



Research Report

NFPA 285 Tested Assemblies Using Foam Plastic Insulating Sheathing Products

DRR No. 1202-01

Foam Sheathing Committee (FSC) Members

Issue Date: May 7, 2012

Updated: May 7, 2019

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 Evaluated:

- 1.1. Foam plastic insulating sheathing (FPIS) from manufacturers listed in Table 1 when used as insulating material in exterior wall assemblies
- 1.2. For the most recent version of this code compliance report, visit drjengineering.org. For more detailed state professional engineering and code compliance legal requirements and references, visit drjengineering.org/statelaw. DrJ is fully compliant with all state professional engineering and code compliance laws.
- 1.3. This code compliance report can be used to obtain product approval in any country that is an IAF MLA Signatory (all countries found [here](#)) and covered by an [IAF MLA Evaluation](#) per the Purpose of the MLA (as an example, see [letter to ANSI](#) from the Standards Council of Canada). Manufacturers can go to jurisdictions in the U.S., Canada and other [IAF MLA Signatory Countries](#) and have their products readily approved by authorities having jurisdiction.
- 1.4. Building code regulations require that evaluation reports are provided by an approved agency meeting specific requirements. Any agency accredited in accordance with ANSI ISO/IEC 17065 meets this requirement within ANSI's scope of accreditation. For a list of accredited agencies, visit ANSI's [website](#). For more information, see drjcertification.org.
- 1.5. Requiring an evaluation report from a specific organization (ICC-ES, IAPAMO, CCMC, DrJ, etc.) can be viewed as discriminatory and is a violation of international, federal, state, provincial and local anti-trust and free trade regulations.
- 1.6. Where assistance is needed with any aspect of the foregoing information please contact DrJ at [email DrJ](mailto:email@drj.com) or 608-310-6748. For further support information please visit [DrJ's ANSI accreditation](#) or drjengineering.org.

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 www.continuousinsulation.org. DrJ is a [professional engineering company](#), an [approved source](#) as defined in [Chapter 2](#), an [independent](#) as defined in [Chapter 17](#) of the IBC and an [ANSI accredited 17065 certification body](#).

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2. Applicable Codes and Standards:¹

- 2.1. 2012, 2015 and 2018 International Building Code (IBC)
- 2.2. 2012, 2015 and 2018 International Residential Code (IRC)
- 2.3. NFPA 285 – Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non Load-Bearing Wall Assemblies Containing Combustible Components

3. Evaluation Scope:

- 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 – Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components ([Section 2603.5.5](#)).
 - 3.1.1. One-story buildings are an exception and must comply with [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 issue date of this research report, the companies listed in [Section 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 [Section 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 evaluation.

4. Applications:

4.1. NFPA 285 Tested 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.

¹ Unless otherwise noted, all references in this research report are from the 2018 version of the codes and the standards referenced therein, including, but not limited to, ASCE 7, SDPWS and WFCM. This product also complies with the 2000-2015 versions of the IBC and IRC and the standards referenced therein. As required by law, where this research report is not approved, the building official shall respond in writing, stating the reasons this research report was not approved.

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Foam Sheathing		
Report Number	Manufacturer	Product(s)
TER No. 1306-03	Atlas Roofing Corporation	EnergyShield® Pro, EnergyShield® Pro 2, Rboard® Pro
ULEX.R16529	Atlas Roofing Corporation	ThermalStar® CVT, ThermalStar® LCi, ThermalStar® Chrome
ICC-ES 2142	Dow Chemical Company	Styrofoam™ Brand Insulation Boards
ICC-ES 1659	Dow Chemical Company	THERMAX™ Insulating Sheathing
	Dow Chemical Company	THERMAX™ Total Wall System
TER No. 1402-01	Hunter Panels	Xci Class A, Xci 286
TER No. 1402-02	Hunter Panels	Xci Foil, Xci CG, Xci Ply
ICC-ES 3398	Johns Manville	JM AP™ Foil-Faced & JM CI Max®
TER No. 1407-05	Kingspan Insulation, LLC	GreenGuard® Insulation Boards: CM, SL and SB
TER No. 1212-03	Rmax® Operating, LLC	ECOMAXci® Wall Solution
ROL/BI 30-03, TER No. 1309-03	Rmax® Operating, LLC	Durasheath®, Thermasheath®
TER No. 1309-03	Rmax® Operating, LLC	Thermasheath®, Thermasheath®-XP ECOMAXci® FR, ECOMAXci® FR White
TER No. 1504-04	Rmax® Operating, LLC	ECOMAXci® Ply

Table 1: Foam Sheathing

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. Test and Engineering Substantiating Data:

- 6.1. The Extruded Polystyrene Foam Association (XPSA) has sponsored several *NFPA 285* fire tests on various exterior wall systems that incorporated extruded polystyrene foam plastic insulation.
 - 6.1.1. These tests were successful and met the requirements of *NFPA 285*.
 - 6.1.2. The test configurations are detailed in the following test reports:
 - 6.1.2.1. Report No. 01.06440.01.001; Southwest Research Institute; May, 2003.
 - 6.1.2.2. Report 05CA2541, NC2650; Underwriters Laboratories, Inc.; January 10, 2005.
 - 6.1.2.3. Report No. 01.13537.01.106; Southwest Research Institute; September 26, 2008.
- 6.2. Manufacturer reports as listed in [Table 1](#).
- 6.3. Manufacturer DrJ Technical Evaluation Reports as listed in [Table 1](#).
- 6.4. UL Certification Directory – Exterior Wall Systems, Evaluation Reports.
- 6.5. Some information contained herein is the result of testing and/or data analysis by other sources, which DrJ relies on to be accurate as it undertakes its engineering analysis.
- 6.6. DrJ has reviewed and found the data provided by other professional sources are credible. This information has been approved in accordance with DrJ's procedure for acceptance of data from approved sources.
- 6.7. DrJ's responsibility for data provided by approved sources is in accordance with professional engineering law.
- 6.8. Where appropriate, DrJ relies on the derivation of design values, which have been codified into law through codes and standards (e.g., *IRC, WFCM, IBC, SDPWS*, etc.). This includes review of code provisions and any

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related test data that helps with comparative analysis or provides support for equivalency to an intended end-use application.

7. Findings:

7.1. When used in accordance with this research report and the manufacturer's installation instructions, the products listed in this report are a suitable alternative to the requirements of [IBC Section 2603.5](#).

7.2. [IBC Section 104.11](#) ([IRC Section R104.11](#) and [IFC Section 104.9](#) 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, provided that any such alternative has been *approved*. An alternative material, design or method of construction shall be *approved* where the *building official* finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, method or work offered is, for the purpose intended, not less than the equivalent of that prescribed in 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 www.continuousinsulation.org. DrJ is a [professional engineering company](#), an [independent approved source](#) and an [ANSI accredited 17065 certification body](#).

9. Conditions of Use:

9.1. Where required by the authority having jurisdiction (AHJ) in which the project is to be constructed, this report and the window manufacturer's installation instructions shall be submitted at the time of permit application.

9.2. The products covered by this research report shall be installed in accordance with this report and the manufacturer's installation instructions.

9.3. Design

9.3.1. Building Designer Responsibility

9.3.1.1. Unless the AHJ allows otherwise, the Construction Documents shall be prepared by a Building Designer for the Building and shall be in accordance with [IRC Section R106](#) and [IBC Section 107](#).

9.3.1.2. The Construction Documents shall be accurate and reliable and shall provide the location, direction and magnitude of all applied loads and shall be in accordance with [IRC Section R301](#) and [IBC Section 1603](#).

9.3.2. Construction Documents

9.3.2.1. Construction Documents shall be submitted to the Building Official for approval and shall contain the plans, specifications and details needed for the Building Official to approve such documents.

9.4. Responsibilities

9.4.1. The information contained herein is a product, engineering or building code compliance research report performed in accordance with the referenced building codes, testing and/or analysis through the use of accepted engineering procedures, experience and good technical judgment.

9.4.2. Product, design and code compliance quality control are the responsibility of the referenced company. Consult the referenced company for the proper detailing and application for the intended purpose. Consult your local jurisdiction or design professional to assure compliance with the local building code.

9.4.3. DrJ research reports provide an assessment of only those attributes specifically addressed in the Products Evaluated or Code Compliance Process Evaluated section.

9.4.4. The engineering evaluation was performed on the dates provided in this research report, within DrJ's professional scope of work.

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- 9.4.5. This product is manufactured under a third-party quality control program in accordance with [/RC Section R104.4](#) and [R109.2](#) and [/BC Section 104.4](#) and [110.4](#).
- 9.4.6. The actual design, suitability and use of this research report for any particular building is the responsibility of the Owner or the Owner's authorized agent, and the report shall be reviewed for code compliance by the Building Official.
- 9.4.7. The use of this research report is dependent on the manufacturer's in-plant QC, the ISO/IEC 17020 third-party inspection process, proper installation per the manufacturer's instructions, the Building Official's inspection and any other code requirements that may apply to assure accurate compliance with the applicable building code.

10. Identification:

- 10.1. The product packaging shall include the company name and address, inspection agency (if applicable), and any applicable report numbers.
 - 10.1.1. Additional technical information and related research reports can be found at the company websites listed on [Page 1](#).

11. Review Schedule:

- 11.1. This research report is subject to periodic review and revision. For the most recent version of this report, visit drjengineering.org.
- 11.2. For information on the current status of this report, contact [DrJ Engineering](#).