

SECTION 07 51 00

BUILT-UP ASPHALT ROOFING

PART 1 – GENERAL

1.1 PURPOSE

- A. This guideline is intended to provide useful information to the Professional Service Provider (PSP) to establish a basis of design. PSP is to apply the principles of this section such that the University of Texas at Arlington (UTA) may achieve a level of quality and consistency in the design and construction of their facilities. Deviations from these guidelines must be approved by UTA and may require justification through Life Cycle Cost (LCC) analysis and submitted to UTA for approval.

1.2 LESSONS LEARNED AND DESIGN CONSIDERATIONS

- A. **Verify roof ceiling assembly rating requirements – NR, 1 hour, 2 hour, etc.**
- B. **Verify fume control requirements, if any.**
- C. **Verify particular jobsite conditions as related to material storage.**
- D. **Verify Owner preferences for roof warranty.**
- E. **Verify Owner preferences and Project requirements for roof assembly.**
- F. **Verify project requirements for fume control.**
- G. **Verify need for fume control depending on site location, Owner preference, and system type.**
- H. **Verify Project Manager’s preference and use of torches on project second ply.**
- I. **Verify mounting protection and other assemblies. Include provisions for roof protection pads where necessary.**
- J. **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.**
- K. **Certain manufacturers may allow Type IV sheet in their standard 20 year no penal sum limit warranty requirements.**
- L. **Verify cold adhesive use for bas slashing or other type application. Certain projects may be sensitive to solvent release.**
- M. **Verify hot bitumen Type for roof membrane and insulation application. Type III may have too low of a softening temperature for slopes exceeding ¼” per foot. Certain projects may be sensitive to asphalt fumes (see fume control above) or limited access for asphalt kettle.**

1.3 SECTION INCLUDES

- A. Asphalt built-up roof membrane.
- B. Membrane flashings and accessories.

1.4 RELATED WORK

- 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

1.5 REFERENCES

- A. National Roofing Contractors Association (NRCA) Roofing and Waterproofing Manual; current edition.
- B. Underwriters Laboratories (UL).
 - 1. Roofing Materials and Systems Directory; current edition.
 - 2. Fire Resistance Directory; current edition.
- C. ASTM D41: Asphalt Primer Used in Roofing; current edition.
- D. ASTM D312: Asphalt Used in Roofing. Use if hot asphalt is used in roof system; current edition.
- E. ASTM D2178: Asphalt Glass Felt Used in Roofing and Waterproofing; current edition.
- F. ASTM D4586: Standard Specification for Asphalt Roof Cement, Asbestos-Free; current edition.
- G. ASTM D6221: Standard Specification for Reinforced Bituminous Flashing Sheets for Roofing and Waterproofing; current edition.
- H. ASTM D4601: Standard Specification for Asphalt-Coated Glass Fiber Base Sheet Used in Roofing; current edition.
- I. STM D4897: Standard Specification for Asphalt-Coated Glass-Fiber Venting Base Sheet Used in Roofing;

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current edition.

1.6 SUBMITTALS

- A. See Division 01 for submittal procedures.
- B. Prior to pre-roofing meeting, submit the following:
- C. Manufacturer's Certification: Letter from manufacturer, on letterhead, and signed by authorized representative, stating:
 - 1. Materials and components conform to specification requirements and that materials furnished are compatible.
- D. Roof membrane system, membrane flashings, and roof insulation, qualifies for specified warranty.
- E. Installer is authorized to install manufacturer's warranty roof systems and was approved a minimum of 5 years prior to the Project NTP.
- F. Roof system meets specified regulatory requirements
 - 1. Sample manufacturer, and installer, warranties, meeting and Specification requirements
 - 2. Product Literature: Submit product literature on roof system and accessory components
 - 3. Manufacturer's cold weather application recommendations
- G. Shop drawings
 - 1. 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.
 - 2. Pre-Roofing Meeting Notes: Submit Pre-Roofing Meeting Notes within 5 business days of meeting date.
 - 3. Manufacturer's Field Reports: Submit copies of manufacturer's field reports to A/E and/or the UTD Project Manager during the work, and at final completion.
 - 4. Asphalt Fume Control Plan: Submit equipment data, and proposed loading and heating procedures to limit ground-level asphalt fumes.
 - 5. Shop drawings: Submit shop drawings for approval prior to Pre-Roofing Conference and start of work.
 - 6. Include the following drawings:
 - a). Roof Plan(s):
 - 1). Prepare scaled roof plan locating roof details and penetrations.
 - 2). 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.
 - 3). Outline roof dimensions, including all levels.
 - b). Location and type of penetrations. Illustrate perimeter flashings, equipment flashings and penetrations flashing. Scale details at 1" = 1' 0" minimum or larger. Manufacturer's standard pre-printed details are not acceptable for shop drawings.
 - 1). Indicate deck type on each drawing.
 - c). 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.
 - d). Indicate location of proposed staging areas and material storage on site plan.
 - 7. Product data:
 - a). Roofing membrane products: Submit manufacturer's data sheets for each product being installed. Include manufacturer's installation instructions.
 - b). 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.
 - c). Material Safety Data Sheets: Provide manufacturer's MSDS information for all materials proposed for use.
 - d). Laboratory Testing: Provide evidence of specified fire and wind uplift ratings for proposed roof system.
 - e). 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.
 - 8. Surfacing Sample: Submit approximately 2 lb. sample of roof membrane surfacing in metal container.
 - 9. 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.

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H. QUALIFICATIONS

1. Installer: Company specializing in performing the work of this Section and approved by roof manufacturer for installation of specified roof system.
2. Minimum 5 years documented successful experience with asphalt built-up roofing.

I. REGULATORY REQUIREMENTS

1. Fire Resistance:
 - a). UL Class A Fire Hazard Classification
 - b). UL _____ Roof Ceiling Assembly Rating.
2. Wind Uplift Resistance: Design and certify that asphalt built-up roofing meets wind uplift loads as shown on Structural Drawings.

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 the Owner's Representative, 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.
 6. Protection of completed roofing and Roof Protection Plan.
 7. Manufacturer's scheduled inspections and acceptance procedures.
 8. Warranty period process for leak repairs and inspections.
 9. Review Fume Control Plan.
 10. Keep meeting notes and provide copies to those in attendance according to submittal requirements.

D. DELIVERY, STORAGE, AND HANDLING

1. Deliver, store, and handle products according to manufacturer's recommendations.
2. Deliver products in original containers, dry, undamaged, with seals and labels intact.
3. Storage:
 - a). Roof-top storage of weather-sensitive material is not permitted. Material stored overnight on roof-top will be considered defective.
 - b). Note – Select 1 from the following statements and delete others: if site conditions allow storage trailers onsite use the following. Store weather-sensitive products in enclosed storage trailers.
 - c). Weather-sensitive products on pallets, clear of ground, and cover with secure breathable canvas tarps. Or if site conditions do not allow site storage, 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.
 - d). 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.
4. Store related materials within temperature ranges recommended by the manufacturer(s) of each product.

1.9 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.

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3. Do not expose materials sensitive to water, or sunlight, damage in quantities greater than can be weatherproofed during each day.

1.10 COORDINATION

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

1.11 ROOF SYSTEM WARRANTY

- A. Provide manufacturer's 20 year, no penal sum limit, and roof system warranty.
- B. Warranty shall include all material and labor costs.
- C. Warranty shall include coverage for roof insulation, as specified in Section 07 22 16, 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 and the Owner.
- 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.

1.12 INSTALLER WARRANTY

- A. Roof Installer Warranty: Provide under provisions of Division 01.
- 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

2.1 GENERAL

- A. Roof System: Roof deck, insulation as specified in Section 07 22 16, four plies fiberglass felt set in hot asphalt, with gravel aggregate surfacing.
- 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 Division 01.
 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. Membrane Ply Sheet: ASTM D2178, Type VI premium fiberglass ply sheet.
- B. Membrane Base Flashing: strip-in ply is required, regardless of roof membrane manufacturer minimum requirements, with modified bitumen membrane base flashing sheet top ply.
 1. Strip-In Ply: meet, or exceed, roof membrane ply sheet requirements.
 2. Second Ply: ASTM D 6221, polyester or glass reinforced, modified bitumen sheet, meeting roof warranty requirements.
- C. Metal Flashing Strip-In Ply: meet, or exceed, roof membrane ply sheet requirements.

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2.3 BITUMINOUS MATERIALS

- A. Asphalt Bitumen: ASTM D312, Type III, steep, as supplied or specifically approved by membrane manufacturer.
- B. Asphalt Primer: ASTM D41, as supplied or specifically approved by membrane manufacturer.
- C. Cold Adhesive: Type supplied by, or specifically recommended by roof membrane manufacturer, meeting requirements of warranty.
- 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 16.
- 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, ½" per foot tapered, set in hot asphalt.

2.5 TAPERED EDGE & CANTS

- A. Tapered Edge: ASTM C728, perlite.
- B. Cant Strip: ASTM C728, perlite minimum 3 ½" face.
- C. Wood Cant: treated southern pine, cut to size, according to provisions of Section 06 10 00.

2.6 SURFACING AND ACCESSORIES

- A. Gravel Surfacing: ASTM D1863, light-color, clean, washed, opaque, gravel aggregate.
- B. Membrane Flashing Fasteners: Hot-dipped galvanized Simplex cap nails, with minimum 15/16" wide head.
- C. Sheet metal flashings: According to provisions of Section 07 62 00.
- D. Membrane Edge Sealant: As required by membrane roof manufacturer.
- E. Mineral Granules: As supplied by membrane manufacturer to match color of membrane base flashing sheet surface.
- F. Traffic Pad: As supplied by membrane manufacturer, and meeting their warranty requirements.

2.7 SPECIAL BITUMEN HEATING EQUIPMENT

- 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 or the Owner.
- 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

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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.
- H. Re-roofing: Do not remove more existing roofing than can be re-roofed in a shift.

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 roof 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

- 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 two hours or when conditions change. Contractor will 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.

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 16.
- 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.

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- 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 fill insulation to achieve uniform, positive slope.
- F. Step-in each board, while asphalt is still molten, to ensure good embedment.

3.10 ROOF MEMBRANE APPLICATION

- A. Coordinate activities so foot traffic does not occur on or across plies while bitumen is fluid.
- B. Use only hand-mopping, or bitumen dispensers that do not displace bitumen between roof plies.
- C. Install one additional layer of ply felt at valleys, hips, and ridges, minimum 12" wide, set in hot asphalt.
- D. Begin at the lowest point of the roof.
- E. Apply plies together in shingle fashion without phasing.
- F. Apply and lap felts in accordance with membrane product manufacturer's recommendations, to obtain minimum 4-shingled plies, regardless of membrane manufacturer's minimum roof warranty requirements.
- G. Apply felts straight, without buckles or voids, and broom lightly as necessary to result in full embedment without voids.
- H. Extend plies to the top edge of cants or to the point required by the membrane products manufacturer.
- I. Do not place items on installed membranes which could cause displacement of inter-ply bitumen.
- J. Protect installed membranes.
 - 1. Repair voids, wrinkles, and other defects, daily to prevent water from entering roof system.
 - 2. Install metal flashings under provisions of Section 07 62 00.

3.11 ROOF DRAIN INSTALLATION

- A. Install tapered insulation sump. Ensure smooth transition at roof drain. Readjust insulation, or roof drain elevation to obtain smooth transition.
- B. Extend membrane plies onto drain bowl flange. Cut felts off and dress cut edge of membrane with roof cement.
- C. Brush both sides of the lead drain flashing with a wire brush to remove wax and score surfaces. Prime both sides, and allow drying thoroughly.
- D. Set the lead flashing in a solid bed of roof cement and apply 3 strip-in plies in roof cement. Extend the flashing onto the drain bowl flange.
- E. Install clamp ring. Allow clamp ring to seat for several days and retighten at least once.
- F. Install a stainless steel gravel stop around drains, 30" square. Set the primed gravel stop flange in a bed of roof cement and strip-in with three plies glass felt and roof cement.
- G. Apply bitumen flood coat and embed gravel to outer edge of gravel stop.
- H. Coat exposed felts between gravel stop flange and roof drain with heavy-body aluminum coating.

3.12 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 manufacturer'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. Set top ply over first ply. Set in asphalt, cold adhesive, or heat weld, ensuring good embedment. Install in width of sheet with selva 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 6" on center with nails, or screws, driven through minimum 1" diameter metal caps, or cap nails.

3.13 INSTALLATION OF SOIL PIPE FLASHINGS

- A. Clean roof flange and apply asphalt primer to topside and underside, and allow drying.
- 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 three strip-in plies set in hot asphalt or plastic cement.

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3.14 MEMBRANE SURFACING

- A. Load and spread gravel using methods that do not damage the membrane. Keep loose gravel swept clean in non-surfaced areas.
- B. Obtain membrane manufacturer's approval of installed membrane before applying gravel.
- C. Apply bitumen at the membrane manufacturer's recommended rate.
- D. While bitumen is still hot apply gravel at the approximate rate of 400 lbs. per square, embedding not less than 200 lbs. per square in asphalt flood coat. Broadcast additional surfacing material to completely cover exposed asphalt flood coat.
- E. Provide a finished appearance free of uneven or ridged areas. Broom or rake gravel to provide a smooth, uniform surface.
- F. Install roof pads according to recommendations of membrane manufacturer.
- G. 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).
- H. Install roof pads underneath lightning protection cable over roof membrane.

3.15 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.

3.16 PROTECTION

- A. Comply with submitted Roof Protection Plan.
- 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 will be corrected by removal and replacement with new roof membrane and insulation.
- D. Ensure roof warranty is not voided due to membrane damage.

3.17 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>NOTICE: GUARANTEED ROOF SYSTEM</p> <p>DO NOT INSTALL NEW EQUIPMENT ON,</p> <p>OR THROUGH THIS ROOF,</p> <p>WITHOUT SPECIFIC AUTHORIZATION.</p> <p>REPORT CHANGES OR DAMAGE IMMEDIATELY TO OWNER.</p> <p>Owner: _____</p> <p>Phone: _____</p> <p>Contractor: _____</p> <p>Phone: _____</p> <p>Manufacturer: _____</p> <p>Phone: _____</p>
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END OF SECTION