

## SECTION 07 52 00 - MODIFIED BITUMINOUS ROOFING

*Specifier Note: There are numerous types of modified bituminous sheets, most which are installed in multiple-ply roof assemblies. Specifier will verify specific project requirements related to roof deck, drainage, fire resistance, wind uplift, insulation, surfacing, and other components.*

### PART 1: GENERAL

#### 1.1 SECTION INCLUDES *Verify Scope.*

- A. Modified bituminous roof membrane.
- B. Membrane flashings and accessories.

#### 1.2 RELATED WORK *Verify related Sections, Titles, and Names.*

- A. Section 06 10 00 - Rough Carpentry.
- B. Section 07 22 00 – Roof Board Insulation.
- C. Section 07 62 00 - Sheet Metal Flashing and Trim.

#### 1.3 REFERENCES

- A. National Roofing Contractors Association (NRCA) Roofing and Waterproofing Manual.
- B. Underwriters Laboratories (UL):
  - 1. Roofing Materials and Systems Directory.
  - 2. Fire Resistance Directory.
- C. ASTM D41 - Asphalt Primer Used in Roofing.
- D. ASTM D312 - Asphalt Used in Roofing. Use if hot asphalt is used in roof system. *This specification includes hot asphalt as an adhesive for attaching a second layer of roof insulation – see Section 07 22 00, and attaching the first layer of modified bitumen sheet.*
- E. ASTM D4586 - Standard Specification for Asphalt Roof Cement, Asbestos-Free.
- F. ASTM D6164 - Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Polyester Reinforcements.
- G. ASTM D6298 - Standard Specification for Fiberglass Reinforced Styrene-Butadiene-Styrene (SBS) Modified Bituminous Sheet with a Factory Applied Metal Surface.

*Below, the ASTM Standards are listed for information purposes. This Specification does not include products listed by these standards. If a particular project requires a different roof specification that listed in this Specification due to special conditions.*

- H. ASTM D2178 – Standard Specification for Asphalt Glass Felt Used in Roofing and Waterproofing. *Certain roof systems may include a multi-ply felt membrane with a modified bituminous cap sheet. These are usually called “hybrid- systems: due to the combination of built-up roof and modified bituminous roof products.*
- I. ASTM D4601- Standard Specification for Asphalt-Coated Glass Fiber Base Sheet Used in Roofing. *Fiberglass base sheet may be required, depending on the roof deck. This Specification is based on 2 layers of insulation over a metal deck, without a requirement for this product. This product may also be used on nailable surfaces, to serve as a surface for modified bitumen plies.*

- J. ASTM D4897 - Standard Specification for Asphalt-Coated Glass-Fiber Venting Base Sheet Used in Roofing. *Fiberglass venting base sheet may be required, depending on the roof deck, or if reroofing over an existing system. This Specification is based on 2 layers of insulations over a metal deck, without a requirement for this product. This product may also be used on nailable surfaces, to serve as a surface for modified bitumen plies.*
- K. ASTM D6162 - Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using a Combination of Polyester and Glass Fiber Reinforcements.
- L. ASTM D6163 - Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Glass Fiber Reinforcements.
- M. ASTM D6222 - Standard Specification for Atactic Polypropylene (APP) Modified Bituminous Sheet Materials Using Polyester Reinforcements.
- N. ASTM D6223 - Standard Specification for Atactic Polypropylene (APP) Modified Bituminous Sheet Materials Using a Combination of Polyester and Glass Fiber Reinforcements.
- O. ASTM D6509 Standard Specification for Atactic Polypropylene (APP) Modified Bituminous Base Sheet Materials Using Glass Fiber Reinforcements.

#### 1.4 SUBMITTALS

- A. Submit under provisions of **SPECIAL CONDITIONS** requirements and Division 01 **Section 01 31 00** Submittal Procedures.
- B. Prior to pre-roofing meeting, submit the following:
  - 1. Manufacturer's Certification: Letter from manufacturer, on letterhead, and signed by authorized representative, stating:
    - a. Materials and components conform to specification requirements and that materials furnished are compatible.
    - b. Roof membrane system, membrane flashings, and roof insulation, qualifies for specified warranty.
    - c. Installer is authorized to install manufacturer's warranty roof systems minimum 5 years prior to the Project NTP.
    - d). Roof system meets specified regulatory requirements.
  - 2. Sample manufacturer, and installer, warranties meeting Specification requirements.
  - 3. Product Literature: Submit product literature on roof system and accessory components.
  - 4. Manufacturer's cold weather application recommendations.
  - 5. Shop drawings.
- C. Roof Protection Plan: Submit written roof protection plan for A/E and Owner approval that describes type and layout of roof protection during construction activities on or above roof area. *Certain projects may require a more detailed approach to roof protection, including consideration of a temporary roof to allow construction to proceed without damaging the final roof.*
- D. Pre-Roofing Meeting Notes: Submit Pre-Roofing Meeting Notes within 5 business days of meeting date.
- E. Manufacturer's Field Reports: Submit copies of manufacturer's field reports to A/E during the Work, and at final completion.

- F. Asphalt Fume Control Plan: Submit equipment data, and proposed loading and heating procedures to limit ground-level asphalt fumes. *Verify the need for fume control depending on site location, Owner preference, and system type.*
- G. Shop drawings: Submit shop drawings for approval prior to Pre-roofing Conference and start of work. Include the following Drawings: *Certain projects may require a detailed Shop Drawing submittal. Below are the requirements that illustrate a comprehensive approach to Shop Drawings.*
1. Roof Plan(s):
    - a. Prepare scaled roof plan locating roof details and penetrations.
    - b. Include on roof plan tapered insulation locations at field, perimeter, and roof curbs. Indicate insulation thickness at high and low points, crickets pattern, and drain sumps.
    - c. Outline roof dimensions, including all levels.
  2. Location and type of penetrations. Illustrate perimeter flashings, equipment flashings and penetrations flashing. Scale details at 1/2" or larger. Manufacturer's standard pre-printed details are not acceptable for shop drawings.
    - a. Indicate deck type on each drawing.
  3. Provide scaled insulation attachment plan for each roof area indicating perimeter and corner requirements to achieve specified wind uplift resistance. Provide insulation fastening pattern drawing for corner, perimeter, and field zones.
  4. Indicate location of proposed staging areas and material storage on site plan.
- H. Product Data:
1. Roofing membrane products: Submit manufacturer's data sheets for each product being installed. Include manufacturer's installation instructions.
  2. Insulation products: Submit manufacturer's data sheets for each component required including insulation boards, adhesives, fasteners, plates and bitumen or adhesive. Provide roofing system manufacturer's written acceptance of proposed insulation board, adhesives, fasteners, and procedures for installation. *Coordinate with Section 07 22 00.*
  3. Material Safety Data Sheets: Provide manufacturer's MSDS information for all materials proposed for use.
  4. Laboratory Testing: Provide evidence of specified fire and wind uplift ratings for proposed roof system.
  5. ASTM Compliance Sheet: Submit product material list with corresponding ASTM standard(s) each product complies with. Include Specification paragraph reference number that relates to each product.
- I. Roof Maintenance Data: Submit manufacturer's complete recommended maintenance procedures for roofing system, including precautions and warnings to prevent damage and deterioration to the roofing system. Information shall include maintenance guidelines indicating materials and methods to be used for emergency and minor repairs.

## 1.5 QUALIFICATIONS

- A. Installer: Company specializing in performing the work of this Section and approved by roof manufacturer for installation of specified roof system.

- B. Minimum 5 years documented successful experience with modified bituminous roofing.

#### 1.6 REGULATORY REQUIREMENTS

##### A. Fire Resistance:

1. UL Class A Fire Hazard Classification.
2. UL \_\_\_\_\_ Roof Ceiling Assembly Rating. *Verify the roof assembly rating requirements – NR, 1 hour, 2 hour, etc.*

- B. Wind Uplift Resistance: Design and certify that modified bituminous roofing meets wind uplift loads as shown on Structural Drawings. *Calculate loads according to ASCE-7 (verify version). Consult the UTD Project Manager for information.*

#### 1.7 TOLERANCES

- A. Comply with tolerances listed in this Section.

- B. Where tolerances are not expressly stated in these Specifications, or by the manufacturer, perform work within tolerances specified in the NRCA Roofing and Waterproofing Manual.

#### 1.8 PRE-ROOFING CONFERENCE

- A. Schedule meeting to discuss roof work before start of work onsite. Notify attending parties prior to commencing work of this Section.
- B. Pre-roofing conference attendees shall include Owner, A/E, A/E's roofing consultant, General Contractor representatives, roofing subcontractor project manager and superintendent/foreman, related subcontractors and roof manufacturer's technical representative.
- C. Review Specifications, Submittals, installation procedures and coordination required with related Work. Agenda shall include:
  1. Schedule of daily roofing operations and daily production anticipated.
  2. Designation of key personnel and their respective responsibilities.
  3. Review of staging and material storage locations.
  4. Coordination of work with other trades.
  5. Emergency rain protection procedures.

##### ***Protection of completed roofing and Roof Protection Plan.***

6. Manufacturer's scheduled inspections and acceptance procedures.
7. Warranty period process for leak repairs and inspections.
8. Review Fume Control Plan. *Verify fume control requirements, if any.*
9. Keep meeting notes and provide copies to those in attendance according to Submittal requirements.

#### 1.9 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products in original containers, dry, undamaged, with seals and labels intact.

- B. Deliver, store, and handle products according to manufacturer's recommendations.

- C. Storage: *Verify particular jobsite conditions as related to material storage.*

1. Roof-top storage of weather-sensitive material is not permitted. Material stored overnight on roof-top will be considered defective. *Note: Select 1 of the following statements. If the site conditions allow a storage trailer onsite, use the following:*

2. Store weather-sensitive products in enclosed storage trailers. *Or if the site conditions do not allow a storage trailer, use the following:*
  3. Store weather-sensitive products on pallets, clear of ground, and cover with secure breathable canvas tarps. *Or if the site conditions do not allow for site storage, use the following:* Store weather-sensitive products in an enclosed warehouse, or in storage trailers off-site. Deliver products in quantity that can be used each day, without roof-top storage. Products must be returned to warehouse, or storage trailer, each day.
  5. Store rolled goods on end. Do not use rolls with damaged ends. Cut and remove portion of roll damaged, and use undamaged portion for strip-in ply, or completely remove roll from site.
- D. Store related materials, within temperature ranges, recommended by the manufacturer(s) of each product.

#### 1.10 ENVIRONMENTAL REQUIREMENTS

- A. Comply with manufacturer's environmental requirements for storage and application of products.
- B. Verify existing and forecasted weather conditions and determine when conditions are acceptable for roof Work within the guidelines as follows:
  1. Do not proceed with work when ambient air temperature falls below 40° F.
  2. Do not proceed with roof application when excessive moisture is present. Excessive moisture is that which may be detected by sight or touch, or that which results in visible foaming of hot asphalt.
  3. Do not expose materials sensitive to water, or sunlight, damage in quantities greater than can be weatherproofed during each day.

#### 1.11 COORDINATION

- A. Coordinate Work with installation of associated metal flashings as the work of this Section proceeds.

#### 1.12 INSPECTION BY MANUFACTURER

- A. Coordinate inspection of the work, by an authorized technical representative of the roof system manufacturer.
  1. Manufacturer is required to inspect work a minimum of 3 visits per Project.
  2. Manufacturer's visits to consist of:
    - a). Attendance at Pre-Roofing Meeting.
    - b). One visit at Project commencement.
    - c). Interim visits for each 10 work days of roof work, and one visit at Project completion.
- B. Provide manufacturer's field inspection reports within **5 days** of each site visit.

#### 1.13 ROOF SYSTEM WARRANTY *Verify Owner preferences for the roof warranty.*

- A. Provide manufacturer's **20 year, no penal sum limit**, roof system warranty.
- B. Warranty shall include all material and labor costs.
- C. Warranty shall include coverage for **roof insulation, as specified in 07 22 00**, either as part of original warranty language, or by attachment. Manufacturer's warranty shall include the full roofing system including membranes, flashings, insulation, fasteners/adhesives, rigid roof boards, accessories and all related roof system components.

- D. Warranty shall be issued on the manufacturer's form as submitted by Contractor and reviewed by A/E.
- E. If special maintenance of the roof is required by the manufacturer during the Warranty term(s), such requirements shall be provided to the Owner with the Warranty.

#### 1.14 INSTALLER WARRANTY

- A. Roof Installer Warranty: provide under provisions of **Section 01 78 00 – Project Closeout**.
- B. Provide on Midwest Roofing Contractors Association Form 2002B - Roofing Contractor Workmanship Warranty. Warranty shall be issued on form submitted, and reviewed, prior to Work commencement.
- C. Installer Warranty to be co-signed by General Contractor.

### **PART 2: PRODUCTS *Verify Owner preferences and Project requirements for roof assembly.***

#### 2.1 GENERAL

- A. Roof System: deck, insulation as specified in Section 07 22 00, one ply smooth-surfaced modified bitumen sheet set in hot asphalt, with 1-ply granular-surfaced modified bitumen sheet set in adhesive.
- B. Provide roof membrane, and membrane base flashing materials from single manufacturer.
- C. Obtain written approval from roof membrane manufacturer for use of products incorporated into roof system, which are not supplied by roof membrane manufacturer.
- D. Substitutions:
  - 1. Where specific products are listed in this Specification, the referenced roofing manufacturer's systems are to establish a level of quality.
  - 2. Requests for substitutions to listed products shall be submitted during the bidding phase per requirements of **Section 01 31 00**.
  - 3. Consideration of requests for substitution is at the sole discretion of the A/E and Owner, and approvals shall be issued in writing by the A/E with Owner concurrence.

#### 2.2 ROOF MEMBRANE & BASE FLASHING

- A. First Ply Modified Bitumen Sheet: ASTM D6164, Type II, Grade S, SBS modified bitumen, polyester reinforced, set in asphalt. ***Certain manufacturers require a Type II sheet in their standard 20 year, no penal sum limit roof warranty requirements, while others may not market a Type II sheet, and list Type I first-ply in their standard 20 year, no penal sum limit, warranty product requirements.***
- B. Second Ply Modified Bitumen Sheet: ASTM D 6164, Type II, Grade G, SBS modified bitumen, polyester reinforced, fire-rated sheet for use in Class A assemblies, set in adhesive.
- C. Membrane Base Flashing: strip-in ply is required, regardless of roof membrane manufacturer minimum requirements, with aluminum foil-faced SBS modified bitumen membrane top ply.
  - 1. Strip-In Ply: meet, or exceed, first ply modified bitumen sheet requirements.
  - 2. Second Ply: ASTM D 6298, Aluminum-clad, modified bitumen sheet.
  - 3. Metal Flashing Strip-In Ply: meet, or exceed, first ply modified requirements.

#### 2.3 BITUMINOUS MATERIALS

- A. Cold Adhesive: type supplied by, or specifically recommended by roof membrane manufacturer, meeting requirements of warranty. *Verify cold adhesive use for a roof membrane application. Certain project may be sensitive to solvent release.*
- B. Asphalt Bitumen: ASTM D312, Type IV, special steep, as supplied or specifically approved by membrane manufacturer. *Verify hot bitumen use for the roof membrane or insulation application. Certain projects may be sensitive to asphalt fumes (see fume control above) or limited access for the asphalt kettle.*
- C. Asphalt Primer: ASTM D41, as supplied or specifically approved by membrane manufacturer.
- D. Plastic Cement: ASTM D4586, non-asbestos reinforced, as supplied and recommended by roof membrane manufacturer.

## 2.4 INSULATION

- A. Board Insulation: Comply with requirements of **Section 07 22 00**.
- B. Tapered Crickets:
  1. First course: ASTM C728, perlite tapered edge, minimum 12" wide, in thickness to match butt edge of tapered insulation, set in hot asphalt.
  2. Remaining courses: ASTM C728, perlite,  $\frac{1}{2}$ " per foot tapered, set in hot asphalt. *Verify type and slope requirements for tapered insulation. Generally specify the roof deck slope,  $+\frac{1}{4}$ " if tapered insulation is to be used, for a cricket to overcome roof deck slope, so if roof deck slopes  $\frac{1}{4}$ " per foot, specify  $\frac{1}{2}$ " per foot tapered. Coordinate with Section 07 22 00.*

## 2.5 TAPERED EDGE & CANTS

- A. Tapered Edge: ASTM C728, perlite.
- B. Cant Strip: ASTM C728, perlite minimum 3 $\frac{1}{2}$ " face.
- C. Wood Cant: treated southern pine, cut to size, according to provisions of **Section 06 10 00**.

## 2.6 ACCESSORIES *Verify accessories – including the possible requirement of Section 07 70 00 – Roof Accessories Section added to Specifications.*

- A. Membrane Flashing Fasteners: hot-dipped galvanized Simplex cap nails, with minimum 15/16" wide head.
- B. Sheet metal flashings: according to provisions of **Section 07 62 00**.
- C. Membrane Edge Sealant: As required by membrane roof manufacturer.
- D. Mineral Granules: as supplied by membrane manufacturer to match color of membrane cap sheet surface.
  1. Traffic Pad: as supplied by membrane manufacturer, and meeting their warranty requirements.

## 2.7 SPECIAL BITUMEN HEATING EQUIPMENT *Verify Project Requirements for Fume Control.*

- A. Provide ground-level filtering, or after-burning asphalt fume system equipment.
- B. Equip kettle with carton loader device.
- C. Ensure positive seals at kettle lid, loader, and piping, to ensure containment of ground-level asphalt fumes.

## PART 3: EXECUTION

### 3.1 GENERAL

- A. Work of this Section shall be performed in accordance with quality workmanship standards as defined by NRCA. Detailing shall be performed in accordance with standards as defined by NRCA and SMACNA.
- B. The roof systems manufacturer's technical specifications shall be considered a part of this specification and shall be used as a minimum standard in conjunction with this specification. If this Specification conflicts with, or exceeds manufacturer's minimum requirements the more rigid standard shall apply and be enforced.

### 3.2 COORDINATION

- A. Ensure proper sequencing of roofing and to allow installation of roof and flashings as detailed, without damage.
- B. Coordinate activities to prevent damage to roof assemblies.

### 3.3 EXAMINATION & PREPARATION

- A. Do not store, stage activities, or allow construction traffic over roof areas, unless protection plan is approved in advance by A/E.
- B. Contractor is responsible for maintaining roof in good condition, and shall restore to manufacturer's warrantable state upon completion of activities.
- C. Verify that surfaces and site conditions are ready to receive work. Verify that debris has been completely removed from roof area and broom clean the deck immediately prior to roofing application.
- D. Verify deck is sound, smooth, and dry enough for covering with roofing. Report decking not serviceable for covering with roof system.
- E. Verify roof openings, curbs, pipes, sleeves, ducts, and vents through roof are solidly set, and wood components are in place.
- F. Install nailers and blocking immediately prior to application of roofing. Do not cut nailers in after membrane application.
- G. Construct and install nailers and blocking under provisions of Section 06 10 00.

### 3.4 TEMPORARY WATERPROOFING

- A. Provide water stops and temporary tie-ins daily to prevent moisture penetration into building interior or installed assemblies.
- B. Seal roofing temporarily to the deck where leakage could penetrate installed assemblies. Remove upon resumption of Work.
- C. Provide permanent, or temporary, counter flashing daily.
- D. Install membrane assemblies complete with strip-in plies each day. Use mastic seals only in such a manner that mastic does not remain between finished modified bitumen plies at cant strips and membrane terminations. Provide seal at all terminations, both vertical and horizontal.
- E. Provide temporary seals which do not soil finished work surfaces or contaminate surfaces intended to receive sealants.
- F. Remove temporary seals from completed work.

### 3.5 CANT STRIP APPLICATION

- A. Apply fiber cant strip into solid mopping of asphalt, and step-in completely.



- B. Install wood cant at through-wall scupper intersections and to support vertical “L” nailers.
- C. Securely fasten wood cant to substrate. Ensure smooth transitions with fiber cant.
- D. Make straight, neat cuts and miter corners without perceptible gaps or open joints.
- E. Cut, shave, modify and combine various sized tapered materials to provide smooth, uniform transitions.

### 3.6 BITUMEN HEATING *Verify hot bitumen use – see comments above.*

- A. Comply with manufacturer’s requirements for heating, and applying bitumen.
- B. Heat asphalt bitumen to achieve EVT at point of application, as stamped on asphalt carton, plus or minus 25° F.
- C. Use insulated tubing and luggers during cold weather, to maintain correct temperature, at the point of application.
- D. Verify accurate temperature readings at point of application to ensure compliance. Establish proper temperature at kettle, hold time on roof, and substrate type and temperature to achieve proper application temperature.
- E. Measure temperature periodically, minimum one reading every 2 hours or when conditions change. Contractor to provide accurate temperature measuring device for verification.
- F. Adjust temperature, equipment, or procedure to maintain proper application temperature.
- G. Do not heat bitumen above finished blowing temperature for more than 3 hours, unless bitumen is under continuous use.
- H. Provide fume control equipment to minimize asphalt fumes during the work. Comply with fume control requirements of this Specification and submitted Fume Control Plan. *Verify need for fume control depending on the site location, Owner preference, and the system type.*

### 3.7 APPLICATION IN COLD WEATHER

- A. Comply with manufacturer's special recommendations for membrane application during cold weather.
- B. Discontinue installation if asphalt temperature cannot be maintained at EVT at point of application.
- C. Pre-heat adhesive and store to allow proper application temperatures.

### 3.8 ROOF INSULATION APPLICATION

- A. Comply with requirements of Section **07 22 00**.
- B. Only install insulation that can be covered with watertight roof membrane the same day.
- C. Protect installed insulation from damage, and moisture.

### 3.9 TAPERED CRICKET APPLICATION

- A. Commence cricket installation at edge of drain and scupper sumps.
- B. Establish straight, uniform, cricket valley.
- C. Set tapered edge strip along valley line, in full bed of hot asphalt.
- D. Butt first layer of tapered insulation to thick edge of tapered edge, and set in full bed of hot asphalt.

- E. Install remaining layers of tapered and fill insulation to achieve uniform, positive slope.
- F. Step-in each board, while asphalt is still molten, to ensure good embedment.

3.10 ROOF DRAIN INSTALLATION *Delete if not applicable.*

- A. Ensure tapered insulation sump is in place, prior to drain flashing application.
- B. Clean and prime drain bowl roof flange.
- C. Extend first ply membrane onto drain flange.
- D. Clean and prime both sides of lead flashing sheet.
- E. Set metal flashing in solid bed of membrane adhesive. Form metal flashing into drain bowl flashing. Form to contours of sump, and extend into roof drain bowl, trim excess to allow complete drainage.
- F. Strip-in metal flashing with minimum 12" wide sheet, set in cold adhesive.
- G. Install top ply sheet into drain bowl, and extend up sump slope 18".
- H. Prime 6" wide top edge of membrane flashing, and overlap with top ply roofing membrane, to achieve shingle-fashion application.

3.11 APPLICATION OF FIRST MEMBRANE PLY

- A. Apply into solid asphalt moppings, not to exceed 25 lbs. per square.
- B. Install at cants and transitions according to manufacturer's recommendations.
- C. Apply sheet in lengths less than 5' long, where parallel to cants. Ensure continuous apply in accordance with manufacturer's recommendations.
- D. Use roof manufacturer's approved sidelap and endlap measurements.
- E. Apply sheet in lengths less than 5' long, where parallel to cants. Ensure continuous embedment, free of voids. Broom ply if necessary.
- F. Complete application of first ply and strip-in plies, before application of granular-surfaced sheet, if allowed by membrane manufacturer.
- G. Install metal flashings under provisions of Section 07 62 00.
- H. Repair voids, wrinkles, and other defects, daily to prevent water from entering roof system.

3.12 APPLICATION OF SECOND PLY MEMBRANE SHEET

- A. Apply sheet according to manufacturer's cold adhesive application recommendations.
- B. Stagger end laps minimum 3'.
- C. Do not allow back-water laps.
- D. Broom sheet to provide finished membrane assembly free of voids or wrinkles.
- E. Repair voids, wrinkles, and other membrane defects using full width sheet to provide finished appearance.
- F. Embed mineral granules into adhesive bleed-out while still tacky.

- G. Apply sealant to seal edges of membrane where membrane terminates on horizontal surfaces (if required by manufacturer).
- H. Do not allow foot traffic over finished roof until adhesive has set-up to prevent tracking.

### 3.13 APPLICATION OF MEMBRANE FLASHING

- A. Apply in accordance with manufacturer's recommendations.
- B. Install base sheet over nailable surfaces. Fasten base sheet according to manufacturer's recommendations.
- C. Prime roof and masonry surfaces to receive flashing sheet, allow primer to dry completely.
- D. Comply with manufacture's high base flashing application instructions and materials where base flashing exceeds maximum standard height recommended by manufacturer.
- E. Apply first ply membrane flashing sheets in maximum 5' lengths, set in cold adhesive or hot asphalt. Ensure full embedment of membrane flashing.
- F. Heat weld second ply, ensuring good embedment. Install in width of sheet with selvage edge. Cut, remove, and repair voids and other defects.
- G. Cut, miter, and wrap around corners with no loose tails or large flaps.
- H. Fasten top edge according to manufacturer's recommendations.
- I. Apply neatly and provide uniform, symmetrical appearance.
- J. Fasten top edge minimum 8" on center with nails, or screws, driven through minimum 1" diameter metal caps, or cap nails.

### 3.14 INSTALLATION OF SOIL PIPE FLASHINGS

- A. Clean roof flange and apply asphalt primer to topside and underside, and allow to dry.
- B. Embed roof flange in solid bed plastic cement over fiberglass roof membrane, apply strip-in ply. Fold flashing into top of pipe.
- C. Strip-in roof flange with strip-in ply set in hot asphalt.
- D. Neatly trim granular-surfaced sheet at pipe. Cover exposed cuts with a granular surfaced sheet target.

### 3.15 INSTALLATION OF ROOF PADS

- A. Install roof walk pads according to recommendations of membrane manufacturer.
- B. Install around roof-mounted equipment that is greater than 3' wide, and at foot and top of roof access ladder(s) and roof hatch(s).
- C. Install roof pads underneath lightning protection cable over roof membrane. *Verify the mounting and attachment of the lightning protection and other assemblies. Include provisions for roof protection pads where necessary.*

### 3.16 CLEANING

- A. Clean roof surfaces, metal flashings, walls, windows, walks, etc. which become soiled or discolored due to the work of this Section.
- B. Utilize cleaning agents and procedures which are approved by manufacturer.

3.17 PROTECTION

- A. Comply with submitted Roof Protection Plan.: *Certain projects may require a more detailed approach to the roof protection, including consideration of a temporary roof to allow construction to proceed without damaging the final roof.*
- B. Protect roof system from damage. Repair or remove and replace damaged roof membrane according to methods approved by roof manufacturer and A/E. A/E and Owner's decision on corrective procedure will be final.
- C. Repair minor scars, cuts, scraps, tears, using methods approved by manufacturer. Severe roof damage to be corrected by removal and replacement with new roof membrane and insulation.
- D. Ensure roof warranty is not voided due to membrane damage.

3.18 ROOF SIGNS

- A. Provide a 30" x 30" metal sign notifying maintenance, and service personnel of the guaranteed roof system. Coordinate placement of signs with Owner.
- B. Professionally letter sign using 2 coats of high quality exterior enamel with black lettering on white background; containing the following information:

<p style="text-align: center;"><b>NOTICE: GUARANTEED ROOF SYSTEM</b></p> <p style="text-align: center;"><b>DO NOT INSTALL NEW EQUIPMENT ON, OR THROUGH THIS ROOF,</b></p> <p style="text-align: center;"><b>WITHOUT SPECIFIC AUTHORIZATION.</b></p> <p style="text-align: center;"><b>REPORT CHANGES OR DAMAGE IMMEDIATELY TO OWNER.</b></p> <p>Owner - _____ Phone: _____ .</p> <p>Contractor: _____ Phone: _____ .</p> <p>Manufacturer: _____ Phone: _____ .</p>
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END OF SECTION 07 52 00