DrJ CERTIFICATION

ANSI ACCREDITED
#1131
ISO/IEC 17065
Product Certification Body

Thermo-Sheath Sheathing
for Use as Draft Stops in the *IBC* & *IRC*

TER No. 1303-07

Issue Date: April 12, 2013
Updated: November 14, 2018
Subject to Renewal: January 1, 2020

Fibre Converters, Inc.
One Industrial Drive
P.O. Box 130
Constantine, MI 49042
269-279-1700
fibreconverters.com
sales@fibreconverters.com

Additional Listee:
National Shelter Products, Inc.
50 S.E. Bush Street
Issaquah, Washington 98027
425-557-7968
nationalshelter.com
support@nationalshelter.com

DIVISION: 06 00 00 – WOOD, PLASTICS, AND COMPOSITES
Section: 06 02 00 – Design Information
Section: 06 05 23 – Wood, Plastic, and Composite Fastenings
Section: 06 11 00 – Wood Framing
Section: 06 12 00 – Structural Panels
Section: 06 12 19 – Shear Wall Panels
Section: 06 16 00 – Sheathing

1. Product Lines Evaluated:

1.1. Thermo-Sheath Green Label Structural Sheathing

1.2. Thermo-Sheath Red Label Structural Sheathing

1.3. Thermo-Sheath Black Label Structural Sheathing

1.4. Thermo-Sheath Blue Label Structural Sheathing

1.5. For the most recent version of this Technical Evaluation Report (TER), 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.

DrJ is a Professional Engineering Approved Source

Learn more about DrJ's Accreditation

- DrJ is an ISO/IEC 17065 accredited product certification body through ANSI Accreditation Services.
- DrJ provides certified evaluations that are signed and sealed by a P.E.
- DrJ's work is backed up by professional liability insurance.
- DrJ is fully compliant with *IBC* Section 1703.

1.6. This TER 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 using DrJ's ANSI accreditation.

1.7. 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.

1.8. 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.

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*)

3. Performance Evaluation:

3.1. This TER examines Thermo-Sheath (Red, Black, Blue and Green) Sheathing used as draft stop material based on *IBC* and *IRC* requirements.

3.2. Any code compliance issues not specifically addressed in this section are outside the scope of this evaluation.

4. Product Description and Materials:

4.1. Thermo-Sheath Sheathing panels are composed of multiple laminated plies consisting of highly water-resistant paperboard fibers adhered with a water-resistant adhesive.

4.2. Facings may either be exposed polymer or aluminum foil.

4.2.1. The panels are manufactured in four thicknesses:

4.2.1.1. Thermo-Sheath Green Label Structural Sheathing has a nominal thickness of 0.078" (1.98 mm).

4.2.1.2. Thermo-Sheath Red Label Structural Sheathing has a nominal thickness of 0.105" (2.67 mm).

4.2.1.3. Thermo-Sheath Black Label Structural Sheathing has a nominal thickness of 0.115" (2.92 mm).

4.2.1.4. Thermo-Sheath Blue Label Structural Sheathing has a nominal thickness of 0.137" (3.48 mm).

4.3. Material Availability

4.3.1. Width: Standard 48" and 48¾"; custom widths available upon request.

4.3.2. Length: Standard 96", 108", 120"; custom lengths available upon request.

5. Applications:

5.1. Thermo-Sheath Sheathing is used as an alternate draftstopping material in accordance with *IBC* Section 104.11 and *IRC* Section R104.11.

5.2. Use as an alternate material is based on the following code requirements regarding draft stops.

5.2.1. Definitions (see *IBC* Chapter 2[2] and *IRC* Chapter 2):

> **DRAFT STOP.** A material, device or construction installed to restrict the movement of air within open spaces of concealed areas of building components such as crawl spaces, floor/ceiling assemblies, roof/ceiling assemblies and attics.

5.2.2. Based on the definition, a draft stop is used to restrict the movement of air within open spaces of concealed areas.

---

[1] Unless otherwise noted, all references in this code compliant technical evaluation report (TER) 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 TER is not approved, the building official shall respond in writing, stating the reasons this TER was not approved. For variations in state and local codes, if any see Section 8.

[2] *2009 IBC* Section 702.1

Copyright © 2018

5.2.3. Fastening for draftstopping materials shall be adequate to support the weight of the draftstopping material and to minimize the movement of air. No other prescriptive fastening requirements are provided.

5.2.4. Draftstopping may be required in the following locations in accordance with the code sections referenced.

5.2.4.1. *IBC*

5.2.4.1.1. For continuity at fire partitions between the ceiling and deck above, either fireblocking or draftstopping may be required (*IBC* Section 708.4), but it is not required if sprinklered (Exception 6).

5.2.4.1.2. In floors of structures of combustible construction, draftstopping is required to subdivide floor/ceiling assemblies in prescribed locations, per *IBC* Section 718.3[3].

5.2.4.1.3. In attics of structures of combustible construction, draftstopping is required to subdivide attic spaces and concealed roof spaces in prescribed locations, per *IBC* Section 718.4[4].

5.2.4.2. *IRC*

5.2.4.2.1. In combustible construction where there is usable space both above and below the concealed space of a floor/ceiling assembly, draftstopping is required, per *IRC* Section R302.12[5].

5.2.4.2.2. Above the fire separation wall in two-family buildings, draftstopping is required in the roof/ceiling assembly above the fire separation wall where the ceiling is protected by no less than $^{5}/_{8}$" Type X gypsum board.

5.3. Draft stop material requirements are similar in the *IBC* and *IRC*. However, the *IBC* includes a few more prescribed products:

5.3.1. *IBC* Section 718.3.1[6]:

> **Draftstopping materials.**
> Draftstopping materials shall not be less than 1/2-inch (12.7 mm) gypsum board, 3/8-inch (9.5 mm) wood structural panel, 3/8-inch (9.5 mm) particleboard, 1-inch (25-mm) nominal lumber, cement fiberboard, batts or blankets of mineral wool or glass fiber, or other approved materials adequately supported. The integrity of draftstops shall be maintained.

5.3.2. *IRC* Section R302.12.1:

> **Draftstopping materials.**
> Draftstopping materials shall not be less than 1/2-inch (12.7 mm) gypsum board, 3/8-inch (9.5 mm) wood structural panels or other approved materials adequately supported. Draftstopping shall be installed parallel to the floor framing members unless otherwise approved by the building official. The integrity of the draftstops shall be maintained.

5.4. Thermo-Sheath Sheathing meets the requirements for draft stop materials for the following reasons:

5.4.1. As installed per the manufacturer's instructions, it complies with the code definition with respect to "restricting the movement of air."

5.4.2. As installed per the manufacturer's installation instructions, Thermo-Sheath Sheathing is adequately supported and will remain in place.

5.4.3. Batt or blanket mineral wool or glass fiber only require that they be adequately supported and restrict the movement of air. These products are air-permeable and restrict the passage of air to a lesser degree than Thermo-Sheath Sheathing.

5.4.4. Draft stops are not intended to restrict the passage of heat or flame. The code addresses heat and flame impingement with fire-resistance rated assemblies, thermal barriers and ignition barriers.

6. Installation:

6.1. General

6.1.1. Thermo-Sheath Sheathing shall be installed in accordance with the manufacturer's published installation instructions and this TER. If there are any conflicts between the manufacturer's instructions and this TER, the more restrictive shall govern.

---

[3] *2009 IBC* Section 717.3
[4] *2009 IBC* Section 717.4
[5] *2009 IRC* Section R502.12
[6] *2009 IBC* Section 717.3.1

Copyright © 2018

6.1.2. A copy of the manufacturer's published installation instructions shall be available at all times on the jobsite during installation.

6.1.3. Installation shall comply with the manufacturer's installation instructions and this TER. In the event of a conflict between the manufacturer's installation instructions and this TER, the more restrictive shall govern.

6.2. Orientation

6.2.1. Thermo-Sheath Sheathing is permitted to be installed in the vertical or horizontal orientation on framing with all joints backed by studs, plates or blocks. For joints not backed by studs, plates or blocks, the joint shall be taped to ensure impedance of air movement.

6.3. Fastener Spacing and Edge Distance

6.3.1. Fastener edge distance is a minimum of $^{3}/_{8}$" (9.5 mm).

6.3.2. Always fasten staples parallel to the framing member.

6.3.3. Fasteners shall be spaced to ensure adequate support of Thermo-Sheath Sheathing to remain in place.

6.4. Treatment of Joints

6.4.1. Sheathing joints may be either butted or overlapped.

6.4.2. Lapped joints shall be overlapped by at least $^{3}/_{4}$" (19 mm) and fastened with a single row of fasteners.

6.4.3. Butt joints shall be placed over framing members and fastened with a single row of fasteners at each panel edge and shall be installed with a small gap ($^{1}/_{16}$" to $^{1}/_{8}$") between panels.

7. Test and Engineering Substantiating Data:

7.1. The product(s) evaluated by this TER fall within the scope of one or more of the model, state or local building codes for building construction. The testing and/or substantiating data used in this TER is limited to buildings, structures, building elements, construction materials and civil engineering related specifically to buildings.

7.2. The provisions of model, state or local building codes for building construction do not intend to prevent the installation of any material or to prohibit any design or method of construction. Alternatives shall use consensus standards, performance-based design methods or other engineering mechanics based means of compliance. This TER assesses compliance with defined standards, accepted engineering analysis, performance-based design methods, etc. in the context of the pertinent building code requirements.

7.3. 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.

7.4. DrJ has reviewed and found the data provided by other professional sources are credible. The information in this TER conforms with DrJ's procedure for acceptance of data from approved sources.

7.5. DrJ's responsibility for data provided by approved sources conforms with *IBC* Section 1703 and any relevant professional engineering law.

7.6. 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, NDS, ACI, AISI, PS-20, PS-2*, etc.). This includes review of code provisions and any related test data that aids in comparative analysis or provides support for equivalency to an intended end-use application. Where the accuracy of design values provided herein is reliant upon the published properties of commodity materials (e.g. lumber, steel, concrete, etc), DrJ relies upon grade/properties provided by the raw material supplier to be accurate and conforming to the mechanical properties defined in the relevant material standard.

8. Findings:

8.1. Thermo-Sheath (Green, Red, Black and Blue) Sheathing is approved for use as an alternative draftstopping material when installed in accordance with the manufacturer's installation instructions and this TER.

8.2. *IBC* Section 104.11 and *IRC* Section R104.11 (*IFC* Section 104.9 is similar) state:

> **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

Copyright © 2018

> 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*.

8.3. This product has been evaluated with 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 that are applicable to this evaluation, they are listed here:

8.3.1. No known variations

8.4. This TER uses professional engineering law, the building code, ANSI/ASTM consensus standards and generally accepted engineering practice as its criteria for all testing and engineering analysis. DrJ's professional engineering work falls under the jurisdiction of each state Board of Professional Engineers, when signed and sealed.

9. Conditions for Use:

9.1. Where required by the authority having jurisdiction (AHJ) in which the project is to be constructed, this report 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 TER shall be submitted to the code official 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.

9.4. Thermo-Sheath Sheathing shall be installed in accordance with:

9.4.1. The manufacturer's installation instructions.

9.4.2. The applicable building code.

9.4.3. This TER.

9.4.4. The sheathing materials are manufactured in Constantine, Michigan, under a quality control program with quality control inspections in accordance with *IRC* Section R109 and *IBC* Section 110.

9.5. Design

9.5.1. Building Designer Responsibility

9.5.1.1. 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.

9.5.1.2. 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.

9.5.2. Construction Documents

9.5.2.1. 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.

9.6. Responsibilities

9.6.1. The information contained herein is a product, material, detail, design and/or application TER evaluated in accordance with the referenced building codes, testing and/or analysis through the use of accepted engineering practice, experience and technical judgment.

9.6.2. DrJ TERs provide an assessment of only those attributes specifically addressed in the Products Evaluated or Code Compliance Process Evaluated sections.

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

9.6.4. This product is manufactured under a third-party quality control program in accordance with *IRC* Section R104.4 and R109.2 and *IBC* Section 104.4 and 110.4.

Copyright © 2018

9.6.5. The actual design, suitability and use of this TER, for any particular building, is the responsibility of the Owner or the Owner's authorized agent, and the TER shall be reviewed for code compliance by the Building Official.

9.6.6. The use of this TER is dependent on the manufacturer's in-plant QC, the ISO/IEC 17020 third-party quality assurance program and procedures, proper installation per the manufacturer's instructions, the Building Official's inspection and any other code requirements that may apply to demonstrate and verify compliance with the applicable building code.

10. Identification:

10.1. Each Thermo-Sheath Sheathing panel described in this TER is identified by a label on the board or packaging material bearing the manufacturer's name, product name, TER number, and other information to confirm code compliance.

10.2. Additional technical information can be found at fibreconverters.com.

11. Review Schedule:

11.1. This TER is subject to periodic review and revision. For the most recent version of this TER, visit drjengineering.org.

11.2. For information on the current status of this report, contact DrJ Engineering.

- Mission and Professional Responsibilities
- Product Evaluation Policies
- Product Approval – Building Code, Administrative Law and P.E. Law

Copyright © 2018