

Senersshield-R

Vapor Permeable Air/Water-Resistive Barrier Membrane

COLOR

Grey

PACKAGING

60 lbs per 5-gallon pail (27.2 kg per 19-liter pail).

VOC

<0.41 lbs/gal or <50g/l less water and exempt solvents.

SHELF LIFE

Two (2) years, properly stored in original container.

COVERAGE PER PAIL

Substrate

ASTM C1177 Type Sheathing

450 ft² (41 m²) at 10 mils WFT

Cement Board

500 ft² (46 m²) at 10 mils WFT

Plywood

265 ft² (24 m²) at 20 mils WFT

Oriented Strand Board (OSB)

265 ft² (24 m²) at 20 mils WFT

Concrete Masonry Units (CMU)

Standard Weight 265 ft² (24 m²) at 20 mils WFT

Medium Weight 180 ft² (17 m²) at 20 mils WFT

Light Weight 125 ft² (12 m²) at 20 mils WFT

Poured Concrete

500 ft² (46 m²) at 10 mils WFT

Embed Sheathing Fabric

4" Sheathing Fabric

630 ft (192 m)

6" Sheathing Fabric

420 ft (128 m)

9" Sheathing Fabric

280 ft (85 m)

*Roll or spray / backroll for optimum coverage rate. Other application methods may provide less coverage. Actual results may vary depending on surface porosity, roughness, moisture uptakes, type of OSB or other factors

DESCRIPTION

Senersshield-R is a one-component, fluid-applied vapor permeable vertical above grade air/water-resistive barrier with built in low temperature application properties. This waterproof, resilient coating may be spray-, roller-, brush-, or trowel-applied directly to approved above grade wall substrates. It provides excellent secondary moisture protection behind most wall claddings including EIFS, stucco*, brick, siding and metal panels. Senersshield-R is listed in ICC ESR-1878 and ESR-2986.

* A slipsheet is required for stucco claddings.

USES

For use over the following exterior wall substrates:

Poured concrete/unit masonry, ASTM C1177 type sheathings, including DensGlass™ or DensElement exterior sheathing (sheathing only), eXP™ sheathing, GlasRoc® sheathing, Securock™ glass-mat sheathing, Weather Defense™ Platinum sheathing, GreenGlass® sheathing; PermaBase™ cement-board and other cement-boards (ASTM C1325 Type A Exterior); Untreated Exposure I or exterior plywood sheathing (grade C-D or better), Untreated Exposure I OSB, Zip Sheathing (sheathing only) Fire Treated wood sheathing: Pyro-Guard® and Dicon® plywood and FlameBlock® OSB; gypsum sheathing (ASTM C79/ASTM C1396).

ADVANTAGES

One continuous air/water-resistive barrier for buildings with multiple claddings (can be used with most code-compliant claddings).

ICC ESR-2986 evaluation report confirms compliance with IBC, IRC and IECC requirements.

Approved for projects requiring ABAA specifications and quality assurance.

<1% of allowable air leakage tested per ASTM E2357, easily meets air tightness requirements per ASHRAE 189.1 and 90.1 and ABAA.

Self sealing performance meets ASTM D1970 nail sealability requirements with and without Sheathing Fabric.

One component, easy to apply formulation that meets low VOC requirements in all 50 states.

Nonflammable as applied.

Will not dry out or crack due to loss of oil/plasticizer over time.

Cleans up with water; solvents and citrus based cleaners not required.

Low temperature application down to 25°F (-4°C).

Allows for flexible construction scheduling with an 180 day outdoor exposure rating.

TEST RESULTS

TEST	METHOD	CRITERIA	RESULTS
VOC content	ASTM D3960 (based in part on EPS method 24)	Report value	<0.41 lbs/gal or <50g/l less water and exempt solvents
Air Leakage of Air Barrier Assemblies	ASTM E2357	0.04 cfm/ft ² @ 1.57 psf (0.2 l/(s.m ²) @75 Pa)	0.0001 cfm/ft ² @ 1.57 psf (0.0007 l/s.m ²) @ 75 Pa positive / post conditioning 0.0003 cfm/ft ² @ 1.57 psf (0.0014 l/s.m ²) @ 75 Pa negative / post conditioning
Air Permeance of Building Materials	ASTM E2178	0.004 cfm/ft ² @ 1.57 psf (0.02 l/(s.m ²) @75 Pa)	0.00098 cfm/ft ² @ 1.57 psf (0.0049 l/s.m ²) @ 75 Pa)
Rate of Air Leakage	ASTM E283	Report value	0.0037 cfm/ft ² @ 1.57 psf (0.0185 l/s.m ²) @ 75 Pa)
Water Vapor Transmission	ASTM E96 Method B	Report value	18 Perms (grains/Hr. in Hg. ft ²) @ 10 mils wet film thickness 14 Perms (grains/Hr. in Hg. ft ²) @ 20 mils wet film thickness
Pull-Off Strength of Coatings	ASTM D4541	Min.15.9 psi (110 kPa) or substrate failure	Pass - Tested over exterior gypsum sheathing, ASTM C1177 glass-mat sheathing, cement board, OSB, plywood; pvc and galvanized flashing
Nail Sealability (without Sheathing Fabric)	ASTM D1970	No water penetration at galvanized roofing nail penetration under 5" 9127 mm) head of water after 3 days at 40°F (4°C)	Pass
Surface Burning	ASTM E84	Flame Spread < 25 Smoke Development < 450	Meets Class A: Flame spread = 15 Smoke developed = 95
Radiant Heat Multi-Story Tests	NFPA 268 NFPA 285	No increase in fire hazard	Pass using many wall designs; including Senergy EIFS cladding with 12" EPS insulation Reference technical bulletin NFPA 285 Compliant Wall Systems and Assemblies
Water-resistive barrier coatings used under EIFS	ASTM E2570		Pass (Meets all criteria in the standard)
Compound Stability (Elevated Temperature)	ASTM D5147 Section 15		No flowing, dripping, or drop formation up to 350°F (177°C)
Fire Resistance	ASTM E119/UL 263	Maintain fire resistance of existing rated assembly	Will not add or detract from the rating of a fire resistive wall assembly
Drainage Efficiency	ASTM E 2273	90% Minimum	99%
% Solids	Lab method	Report value	74%

ICC-ES AC 212 Acceptance Criteria for Water-Resistive Coatings used as Water-Resistive Barriers over Exterior Sheathing

TEST	METHOD	CRITERIA	RESULTS
Sequential Testing: 1. Structural 2. Racking 3. Restrained Environmental Conditioning 4. Water Penetration	1. ASTM E 1233 Procedure A 2. ASTM E 72 3. ICC-ES AC-212 4. ASTM E 331	No cracking at joints or interface of flashing No water penetration after 15 min @ 2.86 psf (137 Pa)	Pass - Tested over OSB and gypsum sheathing No water penetration after 90 min @ 6.24 psf (299 Pa)
Sequential Testing - Weathering 1. UV Light Exposure 2. Accelerated Aging 3. Hydrostatic Pressure Test	1. ICC-ES AC-212 2. ICC-ES AC-212 3. AATCC 127-1985	No cracking or bond failure to substrate No water penetration after 21.7 in (550 mm) water for 5 hours	Pass
Freeze-Thaw	ASTM E 2485 (Method B)	No sign of deleterious effects after 10 cycles	Pass - Tested over exterior gypsum sheathing, ASTM C1177 glass-mat sheathing, cement board, OSB, plywood
Water Resistance	ASTM D2247	No deleterious effects after 14-day exposure	Pass - Tested over exterior gypsum sheathing, ASTM C1177 glass-mat sheathing, cement board, OSB, plywood
Tensile Bond	ASTM C 297	Minimum 15 psi (103 kPa)	Pass - Tested over exterior gypsum sheathing, ASTM C1177 glass-mat sheathing, cement board, OSB, plywood, CMU; pvc and galvanized flashing
Tensile Bond (after freeze-thaw)	ASTM C 297	Minimum 15 psi (103 kPa) avg; no failure after 10 cycles freeze-thaw	Pass (Tested over various substrates)

ICC-ES AC 148 Acceptance Criteria for Flexible Flashing Materials

TEST	METHOD	CRITERIA	RESULTS
Sequential Testing - Weathering 1. UV Light Exposure 2. Accelerated Aging 3. Hydrostatic Pressure Test	1. ICC-ES AC 148 2. ICC-ES AC 148 3. AATCC 127-1985	No cracking or bond failure to substrate No water penetration after 21.7 in (550 mm) water for 5 hours	Pass
Peel Adhesion	ASTM D 3330 Method F	After UV Exposure After Accelerated Aging After Elevated Temperature Exposure After Water Immersion	Pass - tested over ASTM C1177 glass-mat sheathing, OSB, plywood, PVC and uncoated aluminum
Nail Sealability after Thermal Cycling	ASTM D 1970 (Modified), AAMA 711	No water penetration at galvanized roofing nail penetration under 1.2" (31 mm) head of water after 24 hours at 40°F (4°C)	Pass
Tensile Strength after UV Exposure	ASTM D 5034, AAMA 711	Minimum 20 lbs./in (3.5 N/mm)	Pass
Cold Temperature Pliability	ASTM D 1970, AAMA 711	No cracking after bending around a 1" (25 mm) mandrel after 2-hour exposure to 0°F (-18°C)	Pass
Resistance to Peeling	AAMA 711	No signs of distress or failure after 24 hours of exposure at room temperature, 122°F (50°C), 149°F (65°C), 176°F (80°C)	Pass

CCMC Tech Guide 07240 and CAN/ULC-S716.1	
Joint Disruption Resistance	No cracking, delamination or other deleterious effects at L/180 deflection.
Joint Relaxation Resistance	Pass Max water transmission rate. $2 \times 10^{-7} \text{ kg/m}^2 \cdot \text{s}$ ($4.1 \times 10^{-8} \text{ lbs/ft}^2 \cdot \text{s}$) after extension and environmental cycling.
Adhesive/Cohesive Bond	Pass Min 0.3 MPa (43.5 psi) in dry state, 0.1 MPa (14.5 psi) after 48 hour water immersion.
Nail Popping Resistance	No cracking or delamination around nail head following 1 mm (0.04") protrusion.
Water Absorption	Pass Maximum $0.004 \text{ kg/m}^2 \cdot \text{s}$ ($0.0008 \text{ lbs/ft}^2 \cdot \text{s}$).
Accelerated Weather Resistance	No visible effects (cracking, flaking, other deleterious effects) after 334 total hours.

PRODUCT CONSIDERATIONS AND JOB CONDITIONS

- Cold temperature application less than 40°F (4°C) down to 25°F (-4°C): expect extended dry time. Final air/water-resistive properties and film durability rely on temperatures rising above freezing (32°F/0°C)
- Walls shall be capped to prevent moisture and precipitation from entering wall during construction.
- Dry/cure times of adhered EPS insulation board installed over Senershield-R may be prolonged, particularly in cool and/or damp weather. Non-cementitious adhesives are not recommended for EPS insulation board attachment to Senershield-R. Proper application is the responsibility of the user.
- A minimum of two 10-mil wet coats of Senershield-R is required over OSB, plywood and CMU. Senershield-R may be sprayed to a 20-mil thickness over OSB, plywood and CMU in one wet application. Backrolling may be needed to produce a pinhole-free film.
- Punched studs in rough openings must be treated with MasterSeal AWB 970 NP flashing membrane.
- Ensure all fasteners are spotted with Senershield-R or MaxFlash.
- Prior to application of claddings, visually inspect the Senershield-R for voids, pinholes, surface deficiencies, etc. Repair deficiencies and areas that are not intact. Apply additional Senershield-R as

necessary, such that the barrier is free of voids, pinholes, etc. All sheathing joints, terminations, inside and outside corners must be reinforced with Sheathing Fabric embedded in Senershield-R, MaxFlash or MasterSeal AWB 970 NP.

- Treat expansion joints with MasterSeal AWB 970 NP flashing membrane, provide sufficient slack in MasterSeal AWB 970 NP at joint to allow for movement.

SURFACE PREPARATION

- Substrate shall be of a type acceptable by Master Builders Solutions and shall be installed per substrate manufacturer's instructions and local code requirements.
- Substrate shall be dry, clean, sound and free of release agents, paint/coatings, other residue or other deleterious conditions before application of cladding. Verify substrate is flat, free of fins or planar irregularities greater than ¼" in 10' (6.4 mm in 3 m). Unsatisfactory conditions shall be reported to the general contractor and corrected before application of Senershield-R and claddings.

EQUIPMENT

- For roller application, use a ¾" (20mm) nap roller. Prewet the synthetic roller pad with water and spin out the excess. The prewetting only needs to be done once, at the start of application.
- For spraying application instructions and equipment reference Spray Application technical bulletin.

MIXING

1. Use directly from original packaging or prepare in a container that is clean and free of foreign substances. Do not use a container which has contained or been cleaned with a petroleum-based product.
2. Mix Senershield-R with a clean, rust-free paddle and drill until thoroughly blended. Dilution of Senershield-R is not recommended.
3. Additives are not permitted.
4. Close container when not in use.
5. Clean tools and equipment with water immediately after use. Dried material can only be removed mechanically.

APPLICATION

FLASHING ROUGH OPENINGS

Using MaxFlash

1. Apply a bead of MaxFlash in each corner of the rough opening, ensuring that corners are fully sealed. Where wood bucks are used, apply a bead of MaxFlash into gaps between bucks and between the buck and building structure.
2. Apply additional MaxFlash in a zigzag pattern onto head, sill, jambs and exterior substrate. Spread MaxFlash evenly across the rough opening to form a uniform, continuous, void and pinhole-free membrane with a 12-20 mil thickness. Extend MaxFlash at a minimum 4" onto the exterior wall, maintaining 12 to 20-mil thickness.
3. Allow MaxFlash to skin before applying Senershield-R to sheathing. Lap the air/

water-resistive barrier a minimum of 2" onto MaxFlash, creating a continuous, monolithic air/water-resistive barrier membrane.

4. Allow MaxFlash to cure prior to the installation of windows, doors and other wall assemblies.

Using Sheathing Fabric

1. Cut Sheathing Fabric to desired size. Apply a generous amount of mixed Senersshield-R receiving coat across rough opening and out onto the substrate. Immediately embed Sheathing Fabric, ensure complete saturation. An additional coat of Senersshield-R may be necessary to ensure a complete, void and pinhole-free membrane.
2. Extend Sheathing Fabric a minimum 2" onto the exterior wall. Reference Senersshield-R published details for step by step application details.

SHEATHING JOINT REINFORCEMENT

Using MaxFlash

Apply a thick bead of MaxFlash to sheathing joints, inside and outside corners as well as knot holes and check cracks that may exist in plywood or OSB. Spread evenly a minimum of 1" beyond the joint on either side, maintaining 20-mils across the sheathing joint. Allow MaxFlash to skin before applying Senersshield-R to sheathing. See the MaxFlash product bulletin for coverages and additional product highlights.

Note: MaxFlash can be used to treat sheathing joints up to ½" wide, not for use in expansion joints.

Using Sheathing Fabric

1. Precoat sheathing joints, inside and outside corners as well as knot holes and check cracks that may exist in plywood or OSB with mixed Senersshield-R.
2. Immediately place and center Sheathing Fabric over wet Senersshield-R. Ensure Sheathing Fabric extends evenly on both sides of the sheathing joint. Completely saturate Sheathing Fabric with Senersshield-R.
3. Lap Sheathing Fabric 2 ½" (63.5 mm) minimum at intersections.
4. If using roller or brush application, allow to dry to the touch before applying

Senersshield-R to entire wall surface. If spraying, "wet on wet" application is acceptable.

Note: Sheathing Fabric can be used to treat sheathing joints up to ¼" wide, not for use in expansion joints.

SENERSHIELD-R APPLICATION OVER ACCEPTABLE SUBSTRATES

For concrete, glass-mat sheathing (C1177), cement board (ASTM C1325 Type A Exterior), and gypsum sheathing (ASTM C79/ ASTM C1396); apply with roller, brush, stainless steel trowel or spray gun to a consistent, minimum 10 wet mil thickness that is free of voids and pin holes. If rolling, a fully loaded roller pad is required to obtain a consistent, minimum 10 wet mil thickness.

Note: Refer to Spray Application technical bulletin for spray application equipment and application instructions

For plywood, OSB or CMU substrate(s); apply with ¾" (20 mm) nap roller a consistent, minimum 10 wet mil thickness. Prior to application of the second coat, visually inspect to assure sheathing surface is blister free and coating is free of voids and pinholes. Repair if needed and then apply a second coat after the initial coating is sufficiently dry.

Note: A minimum of two (2) 10-mil wet coats of Senersshield-R are required over OSB, plywood and CMU

Applying with spray equipment, Senersshield-R may be sprayed to a 20-mil thickness over CMU, OSB and plywood in one wet application. Backrolling may be needed to produce a pinhole-free film.

Note: Refer to Spray Application technical bulletin for spray application equipment and application instructions. Verify thickness using a wet film mil gauge.

COLD TEMPERATURE APPLICATION LESS THAN 40°F (4°C) DOWN TO 25°F (-4°C).

- Precondition material to a minimum 65°F (18°C).
- Substrate and ambient temperature must be 25°F (-4°C) and rising. Do not apply if temperature below 25°F (-4°C) is expected at any time during the application or drying period. Substrate surface must be frost free and remain dry.

- Install material in dry weather and protect from rain and temperatures below 25°F (-4°C) for a minimum of 24 hours and until dry. Actual drying time will vary depending on ambient and substrate temperature, humidity and the ability of the substrate to absorb water. Final air/water-resistive properties and film durability rely on temperatures rising above freezing (32°F/0°C)

DRYING TIME

40°F (4°C) and rising: allow to dry completely, typically 2-10 hours before proceeding with cladding installation.

40°F (4°C) down to 25°F (-4°C): when applied at a 10-mil wet film thickness, typically dry in approximately 12 hours at 32°F (0°C) and 50% relative humidity (RH). When applied at a 20-mil thickness (single pass spray), typically dry in approximately 18 hours at 32°F (0°C) and 50% (RH). Allow to dry completely prior to proceeding with cladding installation.

Note: Actual drying time will vary depending on ambient and substrate temperature, humidity and the ability of the substrate to absorb water. Final air/water-resistive properties and film durability rely on temperatures rising above freezing (32°F/0°C)

SHIPPING & STORAGE

- Protect materials during transportation to avoid physical damage. Store in a cool, dry place protected from freezing, extreme heat and direct sun. Store at no less than 40°F (4°C) and below 120°F (49°C). Protect from extreme heat and direct sun.
- Do not stack pallets.

LIMITATIONS

- Limit the weather exposure of Senersshield-R to a maximum of 180 days. If exposure limits are exceeded, clean and recoat with Senersshield-R.
- Do not use on damp surfaces, below-grade applications or on surfaces subject to water immersion.
- Do not apply in ambient temperatures below 25°F (-4°C) or onto substrates below 25°F (-4°C). Do not apply in

ambient temperature above 100°F (38°C) or surface temperature above 120°F (49°C).

- Ensure wood sheathings and lumber including fire and pressure treated are dry throughout the thickness of the material and free of any bond inhibiting materials prior to application of Senershield-R.
- Senershield-R is designed as a positive side water barrier and does not function as a negative side barrier product.

TECHNICAL SUPPORT

Consult Master Builders Solutions Technical Services Department at **+1 (800) 589-1336** for specific recommendations concerning all other applications. Consult the Wall Systems website at **senergy.master-builders-solutions.com/en**, for additional information about products and systems and for updated literature.

HEALTH, SAFETY AND ENVIRONMENTAL

Read, understand and follow all Safety Data Sheets and product label information for this product prior to use. The SDS can be obtained by visiting **senergy.master-builders-solutions.com/en**, e-mailing your request to **mbsbcst@mbcc-group.com** or calling **+1 (800) 433-9517**. Use only as directed.

IN CASE OF EMERGENCY: Call CHEMTEL +1 (800) 255-3924 or if outside the US or Canada, +1 (813) 248-0585.

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