

Request for Bid

For

Administration Building Roof

6608 Raytown Rd.

From the

Raytown School District

Raytown Quality Schools

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DOCUMENT 00101 – INVITATION TO BID

PROJECT: 2018 Roofing Project

**LOCATION: Raytown Administration Building – 6608 Raytown Road, Raytown,
Missouri 64133**

OWNER: Raytown Quality Schools – USD #2

The Owner will receive sealed bids until the bid time and date at the location given below for the following Work: Roof Replacement on miscellaneous buildings as listed in Specification Documents.

BID SUBMITTAL AND BID SECURITY

The Owner will consider bids as listed above, prepared in compliance with the Instructions to Bidders issued by the Owner, and delivered as follows:

Bid Date: November 21, 2018

Bid Time: 11:00 a.m., local time.

Location: Bids to be hand delivered to the following address:

Raytown Facilities Office

Attn: Josh Hustad, Director of Building & Grounds

5911 Blue Ridge Boulevard

Raytown, Missouri 64133

Faxed bids are not acceptable.

The Owner (Raytown Quality Schools) reserves the right to accept or reject any and all bids and reserves the right to final judgment as to awarding the bid.

PRE-BID CONFERENCE

A pre-bid conference for all bidders will be held at Raytown Administration Bldg., 6608 Raytown Road, Raytown, Missouri 64133 on November 7, 2018 at 10:00 a.m., local time. All prospective bidders are required to attend.

DOCUMENTS

Bidding documents may be obtained during the pre-bid. Documents will be provided to prime bidders only; only complete sets of documents will be issued.

TIME OF COMPLETION

Bidders shall complete 100% of the work by January 31, 2019.

BIDDER'S QUALIFICATIONS

Bidders must be properly licensed under the state laws governing their respective trades and be able to obtain insurance and bonds required for the Work.

DOCUMENT 00201 – INSTRUCTIONS TO BIDDERS

1.1 ADVERTISEMENT FOR BIDS

- A. An Invitation to Bid, published as a separate document, is part of these instructions.**

1.2 DEFINITIONS

- A. Bidding Documents include the Bidding Requirements and the proposed Contract Documents. The Bidding Requirements consist of the Advertisement for Bids, these Instructions to Bidders, Notice To Bidders, Bid Form, Roofing Material Quantity List, and other sample bidding and contract forms. The proposed Contract Documents consist of the form of Agreement between the Owner and Contractor, Conditions of the Contract, Drawings, Specifications, and all Addenda issued prior to execution of the Contract.**
- B. Addenda are written, or graphic instruments issued by the Owner prior to the execution of the Contract that modify or interpret the Bidding Documents.**
- C. The Base Bid is the sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents as the base, to which Work may be added or from which Work may be deleted for sums stated in Alternate Bids.**
- D. An Alternate Bid is an amount stated in the Bid to be added to or deducted from the amount of the Base Bid if the corresponding change in the Work, as described in the Bidding Documents, is accepted.**
- E. A Unit Price is an amount stated in the Bid as a price per unit of measurement for materials, equipment, or services, or a portion of the Work as described in the Bidding Documents.**
- F. A Bidder is a person or entity who submits a Bid to the Owner and who meets the requirements set forth in the Bidding Documents.**

1.3 BIDDING DOCUMENTS

- A. Obtaining Bidding Documents: Bidders may obtain complete sets of the Bidding Documents from the issuing office designated in the Advertisement for Bids in the number and for the cost or deposit sum, if any, stated therein. Bidders shall use complete sets of Bidding Documents in preparing Bids. The Owner assumes no responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.**
- B. Examination of Bidding Documents and Site: Before submitting a bid, the Bidder shall carefully examine the drawings, read the specifications and all other Contract Documents and visit the site of the Work. The Bidder shall fully inform himself prior to bidding as to all existing conditions and limitations under which the Work is to be performed and he/she shall include in the Bid a sum to cover the cost of all items necessary to perform the Work as set forth in the Contract Documents. No allowance will be made to the Bidder because of lack of such examination or knowledge. The submission of a bid shall be construed as conclusive evidence that the Bidder has made such examination.**
- C. Interpretation or Correction of Bidding Documents: If the Bidder is in doubt as to the interpretation of any part of the Bidding Documents or finds discrepancies in or omissions from any part of the Contract Documents, he/she must submit a written Request for Interpretation thereof not later than 7 days prior to opening of bids. Address all communications to the Owner.**

1.4 ADDENDA

A. Any interpretation, correction to, or addition to the Contract Documents will be made by written Addendum and will be delivered by mail or fax to each prime Bidder of record and the plan services indicated in the Advertisement for Bids. The written Addenda constitute the only interpretations of the Contract Documents; the Owner accepts no responsibility for any other claimed interpretations.

B. It is the responsibility of each Bidder to verify that he/she has received all Addenda prior to submitting a bid. It is also the responsibility of each Bidder to verify that all sub-Bidders and material suppliers whose prices are incorporated in the Bidder's bid are familiar with the Bidding Documents in their entirety, including all Addenda issued up to the time of bid opening.

C. In the event a conflict or omission is discovered in the Bidding Documents after the issuing of the last addendum such that an interpretation cannot be issued by the Owner prior to bidding, the Bidder is directed to estimate on and provide the quantity and quality of material and labor consistent with the overall represented work so as to provide all materials, equipment, labor, and services necessary for the completion of the Work.

1.5 SUBSTITUTIONS DURING BIDDING

A. Substitutions are not allowed during bidding. Bids shall be submitted based upon the materials, equipment, and services specified.

1.6 BIDDING PROCEDURES

A. Form Of Bid

1. Bids must be submitted on the Bid Form provided, properly executed and with all items filled out in ink or typed. Do not change or add words to the Bid Form. Unauthorized conditions, limitations, or provisions on or attached to the Bid Form may be cause for rejection of the bid. Bidder's information on the Bid Form that is altered by erasure or by interlineation prior to submittal must be initialed and explained by notation on the Bid Form above the signature of the Bidder. All signatures must be witnessed.

B. Submission Of Bids

1. Each bid shall be delivered to the location indicated on the Bid Form on or before the day and hour set for receipt and opening of bids. Each bid shall be submitted in an opaque, sealed envelope marked in the lower left-hand corner as follows:

Bid for (name of prime contract)

Name of Project

Bidder's Name

Bidder's Address

Contractor's License No.

Date and Time of Bid Opening

2. If not delivered in person, this envelope shall be enclosed in a second envelope for posting to the location indicated for receipt of bids. This envelope shall be addressed as follows:

Bid for (name of prime contract)

Owner name

Street address OR Post Office Box 0000

City Name, State, Zip Code

Contractor's License No.

Date and Time of Bid Opening

3. It is the sole responsibility of the Bidder to see that his/her bid is received in proper time. No bids submitted after the time fixed for receiving bids will be considered; late bids will be returned to the Bidder unopened.

C. Acknowledgement Of Addenda

1. Bidder must acknowledge all Addenda received in the spaces provided on the Bid Form. By submitting a bid, Bidder indicates that all considerations issued by addendum are incorporated in the bid.

D. Bid Supplements

1. Following the Bid Form will be the Roofing Material Quantity Lists that are included in this Project Manual. Bidders shall complete all forms, entering "Not Applicable" where information does not apply to their portion of the Work. Absence of any of the Roofing Material Quantity List, included in the Project Manual, will be reason for possible rejection of bid.

E. Status Of Bidders

- 1. Proprietors submitting bids shall indicate their status as proprietors.**
- 2. Bidders submitting bids for partnerships shall indicate their status as partners and shall submit, upon request of the Owner within 24 hours following receipt of bids, a certified copy of the power of attorney authorizing the executor of the bid to bind the partnership.**
- 3. Bidders submitting bids for corporations shall indicate their status as corporations and shall submit, upon request of the Owner within 24 hours following receipt of bids, a certified copy of the board of directors' authorization for the Bidder to bind the corporation and shall affix the corporate seal on the bid.**
- 4. Bidders shall provide, upon request of the Owner, within 24 hours following receipt of bids, the following:**
 - a. Names and addresses of proprietors, of all members of a partnership, or of the corporation's officers.**
 - b. Name of county or state where the partnership is registered or where the corporation is incorporated. Corporations must be licensed to do business in the project state at the time of executing the contract.**

1.7 MODIFICATION AND WITHDRAWAL OF BIDS

- A. A bid may be withdrawn on personal requests received from Bidder prior to submission time. A withdrawn bid may be resubmitted up to submission time. Negligence or error on the part of the Bidder in preparing his/her bid confers no right for withdrawal of the bid after it has been opened.**
- B. Telegraphic and faxed bids will not be considered.**
- C. No Bidder may withdraw a bid within 60 days following the opening of bids.**

1.8 AWARD OR REJECTION OF BIDS

- A. The contract, if awarded, will be awarded to the lowest responsible Bidder, subject to the Owner's right to reject any or all bids and to waive any informality in the bids or in the bidding. Failure to complete all information required on the Bid Form and Bid Form Supplements, may result in rejection of bid. The Owner shall have the right to accept alternates in any order or combination, unless otherwise specifically provided in the Bidding Documents, and to determine the low bidder on the basis of the sum of the Base Bid and Alternates accepted.**
- B. Bids may be rejected if the Bid Form shows any unexplained erasures, omissions, alterations of form, additions not called for, added restrictions or qualifying conditions or other irregularities of any kind.**
- C. The Owner may make such investigations as he/she deems necessary to determine the ability of the Bidder to perform the Work, and the Bidder shall furnish to the Owner all such information for this purpose as the Owner may request. The Owner reserves the right to reject any bid if the evidence submitted by or investigation of such Bidder fails to satisfy the Owner that such**

Bidder is properly qualified to carry out the obligations of the Contract and to complete the Work contemplated therein within the Contract Time.

1.9 ACCEPTANCE

A. The acceptance of a bid will be a Notice of Award, signed by a duly authorized representative of the Owner; no other act by the Owner or his/her agents shall constitute the acceptance of a bid. The acceptance of a bid by the Owner shall bind the successful Bidder to execute the contract. The Bidder to whom the contract is awarded by the Owner, shall, sign and deliver to the Owner for execution by the Owner all required copies of the Agreement, along with all required insurance and bonding documents. The rights and obligations provided for in the Contract shall become effective upon the parties only with formal execution of the Agreement by the Owner.

1.10 BONDS AND CERTIFICATES

A. Bid shall be accompanied by an acceptable bid bond or certified cashier's check drawn on a local bank, payable to Treasurer, Board of Education, for an amount not less than five percent of the total amount of the base bid. This bid security shall become the property of the Board of Education as liquidated damages in the event the successful bidder fails to execute and deliver a contract, along with specified surety and statutory bonds, within ten days after the received notice of the acceptance of his bid by the Board of Education.

B. Bidder shall deliver to the Owner, upon receipt of contract or purchase order, a Performance Bond, a Payment Bond, and a Labor and Material Bond, each in the amount of 100 percent of the Contract Sum, with a corporate surety authorized to transact business in the Project State, within 3 days following execution of the Contract, or prior to commencement of the Work, whichever occurs first. Attorneys-in-fact who sign bonds must file with each bond a certified and effective dated copy of their power of attorney.

C. Satisfactory certificates of insurance in the amounts specified in the Contract Documents shall be furnished prior to commencement of Work.

D. All bonds and policies or certificates of insurance must meet with the approval of the Owner before the Contractor will be allowed to commence the Work. Failure or refusal to furnish bonds or insurance policies or certificates in a form satisfactory to the Owner shall subject the Bidder(s) to forfeiture of bid bond.

E. The form of the Agreement that the successful Bidder, as Contractor, will be required to execute is the form of Agreement referenced in the Project Manual.

1.11 INVOICING AND OFFICE SUPPORT

A. All bidders must have the ability within their office to process all required paperwork for invoicing the District. This is to include, but not be limited to, timely issuance of invoices with proper backup to support the amount due, certified payrolls/reports, and all required closeout documents.

1.12 PREVAILING WAGE AND CERTIFIED PAYROLL REQUIREMENTS

A. This project shall be deemed as a prevailing wage project and all necessary documentation shall be included, but not limited to weekly certified payrolls which are to be addressed to Josh

Hustad, Director of Building & Grounds, Facilities Office, 5911 Blue Ridge Blvd., Raytown, Missouri 64133, for the entire length of the work under this contract.

B. This project shall abide to any/all prevailing wage rates for the State of Missouri. All requirements for latest published prevailing wage standards shall be the responsibility of the bidding firm.

END OF SECTION 00201

District Terms

Proposals will be date and time stamped upon receipt by the Raytown C-2 School District.

The District reserves the right to waive minor technical defects in a bid, reject any and all bids, reject any part of a bid, advertise for new bids, or make the purchase on the open market if the product or service can be obtained at a better price.

The District reserves the right to design the evaluation criteria to be used in selecting the best bid.

The District reserves the right to provide the final contract for mutual consideration and agreement.

Should any differences arise as to the meaning or intent of the specifications, the District's decision shall be final and conclusive.

If the scope of the purchase changes substantially, the district will rebid the product or service unless otherwise provided in this procedure.

The District reserves the right to reduce or increase numbers of items or services for the original request for bid/proposal/quote.

Proposals including any additional information other than what is requested may be rejected.

Proposals not following indicated format and/or incomplete may be rejected.

The District reserves the right, after opening the Proposals, to reject any of all or the Proposals, or to accept the Proposal that in its sole judgment may be in the best interest of the District.

Any bid may be withdrawn prior to the scheduled time for the opening of bids. Any bid received after the time and date specified shall not be considered.

Federal and State laws, Local ordinances and Board policies apply to contracted services. No portion of any master service agreement or contract may defy these laws, ordinances, and policies. Any such portion of a master service agreement or contract that does defy these laws, ordinances, and policies will be considered null and void.

Payment and Retainage

The District is exempt from sales tax and use taxes. Taxes shall not be listed in a bid/proposal/quote or on invoices. A copy of the letter exempting the District from paying these taxes is available from the District upon request by the contractor/vendor.

A payment schedule shall be decided on with the chosen contractor/vendor. Said schedule shall be part of the contract between the contractor/vendor and District.

There shall be no hidden costs associated with this bid/proposal/quote. If the contractor/vendor foresees any additional or unexpected costs or charges to be made, these charges need to be explained in the bid/proposal/quote.

Purchasing and payments shall be in accordance with Board policy DJF as outlined in administrative procedure DJF-AP1. This procedure can be found on the District website.

Contact Person and Address for Submission of Proposals

Interested, qualified firm and persons are invited to submit proposals to the following contact person and address:

Mr. Josh Hustad Director of Facilities

Raytown C-2 School District

5911 Blue Ridge Blvd

Raytown, MO 64133

Telephone: 816-268-7160

Selection Process and Minimum Requirements

Lowest, best bid in written form

Required Proposal Format and Content

1. Bid/Proposal/Qualification Submitted By
2. Bid in written form

Bid/Proposal/Qualification Submitted By

The last page of this document contains a form to be filled out and placed on the top of your bid package.

Requests for Information

The Scope of Work or need for additional data or information must be submitted in writing by email no less than five (5) working days prior to proposal due date to: Mr. Josh Hustad, Director of Facilities
josh.hustad@raytownschools.org

00411 – BID FORM

Raytown Quality Schools

Bidder: _____

#2

(Bidder enter name here)

Raytown, Missouri 64133

SEAL BID, SINGLE-PRIME (ALL TRADES) CONTRACT

I, undersigned Bidder, having carefully examined the Bidding and Contract Requirements, Conditions of the Contract, Drawings, Specifications, and all subsequent Addenda, all as issued by the Owner, having visited the site, and being familiar with all conditions and requirements of the Work, hereby agrees to furnish all material, labor, equipment and services, and allowances as described in the specification documents, necessary to complete the construction with the following exceptions:

Price includes labor and miscellaneous materials not supplied by the owner.

Price does not include the attached list of roofing material to be purchased by owner directly.

All material not listed as purchased by owner shall be the responsibility of this contractor (See Attachment's A)

SEAL BIDS

Raytown Administration Building

\$ _____

ALTERATION BIDS

Add Base Sheet under TPO Membrane

\$ _____

UNIT PRICES

Metal Deck Replacement

\$ _____ per sq. ft.

Metal Deck Repair

\$ _____ per sq. ft.

Wood Blocking Replacement

\$ _____ per board ft.

Additional Wet Insulation Replacement

\$ _____ per board ft.

BIDDING

I, undersigned Bidder agrees to furnish a Payment & Performance Bond in the amount of 100% of total contract value.

DATE OF COMPLETION

undersigned Bidder proposes and agrees hereby to commence the Work of the Contract Documents within 30 days of award and shall fully complete 100% of the Work no later than January 31, 2019. If work cannot be completed by January 31, 2019, contractor shall pay as liquidated damages the sum of \$1,000.00 for each consecutive working day that the work is not completed thereafter.

KNOWLEDGEMENT OF ADDENDA

undersigned Bidder acknowledges receipt of and use of the following Addenda in the preparation of this Bid:

Addendum No. 1, dated _____

Addendum No. 2, dated _____

CONTRACTOR'S LICENSE

undersigned further states that he is a duly licensed Contractor, for the type of work proposed, in the State of Missouri, and that all fees, permits, etc., pursuant to the submission of this proposal have been paid in full.

REMISSION OF BID

Project submitted this ____ day of _____, 2018.

By: _____

(Name of bidding firm or corporation)

Address:

By: _____

(Signature)

Signature: _____

(Signature)

(Type or print name)

(Type or print name)

Title: _____

(Owner/Partner/President/Vice Pres.)

Address: _____

(Corporate Secretary or Assistant Secretary Only)

Phone: _____

License: _____

Federal ID No.: _____

(Affix Corporate Seal Here)

Attachment A

Owner Purchased Material List for - Base Bid 1

Raytown Administration Building

The following material list is to be included in the bid form and signed/dated by the Contractor. Failure to provide this information will render your bid unresponsive. The owner is purchasing the following list of material from Education Plus through a pre-competitively procured national cooperative purchasing organization. Only these materials, in the quantities listed, will be supplied.

The Contractor is responsible for purchasing any additional material directly from the roofing material manufacturer at the contractor's cost. The contractor is also responsible for ALL other items not on this list necessary for the completion of work specified. This includes, but is not limited to, fasteners, wood components, insulation cants and taper edge, gravel, sheet metal, warranty charges, inspections, and other consumable materials.

The unloading of material and the storage of said material in a secure area is the sole responsibility of the contractor. Any unused material will become the property of the contractor at the completion of the project.

<u>Material</u>	<u>Quantity</u>	<u>Container Size</u>
Membrane TPO 60 Mil	10 /rolls	120" x 100' rolls
Membrane Bonding Adhesive	30 /buckets	5-gal. buckets
Membrane Detailing Membrane	3 /rolls	24" x 50' rolls
Membrane TPO Flashing Strip	4 /rolls	8" x 100' rolls
Membrane TPO T-Joint	1 /cases	100 per case
Membrane TPO RTA Strip	2 /cases	6" x 100' – 2 rolls/case
Membrane TPO Universal Corners	7 /cases	20 per case
Membrane TPO Vent Boots	1 /cases	1" – 6" / 6 per case
Membrane TPO Walkway Roll	1 /rolls	50' rolls
Sealant Seal Pro – White	1 /cases	30 tube cases
Sealant Seal Pitch Pocket Sealer	4 /case	1.5 gal/case
Sealant Sico Water Block Sealant	1 /case	10.3 tubes - 30/case

Bidding Contractor: _____

Contractor Signature: _____

Date: _____

Attachment A

Owner Purchased Material List for – Alternate Bid 1 Raytown Administration Building

The following material list is to be included in the bid form and signed/dated by the Contractor. Failure to provide this information will render your bid unresponsive. The owner is purchasing the following list of material from Education Plus through a pre-competited national cooperative purchasing organization. Only these materials, in the quantities listed, will be supplied.

The Contractor is responsible for purchasing any additional material directly from the roofing material manufacturer at the contractor's cost. The contractor is also responsible for ALL other items not on this list necessary for the completion of work specified. This includes, but is not limited to, fasteners, wood components, insulation cants and taper edge, gravel, sheet metal, warranty charges, inspections, and other consumable materials.

The unloading of material and the storage of said material in a secure area is the sole responsibility of the contractor. Any unused material will become the property of the contractor at the completion of the project.

<u>Material</u>	<u>Quantity</u>	<u>Container Size</u>
Acoustic Composite Ply HT	40/rolls	2/sq/roll

Bidding Contractor: _____

Contractor Signature: _____

Date: _____

BID BOND FORM

AIA Document A310 Bid Bond is the recommended form for a Bid Bond. A bid bond acceptable to the Owner, or other bid security as described in the Instructions to Bidders, is required to be attached to the Bid Form as a supplement.

Copies of AIA standard forms may be obtained from:

American Institute of Architects: (800) 365-2724.

OF DOCUMENT 00439

DOCUMENT 00500 – CONTRACTING AND ADMINISTRATIVE FORMS

FORM OF AGREEMENT

The Districts Standard Form of Agreement shall be utilized for the Project:

STANDARD ADMINISTRATIVE FORMS

The following standard forms shall be utilized in the administration of the Project:

Form of Certificate of Insurance: AIA Document G715 Supplemental Attachment for Acord Certificate of Insurance 25-S, or equivalent acceptable to Owner.

Form of Performance Bond and Labor and Material Bond: AIA Document A312 Performance Bond and Labor and Material Bond.

Form of Affidavit of Release of Liens: AIA Document G706A Contractor's Affidavit of Payment of Release of Liens.

Form of Statement of Sales Tax Paid: Document 00625 Contractor's Statement of Sales Tax Paid.

Copies of AIA standard forms may be obtained from:

American Institute of Architects: (800) 365-2724.

OF DOCUMENT 00500

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SECTION 01100 - SUMMARY

PART 1 - GENERAL

RELATED DOCUMENTS

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

SUMMARY

This Section includes the following:

Work covered by the Contract Documents.

Type of the Contract.

Work phases.

Work under other contracts.

Use of premises.

Owner's occupancy requirements.

Work restrictions.

Specification formats and conventions.

WORK COVERED BY CONTRACT DOCUMENTS

Project Identification: Raytown Schools - Administration Building.

Project Location: 6608 Raytown Road, Raytown, Missouri 64133.

Owner: Raytown Schools

Owner's Representative: Josh Hustad

The Work consists of the following:

General condition details:

Install new 24-gauge metal counterflashing skirt to all mechanical equipment curbs and vents.

The new skirt can be mechanically fastened or riveted to the existing curb flange and must extend down over new bar termination at least 4".

Install new 24-gauge pitch pans around all groups of electrical conduits and cooling pipes.

Strip-in with TPO flashing system.

- 2) Fill pans with quickset grout and top off with elastomeric sealant.
- 3) Install gooseneck hoods over pitch pans with multiple pipes.

Remove all obsolete curbs and equipment and fill-in voids in deck with like material that is properly secured and supported.

As needed, raise and extend projection curbs and perimeters to provide a minimum eight-inch flashing height.

Install new 24-gauge pre-finished metal coping around the perimeter walls.

Include new 22-gauge continuous cleats.

Adhere new flashing membrane system over wall and attach at outside wood nailer prior to installing new coping.

Contractor shall provide owner with submittal drawing prior to installing new coping.

Owner to select color.

Replacement Roof System:

Remove and replace wet insulation with new polyisocyanurate insulation of same thickness.

Provide Unit Cost – for additional wet insulation replacement.

Remove the perimeter coping and scupper sleeves, heads, and downspouts.

Remove obsolete equipment per Owners request. Minimum one pitch pan and one plumbing stack.

Cover opening in metal deck with 18-gauge flat stock metal mechanically fastened to deck.

Owner shall confirm lines are disconnected from pitch pan.

Existing satellite dish and antenna shall remain.

Move as needed to complete work.

Reposition in same direction as currently positioned.

Provide licensed mechanical contractor, approved by owner, to remove, cut, and reinstall gas line drip legs at all RTU's.

Drip leg cap shall not be in contact with new roofing membrane.

Install tapered fiberboard, perlite, or polyisocyanurate crickets between scuppers.

Crickets shall provide ½" slope per foot and eliminate ponding water between scuppers.

Width: 12' at ridge line.

Provide sums around scupper openings.

Mechanically fasten ¼" gypsum board over existing roof membrane and new crickets.

Fastening pattern shall meet FM 1-60 wind classification.

Alternate 1: Adhere one-ply of trilaminate base sheet with hot Type IV asphalt over new gypsum board.

Adhere 60-mil TPO membrane with cold bonding adhesive over gypsum board or Alternate 1 base sheet.

Follow roofing material manufacturers installation requirements and terminations details.

Adhere 60-mil TPO membrane in cold bonding adhesive at all perimeter and projection base flashing.

Install new 24-gauge scupper sleeves and strip in with TPO flashing membrane.

Install new 24-gauge pre-finished scupper heads and downspouts.

Install new 24-gauge pre-finished coping on all perimeter walls.

Outside and inside fascia width shall match or exceed existing width.

Install new Mifab C-Port pipe supports, or approved equal, for gas lines, conduit, and Server Room chiller unit lines.

Stagger supports on gas lines to eliminate ponding water.

Run supports north and south under Server Room chiller units.

Install new treated wood blocking supports and protection treads under Server Room chiller units support legs.

Install walkway treads at access doors on all RTU's and roof hatch.

TYPE OF CONTRACT

Project will be carried out under a single prime contract.

USE OF PREMISES

General: Contractor shall have limited use of premises for construction operations as indicated on by the Contract limits.

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

Limits: Confine constructions operations to Owner designated areas.

Owner Occupancy: Allow for Owner occupancy of Project site and use by the public.

Driveways and Entrances: Keep driveways and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.

Schedule deliveries to minimize use of driveways and entrances.

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

Parking: Park in designated areas only. Non-permitted vehicles and vehicles located in areas other than approved parking areas must be attended or they will be subject to towing.

Deliveries: Provide representative to receive all materials and offload at the job site. The Owner will refuse all deliveries to other locations.

Personnel Identification: All construction personnel in occupied portions of the facility must wear Contractor-furnished identification badges at all times. Personnel without proper identification are subject to removal from the site by the Owner.

Safety and Security: Comply with Owner's requirements related to security and fire drills and alerts.

Burning/Welding Operations: Comply with Owner's requirements related to Burning and Welding permits. Coordinate turning off fire/smoke detection systems in affected areas. Contractor shall be responsible for Fire Department response fees related to construction operations.

Smoking: No smoking is allowed on the premises.

Use of Existing Building: Maintain existing building in a weathertight condition throughout construction period. Repair damage caused by construction operations. Protect building and its occupants during construction period.

OWNER'S OCCUPANCY REQUIREMENTS

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

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 authorities having jurisdiction.

Provide not less than 72 Insert number hours' notice to Owner of activities that will affect Owner's operations.

WORK RESTRICTIONS

On-Site Work Hours: Work shall be generally performed inside the existing building during normal business working hours.

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

Notify Owner not less than two days in advance of proposed utility interruptions.

Do not proceed with utility interruptions without Owner's written permission.

SPECIFICATION FORMATS AND CONVENTIONS

Specification Format: The Specifications are organized into Divisions and Sections using the 16-division format and CSI/CSC's "MasterFormat" numbering system.

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:

Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.

Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.

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.

T 2 - PRODUCTS (Not Used)
T 3 - EXECUTION (Not Used)
OF SECTION 01100
TION 01230 - ALTERNATES
T 1 - GENERAL

RELATED DOCUMENTS

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

SUMMARY

This Section includes administrative and procedural requirements for alternates.

DEFINITIONS

Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the Bidding Requirements that may be added to or deducted from the Base Bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.

The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

PROCEDURES

Coordination: Modify or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.

Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate. Work of each alternate includes costs of related coordination, modification of existing or new work, and adjustment of indicated work.

Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to alternates.

Execute accepted alternates under the same conditions as other work of the Contract.

Schedule: A Schedule of Alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

T 2 - PRODUCTS (Not Used)

T 3 - EXECUTION

SCHEDULE OF ALTERNATES

Alternate No. 1: Add hot applied base sheet to Base Bid #1.

Base Bid #1: Installing TPO membrane directly over gypsum board as specified in Section 01100 "Summary" and Section 07542 "TPO Roofing".

Alternate: Provide amount to add to Base Bid amount for installing a hot applied trilaminate base sheet over the gypsum board prior to installing TPO membrane, as specified (as alternate) in Section 01100 "Summary" and Section 07542 "TPO Roofing".

OF SECTION 01230

SECTION 01270 - UNIT PRICES

T 1 - GENERAL

RELATED DOCUMENTS

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

SUMMARY

This Section includes administrative and procedural requirements for unit prices.

DEFINITIONS

Unit price is an amount proposed by bidders, stated on the Bid Form, as a price per unit of measurement for materials or services added to or deducted from the Contract Sum by appropriate modification, if estimated quantities of Work required by the Contract Documents are increased or decreased.

PROCEDURES

Unit prices include all necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.

Measurement and Payment: Refer to individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.

Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.

List of Unit Prices: A list of unit prices is included in Part 3. Specification Sections referenced in the schedule contain requirements for materials described under each unit price.

T 2 - PRODUCTS (Not Used)

T 3 - EXECUTION

LIST OF UNIT PRICES

Unit Price No. 1: Metal Deck material replacement:

Description: Remove existing deck material and replace according to Division 5 – 05310 Steel Deck.

Unit Price No. 2: Metal Deck repair:

Description: Repair existing deck material according to industry standards and roofing material manufacturer's requirements.

Unit Price No. 3: Wood blocking replacement

Description: Provide new wood blocking according to Division 6 Section "Miscellaneous Carpentry."

Unit Price No. 4: Additional Wet Insulation Replacement:

1. Description: Remove additional wet insulation found during the wet insulation replacement portion of the specification.

OF SECTION 01270

SECTION 01330 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

RELATED DOCUMENTS

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

SUMMARY

This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

DEFINITIONS

Action Submittals: Written and graphic information that requires Owner's responsive action.

Informational Submittals: Written information that does not require Owner's responsive action. Submittals may be rejected for not complying with requirements.

SUBMITTAL PROCEDURES

General: Electronic copies of CAD Drawings of the Contract Drawings will not be provided by Owner for Contractor's use in preparing submittals.

Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Submit complete submittal package.

Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Owner'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.

Initial Review: Allow 10 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Owner will advise Contractor when a submittal being processed must be delayed for coordination.

Resubmittal Review: Allow 10 days for review of each resubmittal.

Concurrent Consultant Review: Where the Contract Documents indicate that submittals may be transmitted simultaneously to Owner and to Owner's consultants, allow 10 days for review of each submittal. Submittal will be returned to Owner before being returned to Contractor.

Identification: Place a permanent label or title block on each submittal for identification.

Indicate name of firm or entity that prepared each submittal on label or title block.

Provide a space approximately **6 by 8 inches (150 by 200 mm)** on label or beside title block to record Contractor's review and approval markings and action taken by Owner.

Include the following information on label for processing and recording action taken:

Project name.

Date.

Name and address of Owner.

Name and address of Contractor.

Name and address of subcontractor.

Name and address of supplier.

Name of manufacturer.

Submittal number or other unique identifier, including revision identifier.

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).

Number and title of appropriate Specification Section.

Drawing number and detail references, as appropriate.

Location(s) where product is to be installed, as appropriate.

Other necessary identification.

Deviations: Highlight, encircle, or otherwise specifically identify deviations from the Contract Documents on submittals.

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

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

Additional copies submitted for maintenance manuals will not be marked with action taken and will be returned.

Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Owner will discard submittals received from sources other than Contractor.

Transmittal Form: Use AIA Document G810, CSI Form 12.1A, or similar form acceptable to Owner.

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

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

Note date and content of previous submittal.

Note date and content of revision in label or title block and clearly indicate extent of revision.

Resubmit submittals until they are marked "Approved" or "Approved as Noted."

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.

Use for Construction: Use only final submittals with mark indicating ""Approved" or "Approved as Noted."

T 2 - PRODUCTS

ACTION SUBMITTALS

General: Prepare and submit Action Submittals required by individual Specification Sections.

Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.

Mark each copy of each submittal to show which products and options are applicable.

Include the following information, as applicable:

Manufacturer's written recommendations.

Manufacturer's product specifications.

Manufacturer's installation instructions.
Standard color charts.
Standard product operation and maintenance manuals.
Compliance with specified referenced standards.
Testing by recognized testing agency.
Notation of coordination requirements.

Submit Product Data before or concurrent with Samples.

Number of Copies: Submit three copies of Product Data, unless otherwise indicated. Owner will return one copy.
Mark up and retain one returned copy as a Project Record Document.

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.

Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:

Dimensions.
Identification of products.
Fabrication and installation drawings.
Schedules.
Compliance with specified standards.
Notation of coordination requirements.
Notation of dimensions established by field measurement.
Relationship to adjoining construction clearly indicated.
Seal and signature of professional engineer if specified.

Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least **8-1/2 by 11 inches (215 by 280 mm)** but no larger than **30 by 40 inches (750 by 1000 mm)**.

Number of Copies: Submit two opaque (bond) copies of each submittal. Owner will return one copy.

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.

Transmit Samples that contain multiple, related components such as accessories together in one submittal package.

Identification: Attach label on unexposed side of Samples that includes the following:

Generic description of Sample.
Product name and name of manufacturer.
Sample source.
Number and title of appropriate Specification Section.

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.

Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.

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.

Number of Samples: Submit one full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Owner will return submittal with options selected.

Product Schedule or List: 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:

Type of product. Include unique identifier for each product.

Location.

Number of Copies: Submit three copies of product schedule or list, unless otherwise indicated. Owner will return one copy.

Mark up and retain one returned copy as a Project Record Document.

Application for Payment: Comply with requirements specified in Division 1 Section "Payment Procedures."

Schedule of Values: Comply with requirements specified in Division 1 Section "Payment Procedures."

INFORMATIONAL SUBMITTALS

General: Prepare and submit Informational Submittals required by other Specification Sections.

Number of Copies: Submit three copies of each submittal, unless otherwise indicated. Owner will not return copies.

Certificates and Certifications: Provide a notarized 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.

Test and Inspection Reports: Comply with requirements specified in Division 1 Section "Quality Requirements."

Coordination Drawings: Comply with requirements specified in Division 1 Section "Project Management and Coordination."

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

Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.

Installer Certificates: Prepare 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.

Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

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

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

Material Test Reports: Prepare 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.

Product Test Reports: Prepare written reports indicating 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.

Research/Evaluation Reports: Prepare 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:

Name of evaluation organization.

Date of evaluation.

Time period when report is in effect.

Product and manufacturers' names.

Description of product.

Test procedures and results.

Limitations of use.

Schedule of Tests and Inspections: Comply with requirements specified in Division 1 Section "Quality Requirements."

Preconstruction Test Reports: Prepare 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.

Compatibility Test Reports: Prepare 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.

Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, 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.

Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements specified in Division 1 Section "Operation and Maintenance Data."

Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer. Include the following, as applicable:

Preparation of substrates.

Required substrate tolerances.

Sequence of installation or erection.

Required installation tolerances.

Required adjustments.

Recommendations for cleaning and protection.

Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:

Name, address, and telephone number of factory-authorized service representative making report.

Statement on condition of substrates and their acceptability for installation of product.

Statement that products at Project site comply with requirements.

Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.

Results of operational and other tests and a statement of whether observed performance complies with requirements.

Statement whether conditions, products, and installation will affect warranty.

Other required items indicated in individual Specification Sections.

Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.

Construction Photographs: Comply with requirements specified in Division 1 Section "Photographic Documentation."

Material Safety Data Sheets (MSDSs): Submit information directly to Owner.

T 3 - EXECUTION

CONTRACTOR'S REVIEW

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 Owner.

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.

OWNER'S ACTION

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

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

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

Partial submittals are not acceptable, will be considered nonresponsive, and will be returned without review.

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

OF SECTION 01330

ON 01700 - EXECUTION REQUIREMENTS

T 1 - GENERAL

RELATED DOCUMENTS

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

SUMMARY

This Section includes general procedural requirements governing execution of the Work including, but not limited to, the following:

General installation of products.

Progress cleaning.

Protection of installed construction.

Correction of the Work.

T 2 - PRODUCTS (Not Used)

T 3 - EXECUTION

INSTALLATION

General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

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

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

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.

Tools and Equipment: Do not use tools or equipment that produces harmful noise levels.

Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.

Allow for building movement, including thermal expansion and contraction.

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

PROGRESS CLEANING

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

Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.

Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

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

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

Remove liquid spills promptly.

Concealed Work: Remove debris from concealed work prior to concealing with subsequent construction.

Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.

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.

Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period.

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.

PROTECTION OF INSTALLED CONSTRUCTION

Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

CORRECTION OF THE WORK

Repair or remove and replace defective construction. Restore damaged substrates and finishes. Comply with requirements in Division 1 Section "Cutting and Patching."

Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.

Restore permanent facilities used during construction to their specified condition.

Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.

OF SECTION 01700

SECTION 01731 - CUTTING AND PATCHING

PART 1 - GENERAL

RELATED DOCUMENTS

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

SUMMARY

This Section includes procedural requirements for cutting and patching.

DEFINITIONS

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

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

QUALITY ASSURANCE

Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.

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.

Miscellaneous Elements: Do not cut and patch miscellaneous elements or related components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety.

Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

WARRANTY

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

PART 2 - PRODUCTS

MATERIALS

General: Comply with requirements specified in other Sections.

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

If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of in-place materials.

PART 3 - EXECUTION

EXAMINATION

Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.

Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with in-place finishes or primers.

Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

PREPARATION

Temporary Support: Provide temporary support of Work to be cut.

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.

Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

PERFORMANCE

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

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.

Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.

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

Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.

Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.

Clean piping, conduit, and similar features before applying paint or other finishing materials.

Restore damaged pipe covering to its original condition.

Provide an even surface of uniform finish, color, texture, and appearance.

Where patching occurs in a painted surface, apply primer and intermediate paint coats over the patch and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.

Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.

Cleaning: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.

OF SECTION 01731

SECTION 01732 - SELECTIVE DEMOLITION

PART 1 - GENERAL

RELATED DOCUMENTS

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

SUMMARY

This Section includes the following:

Demolition and removal of selected portions of building or structure.

DEFINITIONS

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

Remove and Salvage: Detach items from existing construction and deliver them to Owner.

Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.

Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

SUBMITTALS

Predemolition Photographs: Show existing conditions of adjoining construction and site improvements, including finish surfaces that might be misconstrued as damage caused by selective demolition operations. Comply with Division 1 Section "Photographic Documentation." Submit before Work begins.

Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

Comply with submittal requirements in Division 1 Section "Construction Waste Management."

QUALITY ASSURANCE

Refrigerant Recovery Technician Qualifications: Certified by an EPA-approved certification program.

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

Standards: Comply with ANSI A10.6 and NFPA 241.

Predemolition Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."

PROJECT CONDITIONS

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

Comply with requirements specified in Division 1 Section "Summary."

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

If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Owner.

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

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

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

T 2 - PRODUCTS (Not Used)

T 3 - EXECUTION

EXAMINATION

Verify that utilities affected by the Work have been disconnected and capped.

Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.

Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Owner.

UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

Existing Services/Systems: Maintain services/systems indicated to remain and protect them against damage during selective demolition operations.

Comply with requirements for existing services/systems interruptions specified in Division 1 Section "Summary."
Service/System Requirements: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.

Contractor shall arrange to shut off indicated services/systems when requested by Contractor.

If services/systems are required to be removed, relocated, or abandoned, before proceeding with selective demolition provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.

Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing.

Where entire wall is to be removed, existing services/systems may be removed with removal of the wall.

PREPARATION

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.

Comply with requirements for access and protection specified in Division 1 Section "Temporary Facilities and Controls."

Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

Strengthen or add new supports when required during progress of selective demolition.

SELECTIVE DEMOLITION, GENERAL

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:

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, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.

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 fire watch and portable fire-suppression devices during flame-cutting operations.

Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.

Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.

Dispose of demolished items and materials promptly.

Removed and Reinstalled Items:

Clean and repair items to functional condition adequate for intended reuse. Paint equipment to match new equipment.

Protect items from damage during transport and storage.

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.

Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. .

SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

Roofing: Refer to Division 7 Section "Membrane Reroofing Preparation."

Air-Conditioning Equipment: Remove equipment without releasing refrigerants.

DISPOSAL OF DEMOLISHED MATERIALS

General: Except for items or materials indicated to be recycled, reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.

Do not allow demolished materials to accumulate on-site.

Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.

Burning: Do not burn demolished materials.

Disposal: Transport demolished materials off Owner's property and legally dispose of them.

CLEANING

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.

SELECTIVE DEMOLITION SCHEDULE

Existing Items to Be Removed and Reinstalled:

Rooftop- mounted A/C units.

Rooftop-mounted equipment supports.

Rooftop-mounted power vents.

OF SECTION 01732

SECTION 01770 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

RELATED DOCUMENTS

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

SUMMARY

This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

Final completion procedures.

Final cleaning.

FINAL COMPLETION

Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:

Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.

Prepare and submit Project Record Documents, operation and maintenance manuals, and similar final record information.

Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.

Complete final cleaning requirements.

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

Submit a final Application for Payment according to Division 1 Section "Payment Procedures."

Instruct Owner's personnel in maintenance of products and systems.

Inspection: Submit a written report of final inspection as specified in Division 7 roofing section(s).

T 2 - PRODUCTS (Not Used)

T 3 - EXECUTION

FINAL CLEANING

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

Complete the following cleaning operations before Final Completion:

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.

Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.

Rake grounds that are neither planted nor paved to a smooth, even-textured surface.

Remove tools, construction equipment, machinery, and surplus material from Project site.

Clean exposed exterior 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.

Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.

Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.

Leave Project clean and ready for occupancy.

Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems.

Remove waste materials from Project site and dispose of lawfully.

OF SECTION 01770

SECTION 05310 - STEEL DECK

T 1 - GENERAL

RELATED DOCUMENTS

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

SUMMARY

This Section includes the following:

Roof deck.

Unit Prices: Work of this section is related to provisions of Division 1 Section "Unit Prices."

SUBMITTALS

Product Data: For each type of deck, accessory, and product indicated.

Product Certificates: For each type of steel deck, signed by product manufacturer.

Welding certificates.

Field quality-control test and inspection reports.

QUALITY ASSURANCE

Welding: Qualify procedures and personnel according to AWS D1.3, "Structural Welding Code - Sheet Steel."
AISI Specifications: Comply with calculated structural characteristics of steel deck according to AISI's "North American Specification for the Design of Cold-Formed Steel Structural Members."

DELIVERY, STORAGE, AND HANDLING

Protect steel deck from corrosion, deformation, and other damage during delivery, storage, and handling.
Stack steel deck on platforms or pallets and slope to provide drainage. Protect with a waterproof covering and ventilate to avoid condensation.

COORDINATION

Comply with owners ongoing operations.

T 2 - PRODUCTS

ROOF DECK

Steel Roof Deck: Fabricate panels, without top-flange stiffening grooves, to comply with "SDI Specifications and Commentary for Steel Roof Deck," in SDI Publication No. 30, and with the following:

Prime-Painted Steel Sheet: ASTM A 1008/A 1008M, Structural Steel (SS), Grade **33 (230)** minimum, shop primed with manufacturer's standard baked-on, rust-inhibitive primer.

Deck Profile: Match existing deck profile.

Profile Depth: Match existing deck profile depth.

Design Uncoated-Steel Thickness: Match existing deck steel thickness.

Span Condition: Existing.

Side Laps: Match existing condition.

ACCESSORIES

General: Provide manufacturer's standard accessory materials for deck that comply with requirements indicated.

Mechanical Fasteners: Corrosion-resistant, self-drilling, self-threading screws.

Side-Lap Fasteners: Corrosion-resistant, hexagonal washer head; self-drilling, carbon-steel screws, **No. 10 (4.8-mm)** minimum diameter.

Flexible Closure Strips: Vulcanized, closed-cell, synthetic rubber.

Miscellaneous Sheet Metal Deck Accessories: Steel sheet, minimum yield strength of **33,000 psi (230 MPa)**, not less than **0.0359-inch (0.91-mm)** design uncoated thickness, of same material and finish as deck; of profile indicated or required for application.

Weld Washers: Uncoated steel sheet, shaped to fit deck rib, **0.0598 inch (1.52 mm)** thick, with factory-punched hole of **3/8-inch (9.5-mm)** minimum diameter.

Flat Sump Plate: Single-piece steel sheet, **0.0747 inch (1.90 mm)** thick, of same material and finish as deck. For drains, cut holes in the field.

Galvanizing Repair Paint: ASTM A 780.

Repair Paint: Manufacturer's standard rust-inhibitive primer of same color as primer.

T 3 - EXECUTION

EXAMINATION

Examine supporting frame and field conditions for compliance with requirements for installation tolerances and other conditions affecting performance.

INSTALLATION, GENERAL

Install deck panels and accessories according to applicable specifications and commentary in SDI Publication No. 30, manufacturer's written instructions, and requirements in this Section.

Install temporary shoring before placing deck panels, if required to meet deflection limitations.

Locate deck bundles to prevent overloading of supporting members.

Place deck panels on supporting frame and adjust to final position with ends accurately aligned and bearing on supporting frame before being permanently fastened. Do not stretch or contract side-lap interlocks.

Place deck panels flat and square and fasten to supporting frame without warp or deflection.

Cut and neatly fit deck panels and accessories around openings and other work projecting through or adjacent to deck.

Comply with AWS requirements and procedures for manual shielded metal arc welding, appearance and quality of welds, and methods used for correcting welding work.

Mechanical fasteners may be used in lieu of welding to fasten deck. Locate mechanical fasteners and install according to deck manufacturer's written instructions.

ROOF-DECK INSTALLATION

Fasten roof-deck panels to steel supporting members by arc spot (puddle) welds of the surface diameter indicated or arc seam welds with an equal perimeter that is not less than **1-1/2 inches (38 mm)** long, and as follows:

Weld Diameter: Match welds of existing deck to remain, but not less than **5/8 inch (16 mm)**, nominal.

Weld Spacing: Weld edge and interior ribs of deck units with a minimum of two welds per deck unit at each support. Space welds to match spacing of welds on existing deck units, but not less than **18 inches (450 mm)** apart, maximum.

Weld Washers: Install weld washers at each weld location.

Side-Lap and Perimeter Edge Fastening: Fasten side laps and perimeter edges of panels between supports, at intervals not exceeding the lesser of 1/2 of the span or **18 inches (450 mm)**, and as selected from following to match existing deck unit installation:

Mechanically fasten with self-drilling, **No. 10 (4.8-mm-)** diameter or larger, carbon-steel screws.

End Bearing: Install deck ends over supporting frame with a minimum end bearing of **1-1/2 inches (38 mm)**, with end joints as follows:

End Joints: Lapped **2 inches (51 mm)** minimum.

Miscellaneous Roof-Deck Accessories: Install ridge and valley plates, finish strips, end closures, and reinforcing channels according to deck manufacturer's written instructions. mechanically fasten to substrate to provide a complete deck installation.

Weld cover plates at changes in direction of roof-deck panels, unless otherwise indicated.

Flexible Closure Strips: Install flexible closure strips over partitions, walls, and where indicated. Install with adhesive according to manufacturer's written instructions to ensure complete closure.

REPAIRS AND PROTECTION

Repair Painting: Wire brush and clean rust spots, welds, and abraded areas on top surface of prime-painted deck immediately after installation, and apply repair paint.

Provide final protection and maintain conditions to ensure that steel deck is without damage or deterioration at time of Substantial Completion.

OF SECTION 05310

SECTION 06105 - MISCELLANEOUS CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:

- 1. Framing with dimension lumber.**
- 2. Rooftop equipment bases and support curbs.**
- 3. Wood blocking, cants, and nailers.**
- 4. Sheathing.**

1.3 DEFINITIONS

A. Lumber grading agencies, and the abbreviations used to reference them, include the following:

- 1. NELMA - Northeastern Lumber Manufacturers Association.**
- 2. NLGA - National Lumber Grades Authority.**
- 3. SPIB - Southern Pine Inspection Bureau.**
- 4. WCLIB - West Coast Lumber Inspection Bureau.**
- 5. WWPA - Western Wood Products Association.**

1.4 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, net amount of preservative retained, and chemical treatment manufacturer's written instructions for handling, storing, installing, and finishing treated material.**
- 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.**
- 3. Include copies of warranties from chemical treatment manufacturers for each type of treatment.**

1.5 DELIVERY, STORAGE, AND HANDLING

A. Stack lumber, plywood, and other panels; place spacers between each bundle to provide air circulation. 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 lumber grading agencies certified by the American Lumber Standards Committee Board of Review.

1. Factory mark each piece of lumber with grade stamp of grading agency.
2. For exposed lumber indicated to receive a stained or natural finish, mark grade stamp on end or back of each piece.
3. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
4. Provide dressed lumber, S4S, unless otherwise indicated.
5. Provide dry lumber with 19 percent maximum moisture content at time of dressing for **2-inch nominal (38-mm actual)** thickness or less, unless otherwise indicated.

B. Wood Structural Panels:

1. Plywood: Either DOC PS 1 or DOC PS 2, unless otherwise indicated.
2. Thickness: As needed to comply with requirements specified but not less than thickness indicated.
3. Factory mark panels according to indicated standard.

2.2 WOOD-PRESERVATIVE-TREATED MATERIALS

A. Preservative Treatment by Pressure Process: AWPA C2 (lumber) and AWPA C9 (plywood), except that lumber that is not in contact with the ground and is continuously protected from liquid water may be treated according to AWPA C31 with inorganic boron (SBX).

1. Preservative Chemicals: Acceptable to authorities having jurisdiction and one of the following:

- a. Chromated copper arsenate (CCA).
- b. Ammoniacal copper zinc arsenate (ACZA).
- c. Ammoniacal, or amine, copper quat (ACQ).
- d. Copper bis (dimethyldithiocarbamate) (CDDC).
- e. Ammoniacal copper citrate (CC).
- f. Copper azole, Type A (CBA-A).
- g. Oxine copper (copper-8-quinolinolate) in a light petroleum solvent.

B. Kiln-dry material after treatment to a maximum moisture content of 19 percent for lumber and 15 percent for plywood. Do not use material that is warped or does not comply with requirements for untreated material.

C. Mark each treated item with the treatment quality mark of an inspection agency approved by the American Lumber Standards Committee Board of Review.

1. For exposed lumber indicated to receive a stained or natural finish, mark end or back of each piece.

D. Application: Treat 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, blocking, and similar concealed members in contact with masonry or concrete.

3. Wood framing members less than **18 inches (460 mm)** above grade.

2.3 MISCELLANEOUS LUMBER

A. General: Provide lumber for support or attachment of other construction, including the following:

1. Rooftop equipment bases and support curbs.

2. Blocking.

3. Cants.

4. Nailers.

5. Furring.

6. Grounds.

B. For items of dimension lumber size, provide Construction, Stud, or No. 2 grade lumber with 15 percent maximum moisture content and any of the following species:

1. Mixed southern pine; SPIB.

2. Eastern softwoods; NELMA.

3. Northern species; NLGA.

4. Western woods; WCLIB or WWPA.

C. For concealed boards, provide lumber with 15 percent maximum moisture content and any of the following species and grades:

1. Mixed southern pine, No. 2 grade; SPIB.

2. Eastern softwoods, No. 2 Common grade; NELMA.

3. Northern species, No. 2 Common grade; NLGA.

4. Western woods, Construction or No. 2 Common grade; WCLIB or WWPA.

2.4 PANEL PRODUCTS

A. Miscellaneous Concealed Plywood: Exterior sheathing, span rating to suit framing in each location, and thickness as indicated but not less than **1/2 inch (13 mm)**.

2.5 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, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M or of Type 304 stainless steel.

B. Nails, Wire, Brads, and Staples: FS FF-N-105.

C. Power-Driven Fasteners: CABO NER-272.

D. Wood Screws: ASME B18.6.1.

E. Screws for Fastening to Cold-Formed Metal Framing: ASTM C 954, except with wafer heads and reamer wings, length as recommended by screw manufacturer for material being fastened.

F. Lag Bolts: **ASME B18.2.1. (ASME B18.2.3.8M)**.

G. Bolts: Steel bolts complying with **ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6)**; with **ASTM A 563 (ASTM A 563M)** hex nuts and, where indicated, flat washers.

H. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to 6 times the load imposed when installed in unit masonry assemblies and equal to 4 times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency.

1. Material: Stainless steel with bolts and nuts complying with **ASTM F 593 and ASTM F 594, Alloy Group 1 or 2 (ASTM F 738M and ASTM F 836M, Grade A1 or A4)**.

2.6 METAL FRAMING ANCHORS

A. General: Provide galvanized steel framing anchors of structural capacity, type, and size indicated and acceptable to authorities having jurisdiction.

B. Galvanized Steel Sheet: Hot-dip galvanized after fabrication (ASTM A 153/A 153M) or stainless steel (ASTM A 666, Type 304)

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Discard units of material with defects that impair quality of carpentry and that are too small to use with minimum number of joints or optimum joint arrangement.

B. Set carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit carpentry to other construction; scribe and cope as needed for accurate fit. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.

- C. Apply field treatment complying with AWPA M4 to cut surfaces of preservative-treated lumber and plywood.
- D. Securely attach carpentry work as indicated and according to applicable codes and recognized standards.
- E. Countersink fastener heads on exposed carpentry work and fill holes with wood filler.
- F. Use fasteners of appropriate type and length. Pre-drill members when necessary to avoid splitting wood.

3.2 WOOD BLOCKING, AND NAILER INSTALLATION

- 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.

3.3 PANEL PRODUCT INSTALLATION

- A. Wood Structural Panels: Comply with applicable recommendations contained in APA Form No. E30K, "APA Design/Construction Guide: Residential & Commercial," for types of structural-use panels and applications indicated.

END OF SECTION 06105

SECTION 07542 – THERMOPLASTIC POLYOLEFIN (TPO) 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 thermoplastic TPO roofing system on metal deck including:
2. Roof insulation.
3. Roof insulation cover board.

B. Related Sections:

1. Division 06 Section "Miscellaneous Rough Carpentry" for wood nailers, curbs, and blocking.
2. Division 07 Section "Membrane Reroofing Preparation" for recover board beneath new membrane roofing.

3. Division 07 Section "Sheet Metal Flashing and Trim" for metal roof penetration flashings, flashings, and counterflashings.
4. Division 07 Section "Joint Sealants" for joint sealants, joint fillers, and joint preparation.
- C. Allowances: Refer to Division 01 Section "Alternates" for description of Work in this Section affected by allowances.
- D. Unit Prices: Refer to Division 01 Section "Unit Prices" for description of Work in this Section affected by unit prices.

1.3 DEFINITIONS

- A. Roofing Terminology: See ASTM D 1079 and glossary in NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this Section.

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Roofing Conference: Conduct conference at Project site.
 1. Meet with Owner, Architect, Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, roofing system manufacturer's representative, 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 installation, including manufacturer's written instructions.
 3. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 4. Examine substrate conditions and finishes for compliance with requirements, including flatness and fastening.
 5. Review structural loading limitations of roof deck during and after roofing.
 6. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.
 7. Review governing regulations and requirements for insurance and certificates if applicable.
 8. Review temporary protection requirements for roofing system during and after installation.
 9. Review roof observation and repair procedures after roofing installation.

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other work.
 1. Base flashings and membrane terminations.

- a. Indicate details meet requirements of NRCA required by this Section.
2. Tapered insulation, including slopes.
3. Roof plan showing orientation of steel roof deck and orientation of membrane roofing and fastening spacings and patterns for mechanically fastened membrane roofing.
4. Insulation fastening patterns for corner, perimeter, and field-of-roof locations.
5. Membrane fastening or adhesion requirements.
- C. Samples for Verification: For the following products:
 1. Sheet roofing, of color specified, including T-shaped side and end lap seam.
 2. Roof insulation.
 3. Walkway pads or rolls.
 4. Metal termination bars.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer, Manufacturer, and Roofing Inspector.
 1. Include letter from Manufacturer written for this Project indicating approval of Installer.
- B. Contractor's Product Certificate: Submit notarized certificate, indicating products intended for Work of this Section, including product names and numbers and manufacturers' names, with statement indicating that products to be provided meet the requirements of the Contract Documents.
- C. Manufacturer Certificates: Signed by roofing manufacturer certifying that roofing system complies with requirements specified in "Performance Requirements" Article.
 1. Submit evidence of compliance with performance requirements.
 2. Product Compatibility: Indicate manufacturer has verified compatibility of roofing system components, including but not limited to: Roofing membrane, flashing sheets, adhesives, and sealants.
- D. Product Test Reports: Based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for components of membrane roofing system.
- E. Warranties: Unexecuted sample copies of special warranties.
- F. Field Quality Control Reports: Daily reports of Roofing Inspector. Include weather conditions, description of work performed, tests performed, defective work observed, and corrective actions taken to correct defective work.

1.7 CLOSEOUT SUBMITTALS

- A. Maintenance Data: To include in maintenance manuals.

B. Warranties: Executed copies of warranties.

1.8 QUALITY ASSURANCE

A. Installer Qualifications: An employer of workers trained and certified by manufacturer, including a full-time on-site supervisor with a minimum of five years' experience installing products comparable to those specified, able to communicate verbally with Contractor, Architect, and employees, and qualified by the manufacturer to install manufacturer's product and furnish warranty of type specified.

B. Manufacturer Qualifications: Manufacturer listed in this Section who is UL listed for roofing systems identical to those specified for this Project, with minimum five years' experience in manufacture of comparable products in successful use in similar applications, and able to furnish warranty with provisions matching specified requirements.

C. Roofing Inspector Qualifications: A Roofing Inspector not engaged in the sale of products, experienced in the installation and maintenance of the specified roofing system, qualified to perform roofing observation and inspection specified in Field Quality Control Article, to determine Installer's compliance with the requirements of this Project, and approved by the manufacturer to issue warranty certification. The Roofing Inspector shall be one of the following:

- 1. An authorized full-time technical employee of the manufacturer.**
- 2. An independent party, certified as a Registered Roof Observer by the Roof Consultants Institute, retained by the Contractor or the Manufacturer.**

1.9 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.

1.10 PROJECT 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.

B. Daily Protection: Coordinate installation of roofing so insulation and other components of roofing system not permanently exposed are not subjected to precipitation or left uncovered at the end of the workday or when rain is forecast.

1. Provide tie-offs at end of each day's work to cover exposed roofing and insulation with a course of roofing sheet securely in place with joints and edges sealed.

2. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing.

3. Remove temporary plugs from roof drains at end of each day.

4. Remove and discard temporary seals before beginning work on adjoining roofing.

1.11 WARRANTY

A. Warranty, General: Warranties specified 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.

B. Manufacturer's Warranty: Manufacturer's standard or customized form, in which manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship within specified warranty period. Failure includes roof leaks.

1. Manufacturer's warranty includes roofing membrane, base flashings, fasteners, roofing membrane accessories and other components of roofing system.

2. Warranty Period: 15 years from date of Substantial Completion. (20-year for Alternate 1)

C. Installer's Warranty: Submit roofing Installer's warranty, on warranty form at end of this Section, signed by Installer, covering the Work of this Section and Work of related Sections listed in "Roof System Warranty" Paragraph, including all components of roofing system, for the following warranty period:

1. Warranty Period: Two years from date of Substantial Completion.

D. Extended Roof System Warranty: Warranties specified in this Section include the following components and systems specified in other sections supplied by the roofing system Manufacturer, and installed by the roofing system Installer:

1. Sheet metal flashing and trim, including roof penetration flashings.

2. Manufactured copings, roof edge, counterflashings, and reglets.

3. Roof curbs, hatches, and penetration flashings.

4. Roof and parapet expansion joint assemblies.

5. Metal roof, wall, and soffit panels and trim.

6. Roof pavers.

E. Manufacturer Inspection and Preventive Maintenance Requirement: By manufacturer's technical representative, to report maintenance responsibilities to Owner necessary for preservation of Owner's warranty rights. The cost of manufacturer's annual inspections and preventive maintenance is included in the Contract Sum. Inspections to occur in Years 2, 5, and 10 following completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by a manufacturer meeting qualification requirement in Quality Assurance Article.

B. Source Limitations: Obtain components for roofing system from same manufacturer as membrane roofing or manufacturer approved by membrane roofing manufacturer.

2.2 PERFORMANCE REQUIREMENTS

A. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by membrane roofing manufacturer based on testing and field experience.

B. Roofing System Design: Provide roofing system that will perform identically to systems that have been successfully tested by a qualified testing and inspecting agency to resist uplift pressure calculated according to ASCE/SEI 7

C. Flashings: Comply with requirements of Division 07 Sections "Sheet Metal Flashing and Trim" and "Manufactured Roof Specialties." Provide base flashings, perimeter flashings, detail flashings and component materials that comply with requirements and recommendations of the following:

1. NRCA Roofing Manual (Sixth Edition) for construction details and recommendations.

2. SMACNA Architectural Sheet Metal Manual (Seventh Edition) for construction details.

D. Exterior Fire-Test Exposure: ASTM E 108, Class A; for application and roof slopes indicated, as determined by testing identical membrane roofing materials by a qualified testing agency. Materials shall be identified with appropriate markings of applicable testing agency.

E. Solar Reflectance Index: Not less than 80 when calculated according to ASTM E 1980, based on testing identical products by a qualified testing agency.

F. Energy Star Listing: Roofing system shall be listed on the DOE's ENERGY STAR "Roof Products Qualified Product List" for low-slope roof products.

G. Energy Performance: Roofing system shall have an initial solar reflectance index of not less than 0.70 and an emissivity of not less than 0.75 when tested according to CRRC-1.

2.3 TPO MEMBRANE ROOFING

A. TPO Sheet: ASTM D 6878, white thermoplastic single ply based on Elvaloy. Reinforced with polyester fabric and backed with non-woven polyester fleece. TPO sheet to have the following performance characteristics:

1. Thickness: 0.060 in., ASTM D 751-00.
 2. Tensile strength: 350 lbf., ASTM D 751-00.
 3. Elongation @ fabric break: 40% MD, 30% XMD, ASTM D 751-00.
 4. Tear strength: 100 lbf, ASTM D 751-00.
 5. Dimensional stability @ 176 deg. F: 0.3% @ 6 hrs., ASTM D 1204.
 6. Low Temperature Flexibility: -40 deg. F, ASTM D 2137.
 7. SRI: 98 initial, 88 3 yr, ASTM E 1980-11.
- B. Sheet Flashing: Manufacturer's standard sheet flashing of same material, type, reinforcement, thickness, and color as thermoplastic membrane.

2.4 AUXILIARY MEMBRANE ROOFING MATERIALS

- A. General: Auxiliary membrane roofing materials recommended by roofing system manufacturer for intended use, and compatible with membrane roofing.
1. Liquid-type auxiliary materials shall comply with VOC limits of authorities having jurisdiction.
- B. Adhesive: Manufacturer's standard asbestos free bonding adhesive recommended by the roofing material manufacturer.
- C. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Global 4470, designed for fastening membrane to substrate, and acceptable to membrane roofing system manufacturer.
- D. Metal Termination Bars: Manufacturer's standard, predrilled stainless-steel or aluminum bars, approximately 1 by 1/8 inch (25 by 3 mm) thick; with anchors.
- E. Termination Joint Sealant: Silicone, S, NS, 25 or 50, NT: Single-component, nonsag, plus 25 to 50 percent and minus 25 to 50 percent movement capability, nontraffic-use, neutral-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 25, Use NT, and compatible with adjacent materials.
- F. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, lap sealants, termination reglets, and other accessories.

2.5 ROOF INSULATION

- A. General: Preformed roof insulation boards manufactured or approved by roofing manufacturer, selected from manufacturer's standard sizes suitable for application, of thicknesses indicated.
- B. Coverboard: Glass fiber faced gypsum panel.
1. Thickness: ¼"

C. Tapered Insulation for Crickets: Provide factory-tapered insulation boards fabricated to slope of 1/2 inch per 12 inches (1:48) unless otherwise indicated.

D. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.

2.6 INSULATION ACCESSORIES

A. General: Preformed roof insulation boards manufactured or approved by roofing manufacturer, selected from manufacturer's standard sizes suitable for application, of thicknesses indicated.

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[and cover boards] to substrate, and acceptable to roofing system manufacturer.

C. Insulation Adhesive: Low rise foam insulation adhesive.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with the following requirements and other conditions affecting performance of roofing system:

1. Verify that roof openings and penetrations are in place and curbs are set and braced and that roof drain bodies are securely clamped in place.

2. Verify that wood cants, blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.

3. Steel Roof Deck:

a. Verify that surface plane flatness and fastening of steel roof deck complies with requirements in Division 05 Section "Steel Decking."

b. Verify that deck is securely fastened with no projecting fasteners and with no adjacent units in excess of 1/16 inch (1.6 mm) out of plane relative to adjoining deck.

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 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. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at the end of the workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.

3.3 INSTALLATION, GENERAL

A. Install roofing system in accordance with manufacturer's recommendations.

B. NRCA Installation Details: Install roofing system in accordance with the following NRCA Manual Plates and NRCA recommendations.

3.4 COVERBOARD

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. Secure coverboard over the top of existing roof system and new tapered crickets.

2. Mechanically fasten coverboard to resist uplift pressure at corners, perimeter, and field of roof according to membrane roofing system manufacturers' written instructions and to meet FM 1-60 wind uplift requirements.

3.5 INSULATION INSTALLATION

A. Replace wet insulation with same thickness of polyisocyanurate insulation.

B. Comply with membrane roofing system and insulation manufacturer's written instructions for installing roof insulation.

C. Install tapered cricket insulation between all scuppers.

1. Width shall be approximately 12' at ridgeline.

D. Install insulation under area of roofing to achieve required thickness. Where overall insulation thickness is 2.7 inches (68 mm) or greater, install two or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 6 inches in each direction.

1. Install insulation at minimum thickness of 2.5"

E. Trim surface of insulation where necessary at roof drains so completed surface is flush and does not restrict flow of water.

F. Install insulation with long joints of insulation in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4 inch (6 mm) with insulation.

1. Cut and fit insulation within 1/4 inch of nailers, projections, and penetrations.

G. Adhered Insulation: Install each layer of insulation and adhere to substrate as follows:

1. Set each layer of insulation in ribbons of bead-applied insulation adhesive, firmly pressing and maintaining insulation in place.

3.6 ADHERED MEMBRANE ROOFING INSTALLATION

- A. Adhere membrane roofing over area to receive roofing and install according to membrane roofing system manufacturer's written instructions.**
- B. Start installation of membrane roofing in presence of membrane roofing system manufacturer's technical personnel.**
- C. Accurately align membrane roofing and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.**
- D. Bonding Adhesive: Apply to substrate and underside of membrane roofing at rate required by manufacturer and allow to partially dry before installing membrane roofing. Do not apply to splice area of membrane roofing.**
- E. In addition to adhering, mechanically fasten membrane roofing securely at terminations, penetrations, and perimeter of roofing.**
- F. Apply membrane roofing with side laps shingled with slope of roof deck where possible.**
- G. Welded Seams: Clean seam areas, overlap membrane roofing, and hot-air weld side and end laps of membrane roofing and sheet flashings according to manufacturer's written instructions to ensure a watertight seam installation.**
 - 1. Test lap edges with probe to verify seam weld continuity. Apply lap sealant to seal cut edges of sheet membrane.**
 - 2. Verify field strength of seams a minimum of twice daily and repair seam sample areas.**
 - 3. Repair tears, voids, and lapped seams in roofing that does not comply with requirements.**
- H. Spread sealant bed over and under scupper flange and securely seal membrane roofing in place.**
- I. Install membrane roofing and auxiliary materials to tie in to existing roofing to maintain weathertightness of transition , and to not void warranty for existing membrane roofing system.**

3.7 BASE FLASHING INSTALLATION

- A. Install sheet flashings and preformed flashing accessories and adhere to substrates according to membrane 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 seam areas, overlap, and firmly roll sheet flashings into the adhesive. Hot-air weld side and end laps to ensure a watertight seam installation.**

E. Terminate and seal top of sheet flashings and mechanically anchor to substrate through termination bars.

3.8 WALKWAY INSTALLATION

A. Flexible Walkways: Install walkway products in locations indicated. Heat weld to substrate or adhere walkway products to substrate with compatible adhesive according to roofing system manufacturer's written instructions.

3.9 FIELD QUALITY CONTROL

A. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion.

B. Repair or remove and replace components of membrane roofing system where inspections indicate that they do not comply with specified requirements.

C. Additional inspections, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.10 PROTECTING AND CLEANING

A. Protect membrane roofing system from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing 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 membrane roofing system that does not comply with requirements; repair substrates; and repair or reinstall membrane 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.

END SECTION

SECTION 07591 - MEMBRANE REROOFING PREPARATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:

1. Partial roof tear-off, wet insulation areas.

B. Unit Prices: Refer to Division 1 Section "Unit Prices" for description of Work in this Section affected by unit prices.

1.3 MATERIALS OWNERSHIP

A. Except for items or materials indicated to be reused, reinstalled, or otherwise indicated to remain Owner's property, demolished materials shall become Contractor's property and shall be removed from Project site and disposed of legally.

1.4 DEFINITIONS

A. Roofing Terminology: Refer to ASTM D 1079 and glossary in NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this Section.

B. Existing Membrane Roofing System: Built-up coal-tar roofing membrane, surfacing, and components and accessories between deck and roofing membrane.

C. Substrate Board: Rigid board or panel products placed over the roof deck that serve as thermal barriers, provide a smooth substrate, or serve as a component of a fire-resistance-rated roofing system.

D. Roof Re-Cover Preparation: Existing roofing membrane that is to remain and be prepared for reuse.

E. Roof Tear-Off: Removal of existing membrane roofing system from deck.

F. Partial Roof Tear-Off: Removal of a portion of existing membrane roofing system from deck or removal of selected components and accessories from existing membrane roofing system.

G. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and reinstalled.

H. Existing to Remain: Existing items of construction that are not indicated to be removed.

1.5 SUBMITTALS

A. Product Data: For each type of product indicated.

B. 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. Submit before Work begins.

1.6 QUALITY ASSURANCE

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

B. Reroofing Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination." Review methods and procedures related to roofing system including, but not limited to, the following:

- 1. Meet with Owner; Owner's insurer if applicable; testing and inspecting agency representative; roofing system manufacturer's representative; roofing Installer including project manager, superintendent, and foreman; and installers whose work interfaces with or affects reroofing including installers of roof accessories and roof-mounted equipment.**
- 2. Review methods and procedures related to reroofing preparation, including membrane roofing system manufacturer's written instructions.**
- 3. Review temporary protection requirements for existing roofing system that is to remain, during and after installation.**
- 4. Review roof drainage during each stage of reroofing and review roof drain plugging and plug removal procedures.**
- 5. Review and finalize construction schedule, and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.**
- 6. Review existing deck removal procedures and Owner notifications.**
- 7. Review procedures to determine condition and acceptance of existing deck for reuse.**
- 8. Review structural loading limitations of deck during reroofing.**
- 9. Review base flashings, special roofing details, drainage, penetrations, equipment curbs, and condition of other construction that will affect reroofing.**
- 10. Review HVAC shutdown and sealing of air intakes.**
- 11. Review shutdown of fire-suppression, -protection, and -alarm and -detection systems.**
- 12. Review procedures for asbestos removal or unexpected discovery of asbestos-containing materials.**
- 13. Review governing regulations and requirements for insurance and certificates if applicable.**
- 14. Review existing conditions that may require notification of Owner before proceeding.**

1.7 PROJECT CONDITIONS

A. Owner will occupy portions of building immediately below reroofing area. Conduct reroofing so Owner's operations will not be disrupted. Provide Owner with not less than 72 hours' notice of activities that may affect Owner's operations.

- 1. Coordinate work activities daily with Owner so Owner can place protective dust or water leakage covers over sensitive equipment or furnishings, shut down HVAC and fire-alarm or -detection equipment if needed, and evacuate occupants from below the work area if desired.**

- B. Protect building to be reroofed, adjacent buildings, walkways, site improvements, exterior plantings, and landscaping from damage or soiling from reroofing operations.**
- C. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not block required exits or path from required exit to public right-of-way. Coordinate with requirements of authorities having jurisdiction.**
- D. Owner assumes no responsibility for condition of areas to be reroofed.**
- E. A roof moisture survey of existing membrane roofing system is available for Contractor's reference.**
- F. Weather Limitations: Proceed with reroofing preparation only when existing and forecasted weather conditions permit Work to proceed without water entering into existing roofing system or building.**
- G. 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 Owner. Hazardous materials will be removed by Owner under a separate contract.**

PART 2 - PRODUCTS

2.1 INFILL MATERIALS

- A. Use infill materials matching existing membrane roofing system materials, unless otherwise indicated.**
 - 1. Infill materials are specified in Division 7 Section "Hot Applied Built-up Asphalt Roofing."**

2.2 AUXILIARY REROOFING MATERIALS

- A. General: Auxiliary reroofing preparation materials recommended by roofing system manufacturer for intended use and compatible with components of new membrane roofing system.**
- B. Base Sheet Fasteners: Capped head, factory-coated steel fasteners, listed in FMG's "Approval Guide."**
- C. Metal Flashing Sheet: Metal flashing sheet is specified in Division 7 Section "Sheet Metal Flashing and Trim."**

PART 3 - EXECUTION

3.1 PREPARATION

- A. Coordinate with Owner to shut down air intake equipment in the vicinity of the Work. Cover air intake louvers before proceeding with reroofing work that could affect indoor air quality or activate smoke detectors in the ductwork.**

B. During removal operations, have sufficient and suitable materials on-site to facilitate rapid installation of temporary protection in the event of unexpected rain.

C. Maintain roof drains in functioning condition to ensure roof drainage at end of each workday. Prevent debris from entering or blocking roof drains and conductors. Use roof-drain plugs specifically designed for this purpose. Remove roof-drain plugs at end of each workday, when no work is taking place, or when rain is forecast.

1. If roof drains will be temporarily blocked or unserviceable due to roofing system removal or partial installation of new membrane roofing system, provide alternative drainage method to remove water and eliminate ponding. Do not permit water to enter into or under existing membrane roofing system components that are to remain.

D. Verify that rooftop utilities and service piping have been shut off before commencing Work.

3.2 ROOF TEAR-OFF

A. General: Notify Owner each day of extent of roof tear-off proposed and obtain authorization to proceed.

B. Partial Roof Tear-Off: Where indicated, remove existing roofing membrane and immediately check for presence of moisture by visually observing roof insulation.

1. Coordinate with Owner's inspector to schedule times for tests and inspections immediately after membrane removal.

2. With an electrical capacitance moisture-detection meter, spot check roof insulation that will remain.

C. Complete Roof Tear-Off:

1. Remove all roofing, insulation, and flashing with metal terminations down to deck.

2. Sweep deck clean of all dirt, dust, and debris.

a. Do not leave tear-off debris on deck.

3.3 DECK PREPARATION

A. Inspect deck after partial tear-off of membrane 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 Owner. Do not proceed with installation until directed by Owner.

C. If deck surface is not suitable for receiving new roofing, or if structural integrity of deck is suspect, immediately notify Owner. Do not proceed with installation until directed by Owner.

D. Replace deck as needed. Replacement deck is specified.

3.4 INFILL MATERIALS INSTALLATION

A. Immediately after removal of selected portions of existing membrane roofing system, and inspection and repair, if needed, of deck, fill in the tear-off areas to match existing roof insulation construction.

1. Installation of infill materials is specified in Division 7 Section "Hot Applied Built-up Asphalt Roofing."

2. Install new roofing membrane patch over roof infill area. If new roofing membrane is installed the same day tear-off is made, roofing membrane patch is not required.

3.5 EXISTING BASE FLASHINGS

A. Remove existing base flashings around parapets, curbs, walls, and penetrations as needed.

1. Clean substrates of contaminants such as asphalt, sheet materials, dirt, and debris.

B. Do not damage metal counterflashings that are to remain. Replace metal counterflashings damaged during removal with counterflashings of same metal, weight or thickness, and finish.

3.6 FASTENER PULL-OUT TESTING

A. Perform fastener pullout tests as required by Owner, and submit test report to Owner before installing new membrane roofing system.

1. Furnish detailed proposal to Owner for revised fastening pattern commensurate with pull-out test results.

3.7 DISPOSAL

A. Collect and place demolished materials in containers. Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.

1. Storage or sale of demolished items or materials on-site will not be permitted.

B. Transport demolished materials off Owner's property and legally dispose of them.

END OF SECTION 07591

SECTION 07620 - 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 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following sheet metal flashing and trim:

1. Formed low-slope roof flashing and trim.

2. Formed wall flashing and trim.
3. Formed equipment support flashing.
- B. Related Sections include the following:
 1. Division 6 Section "Miscellaneous Carpentry" for wood nailers, curbs, and blocking.
 2. Division 7 Section "Hot Applied Built-up Asphalt Roofing" for installing sheet metal flashing and trim integral with roofing membrane.

1.3 PERFORMANCE REQUIREMENTS

- A. Water Infiltration: Provide sheet metal flashing and trim that do not allow water infiltration to building interior.

1.4 SUBMITTALS

- A. Shop Drawings: Show layouts of sheet metal flashing and trim, including plans and elevations. Distinguish between shop- and field-assembled work. Include the following:
 1. Identify material, thickness, weight, and finish for each item and location in Project.
 2. Details for forming sheet metal flashing and trim, including profiles, shapes, seams, and dimensions.
 3. Details for fastening, joining, supporting, and anchoring sheet metal flashing and trim, including fasteners, clips, cleats, and attachments to adjoining work.
 4. Details of expansion-joint covers, including showing direction of expansion and contraction.
- B. Samples for Initial Selection: For each type of sheet metal flashing and trim indicated with factory-applied color finishes.
 1. Include similar Samples of trim and accessories involving color selection.

1.5 QUALITY ASSURANCE

- A. Sheet Metal Flashing and Trim Standard: Comply with SMACNA's "Architectural Sheet Metal Manual." Conform to dimensions and profiles shown unless more stringent requirements are indicated.
- B. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."
 1. Meet with Owner, Manufacturer, Owner's insurer if applicable, Installer, and installers whose work interfaces with or affects sheet metal flashing and trim including installers of roofing materials, roof accessories, unit skylights, and roof-mounted equipment.
 2. Review methods and procedures related to sheet metal flashing and trim.

3. Examine substrate conditions for compliance with requirements, including flatness and attachment to structural members.
4. Document proceedings, including corrective measures and actions required, and furnish copy of record to each participant.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver sheet metal flashing materials and fabrications undamaged. Protect sheet metal flashing and trim materials and fabrications during transportation and handling.
- B. Unload, store, and install sheet metal flashing materials and fabrications in a manner to prevent bending, warping, twisting, and surface damage.
- C. Stack materials on platforms or pallets, covered with suitable weathertight and ventilated covering. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage.

1.7 COORDINATION

- A. Coordinate installation of sheet metal flashing and trim with interfacing and adjoining construction to provide a leakproof, secure, and noncorrosive installation.
- B. Coordinate all sheet metal flashing and trim with roofing material manufacturer who will be warranting roof system, which will include sheet metal flashing and trim.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
 1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products specified.
 2. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.

2.2 SHEET METALS

1. Fluoropolymer 2-Coat System: Manufacturer's standard 2-coat, thermocured system consisting of specially formulated inhibitive primer and fluoropolymer color topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight; complying with AAMA 2604.
 - 1) Color: As indicated by manufacturer's designations.

2.3 UNDERLAYMENT MATERIALS

- A. Felts: ASTM D 226, Type II (No. 30), asphalt-saturated organic felt, nonperforated.

2.4 MISCELLANEOUS MATERIALS

- A. **General:** Provide materials and types of fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation.
- B. **Fasteners:** Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads.
 - 1. **Exposed Fasteners:** Heads matching color of sheet metal by means of plastic caps or factory-applied coating.
 - 2. **Fasteners for Flashing and Trim:** Blind fasteners or self-drilling screws, gasketed, with hex washer head.
 - 3. **Blind Fasteners:** High-strength aluminum or stainless-steel rivets.
- C. **Solder for Lead:** ASTM B 32, Grade Sn50, 50 percent tin and 50 percent lead.
- D. **Butyl Sealant:** ASTM C 1311, single-component, solvent-release butyl rubber sealant, polyisobutylene plasticized, heavy bodied for hooked-type expansion joints with limited movement.
- E. **Asphalt Roofing Cement:** ASTM D 4586, asbestos free, of consistency required for application.

2.5 FABRICATION, GENERAL

- A. **General:** Custom fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item indicated. Shop fabricate items where practicable. Obtain field measurements for accurate fit before shop fabrication.
- B. **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.**
- C. **Fabricate sheet metal flashing and trim without excessive oil canning, buckling, and tool marks and true to line and levels indicated, with exposed edges folded back to form hems.**
 - 1. **Seams for Other Than Aluminum:** Fabricate nonmoving seams in accessories with flat-lock seams. Tin edges to be seamed, form seams, and solder.
- D. **Sealed Joints:** Form nonexpansion but movable joints in metal to accommodate elastomeric sealant to comply with SMACNA recommendations.
- E. **Expansion Provisions:** Where lapped or bayonet-type expansion provisions in the Work cannot be used, form expansion joints of intermeshing hooked flanges, not less than **1 inch (25 mm)** deep, filled with elastomeric sealant concealed within joints.
- F. **Conceal fasteners and expansion provisions where possible on exposed-to-view sheet metal flashing and trim, unless otherwise indicated.**

G. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal.

1. Thickness: As recommended by SMACNA's "Architectural Sheet Metal Manual" for application but not less than thickness of metal being secured.

2.6 LOW-SLOPE ROOF SHEET METAL FABRICATIONS

A. Roof Edge Flashing, and Fascia Caps: Fabricate in minimum 96-inch long, but not exceeding 10-foot long, sections. Furnish with 6-inch wide joint cover plates.

1. Joint Style: Lap, 4 inches (100 mm) wide.

a. Prepainted, Metallic-Coated Steel: 0.0276 inch (0.7 mm) thick.

B. Copings: Fabricate in minimum 96-inch long, but not exceeding 10-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, seal, and solder or weld watertight.

1. Joint Style: Butt, with 12-inch- (300-mm-) wide concealed backup plate and 6-inch- (150-mm-) wide exposed cover plates.

2. Fabricate copings from the following material:

a. Prepainted, Metallic-Coated Steel: 0.0276 inch (0.70 mm) thick.

C. Roof to Wall Transition, Roof to Sheet Metal, Roof Edging Transition, Expansion-Joint Cover: Fabricate from the following material:

1. Prepainted, Metallic-Coated Steel: 0.0276 inch (0.70 mm) thick.

D. Counterflashing: Fabricate from the following material:

1. Prepainted, Metallic-Coated Steel: 0.0276 inch (0.70 mm) thick.

E. Flashing Receivers: Fabricate from the following material:

1. Prepainted, Metallic-Coated Steel: 0.0276 inch (0.70 mm) thick.

F. Roof-Penetration Flashing: Fabricate from the following material:

1. Galvanized Steel: 0.0276 inch (0.70 mm) thick.

G. Roof-Drain Flashing: Fabricate from the following material:

1. Lead: 4.0-lb/sq. ft. (1.6 mm thick), hard tempered.

2.7 WALL SHEET METAL FABRICATIONS

A. Wall Expansion-Joint Cover: Fabricate from the following material:

1. Prepainted, Metallic-Coated Steel: 0.0276 inch (0.70 mm) thick.

2.8 MISCELLANEOUS SHEET METAL FABRICATIONS

A. Equipment Support Flashing: Fabricate from the following material:

1. Prepainted, Metallic-Coated Steel: **0.0276 inch (0.70 mm)** thick.

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 work.

1. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
2. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

A. General: Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement. Use fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.

1. Torch cutting of sheet metal flashing and trim is not permitted.

B. Install exposed sheet metal flashing and trim without excessive oil canning, buckling, and tool marks.

C. Install sheet metal flashing and trim true to line and levels indicated. Provide uniform, neat seams with minimum exposure of solder, welds, and butyl sealant.

D. Install sheet metal flashing and trim to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.

1. Space cleats not more than **12 inches (300 mm)** apart. Anchor each cleat with two fasteners. Bend tabs over fasteners.

E. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of **10 feet (3 m)** with no joints allowed within **24 inches (600 mm)** of corner or intersection. Where lapped or bayonet-type expansion provisions cannot be used or would not be sufficiently watertight, form expansion joints of intermeshing hooked flanges, not less than **1 inch (25 mm)** deep, filled with butyl sealant concealed within joints.

F. Fasteners: Use fasteners of sizes that will penetrate substrate not less than **1-1/4 inches (32 mm)** for nails and not less than **3/4 inch (19 mm)** for wood screws.

1. Galvanized or Prepainted, Metallic-Coated Steel: Use stainless-steel fasteners.
2. Aluminum: Use aluminum or stainless-steel fasteners.

3. Copper Use copper or stainless-steel fasteners.
4. Stainless Steel: Use stainless-steel fasteners.
- G. Seal joints with butyl sealant as required for watertight construction.
 1. Where sealant-filled joints are used, embed hooked flanges of joint members not less than **1 inch (25 mm)** into sealant. Form joints to completely conceal sealant. When ambient temperature at time of installation is moderate, between **40 and 70 deg F (4 and 21 deg C)**, set joint members for 50 percent movement either way. Adjust setting proportionately for installation at higher ambient temperatures. Do not install sealant-type joints at temperatures below **40 deg F (4 deg C)**.
 2. Prepare joints and apply sealants to comply with requirements in Division 7 Section "Joint Sealants."
- H. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter. Pretin edges of sheets to be soldered to a width of **1-1/2 inches (38 mm)** except where pretinned surface would show in finished Work.
 1. Do not solder prepainted and metallic-coated steel sheet.
 2. Where surfaces to be soldered are lead coated, do not tin edges, but wire brush lead coating before soldering.
 3. Lead-Coated Copper Soldering: Wire brush edges of sheets before soldering.
 4. Do not use open-flame torches for soldering. Heat surfaces to receive solder and flow solder into joints. Fill joints completely. Completely remove flux and spatter from exposed surfaces.

3.3 ROOF DRAINAGE SYSTEM INSTALLATION

- A. General: Install sheet metal roof drainage items to produce complete roof drainage system according to SMACNA recommendations and as indicated. Coordinate installation of roof perimeter flashing with installation of roof drainage system.

3.4 ROOF FLASHING INSTALLATION

- A. General: Install sheet metal roof flashing and trim to comply with performance requirements, sheet metal manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, set units true to line, and level as indicated. Install work with laps, joints, and seams that will be permanently watertight.
- B. Copings: Anchor to resist uplift and outward forces according to recommendations in FMG Loss Prevention Data Sheet 1-49 for specified wind zone and as indicated.
 1. Interlock exterior bottom edge of coping with continuous cleats anchored to substrate at **16-inch (400-mm)** centers.
 2. Anchor interior leg of coping with screw fasteners and washers at **18-inch (450-mm)** centers.

C. **Pipe or Post Counterflashing:** Install counterflashing umbrella with close-fitting collar with top edge flared for butyl sealant, extending a minimum of **4 inches (100 mm)** over base flashing. Install stainless-steel draw band and tighten.

D. **Counterflashing:** Coordinate installation of counterflashing with installation of base flashing. Insert counterflashing in reglets or receivers and fit tightly to base flashing. Extend counterflashing **4 inches (100 mm)** over base flashing. Lap counterflashing joints a minimum of **4 inches (100 mm)** and bed with butyl sealant.

1. **Secure in a waterproof manner by means of snap-in installation and sealant or lead wedges and sealant.**

E. **Roof-Penetration Flashing:** Coordinate installation of roof-penetration flashing with installation of roofing and other items penetrating roof. Install flashing as follows:

1. **Turn lead flashing down inside vent piping, being careful not to block vent piping with flashing.**

2. **Seal with butyl sealant and clamp flashing to pipes penetrating roof except for lead flashing on vent piping.**

3.5 WALL FLASHING INSTALLATION

A. **General:** Install sheet metal wall flashing to intercept and exclude penetrating moisture according to SMACNA recommendations and as indicated. Coordinate installation of wall flashing with installation of wall-opening components such as windows, doors, and louvers.

B. **Reglets:** Installation of reglets into masonry joints as specified and approved by roofing material manufacturer.

3.6 MISCELLANEOUS FLASHING INSTALLATION

A. **Equipment Support Flashing:** Coordinate installation of equipment support flashing with installation of roofing and equipment. Weld or seal flashing with butyl sealant to equipment support member.

3.7 CLEANING AND PROTECTION

A. **Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.**

B. **Clean and neutralize flux materials. Clean off excess solder and sealants.**

C. **Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed. On completion of installation, clean finished surfaces, including removing unused fasteners, metal filings, pop rivet stems, and pieces of flashing. Maintain in a 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.**

END OF SECTION 07620

Scope of Services

Raytown Quality Schools is seeking bids for the roof at 6608 Raytown Rd.

Selection

The Raytown District will select the lowest, best bid according to Board Policy.

Bid/Proposal/Qualification Submitted By

Company Name

Authorized Name/Title (printed)

Authorized Signature

Contact Person for the Bid/Quote/Proposal process

Date

Telephone

Fax

Email

