

SECTION 075563
ROOFTOP DRAINAGE PANELS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Rooftop drainage panels.

1.3 ACTION SUBMITTALS

- A. Product Data: For each product specified.
- B. Shop Drawings: For vegetated roof assembly. Include roof plans, slopes, and drain locations; details of vegetated roof assembly, and accessories; depth of growing media; and attachments to other work.
- C. Samples for Verification: For each of the following components of vegetated roof assembly:
 - 1. Foam Drainage Panels: 12 by 12 inches.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified Installer.
- B. Product Certificates: For each type of manufactured product, from manufacturer, and complying with the following:
 - 1. Manufacturer's certified analysis of standard products.
- C. Field quality-control reports.
- D. Warranty: Sample of special warranty.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified vegetated roof assembly Installer, approved, authorized, or licensed by roof system provider, whose work has resulted in successful establishment of vegetated roofs.

- B. Preinstallation Conference: Conduct conference at Project site.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of conformance with state and federal laws if applicable.

1.7 WARRANTIES

- A. Special Warranty for Rooftop Drainage Panels: Installer agrees to repair or replace vegetated roof assembly components that fail in materials or workmanship within specified warranty period.
 1. Warranty includes the following:
 - a. Guaranteed foliage coverage after a certain period of time.
 2. Failures include, but are not limited to, the following:
 - a. Failure of the green roof assembly to support a robust ground cover.
 - b. Loss of soil permeability.
 - c. Development of anaerobic condition in profile.
 - d. Loss of drainage capacity.
 - e. Development of soil pathogens.
 - f. Deleterious changes in PH.
 - g. Slope related instability of green roof assembly.
 - h. Wind or water erosion of green roof assembly.
 3. Warranty Period: Two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 ROOFTOP SYSTEM COMPONENTS

Master Note: Use EcoDrain when roof slope is less than 1/8:12. Use DuraDrain when roof slope equals or exceeds 1/8:12.

- A. Foam Drainage Panels (Type 1): Manufacturer's standard drainage panel with multi-directional drain channels that move water quickly and easily to roof drains.
 1. Basis of Design Product: Subject to compliance with requirements, provide the following:
 - a. Zeager Bros., Inc.; EcoDrain™ foam drainage panel.
 2. Composition: Recycled closed-cell, cross-linked, Polyethylene and Polyurethane foam.
 3. Recycled Content: 100% pre-consumer recovered foam.
 4. Size: 48 inches by 48 inches.
 5. Weight: 14 lbs per panel.
 6. Thickness: 1-1/8 inches with multi directional channels.
 7. Transmissivity per ASTM D2434 at 0.0125 gradient – 2.5298 gal/min/ft – 4.19E-002 m² / sec.

8. Permeability per falling head test – 22.38 gal/min/sq.ft. – 3.36E-002 cm/sec.
 9. ASTM D3574: Standard Test Methods for Flexible Cellular Materials-Slab, Bonded and Molded Urethane Foams - lbs/force @ Rupture - Average- 16.59 / PSI-33.23 / %Elongation -20.70.
 10. ASTM E648: Standard Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source - Average Critical Radiant Flux -0.04 W/cm².
- B. Foam Drainage Panels (Type 2): Manufacturer's standard drainage panel with uni-directional drain channels that move water quickly and easily to roof drains.
1. Basis of Design Product: Subject to compliance with requirements, provide the following:
 - a. Zeager Bros., Inc.; DuraDrain™ foam drainage panel.
 2. Composition: Recycled closed-cell, cross-linked, Polyethylene and Polyurethane foam.
 3. Recycled Content: 100% pre-consumer recovered foam.
 4. Size: 48 inches by 72 inches.
 5. Weight: 20 lbs per panel.
 6. Thickness: 1-1/8 inches with directional channels.
 7. Transmissivity per ASTM D4716 at 0.41 gradient – 7.2 gal/min/ft – 3.65E-003 m² / sec.
 8. Permeability cross plane flow test – (max head<2 in) 38 gal/min/sq.ft.
 9. ASTM D3574: Standard Test Methods for Flexible Cellular Materials-Slab, Bonded and Molded Urethane Foams - lbs/force @ Rupture - Average- 16.59 / PSI-33.23 / %Elongation -20.70.
 10. ASTM E648: Standard Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source - Average Critical Radiant Flux -0.04 W/cm².

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Installation Procedure:
1. Install recommended primary roof membrane to existing roof. Weld seams using hot-air welding equipment. Test seams.
 2. Install root barrier (optional) and drainage conduit. Strategically place drainage conduit toward roof drains to eliminate storm water run off as quickly as possible.
 3. Next install [**EcoDrain™**] [**DuraDrain™**] panels with drainage channels toward roof membrane. Cut with utility knife where needed - over vent pipes, around heating units, etc.
 4. Install geotextile fabric over [**EcoDrain™**] [**DuraDrain™**] panels.
 5. Immediately cover geotextile fabric with growth media. The media shall be dispensed at the roof level in a manner that will not suddenly increase the load to the roof. It shall be immediately spread to the specified thickness, plus 10 percent, after moderate compaction. Unless otherwise approved, compaction shall be using a 4-foot wide lawn roller with a total load of not less than 200 lbs and not more than 300 lbs.
 6. Thoroughly soak with water using a hand sprayer or a sprinkler.
 7. Plant vegetation.

END OF SECTION