**Sentry Stucco CI Wall System – Section 07 24 16**

*Water-drainage, mechanically-attached polymer-modified stucco system incorporating continuous external insulation and a 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 Senergy® typical details, 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 Wall Systems business of BASF Corporation (herein referred to as “BASF Wall Systems”) has prepared guidelines in the form of specifications, typical application details, and product bulletins to facilitate the design process only. BASF Wall Systems 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 BASF Wall Systems or otherwise, or for any changes which the purchasers, specifiers, designers or their appointed representatives may make to BASF Wall Systems published comments.

**Designing and Detailing a Senergy SENTRY STUCCO CI Wall System**

General: The system shall be installed in strict accordance with current recommended published details and product specifications from the system’s manufacturer.

1. Wind Load
	1. Maximum deflection not to exceed L/360 under positive or negative design loads.
	2. Design for wind load in conformance with local code requirements.
2. Substrate Systems
3. 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, e²XP™ sheathing, GlasRoc® sheathing, Securock™ glass-mat sheathing, and DensGlass® exterior sheathing; gypsum sheathing (ASTM C79/C1396); Exposure I or exterior plywood (Grade C/D or better); or Exposure I OSB.
4. Painted and otherwise coated surfaces of brick, unit masonry, and concrete shall be inspected and prepared as approved by BASF Wall Systems before application. The applicator shall verify that the proposed substrate is acceptable prior to the Sentry Stucco CI System installation.
5. The substrate systems shall be engineered with regard to structural performance by others.
6. Refer to *Sentry Stucco CI System Lath and Trim Accessories* technical bulletin for more detailed information regarding metal lath, woven wire, trim requirements, etc.
7. Moisture Control
8. Prevent the accumulation of water behind the Sentry Stucco CI System, either by condensation or leakage through the wall construction, in the design and detailing of the wall assembly.
	1. 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, at the base of the wall and anywhere else required by local code.
9. Senergy SENERSHIELD-R air/water-resistive barriers can be used, provided a subsequent layer of Tyvek® StuccoWrap® is applied over the BASF Wall Systems roller applied air/water-resistive barrier.]
	1. The water resistive barrier must be installed over the substrate according to manufacturer’s specifications and applicable building code requirements.
	2. Openings must be flashed prior to window/door, HVAC, etc. installation to provide moisture protection of the building frame and interior. Refer to *Senergy’s Secondary Moisture Protection Barrier Guidelines for Senergy Stucco Wall System* bulletin.
10. 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.]
11. Grade Condition
12. Sentry Stucco CI Wall System is not intended for use below grade or on surfaces subject to continuous or intermittent immersion in water or hydrostatic pressure. Ensure a minimum 4” (101.6mm) clearance above grade or as required by code, a minimum 2” (50.8 mm) clearance above finished grade (sidewalk/concrete flatwork).
13. Trim, Projecting Architectural Features

**NOTE TO SPECIFIER: Installation of the Sentry Stucco CI System with trim shapes that incorporate expanded polystyrene (EPS) outside the slope guidelines referenced in this specification may still qualify for a standard warranty; however, increased maintenance and premature deterioration of the trim shapes that incorporate expanded polystyrene (EPS) shall be expected and any deleterious affects caused by the lack of slope will not be the responsibility of BASF Wall Systems. The design professional has the option to build according to his/her project needs. The design professional must also consider geography, climate, building orientation, wall orientation and adjacent building components when designing with trim shapes that incorporate expanded polystyrene (EPS). The slope guidelines referenced below are provided to offer assistance to the owner and/or design professional. Final design of any building is the responsibility of the design professional.**

1. Minimum slope for all projections shall be 1:2 (27º) with a maximum length of 30.5 cm (12") [e.g. 15 cm in 30.5cm (6" in 12")]. Increase slope for northern climates to prevent accumulation of ice/snow on the surface.
2. The Sentry Stucco CI System was designed and tested to be applied to vertical surfaces. As the slope of the wall system application decreases, the chance for premature deterioration of any wall system increases.
3. Low sloping conditions are subject to more extreme heat. Low sloped areas are known to produce an increase in wall surface temperature which can lead to accelerated weathering of the low sloped surface.
4. The use of dark colors over EPS insulation trim shapes must be considered in relation to wall surface temperature as a function of local climate conditions. Select a Finish Coat color with a light reflectance value (LRV) of 20% or higher. The use of dark colors (LRV less than 20%) is not recommended with trim shapes that incorporate expanded polystyrene (EPS). EPS has a sustained service temperature limitation of approximately 71°C (160°F).]
5. System Joints
	1. Expansion joints in the system are required at building expansion joints, at prefabricated panel joints, floor lines of wood frame construction, where substrates change and where structural movement is anticipated. Detail specific locations in construction drawings.
	2. Control joints are recommended at a minimum of every 13m2 (144ft2) of wall surface area and where specified by the design professional. The maximum uncontrolled length or width is 5.5 lineal meters (18 lineal feet) and a maximum uncontrolled length to width ratio of 2 ½: 1. Detail specific locations in construction drawings.
	3. It is the sole responsibility of the project design team, including the architect, engineer, etc., to ultimately determine specific expansion and control joint placement, width and design.
	4. Sealant joints are required at all penetrations through the Sentry Stucco CI System (windows, doors, lighting fixtures, electrical outlets, hose bibs, dryer vents, etc.). Refer to *Sentry Stucco CI System Typical Details*.
6. Decks

Wood decks must be properly flashed prior to system application. The *Sentry Stucco CI System* must be terminated a minimum of 25 mm (1") above all decks, patios, sidewalks, etc.

1. 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 Senergy® Moisture Protection Guidelines for Senergy Stucco Wall System before installing windows, doors, and other penetrations through the wall.
4. Install copings and sealant immediately after installation of the Sentry Stucco CI System and when Senergy coatings are completely dry.

**TECHNICAL INFORMATION**

Consult BASF Wall Systems’ Technical Services Department for specific recommendations concerning all other applications. Consult the Senergy website, www.senergy.basf.com, for additional information about products and systems and for updated literature.

**PART 1 - GENERAL**

**1.01 SECTION INCLUDES**

1. Refer to all project 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.
2. System Description: Composite wall system of water-resistive barrier, rigid insulation, fasteners, Base Coat, Reinforcing Mesh, and Finish Coat.
3. Senergy 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.
4. The system type shall be Sentry Stucco CI System as manufactured by BASF Corp. - Wall Systems, Jacksonville, Florida (herein referred to as BASF Wall Systems).

* 1. **DEFINITIONS**
	2. Continuous Insulation Stucco System: A wall system where the Base Coat is applied to a uniform thickness of nominal 10 mm (3/8") over continuous exterior insulation. The Base Coat thickness is not dependent upon the number of layers or thickness of Reinforcing Mesh. The Reinforcing Mesh is installed over the surface of the insulation board. The Base Coat is applied over the Reinforcing Mesh. Protective Finish Coats, of various thicknesses, in a variety of textures and colors, are applied over the Base Coat.
	3. **RELATED SECTIONS**
1. Section 03 00 00 Concrete substrate
2. Section 04 00 00 Masonry substrate
3. Section 05 40 00 Cold-formed metal framing
4. Section 06 16 00 Wood sheathing
5. Section 06 11 00 Wood framing
6. Section 07 25 00 Weather barriers
7. Section 07 27 00 Air barriers
8. Section 07 62 00 Sheet metal flashing and trim
9. Section 07 65 00 Flexible flashing
10. Section 07 90 00 Joint protection
11. Section 08 00 00 Openings
12. Section 09 22 00 Supports for plaster and gypsum board
13. Section 09 22 16 Non-structural metal framing
14. Section 09 29 00 Gypsum board

**1.04 REFERENCES**

1. ASTM A653 / A653M Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
2. ASTM B69 Standard Specification for Rolled Zinc
3. ASTM C79/C79M-04a Standard Specification for Gypsum Sheathing Board
4. ASTM C150 Standard Specification for Portland cement
5. ASTM C578 Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation
6. ASTM C1063 Standard Specification for Installation of Lathing and Furring to Receive Interior and Exterior Portland Cement-Based Plaster
7. ASTM C1135 Standard Test Method for Determining Tensile Adhesion Properties of Structural Sealants
8. ASTM C1177 Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing
9. ASTM C1325 Standard Specification for Non-Asbestos Fiber-Mat Reinforced Cementitious Backer Units
10. ASTM C1396 / C1396M - 09a Standard Specification for Gypsum Board
11. ASTM D226 Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing
12. ASTM D1784Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (PVC) Compounds
13. ICC-ES AC11 Cementitious Exterior Wall Coatings
14. ESR-1794 ICC Evaluation Service, Inc., ES Report™

**1.05 SUBMITTALS**

1. Submit under provisions of Section [01 33 00]
2. Product Data: Provide data on Sentry Stucco CI System materials, product characteristics, performance criteria, limitations and durability.
3. Code Compliance: Provide manufacturer’s applicable code compliance report.
4. Samples: Submit [two] [ x ] [millimeter] [inch] size samples of Sentry Stucco CI System design illustrating Finish Coat color and texture range.
5. Certificate: System manufacturer’s approval of applicator.
6. Sealant: Sealant manufacturer’s certificate of compliance with ASTM C1135.
7. System manufacturer’s current specifications, typical details, system design guide and related product literature which indicate preparation required, storage, installation techniques, jointing requirements and finishing techniques.

**1.06 QUALITY ASSURANCE**

1. Manufacturer: More than 10 years in the insulated exterior wall systems industry.
2. Applicator: Approved by BASF Construction Chemicals, LLC – Wall Systems (hereinafter referred to as “BASF Wall Systems”) in performing work of this section.
3. Regulatory Requirements: Conform to applicable code requirements.
4. Field Samples
	* + - 1. Provide under provisions of Section [01 43 36] [01 43 39].
				2. Construct one field sample panel for each color and texture, [ x ] [meters] [feet] in size of system materials illustrating method of attachment, surface Finish color and texture.
				3. Prepare each sample panel using the same tools and techniques to be used for the actual application.
				4. Locate sample panel where directed.
				5. Accepted sample panel [may] [may not] remain as part of the work.
				6. Field samples shall be comprised of all wall assembly components including substrate, water-resistive barrier, plaster trim accessories, Base Coat, Reinforcing Mesh, primer, Finish Coat and typical sealant/flashing conditions.

**1.07 DELIVERY, STORAGE AND HANDLING**

1. Deliver, store and handle products under provisions of Section [01 65 00] [01 66 00] [ ].
2. Deliver Sentry Stucco CI System materials in original unopened packages with manufacturer’s labels intact.
3. Protect Sentry Stucco CI System materials during transportation and installation to avoid physical damage.
4. Store Sentry Stucco CI System materials in cool, dry place protected from exposure to moisture and freezing.
5. Store at no less than 4°C/40°F (10°C/50°F for AURORA STONE, AURORA TC-100, ALUMINA™ and BOREALIS Finish).
6. Store FIBERLATH Reinforcing Mesh in cool, dry place protected from exposure to moisture.
7. Store insulation boards flat and protected from direct sunlight and extreme heat.

**1.08 PROJECT/SITE CONDITIONS**

1. Do not apply Sentry Stucco CI System materials in ambient temperatures below 4°C/40°F (10°C/50°F for AURORA STONE, AURORA TC-100, ALUMINA™ and BOREALIS Finish).
2. Provide properly vented, supplementary heat during installation and drying period when temperatures less than 4°C/40°F (10°C/50°F for AURORA STONE, AURORA TC-100, ALUMINA™ and BOREALIS Finish) prevail.
3. Do not apply Sentry Stucco CI System materials to frozen surfaces.
4. Maintain ambient temperature at or above 4°C/40°F (10°C/50°F for AURORA STONE, AURORA TC-100, ALUMINA™ and BOREALIS Finish) during and at least 24 hours after Sentry Stucco CI System installation and until dry.

**1.09 SEQUENCING AND SCHEDULING**

1. Coordinate and schedule installation of Sentry Stucco CI Wall System with related work of other sections.
2. Coordinate and schedule installation of trim, flashing, and joint sealers to prevent water infiltration behind the system.

**1.10 WARRANTY**

1. Provide five-year materials warranty for Sentry Stucco CI Wall System installations under provisions of Section [01 70 00].
2. Comply with BASF Wall Systems notification procedures to assure qualification for warranty.

**PART 2 - PRODUCTS**

**2.01 MANUFACTURERS**

All components of the Sentry Stucco CI Wall System shall be obtained from the system manufacturer or through an authorized distributor.

**2.02 MATERIALS**

**NOTE TO SPECIFIER: Keep only the products in this section which will be incorporated in the Sentry Stucco CI Wall System. Delete those not to be utilized.**

1. Base Coat: SENERTHIK BASE LIQUID: 100% acrylic polymer resin base liquid; manufactured by BASF Wall Systems.
2. Adhesive/Base Coat for EPS insulation architectural features
	1. ALPHA BASE COAT: 100% acrylic base coat, field-mixed with Portland cement; manufactured by BASF Wall Systems.]
	2. ALPHA DRY BASE COAT: Dry-mix base coat containing Portland cement; manufactured by BASF Wall Systems.]]
3. Portland cement: Conform to ASTM C150, Type I, II, or I/II, grey or white; fresh and free of lumps.
4. Water: Clean and potable without foreign matter.
5. Sand: Silica sand, #30 - #70 sieve, as recommended by BASF Wall Systems.
6. Insulation Board: Extruded Polystyrene (XPS); ASTM C578, Type IV; Flame spread less than 25, smoke developed less than 450 per ASTM E84, UL 723; K=5.08 per millimeter (0.20 per inch); 25 mm (1”) minimum thickness as indicated on Drawings. Size: 1.22 m x 2.44 m (4’x 8’) or 0.61m x 2.44 m (2’ x 8’)
7. Insulation board for architectural features: expanded polystyrene (EPS); ASTM C578 Type 1; flame spread less than 25, smoke developed less than 450 per ASTM E-84, UL 723; minimum density 15.22 kg/m3 (0.95 lb/ft3); K=6.09 per millimeter (0.24 per inch), minimum thickness as indicated on drawings meeting the following:

Air dried (aged 6 weeks, or equivalent prior to installation).

Edges: square within 0.8 mm per meter (1/32" per foot).

Thickness: tolerance of plus or minus 1.6 mm (1/16").]

1. Fastener System: Type appropriate for application and substrate, as recommended by BASF Wall Systems.
2. Insulation Board Fasteners: ULP-302 Mechanical Fastening Systems by Wind-Lock Corp.

a. Masonry: Masonry type [M] expansion fastener with 44 mm (1 ¾”) diameter washer; 25 mm (1”) minimum penetration into masonry.

b. Light Gauge Steel Framing/Furring (20 Gauge): Light Metal type [LM] bugle head screws with 44 mm (1 ¾”) diameter washer; 16 mm (5/8”) minimum penetration into framing.

c. Heavy Gauge Steel Framing (20 to 12 Gauge maximum): Metal type [S] bugle head screws with 44 mm (1 ¾”) diameter washer; 16 mm (5/8”) minimum penetration into framing.

d. Wood framing: Wood type [W} bugle head screws with 44 mm (1 ¾”) diameter washer; 16 mm (5/8”) minimum penetration into framing.

1. FIBERLATH MESH: MIL-Y-1140G; Balance open weave glass fiber mesh; twisted multi-end strands treated for compatibility with Sentry Stucco CI System components.
2. [Reinforcing mesh for EPS insulation architectural features: Balanced, open weave glass fiber reinforcing mesh; twisted multi-end strands treated for compatibility with Senergy System components.

1. FLEXGUARD 4: standard weight, 4 oz.]

K. FIBERFILL: Chopped glass fiber strands; furnished by BASF Wall Systems.

1. SENERGY TINTED PRIMER: 100% acrylic-based primer; color [ ] to closely match the selected Senergy FINISH COAT color; manufactured by BASF Wall Systems.] **NOTE TO SPECIFIER: Senergy TINTED PRIMER is required for AURORA TC-100 AURORA STONE, BOREALIS and ALUMINA™ Finishes. Although optional in other applications, the application of Senergy TINTED PRIMER will enhance color uniformity, performance and ease FINISH COAT application and will minimize the likelihood of read-through.**
2. SENERFLEX Finish Coat: 100% acrylic resin finish; air cured, compatible with Base Coat; Finish color factory-mixed; color [ ] as selected; Finish texture [CLASSIC] [FINE] [TEXTURE] [COARSE] [SAHARA] [BELGIAN LACE] [BOREALIS] [AURORA “TC-100”] [AURORA STONE] [ALUMINA] as scheduled; as manufactured by BASF Wall Systems..]

-OR-

[SILCOAT] Finish: Siliconized acrylic emulsion finish coat; air cured, Finish color factory-mixed; color [ ] selected; Finish texture [CLASSIC] [FINE] [TEXTURE] [SAHARA] as scheduled.]

-OR-

[[SENERLASTIC] [siliconized SENERLASTIC PLUS] Finish: 100% acrylic-based] coat; air cured, Finish color factory-mixed; color [ ] as selected; Finish texture [CLASSIC] [FINE] [SAHARA] as scheduled.]

1. BASF Wall System’s ANTICOGLAZE™: 100% acrylic-based stain or glaze which produces beautiful aesthetics with varied degrees of mottling, coloration and glaze, based upon the combination of application technique, the color of the ANTICOGLAZE™ itself and the color of the finish it is applied to; distributor tinted color [ ]].

**2.03 ACCESSORIES**

1. Water Resistive Barrier:

 **NOTE TO SPECIFIER: A water resistive barrier must be installed over sheathed substrates and wrapped into rough openings prior to installation of the Sentry Stucco CI System. (Not required on unit masonry/concrete substrates to receive the Sentry Stucco CI System).**

* 1. Acceptable water-resistive barrier is Tyvek® StuccoWrap®. Senergy SENERSHIELD-R air/water-resistive barrier can be used, provided a subsequent layer of Tyvek StuccoWrap is applied over the SENERSHIELD-R.
	2. Install the water-resistive barrier over the substrate according to manufacturer’s specifications and applicable building code requirements.
	3. The water-resistive barrier shall be free of any damage such as holes or breaks, and must be applied to all surfaces to receive the Sentry Stucco CI System.
	4. Wrap the water-resistive barrier into rough openings (doors, windows, etc.) in accordance with Senergy’s *Secondary Moisture Protection Barrier Guidelines for Senergy Stucco Wall System* Bulletin.
	5. Coordinate work with other trades to assure proper sequencing, detailing and installation of materials.
1. Trim: Casing bead, corner bead, expansion joint and weep screed accessories shall meet the requirements of ASTM C1063. Accessories shall be: vinyl, meeting ASTM D1784; galvanized, meeting ASTM A653/A653M; or zinc, meeting ASTM B69. Vinyl or zinc accessories are recommended where highly humid or salt-laden service conditions exist. Refer to *Sentry Stucco CI Wall System Lath and Trim Accessories* bulletin for additional information.
2. Nylon anchors: Wind-Lock Trim-Tac or equivalent.

**PART 3 - EXECUTION**

**3.01 EXAMINATION**

1. Verify project site conditions under provisions of Section [01 89 00] [ ].
2. Walls
3. Substrates

Acceptable substrates are PermaBase® Cement Board and other cement-boards conforming with ASTM C1325 (Type A-exterior), poured concrete/unit masonry, e²XP™ sheathing (ASTM C1177), GlasRoc® sheathing (ASTM C1177), Securock™ glass-mat sheathing (ASTM C1177), DensGlass™ exterior sheathing (ASTM C1177), Weather Defense™ Platinum sheathing (ASTM C1177), GreenGlass® sheathing (ASTM C1177), gypsum sheathing (ASTM C79/C1396), Exposure I or exterior plywood (Grade C/D or better), or Exposure I OSB.

Sheathings must be securely fastened per applicable building code requirements and manufacturer’s recommendations.

Examine surfaces to receive system and verify that substrate and adjacent materials are dry, clean, and sound. Verify substrate surface is flat, free of fins or planar irregularities greater than 6 mm in 3 m (1/4" in 10').

1. 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 Senergy’s *Secondary Moisture Protection Barrier Guidelines for Senergy Stucco Wall System* bulletin for further guidance.

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/or the joints between the units must be fully sealed.

1. Water Resistive Barrier (If installed by others, examine installation at this time)
	1. Verify that the water resistive barrier is installed over the substrate per applicable building code requirements, manufacturer’s specifications and wrapped into rough openings in accordance with Senergy’s *Secondary Moisture Protection Barrier Guidelines for Senergy Stucco Wall System* bulletin prior to application of the Senergy Sentry Stucco CI Wall System.
	2. The water resistive barrier shall be free of any damage such as holes or breaks, and must be applied to all sheathing surfaces to receive the Senergy Sentry Stucco CI Wall System.
2. Roof

Verify that all roof flashings have been installed in accordance with the guidelines set by the Asphalt Roofing Manufacturers Association (ARMA).

1. Kick-out flashing

Kick-out flashing must be installed where required. The kick-out flashing must be leak-proof and angled (min 100˚) to allow for proper drainage and water diversion.

1. Do not proceed until all unsatisfactory conditions have been corrected.
	1. **PREPARATION**
2. Protect all surrounding areas and surfaces from damage and staining during application of Senergy Sentry Stucco CI Wall System.
3. Protect finished work at end of each day to prevent water penetration.

**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 will be incorporated in the Sentry Stucco CI System. Delete those not to be utilized.**

1. Air/Water Resistive Barrier
	1. SENERSHIELD-R

Mix SENERSHIELD-R with a clean, rust-free paddle and drill until thoroughly blended. Do not add water.]

1. SENERTHIK Base Coat:
	1. Use mixer that is clean and free of foreign substances.
	2. Mix one bag (42.64 kb/94 lbs.) Portland cement, 68-90.7 kg (150-200 lbs.) silica sand, and one package (.45 kg/1lb.) FIBERFILL with Senerthik BASE LIQUID (18.1 kg/40 lbs.) Mix for three to five minutes to a homogeneous consistency.
	3. Clean, potable water may be added to adjust workability.
2. Adhesive/Base Coat for EPS insulation architectural features
	1. Senergy ALPHA Base Coat:
	2. Prepare in a container which is clean and free of foreign substances. Do not use container which has contained or been cleaned with a petroleum-based product.
	3. Mix Base Coat with a clean, rust-free paddle and drill until thoroughly blended, before adding Portland cement.
	4. Mix one part (by weight) Portland cement with one part Base Coat. Add Portland cement in small increments, mixing until thoroughly blended after each additional increment.
	5. Clean, potable water may be added to adjust workability
	6. ALPHA DRY Base Coat:
3. Mix and prepare each bag in a 19-liter (5-gallon) pail which is clean and free of foreign substances. Do not use a container which has contained or been cleaned with a petroleum-based product.
4. Fill the container with approximately 5.6 liters (1 1/2 gallons) of clean, potable water.
5. Add ALPHA DRY Base Coat in small increments, mixing after each additional increment.
6. Mix ALPHA DRY Base Coat and water with a clean, rust-free paddle and drill until thoroughly blended.
7. Additional ALPHA DRY Base Coat or water may be added to adjust workability.]
8. SENERGY FINISH [SENERFLEX] [SILCOAT®] [SENERLASTIC®] [TINTED PRIMER] and [ANTICOGLAZE™]
9. Thoroughly mix the factory-prepared material with a clean paddle and drill until thoroughly blended.
10. A small amount of clean, potable water may be added to adjust workability.
11. Additives are not permitted.
12. Close container when not in use.
13. Clean tools and equipment with water immediately after use. Dried material can only be removed mechanically.
14. SENERGY [AURORA TC-100], [BOREALIS], [AURORA STONE] and [ALUMINA™] SPECIALTY FINISH COATS
15. Gently mix the contents of the pail for 1 minute using a low RPM 1/2 inch drill equipped with a mixing paddle such as a Demand Twister or a Windlock B-MEW, B-M1 or B-M9.
16. Additives are not permitted.
17. Close container when not in use.
18. Clean tools and equipment with water immediately after use. Dried material can only be removed mechanically.

**3.04 APPLICATION**

General: Apply Sentry Stucco CI System materials in accordance with BASF Wall System Specifications.

**NOTE TO SPECIFIER: Keep only the products in this section which will be incorporated in the Sentry Stucco CI System. Delete those not to be utilized.**

1. SENERSHIELD-R
	1. All sheathing joints and windows/openings must be protected and the SENERSHIELD-R Air/Water Resistive barrier applied in accordance with Senergy’s *Secondary Moisture Protection Barrier Guidelines for Senergy Stucco Wall Systems* bulletin. Openings must be flashed prior to window/door, HVAC, etc. installation.
	2. Substrate shall be 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’).
	3. Unsatisfactory conditions shall be corrected before application of the SENERSHIELD-R.
	4. Wrap openings with sheathing fabric by applying mixed SENERSHIELD-R to all surfaces and immediately embedding sheathing fabric. Once dry, apply a second coat to ensure a complete, void-free membrane. Apply fabric in accordance with *Secondary Moisture Protection Barrier Guidelines for Senergy Stucco Wall Systems* bulletin.
	5. Spot all fasteners and pre-coat sheathing joints, terminations, inside and outside corners with mixed SENERSHIELD-R using a 101 mm (4”) wide by 20 mm (3/4”) nap roller, brush or spray.
		1. Immediately place and center sheathing fabric over wet SENERSHIELD-R 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 fabric extends evenly on both sides of the sheathing joint.
		2. Lap sheathing fabric 63.5 mm (2 1/2”) minimum at intersections.
		3. Allow to dry to the touch before applying SENERSHIELD-R to entire wall surface.

6. a. Apply SENERSHIELD-R to plywood, OSB substrate(s) or CMU with a 20 mm (3/4”) nap roller to a uniform consistent thickness of a nominal 10 wet mils. Prior to application of a 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: Two (2) coats of SENERSHIELD-R are required on plywood, OSB and CMU.**

b. Apply SENERSHIELD-R to other acceptable substrate(s) with a 20 mm (3/4”) nap roller to a uniform consistent thickness of nominal 10 wet mils that is free of voids and pinholes.

1. Installed materials should be completely dry and checked before continuing system application.
2. Coordinate work with other trades to assure proper sequencing, detailing and installation of materials.]
3. Tyvek® StuccoWrap®

1. Install according to the manufacturer’s instructions and *Secondary Moisture Protection Barrier Guidelines for Senergy Stucco Wall Systems* bulletin.

1. Extruded polystyrene insulation board
	* 1. Vertical Surfaces: Begin at base from firm, permanent or temporary support.
		2. Apply horizontally in a running bond.
		3. Pre-cut insulation board to fit openings, projections. Insulation board must be a single piece around corners of openings. Stagger vertical joints and corners. Stagger insulation and sheathing insulation board joints.
		4. Install Type [M] [S] [LM] [W] mechanical fasteners; For 4’ x 8’ XPS insulation board, achieve preliminary attachment by applying four mechanical fasteners through insulation board and into the framing or masonry 304 mm (12”) up from bottom and down from the top of insulation board and [406 mm (16”)][609 mm (24”)] from each end. For 2’ x 8’ XPS insulation board, achieve preliminary attachment by applying two mechanical fasteners through insulation board and into the framing or masonry 304 mm (12”) up from bottom of insulation board and [406 mm (16”)][609 mm (24”)] from each end.
		5. Abut all joints tightly and ensure overall flush level surface. Cut slivers of insulation board and fit into gaps between insulation boards.
		6. Apply FIBERLATH MESH over insulation board with 76 mm (3”) overlap at edges; secure through insulation and into substrate with mechanical fasteners at [406 mm (16”) o.c. horizontally over masonry substrates] [406 mm (16”) or 609 mm (24”) o.c. horizontally over framing] and 304 mm (12”) o.c. vertically.
		7. Install expansion joints and other joints as indicated on Drawings.
2. Accessories: Attach control joints, corner, casing beads and other accessories per *Sentry Stucco CI System Trim Accessories* technical bulletin.
3. Senerthik Base Coat
	* 1. Base Coat shall be applied over entire surface of FIBERLATH MESH and insulation board with a stainless steel trowel to a uniform thickness of approximately 4.8 mm (3/16”).
		2. Base Coat must be properly keyed into expanded flange of metal trim.
		3. Immediately trowel a second layer of mixed Senerthik Base Coat to a thickness of approximately 4.8 mm (3/16”). Level Base Coat with metal or wood slicker to achieve a smooth, uniform surface; total thickness shall be 10 mm (3/8”), matching height of grounds of trim accessories.
		4. Allow Senerthik Base Coat to cure a minimum of 2 days prior to application of Primer and Finish Coat or architectural features.
4. EPS insulation board used for architectural features:
	* + 1. Pre-cut insulation board.
			2. Apply mixed Senergy [ALPHA] [ALPHA DRY] Base Coat to the entire surface of insulation board using a stainless steel trowel with 13 mm x 13 mm (1/2" x 1/2") notches spaced 13 mm apart (1/2") apart.
			3. Immediately slide board into place and apply pressure over the entire surface of board to ensure uniform contact and high initial grab. Do not allow Base Coat to dry prior to installing.
			4. Abut all joints tightly and ensure overall flush level surface.
			5. Fill gaps with slivers of insulation board.
			6. Allow application of insulation board to dry (normally 8–10 hours) prior to application of Senergy Base Coat and Mesh.
			7. Rasp flush any irregularities greater than 1.6 mm (1/16").
			8. Apply mixed [ALPHA] [ALPHA DRY] Base Coat to entire surface of EPS insulation and onto the Senerthik Base Coat a minimum of 64 mm (2 ½”) with a stainless steel trowel to embed the Reinforcing Mesh.
			9. Immediately place FLEXGUARD 4 Reinforcing Mesh against wet Base Coat and embed the Reinforcing Mesh into the Base Coat by troweling from the center to the edges.
			10. Lap Reinforcing Mesh 64 mm (2 1/2") minimum at edges.
			11. Ensure Reinforcing Mesh is continuous at corners, void of wrinkles and fully embedded in Base Coat.
			12. If required, apply a second layer of Base Coat to achieve total nominal Base Coat/Reinforcing Mesh thickness of 1.6 mm (1/16").
			13. Allow Base Coat with embedded Reinforcing Mesh to dry hard (normally 8 to 10 hours) prior to primer and finish application.

**NOTE TO SPECIFIER: If architectural features utilizing EPS insulation and reinforced base coat are incorporated onto the Sentry Stucco CI Wall System, then TINTED PRIMER is recommended over the entire Sentry Stucco CI Wall System prior to finish application.]**

1. Senergy TINTED PRIMER:

1. Apply TINTED PRIMER to the Base Coat with a sprayer, 10 mm (3/8”) nap roller, or good quality latex paint brush at a rate of approximately 3.6-6.1 m² per liter (150-250 ft.² per gallon).

2. TINTED PRIMER shall be dry to the touch before proceeding to the Senergy Finish Coat application.]

H. SENERGY FINISH COAT

1. SENERFLEX® FINISH: [CLASSIC] [FINE] [TEXTURE] [COARSE] [SAHARA] [BELGIAN LACE] [ENCAUSTO VERONA] [METALLIC].

- OR -

SILCOAT® FINISH: [CLASSIC] [FINE] [TEXTURE] [SAHARA]

- OR -

SENERLASTIC FINISH: [CLASSIC] [FINE] [TEXTURE] [SAHARA] [BELGIAN LACE]

* + 1. Apply FINISH directly to the stucco brown coat with a clean, stainless steel trowel.
		2. Apply and level FINISH during the same operation to minimum obtainable thickness consistent with uniform coverage.
		3. Maintain a wet edge on FINISH by applying and texturing continually over the wall surface.
		4. Work FINISH to corners, joints or other natural breaks and do not allow material to set up within an uninterrupted wall area.
		5. Float FINISH to achieve final texture.]
1. [AURORA TC-100] [BOREALIS] [ALUMINA™] FINISH COAT
2. Apply TINTED PRIMER to substrate in accordance with current Senergy TINTED PRIMER product bulletin. TINTED PRIMER shall be of corresponding color for selected [AURORA TC-100] [BOREALIS] [ALUMINA™] FINISH color. Allow TINTED PRIMER to dry to the touch before proceeding to [AURORA TC-100] [BOREALIS] [ALUMINA™] FINISH application.
3. Apply a tight coat of FINISH with a clean, stainless steel trowel.
4. Maintain a wet edge on FINISH by applying and leveling continually over the wall surface.
5. Work FINISH to corners, joints or other natural breaks and do not allow material to set up within an uninterrupted wall area. Allow first coat to set until surface is completely dry prior to applying a second coat of FINISH. (Second coat not required for ALUMINA™ FINISH)
6. For a smooth appearance, use a stainless steel trowel and apply the second coat of FINISH. Achieve final texture using circular motions.
7. For a textured appearance, apply the second coat of FINISH using a spray gun and hopper.
8. Double-back to achieve final texture.
9. Total thickness of FINISH shall be approximately 1.6 mm (1/16").
10. AURORA STONE FINISH COAT
11. Apply TINTED PRIMER to substrate in accordance with current Senergy TINTED PRIMER product bulletin. TINTED PRIMER shall be of corresponding color for selected AURORA STONE FINISH color. Allow TINTED PRIMER to dry to the touch before proceeding to AURORA STONE FINISH application.
12. Apply a coat of AURORA STONE FINISH using a spray gun and hopper, maintaining a wet edge. Work to corners, joints or other natural breaks and do not allow material to set up within an uninterrupted wall area.
13. Allow first coat of AURORA STONE FINISH to set until surface is completely dry prior to applying a second coat of AURORA STONE FINISH.
14. Apply a second coat of AURORA STONE FINISH using a spray gun and hopper; double back to achieve final texture.
15. Thickness of AURORA STONE FINISH may vary between 1.6 mm (1/16") and 3.2 mm (1/8"), depending upon texture.

**Note: Spraying of AURORA STONE FINISH should be in the same manner and direction and by the same mechanic on a particular elevation or project whenever possible, to maintain a uniform appearance. Maintain consistent air pressure to minimize texture variations. Stator or rotor design pumps are not recommended.**]

[I. BASF Wall System’s ANTICOGLAZE™:

1. Apply BASF Wall System’s ANTICOGLAZE™ in accordance with recommendations contained in current product literature.]

**3.05 CLEANING**

A. Clean work under provisions of Section [01 74 00] [ ].

B. Clean adjacent surfaces and remove excess material, droppings, and debris.

**3.06 PROTECTION**

A. Protect installed construction under provisions of Section [01 76 00] [ ].

**END OF SECTION**

**Note**

BASF Wall Systems is an operating unit of BASF Corporation (herein referred to as “BASF Wall Systems”).

**Residential Policy**

Apply wall systems in accordance with local building codes in force at the time of construction. On one and two-family residential framed construction; BASF Wall Systems requires that the wall system selected be one that includes provisions for moisture drainage. Please view the Senergy Residential Policy Bulletin on the Senergy website for a more detailed discussion of this topic.

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