



DrJ Research Report

DRR 1202-01

NFPA 285 Tested Assemblies
Using Foam Plastic Insulating Sheathing
Products

**Foam Sheathing Committee
(FSC) Members**

Code Compliance Process:

**Foam plastic insulating
sheathing (FPIS) when used as
insulating material in exterior
wall assemblies**

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May 7, 2012

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October 14, 2021

For the most recent version or a sealed copy of this document, visit drjengineering.org.



REPORT HOLDER
INFORMATION:

Foam Sheathing Committee (FSC) Members¹

americanchemistry.com/industry-groups/foam-sheathing-committee-fsc

continuousinsulation.org

DIVISION: 07 00 00 - THERMAL AND MOISTURE PROTECTION

SECTION: 07 21 00 - Thermal Insulation

SECTION: 07 24 00 - Exterior Insulation and Finish Systems

SECTION: 07 25 00 - Water-Resistive Barriers/Weather Barriers

SECTION: 07 27 00 - Air Barriers

1 CODE COMPLIANCE PROCESS EVALUATED²

1.1 Foam plastic insulating sheathing (FPIS) when used as insulating material in exterior wall assemblies

1.1.1 FPIS from manufacturers listed in Table 1.

2 APPLICABLE CODES AND STANDARDS^{3,4}

2.1 Codes

2.1.1 *IBC—15, 18, 21: International Building Code®*

2.1.2 *IRC—15, 18, 21: International Residential Code®*

2.2 Standards and Referenced Documents

2.2.1 *NFPA 285: Standard Fire Test Method for the Evaluation of Fire Propagation Characteristics of Exterior Nonload-bearing Wall Assemblies Containing Combustible Components*

¹ The Foam Sheathing Committee (FSC) of the American Chemistry Council sponsors research and tools to support the reliable, efficient, and economic design and installation of foam sheathing. This report is developed by DrJ from a grant provided by FSC. Learn more about foam sheathing at continuousinsulation.org.

² For more information, visit drjengineering.org or call us at 608-310-6748.

³ Unless otherwise noted, all references in this DRR are from the 2021 version of the codes and the standards referenced therein. This material, design, or method of construction also complies with the 2000-2018 versions of the referenced codes and the standards referenced therein.

⁴ All terms defined in the applicable building codes are italicized.



3 PERFORMANCE EVALUATION

- 3.1 IBC Section 2603.5 Vertical and Lateral Fire Propagation contains a provision that requires wall assemblies in multi-story Type I, II, III, and IV buildings that contain foam plastic insulation products to be tested in accordance with *NFPA 285* (IBC Section 2603.5.5).
 - 3.1.1 One-story buildings are an exception and must comply with IBC Section 2603.4.1.4.
 - 3.1.2 Wall assemblies where the foam plastic insulation is covered on each face by not less than 1-inch thickness of masonry or concrete are an exception when meeting one of the following:
 - 3.1.2.1 There is no airspace between the insulation and the concrete or masonry.
 - 3.1.2.2 The insulation has a flame spread index of not more than 25 as determined in accordance with *ASTM E84* or *UL 723* and the maximum airspace between the insulation and the concrete or masonry is not more than 1 inch.
- 3.2 As of the revision date of this research report, the companies listed in Table 1 have evaluation reports for the products listed.
- 3.3 The products in Table 1 are approved for use in exterior walls of buildings of Type I, II, III, or IV construction of any height and can be used in assemblies requiring *NFPA 285* tests as specified in the individual reports.
- 3.4 This research report is a code compliance evaluation report that is intended to supplement existing product certifications and is intended only to provide information on *NFPA 285* assemblies that have been approved for the manufacturers listed in Table 1 of this report. For the purposes of this report, DrJ is not certifying the products, but rather is providing the user with direction on where they can obtain specific information for the products shown. For specific details on the assemblies found in Table 1, see the manufacturer's code evaluation reports or listings.
- 3.5 Any code compliance issues not specifically addressed in this section are outside the scope of this DRR.
- 3.6 Any engineering evaluation conducted for this DRR was performed within DrJ's professional scope of work on the dates provided herein.



4 APPLICATIONS

4.1 NFPA 285 Testing Assemblies

- 4.1.1 The following listing contains the assemblies of the manufacturers who have assemblies that are compliant with the provisions of IBC Section 2603.5.5.
- 4.1.2 In all cases, consult the manufacturer for the specific tested assembly type and installation requirements.

TABLE 1. FOAM SHEATHING

Report Number	Manufacturer	Product(s)
<u>TER 1306-03</u>	Atlas Roofing Corporation	EnergyShield® Pro, EnergyShield® Pro2, EnergyShield® CGF Pro
<u>ULEX.R16529</u>	Atlas Roofing Corporation	ThermalStar, ThermalStar LWi, ThermalStar GPS
<u>ESR-3463</u> <u>ULEX.R5817-02</u>	BASF Corporation	Neopor®
<u>ESR-2142</u>	DuPont de Nemours, Inc.	Styrofoam™ Brand Insulation Boards
<u>ESR-1659</u>	DuPont de Nemours, Inc.	Thermax™ Insulating Sheathing
	DuPont de Nemours, Inc.	Thermax™ Total Wall System
<u>TER 1402-01</u>	Hunter Panels	Xci Foil (Class A), Xci 286, Xci CG (Class A), Xci Ply (Class A)
<u>TER 1402-02</u>	Hunter Panels	Xci Foil, Xci CG, Xci Ply
<u>TER 1407-05</u>	Kingspan Insulation, LLC	GreenGuard® Insulation Boards: CM, SL and SB
<u>TER 1212-03</u>	Rmax	ECOMAXci® Wall Solution
<u>ROL/BI 30-03</u> , <u>TER 1309-03</u>	Rmax	Durasheath®, Thermasheath®
<u>TER 1309-03</u>	Rmax	Thermasheath®, Thermasheath®-XP, TSX-8500, TSX-8510, ECOMAXci® FR, ECOMAXci® FR White
<u>TER 1504-04</u>	Rmax	ECOMAXci® Ply
<u>TER 1811-02</u>	Rmax	ECOMAXci™ FR Ply

5 INSTALLATION

- 5.1 The products listed in this research report shall be used in accordance with the manufacturer’s installation instructions.
- 5.2 For applications outside the scope of this research report, an engineered design is required.



6 SUBSTANTIATING DATA

- 6.1 Testing has been performed under the supervision of a professional engineer and/or under the requirements of ISO/IEC 17025 as follows:
 - 6.1.1 Fire performance criteria testing in accordance with *NFPA 285*
- 6.2 Manufacturer evaluation reports as listed in Table 1.
- 6.3 Information contained herein is the result of testing and/or data analysis by sources which conform to *IBC Section 1703* and relevant professional engineering regulations. DrJ relies on accurate data from these sources to perform engineering analysis.
- 6.4 Where appropriate, DrJ's analysis is based on provisions that have been codified into law through state or local adoption of codes and standards. The providers of the codes and standards are legally responsible for their content. DrJ analysis may use code-adopted provisions as a control sample. A control sample versus a test sample establishes a product as being equivalent to that prescribed in this code in quality, strength, effectiveness, fire resistance, durability, and safety. Where the accuracy of the provisions provided herein is reliant upon the published properties of materials, DrJ relies upon the grade mark, grade stamp, mill certificate, and/or test data provided by material suppliers to be minimum properties. DrJ analysis relies upon these properties to be accurate.

7 FINDINGS

- 7.1 When used and installed in accordance with this DRR, the code evaluation reports listed in Table 1, and the manufacturer's installation instructions, the product(s) listed in Section 1.1 are approved for use and are compliant with the requirements of *IBC Section 2603.5*.
- 7.2 This product has been evaluated in the context of the codes listed in Section 2 and is compliant with all known state and local building codes. Where there are known variations in state or local codes applicable to this evaluation, they are listed here.
 - 7.2.1 No known variations
- 7.3 Building codes require data from valid research reports be obtained from approved sources (i.e., licensed registered design professionals [RDPs]).
 - 7.3.1 Building official approval of a licensed RDP is performed by verifying the RDP and/or their business entity is listed by the licensing board of the relevant jurisdiction.
- 7.4 *IBC Section 104.11* (*IRC Section R104.11* and *IFC Section 104.10*⁵ are similar) states:

104.11 Alternative materials, design and methods of construction and equipment. The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code...Where the alternative material, design or method of construction is not approved, the building official shall respond in writing, stating the reasons the alternative was not approved.

8 REFERENCES

- 8.1 The Foam Sheathing Committee (FSC) of the American Chemistry Council sponsors research and tools to support the reliable, efficient, and economic design and installation of foam sheathing. This report is developed by DrJ from a grant provided by FSC. Learn more about foam sheathing at continuousinsulation.org.

⁵ 2018 IFC Section 104.9



9 CONDITIONS OF USE

- 9.1 Where required by the building official, also known as the authority having jurisdiction (AHJ) in which the project is to be constructed, this DRR and the installation instructions shall be submitted at the time of permit application.
- 9.2 Any generally accepted engineering calculations needed to show compliance with this DRR shall be submitted to the AHJ for review and approval.
- 9.3 Design loads shall be determined in accordance with the building code adopted by the jurisdiction in which the project is to be constructed and/or by the building designer (e.g., owner or RDP).
- 9.4 At a minimum, this product shall be installed per Section 5 of this DRR.
- 9.5 This product is manufactured under a third-party quality control program in accordance with IBC Section 104.4 and Section 110.4 and IRC Section R104.4 and Section R109.2.
- 9.6 The implementation of this DRR for this product is dependent on the design, quality control, third-party quality assurance, proper implementation of installation instructions, inspections required by IBC Section 110.3, and any other code or regulatory requirements that may apply.

10 IDENTIFICATION

- 10.1 The product listed in Section 1.1 are identified by a label on the board or packaging material bearing the manufacturer's name, product name, label of the third-party inspection agency, and other information to confirm code compliance.
- 10.2 Additional technical information can be found at the respective FSC member websites found at fsc.americanchemistry.com/Members.

11 REVIEW SCHEDULE

- 11.1 For the most recent version or current status of this DRR, visit drjengineering.org or contact DrJ Engineering.