Sto Corp. | Waterproofing/Air Barrier

Sto Guard®: Superior
Spray-On Building Wrap
What is Sto Guard®?

Sto Guard® is a waterproofing/air barrier assembly that protects sheathing joints, rough openings and sheathing from air leakage and water intrusion. The assembly is composed of the following products in 3 easy steps:

**Joint/Rough Opening Treatment (Air Barrier component)**
- Sto Guard® Mesh on the joints
- Gold Fill® over the joints and spot fasteners

**Sheathing Treatment (Waterproofing component)**
- FOR USE UNDER PORTLAND CEMENT STUCCO and other claddings
- FOR USE UNDER INSULATED WALL CLADDINGS (EIFS) and other claddings

**Sto Guard®**
- Mesh on the joints  
- Gold Fill®
- EmeraldCoat®

**Sto Gold Coat®**
- Specially formulated for use under Portland cement stucco with metal plaster base (lath).
- For use with adhesives
- Specially formulated for use under Insulated Wall Claddings (EIFS).

**Sto Gold Fill®**
- Specially formulated for use under Portland cement stucco with metal plaster base (lath).

Who installs Sto Guard®?

Sto Guard® does not require highly skilled labor to apply and is easier to install than sheet wraps. For more information, contact Sto. We will put you in contact with a local applicator.

Superior waterproofing.

Unlike conventional sheet wraps that come apart at the seams and leak at the staple holes, the Sto Guard® assembly is seamless and tear proof. Apply Sto Guard® for a superior moisture barrier with seamless protection.

Moisture barriers in wall construction.

The purpose of moisture barriers in walls is to protect against ingress of incidental water into the building and to protect moisture sensitive components such as wood or gypsum based sheathings in the event of a breach in the outer wall covering, such as a crack in stucco.

The traditional choice for moisture protection has been asphalt saturated felt or paper. In addition to tearing and mis-lapping during construction, felt or paper might suffer significant degradation in performance with exposure to the elements. Sto Guard® can be left uncovered for up to six months with minimal degradation.

Sto Guard®: a superior moisture barrier!

Sto Guard® resists water penetration for up to 75 minutes when subjected to water spray equivalent to 8 inches (203 mm) of rainfall per hour driven by an approximate 50-mile per hour (80 km/h) wind. The product was tested in accordance with ASTM E-331 at simultaneous pressure of 6.24 psf (300Pa) and water spray of 5 gal/ft²/hr (3.4L/m²/min). Sto Guard® has the ability to allow water vapor to pass through yet keep damaging moisture from penetrating the sheathing. This gives you a distinct advantage on your job by providing peace of mind that your walls have minimized risk of damage from water intrusion during or after construction.

**Water Vapor Permeance of Sto Guard® Products**

- 4 mil (.004”) polyethylene ¹
- Sto Gold Coat®²
- Sto EmeraldCoat®²
- Sto Gold Fill®²

**NOTES:**
1. Dry Cup Method
2. Wet Cup Method
3. Note: This chart provided for information only. Direct comparisons of water vapor permeance values may not always be applicable, as different methods of measuring produce different results. Materials may also have different water vapor permeance with changes in relative humidity.
5. To convert from perms to ng/Pa•s•m², multiply by 57.3.
Superior air barrier.

Before the Sto Guard® assembly, conventional sheet wrap products left you hanging in the breeze. Use Sto Guard® for a superior air barrier with seamless protection.

Air barriers in wall construction.
The purpose of an air barrier in wall construction is to minimize air infiltration and exfiltration through the wall construction.

The benefits of an air barrier are:
• Reduced risk of condensation caused by air leaks through the wall construction;
• Increased thermal efficiency of the wall construction;
• Energy cost savings;
• Increased occupant comfort;
• Provides opportunity for pressure equalized or pressure moderated wall system design, thus minimizing the risk of rain water penetration through wall construction; and
• Efficient use of materials – Sto Guard® doubles as waterproofing and air barrier in wall assembly.

Materials like asphalt saturated felts and some house wraps have low air permeability but do not perform well as air barriers, not only because they have many seams that reduce their effectiveness as air barriers, but they are non-structural.

Sto Guard®: a superior air barrier!
Sto Guard® is continuous, structural (when applied to sheathing) and durable. Because Sto Guard® is adhered to sheathing, it becomes a “structural” air barrier and thus outperforms sheet building and house wraps. Sheet building wraps, which are attached to the sheathing with penetrating fasteners, may have gaps that allow air infiltration. As a matter of fact, the Pennsylvania Housing Research Center* reports that “…house wraps do very little or nothing to improve the overall air tightness of a wall system”. Since Sto Guard® is adhesively attached and tear-proof, gaps are not present between it and the sheathing. Sto Guard® performs better than sheet goods that use fasteners for attachment and that can tear or displace with wind gusts.

Air Permeability of Sto Guard®
While there is no consensus standard in the United States for what level of air permeability constitutes an air barrier, the generally accepted level based on Canadian code requirements is 0.02 L/(s•m²) (0.004 cfm/ft²). Based on independent testing Sto Guard® exceeds this criteria by a factor of more than 10.

“Breathable.”

Unlike some sheet membranes that don’t allow water vapor flow, the Sto Guard® assembly is water vapor permeable.

Vapor barriers in wall construction.
The term vapor retarder is a better term to use than vapor barrier when describing materials with low water vapor permeability. Very few materials have zero water vapor permeability. The generally accepted definition of a vapor retarding material is one that has a water vapor permeability of 1.0 perms [57.3 ng/(Pa•s•m²)] or less.

By allowing for water vapor diffusion while limiting air infiltration, Sto Guard® is a “breathable” air barrier.

What about air leakage and mold?
In the last decades studies have shown air leakage to be a significant potential source of condensation and moisture accumulation in building envelope assemblies. By constructing an airtight building envelope the risk of moisture problems – decay, corrosion, loss of insulation value, mold growth and IAQ (Indoor Air Quality) problems - that can occur because of air leakage and condensation are minimized.

What about air leakage and energy efficiency?
According to the US Department of Energy statistics “up to 40% of the energy consumed to heat or cool a building is due to air leakage into and out of the building.” Using Sto Guard® helps prevent air leakage and thus reduces energy costs.

Comparison of Potential Moisture contributed by Air Leakage versus Vapor Diffusion over period of One Year

Extrapolation of data from: Preventing Indoor Air Quality Problems in Educational Facilities: Guidelines for Hot, Humid Climates, by CH2M Hill in cooperation with Disney Development Company.
Critical Detail Checklist for Wall Assemblies

1. Provide flashing at decks
2. Provide diverter flashing at roof/sidewall terminations
3. Protect rough openings

4. Provide sill flashing beneath windows and doors
5. Provide head flashing above windows and doors
6. Seal around window and door penetrations

7. Seal around wall penetrations
8. Provide joints at required locations and seal where necessary
9. Provide coping over parapets
10. Provide saddle flashing at lower/higher wall intersections

Also see Moisture Control Principles for Design of Wall Assemblies in Sto Guard®: Air Barrier and Moisture Control Handbook.

Why Sto Guard® Beats the Competition: The Hole Truth
- Seamless; no laps, no staples, no attachment holes.
- Continuous adhesive bond.
- Tearproof; can’t be torn or stretched.
- Structural adhesive attachment to sheathing, not vulnerable to wind pressure, lifting or tearing. To qualify as an air barrier requires structural stability; Sto Guard® on sheathing provides this.
- Easy to install. Spray application, no large sheets or rolls to handle. Easily installed by one worker or a team, resulting in reduced labor costs.
- Gold or green color makes inconsistencies easy to identify.
- Superior air and moisture protection; impervious to liquid water; protects sheathing and rough openings during construction; protects sheathing against incidental leaks and air flow behind cladding after construction.
- Durable; protects exposed sheathing for up to six months. Waterproof; does not deteriorate with exposure to water.

“This is a marvelous approach to air barrier construction. The beauty of it is that the continuity is inherent in the installation. I could see this product used on many types of applications including masonry, concrete, wood frame construction, sheathing panels and other substrates. With a vapor permeance rating higher than most, Sto Guard® will easily sweat trapped moisture to a cavity or directly to the outside. However, its true benefits arise from its air barrier function.”

Rick Quirouette
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