

# DuPont™ ArmorWall™ SP Plus Fire-Rated Structural Insulated Sheathing

5-in-1 Composite Panel for DuPont™ ArmorWall™ System

## OVERVIEW

### Description

DuPont™ ArmorWall™ SP Plus Fire-Rated (FR) Structural Insulated Sheathing (SIS) is an exterior wall sheathing product that has undergone rigorous ICC testing, with up to a two-hour fire rated assembly achievable. The unique feature of **ArmorWall™ SP Plus FR SIS** is that in addition to having a Magnesium Oxide (MgO) Sheathing material layer on the exterior face, it has an added layer of MgO sheathing on the interior face, which encapsulates the rigid foam insulation. This additional layer of sheathing, made from a naturally occurring fire-resistant mineral, gives **ArmorWall™ SP Plus FR SIS** added fire-resistance versus the Plus version.

It also provides a factory-applied, air and water-resistive barrier on both the exterior and interior sheathing, which once sealed, makes the enclosure "dried-in," allowing for the commencement of interior construction, irrespective of the final exterior finish's status. **ArmorWall™ SP Plus FR SIS** is an all-in-one panel product that combines five traditional building enclosure elements: structural sheathing, fire-resistance, air barrier, water-resistive barrier, and a high-performance continuous insulation layer, making it a cost-saving and labor-reducing option compared to traditional, individual components.

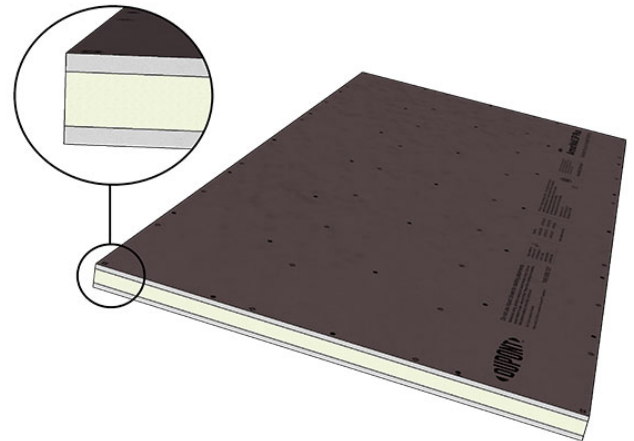
### Features and Benefits

- MgO layers replace the common sheathings (such as gypsum, plywood, etc.) and compounds found in other products that require additional coatings, time and cost.
- Meets continuous insulation (ci) requirements, building codes, and construction schedules faster and more cost effectively.
- Industry-leading adhesion performance and compatibility with tapes, sealants, and other materials.
- Cladding attachment freedom by eliminating need to fasten directly to framing.
- High fire-resistance, durability, and strength.

### Complete System

DuPont offers a wide variety of accessories engineered to complete the **ArmorWall™ System**:

- **DuPont™ DuraGard™ WD:** Primerless window & door rough opening flashing tape. Keeps air & water out; helps improve durability & energy efficiency.
- **DuPont™ LiquidArmor™ FJ Flashing and Joint Compound:** Used at panel joints, penetrations, and fastener heads to complete the air-and water-resistive barrier continuity of the **ArmorWall™ System**. Requires just one application.
- **DuPont™ DuraGard™ CM:** Primerless, multipurpose, self-adhered flashing suitable for numerous applications.



### Applications

DuPont™ ArmorWall™ SP Plus Fire-Rated Structural Insulated Sheathing is an ideal solution for the following building types:

- Buildings that may receive a future addition; **ArmorWall™ SP Plus FR SIS** can provide a fire-rating on one side of a building that may allow a future building to be built close to it at a later time.
- High-rise buildings where installers are able to work with single panels in place of several components, which may lead to safer installation conditions.
- Commercial and Multifamily buildings located in high wind zones.
- Buildings in densely populated areas.
- Job sites with minimum lay down space or short timelines.

### Warranty

- Ten-year limited warranty may be applicable when used as a component in the **DuPont™ ArmorWall™ System**. Contact your DuPont representative for details.

In addition, DuPont recommends and offers a variety of fasteners\*, including brick ties for the **ArmorWall™ System** based on panel thickness, structural substrate and cladding.

## Standard Sizes

### U.S. Sizes, R-Values and Edge Treatments for ArmorWall™ SP Plus Fire-Rated Structural Insulated Sheathing

| Thickness | Sheathing Thickness | Insulation Thickness | Width | Length | R-Value | NetWeight |
|-----------|---------------------|----------------------|-------|--------|---------|-----------|
| 2 3/4 in. | 1/2 in. + 1/2 in.   | 1 3/4 in.            | 4 ft. | 8 ft.  | 11      | 185 lbs   |
| 3 3/4 in. | 1/2 in. + 1/2 in.   | 2 3/4 in.            | 4 ft. | 8 ft.  | 17      | 199 lbs   |
| 4 1/4 in. | 1/2 in. + 1/2 in.   | 3 1/4 in.            | 4 ft. | 8 ft.  | 21      | 203 lbs   |

## TESTING AND CODE COMPLIANCE

DuPont™ ArmorWall™ SP Plus Fire-Rated Structural Insulated Sheathing, when used as an approved DuPont commercial wall system, meets various ASTM Testing Standards. Applicable standards include:

| TEST METHOD           | TEST TITLE  | PROPERTY  | RESULTS  |
|-----------------------|---|---|--|
| <b>FIRE</b>           |   |   |  |
| NFPA 285 <sup>1</sup> | Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Wall Assemblies Containing Combustible Components                                      | Fire Resistance                                 | PASS   |
| ASTM E84              | Standard Test Method for Surface Burning Characteristics of Building Materials  | Flame Spread/Smoke Developed Index (MgO Board)  | 0 / 0  |
| ASTM E84              | Standard Test Method for Surface Burning Characteristics of Building Materials  | Flame Spread/Smoke Developed Index (insulation) | 20 / 200   |
| ASTM E119             | Standard Test Methods for Fire Tests of Building Construction and Materials   | Hourly Rating                                   | 2 hrs assembly dependent                           |
| <b>THERMAL</b>        |   |   |  |
| ASTM C518             | Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus   | Thermal Resistance                              | 6.5 per inch of insulation                         |
| <b>STRENGTH</b>       |   |   |  |
| ASTM D1621            | Standard Test Method for Compressive Properties of Rigid Cellular Plastics  | Foam Compression Range                          | 30 psi   |
| TAS 202-94            | Criteria for Testing Impact & Non-Impact Resistant Building Envelope Components Using Uniform Static Air Pressure   | Deflection Properties                           | PASS   |
| TAS 203-94            | Criteria for Testing Products Subject to Cyclic Wind Pressure Loading   | Cyclic Deflection Properties                    | PASS   |
| <b>STRUCTURAL</b>     |   |   |  |
| ASTM E72              | Standard Test Methods of Conducting Strength Tests of Panels for Building Construction  | Racking Resistance                              | PASS   |
| ASTM E330             | Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference                               | Deflection Properties                           | Similar to TAS 202 /203 - Data is in ESL-1306      |
| <b>AIR</b>            |   |   |  |
| ASTM E283             | Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Skylights, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen | Air Infiltration at 75 Pa                       | 0.01 cfm/ft <sup>2</sup> (0.1L/s /m <sup>2</sup> ) |
| ASTM E283             | Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Skylights, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen | Air Infiltration at 300 Pa                      | 0.04 cfm/ft <sup>2</sup> (0.2L/s /m <sup>2</sup> ) |
| ASTM E2357            | Standard Test Method for Determining Air Leakage Rate of Air Barrier Assemblies   | Air Leakage Resistance                          | PASS   |
| <b>WATER</b>          |   |   |  |
|                       | Standard Test Methods for Gravimetric Determination of Water Vapor  | Procedure A Vapor                               | 0.2 Perms (grains                                  |

|                         |  |  |                             |
|-------------------------|--|--|-----------------------------|
| ASTM E96                | Transmission Rate of Materials   | Permeance (of 2" panel)                | /hr in Hg ft <sup>2</sup> ) |
| ASTM E331 <sup>2</sup>  | Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference  | Water Penetration at 6.27 psf (300 Pa) | PASS                        |
| <b>GENERAL</b>          |  |  |                             |
| ASTM D1970              | Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection | Fastener Sealability <sup>3</sup>      | PASS                        |
| ASTM C1338              | Standard Test Method for Determining Fungi Resistance of Insulation Materials and Facings  | Mold and Mildew                        | PASS                        |
| ASTM D1761 <sup>4</sup> | Standard Test Methods for Mechanical Fasteners in Wood and Wood-Based Materials  | Fastener Shear in Sheathing Only       | 519 lbs                     |
| ASTM D1761 <sup>4</sup> | Standard Test Methods for Mechanical Fasteners in Wood and Wood-Based Materials  | Fastener Pull Through                  | 505.2 lbs                   |
| ASTM D1761 <sup>4</sup> | Standard Test Methods for Mechanical Fasteners in Wood and Wood-Based Materials  | Fastener Withdrawal Capacity           | 284 lbs                     |

<sup>1</sup>ArmorWall™ Plus FR SIS passes NFPA 285 attached directly to the stud framing allowing most cladding installed to its exterior as inclusive to the NFPA 285 approved assembly

<sup>2</sup>Total test duration two continuous hours.

<sup>3</sup>ArmorWall™ Plus FR SIS is self-sealing around cladding attachment fasteners.

<sup>4</sup>Fastener data reflects attachment to the panel not attachment to structure.

## Shear Properties

| Fastener Type   | Min. Fastener Penetration into Framing | Panel Applied Direct to Framing (Fastener Spacing at Panel Edges in Inches) |                  | Panel Applied Direct to Framing w/ 1/2" Gypsum on Opposite Face (Fastener Spacing at Panel Edges in Inches) |                |
|---|--|---|------------------|---|----------------|
| Shear (lbs/ft) w/ Framing of Douglas - Fir - Larch or Southern Pine with blocked perimeters |  |   |                  |   |                |
|   |  | 12"   | 6"               | 4"  | 6"             |
| #14-13  | 1"                                     | 301 lbf (RNV)   | 437.5 lbf (RNV)  | 537.5 lbf (RNV)   | 570 lbf (RNV)  |
| #14-13  | 1"                                     | 150 lbf (ASD)   | 218.75 lbf (ASD) | 268.75 lbf (ASD)  | 285 lbf (ASD)  |
| #14-13  | 1"                                     | 240 lbf (LRFD)  | 350 lbf (LRFD)   | 430 lbf (LRFD)  | 456 lbf (LRFD) |

## Deflection Properties

| Property | Test Method             | Stud Thickness | Span | Results                       |
|----------|-------------------------|----------------|------|-------------------------------|
| L/240    | TAS 202-94 <sup>1</sup> | 18 ga          | 86"  | +113/-95 psf (+5400/-4560 Pa) |
| L/240    | TAS 202-94 <sup>1</sup> | 20 ga          | 86"  | +60/-40 psf (+2880/-1920 Pa)  |
| L/360    | TAS 202-94 <sup>1</sup> | 18 ga          | 86"  | +113/-75 psf (+5400/-3600 Pa) |
| L/360    | TAS 202-94 <sup>1</sup> | 20 ga          | 86"  | +60/-25 psf (+2880/-1200 Pa)  |
|          | TAS 203-94 <sup>2</sup> | 18 ga          |      | +113/-95 psf (+5400/-4560 Pa) |
|          | TAS 203-94 <sup>2</sup> | 20 ga          |      | +60/-40 psf (+2880/-1920 Pa)  |

<sup>1</sup>Impact and Non-impact Resistance Building Envelope Components Using Uniform Static Air Pressure per Florida Building Code 6 Edition (2017) Section 1604.

<sup>2</sup>Criteria for Testing Products Subject to Cyclic Wind Pressure Loading per Florida Building Code 6 Edition (2017) Section 1604.

## CODE COMPLIANCE

DuPont™ ArmorWall™ SP Plus Fire-Rated Structural Insulated Sheathing complies with the following codes:

|  |  |
|--|--|
|  |  |
|--|--|

| CODE                                | DESCRIPTION   |
|-------------------------------------|---|
| US Product Listings & Verifications | ESL-1302 - Hourly Rated Walls<br>ESL-1306 - Deflection Properties - ASTM E330<br>ESL-1442 - Exterior Wall Fire Properties - NFPA 285<br>ESL-1543 - Cladding Fastener Spacing Tables |

## HANDLING

### Warning

- **WARNING: For Professional Use Only** - Read and follow the entire Handling section and the Safety Data Sheets carefully before use. The information below is designed to protect the user and allow for safe use and handling of DuPont™ ArmorWall™ Brand products. Follow all applicable federal, state, local and employer regulations.

### Handling and Use

- **ArmorWall™ SP Plus FR SIS** can be cut and installed using standard jobsite hand tools.
- When being cut to size, it is recommended to wear safety gloves, glasses, and a mask to avoid breathing dust and minimize contact with eyes.
- In areas with limited ventilation or for increased exposure (extensive and repeated cutting), additional PPE and respiratory protection may be warranted.
- **ArmorWall™ SP Plus FR SIS** should be stored off the ground in original shipment condition and protected from weather until ready for installation.
- Avoid ground contact or continuous exposure to moisture and direct sunlight.
- Some skinning and direct coloration of the insulation edges is normal if exposed to UV light prior to installation; however, it does not affect the performance of the panel.
- Some cupping of the panel is expected during shipment and can be rectified during installation by beginning installation from the center of the panel and working outward per the fastener standard of the designed application.

### Product Limitations

- Do not install **ArmorWall™ SP Plus FR SIS** below grade.
- Application of stucco or exterior cement plaster over **ArmorWall™** requires a 3/16" minimum, non-permeable, drainage and drying material layer.
- Do NOT use an impact drill to fasten cladding or attachments to the panel.
- Parallel seams to studs must fall on studs and blocking is not required.
- **ArmorWall™ SP Plus FR SIS** can remain uncovered once installed on the wall assembly for a period not to exceed 180 days. When implemented behind open joint rainscreen systems, **ArmorWall™ SP Plus FR SIS** has a maximum gap allowance of 3/8".
- Contact Customer Services for exposure longer than 180 days or for gaps greater than 3/8".



For more information, visit us at  
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or call us at 1-833-338-7668

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