

SECTION 07550**BUILT-UP BITUMINOUS ROOFING****PART 1 GENERAL****1.01 SCOPE OF WORK**

- A. Furnish all materials, equipment, labor, supervision and all incidentals necessary to complete all built-up bituminous roofing and flashing applied to a regular concrete deck as shown and indicated on Drawings and/or specified herein including, but not limited, to the following:
 - 1. All roofing materials.
 - 2. Crickets for sloping areas to drain.
- B. Five-ply bituminous built-up bituminous roofs (four ply with one mineral layer) are the preference of the Department. Single ply roofs shall only be used for buildings with limited roof penetrations and no mechanical equipment on the roofs.

1.02 RELATED SECTIONS

- A. Section 07620 - Flashing and Sheet Metal.

1.03 SUBMITTALS

- A. Submit per Section 01340 Shop Drawings for all flashing and roofing work (refer to Section 07620 for flashing requirements). No fabrication shall begin until shop drawings are reviewed by the Engineer. Drawings shall show penetrations, roof structures, and large scale details.
- B. Submit list of actual roofing materials proposed to be used.
- C. Submit manufacturer's cut sheet of all factory manufactured items.
- D. Submit Roof Guarantees: Roof Guarantees shall be submitted within 30 days after roofing is completed. This item will not be paid until all the guarantees have been submitted in final form.
 - 1. Roofing Manufacturer 20 year no-dollar limit guarantee.
 - 2. Roofing Installer 2 year guarantee.
- E. Submit Dade County Product Approval number and test verification of the roofing system proposed, verify that the roofing assembly is the correct one for the application. No deviations in materials will be permitted from the Product Control Sheets and Uniform Building Permit Roofing Assembly.
- F. Submit copy of Permit to Engineer.

- G. Submit guarantee submittal as described under paragraph 1.06.
- H. Applicator Requirements:
 - 1. Furnish the Engineer a letter with the following information prior to the start of any roofing work:
 - a. Letter from manufacturer to certify the competency of the Contractor. Roofing Installer shall be approved by the manufacturer.
 - b. The name of the roofing material manufacturer.
 - c. Agreement to have a qualified superintendent on the job at all times when roofing installation is in progress.
 - d. Provide a certification that roofing installer has been in business for a minimum of 5 years in this line of work and has documented successful installations similar to this project.
 - e. Provide a Notice of Intent to Issue Warranty from the Manufacturer.
 - f. Submit a tapered insulation layout.
 - 2. Furnish the Engineer with "Acknowledgement letters" (Notice of Commencement) from roofing installer and manufacturer.
 - a. Provide the Engineer with Acknowledgement letters from the roofing installer and the manufacturer (one letter each), stating that the concrete roof deck has been thoroughly inspected by him and is suitable to receive roofing, and that he is proceeding with the roofing installation of the roofing system. No roofing work shall commence until this letter is received by the Engineer.

1.04 ROOF DECK ACCEPTANCE

- A. The Contractor shall be responsible for checking all details relative to this phase of the work and advising the Engineer in writing prior to starting work of any conditions or details which might prevent issuance of the guarantee specified herein. Starting of work without such notification indicates acceptance of all conditions and details and if changes are required, any additional costs for such changes shall be borne by the Contractor.

1.05 QUALITY ASSURANCE

- A. All roofing components shall be labeled and/or identified as mandated by the South Florida Building Code (SFBC) Chief Code Compliance Officer.
- B. UL Approval: Materials and roofing system provided shall have been tested, listed, and labeled by UL for a Class A rating at design slope. Submit copy of current rating listing from UL Directory (1997 edition).
- C. The roofing assembly shall meet Factory Mutual requirements for uplift in accordance with FM 1-180.
- D. All roofing and materials shall be installed in strict accordance with the manu-

manufacturer's recommendations, Dade County Product Approval of Roofing Assembly, Florida Building Code, ASCE 7 (based on the 1988 edition), and the Uniform Building Permit for the approved roofing assembly, whichever requirements are more stringent.

- E. Bitumens, felts, flashing, and all components of the roof shall be the products of the same manufacturer or all materials used within the system shall be approved by the manufacturer.
- F. A pre-roofing conference shall be held by the Contractor where all the persons concerned shall be in attendance including but not limited to the Contractor's Project Manager, the superintendent, the roofing installer, supplier, WASD inspector, the Engineer, the roofing manufacturer's representative, and any other business concern or trade related to the installation of the roofing and the provision of guarantees. Furnish the Engineer with a copy of the minutes of the pre-roofing conference reflecting any issues discussed and decisions made.

1.06 GUARANTEE

- A. Furnish a manufacturer's 20-year non-prorated, no dollar limit, roofing guarantee from date of acceptance by the Engineer on the entire roofing system including both materials and workmanship and associated work specified in this Section, agreeing to repair or replace work which leaks water, deteriorates or otherwise fails (due to failures of materials or workmanship) to perform as roofing and providing a waterproof, watertight roofing system.
 - 1. Roof installer shall provide a separate 2-year, zero cost to Owner no-dollar limit, roofing guarantee from date of final acceptance on the entire roofing system including both materials and workmanship and associated work specified in this Section, agreeing to repair or replace work which leaks water, deteriorates or otherwise fails (due to failures of materials or workmanship) to perform as a watertight and waterproof roofing system.
 - 2. All written guarantees to the Engineer shall state that:
 - a. All roofing and materials herein specified have been installed in strict accordance with the manufacturer's recommendations, Dade County Product Approval of Roofing Assembly, South Florida Building Code, ASCE 7 (based on the 1988 edition), and the Uniform Building Permit for the approved roofing assembly, whichever requirements are more stringent.
 - 1) Certify that the roofing assembly as installed is approved by Dade County Product Control and meets the requirements for the height of roof, uplift, attachment or fastening methods, edge conditions, field, perimeter, corners, and related details.
 - b. All roofing repairs or replacements during the specified period will be performed at no additional cost to the Department, and in accordance with the South Florida Building Code, ASCE 7

requirements, and these specifications, whichever is more stringent.

- c. All roofing materials used and listed are covered by the manufacturer under the guarantee.
- d. All flashing material as specified in Section 07620 and roofing components in other Sections shall be covered by the manufacturer's guarantee.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Roofing materials shall be as manufactured by GAF, Polyglass, Tamko, John Mansville, or approved equal. Roofing system selected has to be an approved assembly for the application, height, and uplift required in accordance with Dade County Product Control, the Florida Building Code, and ASCE 7.

2.02 MATERIALS

- B. General: The minimum acceptable roofing shall consist of a glass base ply felt secured to structural concrete fastened in the manner tested for the required wind uplift at the design height, followed by three overlapping plies of fiberglass roofing felts, each of which shall be separated by a layer of hot mopped-on asphalt, followed by a layer of cap sheet surfaced with mineral granules applied hot. All edges and flashing, and roofing system assembly shall be as indicated on the Contract Drawings and as required by the South Florida Building Code.
- C. Roofing materials:
 - 1. Base Felt: ASTM D 3672, Type II and ASTM-D4897, Type II, "Specification for Asphalt Coated Glass Venting Base Sheet Used in Roofing." Minimum 60 pounds per square.
 - 2. Ply Felts (3 plies): ASTM D2178-, "Specification for Asphalt Glass (Felt) Used in Roofing and Waterproofing", Type VI. Minimum 11 pounds per square each ply.
 - 3. Cap Sheet: ASTM D3909 "Specification for Asphalt Roll Roofing (Glass Felt) Surfaced with Mineral Granules", ULG3. Minimum 76 pounds per square.
 - 4. Concrete Primer: ASTM D41 "Specification for Asphalt Primer Used in Roofing, Dampproofing and Waterproofing". Penetrating asphalt coating to promote adhesion of subsequent coatings.
 - 5. Asphalt: ASTM D312 "Specification for Asphalt Used in Roofing", Type III, minimum 30 pounds per square ply, and 60 pounds per square for flood coat. Obtain proper temperature from asphalt manufacturer.
 - 6. Cant strips: Provide pressure treated wood, termite proofed, preformed to 45 degree angle or configuration detailed.
 - 7. Flashing Cement: ASTM D2822 "Specification for Asphalt Roof Cement."
 - 8. Crickets: Tapered perlite insulation to meet ASTM C 728 and

FS HH-I-1972.

- a. Roofing Contractor shall provide a tapered insulation layout.

PART 3 EXECUTION

3.01 GENERAL

- A. Confirm compliance with current code requirements.
- B. Perform all work in accordance with manufacturer's recommendations and guarantee requirements.
- C. Thorough inspection prior to and during the roofing application by the manufacturer's inspection agent is mandatory.
 1. Manufacturer's Inspection Agent shall provide a minimum of four inspections:
 - a. Initial Inspection.
 - b. Interim Inspection.
 - c. Final Inspection.
 - d. 2-year Warranty Inspection with Owner, Roofing Installer, General Contractor, and Manufacturer's Inspection Agent.
- D. The roofing subcontractor will either accept or reject the roof deck in writing to the Engineer and the roofing manufacturer.

3.02 INSTALLATION AND FABRICATION

- A. Prior to application of any roofing materials, the finished concrete surface shall be inspected and accepted by the roofing material manufacturer which will issue the a 20 year guarantee on the finished roof, as being in a proper condition to receive roofing. This acceptance shall be in writing to the attention of the Engineer, and must be received by him before any roofing work will be permitted.
- B. The installation of nailers metal fittings and similar items affecting the roofing shall be complete before work begins. Beginning of work means acceptance of roof deck substrate prima facie by the Contractor.
- C. Clean concrete surface until smooth and free of laitance. Prime uniformly with asphalt primer at a rate of not less than recommended by the roofing manufacturer. The installation of cants, nailers, metal fittings, penetrations, and similar items affecting the roofing shall be completed before roofing work begins. Install base flashings according to roofing manufacturer's recommendations, as necessary to obtain guarantee, and in accordance with Dade County Product Approval, whichever requirements are more stringent.
- D. Starting at the low point, apply one ply of Base Sheet over the entire surface, lapping each sheet 2 inches minimum over the underlying sheet. Lap ends 6

inches minimum. Drive approved fasteners (if applicable) along the lap at a maximum spacing as indicated on Dade County Product Approval and FM Data sheets for the design height, slope, and uplift, whichever requirement is more stringent. All edges and flashings shall be as shown on the Contract Drawings. Building assembly and details shall be in accordance with the Product Control Approval and as required by the South Florida Building Code.

- E. Starting at low point, embed 4 plies (a base plus three plies) of Asphalt Glass Ply Sheets in uniform mopping of hot asphalt (minimum 30 pounds per ply per square). Use starting strips cut 1/4, 1/2, and 3/4 of a full sheet wide followed by a full width sheet. Lap each sheet 28 inches over the preceding sheet and embed full width of sheet in a coating of hot asphalt (minimum 30 pounds per ply per square) so that felt does not touch felt. Lap ends 6 inches minimum. Broom in ply sheets with a soft broom or squeegee. Stagger end of successive courses of felts a minimum of three feet apart.
- F. Starting at low point, embed one ply of mineral surface cap sheet in a uniform mopping of hot asphalt (minimum 30 pounds per ply per square). Lap ends 6 inches minimum. Keep lap ends of successive courses at least 3 feet apart.
- G. Extend roofing sheets up face of cant minimum 2 inches and cut off evenly at wall line.
- H. Apply felts smoothly, free of air pockets, wrinkles, fishmouths, lap joints, or tears. Repairs all fishmouths in accordance with NRCA Roofing Manual.
- I. Dissimilar Materials: Isolate wood and concrete or other materials from contact with aluminum surfaces (if any) by coating with bituminous base paint.

3.03 INSTALLATION OF CRICKETS

- A. Install roofing over light weight insulating concrete crickets. Coordinate with Section 03521 Insulating Concrete Fill so as not void the roofing warranty. Comply with South Florida Building Code requirements for roof installed over insulating concrete fill at the design height and uplift for the approved system assembly.

3.04 BASE FLASHINGS

- A. Base flashings shall consist of 2 plies of ASTM 2178 Type VI felts in overlapping plies each sheet shall overlap over the previous ply a minimum of 4" outstanding onto the field of the horizontal roof.
- B. Provide a top ply of base flashing construction assembly of a mineral surfaced SBS Modified Bitumen, 250 grams/lt. sq., with reinforced polyester, to overlap previous two plies by 4" for a total of 12" outstanding onto the field of the horizontal roof area.

3.05 PROTECTION OF ADJACENT SURFACES

- A. Protect building surfaces against damage from roofing work.

- B. Keep all surfaces and areas progressively clean. Protect walls, parapets and other surfaces from defacement by bitumens or other materials.
- C. Clean off/repair immediately any defacements or defects to the approval of Engineer.
- D. Where work must continue over finished roof membrane, protect surfaces.

3.06 CLEAN-UP

- A. At completion of all work required by this section, remove from premises all debris of any nature resulting from roofing, associated sheet metal and related work as well as all tools, equipment and unused materials.
- B. "Walk" roofs and remove all trash and extraneous matter/materials. Leave all finished roof surfaces clean.
- C. Remove bituminous markings from finished surfaces. In areas where finished surfaces are soiled by asphalt or any other source of soiling caused by work of this Section, consult manufacturer of surfaces for cleaning advice and conform to those instructions.
- D. Check all emergency overflows. Make certain they are "open" and not blocked in any way.
- E. Test downspouts with hose water to insure freedom from stoppage/blockage.

END OF SECTION