

SECTION 07 21 13 - BOARD INSULATION

This section includes editing notes to assist the user in editing the section to suit project requirements. These notes are included as hidden text, and can be revealed or hidden by the following method in Microsoft Word:

Display the FILE tab on the ribbon, click OPTIONS, then DISPLAY. Select or deselect HIDDEN TEXT.

The following should be noted in using this specification:

Hypertext links to specific websites are included after manufacturer names and names of organizations whose standards are referenced within the text, to assist in product selection and further research.

Hypertext links are contained in parenthesis and shown in blue, e.g.:

(www.astm.org)

Optional text requiring a selection by the user is enclosed within brackets and as red text, e.g.: "Color: [Red.] [Black.]"

Items requiring user input are enclosed within brackets and as red text, e.g.: "Section [____ - ____]."

Optional paragraphs are separated by an "OR" statement included as red text, e.g.:

**** OR ****

For assistance on the use of the products in this section, contact Atlas Roofing Corporation by calling (800) 388-6134, or by email at lance.williams@atlasroofing.com, or visit their website at www.atlasrwi.com.

PART 1 GENERAL

1.1 SUBMITTALS

- A. Action Submittals:
 - 1. Product Data.
 - 2. Samples.
- B. Informational Submittals:
 - 1. Certificate of Compliance.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Contract Documents/Basis of Design are based on products by Atlas Roofing. www.atlasroofing.com
- B. Equivalent products by following manufacturers are acceptable:
 - 1. Firestone.
 - 2. IKO.
 - 3. OX.
 - 4. Johns Manville.
- C. Substitutions: Refer to Division 01.

2.2 MATERIALS

- A. Board Insulation:

Product: EnergyShield Pro.

Description: ASTM C1289, Type 1 and 2, Class 3; closed cell polyisocyanurate foam core faced with reflective 12 mil reinforced foil facer on one side and white 12 mil reinforced acrylic-coated aluminum facer on the other.

1. Approved for use in NFPA 285 wall assemblies.
2. Flame spread/smoke developed rating: Class A, maximum 25/450, tested to ASTM E84.
3. Free from CFCs, HCFCs, and HFCs.
4. Compressive strength: Minimum 25 PSI, tested to ASTM D1621-
5. Moisture vapor transmission: Maximum 0.1 perm, tested to ASTM E96 desiccant method.
6. Water absorption: Maximum 1 percent by volume, tested to ASTM C209.
7. Dimensional stability: Maximum 1.5 percent linear change, tested to ASTM D2126.
8. Pass ASTM E2357 air barrier assembly test.
9. Qualify as weather resistive barrier per AC 71 with sealed joints; ICC-ES-ESR 1375.
10. Service temperature: Minus 100 to plus 250 degrees F.
11. Potential heat: 12,000 BTU/LB, tested to NFPA 259.
12. Auto ignition temperature: 800 degrees F, tested to ASTM D1929.
13. Microbial resistance:
 - a. Pass ASTM D6329.
 - b. Pass, UL2824.
14. Recycled content: Minimum 10 percent.
15. Tested to UL 2818; GreenGuard Gold certified.
16. Comply with CDPH 01350 low-emitting chamber requirements.
17. Pass NFPA 286.
18. Thickness and insulation value: [0.75 inch, R-value 5.0.] [1.0 inch, R-value 6.5.] [1.2 inches, R-value 97.5.] [1.5 inches, R-value 9.8.] [1.6 inches, R-value 10.5.] [2.0 inches, R-value 13.1.] [2.5 inches, R-value 16.0.] [3.0 inches, R-value 19.7.] [3.1 inches, R-value 20.2.]

**** OR ****

B. Board Insulation:

Product: EnergyShield CGF Pro.

Description: ASTM C1289, Type 2, Class 2, closed cell polyisocyanurate foam core faced with high-performance coated glass facers on both sides.

1. Approved for use in NFPA 285 wall assemblies.
2. Flame spread/smoke developed rating: Class A, maximum 25/450, tested to ASTM E84.
3. Free from CFCs, HCFCs, and HFCs.
4. Compressive strength: Minimum 25 PSI, tested to ASTM D1621.
5. Moisture vapor transmission: Maximum 1.2 perms, tested to ASTM E96 desiccant method.
6. Water absorption: Maximum 1.0 percent by volume, tested to ASTM C209.
7. Dimensional stability: Maximum 2 percent linear change, tested to ASTM D2126.
8. Pass ASTM 2357 air barriers assembly test.
9. Qualify as weather resistive barrier per AC 71 with sealed joints; ICC-ES-ESR 1375.
10. Service temperature: Minus 100 to plus 250 degrees F.
11. Potential heat 12,000 BTU/LB, tested to NFPA289
12. Auto ignition temperature 800 deg F, tested to ASTM D1929
13. Microbial resistance:
 - a. Pass ASTM D6329.
 - b. Pass UL2824.
14. Recycled content: minimum 10 percent
15. Tested to UL 2818; GreenGuard Gold certified.
16. Comply with CDPH 01350 low-emitting chamber requirements.
17. Thickness and insulation value: [0.50 inch, R-value 3.0.] [0.75 inch, R-value 4.5.] [1.0 inch, R-value 6.0.] [1.5 inches, R-value 9.0.] [2.0 inches, R-value 12.1.] [2.5 inches, R-value 15.3.] [3.0 inches, R-value 18.5.] [3.5 inches, R-value 21.7.]

**** OR ****

C. Board Insulation:

Product: EnergyShield Ply Pro.

Description: ASTM C1289, Type 5, grade 3 (25psi), closed cell polyisocyanurate foam core faced with coated glass facers on both sides, bonded to nominally [5/8] [3/4] inch thick 4' x 8' fire-retardant treated plywood.

1. Approved for use in NFPA 285 wall assemblies.
2. Flame spread/smoke developed rating: Class A, maximum 25/450, tested to ASTM E84.
3. Moisture vapor transmission: Maximum 1.2 perms, tested to ASTM E96 desiccant method.
4. Water absorption: Maximum 1.0 percent by volume, tested to ASTM C209.
5. Dimensional stability: Maximum 2 percent linear change, tested to ASTM D2126.
6. Microbial resistance; polyisocyanurate layer:
 - a. Pass ASTM D6329.
 - b. Pass UL 2824.
7. Service temperature: Minus 100 to plus 250 degrees F.

Retain the following for insulation bonded to 5/8 inch thick plywood.

8. Nominal thickness and insulation value: [1.625 inches, R-value 6.8.] [2.125 inches, R-value 9.8.] [2.625 inches, R-value 12.9.] [3.125 inches, R-value 16.1.] [3.625 inches, R-value 19.3.] [4.125 inches, R-value 22.5.]

**** OR ****

Retain the following for insulation bonded to 3/4 inch thick plywood.

7. Nominal thickness and insulation value: [1.75 inches, R-value 7.0.] [2.25 inches, R-value 10.0.] [2.75 inches, R-value 13.1.] [3.25 inches, R-value 16.3.] [3.75 inches, R-value 19.5.] [4.25 inches, R-value 22.7.]

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install insulation in accordance with manufacturer's instructions.
- B. Atlas recommends standard or light duty insulation fastener with #2 light duty drill point specifically engineered for attaching Atlas EnergyShield Ply Pro to light steel and wood substrates.

END OF SECTION

EnergyShield® Pro

Continuous Wall Insulation

DESCRIPTION: Atlas EnergyShield® Pro is composed of a Class A closed cell polyisocyanurate (polyiso) foam core faced with a reflective 12 mil reinforced foil facer on one side and a white 12 mil reinforced acrylic-coated aluminum facer on the other. The blowing agent used to produce the polyiso foam core does not contain any CFCs, HCFCs or HFCs. EnergyShield® Pro has zero Ozone Depletion Potential (ODP) and negligible Global Warming Potential (GWP). EnergyShield® Pro combines high R-value, Class A foam core, durable aluminum facers and water resistive barrier attributes in a high performance rigid wall insulation. EnergyShield® Pro is designed to be used as exterior continuous insulation (CI) or may be reversed for interior applications in compliance with NFPA 286 for interior walls only or ceilings only where a clean white surface is desirable. Panel sizes are 4' by 8' or 4' by 9'. Panels can be supplied in nominal 16" or 24" widths for use in masonry cavity wall applications. Custom sizes are also available.

APPLICATION: EnergyShield® Pro is recommended for use in both commercial and residential construction (Type I through Type V) where a Class A flame spread is needed. Common applications include:

- Exterior or interior continuous insulation (CI) in commercial and residential construction.
- Exterior or interior continuous insulation (CI) for masonry or concrete wall systems, including exterior masonry cavities
- Exterior or interior continuous insulation (CI) in commercial and residential wood stud construction
- Exterior continuous insulation (CI) over wood or gypsum sheathings
- Use over existing cladding to improve energy efficiency with continuous insulation (CI) and provide a level surface prior to installing a new cladding
- Various OEM applications
- Approved for use in attics and crawlspaces without requiring the use of a thermal barrier (ICC-ES A12, Appendix B)
- Interior exposed applications installed with white facer facing outward for interior walls only or ceilings only

ENERGYSHIELD® PRO MEETS OR EXCEEDS THE FOLLOWING PHYSICAL PROPERTIES

PROPERTY	TEST METHOD	TEST METHOD MINIMUM REQUIREMENTS
FLAME SPREAD	ASTM E84	< 25
SMOKE DEVELOPMENT	ASTM E84	< 450
MOISTURE VAPOR TRANSMISSION (ASTM E96 DESICCANT METHOD)	ASTM E96	< 0.1 Perm (5.7ng/(Pa*s*m2) Class I vapor retarder per ICC
COMPRESSIVE STRENGTH	ASTM D1621	25 psi
WATER ABSORPTION	ASTM C209	< 1% by Volume *Typical Results < 0.5% by Volume
DIMENSIONAL STABILITY	ASTM D2126	< 1.5% Linear Change *Typical Results < 1% Linear Change
SERVICE TEMPERATURES	-	-100°F to +250°F (-73°C to 122°C)
POTENTIAL HEAT	NFPA 259	12,000 Btu/lb
AUTO-IGNITION TEMPERATURE	ASTM D1929	800°F
RECYCLED CONTENT	-	10.4 -13.8%

THERMAL DATA

R-VALUE ^{1,2}	NOMINAL BOARD THICKNESS ³
5.0	0.75"
6.5	1.0"
7.5	1.2"
9.8	1.5"
10.5	1.6"
13.1	2.0"
16.0	2.5"
19.7	3.0"
20.2	3.1"
22.2	3.5"
26	4.0"

¹ Conditioned thermal values were determined by ASTM Test Method C 518 at 75° mean temperature. Test specimens were conditioned in accordance with procedures outlined in ASTM C1289, Section 11.1.2.1

² "R" means resistance to heat flow. The higher the R-value, the greater the insulating power.

³ Other sizes available upon request. Contact your local Atlas sales office.

CODES AND COMPLIANCES

- ASTM 1289 Type I Class 1 and Type I Class 2
- ASTM E2357 Air Barrier Assembly Test – Passed
- UL Listed for flame spread, see BRYX.R13089
- ANSI/UL 263 (E119) hourly rated wall approvals (see UL Online Certification Directory)
- NFPA 285 (consult Atlas for our extensive list of approved assemblies)
- NFPA 286 Interior walls only or interior ceilings only
- PE Evaluation of fire Properties, see TER 1306-03
- International Building Code (IBC), Section 2603
- International Residential Code (IRC), Section R316
- Water Resistive Barrier ICC-ES ESR-1375
- ASHRAE 90.1 / ASHRAE 189.1 / IECC / IGCC Continuous Insulation Standards
- Foil faced insulation greater than .5" thick is prescriptively defined as an air barrier material by IECC and ASHRAE 90.1
- Class I vapor retarder (< 0.1 perm)
- California Approved Insulation Registry T 1231
- Has achieved GREENGUARD GOLD Certification



PRODUCT CERTIFIED FOR LOW CHEMICAL EMISSIONS: UL.COM/GG UL 2816





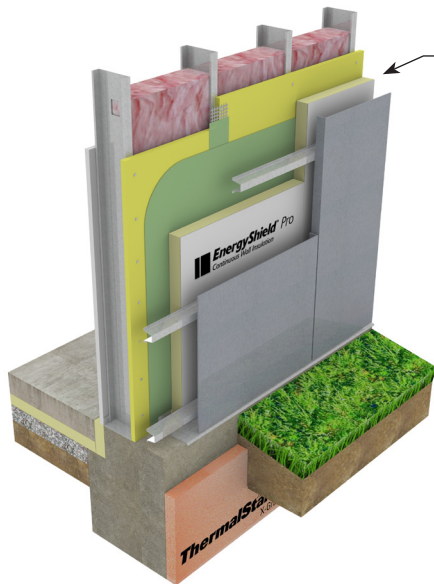
EnergyShield® Pro

Continuous Wall Insulation

INSTALLATION: EnergyShield® Pro may be installed on the exterior, interior, or within wall assemblies using fasteners, adhesives, girts, or any combination. Some of the common installations for EnergyShield® Pro include, but are not limited to, steel stud walls, over exterior gypsum, masonry walls, over air and vapor barrier membranes, concrete walls, wood stud walls. Also, the dual use allows the product to be used in interior exposed/interior visible applications installed with white facer facing outward for interior walls only or ceilings only. For specific installation instructions, contact Atlas. Check local building codes for thermal barrier requirements when using EnergyShield® Pro.

CONFIGURATION FOR WATER RESISTIVE BARRIER (WRB) AND AIR BARRIER:

EnergyShield® Pro can be used as part of a WRB and potentially part of an air barrier assembly. EnergyShield® Pro has passed ASTM E2357 as a component of an Air Barrier Assembly. In these types of assemblies it is required that all joints, penetrations and openings be taped or sealed by other means. Atlas recommends flashing EnergyShield® Pro into rough openings and other building transitions. The foil facers are compatible with most flashing or sheathing tape, joint fillers, sealants, and adhesives. Consult the product manufacturer for specific compatibility.



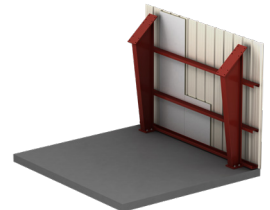
EnergyShield® Pro combines high R-value, durable foil facers, water resistive attributes and a Class A foam core for use in approved NFPA 285 assemblies.



Concrete Tilt Up Wall



Engineered Metal Building Ceiling



Engineered Metal Building Wall

EnergyShield® Pro is a Class A product and may be reversed for interior applications in compliance with NFPA 286 for interior walls only or ceilings only where a clean white surface is desirable.

PRECAUTIONS / LIMITATIONS:

- While EnergyShield® Pro is a Class A foam product, it will burn and may contribute to flames spreading and smoke developing.
- When designing with or using this product always follow local codes, especially with regards to WRB, Air Barrier and Vapor Retarder. Atlas highly recommends the use of a dew point calculation of the proposed wall assembly to determine the types and locations of weather resistive barriers as well as needed R-value to mitigate any condensation potential.
- EnergyShield® Pro is not a structural product so local codes must be followed for required bracing of the frame wall.
- Storage: Prior to installation EnergyShield® Pro should be stored indoors. If left outdoors for any length of time it must be kept dry by covering completely with a waterproof tarpaulin. Store on flat pallets elevated at least 4 inches above the floor or ground and standing water.
- Follow the cladding manufacturer's recommendation for attachment of the cladding.
- Installed EnergyShield® Pro is not intended to be left exposed to the elements in excess of 180 days. Atlas recommends that all wall cladding material be installed within 180 days of installing the EnergyShield® Pro.

WARRANTY: A 15-year limited thermal warranty is available. Please see atlasroofing.com or contact your Atlas representative. Atlas Roofing Corporation assumes no responsibility for building design or construction, which is solely the responsibility of the owner, architect, engineer or contractor.

Technical specifications are intended as general guidelines only, physical properties are representative based on testing, no warranties are given except for those specifically written by Atlas for its products.

LOCAL Production and Support: Atlas has the largest production footprint of any polyiso manufacturer for quick access to the products you need.

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