SHEET MEMBRANE
BLIND SIDE WATERPROOFING

COLPHENE BSW (F)

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

1.1 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.

1.2 RELATED WORK

A. Division 2 – Site Work

B. Division 3 – Concrete

C. Division 4 – Masonry

D. Division 7 – Damproofing & Waterproofing

1.3 REFERENCES

A. American Society for Testing and Materials (ASTM)

1. D 412 Standard Test Methods for Tensile Strength
2. D 412 Standard Test Methods for Ultimate Elongation
3. D 1970 Standard Test Methods for Flexibility at Cold Temperature
4. D 5601 Standard Test Methods for Tear Resistance
5. D 1876 Standard Test Methods for Lap Adhesion
6. D 570 Standard Test Methods for Water Absorption
7. D 903 Standard Test Methods for Adhesion of Poured Concrete
8. D 5385 Standard Test Methods for Resistance to Hydrostatic Head
9. E 154 Standard Test Methods for Puncture Resistance
10. E 96(B) Standard Test Methods for Water Vapor Permeance

B. International Organization for Standardization (ISO) 9001:2000 Quality Standard

1.4 SYSTEM DESCRIPTION

A. Furnish and install a completed waterproofing assembly including a self-adhered sheet membrane specifically designed for blind side waterproofing and a drainage / protection course (optional). To ensure total system compatibility all products shall be purchased from a single-source manufacturer.

1.5 SUBMITTALS

A. Submit 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.

B. Certification that all products are in compliance with specified ASTM criteria.

C. Certification that all components of the waterproofing assembly are being supplied and warranted by a single manufacturer.

D. Provide a specimen warranty from the manufacturer that includes all components of the waterproofing installation.

1.6 QUALITY ASSURANCE

A. **Refer to Section 1.5 SUBMITTALS.** Include items A, B, C & D.

B. The installer must demonstrate his or her qualification to perform the work of this section by providing written evidence from the manufacturer providing the single-source warranty that the installer is an applicator in good standing and is authorized to install the specified waterproofing system on the project.

1. Documentation of the installer's qualifications must be written on the manufacturer's letterhead, include the name and address of the installer and the full name and physical address of the waterproofing installation in the body of the letter, and must be signed by an authorized representative of the membrane manufacturer.

C. **Refer to Section 1.4 DESCRIPTION.** All components of the waterproofing assembly must be supplied by the membrane manufacturer offering the single-source warranty.

D. The manufacturer offering the single-source warranty must have full-time technical support staff to provide the installer with technical assistance in the installation of the products included in the warranty.

E. Pre-Construction Conference. All parties responsible for work of this section are required to attend a pre-conference meeting to review the details of the project as they pertain to the integrity of the waterproofing assembly.

1. All parties responsible for the work of this section are required to attend, including the architect, owner, installer and manufacturer offering the single-source warranty.

2. All parties are to review the installation procedures of this section and the coordination required with related work.

1.7 MANUFACTURER'S REPRESENTATIVE

A. The waterproofing materials manufacturer may delegate a representative to visit the work site at commencement of work.

B. At all times, the contractor shall permit and facilitate access to the site by the manufacturer's representative cited above.

1.8 DELIVERY, STORAGE & HANDLING

A. Deliver materials in original unopened containers of packaging clearly labeled with manufacturer's name, brand name, instruction for use and all identifying numbers.

B. Store all materials in protected and well-ventilated areas. Only materials to be used the same day shall be removed from this location. Special care may be required at temperatures below 40°F (see product data sheets). Keep all materials away from open flame or welding sparks.

C. Pails of materials shall be carefully stored and adequately protected in accordance with the manufacturer's recommendations.

1.9 PROJECT CONDITIONS

A. Perform work only when existing and forecasted weather conditions are within the limits established by the manufacturer of the materials and products used.

B. It is imperative that the General Contractor provide for adequate protection of the installed membrane to prevent damage that might arise from work performed by the other trades.

C. Do not allow waste products (petroleum, grease, oil, solvents, vegetable or mineral oil, animal fat, etc.) to come in contact with the waterproofing membrane. Contaminated membrane must be cut out and replaced in accordance with the Approved Details.

D. Concrete Deck/Wall Surface Condition; refer to Section 1.02 Related Sections.

E. Concrete Deck/Wall Preparation; refer to Section 3.01 Surface Preparation.

1.10 WARRANTY

A. Sheet Membrane Waterproofing: Upon completion of work, the contractor shall supply the owner with a single-source warranty issued by the manufacturer of the waterproofing assembly.

B. The product manufacturer shall issue a written and signed document in the name of the owner, certifying the product will meet all the physical characteristics published by the manufacturer, for a period of [five (5)] [ten (10)] years, starting from the date of completion of installation of membrane. No letter amending the manufacturer's standard warranty will be accepted and the warranty certificate must reflect these requirements.

**** CONTACT SOPREMA FOR WARRANTY TERMS AND CONDITIONS****

PART 2 – PRODUCTS

2.1 GENERAL

A. Waterproofing membrane components and accessories shall be obtained as a single-source from the membrane manufacturer to ensure total system compatibility and integrity.

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

2.2 MATERIALS

A. SHEET MEMBRANE WATERPROOFING: Colphene BSW (F) manufactured by Soprema; a non woven polyester reinforced SBS modified bitumen membrane, specifically designed for blind side waterproofing. Colphene BSW (F) has a sanded under face with a four inch self adhered selvage edge covered by a silicone release film. The top face, against which the concrete is poured, has a polyester fleece with a four inch self adhered selvage edge covered by a silicone release film.

Specified product: **COLPHENE BSW (F) by SOPREMA.**

Properties	Standards	COLPHENE BSW (F)
Thickness	ASTM D 3767	108 mils (2.70 mm)
Tensile strength	ASTM D 412	23.7/18.5 MPa
Ultimate elongation	ASTM D 412	67/74 %
Flexibility at cold temperature	ASTM D1970	Unaffected at -23 °C
Puncture resistance	ASTM E154	1210 N
Tear resistance	ASTM D 5601	125 N
Lap peel adhesion	ASTM D1876	1360 N/m
Water absorption	ASTM D 570	0.5 %
Adhesion of poured concrete	ASTM D 903 (Mod.)	2880 N/m
Water Vapor Permeance	ASTM E96 (Procedure B)	0.21 ng/Pa.s.m²

B. SURFACE PRIMER: Shall be a primer used specifically for self-adhered membranes to substrates such as wood, metal or concrete. Primer is composed of a blend of natural resins and synthetic rubber; may be spray or roller applied (if required by construction conditions or detailing).

Specified product: **ELASTOCOL 600C by SOPREMA**

C. REINFORCEMENT MEMBRANE: Shall be a self-adhered waterproofing membrane composed of SBS modified bitumen and a Tri-Laminate Woven Polyethylene Facer. The self-adhesive underside is covered by a silicone release sheet. (See PDS for Colphene 3000 primer requirements)

Specified Product: **COLPHENE 3000 by SOPREMA**

D. PREFABRICATED DRAINAGE BOARD:

1. Shall be a composite drainage board consisting of a post-industrial recycled polypropylene drainage core of fused entangled filaments and a geocomposite fabric bonded to one side.

Specified product: **SOPRADRAIN ECO VENT by SOPREMA**

2. Shall be a composite drainage board consisting of a post-industrial recycled polypropylene drainage core of fused entangled filaments and a geocomposite fabric bonded to both sides.

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Specified product: **SOPRADRAIN ECO 2 by SOPREMA**

3. **ALTERNATE** Prefabricated Drainage Boards, **per SPECIFIER**, and as approved by **SOPREMA, INC**.

Properties	Standards	Values
Thickness	ASTM D-1777	**ECO VENT, ECO2** – 0.45 in.
Compressive Strength	ASTM D-1621	**ECO VENT, ECO2** - >30,000 psf
Flow@ 3000 psf & 1.0 Gradient	ASTM D-4716	**ECO VENT –** 16 gpm/ft **ECO 2** – 12.9 gpm/ft
Puncture Strength	ASTM D-4833	**ECO VENT, ECO2** – 70 lbs.
Flow Rate	ASTM D-4491	**ECO VENT, ECO2 –** 120 gpm/ft²
Grab Tensile Strength	ASTM D-4632	**ECO VENT, ECO2 –** 120 lbs
Apparent Opening Size (AOS)	ASTM D-4751	**ECO VENT, ECO2 –** 70 sieve
Roll Dimensions		**ECO VENT, ECO2** – 39” x 100’ (324 sf)

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E. PROTECTION BOARD:

1. Asphaltic Hardboard: Sopraboard manufactured by Soprema; shall be a pre-molded, semi-rigid asphaltic protection board composed of bitumen, mineral core and reinforcement. Provide 3 mm (0.125 in.) thick hardboard on horizontal surfaces not receiving steel reinforced slab. Where steel reinforcing bars are to be used, apply two layers of 3 mm (0.125 in.) thick hardboard or one layer of 6 mm (0.25 in.) thick hardboard.

Specified product: **SOPRABOARD by SOPREMA (or SOPREMA approved Alternate).**

F. ACCESSORY PRODUCTS:

1. WATERPROOFING MASTIC: Shall be a one part urethane mastic containing SBS modified bitumen, fibers and mineral fillers and alternate Soprema mastic as approved.

Specified product: **SOPRAMASTIC by SOPREMA**

2. WATERPROOFING LIQUID MEMBRANE: Shall be a two part component, elastomeric, solvent free, cold applied adhesive to seal end laps and/or as a sealant bed/fillet for reinforcements at penetrations, drains, projections, angle changes, inside and outside corners and appropriate membrane tie ins and terminations (Colphene Liquid Membrane): Shall be a high performance, two component, rapid curing PMMA (poly methyl methacrylate) acrylic resin formulation for use at end laps only (Alsan RS 230 Flash).

   Specified product: **COLPHENE LIQUID MEMBRANE or ALSAN RS 230 FLASH by SOPREMA**

3. MECHANICAL FASTENERS: Fasteners to wood lagging: Cadmium-plated, flat headed thread point screws, sufficient length to penetrate 1" into wood lagging surface. Metal plates: 3" round stress plates, with anchor screws described above. Site conditions and construction detailing may allow/require alternate fastening methods. See SOPREMA for approved alternate methods.

   Specified product: **PRE-ASSEMBLED PLATES & FASTENERS by SOPREMA**

PART 3 – EXECUTION

3.1 SURFACE INSPECTION

A. The installer shall examine conditions of substrates and other conditions under which this work is to performed and notify the contractor, in writing, of circumstances detrimental to the proper completion of the work. Do not proceed with work until unsatisfactory conditions are completed.

B. Do not install materials in conditions of inclement weather.

3.2 SURFACE PREPARTION

A. Refer to membrane manufacturer's literature for requirements for preparation of substrate. Surfaces shall be structurally sound and free of any voids or sharp protrusions. Remove contaminates such as grease, oil and wax from exposed surfaces. Remove dust, dirt, loose stone and debris. Use repair materials and methods which are acceptable to membrane manufacturer.

B. Verify the compatibility of all membrane components with curing compounds, coatings or other materials which are already installed on the surfaces to be treated.

3.3 DRAINAGE BOARD INSTALLATION

A. Mechanically fasten drain board to wood lagging using approved fasteners.

B. Place and secure prefabricated drainage panels with the filter fabric facing the wood lagging. Lap edges and ends of geotextile to maintain continuity. Protect installed drainage panels during subsequent construction. Install drainage panels in accordance with membrane manufacturer's written instructions.

3.4 MEMBRANE INSTALLATION

A. Refer to membrane manufacturer's literature for recommendations on installation, including but not limited to the following:

1. (If required by site conditions and detailing) Apply primer by spray or roller at a rate recommended by the membrane manufacturer. Recoat areas not waterproofed if contaminated by dust. Allow to dry per membrane manufacturer's recommendations. (See PDS)

2. Reinforcing strips of Colphene BSW (F) or Colphene 3000 shall be applied in areas of potentially high substrate stress. These areas include interior and exterior corners, steel members (soldier piles), etc. The sanded side of the Colphene BSW (F) reinforcing strips will be adhered to the fleece side of the installed Colphene BSW (F) membrane, embedded with a full trowel application of Colphene Liquid Membrane. Use hot air welder to remove fleece back prior to application of Liquid Membrane or alternate sealant. All cold joints will be reinforced with a bed of Colphene Liquid Membrane and a continuous strip of membrane extended a minimum of 6" past the cold joint(s) in all directions. As appropriate, a bead of Colphene Liquid Membrane will be applied to all perimeter edges of all reinforcement plies. Target plies at inside corners will be installed as described above and will be a circular shaped target ply patch extending a minimum of 6" in all directions from the inside corner.

3. Starting at the high point, vertically align the Colphene BSW (F) sheet, sanded under face toward the lag wall, mechanically fastening/tack nailing in place per SOPREMA approved details. Remove the release paper on both sides of the self adhered side lap edges, adhering one to the other (fleece side selvage edge to sanded side selvage edge). Roll seams with an approved roller and hand pressure, ensuring that all laps are firmly adhered and that there are no voids or fishmouths. A hot air welder may be required to achieve an acceptable, properly adhered side lap. As each floor is poured and the work continues up the vertical wall, remove mechanical fastening/tack nailing ensuring holes are adequately sealed and lapped as required by SOPREMA details and specifications.

4. Subsequent rolls must be installed in the same manner and should be aligned with the preceding roll with a side lap of 4" (101mm). End laps must be overlapped a minimum 6" (152mm) and embedded in and caulked with Colphene Liquid Membrane. Use hot air welder to remove fleece back prior to application of Liquid Membrane or alternate sealant. For an alternate sealant Alsan RS 230 Flash is acceptable. In all instances the fleece back is to be removed prior to the application of the approved adhesive.

5. Holes, tears, abrasions, blemishes and imperfections to the membrane and in the assembly must be repaired with Colphene BSW (F) or Colphene 3000 embedded in and caulked with Colphene Liquid Membrane. Alsan RS 230 Flash and fleece reinforcement, may be used, installed per SOPREMA details and specifications. The repair membrane must exceed the affected surface area a minimum 6" (152mm) on all sides.

6. Terminations: Membrane shall be terminated in accordance with Soprema Approved Details. The uppermost edge of the membrane shall be caulked with Sopramastic, then mechanically fastened to the wood lagging using approved fasteners and termination bar. The termination bar will be set in a full bed of Sopramastic and the top edge of the bar will be caulked with the same material. Note: All top of the wall cut edges in the field application will receive a bead of Sopramastic at the end of the days work.

7. The contractor shall check all seams and ensure correct adhesion, proper repair and detailing of the membrane and accessories at the end of each workday and prior to the concrete being poured.

B. Horizontal Application

1. Prior to beginning work verify substrate and drainage conditions meet or exceed the design of the Architect and Engineer of Record.

2. Install specified Sopradrain over dry evenly and properly compacted substrate or mud slab. Note: geocomposite filter fabric must be placed in contact with the substrate. Use all published seaming and lapping requirements per SOPREMA standard installation procedures.

3. Install Colphene BSW (F) membrane with sanded under face placed down against the surface of the specified Sopradrain drainage board. Follow all standard installation procedures detailed above 3.4; A1 through A7. No tack nails or fasteners are to be used on any horizontal surface. Where Colphene BSW (F) is to tie in to positive side vertical wall waterproofing, it must be reinforced as described above and be extended under the perimeter wall/footer and provide for a 12” tie in on the exterior vertical wall. All joints must receive a bed or bead of Colphene Liquid Membrane as appropriate to the condition and as required by SOPREMA.

4. The contractor shall check all seams and ensure correct adhesion, proper repair and detailing of the membrane and accessories prior to concrete being poured.

5. Should water testing be required, Electronic Breach Detection may be considered.

-END OF SECTION-