



CBS 1000 CI Wall System – Section 072423

High-impact resistant, water-managed wall system incorporating PermaBASE CI™ polyiso insulated cement board, reinforced base coat and 100% acrylic polymer exterior finish.

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 Senergy brand of Master Builders Solutions Construction Systems US, LLC (herein referred to as “Master Builders Solutions”) has prepared guidelines in the form of specifications, typical application details, and product bulletins to facilitate the design process only. Master Builders Solutions is not liable for any errors or omissions in design, detail, structural capability, attachment details, shop drawings or the like, whether based upon the information provided by Master Builders Solutions or otherwise, or for any changes which the purchasers, specifiers, designers or their appointed representatives may make Master Builders Solutions published comments.

Designing and Detailing a CBS 1000 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.

A. Wind Load

1. Maximum deflection not to exceed L/360 of span under positive or negative design loads.
2. Design for wind load in conformance with local code requirements.

B. Substrate Systems

1. This specification is intended for applications on PermaBASE CI™ Insulated Cement Board by PermaBASE® Building Products, LLC provided by National Gypsum Company (hereinafter “PermaBASE CI”). Installation details for the PermaBASE CI substrate shall be by others. PermaBASE CI shall be installed over the following sheathings that are first applied over the framing and which may be required to satisfy structural requirements and/or fire resistive construction requirements: ASTM C1177 type sheathings, including, Weather Defense™ Platinum sheathing, GreenGlass® sheathing, eXP™ 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.
2. The substrate systems shall be engineered with regard to structural performance by others.

C. Moisture Control

1. Prevent the accumulation of water behind the CBS 1000 CI system, either by condensation or leakage through the wall construction, in the design and detailing of the wall assembly.
 - a. Provide flashing to direct water to the exterior where it is likely to penetrate components in the wall assembly, including, above window and door heads, beneath window and door sills, at roof/wall intersections, decks, abutments of lower walls with higher walls, above projecting features, and at the base of the wall and anywhere else required by local code.
 - b. Air Leakage Prevention: Provide continuity of air barrier system at foundation, roof, windows, doors and other penetrations through the system with connecting and compatible air barrier components to minimize condensation and leakage caused by air movement.
 - c. Vapor Diffusion and Condensation: Perform a dew point analysis of the wall assembly to determine the potential for accumulation of moisture in the wall assembly as a result of water

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vapor diffusion and condensation. Adjust insulation thickness and/or other wall assembly components accordingly to minimize the risk of condensation. Avoid the use of vapor retarders on the interior side of the wall in warm, humid climates.

D. 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. Locate control joints approximately every 600 ft.2 (56 m2) of wall surface area with maximum uncontrolled length or width of 24 lin. ft. (7 m) and a maximum uncontrolled length-to-width ratio of 2 1/2:1. At dissimilar substrates, a deep control joint (Plastic Components type product number 22027-16 or equal) must be used. If building expansion/contraction is anticipated, a true expansion joint with backer rod and sealant should be utilized. For control joints mounted on the surface of the cement-board (CBS 1000 CI System), control joint placement must coincide with cement-board sheathing joints. For non-nailable substrates additional framing may be needed for support/attachment of the cement-board at vertical control joints. For additional information reference the Senergy Cement Board 1000 CI Trim Accessories technical bulletin.
3. Sealant joints are required at all penetrations through the CBS 1000 CI Wall System (windows, doors, lighting fixtures, electrical outlets, hose bibs, dryer vents, etc.). Refer to CBS 1000 CI Wall System typical details.

NOTE TO SPECIFIER: 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. Sealant joints are required at all penetrations through the Senergy CBS 1000 CI system (windows, doors, lighting fixtures, electrical outlets, hose bibs, dryer vents, etc.). Refer to Senergy CBS 1000 CI wall system typical details.

4. For a list of acceptable sealants refer to Acceptable Sealants for use with Senergy Wall Systems technical bulletin.

E. Grade Condition: CBS 1000 CI 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 6" (152 mm) clearance above grade or as required by code, a minimum 2" (50.8mm) clearance above finished grade (sidewalk/concrete flatwork).

F. Trim, Projecting Architectural Features

NOTE TO SPECIFIER: Installation of the CBS 1000 CI Wall System with decorative shapes created with framing/cement board or that incorporate EPS insulation board outside the slope guidelines referenced in this specification may still qualify for a standard warranty; however, low sloping shape conditions are subject to extreme heat, increased maintenance and premature deterioration of the system shall be expected and any deleterious effects caused by the lack of slope will not be the responsibility of Master Builders Solutions. Senergy Wall Systems are designed and tested to be applied to vertical surfaces. 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 EPS insulation board. 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 (27°) with a maximum length of 12" (30.5 cm) [e.g. 6" in 12" (15 cm in 30.5cm)]. Increase slope for northern climates to prevent accumulation of ice/snow on the surface.
2. Senergy Wall Systems were 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.

G. 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.

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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 an air seal 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, sealant and other weather protective items immediately after installation of the CBS 1000 CI Wall System and when Senergy coatings are completely dry.

TECHNICAL INFORMATION

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

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PART 1 – GENERAL

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

1.01 SECTION INCLUDES

- A. Refer to all project drawings and other sections of this specification to determine the type and extent of work therein affecting the work of this section, whether such work is specifically mentioned herein.
- B. Cement Board Stucco wall system: composite wall system consisting of Senergy air/water resistive barrier or other code approved secondary air/weather barrier, Drainage Mat by Master Builders Solutions, Senergy Base Coat, Senergy Reinforcing Mesh and Senergy Finish Coat.
- C. 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.
- D. The system type shall be Senergy Cement Board Stucco (CBS) 1000 CI wall system as manufactured by Master Builders Solutions, Shakopee, Minnesota.

1.02 RELATED SECTIONS

- A. Section 05 40 00 Cold-formed metal framing: Light gauge load-bearing metal framing
- B. Section 06 00 10 Plywood Substrate
- C. Section 06 11 00 Wood Framing
- D. Section 07 19 50 Air Barriers
- E. Section 07 62 00 Sheet Metal Flashing and Trim: Perimeter Flashings
- F. Section 07 65 00 Flexible Flashing
- G. Section 07 90 00 Sealants
- H. Section 08 00 00 Doors and windows
- I. Section 09 10 00 Metal Support Systems
- J. Section 09 11 00 Non-load-bearing wall framing: Non-load-bearing metal framing systems
- K. Section 09 25 00 Exterior Gypsum substrates

1.03 REFERENCES

- A. ASTM C150 Specification for Portland cement.
- B. ASTM E84 Tests for Surface Burning Characteristics of Building Materials.
- C. ASTM G23 Operating Light and Water Exposure Apparatus (Carbon-Arc Type) for Exposure of Non-metallic Materials.
- D. ASTM G53 Operating Light and Water Exposure Apparatus (Fluorescent UV-Condensation Type) for Exposure of Nonmetallic Materials.
- E. ASTM C67 Sampling and Testing Brick and Structural Clay Tile.
- F. ASTM B117 Standard Method of Salt Spray (Fog) Testing.
- G. ASTM D968 Abrasion Resistance of Organic Coatings by Falling Abrasive.
- H. FS TT-C-555B Coating Textured for Interior and Exterior Masonry Surfaces.
- I. MIL-Y-114OG Yarn, Cord, Sleeving, Cloth and Tape-Glass.
- J. Mil. Std. 810B Mildew Resistance (Method 508)
- K. ASTM E96 Water Vapor Transmission (Method B)
- L. UL ER22158-02 PermaBASE CI Evaluation Report

1.04 DEFINITIONS

Senergy CBS 1000 CI System: Exterior assembly comprised of Senergy air/water-resistive barrier or other code approved secondary air/weather barrier, Master Builders Solutions Drainage Mat, Senergy Base Coat, Senergy Reinforcing Mesh and Senergy Finish Coat.

1.05 SUBMITTALS

- A. Submit under provisions of Section [01300] [01340].
- B. Product Data: Provide data on Senergy CBS 1000 CI System materials, product characteristics, performance criteria, limitations and durability.

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- C. Shop Drawings: Indicate wall joint pattern and joint details, thickness, and installation details.
- D. Samples: Submit [\[two\]](#) [\[x\]](#) [\[millimeter\]](#) [\[inch\]](#) size samples of Senergy CBS 1000 CI System illustrating Finish Coat color and texture range.
- E. Certificate: System manufacturer's approval of applicator.
- F. Sealant: Sealant manufacturer's certificate of compliance with ASTM C920.
- G. 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

- A. Manufacturer: More than 10 years in the EIFS industry, with more than 1000 completed cement board stucco projects.
- B. Applicator: Approved by Master Builders Solutions in performing work of this section.
- C. Regulatory Requirements: Conform to applicable code requirements for finish system.
- D. Field Samples:
 1. Provide under provisions of Section [\[01400\]](#) [\[\]](#).
 2. Construct one field sample panel for each color and texture, [\[x\]](#) [\[meters\]](#) [\[feet\]](#) in size of system materials illustrating method of attachment, Senergy 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 substrates, air/water-resistive barrier, Drainage Mat by Master Builders Solutions, base coat, reinforcing mesh, primer (if specified), finish coat and typical sealant/flashing conditions.
- E. Testing:
 1. General Air/Water-Resistive Barrier Minimum Performance:

TEST	METHOD	CRITERIA	RESULTS
Water-resistive barrier coatings used under EIFS	ASTM E2570		Meets all performance requirements
Air Leakage of Air Barrier Assemblies	ASTM E2357	0.2 l/(s.m ²) @75 Pa (0.04 cfm/ft ² @ 1.57 psf)	0.0007 l/s.m ² (0.0001 cfm/ft ²) @ 75 Pa (1.57 psf) positive / post conditioning 0.0014 l/s.m ² (0.0003 cfm/ft ²) @ 75 Pa (1.57 psf) negative / post conditioning
Air Permeance of Building Materials	ASTM E2178	0.02 l/(s.m ²) @75 Pa (0.004 cfm/ft ² @ 1.57 psf)	0.0049 l/s.m ² @ 75 Pa (0.00098 cfm/ft ² @ 1.57 psf)
Rate of Air Leakage	ASTM E283		0.0185 l/s.m ² @ 75 Pa (0.0037 cfm/ft ² @ 1.57 psf)
Water Vapor Transmission	ASTM E96	Report value	Senershield-R - 18 Perms (grains/Hr. in Hg. ft ²) @ 10 mils wet film thickness Senershield-RS 18 Perms (grains/Hr. in Hg. ft ²) @ 12 mils wet film thickness Senershield-R/RS - 14 Perms (grains/Hr. in Hg. ft ²) @ 20 mils wet film thickness Senershield-VB - 0.09 Perms (grains/Hr. in Hg. ft ²) @ 26 mils wet film thickness
Pull-Off Strength of Coatings	ASTM D4541	Min. 110 kPa (15.9 psi) or substrate failure	Pass - Tested over exterior gypsum sheathing, ASTM C1177 glass-mat sheathing, cement board, OSB, plywood; pvc and galvanized flashing
Nail Sealability (without Sheathing Fabric)	ASTM D1970	No water penetration at galvanized roofing nail penetration under 127 mm (5") head of water after 3 days at 4° C (40° F)	Pass
Surface Burning	ASTM E84	Flame Spread < 25 Smoke Development < 450	Meets Class A: Flame spread =15 Smoke developed = 95

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

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

3. Air/Water-Resistive Barrier ICC-ES AC 148:

TEST	METHOD	CRITERIA	RESULTS
Sequential Testing: A. UV Light Exposure B. Accelerated Aging C. Hydrostatic Pressure Test	1. ICC-ES AC 148 2. ICC-ES AC 148 3. AATCC 127-1985	No cracking or bond failure to substrate No water penetration after 21.7 in (550 mm) water for 5 hours	Pass
Peel Adhesion	ASTM D 3330 Method F	After UV Exposure After Accelerated Aging After Elevated Temperature Exposure After Water Immersion	Pass - tested over ASTM C1177 glass-mat sheathing, OSB, plywood, PVC and uncoated aluminum
Nail Sealability after Thermal Cycling	ASTM D 1970 (Modified), AAMA 711	No water penetration at galvanized roofing nail penetration under 31 mm (1.2") head of water after 24 hours at 4° C (40° F)	Pass
Tensile Strength after UV Exposure	ASTM D 5034, AAMA 711	Minimum 0.5 N/mm (2.9 lbs./in)	Pass
Cold Temperature Pliability	ASTM D 1970, AAMA 711	No cracking after bending around a 25 mm (1") mandrel after 2 hour exposure to -18° C (0° F)	Pass
Resistance to Peeling	AAMA 711	No signs of distress or failure after 24 hours of exposure at room temperature, 50° C (122° F), 65° C (149° F), 80° C (176° F)	Pass

4. CBS 1000 CI System and Component Performance:

TEST	METHOD	CRITERIA	RESULTS
Transverse Wind-load	ASTM E330	Steel stud framing (20 gauge, 3 5/8") @ 16"o.c.,	Maximum allowable transverse load: +/- 36 psf (+/- 1723 Pa)
Transverse Wind-load	ASTM E330	Wood assembly (2" x 4") @ 16"o.c.	Maximum allowable transverse load: +/- 40.8 psf (+/- 1953 Pa)
Radiant Heat Exposure	NFPA 268	No ignition at 20 minutes	Met test criteria.
Intermediate Scale Multi-story Fire Test	NFPA 285 / UBC Standard 26-9	1. Resist flame propagation over the exterior surface 2. Resist vertical spread of flame	Met test criteria

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		within combustible core/component of panel from one story to the next 3. Resist vertical spread of flame over the interior surface from one story to the next 4. Resist lateral spread of flame from the compartment of fire origin to adjacent spaces	
Surface Burning	ASTM E84 / UL 723	Flame spread < 25 Smoke developed < 450	All components of the system meet Class A performance (FS < 25; SD < 450)
Abrasion Resistance	ASTM D968	No Cracking or loss of film integrity at 528 qt. (500L) of sand	Finish Coat not worn through after 686 liters of falling sand
Accelerated Weathering	ASTM G 153 (formerly G23)	No deleterious effects after 2000 hours.	Pass
Mildew Resistance	Mil Std 810B Method 508	No fungus growth after 28 days	Pass
Salt Fog Resistance	ASTM B117	No deleterious effects after 300 hours	Pass
Water Resistance	ASTM D 2247	No deleterious effects after 14 days exposure	Pass

5. PermaBASE CI Physical Properties per National Gypsum:

TEST	METHOD	1 Inch	2 Inch	3 Inch
Dimensional Stability	ASTM D2126	<0.5%	<0.5%	<0.5%
Water Absorption	ASTM D209	<5.0%	<5.0%	<5.0%
Water Vapor Transmission	ASTM E96	<1.5 perms	<1.5 perms	<1.5 perms
Flame Spread	ASTM E84	<25	<25	<25
Smoke Development	ASTM E84	<450	<450	<450
R-Value	ASTM C518	4	10	16
Dimensions	ASTM C473	1" x 4' x 8'	2" x 4' x 8'	3" x 4' x 8'
Weight		2.2 lbs. / sq. ft	2.4 lbs. / sq. ft	2.6 lbs. / sq. ft

6. Reinforcing Mesh Testing:

TEST	METHOD	CRITERIA	RESULTS
Alkali Resistance of Reinforcing Mesh	ASTM E 2098	Greater than 120 pli (21 dN/CM) retained tensile strength	Pass (all mesh)

1.07 DELIVERY, STORAGE AND HANDLING

- Deliver, store and handle products under provisions of Section [01 65 00] [01 66 00] [] .
- Deliver Master Builders Solutions materials in original unopened packages with manufacturer's labels intact.
- Protect Master Builders Solutions materials during transportation and installation to avoid physical damage.
- Store Master Builders Solutions materials in cool, dry place protected from freezing. Store at no less than 40°F/4°C (50°F/10°C AURORA STONE, AURORA TC-100 and ALUMINA finish).
- Store MAXFLASH at a minimum of 40F. In cold weather, keep containers at room temperature for at least 24 hours before using.
- Store insulation boards flat and protected from direct sunlight and extreme heat.
- Store Reinforcing Mesh, SHEATHING FABRIC and WS FLASH flexible flashing in cool, dry place protected from exposure to moisture.

1.08 PROJECT/SITE CONDITIONS

- Do not apply Master Builders Solutions material in ambient temperatures below 40°F/4°C (50°F/10°C for AURORA STONE, AURORA TC-100 and ALUMINA Finish). Provide properly vented, supplementary heat during installation and drying period when temperatures less than 40°F/4°C (50°F/10°C for AURORA STONE, AURORA TC-100 and ALUMINA Finish) prevail.
- Do not apply materials to frozen surfaces.
- Maintain ambient temperature at or above 40°F/4°C (50°F/10°C for AURORA STONE, AURORA TC-100 and ALUMINA Finish) during and at least 24 hours after CBS 1000 CI Wall System installation and until dry.

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1.09 SEQUENCING AND SCHEDULING

- A. Coordinate and schedule installation of Senergy CBS 1000 CI with related work of other sections.
- B. Coordinate and schedule installation of trim, flashing, and joint sealers to prevent water infiltration behind the System.
- C. Coordinate and schedule installation of air/weather barrier, windows, doors, AC units etc.

1.10 WARRANTY

- A. Provide Master Builders Solutions material warranty for Senergy CBS 1000 CI wall system installations under provisions of Section [01 70 00]. Reference Senergy Warranty Schedule technical bulletin for specific information.
 - 1. System containing Senershield-R/RS/VB air/water-resistive barrier is eligible for a 10 year material warranty.
 - 2. System containing a non-Senergy water-resistive barrier is eligible for a 5 year material warranty.
- B. Comply with Master Builders Solutions notification procedures to assure qualification for warranty.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. CBS 1000 CI Wall System manufactured by Master Builders Solutions.

2.02 MATERIALS

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

A. Air/Water-Resistive Barrier Components:

- 1. Air/Water-Resistive Barrier: **(Required, Select a, b, c or d)**
 - a. SENERSHIELD-R: A one-component fluid-applied vapor permeable air/water-resistive barrier.
 - b. SENERSHIELD-RS: A one-component fluid-applied vapor permeable air/water-resistive barrier for use with airless spray equipment.
 - c. SENERSHIELD-VB: A one-component fluid-applied vapor impermeable air/water-resistive barrier.
 - d. Code approved secondary water-resistive barrier listed in PermaBASE CI evaluation report UL ER22158-02.
 - 2. Rough Opening and Joint Treatment: **(Required if a b or c is selected above, select a or b)**
 - a. SHEATHING FABRIC: A spun-bonded non-woven reinforced polyester web for use with Senergy fluid applied air/weather-resistive barriers.
 - b. MAXFLASH: A one-component elastomeric material for use as a flexible flashing membrane.
 - 3. Transitional Membrane / Expansion Joint Flashing (If selected, both a & b are required)
 - a. WS FLASH: 30-mil thick, self-sealing, self-healing composite membrane of polyester fabric and rubberized asphalt. Compatible with Senergy liquid air/weather resistive barriers.
 - b. FLASHING PRIMER: A water-based primer for use prior to application of WS FLASH on all acceptable surfaces.
 - 4. Cold Temperature Additive:
 - a. LT ADDITIVE: Blending of LT ADDITIVE with a pail of SENERSHIELD-R/-RS/-VB enables application of these materials at temperatures as low as 25°F (-4°C).
- B. DRAINAGE MAT** by Master Builders Solutions: Three-dimensional drainage core consisting of fused, entangled filaments.
- C. PermaBASE CI by National Gypsum** **(Required, Select One)**
- 1. 1 inch thick – R4
 - 2. 2 inches thick – R10
 - 3. 3 inches thick – R16
- D. Base Coats:** **(Required, Select One or More)**
- 1. ALPHA Base Coat: A 100% acrylic base coat, field-mixed with Type I or Type II Portland cement. It has a creamy texture that is easily spread.
 - 2. ALPHA DRY Base Coat: A dry-mix polymer adhesive and base coat containing Portland cement, and requiring only water for mixing.
 - 3. XTRA-STOP Base Coat: A 100% acrylic-based, water-resistant base coat, field-mixed with Type I

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or Type II Portland cement.

4. ALPHA GENIE Base Coat: A 100% acrylic, fiber-reinforced base coat, adhesive and leveler that is field-mixed with Type I or Type II Portland cement.

NOTE TO SPECIFIER: Portland cement is not required if ALPHA DRY Base Coat is specified.

E. Portland cement: Conform to ASTM C150, Type I, II, or I/II, grey or white; fresh and free of lumps.

F. Water: Clean and potable without foreign matter.

G. Senergy Reinforcing Mesh: Balanced, open-weave glass, fiber reinforcing mesh, twisted multi-end strands treated for compatibility with Senergy Base Coats. ***(Required, Select One or More)***

1. FLEXGUARD 4: Standard weight, 4 oz.
2. INTERMEDIATE 6: Standard/medium weight, 6 oz.
3. INTERMEDIATE 12: Intermediate weight, 12 oz.
4. CORNER MESH: Intermediate weight, pre-marked for easy bending, for reinforcing at exterior corners.
5. SELF-ADHERING MESH TAPE by Master Builders Solutions: a standard weight mesh coated with a pressure sensitive adhesive for use with base coat as reinforcement over acceptable sheathing joints, rough openings and at terminations

H. COLOR COAT by Master Builders Solutions Coating (Optional): A 100% acrylic-based coating. It is designed for spray-, roller- or brush-application over EIFS with minimum change in finish texture or sheen.

I. TINTED PRIMER by Master Builders Solutions Primer (Optional): A 100% acrylic-based primer that helps alleviate shadowing and enhances performance of the Senergy Wall Systems. Color to closely match the selected Senergy Finish Coat color.

J. Senergy Finish Coat: (Required, Select One or More Finishes and Textures)

1. SENERFLEX Finish: 100% acrylic polymer finishes with advanced technology to improve long-term performance and dirt pick-up resistance; air cured, compatible with base coat; Senergy finish color [] as selected; finish texture:
 - a. CLASSIC: Has a medium "worm-holed" appearance which is achieved by the random aggregate sizes in the Finish. The "worm-holed" look can be circular, random, vertical or horizontal.
 - b. FINE: utilizes uniformly-sized aggregates for a uniform, fine texture.
 - c. TEXTURE: can achieve a wide variety of free-formed, textured appearances, including stipple and skip-trowel
 - d. SAHARA: Provides a uniform, "pebble" appearance.
2. SENERFLEX TERSUS Finish: Modified acrylic based finish with water repellent properties, compatible with base coat; Senergy Finish color [] as selected; finish texture:
 - a. F1.0: A 1.0 mm uniform aggregate creating a fine texture.
 - b. M1.5: A 1.5 mm uniform aggregate creating a medium sand texture.
 - c. T0.5: can achieve a wide variety of free-formed, textured appearances, including stipple and skip-trowel
 - e. R1.5: Has a medium "worm-holed" appearance which is achieved by the random aggregate sizes in the Finish. The "worm-holed" look can be circular, random, vertical or horizontal.
3. Specialty Finishes: 100% acrylic polymer finishes that can be hand-troweled to simulate stone or create a time-honored, mottled tone-on-tone look that achieves a soft and weathered patina over time.
 - a. ENCAUSTO VERONA: Utilizes uniformly-sized aggregate to achieve a free-formed, flat texture. It can be used to achieve a mottled look and unlimited tone on tone designs by combining multiple colors.
 - b. METALLIC: Has a pearlescent appearance. It utilizes uniformly-sized aggregates for a uniform fine texture.
 - c. AURORA TC-100: Provides a stone-like appearance, either rough or smooth depending upon application.
 - d. AURORA STONE: Provides a rough, stone-like appearance.
 - e. ALUMINA: Is a factory-mixed, reflective stone finish consisting of colored aggregate and large black mica flakes in a 100% acrylic transparent binder that provides a classic granite or marble-like textured finished appearance.
4. CHROMA Finish: 100% acrylic polymer based finish with integrated high performance colorants for superior fade resistance, compatible with base coat; Senergy Finish color [] as selected; finish

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texture:

- a. F1.0: Utilizes uniformly-sized aggregates for a uniformly fine texture.
- b. M1.5: Provides a uniform "pebble" appearance.
- c. R1.5: Has a medium "worm-holed" appearance which is achieved by the random aggregate sizes in the Finish. The "worm-holed" look can be circular, random, vertical or horizontal

- K. ANTICOGLAZE by Master Builders Solutions Glaze/Stain (Optional): 100% acrylic antiquing stain product used to impart an 'old world' mottled look to textured finishes.

2.03 ACCESSORIES

- A. Starter track, L bead, J bead, angled termination bead, casing beads, corner beads, expansion joints and weep screed must comply with ASTM D1784 or C1063 for vinyl. Reference typical details for Senergy CBS 1000 CI system.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Site Conditions:

1. Verify project site conditions under provisions of Section [01039] [].

B. Walls:

1. Substrates/Sheathing:

- a. Wall sheathing must be securely fastened per applicable building code and sheathing manufacturer's requirements.
- b. Examine surfaces to receive Senergy materials and verify that substrate and adjacent materials are dry, clean, sound, and free of releasing agents, paint, or other residue or coatings. Verify substrate is flat, free of fins or planar irregularities greater than 1/4" in 10' (6.4 mm in 3 m).

2. Air/weather Barrier:

- a. Verify that the air/weather barrier is installed over the sheathing per applicable building code requirements, manufacturers' specifications and Senergy details, prior to application of the Senergy Cement-Board Stucco 1000 CI System.

3. Cement-Board Substrates:

- a. Acceptable substrates; PermaBase CI by National Gypsum.
- b. Cement-board must be securely fastened per National Gypsum's recommendations, applicable building code and project requirements.
- c. Walls shall have maximum deflection not to exceed L/360 of span under positive or negative design loads
- d. Cement-board must be a single piece around corners of openings.
- e. Cement-board must be fastened with corrosion resistant fasteners.
- f. Cement-board and sheathing joints must be offset.

4. Flashings:

- a. Head, jamb and sills of all openings must be flashed with secondary air/weather barrier prior to window/door, HVAC, etc. installation. Refer to Senergy Moisture Protection Guidelines.
- b. Windows and openings shall be flashed according to design and building code requirements.
- c. Individual windows that are ganged to make multiple units require that the heads be continuously flashed and/or the joints between the units must be fully sealed.

5. Decks:

- a. Decks must be properly flashed prior to system application.
- b. The system must be terminated a minimum of 1" (25 mm) above all decks, patios and sidewalks, etc.

6. Utilities: The system must be properly terminated at all lighting fixtures, electrical outlets, hose bibs, dryer vents, etc.

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

8. Kick-out flashing must be leak-proof and angled (min 100 degrees) to allow for proper drainage and water diversion.

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

- D. Supplemental framing/blocking may be required to secure cement board at vertical control/expansion joints.

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3.02 PREPARATION

- A. Protect all surrounding areas and surfaces from damage and staining during application of Senergy Cement-Board Stucco 1000 CI System.
- B. Protect finished work at end of each day to prevent water penetration.
- C. Prepare substrates in accordance with manufacturer's instructions.

3.03 MIXING

General: No additives are permitted unless specified in product mixing instructions. Close containers when not in use. Prepare in a container that is clean and free of foreign substances. Do not use a container which has contained or been cleaned with a petroleum-based product. Clean tools and equipment with water immediately after use. Dried material can only be removed mechanically.

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

A. Air/Water-Resistive Barriers:

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

B. Senergy Base Coat:

- 1. ALPHA Base Coat: Mix base coat with a clean, rust-free paddle and drill until thoroughly blended, before adding Portland cement. 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. Clean, potable water may be added to adjust workability.
- 2. ALPHA DRY Base Coat: Mix and prepare each bag in a 5-gallon (19-liter) pail. Fill the container with approximately 1.5-gallons (5.6-liters) of clean, potable water. Add ALPHA DRY Base Coat in small increments, mixing after each additional increment. Mix ALPHA DRY Base Coat and water with a clean, rust-free paddle and drill until thoroughly blended. Additional ALPHA DRY Base Coat or water may be added to adjust workability.
- 3. XTRA-STOP Base Coat: Mix base coat with a clean, rust-free paddle and drill until thoroughly blended, before adding Portland cement. 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. Clean, potable water may be added to adjust workability.
- 4. ALPHA GENIE Base Coat: Mix base coat with a clean, rust-free paddle and drill until thoroughly blended, before adding Portland cement. 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. Clean, potable water may be added to adjust workability.

C. COLOR COAT: Mix the factory-prepared material with a clean, rust-free paddle and drill until thoroughly blended. A small amount of clean, potable water may be added to adjust workability. Do not overwater.

D. TINTED PRIMER: Mix the factory-prepared material with a clean, rust-free paddle and drill until thoroughly blended. A small amount of clean, potable water may be added to adjust workability. Do not overwater.

E. Senergy Finishes: SENERFLEX, SENERFLEX TERSUS, CHROMA, and ENCAUSTO VERONA Finish - Mix the factory-prepared material with a clean, rust-free paddle and drill until thoroughly blended. A small amount of clean, potable water may be added to adjust workability. Do not overwater.

F. Specialty Finishes: AURORA TC-100, AURORA STONE, and ALUMINA Finish - Gently mix the contents of the pail for 1 minute using a low RPM ½" drill equipped with a mixing paddle such as a Demand Twister or a Wind-Lock B-MEW, B-M1 or B-M9.

G. ANTICOGLAZE: Mix the contents of the pail with a slow speed drill and paddle mixer until thoroughly blended.

3.04 APPLICATION

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A. Accessories:

1. Attach Window/Door Drip Edge level and per manufacturer's instructions.
2. Attach starter track per manufacturer's instructions and *Senergy CBS 1000 CI Typical Details*.

B. Air/Water-Resistive Barrier:

1. Senergy Air/Water Resistive Barrier:
 - a. All sheathing joints and windows/openings must be protected, and the air/water-resistive barrier applied in accordance with *Air/Water-Resistive/Vapor Barrier Application Guideline* technical bulletin.
 - b. 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 ¼" in 10' (6.4 mm in 3 m).
 - c. Unsatisfactory conditions shall be corrected before application of the Senergy air/water-resistive barriers.
 - d. Apply the SHEATHING FABRIC and Senergy air/water-resistive barrier in accordance with the Senergy air/water-resistive barrier product bulletin.
 - e. Apply the MAXFLASH in accordance with the product bulletin.
 - f. Installed materials shall be checked before continuing system application.
 - g. Ensure the Senergy air/water-resistive barrier or MAXFLASH overlaps the top flange of the starter track.
2. Water-Resistive Barrier (By Others):
 - a. Install according to the specific water resistive barrier manufacturer's specifications and all applicable building code requirements. 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 Senergy CBS 1000 CI Wall System. Wrap the water resistive barrier into rough openings (doors, windows, etc.) in accordance with Senergy's *Secondary Moisture Protection Barrier Guidelines* bulletin to increase the level of moisture protection to the building frame and interior. Coordinate work with other trades to assure proper sequencing, detailing and installation of materials.

C. DRAINAGE MAT: Apply horizontally or vertically over Senergy Air/Water-Resistive Barrier ensuring it is free of wrinkles. Abut all vertical and horizontal edge and Secure DRAINAGE MAT to substrate with sufficient building staples or galvanized nails to remain in place prior to application of insulation board.

D. PermaBASE CI Cement Board: Install cement board over secondary weather barrier, securely fastened, per manufacturers' recommendations, applicable building code and project requirements.

E. Trim Accessories: Install per manufacturer's recommendations. Refer to Senergy's *Cement-Board Stucco Trim and Accessories* bulletin for accessory placement.

F. SELF-ADHERING MESH TAPE (4"):

1. Center the SELF-ADHERING MESH TAPE (4") over all cement board joints and terminations and firmly press while unrolling. Ensure it is continuous, void of wrinkles.
2. Overlap SELF-ADHERING MESH TAPE a minimum 2 1/2" (65 mm).
3. Apply mixed [] Base Coat to surface of SELF-ADHERING MESH TAPE by troweling from the center to the edges.
4. Allow Base Coat and SELF-ADHERING MESH TAPE to dry prior to application of Senergy Reinforcing Mesh and Base Coat.

G. Senergy CORNER MESH:

1. Install at corners.
2. Apply CORNER MESH prior to application of reinforcing mesh.
3. Cut CORNER MESH to workable lengths.
4. Apply mixed Senergy Base Coat to insulation board at outside corners using a stainless-steel trowel.
5. Immediately place CORNER MESH against the wet base coat and embed the CORNER MESH into the base coat by troweling from the corner; butt edges and avoid wrinkles.
6. After base coat is dry and hard, apply a layer of selected Senergy Reinforcing Mesh over the entire surface of the CORNER MESH in accordance with 3.04 H.

H. Reinforcing Mesh: Standard or Medium Impact Resistance Reinforcing Mesh: FLEXGUARD 4 INTERMEDIATE 6 and INTERMEDIATE 12:

1. Install Senergy Reinforcing Mesh where indicated on drawings.
2. Apply mixed Senergy Base Coat to entire surface of the cement board with a stainless-steel trowel

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to embed the reinforcing mesh.

3. Immediately place Senergy Reinforcing Mesh against wet base coat and embed the reinforcing mesh into the base coat by troweling from the center to the edges.
4. Lap reinforcing mesh 2 ½" (64 mm) minimum at edges.
5. Ensure reinforcing mesh is continuous at corners, void of wrinkles and embedded in base coat so that no reinforcing mesh color is visible.
6. If required, apply a second layer of base coat to achieve total nominal base coat/reinforcing mesh thickness of 1/16" (1.6 mm).
7. Allow base coat with embedded reinforcing mesh to dry hard (normally 8 to 10 hours).

I. COLOR COAT:

1. Apply material to the base coat/reinforcing mesh in sealant joints with a high-quality, latex-type paintbrush. Work material continuously until a uniform appearance is obtained.
2. Allow to dry thoroughly (approximately 24 hours) prior to application of sealant primer and sealant.

J. TINTED PRIMER:

1. Apply Primer to the base coat/reinforcing mesh with a sprayer, ¾" (10 mm) nap roller, or good quality latex paint brush at a rate of approximately 150–250 ft² per gallon (3.6–6.1 m² per liter).
2. Primer shall be dry to the touch before proceeding to the Senergy Finish coat application.

K. Senergy Finish Coat: SENERFLEX, SENERFLEX TERSUS and CHROMA.

1. Apply Senergy Finish directly to the base coat with a clean, stainless steel trowel.
2. Apply and level Senergy Finish during the same operation to minimum obtainable thickness consistent with uniform coverage.
3. Maintain a wet edge on Senergy Finish by applying and texturing continually over the wall surface.
4. Work Senergy finish to corners, joints or other natural breaks and do not allow material to set up within an uninterrupted wall area.
5. Float Senergy Finish to achieve final texture.

L. Specialty Finish:

1. AURORA TC-100 Finish:
 - a. Apply TINTED PRIMER by Master Builders Solutions to substrate in accordance with current product bulletin. Primer shall be of corresponding color for selected AURORA TC-100 Finish color. Allow Primer to dry to the touch before proceeding Finish application.
 - b. Apply a tight coat of finish with a clean, stainless steel trowel.
 - c. Maintain a wet edge on finish by applying and leveling continually over the wall surface.
 - d. 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.
 - e. For a smooth appearance, use a stainless-steel trowel and apply the second coat of finish. Achieve final texture using circular motions.
 - f. For a textured appearance, apply the second coat of finish using a spray gun and hopper. Double-back to achieve final texture.
 - g. Total thickness of finish shall be approximately 1/16" (1.6 mm).
2. AURORA STONE Finish:
 - a. Apply TINTED PRIMER by Master Builders Solutions to substrate in accordance with current product bulletin. Primer shall be of corresponding color for selected AURORA STONE Finish color. Allow Primer to dry to the touch before proceeding Finish application.
 - b. Apply a coat of 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.
 - c. Allow first coat of AURORA STONE Finish to set until surface is completely dry prior to applying a second coat of Finish.
 - d. Apply a second coat of Finish using a spray gun and hopper; double back to achieve final texture.
 - e. Thickness of Finish may vary between 1/16" (1.6 mm) and 1/8" (3.2 mm), depending upon texture.

Note: Spraying of AURORA STONE shall 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

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design pumps are not recommended.

3. ALUMINA Finish:

- a. Apply TINTED PRIMER by Master Builders Solutions to substrate in accordance with current product bulletin. Primer shall be of corresponding color for selected ALUMINA Finish color. Allow Primer to dry to the touch before proceeding Finish application.
- b. Apply a tight coat of finish with a clean, stainless steel trowel.
- c. Maintain a wet edge on finish by applying and leveling continually over the wall surface.
- d. 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
- e. Use a stainless-steel trowel and apply the second coat of finish. Achieve final texture using circular motions
- f. Total thickness of finish may be between 1/16" (1.6 mm) and 1/8" (3.2 mm).

M. ANTICOGLAZE Glaze/Stain: Apply 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 base coat from rain, snow and frost for 48 - 72 hours following application.
- B. Protect installed construction under provisions of Section [01 76 00] [].

END OF SECTION

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WARRANTY

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

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