



homebrella™

Advanced Moisture Management System

SHEATHING • HOUSEWRAP • FLASHING TAPE



Thermo ply®

PROTECTIVE SHEATHING

Tough and Durable

Isn't one of your biggest investments worth protecting?

Protecting your investment is easy when you use Thermo-ply® Protective Sheathing on your project. Thermo-ply is manufactured to withstand the

most rigorous of job site conditions. Its core is constructed of 4 cross laminated plies that resist puncture, breakage and vandalism. Because wall sheathing gets shipped out with the framing package, it's dumped at the job site with lumber and must withstand a great deal of abuse and rough handling.



**Thermo-Ply.
repels attacks by
moisture, drafts
and huns.**

Protect your fortress with Thermo-ply protective wall sheathing.



Thermo-ply Outperforms Foam and Fiberboard Sheathings in Damage Resistance

Foam and fiberboard sheathings can damage easily, reducing the performance of the wall envelope and increasing costs for replacement and repair. Thermo-ply's inherent strength stands up to on-site abuses, saving labor and material costs.



**See for
yourself
and
compare**

Thermo-ply Resists Puncture and Breakage

Strong and Structural

Make your investment last a lifetime

Thermo-ply® is made to be strong. Thermo-ply's directionalized fiber and cross laminated 4 ply construction provides excellent dimensional stability and strength.

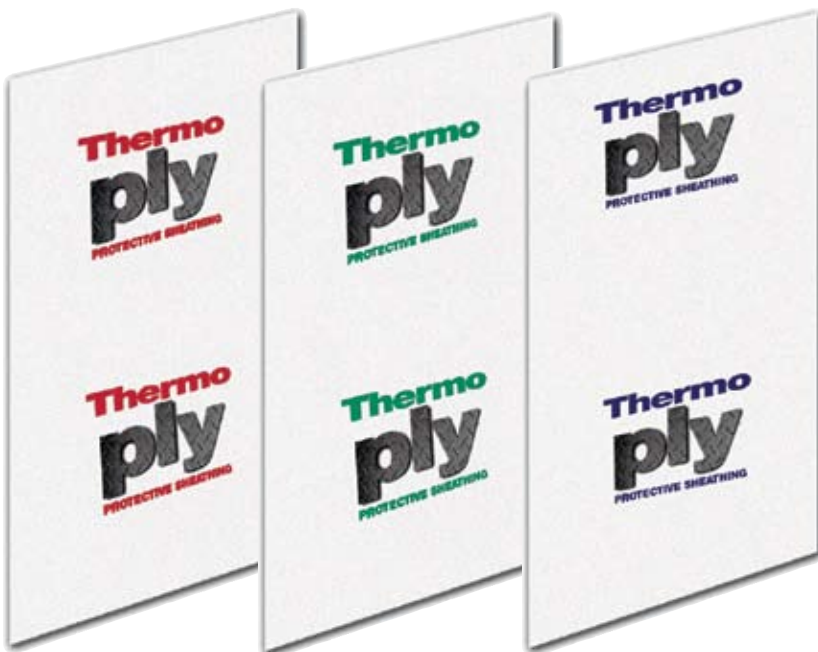
**NO BULL! IT'S
THERMO-PLY
TOUGH!**



Our red and blue structural grades provide racking resistance and may be used as an alternative corner bracing method. In addition, Thermo-ply can be used as a draft stop,* and also as part of a 1 hour fire rated wall assembly.*



Choose the Grade to Fit Your Needs



Thermo-ply is available in 3 different grades

- Green - Lightweight non-structural grade, .078" thickness
- Red - Structural grade for 16" o.c. stud spacing, .113" thickness
- Blue - Structural grade for 16" o.c. stud spacing, .137" thickness

**Refer to Individual Evaluation reports (ICC-ES, BOCA, ICBO, SBCCI) for code compliance. Individual jurisdictions and municipalities may vary. Check with your local building officials for approval and acceptance.*

Moisture Management

Protection against Water Intrusion

As part of our Homebrella™ Advanced Moisture Management System, Thermo-ply® Exterior Wall Sheathing is a vital component as it protects the wall envelope and preserves the integrity of what's inside, i.e. ,cavity insulation, studs, drywall, etc.

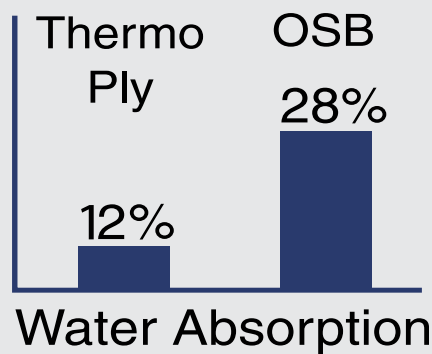
Because of Thermo-ply's 1/8" thickness, a tight seal is formed to the framing members, producing excellent protection against water intrusion.

Foam and fiberboard sheathings tend to be spongy because of their composition. This makes it difficult to fasten the edges tightly to the wall frame, thus creating gaps and cracks for water to potentially enter.

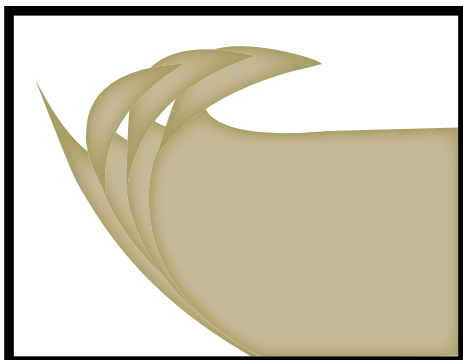


Outperforming the Competition

Covalence conducted an in-house study which showed that Thermo-ply significantly outperformed OSB sheathing in water resistance. A 24 hour soak test revealed OSB gained almost 30% in moisture and swelled in thickness by 30% while Thermo-ply consistently gained less than 12%.



Water and Weather Resistant Plies



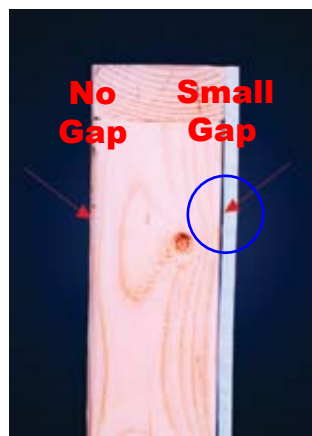
Thermo-ply's core is composed of high quality, long fibered, specially treated water and weather resistant plies. These plies are pressure laminated with a special water resistant adhesive. Thermo-ply's moisture content is measured and controlled constantly during the manufacturing process by a computerized system to ensure the highest quality.

Energy Efficient

The Importance of Controlling Air Infiltration

THERMAL PERFORMANCE

Air infiltration can account for over 50% of the heating and cooling energy loss through the walls of a home. Thermo-ply® provides superior protection against air infiltration because when fastened to the framing and studs, its inherent thickness provides the tightest seal of any sheathing material on the market. Cracks and gaps are minimized for air to infiltrate, resulting in improved energy efficiency and lower utility bills.

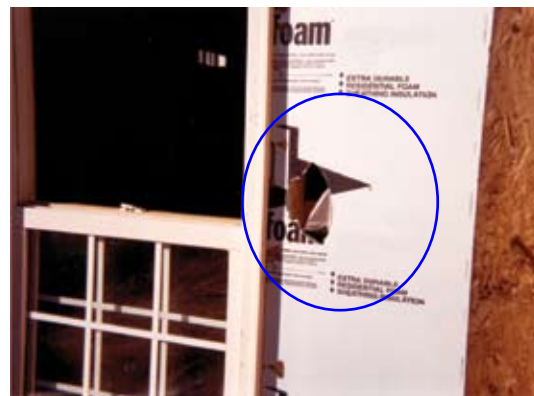


**Calculations show that just a 1/16" gap around the perimeter of an average home can waste 5 times more energy than can be saved by two inches of additional insulation to the walls of a normally insulated home.*

EFFECTIVE R-VALUE IS WHAT COUNTS

Insulative foam sheathings promote their initial high R-value. How much of that R-value is actually retained after it has been installed? Several factors can significantly impact its true performance.

- Foam sheathings age over time and can lose their original R-value. It's important to refer to aged R-value data in manufacturer's literature.
- Foam sheathings are fragile and can easily be damaged at the job site by high winds and handling, creating holes and broken corners for air to penetrate if gone unrepaired.
- Foam sheathings are "spongy like" and are difficult to fasten tightly to the wall frame creating gaps for costly air infiltration to penetrate the wall cavity.
- Foam sheathings are non-structural which creates the need for structural bracings. Consequently, when plywood or OSB is used at the corners of the home, the exterior wall cannot "truly" claim the entire added R-value it gets from the foam sheathing when it is only used in the intermediate areas. Plywood and OSB have an R-value of less than 1.
- Fasteners (nails or staples) used to attach foam sheathing to the stud wall creates an effect called "thermal bridging" which can also reduce the sheathing's original R-value by up to 20%!¹



“ Higher R-values and insulation belong in the wall cavity between the studs”

...PROTECT IT WITH THERMO-PLY WALL SHEATHING

¹ (“Energy Focus” article, September 1993 - Toledo Homebuilding Magazine)

*Dow Styrofoam is a registered trademark of Dow Chemical Inc.

Sheathing Performance

Thermo-ply® outperforms other sheathing products which claim to deliver extra R-values.

“Performance in the Real World vs. A Controlled Laboratory”



One of the most important factors to consider is the sheathing’s ability to do its basic job of controlling heat loss or gain caused by air moving or infiltrating through the walls into the insulation.

Thermo-ply retains a much larger percentage of the wall system’s R-value than other sheathing products, which can lose over 50% of the R-value in only a 10 mph breeze.

R-Value Analysis ^{1, 2}			
Sheathing	Calculated or Static “R” Without 10 mph Wind	Effective “R” When exposed to Simulated 10 mph Wind	Percentage of Retained Effective R-value
Thermo-ply	15.6	11.8	75.6%
1” Dow Foam (Styrofoam™)	20.0	11.3	56.5%
1” Foil -Faced Urethane Foam	23.4	10.5	44.9%
1” EPS Foam	18.67	10.8	57.8%
1/2” Fiberboard	15.99	8.15	51.0%

¹ “Affordable Manufactured Housing Through Energy Conservation,” U.S. Depart. of Energy (DOE), July 1984.

² R-values of wall sections include aluminum siding, sheathing gypsum, airspace, air films, and an assumed R-13 kraft-faced batt insulation. *Note:* R-value means resistance to heat flow. The higher the R-value the greater the insulating power.

The percentages show the retained, effective R-value for wall sections built with all components being the same EXCEPT the sheathing. This summary on effective R-values is based on air infiltration tests run by an independent laboratory with industry accepted methods (ASTM E-283), and further supported by the 1984 Department of Energy report.*

The total static R-value for a Thermo-ply sheathing system is a combination of the R-value of Thermo-ply itself and that of the reflective airspace between the sheathing and the siding. The chart on page 7 shows the total R-value resulting from both of these factors for various airspace sizes, using typical siding components.

Thermo-ply and R-values

0.68	Inside Air Film _____	
0.45	1/2" Gypsum _____	
0.00	Kraft (Asphalt Coated) or Polyethylene Vapor Barrier _____	
13.00	R-13 Fiberglass Insulation _____	
0.20	Thermo-ply® _____	
3.50	3/4" Reflective Airspace _____	
0.41	Brick Veneer _____	
0.17	Outside Air Film _____	
18.41	TOTAL R-VALUE	
0.0543	TOTAL U-VALUE	

0.68	Inside Air Film _____	
0.45	1/2" Gypsum _____	
0.00	Kraft (Asphalt Coated) or Polyethylene Vapor Barrier _____	
13.00	R-13 Fiberglass Insulation _____	
0.20	Thermo-ply with Poly Facing _____	
0.67	Vinyl Siding _____	
0.17	Outside Air Film _____	
15.17	TOTAL R-VALUE	
0.0659	TOTAL U-VALUE	

0.68	Inside Air Film _____	
0.45	1/2" Gypsum _____	
0.00	Kraft (Asphalt Coated) or Polyethylene Vapor Barrier _____	
13.00	R-13 Fiberglass Insulation _____	
0.20	Thermo-ply with Foil Facing _____	
3.50	3/4" Furring Strip with Reflective Airspace _____	
0.41	Hard Wood Siding _____	
0.17	Outside Air Film _____	
18.41	TOTAL R-VALUE	
0.0543	TOTAL U-VALUE	

Type of Siding Used (See Notes Below)	R-value of Thermo-ply alone or with Poly Facing	Average R-value of Thermo-ply with foil facing and Airspace	Average System R-value* for Thermo-ply plus one Reflective Foil Airspace Between Thermo-ply and Siding
Lapped Sidings - Aluminum, Vinyl, Hardboard, Wood, etc.**	0.2	1.33	1.53
Brick Veneer and Furred-Out Siding with 3/4" Airspace***	0.2	3.5	3.7

*Thermo-ply Reflective Foil System R-values are only for Thermo-ply and the reflective air space between Thermo-ply and siding. Insulation was in complete contact with inside of Thermo-ply for test. R-values for siding, cavity insulation, gypsum and air film corrections ARE NOT INCLUDED in Thermo-ply System R-values since many combinations are possible, but they can be added to Thermo-ply System R-value to obtain total Wall R-value. All tests were run according to ASTM C-236 at 75°F mean temperature, 30°F temperature differential.

**These lapped horizontal sidings form a variable reflective foil airspace with one foil surface on the Thermo-ply. This airspace varies between zero and the thickness or depth of the siding.

***Brick veneer is installed with 3/4" airspace. Siding must be spaced out 3/4" with furring strips. The airspace is a reflective foil airspace with one foil surface.

Environmentally Friendly

A "GREEN" Building Product

Not just the "in" thing to do

Environmental awareness is affecting the way everyone does business, including the construction industry. Homeowners, builders and architects are always looking for products that are environmentally friendly. Covalence has been using sound environmental policy in the manufacturing of Thermo-ply sheathing since the early 60's. That's long before it was considered the "in" thing to do. Our practices have saved tree after tree, forest after forest.

Based on standard measurements from the construction industry, the average 2,500 square foot house, using thermo-ply sheathing will save 6 trees. In a 50 home development that's 300 trees!

Since 1976, Covalence estimates we have saved over 9,400,000 trees through our use of recycled materials. Unlike other sheathing materials that use wood in some form or combination we use no wood chips, no old growth forests or no fast growing trees.

100% Recycled Material

Thermo-ply board fibers are made from 100% recycled material. This fiber consists of 80% post-consumer material (cardboard boxes, office waste, etc.) and 20% pre-consumer material such as mill waste and manufacturing scrap.

Recyclability

Thermo-ply is 99% recyclable. Any Thermo-ply job site waste or scrap can be collected and sent with other recyclable products, saving landfill space, which is a big concern for builders and communities.

Non-toxic bonding agents - Covalence uses 100% polyvinyl alcohol (PVA) as a bonding agent, PVA is one of the safest bonding agents available, used extensively in the food service industry. It is not a hazardous material (per the American Standard for Precautionary Labeling of Hazardous Industrial Chemicals), and has no known dermal effects. Unlike other sheathing materials, Thermo-ply does not contain asphalts, formaldehydes or phenols that can affect chemically sensitive people.

No CFC's - CFC's (chlorofluorocarbons) have been identified as a danger to the ozone layer surrounding the Earth. Covalence Coated Products uses no CFC's in the manufacturing of Thermo-ply.

Private Label Program

Create Name Recognition & Awareness with The Private Label Advantage...



Advertise Your Company Name & Logo on EVERY Sheet!

- Available in virtually any color
- Display customized messages
- Very large imprint area (up to 18"H x 30"W)
- Small minimum order quantity requirement
- Minimal upcharge
- Quick turnaround



User Friendly

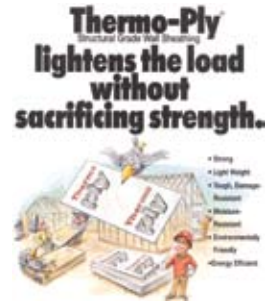
Thermo-ply Cuts Easily

A knife, router or saw can be used to cut or trim Thermo-ply. And workers can kneel or walk on it without causing damage.



Thermo-ply is Lightweight

Thermo-ply can be handled easily by one worker. It only weighs 13 lbs. per sheet. Its combined strength and light weight allow entire walls to be constructed and lifted into place.



Thermo-ply is Cost Effective

- Less work site damage means lower replacement costs.
- Size versatility means less scrap, less waste and less site clean up.
- Available up to 12' lengths.
- Easy installation saves time and labor.

Thermo-ply is Available with White Poly Facing

Excellent for use behind vinyl siding when a reflective surface is not required or desired.

Outstanding curb appeal gives your project a crisp, clean attractive appearance during framing of construction.



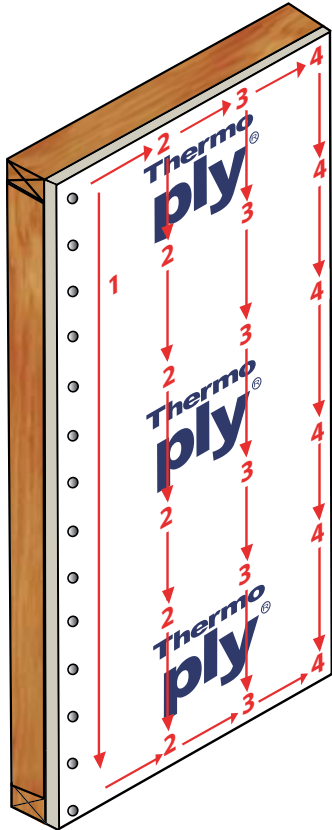
Multi-Family Use

- Can be used as a draft stop.*
- Can be used as part of a 1 hour fire rated wall assembly.*
- Red and blue structural grades are alternatives for exterior and interior shear load design. (See Shear Value tables for calculation values in Evaluation reports.)

*Refer to Individual Evaluation reports (ICC-ES, BOCA, ICBO, SBCCI) for code compliance. Individual jurisdictions and municipalities may vary. Check with your local building officials for approval and acceptance.

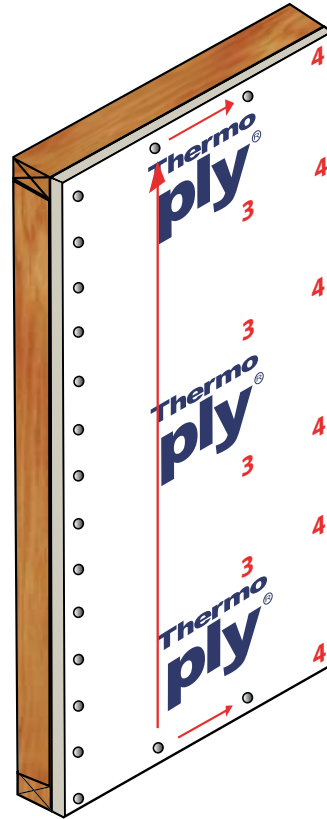


Thermo-ply® Installation Instructions



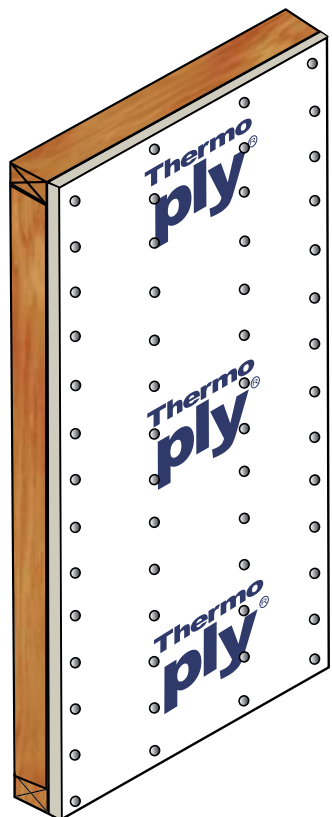
STEPS 1 & 2

1. Starting at the #1 indicated on the face of the panel, begin fastening from the top of the panel to the bottom. (Refer to installation instructions on the front side of the panel for proper fastener spacing.)
2. Moving across the panel, attach fasteners at the top and bottom of the panel until you reach #2 (the next stud). It is important when using staples to fasten them in a parallel direction to the stud.



STEP 3

3. Proceed to fasten panel in numerical order repeating the procedure described in steps 1 and 2.



STEP 4

4. Continue until the Thermo-ply panel is properly secured to the frame.



STEP 5

5. In order to prevent gaps or rippling, it is important to move across from one side of the panel to the other when installing. **DO NOT fasten each of the four corners first.**

Thermo-ply® Sheathing Technical Specifications

PRODUCT NAME

Thermo-ply® Sheathing

PRODUCT DESCRIPTION

Grades: Standard Grade (green) .078"
Structural Grade (red) .113"
Structural Grade (blue) .137"

Basic Use: Thermo-ply Sheathing is used, where required by code, to provide support for interior and exterior wall surfaces for the lifetime of the structure. Installing sheathing on an entire home or structure is generally the most common industry practice. Several additional uses exist, including corner bracing.

Precautions and Limitations: Refer to individual code reports for the various findings and limitations applicable to the specific code areas of influence.

Composition and Materials: Thermo-ply Sheathing is composed of high-quality, long-fibered, specially treated water and weather-resistant plies. Plies are pressure laminated. A special water-resistant adhesive is used. Standard sizes are 48" x 96", 48.75" x 96", 48" x 108" and 48.75" x 108". Custom cut sizes up to 60" wide and 144" long are available upon request. Thermo-ply is available with a variety of approved outer facings, including poly and foil.

TECHNICAL DATA

Construction Specifications Institute Identification Codes:

Sheathings	06115
Structural Panels	06120
Building Insulation	07210
Firestopping (draft stop)	07270

Applicable Standards: Thermo-ply Sheathing meets and/or exceeds all major code requirements, including:

HUD/FHAmaterialreleaseNo.286(Structural);
840 (Standard); 942 (Structural~Blue -- 24" o.
c.)

For more information please see evaluation reports.

Thermo-ply can be used to meet the new FmHA and FHA insulation standards. Write Covalence Coated Products for further information.

1-Hour Fire Resistive Construction:

Thermo-ply Structural Grade~Red and Structural Grade~Blue may be used in a 1-hour fire-rated wall system, in accordance with the Standard Methods of Fire Tests of Building Construction and Materials using ASTM E-119 testing procedures. Refer to individual code reports for various approved wall assemblies and limitations.

Perm Rating: Perm ratings range from 0.53 - 0.63 depending on grade.

INSTALLATION

Standard Grade~Green, .078"

1. An approved corner bracing is required when installed on standard wood framing up to 24" o.c. Thermo-ply is attached to the framing with 1 1/4" galvanized roofing nails, 16 gauge 7/16" crown x 1 1/4" leg staples or 1" crown x 1 1/4" leg staples spaced 6" o.c. on all panel edges and 12" o.c. on intermediate supports.
2. All joints shall occur over studs, plates or solid blocking. Joints may be lapped or butted. Butt joints shall be gapped 1/16" minimum.
3. Cut or trim with saw, knife or router.
4. Thermo-ply shall not be used as a nail base.

Structural Grade~Red, .113"

1. When installed on maximum 16" o.c. framing with 1 1/4" galvanized roofing nails, 16 gauge 7/16" crown x 1 1/4" leg staples or 1" crown x 1 1/4" leg staples spaced 3" o.c. on all panel edges and 6" o.c. on intermediate supports, it is a shear panel and no corner bracing is required. (This fastening schedule is only required for sheets used as shear panels.)
2. When installed for use as a non-structural sheathing panel, the sheets shall be attached to the framing with 1 1/4" galvanized roofing nails, 16 gauge 7/16" crown x 1 1/4" leg staples or 1" crown x 1 1/4" leg staples spaced 6" o.c. on all panel edges and 12" o.c. on intermediate supports.
3. When installed on studs greater than 16" o.c., an approved corner brace is required. The fastening schedule for sheathing panels is to be followed in attaching the sheets to the framing.
4. All joints shall occur over studs, plates or solid blocking. Joints may be lapped or butted. When joints are lapped, one row of fasteners can be applied through

both sheets and must penetrate a full 1" into the framing member. Butt joints shall be gapped 1/16" minimum.

5. Cut or trim with saw, knife or router.
6. Thermo-ply shall not be used as a nail base.

Structural Grade~Blue, .137"

1. When installed on maximum 16" o.c. framing with 1 1/4" galvanized roofing nails, 16 gauge 7/16" crown x 1 1/4" leg staples or 1" crown x 1 1/4" leg staples spaced 3" o.c. on all panel edges and 6" o.c. on intermediate supports, it is a shear panel and no corner bracing is required. (This fastening schedule is only required for sheets used as shear panels.)
2. When installed for use as a non-structural sheathing panel, the sheets shall be attached to the framing with 1 1/4" galvanized roofing nails, 16 gauge 7/16" crown x 1 1/4" leg staples or 1" crown x 1 1/4" leg staples spaced 6" o.c. on all panel edges and 12" o.c. on intermediate supports.
3. All joints shall occur over studs, plates or solid blocking. Joints may be lapped or butted. Butt joints shall be gapped 1/16" minimum.
4. Cut or trim with saw, knife or router.
5. Thermo-ply shall not be used as a nail base.

Fastening Procedure: It is important to work from one side of the panel to the other. Begin fastening from the top of the panel to the bottom. Moving across the panel, attach fasteners at the top and bottom of the panel until you reach the next stud. When using staples, fasten them in a parallel direction to the stud. Continue in the same manner until the Thermo-ply panel is properly secured to the frame. In order to prevent gaps or rippling, move across from one side of the panel to the other when installing. **DO NOT** fasten each of the four corners first.

Thermo-ply® Sheathing

Technical Specifications cont'd.

<p>AVAILABILITY AND COST</p> <p>Availability: Nationwide distribution facilities stock Thermo-ply and provide prompt delivery to most local building material / lumber dealers. In addition, Covalence field representatives are located in every part of the country to provide the best possible service.</p> <p>Cost: Thermo-ply Sheathing is competitively priced. For specific information, contact a Covalence representative.</p> <p>WARRANTY</p> <p>Covalence Building Products guarantees the manufacturing of Thermo-ply Sheathing. All products shipped from the manufacturing</p>	<p>facility will be free of defects at the time of shipping.</p> <p>MAINTENANCE</p> <p>When applied in accordance with manufacturer's recommendations, Thermo-ply Structural Sheathing will not require maintenance.</p> <p>TECHNICAL SERVICES</p> <p>Support is provided by full-time technically-trained field representatives and technical service personnel. In addition, Covalence Building Products is backed by a research, development and service staff.</p> <p>For further information, literature or technical support, contact Covalence Building</p>	<p>Products at 800.345.8881</p> <p>Information contained herein conforms to the standard detail recommendations and specifications for the installation of Thermo-ply Sheathing and is presented in good faith. Covalence Building Products assumes no liability, expressed or implied as to the architecture, engineering, or workmanship of any project. This information may be concurrent with, or superseded by other applicable documents. Covalence Building Products must approve any deviations from published literature, in writing, prior to application. Contact Covalence Building Products for most current product information.</p>
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	Standard Grade (Green)	Structural Grade (Red)	Structural Grade (Blue)
Thickness	0.078 ± 0.004	0.113 ± 0.005	0.137 ± 0.006
Weight	275 ± 15 lbs./MSF	400 ± 20 lbs./MSF	470 ± 25 lbs./MSF
Sheets Per Skid	400	300	250
Corner Bracing Requirement	Non-Structural	Structural up to 16" o.c.	Structural up to 24" o.c.

Window Treatment

If windows and doors are made to accommodate traditional 1/2" sheathing materials, use 3/8" plywood shims around the openings for a tight, neat installation, or order windows with adjustable nailing fins from your supplier, for easy adaptability to 1/8" Thermo-ply sheathing. Thermo-ply must be installed with appropriate flashing and counter flashing in conformance with accepted building standards and in compliance with local building codes.

Thermo-ply Architectural Specifications

Furnish and install Thermo-ply Insulative Sheathing as manufactured by Covalence Building Products, Constantine, Michigan. Sheets 48" x 96" are to be applied with a small gap between panels (1/16" to 1/8"). Sheets 48 3/4" x 96" are to be overlapped 3/4". Staple or nail through Thermo-ply and into studs using 1 1/4" galvanized roofing nails or 16-gauge, 1" minimum crown staples with 1 1/4" staple leg length. Fasteners to be spaced in accordance with manufacturers instructions. Fastening schedule is printed on each sheet of Thermo-ply.

Fasten the bottom edge of Thermo-ply to the 2" x 4" floor plate where it meets the band joist area. It is not recommended to fasten Thermo-ply directly to the band joist area because of anticipated shrinkage. Contact Covalence Coated Products for applications involving floor truss-joist systems.



700 Centreville Road • Constantine, MI • 49042
800.345.8881 • www.covalencecoatedproducts.com