TECHNICAL SPECIFICATIONS

West & Center Roof Replacement - Lake County Agricultural Center

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SECTION 01010

SUMMARY OF WORK

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract apply to this Section.

1.2 SUMMARY OF WORK:

A. This Project consists of the replacement of the existing roof system on the West and Center low-slope roof sections of the Lake County Agricultural Center located at 1951 Woodlea Road, Tavares, FL 32778.

B. The Project includes but is not limited to the Work described below:

1. Demolition
   a. Remove existing gravel, flashings, roofing membrane, insulation, metal counterflashing, and accessories down to structural concrete deck.
2. BASE BID: New Torch-Applied Modified Roofing Construction
   a. Preparation of existing roof deck to receive new roofing assembly.
   b. Installation of any components as required to receive new construction components, including but not limited to, roof insulation, roof membrane, flashings, and metal accessories.
   c. Priming concrete deck and application of one-ply torch temp roof.
   d. The installation of 1½" flat base layer of Polyisocyanurate insulation adhered in cold-process insulation adhesive.
   e. The installation of tapered Polyisocyanurate insulation adhered in cold-process insulation adhesive.
   f. The installation of Securock coverboard insulation adhered in cold-process insulation adhesive.
   g. The installation of one ply of torch Base Sheet to Securock.
   h. The installation of one ply of torch smooth top ply.
   i. The installation of the 2-ply torch modified bitumen flashings.
   j. The application of cold-process coal-tar flood coat and gravel.
   k. The installation of additional guttering and downspouts on existing non-guttered edges of upper west roof area. Existing gutters and downspouts on upper west roof area shall remain. No gutters shall be installed on lower roof areas.
   l. The installation of any metal flashings, copings, and accessories as is applicable.

C. Safety Requirements

1. All application, material handling, and associated equipment shall conform to and be operated in conformance with the Lake County Government and OSHA safety requirements.
2. Comply with federal, state and local and owner fire and safety requirements.
3. Advise owner of work expected to be hazardous to employees and/or operations.
4. Maintain proper fire extinguisher within easy access whenever power tools are being used.

5. ALL SAFETY REQUIREMENTS OF THE BUILDING OWNER MUST BE FOLLOWED. NO EXCEPTIONS WILL BE PERMITTED.

END OF SECTION

SECTION 06100
ROUGH CARPENTRY

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. Provide all labor, equipment, and materials to install wood, nails, bolts, framing anchors, rough hardware and other items needed for rough Carpentry in this work.

B. Install new wood nailers as required.

C. Install new treated wood blocking as required.

1.02 RELATED SECTIONS

A. Section 07220 – Roof and Deck Insulation

B. Section 07500 – Preparation For Reroofing

C. Section 07550 – Modified Bitumen Roofing Membrane

D. Section 07600 - Flashing and Sheet Metal

1.03 DELIVERY AND STORAGE

A. Time delivery and installation of carpentry work to avoid delaying other trades whose work is dependent on or affected by the carpentry work. Keep materials dry during delivery.

B. Store lumber and plywood in stacks with provisions for air circulation within stacks. Protect bottom of stacks against contact with damp or wet surfaces.

C. Protect exposed materials against water and wind. Remove damaged or unsuitable material from the job site.

1.04 QUALITY ASSURANCE

A. Comply with governing codes and regulations. Use experienced installers.

B. Lumber Standards: American Softwood Lumber Standards PS 20-70 by U.S. Department of Commerce.

C. Plywood Standards: U.S. Product Standard PSI-74/ANSI A 199.1 or latest APA Performance Standards for American Plywood Association.

D. Factory Marking: Mark each piece of lumber or plywood to indicate type, grade, agency providing inspection service.

E. Size and Shape: Dress lumber 4 sides (S4S) and work to shapes and patterns shown. Nominal sizes shown and specified refer to undressed lumber dimensions. Detailed dimensions do not show actual lumber size required.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Construction Lumber: Standard Grade Douglass Fir, Western Larch, Western Hemlock (WWPA or WCLB) or No. 2 dimension Southern Pine (SPIB).

B. Exterior Type Plywood: APA rated sheathing, EXT.

C. Bucks, Nailers, Blocking, Curb, Etc. Pressure treated with water-borne preservatives to comply with AWPB LP-2. After treatment kiln-dry lumber and plywood to a maximum moisture content, respectively, of 19% to 15%.

D. Anchorage and Fastening: Proper type, size material and finish for each application.

E. Quality: Sound, seasoned, well manufactured materials of longest practical lengths and sizes in minimize joining. Free from warp which cannot be easily corrected by anchoring and attachment. Discard material with defects which would impair quality of work.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify measurements and dimensions as shown before proceeding with carpentry work.

B. Examine supporting structure and conditions under which carpentry work is to be installed. Do not proceed with installation until unsatisfactory conditions have been corrected.

C. Correlate location of nailers, blocking and similar supports for attached work.

D. Scribe and cope as required for accurate fit of carpentry work to other work.

3.02 INSTALLATION

A. Provide decking, nailers, blocking, curbs, and sleepers where shown on the drawings or required for attachment of other work. Coordinate with location with other work involved.

B. Attach to substrate securely as required to support applied loading. Countersink bolts and nuts flush with surfaces.

C. Securely attach wood nailers to substrate in accordance with The Florida Building Code and all other applicable codes.

D. Provide washers under bolt heads and nuts in contact with wood.

E. Do not wax or lubricate fasteners that depend on friction for holding power.

F. Select fasteners of size that will not penetrate members where opposite side will be exposed to view or will receive finish material.

G. Make tight connections between members. Install fasteners without splitting of wood; pre-drill as required. Do not drive threaded friction type fasteners; turn into place. Tighten bolts and lag screws at installation and re-tighten as required for tight connections prior to closing in or at completion of work.

END OF SECTION 06100

SECTION 07150
PREPARATION FOR RE-ROOFING

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. Remove existing roofing gravel, flashings, vent stack flashings, roofing membrane, insulation, drip edge and fascia metal, and accessories down to concrete decking.

1.02 RELATED SECTIONS

A. Section 06100 - Rough Carpentry

B. Section 07220 – Roof and Deck Insulation

C. Section 07563 - Modified Bitumen Roof Membrane

D. Section 07600 - Flashing and Sheet Metal

1.03 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 effect repairs or emergency action and the Contractor shall be back charged for all expenses and damages, if any.

PART 2 - PRODUCTS

2.01 MATERIALS

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

B. Primer: GarlaPrime by The Garland Company, Inc.

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 other item 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.

C. 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.

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

E. 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 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.

END OF SECTION 07500

SECTION 07220
ROOF DECK AND INSULATION

PART 1 - GENERAL

1.1 SCOPE OF WORK

A.

B. Install tapered and flat roof insulation systems over the properly prepared deck substrate as specified.

1.2 RELATED SECTIONS

A. Section 06100 - Rough Carpentry

B. Section 07500 - Preparation for Roofing

C. Section 07550 - Modified Bitumen Roof Membrane

D. Section 07600 - Flashing and Sheet Metal

1.4 ENVIRONMENTAL REQUIREMENTS

A. Apply insulation only when the weather conditions are in compliance with the roof system limitations.

B. Application of roof system shall immediately follow the installation of the roof insulation.

C. Protect the installed insulation from water penetrations at the end of each day’s work.

1.5 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.

PART 2 - PRODUCTS

2.1 TEMPORARY ROOF

A. GENERAL: Provide all labor, equipment, and materials to install torch-applied temporary roof over the properly prepared deck substrate.

B. MATERIALS:

1. Concrete Deck Primer: GarlaPrime asphalt primer

2. Temporary Roofing Ply: CI Ultra-Shield Torch Base Sheet

2.2 INSULATION

A. GENERAL: Provide all labor, equipment, and materials to install roof insulation system over the properly prepared deck substrate. Insulation system shall provide a minimum average R-Value of 20.

1. Provide preformed insulation boards as indicated.

2. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes at all roof mounted equipment, expansion joints and wherever they are required to prevent ponding rainwater.

3. Contractor is responsible for depth of all edge nailers, facia, and flashing to adjust for height of new insulation, if applicable.

4. No ponding water is allowed on the finished roof system.

5. **Insulation boards larger than 4' X 4' are not acceptable.**

B. MATERIALS

1. Insulation Board:

a. BASE LAYER: Polyisocyanurate Board Insulation: 1 ½" thick, flat, rigid, closed cell polyisocyanurate foam core bonded to heavy duty glass fiber mat facers on both major surfaces. Complying with ASTM C 1289.

Source of Supply: E'NRG'Y-3; Johns Manville

b. TAPERED LAYER: Polyisocyanurate Board Insulation: tapered, rigid, closed cell polyisocyanurate foam core bonded to heavy duty glass fiber mat facers on both major surfaces. Complying with ASTM C 1289. **Select sloped insulation as required to achieve a minimum net slope of 1/8" per foot on all roof surfaces to internal drains and/or roof edges.**

Source of Supply: E'NRG'Y-3; Johns Manville

c. COVERBOARD: Securock by USG Corp.; minimum ¼ " thick, impact-resistant, nonstructural, specially engineered gypsum and cellulose fiber panels with 95% certified recycled content.

d. FILL BOARD: Polyisocyanurate Board Insulation: rigid, closed cell polyisocyanurate foam core bonded to heavy duty glass fiber mat facers on both major surfaces. Complying with ASTM C 1289.

PART 3 - EXECUTION

3.1 INSPECTION 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.

3.2 PROTECTION

A. During execution of work covered by this Section, the Contractor shall provide protections for the roof insulation from water and wind penetration at the end of each day's work.

B. Protect the roof insulation in areas that will receive excessive traffic with a surface protection such as plywood.

C. All workmen shall wear clean, soft rubber-soled shoes for any application work where they may be walking insulation board in place.

3.3 INSPECTION OF ALL PERIMETER WOOD NAILERS

A. Confirm secure attachment of all perimeter nailers. Re-secure as is necessary. Replace damaged existing wood nailers (linear foot for replacment of existing should be supplied by installer).

3.4 DECK PREPARATION

A. Prime entire concrete deck with Garlaprime asphalt primer at rate of 1 gallon per 100 sqaure feet.

3.5 TEMP ROOF INSTALLAION

A. Install one ply of specified torch base sheet to entire roof area.

3.6 INSULATION INSTALLATION

A. GENERAL

1. All insulation board shall be cut and fitted where the roof deck intersects a vertical surface. The insulation boards shall be cut to fit a maximum of 1/4" away from the vertical surface.

2. Each insulation board shall butt firmly against adjoining panels. All open joints shall be eliminated, and there shall be no uneven surface. Stagger end joints of boards so all open joints will be eliminated.

3. Install no more insulation at one time than can be roofed on the same day.

4. Install temporary water cut-offs at completion of each day's work and remove upon resumption of work.

B. INSULATION ATTACHMENT WITH INSULOCK HR INSULATION ADHESIVE

1. Ensure all surfaces are clean, dry, free of dirt, debris, oils, loose or embedded gravel, unadhered coatings, deteriorated membrane and other contaminants that may inhibit adhesion.

2. Apply ¼" to ½" wide beads of insulation adhesive directly to the properly prepared substrate spaced as follows:

   a. Zone 1 (Field): Four (4) adhesive ribbons at 12" O.C. per 4'x4' board
   b. Zone 2 (Perimeters): Four (4) adhesive ribbons at 12" O.C. per 4'x4' board
   c. Zone 3 (Corners): Four (4) adhesive ribbons at 12" O.C. per 4'x4' board
   d. Zones 2 and 3 widths are 6 feet 0 inches.

3. 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.

4. 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.

5. Over first course of insulation, install the second layer of specified insulation, in the same specified pattern per roof zone. Walk in each layer of insulation boards to achieve complete positive bond to the insulation below.

6. All insulation board shall be cut and fitted where the roof deck intersects a vertical surface. The insulation boards shall be cut to fit a maximum of ¼" away from the vertical surface.

7. All subsequent insulation board layers shall be installed with staggered joints in relationship to prior layer.

8. Each insulation board shall butt firmly against adjoining panels. All open joints shall be eliminated, and there shall be no uneven surface.

9. In all areas where there are voids or spaces greater than ¼" between the insulation boards, asphalt filler shall be used to fill the gaps. Insulation shall be compacted until even with surrounding surfaces.

10. Set all flame resistant cant strips in Flashing Bond.

11. Cant Strips/Tapered Edge Strips: Install preformed fourty five (45) degree cant strips at junctures of vertical surfaces. Provide preformed, tapered edge strips at perimeter of edges of roof that do not terminate at vertical surfaces. Tape joints of insulation as per manufacturer's requirements.

3.7 CLEANING

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

END OF SECTION 07220

SECTION 07550

MODIFIED BITUMEN ROOF MEMBRANE - TORCH

PART 1 GENERAL

1.01 SCOPE OF WORK

A. Provide all labor, equipment, and materials to install the specified torch-applied modified bitumen roof system over the properly prepared substrate.

1.02 RELATED SECTIONS

A. Documents affecting work of this Section include, but are not necessarily limited to, any General Conditions, Supplementary Conditions, and Sections in Division I of these Specifications.

1.03 REFERENCES

A. Industry Standards: The Industry Standards listed below refer to the latest date of issue or edition, unless otherwise indicated in this Section.

1. ASTM: American Society for Testing and Materials
2. FM: Factory Mutual Engineering and Research,
3. NRCA: National Roofing Contractors Association
4. American Society of Civil Engineers (ASCE): ASCE 7-10, Minimum Design Loads for Buildings and Other Structures.
5. FBC: Florida Building Code
6. SMACNA: Sheet Metal and Air Conditioning Contractors National Association
7. UL: Underwriters Laboratories

1.04 DEFINITIONS

A. Roofing System Definition: The roofing system, as defined in this Section, includes all roofing related materials and methods used, from the roof deck up, including but not limited to the membrane, insulation, cant strips, flashing and stripping, and surfacing.

1.05 SUBMITTALS

A. Provide the following to the Owner prior to award of roofing work.

1. Descriptive product data including MSDS sheets.
2. Submit copy of manufacturer's minimum design load calculations according to ASCE 7-10, Method 2 for Components and Cladding, performed by an engineer employed by the system manufacturer as a full-time staff engineer.
3. Sample copy of specified Manufacturer’s 30 yr No Dollar Limit Warranty.

B. PRODUCT DATA: As requested, submit brochures containing material samples, schedules, charts, literature, and illustrations to indicate the performance, fabrication procedures, product variations, and accessories.

1. Within one (1) weeks of award of contract, submit:
   a. Minimum of two (2) samples of each sheet material and descriptive literature.
   b. Manufacturer's specifications and other independent test data according to ASTM designation D-5147-91 "Standard Test Methods for Sampling and Testing Modified Bituminous Sheet Material" needed to prove compliance with specified requirements.
   c. All other data and information to satisfy requirements of manufacturer on warranty needs.
   d. A written statement from the roofing materials manufacturers corporate officer approving the installer and stating the intent to guarantee the completed project as specified.
   e. Samples of proposed warranty complete with any addenda necessary to meet the warranty requirements as specified.
   f. Certified copy of ISO 9001 compliance.

C. SHOP DRAWINGS: Indicate size and materials. Show locations and installation procedures. Include details of joints, attachments, fastening patterns, and clearances. Submit four (4) and retain approved copies at the Site.

1.06 QUALITY ASSURANCE

A. Manufacturer: The manufacturer of the Primary Waterproofing membrane shall have a minimum of 12 years experience in manufacturing bitumen roofing products in the United States.

1. The manufacturer of the Primary Waterproofing Membrane shall be currently certified by the International Organization for Standardization as meeting the minimum quality assurance standards outlined in the I.S.O. 9002 program, and shall be registered in the current listing of I.S.O. Certified Manufacturers. The Manufacturer's I.S.O. certification number must be included in the bid documents along with the name of the licenses quality assessment auditing firm issuing the certification.

2. The manufacturer of the Primary Waterproofing Membrane shall provide wind uplift calculations prepared by a registered professional engineer employed by the system manufacturer as a full-time staff engineer.

B. Material Manufacturer's Representative:
1. The materials manufacturer issuing the final guarantee on this roofing project must have a full time employee with field experience in all phases of built up roofing. This employee will serve as Manufacturers Representative during the project.

2. The Manufacturers Representative cannot be associated with or work for any distributor or contractor, or have any financial association with either. Agents/inspectors who represent more than one manufacturer are excluded.
3. Further, the Manufacturers Representative will provide in writing (upon request of the Owner) and signed by an officer of the corporation, complete acceptance of the terms listed under (MATERIALS MANUFACTURER'S REPRESENTATIVE). He must also supply the name and phone number of the officer of the corporation who will be signing the document.
    a. The materials manufacturer's representative will be required to examine the work in progress three days per week to the completion of the specified work, in order to assist in ascertaining the extent to which the materials and procedures conform to the requirements of these specifications and to the published instructions of the material manufacturer.
    b. The authorized material manufacturer's field representative shall be responsible for:
        (1) Rendering any inspection services the Owner's Representative may request.
        (2) Keeping the Owner's Representative informed after inspections as to the progress and quality of the work as observed.
        (3) Calling to the attention of the Contractor those matters observed which he considers to be in violation of the contract requirements.
        (4) Reporting to the Owner's Representative in writing any failure or refusal of the Contractor to correct unacceptable practices called to his attention.
        (5) Supervise the taking of test cuts and the restoration of such areas.
        (6) Confirming, after completion of the work and based on his observations and tests, that he has observed no application procedures in conflict with the specifications, other than those that may have been previously reported. Final payment will not be released until this confirmation has been received by the Owner.
    c. The presence and activities of the material manufacturer's representative shall in no way relieve the Contractor of his contractual responsibilities. In the event of a dispute, the Owner's Representative shall have final authority.

C. Installer Qualifications: Installer (CONTRACTOR) shall be specializing in torch-applied modified bituminous roof application with minimum 5 years experience. Installer shall use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section. Contractor shall have previoulsy installed torch-applied modified bituminous roof applications of varying ages available for inspection by the Material Manufacturer and Owner as requested.

D. Installer’s Field Supervision: Require Installer to maintain a full-time English-speaking Supervisor/Foreman on job site during all phases of bituminous sheet roofing work and at any time roofing work is in progress, proper supervision of workmen shall be maintained. A copy of the specification shall be in the possession of the Supervisor/Foremen and on the roof at all times.

E. The CONTRACTOR shall provide safe access to roof for inspection.

F. The CONTRACTOR shall be responsible for, but not limited to, the following corrections during any field inspections:

1. Drylaps: If a dry lap is greater than ½" occurs from the edge of the felt, cut the dry portion and mop over with one ply. This shall also apply with the modified bitumen membrane.

2. Fishmouths: Slit the fish mouth open if higher that 1/8" inch, work flat with a gloved hand, one ply over the area.

3. Wrinkles: Any wrinkle higher than 1/8" shall be cut, pressed flat and mop one ply over it.

G. The CONTRACTOR shall be responsible for verifying all dimensions, elevations, rooftop equipment and conditions. All dimensions, elevations, rooftop equipment and conditions indicated on the drawings in reference to existing structures or utilities are the best available data obtainable but are not guaranteed by the Owner or Owner's Representative and they will not be responsible for their accuracy. Before bidding on any work dependent upon the data involved, the CONTRACTOR shall field check and verify all dimensions, grades, lines, levels, and existing construction or other conditions of limitations at the site to avoid construction errors. If any work is performed by the CONTRACTOR or any of his/her 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.

H. If applicable, the CONTRACTOR shall provide tapered insulation layout to Owner and Roof System Manufacturer for review.

I. Contractor is responsible for depth of all edge nailers, facia, and flashing/ gravel stop areas to meet height of new insulation.

J. It shall be the Contractor's responsibility to respond immediately to correction of roof leakage during construction. If the contractor does not respond within 24 hours, the Owner has the right to hire a qualified contractor and back charge the original contractor.

K. 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. Furthermore, damages caused by water infiltration resulting from the failure of the Contractor to secure each days work in a weathertight 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.

1.07 REGULATORY REQUIREMENTS

A. Taxes, Permits, and Fees: Unless as otherwise noted, the Contractor shall give notices, pay all fees, permits and comply with all laws, ordinances, rules and regulations bearing on the conduct of work. Contractor must comply with all state, federal and local taxes. The Contractor shall accept sole and exclusive responsibility for any and all state and federal taxes with respect to Social Security, old age benefits, unemployment benefits,

withholding taxes and sales taxes. The acquisition of the applicable permits and associated costs to obtain said permits will be the responsibility of the successful Contractor.

B. Governing Codes and Statues: Work performed under this specification shall be in compliance with applicable codes, laws, and ordinances of the municipal, state, and federal departments concerned. Materials and workmanship required by such regulations will be provided by the Contractor whether or not specifically noted herein or shown on the drawings.

C. Contractor's License: All pertinent state and local licenses will be required.

D. The Florida Building Code, and all state and local building codes.

1.08 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 ensure no possibility of significant moisture exposure. Store rolls of felt and other sheet materials on pallets or other raised surface. Stand all roll materials on end. Cover roll goods with a canvas tarpaulin or other breathable material (polyethylene is not acceptable).

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

D. Handle and store materials or equipment in a manner to avoid significant or permanent deflection of deck.

1.09 MANUFACTURER'S INSPECTIONS

A. When the project is in progress, the Roofing System Manufacturer will provide the following:

1. Keep the Owner informed as to the progress and quality the work as observed.
2. Provide job site inspections a minimum of 3 days per week.
3. Confirm, after completion of the project and based on manufacturer's observations and tests, that manufacturer has observed no applications procedures in conflict with the specifications other than those that may have been previously reported and corrected.

1.10 PROJECT CONDITIONS

A. Weather Condition Limitations: Do not apply roofing membrane during inclement weather or when a 40% chance of precipitation is expected.

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

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

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

E. Night Seals: The installed roof shall be made watertight at the end of every work day, as per manufacturer's requirements, and this night seal shall be removed at the beginning of the next work day, if so directed by manufacturer's instructions.

1.11 PROTECTION OF WORK AND PROPERTY

A. The Contractor shall maintain adequate protection of all his/her work from damage and shall protect the Owner's and adjacent property from injury or loss arising from this contract. He/she shall provide and maintain at all times any danger signs, guards and/or obstructions necessary to protect the public and his/her workmen from any dangers inherent with or created by the work in progress. He/she shall hold the Owner harmless from any loss arising due to injury or accident to the public or his/her 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 of material to protect the roof surface at all times.

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

C. In those areas where materials 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 coverage 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 by the Contractor prior to the final inspections. The method of repair used must be acceptable to the Owner.

E. Do not store flammable liquids on the roof.

F. Take all precautions necessary to prevent ignition of combustible materials during application of torch-applied roofing materials. Immediately call the fire department if a fire commences. Review all fire safety procedures as outlined at the pre-roofing conference.

1. As applicable, install materials using the techniques recommended by CERTA NRCA/MRCA Certified Roofing Torch Applicator Program available from the National Roofing Contractors Association (NRCA) and the Midwest Roofing Contractors Association (MRCA} as endorsed by the Asphalt Roofing Manufacturers Association (ARMA) and the United Union of Roofers, Waterproofers and Allied Workers. Application procedures must comply with NFPA 58 and 241, OSHA 29 CFR 1910 and 29 CFR 1910.12, 29 CFR 1926.16, 29 CFR 1926 Subpart F, UL Fire Resistance Directory Volume No. 1, NRCA R&W Manual, and Florida Building Code Volume 2004.

2. **Contractor shall be responsible to employ a 2 hr fire watch each day after completion of any torch work performed during the day.** Time of fire watch shall start at the completion of the last piece torched for 2 consecutive hours. The contractor shall maintain a fire watch check list showing a time schedule for each day there is has been a fire watch and this list shall be made available upon request.

G. Provide a minimum of two 2.65 gallon containers of water and two fully charged minimum 20 pound ABC (dry chemical) fire extinguishers in separate, easily accessible locations on the roof. Position extinguishers no closer than 5 feet and no further than 25 feet of horizontal travel distance from each work area at all times while work is being performed, in easily accessible and identifiable locations. Also provide a minimum of two multipurpose 2-A: 20-B: C portable fire extinguisher on the roof being covered or repaired.

1.12 SEQUENCING AND SCHEDULING

A. Sequence installation of modified bituminous sheet 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. All work must be fully completed on each day. Phased construction will not be accepted.

1.13 WARRANTY

A. Membrane Manufacturer upon completion of installation, and acceptance by the Owner, the manufacturer will supply to the Owner the Thirty (30) Year "No Dollar Limit" warranty on the roofing system.

B. Contractor will submit a minimum of a two year warranty to the membrane manufacturer with a copy directly to Owner.

C. Membrane manufacturer will provide an annual inspection at the annual request of the owner for the life of the warranty.

PART 2 PRODUCTS

2.1 GENERAL

A. Standard of Quality: When a particular trade name or performance standard is specified it shall be indicative of a standard of quality required for bid purposes. It is not the intent to limit the acceptance to any one material or product specified, but rather to name or describe it as the absolute minimum standard that is desired and acceptable. A material or product of lesser quality would not be acceptable.

B. Provide products by The Garland Company or equal. Bidders proposing substitutes shall submit all required information under 07550 to the Owner's representative at least 7 days prior to bid due date. All substitutions have to be approved in writing prior to bidding. No substitutions will be accepted after bidding or contract award. All bidders will have an opportunity to bid on any substitute system that is approved in writing.

C. Any item or materials submitted must comply in all respects as to the quality and performance of the specified minimum acceptable properties and characteristics, including manufacturer requirements and job progress visits and reporting. The Owner shall be the sole judge as to whether or not an item submitted as an equal is truly equal. Should the contractor choose to submit on the equal basis, he shall assume all risk involved, monetary or otherwise should the Owner find it unacceptable.

2.2 SUBSTITUTION OF MATERIALS

A. A bidder intending to furnish an alternate in place of the item specified will be required to submit to the Owner/Owner's Representative the following information at least seven (7) days prior to the scheduled bid opening date:

1. A sample of any and all material(s) that he intends to furnish under the bid. A five gallon sample of any adhesive, coating, mastic or sealant and a 3' X 5', sample of any sheeting goods as may be specified. Manufacturer’s labels must be on containers, smaller containers may be submitted if manufacturer’s labels are attached.

2. A certificate from an accredited testing laboratory comparing the physical and performance attributes of the proposed material with those of the specified material. An independent laboratory shall perform all tests and qualitative analysis, at the bidder's expense. Such data shall prove the equality or superiority of the alternate material, and this information must also accompany the bid when it is submitted. The test comparison shall bear a date not exceeding fifty (50) days prior to the date of the bid request.

3. Notarized statement from the Roofing System Manufacturer, signed by a corporate officer of the Corporation with the Corporate Seal affixed thereto stating in writing that:

   - All Bidding Documents have been inspected.

   - The project site has been inspected.

   - The roofing system manufacturer will provide field inspections a minimum of three days per week until all construction work is completed and accepted by the Owner.

   - Inspections shall be performed by a full time employee of the manufacturer. These inspections shall be provided to the Owner at no charge.

4. In order to substantiate the equality of performance of the alternate material under actual field use, a bidder offering " or equal" materials shall also submit a list of at least three (3) jobs with his bid, where the exact proposed alternate materials have been used under similar conditions as specified within a radius of sixty (60) miles from this location. These jobs must each be at least three (3) years old and must be available for inspection by all persons designated as "Owner Representatives".

5. Consideration will be given only to those materials that have approval prior to the scheduled bid opening date. Approved alternates shall be accepted by addenda only.

6. The Owner reserves the right to be the final authority on the acceptance or rejection of any proposed alternate materials.

7. During the course of work, the Owner will be permitted to secure samples of the substitute materials being used from the containers on the job site and submit them to

an independent testing laboratory selected by the representative for comparison, at the bidder's expense. If the results of the independent testing laboratory prove that the substitute materials are not comparable and equal to the specified materials, the Owner reserves the right to reduce the total awarded bid amount by twenty percent (20% assuming full completion and satisfaction of all other specifications, or refuse to make any payment if the project is not completed in accordance with all other specified conditions.

B. Failure to comply with all particulars outlined herein, shall be considered as reason for rejection of bid.

2.02 BITUMINOUS MATERIALS

A. Asphalt Primer: V.O.C. compliant, ASTM D-41: Quick Drying. Garlaprime by The Garland Company.

B. Asphalt Roofing Mastic: V.O.C. compliant, ASTM D-2822, Type II. Used to seal the tops of base flashing. Flashing Bond by The Garland Company.

2.03 SHEET MATERIALS

A. Tie-Off Ply Sheet: ASTM D-226, Number 15, organic roofing felt.

B. Base Field Ply:

1. SBS Torch Grade Base Sheet: 110-mil thick Styrene-Butadiene-Styrene (SBS) dual-fiberglass scrim reinforcement torch membrane with the following minimum performance requirements according to ASTM D5147.

<u>Properties (Per Independent Testing):</u>

Tensile Strength (ASTM D2523) 2 in/min. @73.4 □ 3.6°F	MD 280.20 lbf/in	CMD 278.80 lbf
Tear Strength (ASTM D4073) 2 in/min. @ 73.4 □ 3.6°F	MD 374.90 lbf	CMD 337.50 lbf
Elongation at Maximum Tensile (ASTM D2523) 2 in/min. @ 73.4 □ 3.6°F	MD 4.20%	CMD 5.00%

C. Top Field Modified Membrane:

1. ASTM D6163, Type III Grade S; 180 mil SBS (Styrene-Butadiene-Styrene) rubber modified roofing membrane reinforced with a dual fiberglass scrim. Designed for torch applications with a burn-off backer that indicates when the material is hot enough to be installed.

<u>Properties (per Independent Testing):</u>

Tensile Strength (ASTM D5147) 2 in/min. @ 73.4 □ 3.6°F	MD 229.1 lbf/in	CMD 226.3 lbf/in

Tear Strength (ASTM D5147)
2 in/min. @ 73.4 □ 3.6°F MD 318.1.7 lbf CMD 304.9 lbf

Elongation at Maximum Tensile (ASTM D5147)
2 in/min. @ 73.4 □ 3.6°F MD 6.2 % CMD 6.1%

Low Temperature Flexibility (ASTM D5147): Passes -30°F

D. Base Flashing Ply: same as Base Field Ply

E. Top Flashing Ply:

1. ASTM D6163, Type III Grade G; 195 mil SBS (Styrene-Butadiene-Styrene) mineral surfaced rubber modified roofing membrane reinforced with a dual fiberglass scrim. Designed for torch applications with a burn-off backer that indicates when the material is hot enough to be installed.

Properties (per Independent Testing):
Tensile Strength (ASTM D5147)
2 in/min. @ 73.4 □ 3.6°F MD 247.9lbf/in CMD 230.5 lbf/in

Tear Strength (ASTM D5147)
2 in/min. @ 73.4 □ 3.6°F MD 383.0 lbf CMD 357.2 lbf

Elongation at Maximum Tensile (ASTM D5147)
2 in/min. @ 73.4 □ 3.6°F MD 6.4 % CMD 6.3%

Low Temperature Flexibility (ASTM D5147): Passes -40°F

2.04 RELATED MATERIALS

A. Insulation Fasteners: N/A.

B. Vents and Breathers: Heavy gauge aluminum and fully insulated vent that allows moisture and air to escape but not enter the roof system as recommended and furnished by the membrane manufacturer.

C. Urethane Sealant: One part, non-sag sealant as approved and furnished by the membrane manufacturer for moving joints. Tuff-Stuff by The Garland Company.

1. Tensile Strength (ASTM D412): 250 psi
2. Elongation (ASM D412): 950%
3. Hardness, Shore A (ASTM C920): 35
4. Adhesion-in-Peel (ASTM C920): 30 pli

D. Pitch Pocket Sealer: Two part, 100% solids, self leveling, polyurethane sealant for filling pitch pans as recommended and furnished by the membrane manufacturer. Seal-Tite by The Garland Company.

1. Durometer (ASTM D2240) 40-50 Shore

2. Elongation (ASTM D412) 250%

3. Tensile Strength (ASTM D412) 200 @ 100 mil

E. Pitch pans, Rain Collar: 24 gauge Stainless steel. All joints should be welded/soldered watertight. See details for design.

F. Drain Flashings should be 4lb (1.8kg) sheet lead formed and rolled.

G. Plumbing stacks should be 4lb (1.8kg) sheet lead formed and rolled.

2.05 SURFACING MATERIALS

A. Surfacing:

1. Flood Coat/Aggregate:

a. Black-Knight Cold: Coal Tar flood coat; heavy-bodied, fiber reinforced, cold process polymer modified, coal tar roof coating having the following characteristics:

i. Weight/Gallon 9.0 lbs./gal. (1.07 g/cm3)

ii. Solids by weight 87%

iii. Viscosity; Brookfield Heliopath, 2.5 rpm 120,000 cPs

iv. Roofing Aggregate: ASTM D 1863

1. ½" to ¾" washed, white or tan River rock.

PART 3 EXECUTION

3.01 INSPECTION

A. Foreman: The roofing foreman shall have a copy of these specifications on the job site at all times. The presence of specifications and an inspector shall not relieve the Contractor of strict compliance with the manufacturer's specifications, detail drawings, and/or approved material requirements.

B. Deck Penetrations: Contractor shall verify that work penetrating the roof deck, or which may otherwise affect the roofing application, has been properly completed.

3.02 PREPARATION

A. No work shall commence until written certification is received by the Architect that the metal deck has been installed according the specified wind loads.

B. Examine substrate surfaces to receive modified bitumen sheet roofing system and associated work and conditions under which roofing will be installed. Do not proceed with roofing until unsatisfactory conditions have been corrected in a manner acceptable to Installer.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.03 SUBSTRATE REQUIREMENTS

A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.

B. Prevent materials from entering and clogging conductors and from spilling or migrating onto surfaces of other construction.

3.04 GENERAL INSTALLATION REQUIREMENTS

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

B. Insurance/Code Compliance: Where required, install and test modified bitumen sheet roofing system to comply with governing regulations and specified insurance requirements.

C. Protect other work from spillage of modified bitumen roofing materials, and prevent liquid materials from entering or clogging drains and conductors. Replace or restore other work damaged by installations of modified bituminous sheet roofing system work.

D. Coordinate installing roofing system components so that insulation and roofing plies are not exposed to precipitation or left exposed overnight. Provide cut-offs at end of each day's work to cover exposed ply sheets and insulation with two courses of #15 organic felt with joints and edges sealed with roofing cement. Remove cut-offs immediately before resuming work.

E. Substrate Joint Penetrations: Prevent bitumen from penetrating substrate joints, entering building, or damaging roofing system components or adjacent building construction.

F. Apply roofing materials as specified herein unless recommended otherwise by manufacturer's instructions. Keep roofing materials dry before and during application. Do not permit phased construction.

G. Complete application of roofing plies, modified sheet and flashing in a continuous operation. Begin and apply only as much roofing in one day as can be completed that same day.

3.05 ROOF MEMBRANE INSTALLATION - GENERAL

A. Membrane Application: Application of roofing shall be in accordance with roofing system manufacturer's instructions and the following requirements.

1. Application of roofing shall immediately follow application of insulation as a continuous operation.

2. Apply modified sheets smooth, free from air pockets, wrinkles, fishmouths, lap joints, or tears.

B. Priming: Prime both sides of metal flanges (all jacks, edge metal, lead drain flashings, etc.) and concrete and masonry surfaces with a uniform coating of asphalt primer ASTM D-41, 24 hours prior to use.

C. Roofing Application: All layers of roofing shall be laid free of wrinkles, creases or fishmouths. Sufficient pressure shall be exerted on the roll during application to ensure

prevention of air pockets. Lap seams in the base ply layer shall be staggered with the lap seams of the cap sheet layer.

1. All layers of roofing shall be laid perpendicular to the slope of the deck.

2. Maximum sheet lengths and special fastening of the specified roof membrane system may be required at various slope increments where the roof deck slope exceeds 1/2-inch per foot. The manufacturer shall provide acceptable sheet lengths and the required fastening schedule for all roofing sheet applications to applicable roof slopes.

D. Water Cut-Offs: At end of day's work, or when precipitation is imminent, a water cut-off shall be built at all open edges.

1. Cut-offs can be built using asphalt or plastic cement and roofing felts, constructed to withstand protracted periods of service.

2. Cut-offs must be completely removed prior to the resumption of roofing.

E. Sealant: All modified bitumen cap sheet edges exposed at gravel stops, waste stacks, pitch pans, vent stacks, etc., shall be caulked with a smooth continuous bead of approved sealant.

3.06 TEMP ROOF INSTALLATION

A. General

1. Confirm temporary roof system has been fully adhered to concrete deck. See Section 07220 – Roof Deck & Insulation.

3.07 INSULATION INSTALLATION

A. General

2. Approved insulation board shall be fully attached to the deck with specified insulation adhesive.

3. Spacing pattern of insulation adhesive ribbon pattern shall be as per manufacturer’s recommendations to meet Florida Building Code requirements.

B. Deck type: Structural Concrete Decking

C. Insulation and Insulation Attachment: See Section 07220 – Roof Deck & Insulation.

3.08 BASE FIELD PLIES INSTALLATION

A. Install one layer of SBS Torch Base Sheet to a properly prepared substrate. Shingle in proper direction to shed water on each area of roofing. The second layer of underlayment will have seams that are staggered from the first layer.

B. To a suitable substrate, lay out the roll in the course to be followed and unroll six (6) feet.

C. 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.

D. After the major portion of the roll is bonded, re-roll the first six (6) feet and bond it in a similar fashion.

E. Repeat this operation with subsequent rolls with side laps of four (4) inches and end laps of eight inches.

F. 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.

G. Extend underlayment two (2) inches beyond top edges of cants at wall and projection bases.

H. Install base flashing ply to all perimeter and projections details.

3.09 HPR MODIFIED MINERAL MEMBRANE APPLICATION

A. Install smooth top ply as described below.

B. Over the Torch Base Sheet field ply, lay out the roll in the course to be followed and unroll six (6) feet. Seams for the top layer of modified membrane will be staggered over the SBS Torch Base Sheet seams.

C. 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.

D. After the major portion of the roll is bonded, re-roll the first six (6) feet and bond it in a similar fashion.

E. Repeat this operation with subsequent rolls with side laps of four (4) inches and end laps of eight (8) inches.

F. 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.

G. Extend underlayment two (2) inches beyond top edges of cants at wall and projection bases.

3.10 FLASHING MEMBRANE INSTALLATION

A. Prepare all walls and penetrations to be flashed with asphalt primer at the rate of ½ gallon per square.

B. Torch-apply bottom layer of base flashing ply to primed substrate. The entire sheet of base flashing membrane must be completely adhered to the substrate.

C. Test all laps and assure that a complete positive bond has been achieved. Lap seams in the bottm layer shall never coincide with the laps of the top layer.

D. Torch-apply top ply of flashing membrane to base flashing ply. The entire sheet of flashing membrane must be completely adhereed to the substrate.

E. Install a termination bar at the top of all base flashing. The termination bar shall be mechanically attached every 8” on center. Apply a three course application of flashing cement and reinforcing mesh over the term bar and onto the wall.

F. Secure any counterflashings with alike metal hurricane clips.

G. Coordinate counter flashing, cap flashings, expansion joints, and similar work with modified bitumen roofing work as specified in other sections.

H. Coordinate roof accessories, miscellaneous sheet metal accessory items, including piping vents and other devices with the roofing system work.

3.11 SURFACINGS

A. After flashings, tests, repairs and corrective actions have been completed and approved, apply coal-tar cold-process flood coat at rate of five (5) gallons per 100 square feet. Uniformly embed aggregate into flood coat of cold adhesive at a rate of five hundred (500) lbs. per 100 sqaure feet.

3.12 MISCELLANEOUS WORK AND SPECIAL CONDITIONS

A. Gutter and Downspouts on Upper West Roof Section - Existing gutters shall remain in place and be re-used. Install new alike gutters around remaining non-guttered areas of Upper west roof section. New gutter and downspouts shall be same metal, finish, and size as existing. New concrete splash blacks shall be installed at the bottom of all downspouts. No gutters shall be installed on lower roof areas.

B. Replace old PVC condensation lines with new like condensation lines. If missing, install new PVC condensations. Run new lines to nearest gutter.

C. All condensation and conduit lines shall be supported every 4’ O.C. by 4”x 8”x 2” concrete pavers on modified membrane targets. Lines shall be secured to each paver by 4” wide stainless steel clamps fastened by two stainless steel masonry anchors. Flexible conduit lines may also be clamped to adjacent block walls with SS clamps and appropriate fasteners.

D. Some of the legs of the existing equipment stands are or may be rusted through, especially after the existing pitch pockets are removed. As is necessary per the Florida Building Code, install new code-compliant aluminum equipment stands for roof top equipment. It is the Contractors responsibility to install per Florida Building Code requirements. Contractor shall provide cost for each on the Bid Proposal Form.

E. Existing stainless steel curb caps and goosenecks in good condition my be re-used.

F. Existing metal expansion joint caps shall be replaced.

G. As is necessary, Contractor will be responsible for cutting back existing downspouts on adjacent building not being reroofed to accommodate new roof height.

H. Expansion joint metal and perimeter metal joints shall have outside joint covers plates.

I. At area just below the existing metal counter flashing at bottom of metal wall panels, contractor shall install termination bar through butyl tape at top of new 2-ply flashings as detailed in Surface-Mounted Counterflashing. Contractor shall then install new mil-finish, 040 Aluminum slip-metal counterflashing under existing metal counterflashing, fastened 8” OC with neoprene-washed metal fasteners.

3.13 FINAL INSPECTION

A. At completion of roofing installation and associated work, meet with 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 parting attending.

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 at a negotiated price.

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. Standing Water: There shall be no visual evidence of standing water on the roof 48 hours after it stops raining.

F. Repair or replace (as required) deteriorated or defective work found at time above inspection to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.

G. The Contractor is to notify the Owner upon completion of corrections.

H. Following the final inspection, acceptance will be made in writing by the material manufacturer.

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 the latest 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 and work enclosing open wall areas behind gutters.

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. Gravity Vents and Gooseneck Vents: Mill-finish Aluminum, ASTM B209, alloy 3105-H14, in thickness of minimum .040” nom.

C. Coping, Counter Flashings, Expansion Joint Cover, Perimeter Metal, and Metal Edge: Mill-finish Aluminum, B209, alloy 3105-H14, in thickness of .040” nom.

D. Pitch Pans, Bonnets, Draw Bands and Pipe Hoods: ASTM A 67; commercial quality, 2D annealed finish, 304 stainless steel, 24 gauge.

E. Continuous Cleats: Mill-finish Aluminum, ASTM B209, alloy 3105-H14, in thickness of .050”.

F. 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.

G. 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: Tuff-Stuff by Garland or approved substitute.

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 Garland. 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 LEAD FLASHING INSTALLATION

A. Set all leads in a bed of elastomeric sealant.

B. Prime both sides of lead flashing prior to installation.

C. Install as indicated and described in details.

3.05 PLUMBING STACK/HEATER STACKS

A. Prime both sides of flange prior to installation.

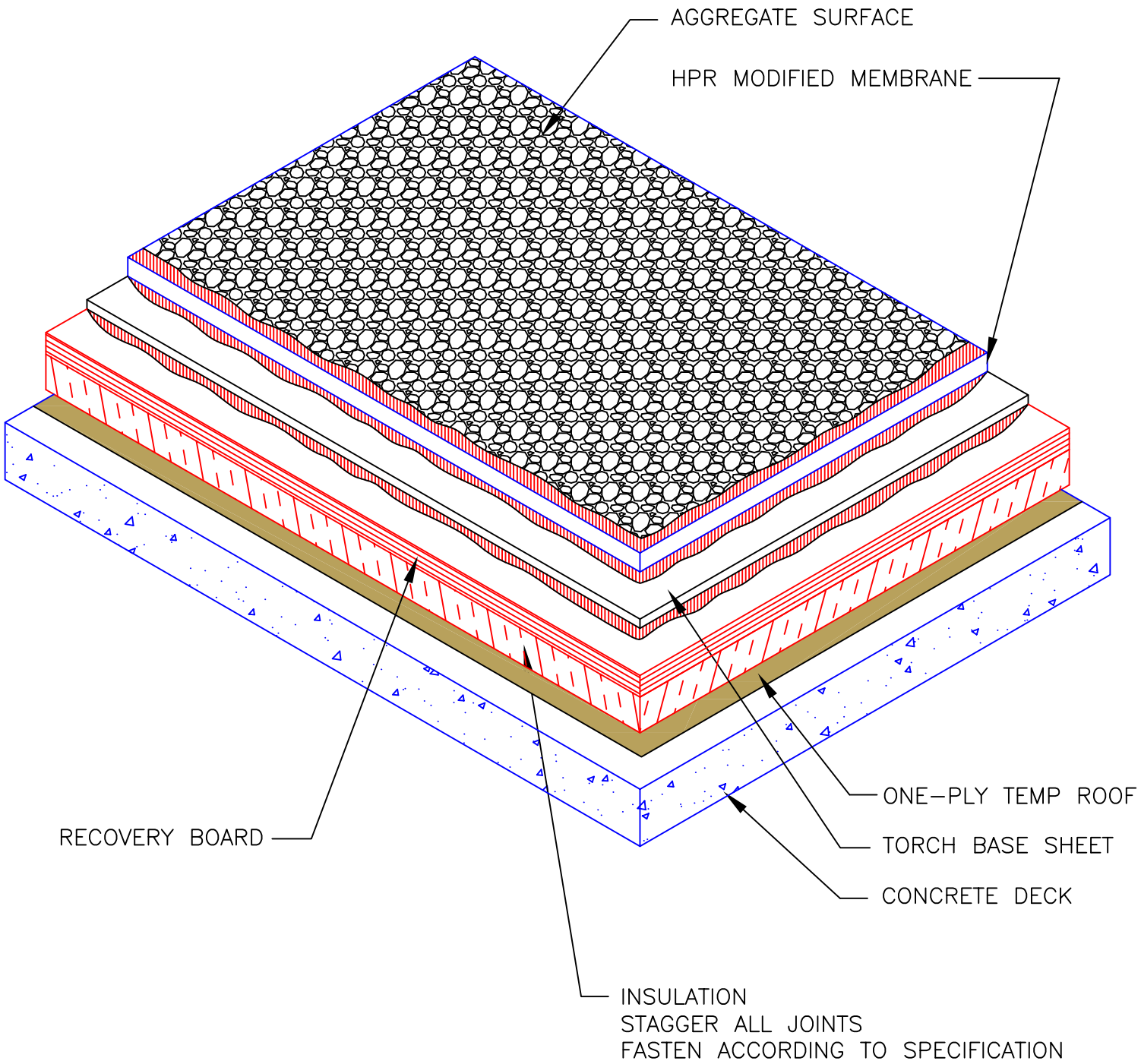
B. Set flange in a liberal bed of specified sealant.

C. Install as indicated and described in details.

3.06 CLEANING

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

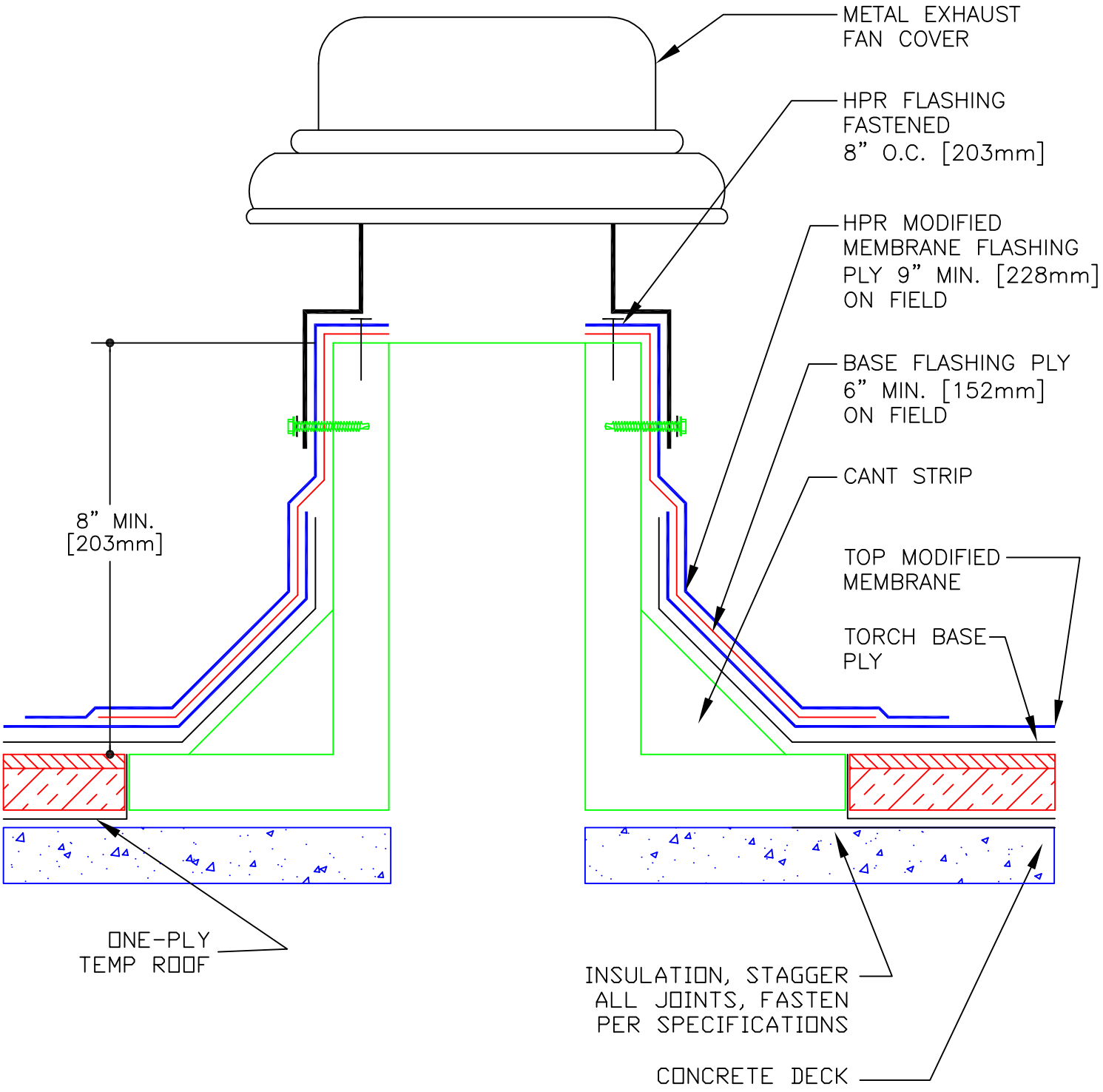
END OF SECTION



DETAIL:

GRAVEL FINISH

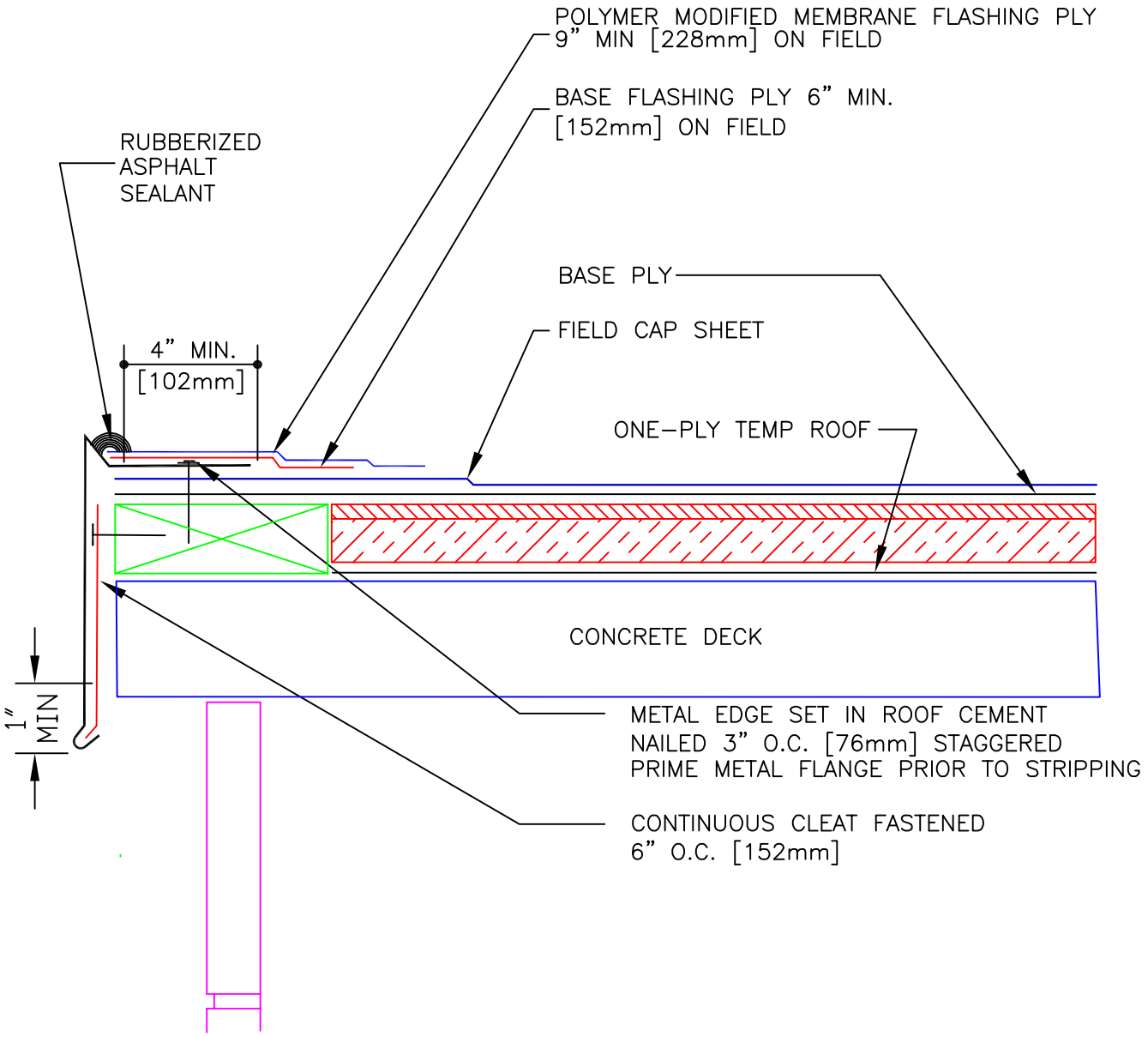
TORCH APPLIED



DETAIL:

EXHAUST FAN DETAIL

TORCH APPLIED

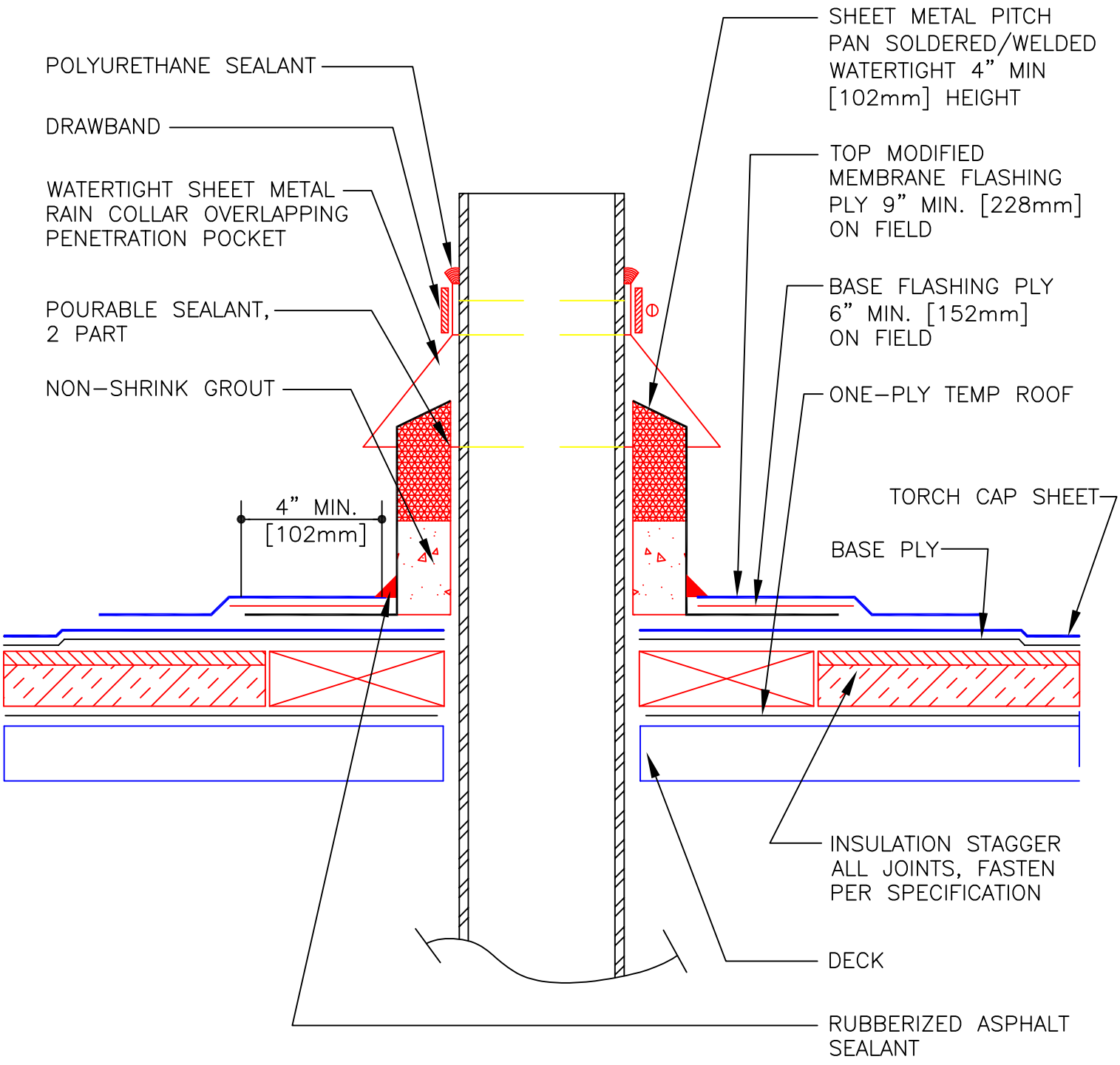


SEE SPECIFICATIONS FOR SURFACING

DETAIL:

METAL ROOF EDGE

TORCH APPLIED

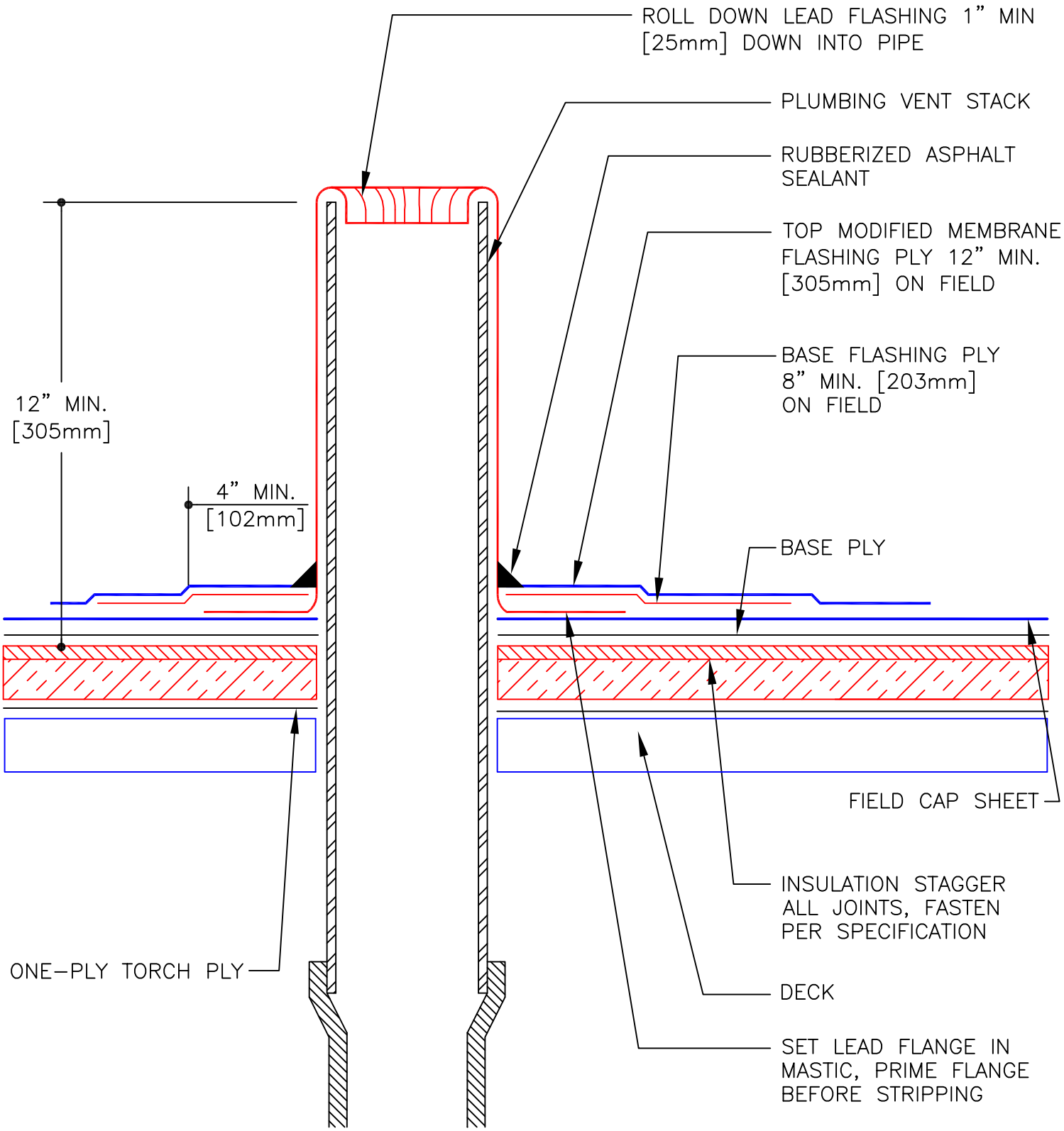


SEE SPECIFICATIONS FOR SURFACING

DETAIL:

PITCH POCKET W/UMBRELLA

TORCH APPLIED

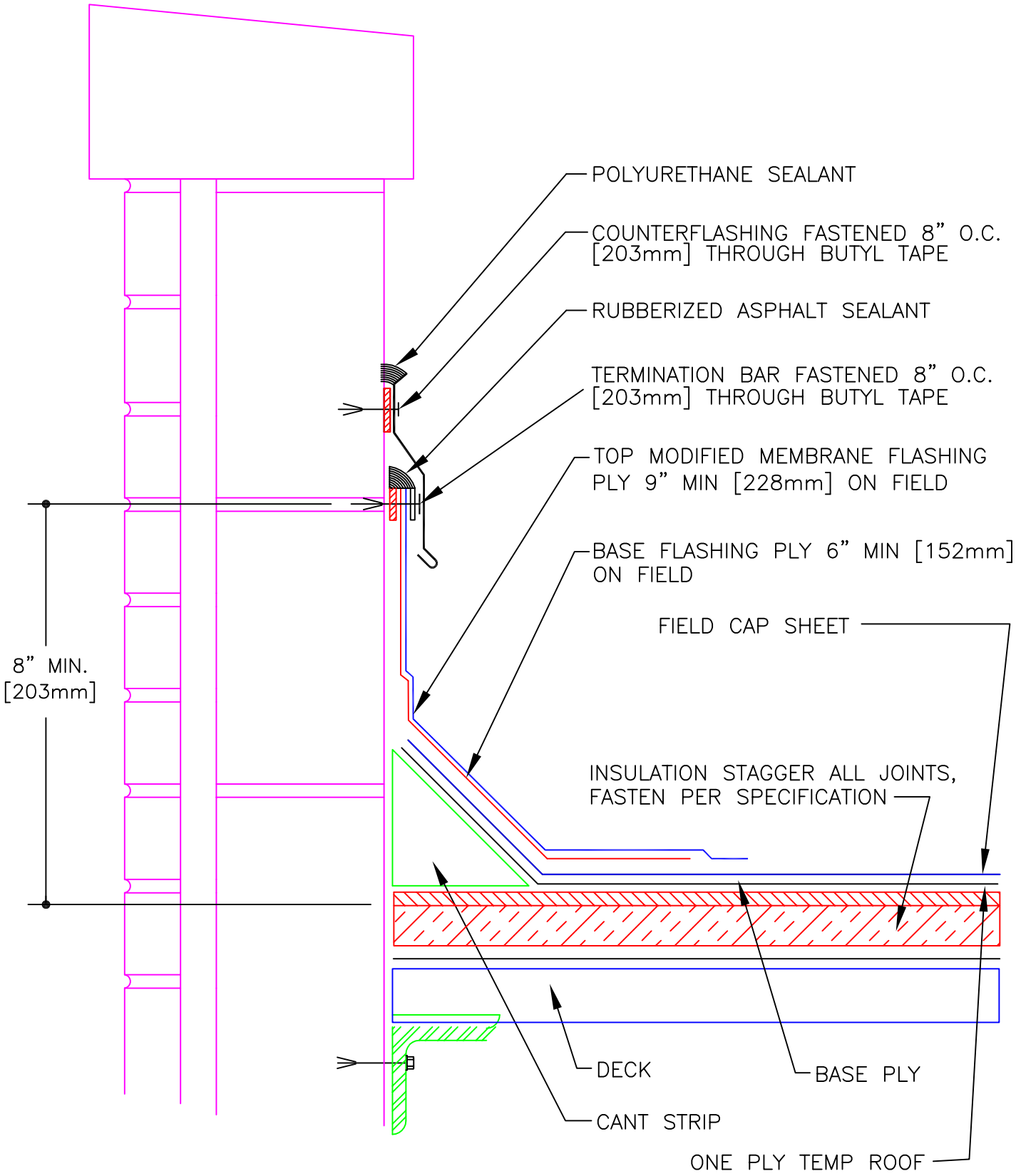


SEE SPECIFICATIONS FOR SURFACING

DETAIL:

PLUMBING STACK

TORCH APPLIED

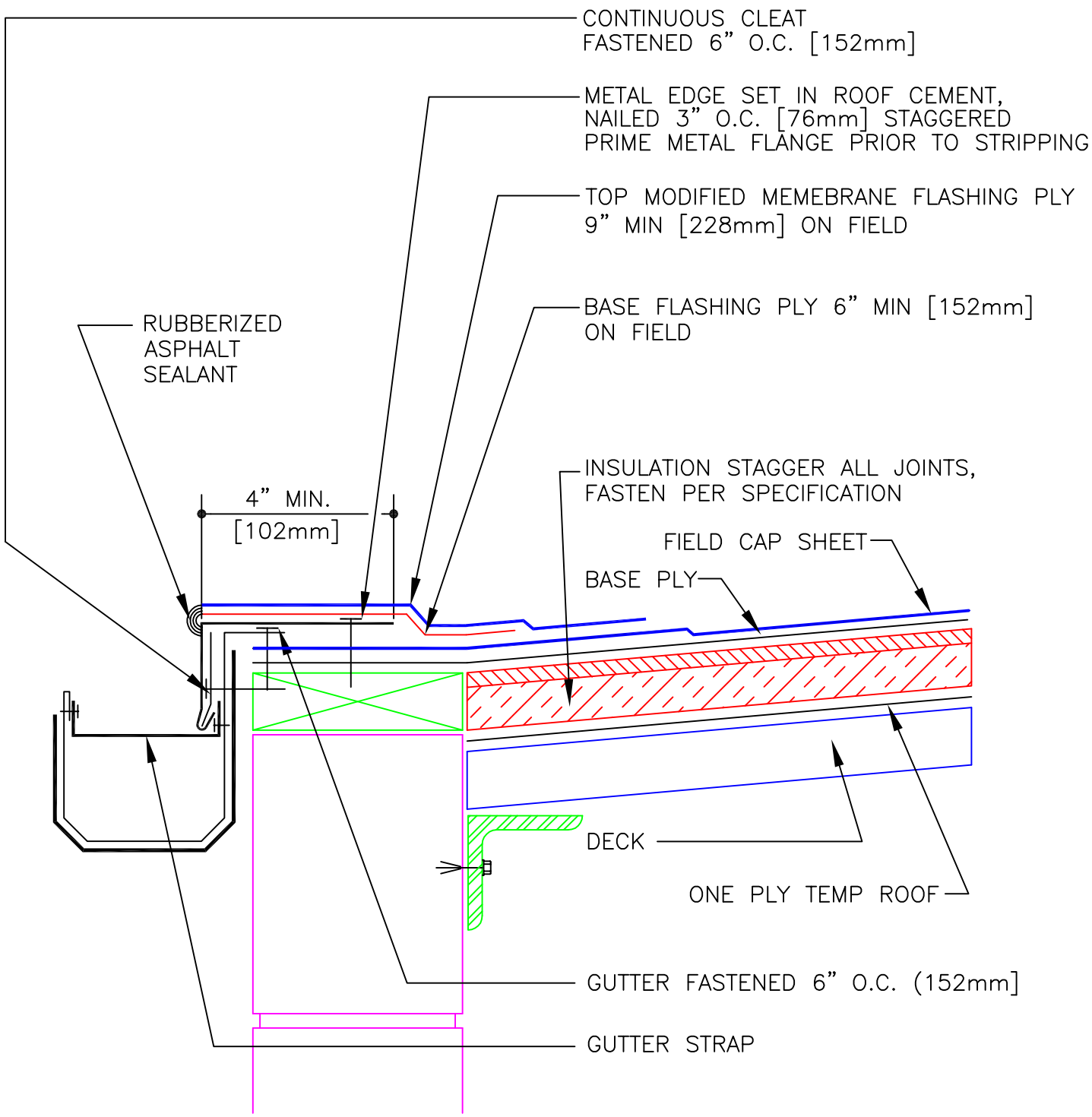


SEE SPECIFICATIONS FOR SURFACING

DETAIL:

SURFACE MOUNTED COUNTERFLASHING

TORCH APPLIED

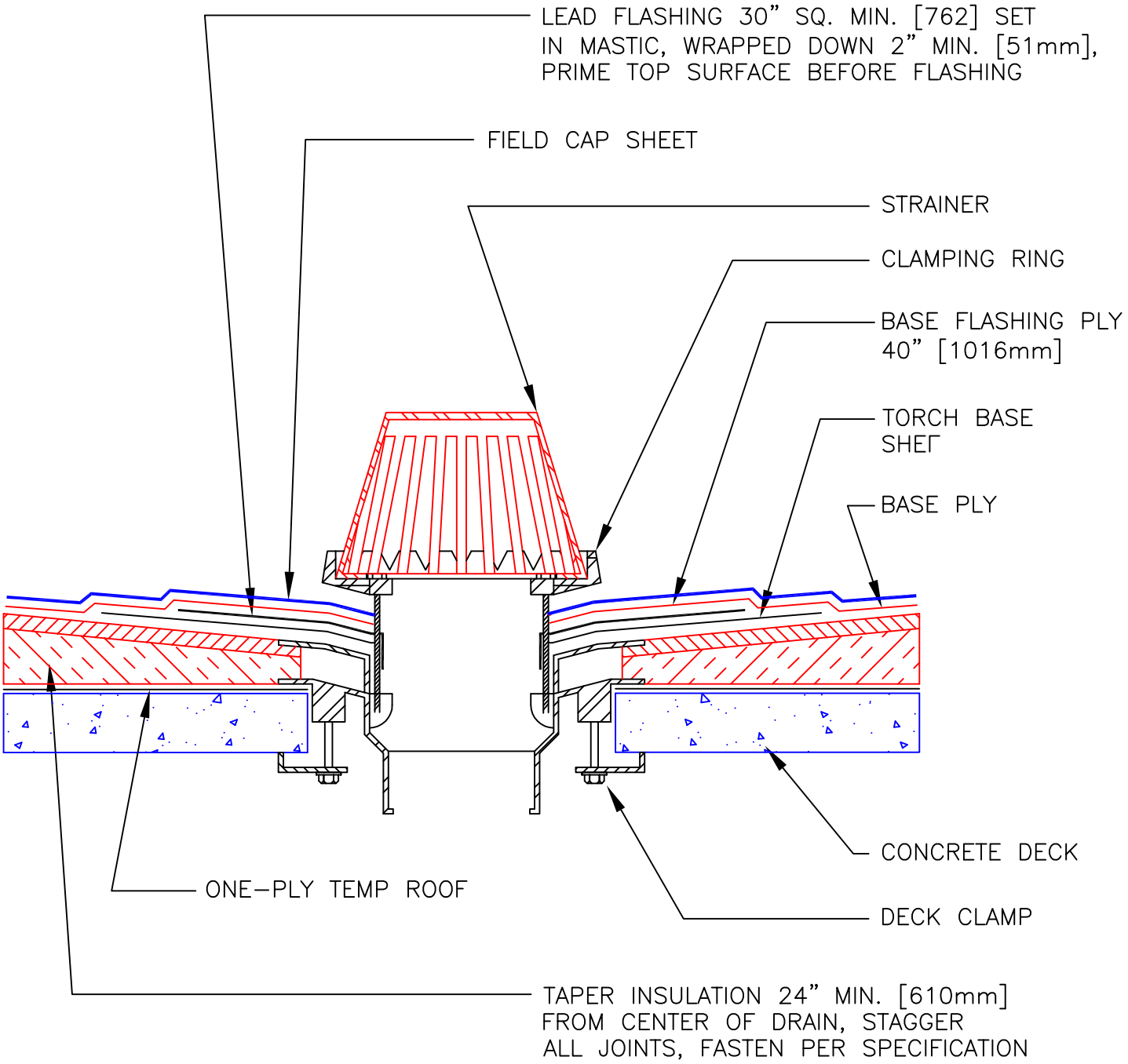


SEE SPECIFICATIONS FOR SURFACING

DETAIL:

UPPER ROOF EDGE WITH GUTTER

TORCH APPLIED



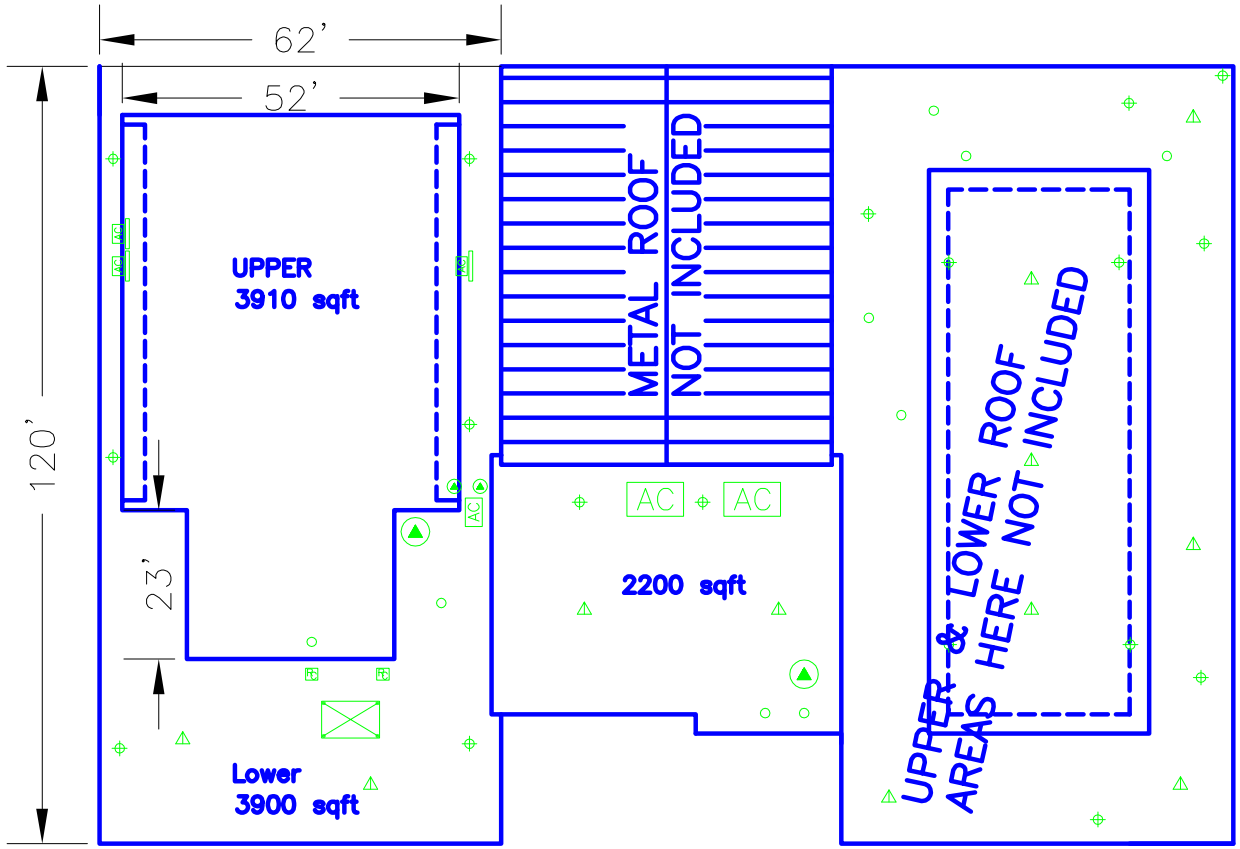
*ALL ROOF DRAINS SHALL BE THOROUGHLY INSPECTED FOR SERVICEABILITY. CONTRACTOR SHALL INSTALL NEW BOLTS, NEW LEAD, NEW CLAMPING RING, AND NEW CAST IRON STRAINERS AT EVERY DRAIN.

SEE SPECIFICATIONS FOR SURFACING

DETAIL:

ROOF DRAIN

TORCH APPLIED



EXISTING CONSTRUCTION:
Structural concrete deck, 1" Perlite, Coal–Tar BUR F&G

Insulation Breather

Power Vent

Soil Stack

Drain

Lake County Agricultural Center
1951 Woodlea Road
Tavares, FL 32778

DATE: 02–20–15	ROOF AREA: