Finestone FINESTOP RA/RS Air/Water-Resistive Barrier Section 072700

Fluid-applied, vapor permeable membrane air/water resistive barrier

INTRODUCTION

This specification has been assembled to enable the design professional to select or delete sections to suit the project requirements and is intended to be used in conjunction with Finestone® product bulletins, technical bulletins, etc.

DESIGN RESPONSIBILITY

It is the responsibility of both the specifier and the purchaser to determine if a product is suitable for its intended use. The designer selected by the purchaser shall be responsible for all decisions pertaining to design, detail, structural capability, attachment details, shop drawings and the like. The Finestone brand of Master Builders Solutions Construction Systems US, LLC (herein referred to as “Master Builders Solutions”) has prepared guidelines in the form of specifications, typical application details, and product bulletins to facilitate the design process only. Master Builders Solutions is not liable for any errors or omissions in design, detail, structural capability, attachment details, shop drawings or the like, whether based upon the information provided by Master Builders Solutions or otherwise, or for any changes which the purchasers, specifiers, designers or their appointed representatives may make Master Builders Solutions published comments.

Designing and Detailing a wall system utilizing Finestone FINESTOP RA/RS air/water-resistive barrier

General: The Finestone FINESTOP RA/RS shall be installed in strict accordance with current recommended application procedures and product specifications from the system’s manufacturer.

A. Substrate Systems

1. Acceptable substrates are: PermaBase® Cement Board and other cement-boards conforming with ASTM C1325 (Type A-exterior); poured concrete/unit masonry; ASTM C1177 type sheathings, including, Weather Defense™ Platinum sheathing, GreenGlass® sheathing, eXP™ sheathing, GlasRoc® sheathing, Securock™ glass-mat sheathing, and DensGlass® exterior sheathing DensElement (sheathing only); gypsum sheathing (ASTM C79/C1396); Huber Zip (sheathing only) Exposure I or exterior plywood (Grade C/D or better); or Exposure I OSB.
2. Surfaces of unit masonry and concrete shall receive an application of FINESTOP RA/RS not less than 20 wet mils thick achieving a void and pinhole free application. The application of multiple coats may be required.
3. The substrate systems shall be engineered with regard to structural performance by others.

B. Moisture Control

1. Prevent the accumulation of water behind the exterior cladding system, either by condensation or leakage through the wall construction, in the design and detailing of the wall assembly.
   a. Provide flashing to direct water to the exterior where it is likely to penetrate components in the wall assembly, including, above window and door heads, beneath window and door sills, at roof/wall intersections, decks, abutments of lower walls with higher walls, above projecting features, and at the base of the wall and anywhere else required by local code.
   b. Air Leakage Prevention: provide continuity of air barrier system at foundation, roof, windows, doors and other penetrations through the system with connecting and compatible air barrier components to minimize condensation and leakage caused by air movement.
   c. Vapor Diffusion and Condensation: perform a dew point analysis of the wall assembly to determine the potential for accumulation of moisture in the wall assembly as a result of water vapor diffusion and condensation. Adjust insulation thickness/location and/or other wall assembly components accordingly to minimize the risk of condensation.

d. Avoid the use of vapor retarders on the interior side of the wall in warm, humid climates. The selection use and placement of vapor barriers within a wall assembly is the sole responsibility of the design professional.

C. Grade Condition

1. Finestone FINESTOP RA/RS is not intended for use below grade or on surfaces subject to continuous or intermittent immersion in water or hydrostatic pressure.

D. Coordination with other trades

1. Evaluate adjacent materials such as windows, doors, etc. for conformance to manufacturer's details. Adjacent trades shall provide scaled shop drawings for review.
2. Air Seals at any joints/gaps between adjoining components (penetrations, etc.) are of primary importance to maintain continuity of an air barrier system and must be considered by the design professional in the overall wall assembly design. Install air seals between the primary air/water-resistive barrier and other wall components (penetrations, etc.) in order to maintain continuity of an air barrier system.
3. Provide protection of rough openings in accordance with *the Finestone Air/Water-Resistive/Vapor Barrier Application Guidelines* before installing windows, doors, and other penetrations through the wall.

TECHNICAL INFORMATION

Consult Master Builders Solutions' Technical Services Department for specific recommendations concerning all other applications. Consult the Finestone website, finestone.master-builders-solutions.com, for additional information about products, systems and for updated literature.

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PART 1 – GENERAL

NOTE TO SPECIFIER: Items in blue/underlined indicate a system option or choice of options. Throughout the specification, delete those which are not required or utilized.

1.01 SECTION INCLUDES

A. Refer to all drawings and other sections of this specification to determine the type and extent of work therein affecting the work of this section, whether or not such work is specifically mentioned herein.
B. Finestone FINESTOP-R: Ready mixed flexible, fluid applied, vapor permeable, and air/water resistive barrier for use behind most exterior wall claddings.
C. Finestone products are listed in this specification to establish a standard of quality. Any substitutions to this specification shall be submitted to and receive approval from the Architect at least 10 days before bidding. Proof of equality shall be borne by the submitter.
A. The air/water-resistive barrier material shall be Finestone FINESTOP RA/RS as manufactured by Master Builders Solutions, Shakopee, MN.

1.02 RELATED SECTIONS

A. Section 03 00 00 Concrete substrate
B. Section 04 00 00 Masonry substrate
C. Section 05 40 00 Cold-formed metal framing
D. Section 06 16 00 Sheathing
E. Section 06 11 00 Wood framing
F. Section 07 27 00 Air barriers
G. Section 07 62 00 Sheet Metal Flashing and Trim
H. Section 07 65 00 Flexible flashing
I. Section 07 90 00 Joint protection
J. Section 08 00 00 Openings
K. Section 08 50 00 Windows
L. Section 09 22 16 Non-structural metal framing
M. Section 09 29 00 Gypsum board

1.03 DEFINITIONS

A. Air Barrier Assembly: The collection of air barrier materials and auxiliary materials applied to an opaque wall, including joints and junctions to abutting construction, to control air movement through the wall.
B. Water-Resistive Barrier Assembly: The collection of water-resistive materials and accessories that direct incidental water that may pass the primary rainscreen, or condense within the drain plane, out of the wall cladding while providing protection for underlying sheathing materials.

1.04 SUBMITTALS

A. Submit under provisions of Section [01 33 00]
B. Product Data: Provide data on Finestone FINESTOP RA/RS Air/Water resistive Barrier, product characteristics, performance criteria and limitations.
C. Code Compliance: Provide manufacturer's applicable code compliance report.
D. Certificate: System manufacturer's approval of applicator.
E. Sealant: Sealant manufacturer's certificate of compliance with ASTM C1382.
F. System manufacturer's current specifications, typical details and related product literature which indicate preparation required storage, installation techniques and jointing requirements.

1.05 PERFORMANCE REQUIREMENTS

A. General: Air barrier shall be capable of performing as a continuous vapor-permeable air barrier and as a liquid-water drainage plane flashed to discharge to the exterior incidental condensation or water penetration. At wall cladding transitions, the air/water-resistive barrier shall form a continuous air barrier and shall make provision for water drainage, either by creation of an unobstructed drainage plane that extends across the cladding transition or by flashing to discharge to the exterior at the

transition. Air barrier assemblies shall be capable of accommodating substrate movement and sealing substrate expansion and control joints, construction material changes and transitions at perimeter conditions without deterioration and air leakage exceeding specified limits or interruption of the drainage plane.

B. Commonwealth of Massachusetts Building Code Requirements: The intent of this specification is to require compliance with 780 CMR 13, Section 1304.3 Air Leakage.
   1. 1304.3.1 Air Barriers: The building envelope shall be designed and constructed with a continuous air barrier to control air leakage into, or out of the conditioned space. An air barrier shall also be provided for interior partitions between conditioned space and space designed to maintain temperature or humidity levels which differ from those in the conditioned space by more than 50% of the difference between the conditioned space and design ambient conditions. The air barrier shall have the following characteristics:
      a. It must be continuous, with all joints made airtight.
      b. It shall have an air permeability not to exceed 0.004 cfm/sq. ft. under a pressure differential of 0.3 in. water. (1.57 psf.) (equal to 0.02L/sq. m @ 75 Pa.).
      c. It shall be capable of withstanding positive and negative combined design wind, fan and stack pressures on the envelope without damage or displacement, and shall transfer the load to the structure. It shall not displace adjacent materials under full load.
      d. It shall be durable or maintainable.
      e. The air barrier shall be joined in an airtight and flexible manner to the air barrier material of adjacent systems, allowing for the relative movement of systems due to thermal and moisture variations and creep. Connection shall be made between:
         i. Foundation and walls.
         ii. Walls and windows or doors.
         iii. Different wall systems.
         iv. Wall and roof.
         v. Wall and roof over unconditioned space.
         vi. Walls, floor and roof across construction, control and expansion joints.
         vii. Walls, floors and roof to utility, pipe and duct penetrations.
      f. All penetrations of the air/water resistive barrier and paths of air infiltration/exfiltration shall be made airtight.

C. Testing:
   1. General Air/Water-Resistive Barrier Minimum Performance:

TEST	METHOD	CRITERIA	RESULTS
Water-resistive barrier coatings used under EIFS	ASTM E2570		Meets all performance requirements
Air Leakage of Air Barrier Assemblies	ASTM E2357	0.2 l/(s.m2) @75 Pa (0.04 cfm/ft2 @ 1.57 psf)	0.0007 l/s.m2 (0.0001 cfm/ft2) @ 75 Pa (1.57 psf) positive / post conditioning 0.0014 l/s.m2 (0.0003 cfm/ft2) @ 75 Pa (1.57 psf) negative / post conditioning
Air Permeance of Building Materials	ASTM E2178	0.02 l/(s.m2) @75 Pa (0.004 cfm/ft2 @ 1.57 psf)	0.0049 l/s.m2 @ 75 Pa (0.00098 cfm/ft2 @ 1.57 psf)
Rate of Air Leakage	ASTM E283		0.0185 l/s·m2 @ 75 Pa (0.0037 cfm/ft2 @ 1.57 psf)
Water Vapor Transmission	ASTM E96	Report value	FINESTOP RA - 18 Perms (grains/Hr. in Hg. ft2) @ 10 mils wet film thickness FINESTOP-RS 18 Perms (grains/Hr. in Hg. ft2) @ 12 mils wet film thickness FINESTOP RA/RS - 14 Perms (grains/Hr. in Hg. ft^2) @ 20 mils wet film thickness
Pull-Off Strength of Coatings	ASTM D4541	Min. 110 kPa (15.9 psi) 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 127 mm (5”) head of water after 3 days at 4° C (40° F)	Pass

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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		Pass using many wall designs; including Finestone EIFS cladding with 12" EPS insulation
Water Resistive Barrier under EIFS	ASTM E2570	Meets all criteria in the standard	Pass
Compound Stability (Elevated Temperature	ASTM D5147 Section 15	No flowing, dripping, or drop formation up to 177° C (350° F)	Pass
Fire Resistance	ASTM E119/UL 263		Will not add or detract from the rating of a fire resistive wall assembly
Drainage Efficiency	ASTM E 2273		99%

2. FINESTOP RA/RS Air/Water-Resistive Barrier ICC-ES AC-212:

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 @ 137 Pa (2.86 psf)	Pass - Tested over OSB and gypsum sheathing No water penetration after 90 min @ 299 Pa (6.24 psf)
Sequential Testing: 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 103 kPa (15 psi)	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 103 kPa (15 psi) avg; no failure after 10 cycles freeze-thaw	Pass

3. FINESTOP RA/RS Air/Water-Resistance Barrier ICC-ES AC 148:

TEST	METHOD	CRITERIA	RESULTS
Sequential Testing: 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 31 mm (1.2") head of water after 24 hours at 4° C (40° F)	Pass
Tensile Strength after UV Exposure	ASTM D 5034, AAMA 711	Minimum 0.5 N/mm (2.9 lbs./in)	Pass
Cold Temperature Pliability	ASTM D 1970, AAMA 711	No cracking after bending around a 25 mm (1") mandrel after 2-hour exposure to -18° C (0° F)	Pass
Resistance to Peeling	AAMA 711	No signs of distress or failure after 24 hours of exposure at room temperature, 50° C (122° F), 65° C (149° F), 80° C (176° F)	Pass

4. MAXFLASH AAMA 714-15

TEST	METHOD	CRITERIA	RESULTS
Peel Adhesion	ASTM C794 Control AAMA 714 Sec 5.1 UV exposure Sec 5.3, ASTM G154 Elevated temperature AAMA 714 Sec 5.4 Thermal cycling AAMA 714 Sec 5.5 7 day water immersion AAMA 714 Sec 5.7	Tested over ASTM C1177 sheathing, plywood, OSB, concrete (mortar), CMU, galvanized steel, aluminum	Pass control and after conditioning, min. 5 pli
Crack Bridging	AAMA 714 Sec 5.6, ASTM C1305	No failure after 10 cycles with 1/8" gap and water holdout of 550 mm (21.7") for 24 hours, tested at 60 mils per ASTM C1305	Pass
Nail Sealability	AAMA 714 Sec 5.2 (AAMA 711 Sec 5.2), modified ASTM D1970 sec 7.9	No failure before and after thermal cycling, 24 hours at 40°F with 31.75 mm (1 ¼") head of water	Pass
Accelerated Aging	AAMA 714 Sec 5.3, ASTM G154, Cycle 1	No deleterious effects such as wrinkling, distortion, blistering, expansion, shrinkage or warpage after 14 days (336 hours) to Cycle 1 of G154	Pass
Elevated Temperature	AAMA 714 Sec 5.4	No deleterious effects such as wrinkling, distortion, blistering, expansion, shrinkage or warpage at 50°C (122°F), 65°C (149°F) and 80°C (176°F)	Pass
Thermal Cycling	AAMA 714 Sec 5.5	No deleterious effects such as wrinkling, distortion, blistering, expansion, shrinkage or warpage after 10 cycles	Pass
Water Immersion	AAMA 714 Sec 5.7	No deleterious effects such as wrinkling, distortion, blistering, expansion, shrinkage or warpage after 7 days	Pass
Adhesion to Damp Substrates	AAMA 714 Sec 6.1 and 6.2	Minimum 5 pli, over OSB and mortar (absorptive substrates)	Pass
Water Vapor Permeability	AAMA 714 Sec 6.3, ASTM E96 Method B	0.2 l/(s.m2) @75 Pa (0.04 cfm/ft2 @ 1.57 psf)	19.9 perms @ 12 mils 7.2 perms @ 30 mils

Note: all testing with MaxFlash at 12 mils unless otherwise noted

5. MAXFLASH AAMA 711-13 - Voluntary Specification for Self-Adhering Flashing Used for Installation of Exterior Wall Fenestration Products

TEST	METHOD	CRITERIA	RESULTS
Peel Adhesion	ASTM D3330 Method F Control AAMA 711 Sec 5.3 UV exposure Sec 5.4, ASTM G154 Elevated temperature AAMA 711 Sec 5.5	Tested over ASTM C1177 sheathing, plywood, OSB, PVC, galvanized steel, aluminum	Pass control and after conditioning, minimum 1.5 pli

	Thermal cycling AAMA 711 Sec 5.6 7 day water immersion AAMA 711 Sec 5.8		
Tensile Strength	AAMA 711 Sec 5.1 ASTM D 1970 Sec. 7.9	Minimum 2.9 pli	Pass at 42 and 30 mils
Nail Sealability	AAMA 711 Sec 5.2 (AAMA 711 Sec 5.2), modified ASTM D1970 sec 7.9	No failure before and after thermal cycling, 24 hours at 40°F with 31.75 mm (1 ¼") head of water	Pass
Accelerated Aging	AAMA 711 Sec 5.4, ASTM G154, Cycle 1	No deleterious effects such as wrinkling, distortion, blistering, expansion, shrinkage or warpage after 14 days (336 hours) to Cycle 1 of G154	Pass
Elevated Temperature	AAMA 711 Sec 5.5	No deleterious effects such as wrinkling, distortion, blistering, expansion, shrinkage or warpage at 50°C (122°F), 65°C (149°F) and 80°C (176°F)	Pass
Thermal Cycling	AAMA 711 Sec 5.6	No deleterious effects such as wrinkling, distortion, blistering, expansion, shrinkage or warpage after 10 cycles	Pass
Cold Temperature Pliability	AAMA 711 Sec. 5.7 ASTM D1970 Sec 7.6	No cracking of samples bent around 25 mm (1") mandrel at -18°C (0°F) and -29°C (-20°F)	Pass at 12 and 30 mil
Water Immersion	AAMA 711 Sec 5.8	No deleterious effects such as wrinkling, distortion, blistering, expansion, shrinkage or warpage after 7 days	Pass
Peeling Resistance	AAMA 711 Sec 5.9, Annex 2	No signs of peeling after 7 days exposure to elevated temperatures - 50°C (122°F), 65°C (149°F) and 80°C (176°F)	Pass

6. MAXFLASH ICC-ES AC-212

TEST	METHOD	CRITERIA	RESULTS
Sequential Testing: 1. Structural 2. Racking 3. Restrained Environmental Conditioning 4. Water Penetration	AC-212 Sec 4.2 1. ASTM E 1233 2. ASTM E 72 3. AC-212 Sec. 4.7.3 4. ASTM E 331	No cracking at joints or interface of flashing No water penetration after 15 min @ 137 Pa (2.86 psf)	Pass - Tested over OSB and gypsum sheathing No water penetration after 90 min @ 299 Pa (6.24 psf) or or 575 Pa (12psf)
Weather Testing Sequential: 1. UV Light Exposure 2. Accelerated Aging 3. Hydrostatic Pressure Test	AC-212 Sec 4.8 1. AC-212 Sec. 4.8.1 2. AC-212 Sec 4.82.2 3. AATCC 127	No cracking or bond failure after 210 hrs No cracking or bond failure after 25 cycles No water penetration under 550 mm (21.7") head of water	Pass
Freeze-Thaw	AC-212 Sec. 4.2	10 cycles, no deleterious effects such as cracking, checking, crazing or erosion, viewed at 5x magnification	Pass
Water Resistance	AC-112 Sec 4.3 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 103 kPa (15 psi)	Pass - Tested over exterior gypsum sheathing, ASTM C1177 glass-mat sheathing, cement board, OSB, plywood, CMU; pvc and galvanized flashing

Tensile Bond	AC-212 Sec. 4.1 ASTM C 297	Minimum 103 kPa (15 psi) avg; no failure after 10 cycles freeze-thaw	Pass 105 kPa (15 psi) - Tested over ASTM C1177 sheathing, plywood, OSB, cement board, PVC, aluminum, galvanized steel and stainless steel
Water Vapor Permeability	AC-212 Sec. 4.4 ASTM E96 Method B	Report Value	19.9 perms @ 12 mils 7.2 perms @ 30 mils
Water Penetration	AC-212 Sec, 4.5 ASTM E331	No water penetration at: 137 Pa (2.86 psf) 299 Pa (6.24 psf) 575 Pa (12 psf)	Pass, testing performed with MaxFlash exposed over sheathing joints.
Air Permiance of Building Materials	ASTM E2178	0.02 l/(s.m2) @75 Pa (0.004 cfm/ft2 @ 1.57 psf)	0.00410 L/s-m2 @ 75 Pa (0.00082 cfm/ft2 @ 1.57 psf) Performed on 12 mil thick free film sample

Note: all testing with MaxFlash at 20 mils unless otherwise noted

7. General Liquid Flashing Minimum Performance:

TEST	METHOD	CRITERIA	RESULTS
Air Permiance of Building Materials	ASTM E2178	0.02 l/(s.m2) @75 Pa (0.004 cfm/ft2 @ 1.57 psf)	0.00410 L/s-m^2 @ 75 Pa (0.00082 cfm/ft^2 @ 1.57 psf), performed on free film sample
Air Leakage of Air Barrier Materials	ASTM E2357	0.2 l/(s.m2) @75 Pa (0.04 cfm/ft2 @ 1.57 psf)	TBD
Nail Sealability	ASTM D1970 Sec. 7.9	No water penetration at galvanized roofing nail penetration under 127 mm (5”) head of water after 3 days at 4° C (40° F)	Pass, before and after thermal cycling, 3 days at 40°F with 127 mm (5”) head of water
Surface Burning	ASTM E84	Flame Spread < 25 Smoke Development < 450	Pass, tested at 30 mils

1.06 QUALITY ASSURANCE

A. Manufacturer: More than 10 years in the EIFS industry, with more than 1000 completed EIFS projects.
B. Applicator: Approved by Master Builders Solutions in performing work of this section.
C. Regulatory Requirements: Conform to applicable code requirements for air/water resistive barriers.
D. Source Limitations: Obtain primary air-barrier material and through wall flashing through one source from or approved by a single manufacturer.
E. Mockups: Before beginning installation of air barrier, provide air barrier work for exterior wall assembly mockups, incorporating backup wall construction, external cladding, window, door frame and sill, insulation, and flashing to demonstrate surface preparation, crack and joint treatment, and sealing of gaps, terminations, and penetrations of air barrier membrane.
   1. Coordinate construction of mockup to permit inspection by Owner's testing agency of air barrier before external insulation and cladding is installed.
   2. If Architect determines mockups do not comply with requirements, reconstruct mockups and apply air barrier until mockups are approved.
F. Pre-Installation Conference: A pre-installation conference shall be held prior to commencement of field operations to establish procedures to maintain optimum working conditions and to coordinate this work with related and adjacent work. Pre-installation conference shall include the Contractor, installer, Architect, and system manufacturer's field representative. Agenda for meeting shall include but not be limited to the following:
   1. Review of submittals.
   2. Review of surface preparation, minimum curing period and installation procedures.
   3. Review of special details and flashings.
   4. Sequence of construction, responsibilities and schedule for subsequent operations.
   5. Review of mock-up requirements.
   6. Review of inspection, testing, protection and repair procedures.

1.07 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle products under provisions of Section [01 65 00] [01 66 00] [ ].
B. Deliver Finestone FINESTOP RA/RS and associated materials in original unopened packages with

manufacturer's labels intact.

C. Protect Finestone FINESTOP RA/RS and associated materials during transportation and installation to avoid physical damage.
D. Store Finestone FINESTOP RA/RS in cool, dry place protected from freezing. Store at no less than 4°C/40°F.
E. Store Finestone FINESTOP RA/RS and associated materials protected from direct sunlight and extreme heat.
F. Store Finestone SHEATHING FABRIC and WS WRAP flexible flashing in cool, dry place protected from exposure to moisture.
G. Store MAXFLASH at a minimum of 40°F. In cold weather, keep containers at room temperature for at least 24 hours before using.

1.08 PROJECT/SITE CONDITIONS

A. Do not apply Finestone FINESTOP RA/RS in ambient temperatures below 4°C/40°F. If LT ADDITIVE is used, do not apply in ambient temperatures below -3°C/25°F. Provide properly vented, supplementary heat during installation and drying period when temperatures less than 4°C/40°F prevail.
B. Do not apply Finestone FINESTOP RA/RS and associated materials to frozen surfaces.
C. Maintain ambient temperature at or above 4°C/40°F during and at least 24 hours after application of Finestone FINESTOP RA/RS and associated materials installation and until dry.
D. Limit exposure of Finestone FINESTOP RA/RS and associated products to a maximum of 180 days.

1.09 SEQUENCING AND SCHEDULING

A. Coordinate and schedule installation of Finestone FINESTOP RA/RS and associated materials with related work of other sections.
B. Coordinate and schedule installation of flashing and joint sealers to prevent water infiltration behind the exterior cladding system.

1.10 WARRANTY

A. Material Warranty: Provide Master Builders Solutions materials warranty for Finestone FINESTOP RA/RS installations under provisions of Section [01 70 00].
   1. Comply with Master Builders Solutions applicator approval requirements and notification procedures to assure qualification for warranty.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Finestone FINESTOP RA/RS Air/Water-Resistive Barrier manufactured by Master Builders Solutions.

2.02 MATERIALS

NOTE TO SPECIFIER: Items in blue/underlined indicate a system option or choice of options. Throughout the specification, delete those which are not required or utilized. Contact Master Builders Solutions' Technical Service Department for further assistance.

A. Air/Water Resistive Barrier Components:

1. WS FIL Block Filler: A one-component, water-based block filler designed to prepare rough, porous concrete / masonry substrates for subsequent application of Finestone fluid applied air/water-resistive barrier products
2. Air/Water-Resistive Barrier: **(Required, Select a or b)**
   a. FINESTOP RA: A one-component fluid-applied vapor permeable air/water-resistive barrier.
   b. FINESTOP RS: A one-component fluid-applied vapor permeable air/water-resistive barrier for use with airless spray equipment.
3. Rough Opening and Joint Treatment: **(Required, Select a or b)**
   a. SHEATHING FABRIC: A spun-bonded non-woven reinforced polyester web for use with Finestone fluid applied air/weather-resistive barriers.
   b. MAXFLASH: A one-component elastomeric material for use as a flexible flashing membrane.
4. Transitional Membrane / Expansion Joint Flashing **(If selected, both a & b are required)**

a. WS FLASH: 30-mil thick, self-sealing, self-healing composite membrane of polyester fabric and rubberized asphalt. Compatible with Finestone liquid air/weather resistive barriers.
b. FLASHING PRIMER: A water-based primer for use prior to application of WS FLASH on all acceptable surfaces.

5. LT ADDITIVE Cold Temperature Additive: Blending of LT ADDITIVE with a pail of FINESTOP RA/RS enables application of these materials at temperatures as low as -4°C (25°F).

2.03 ACCESSORIES

A. Sprayed Polyurethane Foam Sealant: 1- or 2-component, foamed-in-place, polyurethane foam sealant, 1.5 to 2.0 lb/cu. ft (24 to 32 kg/cu. m) density; flame spread index of 25 or less according to ASTM E162; with primer and noncorrosive substrate cleaner recommended by foam sealant manufacturer.
B. Joint Sealant: reference *Acceptable Sealant for use with Finestone Air/Water-Resistive Barriers* Technical Bulletin.

PART 3 EXECUTION

3.01 EXAMINATION

A. Site Conditions:

1. Verify project site conditions under provisions of Section [01 00 00].

B. Walls:

1. Substrates:
   a. Roller applied air/water-resistive barrier acceptable substrates: Acceptable substrates are: PermaBase® Cement Board and other cement-boards conforming with ASTM C1325 (Type A-exterior); poured concrete/unit masonry; ASTM C1177 type sheathings, including, Weather Defense™ Platinum sheathing, GreenGlass® sheathing, eXP™ sheathing, GlasRoc® sheathing, Securock™ glass-mat sheathing, and DensGlass® exterior sheathing. DensElement (sheathing only); gypsum sheathing (ASTM C79/C1396); Huber Zip (sheathing only); Exposure I or exterior plywood (Grade C/D or better); or Exposure I OSB. Consult the Master Builders Solutions Technical Services Department for all other applications.
   b. Wall sheathing must be securely fastened per applicable building code and sheathing manufacturer's requirements.
   c. Examine surfaces to receive FINESTOP RA/RS air/water resistive barrier and verify that substrate and adjacent materials are dry, clean, sound, and free of releasing agents, paint, or other residue or coatings. Verify substrate is flat, free of fins or planar irregularities greater than 6.4 mm in 3 m (1/4" in 10').
   d. Verify that concrete is visibly dry and free of moisture. Test for capillary moisture by plastic sheet method according to ASTM D4263.
   e. Verify that masonry joints are struck flush and completely filled with mortar.
2. Flashings:
   a. All flashings are by others and must be installed in accordance with specific manufacturer's requirements. Where appropriate, end-dams must be provided.
   b. Openings must be flashed prior to window/door, HVAC, etc. installation. Refer to WS FLASH product bulletin and the Finestone *Air/Water-Resistive/Vapor Barrier Application Guidelines* bulletin for further information.
   c. Windows and openings shall be flashed according to design and Building Code Requirements.
   d. Individual windows that are ganged to make multiple units require continuous head flashing and the joints between the units must be fully sealed.
3. Roof:
   a. Verify that all roof flashings have been installed in accordance with the guidelines set by the Asphalt Roofing Manufacturers Association (ARMA).
4. Kick-out flashing:
   a. Kick-out flashing must be installed leak-proof and angled (min 100°) to allow for proper drainage and water diversion.

C. Do not proceed until all unsatisfactory conditions have been corrected.

3.02 PREPARATION

Finestop RA / Finestop RS Air/Water-Resistive Barrier

A. Protect all surrounding areas and surfaces from damage and staining during application of Finestone FINESTOP RA/RS Air/Water-Resistive Barrier.
B. Protect finished work at end of each day to prevent water penetration.
C. Substrate preparation: Prepare substrates in accordance with Finestone instructions.

3.03 MIXING

General: No additives are permitted unless specified in product mixing instructions. Close containers when not in use. 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. Clean tools and equipment with water immediately after use. Dried material can only be removed mechanically.

NOTE TO SPECIFIER: Keep only the products in this section which were selected in Section 2.02. Delete those not to be utilized.

A. Air/Water-Resistive Barriers:

1. WS FIL & FINESTOP RA/RS: Mix with a clean, rust-free paddle and drill until thoroughly blended. Do not add water.
2. Cold Temperature Additive: LT ADDITIVE: Pour the entire contents of one (1) bottle of LT ADDITIVE into one (1) full pail of FINESTOP-R. Mix with a clean, rust-free paddle and drill until fully blended.

3.04 APPLICATION

NOTE TO SPECIFIER: Keep only the products in this section which were selected in Section 2.02. Delete those not to be utilized.

A. Air/Water Resistive Barrier:

1. Substrate shall be installed per substrate manufacturer's instructions. Substrate shall be dry, clean, sound and free of release agents, paint or other residue or coatings. Verify substrate is flat, free of fins or planar irregularities greater than 6.4 mm in 3 m (1/4" in 10'). Unsatisfactory conditions shall be reported to the general contractor and corrected before application of the air/water-resistive barrier materials.
2. Rough Openings: **(Required, Select a or b)**
   a. SHEATHING FABRIC: Wrap openings with SHEATHING FABRIC by applying mixed FINESTOP RA/RS to all surfaces and immediately embedding SHEATHING FABRIC. If necessary, apply a second coat of FINESTOP RA/RS over the SHEATHING FABRIC ensuring a continuous, void- and wrinkle- free membrane application (wet-on-wet spray application is acceptable).
   b. 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. 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 membrane minimum 4 inches onto the exterior wall, maintaining 12-20 mil thickness. Extend MAXFLASH at a minimum 4 inches onto the exterior wall, maintaining 12-20 mil thickness. Allow MAXFLASH to skin before applying fluid-applied air/water-resistive barrier to sheathing. Lap the air/water-resistive barrier a minimum of 2 inches onto MAXFLASH, creating a continuous, monolithic air/water-resistive barrier membrane. Allow MAXFLASH to cure prior to the installation of windows, doors and other wall assemblies.
3. Sheathing Joints: **(Required, Select a or b)**
   a. SHEATHING FABRIC: Spot all fasteners and precoat sheathing joints, terminations, inside and outside corners with mixed FINESTOP RA/RS using a 101 mm (4") wide by 20 mm (3/4") nap roller, brush or spray. Immediately place and center SHEATHING FABRIC over wet FINESTOP RA/RS at all sheathing joints, terminations, inside and outside corners, as well as knot holes and check cracks that may exist in plywood or OSB. Ensure SHEATHING FABRIC extends evenly on both sides of the sheathing joint. Completely saturate SHEATHING FABRIC with FINESTOP-R. Lap SHEATHING FABRIC 63.5 mm (2 1/2") minimum at intersections. If using roller, brush, or trowel application, allow to dry to the touch before applying FINESTOP RA/RS to entire wall surface. If spraying, "wet on wet" application is acceptable.
   b. Apply a thick bead of MAXFLASH to sheathing joints. Spread MAXFLASH evenly a minimum of 1-inch beyond the joint on either side. Apply 20 mils of MAXFLASH across the sheathing joint.

Spot fastener heads with MAXFLASH or fluid-applied air/water-resistive barrier.
Allow MAXFLASH to skin before applying fluid-applied air/water-resistive barrier to sheathing.

4. Field of Substrate: **(Required, Select a or b)**
   a. Apply FINESTOP RA/RS to DensGlass™ exterior sheathing, eXP™ sheathing, GlasRoc® sheathing, Securock™ glass-mat sheathing, Weather Defense™ Platinum sheathing, GreenGlass® sheathing, PermaBase™ cement-board by National Gypsum and other cement-boards (ASTM C1325 Type A Exterior) and gypsum sheathing (ASTM C79/ASTM C1396) with a 20 mm (3/4") nap roller, stainless steel trowel, brush or spray gun to a consistent, minimum 10 wet mil thickness that is free of voids and pin holes. A fully loaded roller pad is required to obtain a consistent, minimum 10 wet mil thickness. Back rolling may be needed to produce a pinhole-free film. Note: Refer to Spray Application technical bulletin for spray application equipment and application instructions.
   b. Apply FINESTOP RA/RS to plywood, OSB or CMU substrate(s) with a 20 mm (3/4") nap roller or spray to 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 FINESTOP RA/RS is required over OSB, plywood and CMU. FINESTOP RA/RS may be sprayed to a 20-mil thickness over OSB and plywood in one wet application. For spray application, back rolling may be needed to produce a pinhole-free film.

2. Limit the weather exposure of FINESTOP RA/RS to a maximum of 180 days. Verify surfaces are free of dirt, contaminants, or other deleterious conditions before application of cladding. Report and correct any such conditions prior to cladding application. Dry/cure times of adhesively applied EPS insulation board installed over FINESTOP RA/RS may be prolonged, particularly in cool and/or damp weather. Non-cementitious adhesives are not recommended for EPS insulation board attachment to FINESTOP-R.

B. Transition Membrane Installation

1. Install FINESTOP RA/RS / SHEATHING FABRIC and/or WS FLASH/FLASHING PRIMER and sealant in accordance with project details & specifications to form a seal with adjacent construction and maintain a continuous air/water-resistive barrier.
   a. General Contractor shall make provision to coordinate the installation of air barrier with installation of roofing membrane and base flashing to ensure continuity of air barrier with roofing membrane.
   b. General Contractor shall make provision to install strip on roofing membrane or base flashing so that a minimum of 75 mm (3”) of coverage is achieved over both substrates.
2. Apply FLASHING PRIMER to substrates scheduled to receive transition membrane as required and at required amount. Apply membrane as soon as possible after FLASHING PRIMER is dry and tacky. Limit priming to areas that will be covered with WS FLASH on the same day. Re-prime areas exposed for more than 24 hours. Using a wallpaper roller, extension-handled counter top roller or weighted hand roller, firmly roll the WS FLASH to the area being sealed. As the WS FLASH is applied, pull more of the release film from the WS FLSH, exposing the adhesive surface, pressing down on the WS FLASH with a roller and keeping the WS FLSH smooth.

3.05 FIELD QUALITY CONTROL

A. Testing Agency: Owner may engage a qualified testing agency to perform tests and inspections and prepare test reports.

B. Inspections: Air barrier materials and installation are subject to inspection for compliance with requirements. Inspections may include the following:

1. Continuity of air barrier system has been achieved throughout the building envelope with no gaps or holes.
2. Continuous structural support of air barrier system has been provided.
3. Masonry and concrete surfaces are smooth, clean and free of cavities, protrusions, and mortar droppings.
4. Site conditions for application temperature and dryness of substrates have been maintained.
5. Maximum exposure time of materials to UV deterioration has not been exceeded.

6. Surfaces have been primed, if applicable.
7. Laps in strips and transition strips have complied with minimum requirements and have been shingled in the correct direction (or mastic has been applied on exposed edges), with no fish mouths.
8. Termination sealant has been applied on cut edges.
9. Strips and transition strips have been firmly adhered to substrate.
10. Compatible materials have been used.
11. Transitions at changes in direction and structural support at gaps have been provided.
12. Connections between assemblies (membrane and sealants) have complied with requirements for cleanliness, preparation and priming of surfaces, structural support, integrity, and continuity of seal.
13. All penetrations have been sealed.

C. Tests: Testing to be performed will be determined by Owner's testing agency from among the following tests:
1. Qualitative Testing: Air barrier assemblies will be tested for evidence of air leakage according to ASTM E1186, smoke pencil with pressurization or depressurization.

D. Remove and replace deficient air barrier components and retest as specified above.

3.06 CLEANING AND PROTECTION

A. Protect air barrier system from damage during application and remainder of construction period.

B. Protect air barrier from exposure to UV light and harmful weather exposure as required by manufacturer. Remove and replace air barrier exposed for more than 90 days.

C. Clean spills, stains, and soiling from construction that would be exposed in the completed work using cleaning agents and procedures recommended by manufacturer of affected construction.

D. Remove masking materials after installation.

END OF SECTION

WARRANTY

Master Builders Solutions Construction Systems US, LLC (hereinafter “Master Builders Solutions”) warrants this product to be free from manufacturing defects and to meet the technical properties on the current Product Bulletin, if used as directed within shelf life. Satisfactory results depend not only on quality products but also upon many factors beyond our control. MASTER BUILDERS SOLUTIONS MAKES NO OTHER WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO ITS PRODUCTS. The sole and exclusive remedy of Purchaser for any claim concerning this product, including but not limited to, claims alleging breach of warranty, negligence, strict liability or otherwise, is shipment to purchaser of product equal to the amount of product that fails to meet this warranty or refund of the original purchase price of product that fails to meet this warranty, at the sole option of Master Builders Solutions. In the absence of an extended warranty issued by Master Builders Solutions, any claims concerning this product must be received in writing within one (1) year from the date of shipment and any claims not presented within that period are waived by Purchaser. Master Builders Solutions WILL NOT BE RESPONSIBLE FOR ANY SPECIAL, INCIDENTAL, CONSEQUENTIAL (INCLUDING LOST PROFITS) OR PUNITIVE DAMAGES OF ANY KIND.

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