

ICC-ES Evaluation Report**ESR-1064**

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DIVISION: 09 00 00—FINISHES
Section: 09 24 00—Portland Cement Plastering**REPORT HOLDER:****BASF CONSTRUCTION CHEMICALS, LLC**
3550 ST. JOHNS BLUFF ROAD SOUTH
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www.wallsystems.basf.com**EVALUATION SUBJECT:****STUCCOBASE CEMENTITIOUS EXTERIOR WALL
COVERING SYSTEM****ADDITIONAL LISTEES:****ACROCRETE**
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- 2006 *International Building Code*® (IBC)
- 2006 *International Residential Code*® (IRC)
- BOCA® *National Building Code*/1999 (BNBC)
- 1999 *Standard Building Code*® (SBC)
- 1997 *Uniform Building Code*™ (UBC)

Properties evaluated:

- Weather resistance and durability
- Fire resistance
- Noncombustible construction
- Structural

2.0 USES

StuccoBase is a cementitious exterior wall covering system installed on exterior walls of wood or steel frame, concrete or masonry construction.

3.0 DESCRIPTION**3.1 General:**

StuccoBase is a proprietary mixture of portland cement, sand, chopped fibers and proprietary ingredients reinforced with wire fabric, metal or glass fiber lath and applied to substrates of expanded polystyrene (EPS) insulation board, gypsum sheathing board, fiberboard, plywood, or oriented strand board (OSB). StuccoBase is also applied over concrete or masonry units with or without lath.

3.2 Materials:

3.2.1 StuccoBase Concentrate: StuccoBase Concentrate is a factory-prepared mixture of Type I, II or III portland cement complying with ASTM C 150, chopped fibers and proprietary additives. The mixture is packaged in 80-pound (36.3 kg) bags. Four and one half gallons (17 L) to 6 gallons (22.7 L) of water and 240 pounds (108.9 kg) of sand are added to each bag in the field and mixed in accordance with the manufacturer's recommendations. Alternatively, the mixture may be blended at a batching plant and delivered with sand in a bulk-mixer to the jobsite and field-mixed with water, under the following conditions:

1. The bulk-mixer bears an identification label showing the Senergy, Finestone, SonoWall Stucco Systems or Acrocrete name and address, the batch plant name and address, the product name, and the evaluation report number (ESR-1064).
2. A signed certificate from the batching plant accompanies each batch, specifying the plant name, contractor's name, jobsite address, date, materials batched, quantity, and curing instructions. The ratio of batched amounts must be 240 pounds (108.9 kg) of sand to 80 pounds (36.3 kg) of mixture.
3. Procedures are in place to prevent tampering in controlling the amount of mixture and sand combined.

Approved color pigments may be added to the stucco mix in accordance with the manufacturer's instructions.

3.2.2 StuccoBase Premix: A factory-prepared mixture of sand and StuccoBase Concentrate, packaged in 80-pound (36.3 kg) bags. One and one fifth gallons (4.5 L) to 1¹/₂ gallons (5.7 L) of water must be added to each bag in the field and mixed.

3.2.3 Sand: Sand must be clean and free from deleterious amounts of loam, clay, silt, soluble salts and organic matter. Sampling and testing must comply with ASTM C 144 or C 897. Sand must be graded in accordance with ASTM C 144 or C 897 within the following limits:

RETAINED ON U.S. STANDARD SIEVE	PERCENT MAINTAINED BY WEIGHT ± 2 PERCENT	
	Minimum	Maximum
No. 4	—	0
No. 8	0	10
No. 16	10	40
No. 30	30	65
No. 50	70	90
No. 100	95	100

3.2.4 Insulation Board: The expanded polystyrene (EPS) insulation board must have a nominal density of 1.5 pounds per cubic foot (24 kg/m³) or greater, a flame-spread index of 25 or less, and a smoke-developed index of 450 or less, and must comply with ASTM C 578 as Type II. Unbacked boards must be 1 to 1¹/₂ inches (25 mm to 38 mm) thick and have 3/8-inch-high (9.5 mm) tongues with compatible grooves for horizontal joints. See Figure 1 of this report for joint detail. All boards must be recognized in an ICC-ES evaluation report. See Section 7.0 for board identification.

When installation is over solid sheathing, grooved insulation boards are required unless using Tyvek[®] StuccoWrap[®] or Tyvek[®] DrainWrap[™] as recognized in [ESR-2375](#) (see Section 4.1.3). The boards must have 1/4-inch-wide-by-1/8-inch-deep (64 mm by 3.2 mm) vertical grooves spaced at 12 inches (405 mm) on the back face of the boards.

3.2.5 Lath:

3.2.5.1 Wire Fabric Lath: Wire fabric lath must comply with the ICC-ES Acceptance Criteria for Metal Plaster Bases (Lath) (AC191). Minimum No. 20 gage [0.035 inch (0.89 mm)], 1-inch galvanized steel, woven-wire fabric must be used. Lath must be furred when applied over all substrates except unbacked polystyrene board. Furring must comply with the following requirements.

1. When maximum total coating thickness is 1/2 inch (12.7 mm) or less, the body of the lath must be furred a minimum of 1/8 inch (3.2 mm) from the substrate after installation.
2. When total coating thickness is greater than 1/2 inch (12.7 mm), No. 17 gage [0.058 inch (1.47 mm)] by 1¹/₂-inch (38 mm) woven-wire fabric lath must be used. The body of the lath must be furred a minimum of 1/4 inch (6.4 mm) from the substrate after installation.

3.2.5.2 Metal Lath: Metal lath must comply with the ICC-ES Acceptance Criteria for Metal Plaster Bases (Lath) (AC191) and, when applicable, UBC Table 25-B. Furring requirements are as set forth in Section 3.2.5.1.

3.2.5.3 Glass Fiber Lath: PermaLath glass fiber lath must comply with ICC-ES evaluation report [ESR-1511](#).

3.2.6 Gypsum Sheathing Board: Water-resistant core gypsum sheathing must comply with ASTM C 79 or ASTM C 1396.

3.2.7 Fiberboard: Minimum 1/2-inch-thick (12.7 mm), asphalt-impregnated fiberboard must comply as ASTM C 208, Type IV, wall sheathing in accordance with IBC Section 2303.1.5.

3.2.8 Wood Structural Panels: The panels must be minimum 5/16-inch-thick (7.9 mm) plywood or OSB, for studs spaced 16 inches (406 mm) on center, and must be minimum 3/8-inch-thick (9.5 mm) plywood or 7/16-inch-thick (11.1 mm) OSB for studs spaced 24 inches (610 mm) on center. Plywood must be exterior grade or Exposure 1 and comply with DOC PS-1 or UBC Standard 23-2, and OSB must be Exposure 1 and comply with DOC PS-2 or UBC Standard 23-3.

3.2.9 Caulking: Acrylic latex caulking materials must comply with ASTM C 834.

3.2.10 Weather Protection:

3.2.10.1 Water-resistive Barrier: Application of the barrier must comply with IBC Section 1404.2, IRC Section R703.2 or UBC Section 1402.1, as applicable. For jurisdictions adopting the IBC or IRC, except when installation is over wood-based sheathing, the water-resistive barrier must be either a minimum of one layer of No. 15 asphalt felt, complying with ASTM D 226, Type I, or a water-resistive barrier recognized as equivalent to ASTM D 226, Type I or better, in a current ICC-ES evaluation report. Tyvek[®] StuccoWrap[®] or Tyvek[®] DrainWrap[™] may be used where required over solid substrates as described in Section 4.1.3.

When application is over any wood-based sheathing, the barrier must be one of the following:

1. A minimum of two layers of Grade D kraft building paper as set forth in IBC Section 2510.6, IRC Section 703.6.3 or UBC Section 2506.4.
2. One layer of insulation board, having horizontal tongue-and-groove edges as described in Section 3.2.4 of this report, over one layer of Grade D kraft building paper having a minimum water-resistance rating of 60 minutes; or an equivalent recognized in a current ICC-ES evaluation report.

3.2.10.2 Vapor Retarder: A vapor retarder complying with Section 1403 of the IBC and Section R318.1 of the IRC must be provided, unless its omission is permitted under the exceptions noted in Section 1403.2 of the IBC or Section R318.1 of the IRC.

3.2.10.3 Flashing, Trim and Accessories: All flashing, trim, weep screeds and corner reinforcement must be of corrosion-resistant metal or approved plastic. Flashing must be installed at the perimeter of all penetrations of the system in accordance with the applicable code. Membrane flashing must comply with AC148 and must be a self-adhering, flexible rubberized asphalt and polyethylene material, 0.030 inch (0.8 mm) thick, shingle-lapped over the water-resistive barrier. Rigid flashing must comply with Section 1405.3 of the IBC and must be sloped towards the exterior, with an upturned leg on the interior side and at the ends. Flashing must extend beyond the surface of the exterior wall.

3.2.11 Miscellaneous: All trim, screeds and corner reinforcement must be galvanized steel or approved plastic.

4.0 INSTALLATION

4.1 Installation:

4.1.1 General: The exterior cementitious coating must be applied by hand-troweling or machine-spraying in one or two coats to a minimum $\frac{3}{8}$ -inch (9.5 mm) thickness. The lath, when required, must be embedded in the minimum coating thickness and therefore cannot be exposed. The cementitious finish coat, if used, must be applied within 72 hours after the base coat, unless the latter is sprayed/brushed with an acrylic-bonding adhesive, or a bonding treatment is added to the finish-coat stucco mix prior to application. Flashing, corner reinforcement, metal trim and weep screeds must be installed as shown in Figure 3 of this report. The coating must be applied at ambient air temperatures ranging from 40°F (4.4°C) to 120°F (49°C) by applicators approved by Senergy, Finestone, SonoWall or Acrocrete. The water-resistive barrier must be applied as set forth in Section 3.2.10.1 of this report. The water-resistive barrier may be omitted when the stucco is installed directly over cast concrete or unit masonry substrates. An installation card, as noted in Figure 2 of this report, must be on the jobsite with the name of the applicator and the product to be used before any water-resistive barrier or exterior sheathing is installed. Also, see Section 5.6 of this report.

4.1.2 Application over Open Framing: Insulation Board: The EPS board described in Section 3.2.4 of this report must be placed horizontally with tongues faced upward and must be temporarily held in place with galvanized staples or roofing nails over open wood studs spaced a maximum of 24 inches (610 mm) on center. Vertical butt joints must be staggered a minimum of one stud space from adjacent courses and must occur directly over studs. The water-resistive barrier must be placed behind the insulation board. The metal lath must then be applied tightly with $1\frac{1}{2}$ -inch (38 mm) end and side laps over the EPS board and fastened through the board and water-resistive barrier to wood studs with No. 11 gage galvanized roofing nails or No. 15 gage galvanized staples spaced 6 inches (152 mm) on center if attached to Douglas fir–larch (minimum specific gravity of 0.50) wood studs. The fastener spacing must be a maximum of 5 inches (127 mm) on center for framing with a minimum specific gravity of 0.46, such as Douglas fir–south, hem-fir–south, western hemlock or western hemlock–south. For framing with a minimum specific gravity of 0.42, such as hem-fir or spruce-pine-fir, the maximum spacing of fasteners must be 4 inches (102 mm) on center. Staples must have a minimum crown width of $\frac{1}{2}$ inch (12.7 mm). Fasteners for metal lath must penetrate a minimum of 1 inch (25 mm) into wood studs. Care must be taken to avoid overdriving fasteners.

StuccoBase must also be permitted to be applied to minimum No. 20 gage [0.035 inch (0.9 mm) minimum base-metal thickness] steel studs spaced a maximum of 24 inches (610 mm) on center. The metal lath must be applied tightly over the polystyrene board with $1\frac{1}{2}$ -inch (38 mm) end and side laps and fastened through the board and water-resistive barrier to the steel studs with No. 7, S12-20, self-drilling, self-tapping, panhead screws spaced 6 inches (152 mm) on center. Screw-head diameter must be a minimum of 0.333 inch (8.5 mm). The screws must be long enough to penetrate studs $\frac{1}{4}$ inch (6.4 mm), with a $1\frac{1}{4}$ -inch (32 mm) minimum length.

Wall bracing in accordance with Section 2308.1.1 or 2308.9.3 of the IBC as limited in Section 2308.2, Section R602.10 or R602.11 of the IRC as limited by Section

R301.2.1.1, Section 2305.8.1 of the BNBC, Section 2308.2.2 or Table 2308.2.2A of the SBC, or Section 2320.11.3 or 2320.11.4 of the UBC, or an acceptable alternative, must be required. Outside wall corners and parapet corners must be covered with extra metal corner reinforcement. Weep screeds must comply with, and be installed at the bottom of the wall in accordance with, Section 2512.1.2 of the IBC; ASTM C 926, Section A2.2.2 (under the BNBC and SBC); or Section 2506.5 of the UBC. Galvanized steel, $1\frac{3}{8}$ -inch (35 mm), J-shaped trim pieces must be installed at other areas where the EPS board is exposed. At windows and doors, butting J-trim metal edges must be caulked. Holes for hose bibbs, electrical panels and other penetrations of substrate surfaces, except those caused by fasteners, must also be caulked. After caulking, the coating must be applied as described in Section 4.1.1 of this report.

4.1.3 Application over Solid Backing:

4.1.3.1 Fiberboard: Minimum $\frac{1}{2}$ -inch-thick (12.7 mm) fiberboard sheathing must be installed directly over wood studs spaced a maximum of 24 inches (610 mm) on center. The fiberboard must be temporarily held in place with corrosion-resistant staples or roofing nails. A water-resistive barrier, as set forth in Section 3.2.10.1 of this report, must be applied over the fiberboard prior to application of metal lath. When the optional EPS insulation board is installed, drainage provisions must be met by using either grooved foam plastic insulation boards with one of the water-resistive barriers described in Section 3.2.10.1, or by using Tyvek StuccoWrap or DrainWrap as the water-resistive barrier with flat EPS foam plastic insulation boards. The grooves of the foam plastic insulation boards must face the water-resistive barrier and must be aligned vertically, but may be offset a maximum of 6 inches (152 mm) from adjacent boards. The metal lath must then be attached to studs through the sheathing with fasteners and spacings described for insulation board in Section 4.1.2 of this report or as described for fiberboard in either Table 2304.9.1 of the IBC, Table R602.3(1) of the IRC, Table 2305.2 of the BNBC, Table 2306.1 of the SBC, or Table 23-II-B-1 of the UBC, whichever is more restrictive.

The sheathing must also be permitted to be applied to minimum No. 20 gage [0.035 inch (0.9 mm)] minimum base-metal thickness] steel studs spaced a maximum of 24 inches (610 mm) on center. The fiberboard must be temporarily held in place with self-tapping screws, and must be covered by a water-resistive barrier as set forth in Section 3.2.10.1 of this report. Self-furring or furred metal lath must be secured through the water-resistive barrier and sheathing to the studs with No. 7, S12-20, self-drilling, self-tapping panhead screws spaced as for wood studs. Screw-head diameter must be a minimum of 0.333 inch (8.5 mm). The screws must be long enough to penetrate the studs $\frac{1}{4}$ inch (6.4 mm), with a $1\frac{1}{4}$ -inch (32 mm) minimum length. All walls must be braced in accordance with the applicable code. Exposed sheathing edges must be protected with screeds. Holes in the substrate surface must be caulked and the coating applied as described in Section 4.1.1 of this report.

4.1.3.2 Gypsum Sheathing: Minimum $\frac{1}{2}$ -inch-thick (12.7 mm), water-resistant core gypsum sheathing must be installed directly on wood studs spaced a maximum of 24 inches (610 mm) on center, in a manner similar to the installation for fiberboard. Gypsum sheathing must be fastened in accordance with ASTM C 1280 (under the IBC), Table R702.3.5 of the IRC, and Table 2304.1 of the

BNBC, Section 2504.6 of the SBC or Table 25-G of the UBC. The water-resistive barrier must be required over the gypsum sheathing prior to installation of the metal lath and coating as described in Section 4.1.2 of this report. When the optional EPS insulation board is installed, drainage provisions must be met by using either grooved foam plastic insulation boards with one of the water-resistive barriers described in Section 3.2.10.1, or by using Tyvek StuccoWrap or DrainWrap as the water-resistive barrier with flat EPS foam plastic insulation boards. The grooves of the foam plastic insulation boards must face the water-resistive barrier and must be aligned vertically, but may be offset a maximum of 6 inches (152 mm) from adjacent boards.

The sheathing must also be permitted to be applied to minimum No. 20 gage [0.035 inch (0.9 mm) minimum base-metal thickness] steel studs spaced a maximum of 24 inches (610 mm) on center. The gypsum sheathing must be attached to metal studs with screws complying with ASTM C 954 in accordance with Section 2504.0 and Table 2503.2 of the BNBC; ASTM C 1280 (under the IBC); Section R702.3.6 of the IRC; Section 2503.3 and Table 2503.3 of the SBC; or Table 25-G of the UBC, except for spacing, which must be a maximum of 6 inches (152 mm) on center. The water-resistive barrier must be temporarily fastened, and must be followed by the self-furring or furred metal lath. Optional EPS insulation board must be installed as described in Section 4.1.3.1 of this report. The metal lath must be attached through the sheathing to metal studs as set forth in Section 4.1.2 of this report. Screws fastening sheathing and screws fastening metal lath must be staggered from each other.

4.1.3.3 Wood Structural Panels: Wood structural panels must be applied directly to wood studs under conditions set forth in Section 3.2.8 of this report and either Table 2308.9.3(3) or Section 2308.1.1 of the IBC as limited by Section 2308.2; Table R602.3 (3) of the IRC as limited by Section R301.2.1.1; Table 2307.3.5 of the BNBC; Table 2308.1B of the SBC; or Table 23-IV-D-1 and Table 23-11-B-1 of the UBC. The panels must be attached in accordance with Table 2304.9 of the IBC, Table R602.3(1) of the IRC, Table 2305.2 of the BNBC, Table 2306.1 of the SBC or Table 23-II-B-1 of the UBC. The water-resistive barrier, optional foam plastic insulation board, metal lath, and coating must be applied as described in Section 4.1.3.1 of this report for fiberboard.

4.1.3.4 Concrete and Masonry:

4.1.3.4.1 Direct Application without Lath: Surface preparation of cast-in-place or precast concrete and masonry must be straight and true within $\frac{1}{4}$ inch (6.4 mm) in 10 feet (3048 mm) and must be in accordance with Section 2510.7 of the IBC, Section 2506.3 of the BNBC, Section 2504.2 of the SBC or Section 2508.8 of the UBC. Surfaces must be clean and free from any deleterious materials. Surfaces must be adequately rough to have good absorption for proper bonding. Cast-in-place or precast concrete that has smooth or nonabsorbent solid surfaces must be prepared to receive stucco by sandblasting, wire brushing, acid etching, or chipping. The coating must be applied directly to the prepared surface at a minimum thickness of $\frac{3}{8}$ inch (9.5 mm) in accordance with Section 4.1.1 of this report.

4.1.3.4.2 Application with Lath: Lathing and furring used to receive stucco must be installed and conform with ASTM C 1063. Fasteners used to install the lath must be recognized in an ICC-ES evaluation report. The lath must

be fastened in vertical rows, a maximum of 24 inches (609.6 mm) on center. Fastener spacing in each row must be a maximum of 6 inches (152.4 mm). The coating must be applied in accordance with Section 4.1.1 of this report.

4.1.4 Application with PermaLath: Application using PermaLath, as an alternative to metal lath, must comply with ICC-ES evaluation report [ESR-1511](#).

4.2 One-hour Fire-resistance-rated Wall Assembly:

4.2.1 First Assembly (Metal Lath):

4.2.1.1 Interior Face: One layer of $\frac{5}{8}$ -inch-thick (15.9 mm), Type X gypsum board, water-resistant backer board or veneer base complying with ASTM C 36 or ASTM C 1396 must be applied parallel or at right angles to the interior face of 2-by-4 wood studs spaced a maximum of 24 inches (610 mm) on center. The gypsum board must be attached with 6d, cement-coated cooler nails, $1\frac{7}{8}$ inches (48 mm) long with $\frac{1}{4}$ -inch-diameter (6.4 mm) heads, at 7 inches (178 mm) on center to studs, plates and blocking. All gypsum board joints must be backed with minimum 2-by-4 wood framing, taped and treated with joint compound in accordance with Section 22 of ASTM C 840. Fastener heads must also be treated with joint compound in accordance with ASTM C 840.

4.2.1.2 Exterior Face: One layer of minimum $\frac{5}{8}$ -inch-thick (15.9 mm), Type X, water-resistant core-treated gypsum sheathing, 48 inches (1219 mm) wide, must be applied parallel to studs with No. 11 gage galvanized roofing nails $1\frac{3}{4}$ inches (44.5 mm) long with $\frac{7}{16}$ -inch- or $\frac{1}{2}$ -inch-diameter (11.1 mm or 12.7 mm) heads at 4 inches (102 mm) on center at board edges and 7 inches (178 mm) on center at intermediate studs. The sheathing must be nailed to top and bottom plates at 7 inches (178 mm) on center. A water-resistive barrier must be required over the sheathing. The wire fabric lath and wall coating must then be applied, without insulation board, as described in Section 4.1.3.1 of this report.

4.2.1.3 Axial Design: The wood stud axial design stress for the wall assembly, as calculated in accordance with Section 2306 of the IBC, Section R602.3 of the IRC, Section 2303.1.1 of the BNBC, Section 2301.2 of the SBC or Chapter 23, Division III of the UBC, whichever code is applicable, must be limited to $0.78 F_c$, and the maximum stress must not exceed $0.78 F_c$ at a maximum slenderness ratio (l_e/d) of 33.

4.2.2 Second Assembly (Metal Lath):

4.2.2.1 Interior Face: One layer of $\frac{5}{8}$ -inch-thick (15.9 mm), Type X gypsum wallboard, complying with ASTM C 36 or ASTM C 1396, must be applied to the interior face of nominally 2-by-4 wood studs spaced a maximum of 16 inches (406 mm) on center. The gypsum board must be fastened with 2-inch-long (51 mm), No. 11 gage roofing nails with minimum $\frac{5}{16}$ -inch (7.9 mm) head diameters at 6 inches (152 mm) on center to all framing members. As an alternative, the gypsum board attachment must be permitted to be with 6d cooler or wallboard nails spaced at 7 inches (178 mm) on center as set forth in the applicable code. All wallboard joints must be backed with minimum 2-by-4 wood framing, taped and treated with joint compound in accordance with Section 22 of ASTM C 840. Fastener heads must be treated with joint compound in accordance with Section 22 of ASTM C 840. Stud wall cavities must be filled with $3\frac{5}{8}$ -inch-thick (92 mm), R-11 rockwool insulation, with a 1.8 psf (0.086 kN/m²) density, which must be attached to the framing members.

4.2.2.2 Exterior Face: A water-resistive barrier complying with Section 3.2.10.1 of this report must be applied over the exterior stud face, followed by 1-inch-thick (25 mm), 1.5 pcf density (24 kg/m³) EPS board applied as described in Section 4.1.2 of this report. The No. 20 gage woven-wire lath must then be fastened through the EPS board to the wood framing with 2-inch-long (51 mm), No. 11 gage roofing nails having minimum ⁵/₁₆-inch-diameter (7.9 mm) heads at 6 inches (152 mm) on center. StuccoBase must then be applied at least ³/₈ inch (9.5 mm) thick as described in Section 4.1.1 of this report.

4.2.2.3 Axial Design: Axial loads applied to the wall assembly must be limited by the lesser of the following:

- 1,200 pounds (5340 N) per stud.
- A maximum of 50 percent of the load calculated in accordance with Sections 3.6 and 3.7 of the NDS.
- Design stress of 0.78 F'_c calculated in accordance with Sections 3.6 and 3.7 of the NDS.
- Design stress of 0.78 F'_c at a maximum slenderness ratio (l_e/d) of 33 calculated in accordance with Sections 3.6 and 3.7 of the NDS.

4.2.3 Third Assembly (Metal Lath):

4.2.3.1 Interior Face: One layer of ⁵/₈-inch-thick (15.9 mm), Type X gypsum board, complying with ASTM C 36 or ASTM C 1396, is applied horizontally or vertically to the interior face of 2-by-4 wood studs spaced a maximum of 24 inches (610 mm) on center. The gypsum board must be fastened to the studs and perimeter framing using 1⁷/₈-inch-long (47.6 mm), 0.100-inch-diameter (2.54 mm), galvanized steel, cupped-head drywall nails, having a minimum head diameter of 0.300 inch (7.62 mm), spaced a maximum of 7 inches (178 mm) on center. All gypsum board joints must be taped and treated with joint compound in accordance with Section 22 of ASTM C 840. All vertical joints in the gypsum board must occur over studs. Fastener heads must also be treated with joint compound in accordance with Section 22 of ASTM C 840. Kraft paper-faced fiberglass insulation batts must be placed in the cavities between the studs, with the kraft paper surface on the interior side of the wall, and fastened to the studs. The insulation batts must have an R-11 thermal resistance value, and measure 3¹/₂ inches (89 mm) thick.

4.2.3.2 Exterior Face: One layer of ⁷/₁₆-inch-thick (11.1 mm) OSB, one layer of ¹⁵/₃₂-inch-thick (11.9 mm) plywood or one layer of ¹/₂-inch-thick (12.7 mm), water-resistant core treated gypsum sheathing complying with ASTM C 79 or ASTM 1396, must be applied vertically to the wall, and fastened to the wood studs, sills and plates using 1⁷/₈-inch-long (48 mm) by 6d coated sinker nails spaced a maximum of 8 inches (203 mm) on center. All vertical joints in the OSB, plywood or gypsum board must occur over studs. One or two layers of building paper, depending on substrate, must be applied to the exterior face and attached to the wood studs in accordance with Section 3.2.10 of this report. One-inch (25 mm) by No. 20 gage woven-wire lath must be fastened through the sheathing to the studs with 1¹/₄-inch-long-by-No.-16-gage-by-1-inch-crown staples, spaced 6 inches (152 mm) on center along all studs and perimeter framing. The StuccoBase mixture must then be applied to the lath in accordance with Section 4.1.1 of this report at a minimum thickness of ³/₈ inch (9.5 mm). For studs 10 feet (3048 mm) long or longer, a mid-height blocking between studs must be required.

4.2.3.3 Axial Design: Axial loads applied to the system described in Section 4.2.3.2 of this report must be limited to the lesser of the following:

1. 1,100 pounds (4895 N) per stud.
2. A maximum of 47.5 percent of the load calculated in accordance with Sections 3.6 and 3.7 of the NDS.
3. Design stress of 0.78 F'_c calculated in accordance with Sections 3.6 and 3.7 of the NDS.
4. Design stress of 0.78 F'_c at a maximum slenderness ratio (l_e/d) of 33 calculated in accordance with Sections 3.6 and 3.7 of the NDS.

4.2.4 Fourth Assembly (PermaLath):

4.2.4.1 Interior Face: One layer of ⁵/₈-inch-thick (15.9 mm), Type X gypsum board, complying with ASTM C 36 or ASTM 1396, is applied horizontally or vertically to the interior face of 2-by-4 wood studs spaced a maximum of 16 inches (406 mm) on center. The gypsum board must be fastened to the studs and perimeter framing using 1⁷/₈-inch-long (47.6 mm), 0.100-inch-diameter (2.54 mm), galvanized steel, cupped-head drywall nails, having a minimum head diameter of 0.300 inch (7.62 mm), spaced a maximum of 8 inches (178 mm) on center. All gypsum board joints must be taped and treated with joint compound in accordance with Section 22 of ASTM C 840. All vertical joints in the gypsum board must occur over studs. Fastener heads must also be treated with joint compound in accordance with Section 22 of ASTM C 840. Kraft paper-faced fiberglass insulation batts must be fitted into each stud using Arrow No. T50 ⁵/₁₆-inch (8 mm) staples spaced nominally 6 inches (152 mm) on center. The insulation batts must have an R-11 thermal resistance value, and measure 3¹/₂ inches (89 mm) thick.

4.2.4.2 Exterior Face: One layer of ⁷/₁₆-inch-thick (11.1 mm) OSB must be applied vertically or horizontally to the wall and fastened to the wood studs, sills and plates using 1⁷/₈-inch-long (48 mm) by 6d coated sinker nails spaced a maximum of 8 inches (203 mm) on center. All vertical joints in the OSB must occur over studs. Two layers of a water-resistive barrier must be applied to the exterior face and attached to the wood studs in accordance with Section 3.2.10 of this report. PermaLath must be applied over the water-resistive barrier with a minimum of 3 inches (76 mm) of overlap at vertical and horizontal edges and overlap onto the flange of trim accessories. PermaLath must be applied horizontally such that it is flat and free of ripples, wrinkles, etc. PermaLath must be attached using galvanized staples (No. 16 gage, 1-inch crowns, 1¹/₄-inch legs) to the framing every 6 inches (152 mm) on center. The StuccoBase mixture must then be applied to the lath in accordance with Section 4.1.1 of this report at a minimum thickness of ³/₈ inch (9.5 mm). For studs 10 feet (3048 mm) long or longer, a mid-height blocking between studs must be required.

4.2.4.3 Axial Design: Axial loads applied to the wall assembly must be limited by the lesser of the following:

1. 1,100 pounds (4895 N) per stud.
2. A maximum of 47.5 percent of the load calculated in accordance with Sections 3.6 or 3.7 of the NDS.
3. Design stress of 0.78 F'_c calculated in accordance with Sections 3.6 and 3.7 of the NDS.
4. Design stress of 0.78 F'_c at a maximum slenderness ratio (l_e/d) of 33 in accordance with Sections 3.6 and 3.7 of the NDS.

4.2.4.4 Fire Separation Distance: When installed in accordance with Section 4.2.4, exterior walls must have a minimum fire separation distance of 5 feet (1524 mm).

4.3 Type I, II, III or IV Construction:

The stucco system, without EPS, may be installed on exterior walls required to be Type I, II, III or IV construction (IBC, BNBC, SBC) or noncombustible construction (UBC), as follows:

4.3.1 Assembly 1 (Metal Lath):

4.3.1.1 Interior Finish: Interior finish must consist of $\frac{5}{8}$ -inch-thick (15.9 mm), Type X gypsum board attached as noted for exterior finish.

4.3.1.2 Steel Framing: Minimum $3\frac{5}{8}$ -inch-deep (92 mm), No. 20 gage steel studs [0.035 inch (0.91 mm) thick] must be spaced a maximum of 16 inches (406 mm) on center.

4.3.1.3 Openings: Wall openings must be framed with minimum $\frac{1}{8}$ -inch-thick (3.2 mm), tubular aluminum or steel framing.

4.3.1.4 Exterior Finish: One layer of $\frac{5}{8}$ -inch-thick (15.9 mm), water-resistant, Type X gypsum board, complying with ASTM C 79, must be applied vertically to steel framing with all edges blocked. Fasteners are No. 8 by $1\frac{1}{4}$ -inch-long (32 mm) buglehead screws fastened to board joints at 8 inches (203 mm) on center and intermediate locations at 12 inches (305 mm) on center. All joints must be taped and treated with joint compound in accordance with Section 22 of ASTM C 840. Intermediate fasteners must be treated with compound in accordance with Section 22 of ASTM C 840. Weather-protection in compliance with Section 3.2.10 of this report must be required. StuccoBase must be applied at a minimum $\frac{3}{8}$ -inch (9.5 mm) thickness as described in Section 4.1.1 of this report. Combustible sheathing, such as fiberboard, plywood, oriented strand board and foam plastic, must not be used.

4.3.2 Assembly 2 (Metal Lath):

4.3.2.1 Interior Finish: One layer of $\frac{5}{8}$ -inch-thick (15.9 mm), Type X gypsum wallboard, complying with ASTM C 36 or ASTM 1396, must be vertically applied to steel framing with blocked edges. The wallboard must be fastened to framing with minimum 1-inch-long (25 mm), No. 8-18, S-12, self-tapping screws spaced 6 inches (152 mm) on center. All board joints must be taped and treated with joint compound. Fastener heads must be covered with joint compound.

4.3.2.2 Steel Framing: Steel framing must be minimum $3\frac{5}{8}$ -inch-deep (92.1 mm), No. 20 gage [0.035 inch (0.91 mm) thick] steel framing. Vertical framing members (studs) must be spaced a maximum of 16 inches (406 mm) on center.

4.3.2.3 Openings: Wall openings must be framed with minimum No. 20 gage [0.035 inch (0.91 mm) thick] metal framing.

4.3.2.4 Exterior Finish: One layer of minimum $\frac{1}{2}$ -inch-thick (12.7 mm), water-resistant-core gypsum sheathing must be attached to the metal framing as described in Section 4.1.3.2 of this report. Combustible sheathing, such as fiberboard, plywood, oriented strand board and foam plastic, must not be used.

4.3.2.5 Stud Cavity: R-11 fiberglass or rock wool batt, $3\frac{5}{8}$ inches (92.1 mm) thick, must be sized to friction-fit between studs.

4.3.2.6 Stucco: A water-resistive barrier, as described in Section 3.2.10.1 of this report, must be applied over the gypsum sheathing with minimum 2-inch (51 mm) horizontal weather laps and 6-inch (152 mm) vertical laps. The lath and StuccoBase must be applied as noted in Sections 4.1.1 and 4.1.3 of this report.

4.4 Miscellaneous:

4.4.1 Inspection Requirements: Building department inspection of lath installation must be required prior to application of the coating as noted in Section 109.3.5 of the IBC, Section R109.1.5.1 of the IRC or Section 108.5.5 of the UBC.

4.4.2 Control Joints: Control joints must be installed as specified by the registered design professional, designer, builder, or exterior coating manufacturer, in that order. In the absence of details, conventional three-coat plastering details must be used.

4.4.3 Curing: Moist curing must be required for a minimum of 24 hours after coating application.

4.4.4 Soffits: The system must be permitted to be applied to soffits, provided the coating is applied over metal lath complying with Section 3.2.5.2 of this report in lieu of wire fabric lath. Metal lath fastening must comply with the ASTM C 926 or C 1063 (IBC, BNBC, and SBC), Section R703.6 of the IRC, or Table 25-C of the UBC, except the fastener length must be increased by the thickness of any substrate.

4.4.5 Sills: The system may be applied to sills at locations such as windows and other similar areas. Sills with depths of 6 inches (152 mm) or less may have the coating and lath applied to any substrate permitted in this report, provided the coating, lath, water-resistive barrier and substrate are installed in accordance with the appropriate sections of this report. Sills with depths exceeding 6 inches (152 mm) must have substrates of solid wood or plywood. The substrate must be fastened in accordance with Table 2305.2 of the BNBC, Table 2304.9.1 of the IBC, Table R602.3(1) of the IRC, Table 2306.1 of the SBC or Table 23-II-B-1 of the UBC, and then a double layer of a complying water-resistive barrier must be applied. The coating, lath, and optional EPS board must be applied in accordance with Section 4.1.2 of this report.

5.0 CONDITIONS OF USE

The StuccoBase described in this report complies with, or is a suitable alternative to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

5.1 The materials and methods of installation must comply with this report and the manufacturer's published installation instructions. In the event of a conflict between this report and the manufacturer's published installation instructions, this report must govern.

5.2 Installation must be by contractors approved by the additional listee.

5.3 The system with metal lath must be limited to Type V (IBC and UBC), Type 5 (BNBC), and Type VI (SBC), or construction permitted by the IRC, except as noted in Section 4.3 of this report. The use of PermaLath glass fiber lath must be limited to Type VB under the IBC and buildings constructed under the IRC except as noted in Section 4.2.4 of this report and Section 4.1 of [ESR-1511](#).

- 5.4 The system is recognized as a one-hour fire-resistance-rated wall assembly when installed in accordance with Section 4.2 of this report.
- 5.5 For walls with foam plastic insulation, the interior of the building must be separated from the EPS board with a thermal barrier complying with Section 2603.4 of the BNBC, Section 2603.4 of the IBC, Section R314.4 of the IRC, Section 2603.5 of the SBC, or Section 2602.4 of the UBC, such as $\frac{1}{2}$ -inch (12.7 mm) regular gypsum wallboard applied in accordance with ASTM C 840 (BNBC and IBC), Table R 702.3.5 of the IRC, or Table 25-G of the UBC.
- 5.6 An installation card, as shown in Figure 2, must be left at the jobsite for the owner, and a copy must be filed with the building department.
- 5.7 The allowable wind load on the system with wood or steel studs spaced a maximum of 24 inches (610 mm) on center is 40 psf (1.92 kPa), positive or negative. Supporting framing must be adequate to resist the required wind load.
- 5.8 The maximum allowable positive and negative wind loads on the system incorporating PermaLath glass fiber lath with steel studs spaced at a maximum of 16 inches (406 mm) on center are 23 psf (1.1 kPa) and 21 psf (1.0kPa), respectively. The maximum allowable positive and negative wind loads on the system incorporating PermaLath glass fiber lath with wood studs spaced at a maximum of 16 inches (406 mm) on center are 23 psf (1.1 kPa) and 30 psf (1.4 kPa), respectively.
- 5.9 Foam plastic must not be placed on exterior walls of wood construction located within 6 inches (152 mm) of the ground in areas where hazard of termite damage is very heavy in accordance with Section 2603.8 of the IBC, Section R320.5 of the IRC and Section 2603.3.2 of the SBC.

6.0 EVIDENCE SUBMITTED

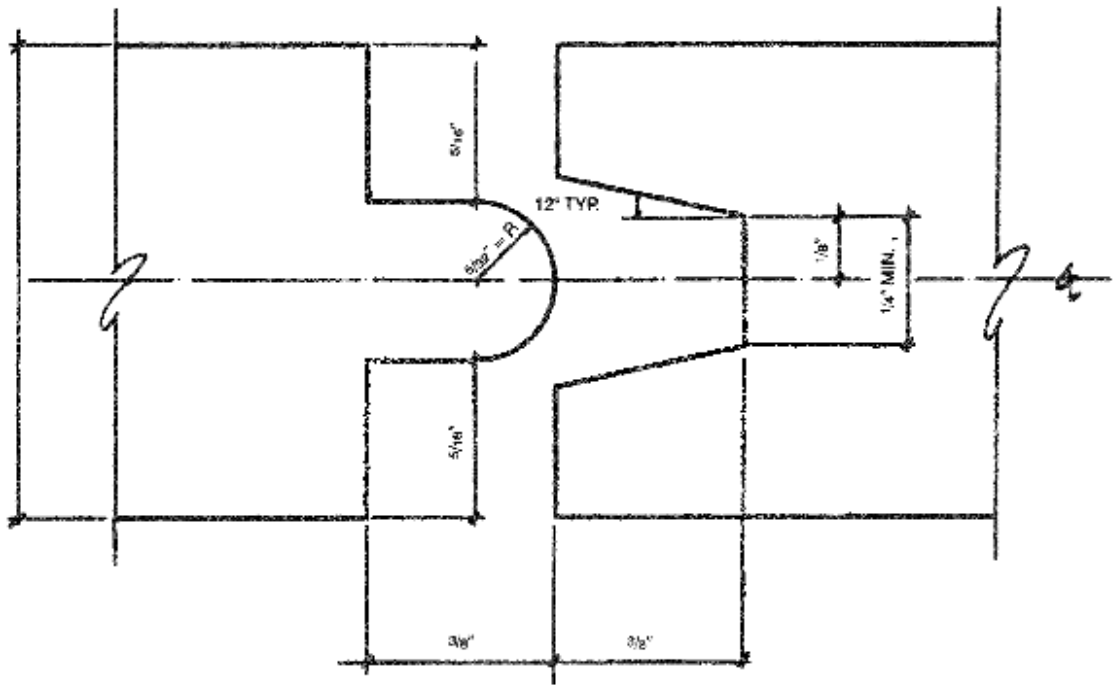
- 6.1 Reports of tests in accordance with the ICC-ES Acceptance Criteria for Cementitious Exterior Wall

Coatings (AC11), dated June 2007 (editorially revised April 2008).

- 6.2 Reports of tests in accordance with ASTM E 119 (UBC Standard 7-1).
- 6.3 Reports of tests in accordance with ASTM E 136 (UBC Standard 2-1).

7.0 IDENTIFICATION

- 7.1 The factory-prepared mix must be delivered to the jobsite in water-resistant bags with labels bearing the following information:
- Company name and address (Senergy, Finestone, SonoWall or Acrocrete), and the evaluation report number (ESR-1064).
 - Identification of components.
 - Weight of packaged mix.
 - Storage instructions.
 - Maximum amount of water and other components that may be added and conditions that must be considered in determining actual amount.
 - Curing instructions.
 - Product name (StuccoBase).
- 7.2 When delivered to the jobsite with sand in a bulk mixer, the bulk-mixer label must include the information noted in Section 3.2.1 of this report.
- 7.3 Polystyrene foam plastic insulation boards must be identified in accordance with their respective evaluation reports. Additionally, the board density must be noted.
- 7.4 Identification of PermaLath must comply with ICC-ES evaluation report [ESR-1511](#).



For SI: 1 inch = 25.4 mm.

FIGURE 1

INSTALLATION CARD
 (Coating system Trade Name)
 (Name of coating manufacturer)

Job Address

ICC-ES Evaluation
 Report Number _____

Date of Job Completion _____

Plastering Contractor

Name: _____

Address: _____

Telephone No.: (____) _____

Approved contractor number as issued by the coating manufacturer _____

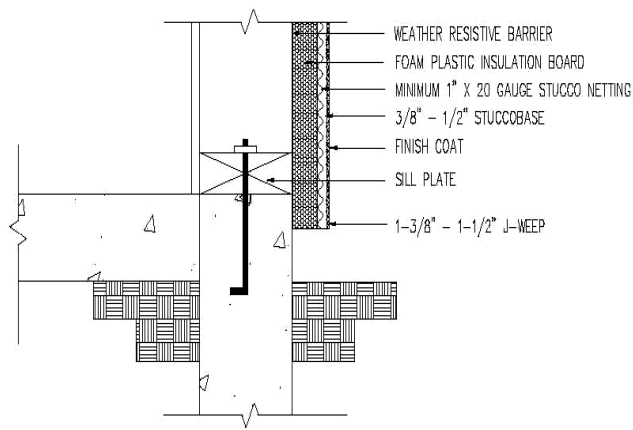
This is to certify that the exterior coating system on the building exterior at the above address has been installed in accordance with the evaluation report specified above and the manufacturer's instructions.

 Signature of authorized representative
 of plastering contractor

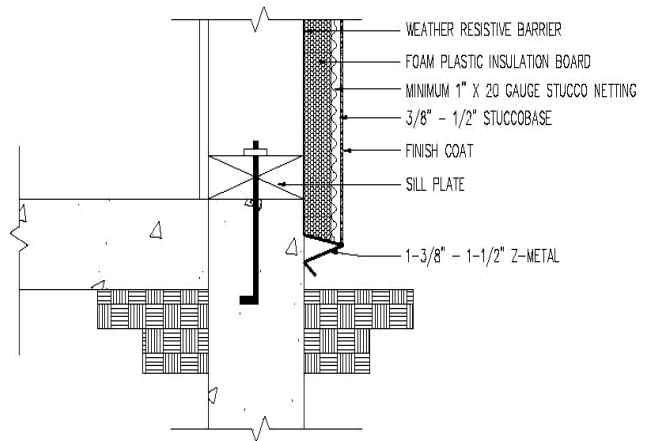
 Date

This installation card must be presented to the building inspector after completion of work and before final inspection.

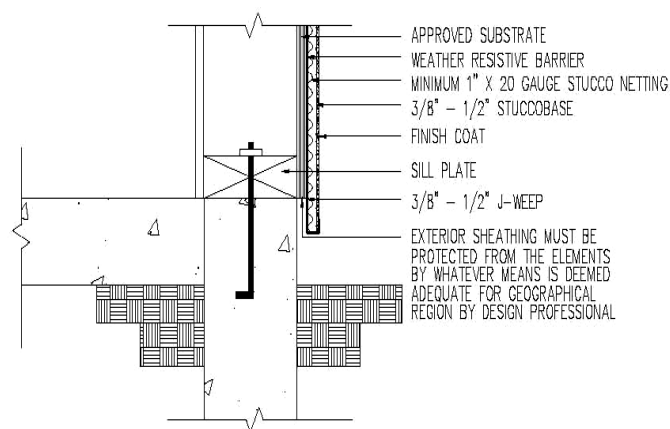
FIGURE 2



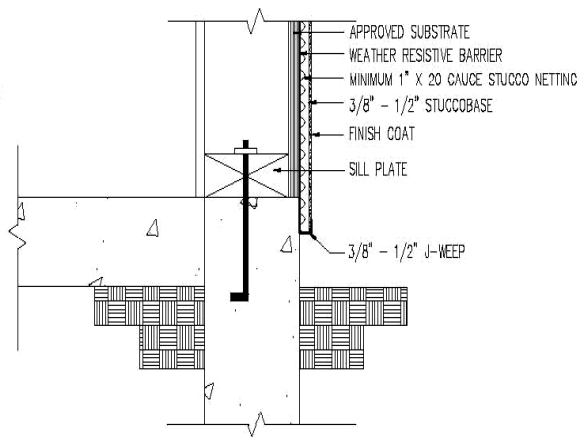
WEEP SCREED - FOAM SUBSTRATE (1)



WEEP SCREED - FOAM SUBSTRATE (2)



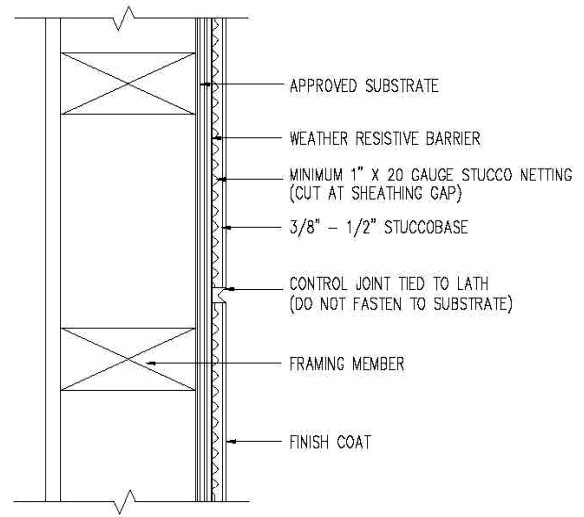
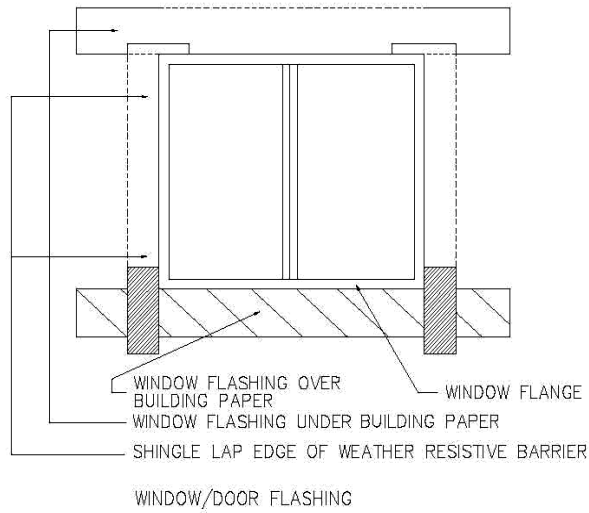
WEEP SCREED - SOLID SUBSTRATE (1)



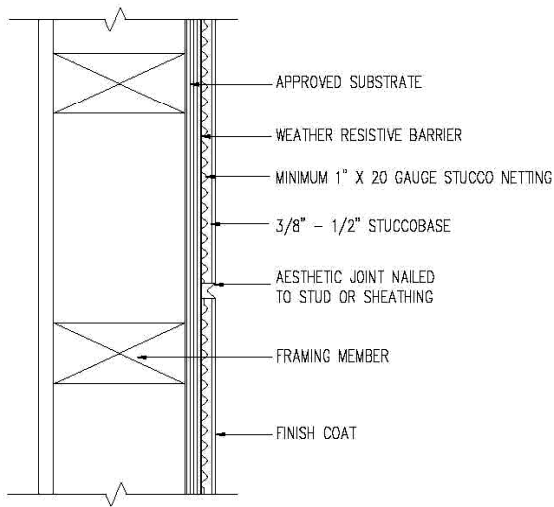
WEEP SCREED - SOLID SUBSTRATE (2)

For SI: 1 inch = 25.4 mm.

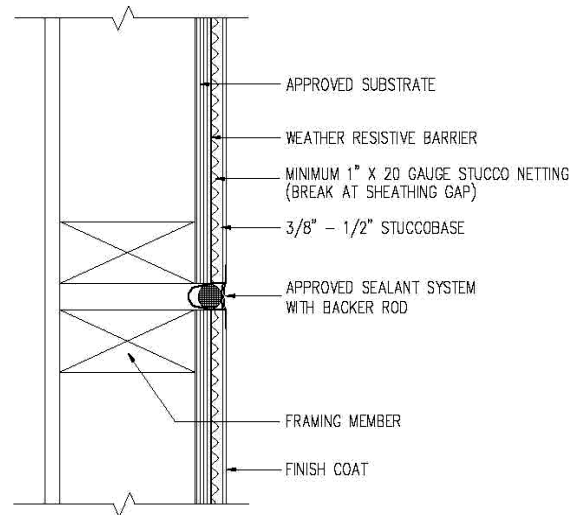
FIGURE 3—TYPICAL INSTALLATION DETAILS



CONTROL JOINT



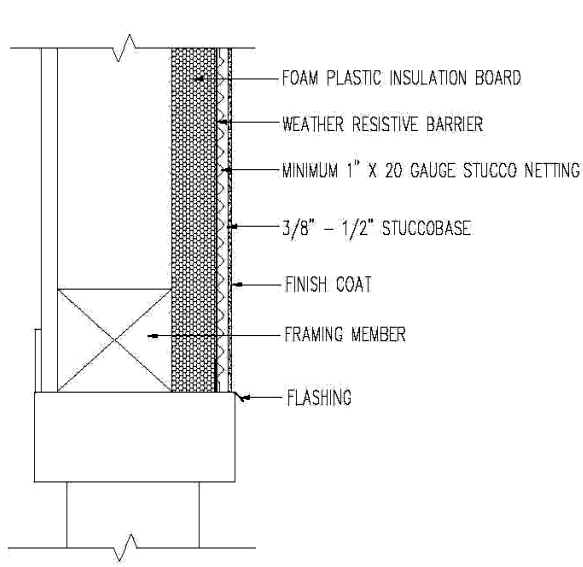
AESTHETIC JOINT



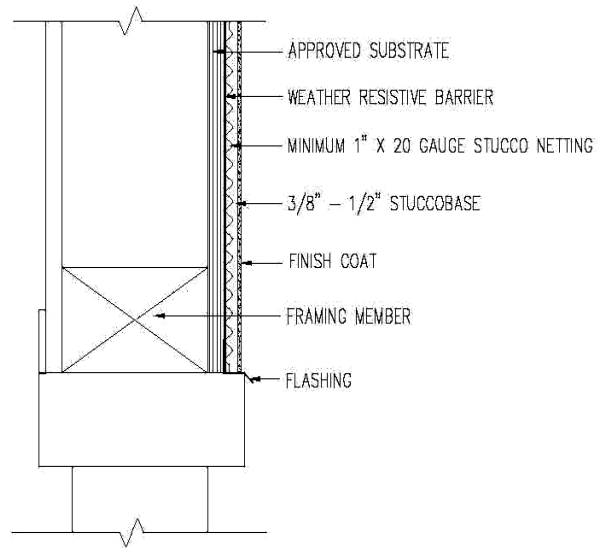
EXPANSION JOINT

For SI: 1 inch = 25.4 mm.

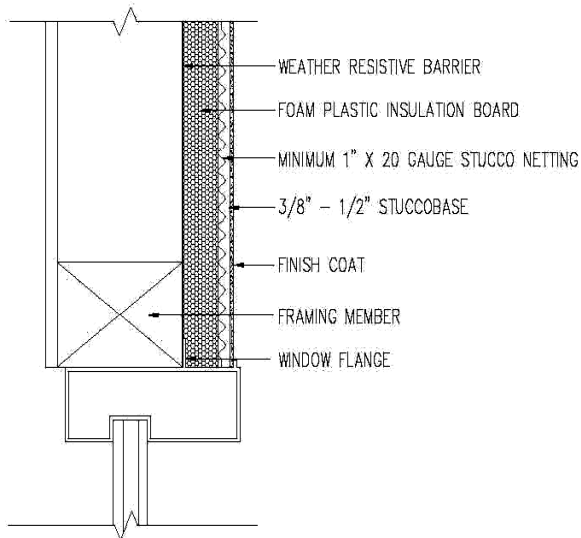
FIGURE 3—TYPICAL INSTALLATION DETAILS (Continued)



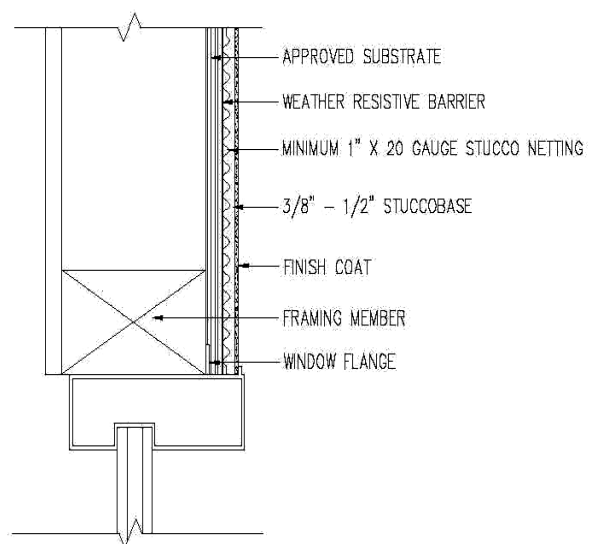
TYPICAL DOOR – FOAM SUBSTRATE



TYPICAL DOOR – SOLID SUBSTRATE



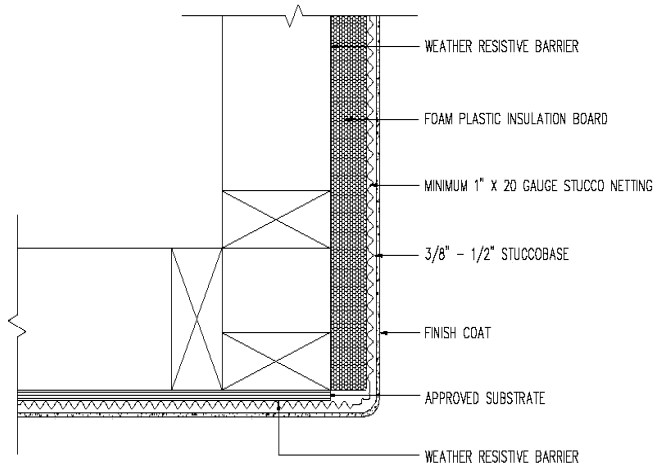
TYPICAL WINDOW – FOAM SUBSTRATE



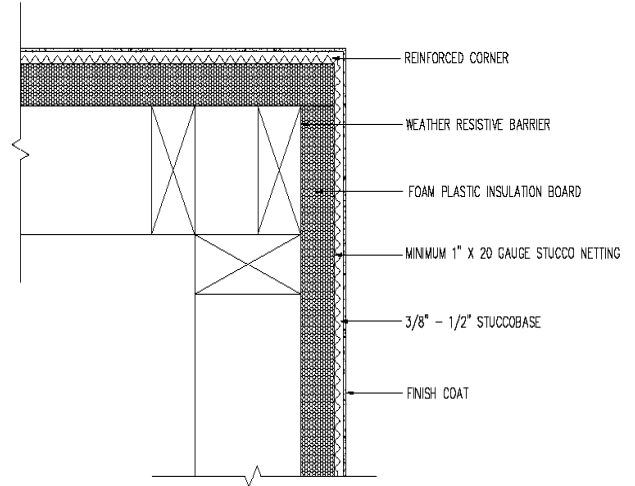
TYPICAL WINDOW – SOLID SUBSTRATE

For SI: 1 inch = 25.4 mm.

FIGURE 3—TYPICAL INSTALLATION DETAILS (Continued)

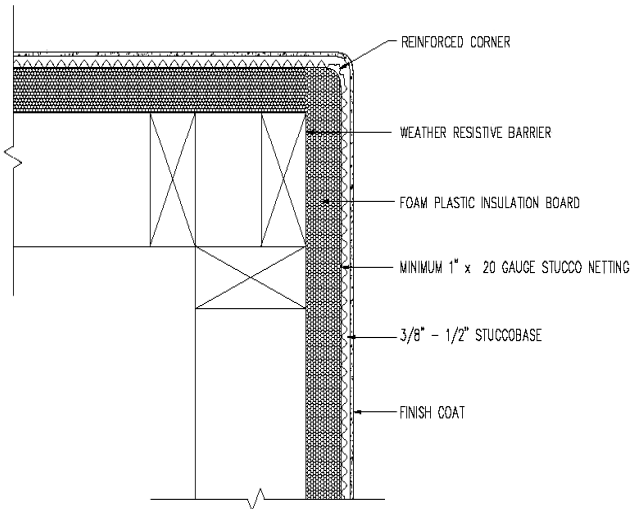


NON-REINFORCED CORNER AT TRANSITION FROM OPEN FRAMING TO SOLID SUBSTRATE WITH STUCCO CAP



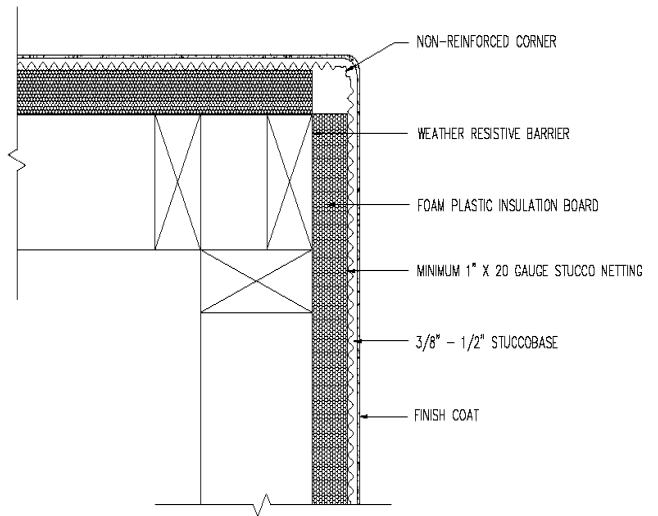
*Reinforced Corner May Be A Second Layer of Stucco Netting, Expanded Metal Lath, Galvanized Metal or Plastic Corner Bead

90 DEGREE REINFORCED CORNER



*Reinforced Corner may be a second layer of stucco Netting or Expanded Metal Lath.

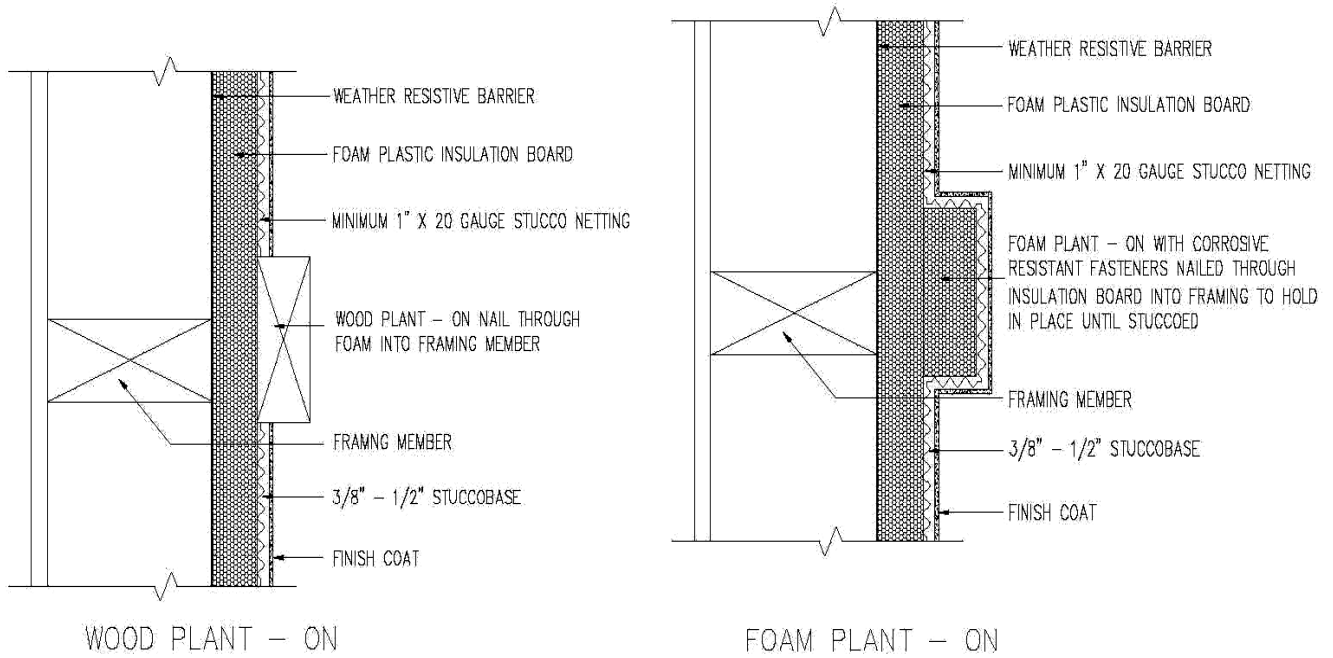
REINFORCED BULLNOSE CORNER



NON-REINFORCED BULLNOSE CORNER

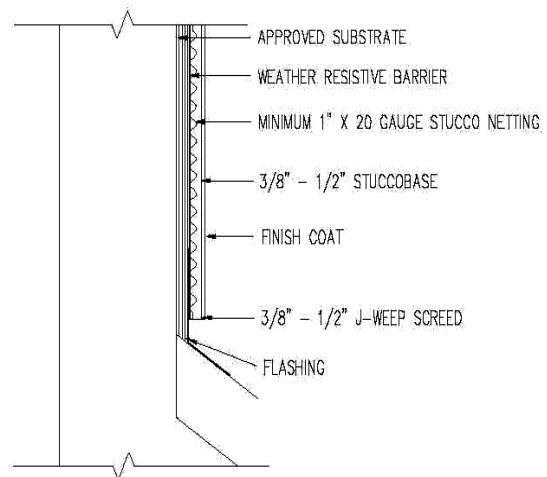
For SI: 1 inch = 25.4 mm.

FIGURE 3—TYPICAL INSTALLATION DETAILS (Continued)



Installation requires only single lap of the weather resistive barrier onto the approved flashing. Flashing materials and installation should be in accordance with local codes.

ROOF TERMINATION AT FLASHING –
FOAM SUBSTRATE

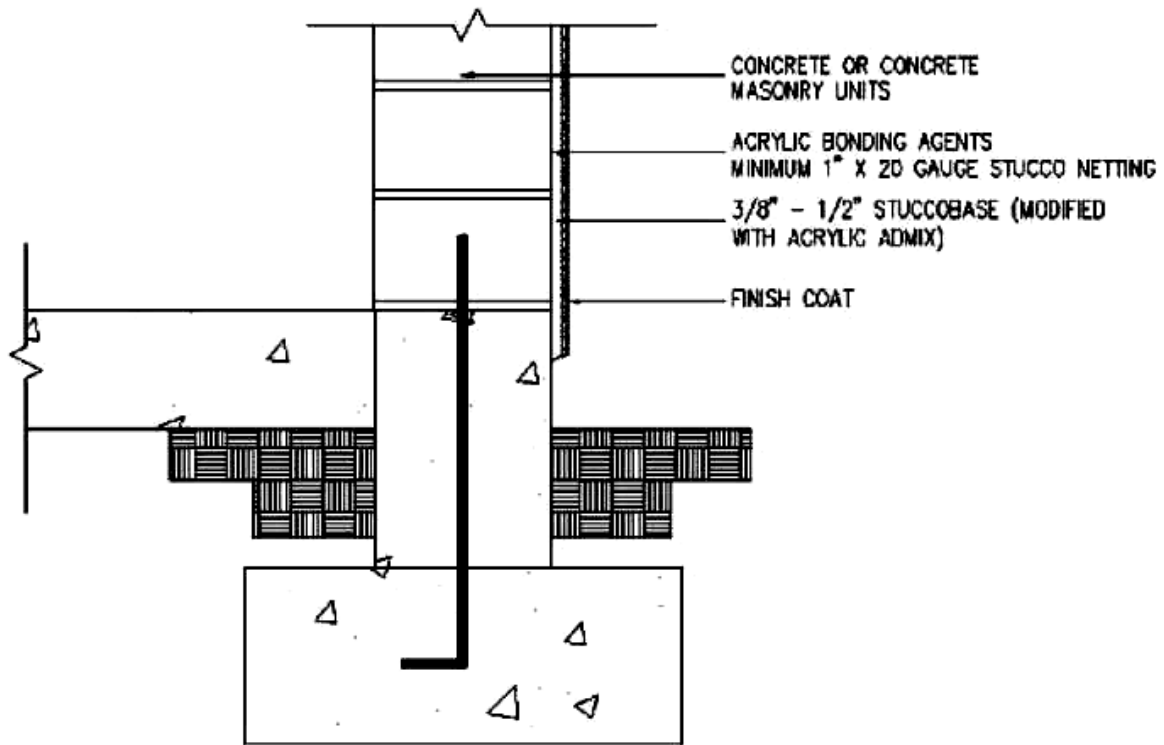


Installation requires only single lap of the weather resistive barrier onto the approved flashing. Flashing materials and installation should be in accordance with local codes.

ROOF TERMINATION AT FLASHING –
SOLID SUBSTRATE

For SI: 1 inch = 25.4 mm.

FIGURE 3—TYPICAL INSTALLATION DETAILS (Continued)



For SI: 1 inch = 25.4 mm.

FIGURE 3—TYPICAL INSTALLATION DETAILS (Continued)

ICC-ES Evaluation Report**ESR-1064 Supplement**

Reissued August 1, 2013

This report is subject to renewal September 1, 2015.www.icc-es.org | (800) 423-6587 | (562) 699-0543

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DIVISION: 09 00 00—FINISHES

Section: 09 24 00—Portland Cement Plastering

REPORT HOLDER:

BASF CONSTRUCTION CHEMICALS, LLC
3550 ST. JOHNS BLUFF ROAD SOUTH
JACKSONVILLE, FLORIDA 32224
(904) 996-6000
www.wallsystems.basf.com

EVALUATION SUBJECT:**STUCCOBASE CEMENTITIOUS EXTERIOR WALL COVERING SYSTEM****ADDITIONAL LISTEES:**

ACROCRETE
3550 ST. JOHNS BLUFF ROAD SOUTH
JACKSONVILLE, FLORIDA 32224
www.acrocrete.basf.com
acrocreteinfo@basf.com

FINESTONE
3550 ST. JOHNS BLUFF ROAD SOUTH
JACKSONVILLE, FLORIDA 32224
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SONOWALL
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JACKSONVILLE, FLORIDA 32224
www.sonowall.basf.com
sonowallinfo@basf.com

1.0 EVALUATION SCOPE**Compliance with the following codes:**

- 2007 Florida Building Code—Building
- 2007 Florida Building Code—Residential

Properties Evaluated:

- Weather resistance and durability
- Fire resistance
- Noncombustible construction
- Structural

2.0 PURPOSE OF THIS SUPPLEMENT

This supplement is issued to indicate that the StuccoBase Cementitious Exterior Wall Covering System described in Sections 2.0 through 7.0 of the master report ESR-1064 complies with the 2007 *Florida Building Code—Building* and the 2007 *Florida Building Code—Residential*, when designed and installed in accordance with the master report, under the following conditions.

- Clearance between exterior wall coverings and final earth grade on the exterior of a building must comply with Section 1403.7 of the 2007 *Florida Building Code—Building*.
- Where wood frame or other types of drained wall assemblies are constructed above mass wall assemblies, flashing or another approved drainage system must be installed as required by Section 1405.3 of the 2007 *Florida Building Code—Building*.
- For buildings being designed and constructed to the 2007 *Florida Building Code—Residential*, the provisions of Section R301.2.1.1 must be used where the wind speed is 100 mph (45 m/s) or greater.
- For buildings being designed and constructed to the 2007 *Florida Building Code—Residential*, the water-resistive barrier must meet the requirements of Section R703.2.
- SBCCI SSTD10 is not recognized as an alternate provision to the 2007 *Florida Building Code—Building*.

Use of the StuccoBase Cementitious Exterior Wall Covering System described in the master evaluation report, for compliance with the High-Velocity Hurricane Zone provisions of the 2007 *Florida Building Code—Building* and the 2007 *Florida Building Code—Residential* has not been evaluated, and is outside the scope of this supplement.

For products falling under Florida Rule 9B-72, verification that the report holder's quality assurance program is audited by a quality assurance entity approved by the Florida Building Commission for the type of inspections being conducted is the responsibility of an approved validation entity (or the code official when the report holder does not possess an approval by the Commission).

This supplement expires concurrently with the master report reissued on September, 1, 2011.