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Legacy report on the 1997 Uniform Building Code™

DIVISION: 06—WOOD AND PLASTICS
Section: 06160—Sheathing

THERMO-PLY STRUCTURAL SHEATHING

LUDLOW COATED PRODUCTS
P.O. BOX 2002
10351 VERDON ROAD
DOSWELL, VA 23047

1.0 SUBJECT

Thermo-Ply Structural Sheathing.

2.0 DESCRIPTION

2.1 General:

Thermo-Ply Sheathing is laminated fibrous boards recognized as weather-resistive barriers complying with Section 1402.1 of the code. Structural and Super Strength grade products are used in wall-bracing applications.

2.2 Materials:

2.2.1 Thermo-Ply "Structural" Grade (Stormbrace) Sheathing: Thermo-Ply "Structural" grade (Stormbrace) sheathing consists of laminated fibrous boards with a 0.115-inch nominal thickness. Each surface is covered with aluminum foil, polyethylene, or a kraft/polyethylene/kraft laminate. The boards are produced in 48-inch-by-96-inch (1219 mm by 2438 mm) and 48 3/4-inch-by-96-inch (1238 mm by 2438 mm) standard sizes. Sizes up to 60 inches (1524 mm) wide and 192 inches (4877 mm) long are also available.

2.2.2 Thermo-Ply "Super Strength" (24 o.c.) Sheathing: The Thermo-Ply "Super Strength" (24 o.c.) sheathing is identical to the "Structural" grade sheathing described above, except the boards are nominal 0.137 inch thick.

2.2.3 Thermo-Ply "Standard" Grade (Weatherweight) Sheathing: Thermo-Ply "Standard" grade (Weatherweight) sheathing is identical to the structural grades in Sections 2.2.1 and 2.2.2, except the panels are nominal 0.078 inch thick. The "Standard" grade shall be used only in nonstructural applications.

2.3 Installation:

2.3.1 General: The boards are vertically installed on wood studs with all joints backed by studs, plates or blocks. The boards are a weather-resistive barrier complying with Section 1402.1 of the code, provided horizontal and vertical joints are weather-lapped at least 3/4 inch (19.1 mm). For installations that do not require a weather-resistive barrier, such as interior

locations or exceptions described in Section 1402.1 of the code, edges may be butted.

The local building official may require a vapor barrier at the warm side (interior) of the stud wall to prevent condensation within the stud cavity.

2.3.2 Wall Bracing: "Structural" grade and "Super Strength" grade sheathings are alternatives to wall bracing as set forth in Section 2320.11.3 or 2320.11.4 of the code. Installation details, fastener details and allowable shear values are set forth in Table 1.

2.3.3 Nonstructural Installation: Where wall bracing as set forth in Section 2320.11.3 or 2320.11.4 of the code is provided, boards may be installed in accordance with Table 2. No shear values are permitted with these installations.

2.4 One-hour Fire-resistive Construction:

2.4.1 Exterior Wood Stud Wall: Thermo-Ply "Structural" or "Super Strength" sheathings may be installed under exterior cement plaster described in Item 18-1.3 in Table 7-B of the code, provided the length of the fasteners attaching the metal lath is increased by an amount at least equal to the thickness of the sheathing.

2.4.2 Limited Load-bearing Exterior Wood Stud Wall: The wall construction consists of 5/8-inch (15.9 mm), Type X gypsum wallboard complying with ASTM C 36, applied to the interior face of 2-inch-by-4-inch (51 mm by 102 mm) wood studs spaced at a maximum of 16 inches (406 mm) on center for the "Structural" (Stormbrace) sheathing, and a maximum of 24 inches on center (610 mm) for the "Super Strength" (24 o.c.) sheathing. The wallboard is applied in accordance with details in Item 17-1.3 in Table 7-B of the code. The exterior side is covered with 2 1/4-inch-high-by-3 3/4-inch-wide (57 mm by 95 mm) face brick, with cored holes, applied to the studs as anchored veneer in accordance with Section 1403.6 and Item 18-1.5 in Table 7-B of the code. Unfaced friction-fit glass fiber batt insulation, 3 1/2- or 3 5/8-inch-thick-by-15 1/4-inch-wide (89 or 92 mm by 387 mm), R-11 or R-13, 0.89 pcf (1403kg/m³) density, must be placed within the stud cavities. The Thermo-Ply sheathing may be used in lieu of the 1/2-inch (12.7 mm) gypsum sheathing specified in Item 18-1.5. The maximum wall height is 8 feet (2438 mm). Allowable bearing loads cannot exceed the following, whichever is most restrictive:

- 1. 1,800 pounds (8 kN) per 2-inch-by-4-inch (51 mm by 102 mm) stud.
2. Design stress of 0.78 F'c, as set forth in Section 2307.3 of the code.

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3. Design stress up to 51 percent of the F_c or $F_{c\perp}$ permitted for the stud species and grade.

2.5 Identification:

Each board is labeled with the Simplex Products Division name and address, the product name, the evaluation report number (ICBO ES ER-1439), and the name of the quality control agency (RADCO).

3.0 EVIDENCE SUBMITTED

Test reports on racking loads, tensile strength, water-resistance, water vapor transmission and fire resistance.

4.0 FINDINGS

That the Thermo-Ply “Structural,” “Super Strength” and “Standard” grade sheathings described in this report comply with the 1997 *Uniform Building Code*TM, subject to the following conditions:

- 4.1 An approved exterior wall covering capable of resisting loads perpendicular to the face of the walls is installed over the sheathing.
- 4.2 A 48- or 48³/₄-inch-by-96-inch (1219 or 1238 mm by 2438 mm) sheet installed as described in Table 1 is equivalent to bracing required by Section 2320.11.3 of the code. It may be used where Construction Method 4 is permitted in Table 23-IV-C-1 of the code.

- 4.3 A minimum 32-inch-by-96-inch (813 mm by 2438 mm) structural grade sheathing board, installed on wood studs spaced 16 inches on center and attached in accordance with the minimum fastener details noted in Table 1, is equivalent to bracing described in Section 2320.11.3 of the code. It may be used where Construction Method 1 is permitted in Table 23-IV-C-1 of the code.

- 4.4 Solid blocking is installed behind all horizontal joints.
- 4.5 When installed as approved building paper, the vertical and horizontal joints shall be lapped a minimum of ³/₄ inch (19.1 mm), or flashing shall be provided.
- 4.6 The material is classified as combustible.
- 4.7 Allowable shear loads do not exceed values in Table 1.
- 4.8 The sheathing materials are manufactured in Constantine, Michigan, with quality control inspections by RADCO (AA-650).

This report is subject to re-examination in two years.

TABLE 1—ALLOWABLE SHEAR LOADS^{1,2,6}

THICKNESS (inches)	FASTENER	FASTENER SPACING (inches on center)	ALLOWABLE SHEAR LOAD (in pounds per foot)
0.115 (Structural)	No. 16 gage galvanized staples ⁷ / ₁₆ -inch crown, 1 ¹ / ₄ -inch legs	3—panel edges 6—intermediate supports	175 ^{3,7}
0.115 (Structural)	No. 16 gage galvanized staples 1-inch crown, 1 ¹ / ₄ -inch legs or Large flat-head No. 11 gage galvanized roofing nails 1 ¹ / ₄ inches long	3—panel edges 6—intermediate supports	200 ^{4,7}
0.137 (Super Strength)	No. 16 gage galvanized staples ⁷ / ₁₆ -inch crown, 1 ¹ / ₄ -inch legs or Large flat-head No. 11 gage galvanized roofing nails 1 ¹ / ₄ inches long	3—panel edges 3—intermediate supports	190 ^{5,7}

For SI: 1 inch = 25.4 mm, 1 plf = 14.6 N/m.

¹For wind or seismic forces in pounds per foot for panels installed vertically on studs with a minimum specific gravity of 0.42 and not less than 2 inches nominal thickness spaced 16 inches on center for the 0.115-inch material and 24 inches on center for the 0.137-inch material.

²The sheathing should preferably be applied in minimum 4-foot-by-8-foot sheets. Blocking not less than 2-inch nominal in thickness must be provided at horizontal joints. The maximum height-width ratio may be 2.1.

³The allowable shear load may be increased to 285 pounds per foot if ¹/₂-inch gypsum wallboard is installed on the inside with No. 13 gage ¹/₈-inch-long ring shank nails spaced 8 inches on center at all panel ends and edges and at all supports. All wallboard edges shall be blocked. In Seismic Zones 3 and 4, the allowable shear load shall be reduced to 230 plf, for earthquake-related forces.

⁴The allowable shear load may be increased to 300 pounds per foot if ¹/₂-inch gypsum wallboard is installed on the inside with No. 13 gage ¹/₈-inch-long ring shank nails spaced 8 inches on center at all panel ends and edges and at all supports. All wallboard edges shall be blocked. In Seismic Zones 3 and 4, the allowable shear load shall be reduced to 250 plf, for earthquake-related forces.

⁵The allowable shear load may be increased to 300 pounds per foot if ¹/₂-inch gypsum wallboard is installed on the inside with No. 13 gage ¹/₈-inch-long ring shank nails spaced 8 inches on center at all panel ends and edges, and at all supports. All wallboard edges shall be blocked. In Seismic Zones 3 and 4, the allowable shear load shall be reduced to 245 plf for earthquake-related forces.

⁶Sheathing may be applied horizontally with long dimension perpendicular to studs. Maximum stud spacing is 16 inches on center, and wall height cannot exceed four feet. Sheathing must be 48 inches wide and fastening is as indicated in table.

⁷Shear values may be doubled when Thermo-Ply structural sheathings are applied to both sides of the wall assembly, and the panel joints on each side are offset at least one stud space.

TABLE 2—NONSTRUCTURAL INSTALLATION SCHEDULE

NOMINAL THICKNESS (inches)	FASTENER SPACING (inches on center ¹)		MAXIMUM STUD SPACING (inches)
	Edge	Intermediate	
0.078 (Standard)	6	12	24
0.115 (Structural)	6	12	24
0.137 (Super Strength)	6	12	24

For **SI**: 1 inch = 25.4 mm.

¹Use minimum No. 11 gage, 1¹/₄-inch-long galvanized roofing nails or No. 16 gage galvanized staples having a ⁷/₁₆-inch crown and 1¹/₄-inch leg lengths.