BEAVER COUNTY CLERK
LISA BENNETT
P. O. BOX 338
BEAVER, OKLAHOMA 73932
PHONE 580 625-3151

TO WHOM IT MAY CONCERN:

Bids will be received until **December 15, 2017 at 5:00 P.M.** in the Beaver County Clerk's Office of the Beaver County Courthouse, Beaver, Oklahoma.

Said bids will be publicly opened and considered by the Board of Beaver County Commissioners in the Commissioner's Office on the **18th day of December, 2017 at 10:00 A.M.** with the right being reserved to reject any or all bids.

The following criteria should be met when submitting a bid:

1. The bid shall be made on the enclosed "Invitation to Bid" and the Affidavit of Non-Collusion must be signed and notarized.

2. All prices quoted shall be F.O.B. Beaver County.

3. Place your bid in a sealed envelope clearly marked, **"SEALED BID #5".** This ensures that the bid will not be voided due to accidental opening.

4. On all bids requiring services or contract labor, proof of liability insurance with at least $1,000,000.00 liability and Workmen's Compensation is required. If you cannot furnish these you must furnish us with a Certificate of Non-Coverage.

5. **All bids on public construction contracts exceeding $50,000.00 shall accompany the bid with a certified check, cashier's check or bid bond equal to 5% of the bid, which shall be deposited with the awarding public agency as a guaranty. Or, an irrevocable letter of credit issued by a financial institution, insured by the FDIC on behalf of the awarding public agency, in an amount equal to 5% of the bid.**

NOTE: ALL BID PROPOSALS WILL BE DEEMED INVALID AND THEREFORE REJECTED WHICH DO NOT CONTAIN THE "INVITATION TO BID" AND THE SIGNED AND NOTARIZED "NON-COLLUSION AFFIDAVIT".

Thank you for your cooperation and participation in this bidding procedure. Should you have any questions, please feel free to contact the Beaver County Clerk's Office at (580) 625-3151.

Respectfully,

Lisa

Lisa Bennett
Beaver County Clerk

SA&I FORM NO. 1-4040 (1982) Invitation to Bid and Noncollusion Affidavit - Front Side

Lisa Bennett, Beaver County Clerk
COUNTY PURCHASING OFFICE
P.O. Box 338
Beaver, Oklahoma
Phone: (580) 625-3151

INVITATION TO BID

11/21/2017
1 OF 58

PLEASE REVIEW TERMS AND CONDITIONS ON REVERSE SIDE RELATING TO SUBMISSION OF THIS BID.
Notarized Affidavit completions and signature required on reverse side.

BID NUMBER	BID CLOSING DATE AND HOUR	REQUIRED DELIVERY DATE
#5	December 15, 2017 @ 5:00 P.M.	

TERMS: DATE OF DELIVERY:

Item	Quantity	Unit of Issue	Description	Unit Price	Total
			The Board of County Commissioners will open sealed bids for roof repairs on portions of the Beaver County Courthouse, as per the attached specifications.		
			Contract will be signed upon bid award.		
			Bids will be opened on December 18, 2017 at 10:00 A.M.		
			The Board reserves the right to reject any or all bids.		

SA&I FORM NO. 1-4040 (1982) Invitation to Bid and Noncollusion Affidavit - Back Side

TERMS AND CONDITIONS

1. Sealed bids will be opened in the Commissioner's Conference Room, _____Beaver_____ County Courthouse, _____Beaver_____, Oklahoma, at the time and date shown on the invitation to bid form.
2. Late bids will not be considered. Bids must be received in sealed envelopes (one to an envelope) with bid number and closing date written on the outside of the envelope.
3. Unit prices will be guaranteed correct by the bidder.
4. Firm prices will be F.O.B. destination.
5. Purchases by _____Beaver_____County, Oklahoma, are not subject to state or federal taxes.
6. This bid is submitted as a legal offer and any bid when accepted by the County constitutes a firm contract.
7. Oklahoma laws require each bidder submitting a bid to a county for goods or services to furnish a notarized sworn statement of non-collusion. A form is supplied below.
8. Bids will be firm until _____
(Date)

AFFIDAVIT: I, the undersigned, of lawful age, being first duly sworn on oath say that he (she) is the agent authorized by the bidder to submit the above bid. Affiant further states that the bidder has not been a party to any collusion among bidders in restraint of freedom of competition by agreement to bid at a fixed price or to refrain from bidding; or with any state official or employee as to quantity; quailty or price in the prospective contract or any other terms of said prospective contract; or in any discussion between bidders and any state official concerning exchange of money or other thing of value for special consideration in the letting of a contract; that the bidder/contractor has not paid, given or donated or agreed to pay, give or donate to any officer or employee of the State of Oklahoma (or other entity) any money or other thing of value, either directly or indirectly in the procuring of the award of a contract pursuant to this bid.

Subscribed and sworn before this _____ day

of _____ 20_____.

My commission expires _____

_____

NOTARY PUBLIC (CLERK OR JUDGE)

(SEAL)

Firm: _____

Signed by: _____ Title: _____

Print Name:_____

Address: _____ Phone: _____

City: _____ State: _____

Zip: _____

NOTE: Other terms and conditions can be added at the discretion of the county officer.

PROJECT MANUAL

Including Conditions of Contract and Specifications

FOR:

Beaver County – Reroofing of Court House
111 West Second Street
Beaver, Oklahoma 73932

November 5, 2017

OWNER:

Beaver County
111 West Second Street
Beaver, Oklahoma 73932

OWNER'S REPRESENTATIVE:

Mr. Kerry Regier
District III Commissioner
Bvrco3@beaver.okcounties.org
580-361-2266

Set #_____

SECTION 00700

GENERAL CONDITIONS

PART 1 - GENERAL

1.1 DEFINITIONS

A. The contract documents consist of the Agreement, the General Conditions of the contract, the Supplemental Conditions, the Drawings and the Specifications, including all revisions thereto.

B. The Owner, the Contractor, and the representatives shall be indicated as such throughout these documents. The term Contractor as used herein shall designate the successful bidder to whom the roof replacement contract for the various work is awarded. The term Owner shall be understood to be the Beaver County.

1.2 OWNERS REPRESENTATIVE STATUS

A. The owner's representative shall have general supervision and direction of the work and are the agents of the Owner in all matters pertaining to the work as provided in the Contract Documents. They have authority to stop the work whenever such stoppage may be necessary to insure the proper execution of the contract and shall have authority to reject any and all materials, whether worked or unworked, if such materials are not in accordance with the plans and specifications.

1.3 PERMITS AND LECENSES

A. All permits and licenses of a temporary nature necessary to the lawful prosecution of the work shall be secured and paid for by the Contractor.

1.4 CONDITIONS OF THE SITE

A. The bidders shall visit the site before submitting their bids and determine the field conditions affecting their work. In considering the bids the owner will assume that the bidders are aware of all items pertinent to their work and have made allowance for same in their bids.

1.5 VERIFICATION OF DIMENSIONS AND ELEVATIONS

A. Dimensions and elevations indicated on the drawings in reference to existing structures or utilities are the best available data obtainable but are not guaranteed by the owner and the owner will not be responsible for their accuracy. Before proceeding with any work dependent upon the data involved, the Contractor shall field check and verify all dimensions, grades, lines, levels, or other conditions of limitations at the site to avoid construction errors. If any work is performed by the Contractor, or any of his sub-contractors prior to adequate verification or applicable data, any resultant extra cost for adjustment of work, as required to conform to existing limitations, shall be assumed by the Contractor without reimbursement or compensation by the Owner.

1.6 SUPERINTENDENT

A. The Contractor shall keep a competent superintendent, satisfactory to the Owner, on the job at all times when work is in progress. The superintendent shall not be changed without notifying the owner unless the superintendent ceases to be in the employment of the Contractor.

B. The superintendent shall represent the Contractor in his absence and all directions and instructions given to the superintendent shall be as binding as if given directly to the Contractor.

C. The superintendent shall be responsible for the conduct of all the Contractor's employees on the premises and shall promptly take necessary measures to correct any abuses called to his attention by the Owner.

1.7 CONTINUATION OF OWNER'S OPERATIONS

A. The Contractor shall erect such barriers, tarpaulins, doors, etc. As maybe necessary to protect the Owner's operations while work is in progress. Any such openings that are essential to carrying on the work shall be securely closed by the Contractor when not in use to protect the Owner's operations. A completion date will be established at the preconstruction meeting.

1.8 PROTECTION OF WORK AND PROPERTY

A. The Contractor shall maintain adequate protection of all his work from damage and shall protect the Owner's and adjacent property from injury or loss arising from this contract. He shall provide and maintain at all times any danger signs, guards and/or obstructions necessary to protect the public and his workmen from any dangers inherent with or created by the work in progress. He shall hold the Owner harmless from any loss arising due to injury or accident to the public or his workmen, or from theft of materials stored at the job site. All materials will be stored in locations other than on roof surfaces except as necessary and shall then be placed on plywood or other type material to protect roof surfaces at all times.

B. Before starting any work protect all grounds, copings, paving and the exterior of all building surfaces where work will be performed.

C. In those areas where materials and/or hot asphalt will be raised to the roof area a protective covering shall be placed from the base of the wall extending up and over the top edge of the roof. This covering shall be wide enough to assure that the exterior walls do not become stained or soiled during roofing operations.

D. Any areas of the building or grounds which have become stained or damaged in any way shall be repaired or replaced prior to the final inspection. The method of repair used must be acceptable to both the Owner and the Owner's Consultant.

E. At no time will any equipment, materials or any other items be set on or stored on a new complete roofing section.

1.9 MATERIAL STORAGE AND CLEANUP

A. The contractor shall keep the premises free from rubbish at all times and shall arrange his material storage so as not to interfere with the Owner's operations. At the completion of the

job, all the unused material and rubbish shall be removed from the site. The ground shall be raked clean and the building shall be broom cleaned. If the Contractor refuses at any time to remove his debris from the premises, or to keep the working area clean, such cleaning will be completed by the Owner and charged to the Contractor.

B. The Contractor shall also remove drippage of bitumen or adhesive from all walls, window, floors, ladders and finished surfaces. Failure to do so when asked by the Owner will result in the work being done and charged to the Contractor.

1.10 INSPECTION OF WORK

A. If the drawings or specifications require the inspection and approval of any work or process by the owner, the Contractor shall give the owner ample notice to allow for scheduling the inspection, which shall be made promptly to avoid delay of work. If any work should be covered up by the Contractor without required inspection or approval by the owner it shall be uncovered at the Contractor's expense.

B. Uncovering of work not originally inspected, or uncovering of questioned work may be ordered by the owner and it shall be done by the Contractor. If examination proves such work to be incorrectly done or not done in accordance with the plans and specifications, the Contractor shall bear all cost of the examination. If the work is proven correctly installed, all such expense shall be borne by the Owner.

1.11 INSPECTION OF WORK IN PROGRESS AND UPON COMPLETION

A. As directed by the Owner's Representative, the contractor shall cut not more than 1 core, of approximately 144 square inches each, from every newly constructed built-up roof area, in order to establish the amount of materials used per square foot, and shall restore all such areas to sound and watertight conditions.

B. In the event that such core cuts disclose any deficiency in materials, or soundness of construction, the contractor shall, at his own expense, apply additional materials or other wise correct the deficiencies to the satisfaction of the Owner's Representative.

C. Non-compliance with the terms of this specification and ensuing contract can result in either the cancellation of the contract, or complete replacement of the defective areas at the Contractor's expense. In the event of cancellation, the Owner will not be obligated to compensate the Contractor for any work undertaken in a defective manner. The Contractor understands that no materials containing asbestos will be used on this project.

D. Furthermore, damages caused by water infiltration resulting from the failure of the contractor to secure each day's work in a weather tight manner, will be corrected at the contractor's expense. Included as damages will be all labor costs incurred by the Owner as a result of such water infiltration.

E. The Owner will authorize the Owner's representative to periodically examine the work in progress, as well as upon completion, in order to ascertain the extent to which the materials and procedures conform to the requirements of these specifications and to the current published instructions of the Manufacturer.

F. The manufacturer's field representative shall be responsible for:

1. Keeping the Owner's Representative informed on a periodic basis as to the progress and quality of the work.
2. Calling to the attention of the contractor those matters which he considers to be in violation of the contract requirements.
3. Reporting to the Owner's Representative any failure or refusal of the Contractor to correct unacceptable practices.
4. Conducting preliminary and subsequent job site meetings with the contractor's official job representatives.
5. Supervising the taking of test cuts, and the restoration of such areas.
6. Rendering any other inspection services which the Owner's Representative may designate.
7. Certifying, after completion of the work, the extent to which the contractor has complied with these specifications as well as to the current published instructions of the Manufacturing Company.
8. Inspections of work in progress.
9. The Manufacturers field representative shall be an full-time employee of the manufacturer, and not a distributor, or agent.

G. The presence and activities of the Manufacturer's field representative shall in no way relieve the Contractor of his contractual responsibilities.

1.12 SEPARATE CONTRACTS

A. The Owner reserves the right to do work or to let other contracts in connection with the work. The Contractor shall afford other such contractors a reasonable opportunity to store their material and shall cooperate with them to the best of his ability to expedite the rapid completion of the work.

B. If any portion of the Contractor's work depends upon the Owner's or other contractor's work, the Contractor shall inspect and approve such work before proceeding with his own. He shall promptly notify the Owner of any defects in such work that will render subsequent work unsuitable. His failure to so inspect and report shall constitute an acceptance of the other contractor's work as fit and proper for the execution of his work, except as for such defects that were not at that time observable and shall subsequently develop.

1.13 MISCELLANEOUS UTILITIES

A. Electrical power will be furnished by the Owner for small tools only. All connections to the electrical system will be furnished by the Contractor. Any temporary lights necessary to the work shall be furnished by the Roofing contractor.

B. Water for concrete, mortar, and washing purposes will be furnished by the Owner. Any connections to the water system shall be completed by the Contractor.

C. At the completion of the work, or when the above connections are no longer required, the Contractor shall remove all connections and leave the facilities in a condition at least as satisfactory as prior to the commencement of his work.

D. Toilet facilities will be provided by the Contractor. Temporary toilets shall be the responsibility of the Contractor, unless the Owner approves otherwise at the Pre-construction meeting. The Contractors workmen shall gain access to the roof from the exterior only.

1.14 CHANGES OR EXTRA WORK

A. The Owner may, without invalidating the original contractor, order such changes or additions as may from time to time be deemed desirable. In so doing, the contract price shall be adjusted as stated below with all work being done under the conditions of the original contract except for such adjustments in extension of time as may be acceptable to the owner. The value of such extra work shall be determined in one of the following ways:
   1. By firm price adjustment.
   2. By cost plus with a guaranteed maximum.
   3. By cost with a fixed fee.
   4. By unit cost.

B. If agreement is reached that the extra cost shall be handled as per methods, 2, 3, or 4, the Contractor shall keep and compile a correct amount of the cost together with such vouchers, etc., as may be necessary to substantiate same for presentation to the owner's representatives. The owner's representative shall have authority to make minor job changes or additions as may be necessary to expedite the job providing such changes do not involve material additional cost. No major change or addition shall be made except upon receipt by the Contractor of a signed order from the Owner authorizing such a change. No claims for an extra to the contract price shall be valid unless so authorized.

1.15 CORRECTION OF WORK PRIOR TO FINAL PAYMENT

A. The Contractor shall promptly remove any work that does not meet the requirements of the plans and specifications or is incorrectly installed or otherwise disapproved by the owner's representative as failing to meet the intention of the plans and specifications. The Contractor shall promptly replace any such work without expense to the Owner and shall bear the cost of making good all work of other contractors, or the Owner, destroyed or damaged by such removal or replacement.

1.16 CORRECTION OF WORK AFTER FINAL PAYMENT

A. If the owner's representative deems it inexpedient to have the Contractor correct work which has been incorrectly done, a deduction from the contract price shall be agreed upon therefore. Such a deduction from the contract price shall in no way affect the Contractor's responsibility for defects which may occur, not his ability for correcting them, and damage caused by them, as specified in 1.15.

1.17 LIENS

A. The Contractor shall furnish the Owner a release in full of all liens arising out of this contract. The Contractor shall furnish an affidavit that the liens or receipts include all the labor and material for which a lien could be filed. In lieu of the above, the Contractor may at his option furnish a bond to indemnify the Owner against all hazards of liens. Neither part nor final payment shall in any way release the Contractor from the above obligation and in the event that part or full payment has been made and any lien remains un-discharged, the Contractor shall refund to the Owner necessary funds to discharge such a lien including all cost and attorney's fees.

1.18 JOB CONDITIONS

A. All surfaces to be covered shall be smooth, dry, and free from dirt, debris, and foreign material before any of this work is installed. Pumping equipment shall be located on the ground at a safe distance from building; the location being subject to the approval of the Owner. The Contractor shall be responsible for guarding against fires, and shall provide suitable fire extinguishers conveniently located at the site.

B. Competent operators shall be in attendance at all times equipment is in use. Materials shall be stored neatly in areas designated by the Owner and dispersed so as to present a minimum fire hazard. Loads placed on the roof at any point shall not exceed the safe load for which the roof is designed.

C. There is NO SMOKING allowed inside or outside the building and the Contractor shall be responsible for enforcement of this job rule at all times with his personnel. The Owner shall designate safe places for smoking at the preconstruction meeting.

D. Under certain conditions it will be necessary and desirable to incorporate one or more of the following methods for removal of dirt, silt, gravel, debris, roof membrane and insulation from the roof surface in order to preserve the ecology, eliminate unsightly conditions and protect building surfaces:
   1. Roof vacuum systems.
   2. Crane and hopper with dump truck system.
   3. Enclosed chutes with protective shrouds on building and ground surfaces and shrubbery.

E. These contingencies will be specified at the preconstruction conference.

F. Ladders: When ladders are used on this project they must be in good condition. The ladder must also be secured at the roof line at all times while in use.

1.19 WORKMANSHIP

A. All materials will be securely fastened and placed in a watertight, neat and workmanlike manner. All workmen shall be thoroughly experienced in the particular class or work upon which employed. All work shall be done in accordance with these specifications and shall meet the approval in the field of the Owner or his representative. Contractor's representative, job supervisor, shall have a complete copy of specifications and drawings on job site at all times.

1.20 COLD MATERIALS

A. All cold materials, including sealants and roofing cements, shall be approved by the owner.

1.21 SUBSTITUTION OF SPECIFIED MATERIALS

A. Whenever a particular make of material or trade name is shown or specified herein, it shall be regarded as being indicative of the standard required. A Bidder who proposed to quote on the basis of an alternate material or system shall submit to the Owner's representative the following information, at least seven (7) days prior to the scheduled bid opening date. All tests listed in this specification must be performed between the standard system, and the proposed substitute.

If any tests are not completed then only the standard system shall be accepted. Refer to Section 01 25 13 Product Substitution Procedures.

1.22 ROOF DECK

A. Contractor shall notify the Owner of his designate on the job site of any unforeseen areas of defective decking. Where the damage is serious and extensive, it will be the Owner's responsibility to authorize removal and replacement of deteriorated decking. Where damage to the roof deck is found, the Owner shall ask the Roofing Contractor to make the necessary repairs at the unit cost established in the quote.

1.23 INSURANCE

A. The following standard indemnity agreement and minimum insurance requirements are incorporated in the Specifications for all work performed by Contractors for the Owner, its affiliated and associated organizations or subsidiaries, hereinafter referred to as Owner.

B. The Contractor agrees to indemnify and save the Owner harmless from and against any and all costs, loss and expense, liability damages, or claims for damages, including cost for defending any action, on account of any injury to persons (including death) or damage to or destruction of property of the Owner, arising or resulting from the work provided for or performed, or from any act, omission, or negligence of the Contractor, Sub-contractor and his or their agents or employees. The foregoing provisions shall in no way be deemed released, waived or modified in any respect by reason of any insurance or surety provided by the Contractor.

C. If any work provided for or to be performed under any specifications is sub-let (as otherwise permitted by the terms of such specifications), the Contractor shall require the sub-contractors to maintain and furnish him with satisfactory evidence Workmen's Compensation, Employers' Liability and such other forms and amounts of insurance which Contractor deems reasonably adequate.

D. In accordance with Item II, the Contractor shall maintain the following insurance:
   1. Workmen's Compensation and Employer's Liability Insurance affording, (a) protection under the Workmen's Compensation Law of the States in which the work is performed, and (b) Employer's Liability protection subject to a minimum limit of $100,000.
   2. Comprehensive General Liability Insurance in amounts not less that $2,000,000.00.
      a. Bodily Injury: $500,000 Each Occurrence; $500,000 Annual Aggregate.
      b. Property Damage: $500,000 Each Occurrence; $500,000 Annual Aggregate.
   3. Contractual Liability:
      a. Bodily Injury: $500,000 Each Occurrence; $500,000 Annual Aggregate.
      b. Property Damage: $500,000 Each Occurrence; $500,000 Annual Aggregate.
   4. Personal Injury, with employment exclusion deleted:
      a. $1,000,000 Annual Aggregate
      b. This insurance shall:
         1) Include coverage for the liability assumed by the Contractor under Item I (Indemnity);
         2) Include completed operation coverage which is to be kept in force by the Contractor for a period of not less than one year after completion of the work provided for or performed under these specifications;

3) Not be subject to any of the special property damage liability exclusions commonly referred to as the XCU exclusions pertaining to blasting or explosion, collapse or structural damage and underground property.

4) Not be subject to any exclusion of property used by the insured or property in the case, custody or control of the insured or property as to which the insured for any purpose is exercising physical control; and the Certificates of Insurance furnished by the contractor shall show by specific reference that each of the foregoing items have been provided for.

5. Comprehensive Automobile Liability Insurance in the following minimum amounts:
   a. Bodily Injury: $250,000 per person; $500,000 per accident.
   b. Property Damage: $250,000 per accident.

E. The Certificates of Insurance furnished by the Contractor as evidence of the Insurance maintained by him shall include a clause obligating the Insurer to give the owner thirty (30) days prior written notice for cancellation of any material change in the insurance.

1.24 SAFETY AND ECOLOGY

A. Contractor shall conform to requirements as designated by the United States Federal Government (OSHA) and or other applicable safety codes or regulations.

1.25 ANTI-DISCRIMINATION IN EMPOYMENT

A. Contractors and Subcontractors shall not discriminate against any employees or applicant for employment, to be employed in performance of his contract, with respect to his hire, tenure, terms, conditions or privileges of employment because of his race, color, religion, national origin, or ancestry.

1.26 RESPONSIBILITY FOR MEASUREMENTS AND QUANTITIES

A. The Bidding Contractors shall be solely responsible for the accuracy of all measurements and for estimating the material quantities required to satisfy these specifications.

1.27 PRE-JOB MEETING

A. A pre-job meeting shall be held prior to the start of this project. This meeting shall include the Contractor and the Owner's representative. The condition of the buildings and related grounds areas shall be recorded and the contractor shall be responsible for the correction and/or repair of any additional damage to the facilities resulting from the related work and in addition to the conditions noted at the pre-job meeting.

1.28 DISCREPANCIES AND ADDENDA

A. Should a Bidder and any discrepancies in the Drawings and Specifications, or should he be in doubt as to their meaning, he shall notify the Owner at once, who will send a written Addendum to all Bidders concerned. Oral instructions or decisions, unless confirmed by Addendum, will not be considered valid, or legal or binding.

B. No extra will be authorized because of failure of the Contractor to include work called for in the Addenda in his bid.

1.29 COMPETENCY OF THE BIDDER

A. To enable the Owner to evaluate the competency and financial responsibility of Contractor, the low Bidder shall, when requested by the Owner, furnish the following information which shall be sworn to under oath by him or by a properly authorized representative of the Bidder:
   1. The address and description of the Bidder's plant and place of business.
   2. The name and/or Articles of co-partnership or incorporation.
   3. Itemized list of equipment available for use on the project.
   4. A certified or authenticated financial statements, dated within sixty (60) days prior to the openings of the bids. The Owner may require that any items of such statements be further verified.
   5. A list of present contracts, including dollar values, percentage of completion and the names of all owners involved.
   6. A statement regarding any past, present or pending litigation with an Owner.
   7. Such additional information as may be required that will satisfy the Owner that the Bidder is adequately prepared in technical experience, or otherwise to fulfill the Contract.
   8. Sufficient documents to ensure that the Contractor is in compliance with the current Fair Employment Practice requirements of the Owner.

1.30 DISQUALIFICATION OF BIDDERS

A. Any one or more of the following causes may be considered sufficient for the disqualification of a bidder and the rejection of his bid or bids:
   1. Failure to attend the mandatory pre-bid meeting.
   2. Evidence of collusion among bidders.
   3. Lack of responsibility as revealed by either financial, experience or equipment statements, as submitted.
   4. Lack of expertise as shown by past work, and judged from the standpoint of workmanship and performance history.
   5. Uncompleted work under other contracts which, in the judgement of the Owner, might hinder or prevent the prompt completion of additional work if awarded.
   6. Being in arrears on existing contracts, in litigation with an Owner, or having defaulted on a previous contract.
   7. Failure to comply with the submittals section of the specification.
   8. Contractor not operating under the same name or ownership for a minimum of five years.

1.31 PAYMENT

A. At least ten days before the date established for each progress payment, the Contractor shall submit to the Owner an itemized Application for Payment for operations completed in accordance with the schedule of values. Prior to this submittal, the Contractor shall contact the Owner's Representative for on-site review of the proposed application. Upon approval by the Owners Representative, the Application for Payment shall be submitted to the Owner. Included shall be the data required to support the Contract's right to payment as may be required by the Owner, such as copies of requisitions from subcontractors and material suppliers, and reflecting retainage, if provided for elsewhere in the Contract Documents.

B. Contract shall submit application in duplicate using AIA Document G702, Application and Certificate for Payment, May 1983 Edition. All blanks in the form must be completed and signature of Contractor and Notary Public must be original on each form.

C. Progress Payments: Based upon Applications for Payment submitted to the Owner by the Contractor, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided in the Conditions of the Contract as follow:

1. On or about the fifteenth (15^{th}) day of each month ninety percent (90%) of the proportion of the Contractor Sum properly allocable to labor, materials and equipment incorporated in the Work and ninety percent (90%) of the portion of the Contract Sum properly allocable to materials and equipment suitably stored at the site or at some other location agreed upon in writing by the parties, up to the first (1^{st}) day of that month; less the aggregate of previous payments in each case; and upon Substantial Completion of the entire work, a sum sufficient to increase the total entire work, a sum sufficient to increase the total payments to ninety percent (90%) of the Contract Sum less such retainage as the Owner's Representative shall determine for all incomplete work and unsettled claims.

D. Final Completion and Final Payment: Prior to final payment, the Contractor shall submit in duplicate to the Owner the following completed forms:

1. Contractors Affidavit of Release of Liens, AIA Document G706A.
2. Consent of Surety to Final Payment, AIA G707
3. Contractor's Guarantee.
4. Manufacturer' Guarantee.

END OF SECTION

SECTION 01045

CUTTING AND PATCHING

PART 1 - GENERAL

1.1 SUMMARY

A. Provide cutting and patching work to properly complete the work of the project, complying with requirements for:
   1. Visual requirements, including detailing and tolerances.
   2. Inspection, preparation, and performance.
   3. Cleaning.

B. Do not cut and patch in a manner that would result in a failure of the work to perform as intended, decreased energy performance, increased maintenance, decreased operational life, or decreased safety.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Match existing materials for cutting and patching work with new materials conforming to protect requirements.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Inspect conditions prior to work to identify scope and type of work required. Protect adjacent work. Notify Owner of work requiring interruption to building services or Owner's operations.

B. Perform work with workmen skilled in the trades involved. Prepare sample area of each type of work for approval.

C. Cutting: Use cutting tools, not chopping tools. Make neat holes. Minimize damage to adjacent work. Check for concealed utilities and structure before cutting.

D. Patching: Make patches, seams, and joints durable and inconspicuous. Comply with tolerance for new work.

E. Clean work area and areas affected by cutting and patching operations.

END OF SECTION

SECTION 01500

TEMPORARY FACILITIES

PART 1 - GENERAL

1.1 SUMMARY

A. Provide temporary services and utilities, including utility costs:
   1. Telephone. (As required)
   2. Toilet facilities.
   3. Material storage.

B. Provide security and protection requirements:
   1. Fire extinguisher.
   2. Site enclosure barricades.
   3. Environmental protection.

C. Provide personnel support facilities:
   1. Sanitary facilities.
   2. Drinking water.
   3. Cleaning and trash removal.

PART 2 - PRODUCTS - Not applicable to this section.

PART 3 - EXECUTION - Not applicable to this section.

END OF SECTION

SECTION 01700

CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. The following are pre-requisites to substantial completion. Provide the following:
   1. Punch list.
   2. Supporting documentation.
   3. Certification.

B. Final payment request with supporting affidavits.
   1. Final payment request with supporting affidavits.
   2. Completed punch list.
   3. Warranties.
   4. Final release of liens.
   5. Release of surety.

C. Provide a marked-up set of drawings including changes which occurred during construction.

D. Provide the following closeout procedures:
   1. Submission of record documents.
   2. Submission of maintenance manuals.
   3. Final cleaning and touch up.
   4. Removal of temporary facilities.

PART 2 - PRODUCTS - Not applicable to this section.

PART 3 - EXECUTION - Not applicable to this section.

END OF SECTION

SECTION 07200

ROOF DECK AND INSULATION

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including the Conditions of the Contract and Division 01 Specification Sections apply to this section.

1.2 SUMMARY

A. Section includes roof insulation over the properly prepared deck substrate.

B. Related Sections:
1. Section 07500 – Preparation for Re-Roofing
2. Section 07550 – Modified Bituminous Membrane Roofing
3. Section 07600 – Sheet Metal Flashing and Trim.

1.3 REFERENCES

A. American Society for Testing and materials (ASTM):
1. ASTM A167 Standard Specification for Stainless and Heat-Resisting Chromium Nickel Steel Plate, Sheet and Strip.
2. ASTM A653 Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvanized) by the Hot-Dip Process.
3. ASTM B29 Standard Specification for Refined Lead.
4. ASTM B32 Standard Specification for Solder Metal.
5. ASTM C165 Standard Test Method for Measuring Compressive Properties of Thermal Insulation.
6. ASTM C208 Standard Specification for Cellulosic Fiber Insulation Board.
7. ASTM C209 Standard Test Method for Cellulosic Fiber Insulating Board.
8. ASTM C272 Standard Test Method for Water Absorption of Core Materials for Structural Sandwich Constructions.
9. ASTM C1396 Standard Specification for Gypsum Wallboard.
10. ASTM C518 Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
11. ASTM C578 Standard Specification for Perlite Thermal Insulation Board.
12. ASTM C728 Standard Test Methods for Fire Test of Roof Coverings.
13. ASTM C1289 Standard Specification for Faced Rigid Polyisocyanurate Thermal Insulation.
14. ASTM D5 Standard Test Method for Penetration of Bituminous Materials.
15. ASTM D36 Standard Test Method for Softening Point of Bitumen (Ring and Ball Apparatus).
16. ASTM D312 Standard Specification for Asphalt Used in Roofing.
17. ASTM D412 Standard Test Methods for Vulcanized Rubber and Thermoplastic Rubbers and Thermoplastic Elastomers-Tension.
18. ASTM D1621 Standard Test Method for Compressive Properties of Rigid Cellular Plastics.

19. ASTM D1622 Standard Test Method for Apparent Density of Rigid Cellular Plastics.
20. ASTM D1863 Standard Specification for Mineral Aggregate Used on Built-Up Roofs.
21. ASTM D2126 Standard Test Method for Response off Rigid Cellular Plastics to Thermal Humid Aging.
22. ASTM D2178 Standard Specification for Asphalt Glass Felts used in Roofing and Waterproofing.
23. ASTM D4601 Standard Specification for Asphalt-Coated Glass Fiber Base Sheet Used in Roofing.
24. ASTM D5147 Standard Sampling and Testing Modified Bituminous Sheet Material.

B. Cast Iron Soil Pipe Institute, Washington, D.C. (CISPI)

C. Factory Mutual Research (FM):
1. Roof Assembly Classifications.

D. National Roofing Contractors Association (NRCA):
1. Roofing and Waterproofing Manual.

E. Underwriters Laboratories, Inc. (UL):
1. Fire Hazard Classifications.

F. Warnock Hersey (WH):
1. Fire Hazard Classifications.

G. Sheet Metal and Air Conditioning Contractors National Association (SMACNA)

H. Steel Deck Institute, St. Louis, Missouri (SDI)

I. Southern Pine Inspection Bureau, Pensacola, Florida (SPIB)

J. Insulation Board, Polyisocyanurate (FS HH-I-1972)

K. Insulation Board, Thermal (Fiberboard) (FS LLL-1-535B)

1.4 SUBMITTALS

A. Product Data: Provide manufacturer's specification data sheets for each product.

B. Provide approval letters from insulation manufacturer for use of their insulation within this particular roofing system type.

C. Provide a sample of each insulation type.

D. Shop Drawings
   1. Submit manufacturer's shop drawings indicating complete installation details of tapered insulation system, including identification of each insulation block, sequence of installation, layout, drain locations, roof slopes, thicknesses, crickets and saddles.
   2. Shop drawing shall include: Outline of roof, location of drains, complete board layout of tapered insulation components, thickness and the average "R" value for the completed insulation system.

E. Certification
   1. Submit roof manufacturer's certification that insulation fasteners furnished are acceptable to roof manufacturer.
   2. Submit roof manufacturer's certification that insulation furnished is acceptable to roofing manufacturer as a component of roofing system and is eligible for roof manufacturer's system warranty.

1.5 QUALITY ASSURANCE

A. Fire Classification, ASTM E-108.

B. Manufacturer's Certificate: Certify that roof system furnished is approved by Factory Mutual, in accordance with ASTM E108, Class [A] for external fire and meets local or nationally recognized building codes.

C. Pre-installation meeting: Refer to Division 07 roofing specifications for pre-installation meeting requirements.

1.6 DELIVERY, STORAGE AND HANDLING

A. Deliver products to site with seals and labels intact, in manufacturer's original containers, dry and undamaged.

B. Store all insulation materials in a manner to protect them from the wind, sun and moisture damage prior to and during installation. Any insulation that has been exposed to any moisture shall be removed from the project site.

C. Keep materials enclosed in a watertight, ventilated enclosure (i.e. tarpaulins).

D. Store materials off the ground. Any warped, broken or wet insulation boards shall be removed from the site.

SECTION 07200

ROOF DECK AND INSULATION

PART 2 – PRODUCTS

2.1 PRODUCTS, GENERAL

A. Refer to Division 01 Section "Common Product Requirements."

B. Basis of Design: Materials, manufacturer's product designations, and/or manufacturer's names specified herein shall be regarded as the minimum standard of quality required for work of this Section. Comply with all manufacturer and contractor/fabricator quality and performance criteria specified in Part 1.

C. Substitutions: Products proposed as equal to the products specified in this Section shall be submitted in accordance with Bidding Requirements and Division 01 provisions.
   1. Proposals shall be accompanied by a copy of the manufacturer's standard specification section. That specification section shall be signed and sealed by a professional engineer licensed in the state in which the installation is to take place. Substitution requests containing specifications without licensed engineer certification shall be rejected for non-conformance.
   2. Include a list of three (3) projects of similar type and extent, located within a one hundred mile radius from the location of the project. In addition, the three projects must be at least five (5) years old and be available for inspection by the Architect, Owner or Owner's Representative.
   3. Equivalency of performance criteria, warranty terms, submittal procedures, and contractual terms will constitute the basis of acceptance.
   4. The Owner's decision regarding substitutions will be considered final. Unauthorized substitutions will be rejected.

2.2 INSULATION MATERIALS

A. Thermal Insulation Properties and Approved Insulation Boards.
   1. Rigid Polyisocyanurate Roof Insulation; ASTM C1289:
      a. Qualities: Rigid, closed cell polyisocyanurate foam core bonded to heavy duty glass fiber mat facers.
      b. Thickness: Minimum [1.5"] two layers to achieve 3".
      c. R-Value: Minimum [17.4] Total.
      d. Compliances: UL, WH or FM listed under Roofing Systems Federal Specification HH-I-1972, Class 1.
      e. Acceptable Products:
         1) Commercial Innovations
         2) Approved Equivalent
   2. Tapered Polyisocyanurate Roof Insulation: ASTM C1289:
      a. Qualities: Factory Tapered, closed cell polyisocyanurate foam core bonded to heavy duty glass fiber mat facers.
      b. Thickness: Minimum [1/2"]
      c. Tapered Slope: [1/4" : 12"] Crickets: [1/2" : 12"]
      d. Compliances: FM Global
      e. Acceptable Products:
         1) Commercial Innovations

2) Approved Equivalent

3. Recovery Board - Securock Roof Board:
   a. Qualities: Nonstructural, noncombustible, homogenous composition panel.
   b. Board Size: Four by eight feet (4'x4').
   c. Thickness: One quarter (1/2) inch.
   d. R-Value: .5
   e. Compliances: UL. WH or FM listed under Roofing Systems.
   f. Manufacturer: USG or approved equal

2.3 RELATED MATERIALS

A. Fiber Cant and Tapered Edge Strips: Performed rigid insulation units of sizes/shapes indicated, matching insulation board or of perlite or organic fiberboard, as per the approved manufacturer.
   1. Acceptable Manufacturers:
      a. The Garland Company, Inc.
      b. Celotex
      c. Johns Manville
      d. GAF
      e. Approved Equivalent

B. Protection Board: Pre-molded semi-rigid asphalt composition board one half (1/2) inch.

C. Roof Deck Insulation Adhesive: Insul-Lock HR - Dual-component, high rise foam adhesive as recommended by insulation manufacturer and approved by FM indicated ratings.
   1. Tensile Strength (ASTM D412).....250 psi
   2. Density (ASTM D1875).....8.5 lbs./gal.
   3. Viscosity (ASTM D2556).....22,000 to 60,000 cP.
   4. 2 `Peel Strength (ASTM D903).....17 lb/in.
   5. 3 `Flexibility (ASTM D816).....Pass @ -70°F

PART 3 – EXECUTION

3.1 EXECUTION, GENERAL

A. Comply with requirements of Division 01 Section "Common Execution Requirements."

3.2 INSPECTOR OF SURFACES

A. Roofing contractor shall be responsible for preparing an adequate substrate to receive insulation.
   1. Verify that work which penetrates roof deck has been completed.
   2. Verify that wood nailers are properly and securely installed.
   3. Examine surfaces for defects, rough spots, ridges, depressions, foreign material, moisture, and unevenness.

4. Do not proceed until defects are corrected.
5. Do not apply insulation until substrate is sufficiently dry.
6. Broom clean substrate immediately prior to application.
7. Use additional insulation to fill depressions and low spots that would otherwise cause ponding water.
8. Verify that temporary roof has been completed.

3.3 INSTALLATION

A. Attachment with Insulation Adhesive (Recovery Board)
   1. Apply insulation adhesive directly to the substrate using a ribbon pattern with one quarter to one half (1/4-1/2) inch wide beads 12 inches o.c., using either the manual applicator or an automatic applicator, at a rate of one (1) gallon per one hundred (150) square feet per cartridge.
   2. Immediately place insulation boards into wet adhesive. Do not slide boards into place. Do not allow the adhesive to skin over before installing insulation boards.
   3. Briefly step each board into place to ensure contact with the adhesive. Substrates with irregular surfaces may prevent the insulation board from making positive contact with the adhesive. Relief cuts or temporary weights may be required to ensure proper contact.
   4. All boards shall be cut and fitted where the roof deck intersects a vertical surface. The boards shall be cut to fit a minimum of one quarter (1/4) inch away from the vertical surface.

3.4 CLEANING

A. Remove debris and cartons from roof deck. Leave insulation clean and dry, ready to receive roofing membrane.

3.5 CONSTRUCTION WASTE MANAGEMENT

A. Remove and properly dispose of waste products generated during installation. Comply with requirements of authorities having jurisdiction.

END OF SECTION

SECTION 07500

PREPARATION FOR RE-ROOFING

PART 1 GENERAL

1.01 SCOPE OF WORK

A. Remove existing roofing, base flashings, vent stack flashings, roofing membrane and miscellaneous item to the deck surface.

B. Prime existing concrete deck.

1.02 RELATED SECTIONS

A. Section 06100 - Rough Carpentry

B. Section 07220 - Roof and Deck Insulation

C. Section 07550
D. - Modified Bitumen Roof Membrane

E. Section 07600 - Flashing and Sheet Metal

1.03 PRE-INSTALLATION CONFERENCE

A. Attend conference specified in Section 07536.

B. Review installation procedures and coordination required with related work.

1.04 SUBMITTALS

A. Submit product data and samples of materials to be used.

1.05 ENVIRONMENTAL REQUIREMENTS

A. Do not remove roofing existing roofing membrane or decking when weather conditions threaten the integrity of the building contents or intended continued occupancy. Maintain continuous temporary protection prior to new roofing system.

1.06 PROTECTION

A. Roofing Contractor is to be responsible for all mechanical, electrical and plumbing services required for the removal and re-installation of the new roof system.

B. During execution or work covered by these specifications, the Contractor shall provide protection for equipment, materials, and personnel inside and outside the building against falling debris, sparks, and water.

C. It shall be the Contractor's responsibility to respond immediately to correction of roof leakage during construction. A 4-hour time limit shall be given from the time of notification of emergency conditions. In the event of water penetration during rain or storm, the Contractor shall provide for repair or protection of building contents and interior. If the Contractor does not respond or cannot be contacted, the Owner will affect repairs or emergency action and the Contractor shall be back charged for all expenses and damages, if any.

1.07 SCHEDULING

A. Schedule work to coincide with commencement of installation of new insulation and roofing system.

PART 2 PRODUCTS

2.01 MATERIALS

A. Temporary Protection: Sheet polyethylene. Provide weights to retain sheeting in position.

B. Primer: Insul-Lock HR Primer by The Garland Company, Inc. or pre-appoved equal.

PART 3 EXECUTION

3.01 EXAMINATION

A. Roofing Contractor shall verify all existing site conditions.

B. Very that existing roof surface is clear and ready for work of this Section.

3.02 MATERIAL REMOVAL

A. Remove all membrane, cant strips, insulation, cant strips, base flashings and items shown on the drawings. The complete removal of all nails to leave a smooth even surface for re-roofing.

B Under certain conditions it will be necessary and desirable to incorporate on or more of the following methods for removal of dirt, silt, gravel, debris, roof membrane and insulation from the roof surface in order to preserve the ecology, eliminate unsightly conditions and protect building:

1. Roof vacuum system.
2. Crane and hopper with dump truck system.

3. Enclosed shuts with protective shrouds on building and ground surfaces.

B. All debris dumped from the roof shall be transported from the roof via chutes into dumpsters or trucks, and this debris shall, be removed from the premises when vehicles are full. No debris shall be transported from the area being worked over an existing finished roof without and underlayment of 3/4" plywood.

C. All roof equipment not in use or left filled will be parked on the column lines on 3/4" plywood.

D. Contractor shall provide tie-ins at the end of each days work. Area of tie-in shall be spudded clean of all existing gravel.

3.03 TEMPORARY PROTECTION

A. Provide temporary protective sheeting over uncovered deck surface.

B. Turn sheeting up and over all parapets and curbing. Retain sheeting in position with weights or temporary fasteners.

C. Provide for surface drainage from sheeting to existing drainage facilities.

D. Do not permit traffic over unprotected or repaired deck surface.

3.04 APPLICATION OF PRIMER

A. Clean all loose debris and trash from roof area.

B. Dry deck completely before application of primer.

C. Apply primer at a rate of 150 sq ft per gallon and allow to dry prior to the installation of insulation.

END OF SECTION

SECTION 07520

ROOFING MAINTENANCE

PART 1 — GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes products and procedures for properly repairing existing roofing assets in accordance with NRCA and approved details. It is the purpose of the specification to stop all current leaks. Maintenance activities included but are not limited to the following:

   A. Waterproof parapet walls

   B. Thee course cap sheet and flashings where adhesion failure is present

   C. Top off all pitch pockets with appropriate sealant

   D. Repair all scuppers

B. Related Sections:

   1. Section 07 05 00 - Common Work Results for Thermal and Moisture Protection.

   2. Section 07 01 51 - Maintenance of Modified Bituminous Membrane Roofing.

C. Related Work Specified Elsewhere:

   1. Roofing Demolition: Section 07 01 55 - Modified Bituminous Membrane Re-Roofing Procedures.

   2. Metal Roof Decks: Refer to Division 05 Section - Metal Decking.

   3. Sheet Metal Flashing and Trim: Section 07 62 00 - Sheet Metal Flashing and Trim.

   4. Sheet Metal Roof Accessories: Section 07 71 00 - Roof Specialties.

   5. Roofing Maintenance: 07 01 51 - Maintenance of Bituminous Membrane Roofing.

1.3 REFERENCES

A. American Society of Civil Engineers (ASCE):

   1. ASCE 7-05, Minimum Design Loads for Buildings and Other Structures.

B. American Society for Testing and Materials (ASTM):

1. ASTM D41 Standard Specification for Asphalt Primer Used in Roofing, Dampproofing and Waterproofing.

2. ASTM D312 Standard Specification for Asphalt Used in Roofing.

3. ASTM D1079 Standard Terminology Relating to Roofing, Waterproofing and Bituminous Materials.

4. ASTM D2822 Standard Specification for Asphalt Roof Cement.

5. ASTM D5147 Standard Test Method for Sampling and Testing Modified Bituminous Sheet Materials.

6. ASTM D6162 Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using a Combination of Polyester and Glass Fiber Reinforcements.

7. ASTM E108 Standard Test Methods for Fire Test of Roof Coverings.

C. Factory Mutual Research (FM):

1. Roof Assembly Classifications.

D. National Roofing Contractors Association (NRCA):

1. Roofing and Waterproofing Manual.

E. Underwriters Laboratories, Inc. (UL):

1. Fire Hazard Classifications.

F. Warnock Hersey (WH):

1. Fire Hazard Classifications.

1.4 SUBMITTALS FOR REVIEW

A. Product Data: Provide manufacturer's technical product data for each type of roofing product specified. Include data substantiating that materials comply with specified requirements.

B. Specimen Warranty: Provide an unexecuted copy of the warranty specified for this project to the owner.

1.5 SUBMITTALS FOR INFORMATION

A. Manufacturer's Installation Instructions: Submit installation instructions and recommendations indicating special precautions required for installing the membrane.

B. Manufacturer's Certificate: Certify that materials are manufactured in the United States and conform to requirements specified herein, are chemically and physically compatible with each other, and are suitable for inclusion within the total roof system specified herein.

C. Manufacturer's Certificate: Submit a certified copy of the roofing manufacturer's ISO 9001 compliance certificate.

D. Test Reports: Submit test reports, prepared by an independent testing agency, for all modified bituminous sheet roofing, indicating compliance with ASTM D5147.

1.6 CONTRACT CLOSEOUT SUBMITTALS

A. General: Comply with Requirements of Division 01 Section - Closeout Submittals.

B. Special Project Warranty: Provide specified warranty for the Project.

C. Roofing Maintenance Instructions. Provide a manual of manufacturer's recommendations for maintenance of installed roofing systems.

D. Demonstration and Training Schedule: Provide a schedule of proposed dates and times for instruction of Owner's personnel in the maintenance requirements for completed roofing work. Refer to Part 3 for additional requirements.

1.7 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this Section with not less than [12] years documented experience [and have ISO 9001 certification].

B. Installer Qualifications: Company specializing in modified bituminous roofing installation with not less than [5] years experience and authorized by roofing system manufacturer as qualified to install manufacturer's roofing materials.

C. Installer's Field Supervision: Maintain a full-time Supervisor/Foreman on job site during all phases of roofing work while roofing work is in progress. Maintain proper supervision of workmen.

D. Maintain a copy of the Contract Documents in the possession of the Supervisor/Foreman and on the roof at all times.

E. Source Limitations: Obtain all components of roof system from a single manufacturer. Secondary products that are required shall be recommended and approved in writing by the roofing system Manufacturer.

1. Upon request of the Owner, submit Manufacturer's written approval of secondary components in list form, signed by an authorized agent of the Manufacturer.

F. Source Quality Control: Manufacturer shall have in place a documented, standardized quality control program such as ISO-9001.

1.8 PRE-INSTALLATION CONFERENCE

A. Pre-Installation Roofing Conference: Convene a pre-roofing conference approximately two (2) weeks before scheduled commencement of modified bituminous roofing system repairs and associated work.

B. Require attendance of installer of each component of associated work, installers of deck or substrate construction to receive roofing work, installers of rooftop units and other work in and around roofing that must precede or follow roofing work (including mechanical work if any), Owner, roofing system manufacturer's representative, and other representatives directly concerned with performance of the Work, including (where applicable) Owner's insurers, testing agencies and governing authorities. Objectives of conference include:

1. Review foreseeable methods and procedures related to roofing work, including set up and mobilization areas for stored material and work area.

2. Tour representative areas of roofing substrates (decks) inspect and discuss condition of substrate, roof drains, curbs, penetrations and other preparatory work performed by others.

3. Review structural loading limitations of deck and inspect deck for loss of flatness and for required attachment.

4. Review roofing system requirements (drawings, specifications and other contract documents).

5. Review required submittals both completed and yet to be completed.

6. Review and finalize construction schedule related to roofing work and verify availability of materials, installer's personnel, equipment and facilities needed to make progress and avoid delays.

7. Review required inspection, testing, certifying and material usage accounting procedures.

8. Review weather and forecasted weather conditions and procedures for coping with unfavorable conditions, including possibility of temporary roofing (if not mandatory requirement).

9. Review notification procedures for weather or non-working days.

C. The Owner's Representative will designate one of the conference participants to record the proceedings and promptly distribute them to the participants for record.

D. The intent of the conference is to resolve issues affecting the installation and performance of roofing work. Do not proceed with roofing work until such issues are resolved to the satisfaction of the Owner of Record. This shall not be construed as interference with the progress of Work on the part of the Owner of Record.

1.9 DELIVERY, STORAGE AND HANDLING

A. Deliver products to site with seals and labels intact, in manufacturer's original containers, dry and undamaged.

B. Store and handle roofing sheets in a dry, well-ventilated, weather-tight place to prevent moisture exposure. Store rolls of felt and other sheet materials on pallets or other raised surface. Stand all roll materials on end. Cover rolls goods with a canvas tarpaulin or other breathable material (not polyethylene).

C. Do not leave unused materials on the roof overnight or when roofing work is not in progress unless protected from weather and other moisture sources.

D. Secure all material and equipment on the job site. If any material or equipment is stored on the roof, assure that the integrity of the deck is not compromised at any time. Damage to the deck caused by the Contractor's actions will be the sole responsibility of the Contractor, and the deck will be repaired or replaced at his expense.

1.10 MANUFACTURER'S INSPECTIONS

A. When the Project is in progress, the roofing system manufacturer will provide the following:

1. Report progress and quality of the work as observed.

2. Provide periodic job site inspections.

3. Report to the Owner in writing any failure or refusal of the Contractor to correct unacceptable practices called to the Contractor's attention.

4. Confirm after completion that manufacturer has observed no application procedures in conflict with the specifications other than those that may have been previously reported and corrected.

1.11 PROJECT CONDITIONS

A. Proceed with roofing work only when existing and forecasted weather conditions will permit a unit of work to be installed in accordance with manufacturer's recommendations and warranty requirements.

B. Do not apply roofing insulation or membrane to damp deck surface.

C. Do not expose materials subject to water or solar damage in quantities greater than can be weatherproofed during same day.

D. All slopes greater than 2:12 require back-nailing to prevent slippage of the ply sheets. Use ring or spiral-shank one (1) inch cap nails, or screws and plates at a rate of one (1) fastener per ply (including the membrane) at each insulation stop. Place insulation stops at 16 ft o.c. for slopes less than 3:12 and four (4) ft o.c. for slopes greater than 3:12. On non-insulated systems, nail each ply directly into the deck at the rate specified above. When slope exceeds 2:12, install all plies parallel to the slope (strapping) to facilitate backnailing. Install four (4) additional fasteners at the upper edge of the membrane when strapping the plies.

1.12 SEQUENCING AND SCHEDULING

A. Sequence installation of roofing with related units of work specified in other Sections to ensure that roof assemblies, including roof accessories, flashing, trim and joint sealers, are protected against damage from effects of weather, corrosion and adjacent construction activity.

B. Complete all roofing field assembly work each day. Phased construction will not be accepted.

1.13 DESIGN AND PERFORMANCE CRITERIA

A. Uniform Wind Uplift Load Capacity: N/A

PART 2 — EXECUTION

3.1 EXECUTION, GENERAL

A. Comply with requirements of Division 01 Section "Common Execution Requirements."

3.2 EXAMINATION

A. Verify that deck surfaces and project conditions are ready to receive work of this Section.

B. Verify that deck surfaces are dry.

C. Verify that openings, curbs, pipes, conduit, sleeves, ducts, and other items which penetrate the roof are set solidly, and that [wood cant strips] [wood nailing strips] [and reglets] are set in place.

3.3 GENERAL INSTALLATION REQUIREMENTS

A. Cooperate with manufacturer, inspection and test agencies engaged or required to perform services in connection with installing the roof system.

B. Insurance/Code Compliance: Where required by code, install and test the roofing system to comply with governing regulation and specified insurance requirements.

C. Protect other work from spillage of roofing materials and prevent materials from entering or clogging drains and conductors. Replace or restore other work damaged by installation

D. Apply roofing materials as specified by manufacturer's instructions.

1. Keep roofing materials dry before and during application.

2. Do not permit phased construction.

3. Complete application of roofing plies, modified sheet and flashing in a continuous operation.

4. Begin and apply only as much roofing in one day as can be completed that same day.

3.4 FLASHING MEMBRANE INSTALLATION

A. Seal all curb, wall and parapet flashings with an application of mastic and mesh on a daily basis. Do not permit conditions to exist that will allow moisture to enter behind, around or under the roof or flashing membrane.

B. Spud back gravel minimum 15 inches around penthouse walls on roof section D.

C. Prepare penthouse walls to be flashed with asphalt primer at the rate of one hundred (100) square feet per gallon. Allow primer to dry tack free.

D. Use the modified membrane as the flashing membrane. Adhere to the underlying base flashing ply with specified asphalt unless otherwise noted in these specifications. Nail off

at a minimum of fourteen (14) inches from the finished roof at all vertical penthouse surfaces.

E. Solidly adhere the entire sheet of flashing membrane to the substrate.

F. Seal all vertical laps and field tie-ins of flashing membrane with a three-course application of trowel-grade mastic and fiberglass mesh.

G. Coordinate counter flashing, cap flashings, expansion joints, and similar work with modified bitumen roofing.

. Surface Mounted Counterflashing:

1. Minimum flashing height is fourteen (14) inches. Prime vertical wall at a rate of one hundred (100) square feet per gallon and allow to dry.

2. Set cant in bitumen. Run all field plies over cant a minimum of two (2) inches.

3. Install base flashing ply covering wall set in bitumen with six (6) inches on to field of roof.

4. Install a second ply of modified flashing ply in bitumen over the base flashing ply, nine (9) inches on to the field of the roof. Apply a three-course application of mastic and mesh at all seams and allow to cure and coat with white acrylic roof coating.

5. Secure termination bar through flashing and into wall and apply a three-course application of mastic and mesh

6. Secure counterflashing to substrate. Fasten eight (8) inches o.c. and caulk top of counterflashing.

3.5 APPLICATION OF SURFACING

A. Aggregate Surfacing:

1. Apply surfacing materials in the quantities specified (five hundred (500) lbs. (226kg) per square for aggregate, four hundred (400) lbs. (181kg) per square for slag). Uniformly embed aggregate in a flood coat of bitumen at a rate of sixty (60) to seventy (70) lbs. (27-32kg) per square coverage after felt flashings, tests, repairs, and corrective actions have been completed and approved.

B. Reflective Coating:

1. Allow all cold applied mastics and coating to properly dry and cure before installing the aluminum coating.

2. Paint all exposed membrane with manufacturer's Energy Star acrylic coating installed at a rate of one (1) gallon per square per coat in a two coat application.

3.6 COATING PARAPET WALLS

1. Clean existing masonry wall. Fill cracks with sealant. Remove loose or chalky mortar and paint as required to address leaks.

2. Contractor shall apply sealant at a rate of 2 gallons per square per coat (two coat process).

3.7 MODIFIED ROOF LEAK REPAIR

1. Apply three-course repairs as needed to remediate leaks with aluminized asphalt mastic and mesh reinforcement.

2. Locate and repair leaks using NRCA approved methods

3.8 METAL PANEL INSTALLATION ON PENTHOUSE ROOF AND WALLS

1. Remove existing siding and roof to deck and underlayment.

2. Replace all deteriorated wood substrate.

3. Prime surface and install self-adhered asphaltic underlayment.

4. Install metal roof and wall panels in accordance with manufacturer specifications

3.9 FIELD QUALITY CONTROL

A. Perform field inspection and [and testing] as required [under provisions of Division 01 Section Quality Requirements].

B. Correct defects or irregularities discovered during field inspection.

C. Require attendance of roofing [and insulation] materials manufacturers' representatives at site during installation of the roofing system. A copy of the specification should also be on site at all times.

3.10 CLEANING

A. Remove bitumen adhesive drippings from all walls, windows, floors, ladders and finished surfaces.

B. In areas where finished surfaces are soiled by asphalt or any other sources of soiling caused by work of this Section, consult manufacturer of surfaces for cleaning instructions and conform to their instructions.

C. Repair or replace defaced or disfigured finishes caused by work of this Section.

3.11 CONSTRUCTION WASTE MANAGEMENT

A. Remove and properly dispose of waste products generated during roofing procedures. Comply with requirements of authorities having jurisdiction.

3.12 FINAL INSPECTION

A. At completion of roofing installation and associated work, meet with Contractor, Architect, installer, installer of associated work, Owner, roofing system manufacturer's representative and other representatives directly concerned with performance of roofing system.

B. Walk roof surface areas of the building, inspect perimeter building edges as well as flashing of roof penetrations, walls, curbs and other equipment. List all items requiring correction or completion and furnish copy of list to each party in attendance.

C. The roofing system manufacturer reserves the right to request a thermographic scan of the roof during final inspection to determine if any damp or wet materials have been installed. The thermographic scan shall be provided by the [Roofing] Contractor.

D. If core cuts verify the presence of damp or wet materials, the [Roofing] Contractor shall be required to replace the damaged areas at his own expense.

E. Repair or replace deteriorated or defective work found at time above inspection as required to a produce an installation which is free of damage and deterioration at time of Substantial Completion and according to warranty requirements.

F. Notify the [Contractor] [Architect] [Owner] upon completion of corrections.

G. Following the final inspection, provide written notice of acceptance of the installation from the roofing system manufacturer.

H. Immediately correct roof leakage during construction. If the Contractor does not respond within twenty four (24) hours, the Owner will exercise rights to correct the Work under the terms of the Conditions of the Contract.

3.13 DEMONSTRATION AND TRAINING

A. At a time and date agreed to by the Owner, instruct the Owner's facility manager, or other representative designated by the Owner, on the following procedures:

SECTION 07520

ROOFING MAINTENANCE

1. Roof troubleshooting procedures.
2. Notification procedures for reporting leaks or other apparent roofing problems.
3. Roofing maintenance.
4. The Owner's obligations for maintaining the roofing warranty in effect and force.
5. The Manufacturer's obligations for maintaining the roofing warranty in effect and force.

END OF SECTION 07 52 00 - MODIFIED BITUMINOUS MEMBRANE ROOFING

SECTION 07550

MODIFIED BITUMINOUS MEMBRANE ROOFING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Torch Applied 2-Ply Asphalt Roofing

1.2 RELATED SECTIONS

A. Section 06100 - Rough Carpentry.

B. Section 07220 - Insulation Board: Insulation and fastening.

C. Section 07500 - Roof Deck Substrate Preparation.

D. Section 07600 - Sheet Metal Flashing and Trim

1.3 REFERENCES

A. ASTM D 41 - Standard Specification for Asphalt Primer Used in Roofing, Dampproofing, and Waterproofing.

B. ASTM D 312 - Standard Specification for Asphalt used in Roofing.

C. ASTM D 451 - Standard Test Method for Sieve Analysis of Granular Mineral Surfacing for Asphalt Roofing Products.

D. ASTM D 1970 - Specification for Sheet Materials, Self-Adhering Polymer Modified Bituminous, Used as Steep Roofing Underlayment for Ice Dam Protection.

E. ASTM D 1079 Standard Terminology Relating to Roofing, Waterproofing and Bituminous Materials.

F. ASTM D 1227 Standard Specification for Emulsified Asphalt Used as a Protective Coating for Roofing.

G. ASTM D 1863 Standard Specification for Mineral Aggregate Used as a Protective Coating for Roofing.

H. ASTM D 2178 Standard Specification for Asphalt Glass Felt Used in Roofing and Waterproofing.

I. ASTM D 2822 Standard Specification for Asphalt Roof Cement.

J. ASTM D 2824 Standard Specification for Aluminum-Pigmented Asphalt Roof Coating.

K. ASTM D 4601 Standard Specification for Asphalt Coated Glass Fiber Base Sheet Used in Roofing.

L. ASTM D 5147 Standard Test Method for Sampling and Testing Modified Bituminous Sheet Materials.

M. ASTM D 6162 Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using a Combination of Polyester and Glass Fiber Reinforcements.

N. ASTM D 6163 Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Glass Fiber Reinforcements.

O. ASTM D 6164 - Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Polyester Reinforcements.

P. ASTM D 6754 - Standard Specification for Ketone Ethylene Ester (KEE) Sheet Roofing.

Q. ASTM D 6757 - Standard Specification for Underlayment Felt Containing Inorganic Fibers Used in Steep-Slope Roofing.

R. ASTM E 108 - Standard Test Methods for Fire Test of Roof Coverings

S. Factory Mutual Research (FM): Roof Assembly Classifications.

T. National Roofing Contractors Association (NRCA): Roofing and Waterproofing Manual.

U. Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA) - Architectural Sheet Metal Manual.

V. Underwriters Laboratories, Inc. (UL): Fire Hazard Classifications.

W. Warnock Hersey (WH): Fire Hazard Classifications.

X. ANSI-SPRI ES-1 Wind Design Standard for Edge Systems used with Low Slope Roofing Systems.

Y. ASCE 7, Minimum Design Loads for Buildings and Other Structures

Z. UL - Fire Resistance Directory.

AA. FM Approvals - Roof Coverings and/or RoofNav assembly database.

BB. FBC - Florida Building Code.

CC. Miami-Dade Building Code Compliance - N.O.A. (Notice of Acceptance).

DD. California Title 24 Energy Efficient Standards.

1.4 DESIGN / PERFORMANCE REQUIREMENTS

A. Perform work in accordance with all federal, state and local codes.

B. Exterior Fire Test Exposure: Roof system shall achieve a FM Class rating for roof slopes indicated on the Drawings as follows:
   1. Factory Mutual Class A Rating.

C. Design Requirements:
   1. Uniform Wind Uplift Load Capacity
      a. Installed roof system shall withstand negative (uplift) design wind loading

pressures complying with the following criteria.

1) Design Code: ASCE 7, Method 2 for Components and Cladding.
2) Importance Category:
   a) III.
3) Importance Factor of:
   a) 1.0
4) Wind Speed: 120 mph
5) Ultimate Pullout Value: N/A
6) Exposure Category:
   a) B.
7) Design Roof Height: 35 feet.
8) Minimum Building Width: 22 feet.
9) Roof Pitch: 0.25 :12.
10) Roof Area Design Uplift Pressure:
    a) Zone 1 - Field of roof 16.2 psf
    b) Zone 2 - Eaves, ridges, hips and rakes 27.3 psf
    c) Zone 3 - Corners 27.3psf

2. Live Load: 20 psf, or not to exceed original building design.
3. Dead Load:
   a. Installation of new roofing materials shall not exceed the dead load capacity of the existing roof structure.

D. Roof system shall have been tested in compliance with the following codes and test requirements:
   1. FM Approvals:
      a. RoofNav Website

1.5 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation instructions.

C. Shop Drawings: Submit shop drawings including installation details of roofing, flashing, fastening, insulation and vapor barrier, including notation of roof slopes and fastening patterns of insulation and base modified bitumen membrane, prior to job start.

D. Design Pressure Calculations: Submit design pressure calculations for the roof area in accordance with ASCE 7 and local Building Code requirements. Include a roof system attachment analysis report, certifying the system's compliance with applicable wind load requirements before Work begins. Report shall be signed and sealed by a Professional Engineer registered in the State of the Project who has provided roof system attachment analysis for not less than 5 consecutive years.

E. Verification Samples: For each modified bituminous membrane ply product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, color, and patterns.

F. Test Reports: Submit test reports, prepared by an independent testing agency, for all modified bituminous sheet roofing, indicating compliance with ASTM D5147. Testing must be performed at 77 deg. F. Tests at 0 deg. F will not be considered.

G. Closeout Submittals: Provide manufacturer's maintenance instructions that include recommendations for periodic inspection and maintenance of all completed roofing work. Provide product warranty executed by the manufacturer. Assist Owner in preparation and submittal of roof installation acceptance certification as may be necessary in connection with fire and extended coverage insurance on roofing and associated work.

1.6 QUALITY ASSURANCE

A. Perform Work in accordance with NRCA Roofing and Waterproofing Manual.

B. Manufacturer Qualifications: Company specializing in manufacturing products specified with documented ISO 9001 certification and minimum of twelve years of documented experience and must not have been in Chapter 11 bankruptcy during the last five years.

C. Installer Qualifications: Company specializing in performing Work of this section with minimum five years documented experience and a certified Pre-Approved Garland Contractor.

D. Installer's Field Supervision: Maintain a full-time Supervisor/Foreman on job site during all phases of roofing work while roofing work is in progress.

E. Product Certification: Provide manufacturer's certification that materials are manufactured in the United States and conform to requirements specified herein, are chemically and physically compatible with each other, and are suitable for inclusion within the total roof system specified herein.

F. Source Limitations: Obtain all components of roof system from a single manufacturer. Secondary products that are required shall be recommended and approved in writing by the roofing system Manufacturer. Upon request of the Architect or Owner, submit Manufacturer's written approval of secondary components in list form, signed by an authorized agent of the Manufacturer.

1.7 PRE-INSTALLATION MEETINGS

A. Convene minimum two weeks prior to commencing Work of this section.

B. Review installation procedures and coordination required with related Work.

C. Inspect and make notes of job conditions prior to installation:
   1. Record minutes of the conference and provide copies to all parties present.
   2. Identify all outstanding issues in writing designating the responsible party for follow-up action and the timetable for completion.
   3. Installation of roofing system shall not begin until all outstanding issues are resolved to the satisfaction of the Architect.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store products in manufacturer's unopened packaging with labels intact until ready for installation.

B. Store all roofing materials in a dry place, on pallets or raised platforms, out of direct exposure to the elements until time of application. Store materials at least 4 inches above ground level and covered with "breathable" tarpaulins.

C. Stored in accordance with the instructions of the manufacturer prior to their application or installation. Store roll goods on end on a clean flat surface except store KEE-Stone FB 60 rolls flat on a clean flat surface. No wet or damaged materials will be used in the application.

D. Store at room temperature wherever possible, until immediately prior to installing the roll. During winter, store materials in a heated location with a 50 degree F (10 degree C) minimum temperature, removed only as needed for immediate use. Keep materials away from open flame or welding sparks.

E. Avoid stockpiling of materials on roofs without first obtaining acceptance from the Architect/Engineer.

F. Adhesive storage shall be between the range of above 50 degree F (10 degree C) and below 80 degree F (27 degree C). Area of storage shall be constructed for flammable storage.

1.9 COORDINATION

A. Coordinate Work with installing associated metal flashings as work of this section proceeds.

1.10 PROJECT CONDITIONS

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

1.11 WARRANTY

A. Upon completion of the work, provide the Manufacturer's written and signed NDL Warranty, warranting that, if a leak develops in the roof during the term of this warranty, due either to defective material or defective workmanship by the installing contractor, the manufacturer shall provide the Owner, at the Manufacturer's expense, with the labor and material necessary to return the defective area to a watertight condition.
   1. Warranty Period:
      a. 30 years from date of acceptance.

B. Installer is to guarantee all work against defects in materials and workmanship for a period indicated following final acceptance of the Work.
   1. Warranty Period:
      a. 5 years from date of acceptance.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Basis of Design: Garland Company, Inc. (The); 3800 E. 91st St., Cleveland, OH 44105. Representative: Matt Hix 405.471.1444

B. Requests for substitutions will be considered in accordance with provisions of Section 01600.

C. The Products specified are intended and the Standard of Quality for the products required for this project. If other products are proposed the bidder must disclose in the bid the manufacturer and the products that they intend to use on the Project. If no manufacturer and products are listed, the bid may be accepted only with the use of products specified.
   1. Bidder will not be allowed to change materials after the bid opening date.
   2. If alternate products are included in the bid, the products must be equal to or exceed the products specified. Supporting technical data shall be submitted to the Architect/ Owner for approval prior to acceptance.
   3. In making a request for substitution, the Bidder/Roofing Contractor represents that it has:
      a. Personally investigated the proposed product or method, and determined that it is equal or superior in all respects to that specified.
      b. Will provide the same guarantee for substitution as for the product and method specified.
      c. Will coordinate installation of accepted substitution in work, making such changes as may be required for work to be completed in all respects.
      d. Will waive all claims for additional cost related to substitution, which consequently become apparent.
      e. Cost data is complete and includes all related cost under his/her contract or other contracts, which may be affected by the substitution.
      f. Will reimburse the Owner for all redesign cost by the Architect for accommodation of the substitution.
   4. Owner reserves the right to be the final authority on the acceptance or rejection of any or all bids, proposed alternate roofing systems or materials that has met ALL specified requirement criteria.
   5. Failure to submit substitution package, or any portion thereof requested, will result in immediate disqualification and consideration for that particular contractors request for manufacturer substitution.

2.2 TORCH APPLIED 2-PLY ASPHALT ROOFING

A. Base (Ply) Sheet:
   1. HPR Torch Base

B. Modified Cap (Ply) Sheet: One ply bonded to the prepared substrate with interplay adhesive.
   1. StressPly IV Plus

C. Flashing Base Ply:
   1. HPR Torch Base

D. Flashing Cap (Ply) Sheet
   1. StressPly IV UV Mineral

E. Surfacing:
   1. Aggregate/Flood Coat
      a. Weatherscreen
   2. Surface Coatings
      a. Pyramic
   3. Surface Coatings
      a. Tuff Coat

2.3 ACCESSORIES:

A. Roof Insulation: In accordance with Section 07220.

B. Roof Insulation: Provide G-P Gypsum DenDeck Prime, G-P Gypsum DenDeck DuraGuard, USG Securrock for proper adhesion of the self-adhered base sheet in accordance with Section 07220.

C. Butyl Tape: 100% solids, asbestos free and compressive tape designed to seal as recommended and furnished by the membrane manufacturer.

2.4 EDGE TREATMENT AND ROOF PENETRATION FLASHINGS

A. Through Wall Scuppers: 24 gauge stainless or 20oz (567gram) copper. All joints should be welded/soldered watertight. See details for design.

B. Liquid Flashing - Tuff-Flash: An asphaltic-polyurethane, low odor, liquid flashing material designed for specialized details unable to be waterproofed with typical modified membrane flashings.
   1. Tensile Strength, ASTM D 412: 400 psi
   2. Elongation, ASTM D 412: 300%
   3. Density @77 deg. F 8.5 lb/gal typical

C. Manufactured Roof Specialties: Shop fabricated counter flashings and related flashings and trim are specified in Section 07600.
   1. Manufactured roof specialties shall conform to the detail requirements of SMACNA "Architectural Sheet Metal Manual" and/or the NRCA "Roofing and Waterproofing Manual" as applicable.

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. Inspect and approve the deck condition, slopes and fastener backing if applicable, parapet walls, expansion joints, roof drains, stack vents, vent outlets, nailers and surfaces and elements.

C. Verify that work penetrating the roof deck, or which may otherwise affect the roofing, has been properly completed.

D. If substrate preparation and other conditions are the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. General: Clean surfaces thoroughly prior to installation.
   1. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
   2. Fill substrate surface voids that are greater than 1/4 inch wide with an acceptable fill material.
   3. Roof surface to receive roofing system shall be smooth, clean, free from loose gravel,

dirt and debris, dry and structurally sound.

4. Wherever necessary, all surfaces to receive roofing materials shall be power broom and vacuumed to remove debris and loose matter prior to starting work.
5. Do not apply roofing during inclement weather. Do not apply roofing membrane to damp, frozen, dirty, or dusty surfaces.
6. Prime decks where required, in accordance with requirements and recommendations of the primer and deck manufacturer.

B. Poured reinforced concrete
   1. Shall be smooth, dry, clean and free of ice/frost, projections and depressions. Concrete shall be fully cured and the surface shall be broom cleaned and free of debris prior to commencement of work.

C. Insulation: Roof insulation is specified in Section
   1. All joints between layers should be staggered when multiple layers of insulation are installed. Insulation greater than 1.5 inches shall be installed in multiple layers.
   2. Insulation shall be kept dry at all times. Install only as much insulation as can be covered with completed roofing membrane before the end of the day's work or prior to onset of inclement weather.
   3. Edges shall butt tightly and all cuts shall fit neatly against adjoining surfaces to provide a smooth overall surface. Gaps of greater than 1/4 inch width shall be filled with insulation.
   4. Install tapered insulation across roof area and at scuppers to provide adequate slope for proper drainage.
   5. When asphalt or cold adhesive attachment is specified, the proposed insulation shall be compatible with the roof substrate, the proposed bitumen and the requirements of the specific membrane.

3.3 INSTALLATION - GENERAL

A. Install modified bitumen membranes and flashings in accordance with manufacturer's instructions and with the recommendations provided by the National Roofing Contractors Association's Roofing & Waterproofing Manual, the Asphalt Roofing Manufacturers Association, and applicable codes.

B. General: Avoid installation of modified bitumen membranes at temperatures lower than 40-45 degrees F. When work at such temperatures unavoidable use the following precautions:
   1. Take extra care during cold weather installation and when ambient temperatures are affected by wind or humidity, to ensure adequate bonding is achieved between the surfaces to be joined. Use extra care at material seam welds and where adhesion of the applied product to the appropriately prepared substrate as the substrate can be affected by such temperature constraints as well.
   2. Unrolling of cold materials, under low ambient conditions must be avoided to prevent the likelihood of unnecessary stress cracking. Rolls must be at least 40 degrees F at the time of application. If the membrane roll becomes stiff or difficult to install, it must be replaced with roll from a heated storage area.

C. Commence installation of the roofing system at the lowest point of the roof (or roof area), working up the slope toward the highest point. Lap sheets shingle fashion so as to constantly shed water

3.4 INSTALLATION TORCH APPLIED 2-PLY ASPHALT ROOFING

A. Base Ply: Install torch base sheet to a properly prepared substrate. Shingle in proper direction to shed water on each area of roofing.
   1. Lay out the roll in the course to be followed and unroll 6 feet (1.8 m).
   2. Using a roofing torch, heat the surface of the coiled portion until the burn-off backer melts away. At this point, the material is hot enough to lay into the substrate. Progressively unroll the sheet while heating and press down with your foot to insure a proper bond.
   3. After the major portion of the roll is bonded, re-roll the first 6 feet (1.8 m) and bond it in a similar fashion.
   4. Repeat this operation with subsequent rolls with side laps of 4 inches (101 mm) and end laps of 8 inches (203 mm).
   5. Give each lap a finishing touch by passing the torch along the joint and spreading the melted bitumen evenly with a rounded trowel to insure a smooth, tight seal.
   6. Extend underlayment 2 inches (50 mm) beyond top edges of cants at wall and projection bases.
   7. Install base flashing ply to all perimeter and projections details.

B. Modified Cap (Ply) Sheet: Over torch base sheet underlayment, lay out the roll in the course to be followed and unroll 6 feet (1.8 m). Stagger seams over the torch base sheet seams.
   1. Using a roofing torch, heat the surface of the coiled portion until the burn-off backer melts away. At this point, the material is hot enough to lay into the substrate. Progressively unroll the sheet while heating and press down with your foot to insure a proper bond.
   2. After the major portion of the roll is bonded, re-roll the first 6 feet (1.8 m) and bond it in a similar fashion.
   3. Repeat this operation with subsequent rolls with side laps of 4 inches (101 mm) and end laps of 8 inches (203 mm).
   4. Give each lap a finishing touch by passing the torch along the joint and spreading the melted bitumen evenly with a rounded trowel to insure a smooth, tight seal.

C. Fibrous Cant Strips: Provide non-combustible perlite or glass fiber cant strips at all wall/curb detail treatments where angle changes are greater than 45 degrees. Cant may be set in approved cold adhesives, hot asphalt or mechanically attached with approved plates and fasteners.

D. Metal Work: Provide metal flashings, counter flashings, parapet coping caps and thru-wall flashings as specified in Section 07600. Install in accordance with the SMACNA "Architectural Sheet Metal Manual" or the NRCA Roofing Waterproofing manual.

E. Termination Bar: Provide a metal termination bar or approved top edge securement at the terminus of all flashing sheets at walls and curbs. Fasten the bar a minimum of 8 inches (203 mm) o/c to achieve constant compression. Provide suitable, sealant at the top edge if required.

F. Flashing Base Ply: Seal all curb, wall and parapet flashings with an application of mastic and mesh on a daily basis. Do not permit conditions to exist that will allow moisture to enter behind, around or under the roof or flashing membrane.
   1. Prepare all walls, penetrations, expansion joints, and other surfaces to be flashed with asphalt primer at the rate of 100 square feet per gallon. Allow primer to dry tack free.

2. Adhere modified flashing base to the underlying base flashing ply with specified flashing ply adhesive. Nail off at a minimum of 8 inches (203 mm) o.c. from the finished roof at all vertical surfaces.
3. Solidly adhere the entire sheet of flashing membrane to the substrate. Tops of all flashings that are not run up and over curb shall be secured through termination bar 6 inches (152 mm) and sealed at top
4. Seal all vertical laps of flashing membrane with a three-course application of trowel-grade mastic and fiberglass mesh.
5. Coordinate counter flashing, cap flashings, expansion joints, and similar work with modified bitumen roofing work.
6. Coordinate roof accessories, miscellaneous sheet metal accessory items, including piping vents and other devices with the roofing system work. When using mineralized cap sheet all stripping plies type IV felt / Versiply 40 shall be installed prior to cap sheet installation.

G. Flashing Cap Ply: Install flashing cap sheets by the same application method used for the base ply.
1. Seal curb, wall and parapet flashings with an application of mastic and mesh on a daily basis. Do not permit conditions to exist that will allow moisture to enter behind, around or under the roof or flashing membrane.
2. Prepare all walls, penetrations, expansion joints and where shown on the Drawings to be flashed with required primer at the rate of 100 square feet per gallon. Allow primer to dry tack free.
3. Adhere to the underlying base flashing ply with specified flashing ply adhesive unless otherwise specified. Nail off at a minimum of 8 inches (203 mm) o.c. from the finished roof at all vertical surfaces.
4. Coordinate counter flashing, cap flashings, expansion joints and similar work with modified bitumen roofing work as specified.
5. Coordinate roof accessories, miscellaneous sheet metal accessory items with the roofing system work.
6. All stripping shall be installed prior to flashing cap sheet installation.
7. Heat and scrape granules when welding or adhering at cut areas and seams to granular surfaces at all flashings.
8. Secure the top edge of the flashing sheet using a termination bar only when the wall surface above is waterproofed, or nailed 4 inches on center and covered with an acceptable counter flashing.

H. Flood Coat/Aggregate:
1. Install after cap sheets and modified flashing, tests, repairs and corrective actions listed on punch list have been completed and approved.
2. Apply flood coat materials in the quantities recommended by the manufacturer.
3. Uniformly embed aggregate in the flood coat of cold adhesive at a rate recommended by the manufacturer.
4. Aggregate must be dry and placed in a manner required to form a compact, embedded overlay. To aid in embedment, lightly roll aggregate.

I. Roof Walkways: Provide walkways in areas indicated on the Drawings.

3.5 INSTALLATION EDGE TREATMENT AND ROOF PENETRATION FLASHING

A. Scupper Through Wall:

1. Inspect the nailer to assure proper attachment and configuration.
2. Run one ply over nailer, into scupper hole and up flashing as in typical wall flashing detail. Assure coverage of all wood nailers.
3. Install a scupper box in a 1/4 inch (6 mm) bed of mastic. Assure all box seams are soldered and have a minimum 4 inch (101 mm) flange. Make sure all corners are closed and soldered. Prime scupper at a rate of 100 square feet per gallon and allow to dry.
4. Fasten flange of scupper box every 3 inches (76 mm) o.c. staggered.
5. Strip in flange of scupper box with base flashing ply covering entire area with 6 inch (152 mm) overlap on to the field of the roof and wall flashing.
6. Install a second ply of modified flashing ply in bitumen over the base flashing ply, 9 inches (228 mm) on to the field of the roof. Apply a three-course application of mastic and mesh at all seams.

B. Reglet Mounted Counterflashing:
1. Minimum flashing height is 8 inches (203 mm) above finished roof height. Maximum flashing height is 24 inches. Prime vertical wall at a rate of 100 square feet per gallon and allow to dry.
2. Set cant in bitumen. Run all field plies over cant a minimum of 2 inches (50 mm).
3. Install base flashing ply covering wall set in bitumen with 6 inches (152 mm) on to field of the roof.
4. Install a second ply of modified flashing ply in bitumen over the base flashing ply, 9 inches (228 mm) on to the field of the roof. Apply a three-course application of mastic and mesh at all vertical seams and allow to cure and aluminize.
5. Apply butyl tape to wall behind flashing. Secure termination bar through flashing, butyl tape and into wall. Alternatively use caulk to replace the butyl tape.
6. Cut reglet in masonry one joint above flashing.
7. Secure reglet counterflashing with expansion fasteners and caulk reglet opening.

C. Base Flashing For Non-Supported Deck:
1. Inspect the nailer to assure proper attachment and configuration. The wood cant strip should be mechanically attached to the vertical and horizontal wood nailers.
2. Install compressible insulation in neoprene cradle between wall and vertical wood nailer.
3. Prime vertical wall at a rate of 100 square feet per gallon and allow to dry.
4. Install base flashing ply covering entire wall and wrapped to top of wood nailer with 6 inches (152 mm) on to field of the roof. Nail membrane at 8 inches (203 mm) o.c.
5. Install a second ply of modified flashing ply in bitumen over the base flashing ply, 9 inches (228 mm) on to the field of the roof. Apply a three-course application of mastic and mesh at all vertical seams and allow to cure and aluminize.
6. Attach counterflashing through wall flashing at a spacing of 24 inches (609 mm) o.c.

D. Liquid Flashing:
1. Mask target area on roof membrane with tape.
2. Clean all non-porous areas with isopropyl alcohol.
3. Apply 32 wet mil base coat of liquid flashing over masked area.
4. Embed polyester reinforcement fabric into the base coat of the liquid flashing.
5. Apply 48-64 wet mil top coat of the liquid flashing material over the fabric extending 2 inches (51 mm) past the scrim in all directions.
6. Apply minerals immediately or allow the liquid flashing material to cure 15-30 days

and then install reflective coating.

E. Wall Coating:
   1. Clean existing masonry wall. Remove loose or chalky mortar and paint as required.
   2. Contractor shall apply sealant at a rate of 2 gallons per square per coat (two coat process).

3.6 CLEANING

A. Clean-up and remove daily from the site all wrappings, empty containers, paper, loose particles and other debris resulting from these operations.

B. Remove asphalt markings from finished surfaces.

C. Repair or replace defaced or disfigured finishes caused by Work of this section.

3.7 PROTECTION

A. Provide traffic ways, erect barriers, fences, guards, rails, enclosures, chutes and the like to protect personnel, roofs and structures, vehicles and utilities.

B. Protect exposed surfaces of finished walls with tarps to prevent damage.

C. Plywood for traffic ways required for material movement over existing roofs shall be not less than 5/8 inch (16 mm) thick.

D. In addition to the plywood listed above, an underlayment of minimum 1/2 inch (13 mm) recover board is required on new roofing.

E. Special permission shall be obtained from the Manufacturer before any traffic shall be permitted over new roofing.

3.8 FIELD QUALITY CONTROL

A. Inspection: Provide manufacturer's field observations three days a week (based on a five day work week) as construction is in progress. Provide a final inspection upon completion of the Work.
   1. Warranty shall be issued upon manufacturer's acceptance of the installation.
   2. Field observations shall be performed by a Sales Representative employed full-time by the manufacturer and whose primary job description is to assist, inspect and approve membrane installations for the manufacturer.
   3. Provide observation reports from the Sales Representative indicating procedures followed, weather conditions and any discrepancies found during inspection.
   4. Provide a final report from the Sales Representative, certifying that the roofing system has been satisfactorily installed according to the project specifications, approved details and good general roofing practice.

3.9 SCHEDULES

A. Base (Ply) Sheet:
   1. HPR Torch Base: 110 mil SBS (Styrene-Butadiene-Styrene) rubber modified roofing base sheet reinforced with a fiberglass scrim. Designed for torch applications with a burn-off backer that indicates when the material is hot enough to be installed.

a. Tensile Strength, ASTM D 5147
   1) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 210 lbf/in XD 210 lbf/in
   2) 50 mm/min. @ 23 +/- 2 deg. C MD 36.75 kN/m XD 36.75 kN/m
b. Tear Strength, ASTM D 5147
   1) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 300 lbf XD 300 lbf
   2) 50 mm/min. @ 23 +/- 2 deg. C MD 1,334 N XD 1,334 N
c. Elongation at Maximum Tensile, ASTM D 5147
   1) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 6% XD 6%
   2) 50 mm/min. @ 23 +/- 2 deg. C MD 6% XD 6%
d. Low Temperature Flexibility, ASTM D5147, Passes -30 deg. F (-34.4 deg. C)

B. Thermoplastic/Modified Cap (Ply) Sheet:
1. StressPly IV Plus: 180 mil SBS (Styrene-Butadiene-Styrene) rubber modified roofing membrane reinforced with a fiberglass and polyester composite scrim. This membrane is designed for torch applications and has a burn-off backer that indicates when the material is hot enough to be installed.
   a. Tensile Strength, ASTM D 5147
      1) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 310 lbf/in XD 310 lbf/in
      2) 50 mm/min. @ 23 +/- 2 deg. C MD 54.25 kN/m XD 54.25 kN/m
   b. Tear Strength, ASTM D 5147
      1) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 510 lbf XD 510 lbf
      2) 50 mm/min. @ 23 +/- 2 deg. C MD 2269 N XD 2269 N
   c. Elongation at Maximum Tensile, ASTM D 5147
      1) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 9% XD 8%
      2) 50 mm/min. @ 23 +/- 2 deg. C MD 9% XD 8%
   d. Low Temperature Flexibility, ASTM D 5147, Passes -40 deg. F (-40 deg. C)

C. Flashing Base Ply:
1. HPR Torchbase: SBS modified, torch applied sheet material. ASTM D 6163, Type II.
   a. Tensile Strength, ASTM D 5147
      1) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 210 lbf/in XD 210 lbf/in
      2) 50 mm/min. @ 23 +/- 2 deg. C MD 210 lbf/in XD 210 lbf/in
   b. Tear Strength, ASTM D 5147
      1) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 300 lbf XD 300 lbf
      2) 50 mm/min. @ 23 +/- 2 deg. C MD 1334 N XD 1334 N
   c. Elongation at Maximum Tensile, ASTM D 5147
      1) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 6 % XD 6 %
      2) 50 mm/min@ 23 +/- 2 deg. C MD 6 % XD 6 %
   d. Low Temperature Flexibility, ASTM D 5147:
      1) Passes -30 deg. F (-34 deg. C). Meets or Exceeds ASTM D 4601 Type II Performance Criteria.

D. Flashing Cap (Ply) Sheet:
   a. StressPly IV UV Mineral: 195 mil SBS (Styrene-Butadiene-Styrene) mineral surfaced rubber modified roofing membrane with a dual fiberglass scrim. This membrane is designed for torch applications and has a burn-off backer that indicates when the material is hot enough to be installed.
      1) Tensile Strength, ASTM D 5147
         a) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 225 lbf/in CMD 225 lbf/in

b) 50 mm/min. @ 23 +/- 3 deg. C MD 39.0 kN/m CMD 39.0 kN/m

2) Tear Strength, ASTM D 5147
   a) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 300 lbf CMD 300 lbf
   b) 50 mm/min. @ 23 +/- 3 deg. C MD 1335 N CMD 1335 N
3) Elongation at Maximum Tensile, ASTM D 5147
   a) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 4.7% CMD 5.0%
   b) 50 mm/min. @ 23 +/- 3 deg. C MD 4.7% CMD 5.0%
4) Low Temperature Flexibility, ASTM D 5147: Passes -40 deg. F (-40 deg. C)

E. Surfacing:
1. Flood Coat/Aggregate:
   a. Weatherscreen: Asphalt protective roof coating, Weatherscreen; heavy-bodied, fiber reinforced, cold process roof coating having the following characteristics:
      1) Weight/Gallon 9.1 lbs./gal. (1.1 g/cm3)
      2) Non-Volatile % (ASTM D 4479) Typical 75
      3) Viscosity Brookfield RVT;
      4) Spindle #5; 10RPM @ 71 deg. F 20,000-25,000 cPs
      5) Roofing Aggregate: ASTM D 1863
         a) Slag.
         b) Pea gravel.
         c) White spar.
2. Surface Coatings:
   a. Surfacing:
      1) Pyramic: White elastomeric roof coating, Energy Star approved acrylic roof coating:
         a) Weight/Gallon 12 lbs./gal. (1.44 g/cm3)
         b) Non-Volatile % (ASTM D 1644) 66 min
         c) Reflectance 81%

3. Wall Coatings:
   a. Surfacing:
      1) Heavy-bodied, emulsified acrylic architectural wall coating: Tuff-Coat by The Garland Company, Inc.
         a) Density @ 77°F (25°C) - Typical 10.86 lbs./gal.
         b) Non-Volatile: Weight – 58.8% Volume – 47.4%
         c) Viscosity (ASTM D 562) - 85-90 KU
         d) Tensile Strength (ASTM D 2370) - 130 psi
         e) Elongation (ASTM D 2370) – 585%

END OF SECTION

SECTION 07600

FLASHING AND SHEET METAL

SECTION 1 - GENERAL

1.01 SECTION INCLUDES

A. Flashing and Sheet Metal required preventing penetration of water through exterior shell of the building.

1.02 QUALITY ASSURANCE

A. Qualification of Installers: At least one person shall be present at all times during execution of this work who is thoroughly trained and experienced in the materials and method required to fabricate and install the flashing and sheet metal work specified herein.

B. Codes and Standards

1. Comply with all pertinent codes and regulations.

2. Comply with all pertinent recommendations of 1988 edition of "Architectural Sheet Metal Manual" of the Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA)

1.03 SUBMITTALS

A. Product Data: Submit manufacturer's product specifications, installation instructions and general recommendations for each specified sheet material and fabricated product.

B. Submit two (2) 12" long completely finished units of specified factory-fabricated products exposed as finished work.

C. Shop Drawings: Submit shop drawings for review showing layout, joining, profiles, and anchorage of fabricated work, including major counter flashings, trim/fascia units.

1.04 PRODUCT HANDLING

A. Protection: Protect flashing and sheet metal materials before and during installation.

B. Replacements: In event of damage, make all repairs and replacements necessary.

PART 2 - PRODUCTS

2.01 MATERIALS AND GAUGES

A. Where sheet metal is required and no material or gauge is indicated, furnish and install the highest quality and gauges commensurate with referenced standard to match existing.

B. Through Wall Scupper: ASTM A 67; commercial quality, 2D annealed finish, 304 stainless steel, 24 gauge.

C. Counter flashings: 24 gauge Prefinished Galvalume conforming to ASTM A792 with AZ 55 coating designation and a Kynar 500 based flourpolymer as provided by The Garland Company, Inc. or pre-approved equal. Color selected by Owner.

D. Lead Flashings: Sheet complying with FS QQ-L-201. Grade B; formed from Common Desilverized Pig Lead complying with ASTM B-29. Weight 4.0 lbs/sq. ft. unless otherwise specified.

E. Termination Bar: 1/8" X 3/4" extruded Aluminum.

2.02 NAILS, RIVETS, AND FASTENERS

A. Nails: Copper, Stainless Steel or Galvanized depending on application.

B. Rivets: Copper, Aluminum, Stainless Steel or Galvanized depending on application.

C. Exposed Fasteners and Washers: Stainless Steel Screws with covered neoprene gaskets.

D. Unexposed Fasteners and Washers: Cadmium plated.

2.03 RELATED MATERIALS

A. Flux: Raw Muriatic Acid killed with Zinc Chloride.

B. Solder: Conform with current ASTM B-12. 50% tin and 50% lead.

C. Burning Rod for Lead: Same composition as lead sheet.

D. Joint Sealant: Terpolymer by Garland or approved substitute.

E. Coping Underlayment: Vinyl membrane by Nervistral.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify all existing work is complete to a point where this installation may commence.

B. In the event of discrepancy, notify consultant. Do not proceed until discrepancies have been resolved.

C. Field measure site conditions prior to fabricating work.

3.02 FABRICATION

A. Shop fabricate work to greatest extent possible. Comply with details shown, and with applicable requirements of SMACNA and other industry practices.

B. Fabricate for waterproof and weather-resistant performance; with expansion provisions for running work, sufficient to permanently prevent leakage, damage or deterioration of work.

C. Form exposed sheet metal work without excessive oil-canning, buckling and tool marks, true to line and levels as indicated, with exposed edges folded back to form hems.

3.03 COUNTER FLASHING

A. Install as indicated and described in details.

3.04 SCUPPER

A. Install as indicated and described in details.

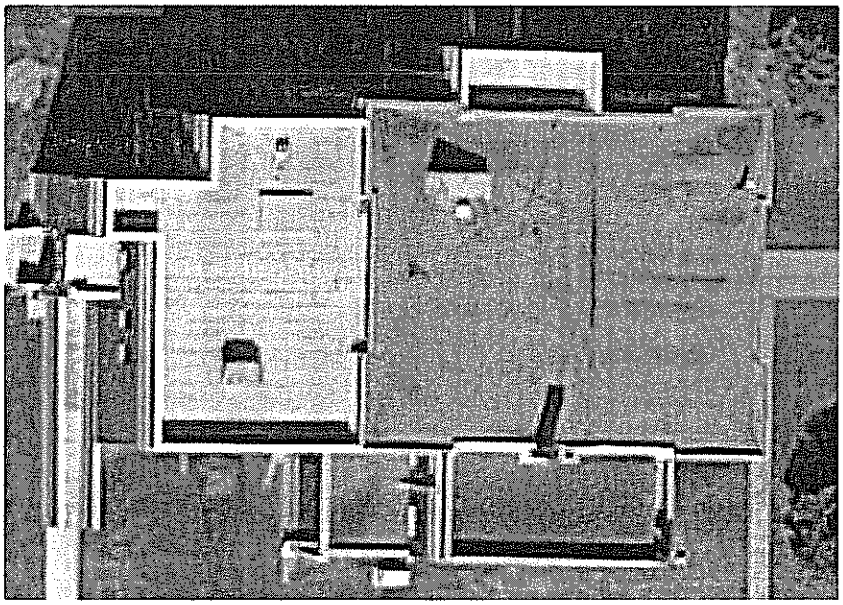
3.05 CLEANING

A. Clean exposed metal surface removing substances which might cause corrosion of metal or deterioration of finish.

END OF SECTION

BEAVER COUNTY COURTHOUSE

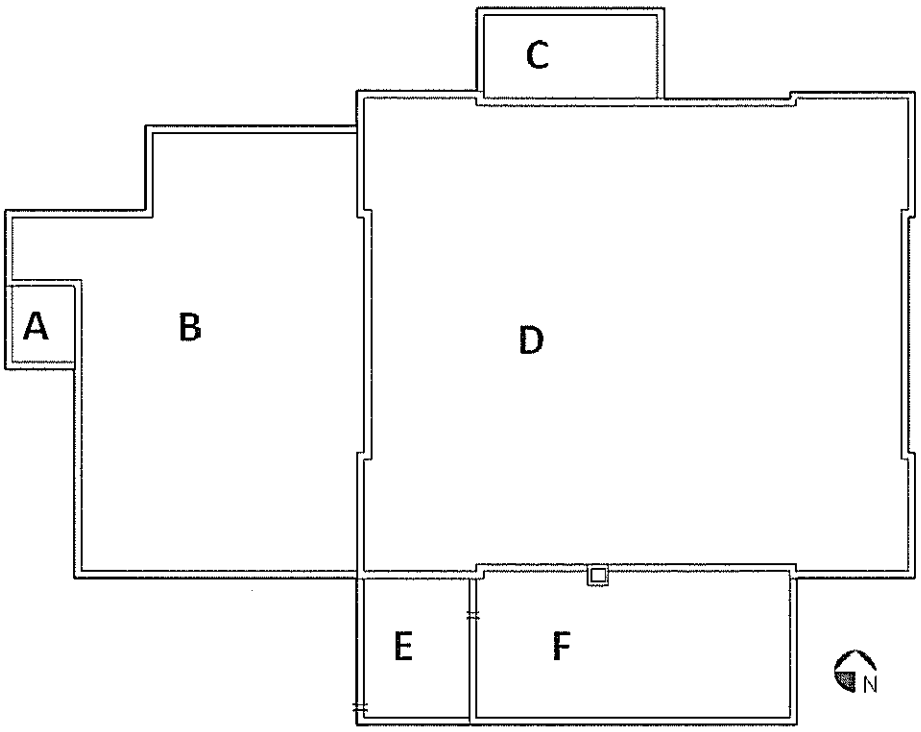
111 WEST 2ND STREET
BEAVER, OK 73932



INDEX OF DRAWINGS

Cover Sheet
Roof Plan

BEAVER COUNTY COURTHOUSE
ROOF PLAN



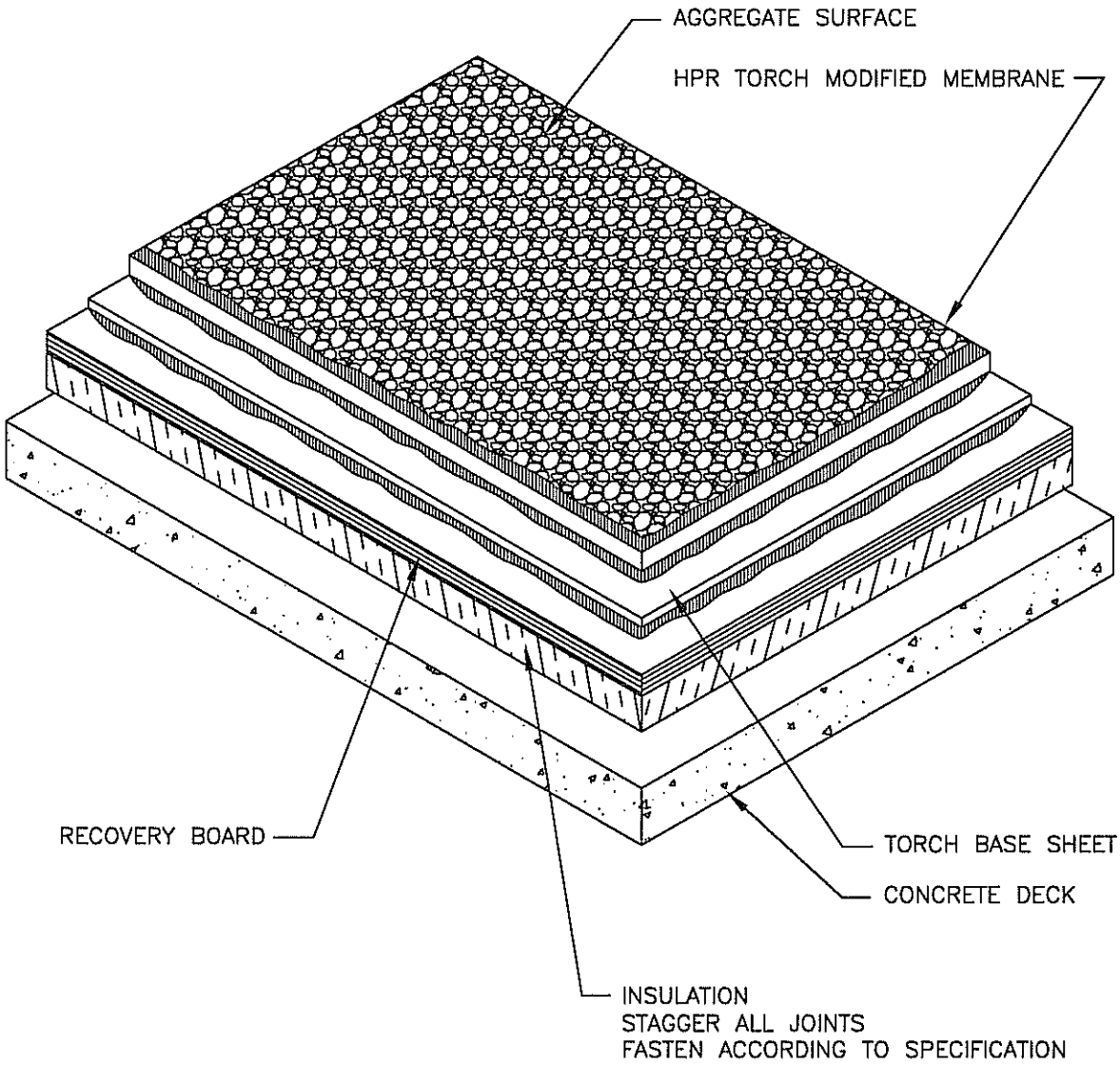
SECTION:

A: No Leaks Reported
B: Leak Repairs
C: Leak Repairs
D: Install metal and flashings at penthouse
E: Replace
F: Replace

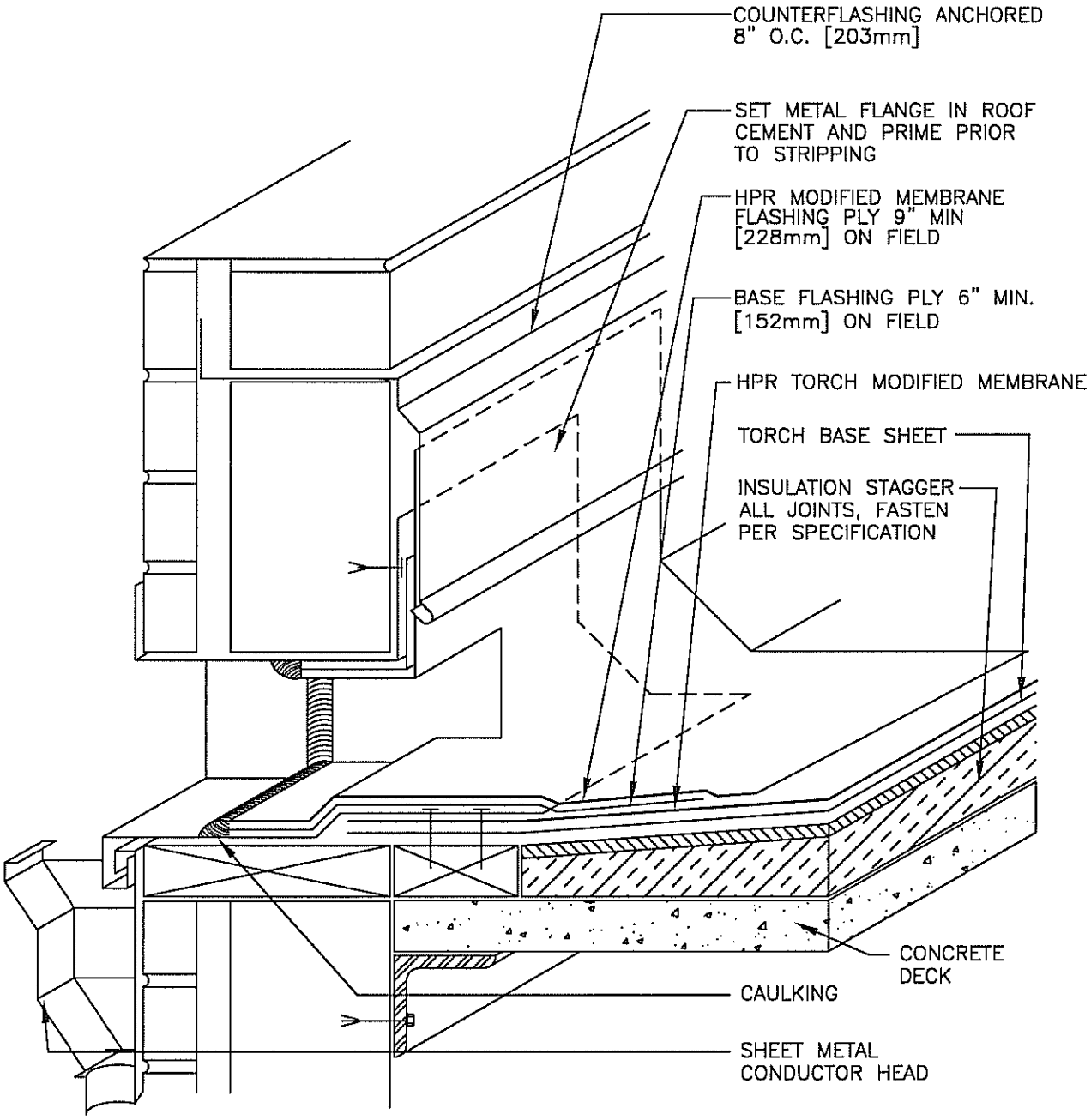
BEAVER COUNTY COURTHOUSE
ROOF PLAN

DATE: 11/7/2017

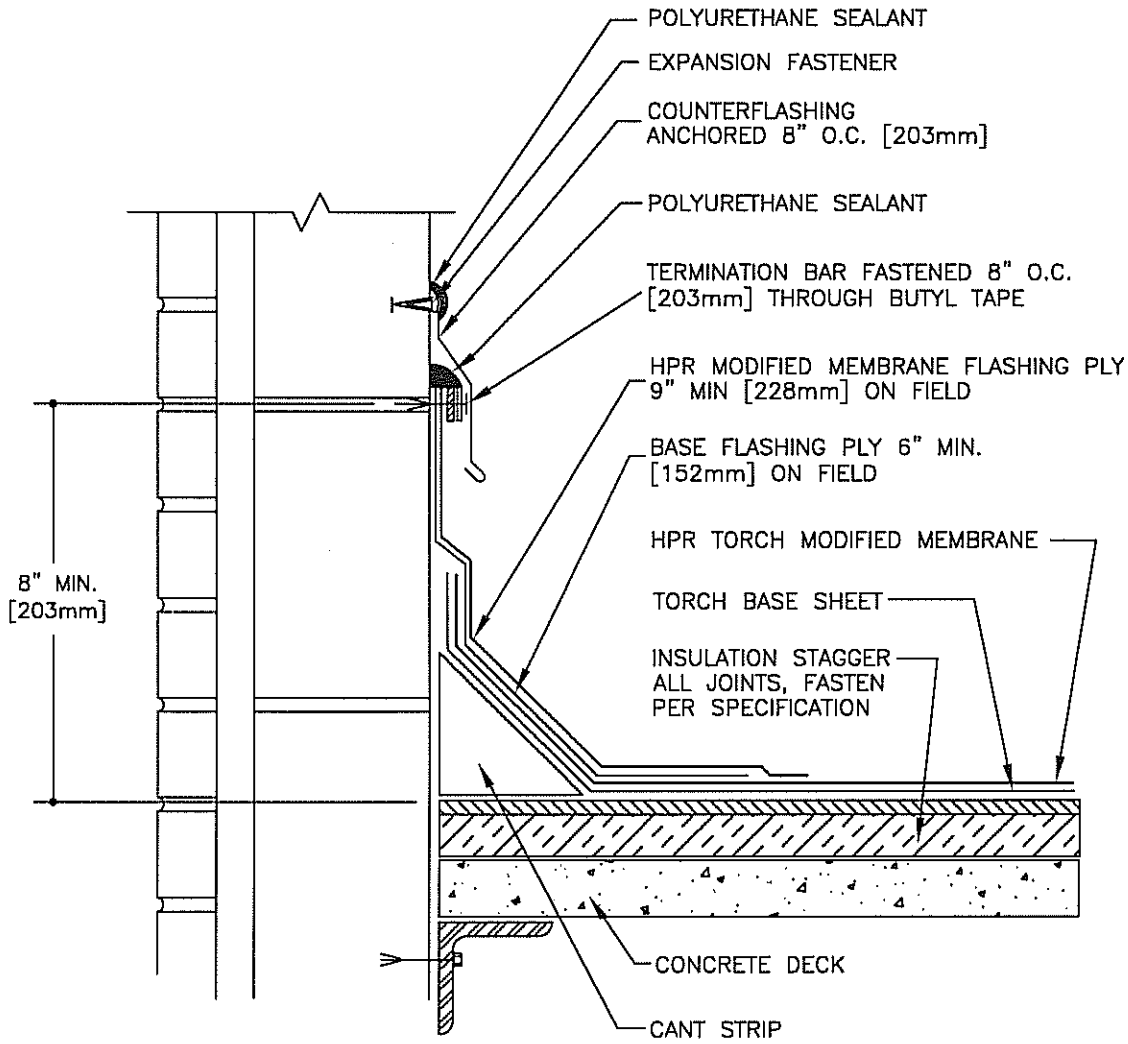
SHEET 2 OF 2



ROOF ASSEMBLY



THROUGH WALL SCUPPER



REGLET MOUNTED COUNTER FLASHING