Enviro-Dri Table of Contents

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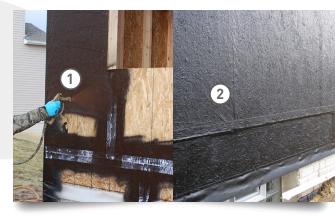
ENVIRO-DRI® WEATHER-RESISTANT BARRIER SYSTEM

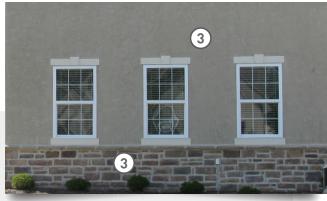
A More Effective Alternative to Housewrap

Product Overview

Congratulations on selecting a builder who provides a drier, more comfortable and energy-efficient living environment. Enviro-Dri[®] Weather-Resistant Barrier System is a more effective alternative to traditional housewraps in protecting your home against liquid moisture intrusion, uncontrolled air exchanges and trapped moisture vapor.

A weather-resistant barrier (or WRB) is intended to protect the interior living space of your home by preventing liquid moisture from penetrating your sheathing system, while allowing for moisture vapor to pass to the outside. In addition, a properly installed WRB system will also reduce air leaks. Typically, your builder would use a housewrap to serve as the WRB. Housewraps, however, have limitations and weaknesses which, even when properly installed, minimize the effectiveness of the protection they actually provide to your new home.







- 1. **No mechanical fasteners.** The fluid-applied Enviro-Dri System is installed directly to the sheathing system. There are no nails, no staples, no penetrations through which water can seep. Liquid moisture is stopped on the outside of the membrane.
- 2. **No seams.** A continuous layer of protection, with no seams, flaps or gaps, means uninterrupted moisture and air leak protection for your home. The Eviro-Dri System helps keep your home drier, more comfortable and more energy-efficient.
- 3. **Unaffected by surfactants.** Whether your home is brick, stone, stucco, wood or other siding, the Enviro-Dri System is not affected by the surfactants that can diminish the performance of wraps.
- 4. **Permanently attached.** The Enviro-Dri System remains in place, from the moment it's installed during original construction, protecting your home from the elements for years. High winds won't rip the Enviro-Dri System from your home, unlike typical housewraps. In fact, rigorous code testing proves that the Enviro-Dri System can block water penetration in conditions representative of a 200 mile-perhour wind-driven rain!





Limitations of Housewrap

- Installed with nails or staples. By design, housewraps are installed using nails or staples. Each nail or staple hole through the housewrap (and on a typical home, there could be THOUSANDS of holes) creates a break in the system. And each hole in the wrap represents a potential failure of the basic intent of a wrap...to keep out liquid moisture. Once liquid moisture or air gets past the wrap, it is free to move behind the wrap, and find a path to the interior of your new home.
- Surfactants. Surface active contaminants are found in mortar, stucco, wood and cementitious siding, paint, soaps used to clean siding, and other sources. These surfactants interact with housewraps, and can significantly decrease the wrap's ability to stop water from leaking through the wrap, even without holes.
- 3. **Vertical and horizontal seams.** Every inch of seam that you see in any installed housewrap is a likely spot for air and moisture leaks. Often, you'll see these

seams covered up with tape. But tapes fail, too... and when tapes fail, so does the protection. The result? Energy-sapping unconditioned air leaks and moisture intrusion.

4. Not permanently attached. The fact that so many nails or staples are required to affix the wrap to the outside of your house is a clear indication that wraps are susceptible to tearing or blowing off. The more nails, the better it's attached...and the more holes in the system. The more holes...the less effective the barrier.



Thank You for Choosing the Enviro-Dri Weather-Resistant Barrier System



Before Enviro-Dri Weather-Resistant Barrier System



After Enviro-Dri Weather-Resistant Barrier System



Finished Home

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A BETTER WAY TO SEAL YOUR HOMES FROM THE ELEMENTS



BEFORE Sheathing system is exposed to moisture, air leakage and the elements allowing water to penetrate and air to leak through the seams.



AFTER Sheathing system is completely protected against liquid moisture, moisture vapor and uncontrolled air leaks



You can trust Tremco,

North America's leader in polymer-modified asphalt coatings technology for residential new construction, to design and deliver a more effective exterior barrier system that protects your home - and your reputation - from the elements.





PERMANENTLY ADHERED

to prevent blow-offs in high winds. No need to worry about tears caused by other sub-trades. Once it's installed, Enviro-Dri WRB stays in place as long as the sheathing is in place.

membrane applies directly to sheathing system. Requires

no mechanical fasteners to penetrate sheathing.

Your local Tremco Contractor:

800.876.5624 www.tremcosealants.com

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PERMANENTCOMPLETEEFFECTIVEprotectioncoverageb a r r i e r

CREATES A DRIER, MORE ENERGY-EFFICIENT HOME by blocking moisture and reducing energy-sapping air leaks!

COMPLETELY ADHERED EFFECTIVE SEAL

to protect against moisture absorption moisture vapor and air leaks through sheathing.

PERMEABLE MEMBRANE

allows for the passage of vapor to enable drying – the foundation for a better building envelope!











ENVIRO-DRI WEATHER-RESISTANT BARRIER SYSTEM

DELIVERS A MORE PERMANENT, EFFECTIVE AND COMPLETE WEATHER-RESISTANT BARRIER THAN EVER POSSIBLE WITH ANY TYPE OF HOUSEWRAP PRODUCT!

The Enviro-Dri® WRB System is designed, manufactured and offered exclusively by Tremco, the makers of the TUFF-N-DRI® Basement Waterproofing System. Tremco leverages well over a quarter century of moisture management knowledge and experience to deliver a protective exterior barrier system that will help increase the value of the homes you build.







Uniformly protects interior and exterior walls from liquid moisture damage... during and after construction!

Liquid-applied Enviro-Dri Weather-Resistant Barrier adheres directly – and permanently – to your exterior sheathing system. The Enviro-Dri WRB serves as an uninterrupted barrier to liquid moisture that housewraps can't match. Enviro-Dri stops liquid moisture from penetrating the exterior sheathing system, and helps eliminate the conditions that can cause condensation within interior wall cavities. With the Enviro-Dri WRB System, you'll never see a rip, a tear, an untaped seam or a flapping corner that are far too common with typical housewraps. No need to schedule time-wasting housewrap repairs. Once the Enviro-Dri WRB System is installed, you can rest assured that it will stay on...even in the roughest weather conditions.





Reduces air infiltration through the exterior walls.

Enviro-Dri WRB can help you deliver a more comfortable, energy-efficient home. Uncontrolled air leakage can carry water vapor, which can condense within wall cavities and contribute to the conditions that lead to mold and mildew. In addition, uncontrolled air leaks increase energy usage by allowing unconditioned air to penetrate the home, or for conditioned air to escape. Unconditioned exterior air and vapor can pass easily through or around most housewraps, especially those that are installed incorrectly.

Permeable membrane stops water from entering, but allows vapor to escape.

The engineered permeability of the Enviro-Dri WRB System allows for any moisture that reaches the interior wall cavity to escape. You get a drier home... one that's less susceptible to mold and mildew between the framing joists and behind walls.

THE ENVIRO-DRI WEATHER-RESISTANT BARRIER SYSTEM **DELIVERS THESE KEY BENEFITS**

- Protects walls from moisture damage
- Reduces air infiltration through exterior walls
- Allows moisture vapor to escape from wall cavities, but stops liquid moisture from entering



Consider this...

all housewraps require that the wrap is attached by nailing or stapling through the wrap. Every nail or staple punched through housewrap, and into or through your sheathing, is an opportunity for air, moisture and vapor to enter and damage your home. Do you really want to trust the integrity and energy-efficiency of your home to a housewrap that is full of holes?





ENVIRO-DRI® FLUID APPLIED AIR & WATER BARRIER

For Multi-Family Construction



WEATHER-RESISTANT BARRIER

Product Description

Enviro-Dri[®] provides exceptional performance as an air and water barrier to meet the high demands of multi-family construction. Enviro-Dri is a vapor-permeable, fluid-applied, weather-resistive air and water barrier system designed to coat and permanently seal external sheathing and sheathing joints, and prevent water passage and air infiltration/exfiltration. Enviro-Dri is highly durable and unaffected by high winds, wind driven rain and weatherization. Enviro-Dri stays in place as long as the sheathing stays in place.

Air and Water Barrier Performance

- Provides an air and water barrier with a vapor-permeable membrane
- Conforms with Air Barrier Association of America (ABAA) requirements to exceed Section C402.5.1.2 air leakage requirements when tested in accordance with ASTM E2357and E2178
- Passes water penetration resistance test E331 stipulating that a treated wall will not allow moisture to penetrate when subjected to negative air pressure and 5 gal/sf/hour constant water spray
- Not affected by surfactants (like mortar contact)

High Performance Durability

- Resistance to water damage and weatherization
- Withstands freeze/thaw conditions
- Superior, permanent adhesion to the sheathing
- Withstands structural racking
- Engineered for use behind all cladding systems including brick, stucco, stone and all lap siding

Complete System

- The Enviro-Dri System includes a complete line of tapes, flashings, and counterflashings to provide a single source manufacturer/supplier for all of your building envelope needs:
- Enviro-Dri Counterflashing Enviro-Dri Window & Door
- Enviro-Dri Pan & Arch
- - -Enviro-Dri Pipe & Vent





PRODUCTINFORMATION

ENVIRO-DRI ACCESSORIES

	ROLL WIDTH
Enviro-Dri Counterflashing	5.33"
Enviro-Dri Window & Door	4"
	6"
Enviro-Dri Pan & Arch	6"
	8"
Enviro-Dri Pipe & Vent	4"
	6"
Enviro-Dri Brick Ledge	12"

INSTALLATION/APPLICATION

Refer to Enviro-Dri Installation Instructions for specific application details.

Application	Roll, Spray or Brush
Application Temperature	Min.: 0°F, Max.: 130° F (wall temp)
Application Thickness	12-15 wet mils (75-110 sq.ft./gal)
Typical Cure Time	<30 min., dry to touch; <8 hours, dry (under normal conditions)

Basic Uses

Enviro-Dri is typically applied to oriented strand board (OSB), plywood, glass-mat faced gypsum, impregnated fiber board (blackboard), fire treated OSB/plywood and concrete masonry units (CMU) as a vapor-permeable air and water resistive barrier.

Applicable Standards

Enviro-Dri has been independently tested and approved by the most rigorous testing protocol for liquid applied weather resistant barrier products (ICC AC212), air barrier material, assembly and water penetration testing per the Air Barrier Association of America (ASTM E2178, E2357 & E331).

Compatibility

Enviro-Dri is compatible with most flashings, tapes, caulks, and sealants as well as most types of exterior insulation. Consult Tremco with specific concerns/ questions.

Warranty

Enviro-Dri offers a 10-Year Limited Warranty. Consult Tremco for warranty details.

Below Grade Waterproofing

Tremco offers a full line of below-grade waterproofing and drainage products including:

- The TUFF-N-DRI[®] Waterproofing System, a fluid-applied waterproofing membrane combined with a durable fiberglass drainage/insulation board to protect the exterior foundation wall:
 - Waterproofs Drains
 - Insulates Protects against backfill damage
- TUFF-N-DRI Quick Cure membrane can be easily applied to a wet film thickness of up to 90 mils
- Fiberglass drainage/insulation board offered in R values from 3-15
- DrainStar[®] foundation drainage system offers a cost-effective substitute for conventional drain tile and gravel

TESTING DATA

AIR BARRIER TESTING		
TEST	METHOD	RESULTS
Air Leakage of Barrier Material	ASTM E2178	PASSED 0.0024 cfm/ft² at 1.57psf (75Pa)
Air Leakage of Barrier Assembly - Opaque Wall	ASTM E2357*	PASSED 0.0095 cfm/ft² at 1.57psf (75Pa)†
Air Leakage of Barrier Assembly - Penetrated Wall	ASTM E2357*	PASSED 0.0038 cfm/ft²1.57psf (75Pa)†

*Passed at the highest level of conditioning. Contact Tremco for details *Far exceeds ABAA requirements

WEATHER-RESISTANT BARRIER TESTING			
TEST	METHOD	RESULTS	
Water Penetration Resistance	ASTM E331	PASSED [‡]	
Water Damage Resistance	ASTM D2247	PASSED	
Permeability (Water Vapor Transmission)	ASTM E96	12 PERMS	
Weathering	AC212 Section 10.1 and 10.2; AATCC 127	PASSED	
Structural Racking and Restrained Environmental Conditioning	ASTM E72; ASTM E1233; ASTM E72; ASTM E331	PASSED	
Freeze-Thaw Performance	AC 212. section 4.2	PASSED	
Adhesion to Sheathing & Flashing	ASTM C297	PASSED	
Air Leakage Under Wind Load (Air Pressure)	ASTM E-283	Reduced Air Infiltration by over 90%	

[‡]Tested to 7.52 psf

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Construction Products Group

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Cuts Air Infiltration; Helps You Reach Your Energy Efficiency Goals at Lower Costs!



Up to 40% of home energy loss is due to air leaks...

deliver the level of energy efficiency you want at lower construction costs than housewraps! The US Department of Energy estimates that 40% of a buildings' energy loss is due to air infiltration. The International Energy Conservation Code (IECC), Energy Star and other energy performance programs for new homes are recognizing and incorporating the importance of air changes per hour (ACH) in their standards at an increasing rate. The Enviro-Dri Weather-Resistant Barrier (WRB) System delivers superior air infiltration performance, as measured in air changes per hour, versus housewraps.

By reducing the exchange of conditioned and unconditioned air from the home, the Enviro-Dri WRB System improves the home's energy efficiency, and allows the builder to value-engineer other energy design variables within the home – such as supplemental airinfiltration packages, insulation, window U-Value, furnace efficiency, etc. -- to meet energy-efficiency goals, as well as construction cost objectives.

So whether the goal is to meet minimum energy requirements of the local building code, or to exceed the more stringent energy requirements of Energy Star or to qualify for Federal Energy Tax Credits, the Enviro-Dri Weather-Resistant Barrier System can deliver the energy efficiency you want at lower overall construction costs.

HOW ENVIRO-DRI COMPARES TO HOUSEWRAPS IN STOPPING AIR MOVEMENT

Just how effective is the Enviro-Dri Weather-Resistant Barrier System at preventing air infiltration? Side-by-side lab tests were conducted to compare the performance of the Enviro-Dri WRB System to typical housewraps, installed per manufacturers' instructions, in the critical measure of air movement through a wall system.

At pressures equivalent to a 25 MPH wind-load, the Enviro-Dri WRB System was **88%** more effective in stopping the flow of air through the wall system! At even greater wind pressures, the Enviro-Dri WRB System performed up to **97%** better than mechanically-fastened and taped housewrap!

What happens in the real world, though? Here's an example of observations of housewrap installations in the Midwest:

- 93% of installations did not tape or otherwise seal joints;
- 75% of installations did not effectively seal windows and doors against air infiltration;

Source: Pennsylvania Housing Resource Center

If your housewrap installations look like those from this study, imagine how much better your WRB would perform with the Enviro-Dri System!

Wind-Load (MPH)



50

ASTM E 283-04



75

CONVERTING THE PERFORMANCE OF THE ENVIRO-DRI WEATHER-RESISTANT BARRIER SYSTEM INTO POTENTIAL COST-SAVING TRADE-OFFS

Enviro-Dri cost-effectively controls ACH (air changes per hour), a key variable in determining the energy efficiency of a home. Enviro-Dri may therefore enable you to achieve your energy efficiency objectives at lower costs by trading off a portion of one or more of the following:

- Reduce extent of current air infiltration package (AIP)
- Replace sill sealers by sealing with Enviro-Dri Joint Fabric and Membrane
- Convert to less expensive windows and doors
- Install lower cost HVAC system
- Reduction in the R-Value of wall cavity, ceiling, above-grade or belowgrade insulation

Consult your local construction energy rater to discuss the exact trade-offs you can make in your construction practices to meet the energy efficiency levels you want.



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Reduce air infiltration; Cut construction costs;

Meet your current or future energy efficiency targets

Don't Work Harder. Build Smarter.

How Enviro-Dri Helps You Build Smarter

By installing the Enviro-Dri Weather-Resistant Barrier System on your next home and reducing the air change per hour (ACH) by 2, you can reduce the home's annual energy use by almost 10% while meeting or improving your construction cost targets!

To achieve that same energy-use reduction through added insulation, you would have to a move from an R13 2x4 frame wall to an R19 2x6 frame wall, and from R30 ceiling insulation to R50 ceiling insulation.

No need to incur the extra cost of less effective insulation, or to redraw your house plans and shoulder the added expense of changing to 2x6 framing to accommodate the extra wall insulation.



The chart below provides some additional examples* of the trade-offs possible by reducing ACH in the homes you build.

ACH Reduction	% Savings in Millions BTU/Year	Equivalent Construction Option(s) to Achieve Same Reduction	
		From	То
.5	2.4	R30 ceiling insulation	R50 ceiling insulation
1.0	4.9	R30 ceiling insulation & R13 2x4 frame wall insulation	R50 ceiling insulation & R15 2x4 frame wall insulation
1.5	7.3	R30 ceiling insulation & U.36 windows	R100 ceiling insulation & U.30 windows
2.0	9.8	R30 ceiling insulation & R13 2x4 frame wall insulation	R50 ceiling insulation & R19 2x6 frame wall insulation
3.0	14.6	R30 ceiling insulation & R13 2x4 frame wall insulation	R100 ceiling insulation & R15 + 5 2x4 frame wall insulation

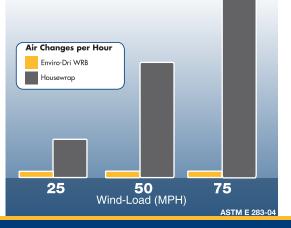
*Examples of construction trade-offs and energy savings based on values derived from REM® Design Software by Architectural Energy, Inc. for a 2-story, 2700 sq ft home with 1350 sq ft conditioned basement (total 4050 conditioned sq ft) in Climate Zone 5. Results for other types of homes in other climate zones will vary. Contact your Tremco Barrier Solutions Territory Manager for a detailed comparison for your region. The Enviro-Dri Weather-Resistant Barrier System effectively reduces air changes per hour (ACH), allowing you to value-engineer other design variables within the home.

> The Department of Energy estimates that 40% of a buildings' energy loss is due to air infiltration. That uncontrolled air exchange can lead directly to increased construction costs and a failure to meet your energy goals. Whether you're building simply to meet local code requirements, or to the exacting standards of ENERGYSTAR®, by reducing the number of air changes per hour, you can meet your goals and reduce your construction costs, as well.

The Enviro-Dri Weather-Resistant Barrier System is up to 97% more effective in stopping the flow of air through the home's sheathing system, as compared to typically-installed housewraps.



This ASTM test-validated performance improves the effectiveness of other energy-related components of the home, like insulation. In addition, by minimizing the exchange of conditioned and unconditioned air from the home, Enviro-Dri WRB reduces or eliminates the need for increased ceiling and wall insulation, oversized HVAC systems, high-performance windows and expensive air infiltration packages.



Choose your path to meeting your energy goals:

- · Spend more construction dollars by adding more, but less effective, insulation to your walls and ceilings;
- Go through the expense and time to re-draw your plans for 2x6 walls to accommodate the additional insulation:
- Over-size your HVAC system that is more expensive, wastes energy and can provide an uncomfortable living space.

Choose the Enviro-Dri Weather-Resistant Barrier System to reduce your home's ACH, maintain or reduce your construction costs, and meet your current or future energy goals.

Consult your Tremco Barrier Solutions Territory Manager or local construction energy rater to discuss the exact trade-offs you can make in your construction practices to meet the energy efficiency levels you want.

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ENVIRO-DRI®

Weather-Resistant Barrier

Product Overview

The US Department of Energy estimates that 40% of a buildings' energy loss is due to air infiltration. The International Energy Conservation Code (IECC), Energy Star and other energy performance programs for new homes are recognizing and incorporating the importance of air changes per hour (ACH) in their standards at an increasing rate. The Enviro-Dri[®] Weather-Resistant Barrier (WRB) System delivers superior air infiltration performance, as measured in air changes per hour, versus housewraps.

By reducing the exchange of conditioned and unconditioned air from the home, the Enviro-Dri WRB System improves the home's energy efficiency, and allows the builder to value-engineer other energy design variables within the home – such as supplemental air-infiltration packages, insulation, window U-Value, furnace efficiency, etc. – to meet energy-efficiency goals, as well as construction cost objectives.

So whether the goal is to meet minimum energy requirements of the local building code, or to exceed the more stringent energy requirements of Energy Star or to qualify for Federal Energy Tax Credits, the Enviro-Dri Weather-Resistant Barrier System can deliver the energy efficiency you want at lower overall construction costs.

Features & Benefits

Enviro-Dri cost-effectively controls ACH (air changes per hour), a key variable in determining the energy efficiency of a home. Enviro-Dri may therefore enable you to achieve your energy efficiency objectives at lower costs by trading off a portion of one or more of the following:

- Reduce extent of current air infiltration package (AIP)
- Replace sill sealers by sealing with Enviro-Dri Joint Fabric and Membrane





Up to 40% of home energy loss is due to air leaks...

deliver the level of energy efficiency you want — at lower construction costs than housewraps!

- Convert to less expensive windows and doors
- Install lower cost HVAC system
- Reduction in the R-Value of wall cavity, ceiling, above-grade or below-grade insulation

How Enviro-Dri Compares to Housewraps in Stopping Air Movement

Just how effective is the Enviro-Dri Weather-Resistant Barrier System at preventing air infiltration? Side-by-side lab tests were conducted to compare the performance of the Enviro-Dri WRB System to typical housewraps, installed per manufacturers' instructions, in the critical measure of air movement through a wall system.

At pressures equivalent to a 25 MPH wind-load, the Enviro-Dri WRB System was 88% more effective in stopping the flow of air through the wall system! At even greater wind pressures, the Enviro-Dri WRB System performed up to 97% better than mechanically-fastened and taped housewrap!

What happens in the real world, though? Here's an example of observations of housewrap installations in the Midwest:

- 93% of installations did not tape or otherwise seal joints;
- 75% of installations did not effectively • seal windows and doors against air infiltration;

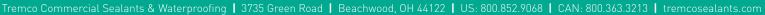
Source: Pennsylvania Housing Resource Center

If your housewrap installations look like those from this study, imagine how much better your WRB would perform with the Enviro-Dri System!

By controlling air exchanges, the Enviro-Dri Weather-Resistant Barrier System provides a more effective alternative to housewraps.

Consult your local construction energy rater to discuss the exact trade-offs you can make in your construction practices to meet the energy efficiency levels you want.

Air Changes Per Hour



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