

# SECTION B3000tg – TECHNICAL GUIDE

## ROOFING SYSTEMS

06/02

### PART 1 - GENERAL

#### 1.1 SYSTEM DESCRIPTION

Provide a sloped metal or shingle or membrane roofing system with a finish of low albedo color compatible with existing local colors and the Base Exterior Architecture Plan ( BEAP ), to meet sustainable design goals, and, where required by the Request for Proposals, to match the existing adjacent roofing system of a specified existing facility at or near the site of the project.

#### 1.2 SYSTEM REQUIREMENTS

- a. Provide a vapor barrier system that will insure prevention of moisture intrusion.
- b. Avoid barrel vault ( curved panel ) roofs unless absolutely necessary to maintain compatibility with existing base features; when incorporation of this type of roof is unavoidable, seek a solution where the curved roof is used over entrance canopies, sun shading devices, carports, covered walkways, etc., i.e., areas other than over habitable spaces, to provide required contextual elements. Avoid excessive surface intersections to minimize risk of potential leakage and difficult repair work. Ridge and valley conditions along with other intersections shall be carefully detailed to prevent moisture intrusion. Exterior design shall be of same material and shall be compatible with the roofing at existing adjacent facilities at or near the project site when specified in the Request for proposals.
- c. Provide sufficient insulation to meet energy savings requirements stated in the Request for Proposals.
- d. Roofing surfaces shall not lap down over the vertical face of the fascia.
- e. Roof pitch shall be 2.5:12 minimum for shingle or metal roofing systems. Match slope of existing adjacent facility shingle or metal roof systems where feasible. Roof pitch shall be 0.5:12 minimum for membrane roofing systems.

### PART 2 - PRODUCTS

#### 2.1 ROOFING ( B3010 )

##### 2.1.1 Manufactured Sheet Metal Roofing

Provide FM Class 1-90, minimum 24 gauge, 70% polyvinylidene fluoride resin factory finished metal roof. Provide 20 year material and workmanship warranty.

##### 2.1.2 Manufactured Shingle Roofing

Provide mineral granule-surfaced asphalt shingles, self-sealing and fungus resistant, with square tab strips. Shingles shall be in compliance with ASTM D 3018, Type I, and ASTM D 3462, architectural shingles, weighing not less than 14.2 kilograms per square meter ( 290 pounds per 100 square feet ). Provide ASTM D 226, Type I or II as recommended by NRCA Roofing and Waterproofing Manual ( Fourth Edition ), "Steep Roofing". Shingles shall meet the fire resistance requirements of UL 790 for Class A and the wind resistance requirements of UL 997. Color shall be as selected from the manufacturer's standard colors. Furnish the asphalt shingle manufacturer's standard 25 year warranty for the asphalt shingles.

### **2.1.3 Manufactured Membrane Roofing**

Provide 3 ply SBS modified bitumen consisting of ASTM D 4601 type II non-perforated base sheet, 70 mil thick, minimum. Modified bitumen base sheet reinforced with fiberglass or polyester, 90 mil thick, minimum. Mineral surface prefabricated modified bitumen membrane reinforced with fiberglass or polyester. Total combined modified base and membrane thickness of 170 mil, minimum. Modified sheet materials shall contain a minimum of 10% polymer by weight when tested in accordance with ASTM D 5147. Install system in ASTM D 312 type II or IV asphalt at an application rate of 25 pounds/100 square feet. Roofing system shall be ASTM E 108 class 1A or UL 790 class A and listed as part of a fire-classified roof deck construction in UL roofing materials and systems directory and FM P7825 class I-90 wind uplift resistance rating. Provide manufacturer's 20 year "no dollar limit" warranty.

### **2.1.4 Flashing and Sheet Metal**

- a. Provide all metal fabrications with coil coated finish color coating suitable to resist degradation and compatible with adjacent facade.
- b. Provide gutters and downspouts compatible with roofing material and finish. Concealed gutters and downspouts are prohibited. Design to allow free flow of snow and ice from roof and to divert water, snow, and ice flow away from path of pedestrians.

### **2.1.5 Roofing Insulation**

Provide R-value specified in the Request for Proposals, minimum.

### **2.1.6 Installation**

Install shingle roofing systems in accordance with NRCA Roofing and Waterproofing Manual ( Fourth Edition ), "Steep Roofing".

Install sheet metal roofing and insulation in strict accordance with manufacturer's printed installation instructions. Spray exposed cut edges with compatible coating comparable to the factory applied coating system.

Install membrane roofing and insulation in strict accordance with manufacturer's printed installation instructions.

## **PART 3**

Not Used.

**--END OF SECTION--**