control and without fault or negligence of the Contractor, such delays will entitle the Contractor to an extension of time which will be based upon the effect of delays to the project as a whole and will not be granted for non- controlling delays to minor included portions of work, unless it can be shown that such delays did, in fact, delay the progress of the project as a whole. Written request for such extension of time must be made by the Contractor within ten (10) calendar days after the beginning of such delay.

No allowance shall be made for delay or suspension of the work due to fault of the Contractor. Nor will the City grant an extension based on pleas that the contract specified insufficient time for completion of the project.

7.09 **Concurrent Delays.** Concurrent delays are delays occurring at the same time to separate critical activities. When concurrent delays occur, the City will use only the

longer delay, and/or the excusable delay, to determine extensions to the contract completion date. Non-excusable delays will not be considered for extensions.

7.10 **Weather Days.** The Adverse Weather Table shows the number of working days included in the contract time in anticipation of weather that may preclude work. If the Contractor believes that it is entitled to additional time for adverse weather, the Contractor must submit written documentation to the Engineer and City within five (5) working days of the end of month that adverse weather was experienced. The Engineer may extend the completion date if the actual number of adverse weather days exceeds the expected number and the Contractor has pursued the work diligently during the month. The determination as to whether a day is to be considered an adverse weather day shall be at the discretion of the Engineer for when work on critical path items cannot be accomplished. The Engineer shall not count or treat Sundays or holidays as adverse weather days. Any weather days not used during any month are invalid and cannot be considered cumulative. For partial months, the Engineer shall prorate the number of expected lost workdays due to adverse weather.

ADVERSE WEATHER TABLE

MONTH	DAYS	MONTH	DAYS	MONTH	DAYS
January	8	May	4	September	2
February	8	June	3	October	4
March	7	July	2	November	5
April	6	August	2	December	7

8.00 MEASUREMENT AND PAYMENT

8.01 **Measurement of Quantities.** The Engineer shall measure pay items in the units of measure specified in the contract using methods of measurement and computation that meet generally recognized good engineering practice. The Engineer shall measure pay items when in place and complete. The actual work performed shall be measured, excluding work outside the construction limits unless adjusted by the City. The Engineer shall measure pay item quantities using the following methods, unless otherwise provided elsewhere in the contract documents:

1. Area. Computed from linear distances measured horizontally. Individual fixtures occupying areas equal to or less than 9 sq. ft. shall not be deducted from the computation.

2. Linear. Items measured by the foot shall be measured parallel to the surface on which the items are installed.

3. Lump Sum. Although actual quantities of the components in a lump sum pay item used in the work may differ from the estimated quantities specified, the City will not change the amount of payment.

4. Volumes of Excavation, Embankment, and Similar Pay Items. The average end area method shall be used unless otherwise specified or agreed to.

5. Asphalt Materials. Measured by the gallon or short ton, subject to correction for foaming, shipping loss, or other reasons for nonuse.

6. Delivery Tickets. All delivery tickets that are required for the purpose of calculating quantities for payment must be received by the Engineer at the time of delivery. Payment shall not be made for delivery tickets which do not show type of material, gross weight, tare weight, truck number, and date. Delivery tickets shall utilize automatic printer systems. Scale certification shall be submitted before their use. In no case shall materials weighed on non-certified scales be accepted for payment.

8.02 **Compensation for Altered Quantities.** Unless otherwise provided, payments to the Contractor shall be made for the actual quantities of contract items performed in accordance with the plans and specifications, and if, upon completion of the construction, these actual quantities show either an increase or decrease from quantities given in the bid schedule, the contract unit prices shall still prevail. Except as provided otherwise, the City shall not allow for increased expense, loss of expected reimbursement, or loss of anticipated profits suffered or claimed by the Contractor from any cause, including directly from alterations or indirectly from unbalanced allocation by the bidder of overhead expense among the pay items.

8.03 **Monthly Progress Payment.** The City shall make payments at least once each month in accordance with Article 4. Compensation and Method of Payment of the Contract Agreement as work progresses. The Contractor shall supply supporting billing documentation, including as a minimum, a spreadsheet (form to be approved by the Engineer) which lists each item of work included in the Bid Proposal form and shows quantities and amounts currently being invoiced and previously invoiced. Payments shall be based on the Engineer's approval of the estimate of the value of work performed and materials complete-in-place, in accordance with the contract, and for materials delivered, in accordance with item **8.04 Payment for Material on Hand** below.

8.04 **Payment for Material on Hand.** The City may pay for materials stockpiled or stored for later use on the project and for which the Contractor provides acceptable documentation indicating the materials meet contract requirements. Stockpiled or stored materials may be located on the project or at facilities approved by the City, which the City reserves the right to inspect. Materials shall be stored in accordance with manufacturer's recommendations. The City shall not make such payment without a written request received at least ten (10) calendar days before the date of the next scheduled progress payment, and in no case will it pay more than fifty (50) percent of the item's original bid extension. The Contractor shall include with the written request documentation, such as copies of invoices, freight bills, or other information required by the Engineer, that supports material and shipping costs.

9.00 MOBILIZATION

Payment shall be made for mobilization to cover the costs of preparatory work and operations including but not limited to those necessary for the movement of personnel, equipment, supplies and incidentals to the project site; for the establishment of all field offices, storage buildings, and other facilities necessary for the work on the project, and for all other work and operations which must be performed, or costs incurred, prior to beginning work on the various items on the project.

Mobilization shall be measured on a lump sum basis and payment shall be made with the monthly estimate based on the percentage of the original contract amount earned in accordance with the following:

1. On the first estimate following award, 10 percent of the Mobilization pay item or 1 percent of the original contract amount, whichever is less will be paid.

2. When 5 percent of the original contract amount is earned, 25 percent of the amount bid for Mobilization or 2 percent of the original contract amount, whichever is less will be paid.

3. When 10 percent of the original contract amount is earned, 50 percent of the amount bid for Mobilization or 5 percent of the original contract amount, whichever is less will be paid.

4. When 25 percent of the original contract amount is earned, 60 percent of the amount bid for Mobilization or 6 percent of the original contract amount, whichever is less will be paid.

5. When 50 percent of the original contract amount is earned, 70 percent of the amount bid for Mobilization or 7 percent of the original contract amount, whichever is less will be paid.

6. When 70 percent of the original contract amount is earned, 100 percent of the amount bid for Mobilization or 10 percent of the original contract amount, whichever is less will be paid.

7. Upon completion of all work on the project, payment on any amount bid for Mobilization in excess of 10 percent of the original contract amount will be paid.

The total sum of all payments will not exceed the original contract amount bid for Mobilization, regardless of the fact that the contractor may have shut down work on the project or moved equipment away from the project and then back again.

Mobilization is subject to the retainage that shall be withheld for final payment.

The payment schedule for mobilization shall be utilized for construction staking, contractor materials testing, and similar items, when the method of measurement and basis of payment is not otherwise specified in the contract documents.