



Approved. Sealed. Code Compliant.

Technical Evaluation Report

TER 1207-01

Rmax® Thermasheath®-SI

Rmax®

Product:

**Thermasheath®-SI &
Thermasheath®**

Issue Date:

July 31, 2012

Revision Date:

April 1, 2020

Subject to Renewal:

April 1, 2021





COMPANY
INFORMATION:

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DIVISION: 06 00 00 - WOOD, PLASTICS AND COMPOSITES

SECTION: 06 12 00 - Structural Panels

SECTION: 06 12 19 - Shear Wall Panels

SECTION: 06 16 00 - Sheathing

DIVISION: 07 00 00 - THERMAL AND MOISTURE PROTECTION

SECTION: 07 21 00 - Thermal Insulation

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

1 PRODUCT EVALUATED¹

1.1 Thermasheath®-SI & Thermasheath®

2 APPLICABLE CODES AND STANDARDS^{2,3}

2.1 Codes

2.1.1 *IBC—12, 15, 18: International Building Code®*

2.1.2 *IRC—12, 15, 18: International Residential Code®*

2.1.3 *IECC— 12, 15, 18: International Energy Conservation Code®*

2.1.4 *CBC—10, 13, 16: California Building Code*

2.1.5 *FBC— 14, 17: Florida Building Code*

¹ Building codes require data from valid [research reports](#) be obtained from [approved sources](#). Agencies who are accredited through ISO/IEC 17065 have met the [code requirements](#) for approval by the [building official](#). DrJ is an ISO/IEC 17065 ANAB-Accredited Product Certification Body – Accreditation #1131.

Through ANAB accreditation and the [IAF MLA](#), DrJ certification can be used to obtain product approval in any [jurisdiction](#) or country that has [IAF MLA Members & Signatories](#) to meet the [Purpose of the MLA](#) – “certified once, accepted everywhere.”

Building official approval of a licensed [registered design professional](#) (RDP) is performed by verifying the RDP and/or their business entity complies with all professional engineering laws of the relevant [jurisdiction](#). Therefore, the work of licensed RDPs is accepted by [building officials](#), except when plan (i.e. peer) review finds an error with respect to a specific section of the code. Where this TER is not approved, the [building official](#) responds in writing stating the reasons for [disapproval](#).

For more information on any of these topics or our mission, product evaluation policies, product approval process, and engineering law, visit drjcertification.org or call us at 608-310-6748.

² Unless otherwise noted, all references in this TER are from the 2018 version of the codes and the standards referenced therein (e.g., *ASCE 7*, *NDS*, *ASTM*). This material, design, or method of construction also complies with the 2000-2015 versions of the referenced codes and the standards referenced therein.

³ All terms defined in the applicable building codes are italicized.



2.2 Standards and Referenced Documents

- 2.2.1 *ANSI/AWC NDS: National Design Specification (NDS) for Wood Construction*
- 2.2.2 *ASCE/SEI 7: Minimum Design Loads and Associated Criteria for Buildings and Other Structures*
- 2.2.3 *ASTM C1289: Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board*
- 2.2.4 *ASTM C209: Standard Test Methods for Cellulosic Fiber Insulating Board*
- 2.2.5 *ASTM C518: Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus*
- 2.2.6 *ASTM E2126: Standard Test Methods for Cyclic (Reversed) Load Test for Shear Resistance of Vertical Elements of the Lateral Force Resisting Systems for Buildings*
- 2.2.7 *ASTM E2178: Standard Test Method for Air Permeance of Building Materials*
- 2.2.8 *ASTM E330: Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference*
- 2.2.9 *ASTM E564: Standard Practice for Static Load Test for Shear Resistance of Framed Walls for Buildings*
- 2.2.10 *ASTM E72: Standard Test Methods for Conducting Strength Tests of Panels for Building Construction*
- 2.2.11 *ASTM E84: Standard Test Method for Surface Burning Characteristics of Building Materials*
- 2.2.12 *ASTM E96: Standard Test Methods for Water Vapor Transmission of Materials*
- 2.2.13 *UL 263: Standard for Fire Test of Building Construction and Materials*

3 PERFORMANCE EVALUATION

3.1 Thermasheath®-SI was evaluated to determine:

- 3.1.1 Structural performance under lateral load conditions (wind and seismic) for use as an alternative to the *IRC* Intermittent Wall Bracing provisions of [IRC Section R602.10](#), method WSP, and the *IRC* Continuous Wall Bracing provisions of [IRC Section R602.10.4](#), method CS-WSP (Continuous Sheathed Wood Structural Panel) and CS-PF (Continuous Sheathed Portal Frame).
- 3.1.2 Structural performance under lateral load conditions for use as an alternative to the *IBC* Conventional Wall Bracing provisions, [Section 2308.6](#)⁴, *WSP Wood Structural Panel (Method 3)*, for Type V construction.
- 3.1.3 Structural performance under lateral load conditions for both wind and seismic loading for use with the *IBC* performance-based provisions, [Section 2306.1](#) and [Section 2306.3](#) for light-frame wood wall assemblies.
 - 3.1.3.1 Table 5 provides seismic design coefficients (SDC) that conform to the requirements in *ASCE 7* Section 12.2.1 and Table 12.2-1 for design of wall assemblies in buildings that require seismic design in accordance with *ASCE 7* (i.e., all Seismic Design Categories).
 - 3.1.3.2 The basis for equivalency testing is outlined in Section 12.2.1.1 of *ASCE 7*:

Alternative Structural Systems. Use of seismic force-resisting systems not contains in Table 12.2-1 shall be permitted contingent on submittal to and approved by the Authority Having Jurisdiction and independent structural design review of an accompanying set of design criteria and substantiating analytical and test data. The design criteria shall specify any limitations on system use, including Seismic Design Category and height; required procedures for designing the system's components and connections; required detailing; and the values of the response modification coefficient, R ; overstrength factor, Ω_o ; and deflection amplification factor, C_d .

⁴ [2012 IBC Section 2308.3](#)

- 3.1.3.2.1 The SDC evaluation uses the approach found in documentation entitled “Establishing Seismic Equivalency for Proprietary Prefabricated Shear Panels”⁵ using code-defined accepted engineering procedures, experience and technical judgment.
- 3.1.4 Resistance to uplift loads for wall assemblies used in light-frame wood construction in accordance with IBC Section 1604.8.1, 2304.10.7, and 2308.7.5 and IRC Section R602.3.5.
- 3.1.5 Resistance to transverse loads for wall assemblies used in light-frame wood construction in accordance with IBC Section 1609.1.1 and IRC Section R301.2.1.
- 3.1.6 Structural performance under lateral load conditions for use as an alternative to *SDPWS* Section 4.3 Wood-Frame Shear Walls.
- 3.1.7 Performance of the foam plastic component of Thermasheath®-SI for conformance to IBC Section 2603 and IRC Section R316.
- 3.1.8 Performance for use as insulating sheathing in accordance with IRC Section N1102.1 and N1102.2 and IECC Section R402.
- 3.1.9 Performance for use as a water-resistive barrier (WRB) in accordance with IBC Section 1403.2⁶ and IRC Section R703.2.
- 3.1.10 Performance for use as an air barrier in accordance with IRC Section N1102.4 and IECC Section R402.
- 3.1.11 Performance for use without a thermal barrier in accordance with IBC Section 2603.4.1.6 and IRC Section R316.5.3 and R316.5.4.
- 3.1.12 Performance for use in a fire resistance rated assembly in accordance with IBC Section 2603.5.1.
- 3.2 Thermasheath® was evaluated to determine its performance for use as non-structural in-fill on those portions of a wall assembly not otherwise designed as part of a braced wall panel or shear wall.
- 3.3 Thermasheath® was evaluated to determine its performance for use in a fire resistance rated assembly in accordance with IBC Section 2603.5.1.
- 3.4 Use of Thermasheath®-SI in a PFH portal frame is outside the scope of this TER.
- 3.5 Use of Thermasheath® in applications where the exterior wall covering is unable to resist 100% of the transverse wind load is outside the scope of this TER.
- 3.6 Any code compliance issues not specifically addressed in this section are outside the scope of this TER.
- 3.7 Any engineering evaluation conducted for this TER was performed on the dates provided in this TER and within DrJ's professional scope of work.

⁵ Nelson, Ronald F. *STRUCTURE Magazine*. 2008.

⁶ 2015 *IBC* Section 1404.2

4 PRODUCT DESCRIPTION AND MATERIALS

4.1 The products evaluated in this TER are shown in Figure 1.

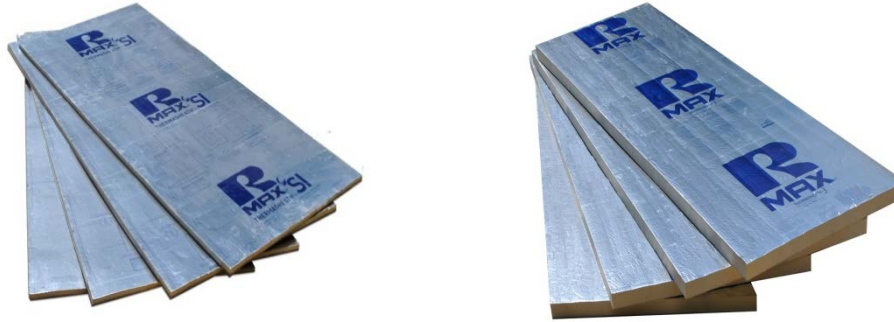


FIGURE 1. THERMASHEATH®-SI (LEFT) AND THERMASHEATH® (RIGHT)

4.2 Thermasheath®-SI is wall sheathing consisting of a fibrous sheathing board layer adhered to a proprietary foam plastic insulating sheathing (FPIS).

4.2.1 The proprietary fibrous sheathing board is a laminated board made of fibered, specially treated plies that are pressure-laminated with a water resistant adhesive. The surface finish consists of a facer on one or both sides.

4.2.2 The FPIS layer consists of a proprietary insulation board with a closed-cell rigid polyisocyanurate foam core and kraft reinforced aluminum facers on both sides. The FPIS layer complies with *ASTM C1289* Type I, Class 1 and Class 2.

4.2.3 *Material Availability:*

4.2.3.1 Thickness: ½" (12 mm) through 1" (25 mm).

4.2.3.2 Standard product width: 48" (1219 mm).

4.2.3.3 Standard lengths: 96", 108", and 120" (2438 mm, 2743 mm, and 3048 mm).

4.3 Thermasheath® is a non-structural FPIS panel consisting of a closed-cell rigid polyisocyanurate (polyiso) foam core bonded to reinforced aluminum facers on each side.

4.3.1 The foam complies with *ASTM C1289* Type I, Class 1 and Class 2.

4.3.2 Facers consist of 0.25 mil aluminum with kraft reinforcement.

4.3.3 *Material Availability:*

4.3.3.1 Thickness: ½" (12.7 mm) through 4.5" (114.3 mm).

4.3.3.2 Standard product width: 48" (1219 mm).

4.3.3.3 Standard lengths: 96", 108", and 120" (2438 mm, 2743 mm, and 3048 mm).

4.3.4 For a more comprehensive evaluation of Thermasheath®, see [TER No. 1309-03](#).

5 APPLICATIONS

5.1 *General*

5.1.1 Thermasheath®-SI and Thermasheath® are used as wall sheathing in buildings constructed in accordance with the *IBC* and *IRC*.

5.1.2 Thermasheath®-SI is used as insulating structural wall sheathing to provide lateral load resistance (wind and seismic) for braced wall panels and shear walls used in wood construction.

5.1.3 Thermasheath® is used as insulating sheathing applied as in-fill to portions of walls that are not designed as braced wall panels or shear walls.

- 5.1.4 Thermasheath®-SI is used as structural wall sheathing to provide resistance to transverse loads for wall assemblies used in wood construction.
 - 5.1.5 Thermasheath®-SI is used as structural wall sheathing to provide resistance to uplift loads for wall assemblies used in wood construction.
 - 5.1.6 Thermasheath®-SI and Thermasheath® contain foam plastics complying with IBC Section 2603 and IRC Section R316.
 - 5.1.7 When Thermasheath®-SI and Thermasheath® are installed with R-SEAL 3000 or R-SEAL Construction Tape on sheathing seams, they are an approved WRB in accordance with IBC Section 1403.2⁷ and IRC Section R703.2. See the manufacturer's product information for further details.
 - 5.1.7.1 Where the Thermasheath®-SI and Thermasheath® joints are not taped, a separate WRB shall be installed in accordance with the WRB manufacturer's installation instructions.
 - 5.1.8 Walls constructed with Thermasheath®-SI and Thermasheath® are used to meet air barrier requirements in accordance with IRC Section N1102.4 and IECC Section R402 when all seams are taped, including the top and bottom of the walls in accordance with the manufacturer's installation instructions and this TER.
 - 5.1.9 Where the application exceeds the limitations set forth herein, design shall be permitted in accordance with accepted engineering procedures, experience, and technical judgment.
- 5.2 *Structural Applications*
- 5.2.1 *General Provisions:*
 - 5.2.1.1 Except as otherwise described in this TER, Thermasheath®-SI shall be installed in accordance with the applicable building codes listed in Section 2 using the provisions set forth therein for the design and installation of wood structural panels (WSP).
 - 5.2.1.1.1 Thermasheath®-SI is permitted to be designed in accordance with *SDPWS* for the design of shear walls using the methods set forth therein, including the perforated shear wall methodology, and subject to the *SDPWS* boundary conditions, except as specifically allowed in this TER.
 - 5.2.1.2 Anchorage for in-plane shear shall be provided to transfer the induced shear force into and out of each shear wall.
 - 5.2.1.2.1 For wind design, anchor bolt spacing shall not exceed 6' o.c.
 - 5.2.1.2.2 For seismic design, anchor bolt spacing shall not exceed 4' o.c.
 - 5.2.1.3 The maximum aspect ratio for Thermasheath®-SI shall be 4:1.
 - 5.2.1.4 The minimum full height panel width shall be 24".
 - 5.2.1.5 All panel edges shall be blocked with a minimum 2" nominal lumber.
 - 5.2.1.6 Thermasheath®-SI shall be installed with one of the following:
 - 5.2.1.6.1 Staples shall be a minimum 16 gauge, ½" crown and penetrate a minimum of 1" into the stud.
 - 5.2.1.6.2 Nails shall be minimum 0.113" x 2¾" and penetrate a minimum of 1¼" into the stud.
 - 5.2.1.7 Fasteners may be countersunk beneath the surface of the foam plastic sheathing.
 - 5.2.1.8 Installation is permitted for single top plate (advanced framing method) or double top plate applications.
 - 5.2.1.9 Where Thermasheath®-SI is installed with ½" gypsum wallboard on the interior side of the wall, the gypsum sheathing shall be applied to the interior side of the wall assembly and fastened with a minimum 5d cooler nails or 1¼" #6 types W or S screws.
 - 5.2.1.10 Where the application exceeds the limitations set forth herein, design shall be permitted in accordance with code-defined accepted engineering procedures, experience, and good technical judgment.

⁷ 2015 IBC Section 1404.2



5.2.2 Prescriptive IRC Bracing Applications

- 5.2.2.1 Thermasheath®-SI may be used on braced wall lines as an equivalent alternative to Method WSP of the IRC, when installed in accordance with [IRC Section R602.10](#) and this TER.
- 5.2.2.2 For wind design, required braced wall panel lengths for Thermasheath®-SI shall be as shown in Table 1 and shall be used in conjunction with [IRC Table R602.10.3\(2\)](#) which provides the required adjustments.
- 5.2.2.3 For seismic design, required braced wall panel lengths for Thermasheath®-SI shall be as shown in Table 2, and shall be used in conjunction with [IRC Table R602.10.3\(4\)](#) which provides the required adjustments.
- 5.2.2.4 Thermasheath®-SI may be used to brace walls of buildings as an alternative to the *IRC* Continuous Wall Bracing provisions, [Section R602.10.4](#) (CS-WSP), in accordance with the bracing amounts shown in Table 1 of this TER, as adjusted in accordance with [IRC Table R602.10.3\(2\)](#).
- 5.2.2.5 Use of Thermasheath®-SI with Method CS-PF is also permitted, in lieu of WSP specified in accordance with [IRC Section R602.10.6.4](#).
- 5.2.2.6 Where a building, or portion thereof, does not comply with one or more of the bracing requirements within the prescriptive section of the *IRC*, those portions shall be designed and constructed in accordance with [IRC Section R301.1](#).

TABLE 1. REQUIRED BRACING LENGTHS FOR THERMASHEATH®-SI INSTALLED WITH ½" GYPSUM WALLBOARD @ 16" O.C. STUD SPACING (2X4 OR 2X6 STUDS) – WIND^{1,2,3,4,5}

Condition	Braced Wall Line Spacing (ft)	Intermittent Sheathing					Continuous Sheathing				
		Staples 3" o.c. Edges & 6" o.c. in the Field					Staples 3" o.c. Edges & 6" o.c. in the Field				
		Length of Wall to be Braced (ft)					Length of Wall Line to be Braced (ft)				
		≤ 110 mph	≤ 115 mph	≤ 120 mph	≤ 130 mph	≤ 140 mph	≤ 110 mph	≤ 115 mph	≤ 120 mph	≤ 130 mph	≤ 140 mph
One Story OR the Top of Two or Three Stories	10	1.8	1.8	2.2	2.2	2.7	1.3	1.8	1.8	2.2	2.2
	20	3.1	3.1	3.6	4.5	4.9	2.7	3.1	3.1	3.6	4.5
	30	4.5	4.9	5.3	6.2	7.1	4.0	4.0	4.5	5.3	6.2
	40	5.8	6.2	7.1	8.0	9.3	4.9	5.3	5.8	6.7	8.0
	50	7.1	8.0	8.5	9.8	11.6	6.2	6.7	7.1	8.5	9.8
	60	8.5	9.3	10.2	11.6	13.4	7.1	8.0	8.5	9.8	11.6
First Story of Two Stories OR Second Story of Three Stories	10	3.1	3.6	4.0	4.5	5.3	2.7	3.1	3.1	4.0	4.5
	20	5.8	6.7	7.1	8.5	9.8	4.9	5.8	6.2	7.1	8.0
	30	8.5	9.3	10.2	12.0	13.8	7.1	8.0	8.5	10.2	11.6
	40	11.1	12.0	13.4	15.6	17.8	9.3	10.2	11.1	13.4	15.1
	50	13.8	14.7	16.0	19.1	21.8	11.6	12.5	13.8	16.0	18.7
	60	16.0	17.8	19.1	22.3	25.8	13.8	15.1	16.5	19.1	22.3
First Story of Three Stories	10	4.9	5.3	5.8	6.7	7.6	4.0	4.5	4.9	5.8	6.7
	20	8.9	9.8	10.2	12.0	14.2	7.6	8.0	8.9	10.2	12.0
	30	12.5	13.8	15.1	17.4	20.5	10.7	11.6	12.9	15.1	17.4
	40	16.5	17.8	19.6	22.7	26.3	13.8	15.1	16.5	19.6	22.3
	50	20.0	21.8	24.0	28.0	32.5	16.9	18.7	20.5	23.6	27.6
	60	23.6	25.8	28.5	33.4	38.3	20.5	22.3	24.0	28.0	32.5

SI: 1 in = 25.4 mm, 1 mph = 1.61 km/h

1. Demonstrates equivalency to *IRC Table R602.10.3(1)*. All adjustment factors from *IRC Table R602.10.3(2)* shall be applied. Except when used with method CS-PF, a minimum of ½" gypsum sheathing shall be applied to the interior side of the wall assembly and fastened with a minimum 5d cooler nails or 1¼" #6 types W or S screws spaced 8" o.c. at panel edges and 8" o.c. in the field of the panels
2. Where gypsum wallboard is not applied to the interior side of the wall assembly, bracing lengths shall be multiplied by a factor of 1.8.
3. Where studs are spaced 24" o.c., bracing lengths shall be multiplied by a factor of 1.1.
4. The addition of gypsum wallboard to Thermasheath®-SI wall assemblies provides a benefit greater than the SDPWS additive method for wood structural panels.
5. Bracing lengths are the results of comparative equivalency testing and analysis using both tested and published design values as points of comparison. DrJ relies upon the design values published in the codes and standards listed in Section 2 that are adopted into law and that the manufacturers of those products stand behind. DrJ performs all equivalency analysis based on legally defined design values, the responsibility for which is the manufacturer of those products or the members of the associations that publish those design values.



TABLE 2. REQUIRED BRACING LENGTHS FOR THERMASHEATH®-SI WITH ½" GYPSUM WALLBOARD @ 16" O.C. STUD SPACING (2X4 OR 2X6 STUDS) – SEISMIC^{1,2,3,4,5,6}

Condition	Braced Wall Line Length (ft)	Intermittent Sheathing				Continuous Sheathing			
		Staples 3" o.c. Edges & 6" o.c. in the Field				Staples 3" o.c. Edges & 6" o.c. in the Field			
		Minimum Length of Braced Wall Panels Required Along Each Braced Wall Line (ft)				Minimum Length of Braced Wall Panels Required Along Each Braced Wall Line (ft)			
		SDC C (townhouses only)	SDC D ₀	SDC D ₁	SDC D ₂	SDC C (townhouses only)	SDC D ₀	SDC D ₁	SDC D ₂
One Story OR the Top of Two or Three Stories	10	1.5	1.6	1.8	2.2	1.3	1.5	1.5	1.9
	20	2.8	3.2	3.6	4.5	2.4	2.7	3.0	3.8
	30	4.3	4.8	5.3	6.7	3.7	4.1	4.5	5.7
	40	5.7	6.4	7.1	8.9	4.8	5.5	6.1	7.5
	50	7.1	8.0	8.9	11.1	6.1	6.8	7.5	9.4
First Story of Two Stories OR Second Story of Three Stories	10	2.7	3.4	4.0	4.9	2.3	2.8	3.4	4.2
	20	5.3	6.7	8.0	9.7	4.5	5.7	6.8	8.4
	30	8.0	10.1	12.0	14.7	6.8	8.5	10.2	12.5
	40	10.7	13.3	16.0	19.6	9.1	11.4	13.6	16.6
	50	13.3	16.7	20.0	24.5	11.4	14.3	17.0	20.8
First Story of Three Stories	10	4.0	4.7	5.3	NP	3.4	4.0	4.5	NP
	20	8.0	9.3	10.7	NP	6.8	8.0	9.1	NP
	30	12.0	14.0	16.0	NP	10.2	12.0	13.6	NP
	40	16.0	18.7	21.4	NP	13.6	15.9	18.1	NP
	50	20.0	23.4	26.7	NP	17.0	19.8	22.7	NP

SI: 1 in = 25.4 mm

- Demonstrates equivalency to *IRC Table R602.10.3(3)*. All adjustment factors from *IRC Table R602.10.3(4)* shall be applied. Except when used with method CS-PF, a minimum of ½" gypsum sheathing shall be applied to the interior side of the wall assembly and fastened with a minimum 5d cooler nails or ¼" #6 types W or S screws spaced 8" o.c. at panel edges and 8" o.c. in the field of the panels.
- Tabulated bracing lengths are based on the following:
 - Soil Class D
 - Wall height = 10'
 - 10 psf floor dead load
 - 15 psf roof/ceiling dead load
 - Braced wall line spacing ≤ 25'
- Linear interpolation is permitted.
- Where gypsum wallboard is not applied to the interior side of the wall assembly, bracing lengths shall be multiplied by a factor of 1.8.
- The addition of gypsum wallboard to Thermasheath®-SI wall assemblies provides a benefit greater than the *SDPWS* additive method for wood structural panels.
- Bracing lengths are the results of comparative equivalency testing and analysis using both tested and published design values as points of comparison. DrJ relies upon the design values published in the codes and standards listed in Section 2 that are adopted into law and that the manufacturers of those products stand behind. DrJ performs all equivalency analysis based on legally defined design values, the responsibility for which is the manufacturer of those products or the members of the associations that publish those design values.



5.2.3 *Thermasheath®-SI CS-PF Portal Frame:*

- 5.2.3.1 A “Thermasheath®-SI CS-PF” was tested and evaluated for equivalency to the *IRC Method CS-PF* in accordance with *IRC Section R602.10.6.4* and *Table R602.10.5*.
- 5.2.3.2 *IRC Table R602.10.5* establishes the contributing length bracing of the CS-PF as equivalent to its actual length and that it contributes this length of bracing to that required by method CS-WSP.
- 5.2.3.3 The capacity of the Thermasheath®-SI CS-PF exceeds the capacity of the *IRC Method CS-WSP* and is therefore permitted to be substituted for an equivalent length of bracing.
- 5.2.3.4 The Thermasheath®-SI CS-PF is shown in Figure 2 through Figure 5:

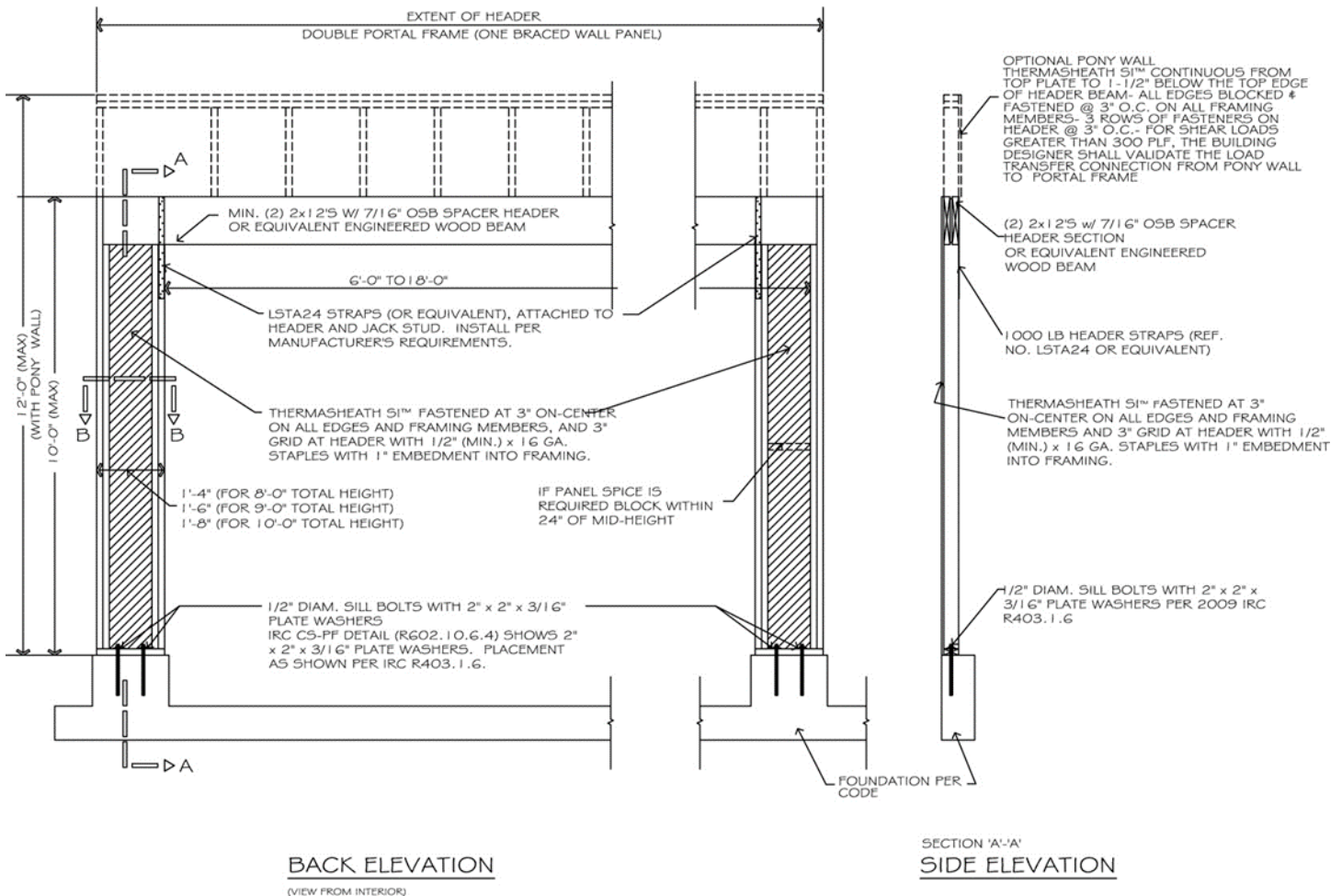
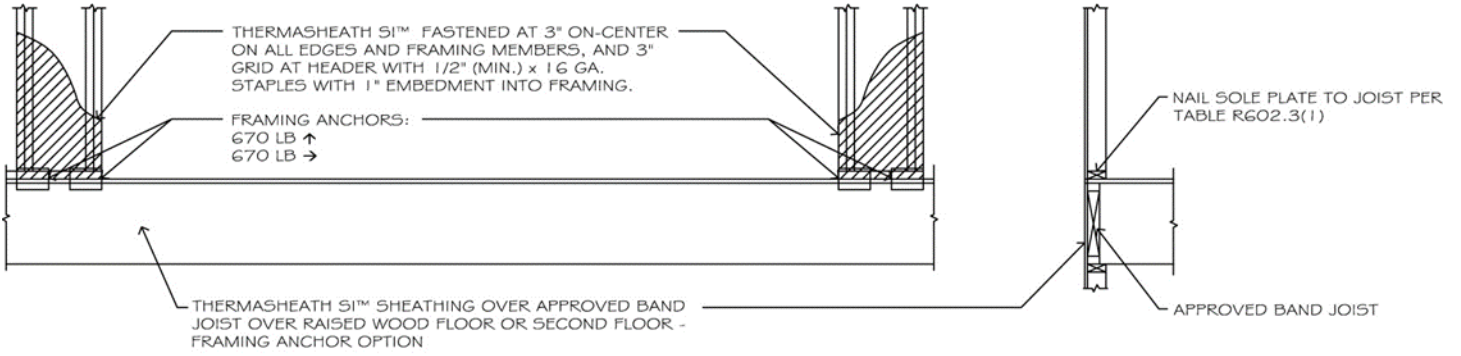


FIGURE 2. THERMASHEATH®-SI CS-PF BACK ELEVATION

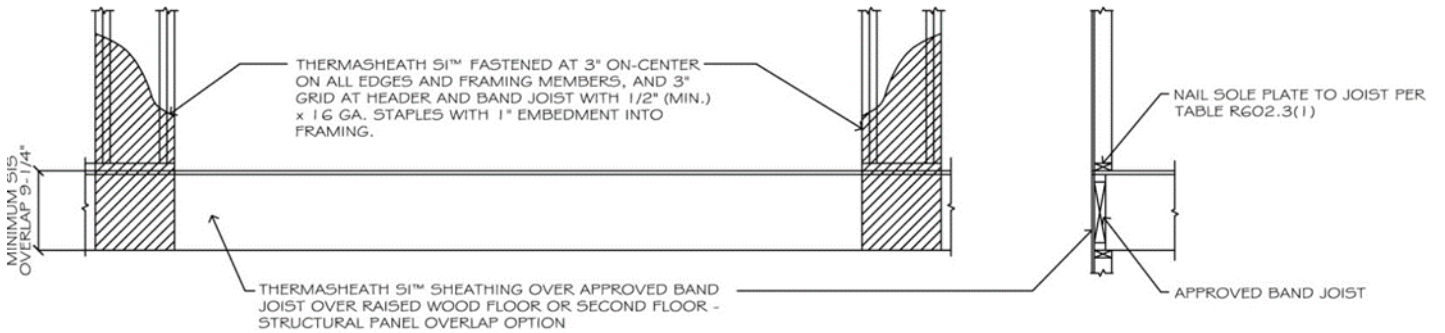


FRONT ELEVATION

(VIEW FROM EXTERIOR)

SECTION 'A'-'A'
SIDE ELEVATION

FIGURE 3. THERMASHEATH®-SI CS-PF FRONT ELEVATION 1

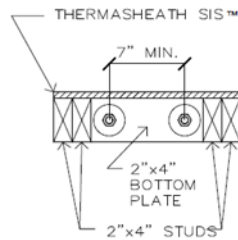


FRONT ELEVATION

(VIEW FROM EXTERIOR)

SECTION 'A'-'A'
SIDE ELEVATION

FIGURE 4. THERMASHEATH®-SI CS-PF FRONT ELEVATION 2



SECTION
'B'-'B'

FIGURE 5. THERMASHEATH®-SI CS-PF SECTION B-B

5.2.4 Alternative Prescriptive IRC Bracing Applications:

5.2.4.1 As an alternative to Section 5.2.2, the following provisions are permitted:

- 5.2.4.1.1 Thermasheath®-SI may be used on braced wall lines as an equivalent alternative to Method WSP of the *IRC*, when installed in accordance with *IRC Section R602.10* and this TER.
- 5.2.4.1.2 Thermasheath®-SI may be used to brace walls of buildings as an alternative to the Continuous Wall Bracing provisions of *IRC Section R602.10.4*.
- 5.2.4.1.3 Required braced wall panel lengths for Thermasheath®-SI shall be as determined by the equivalency factor shown in Table 3 and *IRC Table R602.10.3(1)* and *R602.10.3(3)*, including all footnotes.
 - 5.2.4.1.3.1 Bracing lengths in these tables for Method WSP or CS-WSP shall be multiplied by the equivalency factor listed in Table 3.

TABLE 3. THERMASHEATH®-SI BRACED WALL LINE LENGTH EQUIVALENCY FACTORS BASED ON EQUIVALENCY TESTING FOR USE WITH THE *IRC*

Thermasheath®-SI Wall Bracing Factors per Comparative Equivalency Testing for <i>IRC</i> Prescriptive Wall Bracing Applications	Fastener	Fastener Spacing	Wind
			SPF Framing
			Thermasheath®-SI Tested Equivalency Factors to <i>IRC</i> WSP or CS-WSP
Thermasheath®-SI	Minimum ½" crown x 1¼" leg staples ¹	3:6	0.89
	0.113" dia. Nails	3:6	1.02

SI: 1 in = 25.4 mm

1. Staples shall be a minimum 16 gauge, ½" crown and penetrate a minimum of 1" into the stud. 1" x 1¼" crown staples are permitted with no change to equivalency factor.
2. Nails shall penetrate a minimum of 1¼" into the stud.
3. Fasteners may be countersunk beneath the surface of the foam plastic sheathing.
4. Multiply the bracing lengths in *IRC Table R602.10.1.2 (1)* and *R602.10.1.2 (2)* Method WSP or CS-WSP (continuous sheathing) as applicable, including all footnotes, by the factors shown here to establish the required bracing length.
5. Where gypsum wallboard is not applied to the interior side of the wall assembly, bracing lengths shall be multiplied by a factor of 1.8.
6. Where studs are spaced 24" o.c., bracing lengths shall be multiplied by a factor of 1.1.
7. Valid for single top plate (advanced framing method) wall installations or double top plate wall installations.
8. Equivalency factors are the results of comparative equivalency testing and analysis using both tested and published design values as points of comparison. DrJ relies upon the design values published in the codes and standards listed in Section 2 that are adopted into law and that the manufacturers of those products stand behind. DrJ performs all equivalency analysis based on legally defined design values, the responsibility for which is the manufacturer of those products or the members of the associations that publish those design values.

5.2.4.1.3.2 These braced wall line length equivalency factors are based on equivalency testing and are used to comply with Method WSP and CS-WSP of the *IRC*.

5.2.4.1.3.3 Thermasheath®-SI tested equivalency factors in Table 3 allow the user to determine the length of bracing required, by multiplying the factor from Table 3 by the length shown in the WSP or CS-WSP columns in *IRC Table R602.10.3(1 and 3)* as modified by all applicable factors in *Tables R602.10.3(2 and 4)* respectively.

5.2.4.1.4 All *IRC* prescriptive bracing minimums, spacing requirements, and rules must still be met.

5.2.5 Prescriptive IBC Conventional Light-Frame Wood Construction:

5.2.5.1 Thermasheath®-SI may be used to brace exterior walls of buildings as an equivalent alternative to the WSP method of the *IBC* when installed with ½" gypsum in accordance with the conventional light-frame construction method of *IBC Section 2308.6⁸* and this TER.

⁸ 2012 *IBC* Section 2308.3

5.2.6 Performance-Based Wood-Framed Construction:

- 5.2.6.1 Thermasheath®-SI panels used in wall assemblies designed as shear walls are permitted to be designed in accordance with the methodology used in *SDPWS* for WSP using the capacities shown in Table 4 through Table 6.
- 5.2.6.2 Thermasheath®-SI panel shear walls are permitted to resist horizontal wind load forces using the allowable shear loads (in pounds per linear foot) set forth in Table 4.
- 5.2.6.3 Thermasheath®-SI shear walls that require seismic design in accordance with IBC Section 1613 shall use the seismic allowable unit shear capacities set forth in Table 5.
 - 5.2.6.3.1 The response modification coefficient, R, system overstrength factor, Ω_0 , and deflection amplification factor, C_d , indicated in Table 5 shall be used to determine the base shear, element design forces, and design story drift in accordance with *ASCE 7* Chapter 12 and Section 14.5.
- 5.2.6.4 Thermasheath®-SI panels are permitted to resist transverse wind load forces using the allowable transverse loads (in pounds per linear foot) set forth in Table 6.
- 5.2.6.5 Thermasheath®-SI panels are permitted to resist uplift wind load forces using the allowable uplift loads (in pounds per linear foot) set forth in Table 8.

TABLE 4. THERMASHEATH®-SI ALLOWABLE STRENGTH DESIGN (ASD) CAPACITY – WIND

Product	Maximum Stud Spacing (in)	Fastener Type & Size (minimum)	Gypsum Wallboard (GWB)	Gypsum Wallboard Fastener Spacing (edge/field)	ASD (plf)
Thermasheath®-SI	16 o.c.	½" x 1¼" crown staples ¹	½" GWB	4/16	485
	16 o.c.	½" x 1¼" crown staples ¹	½" GWB	8/8	410
	16 o.c.	½" x 1¼" crown staples ¹	½" GWB	8/16	385
	16 o.c.	½" x 1¼" crown staples ¹	½" GWB	16/16	345
	16 o.c.	½" x 1¼" crown staples ¹	No GWB	–	280
	24 o.c.	½" x 1¼" crown staples ¹	½" GWB	8/8	365
	24 o.c.	½" x 1¼" crown staples ¹	No GWB	–	250
	16 o.c.	0.113" x 2¾" nails	½" GWB	8/8	360
	16 o.c.	0.113" x 2¾" nails	No GWB	–	225
	24 o.c.	0.113" x 2¾" nails	½" GWB	8/8	315
24 o.c.	0.113" x 2¾" nails	No GWB	–	200	

SI: 1 in = 25.4 mm, 1 lb/ft = 0.0146 kN/m

- Thermasheath®-SI attached with a minimum 16 gauge, ½" crown staples shall penetrate a minimum of 1" into the stud. 1" crown x 1¼" long 16 gauge staples are permitted with no change to capacities. Fasteners are to be spaced a maximum of 3" o.c. at the edges and 6" o.c. in the field with a minimum edge distance of ¾". Fasteners may be countersunk beneath the surface of the foam plastic sheathing.
- Gypsum attached with minimum #6 type W or S screws 1¼" long.

TABLE 5. THERMASHEATH®-SI ALLOWABLE STRESS DESIGN (ASD) CAPACITY AND SEISMIC DESIGN COEFFICIENTS – SEISMIC¹

Seismic Force-Resisting System	Maximum Stud Spacing (in)	Gypsum Wallboard (GWB)	Seismic Allowable Unit Shear Capacity (plf)	Apparent Shear Stiffness, G_a (kips/in)	Response Modification Factor, R^2	System Overstrength Factor ³ , Ω_0	Deflection Amplification Coefficient ⁴ , C_d	Structural System Limitations and Building Height Limit ⁵ (ft)				
								Seismic Design Category				
								B	C	D	E	F
Light-Frame (Wood) Walls Sheathed with Thermasheath®-SI	16 o.c.	½" GWB	320	12.5	6.5	3	4	NL	NL	65	65	65
	16 o.c.	No GWB	225	6.5	6.5	3	4	NL	NL	65	65	65

SI: 1 in = 25.4 mm, 1 lb/ft = 0.0146 kN/m, 1 psi = 0.00689 MPa

- All seismic design coefficients follow the equivalency procedures as defined in Section 3 of this TER.
- Response modification coefficient, R , for use throughout ASCE 7. Note R reduces forces to a strength level, not an allowable stress level.
- The tabulated value of the overstrength factor, Ω_0 , is permitted to be reduced by subtracting one-half (0.5) for structures with flexible diaphragms.
- Deflection amplification factor, C_d , for use with ASCE 7 Section 12.8.6, 12.8.7 and 12.9.2.
- NL = Not Limited. Heights are measured from the base of the structure as defined in ASCE 7 Section 11.2.
- Gypsum attached with minimum #6 type W or S screws 1¼" long spaced 8" o.c. at panel edges and in the field. Maximum stud spacing is 16" o.c.

TABLE 6. TRANSVERSE WIND LOAD RESISTANCE – ALLOWABLE UNIFORM LOAD CAPACITIES (PSF) FOR THERMASHEATH®-SI RESISTING OUT-OF-PLANE WIND LOADS

Products	Thickness (in)	Allowable Design Value (psf)	Maximum Stud Spacing (in)	Fastener Spacing
		Negative		
Thermasheath®-SI	½ minimum	105	16 o.c.	½" crown, 1¼" leg 16 gage galvanized staples, 3" o.c. at the perimeter, 6" o.c. in the field. Staple crowns to be installed parallel to grain.
		75	24 o.c.	

 SI: 1 in = 25.4 mm, 1 psf = 0.0479 kN/m²

- For Thermasheath®-SI, the ASD allowable uniform load capacities for wind design are determined using the minimum of the nominal uniform load capacities in Table 6 divided by an ASD reduction factor of 1.6, per SDPWS Section 3.2.1.
- Design wind load capacity shall be in accordance with JBC Section 1609.1.1.

TABLE 7. BASIC WIND SPEED (MPH) FOR THERMASHEATH®-SI USED IN EXTERIOR WALL COVERING ASSEMBLIES

Product	Minimum Sheathing Thickness (in)	Maximum Stud Spacing (in)	Allowable Components & Cladding Basic Wind Speed V_{asd} per ASCE 7-05 (mph)	Allowable Components & Cladding Basic Wind Speed V_{ult} per ASCE 7-10 and 7-16 (mph)
Thermasheath®-SI	½	16 o.c.	200	260
		24 o.c.	170	220

SI: 1 in = 25.4 mm, 1 mph = 1.61 km/h

- Allowable wind speeds are based on the following: Mean roof height 30', Exposure B, 10 sq. ft. effective wind area. See the applicable building code for any adjustment need for specific building location and configuration.

TABLE 8. UPLIFT LOAD PERFORMANCE OF THERMASHEATH®-SI

Product	Maximum Stud Spacing (in)	Fastener Schedule	Gypsum Wallboard (GWB) (in)	Allowable Uplift Capacity (plf)
Thermasheath®-SI	24 o.c.	Minimum ½" crown, 1¼" leg 16 gage galvanized staples, fastened 3" o.c. to perimeter, 6" o.c. in the field. Staple crowns to be installed parallel to grain. Minimum penetration of 1" into the stud	½ GWB	265
		Minimum ½" crown, 1¼" leg 16 gage galvanized staples, fastened 3" o.c. to perimeter, 6" o.c. in the field. Staple crowns to be installed parallel to grain. Minimum penetration of 1" into the stud	No GWB	150
		0.113" x 2¾" nails, fastened 3" o.c. to perimeter, 6" o.c. in the field	½ GWB	240

SI: 1 in = 25.4 mm, 1 lb/ft = 0.0146 kN/m

- The ASD allowable unit uplift capacity is determined by dividing the tabulated uplift capacity by the ASD reduction factor of 2.0 per *SDPWS* Section 4.3 for determining the ASD allowable capacity for uplift conditions.
- The capacities shown are for the purpose of providing information on the hold-down capacity of the sheathing to the wall plate connection independent of lateral loading. Where combined shear and uplift loading is needed, consult a professional engineer.

5.3 Water-Resistive Barrier

- 5.3.1 Thermasheath®-SI and Thermasheath® may be used as a water-resistive barrier (WRB) as prescribed in *IBC Section 1403.2*⁹ and *IRC Section R703.2* when installed on exterior walls as described in this section.
- 5.3.2 Thermasheath®-SI and Thermasheath® shall be installed with board joints placed directly over exterior framing spaced a maximum of 24" (610 mm) o.c. The fasteners used to attach the board shall be installed in accordance with Section 6.
- 5.3.3 All seams and joints between boards shall be covered by R-SEAL 3000 or R-SEAL Construction Tape.
- 5.3.4 A separate WRB may also be provided. If a separate WRB method is used, taping of the sheathing joints is not required.
- 5.3.5 Flashing must be installed at all sheathing penetrations and shall comply with the all applicable code sections.
- 5.3.6 Where Thermasheath®-SI is used intermittently along a braced wall line, Thermasheath® may be used as infill between the Thermasheath®-SI panels. In this application, the WRB is maintained, provided all seams and joints between boards are covered by R-SEAL 3000 or R-SEAL Construction Tape.
- 5.3.7 Thermasheath®-SI and Thermasheath® have water resistance properties as shown on Table 9.

TABLE 9. THERMASHEATH®-SI FPIS LAYER & THERMASHEATH® WATER-RESISTANCE PROPERTIES

Property	Test Method	Value
Water Vapor Transmission	ASTM E96	< 0.03 Perm
Water Absorption	ASTM C209	< 0.2% Volume
	ASTM C272	< 0.3% Volume

5.4 IECC Compliance

- 5.4.1 Thermasheath®-SI and Thermasheath® meet the continuous insulated sheathing requirements complying with the provisions of *IECC Section C402*.

⁹ 2015 *IBC* Section 1404.2

5.4.2 Thermasheath®-SI and Thermasheath® have the thermal resistance as shown on Table 10.

TABLE 10. THERMAL RESISTANCE PROPERTIES

Thickness (in)	R-Value (h*ft ² *°F/Btu)
½	3.2
1	6
SI: 1 in = 25.4 mm	

5.4.3 Thermasheath®-SI and Thermasheath® meet the requirements of IECC Section C402 for use as a component of the air barrier when installed in accordance with the manufacturer’s installation instructions and this TER with all seams, including the top and bottom edges, taped.

TABLE 11. THERMAL RESISTANCE PROPERTIES

Test	Value
ASTM E2178	< 0.02 (L/s*m ²) ¹
1. Liter per second per square meter	

5.5 Fire Resistance Properties

5.5.1 Surface Burn Characteristics:

5.5.1.1 Thermasheath®-SI and Thermasheath® panels have the flame-spread characteristics as shown in Table 12.

TABLE 12. SURFACE BURN CHARACTERISTICS¹

Product	Thickness	Flame Spread	Smoke Developed
Thermasheath®-SI ² & Thermasheath®	< 1 inch	≤ 40	≤ 250
	≥ 1 inch	≤ 25	≤ 250
SI: 1 in = 25.4 mm			
1. Tested in accordance with <u>ASTM E84</u> and <u>UL 723</u> .			
2. Thermasheath®-SI tested using the foam plastic portion only in accordance with <u>IBC Section 2603</u> and <u>IRC Section R316</u> .			

5.5.2 Thermal Barrier Requirements – Attic, Crawlspace or Other Uninhabitable Space Applications:

5.5.2.1 Installation shall be fully protected from the interior of the building by an approved 15 minute thermal barrier or ignition barrier as required by IBC Section 2603.4 and IRC Section R316.4 except as follows:

5.5.2.1.1 When installed in an attic, crawlspace or other uninhabitable spaces, Thermasheath®-SI and Thermasheath® are approved for use without an approved thermal barrier or ignition barrier based on testing of the actual end-use configuration including joints, seams and other typical details used in the installation of the assembly in accordance with IRC Section R316.6. This includes, but is not limited to, knee and gable end walls. The conditions of this approval are:

5.5.2.1.1.1 For installation on walls and ceilings, Thermasheath® is installed at a maximum thickness of 1".

5.5.2.1.1.2 For installation on walls only or ceilings only, Thermasheath® is installed at a maximum thickness of 4.5".

5.5.2.1.2 Use without an approved thermal barrier or ignition barrier is limited to areas where:

5.5.2.1.2.1 Access to the space is required by IRC Section R807.1 or R408.4.

5.5.2.1.2.2 Entry is made only for the purposes of repairs or maintenance.

5.5.3 Fire Resistance Ratings:

- 5.5.3.1 Thermasheath®-SI has been tested and meets the requirements of *UL 263* in accordance with *IBC Section 2603.5.1* for use in the following assembly designs when installed in accordance with the manufacturer's installation instructions and this TER:
- 5.5.3.1.1 45 minutes: U424, U425, V321, V499, W456
 - 5.5.3.1.2 1 hour: U026, U326, U330, U354, U355, U364, U424, U425, U460, V302, V303, V454, V499, W307, W417, W456
 - 5.5.3.1.3 1.5 hours: U424, U425, V499, W456
 - 5.5.3.1.4 2 hours: U349, U424, U425, U905, U906, V332, V499, W456
 - 5.5.3.1.5 3 hours: U904, U907
 - 5.5.3.1.6 4 hours: U902, U907
- 5.5.3.2 Thermasheath® has been tested and meets the requirements of *UL 263* in accordance with *IBC Section 2603.5.1* for use in the following assembly designs when installed in accordance with the manufacturer's installation instructions and this TER:
- 5.5.3.2.1 45 minutes: U424, U425, V321, V499, W456
 - 5.5.3.2.2 1 hour: U026, U326, U330, U354, U355, U364, U424, U425, U460, V454, V499, W307, W456
 - 5.5.3.2.3 1.5 hours: U424, U425, V499, W456
 - 5.5.3.2.4 2 hours: U349, U424, U425, U905, U906, V322, V499, W456
 - 5.5.3.2.5 3 hours: U904, U907
 - 5.5.3.2.6 4 hours: U902, U907

5.6 Non-Structural Applications

- 5.6.1 Where other means of wall bracing are provided, or are not required, and an approved exterior wall covering capable of separately resisting loads perpendicular to the face of the walls is installed over the sheathing, Thermasheath®-SI or Thermasheath® are permitted to be installed as follows:
- 5.6.1.1 Fastening shall be sufficient to hold the Thermasheath®-SI and Thermasheath® in place until the exterior wall covering is installed. Once the wall covering is installed, the wall covering fasteners penetrate through the sheathing and into the wall framing, providing the necessary resistance to transverse loads.
 - 5.6.1.2 Fasteners include, but are not limited to, roofing nails and bugle head screws.
 - 5.6.1.3 Other means of fastening may also be used, such as certain adhesives, which are compatible with the sheathing.
 - 5.6.1.4 Consult the manufacturer's installation instructions for further details.

6 INSTALLATION

- 6.1 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 *Installation Procedure*
- 6.2.1 *General:*
 - 6.2.1.1 Thermasheath®-SI and Thermasheath® shall be installed in accordance with the manufacturer's published 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.
 - 6.2.1.2 A copy of the manufacturer's published installation instructions shall be available at all times on the jobsite during installation.
 - 6.2.1.3 Where required, gypsum wallboard shall be a minimum ½" thickness.

6.2.2 Orientation:

- 6.2.2.1 Thermasheath®-SI and Thermasheath® must be installed vertically with the length dimension of the panels parallel to the framing behind and all panel edges supported by framing or blocking.
- 6.2.2.2 Thermasheath®-SI and Thermasheath® must be installed over studs a nominal thickness of not less than 2" (50.8 mm) and spaced a maximum of 24" (610 mm) o.c., unless otherwise limited by this TER.

6.2.3 Fastener Type:

6.2.3.1 Thermasheath®-SI

- 6.2.3.1.1 Minimum ½" crown by ¼" leg, 16 ga staples or 0.113" x 2¾" nails with a 1" minimum embedment into stud.

6.2.3.2 Thermasheath®

- 6.2.3.2.1 Refer to the manufacturer's installation instructions.

6.2.3.3 Gypsum Wallboard

- 6.2.3.3.1 Where required, gypsum wallboard shall be installed with a minimum:

- 6.2.3.3.1.1 #6 x 1¼" Type W or S screws
- 6.2.3.3.1.2 5d cooler nails

6.2.4 Fastener Spacing:

6.2.4.1 Thermasheath®-SI

- 6.2.4.1.1 Maximum of 3" o.c. (76.2 mm) along the edge and 6" o.c. in the field.

6.2.4.2 Thermasheath®

- 6.2.4.2.1 Refer to manufacturer's installation instructions.

6.2.5 Fastener Edge Distance:

- 6.2.5.1 Fastener edge distance is a minimum of ⅜" (9.5 mm) for both Thermasheath®-SI and gypsum.
- 6.2.5.2 Where used, always fasten staples parallel to the framing member.

6.2.6 Treatment of Joints:

- 6.2.6.1 Thermasheath®-SI sheathing joints must be butted at framing members, and a single row of fasteners must be applied to each panel edge into the framing behind.
- 6.2.6.2 Do not tack Thermasheath®-SI to framing, but fasten each panel completely once fastening begins.

6.2.7 Window Treatments:

- 6.2.7.1 If windows are made to accommodate traditional ½" sheathing materials, order windows with adjustable nailing fins from the supplier. Door brick moldings may be planed or routed ⅜" in order to accommodate the different sheathing thickness, either at the jobsite or by the millwork supplier.
- 6.2.7.2 Thermasheath®-SI must be installed with appropriate flashing and counter flashing in conformance with accepted building standards and in compliance with local building codes and the flashing manufacturer's installation instructions.

7 TEST ENGINEERING SUBSTANTIATING DATA

- 7.1 Lateral load testing conducted by PEI, based on *ASTM E72*
- 7.2 Lateral load testing conducted by SBCRI, based on *ASTM E564*
- 7.3 Transverse load testing conducted by SBCRI, based on *ASTM E330*
- 7.4 Uplift load testing conducted by SBCRI, based on *ASTM E72*
- 7.5 Thermal resistance property testing conducted by Exova, based *ASTM C518*

- 7.6 Thermal resistance property testing conducted by QAI Laboratories, based on *ASTM C518*
- 7.7 Water Vapor permeance testing conducted by Exova, based on *ASTM E96*
- 7.8 Water-resistive barrier testing conducted by PEI
- 7.9 Water-resistive barrier testing conducted by ATI
- 7.10 Flame spread and smoke developed rating tests conducted by Intertek
- 7.11 Room corner tests conducted by Intertek
- 7.12 Fire resistance ratings in accordance with *UL 263* by UL
- 7.13 Test reports and data for determining comparative equivalency for use as an alternative material conducted by SBCRI, based on *ASTM E564*
- 7.14 Test reports and data for determining comparative equivalency for use as an alternative material conducted by SBCRI, based on *ASTM E2126*
- 7.15 Some information contained herein is the result of testing and/or data analysis by other sources which conform to *IBC Section 1703* and relevant [professional engineering law](#). DrJ relies on accurate data from these sources to perform engineering analysis. DrJ has reviewed and found the data provided by other professional sources to be credible.
- 7.16 Where appropriate, DrJ's analysis is based on design values that have been codified into law through codes and standards (e.g., *IBC*, *IRC*, *NDS®*, and *SDPWS*). 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, and concrete), DrJ relies upon the grade mark, stamp, and/or design values provided by raw material suppliers to be accurate and conforming to the mechanical properties defined in the relevant material standard.

8 FINDINGS

- 8.1 When used and installed in accordance with this TER and the manufacturer's installation instructions, the product(s) listed in Section 1.1 are approved for the following:
 - 8.1.1 Lateral load resistance due to wind and seismic loads carried by shear walls.
 - 8.1.2 Use as an equivalent alternative to the CS-PF as described in [IRC Section R602.10.5](#) and [R602.10.6.4](#).
 - 8.1.3 Transverse load resistance due to components and cladding pressures on building surfaces.
 - 8.1.4 Uplift load resistance due to components and cladding pressures on building surfaces.
- 8.2 When installed in accordance with the manufacturer's installation instructions and this TER, Thermasheath®-SI and Thermasheath® complies with, or is a suitable alternative to, the applicable sections of the codes listed in Section 2 for the following applications.
 - 8.2.1 Performance of foam plastics in accordance with [IBC Section 2603](#) and [IRC Section R316](#).
 - 8.2.2 Performance for use as insulating sheathing in accordance with [IRC Section N1102.1](#) and [N1102.2](#) and [IECC Section C402](#).
 - 8.2.3 Performance for use as a WRB in accordance with [IBC Section 1403.2](#)¹⁰ and [IRC Section R703.2](#).
 - 8.2.4 Performance for use as an air barrier in accordance with [IRC Section N1102.4](#) and [IECC Section C402](#).
 - 8.2.5 Performance for use in a fire resistance rated assembly in accordance with [IBC Section 2603.5.1](#).
- 8.3 Performance for use without a thermal barrier in accordance with [IBC Section 2603.4.1.6](#) and [IRC Section R316.5.3](#) and [R316.5.4](#).

¹⁰ [2015 IBC Section 1404.2](#)

8.4 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*.

8.5 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.

8.5.1 No known variations

9 CONDITIONS OF USE

- 9.1 Except as provided in Section 5.5.2, this product shall be fully protected from the interior of the building by an approved 15-minute thermal barrier or ignition barrier where required by the applicable code.
- 9.2 In areas where the probability of termite infestation is very heavy, in accordance with IBC Section 2603.8 or IRC Section R318.4, the product must not be placed on exterior walls located within 6" (152 mm) of the ground.
- 9.3 Thermasheath®-SI and Thermasheath® shall not be used as a nailing base.
- 9.4 Walls sheathed with Thermasheath®-SI or Thermasheath® shall not be used to resist horizontal loads from concrete and masonry walls.
- 9.5 When Thermasheath®-SI is not installed for use as wall bracing, as described in this TER, the stud walls shall be braced by other materials, in accordance with the applicable code.
- 9.6 When used as a WRB, Thermasheath®-SI and Thermasheath® seams shall be taped with R-SEAL 3000 or R-SEAL Construction Tape.
- 9.7 When used in accordance with the *IBC* in Seismic Design Categories C, D, E or F, special inspections shall comply with IBC Section 1705.12¹¹.
- 9.8 When used in accordance with the *IBC* in high wind areas, special inspections shall comply with IBC Section 1705.11¹².
- 9.9 Design loads shall be determined in accordance with the building code adopted by the jurisdiction in which the project is to be constructed.
- 9.10 The manufacturer's installation instructions shall be shipped to the jobsite with the materials or otherwise be available on the jobsite for inspection.
- 9.11 All panel edges shall be supported by wall framing or solid blocking a minimum of 2" nominal in thickness.
- 9.12 Thermasheath®-SI and Thermasheath® are manufactured in Dallas, TX; Fernley, NV; and Greer, SC, under a quality control program with quality control inspections in accordance with IBC Section 110.4 and IRC Section R109.2.
- 9.13 Where required by the *building official*, also known as the authority having jurisdiction (AHJ) in which the project is to be constructed, this TER and the installation instructions shall be submitted at the time of permit application.

¹¹ 2012 IBC Section 1705.11

¹² 2012 IBC Section 1705.10



- 9.14 Any generally accepted engineering calculations needed to show compliance with this TER shall be submitted to the AHJ for review and approval.
- 9.15 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 registered design professional).
- 9.16 At a minimum, this product shall be installed per Section 6 of this TER.
- 9.17 This product is manufactured under a third-party quality control program in accordance with IBC Section 104.4 and 110.4 and IRC Section R104.4 and R109.2.
- 9.18 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. Therefore, the TER shall be reviewed for code compliance by the building official for acceptance.
- 9.19 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 The product(s) listed in Section 1.1 are 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 rmax.com.

11 REVIEW SCHEDULE

- 11.1 This TER is subject to periodic review and revision. For the most recent version of this TER, visit drjcertification.org.
- 11.2 For information on the current status of this TER, contact DrJ Certification.