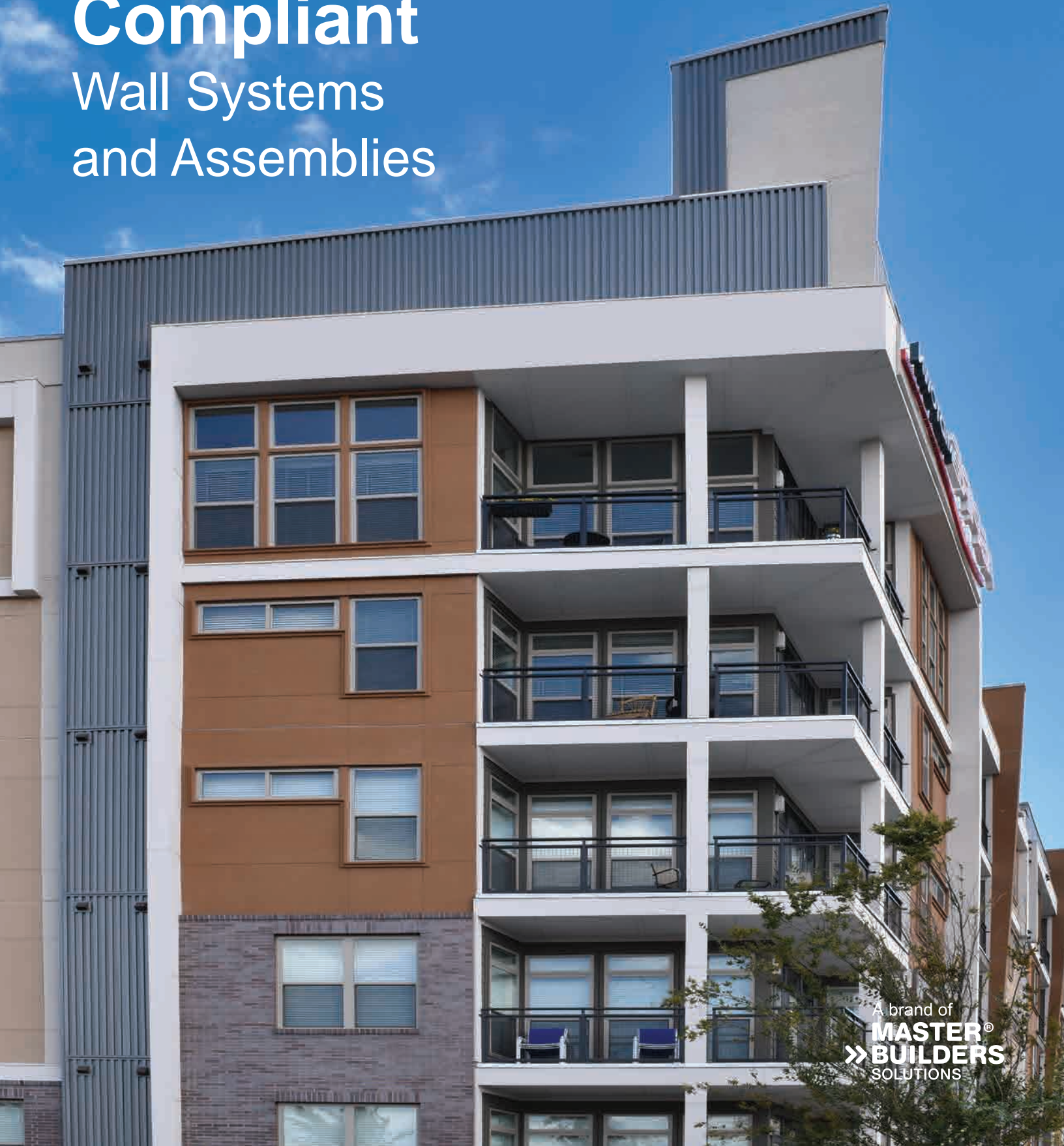


***Senergy***<sup>®</sup>

**NFPA 285  
Compliant  
Wall Systems  
and Assemblies**



A brand of  
**MASTER**<sup>®</sup>  
**BUILDERS**  
SOLUTIONS

# Solutions for Non-combustible Construction

Creating non-combustible exterior wall assemblies has become increasingly challenging as building design has evolved toward greater levels of energy efficiency. To meet the requirements of the International Energy Conservation Code, buildings have incorporated air/water-resistive barriers on exterior sheathing and CMU walls, together with extensive use of exterior insulation. In addition to improving energy efficiency, these changes can provide effective moisture management by incorporating an airtight secondary drainage plane, and by moving the dew point of the wall assembly outside of the drainage plane.



However, both the air/water-resistive barrier and many types of exterior insulation are made from organic materials that are combustible. One challenge for design professionals is to incorporate combustible materials into noncombustible construction in a way that reliably provides the fire performance required by the International Building Code.

Senergy Channeled Adhesive CI Design, Channeled Adhesive CI Design with MaxGrip Veneer Mortar, Platinum CI, Platinum CI Stucco Ultra, Platinum CI Stucco Plus and Senerflex Vulcan NC Wall Systems have been comprehensively qualified for use in non-combustible construction. When installed per Master Builders Solutions details and instructions, they provide code-compliant fire performance as listed on system brochures. This extensive set of performance data is steadily updated as local and national fire standards evolve.

**Senergy Wall Systems provide code compliant performance.**





*Senergy specialty finishes are available in brick, stone, metal, and stucco motifs. Dynamic aesthetics combined with continuous exterior insulation and a monolithic air/water-resistive barrier create impressive lightweight, high-performance building enclosures.*

## Wall Assemblies

Wall assemblies are a collection of products from more than one manufacturer that collectively function as a wall cladding. Insulation, exterior skin, air barrier, water-resistive barrier, fasteners, lintels, furring and other components come together to form a wall assembly.

Senershield air/water-resistive barriers are fluid-applied systems that are supported with ICC-ESR 2986, which confirms code compliance in Type I – V construction. Senershield systems can be used to create a continuous drainage plane and air barrier system as part of a wall assembly design.

## Senergy CI Wall Systems

Senergy CI Wall Systems presented in this guide incorporate a Senershield air/water-resistive barrier, continuous exterior insulation and an outer skin that can be finished to create a broad range of appearances. These systems meet the full range of International Building Code and International Energy Conservation Code requirements, and are supported with third-party test data, architectural details and system warranties. Utilizing Senergy CI Wall Systems provides a simplified approach to wall cladding design.

## Solutions for Buildings with Multiple Claddings

Where buildings employ multiple claddings, Senershield air/water-resistive barriers can be extended beyond Senergy wall systems, and provide NFPA 285 compliant performance as part of wall assemblies that utilize materials from multiple manufacturers.

Although not related to fire performance, airtightness and secondary water drainage are key building considerations. Use of a continuous, monolithic air/water-resistive barrier, supplied by a single manufacturer, is a recognized way to improve air tightness and moisture management. It also helps integrate multiple cladding assemblies into an overall building enclosure.

Senershield-R, Senershield-RS, and Senershield-VB are supported with extensive NFPA 285 data covering a wide range of wall assembly options. This allows design professionals to specify Senershield products behind multiple claddings used alone or in conjunction with Senergy Wall Systems.

Claddings that are comprised of materials from more than one manufacturer require careful consideration.

Some fire requirements, such as the ASTM E84 Steiner Tunnel test, apply to specific materials. Others, such as NFPA 285, are assembly tests where the assembly itself must be evaluated.



*Senershield air/water-resistive barriers can provide a continuous air and water-resistive barrier behind multiple claddings for uninterrupted air and moisture protection*

## NFPA 285 Compliant Wall Systems and Assemblies

The components listed in the following sections – Base Wall System (**Section A**), Air/Water-Resistive Barrier (**Section B**), Exterior Insulation (**Section C**), and Exterior Cladding (**Section D**) can be combined to create wall systems and assemblies that comply with NFPA 285 requirements.

<b>SECTION A: Base Wall System</b>	
<b>1. Concrete Wall</b>	
<b>2. Concrete Masonry Wall</b>	
<b>3. Steel Stud Framed Wall:</b> Minimum 20-gauge 3-5/8 inch studs (maximum 24" O.C.)	<ul style="list-style-type: none"> <li>a. Interior wallboard: minimum 1 layer of 1/2-inch or 5/8-inch Type X gypsum wallboard on interior face of studs</li> <li>b. Interior vapor barrier (optional) 1 layer of maximum 6-mil polyethylene plastic</li> <li>c. Cavity insulation: None or any noncombustible insulation (faced or unfaced)</li> <li>d. Floorline firestopping: 4 lb/cu foot mineral wool (e.g. Thermafiber®) in each stud cavity and at each floorline, attached with Z-clips or equivalent</li> <li>e. Exterior sheathing: 1/2-inch or 5/8-inch thick exterior grade gypsum sheathing</li> </ul>
<b>4. Podium Wall:</b> 3-5/8 inch Fire Retardant Treated (FRT) lumber studs, spaced 16" or 24" O.C. Openings may be lined with 1.5" FRT lumber. <b>NOTE: Qualified for use with Senergy CI and CI Stucco systems only.</b>	<ul style="list-style-type: none"> <li>a. Interior wallboard: minimum 1 layer of 1/2-inch or 5/8-inch Type X gypsum wallboard on interior face of studs</li> <li>b. Interior vapor barrier (optional) 1 layer of maximum 6-mil polyethylene plastic</li> <li>c. Cavity insulation: None or any noncombustible insulation (faced or unfaced)</li> <li>d. Floorline firestopping: 4 lb/cu foot mineral wool (e.g. Thermafiber®) in each stud cavity and at each floorline, attached with Z-clips or equivalent</li> <li>e. Exterior sheathing: 1/2-inch or 5/8-inch thick exterior grade gypsum sheathing; FRT Plywood or LP Flameblock (2-sided)</li> </ul>

<b>SECTION B: Air/Water-Resistive Barrier</b>	
<b>1. Senershield-R or Senershield-RS</b> Vapor permeable barriers	With 4" SHEATHING FABRIC reinforcement or 20-mils MAXFLASH Liquid Flashing Membrane at sheathing joints
<b>2. Senershield-VB</b> Class 1 vapor retarder	With 4" SHEATHING FABRIC reinforcement or 20-mils MAXFLASH Liquid Flashing Membrane at sheathing joints

<b>SECTION C: Exterior Insulation Selections for Wall Assemblies with Senershield Air/Water-Resistive Barriers</b>	
<b>1. None</b>	
<b>2. Any unfaced noncombustible insulation</b> (e.g. mineral wool)	
<b>3. Expanded Polystyrene Foam (EPS)</b>	<ul style="list-style-type: none"> <li>a. Maximum 2.4-inch NEOPOR GPS Plus Type II Rigid Insulation Board</li> <li>b. Maximum 2.5-inch thickness ASTM C578 Type II EPS (must be ASTM E84 Class A)</li> <li>c. Maximum 1.8-inch thickness ASTM C578 Type IX EPS (must be ASTM E84 Class A)</li> </ul>
<b>4. Extruded Polystyrene Foam (XPS)</b>	Maximum 3-inch thickness, ASTM C578 Type IV or Type X (must be ASTM E84 Class A)
<b>5. Polyisocyanurate Foam</b>	<ul style="list-style-type: none"> <li>a. Maximum 4-inch thickness, Atlas EnergyShield Pro</li> <li>b. Maximum 4-inch thickness, Atlas EnergyShield Pro2</li> <li>c. Maximum 3-1/2-inch thickness, Hunter Xci Class A</li> <li>d. Maximum 3-1/2-inch thickness, Hunter Xci CG</li> <li>e. Maximum 4-1/4-inch thickness, Hunter Xci Ply (maximum 3-1/2-inch thickness foam, maximum 3/4 inch plywood)</li> <li>f. Maximum 3-1/2-inch thickness, Carlisle R-2+ Sheathe, R2+ Mat or R2+ Silver</li> </ul>



## SECTION D: Senergy Exterior Cladding Systems

<p><b>1. Channeled Adhesive CI Design</b></p>	<p>a. Maximum 12-inch thickness ASTM C578 Type I EPS (must be ASTM E84)*            b. Maximum 4-inch thickness ASTM C578 Type I EPS (must be ASTM E84)* with MAXGRIP VENEER MORTAR and adhered veneer (eg. thin brick, stone, tile)            * EPS insulation used in Channeled Adhesive CI Design must meet Senergy specifications</p>
<p><b>2. Platinum CI</b></p>	<p>a. Maximum 12-inch thickness NEOPOR GPS Type I Rigid Insulation Board            b. Maximum 7.8-inch thickness NEOPOR GPS PLUS Type II Rigid Insulation Board*            * Neopor insulation used in Platinum CI must meet Senergy specifications</p>
<p><b>3. Platinum CI Stucco Plus and Ultra</b></p>	<p>a. Maximum 2.5-inch thickness of ASTM C578 Type II EPS must be ASTM E84 Class A)            b. Maximum 2.4-inch thickness NEOPOR GPS PLUS Type II Rigid Insulation Board            c. Maximum 3-inch thickness of ASTM C578 Type XI EPS (must be ASTM E84 Class A)            d. Maximum 1.7-inch thickness of ASTM C578 Type IX EPS must be ASTM E84 Class A)            e. Maximum 3-inch thickness XPS, ASTM C578 Type IV or Type X (must be ASTM E84 Class A)            f. Maximum 3-inch thickness, Atlas EnergyShield Pro            g. Maximum 3-inch thickness, Atlas EnergyShield Pro2            h. Maximum 3-inch thickness, Hunter Xci Class A            i. Maximum 3-inch thickness, Hunter Xci CG            j. Maximum 4-1/4-inch thickness, Hunter Xci Ply (maximum 3-1/2-inch foam, maximum 3/4-inch plywood)            k. Maximum 3-inch thickness, Carlisle R-2+ Sheathe, R2+ Mat or R2+ Silver            l. Maximum 3-inch thickness, unfaced noncombustible insulation (e.g. mineral wool)  <b>NOTE: Interior sheathing must be 5/8" type X gypsum wallboard for all CI Stucco systems</b></p>
<p><b>4. Senerflex Vulcan NC</b></p>	<p>a. Maximum 4-inch thickness ASTM C612 Type IV mineral wool            * Mineral wool insulation used in Senerflex Vulcan NC must meet requirement outlined in the system specification.</p>

## SECTION D: Exterior Cladding

### Wall Assemblies using Senersshield Air/Water-Resistive Barriers

<p><b>5. Heavy and Noncombustible Cladding Assemblies</b></p>	<p>These systems are characterized by their high mass, inorganic composition and noncombustible nature. <b>All of the insulation systems listed in Section C can be used with the heavy cladding systems listed below.</b> Interior gypsum sheathing must be 5/8" thick. Atlas polyisocyanurate insulation also requires 5/8" thick exterior gypsum sheathing.</p> <p><b>Brick</b> - Standard nominal 4" thick clay brick with standard brick veneer anchors installed maximum 24" on center vertically on each stud with a maximum 2" air gap between the brick and exterior insulation.</p> <p><b>Stucco</b> – ASTM C926 three coat stucco, minimum 3/4" thick, Permalath 1000 or Metal Plaster Base per ASTM C1063, with paint or textured acrylic finish.</p> <p><b>Stone veneer</b> - Minimum 2" thick limestone, natural stone or minimum 1-1/2" thick cast artificial stone.</p> <p><b>Terra cotta</b> - Minimum 1-1/4" thick non-open jointed. Any standard non-open jointed installation technique can be used.</p> <p><b>Limestone or natural stone veneer</b> - Minimum 2" thick (or minimum 1-1/2" thick) cast artificial stone installed using a standard installation technique.</p> <p><b>Concrete</b> - Minimum 1-1/2" thick concrete masonry unit (CMU), precast concrete or artificial cast stone. Any standard non-open jointed installation technique can be used.</p>
<p><b>6. Metal Skin Noncombustible Exterior Wall Covering using Steel or Copper</b></p>	<p>Any standard installation technique can be used. Options listed in <b>Section C1, C2 or C5 are acceptable</b> (no insulation, noncombustible insulation or certain polyisocyanurate insulation). Interior and gypsum sheathing must be 5/8" thick.</p>
<p><b>7. Cement Board Siding</b></p>	<p>Any standard installation technique can be used (maximum 2" air gap). Options listed in <b>Section C1, C2, or C5 are acceptable</b> (no insulation, noncombustible insulation or certain polyisocyanurate insulation).</p>
<p><b>8. Metal Composite (MCM or ACM) Panels</b></p>	<p>Use any MCM or ACM panel that has passed NFPA 285 (maximum 2" air gap). Options listed in <b>Section C1, C2, or C5 are acceptable</b> (no insulation, noncombustible insulation or certain polyisocyanurate insulation). Interior and gypsum sheathing must be 5/8" thick.</p>
<p><b>9. Reynobond ZCM Zinc Alloy Composite Panel System</b></p>	<p>Any standard installation technique can be used. Options listed in <b>Section C1, C2, C5a, or C5b are acceptable</b> (no insulation, noncombustible insulation or certain polyisocyanurate insulation). Interior and gypsum sheathing must be 5/8" thick.</p>
<p><b>10. Autoclaved Aerated Concrete Panels that have passed NFPA 285 criteria</b></p>	<p>Options listed in <b>Section C1, C2, C5a, or C5b are acceptable</b> (no insulation, noncombustible insulation or certain polyisocyanurate insulation). Interior and gypsum sheathing must be 5/8" thick.</p>
<p><b>11. Stone/Aluminum honeycomb composite building panels that have passed NFPA 285 criteria.</b></p>	<p>Any standard installation technique can be used. Options listed in <b>Section C1, C2, C5a, or C5b are acceptable</b> (no insulation, noncombustible insulation or certain polyisocyanurate insulation). Interior and gypsum sheathing must be 5/8" thick.</p>

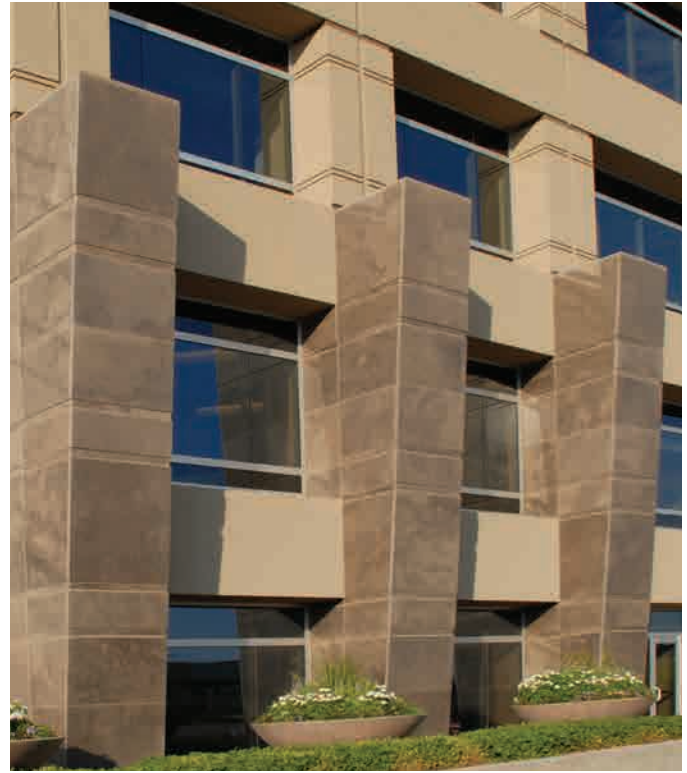




*Senenergy Wall Systems can create a multiple cladding appearance with continuous exterior insulation and a seamless air/water-resistive barrier*



*Senershield air/water-resistive barriers can provide seamless monolithic protection on buildings with multiple claddings*



*Brick, granite, and cut stone are some of the popular appearances created by Senergy Wall Systems.*



*Senergy Channeled Adhesive CI Design, incorporating Master Builders Solutions Metallic Effects, can produce an energy efficient building with endless design possibilities.*

## Thermal, Mechanical, Water Drainage, and Fire Performance of Senergy CI Wall Systems

Senergy wall systems listed in this guide comply with NFPA 285 and NFPA 268 requirements, and use materials that provide ASTM E84 Class A performance. Please see the respective system brochures for more information, or contact Master Builders Solutions Technical Support at 800-589-1336.

Senergy CI system details and guide specifications that are consistent with the NFPA 285 performance listed in this guide. These details and specifications are also consistent with other relevant standards. Design professionals who specify Senergy CI Wall Systems installed per Master Builders Solutions instructions are specifying code compliant systems.

## Mind the Details when Specifying NFPA 285 Compliant Wall Assemblies

The NFPA 285 compliant wall assemblies outlined in this brochure may be subject to additional fire performance and building code requirements. Design professionals should ensure that all relevant requirements are met.

The wall assemblies listed in this section have been tested using specific termination detailing at the window rough opening. These details vary by assembly. Design professionals should consult with the manufacturer of the specific insulation and/or cladding materials listed in this guide to obtain and specify relevant rough opening details.

**Failure to correctly detail system determinations at rough openings will result in wall assemblies that do not comply with NFPA 285 requirements.**

// Design professionals who specify Senergy CI Wall Systems installed per Master Builders Solutions instructions are specifying code compliant systems."



*Senergy Wall Systems are detailed in accordance with prevailing code requirements*

**Master Builders Solutions**  
**Constructions Systems US, LLC**  
889 Valley Park Drive  
Shakopee, MN 55379 USA

**Customer Service** (800) 433-9517  
**Technical Service** (800) 589-1336  
[senergy.master-builders-solutions.com/en](http://senergy.master-builders-solutions.com/en)



® registered trademark of a Group member  
in many countries of the world

© 2021 MBCC Group, 45220726 rev 10/2022

**LIMITED WARRANTY NOTICE:** Master Builders Solutions Construction Systems US, LLC ("Master Builders") warrants this product to be free from manufacturing defects and to meet the technical properties on the current Technical Data Guide, 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 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. 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 WILL NOT BE RESPONSIBLE FOR ANY SPECIAL, INCIDENTAL, CONSEQUENTIAL (INCLUDING LOST PROFITS) OR PUNITIVE DAMAGES OF ANY KIND.

Purchaser must determine the suitability of the products for the intended use and assumes all risks and liabilities in connection therewith. This information and all further technical advice are based on Master Builders present knowledge and experience. However, Master Builders assumes no liability for providing such information and advice including the extent to which such information and advice may relate to existing third party intellectual property rights, especially patent rights, nor shall any legal relationship be created by or arise from the provision of such information and advice. Master Builders reserves the right to make any changes according to technological progress or further developments. The Purchaser of the Product(s) must test the product(s) for suitability for the intended application and purpose before proceeding with a full application of the product(s). Performance of the product described herein should be verified by testing and carried out by qualified experts.