

SECTION 07 5050
VEGETATED ROOF COMPONENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Vegetated roof components that occur above the waterproof membrane, including:
 - 1. Pre-planted, garden roof trays and accessories ("modular extensive").
 - 2. Related roof accessories.

1.02 RELATED REQUIREMENTS

- A. Section 07 1400 - Fluid-Applied Waterproofing: Fluid-applied waterproofing for deck below vegetated roof.
- B. Section 07 5200 - Modified Bituminous Membrane Roofing: Below vegetated roof.
- C. Section 07 5201 - Rubberized Asphalt Roofing: Below vegetated roof.
- D. Section 07 5300 - Elastomeric Membrane Roofing: Below vegetated roof.
- E. Section 07 5400 - Thermoplastic Membrane Roofing: Single-ply roofing over deck below vegetated roof.
- F. Section 32 9300 - Plants.

1.03 REFERENCE STANDARDS

- A. SPRI RP-4 - Wind Design Standard for Ballasted Single-Ply Roofing Systems; Single Ply Roofing Institute; 2013 (ANSI/SPRI RP-4).

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Preinstallation Meeting: Conduct a preinstallation meeting one week prior to the start of the work of this section; require attendance by all affected installers.

1.05 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide product data on all components of the vegetated roof.
- C. Manufacturer Certification: Submit written approval by membrane manufacturer of the proposed vegetated roof assembly and its components.
- D. Shop Drawings: Indicate size and outline of roof, location and type of materials, and details of accessories and edge treatments.
- E. Manufacturer's Qualification Statement.
- F. Installer's Qualification Statement.
- G. Manufacturer's Instructions: Submit copies of manufacturer's written installation instructions and other recommendations.
- H. Preinstallation Field Report: Provide documentation that membrane installation has been approved by manufacturer and has passed specified testing.
- I. Project Record Documents: Record actual locations of planted areas, hardscape features, existing concealed drains, irrigation system (if provided), etc.
- J. Maintenance Data: Submit manufacturer recommendations for maintenance of materials and plants.
- K. Warranty:
 - 1. Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.
 - 2. Submit installer's certification that installation complies with all warranty conditions for the waterproof membrane.

1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years of documented experience.
- B. Installer Qualifications: Company specializing in performing the type of work specified in this section.
 - 1. Minimum three years of documented experience.
 - 2. Approved by manufacturer.
- C. Single Source Responsibility: Provide and install products from single source.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to project site in original, unopened containers or wrappings.
- B. Store materials under cover and elevated above grade.
- C. Store roll material lying down and on pallets. Fully protect from moisture.
- D. Remove damaged materials from job site. Replace damaged materials.

1.08 FIELD CONDITIONS

- A. Ambient Conditions: Install garden roof between 1 April and 15 October unless otherwise required or recommended in writing by the manufacturer.
- B. Roof Slope: Do not install vegetated roofing over substrate with slope of less than 2 percent.
- C. Existing Conditions: Obtain written certification from the Architect or Owner that the structure can safely withstand the additional load imposed by the soil and plant overburden.

1.09 WARRANTY

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Correct defective Work within a one year period after Date of Substantial Completion.
- C. Provide manufacturer's twenty year, single-source "full system" warranty.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Acceptable Manufacturer: Vegetal i.D., Inc: www.vegetalid.us.

2.02 VEGETATED ROOFING USING MODULAR ROOF TRAYS

- A. Roofing: Single-ply thermoplastic membrane specified in Section 07 5400.
- B. Vegetated Roofing Assembly: Modular trays and protective layers installed over waterproofing or roofing membrane.
 - 1. Protection Layers (in Order from Bottom Up): Provided and approved by waterproofing or membrane manufacturer:
 - a. Protection layer.
 - 2. The number of protective materials may be reduced provided equivalent protection and functionality is achieved and is approved by the waterproofing or membrane manufacturer.
 - 3. Acceptable Membrane Manufacturers:
 - a. Carlisle Coatings and Waterproofing, Inc: www.carlisle-ccw.com.
 - b. Soprema: www.soprema.us.
- C. Trays: Pre-planted, modular, 100 percent recycled high density polyethylene (HDPE), garden roof trays, with integral drainage/filter fabric and manufacturer's standard growth medium.
 - 1. Plants: Drought-resistant mix of grasses, perennials and groundcovers suitable to a non- or minimally-irrigated installation.
 - 2. Size: Provide manufacturer's standard size trays as indicated on drawings.
 - 3. Depth and Weight: 4 inches (101 mm) (nominal) deep and weighing no more than 18 pounds per square foot (89 kg per sq m) fully saturated.
 - 4. Manufacturers:
 - a. Vegetal i.D., Inc; HYDROPACK: www.vegetalid.us.

5. Protection Layer: Membrane manufacturer's recommended fabric or sacrificial membrane for location between trays and roof membrane.

2.03 ACCESSORIES

- A. Roof Pavers: Precast concrete, 2 feet (0.6 m) wide by 2 feet (0.6 m) feet long by 2 inches (50.8 mm), thick, 18 pounds per square foot (8.82 kg per sq. m) minimum, and compressive strength of 6500 pounds per square inch (49 Mpa) minimum.
- B. Paver Pedestals: Rubber pedestals to elevate the pavers above the surface of the roof membrane and promote positive drainage.
- C. Stone Ballast: No.4 size, 1-1/2 inch (38.1 mm) nominal diameter, rounded, water-worn gravel conforming to ASTM D448 and applied at a minimum of 10 pounds per square foot (0.48 kPa).

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that waterproof membrane work is complete.
- B. Verify that surface of membrane is ready to accept vegetated roofing components.
- C. Inspections and Testing Prior to Installation of Vegetated Roof Components:
 1. Verify that installed waterproofing or membrane roofing system has been inspected by manufacturer's representative.
 2. Verify that installed waterproofing or membrane roofing system has been tested by controlled flooding, electronic testing or other leak detection method approved by the manufacturer.
 3. Provide documentation that membrane installation has been approved by manufacturer and has passed specified testing.

3.02 PREPARATION

- A. Clean membrane surfaces of ponded water, snow, ice, dirt, debris, and foreign materials.

3.03 INSTALLATION, GENERAL

- A. Install in accordance with membrane manufacturer's instructions and warranty restrictions, if any.
- B. Dry all surfaces thoroughly before vegetated roofing work begins.
- C. Protect the waterproofing or roof membrane as necessary to prevent damage during application of vegetated roof system.
- D. Provide temporary ballast in partially completed sections of vegetated roof to protect overburden from wind effects during installation. Provide ballast with no sharp edges, protrusions, chemical contaminants, or other composition that could damage the waterproof membrane.

3.04 MODULAR ROOF TRAYS

- A. Unroll protection fabric directly over membrane and provide minimum 2 inches (50 mm) side and end overlap.
- B. Under windy conditions, provide temporary ballast.
- C. Install modular garden roof trays as recommended by tray manufacturer.
 1. Place trays on protection layer as indicated in approved shop drawings. Do not drag trays into position. Ensure that trays with interlocking or overlapping edges are fully engaged with adjacent trays.
 2. After installation, water trays. Comply with manufacturer standards for amount of water, rate of application and degree of saturation. Do not wash growth media out of trays by excess watering.
 3. Do not install trays over ponded water, saturated roof surfaces or under freezing conditions.
 4. Fasten trays to each other according to manufacturer's published or written recommendations, using approved fasteners at the manufacturer's specified rate.

- D. Install roof garden accessories and apply edge treatment as indicated in approved shop drawings.

3.05 ACCESSORIES

- A. Install pavers on pedestals. Fully support all edges. Shim and adjust pavers to provide level surface.
- B. Ballast: Install ballast in accordance with SPRI RP-4.

3.06 FIELD QUALITY CONTROL

- A. Have completed garden roof inspected by manufacturer's field representative.
- B. Obtain waterproof membrane manufacturer's written approval of completed garden roof installation.

3.07 PROTECTION

- A. Protect installed vegetated roof system from construction traffic and subsequent construction operations.
- B. Provide substantial barricades or other barriers where necessary to prevent traffic across vegetation.

3.08 MAINTENANCE

- A. Maintain plants in vegetated roof for a period of one year after Substantial Completion.
- B. Provide a separate maintenance contract for specified maintenance service.

END OF SECTION