BERKLEY SCHOOLS

Berkley, MI – Administration Building
Roof Replacement Area A

14501 Talbot
Oak Park, MI 48237

April 8, 2025

Project Manual

SECTION 000010

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INSTRUCTIONS TO BIDDERS

PART 1 – GENERAL

1.1 SECTION INCLUDES

A. Instructions regarding bid submittal procedures for the specified project. Instructions to Bidders shall be used in conjunction with Notes to Offerors.

1.2 RELATED SECTIONS

A. Section 004113 – Bid Proposal Form

1.3 PRE-PROPOSAL MEETING

A. Pre-Proposal Meeting will be scheduled for this project. Date and time will be listed on the Notes to Offerors. Bidders are required to attend the pre-bid meeting. Owner and Owner's Representative will present an overview of the project requirements at the pre-bid meeting, provide verbal answers to inquiries regarding the Project, and discuss procedures for arranging site visits. After the pre-proposal meeting, bidders shall make all additional inquiries in writing to the Owner's Representative. If it is necessary upon review of the inquiries, an Addendum will be issued to all bidders.

B. Pre-Proposal Meeting Agenda: Pre-Proposal Meeting activities may include, but are not limited to the following:
1. Development and distribution of a sign-in sheet which includes company name, participant representative, address, phone number, fax number, email address. Copies of the sign-in sheet shall be made available to all participants upon request.
2. Introduction of meeting participants.
3. Discussion of project scope, schedule, and other project specific information.
4. Discussion of procedural requirements contained within Divisions 00 and Division 01.
5. Participate in a walkthrough of the project site(s).
6. Allow time for participant questions. If an addendum will be issued based on the results of the Pre-Proposal Meeting, a statement shall be made to that effect.
7. Development of meeting minutes. Copies of the sign-in sheet shall be made available to all participants upon request.

1.4 EXAMINATION OF SITE

A. It is the bidder's responsibility to become familiar with the existing conditions and the materials and labor required to complete the project. No additional compensation will be allowed to complete the work due to the bidder's failure to fulfill this requirement.

B. If a bidder is not able to become completely familiar with the site in the time allotted during the Pre-proposal Meeting, it is the bidder's responsibility to schedule additional site visits.

C. Test cut information provided by the Owner or Owner's Representative is based on limited test cores into the roof system at specific locations. It is the responsibility of the Contractor to verify

this information.

1. Additional test cuts into the roof system will be permitted. All test cuts must be repaired to a watertight condition.

D. Submittal of a bid implies that the bidder understands all of the site conditions under which the work must be performed.

1.5 ADDENDA/ REQUEST FOR INFORMATION

A. The bidder may, during the bidding period, be advised by Addendum of changes to the Specifications and Drawings. Such changes are included in the work and become part of the Procurement Documents.

B. All technical questions must be submitted through the online RFI form. All questions must be submitted at least forty-eight (48) hours prior to close of solicitation. Questions shall be submitted to the Contract Specialist listed on the Notes to Offerors.

1.6 BID FORM

A. Submit the bid on the Bid Form, Section 004113, provided, with all items of the form properly completed.

1. Submitted bids shall be based only on the materials and constructions described in the Procurement Documents.
2. A Performance and Payment Bond will be required. The bid shall include the premiums and all other related charges for the indicated Performance and Payment Bonds and extra premiums or costs for the insurance coverage required in the Contract. The amount of each bond shall be equal to 100 percent of the contract sum. In order to determine financial strength and reputation of the insurance carriers and surety firms, all companies providing coverages required shall have a financial rating not lower than XII and a policyholder's service rating lower than A as listed in the A.M. Best key rating Guide current edition. Companies with ratings lower than A/XII will be acceptable only upon written consent of the Owner. A dual Oblige Rider in favor of either the Owner or Owners Representative will be required to be provided by the surety firm. 7 calendar days from the Notice of Intent provide bonds.
3. The Contractor shall obtain and pay the fees for all permits, licenses, and code inspections that may be required by the work of this Contract.
4. The person signing the Bid Proposal Form must initial erasures or other changes made to the Proposal Bid Form.

B. Requirements for signing bids:

1. Bids that are signed for a corporation shall have the correct corporate name thereof and the signature of the president or other authorized officer of the corporation.
2. Bids that are signed for a partnership shall be signed by all partners or by an attorney in fact. If signed by an attorney in fact, attach a power of attorney to the bid evidencing authority to sign the bid, executed by the partners.
3. Bids that are not signed by the individual making them should have attached thereto a power of attorney evidencing authority to sign the bid in the name of the person for whom it is signed.

1.7 BID TRANSMITTAL / E-SOURCE RETURN

A. Submit the Preproposal Form and all required attachments, as specified in Section 004113. Submit Bids to Owners representative, as instructed on the Notes to Offerors. Bids received after the bid due date and time may be rejected. Bidders may withdraw their bids, by written notice, at any time prior to the indicated date and time scheduled for receipt of bids. However, no bidder may withdraw a bid for a period of 90 calendar days after the bid due date.

B. Right to Reject: The Owner reserves the right to reject any or all bids, either whole or in part; to award contract to other than the low bidder; to waive any irregularities and/or informalities; and, in general, to make awards in any manner deemed to be in the best interests of the Owner.

1.8 CONTRACT AWARD

A. The Owner reserves the right to determine which bid is best suited for its use, to accept any or all parts of a bid, and assign all or part of the contract to one or more of the qualified bidders. In awarding the contract, the Owner will consider the past performance of the Contractor; conformity of the bid to the Procurement Requirements; bid price(s); and availability of funds.

1.9 DAVIS BACON WAGE RATES

A. Davis Bacon Wage Rates must be paid for all work at this location. You will be required to submit Certified Payroll Reports with your invoicing for this project.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

NOT USED

END OF DOCUMENT

DOCUMENT 004113

PROPOSAL FORM

PROJECT: **Berkley, MI – Administration Building**
Roof Replacement Area A
14501 Talbot
Oak Park, MI 48237

Proposals Due by: **TBD**

PROPOSING CONTRACTOR (Company Name)_____

PROPOSED ROOFING MEMBRANE MANUFACTURER (Company Name)_____

PROPOSED ROOFING MEMBRANE NAME AND ASTM NO.:_____

PROPOSAL ITEM NO. 1 - BASE PROPOSAL – Roof Area A

The contractor, having examined this Proposal Form, Project Manual, project drawings, and other information provided, and being familiar with all conditions affecting this proposed project, hereby proposes to furnish all labor, material, tools, equipment, utilities, transportation, permits, taxes, and other facilities and services necessary to perform and complete the work indicated for this project for the base price and unit price sums indicated herein. The contractor agrees to hold these prices for a period of 90 calendar days after the bid due date.

The undersigned agrees to the performance of specified roof replacement work for the following lump sum amount:

A. **Demolition (includes mobilization, roof removal, Debris disposal, etc.):** $_____

B. **New Construction (includes insulation, membrane, flashing Interior protection, labor, demobilization, etc.):** $_____

C. **Miscellaneous (includes taxes, miscellaneous costs, etc.):** $_____

D. **Performance and Payment Bond:** $_____

TOTAL BASE PROPOSAL (A + B + C + D)* $_____

PROPOSAL ITEM NO. 2 – SCHEDULE OF UNIT PRICES

Unit pricing to be listed below and to include labor, materials, equipment for the condition, profit and overhead.

A. Section 015617 – Temporary Interior Protection

1. **Unit Price No. 1**: Provide a cost per square foot to adjust the amount of temporary interior protection required at the facility. Refer to section 015617.

   Add/Deduct:_____dollars (per square foot).

B. Section 024100 – Roof Removal and Substrate Preparation

1. **Unit Price No. 2**: Roof drain assembly replacement:

   Add/Deduct:_____dollars (each).

2. **Unit Price No. 3**: Roof drain clamping ring replacement:

   Add/Deduct:_____dollars (each).

3. **Unit Price No. 4**: Retrofit roof drain insert installation:

   Add/Deduct:_____dollars (each).

C. Section 053123 – Steel Roof Deck Repair/Replacement

1. **Unit Price No. 5**: Refastening of loose steel deck, at the rate indicated in Section 053123:
   Add/Deduct:_____dollars (per square foot).

2. **Unit Price No. 6**: Steel deck brushing and priming:

   Add/Deduct:_____dollars (per square foot).

3. **Unit Price No. 7**: Steel deck repair 12 inches x 12 inches or less:

   Add/Deduct:_____dollars (per square foot).

4. **Unit Price No. 8**: Steel deck replacement:

   Add/Deduct:_____dollars (per square foot).

D. Section 061053 – Miscellaneous Rough Carpentry for Roof Replacement

1. **Unit Price No. 9**: Removal and replacement of existing wood nailers and blocking, where existing are deteriorated, and/or at locations not indicated within the project drawings:

   2” x 4” Add/Deduct:_____dollars (per lineal foot).

   2” x 6” Add/Deduct:_____dollars (per lineal foot).

   2” x 8” Add/Deduct:_____dollars (per lineal foot).

   2” x 10” Add/Deduct:_____dollars (per lineal foot).

   2” x 12” Add/Deduct:_____dollars (per lineal foot).

2. **Unit Price No. 10**: Removal and replacement of plywood, where existing is deteriorated, and/or at locations not indicated within the project drawings:

   1/2” Add/Deduct:_____dollars (per square foot).

   3/4” Add/Deduct:_____dollars (per square foot).

TO BE COMPLETED AND SUBMITTED AS PART OF THE BID FORM.

PROPOSAL ITEM NO. 3 – PROJECT SCHEDULING AND COMPLETION

The project will be completed by the time set forth in the Summary of Work.

Number of Working days to complete the Base Bid _____ days

PROPOSAL ITEM NO. 4 – AMENDMENT ACKNOWLEGEMENT

The proposer acknowledges receipt of the following Amendments:

Amendment No. ____, dated _____

Amendment No. ____, dated _____

Amendment No. ____, dated _____

_____ _____
Signature Date

PROPOSAL ITEM NO. 5 – BID SUBMITTED BY:

Contracting Firm: _____

Contact Name: (printed)_____

Address: _____ Phone: _____

City, State, Zip _____

Email:_____

TO BE COMPLETED AND SUBMITTED AS PART OF THE BID FORM.

PROPOSAL FORM – NON COLLUSION AFFIDAVIT

State of _____

County of_____

_____, being first duly sworn, deposes and says:

That he/she is _____ (Partner or officer of the firm of) the party making the foregoing proposal or bid, that such proposal or bid is genuine and not collusive or sham; that said bidder has not colluded, conspired, connived or agreed, directly or indirectly, with any bidder or person, to put in a sham bid or to refrain from bidding, and has not in any manner directly or indirectly, sought by agreement or collusion, or communication conference with any person, to fix the bid price, or affiant or any other bidder, or to fix any overhead, profit or cost element of said bid price, or of that of any other bidder, or to secure any advantage against the Owner or any person interested in the proposed contract; and that all statements in said proposal or bid are true.

Signature of:

Bidder, if the Bidder is an Individual; _____

Partner, if the Bidder is a Partnership; _____

Officer, if the Bidder is a Corporation; _____

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

_____
Notary Public

My Commission expires:_____, 20___.

TO BE COMPLETED AND SUBMITTED AS PART OF THE BID FORM.

ADDITIONAL PROPOSAL INFORMATION

Subcontractor Listing – for portions of the work equaling or exceeding ½ of 1% of the total proposed Contract Sum, the contractor proposes to use the following sub-contractors. Except as otherwise approved by the Owner, the undersigned proposes to perform all other portions of the work with his own forces.

Portion of the Work	Subcontractor Name and Address
_____	_____

Diversity Business Enterprise – Please select the category that defines your company (if applicable)

Minority Business Enterprise (MBE)	_____	Women Business Enterprise (WBE)	_____
Small Disadvantaged Business	_____	Veteran Business Enterprise	_____
Disabled Veteran Business Enterprise	_____	HUB Zone	_____

Health, Safety & Environmental Checklist – Please complete the questions below:

Company Experience Modification Rate (EMR):_____

Has your company received any inspections from a regulatory agency during the past 3 years?
YES _____ NO _____ If yes, please explain_____

Has your company received any citations from a regulatory agency during the past 3 years?
YES _____ NO _____ If yes, please explain_____

Are there any lawsuits relating to the recorded fatalities? _____YES _____NO

TO BE COMPLETED AND SUBMITTED AS PART OF THE BID FORM.

Bid Verification Checklist	**YES**	**NO**
Does the Proposer acknowledge that their lump sum price includes all applicable State and local tax dollars?		
Does the Proposer acknowledge that their lump sum price includes all permit fees?		
Does the Proposer acknowledge their review of the project scope of work that their work will be in compliance with all state and local codes?		
Has the Proposer verified all on-site conditions both above and below the deck?		
Does the Proposer intend on using an OSHA Approved Safety Plan?		
Does the Proposer understand and acknowledge that under no circumstances shall any existing HVAC equipment, including all mechanical equipment on the roof or around the building, shall be shut- down without the prior approval from the Owner?		
Does the Proposer understand and acknowledge, in the event of being awarded the contract, that the Submittal package is to include Roofing Manufacturer's Product Data Sheets, and that the Submittal package is due within 15 days of notice to award?		
Does the Proposer understand and acknowledge, in the event of being awarded the contract, that the Submittal package is to include Proof of Insurance from their Insurance company, listing the minimum insurance requirements and limits as specified in the Contract Documents in the Post Award Package?		
Does the Proposer understand and acknowledge that all projects over $100,000 require a Payment and Performance Bond by an "A" rated bonding company and that a Dual Obligee Rider will be required?		
Does the Proposer acknowledge that they have reviewed the sample subcontract agreement included in the Post Award Documents and agree that they will sign the agreement without changes?		

TO BE COMPLETED AND SUBMITTED AS PART OF THE BID FORM.

DOCUMENT 006519

AFFIDAVIT AND WAIVER OF LIEN

State of _____ _____, 20__
County of _____

_____, being duly sworn that he/she is _____of _____ having a contract with _____, for the re-roofing construction of a building located at _____, (the "Project") whereof _____is the Owner.

Affiant further says that the following shows the names and addresses of every subcontractor in the employ of said party, giving the amount, if any which is due to them, or any of them for work done or machinery, material, or fuel furnished to date hereof, under said contracts. Note: this statement must be accompanied by an affidavit and waiver of lien, in the approved form, from each of the listed parties.

SUBCONTRACTORS

Name	Address	Trade	Amount Due

Said affiant further says that the following shows the names and addresses of every person furnishing machinery, material or fuel to the project giving the amount which is due to them, or any of them, for machinery, material, or fuel to date hereof.

MATERIAL MEN

Name	Address	Trade	Amount Due

Said affiant further says that the following shows the names and addresses of every unpaid laborer in the employ of said party furnishing labor under said contract, giving the amount, if any, which is due for labor done to date hereof.

LABOR

Name	Address	Trade	Amount Due

Said affiant further says the amounts due or to become due to said subcontractors, material men, and laborers for work done, or machinery, material, or fuel furnished to the date hereof, to the Project are fully and correctly set forth opposite their names, respectively in the aforesaid statements, and further evidenced by documentation from every person furnishing machinery, material, or fuel hereto attached, and made a part hereof.

Affiant further says that said party has not employed or purchased or procured machinery, material, or fuel from, or subcontracted with any person, firm or corporation, other than those above mentioned, and owes for no labor performed, or machinery, or fuel furnished, under said contracts, other than above set forth.

Further affiant sayeth naught.

_____

(SIGNED)

WAIVER OF LIEN

The undersigned, _____, in consideration of receipt of $_____, the receipt of which is hereby acknowledged as payment for all labor or work performed and / or material furnished, up to and including _____, 20__, with respect to the _____ project does hereby waive and release any and all liens and claims, including but not limited to any right to a Mechanic's Lien or claim for such labor or work performed and/or material furnished with respect to the project to such date.

WITNESS MY HAND this _____day of _____, 20__

Witnesses: _____
(Company)

_____ By: _____

_____ Title: _____

SWORN TO BEFORE ME AND SUBSCRIBED IN MY PRESENCE, at _____,

(State)_____ , this _____day of _____, 20__

_____
Notary Signature

My commission expires _____, 20____.

SECTION 006536

CONTRACTOR FIVE-YEAR GUARANTEE (EXAMPLE)

(THIS SHOULD BE TYPED ON YOUR COMPANY'S LETTERHEAD)

_____
Project Completion Date

_____
Guarantee Expiration Date

RE: CONTRACTOR GUARANTEE

PROJECT: _____

The contractor, _____hereby guarantees all work, workmanship, and/or all materials installed by him or Subcontractors to him to be the quality that will comply with all Specific Requirements of the Specifications and other Contract Documents governing the Work under the workmanship through the period ending_____, 20____.

The contractor shall investigate roof leaks during the guarantee period within a reasonable time period, but in no instance greater than 24-hours after notification of a leak. The contractor shall repair leaks determined to be the cause of the specified work at no cost to the Owner.

The contact person for issues relating to this Warranty / Guarantee will be:

Company:_____

Contact Name:_____

Signature:_____

Address:_____

City/State:_____

Email Address:_____

SECTION 011000

SUMMARY OF WORK

PART 1 - GENERAL

1.1 SCOPE

A. The Contractor must provide all material, labor, tools, supplies, equipment, transportation, superintendence, temporary construction of every nature, and all other services and facilities necessary to complete the specified work, including all incidental work described in the contract documents. For purposes of this construction project, the terms “Offeror” and “Contractor” are interchangeable and refer to the party whose proposal is accepted by the owner. It is the Owner’s sole responsibility to clarify design and construction responsibilities among the Owner’s designers, contractors and other agents.

B. The scope of work is listed within Article 1.2 of this Section.

C. All work shall be in accordance with applicable codes and local regulations that may apply. In case of conflict in or between the Contract Documents and a governing code or ordinance, the more stringent standard shall apply.

D. In case of conflict between the Project Manual and Project Drawings, the more stringent requirement shall apply.

1.2 SUMMARY OF ROOF REPLACEMENT WORK – AREA A

A. Roof removal and substrate preparation: Remove existing roof system down to the structural deck, including roof membrane(s), and underlying insulation, underlayments, and additional roof membranes. Inspect the existing structural deck, and inform the Owner immediately of observed damage and or deterioration. Temporarily displace rooftop equipment as necessary to complete the specified work. Refer to Section 024100.

B. After roof removal and inspection of the existing structural deck and perimeter wood blocking, perform repairs to the structural deck, as determined necessary by the Owner. Refer to Sections 053123. Replace damaged or deteriorated wood blocking, as determined necessary by the Owner. Refer to Section 061053.

C. Provide required wood blocking where indicated on the project drawings. Refer to Section 061053.

D. Provide two layers of 2-1/2 inch polyisocyanurate insulation (5-inches total). If indicated on the project drawings, provide insulation saddles and crickets where shown. Refer to Section 072223 for additional insulation product and installation requirements.

E. Provide a 1/2-inch high density polyiso cover board over the underlying insulation. Refer to Section 072223 for additional product and installation requirements.

F. Provide a cold adhesive-applied, two-ply SBS modified bitumen roof system. After installation of specified insulation and cover board, install base and surfacing plies in cold adhesive. Provide bituminous and sheet metal flashings as specified. Provide a price for a 20-Year, “Total System

Warranty" for the roof system and five-year guarantee. Refer to Sections 075216 and 076203 for product and installation requirements.

1. Acceptable manufacturers: Siplast

G. Provide sealants at locations indicated on the project drawings. Refer to Section 079201.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

NOT USED

END OF SECTION

SECTION 011104

CONTRACT DOCUMENTS

PART 1 - GENERAL

1.1 GENERAL

A. The contract documents consist of the items included, or attached and incorporated by reference.

1.2 DRAWING LIST

A.

Drawing Number:	Date:	Drawing Title:
Sheet 01 of 03	04/08/2025	Title Sheet
Sheet 02 of 03	04/08/2025	Roof Plan – Area A
Sheet 03 of 03	04/08/2025	Roof Details 01-08

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

NOT USED

END OF SECTION

SECTION 011400

GENERAL REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Guidelines regarding general requirements for the project, access to the project site, coordination of work with facility personnel, and requirements regarding facility use.

1.2 GENERAL REQUIREMENTS

A. Definitions: The following are referred to throughout this Project Manual:
1. The “Owner”: Berkley School District.
2. The “General Contractor”, “Owner’s Representative” and “Designer”: Testing Engineers & Consultants, 1343 Rochester Road, Troy, MI, Telephone: (248) 588-6200,
3. The “Proposer”, “Contractor”, Subcontractor” and “Roofing Contractor”: Roofing Contractor.

B. In general, work shall commence within 30-days after award of contract.

C. For clarification purposes, the use of the word “provide” in this front end indicates the same as “furnish and install”.

D. The Owner reserves the right to stop work when noise, fumes, dust, etc. in their opinion, become a problem or adversely affects their operations, the neighborhood, or other contractors or business. Stop work order for dust, fume, debris, runoff, etc. reasons will not be considered an extra to the contract.

E. The Contractor, and any subcontractors utilized for this project, will be responsible for their own layout, details, field measuring, and field verification.

F. The Contractor will be responsible to provide traffic control as necessary for delivery or removal of materials and the completion of their work. The Contractor is responsible for loading, unloading, hoisting, placement and removal of material, equipment and trash.

G. The Contractor shall be governed by and shall conform to Federal Minimum Wage and Hour Law. The Subcontractor is also responsible to see that all subcontractors be governed by this law.

H. All work shall be in compliance with the applicable local and state building codes (latest edition).

I. The Contractor shall pay for all lawful fees, permits, etc. and will have all such permits on site before starting job.

J. The Contractor shall pay for all damages to sidewalks or other public or private property or to any utilities.

K. On days when weather does not permit the re-roofing process, installing contractor’s foreman/representative must be present at the site, no later than normally anticipated, to confirm

that all temporary weatherproof night seals are in place and functional. Foreman/representative must verify that building is weatherproof and water-tight during inclement weather conditions.

L. Review of the submittals by the Owner is not conducted for the purpose of determining the accuracy or completeness of details such as dimensions and quantities or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents.

M. Proposers are required to visit the site of the building and inform themselves of all conditions. Failure to visit the site will in no way relieve the contractor from necessity of furnishing material or performing any work that may be required to complete work in accordance with specifications without additional cost to the Owner.

N. All work called for under these specifications and drawings shall be done by skilled workmen and subject to constant inspection and final approval by the Owner. Such final approval shall in no way relieve the Contractor of his responsibility for defects in either workmanship or materials that may subsequently develop within the duration of the Contractor Guarantee.

O. An emergency kit will be kept on job at all times. This kit will include a sufficient amount of tarps, rolled plastic, etc. to insure no water leakage will occur in case of unexpected rain. The kit will also include enough plastic wrap to cover any equipment below roof, which is being worked on at any given time. This kit will be shown to the consultant prior to the removal of existing roof.

P. At no time during the working day, will the job be left unattended by the Contractor or vacated at the end of any working day leaving the possibility of water leakage.

Q. All material to be kept dry, under tarps, banded, and not kept in manufacturer's shipping plastic wrap. (Insulation plastic cut or removed). All damaged material will be replaced at Contractor's expense.

1.3 USE OF SITE

A. Confine operations at the site to the areas permitted under the contract. Portions of the site beyond areas adjacent to the buildings where work occurs are not to be disturbed. Conform to the site rules and regulations affecting the work while engaged in project construction.

B. Keep existing driveways and entrances serving the premises clear and available to the tenant, employees, and visitors at all times. Do not use these areas for parking or storage of materials.

C. Do not encumber the site with materials or equipment. Confine stockpiling of materials and location of tool storage to the areas designated by the Owner during the Pre-Proposal Meeting. Proper protection shall be taken to protect pedestrians from injury. Set-up area will be designated during the Pre-Proposal Meeting.

D. No illegal drugs, firearms, or alcohol allowed on premises. If any forbidden substances, including firearms, are detected at the site, said abuser and Contractor will be dismissed from the premises immediately, at no cost to the Owner.

E. Contractor will refrain from using offensive language or talking loudly during duration of project. It is expected that all contractors, sub-contractors, and employees of said individuals will conduct themselves in a professional manner throughout all phases of the re-roofing project.

F. Proper attire must be worn at all times.

G. Equipment location:
   1. Dumpster, Fume Control System, Kettle and any other ground based equipment location(s) must be approved by facility personnel prior to delivery.
   2. Adequate protection shall be taken should heavy equipment be located on the lawn areas, or asphalt paved parking areas. All damage to the landscaping, building, concrete poured or asphalt paved site areas shall be replaced or repaired at Contractor's cost and approved by the Owner.
   3. Ground protection (plywood/tarps) is required. Protect all exterior walls at dumpster location.

H. Trash chute: If requested by the Owner, the tear-off of all existing roofing materials and subsequent disposal into a dumpster located on the ground is to be accomplished via an enclosed trash chute

1.4 USE OF THE BUILDING

A. Only an authorized individual will be allowed to enter building.

B. Maintain the existing building in a safe and weather tight condition throughout the construction period.

C. Repair damaged caused by work operations.

D. Any damages or staining occurring to existing masonry brick surfaces, dryvit (EFIS) wall finishes, metal fascias, etc., will be replaced in an acceptable manner at the expense of the Contractor. The Owner will not reimburse the contractor for acts of negligence.

E. Take all precautions necessary to prevent the infiltration of fumes, dirt, dust, or debris from entering the existing building structure. Proper protection shall be taken to protect building occupants/equipment.

F. Keep public areas including entrances from accumulation of waste materials, rubbish, or construction debris.

G. All used mops and rollers are to be removed from the building roof at the end of work each day, along with all flammable and adhesive materials.

1.5 INTERIOR PROTECTION

A. The contractor will be required to provide interior protection to protect building contents as determined during the Pre-Proposal Meeting.

B. Anti-Static 6-mil poly is required for all interior protection.

C. Interior protection must be secured above all interior equipment. Interior protection will not be permitted to be draped over or on any equipment.

1.6 OCCUPANCY

A. Owner will occupy the site and building the entire period of construction. Cooperate fully with the facility representative and employees to minimize conflicts and to facilitate owner's site operations throughout construction period.

1.7 GENERAL WORKING HOURS AND CREW COMPOSITION

A. The normal job working hours shall be established by the Owner.

B. During established working hours, it shall be the responsibility of the contractor to provide all of the necessary skilled craftsman to avoid delay to any phase of the construction work.

C. The moving of roofing crew(s) from site to site will not be tolerated until all work has been completed at the initial site. However, work at an alternate site may begin, in conjunction with the initial site, as long as different roofing crews are employed.

D. Project will be worked continually, weather permitting.

1.8 REGULATIONS

A. Comply with requirements of State and local laws and regulations governing construction and local industry standards in the installation and maintenance of roof system, but not limited to the following:
   1. Building Codes (including local requirements for permits, licensing, testing, and inspection).
   2. Health and Safety Regulations.
   3. Police and Fire Department rules and recommendations.
   4. OSHA Safety Regulations pertaining to but not limited to roof replacement.
   5. UL Ratings for roof systems (if applicable).
   6. Factory Mutual roof system and associated perimeter metal flashings. Refer to FM Global property Loss Prevention Data Sheet 1-28, 1-29,1-49 & 1-52, if applicable.
   7. Cool Roof Rating Council (CRRC) compliance of roofing materials regarding solar reflectance and thermal emittance (if applicable).
   8. California Title 24 Compliance (if applicable).

1.9 DAILY CLEAN-UP AND GENERAL HOUSEKEEPING

A. At the completion of each work day, completed segments of new roof shall be sealed with watertight stops to prevent the infiltration of water. Spilled or scattered debris shall be cleaned-up immediately.

B. Tear-off debris to be disposed from roof structure as it accumulates.

C. Secure all insulation and new roofing materials in general as required to prevent blow-off from roof structure, should inclement weather conditions occur.

D. In general, all loose hand tools are to be removed from work-site at the completion of each work day or secured on site in locked gang-box.

1.10 PARTICIPATION IN DIVERSITY BUSINESS ENTERPRISES

A. Contractor shall participate in Diversified Business Enterprise (DBE) programs that promote equal business opportunities for minority, women, veteran and small businesses.

B. Inclusion of qualified, diverse sub-contractors and suppliers that meet the classification of a DBE, are encouraged in connection with the project will be noted on the bid form.

C. Good faith efforts to locate and engage the services of DBE businesses, in connection with the project, are also encouraged and will be noted on the bid form.

1.11 INSURANCE

A. The Contractor will obtain and keep in force during the term of this Agreement not less than the following insurance:
   1. Commercial General Liability insurance, including bodily injury, property damage, personal and advertising injury liability, and contractual liability covering operations, independent contractor and products/completed operations hazards, with limits of not less than $1,000,000 combined single limit per occurrence and $2,000,000 annual aggregate, naming Owners Representative, and the Owner, its officers, directors and employees as additional insured's.
   2. Workers' Compensation as provided for in any jurisdiction where work is performed by Supplier Personnel who are engaged in the performance of Services under this Agreement with an Employer's Liability limit of not less than $1,000,000 for bodily injury by accident or disease;
   3. Business Auto insurance covering owned, non-owned and hired autos with limit of not less than $1,000,000 combined single limit per accident for bodily injury and property damage liability, naming Owners Representative, the Owner, its officers, directors, and employees as additional insured's.
   4. Umbrella/Excess Liability with limits of not less than $2,000,000 combined single limit in excess of the above-referenced Commercial General Liability, Employer's Liability and Business Auto Liability.

B. All required insurance policies must be taken out with financially reputable insurers reasonably acceptable to the Owner and Owner's Representative and licensed to do business in all jurisdictions where services are provided under this Agreement. Supplier will provide the Owner with a certificate of insurance from Insurance Company, satisfactory in form and content to the Owner and Owner's Representative, evidencing that all the required coverage's are in force and have been endorsed to provide that no policy will be canceled or materially altered without first giving the Owner and Owner's Representative 30 days' prior notice. The insurance shall protect both the contractor and the Owner.

1.12 PAYMENT APPLICATION & CLOSE OUT DOCUMENTS

A. The Contractor must submit an updated Schedule of Values, using AIA Document G703, or a similar document, with each Payment Application.
   1. If the contract price changes, the Schedule of Values must be revised to reflect the change(s) and forwarded to the Owner and Owner's Representative.

B. Progress payments will be accepted and reviewed for payment, once per month.

C. Contractor must submit a minimum of two invoices for the work as, or when, it is completed. The final invoice must be for the Retainer in the amount of 10% of the project cost or $5,000 (whichever is greater). This Retainer will be held until all Close-Out Documents are received.

D. Final payment of all retainers will be made after receipt of Close-Out Documents, including the Manufacturer's Warranty, Contractor Guarantee, and confirmation in writing that the Permit has been closed out and the issuing building department has conducted their final inspections. If no building permit was required, the Contractor must provide a letter stating no permit was required for the project.

1.13 CHANGE-ORDERS AND EXTENSION OF TIME

A. Any Contractor's change-order request must have a time extension request included, when applicable. If an extension in time is not included with the change-order request, an extension in time will be denied.

B. Any Contractor's change-order request must be submitted in writing and must be approved, in writing, by the construction manager prior to proceeding with the proposed changes or additional work.

C. Any change or addition to work not requested in writing and approved in writing will not be considered valid and will result in the denial of a claim for payment.

1.14 SCHEDULE

A. It is desired to complete the work promptly in the least reasonable time. The time period required has been bid and accepted by the Owner as part of the agreement. The schedule of work days shall commence on the job start date, and will include all working days thereafter (rain days excluded) until the work as specified is in place - complete, clean-up is complete, and final inspection is complete.

B. All weekend and off-hours work must be pre-approved by the Owner. No work will be permitted without the Site Inspector. The Owner should be kept fully informed, however, when activity is planned outside of normal operating hours.

C. Work shall proceed, weather permitting, continuously without scheduled interruptions, and shall be completed in the number of working days, as filled-in by the Contractor on the Proposal Form.

1.15 ACCESS TO THE SITE

A. Prior to the start of work, secure approval from the Owner for the following:
   1. Areas permitted for personnel parking.
   2. Access to the site.
   3. Areas permitted for storage of materials and debris.
   4. Areas permitted for the location of cranes, hoists and chutes for loading and unloading materials to and from the roof.

B. Interior stairs or elevators may not be used for roof access, removing debris, or delivering materials, unless authorized by the Owner.

1.16 ROOF ACCESS AND FALL PROTECTION

A. The Contractor shall provide and maintain safe access to all work areas for the duration of the project.

B. The Contractor shall provide fall protection in accordance with federal, state, and local codes and other legal requirements.

1.17 SECURITY

A. The Contractor shall be responsible for the security of this project. Construct and maintain pedestrian walkways, barricades, screens, railings and fences as necessary and in strict accordance with applicable codes for protection of pedestrians and parking structure users.

B. Comply with any Owner requirements for personnel identification, inspection and other security measures.

1.18 SAFETY

A. The roofing contractor shall be responsible for all means and methods as they relate to safety and shall comply with all applicable local, state and federal requirements that are safety related. Safety shall be the responsibility of the roofing contractor. All related personnel shall be instructed daily to be mindful of the full time requirement to maintain a safe environment for the facility's occupants including staff, visitors, customers and the occurrence of the general public on or near the site.

B. Safety is of absolute importance. On all sites, the Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs associated with the work. Under no circumstances shall the Contractor's activities jeopardize the safety of the building occupants or the general public.

C. Contractor is solely responsible for safety practices and the safety of its personnel and subcontractors. Contractor shall provide the Owner with a Contractor Safety Data Representative who shall report OSHA safety data to the Owner as requested. The Owner will provide the Contractor's Safety Data Representative with instructions for providing the required data. Contractor agrees that providing safety information to the Owner does not relieve Contractor of its responsibility for compliance with all safety rules, regulations, and practices and the safety of its personnel and subcontractors.

D. No work shall commence at the site until contractor has submitted a written Safety Plan with Fall Protection and received approval.

E. Compliance regarding the OSHA regulations pertaining to Crane operations are to include using a certified crane operator and personnel certified in directing the crane operation. (Reference OSHA Crane Standard 1926.1400.)

F. All work must be accomplished in accordance with all applicable Construction Safety Standards rules and regulations for Construction Operations, as set forth by the Department of Labor in the state where the project is located.

G. The requirements indicated in this Section are to be considered as minimal. Where the

requirements of any of the listed authorities having jurisdiction conflict with the requirements of this section, the maximum condition shall prevail.

H. The Contractor shall furnish, install and maintain as long as necessary and remove when no longer required, adequate barriers, warning signs and lights or other necessary or prudent safety measures at all dangerous locations during work operations for the protection of Contractor personnel, building occupants, and the general public. Provide and erect all such safety precautions in accordance with federal, state, and local codes and other legal requirements.

I. Whenever lifting materials or equipment over or near existing or occupied buildings, provide advance notice of such activities and arrange to have any potentially endangered spaces vacated.

J. During work operations, provide temporary partitions, barriers, curtains, and guards as necessary to confine materials, dust and debris to the immediate work areas. Do not allow dust or debris to enter the building interior. Coordinate the location of temporary barriers or partitions with the Owner.

K. Remove all temporary protection when work is completed and restore disturbed areas to their original condition.

L. The Contractor shall hold the Owner harmless from damage or claims arising out of any injury or damage that may be sustained by any person or persons as a result of the work under the Contract.

1.19 FIRE PROTECTION

A. Contractor is responsible for having at least one approved fire extinguisher on the roof and one approved fire extinguisher next to the kettle (if applicable) and more if needed. Above and beyond the two just mentioned, a determination of just how many will be required, will be made at the pre-construction meeting.

B. Contractor is responsible (at contractor's cost) for ensuring all fire protection systems are disarmed before proceeding with work. (Includes Halon Fire-Suppression system, smoke detectors, etc.)

C. Contractor is responsible (at contractor's cost) for making sure fire protection systems are reset at end of every workday. (Includes Halon Fire-Suppression system, smoke detectors, etc.)

1.20 LIGHTNING PROTECTION

A. Contractor is responsible for reviewing current building lightning protection and building grounding methods with building owner and construction manager to determine the certification of the lightning protection system.

B. Contractor must keep the lightning protection and building grounding active during construction.

C. If directed, Contractor to include in bid, costs for certifying the lightning protection of the building before and after the re-roof construction.

1.21 VANDALISM

A. The cost for any damage by vandalism to material or equipment or that occurs to items finished or installed under this contract is to be borne by the Contractor. The Contractor is responsible for such vandalism from the start of construction until the Owner conditionally accepts the construction.

1.22 COORDINATION

A. Coordinate all work activities with the facility representative. Maintain communication with the representative, and provide progress updates on the status of work, and any changes in work plans on a daily basis.

B. Do not perform activities that may result in limiting the site to perform its task during work hours. If such tasks shall occur, coordinate with the facility representative and Owner's Representative prior to commencement.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

SECTION 013200

CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 – GENERAL

1.1 SCHEDULING WORK

A. Before any of the work is started, the Contractor must confer with the Owner and agree on a sequence of procedures: means of access to premises and building; delivery of materials and use of approaches; use of corridors, stairways, elevators, and similar means of communication; and the location of partitions, eating spaces for Contractor's employees, and the like.

1.2 CONSTRUCTION PROGRESS CHART

A. In accordance with the terms and conditions of the contract provisions and clauses, including those concerning *Construction Progress Chart*, prepare and submit a progress chart within five (5) days after receipt of the Notice to Proceed to show the principal categories of work corresponding with those used in the Schedule of Values:
   1. The order in which the Contractor proposes to carry on the work.
   2. The date on which it will start each category of work.
   3. The contemplated dates for completion.

B. The chart must be in suitable scale to indicate graphically the total percentage of work scheduled to be in place at any time. At intervals as directed by the Owner the Contractor must:
   1. Adjust the chart to reflect any changes in the contract work.
   2. Enter on the chart the total percentage of work actually in place.

1.3 UTILITIES

A. The Contractor must contact, coordinate, and make the necessary arrangements with the respective authorities for the connections to the utilities required under the contract.

1.4 DEMOLITION SCHEDULING

A. The Contractor must maintain entrance and exit access to existing employee parking as indicated on the drawings before beginning demolition.

1.5 CONTINUED USE OF FACILITY

A. The Owner will continue to operate the facility during performance of the work. Accordingly, the Contractor must arrange and schedule work operations to facilitate such continued use and operations. Contractor operations which cannot be performed during normal facility operating hours must be performed after hours or during periods when the facility is normally closed to patrons. The Contractor must coordinate such work with the Contracting Officer.

1.6 PRE-CONSTRUCTION MEETING

A. The Contracting Officer will schedule a pre-construction meeting before any work takes place. The Contractor's Project Manager, superintendent, and a representative of all major subcontractors shall attend this meeting. Additional persons may be required to attend the

preconstruction meeting if directed by the Contracting Officer. At this time, the Contractor shall make pre-construction submissions including following:

1. A typed list of the Contractors, Project Manager, Project Superintendent, and subcontractors (listed by trade) with a telephone number where they can be reached 24 hours/day, 7 days/week.
2. Draft Schedule of Values.
3. Draft Progress Schedule.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

NOT USED

END OF SECTION

SECTION 013300

SUBMITTAL PROCEDURES

PART 1 – GENERAL

1.1 SCHEDULE OF SUBMITTALS

A. Submit the Schedule of Submittals to the owners representative. The Schedule of Submittals is attached to this Section, as Attachment A.

B. In accordance with the terms and conditions of the contract provisions and clauses, including those concerning Shop Drawings, Coordination Drawings, Record "As Built" Drawings, and Schedules; within 15 days after receiving a Notice to Proceed, the Contractor must complete the Schedule of Submittals, in the format indicated, in duplicate, listing all items that must be furnished for review and approval by the Owner. In preparing the schedule, adequate time (10 business days or more) must be allowed for review, acceptance, and possible resubmittal. Also, the schedule must be coordinated with the approved construction progress chart. The Contractor must revise and/or update the schedule as directed. Such revised schedules must be made available to the Owner for monitoring.

C. Within 15 days after receiving a Notice to Proceed, the Contractor must complete and submit to the Owner a listing of all subcontractors, including subcontractor name, address, telephone number, fax number and email address. Include an updated list with each progress payment request.

1.2 PRODUCT DATA SHEETS, SHOP DRAWINGS AND OTHER SUBMITTED DATA

A. Submittal of product data sheets, shop drawings, samples and other required submittal data must conform to the requirements of the terms and conditions of the contract provisions and clauses, including those concerning, Record *"As Built" Drawings*, and *Samples*. Prior to submittal, the Contractor must stamp the submittal to indicate that it has been reviewed and approved. The Contractor must make any corrections required by the Owner. If the Contractor considers any correction indicated on the drawings to constitute a change to the contract drawings or specifications, notice, as required under the terms and conditions of the contract provisions and clauses, including those concerning Changes must be given to the Owner. If required, four prints of all approved shop drawings must be given to the Owner. The acceptance of submittals and required shop drawings by the Owner must not be construed as a complete check but indicates only that the general method of construction and detailing is satisfactory. Submittals are reviewed for general conformance with project requirements. The submittal review does not relieve the Contractor of the requirements of the project, as identified in the Project Manual and Drawings. **Acceptance of submittals does not relieve the Contractor of responsibility for conflicts between accepted submittals and the technical specifications and project drawings. The Contractor is responsible for ensuring product submittals meet the requirements of the project technical specifications and drawings.** The submission by the Contractor must be accompanied by a transmittal letter of a type approved by the Owner.
   1. Each shop drawing must have a blank area of 5 by 5 inches, located adjacent to the title block. The title block must display:
      a. Number and title of drawing;
      b. Date of drawing or revision;
      c. Name of project building or facility;
      d. Name of Contractor and (if appropriate) of subcontractor submitting drawing;

e. Clear identity of contents and location on the work; and
f. Project title and contract number.

2. All drawings to be provided shall be clear and fully representative of the facility and fixed mechanization work.
3. Drawing files to be in .dwg and .pdf formats. .dwg files to be generated from Autocad revision 12 or other revision level concurred by Owner.
4. Documents other than drawings shall be provided in Microsoft Word format.
5. Interim project documentation may be provide to Owner electronically
6. All final project documentation shall be provided to the Owner on a single CD or DVD media

1.3 SCHEDULE OF VALUES

A. In accordance with the terms and conditions of the contract provisions and clauses concerning, *Construction Cost Breakdown*, the Contractor must submit a construction cost breakdown using the attached Schedule of Values. When applicable, a separate cost breakdown form must be submitted for each separate building. However, the total cost of site work for the facility must be included in the cost estimate breakdown for the Owner. The number of items provided on the Systems Construction Cost Estimate Breakdown form are the minimum required. Additional subdivision of these items may be used by the Contractor.

B. Submit the construction cost breakdown after contract award to the Owner. A Sample Schedule of Values is attached to this Section, as Attachment C.

C. Do not delete items from the Schedule of Values form. However, expand the schedule "Description of Work" as necessary to allow evaluation of work or to make partial payments.

D. If the contract price changes, the Schedule of Values must be revised to reflect the change(s) and forwarded to the Owner.

E. A current Schedule of Values must accompany all Contractor Requests for Payment.

1.4 ATTACHMENTS

A. Attachment A – Schedule of Submittals and Checklist

B. Attachment B – Manufactures Letter

C. Attachment C – Schedule of Values

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

NOT USED

END OF SECTION

SECTION 013300

SUBMITTAL PROCEDURES – ATTACHMENT A – SCHEDULE OF SUBMITTALS AND CHECKLIST

NOTE: Submittals are to be provided electronically, in PDF format. Attach this completed checklist to the front of the submittal package. Do not send packages that are incomplete; provide all required submittals.

Acceptance of submittals does not relieve the Contractor of responsibility for conflicts between accepted submittals and the technical specifications and project drawings. The Contractor is responsible for ensuring product submittals meet the requirements of the project technical specifications and drawings.

Insulation Submittals – Refer to Section 072223. Submit Product Data Sheets for products listed below.			
Check box below to indicate included submittal	Submittal Description	Additional Notes and Requirements	Accepted (A), Missing (M) or Rejected (R) See Comments
	Polyisocyanurate roof insulation	On the submitted product data sheet, indicate thickness and board size of submitted insulation applicable to the project. For tapered insulation systems, indicate slope of tapered system submitted for acceptance	
	High density polyiso cover board	On the submitted product data sheet, indicate thickness and board size of submitted cover board for acceptance	
	Insulation fastener and plate system; for mechanical attachment of insulation and cover board over existing wood structural deck in conjunction with cold-applied, hot-applied and single-ply roof systems	None	
	Low-rise urethane foam adhesive; for adhesion of insulation and cover board over underlayment in conjunction with cold-applied, hot-applied and single-ply roof systems	None	

SBS Modified Bitumen Roofing in Cold Adhesive – Refer to Section 075216. Submit Product Data Sheets for products listed below.			
Check box below to indicate included submittal	Submittal Description	Additional Notes and Requirements	Accepted (A), Missing (M) or Rejected (R) See Comments
	Modified bitumen roofing membrane base ply	None	
	Modified bitumen roofing membrane surfacing ply	None	
	Modified bitumen base flashing inner ply sheet	None	
	Modified bitumen base flashing outer ply sheet	None	
	Cold adhesive; for adhesion of roofing membrane plies	None	
	Roofing and flashing cement	None	
	Modified bitumen flashing cement	None	
	Liquid-applied flashing system	None	
	Asphalt primer	None	
	Walkpads	None	
	Sealant	None	
	Pourable sealer; for use at pitch pans	None	
	Roof Accessories; prefabricated pipe and conduit supports, duct supports, support curb, unit support, roof hatch, extendable ladder mounted safety post, interior ladder, exterior ladder	None	
	Prefinished galvanized steel sheet metal; for use at perimeter fascias, coping caps, fascia extensions, gutters, downspouts, counterflashings, and other locations indicated in the technical specifications and project drawings	On the submitted product data sheet, indicate sheet metal thickness to be used	

Sealants – Refer to Section 079201. Submit Product Data Sheets for products listed below.			
Check box below to indicate included submittal	Submittal Description	Additional Notes and Requirements	Accepted (A), Missing (M) or Rejected (R) See Comments
	Sealant for use at sheet metal	None	
	High temperature sealant	None	

Other Required Submittals – Submit the contractor or manufacturer generated submittals listed below.			
Check box below to indicate included submittal	Submittal Description	Additional Notes and Requirements	Accepted (A), Missing (M) or Rejected (R) See Comments
	Manufacturer Letter (Steep slope roofing requires approved applicator letter with confirmation of a minimum five years of experience installing the specified roof system only)	Provide a manufacturer-generated letter with the following items: Confirmation that the installing contractor is an approved applicator of the specified roof system and has a minimum of 5 years of experience installing the specified roof system, meeting the specified guarantee/warranty requirements; documentation of the specified fire/wind uplift requirements, and signed by an authorized representative of the roofing system manufacturer. The letter shall indicate that the specified system meets the specified warranty requirements. NOTE: Refer to Attachment B – "Sample Manufacturer's Letter" as an example of letter requirements.	
	Manufacturer Pre-Installation Notification	None	
	Recommended insulation fastener/adhesive layout plan	The submitted layout plans shall be in pictorial form, and generated by the roofing membrane or insulation manufacturer	
	Manufacturer-generated sample warranty	None	
	Contractor Watertight Integrity Acknowledgement Letter	Provide the specified acknowledgement letter indicating the roof system will be left in a watertight condition at the end of each work day, with a fully-sealed tie-in between existing and new roof systems. Refer to the acknowledgement letter included with the roof replacement	Provide at the Pre-Construction Meeting

		Section of the Project Manual.	
	Proposed Construction Progress Chart	The submitted chart shall include production schedule, roofing crew size, and sheet metal crew size	Provide Proposed Construction Progress Chart prior to start of mobilization
	Contractor Quality Control Plan	Refer to Section 014000	Submit prior to start of mobilization
	Site Specific Project Safety Plan	At a minimum, the submitted safety plan shall include the following information: Contractor emergency contact personnel and information, fire and police emergency response plan, and hospital/ambulance emergency response plan	Submit prior to start of mobilization
	Fall Protection Plan	The submitted plan shall outline compliance with OSHA requirements and procedures related to fall protection	Submit prior to start of mobilization
	Safety Data Sheets (SDSs)	SDSs are required to be present on-site during construction.	Submission of SDSs not required; maintain on site during construction work

Submittals Required After Construction Completion – <u>Do not submit items listed below at this time.</u>			
Check box below to indicate included submittal	Submittal Description	Additional Notes and Requirements	Accepted (A), Missing (M) or Rejected (R) See Comments
	Final Punch list Completion Letter	Submit a letter indicating all items on the list have been completed to the satisfaction of the Owner	
	As-Built Drawings	Submit contractor-generated as-built drawings, indicating modifications made to the project drawings during construction	
	Contractor Two-Year Guarantee	Submit the guarantee on contractor letterhead. The contractor guarantee shall be signed by an authorized contractor representative. Refer to applicable roof replacement Section(s)	
	Manufacturer Warranty, If Applicable	Refer to applicable roof replacement Section(s)	
	Final Summary of Solid Waste Disposal and Diversion	Refer to Section 017419	
	Signed and sealed Contractor Release of Claims Form	None	
	Asbestos Free and Lead-Based Paint Free Certification	Refer to Section 013543	

SECTION 013300

SUBMITTAL PROCEDURES – ATTACHMENT B – EXAMPLE MANUFACTURER'S LETTER

NOTE: The submitted letter shall be on Roofing Manufacturer letterhead, and signed by an authorized representative of the Roofing Manufacturer.

October 1, 2013
Cooper Roofing & Sheet Metal
112 S. Main Street
Marysville, MI 48004

Re: Royal Oak, MI – Main Post Office

To Whom It May Concern:

This letter serves to advise that Cooper Roofing & Sheet Metal is a certified contractor; approved to install the roofing assemblies listed below, and is a No Dollar Limit Contractor.

The roofing assemblies listed below have been approved and are eligible to receive a 20-Year No Dollar Limit Guarantee upon completion of a final inspection by one of our technical representatives.

The roofing assemblies listed also meet a UL Class A rated assembly.

Roofing Assemblies

Roof Area A Assembly:

Flashings:	PVC – Fully Adhered with hot-air welded seams
Surfacing Sheet:	PVC – Fully Adhered with hot-air welded seams
Cover Board:	1/2-inch Gypsum Board – See attachment method below
Intermediate Insulation:	2-inch Polyisocyanurate Insulation – See attachment method below
Bottom Insulation:	2-inch Polyisocyanurate Insulation – See attachment method below
Deck:	22 ga Steel
Slope:	1/2-inch per foot, maximum

Roofing Manufacturer agrees with the fastening pattern specified below and in Section 072223.

Insulation Attachments For Steel Decks	Field	Perimeter	Corners
Cover Board	Adhered in two-part urethane foam adhesive 3/4-inch beads 12-inches o.c.	Adhered in two-part urethane foam adhesive 3/4-inch beads 6-inches o.c.	Mechanically-attached, 32 fasteners per 4-foot by 8-foot board
Intermediate Layer	Adhered in two-part urethane foam adhesive 3/4-inch beads 12-inches o.c.	Mechanically-attached, 24 fasteners per 4-foot by 8-foot board	Tacked in Place
Bottom Layer	Mechanically-attached, 8 fasteners per 4-foot by 8-foot board	Tacked in Place	Tacked in Place

Roof Area B Assembly:

EXAMPLE

Flashings: ASTM D6164, Type II; Grades S and G – Set in Utility Cement
Surfacing Sheet: ASTM D6164, Type II; Grade G – Set in cold adhesive with hot-air welded seams
Base Sheet: ASTM D6164, Type II; Grade S – Set in cold adhesive with hot-air welded seams
Cover Board: 1/2-inch Gypsum Board – See attachment method below
Intermediate Insulation: 2-inch Polyisocyanurate Insulation – See attachment method below
Bottom Insulation: 2-inch Polyisocyanurate Insulation – See attachment method below
Underlayment: Asphalt Coated Sheet – See attachment method below
Deck: Gypsum Panel
Slope: 1/2-inch per foot, maximum

Roofing Manufacturer agrees with the fastening pattern specified below and in Sections 072215 and 072221.

Insulation Attachments For Gypsum Decks	Field	Perimeter	Corners
Cover Board	Adhered in two-part urethane foam adhesive 3/4-inch beads 12-inches o.c.	Adhered in two-part urethane foam adhesive 3/4-inch beads 6-inches o.c.	Adhered in two-part urethane foam adhesive 3/4-inch beads 4-inches o.c.
Intermediate Layer	Adhered in two-part urethane foam adhesive 3/4-inch beads 12-inches o.c.	Adhered in two-part urethane foam adhesive 3/4-inch beads 6-inches o.c.	Adhered in two-part urethane foam adhesive 3/4-inch beads 4-inches o.c.
Bottom Layer	Adhered in two-part urethane foam adhesive 3/4-inch beads 12-inches o.c.	Adhered in two-part urethane foam adhesive 3/4-inch beads 6-inches o.c.	Adhered in two-part urethane foam adhesive 3/4-inch beads 4-inches o.c.
Underlayment	Laps 9-inches o.c., and 18-inches o.c. in two equally spaced staggered rows	Laps 6-inches o.c., and 9-inches o.c. in two equally spaced staggered rows	Laps 7-inches o.c., and 7-inches o.c. in three equally spaced staggered rows

Roof Area C Assembly:
Flashings: ASTM D6164, Type II; Grades S and G – Set in Utility Cement
Surfacing Sheet: ASTM D6164, Type II; Grade G – Set in cold adhesive with hot-air welded seams
Base Sheet: ASTM D6164, Type II; Grade S – Set in cold adhesive with hot-air welded seams
Cover Board: 1/2-inch Gypsum Board – See attachment method below
Intermediate Insulation: 2-inch Polyisocyanurate Insulation – See attachment method below
Bottom Insulation: 2-inch Polyisocyanurate Insulation – See attachment method below
Underlayment: Self-Adhering Modified Bitumen Base Sheet
Deck: Concrete
Slope: 1/2-inch per foot, maximum

EXAMPLE

Roofing Manufacturer agrees with the fastening pattern specified below and in Section 072221.

Insulation Attachments For Concrete Decks	Field	Perimeter	Corners
Cover Board	Adhered in two-part urethane foam adhesive 3/4-inch beads 12-inches o.c.	Adhered in two-part urethane foam adhesive 3/4-inch beads 6-inches o.c.	Adhered in two-part urethane foam adhesive 3/4-inch beads 4-inches o.c.
Intermediate Layer	Adhered in two-part urethane foam adhesive 3/4-inch beads 12-inches o.c.	Adhered in two-part urethane foam adhesive 3/4-inch beads 6-inches o.c.	Adhered in two-part urethane foam adhesive 3/4-inch beads 4-inches o.c.
Bottom Layer	Adhered in two-part urethane foam adhesive 3/4-inch beads 12-inches o.c.	Adhered in two-part urethane foam adhesive 3/4-inch beads 6-inches o.c.	Adhered in two-part urethane foam adhesive 3/4-inch beads 4-inches o.c.

Perimeter and Corner Enhancement:

Roofing Manufacturer determines corner and perimeter dimensions for fastener enhancement of a roof less than or equal to 60 feet in height as the smaller:

- 0.1 times the building lesser plan dimension
- 0.4 times the eave height
- Subject to a minimum width of 4% the lesser plan dimension or 3-feet

Sincerely,

John Doe, RRO, RRC, NRCA, CSI, AIA
Roofing Specialist

EXAMPLE

Schedule of Values

Offering Firm Fills **YELLOW** Cells

Solicitation Number		Solicitation Issue Date	
		Solicitation Due Date	
Client	**Berkley Schools**	Offering Firm	**[firm name]**
Facility Name	**Administration Building**	Contact Name	**[contact name]**
Project Description	**Roof Replacement Area A**	Contact Telephone	**[contact telephone]**
		Contact Email Address	**[contact email address]**

Item	Description of Work	Material	Labor	Total
Division 01	**General Requirements**			
1.1	**Mobilization and Demobilization**			**$ -**
1.2	**Taxes, Misc. Fees**			**$ -**
1.3	**Bonds**			**$ -**
1.4	**Two-Year Contractor Guarantee**			**$ -**
1.5	**Other**			**$ -**
Division 02	**Existing Conditions**			
2.1	**Existing Roof Removal and Disposal**			**$ -**
2.2	**Substrate Preparation Work**			**$ -**
2.3	**Other**			**$ -**
Division 05	**Metals**			
5.1	**Other**			**$ -**
Division 06	**Wood, Plastics and Composites**			
6.1	**Wood Blocking, Nailers and Plywood**			**$ -**
6.2	**Other**			**$ -**
Division 07	**Thermal and Moisture Protection**			
7.1	**Roof Insulation and Cover Board**			**$ -**
7.2	**Roofing Membrane and Flashing**			**$ -**
7.3	**Sheet Metal Flashing**			**$ -**
7.4	**Sealants**			
7.5	**20-Year NDL Warranty**			
7.6	**5-Year Contractor Guarntee**			**$ -**
7.7	**Other**			**$ -**
Total:		**$ -**	**$ -**	**$ -**

Please Use the Separately Attached Excel Formatted Schedule of Values

SECTION 013543

ENVIRONMENTAL PROCEDURES

PART 1 – GENERAL

1.1 SCOPE

A. This section is required in accordance with the terms and conditions of the contract provisions and clauses, including those concerning Safety & Health Standards, Accident Prevention, Protection of the Environment, Existing Vegetation, Structures, Utilities and Improvements, and Handling Asbestos and other Hazardous Materials. The work covered by this section consists of furnishing all labor, material, and equipment and performing all work required for compliance with environmental regulations and preventing pollution during, and as a result of, construction operations under this contract, in addition to those measures set forth in other technical provisions of these specifications.

B. The Contractor and subcontractors must comply with all applicable federal, state and local laws and regulations related to the environment, health and safety.

1.2 NOTIFICATION

A. The Contractor must, after receiving a notice of noncompliance with the foregoing provisions, immediately take corrective action. The notice, when delivered to its Contractor or its authorized representative at the site of the work, is deemed sufficient for this purpose. If the Contractor fails or refuses to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost because of any such stop orders may be made the subject of a claim for extension of time or for excess costs or damages by the Contractor unless it is subsequently determined that the Contractor was in compliance and the Contractor demonstrates that it is otherwise entitled to an extension of time, excess costs or damages, under the applicable terms and conditions of the contract provisions and clauses.

1.3 ENVIRONMENTAL REGULATORY COMPLIANCE

A. Within 30 days after receiving the notice to proceed or not less than 15 days prior to commencing on-site work, the Contractor must submit any environmental documents that are required by federal, state or local environmental regulations. Plans must be approved by the COR prior to commencing on-site work and must describe and include, but is not limited to, the following

1. Erosion Control and Stormwater Management Plan that describes erosion control methods, surface drainage, storm water permitting requirements, and if applicable, protection of site wetlands and/or compliance with wetland permits. This must ensure any federal, state or local permitting requirements for site preparation, erosion control or surface drainage are met.

2. Landscape Management and Protection Plan that ensures any site-specific beneficial landscaping requirements are met. The plan shall describe the prevention and restoration of landscape damage, temporary roads and embankments, and post construction cleanup as prescribed in the terms and conditions of the contract provisions and clauses, including those concerning *Protection of the Environment, Existing Vegetation, Structures, Utilities and Improvements.*

3. Waste Minimization and Management Plan must describe how natural resources potentially impacted by construction will be protected or managed; construction wastes

will be stored and disposed of or recycled; and pollutants associated with building materials will be controlled. The waste minimization and management section of the plan must also list materials and construction debris to be recycled, and address the disposal of solid and hazardous wastes and materials, including asbestos and lead-based paint. It must also include tables applicable to the reclamation of chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs) in accordance with 1.4 (B) below.

1.4 ENVIRONMENTAL SITE CONTROLS

A. Location of Hazardous Materials: The location of the Contractor's temporary storage of any hazardous materials and/or wastes must be appropriately marked and included in the health and Safety Plan (see Section 1.5 below).

B. Refrigerant Recovery, Recycling, and Disposal: Any work involving the replacement or repair of equipment containing refrigerant shall meet the following requirements:
1. Recover and recycle or dispose of refrigerant from equipment according to 40 CFR 82 and local regulations.
2. The work shall be completed by a certified refrigerant recovery technician, per 40 CFR 82 and local regulations.
3. Provide a statement signed by the certified refrigerant recovery technician that the work was completed per 40 CFR 82 and local regulations. Include the name and address of technician and date refrigerant was recovered.

C. Post-construction Cleanup or Obliteration: The Contractor must remove and properly dispose of all signs of temporary construction facilities such as haul roads, work area, structures, foundations of temporary structures, excess or waste materials, or any other vestiges of construction as directed by the Owner. No separate or direct payment may be made for post-construction cleanup and all associated costs must be considered included in the contract price.

D. Historical and Archeological: Monuments, markers, and works of art must be protected. Items discovered that have potential historical or archeological interest must be preserved. The Contractor must leave the archeological find undisturbed and must immediately report the find to the Owner so that the proper authority may be notified.

E. Dust Control: The Contractor must keep the site free from dust in accordance with applicable federal, state and/or local regulations.

F. Noise Minimization: The Contractor must perform demolition and construction operations to minimize noise including conducting work during less sensitive hours of the day in accordance with applicable noise control regulations.

1.5 HEALTH AND SAFETY

A. Prior to commencing on-site work, the Contractor must submit an Occupational Safety and Health Administration (OSHA) Emergency Action Plan (EAP) to the Contracting Officer to demonstrate compliance by the Contractor and subcontractors with applicable OSHA regulations. If the Contractor is not required by OSHA to develop a written EAP, i.e. if 10 or fewer are employed for the construction project or any other specific regulations identified by OSHA, then the Contractor shall submit to the Contracting Officer a signed letter stating the Contractor shall meet OSHA's EAP requirements in a verbal communication to all employees.

B. The Owner has provided a *Safety and Health Guide for Contractors*, as Attachment A to this section. Prior to commencing on-site work, Contractor must read the *Safety and Health Guide for*

Contractors and must sign the attached Certificate of Understanding acknowledging and accepting the requirements stated therein.

C. Prior to commencing on-site work, the Contractor must submit a project-specific Project Safety Plan to the Contracting Officer. The plan must include, but is not limited to, hazard communication, labeling, emergency response and preparedness and training.

D. Copies of Material Safety Data Sheets (MSDSs) for any hazardous material(s), as defined by OSHA's Hazard Communications Standard, must be included whenever such materials arrive on-site. MSDSs must be kept together and maintained centrally on-site through to project completion. Provide a copy of each MSDS in the Operating and Maintenance Manual. The use of asbestos containing materials, in excess of one percent as defined by US Environmental Protection Agency regulations, is prohibited in the construction of this project. Provide an executed copy of the “Certificate of Asbestos and Lead-Based Paint (New Work)” in the Operating and Maintenance Manual and include a copy with the final payment request.

E. The use of lead-based paint is prohibited in the construction of this project.

F. The use of lead-containing solder for plumbing and plumbing fixtures is prohibited in the construction of this project.

G. In accordance with the terms and conditions of the contract provisions and clauses, including those concerning *Asbestos Free and Lead-Based Paint Free Certification*, the Contractor must sign and submit to the Contracting Officer the attached “Certification of Asbestos and Lead-Based Paint” for this project. The signed certificate is required to be included in the final payment request.

H. Do not use any of the Owners targeted chemicals (see regulated and prohibited materials identified under Safety and Health and related environmental requirements).

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

SECTION 014000

QUALITY REQUIREMENTS

PART 1 – GENERAL

1.1 CONTRACTOR QUALITY CONTROL

A. Contractor Quality Control: The Contractor is responsible for the overall quality of all its own work and the work performed by their subcontractors working under this contract. The quality of any part of the work installed must not be less than that required by the technical divisions of this specification. If the Owner determines that the quality of work does not conform to the applicable specifications and drawings, the Contractor will be advised in writing of the areas of nonconformance, and within 7 days the Contractor must correct the deficiencies and advise the Owner in writing of the corrective action taken.

B. Noncompliance with Quality Control Requirements: Failure of the Contractor to comply with the above requirements may be cause for termination for default as defined in the terms and conditions of the contract provisions and clauses, including those concerning, Termination for Convenience or Default, of the general contract clauses.

1.2 SUBMITTALS

A. Prior to the start of on-site work, the Contractor must submit to the Contracting Officer a Contractor Quality Control Plan that includes the following information:
   1. Quality Control Organization: In chart form, showing relationship of Quality Control organization to other elements of Contractor's organization.
   2. Names and qualifications of personnel in Quality Control organization, including Contractor Quality Control Representative, inspectors, Independent Testing and Inspection Laboratory, and Independent HVAC Test and Balance Agency.
   3. Procedures for reviewing coordination drawings, shop drawings, certificates, certifications, or other submittals.
   4. Testing and inspection schedule, keyed to Construction Schedule, indicating tests and inspections to be performed, names of persons responsible for inspection and testing for each segment of work including preparatory, initial, and follow-up.
   5. Proposed forms to be used including Contractor's Daily Report, Contractor Test and Inspection Report and Non-Compliance Check-Off List.

B. Independent Testing and Inspection Laboratory: Submit the following.
   1. Name.
   2. Address.
   3. Telephone number.
   4. Names of full time registered engineer.
   5. Responsible officer.
   6. Copy of report of laboratory facilities inspection made by Materials Reference Laboratory of National Bureau of Standards during most recent inspection, with memorandum of remedies of any deficiencies reported by inspection.

1.3 QUALITY CONTROL PROCEDURES

A. Monitor quality control over Contractor staff, subcontractors, suppliers, manufacturers, products, services, site conditions, and workmanship.

B. Comply fully with manufacturer's published instructions, including each step in sequence of installation.

C. Should manufacturer's published instructions conflict with Contract Documents, request clarification from Owner before proceeding.

D. Comply with specified standards as a minimum quality for work, except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Perform work by persons who are thoroughly qualified and trained in their respective trade, to produce workmanship of specified quality.

F. Perform tests required by governing authorities having jurisdiction and utilities having jurisdiction.

1.4 TESTING AND INSPECTION LABORATORY SERVICES

A. Selection and Payment:
1. The Contractor shall pay for services of an Independent Testing and Inspection Laboratory to perform specified testing and inspection.
2. Employment of Independent Testing and Inspection Laboratory in no way relieves Contractor of obligation to perform work in accordance with requirements of Contract Documents.

B. Quality Assurance:
1. Comply with requirements of all applicable ASTM standards.
2. Laboratory: Authorized to operate in State in which Project is located.
3. Laboratory Staff: Maintain a full time registered engineer on staff to review services.
4. Testing Equipment: Calibrated at reasonable intervals with devices of and accuracy traceable to either National Bureau of Standards or accepted values of natural physical constraints.

C. Laboratory Responsibilities. Contractor shall ensure the Laboratory has the following responsibilities and limits on authority:
1. Test samples of mixes submitted by Contractor.
2. Provide qualified personnel at Project site. Cooperate with Owner and Contractor in performance of services.
3. Perform specified sampling, testing, and inspection of Products in accordance with specified standards.
4. Determine compliance of materials and mixes with requirements of Contract Documents.
5. Promptly notify Contractor Quality Control Representative and Owner of observed irregularities or non-conformance of work or Products.
6. Submit one copy of all test results directly to the Owner.
7. Perform additional tests as required by Owner.
8. Attend appropriate preconstruction meetings and progress meetings.

D. Limits on Authority. Contractor shall ensure the Laboratory has the following limits on authority:
1. Laboratory may not release, revoke, alter, or expand on requirements of Contract Documents.
2. Laboratory may not approve or accept any portion of work.
3. Laboratory may not assume any duties of Contractors.
4. Laboratory has no authority to stop work.

1.5 CONTRACTOR FIELD INSPECTION AND TESTING

A. Contractor: Test and Inspect work provided under this Contract to ensure work is in compliance with Contract requirements. Required tests and inspections are indicated in each individual Specification Section.

B. Preparatory Inspection: Performed prior to beginning work and prior to beginning each segment of work and includes:
   1. Review of Contract requirements.
   2. Review of shop drawings and other submittal data after return and approval.
   3. Examination to assure materials and equipment conform to Contract requirements.
   4. Examination to assure required preliminary or preparatory work is complete.

C. Initial Inspection: Performed when representative portion of each segment of work is completed and includes:
   1. Performance of required tests.
   2. Quality of workmanship.
   3. Review for omissions or dimensional errors.
   4. Examination of products used, connections and supports.
   5. Approval or rejection of inspected segment of work.

D. Follow-Up Inspections: Performed daily, and more frequently as necessary, to assure non-complying work has been corrected.

E. Testing and Inspection: Perform testing and inspection in accordance with requirements in individual Specification Sections.

1.6 CONTRACTOR'S DAILY REPORT

A. In accordance with the terms and conditions of the contract provisions and clauses, including those concerning *Performance and Superintendence of Work by Contractor*, the Contractor shall submit daily report to Owner, for days that work was performed. Include the following information:
   1. Date, weather, minimum and maximum temperatures, rainfall, and other pertinent weather occurrences.
   2. Daily workforce of Contractor and subcontractors, by trades.
   3. Description of work started, ongoing work, and work completed by each subcontractor.
   4. Coordination implemented between various trades.
   5. Approval of substrates received from various trades.
   6. Nonconforming and unsatisfactory items to be corrected.
   7. Remarks, to include at a minimum, any potential delays, schedule changes, workplace incidents or other items of note. However, nothing reported herein shall relieve the Contractor of the separate responsibility under other terms and conditions of the Contract provisions and clauses to provide specific notice to the Contracting Officer.
   8. Daily progress photos; minimum of 10 photos

1.7 CONTRACTOR'S TEST AND INSPECTION REPORTS

A. Prepare and submit, to Owner, a written report of each test or inspection signed by Contractor Quality Control Representative performing inspection within 2 days following day inspection was made.

B. Include the following on written reports of inspection:
   1. Cover sheet prominently identifying that inspection "CONFORMS" or "DOES NOT CONFORM" to Contract Documents.
   2. Date of inspection and date of report.
   3. Project name, location, solicitation number, and Contractor.
   4. Names and titles of individuals making inspection, if not Contractor's Project Field Superintendent.
   5. Description of Contract requirements for inspection by referencing Specification Section.
   6. Description of inspection made, interpretation of inspection results, and notification of significant conditions at time of inspection.
   7. Requirements for follow-up inspections.

1.8 NON-COMPLIANCE CHECK-OFF LIST

A. Maintain check-off list of work that does not comply with Contract Documents, stating specifically what is non-complying, date faulty work was originally discovered, and date work was corrected. No requirement to report deficiencies corrected same day it was discovered. Submit copy of Non-Compliance Check-Off List of non-complying work items to Owner on a weekly basis.

1.9 COMPLETION AND INSPECTION OF WORK

A. Prior to final acceptance by Contracting Officer, submit a certification signed by Contractor to Contracting Officer stating that all work has been inspected and all work, except as specifically noted, is complete and in compliance with Contract Documents.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

NOT USED

END OF SECTION

SECTION 015000

TEMPORARY FACILITIES AND CONTROLS

PART 1 – GENERAL

1.1 GENERAL

A. The Contractor must provide all temporary facilities and services required to complete the work and to comply with OSHA and other applicable regulations.

B. The Contractor must maintain temporary facilities in a proper, safe, operating and sanitary condition for the duration of this Contract. Upon completion of this Contract, all such temporary work and facilities shall be removed in their entirety and the premises will be restored to its prior condition.

1.2 TEMPORARY ELECTRICITY

A. NOTE: In some instances, it may be possible for the facility to provide temporary electricity to the contractor during the project. In other instances, the contractor will be responsible for providing temporary electricity to complete the work. Per discussions with the Owner Project Manager and facility, determine responsibilities related to temporary electricity for the project specified. Please note that in no circumstance will the Owner guarantee the availability of temporary electricity, or provide additional compensation for the inability to provide temporary electricity to a contractor. Also note that temporary electricity is a privilege that may be revoked by the Owner at any time for reasonable cause.

B. Safety: The Contractor must provide and maintain lights and signs to prevent damage or injury and must illuminate all hazardous areas. Safety lights must be kept burning from dusk to dawn.

C. Equipment: In compliance with NEMA standards, the Contractor must provide an appropriate enclosure for the environment in which the equipment is used.

D. Removal: The Contractor must remove all temporary equipment and materials upon completion of construction, repair all damage caused by the installation, and restore the area to satisfactory condition.

1.3 TEMPORARY HEATING, COOLING AND VENTILATION

A. NOTE: In some instances, it may be possible for the facility to provide temporary heating, cooling and ventilation to the contractor during the project. In other instances, the contractor will be responsible for providing temporary heating, cooling and ventilation to complete the work. Per discussions with the Owner Project Manager and facility, determine responsibilities related to temporary heating and ventilation for the project specified. Please note that in no circumstance will the Owner guarantee the availability of temporary heating, cooling and ventilation, or provide additional compensation for the inability to provide temporary heating, cooling and ventilation to a contractor. Also note that temporary heating, cooling and ventilation is a privilege that may be revoked by the Owner at any time for reasonable cause.

B. The Contractor must provide temporary heating, ventilation and/or cooling consisting of smokeless heating, cooling and ventilation appliances satisfactory to the Contracting Officer. The Contractor must furnish and pay for all necessary fuel, electricity, other utility costs and

attendants in any trade and must maintain temporary heating, cooling and/or ventilation at temperatures adequate for the intended purpose. If moisture/humidity is a factor or concern during construction, the temporary heating, cooling and/or ventilation provided must not introduce additional moisture or increase humidity.

1.4 TEMPORARY WATER

A. NOTE: In some instances, it may be possible for the facility to provide temporary water to the contractor during the project. In other instances, the contractor will be responsible for providing temporary water to complete the work. Per discussions with the Owner Project Manager and facility, determine responsibilities related to temporary water for the project specified. Please note that in no circumstance will the Owner guarantee the availability of temporary water, or provide additional compensation for the inability to provide temporary water to a contractor. Also note that temporary water is a privilege that may be revoked by the Owner at any time for reasonable cause.

B. The Contractor must provide and maintain a temporary water supply system for building purposes, extending branches to convenient points and terminating them with a proper stop and hose connection.

1.5 SANITARY PROVISIONS

A. The Contractor must provide and keep in neat and sanitary condition conveniences and accommodations for the use of the construction personnel necessary to comply with the requirements and regulations of the local department of health and of other bodies having jurisdiction. The Contractor must provide at the site temporary toilet and handwashing facilities. Portable chemical toilets of an approved type will be considered acceptable.

B. Location of the toilet facilities and their maintenance are subject to inspection and approval of the Contracting Officer.

1.6 APPROACHES AND EXITS

A. The Contractor must provide all necessary approaches and exits required to properly execute the work.

1.7 FIELD OFFICE

A. The Contractor will maintain on site a complete set of drawings and specifications any time work is being done. The Contracting Officer and his representatives must have free access to the complete set of drawings and specifications at all times.

B. Contractor and site superintendent must be equipped with cell phone or pager.

1.8 FIRE PROTECTION

A. The Contractor at all times must maintain good housekeeping practices to reduce the risk of fire damage. All scrap materials, rubbish and trash must be removed daily from in and about the building and the Contractor must not permit them to be scattered on adjacent areas.

B. Suitable storage space must be provided outside the immediate building area for storing flammable materials and paints; no storage will be permitted in the building.

C. A fire extinguisher must be available at each location where cutting or welding is being performed. Where electric or gas welding or cutting is done, interposed shields of incombustible material must be used to protect against fire damage due to sparks and hot metal. A Hot Work Permit must be granted from the Facility Head before cutting or welding is done.

D. The Contractor must provide fire extinguishers in accordance with the recommendations of NFPA Bulletins Nos. 10 and 241. However, in all cases a minimum of one fire extinguisher must be available on the job site.

1.9 LIMITED TEMPORARY INTERIOR PROTECTION

A. As indicated at the Pre-Proposal and Pre-Construction Meetings, determined by the Owner, and as determined necessary during construction to prevent damage to building contents, provide limited temporary interior protection. Limited temporary Interior protection shall be secured above equipment. Interior protection may not be draped over or on equipment.

B. Anti-Static 6-mil poly is required for use as limited temporary interior protection.

C. **NOTE:** Limited temporary interior protection is intended for use at locations where small pieces of equipment, office equipment, or other valuable assets require protection from roof replacement activities. Facility-wide temporary interior protection may be required in addition to the limited temporary interior protection indicated in this Section. Refer to the Summary of Work for additional interior protection requirements, if applicable.

1.10 PROJECT PHOTOS

A. Project photos are required on construction contracts that exceed $10,000.00. The number of photographs, and their content, shall be appropriate to the Contract Scope of Work, with their intended purpose being to illustrate, generally, the work in place for which this payment application applies.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

NOT USED

END OF SECTION

SECTION 016000

PRODUCT REQUIREMENTS

PART 1 – GENERAL

1.1 PRODUCT OPTIONS AND SUBSTITUTIONS

A. Refer to the terms and conditions of the contract provisions and clauses, including those concerning Optional Materials or Methods (Construction), Materials and Workmanship, Information On “Equal” Products and Brand Name or Equal.

B. Provide Products that comply with Contract Documents, which are undamaged and new at time of installation.

C. Provide Products complete with accessories, trim, finish, safety guards, and other devices and details needed for complete installation and intended use and effect.

D. Substitutions may be considered when the Contractor:
1. Becomes aware of a product or procedure that is more environmentally sensitive or is otherwise advantageous to the Owner;
2. Represents that he has personally investigated the proposed substitute product and determined that it is equal or superior in all respects to that specified;
3. Will provide the same guarantee for the substitution that he would for that specified; and
4. Will coordinate the installation of the accepted substitute, making such changes as may be required for the Work to be complete in all respects, at no additional cost to the Owner and at no extension of the Contract completion date.

1.2 PRODUCT DELIVERY REQUIREMENTS

A. Transport and handle Products in accordance with manufacturer's instructions, using means and methods that will prevent damage, deterioration and loss, including theft.

B. Schedule Product delivery to minimize long-term storage at Project site and prevent overcrowding of construction spaces.

C. Coordinate Product delivery with installation schedule to assure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.

D. Deliver Products to Project site in undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.

E. Promptly inspect shipments to ensure that Products comply with project requirements, quantities are correct, Products are undamaged, and properly protected.

F. Provide equipment and personnel to handle Products by methods to prevent soiling, disfigurement, or damage.

1.3 PRODUCT STORAGE AND HANDLING REQUIREMENTS

A. Store and protect Products in accordance with manufacturers' published instructions, with seals and labels intact and legible.

B. Store Products subject to damage by elements above ground, under cover in weathertight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer's published instructions.

C. For exterior storage of fabricated Products, place on sloped supports, above ground.

D. Provide off-site storage and protection when Project site does not permit on-site storage or protection.

E. Cover Products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation or potential degradation of Products.

F. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.

G. Provide equipment and personnel to store Products by methods to prevent soiling, disfigurement, or damage.

H. Arrange storage of Products to permit access for inspection. Periodically inspect to verify Products are undamaged and are maintained in acceptable condition.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

NOT USED

END OF SECTION

SECTION 017300

EXECUTION

PART 1 – GENERAL

1.1 LAYOUT OF WORK

A. The Contractor must lay out its work from Owner established base lines and benchmarks indicated on the drawings and is responsible for all measurements based on them. The Contractor must furnish, at its own expense, all stakes, templates, platforms, equipment, tools, materials, and labor as may be required in laying out any part of the work from the base lines and benchmarks established by the Owner. The Contractor is responsible for the execution of the work to those lines and grades established or indicated by the Owner.

1.2 CLEANING

A. Refer to the terms and conditions of the contract provisions and clauses, including those clauses *Debris and Clean Up*.

B. Cleaning During Construction:
1. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
2. Remove debris and rubbish from plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.
3. Collect and remove waste materials, debris, and rubbish from site as specified in the Environmental Compliance and Management Plan as required in Section 013543 - Environmental Procedures.

C. Final Cleaning:
1. Use cleaning materials and agents recommended by manufacturer or fabricator of surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property, or that might damage finished surfaces.
2. Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit of Work to condition expected from a commercial building cleaning and maintenance program. Comply with manufacturer's published instructions.
3. Complete following cleaning operations before requesting Owner inspection for Substantial Completion.
   a. Clean Project Site, yard and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste materials, litter and foreign substances. Sweep paved areas broom clean. Remove petro-chemical spills, stains and other foreign deposits.
   b. Remove tools, construction equipment, machinery and surplus material from Project Site.
   c. Remove snow and ice to provide safe access to building.
   d. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
   e. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics and similar spaces.

f. Broom clean concrete floors in unoccupied spaces.
g. Provide final cleaning, waxing, and buffing of resilient tile, in accordance with manufacturer's requirements.
h. Vacuum clean carpet and similar soft surfaces, removing debris and excess nap. Shampoo if required.
i. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other substances that are noticeable vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
j. Remove labels that are not permanent labels.
k. 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 show evidence of repair or restoration. Do not paint over "UL" and similar labels, including mechanical and electrical name plates.
l. Wipe surfaces of mechanical and electrical equipment, and other similar equipment. Remove excess lubrication, paint and mortar droppings and other foreign substances.
m. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
n. Replace air disposable filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills. Clean ducts, blowers, and coils if units were operated without filters during construction.
o. Clean light fixtures, lamps, globes and reflectors to function with full efficiency. Replace burned out bulbs, and defective and noisy starters in fluorescent and mercury vapor fixtures.
p. Leave Project clean and ready for occupancy.

4. Remove temporary protection and facilities installed during construction to protect previously completed installations during remainder of construction.
5. Comply with governing regulations and safety standards for cleaning operations. Remove waste materials from Project Site and dispose of in accordance with requirements of local authorities having jurisdiction.
6. Where extra materials of value remain after completion of construction, they become Owners property and these materials should be stored as directed by Owner.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

NOT USED

END OF SECTION

SECTION 017419

CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes: Procedures for achieving the most environmentally conscious Work feasible within the limits of the Construction Schedule, Contract Sum, and available materials, equipment, and products.
   1. Participate in promoting efforts of Owner to create an energy-efficient and environmentally-sensitive structure.
   2. Use recycled-content, toxic-free, and environmentally-sensitive materials and equipment.
   3. Use environmentally-sensitive procedures.
      a. Protect the environment, both on-site and off-site, during demolition and construction operations.
      b. Prevent environmental pollution and damage.
      c. Effect optimum control of solid wastes.

B. Related Documents: The Contract Documents, as defined in Section 011000 - Summary of Work, apply to the Work of this Section. Additional requirements and information necessary to complete the Work of this Section may be found in other documents.

C. Related Sections:
   1. Section 014000 – Quality Requirements: Contractor's Daily Report.
   2. Section 015000 – Temporary Facilities And Controls: Temporary ventilation, progress cleaning and waste removal.
   3. Section 016000 – Product Requirements
   4. Section 017704 – Closeout Procedures and Training: Record submittals.
   5. Section 024100 – Roof Removal and Substrate Preparation

1.2 DEFINITIONS

A. Adequate ventilation: Ventilation, including air circulation and air changes, required to cure materials, dissipate humidity, and prevent accumulation of dust fumes, vapors, or gases.

B. Construction and demolition waste: Includes solid wastes, such as building materials, packaging, rubbish, debris, and rubble resulting from construction, remodeling, repair, and demolition operations.
   1. Rubbish: Includes both combustible and noncombustible wastes but excludes recyclable materials such as paper, boxes, glass, metal, lumber scrap and metal cans.
   2. Debris: Includes both combustible and noncombustible wastes, such as leaves and tree trimmings, stumps and rubble that result from construction or maintenance and repair work.

C. Chemical waste: Includes petroleum products, bituminous materials, salts, acids, alkalis, herbicides, pesticides, organic chemicals, and inorganic wastes.

D. Diversion: Redirection of waste ordinarily deposited in a municipal landfill to a recycling facility or to another destination for reuse.

E. Environmental pollution and damage: The presence of chemical, physical, or biological elements or agents, which adversely affect human health or welfare; unfavorably alter ecological balances; or degrade the utility of the environment for aesthetic, cultural, or historical purposes.

F. Hazardous materials: Includes pesticides, biocides, and carcinogens as listed by recognized authorities, such as the Environmental Protection Agency (EPA) and the International Agency for Research on Cancer (IARC).

G. Municipal Solid Waste Landfill: A permitted facility that accepts solid, non-hazardous waste such as household, commercial, and industrial waste, including construction and demolition waste.

H. Packaged dry products: Materials and products that are installed in dry form and are delivered to the site in manufacturer's packaging; including carpets, resilient flooring, ceiling tiles, and insulation.

I. Sanitary wastes:
   1. Sewage: Domestic sanitary sewage.

J. Wet products: Materials and products installed in wet form, including paints, sealants, adhesives, and special coatings.

1.3 SUBMITTALS

A. Solid Waste Management and Environmental Protection Plan: Prepare and submit a Solid Waste Management and Environmental Protection Plan including, but not limited to, the following:
   1. Procedures for Recycling/Re-Use Program.
   2. Schedule for application of interior finishes.
   3. Revise and resubmit Solid Waste Management and Environmental Protection Plan as required by Owner.
      a. Approval of the Contractor's Solid Waste Management and Environmental Protection Plan, will not relieve the Contractor of responsibility for adequate and continuing control of pollutants and other environmental protection measures.
   4. Any permits required by local, state or federal agencies.

B. With each Contractor's Report as specified in Section 014000 – Quality Requirements, submit an updated Summary Of Solid Waste Disposal And Diversion. Submit on form in Appendix A of this Section. Include manifests, weight tickets, receipts, and invoices specifically identifying the Project and waste material for:
   1. Municipal Solid Waste Landfills.
   2. Recycling/Reuse Facilities.

C. With Record Submittals as specified in Section 017704 - Closeout Procedures and Training, submit the following:
   1. Final Summary Of Solid Waste Disposal And Diversion. Submit on form in Appendix A of this Section.
   2. Resource Conservation and Recovery Act Project Summary. Submit on form in Appendix B of this Section.

1.4 APPENDIXES

A. Summary of Solid Waste Disposal and Diversion

B. Resource Conservation and Recover Act-Project Summary

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

3.1 RECYCLING AND REUSE

A. Collection: Implement a recycling/reuse program that includes separate collection of waste materials of the following types as appropriate to authorized local and regional recycling/reuse facilities:
   1. Metal.
      a. Ferrous.
      b. Non-ferrous.
   2. Wood.
   3. Debris.
   4. Paper/Cardboard.
   5. Plastic.
   6. Gypsum.
   7. Paint.
   8. Others as appropriate.

B. Recycling/reuse centers: Contact state and/or local governmental solid waste offices, Environmental Protection Agency (EPA) regional offices, and authorized applicable non-profit organizations.
   1. Asphalt
   2. Concrete.
   3. Metal.
   4. Wood.
   5. Debris.
   6. Glass.
   7. Clay brick.
   8. Paper/Cardboard.
   9. Plastic.
   10. Gypsum.
   11. Paint.
   12. Carpet.
   13. Others as appropriate.

C. Handling:
   1. Clean materials which are contaminated prior to placing in collection containers. Deliver materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to recycling process.
   2. Arrange for collection by or delivery to the appropriate recycling or reuse facility.

D. Participate in re-use programs: identify local and regional re-use programs, including but not limited to non-profit organizations such as schools, local housing agencies, and public arts programs, that accept used materials. The following are examples for Contractor's information only.
   1. National materials exchange network, such as CAL-MAX, a free service provided by various state and regional offices, designed to help businesses find markets for materials that traditionally would be discarded. The premise of the program is that material discarded by one business may be a resource for another business.
      a. Items and regions covered by materials exchange programs may vary. Contact the applicable regional materials exchange program. In California, contact CAL-MAX at (916) 255-2369.
   2. Habitat For Humanity, a non-profit housing organization that rehabilitates and builds housing for low income families.
      a. Sites requiring donated materials vary. Contact the national hotline (800) HABITAT.

E. Rebates, tax credits, and other savings obtained for recycled or re-used materials accrue to Contractor.

3.2 ENVIRONMENTAL CONTROLS

A. Protection of natural resources: Preserve the natural resources within the Project boundaries and outside the limits of permanent Work performed under this Contract in their existing condition or restore to an equivalent or improved condition as approved by Owner, upon completion of the Work.
   1. Confine demolition and construction activities to work area limits indicated on the Drawings and as directed by Owner.
      a. Temporary construction: As specified in Section 015000 - Temporary Facilities And Controls.
      b. Disposal operations for demolished and waste materials that are not identified to be salvaged, recycled or reused:
         1) Remove debris, rubbish, and other waste materials resulting from demolition and construction operations, from site.
         2) No burning permitted.
         3) Transport materials with appropriate vehicles and dispose off-site to areas which are approved for disposal by governing authorities having jurisdiction.
         4) Avoid spillage by covering and securing loads when hauling on or adjacent to public streets or highways. Remove spillage and sweep, wash, or otherwise clean project site, streets, or highways.
         5) Comply with applicable federal, state and/or local regulations.
   2. Water resources as follows:
      a. Comply with requirements of the National Pollutant Discharge Elimination System (NPDES) and the State Pollutant Discharge Elimination System (SPDES).
      b. Oily substances: Prevent oily or other hazardous substances from entering the ground, drainage areas, or local bodies of water.
         1) Store and service construction equipment at areas designated for collection of oil wastes.
   3. Land resources: Prior to construction, identify land resources to be preserved within the Work area. Do not remove, cut, deface, injure, or destroy land resources including trees, shrubs, vines, grasses, top soil, and land forms without permission from Owner.

4. Air Resources: Prevent creation of dust, air pollution, and odors.
   a. Use water sprinkling, temporary enclosures, and other appropriate methods to limit dust and dirt rising and scattering in air to lowest practical level.
      1) Do not use water when it may create hazardous or other adverse conditions such as flooding and pollution.
   b. Do not use any hazardous chemicals on Owners property when it is a shared work space with Owners employees. If chemicals are authorized for use, store volatile liquids, including fuels and solvents, in closed containers.
   c. Properly maintain equipment to reduce gaseous pollutant emissions.
   d. Temporary Ventilation: As specified in Section 015000 - Temporary Facilities And Controls, and as follows:
      1) Provide adequate ventilation during and after installation of interior wet products and interior final finishes.
      2) Provide adequate ventilation of packaged dry products prior to installation. Remove from packaging and ventilate in a secure, dry, well-ventilated space free from strong contaminant sources and residues. Provide a temperature range of 60 degrees F minimum to 90 degree F maximum continuously during the ventilation period. Do not ventilate within limits of Work unless otherwise approved by the Owner.
5. Noise Control: Perform demolition and construction operations to minimize noise. Perform noise producing work in less sensitive hours of the day or week as directed by Owner.
   a. Repetitive, high level impact noise will be permitted only between the hours of 8:00 a.m. and 6:00 p.m. Do not exceed the following dB limitations:

Sound Level in dB	Time Duration of Impact Noise
70	More than 12 minutes in any hour
80	More than 3 minutes in any hour

   b. Provide equipment, sound-deadening devices, and take noise abatement measures that are necessary for compliance.

END OF SECTION

SECTION 017704

CLOSEOUT PROCEDURES AND TRAINING

PART 1 – GENERAL

1.1 MANUALS

A. Purpose: Operation and maintenance manuals are for the training of, and use by, Owners employees in the operation and maintenance of the systems and related equipment as specified below. The manuals must consist of instruction on systems and equipment. A separate manual or chapter must be prepared for each of the following classes of equipment or system:
   1. Roof system.

B. Operating and maintenance manual requirements:
   1. Provide operation and maintenance manuals for the systems and related equipment as specified below. The manuals must consist of instruction on systems and equipment. A separate manual or chapter must be prepared for each of the following classes of equipment or system:
      a. Roof system
   2. Provide copies of warranties and guarantees applicable to the project.
   3. Content: Unless otherwise indicated, each chapter must contain the following, as applicable:
      a. Introduction.
      b. Table of contents.
      c. Description of system (including design intent and considerations).
   4. Preparation: The outline below is intended as a general guide for preparing the manuals. The manuals must be prepared to provide for the optimum operation and maintenance of the various systems. The description of systems and general operating instructions for plumbing and electrical manuals may cover only complicated or unusual parts of these systems, such as sewage ejectors, transformers, high tension switchgear, and signal and alarm systems. Manufacturer's literature and data must be those of the actual equipment installed under contract for the particular facility. Further guidance is available in the ASHRAE Handbook, 1984, Systems Volume, Chapter 39, Mechanical Maintenance.
   5. Suggested Outline for Operation and Maintenance (O&M) Manuals: This is a suggested outline, with general requirements of O&M manuals. The outline may be modified to suit specific installations; however, the purpose of the manual must be fulfilled. The manual is not intended to duplicate manufacturers' data, but proper references must be made in the text of the O&M manual to indicate that that information is applicable and where it is located.
      Part I. Description and Design Intent
         A. Introduction
            1. Provide a brief description of project and purpose of the maintenance manual.
            2. Contents of Manual. This portion of the introduction must explain that the manual is to contain complete operating, maintenance, and safety instructions for all equipment listed. It must also contain any other appropriate references as required to outline an explanation of the manuals and major categories of reference material required with the manuals.

B. Table of Contents
1. The table of contents must list numbers and titles of chapters, sections, and main paragraphs, with their page numbers. Each volume in a set of manuals must contain its own table of contents. Following is a typical table of contents:
a. Roof System
1.) Roof and flashing type
2.) Local inspection (frequency and what is included)
3.) Maintenance (when manufacturer performs, if Owner performs what methods compatible materials, etc.)

Part II. Operating Sequence and Procedures
A. Contents: Each chapter must describe the procedures necessary for Owners personnel to operate the system and equipment covered in that chapter.
B. Operating Procedures: The operating procedures must be divided into four subsections: Startup, Operation, Emergency Operation, and Shutdown.

Part III. Maintenance Instructions and Requirements
A. Contents: Each chapter must describe the procedures necessary for Owner personnel to perform the maintenance on the systems and equipment covered in that chapter. Emphasis must be placed on the method of mechanical control of systems and equipment from a maintenance standpoint. References must be made, as appropriate, to drawings, schematics, and sequences of operation included as part of the construction contract drawings and specifications that show piping and equipment arrangements and items of control. Prints of these drawings must be reduced to 11 inches x 17 inches for insertion in the manuals. Drawings must represent the "as-built" condition.
B. Maintenance Procedures: The maintenance procedures must be divided into two categories: Preventive Maintenance and Corrective Maintenance.
1. Preventive Maintenance
a. Provide a schedule for preventive maintenance.
b. Provide instruction and schedules for all routine maintenance cleaning and inspection, with recommended lubricants.
c. If periodic inspection of equipment is required for operation, cleaning, or other reasons, indicate the items to be inspected and give the inspection criteria
d. Provide instruction for minor repairs or adjustments required for preventive maintenance routines. Minor repair and adjustment must be limited to repairs and adjustments that may be performed without special tools or test equipment and that require no special training or skills. Identify test points and give values for each.
2. Corrective Maintenance
a. Corrective Maintenance.
b. Troubleshooting
c. Repair and Replacement.
d. Safety Precautions.

C. Manufacturers' Brochures: Include manufacturers' descriptive literature covering devices used in the system, together with illustrations, exploded views, and renewal parts lists. This section must also include special devices manufactured by the electrical Contractor.

D. Special Maintenance: Provide information of maintenance nature covering warranty items that have not been discussed elsewhere.

E. Shop Drawings: Provide a copy of all approved shop drawings covering approval of equipment for the project with the manufacturers' brochures.

F. Spare Parts Lists: Include a recommended spare parts list for all equipment furnished for the project. The parts list must include a tabulation of descriptive data for all the electrical-electronic spare parts and all the mechanical spare parts proposed for each type of equipment or system. Each part must be properly identified by part number and manufacturer.

1.2 OTHER CLOSEOUT SUBMITTALS

A. Additional requirements for Systems Manuals, Operating Instructions, Training and other deliverables are contained in individual Specification Sections. All closeout requirements must be provided to and accepted by the Owner prior to requesting final payment. Examples of additional closeout requirements include, but are not limited to, the following

1. Final Punch-List with all items certified as complete.
2. In accordance with the terms and conditions of the contract provisions and clauses, including those concerning Record “As Built” Drawings, the Contractor shall submit certified *As-Built Record Drawings and Specifications* in the quantities and media specified.
3. In accordance with the terms and conditions of the contract provisions and clauses, including those concerning *Warranty*, the Contractor shall submit all transferable guarantees and warranties for equipment, materials and installations furnished by any manufacturer, supplier, or installer.
4. Signed Asbestos and Lead-Based Paint Certificate.
5. RE-4 Certification of Accessibility (CoA) and Facility Accessibility Survey Report.
6. Material Safety Data Sheets.
7. Signed and sealed Contractor Release of Claims.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

NOT USED

END OF SECTION

SECTION 024100

ROOF REMOVAL AND SUBSTRATE PREPARATION

PART 1 - GENERAL

1.1 SUMMARY

A. Removal of existing roofing components and substrate preparation related to roof replacement work.

1.2 RELATED SECTIONS

A. Section 004113 – Proposal Form

B. Section 013300 – Submittal Procedures

C. Section 016000 – Product Requirements

D. Section 053123 – Steel Roof Deck Repair and Replacement

1.3 UNIT PRICES

A. Provide unit prices for the work described in Articles 3.6 and 3.7. Refer to Section 004113.

1.4 REFERENCES

A. Reference standards of the following sources are applicable to products and procedures specified in Part 2 - Products and Part 3 – Execution of this Section:
   1. American Society for Testing and Materials (ASTM)
      a. ASTM F1667 – Standard Specification for Driven Fasteners: Nails, Spikes, and Staples
   2. American National Standards Institute/Single Ply Roofing Industry (ANSI/SPRI)
      a. Standard Field Test Procedure for Determining the Withdrawal Resistance of Roofing Fasteners
   3. Certified Roofing Torch Applicator (CERTA) Program, developed by the Midwest Roofing Contractors Association (MRCA) and National Roofing Contractors Association (NRCA)
   4. National Roofing Contractors Association (NRCA)

1.5 SUBMITTALS

A. Prior to the start of work, submit the following to the Owner for approval:
   1. Product submittals required within Section 013300.

B. Refer to Section 013300 for procedural requirements related to the submittal process.

1.6 QUALITY ASSURANCE PROCEDURES

A. Applicator Qualifications: A qualified firm that is approved, authorized, or licensed to install the specified products and is eligible to receive a manufacturer’s warranty. The firm shall have a minimum of 5 years documented experience performing work equal or similar to the specified

work.

B. Single Source Responsibility: Roofing system materials and components shall be supplied and warranted by roofing system manufacturer for specified roofing system and shall be in compliance with specified regulatory requirements.

C. Examine the technical specifications and drawings. Verify all dimensions, detail conditions, roof plan notes and existing site conditions that may affect the work. Verification of existing dimensions and site conditions is the responsibility of the Contractor. No additional compensation will be considered for failure to verify existing dimensions, detail conditions, roof plan note callouts, and existing site conditions.

D. Upon examination, if conflicts between the technical specifications and drawings, and those of federal, state or local regulatory agencies, the product manufacturer, industry roofing standards, or Owner-mandated requirements are discovered, notify the Owner immediately for resolution.

E. During work, if conditions are discovered which do not allow for continuation of the work per the technical specifications and drawings, notify the Owner immediately for resolution.

1.7 DELIVERY, STORAGE AND HANDLING

A. Refer to Section 016000 for transport, handling, storage and product requirements.

B. Deliver materials in manufacturer's original containers, dry, undamaged, seals and labels intact.

C. Store materials in weather protected environment, clear of ground and moisture. Cover insulation, roofing materials, and other moisture-sensitive products with a canvas tarp.

D. Protect adjacent materials and surfaces against damage from roofing work. Do not store materials on previously completed roofing.

1.8 ENVIRONMENTAL REQUIREMENTS

A. Do not perform roof removal work during inclement weather.

B. Cold weather precautions:
1. Refer to product manufacturer and NRCA requirements and recommendations for cold weather application requirements and restrictions.

C. Safety Data Sheets (SDSs) of all specified products shall remain on site for the duration of this project.

PART 2 – PRODUCTS

2.1 FASTENERS

A. For re-securement of existing perimeter wood nailers to underlying substrates, identified in PART 3 of this Section:
1. For securement to untreated wood: No. 14 fluorocarbon-coated screws, length as necessary to penetrate minimum 1-1/4-inch depth into underlying wood substrate.
2. For securement to treated wood: Stainless steel screws; length as necessary to penetrate minimum 1-1/4-inch depth into underlying wood substrate.

3. For securement to existing masonry walls: 1/4-inch minimum diameter “Tapcon” screws or other fastener type suitable to adequately secure the wood to the existing masonry wall.

2.2 REPLACEMENT DRAIN COMPONENTS

A. Roof drain assembly: Clamping ring type; cast iron drain bowl, clamping ring, strainer, and related fittings; such as Type 21500 or 21500-AE (Size as necessary to match existing drain pipe size) by Josam Company.
   1. Piping:
      a. To match existing, by size and type; as necessary to comply with applicable insurance requirements, and local codes.
   2. Drain connectors, hangers, and clamps:
      a. Drain connections as required; as necessary to comply with applicable insurance requirements, and local codes.

B. Roof drain clamping ring (for use where existing is missing or damaged): Cast iron; type and size to fit existing drain bowl.

C. Roof drain clamping ring bolts: Type and size to match existing, or as necessary to provide a properly secured clamping ring.

D. Roof drain strainer (for use where existing is missing, fabricated of non-metal materials or damaged): Cast iron; type and size to fit existing drain assembly.

2.3 RETROFIT ROOF DRAIN INSERTS

A. Retrofit roof drain insert: Retrofit drain assembly, clamping ring and strainer: Product such as “Hercules RetroDrain”, manufactured by OMG Roofing Products, Agawam, MA, or approved equal. Size and configuration as necessary to accommodate existing roof drain and pipe.

PART 3 - EXECUTION

3.1 GENERAL

A. Demolition of the existing roof system shall not occur unless the facility is occupied by Owners personnel. Verify occupation of facility prior to start of any demolition activities.

B. Exercise caution to avoid damage to components indicated as “existing” or remaining in place. Do not disturb these components.

C. Prior to any cutting, drilling, or removals, view both sides of the surface affected. If damage occurs to existing components, repair or replace components defaced or damaged during removals to the satisfaction of the Owner.

D. Use of torches during roof removal and substrate preparation:
   1. Torches may only be used with the written consent of the Owner, following Owner-mandated notification requirements related to hot work.
   2. Torch-related work shall be performed in full compliance with local fire codes, Owner-mandated requirements related to torch use, and the requirements and recommendations indicated within the CERTA “Torch-Applied Roof System Safety Student Manual”. This manual is available at the National Roofing Contractors Association website:

www.nrca.net.

3. At the request of the Owner, the use of torches may be discontinued at any time.

3.2 ROOF REMOVAL

A. Removal of existing roofing and related components: Remove and discard all existing roofing materials down to the structural deck. This includes spray-applied polyurethane foam roof systems (where existing), gravel, roofing membranes, base flashings, penetration flashings, insulation, underlying roof membranes, underlayments, and sheet metal flashings and accessories, as indicated in the specifications and drawings. Remove all roofing and related components in a manner that will not cause damage to the underlying structural deck.

B. Remove all loose gravel, dirt and foreign debris from the roof area. Use power broom and or closed vacuum system.

C. Remove all existing membrane, flashing and insulation down to the existing deck. On steel decks, flute/ribs shall be cleaned free of existing gravel, dirt and debris.

NOTE: Do not remove batt insulation from the flutes of existing acoustical steel decks.

D. Remove obsolete/abandoned roof penetrations and equipment as noted on the project drawings. Prior to removals, confirm and coordinate removal of obsolete penetrations and equipment with the Owner. Repair openings created by the removal of penetrations and equipment as specified.

E. Do not begin work until the substrates have been prepared as specified, and are ready and acceptable to have materials installed. By beginning work, the Contractor acknowledges that the substrates are satisfactory.

F. To the extent possible, inspect the underside of the structural deck for conduit. If conduit is found to be present directly on the underside of structural decks, take necessary precautions to protect these conduits from puncture.

G. Contractor shall take all precautions during roof demolition to protect the building and adjacent surfaces from being soiled and damaged.

H. Coordinate the roof demolition work with new roofing work in such a manner as to keep the new roofing materials, building and building interior dry and watertight.

I. Do not stockpile or store debris on the roof or on the ground. Place all debris in a dumpster. Cover dumpsters left on site overnight with a tarp.

J. Existing roof system protection:
1. Do not use adjacent roof areas as storage areas for roofing materials.
2. Where excessive traffic over new or existing roofing is unavoidable, provide and use 3/4-inch plywood, set over a minimum of 1-1/2 inch thick rigid board insulation to protect roofing components in place (expanded polystyrene insulation is not acceptable).
3. When materials are stored on the roof, provide roof protection as indicated above.

3.3 TEMPORARY DISPLACEMENT OF ROOFTOP EQUIPMENT

A. Temporary displacement of mechanical units:
1. If mechanical units are to be temporarily displaced, shut off all affected electrical, plumbing and gas lines and disconnect all electrical, plumbing, gas lines and ventilation

ducts where required to allow for lifting mechanical units prior to roof removal work. All disconnection of plumbing, gas lines, electrical conduit and ventilation ducts is to be performed by a licensed mechanical/electrical contractor. Coordinate all disconnections with the Owner.

2. Lift units in a manner that will not cause damage to the mechanical unit, mechanical unit components or structural deck.
3. Prior to leaving the site, return units to their original position, resulting in a watertight condition.
4. Ensure mechanical units are returned to their previous operational condition prior to leaving the site.
5. Within high wind and hurricane zones, and if required by local codes: provide additional securement and strapping (hurricane straps) as required to mechanical units displaced during roof replacement work.

B. Temporary displacement of gas lines, conduit, junction boxes and condensate lines:
1. Temporarily displace gas lines, conduit, junction boxes, condensate lines or other items that may interfere with roof replacement work. Any necessary disconnection of gas lines, conduit and junction boxes is to be performed by a licensed mechanical/electrical contractor as applicable to the work being performed. Coordinate all disconnections with the Owner.

C. After completion of work, reinstall any mechanical units that have been temporarily displaced. Reconnect all electrical, plumbing, gas lines and ventilation ducts where required. All reconnection of plumbing, gas lines, electrical conduit and ventilation ducts is to be performed by a licensed mechanical/electrical contractor. Coordinate all reconnections with the Owner.

D. After completion of work, reconnect any gas lines, conduit and/or junction boxes have been disconnected. Reconnection of gas lines, conduit and/or junction boxes is to be performed by a licensed mechanical/electrical contractor as applicable to the work being performed. Coordinate all reconnections with the Owner.

3.4 DECK INSPECTION

A. Fastener pull-out testing of existing structural decks:
1. If required by the roofing manufacturer, the contractor shall perform fastener pull-out testing of the existing structural deck. The number of tests required shall be determined by the manufacturer. Testing shall be performed in accordance with ANSI SPRI “Standard Field Test Procedure for Determining the Withdrawal Resistance of Roofing Fasteners”, unless otherwise determined by the roofing manufacturer. The contractor shall be responsible for costs associated with such tests.

B. After completion of roof removal work, inspect the existing roof deck. If damaged or deteriorated roof deck is encountered, notify the Owner immediately. Refer to Section 053123 for roof deck repair/replacement procedures.

3.5 RE-SECUREMENT OF PERIMETER WOOD BLOCKING

A. Re-secure wood blocking (nailers) to the underlying substrate at perimeters in a manner to resist a minimum force of 300 lbs. per linear foot, at a minimum spacing of 12-inches on center.

3.6 ROOF DRAIN INSPECTION AND REPAIR

A. If drain assemblies are found to be damaged, contact the Owner. Replace drain assemblies

found to be damaged ***(Unit Price Work)***:

1. Remove and discard the entire roof drain assembly.
2. Install replacement roof drain bowl, clamping ring, strainer and related fittings at locations of original drain assembly. Connect the bowls to the existing piping in accordance with manufacturer requirements and recommendations, and all local and state plumbing codes.

B. If the clamping ring is missing, damaged, or does not fit the drain strainer, install a new clamping ring ***(Unit Price Work)***.

C. Replace clamping ring bolts at roof drains. If necessary, re-tap clamping ring bolt holes to result in a tightly secured clamping ring.

D. If the roof drain strainer is missing, damaged, or non-metal, install a new roof drain strainer.

3.7 RETROFIT ROOF DRAIN INSERT INSTALLATION

A. Install retrofit roof drain inserts following the requirements and recommendations of the retrofit roof drain insert manufacturer ***(Unit Price Work)***.

END OF SECTION

SECTION 053123

STEEL ROOF DECK REPAIR AND REPLACEMENT

PART 1 - GENERAL

1.1 SUMMARY

A. Steel deck repair and replacement associated with roof replacement.

1.2 RELATED SECTIONS

A. Section 004113 – Proposal Form

B. Section 013300 – Submittal Procedures

C. Section 016000 – Product Requirements

D. Section 024100 – Roof Removal and Substrate Preparation

E. Related Documents: The Contract Documents, as defined in Section 011000 - Summary of Work, apply to the Work of this Section. Additional requirements and information necessary to complete the Work of this Section may be found in other documents.

1.3 UNIT PRICES

A. Provide unit prices for the work described in paragraphs 3.3.A, 3.3.B, 3.3.C and Article 3.4. Refer to Section 004113.

1.4 ALTERNATES

A. Provide alternate pricing for re-securement of all steel structural decks within roof replacement areas. Refer to Section 004113.

1.5 REFERENCES

A. Reference standards of the following sources are applicable to products and procedures specified in Part 2 - Products and Part 3 – Execution of this Section:
   1. Steel Deck Institute (SDI)
   2. Factory Mutual Global (FM)

1.6 SUBMITTALS

A. Prior to the start of work, submit the following to the Owner for approval:
   1. Product submittals required within Section 013300.

B. Refer to Section 013300 for procedural requirements related to the submittal process.

1.7 QUALITY ASSURANCE PROCEDURES

A. Applicator Qualifications: A qualified firm that is approved, authorized, or licensed to install the specified products and is eligible to receive a manufacturer’s warranty. The firm shall have a

minimum of 5 years documented experience performing work equal or similar to the specified work.

B. Single Source Responsibility: Roofing system materials and components shall be supplied and warranted by roofing system manufacturer for specified roofing system and shall be in compliance with specified regulatory requirements.

C. Examine the technical specifications and drawings. Verify all dimensions, detail conditions, roof plan notes and existing site conditions that may affect the work. Verification of existing dimensions and site conditions is the responsibility of the Contractor. No additional compensation will be considered for failure to verify existing dimensions, detail conditions, roof plan note callouts, and existing site conditions.

D. Upon examination, if conflicts between the technical specifications and drawings, and those of federal, state or local regulatory agencies, the product manufacturer, industry roofing standards, or Owner-mandated requirements are discovered, notify the Owner immediately for resolution.

E. During work, if conditions are discovered which do not allow for continuation of the work per the technical specifications and drawings, notify the Owner immediately for resolution.

1.8 DELIVERY, STORAGE AND HANDLING

A. Refer to Section 016000 for transport, handling, storage and product requirements.

B. Deliver materials in manufacturer's original containers, dry, undamaged, seals and labels intact.

C. Store materials in weather protected environment, clear of ground and moisture. Cover insulation, roofing materials, and other moisture-sensitive products with a canvas tarp.

D. Protect adjacent materials and surfaces against damage from roofing work. Do not store materials on previously completed roofing.

1.9 ENVIRONMENTAL REQUIREMENTS

A. Do not perform steel deck repair/replacement work during inclement weather. Refer to product manufacturer for outdoor temperature requirements for installation of materials. Do not install materials at times when the outdoor temperature does not fall within the minimum/maximum temperature requirements of the manufacturer.

B. Safety Data Sheets (SDSs) of all specified products shall remain on site for the duration of this project.

PART 2 – PRODUCTS

2.1 STEEL DECK REPAIR/REPLACEMENT MATERIALS

A. For re-securement of steel deck to structural steel, identified in PART 3 of this Section (Alternate/Unit Price Work): Teks 5 self-drilling fastener with hex washer head, manufactured by ITW Buildex or other FM-approved fastener.

B. For use at “Steel Deck Brushing and Priming”, as described in paragraph 3.3.A:
1. "Rust-Oleum Industrial Enamel Quick Dry Primer" manufactured by Rust-Oleum Corporation, Vernon Hills, Illinois, "Carboline Carbocoat 150 Universal Primer," manufactured by Carboline, St. Louis, Missouri, or approved equal.

C. For use at “Steel Deck Repair”, as described in paragraph 3.3.B:
1. Steel plate: 16-gauge galvanized with pre-drilled holes for fasteners.
2. For securing steel plate to steel deck: No. 14 fluorocarbon-coated screws; length as necessary to penetrate minimum 1-inch depth through the deck.
3. For securing steel plate to underlying structural steel (1/2-inch thick max.): 12-24 x 1-1/4 inch Hex Washer Head, Teks 5, or approved equal.

D. For use at “Steel Deck Replacement”, as described in Article 3.4:
1. Full sections to match existing in gauge, profile, and finish; as necessary to comply with requirements of applicable insurance agencies and local codes.
2. Refer to paragraph 2.1.A for fastener requirements.

PART 3 - EXECUTION

3.1 GENERAL

A. Refer to Section 024100 for general work and substrate preparation requirements.

3.2 STEEL DECK INSPECTION

A. Inspect exposed steel decks for surface corrosion, severe corrosion, openings, and other defects.

3.3 STEEL DECK REPAIR

A. Re-securement of steel decks (***Unit Price Work)***:
1. In the field of the roof, re-secure the existing steel deck at a maximum spacing of 12-inches on center (every other rib for 1-1/2 in. deck) at underlying supports in the field of the roof. At the roof perimeters and corners, re-secure the deck at a maximum spacing of 6 inches on center (every rib for 1-1/2 in deck) at all underlying supports.
2. At each deck side lap, secure the deck to the supporting members. For interlocking-type side laps, secure both sides of the lap (upper and lower). For overlap-type side laps, ensure securement penetrates all deck panels at the laps.
3. Ensure spacing between each side lap fastener or side lap fasteners and supports is no more than 36-inches in the field of the roof and no more than 30-inches on center in the perimeter and corner areas. Fasten overlap-type side laps with specified fasteners.

B. Steel Deck Brushing and Priming ***(Unit Price Work)***: For use at areas of light corrosion, as determined by the Owner:

1. Wire-brush or scrape the surface rust. Remove debris by power vacuum.
2. Apply primer to the repair area; allow primer time to dry.

C. Steel Deck Repair ***(Unit Price Work)***: For use to repair at openings caused by obsolete roof penetration removal or other defects less than 12" by 12" in size, as determined by the Owner:
1. At locations encountered and other locations indicated by the Owner, cover the existing opening with 16-gauge steel plate stock. Lap the plate a minimum of 8-inches beyond the opening on all sides. Fasten the steel plate with specified fasteners and plates 6-inches on center. Secure the plate a minimum of 2-inches in from the outside edge of the repair plate.

3.4 STEEL DECK REPLACEMENT ***(Unit Price Work)***

A. Prior to the start of work, inspect the interior area below the area of damaged steel roof deck. Remove items from the replacement area that may be damaged during work activities. Provide adequate interior protection to protect interior surfaces and finishes from damage prior to the start of work. The Contractor shall provide an "Interior Protection Representative" during replacement work.

B. Install new decking in accordance with the requirements of FM Global, Steel Deck Institute, and applicable local codes.

C. Install deck panels and accessories according to manufacturer's written instructions and requirements.

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

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

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

G. Provide additional reinforcement and closure pieces at the openings as required for strength, continuity of decking and support of other work.

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

I. Mechanical fasteners may be used in lieu of welding to fasten deck. Install according to deck manufacturer's written instructions.

END OF SECTION

SECTION 061053

MISCELLANEOUS ROUGH CARPENTRY FOR ROOF REPLACEMENT

PART 1 - GENERAL

1.1 SUMMARY

A. Miscellaneous rough carpentry associated with roof replacement.

1.2 RELATED SECTIONS

A. Section 004113 – Proposal Form

B. Section 013300 – Submittal Procedures

C. Section 016000 – Product Requirements

D. Section 024100 – Roof Removal and Substrate Preparation

E. Related Documents: The Contract Documents, as defined in Section 011000 - Summary of Work, apply to the Work of this Section. Additional requirements and information necessary to complete the Work of this Section may be found in other documents.

1.3 UNIT PRICES

A. Provide unit prices for removal and replacement of existing damaged or deteriorated wood nailers uncovered during roof removal, miscellaneous wood blocking determined by the Owner to be necessary based on unforeseen conditions uncovered, and other miscellaneous wood blocking/plywood not included in the technical specification and project drawings. Refer to Section 004113.

1.4 REFERENCES

A. Reference standards of the following sources are applicable to products and procedures specified in Part 2 - Products and Part 3 – Execution of this Section:
   1. American National Standard Institute (ANSI)
   2. American Wood Preservers Association (AWPA)
   3. American Wood Preservers Institute (AWPI)
   4. Western Wood Products Association (WWPA)

1.5 SUBMITTALS

A. Prior to the start of work, submit the following to the Owner for approval:
   1. Product submittals required within Section 013300.

B. Refer to Section 013300 for procedural requirements related to the submittal process.

1.6 QUALITY ASSURANCE PROCEDURES

A. Applicator Qualifications: A qualified firm that is approved, authorized, or licensed to install the specified products and is eligible to receive a manufacturer’s warranty. The firm shall have a

minimum of 5 years documented experience performing work equal or similar to the specified work.

B. Single Source Responsibility: Roofing system materials and components shall be supplied and warranted by roofing system manufacturer for specified roofing system and shall be in compliance with specified regulatory requirements.

C. Examine the technical specifications and drawings. Verify all dimensions, detail conditions, roof plan notes and existing site conditions that may affect the work. Verification of existing dimensions and site conditions is the responsibility of the Contractor. No additional compensation will be considered for failure to verify existing dimensions, detail conditions, roof plan note callouts, and existing site conditions.

D. Upon examination, if conflicts between the technical specifications and drawings, and those of federal, state or local regulatory agencies, the product manufacturer, industry roofing standards, or Owner-mandated requirements are discovered, notify the Owner immediately for resolution.

E. During work, if conditions are discovered which do not allow for continuation of the work per the technical specifications and drawings, notify the Owner immediately for resolution.

1.7 DELIVERY, STORAGE AND HANDLING

A. Refer to Section 016000 for transport, handling, storage and product requirements.

B. Deliver materials in manufacturer's original containers, dry, undamaged, seals and labels intact.

C. Store materials in weather protected environment, clear of ground and moisture. Cover insulation, roofing materials, and other moisture-sensitive products with a canvas tarp.

D. Protect adjacent materials and surfaces against damage from roofing work. Do not store materials on previously completed roofing.

1.8 ENVIRONMENTAL REQUIREMENTS

A. Do not perform work during inclement weather.

B. Safety Data Sheets (SDSs) of all specified products shall remain on site for the duration of this project.

PART 2 – PRODUCTS

2.1 WOOD NAILERS AND WOOD BLOCKING

A. Species and Grade (for non-exposed use): Douglas Fir or Yellow Pine; WWPA Structural Joist and Plank Class, No. 2 Grade.

B. Dimensions: As indicated on the project drawings or required by conditions encountered.

2.2 PLYWOOD

A. Standards: PS 1/ANSI A199.1 for plywood panels.

B. Grade: C-C EXT-APA.

C. Dimensions: Thickness as indicated in drawings or specifications.

2.3 FASTENERS

A. For securing wood to masonry and concrete substrates: 1/4-inch diameter “Tapcon” screws or other fastener type suitable to adequately secure the wood to the building wall.

B. For securing wood to wood:
1. Minimum 8d coated ring shank nails. Length as necessary to penetrate 1-1/4 inches, minimum into underlying wood substrate.
2. No. 14 fluorocarbon-coated screws, or double-dipped galvanized nails; length as necessary to penetrate minimum 1-1/4-inch depth.

C. For fastening to treated lumber: Stainless steel screws; size as necessary for conditions encountered.

D. For fastening wood to other substrates:
1. Fastener type compatible with substrate encountered.

PART 3 - EXECUTION

3.1 GENERAL

A. Refer to Section 024100 for general work and substrate preparation requirements.

3.2 WOOD NAILER AND BLOCKING INSPECTION/REPLACEMENT

A. During roof removal, inspect exposed wood nailers and blocking for damage, deterioration, and other defects.

B. To the extent indicated by the Owner, remove and discard damaged, deteriorated, or otherwise defective wood nailers and blocking and install new wood nailers and blocking to match the adjacent nailers and blocking in size and shape. Refer to Article 3.3 of this Section. ***(Unit Price Work)***.

3.3 WOOD NAILER AND BLOCKING INSTALLATION

A. Provide new wood nailers and blocking as follows:
1. Where indicated on the project drawings.
2. Where wood nailers and blocking were removed and discarded due to damage, deterioration, and other defects ***(Unit Price Work)***.
3. Where conditions allow, for support beneath rooftop conduit and pipes.
4. As necessary for other conditions encountered, such as raising curb heights to allow for minimum 8-inch flashing height.

B. Wood securement to wood deck and building construction:
1. Secure wood members with the specified fasteners as indicated on the project drawings, but no more than 18-inches o.c., and within 6 inches of each end, to adequately secure nailers to the deck or building construction.

C. Wood securement to other wood nailers and blocking: Secure the top nailer(s) to the lower secured nailer with the specified nails or screws, of sufficient length to penetrate a minimum of 1-1/4 inches into the lower wood nailer (for nails) and 1-1/4 inches into the wood (for screws). Fasteners shall be spaced as indicated on the project drawings, but no more than 18 inches o.c. and staggered. Provide fasteners within 6 inches of all ends of nailers.
   1. Within 10 feet of any outside building corner, reduce the indicated fastener spacing by one-half.

3.4 PLYWOOD INSTALLATION

A. Provide new plywood as follows:
   1. Where indicated on the project drawings.
   2. Where existing plywood was removed and discarded due to damage, deterioration, and other defects ***(Unit Price Work)***.

B. Secure plywood to the underlying substrate at a rate of one fastener per one square foot.

END OF SECTION

SECTION 072223

ROOF INSULATION AND COVER BOARD OVER STEEL ROOF DECKS

PART 1 - GENERAL

1.1 SUMMARY

A. Installation of roof insulation and cover board over existing steel structural roof decks.

1.2 RELATED SECTIONS

A. Section 013300 – Submittal Procedures

B. Section 016000 – Product Requirements

C. Section 024100 – Roof Removal and Substrate Preparation

D. Section 053123 – Steel Roof Deck Repair and Replacement

E. Related Documents: The Contract Documents, as defined in Section 011000 - Summary of Work, apply to the Work of this Section. Additional requirements and information necessary to complete the Work of this Section may be found in other documents.

1.3 REFERENCES

A. Reference standards of the following sources are applicable to products and procedures specified in Part 2 - Products and Part 3 – Execution of this Section:
   1. American Society for Testing and Materials (ASTM)
      a. ASTM C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board
      b. ASTM C208 - Standard Specification for Cellulosic Fiber Insulating Board
      c. ASTM D312 - Standard Specification for Asphalt Used in Roofing
      d. ASTM C1177 - Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing
      e. ASTM C1278 - Standard Specification for Fiber-Reinforced Gypsum Panel

1.4 SUBMITTALS

A. Prior to the start of work, submit the following to the Owner for approval:
   1. Product submittals required within Section 013300.

B. Refer to Section 013300 for procedural requirements related to the submittal process.

1.5 QUALITY ASSURANCE PROCEDURES

A. Applicator Qualifications: A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer’s product and that is eligible to receive a manufacturer’s warranty. Company shall have a minimum of 5 years documented experience certified by roofing system manufacturer.

B. Single Source Responsibility: Roofing system materials and components shall be supplied and warranted by roofing system manufacturer for specified roofing system and shall be in compliance with specified regulatory requirements.

C. Examine the technical specifications and drawings. Verify all dimensions, detail conditions, roof plan notes and existing site conditions that may affect the work. Verification of existing dimensions and site conditions is the responsibility of the Contractor. No additional compensation will be considered for failure to verify existing dimensions, detail conditions, roof plan note callouts, and existing site conditions.

D. Upon examination, if conflicts between the technical specifications and drawings, and those of federal, state or local regulatory agencies, the product manufacturer, industry roofing standards, or Owner-mandated requirements are discovered, notify the Owner immediately for resolution.

E. During work, if conditions are discovered which do not allow for continuation of the work per the technical specifications and drawings, notify the Owner immediately for resolution.

1.6 DELIVERY, STORAGE AND HANDLING

A. Refer to Section 016000 for transport, handling, storage and product requirements.

B. Deliver materials in manufacturer's original containers, dry, undamaged, seals and labels intact.

C. Store materials in weather protected environment, clear of ground and moisture. Cover insulation, roofing materials, and other moisture-sensitive products with a canvas tarp. Protect foam insulation from direct sunlight exposure.

D. Protect adjacent materials and surfaces against damage from roofing work. Do not store materials on previously completed roofing.

1.7 ENVIRONMENTAL REQUIREMENTS

A. Do not perform work during inclement weather. Refer to product manufacturer for outdoor temperature requirements for installation of materials. Do not install materials at times when the outdoor temperature does not fall within the minimum/maximum temperature requirements of the manufacturer.

B. Cold weather precautions:
   1. Store products that may be negatively affected by exposure to cold weather, such as primers, adhesives, sealants and cements, in a heated location. Refer to the roofing manufacturer and NRCA requirements and recommendations for additional cold weather application recommendations and restrictions.

C. Safety Data Sheets (SDSs) of all specified products shall remain on site for the duration of this project.

PART 2 – PRODUCTS

2.1 ROOF INSULATION

A. Polyisocyanurate roof insulation; ASTM C1289, Type II, Class 1, Grade 2 (20 psi); HCFC-Free and Zero Ozone Depletion Potential (ODP); product type acceptable to the roofing membrane manufacturer.
   1. Roof Area C:
      a. Thickness: One layer of 2-1/2 inch thick insulation over one layer of 2-1/2 inch thick insulation (5-inches total).
      b. Long Term Thermal Resistance (LTTR) Value: 5.6 minimum per inch.
      c. Board Size: 4-feet by 8-feet where mechanical attachment is specified, 4-feet by 4-feet where adhesion is specified.

2.2 ROOF COVER BOARD

A. Type: High-Density (HD) polyisocyanurate; ASTM C1289, Type II; minimum 80 psi compressive strength.
   1. Thickness: 1/2-inch.
   2. Board Size: 4-feet by 4-feet.

2.3 CRICKET AND SADDLE INSULATION

A. Tapered polyisocyanurate roof insulation as necessary to achieve slopes and dimensions indicated in Article 3.3 and on the drawings, and as necessary to allow for proper drainage to existing drainage accessories; ASTM C1289, Type II, Class 1; Minimum 20 psi; HCFC-Free and Zero Ozone Depletion Potential (ODP); product type acceptable to the roofing manufacturer.

2.4 TAPERED EDGE AND CANT STRIPS

A. Tapered Edge Strips:
   1. For built-up and modified bitumen roof membrane systems: Fiberboard, ASTM C208; zero to 1-1/2 inches thick x 18 inches wide (or as indicated by conditions shown on the project drawings); product type acceptable to the roofing manufacturer.

B. Cant Strips: Fiberboard, ASTM C208; minimum 4-inch face except as indicated on the project drawings.

2.5 INSULATION FASTENERS AND PLATES

A. For mechanical attachment of polyisocyanurate insulation and/or cover board (where specified): Fluorocarbon coated or galvanized self-drilling screw and plate system; product type acceptable to the roofing manufacturer. Fastener length as necessary to penetrate through cover board/insulation layer(s) and through the top steel deck flute a minimum of 3/4-inch and a maximum of 1-inch.
   1. Minimum insulation plate diameter: 3-inches.
   2. Minimum fastener size: No. 14.

2.6 ADHESIVE

A. Where specified, for adhering cover board, and bottom, intermediate, and top layer(s) of insulation, tapered insulation systems, and tapered insulation used in saddle and cricket

construction where indicated in PART 3 of this Section: Low-rise urethane foam adhesive; product acceptable to the roofing manufacturer and is capable of meeting the specified wind uplift requirements.

PART 3 - EXECUTION

3.1 GENERAL

A. Ensure that the substrate has been prepared as necessary, and is ready and acceptable to receive insulation materials. Refer to Section 024100 for material removals and general work and substrate preparation requirements.

3.2 INSULATION AND COVER BOARD INSTALLATION

A. Closely butt the insulation boards and roof cover boards.

B. Stagger board joints by the maximum dimensions possible.

C. Neatly cut insulation and roof cover boards to fit around all penetrations through the roof deck. At locations where less than a full-sized sheet of insulation or cover board is required, use the largest size practical to fill in the area. Do not install numerous small sections of cover board or insulation at these locations.

D. Fill gaps between boards, and between boards and walls, curbs, blocking, and equipment with additional insulation material.

E. Protect all insulation and cover board from weather and standing water at all times. Do not install more insulation and cover board than can be completely covered with the roofing membrane on the same day.

F. Install temporary water cut-offs at the edges of insulation at the end of each workday.

G. Prior to installing the insulation, inspect the underside of the roof deck to determine if objects, such as sprinklers, lights, conduits, fans, or gas lines are attached to the deck. Exercise caution to ensure that insulation fasteners do not penetrate these objects.

H. Mechanical attachment and adhesion of cover board and polyisocyanurate insulation:
   1. Mechanical attachment: Fasteners shall penetrate into the deck, penetrating a minimum of 3/4-inch and a maximum of 1-inch into the top flute of the existing steel deck. Do not penetrate the bottom flute of the steel deck, or use fasteners that have the potential to extend beyond the bottom flute of the steel deck. Refer to the roofing manufacturer for instructions related to fastening pattern requirements.
   2. Fastening and adhesion rates:
      a. Field of roof: Mechanically-fasten through top and any underlying insulation layers into the underlying structural deck with specified insulation plates and fasteners. Secure at a rate of 12 fasteners per 4’ X 8’ insulation board or 32 square feet (One fastener per 2.67 square feet of board). Adhere cover board with low-rise urethane foam adhesive, applying 3/4-inch beads 12-inches o.c.
      b. At perimeters: Mechanically-fasten through top and any underlying insulation layers into the underlying structural deck with specified insulation plates and fasteners. Secure at a rate of 24 fasteners per 4’ X 8’ insulation board or 32

square feet (One fastener per 1.33 square feet). Adhere overlying cover board with low-rise urethane foam adhesive, applying 3/4-inch beads 6-inches o.c.

c. At corners: Mechanically-fasten through cover board, underlying insulation layer(s) and into the underlying structural deck with specified insulation plates and fasteners. Secure at a rate of 32 fasteners per 4' X 8' insulation board or 32 square feet (One fastener per 1.00 square feet).

3.3 INSULATION SADDLE AND CRICKET INSTALLATION

A. Install insulation saddles and crickets to provide positive drainage to drainage accessories, and where indicated on the project drawings. Unless otherwise indicated on the Project Drawings, the width and finished slope of saddles shall be:
   1. If the finished roof slope of the project roof area is 1/8-inch per foot, the finished slope of saddles shall be 1/4-inch per foot, and the length-to-width ratio of saddles shall be 2:1.
   2. If the finished roof slope of the project roof area is 1/4-inch per foot, the finished slope of saddles shall be 1/2-inch per foot, and the length-to-width ratio of saddles shall be 3:1.
   3. If the finished roof slope of the project roof area is 1/2-inch per foot, the finished slope of saddles shall be 1-inch per foot, and the length-to-width ratio of saddles shall be 4:1.

B. Adjust saddle and cricket dimensions, if necessary, to accommodate actual field conditions. Prior to saddle/cricket modifications, notify the Owner of proposed modifications for approval.

C. Adhere saddles and crickets using the specified adhesive.

D. Provide insulation crickets behind all roof curbs greater than 24-inches in width.

END OF SECTION

SECTION 075216

SBS MODIFIED BITUMEN ROOFING IN COLD ADHESIVE

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes requirements related to the installation of SBS (Styrene-Butadiene-Styrene) modified bitumen roofing membrane and flashings in cold adhesive, DOE Energy Star compliant reflective surfacing, related accessories, and warranty and guarantee requirements.

1.2 RELATED SECTIONS

A. Section 013300 – Submittal Procedures

B. Section 016000 – Product Requirements

C. Section 024100 – Roof Removal and Substrate Preparation

D. Section 061053 – Miscellaneous Rough Carpentry for Roof Replacement

E. Section 072223 – Roof Insulation and Cover Board over Steel Roof Decks

F. Section 076203 – Sheet Metal for Modified Bitumen Roofing

G. Related Documents: The Contract Documents, as defined in Section 011000 - Summary of Work, apply to the Work of this Section. Additional requirements and information necessary to complete the Work of this Section may be found in other documents.

1.3 REFERENCES

A. Reference standards of the following sources are applicable to products and procedures specified in Part 2 - Products and Part 3 – Execution of this Section:
   1. American Society of Civil Engineers (ASCE)
      a. ASCE 7 Minimum Design Loads of Buildings and Other Structures
   2. American Society for Testing and Materials (ASTM)
      a. ASTM D6164 - Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Polyester Reinforcements
      b. ASTM D41 - Standard Specification for Asphalt Primer Used in Roofing, Dampproofing, and Waterproofing
      c. ASTM D1668 - Standard Specification for Glass Fabrics (Woven and Treated) for Roofing and Waterproofing
      d. ASTM D1970 - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection
      e. ASTM D6083 - Standard Specification for Liquid Applied Acrylic Coating Used in Roofing
   3. Certified Roofing Torch Applicator (CERTA) Program, developed by the Midwest Roofing Contractors Association (MRCA) and National Roofing Contractors Association (NRCA)
   4. National Roofing Contractors Association (NRCA)
   5. Underwriters Laboratories (UL)

1.4 SUBMITTALS

A. Prior to the start of work, submit the following to the Owner for approval:
   1. Product submittals required within Section 013300.

B. Refer to Section 013300 for procedural requirements related to the submittal process.

1.5 QUALITY ASSURANCE PROCEDURES

A. Applicator Qualifications: A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive a manufacturer's warranty. Company shall have a minimum of 5 years documented experience certified by roofing system manufacturer.

B. Single Source Responsibility: Roofing system materials and components shall be supplied and warranted by roofing system manufacturer for specified roofing system and shall be in compliance with specified regulatory requirements.

C. Examine the technical specifications and drawings. Verify all dimensions, detail conditions, roof plan notes and existing site conditions that may affect the work. Verification of existing dimensions and site conditions is the responsibility of the Contractor. No additional compensation will be considered for failure to verify existing dimensions, detail conditions, roof plan note callouts, and existing site conditions.

D. Upon examination, if conflicts between the technical specifications and drawings, and those of federal, state or local regulatory agencies, the product manufacturer, industry roofing standards, or Owner-mandated requirements are discovered, notify the Owner immediately for resolution.

E. During work, if conditions are discovered which do not allow for continuation of the work per the technical specifications and drawings, notify the Owner immediately for resolution.

1.6 DELIVERY, STORAGE AND HANDLING

A. Refer to Section 016000 for transport, handling, storage and product requirements.

B. Deliver materials in manufacturer's original containers, dry, undamaged, seals and labels intact.

C. Store materials in weather protected environment, clear of ground and moisture. Cover insulation, roofing materials, and other moisture-sensitive products with a canvas tarp. Store roll materials standing on end.

D. Protect adjacent materials and surfaces against damage from roofing work. Do not store materials on previously completed roofing.

1.7 ENVIRONMENTAL REQUIREMENTS

A. Do not perform work during inclement weather. Refer to product manufacturer for outdoor temperature requirements for installation of materials. Do not install materials at times when the outdoor temperature does not fall within the minimum/maximum temperature requirements of the manufacturer.

B. Cold weather precautions:
   1. Store products that may be negatively affected by exposure to cold weather, such as primers, adhesives, sealants and cements, in a heated location. Refer to the modified bitumen roofing manufacturer and NRCA requirements and recommendations for additional cold weather application recommendations and restrictions.
      NOTE: Do not install SBS modified bitumen roofing at temperatures below 50°F (10°C).
   2. When the outside temperature is forecast to fall below 50°F (10°C), store unused materials in a heated location. Remove these materials only when ready for installation. Sealants, adhesives and primers should be maintained at a temperature of 50°F (10°C), minimum, at all times. Do not use sealants, adhesives or primers that develop a gelled or lumpy texture to them. Return these materials to a heated location.

C. Material Safety Data Sheets (MSDS) of all specified products shall remain on site for the duration of this project.

1.8 MANUFACTURER WARRANTY AND CONTRACTOR GUARANTEE

A. Provide a price for a manufacturer 20-Year Total System, Non-Pro-Rated Warranty (including roofing membrane, insulation, underlayment and flashings) covering materials and labor. The warranty shall include the following additional items:
   1. Roofing inspection by a technical representative of the roofing membrane manufacturer 18-20 months after date of Final Acceptance. The technical representative shall provide a report of the inspection to the Owner no later than 60 days after the inspection.
   2. Roofing manufacturer shall provide unlimited repairs during the warranty period with no cost limitation.
   3. Temporary emergency repairs may be made by Owner without voiding warranty provisions. Permanent repairs shall be made in accordance with the requirements of the roofing membrane manufacturer.
   4. A copy of the Record Document Roof Plan Drawings, Roof Detail Drawings, and Record SBS Modified Bitumen in Cold Adhesive Specification Section shall be attached to the warranty.

B. The Contractor shall provide a five-year contractor guarantee. At a minimum, the contractor guarantee shall include the following:
   1. Contractor name, address, phone number and project contact name.
   2. The project completion date, and date of guarantee expiration.
   3. The contractor guarantee shall include, in writing, all project work, workmanship, and/or all materials installed by the contractor or subcontractors to be of a quality that will comply with all project specific requirements of the Construction Documents and other documents governing the specified work and workmanship through the guarantee period.
   4. The contractor shall investigate roof leaks during the guarantee period within a reasonable time period, but in no instance greater than 24-hours after notification of a leak. The contractor shall repair leaks determined to be the cause of the specified work at no cost to the Owner.

PART 2 – PRODUCTS

2.1 MODIFIED BITUMEN ROOFING SYSTEM SUMMARY

A. The complete roofing membrane system assembly shall consist of an SBS surfacing ply over an SBS base ply, meeting or exceeding the requirements listed in Article 2.2 of this Section.

B. The complete roofing system assembly shall achieve a UL Class A fire rating.

2.2 MODIFIED BITUMEN ROOFING MEMBRANE

A. Base ply:
1. Siplast Paradiene 20

B. Surfacing ply:
1. Siplast Paradiene 30 FR
.

2.3 MODIFIED BITUMEN ROOFING FLASHING

A. Base ply:
1. Siplast Paradiene 20

B. Surfacing ply:
1. Siplast Paradiene 30 FR
.

2.4 LIQUID-APPLIED FLASHING

A. Base and top coats:
1. Single or dual component, moisture-cured. Product approved by the roofing membrane manufacturer for use in the specified configuration.

B. Reinforcing fabric:
1. Polyester-reinforced fabric. Product approved by the roofing membrane manufacturer for use in the specified configuration.

2.5 ADHESIVES, CEMENTS AND PRIMERS

A. Cold adhesive: Product approved by the roofing membrane manufacturer.

B. Flashing cement and roofing cement: Product compatible with SBS Modified bitumen roofing and approved by the roofing membrane manufacturer.

C. Asphalt primer: ASTM D41.

2.6 FASTENERS

A. Roofing membrane and flashing fasteners: Unless otherwise indicated, types as required for project completion, and as recommended by the roofing membrane manufacturer and NRCA for the substrate condition encountered.

B. For back nailing of felts (where required by the roofing membrane manufacturer): Roofing nails with smooth, flat, minimum 3/8-inch head affixed with 1-inch minimum metal cap; hot-dipped galvanized steel or equivalent corrosion-resistance, No. 11 or No. 12 gauge with barbed shanks and conventional sharp point; ASTM F1667, Style 20. Length as necessary to penetrate into the underlying wood nailer or other substrate 1-inch minimum.

2.7 ROOFING SHEETS FOR TEMPORARY TIE-INS

A. For use at temporary overnight tie-ins: Specified modified bitumen base sheet, polyester reinforced, minimum nominal 115 mil thickness.

B. For use at roof sump flashings and elsewhere as indicated on the project drawings: Asphalt treated woven glass fabric, ASTM D 1668, Type I.

2.8 MISCELLANEOUS MATERIALS

A. Walkpads: Product approved by the roofing manufacturer.

B. Splashblocks: Concrete; size as necessary to accommodate existing condition.

C. Pitch pan fill materials:
1. Non-shrink grout (for bottom fill): Quick-set, fast-drying grout; product acceptable to roofing manufacturer.
2. Pourable sealer (for top fill): Two-part pourable elastomeric sealer, product acceptable to roofing manufacturer.

D. Pre-fabricated plumbing vent pipe extensions:
1. For use where necessary to achieve the 8-inch minimum flashing height:
   a. Pre-fabricated plumbing vent extensions, such as Tubos Pre-Fabricated Pipe Extension, by Tubos, Inc., Clearwater, FL.
   b. Product approved by the roofing manufacturer for this application.
   c. Size and configuration of extension as necessary to match existing pipe diameter, providing the 8-inch minimum flashing height, and allowing for flashing as show on the drawings.

E. Pre-fabricated conduit and pipe supports:
1. Acceptable Manufacturers:
   a. PHP Systems, Houston, TX, www.phpsd.com
   b. Miro Industries, Inc. Heber City, UT www.miroind.com
   c. Or approved equal.
2. For gas lines and conduit 2-1/2 inches and smaller.
   a. PP10 with roller by PHP Systems
   b. 3-RAH-7 by Miro Industries
3. For gas lines 2-1/2 inches and larger.
   a. PS-1-2 by PHP systems
   b. 6-H By Miro Industries
4. Product capable of accommodating the weight of the supported pipe at intervals recommended by the pipe support manufacturer.

PART 3 - EXECUTION

3.1 GENERAL

A. Refer to Section 024100 for general work and substrate preparation requirements.

B. Ensure that the insulation and cover board substrate is installed as specified in Section 072223 are suitable to receive roofing membrane materials.

C. Use of torches during roof replacement:
   1. Torches may only be used with the written consent of the Owner, following Owner-mandated notification requirements related to hot work.
   2. Torch-related work shall be performed in full compliance with local fire codes, Owner-mandated requirements related to torch use, and the requirements and recommendations indicated within the CERTA “Torch-Applied Roof System Safety Student Manual”. This manual is available at the National Roofing Contractors Association website: www.nrca.net.
   3. At the request of the Owner, the use of torches may be discontinued at any time.

3.2 ROOFING MEMBRANE INSTALLATION

A. Except as may be modified by the technical specifications and project drawings, install roofing membrane in accordance with the requirements and recommendations of the roofing membrane manufacturer, using the manufacturer’s current printed instructions.

B. Back-nailing of roofing membranes: At roof areas with a slope of 1/2-inch or greater, refer to manufacturer requirements relating to back-nailing of roofing membranes.

C. Chalk lining: Beginning at the low points or drains, chalk line the cover board surface to serve as guides for the proper laying of the roofing membrane plies.

D. Broom or press each ply into place, full width.

E. Hot-air welded seams: A flameless welding machine must be used for field membrane seams. Hot-air weld base ply and surfacing ply seams. Do not use torches to weld seams.

F. Install only as much roofing as can be completed in a work day, including flashing and detail work. All installed roofing shall be sealed to a watertight condition prior to leaving the site daily.

G. Sequence roofing work to eliminate the use of installed roofing as a walkway, or as a storage platform for materials.

H. Where wheeled or excessive traffic over new or existing roofing work is unavoidable, provide and use 3/4-inch plywood, set over a minimum of two-inch thick rigid board insulation to protect roofing components in place.

I. Overnight tie-in: Care should be exercised to ensure that water does not flow beneath any existing or completed sections of the roof by temporarily sealing the loose edge of the membrane at the end of each work day and when the weather is threatening. The roofing membrane manufacturer’s requirements should be followed closely. **Under no circumstance shall the roofing contractor leave an open, unsealed roof system upon completion of daily work. Owner reserves the right to engage the services of a third-party service provider as needed to correct roofing left open or unsealed at the completion of daily work. The cost of such corrective work shall be the responsibility of the contractor.**
   1. At the Pre-Construction Meeting, provide the completed “Contractor Watertight Integrity Acknowledgement Letter”, included within this Section. The letter shall include the project name and address, and shall be signed by the project foreman and by an authorized contractor representative. After-hours emergency contact phone numbers shall be provided for the project foreman and authorized contractor representative.

J. The contractor is responsible for providing temporary repairs to existing roof systems scheduled for replacement, caused by excessive foot or vehicle traffic, equipment or material storage, or

other contractor-related activities. Repairs shall be sufficient to provide a watertight condition until the damaged area is replaced.

K. Remove debris from the roof daily prior to leaving the site. Inspect the site at ground level. Remove any roof replacement related debris from the ground.

L. Fire watch: Per local codes, provide a fire watch after completion of daily work

3.3 BASE FLASHINGS

A. Curb height: Unless otherwise indicated or not possible due to existing conditions encountered, provide an 8-inch minimum flashing height above the finished roofing surface. Refer to Section 061053 for wood blocking requirements related to raising of rooftop curbs.

B. Ensure that all flashing substrates are suitable to receive new base flashing materials. As indicated below, provide additional necessary preparations to substrates if required by the roofing membrane manufacturer:
1. At wood substrates: Prior to installation of flashing base and surfacing plies, provide a mechanically-attached backer sheet approved by the roofing manufacturer over the wood substrate. Mechanically-attach the backer sheet to the wood substrate at the rate and fastening pattern recommended by the manufacturer.
2. At concrete, masonry and metal substrates: Prior to installation of flashing base and surfacing plies, apply asphalt to the substrate. Apply primer at the rate recommended by the roofing membrane manufacturer, but at a rate not less than one gallon per square.

C. Install base flashings at vertical walls and curbs in accordance with the roofing membrane manufacturer’s requirements and recommendations.

D. Hot-air welded seams: Using a heat gun, hot-air weld flashing surfacing ply seams. Do not use torches to weld seams.

E. Secure the top edge of flashing as shown on the project drawings, and In accordance with roofing membrane manufacturer recommendations and requirements. Seal the completed flashing top edge with a 3-course stripping of woven glass fabric and flashing cement.

F. Where the anticipated finished flashing height will exceed 24-inches, consult with the roofing membrane manufacturer to determine requirements and recommendations related to additional intermittent flashing securement requirements and recommendations.

G. Fire watch: Per local codes, provide a fire watch after completion of daily work

3.4 LIQUID-APPLIED FLASHING

A. At locations to receive liquid applied flashings, as indicated on the project drawings:
1. Follow the written instructions for application of liquid-applied flashing provided by the roofing membrane manufacturer.
2. Prepare the substrate in a manner that is acceptable to the roofing membrane manufacturer. Substrate preparation includes, but is not limited to, removal of dirt and debris, treatment of surface and priming (if required by the liquid-applied flashing manufacturer).
3. Apply the base coat of liquid applied flashing to the substrate.
4. Install required reinforcing mesh into the base coat.

5. Apply the top coat of liquid applied flashing over the reinforcing mesh and base coat. Extend the top coat over and beyond the reinforcing mesh.

3.5 ROOF SUMP FLASHINGS

A. Prior to installation of the base ply, install a three-course stripping of woven glass fabric and roofing cement over the cover board/insulation substrate.

B. Install the specified modified bitumen base ply. Ensure that the modified bitumen base ply extends into and through the roof sump area.

C. Install an additional three-course stripping of woven glass fabric and roofing cement over the modified bitumen base ply.

D. Install a copper sheet flashing over the base ply in the sump. Refer to Section 076203 for copper sheet requirements. Prime both sides of the copper sheet prior to installation.

E. Install a modified bitumen flashing ply over the copper flashing sheet.

F. Install the specified modified bitumen surfacing ply over the completed roof sump flashing. Ensure that the modified bitumen surfacing ply extends into and through the roof sump area.

G. Ensure that the roofing base and surfacing plies, copper flashing sheet, and modified bitumen flashing ply extend under the clamping ring and into the drain bowl. Tightly secure the clamping ring.

3.6 SHEET METAL FLASHINGS

A. Refer to Section 076203 for sheet metal flashing requirements related to modified bitumen roofing.

3.7 SHEET METAL FLANGE STRIPPINGS

A. At sheet metal flanges associated with tubular penetration, pitch pan and perimeter edge sheet metal fascia flashings:
1. Prime the top and bottom of the sheet metal flange. Allow the primer time to dry.
2. Set flange in a full bed of roofing cement.
3. Install strippings in accordance with the project drawings and the requirements and recommendations of the modified bitumen roofing membrane manufacturer.

3.8 MISCELLANEOUS INSTALLATIONS/TREATMENTS

A. Return mechanical ventilator units to their original positions and secure to the existing curbs with EPDM-gasketed screws. Provide fasteners 12-inches, o.c., minimum, and within 2-inches of each end. Provide a minimum of two fasteners on each side of the curb.

B. Reconnect all electrical, plumbing, gas line and ventilation connections required to return mechanical units to their original operating condition. Retain a qualified, licensed electrical subcontractor to reconnect electrical equipment. Retain a qualified, licensed mechanical subcontractor to reconnect gas lines and ventilation connections. Coordinate required disconnections and reconnections with the Owner.

C. Walkpads: Install walkpads at locations indicated on the project drawings. Install in accordance with the requirements and recommendations of the roofing manufacturer.

D. Pitch pan fill materials: At locations indicated on the project drawings, provide pitch pans.
   1. After completion of pitch pan flashing/stripping installation, fill bottom of pitch pan with specified non-shrink grout, as shown on the project drawings.
   2. Complete pitch pan fill with pourable sealer. Install pourable sealer in a manner that does not allow for ponding water to collect on top of the completed pitch pan. If possible, tool or crown the sealer to create this condition.

E. Pre-fabricated plumbing vent pipe extensions:
   1. Refer to manufacturer requirements and recommendations for installation.
   2. Prior to flashing installation, seal intersection of pipe extension and existing plumbing vent.

F. Rooftop conduit and pipe supports:
   1. Install adjustable prefabricated pipe supports at rooftop conduit and pipes.
   2. Space pipe supports at intervals recommended by the support manufacturer, as determined by the diameter and weight of the conduit or pipe.
   3. Separate the support from the roof surface by installing the support over roof walkway pads, installed as specified. Extend walkpads 4-inches, minimum beyond all sides of supports.

END OF SECTION

SECTION 075216 – ATTACHMENT A

CONTRACTOR WATERTIGHT INTEGRITY ACKNOWLEDGEMENT LETTER

_____
Date

Project Name: _____

Project Street Address: _____

City, State, Zip Code: _____

Per the requirements of this Section and the Owner, The contractor of record, _____ _____, agrees to maintain watertight integrity of the facility roofing system at all times during the course of the project. Contractor will provide a sealed, watertight roof system upon completion of daily work. This work includes a sealed, watertight tie-in between any existing and new roof systems.

No more roofing may be removed than can be replaced with a completed roof system in the same work day. To include; perimeter, penetration and ancillary detail flashings.

Under no circumstance shall the roofing contractor leave an open, unsealed roof system upon completion of daily work. Owner reserves the right to engage the services of a third-party service provider as needed to correct roofing left open or unsealed at the completion of daily work. The cost of such corrective work shall be the responsibility of the contractor of record.

Signed,

Authorized Contractor Representative:_____

Authorized Contractor Representative Name (Printed):_____

Authorized Contractor Representative After-Hours Emergency Phone Number:_____

Project Foreman Name (Printed):_____

Project Foreman After-Hours Emergency Phone Number:_____

SECTION 076203

SHEET METAL FOR MODIFIED BITUMEN ROOFING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes requirements related to sheet metal fabrication and installation related to modified bitumen roofing.

B. Where prefinished 24-gauge and 22-gauge galvanized steel is specified within this Section, Galvalume may be considered as an acceptable alternative to the specified prefinished galvanized steel. Galvalume shall match the gauge of the specified galvanized steel, and shall meet ASTM A792/A792M-10; AZ-50. All other requirements remain as specified in this Section.

1.2 RELATED SECTIONS

A. Section 013300 – Submittal Procedures

B. Section 016000 – Product Requirements

C. Section 075216 – SBS Modified Bitumen Roofing in Cold Adhesive

D. Section 079201 – Sealants

E. Related Documents: The Contract Documents, as defined in Section 011000 - Summary of Work, apply to the Work of this Section. Additional requirements and information necessary to complete the Work of this Section may be found in other documents.

1.3 REFERENCES

A. Reference standards of the following sources are applicable to products and procedures specified in Part 2 - Products and Part 3 – Execution of this Section:
   1. American Society for Testing and Materials (ASTM)
      a. ASTM A653/653M – Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
      b. ASTM A792/A792M-10 – Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process
      c. ASTM D41/D41M - Standard Specification for Asphalt Primer Used in Roofing, Dampproofing, and Waterproofing
   2. National Roofing Contractors Association (NRCA)
   3. Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA)
      a. SMACNA Architectural Sheet Metal Manual, 7th Edition

1.4 SUBMITTALS

A. Prior to the start of work, submit the following to the Owner for approval:
   1. Product submittals required within Section 013300.

B. Refer to Section 013300 for procedural requirements related to the submittal process.

1.5 QUALITY ASSURANCE PROCEDURES

A. Applicator Qualifications: A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive a manufacturer's warranty. Company shall have a minimum of 5 years documented experience certified by roofing system manufacturer.

B. Single Source Responsibility: Roofing system materials and components shall be supplied and warranted by roofing system manufacturer for specified roofing system and shall be in compliance with specified regulatory requirements.

C. Examine the technical specifications and drawings. Verify all dimensions, detail conditions, roof plan notes and existing site conditions that may affect the work. Verification of existing dimensions and site conditions is the responsibility of the Contractor. No additional compensation will be considered for failure to verify existing dimensions, detail conditions, roof plan note callouts, and existing site conditions.

D. Upon examination, if conflicts between the technical specifications and drawings, and those of federal, state or local regulatory agencies, the product manufacturer, industry roofing standards, or Owner-mandated requirements are discovered, notify the Owner immediately for resolution.

E. The Contractor is responsible that all perimeter edge metal systems meet and comply with ANSI/SPRI ES-1 Testing.

F. During work, if conditions are discovered which do not allow for continuation of the work per the technical specifications and drawings, notify the Owner immediately for resolution.

1.6 DELIVERY, STORAGE AND HANDLING

A. Refer to Section 016000 for transport, handling, storage and product requirements.

B. Deliver materials in manufacturer's original containers, dry, undamaged, seals and labels intact.

C. Store materials in weather protected environment, clear of ground and moisture. Cover insulation, roofing materials, and other moisture-sensitive products with a canvas tarp.

D. Protect adjacent materials and surfaces against damage from roofing work. Do not store materials on previously completed roofing.

1.7 ENVIRONMENTAL REQUIREMENTS

A. Do not perform work during inclement weather. Refer to product manufacturer for outdoor temperature requirements for installation of materials. Do not install materials at times when the outdoor temperature does not fall within the minimum/maximum temperature requirements of the manufacturer.

B. Cold weather precautions:
   1. Store products that may be negatively affected by exposure to cold weather, such as primers, adhesives, sealants and cements, in a heated location. Refer to the modified bitumen roofing manufacturer and NRCA requirements and recommendations for additional cold weather application recommendations and restrictions.

C. Safety Data Sheets (SDSs) of all specified products shall remain on site for the duration of this project.

PART 2 – PRODUCTS

2.1 SHEET METAL ACCESSORIES

A. Perimeter edge metal flashing: Field-fabricated or manufacturer-provided factory-fabricated perimeter edge sheet metal flashing system consisting of a perimeter edge fascia and underlying continuous cleat. Refer to the project drawings.
   1. For field-fabricated perimeter edge fascia: Configuration of field-fabricated metal shall match the project drawings. Prefinished galvanized steel, 24-gauge, with Kynar 500 coating; maximum section lengths of 10-feet; standard color selected by the Owner.
      a. Continuous cleats associated with perimeter edge metal flashing systems: Galvanized steel, minimum 22-gauge, ASTM A653/653M; G-90, maximum section length of 10-feet.
   2. For manufacturer-provided factory-fabricated perimeter edge fascia systems: Canted configuration, with a minimum 1-1/2 inch integrated water dam, and no exposed fasteners. The system shall consist of an outer fascia cover with Kynar 500 coating fabricated with minimum 24-gauge galvanized steel or minimum 0.050-inch aluminum; and minimum 22-gauge continuous cleat or extruded aluminum inner retention anchor bar. Standard metal color shall be selected by the Owner. Acceptable pre-fabricated systems and configurations:
      a. Anchor-Tite Canted Fascia, Extended Canted Fascia, or Perma-Tite System 200 Fascia, manufactured by Metal-Era, Waukesha, WI; www.metalera.com.
      b. Other manufacturer-provided, canted perimeter edge fascia systems meeting the requirements listed in Paragraph 2.1.A.2, and receiving prior approval from the Owner.

B. Parapet wall metal flashing: Flashing system consisting of a coping cap and underlying continuous cleat. Refer to the project drawings.
   1. For field-fabricated parapet wall flashing coping cap: Prefinished galvanized steel, 24-gauge, with Kynar 500 coating; maximum section lengths of 10-feet; standard prefinished color selected by the Owner.
      a. Continuous cleats associated with perimeter parapet wall metal flashing: Galvanized steel, minimum 22-gauge, ASTM A653/653M; G-90, maximum section length of 10-feet.
   2. For manufacturer-provided factory-fabricated parapet wall flashing systems: Configuration shall match those indicated on the project drawings. Coping cap pieces shall be joined by standing seams. System shall consist of an outer coping cap cover with Kynar 500 coating fabricated with minimum 24-gauge galvanized steel or minimum 0.050-inch aluminum; and minimum 22-gauge galvanized steel or minimum .063-inch aluminum continuous cleat. Standard metal color shall be selected by the Owner. Acceptable pre-fabricated systems and configurations:
      a. Systems manufactured by Metal-Era, Waukesha, WI; www.metalera.com or OMG Roofing products, Agawam, MA; www.omgroofing.com capable of being joined with standing seams.
      b. Parapet wall metal flashing systems meeting the requirements listed in Paragraph 2.1.A.2, capable of being **joined with standing seams**, and receiving prior approval from the Owner.

C. Fascia extensions: Prefinished galvanized steel, 24-gauge, with Kynar 500 coating, maximum section lengths of 10-feet; standard color as selected by the Owner. Refer to project drawings.
   1. Continuous cleats associated with area divider covers: Galvanized steel, minimum 22-gauge, ASTM A653/653M; G-90, maximum section length of 10-feet.

D. Counterflashings: Prefinished galvanized steel, 24-gauge, with Kynar 500 coating, maximum section lengths of 10-feet; standard color as selected by the Owner. Refer to project drawings.

E. Plumbing vent flashing:
   1. Flanged sleeve: Flange and sleeve formed of minimum 20-ounce cold-rolled copper sheet. The flange shall extend 6-inches, minimum out from the sleeve in all directions. Refer to project drawings.
   2. Vent cap: Cap formed of minimum 20-ounce soft copper, and extending down over the copper flanged sleeve a minimum of 3-inches, and extending down into the interior of the plumbing vent 3-inches, minimum. Refer to project drawings.

F. Tubular penetrations and hoods:
   1. Tubular penetration flanged sleeve: Stainless steel, 24-guage. Fabricate a one-piece flanged sleeve with a flange extending 6-inches minimum out from the sleeve onto the roof membrane. Refer to the project drawings.
   2. Tubular penetration hoods associated with field and pre-fabricated tubular penetration flashings: Stainless steel, 24-guage. Fabricate to dimensions shown on the project drawings.
   3. For securement of tubular penetration hoods: Stainless steel adjustable clamp.

G. Hot stack penetrations:
   1. Hot stack penetration flanged sleeve: Stainless steel, 24-guage. Fabricate a one-piece flanged sleeve with a flange extending 6-inches minimum out from the sleeve onto the structural deck.
   2. Hoods associated with hot stack penetration flashings: Stainless steel, 24-guage. Fabricate to dimensions shown on the project drawings.
   3. For securement of tubular penetration hoods: Stainless steel adjustable clamp.

H. Roof sump flashing:
   1. Roof sump flashing: 30-inches by 30-inches, minimum 32-ounce soft copper roof drain flashing sheet.

I. Miscellaneous sheet metal accessories:
   1. For terminating flashing: Anchor bar: 1-inch x 1/8-inch extruded aluminum with slotted holes spaced 6 inches o.c. Do not fabricate with a caulk slot.
   2. For use beneath sheet metal coping caps, area divider covers, expansion joint covers, capped curb covers and other locations indicated on the project drawings: Self-adhering underlayment meeting the following criteria:
      a. Meeting the requirements of ASTM D1970.
      b. Approved by the roofing membrane manufacturer for the specified detail condition.

2.2 MISCELLANEOUS MATERIALS

A. Flashing cement and roofing cement: Product compatible with flashing sheet used and approved by the roofing membrane manufacturer for the detail condition encountered.

B. Asphalt primer: ASTM D 41/ D 41M.

C. Butyl tape (for use behind vertical flanges of surface-mounted counterflashing, and other locations indicated on the project drawings): High-temperature, self-adhering double-sided butyl-rubber sealant tape; minimum 1-inch wide by 1/8-inch thick.

2.3 FASTENERS

A. For securing vertical faces of field-fabricated continuous cleats to wood substrates: Minimum 8d coated ring shank nails (at wood substrates), or fasteners appropriate for the existing substrate (at other substrates such as masonry, concrete or metal).

B. For securing vertical faces of factory-fabricated inner retention anchor bars or continuous cleats: Fasteners provide by or recommended by the sheet metal flashing system manufacturer.

C. For securing horizontal flanges associated with field-fabricated perimeter edge fascia pieces and gutters: Roofing nails with smooth, flat, minimum 3/8-inch head; hot-dipped galvanized steel or equivalent corrosion-resistance, No. 11 or No. 12 gauge with barbed shanks and conventional sharp point; ASTM F1667, Type 1, Style 20. Length as necessary to penetrate minimum 1-inch into substrate.

D. For stainless steel: Stainless steel fasteners.

E. For securing aluminum anchor bar: Fasteners appropriate for, and approved by the Owner and roofing manufacturer for the substrate encountered.

F. For securing all other sheet metal flashings: Fasteners indicated on the project drawings, or appropriate and approved by the Owner for the substrate encountered, and compatible with the sheet metal type to be secured. Where fastener heads are exposed, provide fasteners with neoprene gaskets.

2.4 SEALANTS FOR ROOFING

A. Refer to Section 079201.

PART 3 - EXECUTION

3.1 SHEET METAL FLASHING INSTALLATION

A. Perimeter edge metal flashing system:
1. Install perimeter edge metal flashing as shown on the project drawings. Provide sheet metal flashings matching the configurations and dimensions indicated on the project drawings.
a. Secure the horizontal flange and vertical face of continuous cleats with coated ring shank nails 6-inches o.c., max., and within 2-inches of each end of cleat pieces. If the existing substrate is not nailable, use a fastener compatible with the existing substrate fastened at the rates indicated.
b. Place the outer fascia/gravel stop piece. Hook the fascia to the underlying continuous cleat. Secure the horizontal flange with roofing nails 3-inches o.c. in two staggered rows as indicated on the project drawings.

B. Perimeter parapet wall metal flashing:
   1. Install parapet wall metal flashing as shown on the project drawings. Provide sheet metal flashings matching the configurations and dimensions indicated on the project drawings.
      a. Prior to installation of continuous cleat and coping caps, install the specified self-adhering underlayment over the top of parapet wall. Extend self-adhering membrane down exterior face a minimum of 1-inch below exposed wood blocking, and down inner wall face as shown on the project drawings.
      b. Fabricate continuous cleats with a kick-up, creating a minimum 1/2-inch per foot slope toward the roof.
      c. Secure the horizontal flange and vertical face of continuous cleats with coated ring shank nails 6-inches o.c., max., and within 2-inches of each end of cleat pieces. If the existing substrate is not nailable, use a fastener compatible with the existing substrate fastened at the rates indicated.
      d. Place the coping cap sections. At the outer face, hook the coping cap fascia to the underlying continuous cleat. At the inner face, secure the flange with minimum #12 fasteners, fitted with neoprene gaskets, 18-inches o.c., max., and within 2-inches of each end.
      e. Join adjacent coping cap sections using a standing seam, with a 1” height. Where upturned standing seam ends meet, apply continuous sealant to the joint, fold over and crimp the two adjoining pieces. Button punch the completed assembly watertight. Refer to the project drawings.
      f. Where coping caps terminate at walls, turn membrane min. 1-inch up wall. Turn coping cap piece min. 2-inches up wall. Seal and secure as indicated on the project drawings. Install counterflashing over exposed end piece.

C. Fascia extensions:
   1. Secure fascia extensions with coated ring shank nails or other specified fasteners appropriate for the substrate condition encountered, 6-inches o.c. max.

D. Counterflashings: Provide counterflashings, as detailed, at locations indicated on the project drawings:
   1. Where indicated, cut reglets into masonry walls to accommodate reglet-mounted counterflashing.
   2. Fabricate counterflashing to the configurations and dimensions indicated on the project drawings. Fabricate counterflashings with a 3/4-inch hemmed drip edge. For surface mounted counterflashings, fabricate with a 1/2-inch 45-degree angle sealant slot along the top edge of the counterflashing.
   3. If existing conditions allow, fabricate counterflashings with a minimum 4-inch vertical face.
   4. Where indicated on the project drawings, install butyl tape to the back side of vertical counterflashing flanges.
   5. Secure counterflashings with specified fasteners appropriate for substrate condition encountered, fitted with neoprene washers. Space fasteners 12-inches o.c. max., and within 2-inches of each end.

E. Plumbing vent flashings:
   1. Install copper plumbing vent flashings as indicated on the project drawings.
   2. Prior to flashing application, ensure both sides of the plumbing vent bottom flange have been primed. Prior to stripping application, set the flange in a full bed of roofing cement.

F. Tubular penetrations flashings:
   1. Fabricate and install tubular penetration flashings as indicated on the project drawings.

2. Prior to flashing application, ensure both sides of the tubular penetration bottom flange have been primed. Prior to stripping application, set the flange in a full bed of roofing cement.
3. Install tubular penetration hoods as indicated on the project drawings.
4. Where soldering is required at stainless steel flanged sleeves, hoods, and pitch pans: Solder all seams and laps watertight. Prior to soldering of stainless steel, clean work area using solvents and wire brush; removing dirt, oil, grease, and other contaminants from the work area. Tin the work area by applying acid (flux). Perform soldering work. After completion of work, remove excess acid (flux) from the work area.

G. Hot stack penetration flashings:
1. Fabricate and install hot stack penetration flashings as indicated on the project drawings.
2. Prior to flashing application, ensure both sides of the hot stack penetration flashing bottom flange have been primed. Prior to stripping application, set the flange in a full bed of roofing cement.
3. Install hoods as indicated on the project drawings.
4. Where soldering is required at stainless steel flanged sleeves, hoods, and pitch pans: Solder all seams and laps watertight. Prior to soldering of stainless steel, clean work area using solvents and wire brush; removing dirt, oil, grease, and other contaminants from the work area. Tin the work area by applying acid (flux). Perform soldering work. After completion of work, remove excess acid (flux) from the work area.

H. Pitch pans and pitch pan covers:
1. Fabricate and install pitch pans and pitch pan covers where indicated on the project drawings. Do not use pitch pans at tubular penetrations without the approval of the Owner.
2. Prior to flashing application, ensure both sides of the pitch pan bottom flange have been primed. Prior to stripping application, set the flange in a full bed of roofing cement.
3. Where possible, provide a pitch pan cover over the completed pitch pan.
4. Where soldering is required at stainless steel flanged sleeves, hoods, and pitch pans: Solder all seams and laps watertight. Prior to soldering of stainless steel, clean work area using solvents and wire brush; removing dirt, oil, grease, and other contaminants from the work area. Tin the work area by applying acid (flux). Perform soldering work. After completion of work, remove excess acid (flux) from the work area.

I. Roof sump flashings:
1. Install sheet metal roof sump flashings at roof drains as indicated on the project drawings.
2. Prior to flashing application, ensure both sides of the copper roof sump flashing have been primed. Set copper flashing over modified bitumen base ply. Prior to application of copper flashing, install a three-course stripping of roofing cement and woven glass fabric over the modified bitumen base ply in the roof sump area.

J. Miscellaneous sheet metal installations:
1. Anchor bar installation: Fasten the upper edges of modified bitumen flashings with an anchor bar installed in accordance with the project drawings and requirements of the roofing membrane manufacturer. At wood substrates, roofing nails affixed with a 1-inch diameter metal cap may be used in lieu of the specified anchor bar. If roofing nails/metal caps are used, secure top edge of flashing 6-inches o.c., max.
2. Self-adhering underlayment installation: Install self-adhering underlayment beneath coping caps, area divider covers, expansion joint covers, capped curb covers, and other locations indicated on the project drawings.

END OF SECTION

SECTION 079201

SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes product and execution requirements related to the installation of sealants associated with sheet metal flashing work, sealants at high-temperature penetrations, sealants associated with windows, and sealants at building expansion and control joints, if applicable.

1.2 RELATED SECTIONS

A. Section 013300 – Submittal Procedures

B. Section 016000 – Product Requirements

C. Related Documents: The Contract Documents, as defined in Section 011000 - Summary of Work, apply to the Work of this Section. Additional requirements and information necessary to complete the Work of this Section may be found in other documents.

1.3 REFERENCES

A. Reference standards of the following sources are applicable to products and procedures specified in Part 2 - Products and Part 3 – Execution of this Section:
   1. American Society for Testing and Materials (ASTM)
      a. ASTM C 920 – Standard Specification for Elastomeric Joint Sealants
      b. ASTM C 661 - Standard Test Method for Indentation Hardness of Elastomeric Type Sealants by Means of a Durometer
      c. ASTM C 679 - Standard Test Method for Tack-Free Time of Elastomeric Sealants
      d. ASTM C 719 - Standard Test Method for Adhesion and Cohesion of Elastomeric Joint Sealants Under Cyclic Movement (Hockman Cycle)
      e. ASTM C 794 - Standard Test Method for Tack-Free Time of Elastomeric Sealants
      f. ASTM C 1135 - Standard Test Method for Determining Tensile Adhesion Properties of Structural Sealants
      g. ASTM C 1193 - Standard Guide for Use of Joint Sealants
      h. ASTM C 1248 - Standard Test Method for Staining of Porous Substrate by Joint Sealants

1.4 SUBMITTALS

A. Prior to the start of work, submit the following to the Owner for approval:
   1. Product submittals required within Section 013300.

B. Refer to Section 013300 for procedural requirements related to the submittal process.

1.5 QUALITY ASSURANCE PROCEDURES

A. Applicator Qualifications: A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive a manufacturer's warranty. Company shall have a minimum of 5 years documented experience certified by roofing system manufacturer.

B. Single Source Responsibility: Roofing system materials and components shall be supplied and warranted by roofing system manufacturer for specified roofing system and shall be in compliance with specified regulatory requirements.

C. Examine the project manual and drawings. Verify all dimensions, detail conditions, roof plan notes and existing site conditions that may affect the work. Verification of existing dimensions and site conditions is the responsibility of the Contractor. No additional compensation will be considered for failure to verify existing dimensions, detail conditions, roof plan note callouts, and existing site conditions.

D. Upon examination, if conflicts between the technical specifications and drawings, and those of federal, state or local regulatory agencies, the product manufacturer, industry roofing standards, or Owner-mandated requirements are discovered, notify the Owner immediately for resolution.

E. During work, if conditions are discovered which do not allow for continuation of the work per the technical specifications and drawings, notify the Owner immediately for resolution.

1.6 DELIVERY, STORAGE AND HANDLING

A. Refer to Section 016000 for transport, handling, storage and product requirements.

B. Deliver materials in manufacturer's original containers, dry, undamaged, seals and labels intact.

C. Store materials in weather protected environment, clear of ground and moisture. Cover insulation, roofing materials, and other moisture-sensitive products with a canvas tarp.

D. Protect adjacent materials and surfaces against damage from roofing work. Do not store materials on previously completed roofing.

1.7 ENVIRONMENTAL REQUIREMENTS

A. Do not perform work during inclement weather. Refer to product manufacturer for outdoor temperature requirements for installation of materials. Do not install materials at times when the outdoor temperature does not fall within the minimum/maximum temperature requirements of the manufacturer.

B. Cold weather precautions:
   1. Store products that may be negatively affected by exposure to cold weather, such as primers, adhesives, sealants and cements, in a heated location. Refer to the sealant manufacturer and NRCA requirements and recommendations for additional cold weather application recommendations and restrictions.

C. Safety Data Sheets (SDSs) of all specified products shall remain on site for the duration of this project.

1.8 MANUFACTURER WARRANTY AND CONTRACTOR GUARANTEE

A. Provide a manufacturer 20-Year Product Warranty covering sealant.

B. The Contractor shall provide a five-year contractor guarantee covering workmanship related to building envelope sealant work.

PART 2 – PRODUCTS

2.1 GENERAL

A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another, joint substrates under conditions of service and application, and any adjacent or previous sealants, as demonstrated by the sealant manufacturer.

B. Color of exposed exterior sealants used in conjunction with sheet metal flashings shall match adjacent sheet metal, unless otherwise indicated by the Owner. Color of all other sealants shall be determined by Owner.

2.2 SEALANT

A. Building Joint Sealant: One-component, ultra-low modulus, neutral-cure, architectural-grade silicone rubber sealant; in compliance with ASTM C 920, Type S, Grade NS; Class 50, Use NT, G, A O. Color as directed by Owner. Products such as:
   1. Dow Corning 790 Silicone Building Sealant, manufactured by Dow Corning; www.dowcorning.com.
   2. GE SCS2000 SilPruf Silicone Sealant and Adhesive, manufactured by GE; www.GE.com/silicones.
   3. Other sealants meeting the requirements listed in Paragraph 2.2.A, and approved by the Owner prior to use.

B. Window Sealant: Perimeter and butterfly joint sealants (frame-to-frame and frame-to-dissimilar material Dow Corning 790 sealant. Glazing (frame-to-glass) Dow Corning 795 sealant.

C. Roofing Sheet Metal Sealant: Moisture-cured, non-sag, urethane sealant, in compliance with ASTM C 920, Type S, Grade NS. Color to match sheet metal or as directed by Owner.
   1. Closed-cell backing materials, bond breakers, and primers as recommended by the sealant manufacturer for the joint conditions encountered.

D. High-temperature sealant: For use at high-temperature penetrations and other locations where high temperatures are anticipated: Product such as “736 Heat Resistant Sealant”, manufactured by Dow Corning, or other product approved by Owner for temperature and substrate conditions encountered.
   1. Heat resistant sealant shall be rated to withstand intermittent temperatures up to 500 degrees Fahrenheit, minimum.

E. Sealant primer: Type recommended and approved by sealant manufacturer for substrate encountered.

F. Joint filler, backer rod and bond breaker tape:
   1. Product(s) recommended and approved by sealant manufacturer for substrate encountered.

2. Size and configuration as necessary for condition encountered.

PART 3 - EXECUTION

3.1 SEALANT INSTALLATION

A. Sealant installation related to sheet metal flashings:
   1. Surface preparation: Prior to installation, prepare surfaces specified to receive sealant as recommended by the sealant manufacturer. Clean surfaces immediately before installation of sealants to provide surfaces suitable for the installation of sealant, removing all foreign material, dust, oil, grease, water, surface dirt, and existing paint. Clean metal surfaces using a solvent that leaves no residue, such as toluene or xylene. Use clean clothes or lint-free paper towels for cleaning with solvents and drying.
   2. Priming: If required or recommended by the sealant manufacturer, apply primer in accordance with the sealant manufacturer's written instructions. Apply primer with a clean, dry, lint-free cloth. Do not dilute materials. Flooding of the substrate surface is not permitted. Continue primer to areas of sealant bond only.
   3. Sealant installation: Install sealant where shown on the project drawings in accordance with the requirements and recommendations of the sealant manufacturer.
      a. Use sealant-dispensing equipment to push sealant bead into opening. Fill joint opening to full and proper configuration. Apply in continuous operation.
      b. Before skinning or curing begins, tool sealant with metal spatula. Provide concave, smooth, uniform, sealant finish. Eliminate air pockets and ensure complete contact on both sides of joint opening. Tool joints in one continuous stroke. The use of soaps, oils, water and or alcohols as tooling aids are not permitted.

B. Sealant installation at high temperature penetrations:
   1. Surface preparation: Prior to installation, prepare surfaces specified to receive sealant as recommended by the sealant manufacturer. Clean surfaces immediately before installation of sealants to provide surfaces suitable for the installation of sealant, removing all foreign material, dust, oil, grease, water, surface dirt, and existing paint. Clean metal surfaces using a solvent that leaves no residue, such as toluene or xylene. Use clean clothes or lint-free paper towels for cleaning with solvents and drying.
   2. Priming: If required or recommended by the sealant manufacturer, apply primer in accordance with the sealant manufacturer's written instructions. Apply primer with a clean, dry, lint-free cloth. Do not dilute materials. Flooding of the substrate surface is not permitted. Continue primer to areas of sealant bond only.
   3. Sealant installation: Install sealant where shown on the project drawings in accordance with the requirements and recommendations of the sealant manufacturer.
      a. Use sealant-dispensing equipment to push sealant bead into opening. Fill joint opening to full and proper configuration. Apply in continuous operation.
      b. Before skinning or curing begins, tool sealant with metal spatula. Provide concave, smooth, uniform, sealant finish. Eliminate air pockets and ensure complete contact on both sides of joint opening. Tool joints in one continuous stroke. The use of soaps, oils, water and or alcohols as tooling aids are not permitted.

C. Sealant installation at coping joints, and building expansion and/or control joints:
   1. Surface preparation: Prior to installation, prepare surfaces specified to receive sealant as recommended by the sealant manufacturer. Clean surfaces immediately before installation of sealants to provide surfaces suitable for the installation of sealant,

removing all foreign material, dust, oil, grease, water, surface dirt, and existing paint. Clean metal surfaces using a solvent that leaves no residue, such as toluene or xylene. Use clean clothes or lint-free paper towels for cleaning with solvents and drying.

2. Priming: If required or recommended by the sealant manufacturer, apply primer in accordance with the sealant manufacturer's written instructions. Apply primer with a clean, dry, lint-free cloth. Do not dilute materials. Flooding of the substrate surface is not permitted. Continue primer to areas of sealant bond only.
3. Sealant installation: Install sealant where shown on the project drawings in accordance with the requirements and recommendations of the sealant manufacturer.
    a. Sealant backing: Provide backer rod with a minimum diameter that is 25 percent greater than the joint width. Install backer rod with blunt instrument. Install without gaps, twisting, stretching, or puncturing backing material. Use proper backer rod size to ensure uniform depth to achieve correct profile, coverage, and performance. Where backer rods must terminate, use bond breaker tape.
    b. Bond breaker: Install on backside of joint where backing is not feasible.
    c. Maintain a 2-to-1 ratio of joint width to sealant depth in accordance with the manufacturer's requirements.
    d. Use sealant-dispensing equipment to push sealant bead into opening. Fill joint opening to full and proper configuration. Apply in continuous operation.
    e. Before skinning or curing begins, tool sealant with metal spatula. Provide concave, smooth, uniform, sealant finish. Eliminate air pockets and ensure complete contact on both sides of joint opening. Tool joints in one continuous stroke. The use of soaps, oils, water and or alcohols as tooling aids are not permitted.
    f. Complete horizontal joints prior to vertical joints. Lap vertical sealant over horizontal joints.

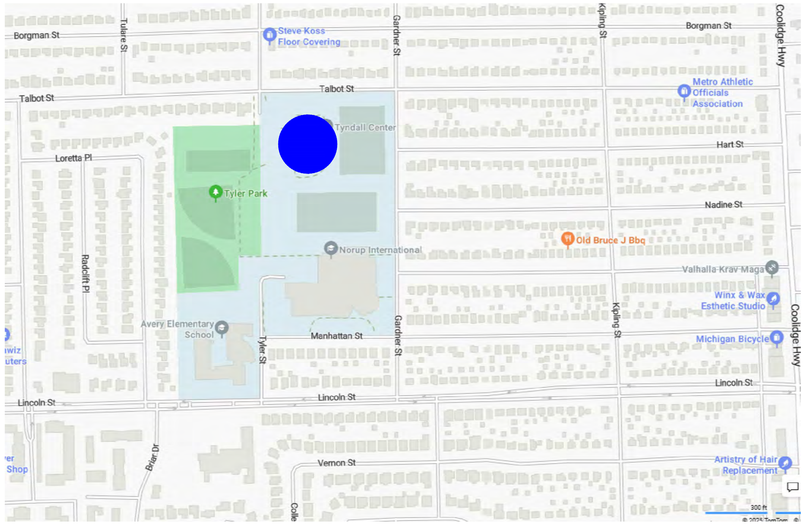
3.2 FIELD QUALITY CONTROL

A. Perform adhesion tests in accordance with manufacturer's instructions and ASTM C 1193, Method A, Field-Applied Sealant Joint Hand-Pull Tab.
    1. Perform one adhesion test per building elevation, minimum.
    2. For sealants applied between dissimilar materials, test both sides of joint.

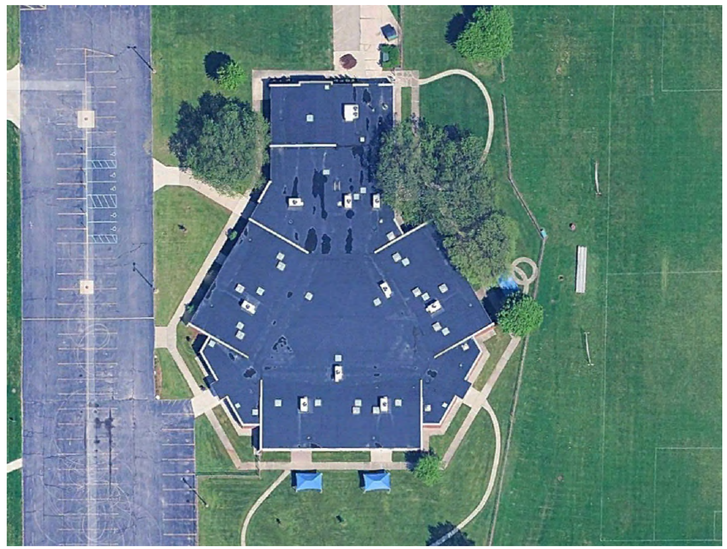
B. Sealants failing adhesion test shall be removed, substrates cleaned, sealants re-installed, and re-testing performed.

C. Maintain test log and submit report to Architect indicating tests, locations, dates, results, and remedial actions.

END OF SECTION



PROJECT LOCATION MAP



SCOPE OF REPLACEMENT MAP

ROOF PLAN SYMBOL LEGEND:

- ROOF CURB
- ROOF HATCH
- RAISED EQUIPMENT
- SKYLIGHT CURB
- SUPPORT CURBS
- CAPPED CURB
- CHIMNEY
- ROOF DRAIN
- ROOF DRAIN WITH INSERT
- OVERFLOW ROOF DRAIN
- THROUGH-WALL SCUPPER
- SCUPPER WITH CONDUCTOR BOX
- THROUGH-FASCIA SCUPPER
- OVERFLOW ROOF SCUPPER
- SANITARY VENT
- TUBULAR PENETRATION
- HOT STACK
- PITCH PAN
- H-COLUMN
- DOWNSPOUT
- PERIMETER OR CURBED EDGE
- GUTTER EDGE
- PARAPET WALL OR AREA DIVIDER
- EXPANSION JOINT
- SUMP AREA
- ROOF-TO-WALL TRANSITION
- AREA TRANSITION
- RIDGE LINE
- SATELLITE DISH ON ROOF
- WALKPAD
- WALKWAY
- SUPPLY OR CONDENSATE LINE
- LADDER
- SLOPE DIRECTION
- DUCT WORK
- DOWNSPOUT SPLASHBLOCKS
- DETAIL NUMBER CALLOUT
- SHEET NUMBER CALLOUT

GENERAL NOTES:

1. DRAWINGS ARE PRODUCED AT ARCH D (24-INCH BY 36-INCH) SIZE. PLEASE NOTE AND VERIFY THE SCALE INDICATED ON EACH DRAWING. NOTE THAT ROOF PLANS AND OTHER PROJECT DRAWINGS PRODUCED ON OTHER PAPER SIZES MAY NOT BE CORRECTLY SCALED.

2. ALL COMPONENTS SHOWN ON PROJECT DRAWINGS ARE NEW UNLESS SPECIFICALLY INDICATED AS EXISTING.

3. WOOD BLOCKING IDENTIFIED ON THE PROJECT DETAIL DRAWINGS SHALL BE CONSIDERED NEW UNLESS SPECIFICALLY IDENTIFIED AS EXISTING. CONSIDERATION MAY BE GIVEN TO ALLOWING RE-USE OF EXISTING WOOD BLOCKING FOUND TO BE IN GOOD CONDITION. WOOD BLOCKING APPROVED TO REMAIN IN PLACE SHALL BE RE-SECURED AS SPECIFIED IN SECTION 024100 OF THE PROJECT MANUAL. THE OWNER RESERVES THE RIGHT TO REQUEST A CREDIT FOR NAILERS REMAINING IN PLACE. THE AMOUNT OF THE CREDIT DUE BACK TO THE OWNER SHALL BE DETERMINED BY THE LINEAL FOOTAGE OF WOOD BLOCKING TO REMAIN IN PLACE, TYPE OF WOOD BLOCKING, AND THE SCHEDULE OF UNIT PRICES SUBMITTED BY THE CONTRACTOR.

4. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY EXISTING PROJECT SITE CONDITIONS. THESE CONDITIONS INCLUDE, BUT ARE NOT LIMITED TO: BUILDING DIMENSIONS AND PROPOSED PROJECT STAGING LOCATIONS, ROOF REPLACEMENT AREA DIMENSIONS, ROOF DRAINAGE COMPONENT LOCATIONS, ROOF PENETRATION LOCATIONS, EXISTING ROOF SYSTEM COMPONENT MAKE-UP AND THICKNESS, AND PROJECT REPAIR QUANTITIES (IF APPLICABLE). THE CONTRACTOR SHALL VISIT AND BECOME FAMILIAR WITH THE SITE AND BUILDING PRIOR TO PROPOSAL SUBMISSION. INCLUDE THE COST OF ALL WORK DESCRIBED IN THE BIDDING DOCUMENTS AND THAT IS REQUIRED OR REASONABLY IMPLIED TO ACHIEVE THE DESIGN INTENT OF THE BIDDING DOCUMENTS. NOTIFY THE ROOF CONSULTANT OF ANY CONFLICTS BETWEEN EXISTING CONDITIONS AND THE NEW WORK, OF ANY OMISSIONS OR CONFLICTS IN THE DRAWINGS AND ANY RESTRICTIONS RELATED TO THE EXECUTION OF THE WORK INCLUDING THE COORDINATION WITH OTHER TRADES.

5. PRODUCTS PROPOSED FOR USE AND PROJECT WORK SHALL BE IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL GOVERNING ORDINANCES, CODES AND REGULATIONS. NOTIFY THE OWNER IMMEDIATELY OF CONFLICTS BETWEEN THE SPECIFIED PRODUCTS AND/OR PROJECT WORK REQUIREMENTS AND CODES, ORDINANCES AND/OR REGULATIONS.

6. IF DISCREPANCIES ARE DISCOVERED WITHIN THE PROJECT MANUAL OR DRAWINGS; THE OWNER, NOT THE CONTRACTOR, SHALL DETERMINE THE INTENT OF THE DESIGN AND PROVIDE CLARIFICATION. NO ALLOWANCE SHALL BE MADE FOR CONTRACTOR MISINTERPRETATION OR IMPLIED MISINTERPRETATION OF THE PROJECT MANUAL AND DRAWINGS.

7. REFER TO THE PROJECT MANUAL AND ROOFING SYSTEM MANUFACTURER WRITTEN INSTRUCTIONS FOR FURTHER CLARIFICATION OF PROJECT REQUIREMENTS. NOTIFY THE OWNER IMMEDIATELY OF CONFLICTS BETWEEN THE SPECIFIED DESIGN REQUIREMENTS AND THE WRITTEN REQUIREMENTS AND RECOMMENDATIONS OF THE ROOFING SYSTEM MANUFACTURER.

8. CLOSE AND SEAL ABANDONED OPENINGS TO MATCH EXISTING ADJACENT SURFACES WHERE MECHANICAL, PLUMBING, AND/OR ELECTRICAL ITEMS ARE REMOVED.

9. CONTRACTOR SHALL TAKE NORMAL PRECAUTIONS SO THAT DEBRIS, ROOFING MATERIAL, ETC., DOES NOT FALL INTO THE BUILDING OR ON EQUIPMENT PER SECTIONS 014000 AND 015000.

SUMMARY OF ROOF REPLACEMENT WORK - AREA A

A. ROOF REMOVAL AND SUBSTRATE PREPARATION: REMOVE EXISTING ROOF SYSTEM DOWN TO THE STRUCTURAL DECK, INCLUDING ROOF MEMBRANE(S), AND UNDERLYING INSULATION, UNDERLAYMENTS, AND ADDITIONAL ROOF MEMBRANES. INSPECT THE EXISTING STRUCTURAL DECK, AND INFORM THE OWNER IMMEDIATELY OF OBSERVED DAMAGE AND OR DETERIORATION. TEMPORARILY DISPLACE ROOFTOP EQUIPMENT AS NECESSARY TO COMPLETE THE SPECIFIED WORK. REFER TO SECTION 024100.

B. AFTER ROOF REMOVAL AND INSPECTION OF THE EXISTING STRUCTURAL DECK AND PERIMETER WOOD BLOCKING, PERFORM REPAIRS TO THE STRUCTURAL DECK, AS DETERMINED NECESSARY BY THE OWNER. REFER TO SECTION 053123. REPLACE DAMAGED OR DETERIORATED WOOD BLOCKING, AS DETERMINED NECESSARY BY THE OWNER. REFER TO SECTION 061053.

C. PROVIDE REQUIRED WOOD BLOCKING WHERE INDICATED ON THE PROJECT DRAWINGS. REFER TO SECTION 061053.

D. PROVIDE TWO LAYERS OF 2-1/2 INCH POLYISOCYANURATE INSULATION (5-INCHES TOTAL). IF INDICATED ON THE PROJECT DRAWINGS, PROVIDE INSULATION SADDLES AND CRICKETS WHERE SHOWN. REFER TO SECTION 072223 FOR ADDITIONAL INSULATION PRODUCT AND INSTALLATION REQUIREMENTS.

E. PROVIDE A 1/2-INCH HIGH DENSITY POLYISO COVER BOARD OVER THE UNDERLYING INSULATION. REFER TO SECTION 072223 FOR ADDITIONAL PRODUCT AND INSTALLATION REQUIREMENTS.

F. PROVIDE A COLD ADHESIVE-APPLIED, TWO-PLY SBS MODIFIED BITUMEN ROOF SYSTEM. AFTER INSTALLATION OF SPECIFIED INSULATION AND COVER BOARD, INSTALL BASE AND SURFACING PLIES IN COLD ADHESIVE. PROVIDE BITUMINOUS AND SHEET METAL FLASHINGS AS SPECIFIED. PROVIDE A PRICE FOR A 20-YEAR, "TOTAL SYSTEM WARRANTY" FOR THE ROOF SYSTEM AND FIVE-YEAR GUARANTEE. REFER TO SECTIONS 075216 AND 076203 FOR PRODUCT AND INSTALLATION REQUIREMENTS.
   1. ACCEPTABLE MANUFACTURERS: SIPLAST

G. PROVIDE SEALANTS AT LOCATIONS INDICATED ON THE PROJECT DRAWINGS. REFER TO SECTION 079201.

INDEX OF DRAWINGS:

SHEET 01 OF 03	TITLE SHEET
SHEET 02 OF 03	ROOF PLAN - AREA A
SHEET 03 OF 03	ROOF PLAN DETAILS 01-08

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PROJECT

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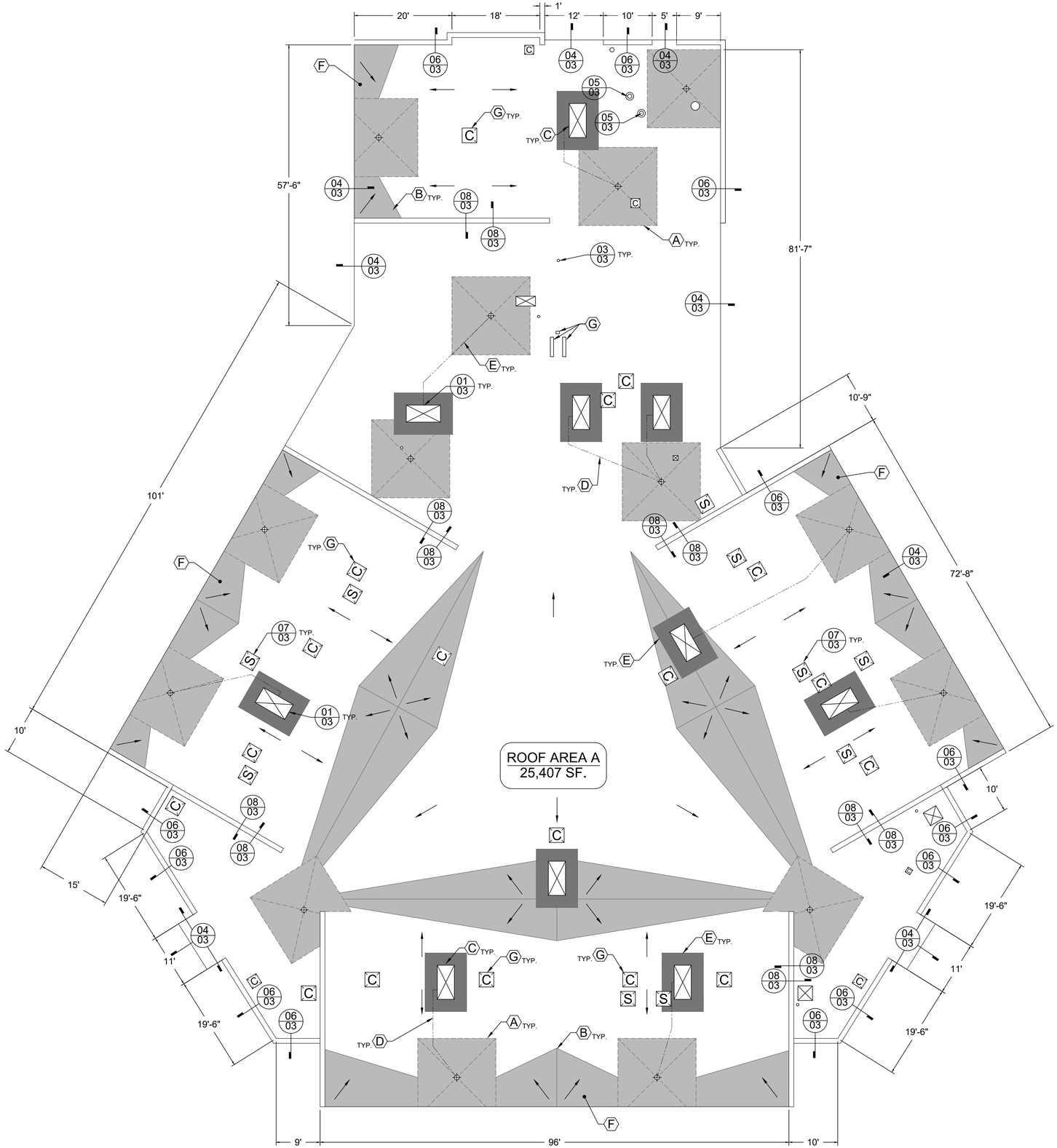
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SHEET TITLE

TITLE SHEET

SHEET 01 OF 03



EXISTING CONDITIONS:

NOTE: THE INFORMATION BELOW IS BASED ON RANDOM, LIMITED TEST CORES MADE INTO THE ROOFING SYSTEM. CONDITIONS AT THE TEST CORE LOCATIONS MAY NOT BE REPRESENTATIVE OF THE ENTIRE ROOF AREA. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY EXISTING ROOF SYSTEM COMPONENTS AND SLOPE.

ROOF AREA C

- EPDM1/2-INCH GYPSUM
- 3-INCH POLYISOCYANURATE INSULATION
- STEEL DECK DECK - 0-5/8 INCH SLOPE IN DECK

PROPOSED ROOF SYSTEMS:

NOTE: REFER TO SECTION 011000 - SUMMARY OF WORK, AND RELATED PROJECT MANUAL SECTIONS FOR ADDITIONAL PRODUCT AND INSTALLATION REQUIREMENTS FOR THE PROJECT.

PROPOSED ROOF SYSTEM - ROOF AREA A (APPROX. 25,407 SF.):

- 2-PLY MOD-BIT ROOF SYSTEM IN COLD ADHESIVE WITH HOT-AIR WELDED SEAMS
- 1/2-INCH HIGH DENSITY POLYISO - ATTACHED AS SPECIFIED
- 2-1/2 INCH POLYISOCYANURATE INSULATION - ATTACHED AS SPECIFIED
- 2-1/2 INCH POLYISOCYANURATE INSULATION - ATTACHED AS SPECIFIED
- EXISTING STEEL DECK DECK - 0-5/8 INCH SLOPE IN DECK

COVER BOARD & INSULATION ATTACHMENT REQUIREMENTS:

ATTACHMENT FOR STEEL DECKS	FIELD OF ROOF	PERIMETERS	CORNERS
COVER BOARD	ADHERED IN TWO-PART URETHANE FOAM ADHESIVE 3/4" BEADS 12" O.C.	ADHERED IN TWO-PART URETHANE FOAM ADHESIVE 3/4" BEADS 6" O.C.	MECH. ATTACH WITH 32 FASTENERS PER 4' X 8' BOARD (ONE FASTENER PER 1.00 SF).
TOP INSULATION LAYER	MECH. ATTACH WITH 12 FASTENERS PER 4' X 8' BOARD (ONE FASTENER PER 2.67 SF).	MECH. ATTACH WITH 24 FASTENERS PER 4' X 8' BOARD (ONE FASTENER PER 1.33 SF).	LOOSE-LAID
BOTTOM AND INTERMEDIATE INSULATION LAYER(S)	LOOSE-LAID	LOOSE-LAID	LOOSE-LAID

PERIMETER AND CORNER DIMENSIONS OF A ROOF LESS THAN OR EQUAL TO 60 FEET IN HEIGHT ARE DEFINED AS THE SMALLER OF:

- 0.1 TIMES THE BUILDING LESSER PLAN DIMENSION
- 0.4 TIMES THE EAVE HEIGHT
- THE TWO ABOVE DIMENSIONS ARE SUBJECT TO A MINIMUM WIDTH OF 4 PERCENT THE PLAN DIMENSION OR 3 FEET

PROJECT SPECIFIC KEY NOTES:

(A) PROVIDE TAPERED DRAINAGE SUMPS AT ROOF DRAIN LOCATIONS INDICATED ON THE ROOF PLAN. REFER TO DETAIL 02 AND SECTION 072223 FOR PRODUCT AND INSTALLATION REQUIREMENTS.

(B) INSTALL NEW INSULATION SADDLES BETWEEN ROOF DRAINS, AND AT OTHER LOCATIONS INDICATED ON THE ROOF PLAN - REFER TO SECTION 072223 FOR PRODUCT AND INSTALLATION REQUIREMENTS. ADJUST SADDLE CONFIGURATION BASED ON FIELD CONDITIONS OBSERVED.

(C) EXISTING CURBS: CONTRACTOR SHALL RAISE CURBS AS NEEDED TO ACHIEVE A MINIMUM FLASHING HEIGHT OF 8-INCHES. WHERE EXISTING CONDITIONS DO NOT ALLOW FOR THE RAISING OF CURBS, CONTRACTOR SHALL SEAL THE TOP EDGE OF THE FLASHING MEMBRANE AND TERM BAR WITH MEMBRANE MANUFACTURER'S LIQUID APPLIED FLASHING SYSTEM.

(D) EXISTING CONDENSATE LINES ON ROOF: CONTRACTOR SHALL PROVIDE ADDITIONAL CONDENSATE LINES FROM THE HVAC UNITS TO NEAREST ROOF DRAIN. WORK SHALL BE PERFORMED BY A CONTRACTOR LICENSED TO PERFORM THE SPECIFIED WORK.

(E) CONTRACTOR SHALL INSTALL WALKPADS WHERE INDICATED ON ROOF PLAN - REFER TO SECTION 075216 FOR PRODUCT REQUIREMENTS

(F) CONTRACTOR SHALL PROVIDE ADDITIONAL TAPERED INSULATION BETWEEN ROOF DRAIN AND PERIMETER EDGE TO CREATE BACK SLOPE TOWARDS ROOF DRAINS.

(G) EXISTING CAPPED CURBS AND ABANDONED CURBS - CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL CAPPED CURBS AND ABANDONED PENETRATIONS - REPAIR DECK AS NECESSARY - REFER TO SECTION 053123 FOR DECK REPAIR REQUIREMENTS.

ROOF PLAN - AREA A

NORTH

8' 0 8' 16' 32'

SCALE: 3/32" = 1'-0"

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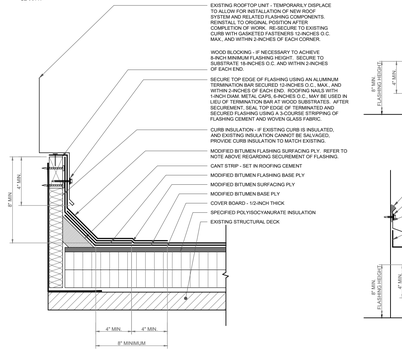
SHEET TITLE

ROOF PLAN
AREA A

NOTE: AT ROOF CURBWALL FLASHING HEIGHTS GREATER THAN 24-INCHES: PROVIDE INTERMEDIATE SECUREMENT PER THE REQUIREMENTS AND RECOMMENDATIONS OF THE MODIFIED BITUMEN ROOFING MEMBRANE MANUFACTURER.

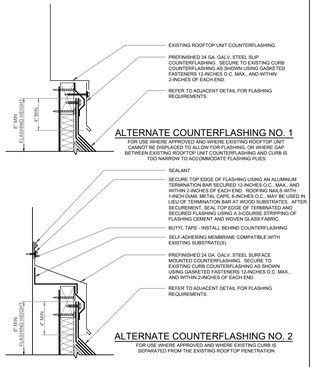
NOTE: TAPERED INSULATION, IF SPECIFIED, IS NOT SHOWN FOR CLARITY.

NOTE: DIS-CONNECTIONS AND RE-CONNECTIONS OF ELECTRICAL, MECHANICAL, PLUMBING CONNECTIONS OR EQUIPMENT AS THE DISPLACEMENT AND RE-INSTALLATION OF ROOFTOP UNITS SHALL BE PERFORMED BY A CONTRACTOR LICENSED TO PERFORM SUCH WORK. COORDINATE THIS WORK WITH THE OWNER.



DETAIL 01 - ROOF CURB FLASHING

SCALE: NONE

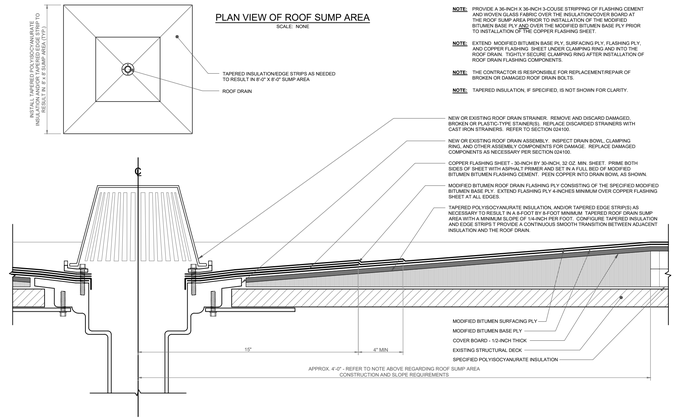


ALTERNATE COUNTERFLASHING NO. 1

FOR USE WHERE APPROVED AND WHERE EXISTING ROOFTOP UNIT CANNOT BE DISPLACED TO ALLOW FOR FLASHING, OR WHERE GAP BETWEEN EXISTING ROOFTOP UNIT COUNTERFLASHING AND CURB IS TOO NARROW TO ACCOMMODATE FLASHING PLIES

ALTERNATE COUNTERFLASHING NO. 2

FOR USE WHERE APPROVED AND WHERE EXISTING CURB IS SEPARATED FROM THE EXISTING ROOFTOP PENETRATION



DETAIL 02 - ROOF DRAIN FLASHING

SCALE: NONE

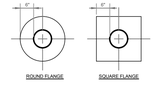
NOTE: TWO TUBULAR PENETRATION FLASHING DETAILS ARE SHOWN. USE THE DETAIL APPROPRIATE FOR THE CONDITION ENCOUNTERED. VERIFY FLASHING CONDITIONS WITH OWNER PRIOR TO INSTALLATION.

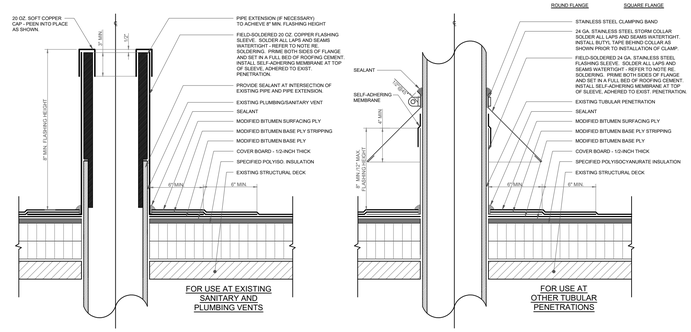
NOTE: PRIOR TO SOLDERING OF STAINLESS STEEL, CLEAN WORK AREA USING SOLVENTS AND WIRE BRUSH. REMOVING DIRT, OIL, GREASE, AND OTHER CONTAMINANTS FROM THE WORK AREA. TIN THE WORK AREA BY APPLYING ACID (FLUX). PERFORM SOLDERING WORK. AFTER COMPLETION OF WORK, REMOVE EXCESS ACID (FLUX) FROM THE WORK AREA.

NOTE: TAPERED INSULATION, IF SPECIFIED, IS NOT SHOWN FOR CLARITY.

PLAN VIEW OF ROOF TUBULAR PENETRATION SLEEVE AND FLANGE

SCALE: NONE





DETAIL 03 - TUBULAR PENETRATION FLASHING

SCALE: NONE

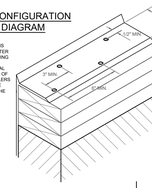
NOTE: EXTEND MODIFIED BITUMEN BASE PLY OVER AND DOWN FASCIA AS SHOWN. FASTEN PLY TO OUTER EDGE AS SHOWN WITH ROOFING NAILS WITH 1-INCH METAL CAPS 12-INCHES O.C.

NOTE: TAPERED INSULATION, IF SPECIFIED, IS NOT SHOWN FOR CLARITY.

PERIMETER EDGE FLANGE CONFIGURATION AND NAILING PATTERN DIAGRAM

SCALE: NONE

NOTE: THE PURPOSE OF THIS DIAGRAM IS TO SHOW PERIMETER EDGE FLANGE NAILING PATTERNS AND NAILER CONFIGURATION. THE ACTUAL FASCIA CONFIGURATION, SIZE OF NAILERS, AND NUMBER OF NAILERS REQUIRED TO ACHIEVE THE REQUIREMENTS SHOWN IN THE DETAIL BELOW WILL VARY.



DETAIL 04 - PERIMETER EDGE FLASHING

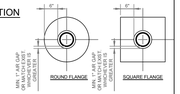
SCALE: NONE

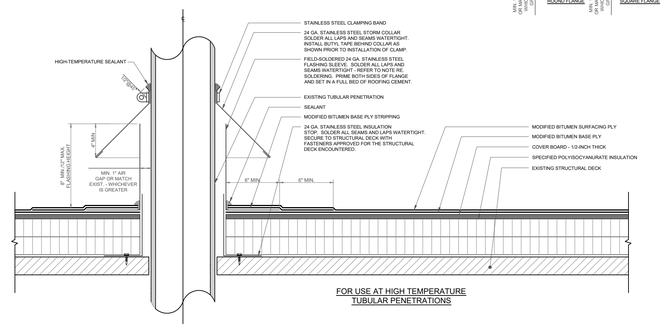
NOTE: PRIOR TO SOLDERING OF STAINLESS STEEL, CLEAN WORK AREA USING SOLVENTS AND WIRE BRUSH. REMOVING DIRT, OIL, GREASE, AND OTHER CONTAMINANTS FROM THE WORK AREA. TIN THE WORK AREA BY APPLYING ACID (FLUX). PERFORM SOLDERING WORK. AFTER COMPLETION OF WORK, REMOVE EXCESS ACID (FLUX) FROM THE WORK AREA.

NOTE: TAPERED INSULATION, IF SPECIFIED, IS NOT SHOWN FOR CLARITY.

PLAN VIEW OF ROOF TUBULAR PENETRATION SLEEVE AND FLANGE

SCALE: NONE



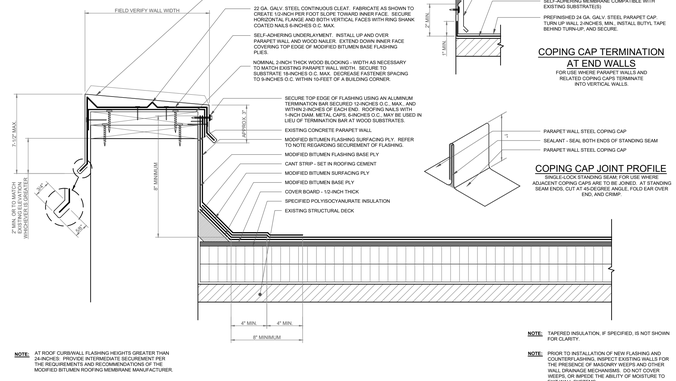


FOR USE AT HIGH TEMPERATURE TUBULAR PENETRATIONS

DETAIL 05 - HOT STACK FLASHING

SCALE: NONE

NOTE: AT WOOD SUBSTRATES: PRIOR TO INSTALLATION OF FLASHING BASE AND SURFACING PLIES, PROVIDE A MECHANICALLY-ATTACHED BACKER SHEET APPROVED BY THE ROOFING MANUFACTURER OVER THE WOOD SUBSTRATE. MECHANICALLY-ATTACH THE BACKER SHEET TO THE WOOD SUBSTRATE AT THE RATE AND FASTENING PATTERN RECOMMENDED BY THE MANUFACTURER.



NOTE: AT ROOF CURBWALL FLASHING HEIGHTS GREATER THAN 24-INCHES: PROVIDE INTERMEDIATE SECUREMENT PER THE REQUIREMENTS AND RECOMMENDATIONS OF THE MODIFIED BITUMEN ROOFING MEMBRANE MANUFACTURER.

COPING CAP TERMINATION AT END WALLS

FOR USE WHERE PARAPET WALLS END AND RELATED COPING CAPS TERMINATE INTO VERTICAL WALLS

COPING CAP JOINT PROFILE

SINGLE-LOCK STANDING SEAM. FOR USE WHERE ADJACENT COPING CAPS ARE TO BE JOINED. AT STANDING SEAM ENDS, CUT AT 45-DEGREE ANGLE, FOLD EAR OVER END, AND CRIMP.

NOTE: TAPERED INSULATION, IF SPECIFIED, IS NOT SHOWN FOR CLARITY.

NOTE: PRIOR TO INSTALLATION OF NEW FLASHING AND COUNTERFLASHING, INSPECT EXISTING WALLS FOR THE PRESENCE OF MASONRY WEEPS AND OTHER WALL DRAINAGE MECHANISMS. DO NOT COVER WEEPS, OR IMPEDE THE ABILITY OF MOISTURE TO EXIT WALL SYSTEMS.

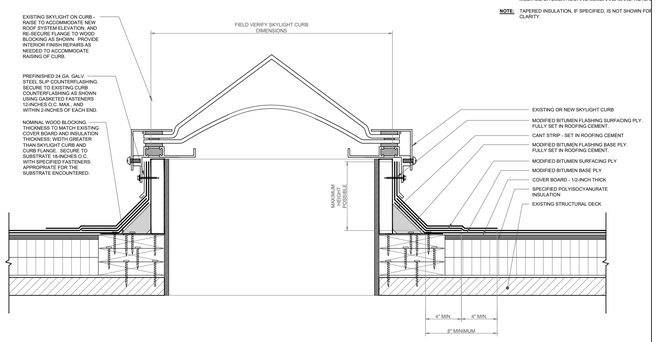
DETAIL 06 - PARAPET WALL FLASHING

SCALE: NONE

NOTE: SET FLASHING PLIES IN ROOFING CEMENT. USE PREFINISHED GALV. STEEL COUNTERFLASHING SECURE TO CURB WITH 12-INCHES O.C. AS TERMINATION PIECE FOR FLASHING PLIES.

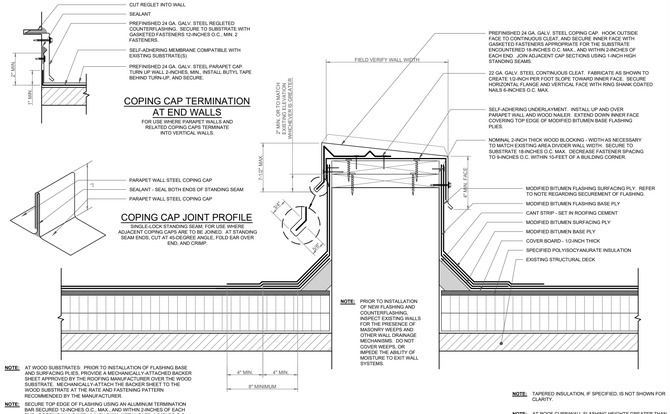
NOTE: AT ROOF CURBWALL FLASHING HEIGHTS GREATER THAN 24-INCHES: PROVIDE INTERMEDIATE SECUREMENT PER THE REQUIREMENTS AND RECOMMENDATIONS OF THE MODIFIED BITUMEN ROOFING MEMBRANE MANUFACTURER.

NOTE: TAPERED INSULATION, IF SPECIFIED, IS NOT SHOWN FOR CLARITY.



DETAIL 07 - SKYLIGHT CURB FLASHING

SCALE: NONE



COPING CAP TERMINATION AT END WALLS

FOR USE WHERE PARAPET WALLS END AND RELATED COPING CAPS TERMINATE INTO VERTICAL WALLS

COPING CAP JOINT PROFILE

SINGLE-LOCK STANDING SEAM. FOR USE WHERE ADJACENT COPING CAPS ARE TO BE JOINED. AT STANDING SEAM ENDS, CUT AT 45-DEGREE ANGLE, FOLD EAR OVER END, AND CRIMP.

NOTE: PRIOR TO INSTALLATION OF NEW FLASHING AND COUNTERFLASHING, INSPECT EXISTING WALLS FOR THE PRESENCE OF MASONRY WEEPS AND OTHER WALL DRAINAGE MECHANISMS. DO NOT COVER WEEPS, OR IMPEDE THE ABILITY OF MOISTURE TO EXIT WALL SYSTEMS.

NOTE: AT WOOD SUBSTRATES: PRIOR TO INSTALLATION OF FLASHING BASE AND SURFACING PLIES, PROVIDE A MECHANICALLY-ATTACHED BACKER SHEET APPROVED BY THE ROOFING MANUFACTURER OVER THE WOOD SUBSTRATE. MECHANICALLY-ATTACH THE BACKER SHEET TO THE WOOD SUBSTRATE AT THE RATE AND FASTENING PATTERN RECOMMENDED BY THE MANUFACTURER.

NOTE: SECURE TOP EDGE OF FLASHING USING AN ALUMINUM TERMINATION BAR SECURED 12-INCHES O.C., MAX., AND WITHIN 2-INCHES OF EACH END. ROOFING NAILS WITH 1-INCH DIAM. METAL CAPS, 8-INCHES O.C., MAY BE USED IN LIEU OF TERMINATION BAR AT WOOD SUBSTRATES. AFTER SECUREMENT, SEAL TOP EDGE OF TERMINATED AND SECURED FLASHING USING A 3-COURSE STRIPPING OF FLASHING CEMENT AND WOVEN GLASS FABRIC.

NOTE: TAPERED INSULATION, IF SPECIFIED, IS NOT SHOWN FOR CLARITY.

NOTE: AT ROOF CURBWALL FLASHING HEIGHTS GREATER THAN 24-INCHES: PROVIDE INTERMITTENT SECUREMENT PER THE REQUIREMENTS AND RECOMMENDATIONS OF THE MODIFIED BITUMEN ROOFING MEMBRANE MANUFACTURER.

DETAIL 08 - AREA DIVIDER CURB FLASHING

SCALE: NONE

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ISSUE

DATE	DESCRIPTION
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SHEET TITLE

ROOF PLAN
DETAIL 01-08

SHEET 03 OF 03