

ICC-ES Evaluation Report

ESR-2022

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This report also contains:


- CBC_and_CRC Supplement

Subject to renewal April 2025

- FBC Supplement

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<p>DIVISION: 07 00 00— THERMAL AND MOISTURE PROTECTION</p> <p>Section: 07 24 23— Direct-Applied Finish Systems</p>	<p>REPORT HOLDER:</p> <p>MASTER BUILDERS SOLUTIONS US, LLC</p>	<p>EVALUATION SUBJECT:</p> <p>SENERGY® CEMENT- BOARD STUCCO™ 500 SYSTEM AND SENERGY® CEMENT- BOARD STUCCO™ 1000 SYSTEM</p>	
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1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2021, 2018, 2015 and 2012 [International Building Code® \(IBC\)](#)
- 2021, 2018, 2015 and 2012 [International Residential Code® \(IRC\)](#)

Properties evaluated:

- Noncombustible construction
- Surface-burning characteristics
- Structural—transverse wind load resistance
- Weather resistance
- Fire-resistance-rated construction
- Physical properties

2.0 USES

The Senergy® Cement-Board Stucco™ 500 System and Senergy® Cement-Board Stucco™ 1000 System are used as exterior and interior wall finishes on walls of buildings of the construction types listed in [Table 1](#).

3.0 DESCRIPTION

3.1 Senergy® Cement-Board Stucco™ 500 System:

3.1.1 General: The Senergy® Cement-Board Stucco™ 500 System is a direct-applied exterior finish system (DEFS) applied to vertical wood or steel framing covered with a water-resistive barrier, as described in Section 3.1.2.2, and a cement board substrate, as described in Section 3.1.2.1; or directly to concrete or concrete masonry substrates. Coating system components include a base coat, reinforcing mesh, an acrylic finish coat, and other accessory components as described in Section 3.1.2.

3.1.2 Substrates:

3.1.2.1 Cement Board:

3.1.2.1.1 PermaBase™ Cement Board: A rigid board composed of portland cement, polystyrene beads, aggregate and glass fiber mesh with thicknesses of 1/2 and 5/8 inch (12.7 and 15.9 mm).

3.1.2.1.2 Durock® Cement Board: A rigid board composed of portland cement, aggregate and glass fiber mesh and with thicknesses of 1/2 and 5/8 inch (12.7 and 15.9 mm).

3.1.2.1.3 Concrete and Concrete Masonry: Concrete and concrete masonry substrates must comply with the requirements of the applicable code.

3.1.2.2 Water-resistive Barrier: A minimum of one layer of the materials prescribed in 2021 and 2018 IBC Section 1403.2 (2015 and 2012 IBC Section 1404.2) or IRC Section R703.2, as applicable, for any construction Type up to 40 feet in height.

3.1.2.3 Senergy[®] Base Coats: Base coats are available as Standard Base Coat, Alpha Base Coat and Alpha Dry Base Coat:

3.1.2.3.1 Standard Base Coat and Alpha Base Coat: These coatings consist of a water-based acrylic polymer, graded sand and proprietary chemicals, packaged in 60-pound (27 kg) containers, that are field-mixed with Type I or II portland cement complying with ASTM C150. The difference between the two products is the size of the aggregate. The products have a shelf life of two years when unopened and stored at temperatures no lower than 40°F (4.4°C).

3.1.2.3.2 Alpha Dry Base Coat: A dry mix of acrylic polymer, graded sand, Type I or Type II portland cement complying with ASTM C150, and proprietary chemicals, packaged in 50-pound (22.6 kg) bags. The product has a shelf life of two years when unopened and stored at temperatures no lower than 40°F (4.4°C).

3.1.2.4 Reinforcing Mesh: There are three mesh types used with the system.

3.1.2.4.1 Self-adhering Mesh Tape: A balanced, open-weave, glass-fiber mesh of twisted multi-end strands, treated for compatibility with other materials and coated with a pressure-sensitive adhesive. The mesh weighs a minimum of 4.2 ounces per square yard (142 g/m²) with a 6-by-6 thread count. The mesh is a minimum of 4 inches wide (102 mm) and is installed as reinforcement for coatings applied over cement board joints and at terminations.

3.1.2.4.2 Flexguard 4 Reinforcing Mesh: A balanced, open-weave, glass-fiber mesh of twisted multi-end strands, treated for compatibility with other materials. The mesh is a minimum of 4 inches wide (102 mm) and is installed as reinforcement for coatings applied over cement board joints and at terminations.

3.1.2.4.3 Wall Reinforcing Mesh: Senergy[®] reinforcing mesh is a balanced, open-weave, glass-fiber mesh of twisted multi-end strands, treated for compatibility with other materials. The mesh weighs a minimum of 4.2 ounces per square yard (142 g/m²) with a 6-by-6 thread count and is installed as reinforcement for the coating system in the field of the wall.

3.1.2.5 Finish Coat: A coating composed of natural mineral aggregates and fillers, colored pigments and an acrylic latex emulsion, packaged in 5-gallon (19 L) pails. Shelf life of the product is two years when unopened and stored at temperatures no lower than 40°F (4.4°C).

3.1.2.6 Accessories: Starter tracks, 'L' beads, 'J' beads, angled termination beads, casing beads, corner beads, expansion joints and weep screeds manufactured from polyvinyl chloride and complying with ASTM D1784 or C1063.

3.1.2.7 Sealants: Evidence must be submitted to the code official showing that the DEFS manufacturer-recommended sealant complies with ASTM C920, Type S or M, minimum Grade NS, minimum Class 25 and Use O sealant complying with ASTM C920, and that it is compatible with the DEFS components. Under the Use O classification, the sealant must be qualified for each material to which the sealant is applied by the adhesion and cohesion under cyclic movement test and adhesion-in-peel tests of Sections 8.8 and 8.9 of ASTM C920.

3.2 Senergy[®] Cement-Board Stucco™ 1000 System:

3.2.1 General: The Senergy[®] Cement-Board Stucco™ 1000 System is a direct-applied exterior finish system (DEFS) applied to vertical wood- or steel-framed exterior walls covered with one of the sheathing materials described in Section 3.2.2.1, a water-resistive barrier, as described in Section 3.2.2.6, and a cement board substrate, as described in Section 3.2.2.2; or applied directly to concrete or concrete masonry substrates. Coating system components include a base coat, reinforcing mesh and an acrylic finish coat, and other accessory components as described in Section 3.2.2.

3.2.2 Materials:

3.2.2.1 Substrates:

3.2.2.1.1 Gypsum Sheathing: Minimum 1/2-inch-thick (12.7 mm) (unless noted otherwise 1/2-inch in this report), water-resistant core sheathing complying with ASTM C79 or ASTM C1396.

3.2.2.1.2 Wood Structural Panel Sheathing: Exterior or Exposure 1 plywood complying with US DOC PS-1 or PS-2; or Exposure 1 oriented strand board (OSB) complying with US DOC PS-2; and with a minimum thickness of $\frac{7}{16}$ inch (11.1 mm).

3.2.2.1.3 Concrete and Concrete Masonry: Concrete and concrete masonry substrates must comply with the applicable code.

3.2.2.2 Cement Board:

3.2.2.2.1 PermaBase[®] Brand Cement Board: As described in Section 3.1.2.1.1.

3.2.2.2.2 Durock Exterior Cement Board: As described in Section 3.1.2.1.2.

3.2.2.3 Senergy[®] Base Coats:

3.2.2.3.1 Standard Base Coat and Alpha Base Coats: As described in Section 3.1.2.3.1.

3.2.2.3.2 Alpha Dry Base Coat: As described in Section 3.1.2.3.2.

3.2.2.4 Reinforcing Mesh:

3.2.2.4.1 Self-adhering Mesh Tape: As described in Section 3.1.2.4.1. The mesh is used with Senersshield[™] or the base coat as reinforcement over sheathing joints, cement board joints and terminations.

3.2.2.4.2 Flexguard 4: As described in Section 3.1.2.4.2. The mesh is used with the base coat and with Senersshield[™] as reinforcement over sheathing joints, cement board joints and terminations.

3.2.2.4.3 Wall Reinforcing Mesh: As described in Section 3.1.2.4.3.

3.2.2.5 Finish Coat: As described in Section 3.1.2.5.

3.2.2.6 Water-resistive Barrier: The water-resistive barrier must consist of one of the types described in Section 3.2.2.6.1 or 3.2.2.6.2.

3.2.2.6.1 Code-prescribed Water-resistive Barrier: As described in Section 3.1.2.2.

3.2.2.6.2 Proprietary Water-resistive Barrier: This consists of two components:

Senersshield[™]: A 100 percent acrylic-based, fiber-reinforced, liquid-applied, water-resistive barrier that is field-mixed with Type I or II portland cement complying with ASTM C 150. The barrier is applied over gypsum sheathing.

Senerflash[™]: A 30-mil-thick [0.03 inch (0.76 mm)], self-adhering, flashing material used with the Senersshield[™] coating, consisting of a composite membrane of polyester fabric and rubberized asphalt.

3.2.2.7 Sealants: As described in Section 3.1.2.7.

4.0 INSTALLATION

4.1 General:

Installation of Senergy[®] Cement-Board Stucco[™] Systems must comply with this report and the manufacturer's published installation instructions. In the event of a conflict between the manufacturer's published installation instructions and this report, this report governs. The manufacturer's published installation instructions must be available on the jobsite at all times during installation.

All substrate surfaces must be structurally sound, clean, dry and smooth, with no dust or other deleterious material that may reduce bonding of the base coat. Surface irregularities are limited to a maximum of $\frac{1}{4}$ inch (6.4 mm) for every 10 feet (3048 mm) of surface. The ambient air and substrate surface temperatures must be 40°F (4°C) or higher during, and for a 24-hour period after, application and until the coating is dry. Protection of the coatings from moisture must be provided for at least 24 hours after application.

The cement board joints and terminations must be treated by one of the following methods.

Self-adhering Mesh Tape (4") must be centered over all cement board joints and terminations and firmly pressed in place while unrolling. The mesh must be continuous and void of wrinkles and must extend a minimum of $2\frac{1}{2}$ inches (64 mm) at overlaps. The mixed base coat must be applied to the entire surface of the mesh by troweling from the center to the edges.

The base coat must be trowel-applied to the outer surface of the cement board at least 6 inches (152 mm) on each side of all board joints and terminations, to a uniform thickness of approximately $\frac{3}{32}$ inch (2.4 mm). A layer of 4-inch-wide (102 mm) Flexguard 4 mesh must be centered over the coated board joints and terminations and pressed into the wet base coat using a stainless steel trowel. The joint reinforcing mesh must extend evenly and continuously on both sides of the joints without wrinkles, and must be lapped a minimum of 2½ inches (64 mm). The joint reinforcing mesh must be applied over the flange of the starter track and cement board at openings. Trim accessories are installed in accordance with the coating manufacturer's published installation instructions.

After the joint reinforcing mesh and coating are dry and hard, the base coat is applied to the entire exterior surface of the cement board to a uniform thickness of approximately $\frac{1}{16}$ inch (1.6 mm). The wall reinforcing mesh described in Section 3.1.2.4.3 is embedded into the wet base coat by troweling from the center toward the edges until the mesh is completely embedded in the coating. The mesh must be continuous around corners and overlapped a minimum of 2½ inches (64 mm) at all mesh edges. The installed wall reinforcing mesh must be void of wrinkles and embedded in the base coat so that no mesh color is visible. If required, a second layer of base coat is applied to achieve a total nominal thickness of reinforced base coat of $\frac{1}{16}$ inch (1.6 mm).

After a minimum of eight hours drying time, the finish coat is applied after being mixed to a uniform consistency using a drill and paddle. The finish coat is applied over the reinforced base coat with a stainless steel trowel, with the placement and leveling done concurrently. The finish coat thickness must not be less than the diameter of the largest aggregate, approximately $\frac{1}{16}$ inch (1.6 mm).

Only Senergy® recommended joint sealant materials are permitted to be used in joints. Expansion joints are required at system terminations, building expansion joints, floor lines of wood-framed construction, changes in building shape or roof line, and substrate changes. Expansion and sealant joints must be installed as specified by the architect, designer, builder or exterior coating manufacturer, in that order. The details of sealant installation, including the width and depth of the sealant and joint, are to be designed by the registered design professional, designer, contractor or Master Builders Solutions US, LLC, in that order, to the satisfaction of the code official. An installation card completed by the sealant installer (in the format shown in [Figure 10](#)) and the DEFS contractor declaration (refer to [Figure 11](#)), shall be submitted to the code official at the completion of each project. The sealant declaration states that the sealant installation conforms to this evaluation report and the sealant manufacturer's installation methods and procedures.

4.2 Senergy® Cement-Board Stucco™ 500 System:

4.2.1 General: The wall framing and sheathing must be installed as set forth in Section 4.2.2 or 4.2.3, as applicable.

A starter track/weep screed is attached to the wall framing at the base of the wall with corrosion-resistant, minimum No. 8, $\frac{7}{16}$ -inch-long (11.1 mm), metal pan head screws spaced a maximum of 16 inches (406 mm) on center. The fasteners for the starter track must penetrate the framing members.

A minimum of one layer of water-resistive barrier, as described in Section 3.1.2.2, is attached to the framing, along with flashing at penetrations and terminations, in such a manner as to provide a continuous water-resistive barrier behind the cement board sheathing. Flashing must comply with the requirements of the applicable code.

The cement board is attached vertically or horizontally over the water-resistive barrier and flashing and held off the starter track to allow for drainage. The framing and attachment are as set forth in Sections 4.2.2 and 4.2.3.

The balance of the system is installed as described in Section 4.1. The typical system components are shown in [Figures 1](#) and [2](#). Typical system details are shown in [Figures 5](#) through [9](#).

4.2.2 Steel Framing: Steel framing members are minimum No. 20 gage [0.033 inch (0.84 mm) base-metal thickness], spaced at a maximum of 16 inches (406 mm) on center. Cement board sheathing is attached using corrosion-resistant, Type S, minimum No. 8, $\frac{1}{4}$ -inch-long (32 mm), 0.406-inch-head-diameter (10.3 mm), bugle head, self-drilling screws spaced at 8 inches (203 mm) on center in the field and along all sheathing edges.

4.2.3 Wood Framing: Wood framing members are minimum nominally 2-by-4 studs spaced a maximum of 16 inches (406 mm) on center. Cement board sheathing is attached using corrosion-resistant, Type S, minimum No. 9, $\frac{1}{4}$ -inch-long (32 mm), 0.390-inch-head-diameter (9.9 mm), bugle head, self-drilling screws spaced at 8 inches (203 mm) on center in the field and along all sheathing edges.

4.2.4 One-hour-rated, Nonload-bearing, Fire-resistance-rated Assembly: The Senergy® Cement-Board Stucco™ 500 System may be used as part of a one-hour fire-resistance-rated assembly, provided the construction is as follows:

4.2.4.1 Interior Finish: One layer of minimum $\frac{5}{8}$ -inch-thick (15.9 mm), Gold Bond® Fire-Shield®, Type X gypsum wallboard (manufactured by National Gypsum Company) is applied vertically to minimum No. 20 gage [0.033 inch (0.84 mm) base-metal thickness] steel studs spaced a maximum of 16 inches (406 mm) on center. The gypsum wallboard is fastened to the studs with Type S, minimum $1\frac{1}{4}$ -inch-long (32 mm), self-tapping drywall screws spaced 8 inches (203 mm) on center at board perimeters and 12 inches (305 mm) on center at intermediate framing. All wallboard joints are taped with joint tape and compound and screw heads are covered with joint compound in accordance with ASTM C840 or GA 216. Thermafiber insulation 4 inches (102 mm) thick and with a nominal density of 4 lb/ft³ (64 kg/m³) shall be friction-fitted between studs.

4.2.4.2 Exterior Finish: As described in Section 4.2.1.

4.3 Senergy® Cement-Board Stucco™ 1000 System:

4.3.1 General: The wall framing and sheathing must be installed as set forth in Section 4.3.2 or 4.3.3, as applicable.

A starter track/weep screed is attached to the wall sheathing at the base of the wall with corrosion-resistant, minimum No. 8, $\frac{7}{16}$ -inch-long (11.1 mm), metal pan head screws spaced a maximum of 16 inches (406 mm) on center. The fasteners for the starter track must penetrate the framing members or through wood-based sheathing.

A minimum of one layer of water-resistive barrier, as described in Section 3.1.2.2, is applied over the wall sheathing, along with flashing at penetrations and terminations, in such a manner as to provide a continuous water-resistive barrier behind the cement board sheathing. Flashing must comply with the requirements of the applicable code.

As an alternate to the code-prescribed water-resistive barrier described in Section 3.1.2.2, the proprietary liquid-applied water-resistive barrier, Senersshield™, described in Section 3.2.2.6.2, may be installed where the sheathing consists of either gypsum sheathing or as described in Section 3.2.2.1.1. Senersshield™ is mixed in accordance with Senergy's published installation instructions. The sheathing board joints and terminations must be treated by one of the following methods:

Self-adhering Mesh Tape (4") must be centered over all sheathing board joints and terminations and firmly pressed in place while unrolling. The mesh must be continuous and void of wrinkles and must extend a minimum of $2\frac{1}{2}$ inches (64 mm) at overlaps. The mixed Senersshield™ must be applied to the entire surface of the mesh by troweling from the center to the edges.

Senersshield™ must be trowel-applied to the outer surface of the sheathing board to a uniform thickness of approximately $\frac{3}{32}$ inch (2.4 mm) at least 6 inches (152 mm) on each side of all board joints and terminations. A layer of 4-inch-wide (102 mm) Flexguard 4 mesh must be centered over the coated board joints and terminations and pressed into the wet base coat using a stainless steel trowel. The joint reinforcing mesh must extend evenly and continuously on both sides of the joints without wrinkles, and must be lapped a minimum of $2\frac{1}{2}$ inches (64 mm). The Senersshield™ coating and mesh must be applied over the flange of the starter track. Trim accessories must be installed in accordance with Senergy's published installation instructions.

After the joint reinforcing mesh and coating are dry and hard, Senersshield™ is applied to the entire exterior surface of the sheathing substrate to a uniform thickness of approximately $\frac{3}{32}$ inch (2.4 mm) and is allowed to dry a minimum of eight hours before installation of the cement board over the Senersshield™-coated substrate.

The cement board is attached vertically or horizontally over the water-resistive barrier covered substrate and flashing and held off the starter track to allow for drainage. The framing and attachment are as set forth in Sections 4.3.2 and 4.3.3.

The balance of the system is installed as described in Section 4.1. Typical system components are shown in [Figures 3](#) and [4](#). Typical system details are shown in [Figures 5](#) through [9](#).

4.3.2 Steel Framing: Steel framing members are minimum No. 20 gage [0.033 inch (0.84 mm) base-metal thickness], spaced at a maximum of 16 inches (406 mm) on center. Cement board is attached using corrosion-resistant, Type S, minimum No. 8, $1\frac{5}{8}$ -inch-long (41 mm), 0.397-inch-head-diameter (10.1 mm), bugle head, self-drilling screws spaced at 8 inches (203 mm) on center in the field and along all cement board edges. Screws must be offset from the sheathing fasteners.

4.3.3 Wood Framing: Wood framing members are minimum nominally 2-by-4 studs spaced a maximum of 16 inches (406 mm) on center. Cement board sheathing is attached using corrosion-resistant, Type S, minimum No. 9, 1⁵/₈-inch-long (41 mm), 0.406-inch-head-diameter (10.3 mm), bugle head, self-drilling screws spaced at 8 inches (203 mm) on center in the field and along all sheathing edges. Screws must be offset from the sheathing fasteners.

4.3.4 Two-hour-rated, Nonload-bearing, Fire-resistance-rated Assembly: The Senergy® Cement-Board Stucco™ 1000 System may be used as part of a two-hour fire-resistance-rated assembly, provided the construction is as follows:

4.3.4.1 Interior Finish: A base layer of minimum 1/2-inch-thick (12.7 mm) Gold Bond® Fire-Shield® gypsum wallboard (designated as Type FSW-G and manufactured by National Gypsum Company) is applied vertically to minimum No. 20 gage [0.033 inch (0.84 mm) base-metal thickness] steel studs spaced a maximum of 16 inches (406 mm) on center. The gypsum wallboard is fastened to the studs with Type S, minimum 1-inch-long (25 mm), self-tapping drywall screws spaced 24 inches (610 mm) on center at board perimeters and in the field of the board. A face layer of minimum 1/2-inch-thick (12.7 mm) Gold Bond® Fire-Shield® gypsum wallboard (designated as Type FSW-G and manufactured by National Gypsum Company) is applied vertically to minimum No. 20 gage, [0.033 inch (0.84 mm) base-metal thickness] steel studs spaced a maximum of 16 inches (406 mm) on center. The gypsum wallboard is fastened to the studs with Type S, minimum 1⁵/₈-inch-long (42 mm), self-tapping drywall screws spaced 12 inches (305 mm) on center at board perimeters and in the field of the board. All wallboard joints are taped with joint tape and compound and screw heads are covered with joint compound in accordance with ASTM C840 or GA 216. Thermafiber insulation 4 inches (102 mm) thick and with a nominal density of 4 lb/ft³ (64 kg/m³) shall be friction-fitted between studs.

4.3.4.2 Exterior Finish: A base layer of minimum 1/2-inch-thick (12.7 mm) Gold Bond® Fire-Shield® gypsum wallboard (designated as Type FSW-G and manufactured by National Gypsum Company) is applied vertically to minimum No. 20 gage [0.033 inch (0.84 mm) base-metal thickness] steel studs spaced a maximum of 16 inches (406 mm) on center. The joints must be staggered from the layer on the other face of the studs. The gypsum wallboard is fastened to the studs with Type S, minimum 1-inch-long (25 mm), self-tapping drywall screws spaced 24 inches (610 mm) on center at board perimeters and in the field of the board. The water-resistive barrier, as described in Section 4.3.1, is applied over the gypsum wallboard. One layer of minimum 1/2-inch-thick (12.7 mm) cement board is applied horizontally and is fastened in the same manner as described in Section 4.3.1.1. The Senergy® Cement-Board Stucco™ 1000 System base coat, reinforcing mesh and finish are then applied as described in Sections 4.1 and 4.3.1.

4.3.5 Type I, II, III and IV (Noncombustible) Construction: The Senergy® Cement-Board Stucco™ 1000 System may be applied where Type I, II, III and IV (IBC) (noncombustible) construction is required, provided the construction is as follows:

4.3.5.1 Interior Finish: One layer of minimum 1/2-inch-thick (12.7 mm) gypsum wallboard, complying with ASTM C36 or C1396, is applied horizontally or vertically to minimum No. 20 gage [0.033 inch (0.84 mm) base-metal thickness], 3⁵/₈-inch-deep (92 mm), C-shaped steel studs spaced at 16 inches (406 mm) on center. The gypsum wallboard is fastened to the studs with No. 6, Type S, minimum 1¹/₄-inch-long (32 mm), self-drilling, bugle head steel screws spaced 8 inches (203 mm) on center at board perimeters and 12 inches (305 mm) on center at intermediate framing. All wallboard joints are taped with joint tape and compound and screw heads are covered with joint compound in accordance with ASTM C840 or GA 216. Thermafiber insulation with a nominal density of 4.0 lb/ft³ (64 kg/m³) shall be used to fire-stop the stud cavities at floor lines. The insulation pieces measure 4 inches (102 mm) thick by the stud depth by the stud spacing.

4.3.5.2 Exterior Finish: One layer of minimum 1/2-inch-thick (12.7 mm), water-resistant treated core gypsum sheathing, complying with ASTM C79 or C1396, is applied horizontally or vertically. The sheathing is fastened to the studs with No. 6, Type S-12, minimum 1-inch-long (25.4 mm), self-drilling, bugle head steel screws spaced 8 inches (203 mm) on center at board perimeters and 12 inches (305 mm) on center at intermediate framing. The balance of construction, including the water-resistive barrier described in either Section 3.2.2.6.1 or Section 3.2.2.6.2, cement board substrate and finish, is as set forth in Section 4.2.1 and 4.3.1. The cement board vertical joints must be staggered a minimum of one stud space.

4.4 Interior Finish:

The Senergy® base coat and finish coat comply with Chapter 8 of the IBC e (Chapter 3 of the IRC) as a Class A (Class I) interior finish, when applied directly to concrete, concrete masonry, gypsum plaster, gypsum

wallboard and portland cement plaster substrates. Surfaces must be clean, dry, sound and free of paint, efflorescence, or other coatings. Gypsum surfaces must be coated with latex primer. The Senergy® base coat and finish coat are applied in accordance with Section 4.2.1.

4.5 Wind Resistance:

Wall framing members must be designed to resist all positive and negative transverse loads, and must comply with, and be designed in accordance with, the applicable code, with a deflection limitation of $1/360$ of the span. The Senergy® Cement-Board Stucco™ 500 System and Senergy® Cement-Board Stucco™ 1000 System, when applied in accordance with this report, can resist the allowable design wind pressures listed in [Table 2](#).

4.6 Special Inspection:

In jurisdictions enforcing the IBC or IRC, special inspection in accordance with 2021 IBC Section 1705.17 [2018 and 2015 IBC Sections 1705.16 (2012 IBC Sections 1705.15)] and IBC Section 1704.2 is required for the Senergy® Cement-Board Stucco™ 500 System and Senergy® Cement-Board Stucco™ 1000 System, except where installation is over concrete and masonry walls. Duties of the special inspector include verifying field preparation of materials, expiration dates, installation of components, curing of components and installation of joints and sealants.

5.0 CONDITIONS OF USE:

The Senergy® Cement-Board Stucco™ 500 System and Senergy® Cement-Board Stucco™ 1000 System described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1 Installation must comply with this report, the manufacturer's published installation instructions and the applicable code. In the event of a conflict between the manufacturer's published installation instructions and this report, this report governs.
- 5.2 Installation must be by applicators approved by Senergy®.
- 5.3 The design wind load pressures must not exceed the capacities indicated in [Table 2](#) for the applicable system.
- 5.4 Wall bracing must be provided in accordance with 2021, 2018 and 2015 IBC Section 2308.6 (2012 IBC Section 2308.9.3) and IRC Section 602.10.
- 5.5 Use of the Senergy® Cement-Board Stucco™ 500 System as a component of a nonload-bearing, one-hour fire-resistance-rated wall assembly must be as described in Section 4.2.4.
- 5.6 Use of the Senergy® Cement-Board Stucco™ 1000 System as a component of a nonbearing, two-hour fire-resistance-rated wall assembly must be as described in Section 4.3.4.
- 5.7 Use of the Senergy® Cement-Board Stucco™ 1000 System as a component of Types I, II, III and IV (noncombustible) construction must be as described in Section 4.3.5 of this report. Wall assemblies constructed in accordance with Section 4.3.5 comply with 2021 and 2018 IBC Section 1402.5 (2015 and 2012 IBC Section 1403.5).
- 5.8 All construction documents must be accompanied by drawings, consistent with the illustrations in this report, that include the following:
 - Installation at wall openings, corners and panel terminations.
 - Location and configuration of control joints (when required).
 - Typical cross section, showing all components of the wall.
 - Typical wall penetrations.
- 5.9 All construction documents must be accompanied by specifications for the system components and their installation, consistent with this report.
- 5.10 In jurisdictions enforcing the IBC or IRC, all installations are subject to special inspections as set forth in Section 4.6 of this report, except where installation is over concrete and masonry substrates.
- 5.11 Installation cards similar to those shown in [Figures 10](#) and [11](#) must be completed by the applicators and presented to the code official at the completion of each project.

6.0 EVIDENCE SUBMITTED

- 6.1 Data in accordance with the [ICC-ES Acceptance Criteria for Direct-applied Exterior Finish Systems \(DEFS\) \(AC59\)](#), dated June 2010 (editorially revised August 2022).
- 6.2 Reports of testing in accordance with ASTM E119, ASTM E84 and NFPA 285.

7.0 IDENTIFICATION

- 7.1 Each container or package of material used as part of the Senergy® Cement-Board Stucco™ Systems must be labeled with the manufacturer’s brand name (Senergy); the product name; the production date and batch number; shelf life, as applicable; and the evaluation report number (ESR-2022).
- 7.2 The report holder’s contact information is the following:

MASTER BUILDERS SOLUTIONS US, LLC
23700 CHAGRIN BOULEVARD
BEACHWOOD, OHIO 44122
(800) 589-1336
www.wallsystems.master-builders-solutions.com

TABLE 1—TYPES OF CONSTRUCTION IN WHICH THE SYSTEMS EVALUATED IN THIS REPORT ARE PERMITTED

CODE	TYPE OF WALL CONSTRUCTION	PERMITTED SYSTEM
IBC	Framed walls of Type V, Group R1 or R3 Occupancies ¹	Cement-Board Stucco™ 500 ³ or 1000 System
	Concrete or masonry walls or framed walls of other than Type V, Group R1 or R3 Occupancies ²	Cement-Board Stucco™ 1000 System
IRC	Any wall type ¹	Cement-Board Stucco™ 500 ³ or 1000 System

¹See Sections 4.2.4 and 4.3.4 for assemblies permitted to be used in fire-resistance-rated construction.

²The water-resistive barrier is optional when installation is over concrete or masonry walls.

³Installation is subject to uses and locations stated in the manufacturer’s published installation instructions.

TABLE 2—ALLOWABLE DESIGN WIND PRESSURES

SYSTEM	FRAMING		ALLOWABLE DESIGN PRESSURE (psf)	
	Type ¹	Maximum Spacing (in.)	Positive	Negative
Cement-Board Stucco™ 500 System	Wood ²	16	25	34
	Steel ³ (20 gage)	16	18	32
Cement-Board Stucco™ 1000 System	Wood	16	25	56
	Steel ³ (20 gage)	16	18	35
	Steel ⁴ (16 gage)	16	22	54

For **SI**: 1 inch = 25.4 mm, 1 psf = 47.88 Pa, 1 ksi = 6.894757 x 10+⁶ Pa.

¹Framing members shall be designed to comply with strength and stiffness requirements of the applicable code.

²Wood framing shall have a minimum specific gravity of 0.50.

³No. 20 gage steel studs shall be C-shaped studs having a minimum yield strength of 33 ksi and minimum tensile strength of 45 ksi. The studs shall have a minimum 3⁵/₈-inch-deep web and 1⁵/₈-inch-wide flange.

⁴No. 16 gage steel studs shall be C-shaped studs having a minimum yield strength of 33 ksi and minimum tensile strength of 45 ksi. The studs shall have a minimum base-metal thickness of 0.054 inch (1.37 mm), and a minimum 3⁵/₈-inch-deep web and 1⁵/₈-inch-wide flange.

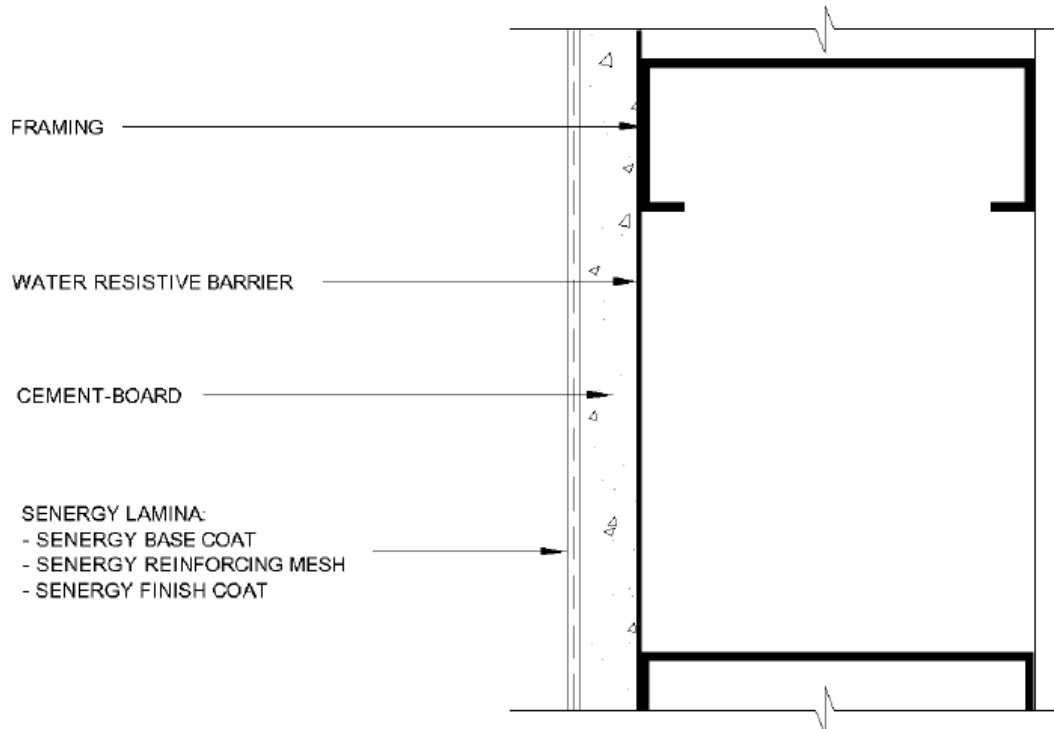


FIGURE 1—TYPICAL CEMENT BOARD STUCCO SYSTEM 500 DESIGN APPLICATION (PLAN VIEW)

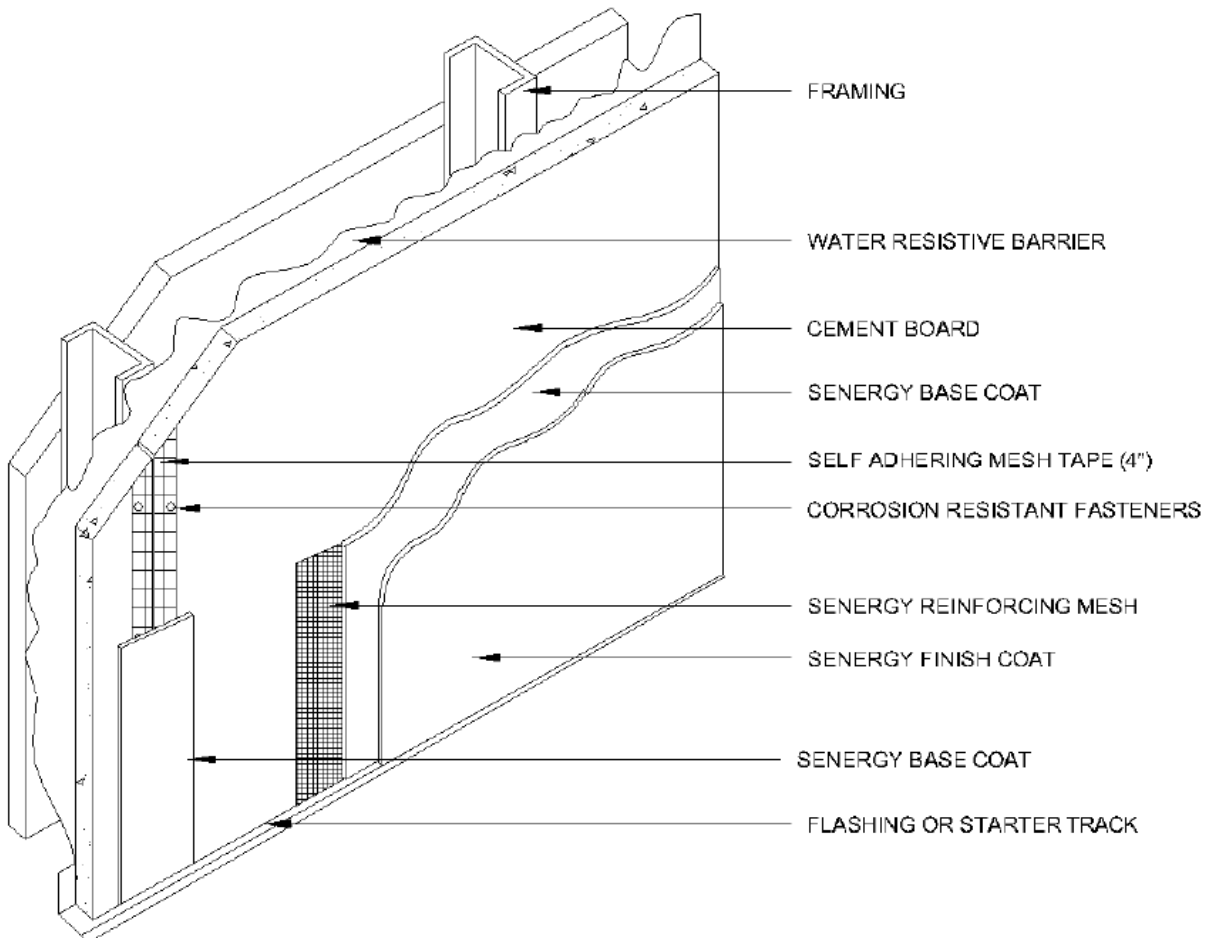


FIGURE 2—TYPICAL CEMENT-BOARD STUCCO SYSTEM 500 DESIGN (ISOMETRIC VIEW)

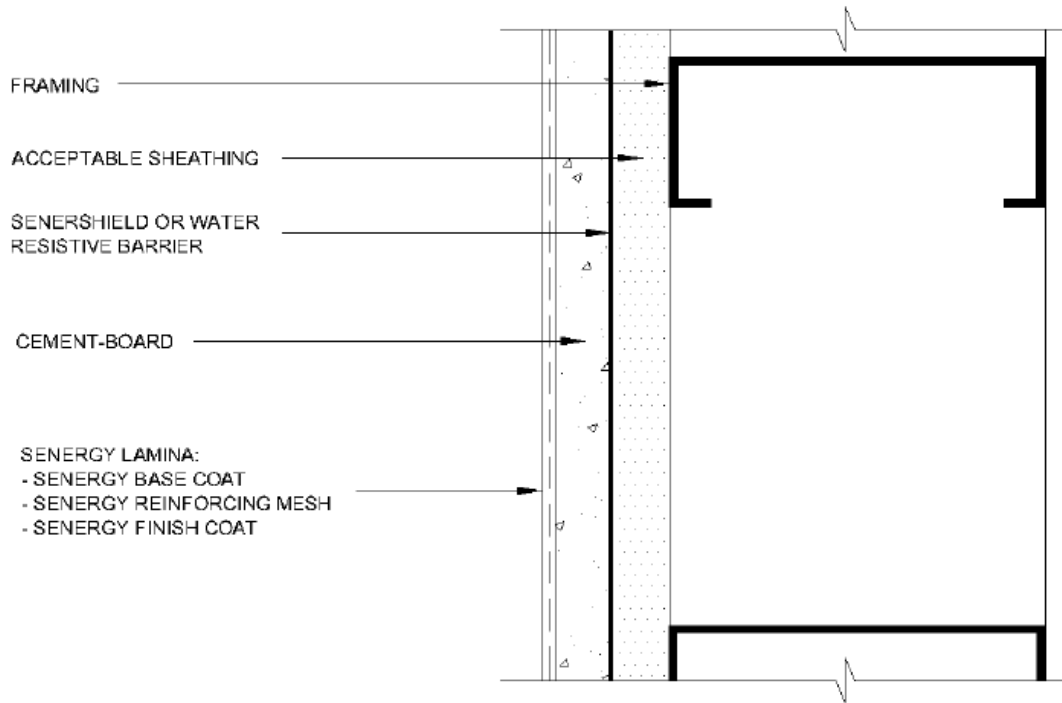


FIGURE 3—TYPICAL CEMENT-BOARD STUCCO 1000 SYSTEM DESIGN APPLICATION (PLAN VIEW)

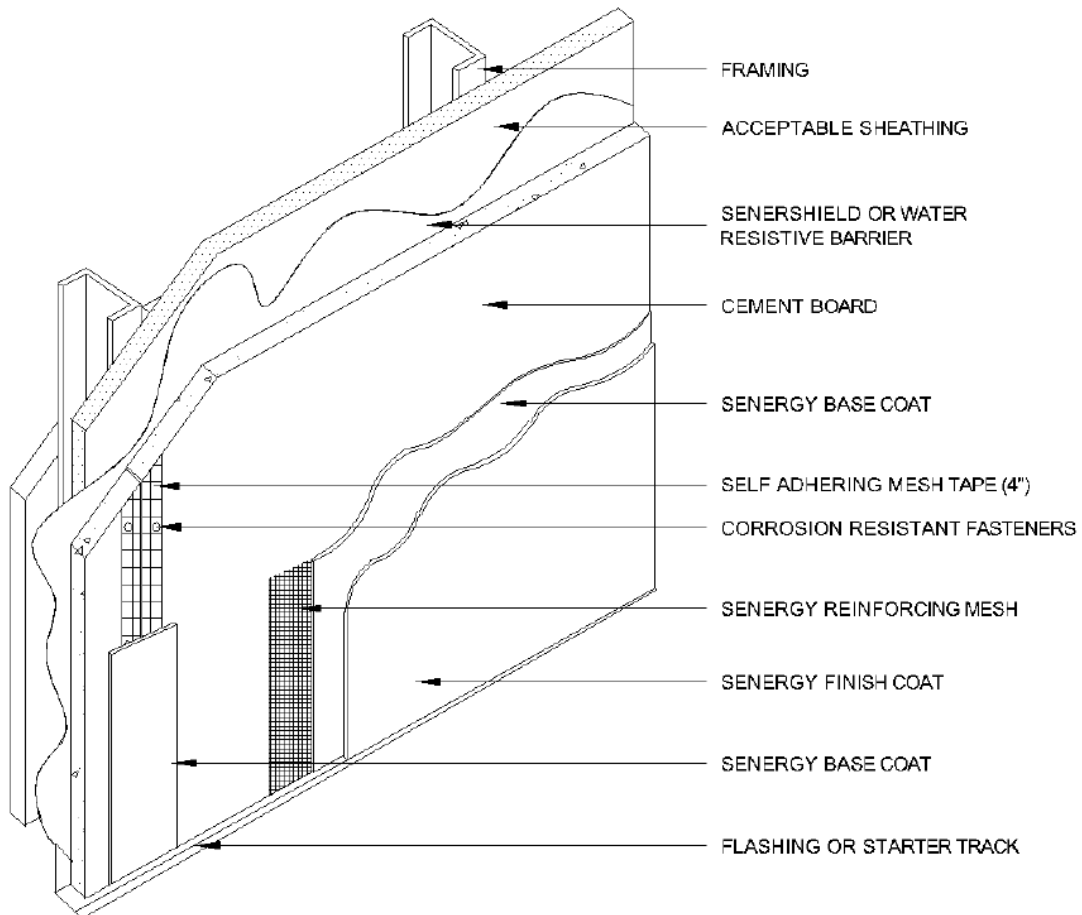


FIGURE 4—TYPICAL CEMENT BOARD STUCCO SYSTEM 1000 DESIGN (ISOMETRIC VIEW)

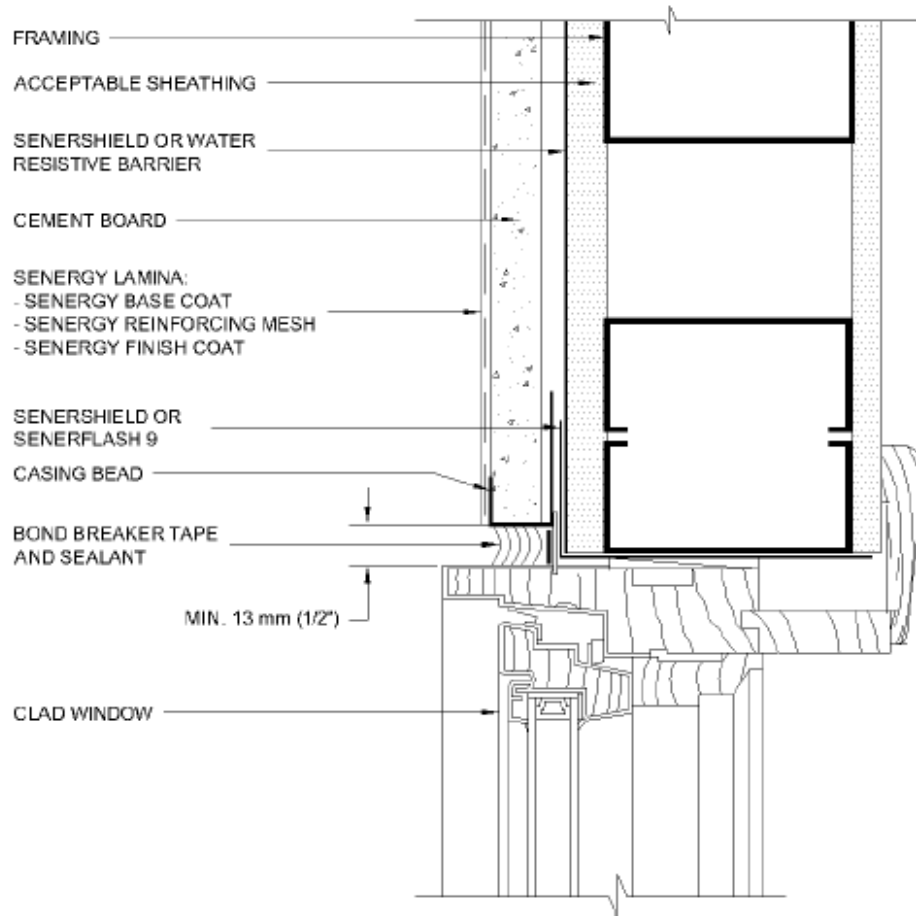


FIGURE 5—TYPICAL CLAD WINDOW JAMB DETAIL

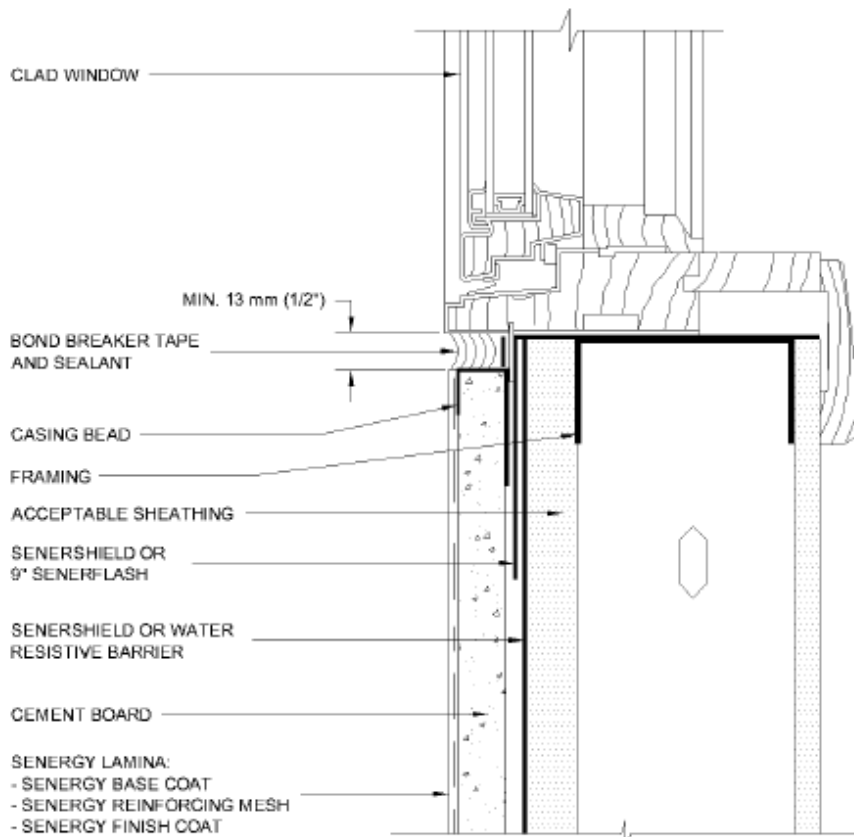


FIGURE 6—TYPICAL CLAD WINDOW SILL DETAIL

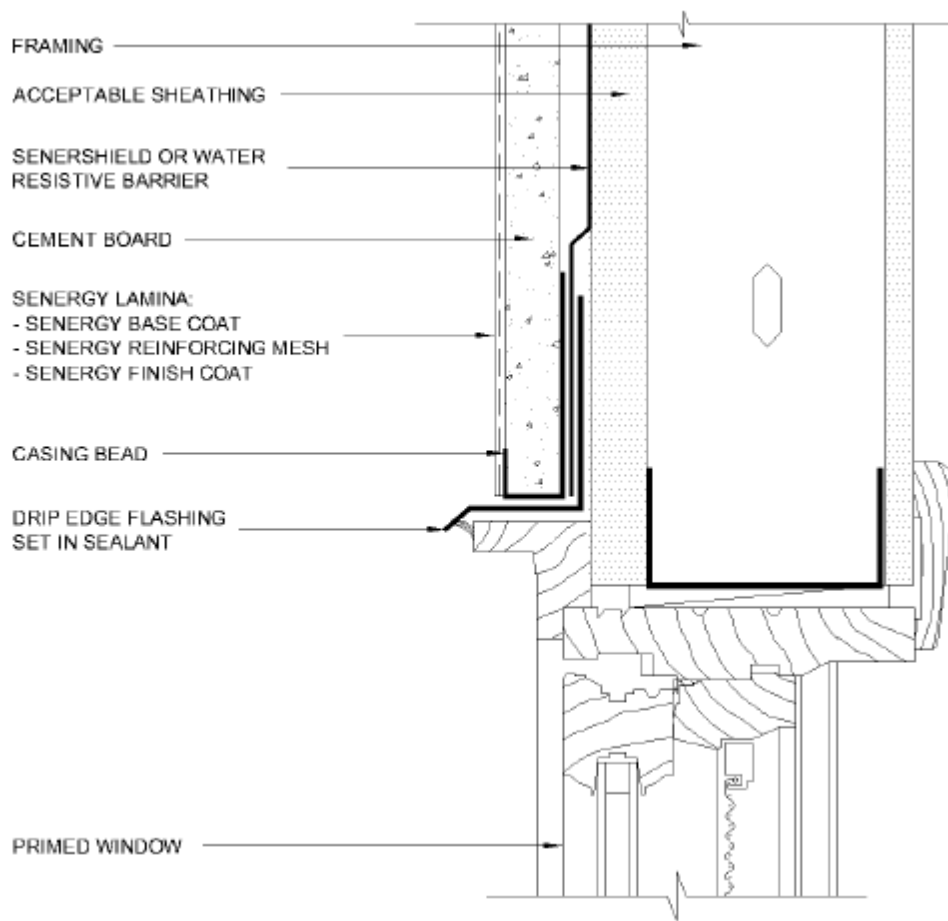


FIGURE 7—TYPICAL PRIMED WINDOW HEAD DETAIL

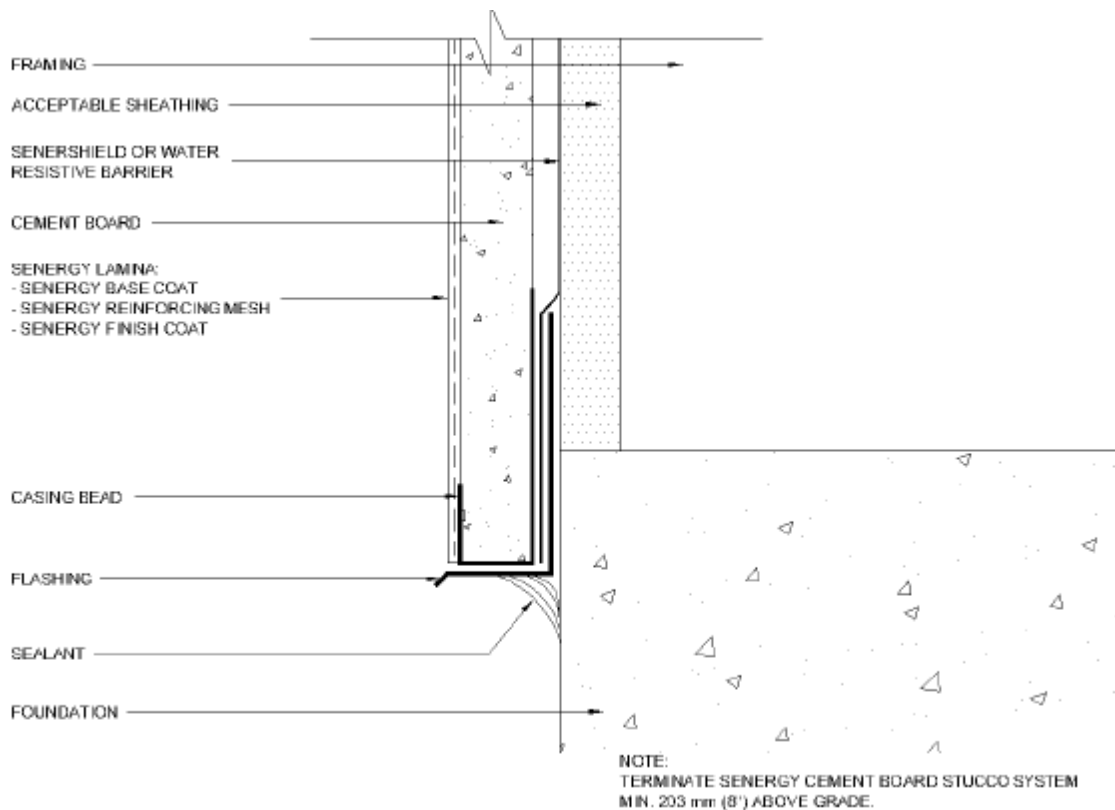


FIGURE 8—TYPICAL TERMINATION AT FOUNDATION

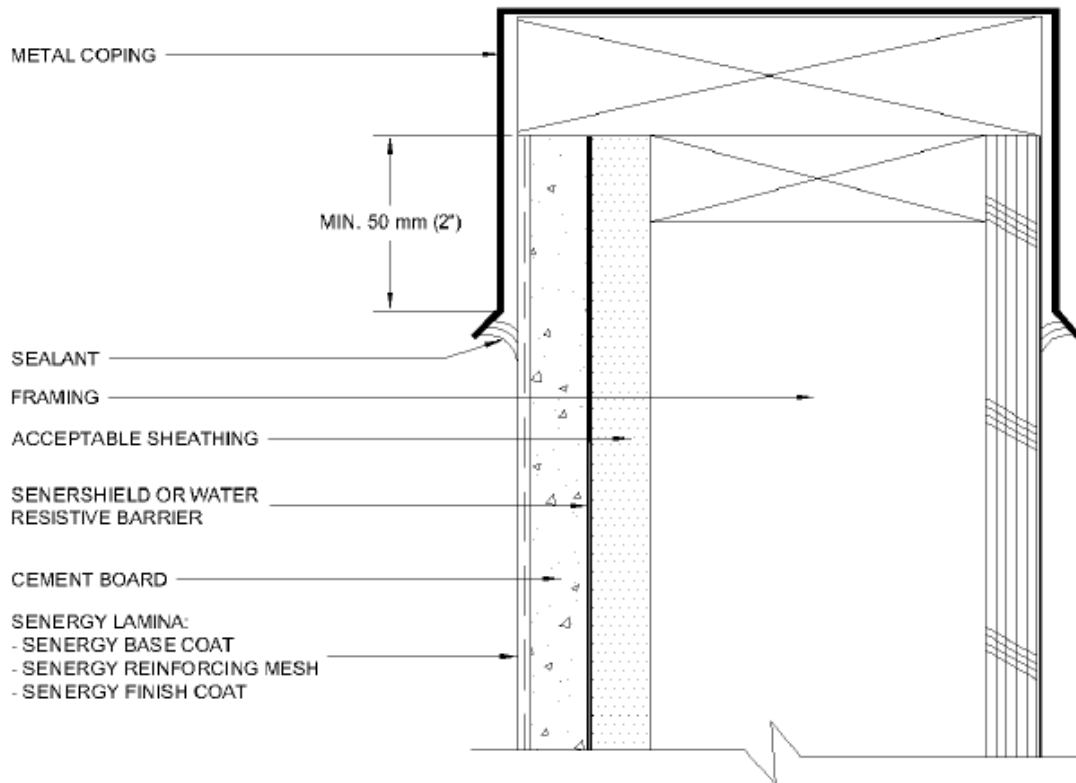


FIGURE 9—TYPICAL METAL COPING DETAIL

EXHIBIT A

[SEALANT INSTALLER NAME]

Completion Date: _____

THE SEALANT INSTALLED IN CONJUNCTION WITH AN DIRECT-APPLIED EXTERIOR FINISH SYSTEM (DEFS) INSTALLED ON THE STRUCTURE LOCATED AT THE ADDRESS INDICATED BELOW:

CONFORMS _____

TO [MASTER BUILDERS SOLUTIONS US, LLC] AND [SEALANT MANUFACTURER'S NAME] RECOMMENDED INSTALLATION PRACTICES AND SECTION(S) _____ OF ICC-ES, INC., EVALUATION REPORT ESR-2022.

Address of Structure:

Product Component Names:

Primer(s) _____
Sealers _____
Bond Breakers _____
Sealant Materials _____

INSTALLATION

CONFORMS

- A. Designer's requirements, details and instructions _____
- B. Sealant manufacturer's details and requirements _____
- C. Exterior insulation manufacturer's requirements _____

D. The information entered above is offered in testimony that the Sealant installation conforms with the sealant manufacturer's installation methods and procedures, and the DEFS manufacturer's evaluation report.

Sealant Installer Company Name and Address:

Signature of Responsible Officer: _____

Typed Name and Title of Officer: _____

Telephone Number: (____) _____

cc: Original: Building Department (Must be submitted with DEFS contractor declaration.)
Copies: DEFS Manufacturer
DEFS Contractor
Sealant Manufacturer

FIGURE 10

EXHIBIT B

[DEFS CONTRACTOR NAME]

Completion Date: _____

THE DIRECT-APPLIED EXTERIOR FINISH SYSTEM (DEFS) INSTALLED ON THE STRUCTURE LOCATED AT THE ADDRESS INDICATED BELOW:

CONFORMS _____

TO [MASTER BUILDERS SOLUTIONS US, LLC] RECOMMENDED INSTALLATION PRACTICES AND SECTION (S) _____ OF ICC-ES, INC., EVALUATION REPORT ESR-2022.

Address of Structure:

Product Component Names:

- 1. Water-resistive barrier _____
- 2. Wall sheathing (System 1000 only) _____
- 3. Cement-core board _____
- 4. Fasteners _____
- 5. Joint reinforcing mesh _____
- 6. Wall reinforcing mesh _____
- 7. Base Coat _____
- 8. Finish Coat _____

INSTALLATION CONFORMS

- A. Substrate Type and Tolerance _____
- B. Water-resistive Barrier _____
- C. DEFS
 - 1. Water-resistive barrier _____
 - 2. Wall sheathing (System 1000 only) _____
 - 3. Cement-core board _____
 - 4. Fasteners _____
 - 5. Joint reinforcing mesh _____
 - 6. Wall reinforcing mesh _____
 - 7. Base Coat _____
 - 8. Finish Coat _____

D. The information entered above is offered in testimony that the DEFS installation conforms with the DEFS manufacturer's installation methods and procedures, and the DEFS manufacturer's ES report.

NOTE: An installation card must be received from the Sealant Installer indicating that the sealant installation conforms with the DEFS evaluation report and sealant manufacturer's installation methods and procedures must accompany this declaration.

DEFS Contractor Company Name and Address:

Signature of Responsible Officer: _____

Typed Name and Title of Officer: _____

Telephone Number: (____) _____

cc: Original: Building Department (Must be submitted with sealant installer declaration.)
Copy: DEFS Manufacturer

FIGURE 11

DIVISION: 07 00 00—THERMAL AND MOISTURE
Section: 07 24 23—Direct Applied Finish Systems

REPORT HOLDER:

MASTER BUILDERS SOLUTIONS US, LLC

EVALUATION SUBJECT:

SENERGY® CEMENT-BOARD STUCCO™ 500 SYSTEM AND SENERGY® CEMENT-BOARD STUCCO™ 1000 SYSTEM

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that the Senergy® Cement-Board Stucco™ 500 System and Senergy® Cement-Board Stucco™ 1000 System, described in ICC-ES evaluation report ESR-2022, have also been evaluated for compliance with the code(s) noted below.

Applicable code edition(s):

- 2022 California Building Code (CBC)

For evaluation of applicable Chapters adopted by the California Office of Statewide Health Planning and Development (OSHPD) AKA: California Department of Health Care Access and Information (HCAI) and the Division of State Architect (DSA), see Sections 2.1.1 and 2.1.2 below.

- 2022 California Residential Code (CRC)

2.0 CONCLUSIONS

2.1 CBC:

The Senergy® Cement-Board Stucco™ 500 System and Senergy® Cement-Board Stucco™ 1000 System, described in Sections 2.0 through 7.0 of the evaluation report ESR-2022, comply with CBC Chapter 14, provided the design and installation are in accordance with the 2021 *International Building Code*® (IBC) provisions noted in the evaluation report and the additional requirements of CBC Chapters 14, 16 and 17, as applicable.

2.1.1 OSHPD:

The applicable OSHPD Sections and Chapters of the CBC are beyond the scope of this supplement.

2.1.2 DSA:

The applicable DSA Sections and Chapters of the CBC are beyond the scope of this supplement.

2.2 CRC:

The Senergy® Cement-Board Stucco™ 500 System and Senergy® Cement-Board Stucco™ 1000 System, described in Sections 2.0 through 7.0 of the evaluation report ESR-2022, comply with CRC Chapter 7, provided the design and installation are in accordance with the 2021 *International Residential Code*® (IRC) provisions noted in the evaluation report.

This supplement expires concurrently with the evaluation report, reissued April 2024.

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION

Section: 07 24 23—Direct-Applied Finish Systems

REPORT HOLDER:

MASTER BUILDERS SOLUTIONS US, LLC

EVALUATION SUBJECT:

SENERGY® CEMENT-BOARD STUCCO™ 500 SYSTEM AND SENERGY® CEMENT-BOARD STUCCO™ 1000 SYSTEM

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that Senergy® Cement-Board Stucco™ 500 System and Senergy® Cement-Board Stucco™ 1000 System, described in ICC-ES evaluation report ESR-2022, has also been evaluated for compliance with the codes noted below.

Applicable code editions:

- 2020 Florida Building Code—Building
- 2020 Florida Building Code—Residential

2.0 CONCLUSIONS

The Senergy® Cement-Board Stucco™ 500 System and Senergy® Cement-Board Stucco™ 1000 System, described in Sections 2.0 through 7.0 of ICC-ES evaluation report ESR-2022, complies with the Florida Building Code—Building and Florida Building Code—Residential. The design requirements shall be determined in accordance with the *Florida Building Code—Building* or the *Florida Building Code—Residential*, as applicable. The installation requirements noted in ICC-ES evaluation report ESR-2022 for the 2018 *International Building Code*® meet the requirements of the *Florida Building Code—Building* or the *Florida Building Code—Residential*, as applicable, with the following conditions:

1. Installation must meet the requirements of Section 1403.8 of the *Florida Building Code—Building* or Section R318.7 of the *Florida Building Code—Residential*, as applicable.
2. Installation must meet the requirements of Section 1405.4 of the *Florida Building Code—Building* or Section R703.4 of the *Florida Building Code—Residential*, as applicable.

Use of the Senergy® Cement-Board Stucco™ 500 System and Senergy® Cement-Board Stucco™ 1000 System for compliance with the High-Velocity Hurricane Zone provisions of the *Florida Building Code—Building* or the *Florida Building Code—Residential* has not been evaluated, and is outside the scope of this supplemental report.

For products falling under Florida Rule 61G20-3, 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 evaluation report, reissued April 2024.