SECTION 07 72 00

WATERPROOFING OVERBURDEN ACCESSORIES

(ROOT BARRIER, DRAINAGE MAT, DRAINAGE PLATE, HEAVY DUTY DRAINAGE MODULE, ROOF DRAIN INSPECTION CHAMBER, ROOF DRAIN BOX, FILTER FABRIC, GEONET DRAINAGE LAYER, MOISTURE RETENTION MAT, HARD-SCAPE/ROOF BALLAST, PAVER OVERBURDEN, PAVER PEDESTALS, GROWING MEDIA, SOIL EDGE RESTRAINTS, SEDUM MATS, SEDUM TILES, MODULAR TRAYS)

NOTE: This guide specification is provided as a guideline and must be modified, as required, by the Designer of Record for each project. This specification is prepared in general accordance with CSI format to be included under Division 7 – Thermal and Moisture Protection. Additional information is provided. [delete this paragraph]

Optional information to consider is presented in “blue” font below. Choose appropriate options and delete any information deemed appropriate for each individual project. [delete this paragraph]

# GENERAL

## SUMMARY

### Complete all work as required to obtain the specified manufacturer’s warranty.

### Cleaning and preparing substrates to receive overburden accessories.

### Work shall include, but is not limited to, providing all materials and labor to complete the following:

#### HORIZONATAL WATERPROOFING ACCESSORIES:

##### Work shall include all labor and materials for following:

###### ROOT BARRIER:

SOPREMA SOPRANATURE ROOT BARRIER 20, 30

###### DRAINAGE MAT (dimpled core, with filter fabric):

SOPREMA SOPRADRAIN 100, 102, 104

###### DRAINAGE MAT (intertwined monofilament core, with filter fabric):

SOPREMA SOPRADRAIN ECOVENT, ECOVENT 2

###### DRAINAGE PLATE (flexible drainage sheets)

SOPREMA SOPRANATURE DRAIN PLATE 25, 40, 60

###### HEAVY DUTY DRAINAGE MODULE (semi-rigid interlocking stacking drainage modules)

SOPREMA SOPRANATURE SOPRADRAIN XD

###### ROOF DRAIN INSPECTION CHAMBER (prefabricated)

SOPREMA SOPRANATURE INSPECTION CHAMBER

###### ROOF DRAIN BOX (prefabricated)

SOPREMA SOPRANATURE DRAIN BOX

###### FILTER FABRIC:

SOPREMA SOPRANATURE FILTER FABRIC

###### GEONET DRAINAGE LAYER

SOPREMA SOPRANATURE GEONET

###### MOISTURE RETENTION MAT:

SOPREMA SOPRANATURE MOISTURE RETENTION MAT

###### HARD-SCAPE/ROOF BALLAST (By Others)

###### PRECAST ARCHITECTURAL PAVERS

Supplied by SOPREMA

###### PAVER PEDESTALS (adjustable)

SOPREMA SOPRANATURE VERSIJACK

###### GROWING MEDIA (engineered soil)

SOPREMA SOPRANATURE GROWING MEDIA

###### SOIL EDGE RESTRAINTS

SOPREMA SOPRANATURE EDGE RESTRAINT

###### PLANTING MATERIALS

SOPREMA SOPRANATURE SEDUM MATS

SOPREMA SOPRANATURE SEDUM TILES

SOPREMA SOPRANATURE TOUNDRA BOX MODULAR TRAYS

VEGETATION (By Others)

#### VERTICAL WATERPROOFING ACCESSORIES:

##### Work shall include all labor and materials for following:

###### DRAINAGE MAT (dimpled core, with filter fabric):

SOPREMA SOPRADRAIN 100, 102, 104

###### DRAINAGE MAT (intertwined monofilament core, with filter fabric):

SOPREMA Inc. SOPRADRAIN ECOVENT, ECOVENT 2

## RELATED SECTIONS:

### 010000 - General Requirements

### 011000 - Summary of Work

## REFERENCES

### ASTM INTERNATIONAL STANDARDS.

#### ASTM D1000, Standard Test Methods for Pressure-Sensitive Adhesive-Coated Tapes Used for Electrical and Electronic Applications

#### ASTM D1004, Standard Test Method for Tear Resistance (Graves Tear) of Plastic Film and Sheeting

#### ASTM D1203, Standard Test Methods for Volatile Loss from Plastics Using Activated Carbon Methods.

#### ASTM D1204, Standard Test Method for Linear Dimensional Changes of Nonrigid Thermoplastic Sheeting or Film at Elevated Temperature.

#### ASTM D1621, Standard Test Method for Compressive Properties of Rigid Cellular Plastics.

#### ASTM D4716, Standard Test Method for Determining the (In-plane) Flow Rate per Unit Width and Hydraulic Transmissivity of a Geosynthetic Using a Constant Head.

#### ASTM D4491, Standard Test Methods for Water Permeability of Geotextiles by Permittivity.

#### ASTM D4533, Standard Test Method for Trapezoid Tearing Strength of Geotextiles

#### ASTM D4632, Standard Test Method for Grab Breaking Load and Elongation of Geotextiles.

#### ASTM D4716, Standard Test Method for Determining the (In-plane) Flow Rate per Unit Width and Hydraulic Transmissivity of a Geosynthetic Using a Constant Head

#### ASTM D4833, Standard Test Method for Index Puncture Resistance of Geomembranes and Related Products.

#### ASTM D5261, Standard Test Method for Measuring Mass per Unit Area of Geotextiles

#### ASTM D6241, Standard Test Method for Static Puncture Strength of Geotextiles and Geotextile-Related Products Using a 50-mm Probe

#### ASTM E2398, Standard Test Method for Water Capture and Media Retention of Geo-composite Drain Layers for Vegetative (Green) Roof Systems

## SUBMITTALS

### Product Data Sheets:

#### Submit manufacturer’s product data sheets, installation instructions and/or general requirements for each component.

## QUALITY ASSURANCE

### MANUFACTURER QUALIFICATIONS:

#### Manufacture shall have 10 years of history manufacturing waterproofing materials in the US.

#### Manufacturer shall have trained technical service representatives employed by the manufacturer, independent of sales.

### CONTRACTOR QUALIFICATIONS:

#### Contractor shall be authorized by the manufacturer to install specified materials prior to the bidding period through satisfactory project completion.

#### Applicators shall have completed projects of similar scope using similar waterproofing materials as specified herein.

#### Contractor shall provide full time, on-site superintendent or foreman experienced with the application of below-grade waterproofing.

#### Applicators shall be skilled in the application methods of specified materials.

#### Contractor shall maintain a daily record, on-site, documenting material installation and related project conditions.

#### Contractor shall maintain a copy of all submittal documents, on-site, available always for reference.

## DELIVERY, STORAGE AND HANDLING

### Refer to each product data sheet or other published literature for specific requirements.

### Refer to product Safety Data Sheets (SDS) for storage and handling related hazards and take all necessary measures and precautions to comply with storage and handling requirements.

### Deliver materials and store them in their unopened, original packaging, bearing the manufacturer's name, related standards, and any other specification or reference accepted as standard.

### Protect materials to prevent damages due to environmental exposures.

### Store and dispose of materials in accordance with building owner requirements, site conditions, and the requirements of local jurisdictions.

### Properly dispose of all waste, and debris.

### All damaged materials shall be removed from job site and replaced with new, suitable materials.

## SITE CONDITIONS

### SAFETY:

#### The contractor shall be responsible for complying with all project-related health, safety, and environmental requirements.

#### The contractor shall refer to product Safety Data Sheets (SDS) for health, safety, and environment related hazards, and take all necessary measures and precautions to comply with exposure requirements.

### ENVIRONMENTAL CONDITIONS:

#### Ensure conditions are satisfactory to begin work and ensure conditions remain satisfactory during the installation of specified materials. Materials and methods shall be adjusted as necessary to accommodate varying project conditions. Materials shall not be installed when conditions are unacceptable to achieve the specified results.

#### During preparation, cleaning, and application of specified materials, follow all health, safety and environmental requirements related to applicable materials involved with the work and related exposures. Properly handle and dispose of all cleaning materials, waste and debris associated with the specified work.

## WARRANTY

### Manufacturer's Warranty:

#### The specified accessories shall be included in the manufacturer’s waterproofing warranty.

# PRODUCTS

## MANUFACTURER

### SINGLE SOURCE MANUFACTURER: All waterproofing materials shall be manufactured by a single supplier.

#### Comply with the manufacturer’s requirements as necessary to provide the specified warranty.

### ACCEPTABLE MANUFACTURER:

#### SOPREMA, located at: 310 Quadral Drive, Wadsworth, OH 44281; Tel: 800-356-3521; Tel: 330-334-0066; Website: www.soprema.us.

#### Acceptable alternate manufacturers: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

## WATERPROOFING ACCESSORIES

### ROOT BARRIER

#### Puncture, tear, and UV-resistant, low-density polyethylene sheet, taped at all seams, to provide a barrier against root penetration.

##### SOPRANATURE ROOT BARRIER: 20

###### Thickness: 20 mil (0.51 mm)

Dimensions: 75 ft (22.9 m) x 10.0 ft (3.0 m)

Tensile strength at break 1 in (25mm) per ASTM D6693: 84 lbf

Elongation at break, percentage, per ASTM D6693: 800%

Tear Resistance, per ASTM D1004: 11 lbf

Puncture Resistance, per ASTM D4833: 30 lbf

##### SOPRANATURE ROOT BARRIER: 30

###### Thickness: 30 mil (0.76 mm)

Dimensions: 75 ft (22.9 m) x 10.0 ft (3.0 m)

Tensile strength at break 1 in (25mm) per ASTM D6693: 126 lbf.

Elongation at break, percentage, per ASTM D6693: 800%

Tear Resistance, per ASTM D1004: 17 lbf

Hydrostatic pressure resistance, per ASTM D751: 170 psi

Puncture Resistance, per ASTM D4833: 45 lbf

##### SOPRANATURE SEAM TAPE:

###### High performance, low-residue, one-sided adhesive seam cover-tape, with low water vapor permeance.

Material: Polyethylene

Tensile Strength: 24.0 lbf/in (4.2 kN/m), per ASTM D1000.

Water Vapor Permeance, (perms): < 0.001 perm, per ASTM E96.

Roll dimensions: 4 in (96 mm) x 180 ft (54.8 m).

Thickness: 7.5 mils (0.19 mm)

Adhesive thickness: 3.0 mils (0.076 mm)

Operating Temperature Range 32°F to 160°F (0°C to 70°C)

Elongation percentage: 70%, per ASTM D1000

### DRAINAGE MAT (dimpled core):

#### Light-duty drainage mat for planters, vegetated roofs, bridge abutments, basement foundations and retaining walls. An impermeable polymeric sheet forming a high flow dimpled drainage layer that is fused to a non-woven filter fabric with a 4 in selvage lap edge. Provides hydrostatic relief by retaining soil, concrete and mortar particles and allowing filtered water to pass into the drainage core to the drainage collection system.

##### SOPREMA SOPRADRAIN 100

###### Core: Polypropylene dimpled sheet

###### Dimensions: 50 ft (15.24 m) x 4.0 ft (1.22 m)

###### Area per roll: 200ft2 (18.6 m2)

###### Thickness: 0.40 in (10.2 mm)

###### Weight per roll: 38.0 lbs. (17.0 kg)

###### Flow Rate: 140 gal/min/ft2 (5,704 l/min/m2), per ASTM D4491

###### Tensile Strength: 100 lbs. (0.445 kN), per ASTM D4632

###### Compressive Strength: 11,000 lb/ft2 (527.0 kN/m2), per ASTM D1621

###### Flow (Hydraulic gradient=1), 18 gal/min/ft2 (223 l/min/ft2), per ASTM D4716.

#### Moderate-duty drainage mat for planters, vegetated roofs, under slabs, foundations and retaining walls. An impermeable polymeric sheet forming a high flow dimpled drainage layer that is fused to a non-woven filter fabric with a 4 in selvage lap edge. Provides hydrostatic relief by retaining soil, concrete and mortar particles and allowing filtered water to pass into the drainage core to the drainage collection system.

##### SOPREMA SOPRADRAIN 102

###### Core: Polypropylene dimpled sheet

###### Dimensions: 50 ft (15.24 m) x 4.0 ft (1.22 m)

###### Area per roll: 200 ft2 (18.6 m2)

###### Thickness: 0.40 in (10.2 mm)

###### Weight per roll: 39.0 lb (17.7 kg)

###### Flow Rate: 140 gal/min/ft2 (5,704 l/min/m2), per ASTM D4491

###### Tensile Strength: 100 lb (0.445 kN), per ASTM D4632

###### Compressive Strength: 15,000 lb/ft2 (718.0 kN/m2), per ASTM D1621

###### Flow (Hydraulic gradient=1), 21 gal/min/ft2 (260 l/min/ft2), per ASTM D4716.

#### Heavy-duty drainage mat for planters, vegetated roofs, under slabs and plaza decks. An impermeable polymeric sheet forming a high flow dimpled drainage layer that is fused to a non-woven filter fabric with a 4 in selvage lap edge. Provides hydrostatic relief by retaining soil, concrete and mortar particles and allowing filtered water to pass into the drainage core to the drainage collection system.

##### SOPREMA SOPRADRAIN 104

###### Core: Polypropylene dimpled sheet

###### Dimensions: 50 ft (15.24 m) x 4.0 ft (1.22 m)

###### Area per roll: 200 ft2 (18.6 m2)

###### Thickness: 0.40 in (10.2 mm)

###### Weight per roll: 50.0 lb (22.0 kg)

###### Flow Rate: 60 gal/min/ft2 (2,460 l/min/m2), per ASTM D4491

###### Tensile Strength: 370 lbs. (1.6447 kN), per ASTM D4632

###### Compressive Strength: 21,000 lb/ft2 (1,005 kN/m2), per ASTM D1621

###### Flow (Hydraulic gradient=1), 23 gal/min/ft2 (286 l/min/ft2), per ASTM D4716.

### DRAINAGE MAT (intertwined monofilament core):

#### Drainage mat with geometric patterned, intertwined monofilament core, with a geotextile filter fabric top layer. For vegetative roofs, foundation walls, retaining walls, planters, and plaza decks.

##### SOPREMA SOPRADRAIN ECOVENT

###### Core: Polypropylene monofilament

###### Dimensions: 4.0 ft (1.22 m) x 100 ft (30.5 m)

###### Area per roll: 399.6 ft2 (37.1 m2)

###### Thickness: 0.50 in (12.7 mm)

###### Weight per roll: 57.0 lb (25.8 kg)

###### Compressive Strength: >30,000 psf (1,436 kPa)

###### Flow Rate: 120 gal/min/ft2 (4,887 l/sec/m2)

Refer to manufacturer’s product data sheet for flow rate per unit width (gal/min/ft) vs pressure (psf) at gradient, per ASTM D4716.

#### Drainage mat with geometric patterned, intertwined monofilament core, with a geotextile filter fabric top layer, and a heat-laminated fabric on the underside to protect the waterproofing. For vegetative roofs, foundation walls, retaining walls, planters, and plaza decks.

##### SOPREMA SOPRADRAIN ECOVENT 2

###### Core: Polypropylene monofilament

###### Dimensions: 4.0 ft (1.22 m) x 100 ft (30.5 m)

###### Area per roll: 399.6 ft2 (37.1 m2)

###### Thickness: 0.50 in (12.7 mm)

###### Weight per roll: 64.2 lb (29.1 kg)

###### Compressive Strength: >30,000 psf (1,436 kPa)

###### Flow Rate: 120 gal/min/ft2 (4,887 l/min/m2)

Refer to manufacturer’s product data sheet for flow rate per unit width (gal/min/ft) vs pressure (psf) at gradient, per ASTM D4716.

### DRAINAGE PLATE (flexible drainage sheets):

#### Drainage plate with three-dimensional semi-rigid plastic structure for green roofs made of high-density polyethylene designed to withstand heavy pedestrian traffic for green roofs, planters, and plaza decks.

##### SOPRANATURE DRAIN PLATE 25

###### Core: Black 100% post-consumer high-density polyethylene

###### Width: 39 in (1m)

###### Length: 79 in (2 m)

###### Thickness: 1.0 in (25 mm)

###### Weight per plate: 7.0 lb (3.2 kg)

###### Compressive Strength: 5,240 lb/ft2 (251 kPa)

###### Water retention: 0.12 gal/ft2 (5 l/m2)

###### Aggregate fill Volume: 0.025 ft3/ft2 (7.5 l/m2)

###### Flow Rate:

Refer to manufacturer’s product data sheet for flow rate per unit width (gal/min/ft) vs pressure (lb/ft2) at gradient, per ASTM D4716.

##### SOPRANATURE DRAIN PLATE 40

###### Core: Black 100% post-consumer high-density polyethylene

###### Width: 39 in (1m)

###### Length: 79 in (2 m)

###### Thickness: 1.5 in (38 mm)

###### Weight per plate: 11.0 lb (4.6 kg)

###### Compressive Strength: 3,000 lb/ft2 (144 kPa)

###### Water retention: 0.22 gal/ft2 (9 l/m2)

###### Aggregate fill Volume: 0.06 ft3/ft2 (17 l/m2)

###### Flow Rate:

Refer to manufacturer’s product data sheet for flow rate per unit width (gal/min/ft) vs pressure (lb/ft2) at gradient, per ASTM D4716.

##### SOPRANATURE DRAIN PLATE 60

###### Core: Black 100% post-consumer recycled high-density polyethylene

###### Width: 40 in (1m)

###### Length: 80 in (2 m)

###### Thickness: 2.5 in (63.5 mm)

###### Weight per plate: 16.1 lb (7.3 kg)

###### Compressive Strength: 14,500 lb/ft2 (695 kPa)

###### Water retention: 0.57 gal/ft2 (23 l/m2)

###### Aggregate fill Volume: 0.15 ft3/ft2 (45 l/m2)

###### Flow Rate:

Refer to manufacturer’s product data sheet for flow rate per unit width (gal/min/ft) vs pressure (lb/ft2) at gradient, per ASTM D4716.

### HEAVY DUTY DRAINAGE MODULE (semi-rigid interlocking stacking drainage modules):

#### Three-dimensional semi-rigid plastic drainage module with integral male/female connectors that may be stacked vertically to increase structure height for green roofs made of high-density polyethylene designed to withstand heavy pedestrian traffic for blue roofs, green roofs, planters and plaza decks.

##### SOPRANATURE SOPRADRAIN XD

###### Core: Black 100% post-consumer high-density polyethylene

###### Width: 23.62 in (0.6m)

###### Length: 19.68 in (0.5 m)

###### Thickness: 1.97 in (50 mm)

###### Weight per plate: 1.25 lb (0.57 kg)

###### Compressive Strength: 46,082 lb/ft2 (2206 kPa)

###### Flow Rate:

Refer to manufacturer’s product data sheet for flow rate per unit width (gal/min/ft) vs pressure (lb/ft2) at gradient, per ASTM D4716.

### ROOF DRAIN INSPECTION CHAMBER (prefabricated):

#### Inspection chamber to fit over roof drains to protect drains from debris and particles that impact normal drain operation.

##### SOPRANATURE INSPECTION CHAMBER

###### Material: aluminum

###### Colors: mill finish, black

###### Sizes: 12 x 12 in (300x300mm), 24 x 24 in (600x600mm), custom order

###### Height: 3 in (75mm), 3.5 in (88mm), 4 in (100mm), 4.25 in (106mm), 4.5 in (113mm), 5.5 in (138mm), 6.5 in (163mm), 7.5 in (188mm), 8.5 in (213 mm) standard or as required custom order or with inspection chamber extensions

###### Thickness: 0.21 in (0.53 mm)

###### Flow rate: 15 gal/min/ft (56.78 l/min/m)

### ROOF DRAIN BOX (prefabricated):

#### Drain box to fit over roof drains to protect drains from debris and particles that impact normal drain operation.

##### SOPRANATURE DRAIN BOX

###### Material: recycled acrylonitrile-butadiene-styrene (ABS) plastic

###### Color: black

###### Sizes: 14.5 (37mm) x 14.5 in (37 mm)

###### Height: standard 4 in (100mm) up to 32 in (800 mm) with extension kits

### FILTER FABRIC

#### A non-recycled, non-woven polypropylene staple fiber, needle-punched, geotextile fabric. For separating overburden and associated debris from the drainage system. Resistant to rot, biological degradation, UV, and soil exposure.

##### SOPRANATURE FILTER FABRIC

###### Core: Polypropylene staple fiber

###### Length: 360 ft (109.8 m)

###### Width: 6.25 ft (1.9 m) or 12.5 ft (3.8 m).

###### Roll weight 73 lb (33.1 kg) or 146 lbs. (66 kg)

###### Flow Rate: 140 gal/min/ft2 (5,689 l/min/m2), per ASTM D4491

###### Material weight: 4.0 oz/yd2 (136 g/m2)

###### Grab tensile strength: 100 lbs. (0.445 kN), per ASTM D4632

###### Grab elongation: 50%

### GEONET DRAINAGE LAYER

#### A high-density polyethylene geonet drainage layer fused to a non-woven filter fabric designed to retain soil particles and concrete allowing filtered water to flow to the drainage core used as a drainage layer in planters, vegetated roof systems, and under slabs.

##### SOPRANATURE GEONET

###### Core: High density polypropylene

###### Length: 75 ft (22.8 m)

###### Width: 4 ft (1.2 m)

###### Roll weight 70 lb (33.8 kg)

###### Fabric Flow Rate: 140 gal/min/ft2 (5,704 l/min/m2), per ASTM D4491

###### Tensile strength: 100 lbs. (0.445 kN), per ASTM D4632

###### Compressive strength: 40,000 lb/ft2 (1915 kN2)

### MOISTURE RETENTION MAT

#### Puncture resistant, needle punched polyester geotextile fabric. For retaining and storing moisture for the vegetative roof growth medium.

##### SOPRANATURE MOISTURE RETENTION MAT

###### 16 oz mat

Thickness: 0.125 in. (3.5 mm)

Width: 6 ft (1.8 m) x 66.7 ft (20.4 m)

Area per roll: 400 ft2 (37 m2)

Weight per roll: 45 lb (20 kg)

Dry weight: 16.0 oz/yd2 (540 g/m2), per ASTM D5261

Water retention: 0.08 gal/ft2 (3.0 l/m2), per ASTM E2398

Saturated density: 0.70 lb/ft2 (3.5 kg/m2), per ASTM E2398

Capillary Rise (typical after 24 hrs): 2.5 in (65 mm), per Conductivity Probe.

Static puncture: 590 lb (2,600 N), per ASTM D6241.

Pin puncture: 160 lb (700 N), per ASTM D4833.

Elongation: 50%, per ASTM D4632

Grab Tensile: 170 lb (750 N), per ASTM D4632.

Trapezoidal Tear: 70 lb (300 N), per ASTM D4533.

###### 28 oz mat

Thickness: 0.1875 in. (5 mm)

Width: 6 ft (1.8 m) x 50 ft (15.3 m)

Area per roll: 300 ft2 (28 m2)

Weight per roll: 60 lb (27 kg)

Dry weight: 28.0 oz/yd2 (950 g/m2), per ASTM D5261

Water retention: 0.10 gal/ft2 (4.2 l/m2), per ASTM E2398

Saturated density: 1.1 lb/ft2 (5.2 kg/m2), per ASTM E2398

Capillary Rise (typical after 24 hrs): 6.5 in (165 mm), per Conductivity Probe.

Static puncture: 1,120 lb (5,000 N), per ASTM D6241.

Pin puncture: 280 lb (1,250 N), per ASTM D4833.

Elongation: 50%, per ASTM D4632

Grab Tensile: 560 lb (2,500 N), per ASTM D4632.

Trapezoidal Tear: 200 lb (900 N), per ASTM D4533.

### HARD-SCAPE/ROOF BALLAST (If Required)

#### Provide screened, washed stone gravel meeting ASTM D-448, gradation #57; or ballast pavers with a compressive strength greater than 6,500 psi per ASTM C140, flexural strength greater than 600 psi per ASTM C293, water absorption not greater than 5% per ASTM C140, freeze/thaw loss less than 1% dry weight (50 cycles) per ASTM C67, and a centered load capability of 1,750 lb minimum.

### PAVER OVERBURDEN

#### ARCHITECTURAL PAVERS

##### Approved WAUSAU TILE, WESTILE, SUNNY BROOK PRESSED CONCRETE or as approved equal architectural precast concrete pavers with beveled edges:

###### Nominal size: 24 in (610mm) x 24 in (610mm) x 2 in (50mm) thick

###### Compressive strength: 8,500 psi per ASTM C-140; 1750 pounds minimum center load required

###### Flexural strength: 1100 psi per ASTM C-293

###### Water absorption: ≤ 5% per ASTM C-140

###### Freeze-thaw: no breakage and not more than 1% loss in dry weight after 50 cycles in accordance with ASTM C-67

###### Adjustable height and fixed height pedestals supplied thru membrane manufacturer

###### Color and finish: Contact manufacturer

### PAVER PEDESTALS

#### ADJUSTABLE PEDESTALS AND SHIMS

##### PEDESTALS

###### SOPREMA SOPRANATURE VERSIJACK

Height and slope adjustable pedestal for paver and decking support engineered to support pavers and decking. Height range is 1.5 in (38mm) to 40 in (1016mm) using three main components (Top, Extender, and Base). Accessories include top and bottom slope-correctors, spacer tabs, height extenders and joist holders.

### GROWING MEDIA (Engineered Soil)

#### SOPREMA SOPRANATURE GROWING MEDIA

##### Certified green roof growing medium expressly engineered for extensive, semi-intensive or intensive green roof applications in depths as required or specified in which sedum, alpine and other drought-tolerant plants are to be used and in which little or no supplemental irrigation is to be provided; manufactured in strict accordance with FLL guidelines for the proper balance of water, drainage, pore (air) space, nutrient and hydrological properties for optimal plant establishment and growth.

### GREEN ROOF LANDSCAPE EDGE RESTRAINT

#### SOPREMA SOPRANATURE EDGE RESTRAINT

##### 24-gauge aluminum slotted L-shaped edge restraint designed to allow for drainage while retaining planting media, modular trays, stones, pavers, and tiles in a vegetated roofing system.

###### Material: Extruded recycled Aluminum, Type 6063

###### Thickness: 0.075 in (1.9mm) minimum

###### Color: Mill Finish standard or Black available on request

###### Length: 8 ft (2.44 m)

###### Height: Various heights from 3.5 in (89mm) to 8.5 in (216mm)

###### Base Width: Return leg varies by height

###### Drainage: 8 slots/linear foot, 5/16 in (8mm) W x 1-1/4 in (32mm) H located at base of vertical leg

###### Installed shape: Can be installed straight, or field-modified into curvilinear shapes.

###### Attachment: Clips and bolts, included

###### Factory inside and outside corners are available for a complete assembly.

### PLANTING MATERIALS

#### SOPREMA SOPRANATURE SEDUM MATS

##### Mats composed of a variation of sedum mixtures that are suitable for various conditions grown with a blend of organic and inorganic materials designed for minimal decomposition and maximum plant growth.

###### Core Material: Biodegradable coconut fiber

###### Length: 6.25 ft (1.9 m)

###### Width: 4 ft (1.2 m)

###### Thickness: 0.75 in (19 mm)

###### Saturated weight 5 lb/in/ft2 (24.7 kg/25 mm/m2)

#### SOPREMA SOPRANATURE SEDUM TILES

##### Sedum tiles are composed of a variety of foliage options that are designed to offer immediate coverage in any environment for vegetative roof systems that require minimal maintenance after installation.

###### Core Material: Biodegradable coconut fiber

###### Length: 12 in (305 mm)

###### Width: 24 in (610 mm)

###### Fiber/soil Base Thickness: 1.0 in (25 mm)

###### Saturated weight 5.48 lb/in/ft2 (59 kg/25 mm/m2)

###### Vegetation coverage: 95%

#### SOPREMA SOPRANATURE TOUNDRA BOX (MODULAR TRAY)

##### Pre-vegetated green roof system shipped and delivered to roof in modules fitted with temporary side walls and installed within a perimeter of aluminum edge restraints. Each module includes:

###### A low-profile tray with integral drainage channels, made of 100% recycled polypropylene, and lined on bottom with filter fabric.

###### Recyclable removable side walls which retain growing media and plants during shipping and allow trays to be stacked on pallets without crushing the plants or compacting the soil. Side walls are removed after final tray placement to create a single, continuous planting bed.

###### Growing medium in which a mix of sedum species is cultivated. The mix of sedums can be adapted according to the hardiness zone and climatic conditions.

Tray dimensions: 11.8 in (300mm) x 23.6 in (600mm)

Tray material: 100 % recycled polypropylene

Total height upon delivery: 7.7 in (196mm)

Total Height after removing side boards: 3.9 in (99mm)

Vegetative coverage upon installation: > 90%

Saturated weight: < 25.5 lb/ft2 per ASTM E2399

Water retention capacity: 1.1 Gal/ft2 per ASTM E2397

###### Wind Uplift Resistance when installed with SOPRANATURE Edge Restraint: 124 mph (83 mph w/Safety Factor of 1.5) per CSA A123.24

#### VEGETATION (By Others)

##### Provide plants selected by the landscape architect or landscaping professional as required for the intended landscape plan and growing region.

# EXECUTION

## EXAMINATION

### GENERAL

#### Before proceeding with specified work, ensure waterproofing has been examined by the waterproofing contractor. Waterproofing examination includes, but not limited to, visual observations, qualitative analysis, and or quantitative testing specified and necessary to ensure waterproofing conditions are satisfactory to begin the specified work.

#### During the application of specified materials, the contractor shall continue to examine all project conditions to ensure conditions remain satisfactory to complete the specified work.

#### All damages to waterproofing shall be identified by the contractor.

#### Waterproofing damages and related deficiencies shall be communicated to the waterproofing contractor, general contractor, designer of record, manufacturer and/or owner.

#### Damaged and incomplete repairs to waterproofing shall not be concealed by the specified materials.

#### Work shall not proceed until all waterproofing damages are repaired and approved by the waterproofing contractor.

#### Proceeding with specified work shall be acknowledgement of acceptable substrate conditions.

## PREPARATION

### GENERAL:

#### Before commencing work, the contractor shall prepare all work areas to ensure conditions are satisfactory to proceed with the installation of specified materials.

#### Ensure all foreign materials and debris are removed, and the conditions are clean and satisfactory to proceed with the specified work.

## ROOT BARRIER

### SOPRANATURE ROOT BARRIER

#### Refer to drawings to determine location and placement of the specified root barrier.

##### Ensure waterproofing is fully cured for 24 hours or more before applying root barrier and subsequent materials.

##### Where specified, ensure protection course is in place prior to installing the root barrier.

##### Thoroughly inspect waterproofing and protection course, and make all necessary repairs, prior to installing the root barrier.

##### Unroll root barrier onto substrate, overlap all seams 12 to 24 inches at all laps.

##### Ensure root barrier is applied over, and beyond all surfaces exposed to potential root sources.

##### Tape all overlapping seams using specified seam tape, or hot-air weld seams.

##### Ensure there are no open laps nor exposed waterproofing surfaces prior to installing subsequent materials.

## DRAINAGE MAT (Dimple-Type)

### SOPRADRAIN 100, 102, 104

#### Refer to drawings to determine location and placement of the specified drainage mat layers.

##### Ensure waterproofing is fully cured for 24 hours or more before applying drainage mat.

##### Where specified, ensure protection course, root barrier and/or insulation layers are in place prior to installing the drainage mat layer(s).

##### Thoroughly inspect all materials and substrates prior to installing drainage mat(s).

##### Unroll drainage mat onto substrate, cut drainage mat evenly to conform to transitions, terminations, and penetrations.

##### Overlapping side and end laps.

###### Butt the drainage mats to create side and end-lap seams.

###### Fold-back top filter fabric layer and tuck the adjacent drainage mat under the lap to create side and end-laps with the filter fabric layer.

###### Strip-in drainage mat joints with specified filter fabric as necessary to fully conceal joints and all exposed drainage mat core.

###### Apply tape over the top surface of the drainage map/filter fabric laps, or apply adhesive sealant, as necessary to hold drainage mats in place during construction.

##### Interlocking side and end-laps:

###### Overlap the drainage mat to create side and end-lap seams.

###### Fold-back top filter fabric layer to expose side and end-laps. Expose 2 or more rows of dimples.

###### Snap the rows of overlapping dimples in place, fold filter fabric over the lap.

###### Strip-in drainage mat joints with specified filter fabric as necessary to fully conceal joints and all exposed drainage mat core.

###### Apply tape over the top surface of the laps, or apply adhesive sealant, as needed to keep drainage mats in place during construction.

##### At terminations, transitions, and penetrations, cut sufficient strips of the specified filter fabric to cover the end joint of the drainage mat as required to conform to conditions.

##### Ensure there are no open laps nor exposed substrate surfaces prior to installing subsequent materials over the drainage mat.

## DRAINAGE PLATE (semi-rigid panels)

### SOPRANATURE DRAIN PLATE 25, 40, 60

#### Refer to drawings to determine location and placement of the specified drainage mat layers.

##### Ensure waterproofing is fully cured for 24 hours or more before applying drainage mat.

##### Where specified, ensure protection course, root barrier and/or insulation layers are in place prior to installing the drainage mat layer(s).

##### Thoroughly inspect all materials and substrates prior to installing drainage plates.

##### Lay the plates over the SOPRANATURE Moisture Retention Mat overlapped 6” and overlap the adjacent plates by two corrugations.

##### Stagger the joints in adjacent rows by one-half sheet so that there are no more than three layers at any point. Cut single plates, using a board to protect underlying materials from damage.

##### Fill the plates immediately with water to prevent uplift in windy conditions or expansion in sunny conditions.

##### At terminations, transitions, and penetrations, cut sufficient strips of the specified filter fabric to cover the end joint of the drainage plates as required to conform to conditions. Before applying green roof media, lay filter fabric over plates, overlapping 6 in (150 mm) minimum.

##### Ensure there are no open laps nor exposed substrate surfaces prior to installing media or subsequent materials over the drainage plates.

## DRAINAGE MAT (Entangled filament-type)

### SOPRADRAIN ECOVENT, SOPRADRAIN ECOVENT 2

#### Refer to drawings to determine location and placement of the specified drainage mat layers.

##### Ensure waterproofing is fully cured for 24 hours or more before applying drainage mat.

##### Where specified, ensure protection course, root barrier and/or insulation layers are in place prior to installing the drainage mat layer(s).

##### Thoroughly inspect all materials and substrates prior to installing drainage mat(s).

##### Unroll drainage mat onto substrate, cut drainage mat evenly to conform to transitions, terminations, and penetrations.

##### Overlapping drain side and end laps.

###### Butt the drainage mats to create side and end-lap seams.

###### Fold-back top filter fabric layer and tuck the adjacent drainage mat under the lap to create side and end-laps using the fabric layer.

###### Strip-in drainage mat joints with specified filter fabric as necessary to fully conceal joints and all exposed drainage mat core.

###### Apply tape over the top surface of the laps, or apply adhesive sealant, as needed to keep drainage mats in place during construction.

##### At terminations, transitions, and penetrations, cut sufficient strips of the specified filter fabric to cover the end joint of the drainage mat as required to conform to conditions.

##### Ensure there are no open laps nor exposed substrate surfaces prior to installing subsequent materials over the drainage mat.

## DRAINAGE MODULE (semi-rigid modules)

### SOPRADRAIN XD

#### Refer to drawings to determine location and placement of the specified drainage module layer(s).

##### Ensure waterproofing is fully cured for 24 hours or more before applying drainage mat.

##### Where specified, ensure protection course, root barrier and/or insulation layers are in place prior to installing drainage module layer(s).

##### Thoroughly inspect all materials and substrates prior to installing drainage modules.

##### Place drainage modules onto substrate, cut drainage modules as required to conform to transitions, terminations, and penetrations.

##### Interlock male/female connectors module to module.

##### At terminations, transitions, and penetrations, cut sufficient strips of the specified filter fabric to cover the end joint of the drainage modules as required to conform to conditions.

##### Ensure there are no open or exposed substrate surfaces prior to installing subsequent materials over the drainage modules.

## FILTER FABRIC

### SOPRANATURE FILTER FABRIC

#### Refer to drawings to determine location and placement of the specified filter fabric layer.

##### Ensure waterproofing is fully cured for 24 hours or more before applying filter fabric and subsequent materials.

##### Thoroughly inspect all substrates and make all necessary repairs and modifications, prior to installing the filter fabric.

##### Unroll filter fabric onto substrate, cut to conform to conditions.

##### Overlap all side and end-lap seams 6 in or more.

##### Where exposed gaps or insufficient overlaps exist, strip-in joints using filter fabric.

##### Use tape or adhesive sealant as necessary to hold filter fabric laps in place during construction.

##### Ensure there are no open laps nor exposed substrate surfaces where filter fabric is specified and required.

## MOISTURE RETENTION MAT

### SOPRANATURE MOISTURE RETENTION MAT

#### Refer to drawings to determine location and placement of the specified moisture retention mat.

##### Ensure waterproofing is fully cured for 24 hours or more before applying moisture retention mat and subsequent materials.

##### Thoroughly inspect all substrates and make all necessary repairs and modifications, prior to installing the moisture retention mat.

##### Unroll moisture retention mat onto substrate, cut to conform to conditions.

##### Overlap all side and end-lap seams 6 in or more.

##### Where exposed gaps or insufficient overlaps exist, strip-in joints using moisture retention mat.

##### Use tape or adhesive sealant as necessary to hold filter fabric laps in place during construction.

##### Ensure there are no open laps nor exposed substrate surfaces where moisture retention mat is specified.

## DRAINAGE PLATES

### SOPRANATURE DRAINAGE PLATES

#### Refer to drawings to determine location and placement of the specified drainage mat layers.

#### Ensure waterproofing is fully cured for 24 hours or more before applying drainage mat.

#### Where specified, ensure protection course, root barrier and/or insulation layers are in place prior to installing the drainage mat layer(s).

#### Thoroughly inspect all materials and substrates prior to installing drainage plates.

#### Lay the plates over the SOPRANATURE Moisture Retention Mat overlapped 6” and overlap the adjacent plates by two corrugations.

#### Stagger the joints in adjacent rows by one-half sheet so that there are no more than three layers at any point. Cut single plates, using a board to protect underlying materials from damage.

#### Fill the plates immediately with water to prevent uplift in windy conditions or expansion in sunny conditions.

#### At terminations, transitions, and penetrations, cut sufficient strips of the specified filter fabric to cover the end joint of the drainage plates as required to conform to conditions. Before applying green roof media, lay filter fabric over plates, overlapping 6 in (150 mm) minimum.

#### Ensure there are no open laps nor exposed substrate surfaces prior to installing media or subsequent materials over the drainage plates.

## DRAINAGE INSPECTION CHAMBERS

### SOPRANATURE DRAIN INSPECTION CHAMBER

#### Inspection Chambers are applied over drains prior to application of media or ballast to protect the drain from becoming blocked by media or ballast.

#### Always install over a drainage layer to protect the waterproofing membrane. Filter fabric should be installed along the vertical drainage slots to prevent debris, media, or ballast from entering the Inspection Chamber.

#### Fit all drains with maintenance boxes or chambers extended above soil level to allow periodic inspection and cleaning of drains.

#### After installation, immediately install planting media or ballast to keep inspection chambers from movement or displacement.

## GROWING MEDIA

### SOPRANATURE GROWING MEDIA

#### Install growing media material at depths required.

#### Use care during backfill operation to avoid damage to waterproofing membrane, protection board and drainage system.

#### Follow generally accepted practice for backfill and compaction. Backfill should be added in 4 in to 12 in (100 mm to 300 mm) lifts and should be placed as soon as possible after installation of the waterproofing membrane, drainage, insulation, and protection layers.

## SEDUM MATS, SEDUM TILES

### SOPRANATURE SEDUM MAT/SEDUM TILE

#### Place Sedum Mats or sedum Tiles directly over prepared growing media.

#### Supply and plant the specified vegetation as selected by the landscape architect or landscaping professional.

#### Water immediately after installation and consult maintenance guidelines for continued care.

## PRE-VEGETATED MODULAR TRAY

### SOPRANATURE TOUNDRA BOX

#### Place Sedum modular trays directly over drainage layer or filter fabric and root barrier as specified.

#### Supply pre-planted with specified vegetation as selected by the landscape architect or landscaping professional.

#### Water immediately after installation and consult maintenance guidelines for continued care.

## VEGETATION (By Others)

### LANDSCAPE PLANTS & VEGETATION

#### Supply and plant the specified vegetation as selected by the landscape architect or landscaping professional.

#### Water immediately after installation and consult maintenance guidelines for continued care.

## HARD-SCAPE INSTALLATION

### STONE BALLAST, PRECAST PAVERS

#### Where specified, install stone ballast or paver hard-scape material for maintenance paths, control strips and walkways. Hard-scape material should be provided at all roof perimeters, building walls, penetrations, and access hatches.

#### A protection material shall be used between the roof membrane and stone ballast, pavers, or paver pedestals.

#### Paver systems shall be installed in strict accordance with written instructions of Paver System Manufacturer. Install finish pavers, on adjustable pavers support pedestal and leveling shims as required, in accordance with Manufacturer’s recommendations and architectural layout.

## CLEANUP & PROTECTION

### Visually inspect the work each day for debris, trash, and other housekeeping issues. Take corrective actions as required to maintain satisfactory work and site conditions.

### Upon completion of new work (including all associated work), institute appropriate procedures for surveillance and protection of finished work during remainder of construction period. Protect all areas where waterproofing membrane, waterproofing accessories and vegetation have been installed.

END OF SECTION