



StoEnergy Guard™
Advanced Cavity Wall System
for Heat, Air and Moisture Control.

Questions about designing today's walls?

StoEnergy Guard has answers.

Do new energy codes change envelope design?

Will a drainage cavity prevent water damage?

Is continuous insulation required by code?

Which air barriers work best?

Is the wall assembly fire tested?

Yes, there is a solution.

StoEnergy Guard meets all these needs.

More challenges than ever confront building design. Energy efficiency is a top concern. New codes call for specific features in wall assemblies: Air barriers – mandated by ASHRAE 90.1 and the IBC. Continuous insulation (c.i.) is also a code requirement. Plus common claddings like stucco and adhered masonry veneer also require drainage and drying to help protect against moisture damage.

Five key features in one.

StoEnergy Guard is a single-source, performance-proven wall solution for the many challenges facing building design. Regardless of the chosen claddings for the exterior, StoEnergy Guard stands tough, an advanced cavity wall system that combines insulation, drainage, air/vapor barriers, waterproofing and joint protection, all in a single, fire tested assembly.

A fire tested assembly.

Building codes require that some assemblies be tested. StoEnergy Guard provides a fully fire tested assembly.

Sole-Source, Seamless Assembly



Joint & Rough Opening Protection
A single easy-to-install system that becomes structural once applied to the wall.

Prevents Air Movement



Waterproof Air Barrier Membrane
A continuous, low-VOC spray barrier, StoGuard meets code & climate zone needs.

Evacuates Moisture and Water



Drainage Mat & Cavity
Sto DrainScreen is a fabric-faced drainage mat that creates an air gap and capillary break.

Eliminates Thermal Bridges



Continuous Insulation
Rigid XPS board insulation delivers continuous, lasting R-value.



StoEnergy Guard unites advanced building components into a single, proven and code-compliant solution. As an advanced cavity wall system, StoEnergy Guard benefits from StoGuard, a code-compliant waterproof air barrier, along with the engineered drainage layer, Sto DrainScreen, and a high-R-value, continuous insulation product, Sto Insul-X. The result is a durable, energy-efficient wall.

StoGuard

StoGuard is a commercial-grade, waterproof air barrier that seals and protects the building walls. A continuous air barrier prevents up to 40% energy loss according to the Department of Energy. StoGuard is fluid-applied with ease to a variety of substrates, including sheathing, CMU and more, behind such claddings as stucco, brick veneer, cement board and metal panels. StoGuard meets the requirements of the Air Barrier Association of America.

Sto DrainScreen

A rainscreen drainage mat is good building science, and Sto DrainScreen is a rugged, fabric-faced mat that provides both drainage and an air space for drying. For absorptive claddings such as cement stucco and adhered masonry veneer, Sto DrainScreen protects against wind-driven rain and heat-driven water vapor. The engineered air space is a capillary break that promotes drainage and drying.

Sto Insul-X

Sto's Insul-X extruded polystyrene (XPS) insulation provides excellent insulation performance and exceptional moisture resistance, all in a rigid, continuous insulation with high R-value. In addition to its superior thermal resistance, Sto Insul-X delivers excellent compressive strength, contributing to a lasting wall assembly.

Why Specify a Sole-Source Wall System?

StoEnergy Guard is more than an advanced cavity wall system. It's a single-source solution – which brings key benefits to the entire project team.

Single Source.

Today's wall systems are complex. StoEnergy Guard air barrier, continuous insulation, and cavity wall components are from a single manufacturer, warranted and tested as an assembly, using proven building methods.

Durable.

Compatible components. Proven and extensively tested, StoEnergy Guard lasts, and protects against moisture, mold, and wear – for years.



Building codes require that some wall assemblies be fire tested. Don't rely on materials or assemblies that are untested – ensure that the entire assembly has already been tested by a qualified testing agency.

StoEnergy Guard: Answers for Virtually Any Project Type

CLADDING TYPES:

- Cement stucco
- Adhered masonry veneers
- Manufactured stone
- Thin brick & natural stone
- Full brick veneer

CONSTRUCTION TYPES

& ASSEMBLIES:

- CMU and concrete
- Steel frame with gypsum sheathing
- Wood frame

CODES AND STANDARDS:

- IBC 2012
- IECC 2012
- IGCC 2012
- ASHRAE 90.1 2010
- ASHRAE 189.1 2009

StoEnergy Guard is a sole-source, proven solution for exterior walls

5 solutions in one



StoEnergy Guard meets today's demands: Energy codes and green building rules. Durability and ROI are demanded by owners.

A complete, advanced cavity wall solution for use with most claddings, StoEnergy Guard meets these needs and more.

Energy Codes

Building codes and energy codes now demand specific features of walls and enclosures, including air barriers, water-resistive layers and drainage cavities. The International Building Code (IBC) requires continuous insulation (c.i.), too. StoEnergy Guard was designed to meet these new prescriptive rules, with a system that puts a layer of robust, continuous exterior insulation, a drainage mat, and a waterproof air-barrier membrane behind almost any cladding. StoEnergy Guard meets the latest versions of the IBC, IRC, IECC, IGCC, ASHRAE 90.1, ASHRAE 189.1, and more.

Drainage and Drying

Water from rain and moist, humid air can have a destructive effect on materials, sapping R-value, structural integrity and lifespan from buildings. That's one reason to include drainage and air drying in any envelope design. Another reason: building walls are the second most likely source of failures, callbacks and lawsuits. Plus it's required by the IBC, the IECC, and many state and local code jurisdictions. For these reasons — and for sustainable, durable buildings with better ROI — StoEnergy Guard includes Sto DrainScreen, an engineered drainage mat that facilitates drainage and drying. It's good building science.

Fire Tested Assemblies

Serious liabilities demand serious solutions. Commercial and institutional buildings must meet strict fire codes and material or assembly tests, including NFPA 285 for foam plastic-based wall assemblies in multi-story applications. This is a test of an entire assembly — not just individual components. StoEnergy Guard wall assemblies meet the rigorous requirements of NFPA 285, and its components meet Class A smoke and flame-spread requirements. StoEnergy Guard assemblies tested in accordance with ASTM E119 are also available.

Construction Type Challenges

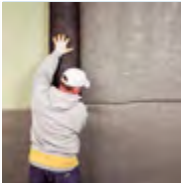
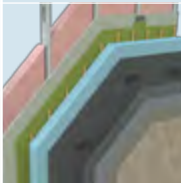
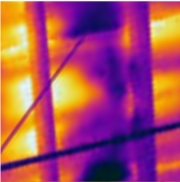
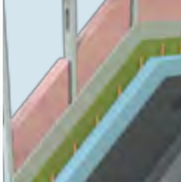
New structures and cladding materials have emerged on the market that allow for breakthroughs in architectural expression. Yet methods both new and old come with challenges — from improper design or installation to material failures under rigorous environmental conditions. StoEnergy Guard is a simple, unified system backed by a single comprehensive warranty. It works seamlessly under multiple cladding types. It's a proven solution for difficult envelope designs, from rainscreens and brick veneer to adhered masonry veneer and cement stucco.

New Best Practices

Energy efficient and sustainable, durable and with good life-cycle performance — that's what building owners want today. The best enclosure designs successfully control heat, air and moisture (HAM), with cost-effective, healthy and high-performance exteriors that protect building occupants and the environment. StoEnergy Guard is built with those capabilities in mind: with air barriers, c.i., drainage, and more features that today's buildings demand — through heat, cold, and driving rain.



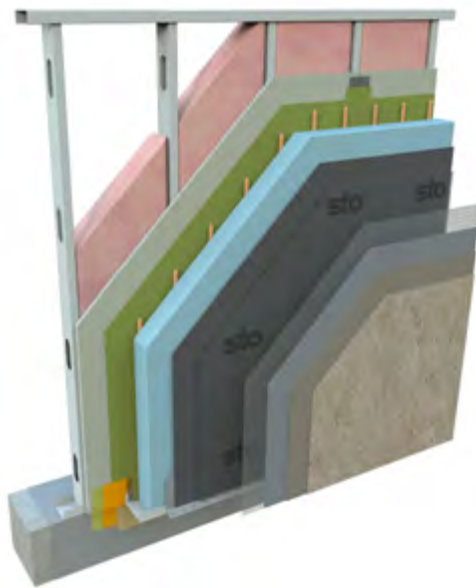
StoEnergy Guard™ : 5 Solutions in 1

Solutions for Every Type of Construction	Typical Construction	StoEnergy Guard™
Drainage behind absorptive claddings Stucco and other absorptive types of claddings, including thin brick or adhered masonry veneer, are not waterproof. The porous materials let water in from wind-driven rain, or water vapor drive caused by hot, sunny weather.	 Some claddings set directly against wood sheathing, felt, or house-wrap sheets can have limited drainage and drying potential.	 Sto DrainScreen creates an air space big enough for a capillary break. The gap allows water to drain, so the wall can dry.
Fire protection Wall assemblies, including foam plastic insulation and air barrier systems, must be tested and listed as assemblies, not individual components, to meet NFPA 285 and other fire test criteria for steel frame with gypsum board and CMU or concrete.	 Architects and contractors take risks when they combine products from different manufacturers that are not fire tested together.	 StoEnergy Guard is already tested as an assembly, so it meets the NFPA 285 criteria.
Air barrier for CMU / concrete Using spray-on, roll-applied or a troweled material, StoEnergy Guard provides the level of vapor permeability the project requires – vapor permeable or vapor impermeable.	 Behind the cladding, air barriers are often applied as sheets which may billow from the surface.	 StoEnergy Guard uses a spray-applied product – StoGuard – a seamless and structural air barrier.
Continuous insulation The IECC requires continuous insulation in most climate zones. The insulation must be continuous to prevent thermal bridging.	 Steel-framed walls with batt insulation between framing members suffer lost R-value. A designed R-15 wall, with 16" o.c. framing, can have an actual R-value of 6.4.	 Sto Insul-X, XPS insulation is placed exterior to the structure, both meeting codes and ensuring actual R-values closest to rated R-value.
Energy-efficient, green building Federal and state regulations, green building certifications, local building codes and energy codes call for specific types of wall construction. New rules and ratings demand c.i., air barriers, drainage and drying capability.	 Standard building practice is to combine products from disparate manufacturers – and many products are not proven to work together.	 An advanced, integral system, StoEnergy Guard is produced and warranted by a global company with full technical support.

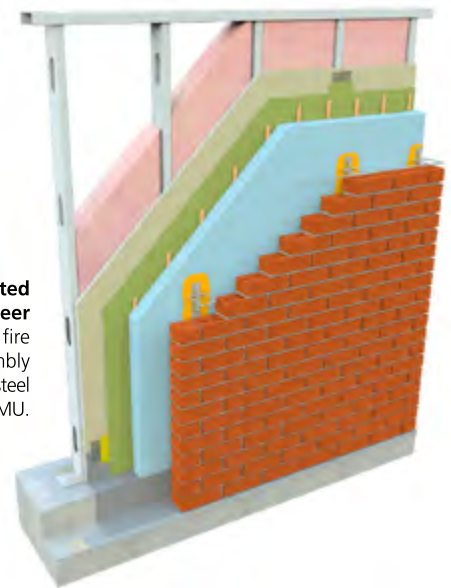
Simple, sustainable solutions, from a trusted source. Best practices for building enclosures are integrated into StoEnergy Guard, an advanced cavity wall solution for commercial construction – behind almost any cladding.

StoEnergy Guard offers proven, fire tested assemblies

Tested to meet today's stringent fire codes and building codes.



Fire tested cement stucco
Using StoEnergy Guard, a cement stucco wall can meet NFPA 285 over steel studs, concrete or CMU.



Fire tested brick veneer
This StoEnergy Guard fire test evaluated brick assembly meets NFPA 285 over steel studs, concrete or CMU.

Fire Tested – As an Assembly

Fire-safe construction is critical today. Buildings must have fire tested wall assemblies to meet all the strict requirements of the International Building Code (IBC). The main fire test standard for multi-story construction with foam plastic insulation is NFPA 285, and StoEnergy Guard meets the requirements of this standard.

In IBC Section 2603.5, for exterior walls of Type I, II, III and IV buildings, the code calls for foam-plastic-based wall assemblies to be tested per NFPA 285, which involves a two-story assembly with a window opening.

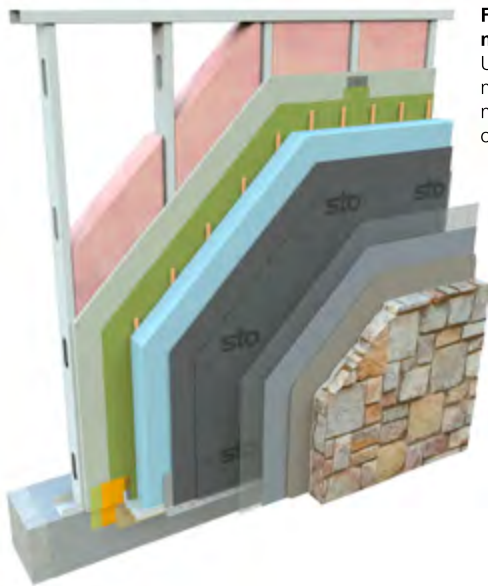
StoEnergy Guard is tested to meet NFPA 285 for use on multi-story construction Types I, II, III, and IV. It can also serve as a fire-rated assembly with multiple cladding types:

- Cement Stucco
- Manufactured Stone (Adhered Masonry Veneer)
- Brick Veneer

Multiple Cladding Types, Too

StoEnergy Guard is designed to work behind mixed cladding types, delivering consistent performance and easy installation. Many contemporary building designs employ multiple cladding materials, such as this commercial retail facade using manufactured faux stone and stucco. StoEnergy Guard can deliver continuous, uniform protection behind varied combinations of cladding. That means warranted, dependable performance against rain, heat, cold and more – for almost any architectural design statement.





Fire test-evaluated manufactured stone
Using StoEnergy Guard with a manufactured stone or adhered masonry veneer can meet NFPA 285 over steel studs, CMU or concrete.

Varied Alternatives

StoEnergy Guard provides a variety of fire tested or evaluated assemblies depending on the project needs or user preference. A number of StoGuard membranes may be selected — and the assembly will still meet NFPA 285.

This means flexibility of design and product choice. For example, StoEnergy Guard for attached masonry may use several of Sto's membranes, air barriers, insulation products and adhesives. Use Sto DrainScreen with Sto GoldCoat membrane and Sto Insul-X XPS insulation, attached with Sto TurboStick adhesive for a code-compliant, NFPA 285 assembly. Or the wall can use Sto Insul-X XPS insulation using Sto EmeraldCoat membrane.

StoEnergy Guard provides several fire tested assemblies that meet your project needs. For more information, visit Sto's website, www.StoCorp.com, and click on Technical Service.

StoEnergy Guard: Options for NFPA 285 Assemblies

Membranes (Air Barrier/WRB)	Continuous Insulation	Attachments
• Sto GoldCoat • Sto EmeraldCoat • Sto ExtraSeal	• Sto Insul-X • Sto Insul-X • Sto Insul-X	Sto Turbo Stick, Sto Extra Seal, or mechanically attached.

All of these products and materials will meet NFPA 285 as part of a StoEnergy Guard wall assembly. Sto DrainScreen can be added to the assembly over the WRB or the continuous insulation. Sto Insul-X can be adhered to the assembly over the WRB followed by full attachment with cladding fasteners.

Why Use Continuous Insulation?

The 2012 IECC requires the use of continuous insulation, or c.i., in all U.S. climate zones for steel-framed wall assemblies. Many building codes are based on ASHRAE 90.1.

For more, visit www.StoCorp.com and click on Technical Service.

Building Science and Design Responsibilities

Keeping walls dry is a function of many factors – building height, orientation and severity of exposure to wind and rain, and building design details. Particularly important is the incorporation of flashings at critical locations – at the base of the wall, floor lines, roof/wall intersections, lower to higher wall intersections, beneath sills and copings, and at parapets – to direct water to the exterior, not into the wall assembly. Quality of components such as windows, doors and sealants, and the installation of all components in an integrated and workmanship-like manner to prevent water intrusion behind the cladding, are also critical for the ultimate performance and waterproofing integrity of the building envelope. Incorporation of an air barrier, vapor barrier, and continuous insulation – one, two, or all of these components – has an effect on the drying potential, dew point, and condensation potential of the wall assembly, as well as sizing of HVAC equipment. The design professional and builder must take all these factors into account when designing and constructing a building envelope that keeps walls dry and free from moisture issues. StoGuard functions as an air barrier component and secondary water resistive barrier in wall assemblies. Sto DrainScreen functions as a wall cavity drainage component. The secondary moisture protection provided by StoGuard protects walls against moisture damage from rain during the construction process and in the event of incidental water intrusion following the completion of construction. Sto DrainScreen promotes drainage and drying. These components are not intended to correct faulty design or workmanship such as the absence or improper integration of flashing in the wall assembly, nor are they intended to correct defective components of construction such as windows that leak into the wall assembly. Flashing must always be integrated with the WRB (water-resistive barrier) in the wall assembly to direct water to the exterior of the cladding, not into the wall assembly, particularly at potential leak sources such as windows. ADDITIONAL COMPONENTS SUCH AS CODE COMPLAINT BUILDING PAPER OR FELT MAY BE NECESSARY WHEN DESIGNING WITH POROUS CLADDINGS SUCH AS STUCCO AND STONE VENEERS OVER LATH, PARTICULARLY IN MOIST, MARINE, AND HOT AND HUMID CLIMATE ZONES. Final assemblies should always be evaluated by a qualified design professional in relation to structural adequacy, fire protection, moisture and thermal control, and code compliance, and tested where necessary to verify performance.

For complete information on recommended assemblies that incorporate StoGuard and Sto DrainScreen, refer to details at www.stocorp.com.

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Sto | Building with conscience.

A Best-Practice Building System: StoEnergy Guard™

To meet codes for energy efficiency and moisture control, today's walls need:

- Waterproof air barriers.
- Drainage technology.
- Continuous insulation, or c.i.

StoEnergy Guard delivers them all, combining StoGuard waterproof air barrier (and vapor barrier, where needed) with Sto DrainScreen, a fabric-faced drainage mat, and continuous exterior XPS insulation, Sto Insul-X.

These components – tested together, code-recognized and fire tested – provide all the key performance features needed, regardless of the structural system or cladding choice.

StoEnergy Guard: Tested, Proven and Code-Compliant

The components in StoEnergy Guard and many of the construction assemblies have been rigorously tested and evaluated to meet a variety of key standards and codes.

StoGuard® Waterproof Air Barrier

This fluid-applied membrane is highly effective for most sheathings, CMU and other substrates. StoGuard meets criteria for air leakage and durability. It is tested and has met air-leakage resistance and water resistance criteria when tested in accordance with ASTM E-2178, ASTM E 2570 and ICC AC 212, *Acceptance Criteria for Water-Resistive Coatings Used As Water-Resistive Barriers over Exterior Sheathing*. StoGuard is also listed under the CCMC Technical Guide for Air Barrier Materials (CCMC ER 13120).

Sto DrainScreen Fabric-Faced Mat

This 1/4"-thick fabric-faced drainage mat is tested as a Class A material, meeting ASTM E-84 allowable limits for flame spread and smoke development. It is used to promote drainage and drying of wall assemblies.

Sto Insul-X, XPS Insulation

Sto XPS insulation is independently tested and verified to meet key standards, including ASTM C578. All insulation meets minimum performance levels for density, thermal resistance, water vapor permeance, and compressive resistance and tensile/flexural strength for Type IV XPS. Insulation for StoEnergy Guard also meets allowable limits for flame spread and for smoke development for a Class A building material when tested in accordance with ASTM E 84.

For assistance, call 1-800-221-2397 or visit www.stocorp.com for Technical Services.

ATTENTION

Sto products are intended for use by qualified professional contractors, not consumers, as a component of a larger construction assembly as specified by a qualified design professional, general contractor or builder. They should be installed in accordance with those specifications and Sto's instructions. Sto Corp. disclaims all, and assumes no, liability for on-site inspections, for its products applied improperly, or by unqualified persons or entities, or as part of an improperly designed or constructed building, for the nonperformance of adjacent building components or assemblies, or for other construction activities beyond Sto's control. Improper use of Sto products or use as part of an improperly designed or constructed larger assembly or building may result in serious damage to this product, and to the structure of the building or its components. **STO CORP. DISCLAIMS ALL WARRANTIES EXPRESS OR IMPLIED EXCEPT FOR EXPLICIT LIMITED WRITTEN WARRANTIES ISSUED TO AND ACCEPTED BY BUILDING OWNERS IN ACCORDANCE WITH STO'S WARRANTY PROGRAMS, WHICH ARE SUBJECT TO CHANGE FROM TIME TO TIME.** For the fullest, most current information on proper application, clean-up, mixing and other specifications and warranties, cautions and disclaimers, please refer to the Sto Corp. website, www.stocorp.com.