

SECTION 07525

SBS MODIFIED BITUMEN MINERAL SURFACED ROOFING

PART 1 GENERAL

1.01 SUMMARY:

A. Styrene Butadiene Styrene (SBS) modified bitumen mineral surfaced roofing system including necessary accessories.

B. Related Sections:

- 1. 03342 - Lightweight Insulating Concrete.
- 2. 06100 - Carpentry.
- 3. 07210 - Building Insulation.
- 4. 07600 - Flashing and Sheet Metal.

1.02 REFERENCES AND CODES

A. Florida Building Code (FBC), including FBC - Roofing Application Standards (RAS), and FBC - Test Application Standards (TAS).

B. Miami-Dade County Product Control.

1. Miami-Dade County Test Protocols:

- a. PA 105, PA 114, and PA 117.
- b. Appendix A and B.

NOTE TO SPECIFIER: Florida Department of Education (DOE) requires roof deck systems, including membranes, to be tested as an assembly to comply with SSTD 12-99.

C. Florida Department of Education (DOE).

D. Uplift requirements based on the basic wind velocity pressures for the project according to American Society of Civil Engineers (ASCE) 7-98.

- 1. Comply with calculations, signed and sealed by a Florida registered professional engineer, establishing wind velocity pressure values for the specific project according to ASCE 7-98 using a wind speed of 146 mph, exposure category "C", and a wind load importance factor of 1.15.

NOTE TO SPECIFIER: Insert required FM wind uplift classification, in the following paragraph E.1., as determined by ASCE 7-98 using a wind speed of 146 mph, exposure category "C", and with a wind importance factor for educational buildings of 1.15.

E. Factory Mutual:

1. Requirements for Class I rated assembly and FM 1- uplift classifications as determined by ASCE 7-98.
2. FM 4470 - Approval Standards for Class I Roof Covers.
3. Loss Prevention Data Sheets 1-7, 1-28, 1-28R, 1-29, 1-29R, and 1-49.
4. FM 1a-150.

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

1. D41-94 Specification for Asphalt Primer Used in Roofing, Dampproofing, and Waterproofing.
2. D312-95a Specification for Asphalt Used In Roofing.
3. D2824-94 Specification for Aluminum-Pigmented Asphalt Roof Coatings, Non-Fibered, Asbestos Fibered, and Fibered Without Asbestos.
4. D3447-01 Standard Test Method for Purity of Halogenated Organic Solvents.
5. D5147-02a Standard Test Methods for Sampling and Testing Modified Bituminous Sheet Material.
6. E84-96a Test Method for Surface Burning Characteristics of Building Materials.
7. E108-96 Test Methods for Fire Tests of Roof Coverings.
8. E119-95a Test Methods for Fire Tests of Building Construction and Materials.
9. E136-96a Test Method for Behavior of Materials in a Vertical Tube Furnace at 750°C.

G. National Roofing Contractors Association (NRCA) - Roofing and Waterproofing Manual.

H. Sheet Metal and Air Conditioning Contractors' National Association (SMACNA): Architectural Sheet Metal Manual, latest edition.

I. Underwriters Laboratories (UL).

1. UL 790.
2. Roofing Materials and Systems Annual Directory.
3. UL Class A External Fire Classification.

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- J. Roofing manufacturer's specifications.
- K. Canadian General Standards Board (CGSB) 37-GP-56M.

1.03 SYSTEM DESCRIPTION

- A. Performance Requirements: Coordinate application of roofing system with application of cants and bases, protruding materials, roof flashings, and roof accessories to assure the complete installation is watertight and according to warranty requirements.

1.04 SUBMITTALS

A. Product Data:

- 1. Submit specifications, installation instructions, and general recommendations from manufacturers of roofing system materials, for types of roofing required.
- 2. Include data proving materials comply with requirements.

B. Shop Drawings:

- 1. Show roof configuration and sheet layout, details at perimeter, and special conditions.
- 2. Indicate layout of tapered insulation materials.

C. Samples: Manufacturer's standard sizes of roofing plies.

D. Quality Control Submittals: Submit copies of Pre-Roofing Conference records and minutes of meetings.

1.05 QUALITY ASSURANCE

A. Applicator/Installer Qualifications:

- 1. Approved and certified by the roof system manufacturer and holding appropriate state or local licenses, permits, and certificates to perform the type of work required under this contract.
- 2. Firm with minimum 5 years successful experience in installation of roofing systems similar to those required for the work.
- 3. Be equipped with a trained crew and equipment required to perform the work in an efficient manner and as recommended by the roofing system manufacturer.
- 4. Maintain a full time supervisor/foreman/superintendent on-site experienced

with the specified roofing system and acceptable to the roofing system manufacturer.

5. Assign work closely associated with flexible sheet roofing, including vapor barriers, insulation, flashing and counterflashing, expansion joints, and joint sealers, to installer of flexible sheet roofing.

B. Technical Inspector Qualifications:

1. A technical inspector either employed or approved by the roofing system manufacturer shall inspect the installation of the roofing system.
2. Written authorization from the roofing system manufacturer shall state that compliance with the technical inspector's decisions shall not affect the roofing system manufacturer's warranty.

C. Special Requirements:

1. Provide components compatible with and approved by the roofing system manufacturer.
2. Insurance Certification: Assist the Board in preparation and submittal of roof installation acceptance certification necessary for fire and extended coverage insurance on roofing and associated Work.
3. Thermal Resistance: Thermal resistance properties of insulating materials shall be designated by R-values, representing rate of heat flow through material of thickness indicated, measured by test method in referenced material standard or indicated, and expressed by temperature difference in degrees F. between 2 exposed faces required to cause 1 BTU to flow through 1 square foot per hour at mean temperatures indicated.
4. Fire Performance Characteristics:
 - a. Provide insulation materials with identical fire performance characteristics, as listed for each material or assembly, determined by testing according to methods indicated, UL, or other testing and inspecting agency acceptable to authorities having jurisdiction.
 - b. Surface Burning Characteristics: ASTM E84.
 - c. Fire Resistance Ratings: ASTM E119.
 - d. Combustibility Characteristics: ASTM E136.
5. Torch Safety Provisions:

- a. Take safety precautions during torching applications to assure fire safety at all times.
- b. A designated person shall perform a daily fire watch to include smoldering materials and fires on the roof.
- c. The fire watch shall continue after roofing material application has suspended for the day.
- d. Provide fire extinguishers with inspection and certification labels dated within the last 12 months in close proximity of the work.

D. Pre-Roofing Conference:

1. Before installation of roofing and associated work, meet at project site with installer, roofing manufacturer, installers of related Work, and other persons concerned with roofing performance, including where applicable, the Board's insurer, test agencies, governing authorities, A/E, and the Board's representative.
2. A/E will record discussions and agreements and furnish copies to each participant.
3. Provide minimum 72 hours advance notice to participants before convening pre-roofing conference.

1.06 WARRANTY

A. Applicator's Warranty:

1. Contractor shall furnish the Board a 5 year written warranty, beginning at Substantial Completion, signed by Roofing applicator, covering materials and quality of work for entire "Roofing System", including repair and replacement of flashing and other roofing components deemed faulty or in disrepair by A/E during warranty period. This warranty shall include all other work performed by the contractor described in other sections, including but not limited to, caulking and sealants, sheet metal, insulation, and roofing accessories.
 - a. Such items deemed faulty or in disrepair shall be repaired at no cost to the Board.
 - b. Definition of faulty components or roofing in disrepair includes but is not limited to:
 - 1) Blisters in roofing.
 - 2) Cracks or ridging in roofing membranes.
 - 3) Delamination, shears, or tears in membrane.
 - 4) Defects in the quality of work or materials.

5) Leaks of any kind.

B. Manufacturer's Warranty:

1. Manufacturer shall furnish the Board a 20 year written warranty, beginning at Substantial Completion, signed by manufacturer's authorized representative for repair and replacement period and terms:

- a. No dollar limit on warranty.
- b. Single source responsibility.
- c. Definition of faulty components or roofing in disrepair includes but is not limited to:

- 1) Blisters in roofing.
- 2) Cracks or ridging in roofing membranes.
- 3) Delamination, shears, or tears in membrane.
- 4) Defects in the quality of work or materials.
- 5) Leaks of any kind.

C. Warranty shall be for roofing membrane over a lightweight insulating concrete deck, board insulation, or other substrate.

D. General Requirements:

1. Contractor Responsibility:

- a. Certified by manufacturer of roofing materials.
- b. Obtain authorization from roofing materials manufacturer for Project before installation starts to insure issuance guarantee from manufacturer.

2. Manufacturer's Responsibility:

- a. Pay all authorized costs of repair of roofing membrane necessary to stop leaks.
- b. Provide guarantee for specified number of years.
- c. Issue guarantee within 6 months after completion of roofing system.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. SBS Modified Bitumen Mineral Surfaced Roofing with Granular Mineral Cap Sheets:

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1. Johns Manville.
2. Siplast, Inc.
3. Soprema Roofing.

NOTE TO SPECIFIER: Use of foil clad cap sheets requires approval by the Board on a per condition basis.

B. SBS Modified Bitumen Roofing with Foil Clad Cap Sheets:

1. Veral by Siplast.
2. Sopralast 50 TV Alu by Soprema.

2.02 MATERIALS

A. Base Sheet: Compatible reinforced base sheet manufactured and supplied by the roofing membrane manufacturer, type depending on substrate, and shall be part of the manufacturer's FM system for wind uplift as specified.

1. At concrete roof decks with a mopped down system, provide a concrete primer and a vented base ply or insulation complying with manufacturer's rated FM wind uplift classification as specified.
2. Lightweight concrete or existing gypsum roof decks shall use a nailed channel-vented base sheet, Ventsulation Felt by Johns Manville or accepted equivalent.

B. Roofing Membranes:

1. One granular mineral, polyester reinforced, SBS over one smooth SBS. Modified bitumen sheets according to CGSB 37-GP-56M, UL Class A requirements, and FM wind uplift classification as specified.

NOTE TO SPECIFIER: Use of foil clad SBS membranes require prior acceptance by M-DCPS.

2. One foil clad SBS over one smooth SBS. Modified bitumen sheets according to CGSB 37-GP-56M, UL Class A requirements, and FM wind uplift classification as specified.

C. Bitumen: Primer according to roofing membrane manufacturer's recommendations. Asphalt: Steep, according to ASTM D312, Type III for slopes to 3 inches; Type IV for

slopes over 3 inches.

- D. Traffic pads shall be a second layer of granular SBS modified cap sheet, polyester reinforced, with an alternate granular color accepted by M-DCPS, and fully bonded to the top ply membrane. 36 inch wide minimum membrane rolls shall be cut into 6'-0" lengths to provide drainage channels. Drainage channels shall be 6 inches.
- E. Aluminum Roof Coating: Fibrated reflective coating conforming with ASTM D2824 Type II, to be used at pitch pans, sleeves, and objects above finished deck.
- F. Cant Strips: Wood fibered, fiberglass, rockwool, or pressure-treated pine, minimum 2 inch stock mitered to form a 45-degree angle at walls and parapets, nailed to solid deck. Perlite cants are not allowed.
- G. Roofing tapes, sealers, nails, primers, and roof vents according to manufacturer's recommendations.
- H. SBS Flashing Cement: Asbestos free roofing cement according to ASTM D4586.
- I. Provide metal roof vents on lightweight concrete or existing gypsum roof decks at a rate of 1 vent per 900 square feet according to roofing system manufacturer's recommendations. Specify vent pattern. Cut vent holes to structural surface. Ballard JL-10 by JIMCO Products, one way, insulated, spun aluminum vent, or accepted equivalent.
- J. Lightweight concrete and existing gypsum roof decks shall have a nailed channel-vented base sheet.
- K. Insulation:
 - 1. Tapered or flat polyisocyanurate foam board according to Section 07210.
 - 2. Cellular glass roof insulation.
 - 3. Glass fiberboard roof insulation permanently bonded to roofing felt facer sheets with minimum uniform density of 1.40 lbs/cf.
 - 4. Follow NRCA recommendation for preventing blistering effect of insulation board.
 - 5. Lightweight insulating concrete according to Section 03342.
 - 6. Rigid mineral fiber board with fiberglass scrim.
- L. Recover/Overlayment Boards:

1. As approved by roofing membrane manufacturer.
 - a. Dens-Deck by Georgia Pacific.
 - b. Sopraboard by Soprema.

- M. Fastenings: Comply with Factory Mutual uplift classification as specified.
 1. Nails for Securing Felts to Wood Decks and Nailers: Hot dip galvanized ring shank roofing nails.
 2. Nails for Securing Felts to Insulating Concrete: "Zonotite" nails with base ply fastener roofing disks.
 3. Nails for Securing Felts and Base Flashing to Masonry and Concrete: Flat head galvanized masonry nails.
 4. Nails Securing Insulation to Concrete Deck: No.12 or No.14 diameter concrete fasteners or anchors.
 5. Nails Securing Insulation to Wood Deck: No.10 or No.12 hex washer or No.3 Phillips fasteners.
 6. Nails Securing Insulation to Gypsum Decks: Fasteners shall be designed with a shank that lodges in the deck and a large disc or plat under the fastener head to distribute the wind force transferred from the insulation.
 7. Staple fasteners are not allowed.
 8. Provide term bar at vertical flashing areas according to RAS.

PART 3 EXECUTION

3.01 PREPARATION

- A. Do not start application of roofing materials until deck surfaces are smooth, plane, firm, dry, free from dirt and foreign materials, and have been inspected and accepted, in writing, by the Roofing Applicator and the A/E.

- B. Verify pressure treated wood nailers and roof cants are in place and properly secured.

- C. Properly prepare and secure vents, conduits, pipes, equipment bases, and other projections through the roof deck. Clean exposed metal surfaces of paint, rust, scale, or other foreign matter. Drive protecting nails and screws flush, recess anchor bolts and nuts flush, and cutoff projecting bolt ends flush.

- D. Thoroughly clean deck surface before application of

roofing materials, using compressed air, vacuum, or other approved method.

- E. Starting of the work will be considered acceptance of base surfaces by the Roofing Applicator and assurance by the Roofing Applicator of a watertight job and ability to provide the required warranty.
- F. Protect building and adjacent surfaces from damage because of bitumen spillage, repair or replace such surfaces so damaged. Do not store materials on completed roofing.
- G. Over exposed bitumen, provide mineral granules matching granular cap sheets.
- H. Water stops:
 - 1. Protect roof deck and partially completed roofing from moisture by providing water stops at end of each day's work or when weather is threatening.
 - 2. Failure to protect deck, roof insulation, and roofing will result in removal of damaged materials or materials containing excessive moisture.
 - 3. Remove water stops before start of new work.
- I. Phasing is not allowed.

END OF SECTION