

HOT-APPLIED RUBBERIZED ASPHALT WATERPROOFING

COLPHENE H (215 mils)

This specification serves as a guideline and must be modified, as necessary, by the Designer of Record to suit the needs of the individual project. This specification is prepared in accordance with CSI format to be included under Division 7 – Thermal and Moisture Protection. Any improvements and changes to the content of this specification can be made only with the written authorization of the Designer of Record. ~~delete this paragraph~~

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and General Requirements, apply to the work specified in this section.

1.02 RELATED SECTIONS

- A. DIVISION 2 - Sitework Section 02500/02870
- B. DIVISION 3 - Concrete Section 03300 - Deck Surface/Substrate. Coordination of this section is required to facilitate the preparation, proper sequence, and successful installation of the waterproofing membrane system.

Cast In Place Concrete/Composite Deck

1. Strength/Density: Minimum 2,500 psi (17,235 kPa) Compressive Strength
Minimum 115 pcf (1842 kg/m³) Density
2. Finish: Wood-Float or Wood-Troweled finish. Steel trowel finish is not acceptable or recommended.
3. Concrete Cure:
 - a. Water cure, wet coverings, paper sheets, plastic sheets or sodium silicate compound.
 - b. Duration of Cure:
 1. Structural Weight Concrete: minimum 14 days, recommend 28 days, prior to application of the waterproofing membrane.
 2. Lightweight Structural Concrete: minimum 28 days, recommend 60 days, prior to application of waterproofing membrane. Venting of the deck from the underside is strongly recommended to facilitate drying.
 3. Cure times may vary due to thickness of slab, ambient temperature, relative humidity, region and season.
 - c. Form Release Agents: Petroleum based products, distillates are not to be used.
Contact SOPREMA,INC.
 - d. Refer to Section 3.02 Substrate Preparation.
- C. DIVISION [] – Masonry

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- D. DIVISION [] - Wood Blocking and Curbing
- E. DIVISION [] – Insulation
- F. DIVISION [] - Sheet Metal Flashing and Trim
- G. DIVISION [] - Caulking and Sealants
- H. DIVISION [] - Plumbing Specialties

1.03 REFERENCES

- A. American Society for Testing and Materials (ASTM)
- B. Underwriters Laboratories (UL)
- C. Canadian General Standards Board CGSB- 37.50-M89, Standard for “Asphalt, Rubberized, Hot Applied for Roofing and Waterproofing
- D. International Organization for Standardization (ISO) 9001:2000 Quality Standard

1.04 SYSTEM DESCRIPTION (*Edit for project requirements*)

- A. Furnish and install a **SOPREMA** Waterproofing System or Assembly, vertically or horizontally, including substrate primer, a monolithic, fully reinforced rubberized asphalt membrane, flashings, separation layer, and all required accessories. [protection course (if required), drainage course (if required), extruded polystyrene insulation (if required), solid core protection layer (if required), pavers & paver pedestals (if required)]. All products shall be purchased from a single-source manufacturer except as approved by **SOPREMA, Inc.**

1.05 SUBMITTALS

- A. Certification from an independent testing laboratory, that the material meets the CGSB-37.50-M89 standard for rubberized asphalt membranes, including all applicable ASTM procedures.
- B. Evidence verifying full time quality control of production facilities; that each batch of material is tested and conforms with the manufacturer's published physical properties.
- C. Evidence that extruded polystyrene insulation is free from CFC's.
- D. Confirmation that all waterproofing components are being supplied and warranted by a single-source manufacturer (except as approved in writing by **SOPREMA, Inc.**).
- E. Provide three (3) copies of the most current technical data sheets. These documents must describe the physical properties of the specified materials and explanations about product installation, including installation techniques, restrictions, limitations and any other manufacturer recommendations.

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1.06 QUALITY ASSURANCE

- A. **Refer to Section 1.04 SYSTEM DESCRIPTION and Section 1.05 SUBMITTALS**
- B. The Waterproofing Contractor shall demonstrate qualifications to perform the work of this Section by submitting the following documentation:
 - 1. Certification or license by the membrane manufacturer confirming the waterproofing contractor is an authorized applicator of the product the installer intends to use.
 - 2. List of at least three (3) projects, satisfactorily completed within the past five (5) years, of similar scope and complexity.
- C. **Refer to Section 1.04 SYSTEM DESCRIPTION.** Include single-source for all components from the manufacturer.
- D. The rubberized asphalt membrane product shall contain an inert clay filler to enable the product to be resistant to acids (fertilizers, building washes and acid rain).
- E. Membrane manufacturer shall have available technical staff to assist the contractor, when necessary, in application of the products and final inspection of the assembly.
- F. Membrane Manufacturer Qualification:
 - 1. Membrane manufacturer shall show evidence that the specified rubberized asphalt has been manufactured by the same source for ten (10) years and successfully installed on a yearly basis for a minimum of ten (10) years on projects of similar scope and complexity.
 - 2. Membrane manufacturer offering the single-source warranty must have a full-time technical support staff to provide the installer with technical assistance in the installation of the products included in the warranty.
 - 3. All materials specified herein are cited as a minimum standard of quality, but shall not preclude consideration of superior materials or components.
- G. Pre-Construction Conference; The membrane manufacturer will have a representative meet with all parties, as necessary, at the jobsite for a review of project conditions and sequence of events as they relate to the integrity of the waterproofing assembly.

1.07 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in original unopened containers clearly labeled with manufacturer's name, product name, and instructions for use. Refer to Product Data Sheets.
- B. Materials shall be stored on pallets in a clean, dry area protected from the elements.
- C. Store all adhesives at temperatures between 60°F (15.5°C) and 80°F (26.6°C).
- D. The membrane and accessories shall not during its service life be exposed to a constant temperature above 180°F (82°C).
- E. Do not breathe adhesive vapors or use near an open flame. Adhesives are extremely flammable; please consult container package, Product Data Sheets and Material Safety Data Sheets for written installation instructions and safety information.

1.08 PROJECT CONDITIONS

- A. Application of membrane shall be in a well ventilated area and shall not commence nor be continued during inclement weather. All surfaces shall be free of water, frost, snow and ice and the ambient temperature shall not be below 0°F (-17.7°C).
- B. Exposure to chemical discharges, airborne contaminants, and waste products including but not limited to; grease, oil, hydraulic fluid, other petroleum distillates, solvents, fats, vegetable oil and mineral oil is prohibited.
- C. Substrate Preparation: **Refer to Section 1.02 RELATED SECTIONS and 3.02 SUBSTRATE PREPARATION.**
- D. It is the General Contractor's responsibility to assure adequate protection during installation of the waterproofing assembly and properly sequence system installation requirements.

1.09 WARRANTY

- A. Upon completion of work, the contractor shall supply the owner with a Single-Source Warranty issued by the manufacturer of the waterproofing system/assembly.
- B. SOPREMA Colphene H Warranties
 - 1. **Total System Warranties** cover all components of the waterproofing installation, including the primary waterproofing membrane, flashings, insulation, filter fabric and pavers and pedestals when they are supplied or approved by SOPREMA and installed in accordance with SOPREMA *General Requirements*. All components of the waterproofing installation that are to be covered under the terms of the warranty should be expressly itemized in the Warranty or Warranty Rider.

Total System Warranty Components :

- a. **Membrane Warranty:** The waterproofing membrane is warranted against leaks for a period of [5] [10] [15] [20] years.
- b. **Insulation Warranty:** The insulation is to retain 80% of its original thermal value for a period of [5] [10] years.
- c. **Paver Warranty:** The pavers and pedestals system will not crack, split, spall or disintegrate as a result of freeze-thaw cycling for a period of [5] [10] years.
- 2. **Material Only Warranties:**
Duration: 2-year, 5-year and 10-year available
- 3. **Labor and Material Warranties:**
Duration: 5-year, 10-year, 15-year and 20-year available
- 4. **Insulation Warranties:** The Thermal value of the insulation is warranted to retain 80% of the original thermal value.
Duration 5-year and 10-year available

CONTACT SOPREMA FOR WARRANTY TERMS AND CONDITIONS

PART 2 - PRODUCTS

2.01 GENERAL

- A. The waterproofing membrane system components and accessories shall be furnished by a single-source waterproofing membrane manufacturer to ensure total system compatibility and integrity. Please note these specifications are subject to change by the manufacturer without prior notice.

Acceptable Manufacturer: **SOPREMA INC.**
310 Quadral Dr.
Wadsworth, OH 44281
Phone: 800-356-3521
Fax: 330-334-4289
Web Site: www.soprema.us

2.02 WATERPROOFING MEMBRANE

- A. **Primary Waterproofing Membrane:** A modified, hot fluid applied rubberized asphalt composed of a specialty blend of refined asphalts, recycled crumb rubber, inert clay and other mineral stabilizers which meets CGSB 37.50- M89 and the following physical properties:

COLPHENE H (EV) by SOPREMA (provides up to 25% post consumer recycled content)

Properties	Standards	Requirements	Colphene H
Color	-	-	Black
Flash Point	CGSB 37.50- M89	500°F min (260°C) or 45°F above recommended app. temp.	500°F min (260°C) or 45°F above recommended app. temp.
Low Temp. Crack Bridging	CGSB 37.50- M89 & ASTM D-92	Pass 10 Cycles	No cracking, splitting or adhesion loss
Water Vapor Permeability	CGSB 37.50- M89 & ASTM E-96	1.7ng/Pa.m ² s	Pass
Water Absorption	CGSB 37.50- M89	0.35g max. gain or 0.18g max. loss	Pass
Toughness	CGSB 37.50- M89	5.5 joule min.	pass
Ration of Toughness to Peak Load	CGSB 37.50- M89	0.04 minimum	pass
Viscosity at Application Temperature	CGSB 37.50- M89	2 - 15 seconds	pass
Heat Stability, 5 hours	CGSB 37.50- M89	No change in viscosity, penetration, flow or low temperature flex	No change in viscosity, penetration, flow or low temperature flex
Low Temperature Flexibility & Adhesion	CGSB 37.50- M89	-13°F (-25°C)	No cracking, delamination or adhesion loss
Cone Penetration (units)	CGSB 37.50- M89	110 max. @ 77°F (25°C) 200 max. @ 122°F (50°C)	Pass Pass
Flow	ASTM D-1191	Max 3 mm at 60°C (140°F) on a 75° angle for 5 hours	pass
Resilience	ASTM D5329	40% min	Pass
Softening Point	ASTM D36	83°C (181°F) min.	Pass
Pinholing	CGSB 37.50- M89	One pinhole max.	Pass

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Elongation	ASTM 5329	1000% min.	Pass
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2.03 ACCESSORY PRODUCTS

A. Primer and Surface Conditioner *(One of the following must be selected, edit for project requirements)*

1. Asphalt Primer conforming to ASTM D 41.
Specified product: **ELASTOCOL 500 by SOPREMA, INC.**
2. Asphalt Primer conforming to ASTM D 41, low VOC, California compliant.
Specified product: **ELASTOCOL AQUADERE by SOPREMA, INC.**
3. Asphalt Primer conforming to ASTM D 41.
Specified product: **Alternates as approved by SOPREMA, INC.**

B. Flashing Reinforcements *(One of the following must be selected, edit for project requirements)*

1. Reinforcing Fabric: thermally bonded spunlaid polyester/nylon composite mat.
Specified product: **SOPRA-FLASH R by SOPREMA, INC.**
2. 60 mil thickness; uncured neoprene.
Specified product: **SOPRA-FLASH UN by SOPREMA, INC.**

C. Membrane Flashing Options *(One of the following must be selected, edit for project requirements)*

1. Reinforcing Fabric: thermally bonded spunlaid polyester/nylon composite mat. (must encapsulate with Colphene H)
Specified product: **SOPRA-FLASH R by SOPREMA, INC.**
2. 60 mil thickness; uncured neoprene (embed in Colphene H or Bonding Adhesive).
Specified product: **SOPRA-FLASH UN by SOPREMA, INC.**
3. Fluid Applied Membrane: Single component polyurethane resin & polyester reinforcement
Specified product: **ALSAN FLASHING by SOPREMA, INC.**
4. Fluid Applied Membrane: Fully adhered, reinforced cold fluid applied (PMMA) poly methyl-methacrylate liquid resin flashing.
Specified product: **ALSAN RS 230 FLASHING by SOPREMA, INC.**

D. Adhesives for Sopra-Flash UN *(If required, edit for project requirements)*

1. Bonding Adhesive to adhere uncured neoprene flashing to substrate.
Specified product: **APPROVED BONDING ADHESIVE by SOPREMA, INC.**
2. Splicing Adhesive to bond end laps of uncured neoprene flashings.
Specified product: **APPROVED SPLICING ADHESIVE by SOPREMA, INC.**
3. Lap Seam Sealant to caulk lap edges.
Specified product: **APPROVED LAP SEAM SEALANT by SOPREMA, INC.**

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E. Sealants *(If required, edit for project requirements)*

1. Sealant at top of termination bar.
Specified product: **SOPRAMASTIC by SOPREMA, INC.**
Specified product: **SBS ELASTIC CEMENT by SOPREMA, INC.**
Specified product: **SBS MASTIC by SOPREMA, INC.**
Alternates as approved by **SOPREMA, INC.**

F. Separation Layer *(One of the following must be selected, edit for project requirements)*

1. 90 mil thickness; Fiberglass reinforced SBS modified bitumen.
Specified product: **ELASTOPHENE SANDED by SOPREMA, INC.**
2. 90 mil thickness; 180 gram polyester reinforced SBS modified bitumen to be used in lieu of Elastophene Sanded.
Specified product: **ELASTOPHENE 180 SANDED by SOPREMA, INC.**
3. 60 mil thickness; Fiberglass base sheet.
Specified product: **MODIFIED SOPRA G by SOPREMA, INC.**
4. Granule surfaced reinforced SBS modified bitumen (finish exposed surface layer or exposed flashing)
Specified product: **ELASTOPHENE GR** (all sanded underside products) **by SOPREMA, INC.**
Specified product: **SOPRALENE GR** (all sanded underside products) **by SOPREMA, INC.**

**Selection of separation layer dependent upon specified overburden. Contact SOPREMA **

G. Protection Course *(If required, edit for project requirements)*

1. 90 mil thickness; 180 gram polyester reinforced SBS modified bitumen to be used in lieu of Elastophene Sanded.
Specified product: **ELASTOPHENE 180 SANDED by SOPREMA, INC.**
2. Solid core asphalt protection board (in addition to Elastophene Sanded).
Specified product: **SOPRABOARD by SOPREMA, INC.**
3. Rigid extruded polystyrene insulation products.
Specified product: **DOW Extruded Polystyrene Insulation Board** offered by **SOPREMA, INC.**
4. Alternates as approved by **SOPREMA, INC.**

**Project conditions may allow for alternate protection considerations. Contact SOPREMA **

H. Drainage Course *(if required, edit for project requirements)*

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1. PREFABRICATED DRAINAGE BOARD: shall be a composite drainage board consisting of a post-industrial recycled polypropylene core of fused, entangled filaments covered with a geocomposite filter fabric on its upper surface to allow water to pass into the drainage core while restricting the movement of soil particles and suitable for use in select vertical and horizontal applications.

Specified product: **SOPRADRAIN ECO VENT by SOPREMA, INC.****

2. PREFABRICATED DRAINAGE BOARD consisting of a post-industrial recycled polypropylene core of fused, entangled filaments covered with a geocomposite filter fabric bonded to both sides.

Specified product: **SOPORADRAIN ECO 2 by SOPREMA, INC.****

****NOTE: Sopradrain ECO VENT, ECO 2 exceed 40% post-industrial content and will contribute up to 2 (two) LEED points when used in conjunction with Colphene H.**

Properties	Standards	Values
Core:		
Thickness	ASTM D-1777	ECO VENT, ECO 2 – 0.45 in.
Compressive Strength	ASTM D-1621	ECO VENT, ECO 2 - >30,000 psf
Flow@ 3000 psf & 1.0 Gradient	ASTM D-4716	ECO VENT – 16 gpm/ft ECO 2 – 12.9 gpm/ft
Fabric:		
Flow Rate	ASTM D-4491	ECO VENT, ECO 2 – 120 gpm/ft ²
Grab Tensile Strength	ASTM D-4632	ECO VENT, ECO 2 – 120 lbs
Apparent Opening Size (AOS)	ASTM D-4751	ECO VENT, ECO 2 – 70 sieve

3. Rigid extruded polystyrene, insulating, drainage board (vertical applications only)
Specified product: **DOW THERMADRY by SOPREMA, INC.**

ALTERNATE Prefabricated Drainage Boards may include Sopradrain 10G, 15G and 18G, **per SPECIFIER**, and as approved by **SOPREMA, INC.**

I. Insulation *(If required, edit for project requirements)*

1. Rigid, extruded polystyrene insulation board for waterproofing assemblies meeting ASTM C-578 Type VI or Type VII criteria.
 - a. Insulation must be 40 psi or 60 psi compressive strength when tested in accordance with ASTM D-1621 criteria.
 - b. Water Absorption must be maximum 0.1% by volume when tested in accordance with ASTM C-272 criteria.
 - c. The foam blowing agent used in the manufacture of the insulation must provide at least a

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90% reduction in ozone potential as compared with standard CFC blowing agents. It shall be certified by the foam manufacturer to be CFC free.

- d. The insulation must offer min R-5.0 per inch at 75° F mean temperature when tested in accordance with ASTM C-518 and be warranted by the manufacturer to retain at least 80% of its published R-value for the warranty period.

Specified product: **DOW Extruded Polystyrene Insulation Board offered by SOPREMA, INC.**

*Product types: STYROFOAM® Brand Plaza Deck; and High Load 100.
Consult SOPREMA, INC. for required product type.*

J. Filter Fabric Sheet *(If required, edit for project requirements)*

1. A needle-punched, non-woven, calendared 100% polypropylene fabric allowing high capacity drainage flow.

Specified product: **SOPRAFILTER FABRIC by SOPREMA, INC.**

K. Topping Materials *(If required, edit for project requirements)*

1. Architectural Pavers:

- a. Type One Terrace Paver: Precast concrete pavers with beveled edged.

1. Nominal size 24 inches by 24 inches by 2 inches thick.
2. Compressive strength: 8500 psi. per ASTM C-140; 1,750 pounds minimum center load required.
3. Flexural strength: 1100 psi. per ASTM C-293
4. Water absorption: ≤ 5% per ASTM C-140.
5. Freeze-thaw: No breakage and not more than one percent loss in dry weight after 50 cycles in accordance with ASTM C-67.
6. Color & Finish: Contact Soprema representative.
7. Adjustable height and fixed height pedestals as recommended or approved by SOPREMA, INC.

Specified product: **WAUSAU TILE Architectural Pavers as offered by SOPREMA, INC.**

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2. Concrete Topping Pour
 - a. **Sopradrain ECO VENT;** >30,000 psf. Woven Core, Single Fabric
 - b. **Sopradrain ECO 2;** >30,000 psf. Woven Core, Dual Fabric
 - c. **Alternates, by Specifier, approved by SOPREMA, INC.**
3. Asphalt Paving

Note to Specifier: When asphalt paving is to be placed directly over the waterproofing, **contact SOPREMA, INC. for options and recommendations.**

PART 3 - EXECUTION

3.01 SUBSTRATE INSPECTION

- A. Prior to the installation of any new materials, the waterproofing contractor shall thoroughly examine all surfaces for any deficiencies. Should any deficiencies be determined, the Architect, Owner or General Contractor shall be given written notice and corrections will be made.
- B. The waterproofing contractor shall not proceed with the installation of the specified waterproofing assembly until all surface deficiencies and unsatisfactory conditions have been corrected.

3.02 SUBSTRATE PREPARATION

- A. Surfaces shall be clean, dry, smooth, and free of voids per ASTM D 5295 "Preparation of Concrete Surfaces for Adhered (Bonded) Membrane Waterproofing Systems." Unapproved curing compound, form release agents, petroleum distillates and other contaminants are not allowed to come into contact with any approved substrate.
 1. Cast in-Place Concrete; Composite Deck/ Wall
 - a. All poured in place concrete shall be smooth and free of voids. All areas shall be free of honeycombs, sharp protrusions, fins, laitance, and will be free of damaged, spalled areas.
 - b. If the concrete pour is not monolithic, dissimilar materials, if any, must receive reinforcing membrane.
 2. Precast Concrete Decks
 - a. All precast units shall be mechanically secured and all joints between units shall be grouted.
 - b. All joints shall be treated with uncured neoprene, or fabric reinforcing prior to full membrane application.

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3. Renovation/Tear-Off Application
 - a. All existing membrane (existing waterproofing systems, coatings, coal tar pitch, and asphalt, etc.) shall be removed, restoring the substrate to a pristine condition. **Contact SOPREMA, INC.**
 - b. All surface areas shall be inspected and approved by Soprema prior to the application of the new waterproofing system.
 4. Other
 - a. Metal, Wood, and Gypsum substrates, **Contact SOPREMA, INC.**
- B. Substrate cleaning
1. Verify the substrate is visibly dry and free of moisture. Test for capillary moisture by plastic sheet method according to ASTM D-4263.
 - a. The substrate shall be swept, then blown clean to remove all loose debris.
 - a. Prior to beginning the membrane installation, apply a test patch of Colphene H to the prepared substrate to confirm bond and adhesion.

3.03 SYSTEM INSTALLATION

- A. Asphalt Primer/Conditioner Application
1. Apply the specified primer to all horizontal and all vertical surfaces to be waterproofed. Apply at the rate of 300 to 600 sq.ft. per gallon, depending upon the porosity of the substrate. The primer coat should be tan in color, splatter pattern.
 2. Prior to application of the waterproofing system, the primer must be allowed sufficient time to thoroughly dry.
- B. Hot Fluid Applied Rubber Membrane
1. Heat rubberized asphalt membrane in an oil or air jacketed melter with mechanical agitator, specifically designed for heating rubberized asphalt.
 2. Membrane shall be heated to, and maintained at a temperature range between 350°F (176°C) and 400°F (204°C).
 3. All rubberized asphalt membrane heated and maintained in excess of the specified temperature ranges must be discarded and removed from the site.
- C. Flashing/Detailing Installation
1. All detailing and flashing shall be accomplished according to the membrane manufacturers written instructions and standard guideline details.
 2. All detailing and flashing reinforcement shall be accomplished prior to the installation of the field membrane.

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3. When Alsan Flashing, Alsan RS 230 Flashing or Sopra-Flash UN is not selected as the exposed flashing system, Sopra-Flash R embedded in Colphene H must be extended vertically to height of the proposed flashing. This must be capped with one of the products listed in 2.03 Accessory Products; Paragraph F: Separation Layer.
4. For non moving joints or cracks not exceeding 1/8 inch (3mm) wide: Embed a strip of reinforcing fabric extending a minimum of 3 inches (76mm) on each side of the non-moving joint or crack, embedded in, and then coated with hot rubberized asphalt.
5. For non moving joints or cracks exceeding 1/8 inch (3mm) wide: Embed a strip of uncured neoprene or other specified reinforcement (not fabric), extending a minimum of 3 inches (76mm) on each side of the non-moving joint or crack, embedded in, and then coated with hot rubberized asphalt.
6. Substrate board joints, blemishes, and other imperfections shall be pre-detailed with membrane and appropriate reinforcing prior to the application of the field membrane.
7. All drains require uncured neoprene (or approved alternate) reinforcement properly installed, extending a minimum of 6 inches past the drain bowl onto the surrounding substrate. Drain clamping rings must be properly secured while hot rubberized asphalt is still free flowing. Refer to membrane manufacturer details for specific installation instructions.
8. Refer to membrane manufacturer's installation guidelines for all detail flashing requirements.

D. Membrane Application

1. Apply hot rubberized asphalt to the substrate and adjoining surfaces of previously installed flashing reinforcement and detailing. Apply a monolithic coat of hot rubberized asphalt, 90 mil (approximately 2.3 mm) thick; immediately embed a layer of reinforcing fabric, overlapping sheets 1 inch to 2 inches (25.4 mm – 50.8 mm) insuring membrane is applied between sheets at laps. Follow with an additional monolithically applied 125 mil uniform, (approximately 3.2 mm) thick layer of hot rubberized asphalt membrane, providing a reinforced, seamless membrane averaging 215 mils (approximately 5.5 mm) total thickness (180 mils minimum).

3.04 SEPARATION LAYER INSTALLATION

A. Separation layer shall be immediately installed as follows:

1. Embed the separation layer into the waterproofing membrane detailed above, while it is still hot, to insure full adhesion.
2. Install this layer in conjunction with the 125 mil top coating previously detailed, insuring there are no dry lap edges. Overlap separation layer a minimum of 2 inches (50.8 mm) at all side laps and 4 inches (102 mm) at all end laps. If rigid insulation board materials are used they shall not be overlapped, but will be embedded in the still hot membrane to achieve full adhesion.
3. It is recommended that the completed waterproofing assembly be covered with subsequent topping materials as soon as possible to avoid any unnecessary damage to the newly installed waterproofing system. Topping materials must be installed no later than 30 days

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from completion of the waterproofing assembly.

3.05 FLOOD TEST

- A. Flood Testing: Flood test each deck area for leaks, according to recommendations in ASTM D-5957, *Standard Guide for Flood Testing Horizontal Waterproofing Installations*. After completing and protecting waterproofing, but before overlaying construction is placed, install temporary containment assemblies, plugging all drains and flood with water.
 - 1. Flood entire area to a minimum depth of 2 inches for a period of 48 hours.
- B. **VERIFY** that the structure can support the dead load weight of the areas to be water tested before flooding.
- C. After flood testing, repair any leaks in the waterproofing system; repeat flood test.
- D. In lieu of flood testing, Electronic Breach Detection is an acceptable alternative, Contact **SOPREMA, INC.**
- E. Owner may engage an independent testing agency to observe flood testing procedures and results.

3.06 PROTECTION OR DRAINAGE COURSE/INSULATION/PAVER PLACEMENT

- A. General
 - 1. Examine all areas to receive topping materials. Insure that all areas are free from defect and successfully completed a flood test. Verify that all components of the system are properly installed, fully completed, undamaged, and intact.
 - 2. The protection course, drainage course, insulation, and all other topping materials shall be installed as each area is completed. Adhered as required with HV-III Adhesive, or other methods as approved by **SOPREMA, INC.**
- B. Protection Course
 - 1. Multi-ply, semi-rigid asphaltic board composed of a mineral fortified asphaltic core formed between two asphaltic saturated fiberglass liners.
 - 2. All vertical flashings shall receive one layer spot adhered with hot rubberized asphalt.
 - 3. Install protection course to lay flat. Cut to fit all penetrations, curbs and perimeters within 3/4 inch (19 mm). Spot adhere as required with hot rubberized asphalt.
- C. Drainage Course Installation (if required)
 - 1. Install the specified drainage course directly on horizontal and vertical surfaces with the filter fabric up in accordance with the membrane manufacturer's written instructions.
 - 2. Properly position drainage course, carefully cutting and fitting panels to fit the surface. Cut and snugly fit the drainage course at all perimeters, curbs and penetrations, Following the membrane manufacturer's installation procedures.
 - 3. Adhere each geotextile fabric overlap edge to adjacent drainage courses with an adhesive acceptable to the membrane manufacturer.

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D. Insulation Placement (if required)

1. Install one or more layers of rigid insulation to required thickness and/or R-value. Stagger all joints, cut and fit to within 3/4 inch (19 mm) of all projections, perimeter walls and penetrations. Insulation is to be loose laid and tightly butted with joints not greater than 3/8 inch (9.5 mm). One layer Sopradrain Mat (Air Layer) may be required.
2. Multi-layer insulation applications require the bottom layer of insulation to be the thickest layer and shall be a minimum of 2" thick (50.8 mm). All layers shall be loose laid with the joints of the second layer staggered and offset from all joints of the preceding layer. Each successive layer shall be offset from the underlying layer(s).
3. Vertical insulation applications shall be spot adhered to the protection layer with appropriate adhesive or additional hot rubberized asphalt membrane.

E. Architectural Paver Placement (if required)

1. Architectural pavers will be installed on approved paver tab or pedestal system in accordance with the pedestal system manufacturer's specifications, recommendations, project requirements, and as defined in the architectural layout.
2. Ensure the finished paver surface is spaced and butted properly, level and free from tripping hazards.
3. Fabric can be installed under full paver systems to mask insulation color seen at joints between pavers. Black fabric shall not be left exposed in temperatures greater than 90° F.

3.07 JOB COMPLETION

- A. The Waterproofing Contractor and the Manufacturer's Representative shall inspect the completed waterproofing assembly. All defects as discovered shall be corrected.
- B. Clean all adjacent surfaces using cleaning agents and procedures approved by the membrane manufacturer of the affected systems, products, or finishes.
- C. Remove from the premises all rubbish, debris, and surplus materials resulting from the work.

END OF SECTION