



## WEATHER RESISTIVE BARRIER COMPARITIVE DRYING STUDY REPORT OF FINDINGS

Project Name: Vaproshield Comparative Drying Study Project #: 1402-1012	Today's Date: 9.2.2014
Client: Snyder Architectural Systems	

Bee was retained by Snyder Architectural Systems, Inc. for the purpose of developing and performing a comparative drying study of several commercially available weather resistive barriers (WRB's). In the preparation for the study, BEE chose products in common use in the Pacific Northwest market.

The objective of the study was to categorize differential drying rates of plywood substrates with the installed product applied to a single exposed plane of the sample. The samples were subjected to a moving air stream that was intended to simulate the typical ventilation rates that have been reported in commonly constructed ventilated rain screen cavities.

During the course of testing, data was gathered for all samples to at least 300 hours of duration (over 12 days). It is our view that the initial 100 hours is an important time period when dealing with substrates having elevated moisture content over 19% by weight. Mold colonization and the beginnings of wood fungal growth are likely to begin if rapid drying is not initiated.

### **The Products:**

All products included in the study were materials meeting the AC38/AC212 Criteria for Acceptance as a Weather Resistive Barrier code adopted standard. AC38 establishes guidelines for evaluation of water-resistive barriers, which are limited to sheet materials used on exterior walls as water-resistive barriers; moisture protection barriers; weather-resistive barriers; and (optionally) air barrier materials. AC212 is related to evaluation of fluid applied weather resistive barriers. Each product was rated as Air Barrier materials (air leakage rate of less than .004 cfm/ft<sup>2</sup> @75 Pa) in accordance with ASTM E2178 (with the exception of Vaproshields' Wallshield). Technical data sheets for each product may be found in the appendix to this report. Manufacturer's stated water vapor transmission rate is expressed in US perms (grain/hour/ ft<sup>2</sup>/ in Hg) and each manufacturer based these results on ASTM E96 Procedure B (wet cup)



methods, typical in the polymeric weather barrier industry. The variety of products included mechanically attached, adhesively attached, and fluid applied products.

**Tyvek Commercial Wrap**- Mechanically attached, 7 mil thick 100% flash spunbonded high density polyethylene fibers which have been bonded together by heat and pressure, without binders or fillers, into a tough durable sheet structure. Sheet good is stated to be 28 US Perms.

**Cosella Dorken DeltaVent SA**- A three ply self -adhering polymeric membrane. Proper application includes the use of a proprietary fluid applied solvent based primer called DeltaPrimer LVC. It has a printed top layer of spun-bonded polypropylene. The center is a vapor-permeable water-tight polymeric sheet. The adhesive is applied to the bottom layer of spun bonded polypropylene. Membrane is stated to be 50 US Perms.

**Henry VP160**- a self-adhering air barrier membrane with an engineered film specifically designed to be water resistant and vapor permeable. Proper use includes the use of a water based fluid applied primer such as Henry Aquatac. Membrane + Primer is stated to be 18 US perms.

**Grace Perm-A-Barrier VPS**- self-adhering vapor permeable air barrier membrane consisting of a breathable carrier film with a specially designed adhesive. Proper use includes the use of a fluid applied primer called Perm-A-Barrier Plus, a water based adhesion promoter. Membrane is stated to be 15 US perms.

**Vaproshield Wrapshield IT**- A mechanically attached water-resistive air barrier sheet membrane used behind pressure equalized rain screen wall cladding systems such as composite panels, metal siding, masonry veneers, stucco and EIFS. Membrane is stated to be 50 US perms.

**Vaproshield Wrapshield SA**- An adhesively attached water-resistive air barrier sheet membrane used behind pressure equalized rain screen wall cladding systems such as composite panels, metal siding, masonry veneers, stucco and EIFS. Membrane is stated to be 50 US perms. No primers are required for the proper use of the product.

**Vaproshield Revealshield IT**- a mechanically attached water-resistive air barrier sheet membrane specifically designed for open joint rain screen wall cladding systems, where permanent UV exposure is inherent. Membrane is stated to be 42 US perms.

**Vaproshield Revealshield SA**- An adhesively attached water-resistive air barrier sheet membrane specifically designed for open joint rain screen wall cladding systems, where



permanent UV exposure is inherent. Membrane is stated to be 42 US perms. No primers are required for the proper use of the product.

**Vaproshield Wallshield**- A highly vapor permeable mechanically attached water-resistive air barrier sheet membrane used behind pressure equalized rain screen wall cladding systems such as composite panels, metal siding, masonry veneers. Membrane is stated to be 212 US perms. This product does not meet the criteria for use as an air barrier material.

**Tyvek Fluid Applied WB System**- Polyether based elastomeric roller/brush grade liquid applied weather resistive barrier/air barrier membrane. 25 mil application yields 25 US perms per technical literature.

**Prosoco R Guard Cat 5**- Polyether based elastomeric roller/brush grade liquid applied weather resistive barrier/air barrier membrane. 12 mil application yields 18 US perms per technical literature.

**Sto Gold**- Acrylic based elastomeric roller/brush grade liquid applied weather resistive barrier/air barrier membrane. 10 mil application yields 10 US perms per technical literature.

**Siga Majvest**- Facade membrane for rainproof and windtight facades in exterior applications. 3-layered; microporous functional layer, reinforced on both sides with PP nonwoven. Membrane is stated to be 68 perms.

**Typar MetroWrap**- 12.1 mil polymeric weather resistive barrier. Membrane is stated to be 10 perms.



## The Test

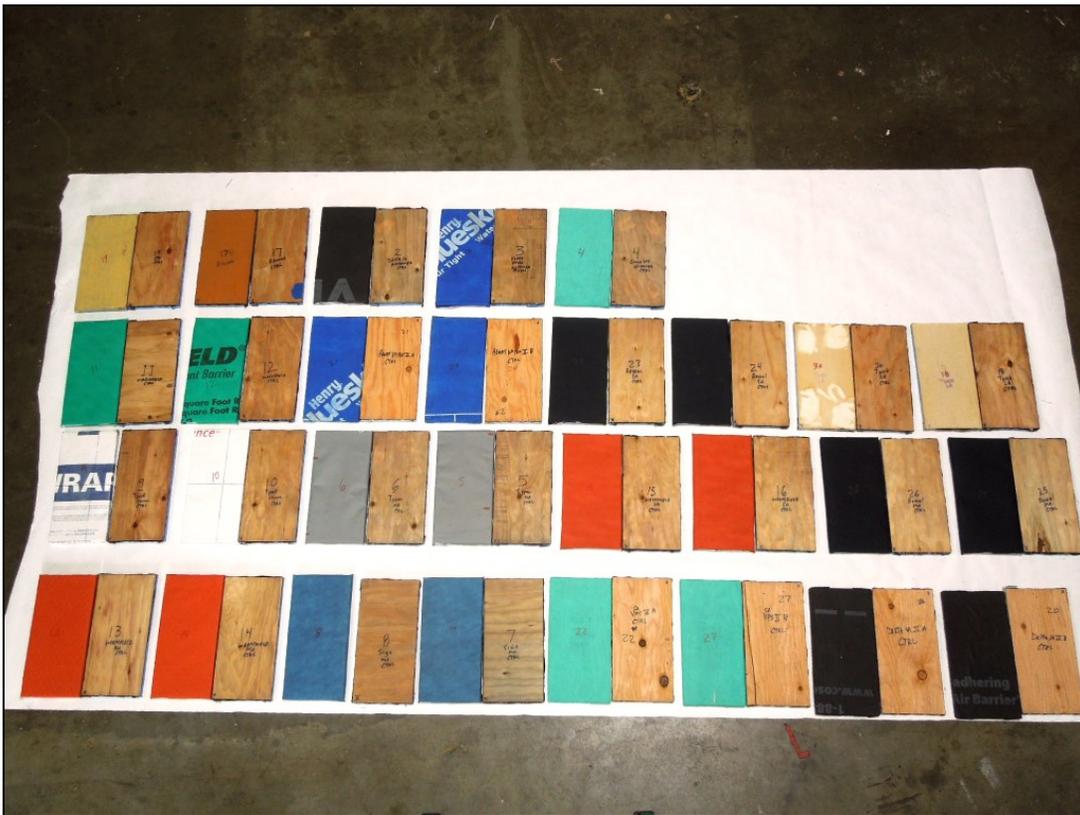
A wood framed air flow plenum was constructed to house the product and control specimens for the duration of the test. Vertical racks situated parallel to the air flow stream were placed to store three specimens in height for a total of 30 slots.





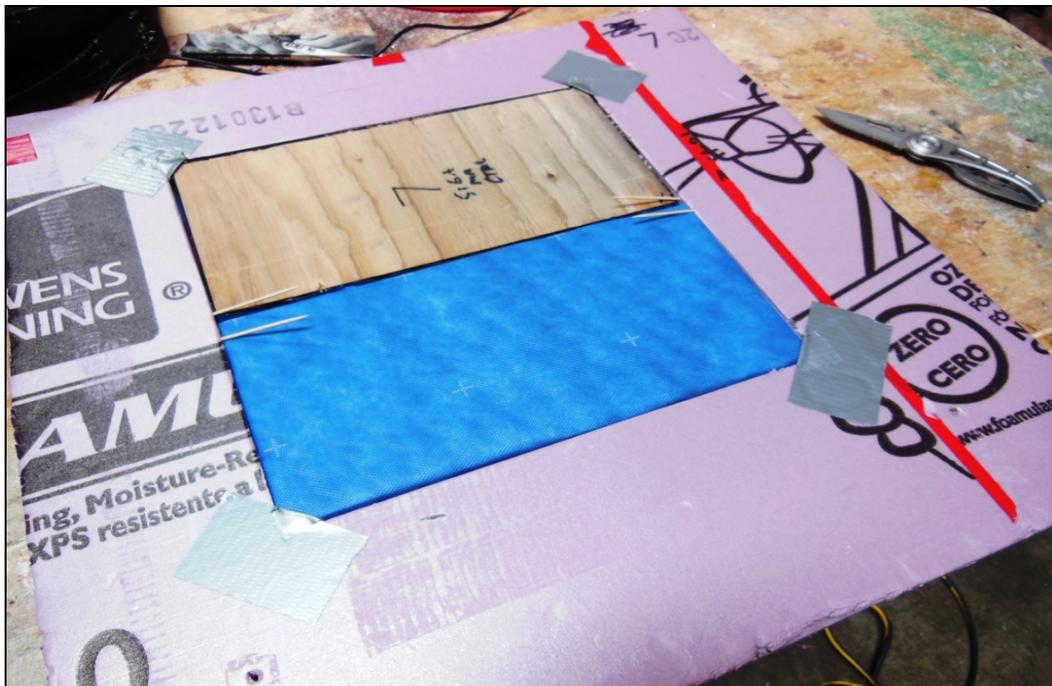


The control and product samples were carefully cut from a single sheet of plywood separated into 12" squares. The 12" squares were further cut in half (6" x 12") to represent control and product pair. A self-adhering vapor *barrier* (asphalt or butyl based polyethylene faced self-adhering membrane) was applied to the back and edges of the samples to leave the last remaining face as the product or control plane where evaporation was to be assessed.



The samples were submerged in water filled containers for a period of four (4) days, and were observed to have reached near fiber saturation as indicated by Delmhorst BD2100 moisture meter<sup>1</sup> direct probing to central region of thickness (>40% M.C. by weight). Generally, plywood is understood to reach fiber saturation between 28% and 36% moisture content by weight, depending on species of manufacture. Excess bulk surface water was removed from saturated samples, and sheet applied membranes were installed over one of the two paired samples. All samples were prepared and stored in a 2 mil polyethylene sealed bag in order to retard any evaporation prior to loading the specimens into the plenum. The paired samples were then installed in a rigid foam blank, retained in plane by toothpicks where necessary for stabilization, and installed into the test plenum in a random order.

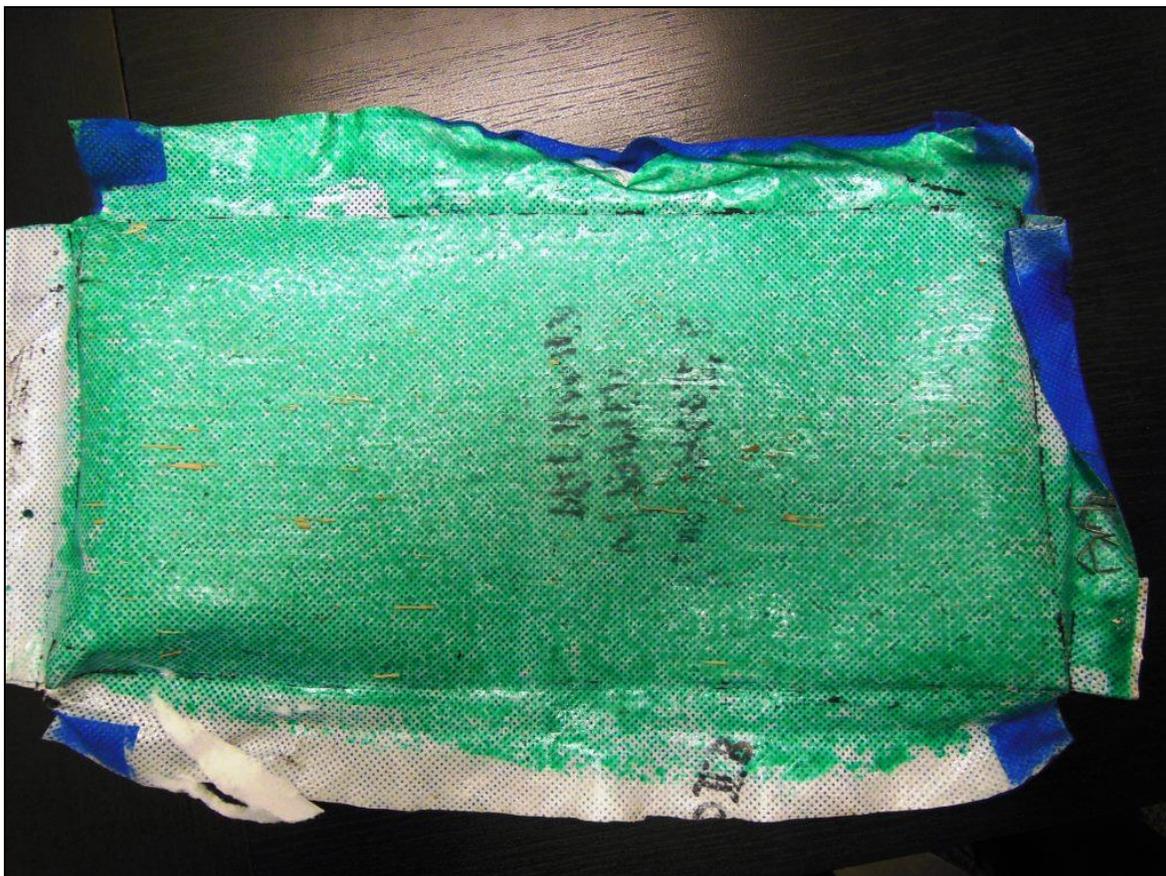
<sup>1</sup> Delmhorst BD-2100 Digital Moisture Meter Serial #57254 factory calibrated as new 12- 2013





Mechanically attached sheet goods were applied after saturation, while the fluid applied and primer reliant self- adhered sheet membranes were applied prior to saturation. This was necessary due to the logistics of applying primer or liquids to a saturated substrate. During the test it was noted that the self- adhered membranes (and the liquid applied samples to a lesser extent) that were saturated in the initial stage exhibited accelerated early drying, this was further considered to be related to some water retainage of the fibers of the WRB. The primer reliant samples (Henry VP160, Grace VPS, and DeltaVent SA) were reconfigured in the following method on additional plywood pieces to allow attachment over pre-saturated sample:

Using the supplied release sheet for each respective self-adhered product, apply layer of primer at manufacturer's recommended application rate (generally as thin as possible). Once the primer cures, self-adhered sheet was applied over the primer/release sheet. The composite primer/product was then removed from the release paper and applied to the plywood substrate in the same manner as the mechanically attached sheets. In this manner, we were able to use the primer/self- adhered sheet without needing to apply primer to a saturated plywood sample. These samples were restarted concurrently with the ongoing tests.



*Henry VP160 with Aquatac Primer after transfer from release sheet. Post test photo.*



Directional air flow was generated using a Retrotec 3350 Series Blower Door Fan Assembly <sup>2</sup>, and incorporated flow diffusion perforated panels at the intake and exhaust, with a plate baffle near the fan to further buffer possible turbulent effects in the chamber. A Retrotec DM32 Dual Channel digital manometer<sup>3</sup> was programmed with the internal volume of the plenum to determine air changes per hour. The overarching goal in treatment of the airflow with diffusers was to minimize concentrated regions of accelerated air flow that may affect drying rates over the sample population.



The air exchange rate of 50 ACH was chosen as it represents the likely flows associated with a properly vented ½” rainscreen cavity, based on previous publications <sup>4,5</sup>, accounting for thermal and moisture buoyancy, convection due to thermal gradients, vent occlusion, and wind driven air pressure.

<sup>2</sup> Retrotec SN 3350 PH002041, Factory Calibration date 2-5-2014

<sup>3</sup> Retrotec DM32 Manometer, SN 400832, Factory Calibration date 2-7-2014

<sup>4</sup> J. Straube, G. -Finch Ventilated Wall Claddings: Review, Field Performance, and Hygrothermal Modeling; Page 11, Figure 5

<sup>5</sup> Steven Doggett, Ph.D.-2012 Building Enclosure publication article “Is Your Rainscreen Deceiving You?” , Page 3



A 48 hour confirmation test consisted of preparing eight 6"x6" oriented strand board samples brought to fiber saturation and placed equidistant through the racks was monitored for differential drying (by measuring weight lost vs hours), and found to be in close agreement (within +/- 5% variance). The actual test included assignment of each specimen a number by random number generation, and randomizing all available slots within each weighing turnover/reinstallation. This substantially ensured that any in-chamber variance of airstream and its possible associated effect on drying potential is moderated by the random placement of specimens.

At the specified air exchange rate, it is expected that we are well inside the laminar flow region, i.e., the rate of flow that initiates significant turbulent effects within the chamber. Additional neutral buoyancy smoke tests under specified flow conditions provided a visual means to observe the relative air stream homogeneity.

Ambient temperature and humidity conditions throughout the duration of the test were relatively stable at 71 degrees F +/- 5%, and 54% R.H. +/-8% as measured by Extech temperature/humidity pen<sup>6</sup> and cross checked by Taylor RH/Temp sensor<sup>7</sup>. Additional measurements at various areas in the chamber indicated generally steady state conditions.

The samples were periodically measured using an Ohaus digital scale<sup>8</sup>, and weight data was recorded into the spreadsheets. Turnaround and restarting of the test after measurements was typically 30-35 minutes. During the measurement process, all samples were removed from the chamber and reracked according to the random number distribution.



<sup>6</sup> Extech RH/Temp pen 445580, SN 1005345, cross checked to Taylor<sup>7</sup> sensor prior to test

<sup>7</sup> Taylor RH/Temp wireless sensor, 1525-10, SN 4813V0270, Factory calibrated as new

<sup>8</sup> Ohaus Valor 1000 Digital scale, SN 10922907 Factory calibrated as new





**Summary:**

In the analysis of the first 100 hours of drying, the following order of products was established, with the total amount of water evaporated noted. The higher in the list, the greater drying potential that was observed for the given air flow rate across the face of the sample.

<b><i>Product</i></b>	<b><i>Grams Lost</i></b>
<b><i>Wallshield</i></b>	<b><i>78.1</i></b>
<b><i>Revealshield Mechanically Attached</i></b>	<b><i>65.6</i></b>
<b><i>Prosoco Cat 5 Liquid WRB</i></b>	<b><i>63.0</i></b>
<b><i>Wrapshield Mechanically Attached</i></b>	<b><i>55.1</i></b>
<b><i>Revealshield Self Adhered</i></b>	<b><i>51.8</i></b>
<b><i>Wrapshield Self Adhered</i></b>	<b><i>47.3</i></b>
<b><i>Siga Majvest Mechanically Attached</i></b>	<b><i>44.1</i></b>
<b><i>Tyvek Liquid WRB</i></b>	<b><i>42.9</i></b>
<b><i>Delta Vent Self Adhered</i></b>	<b><i>23.6</i></b>
<b><i>Tyvek Commercial Wrap Mech. Attached</i></b>	<b><i>20.4</i></b>
<b><i>Sto Gold</i></b>	<b><i>12.5</i></b>
<b><i>Grace VPS Self Adhered</i></b>	<b><i>10.4</i></b>
<b><i>Typar MetroWrap Mech. Attached</i></b>	<b><i>4.2</i></b>
<b><i>Henry VP160</i></b>	<b><i>2.2</i></b>

Appendix A of this report contains resultant graphs that depict the noted drying curves. Appendix B contains product information for all products tested.

It is of note that the self-adhered membranes that require an additional primer have very slow drying rates, even while at least one of the products (DeltaVent SA- 50 perms) has high vapor permeance stated by the manufacturer. The Grace VPS and Henry VP 160 both applied with recommended primer showed very limited water loss over the course of the test.

Wrapshield SA retained its permeance, being relatively similar to the mechanically attached Wrapshield. Following the test, the samples were deconstructed, and the Wrapshield SA product was found to be adhered to the substrate to the point of cohesive failure. As the product was applied like other sheet goods after saturation of the plywood, this is an indicator of excellent adhesion development even on a completely saturated substrate.

The liquid applied product data should be considered informational only, as an initial accelerated drying pattern was noted. Additional research will be performed on the statistical



variances of the plywood and the possible application of small correction factors due to this variability. This data will be subsequently issued as a supplementary addendum to this report.

Prepared by: 

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Reviewed by:



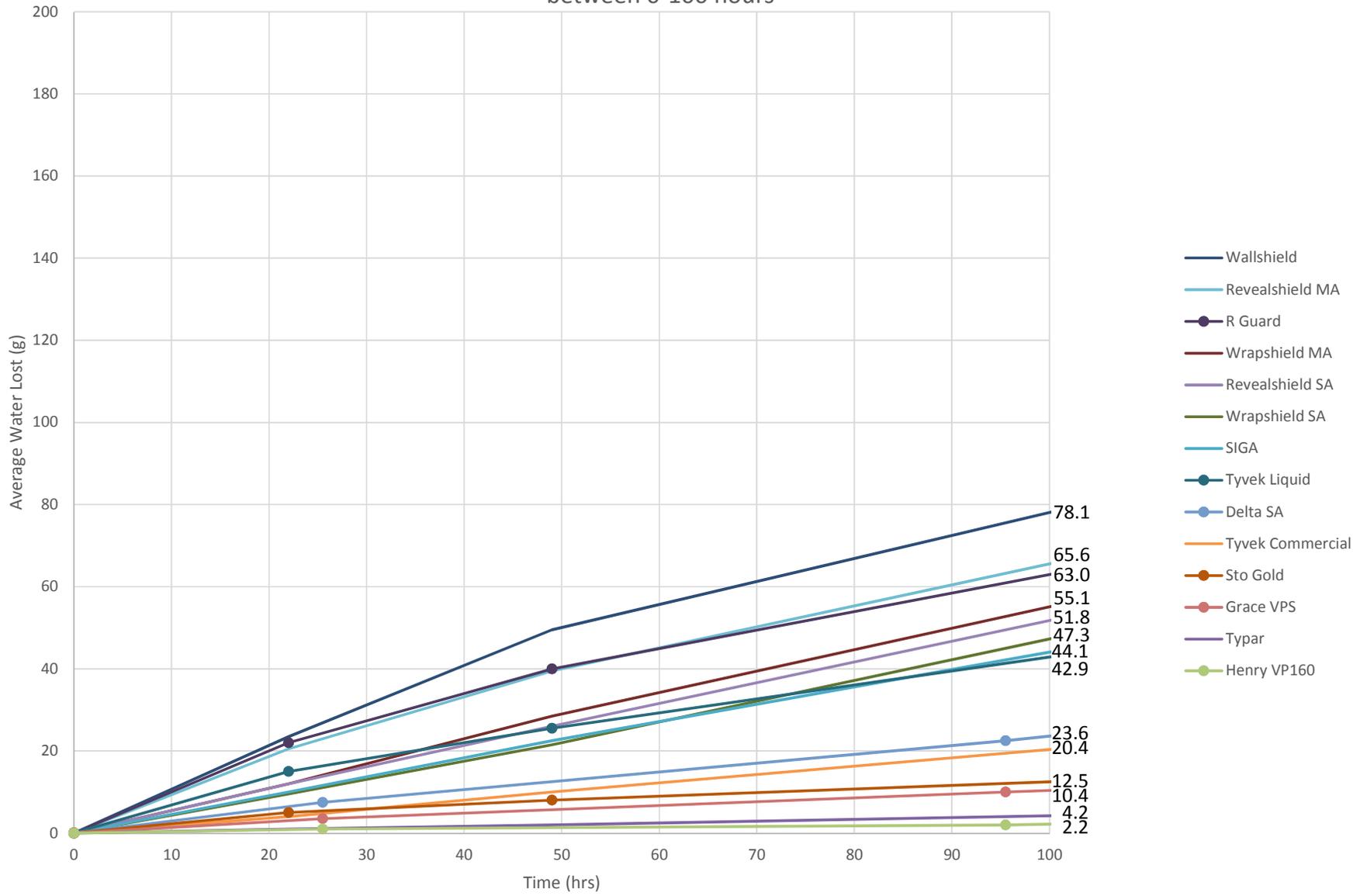
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James C. Freeling, P.E

#### DISCLAIMER

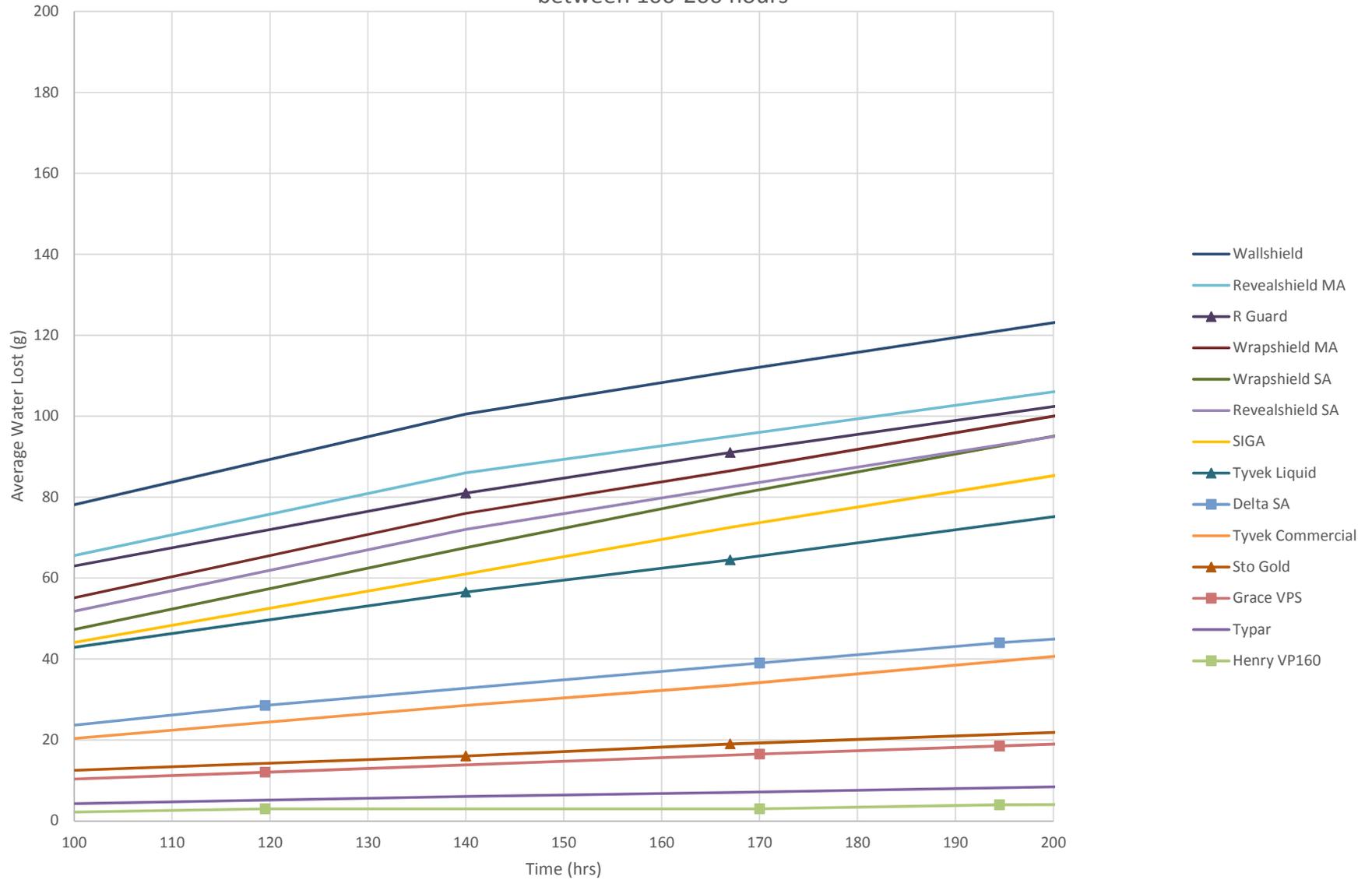
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# Appendix A: Moisture Loss Curves

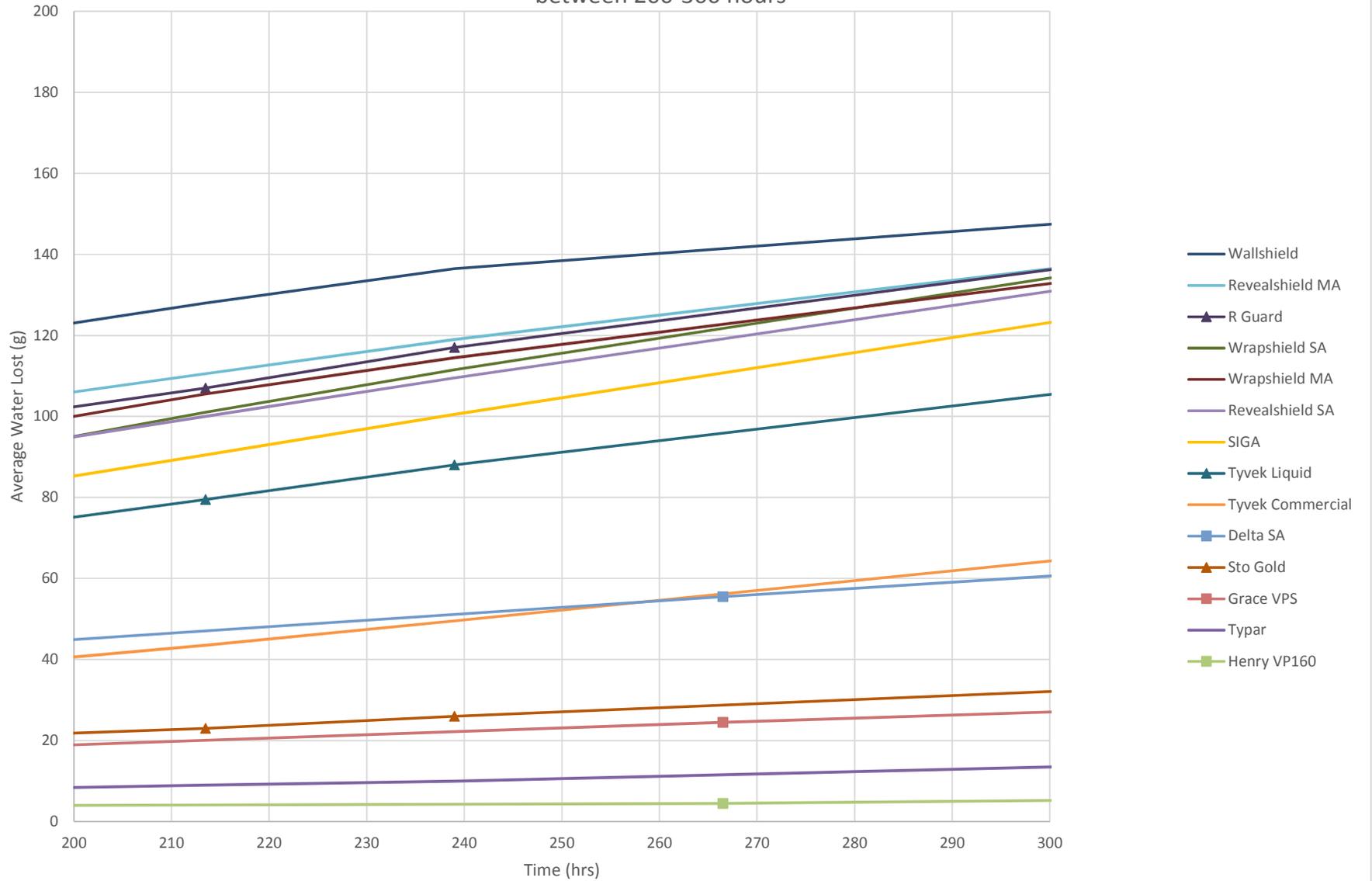
WRB installed on plywood in simulated ventilated cavity (50 ACH nominal, 71F +/-5%, 54% R.H. +/-8%)  
between 0-100 hours



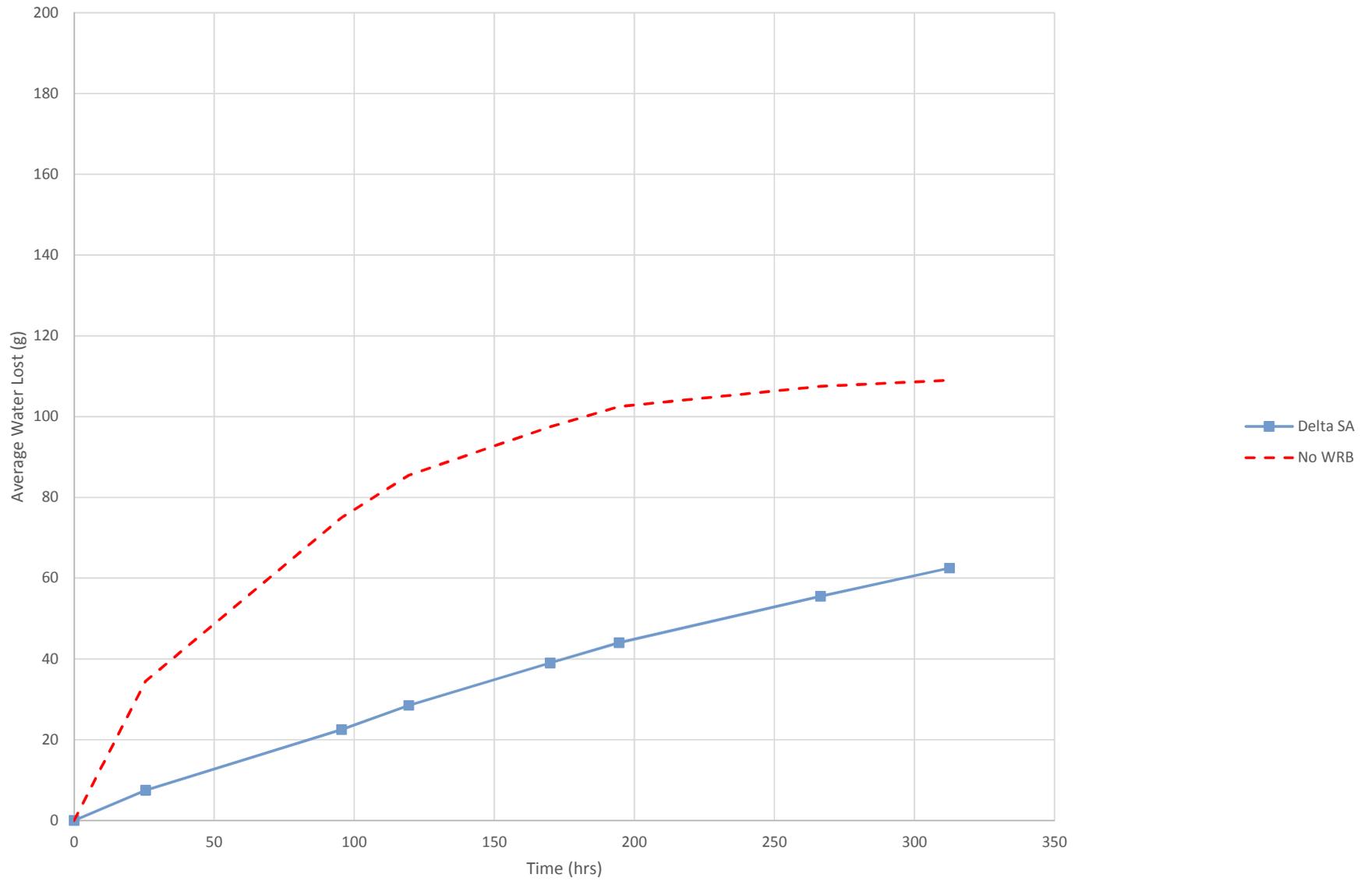
WRB installed on plywood in simulated ventilated cavity (50 ACH nominal, 71F +/-5%, 54% R.H. +/-8%)  
between 100-200 hours



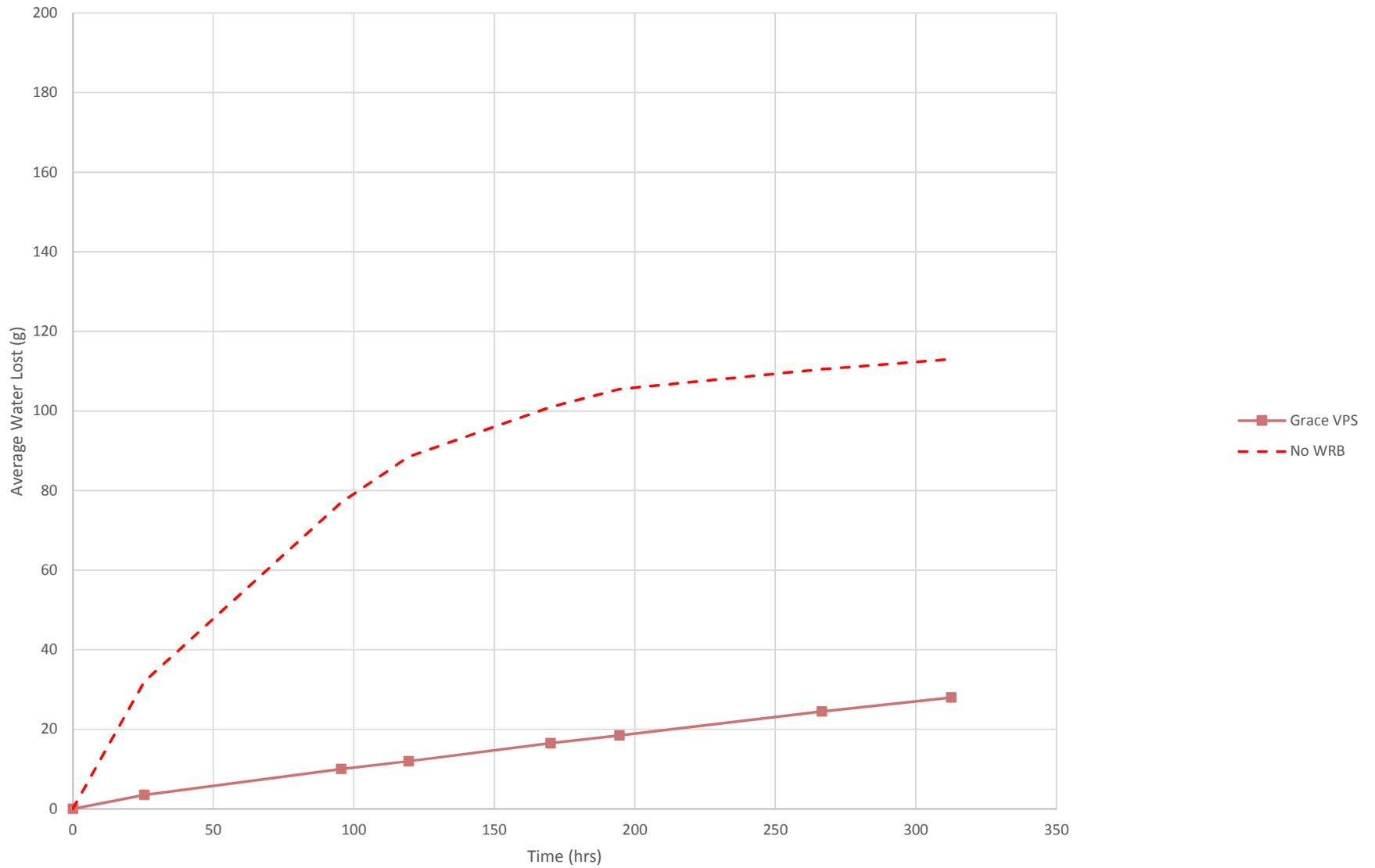
WRB installed on plywood in simulated ventilated cavity (50 ACH nominal, 71F +/-5%, 54% R.H. +/-8%)  
between 200-300 hours



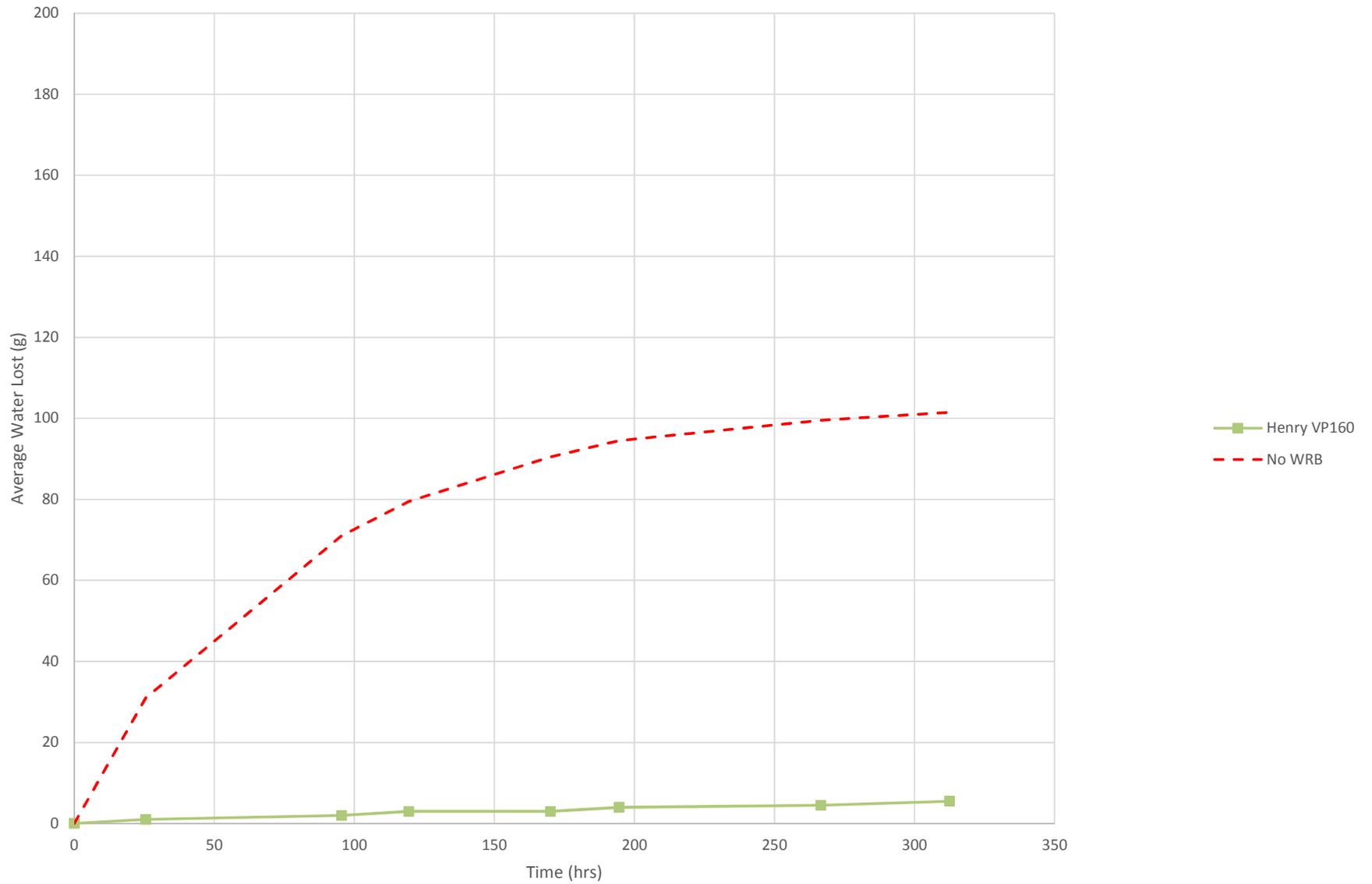
WRB installed on plywood in simulated ventilated cavity (50 ACH nominal, 71F +/-5%, 54% R.H. +/-8%)



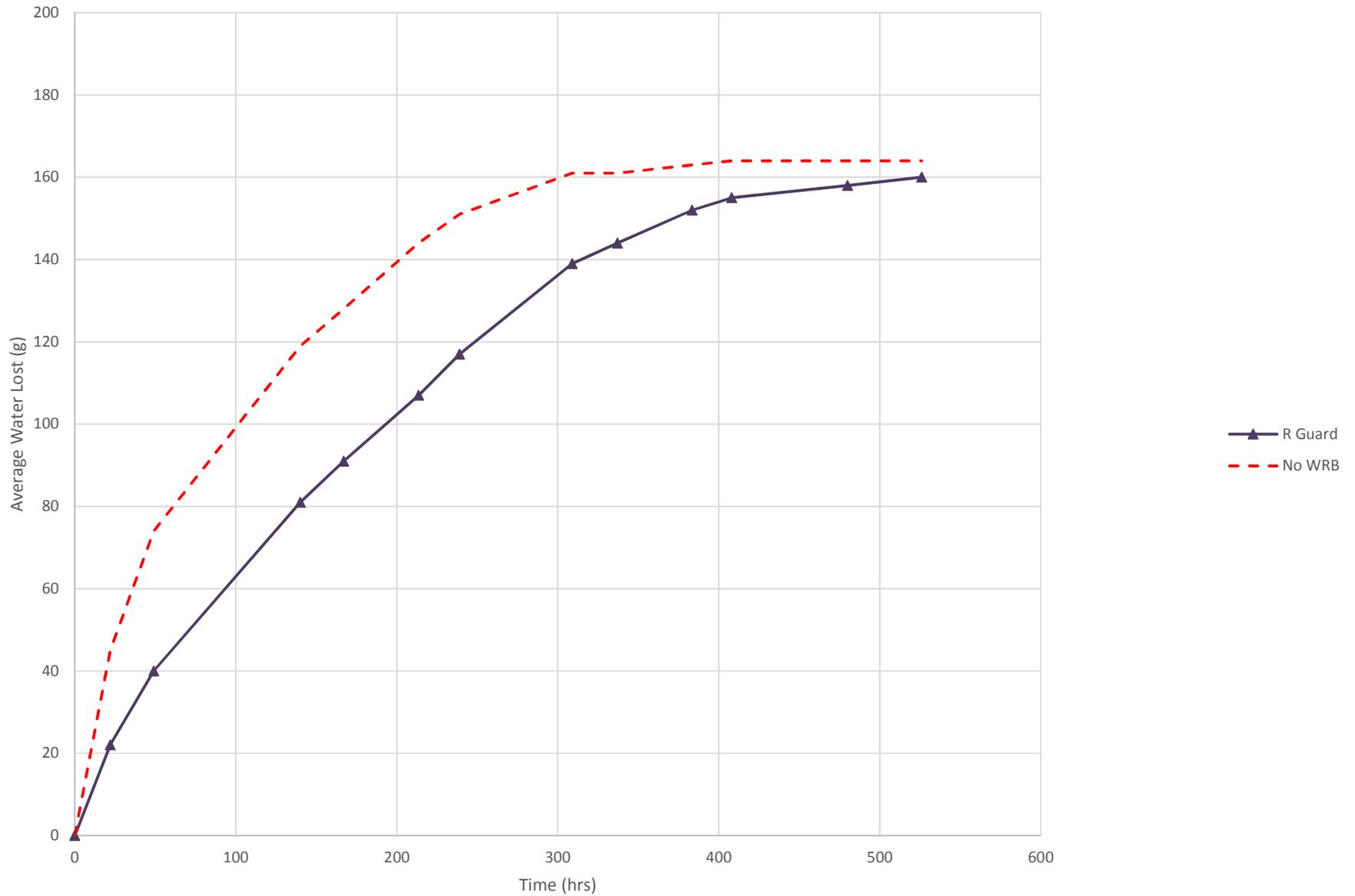
WRB installed on plywood in simulated ventilated cavity (50 ACH nominal, 71F +/-5%, 54% R.H. +/-8%)



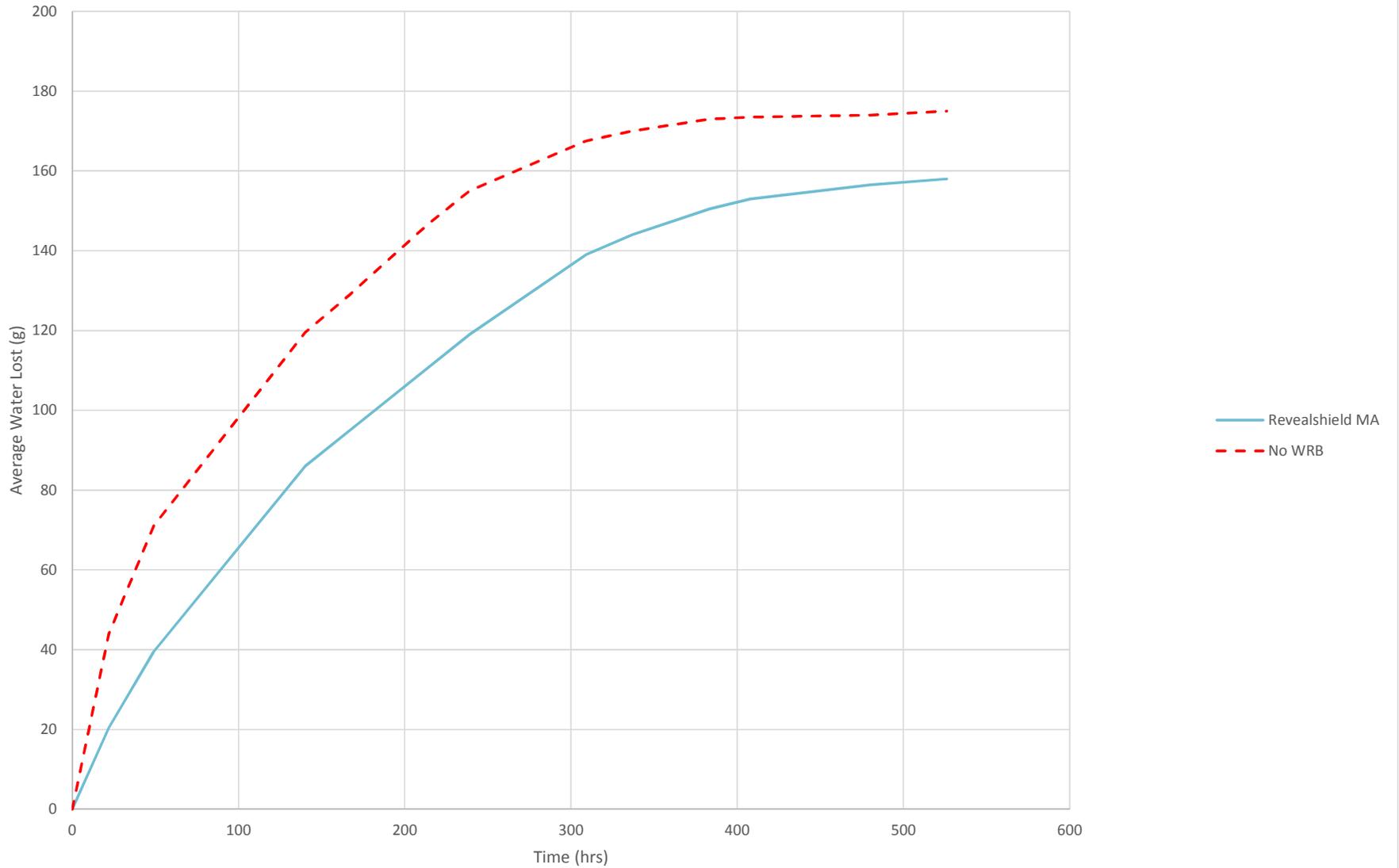
WRB installed on plywood in simulated ventilated cavity (50 ACH nominal, 70 F, ~~50% RH +/- 5%~~ 54% RH/+/-8%)



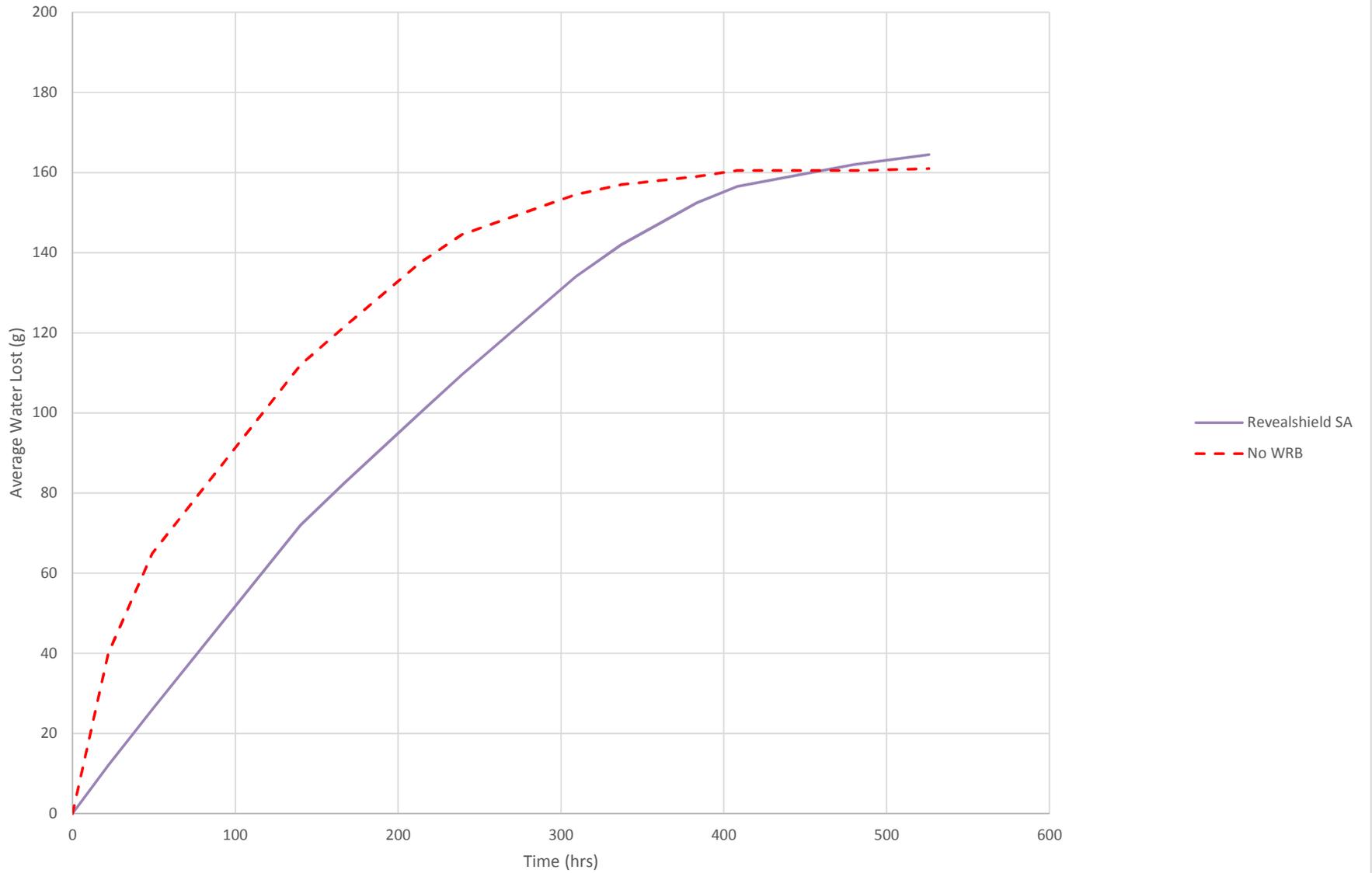
WRB installed on plywood in simulated ventilated cavity (50 ACH nominal, 71F +/-5%, 54% R.H. +/-8%)



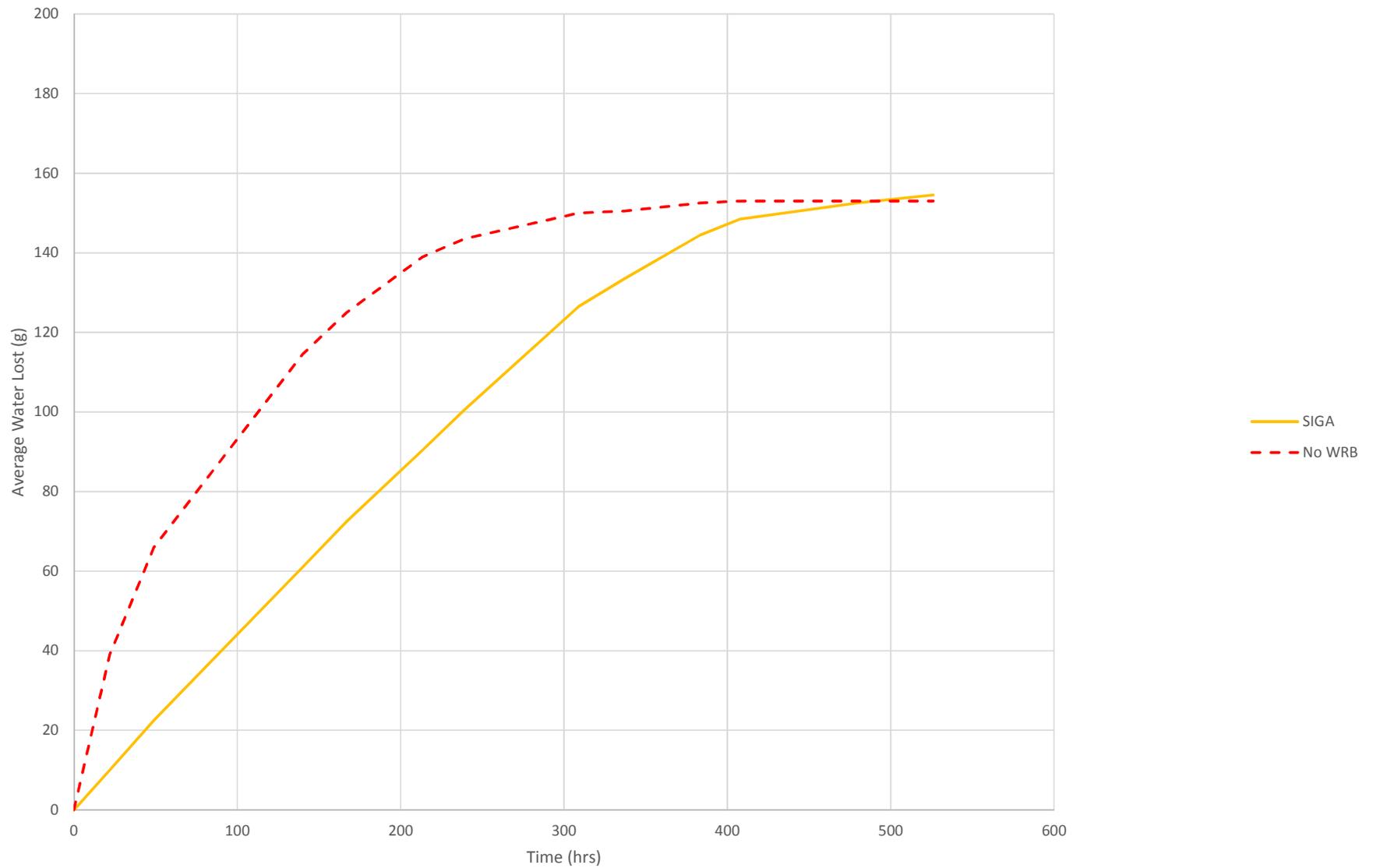
WRB installed on plywood in simulated ventilated cavity (50 ACH nominal, 71F +/-5%, 54% R.H. +/-8%)



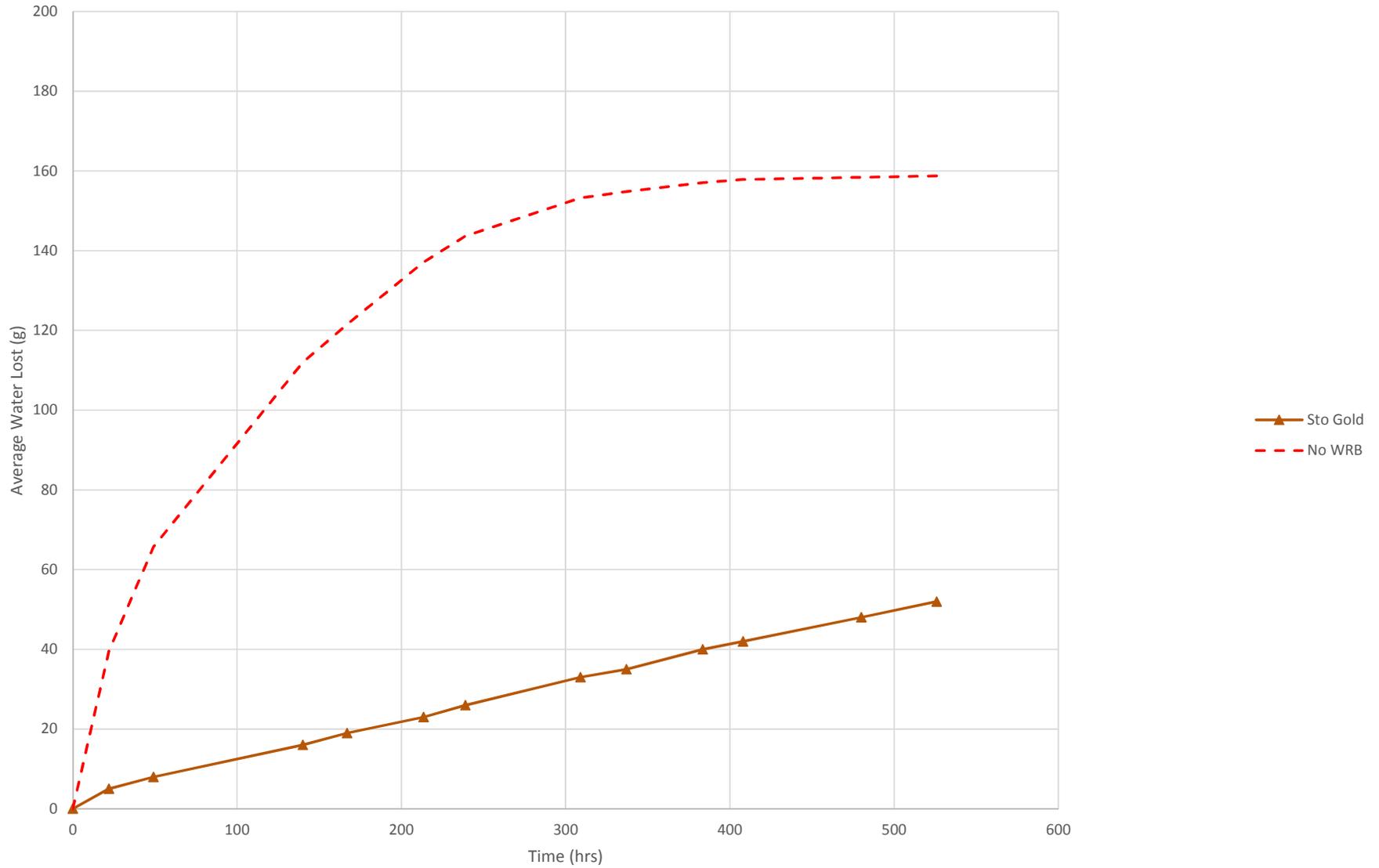
WRB installed on plywood in simulated ventilated cavity (50 ACH nominal, 71F +/-5%, 54% R.H. +/-8%)



WRB installed on plywood in simulated ventilated cavity (50 ACH nominal, 71F +/-5%, 54% R.H. +/-8%)

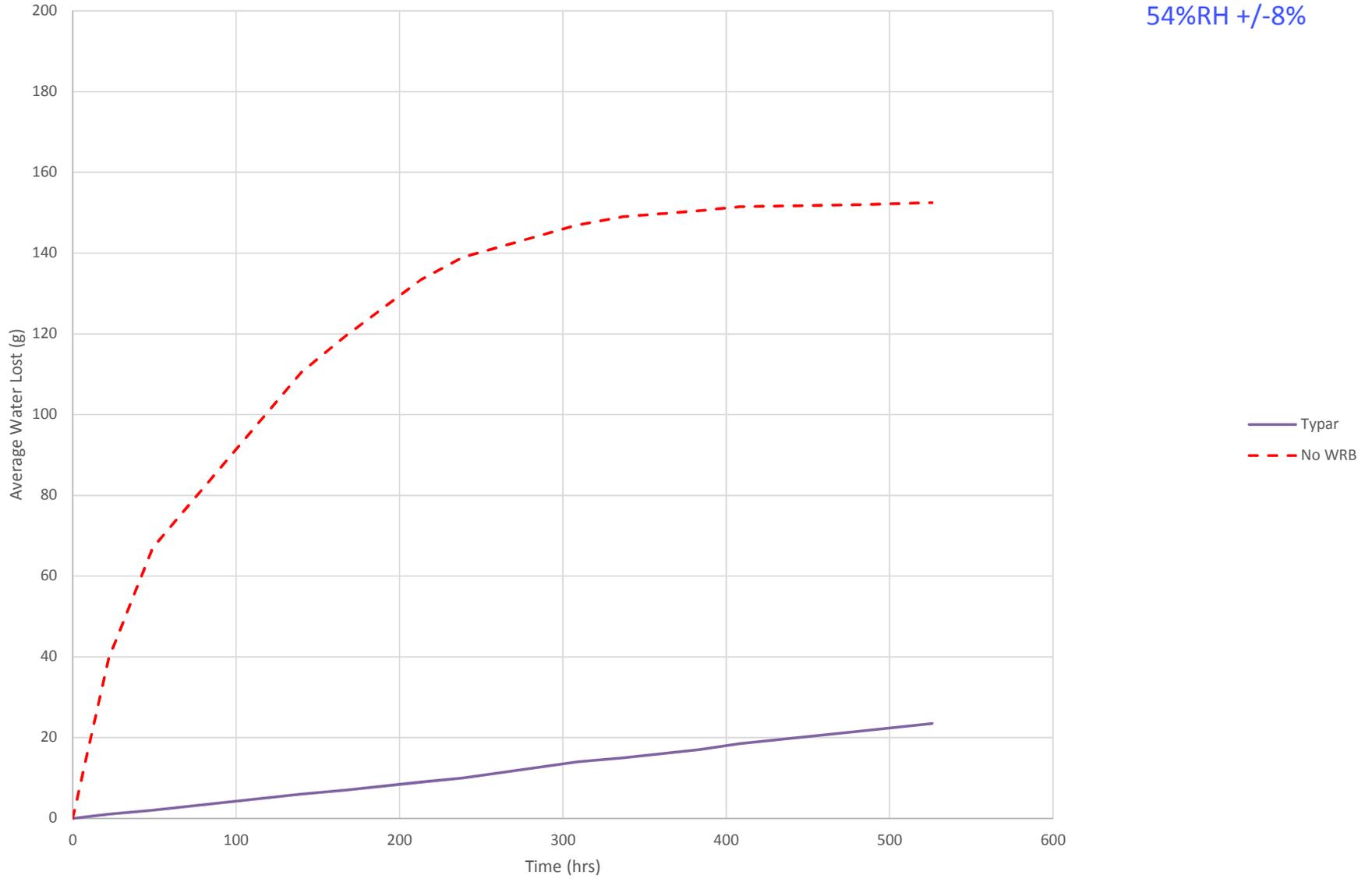


WRB installed on plywood in simulated ventilated cavity (50 ACH nominal, 71F +/-5%, 54% R.H. +/-8%)

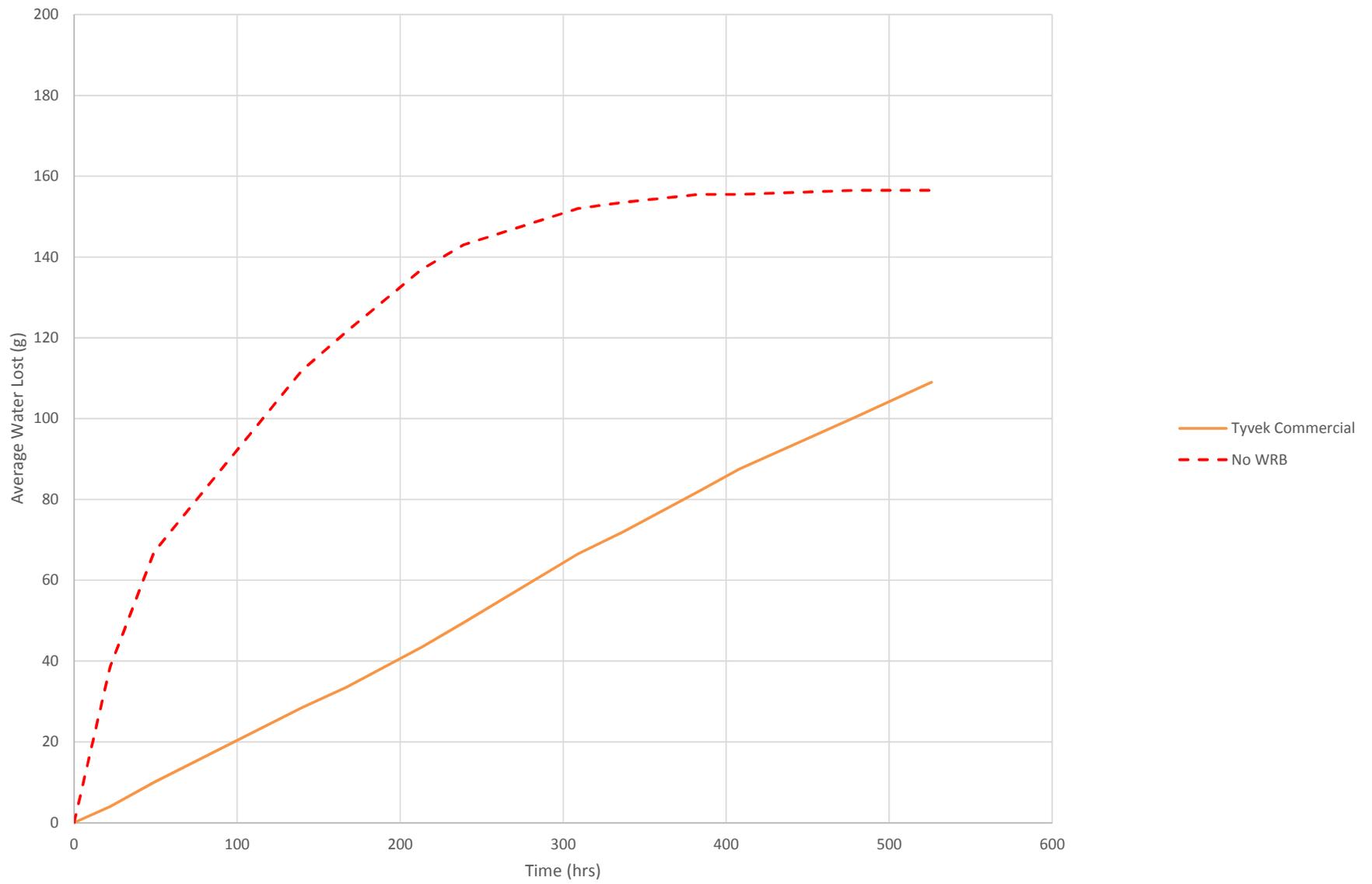


WRB installed on plywood in simulated ventilated cavity (50 ACH nominal, 70 F, ~~50% RH +/- 5%~~)

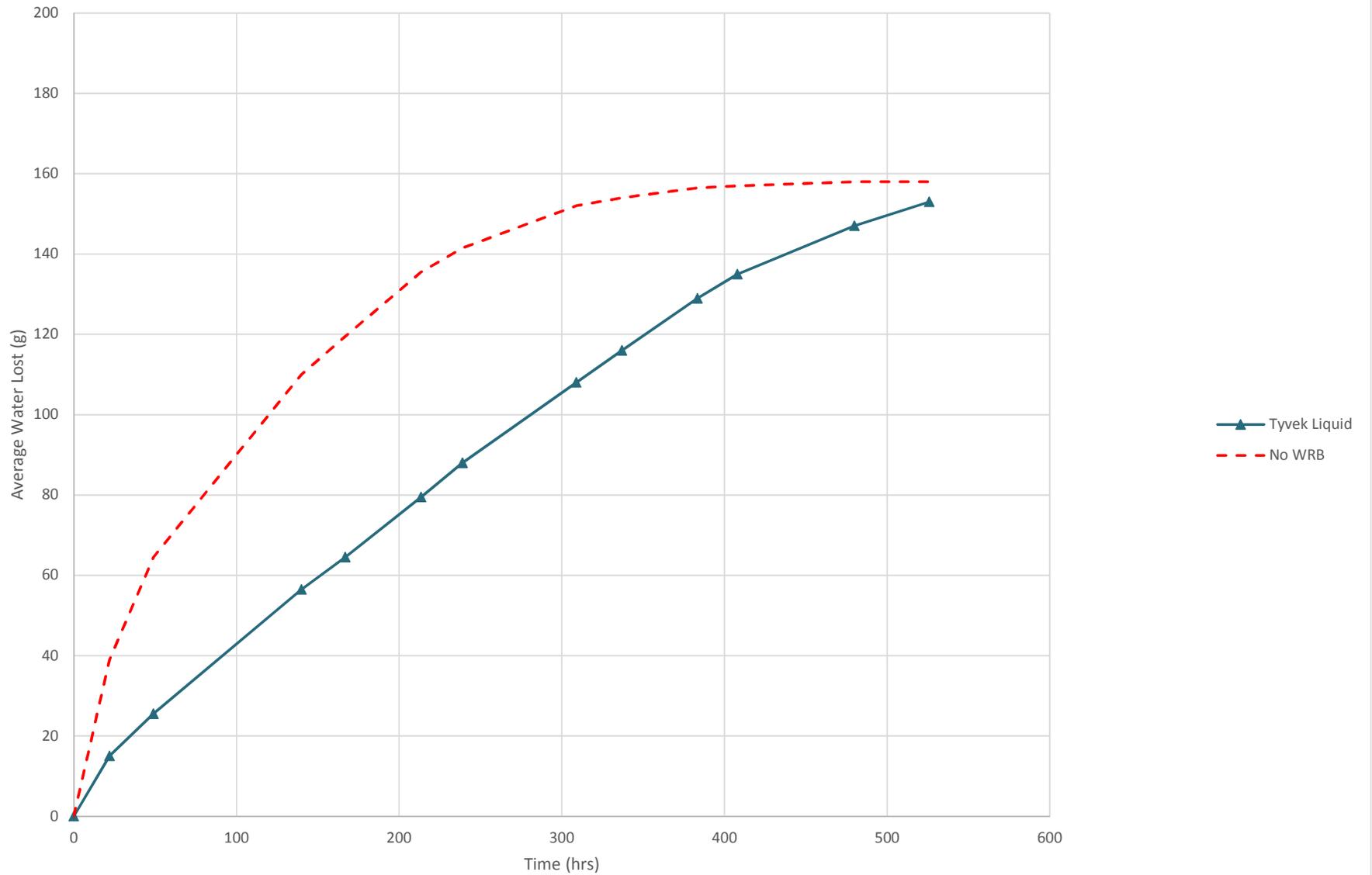
54%RH +/- 8%



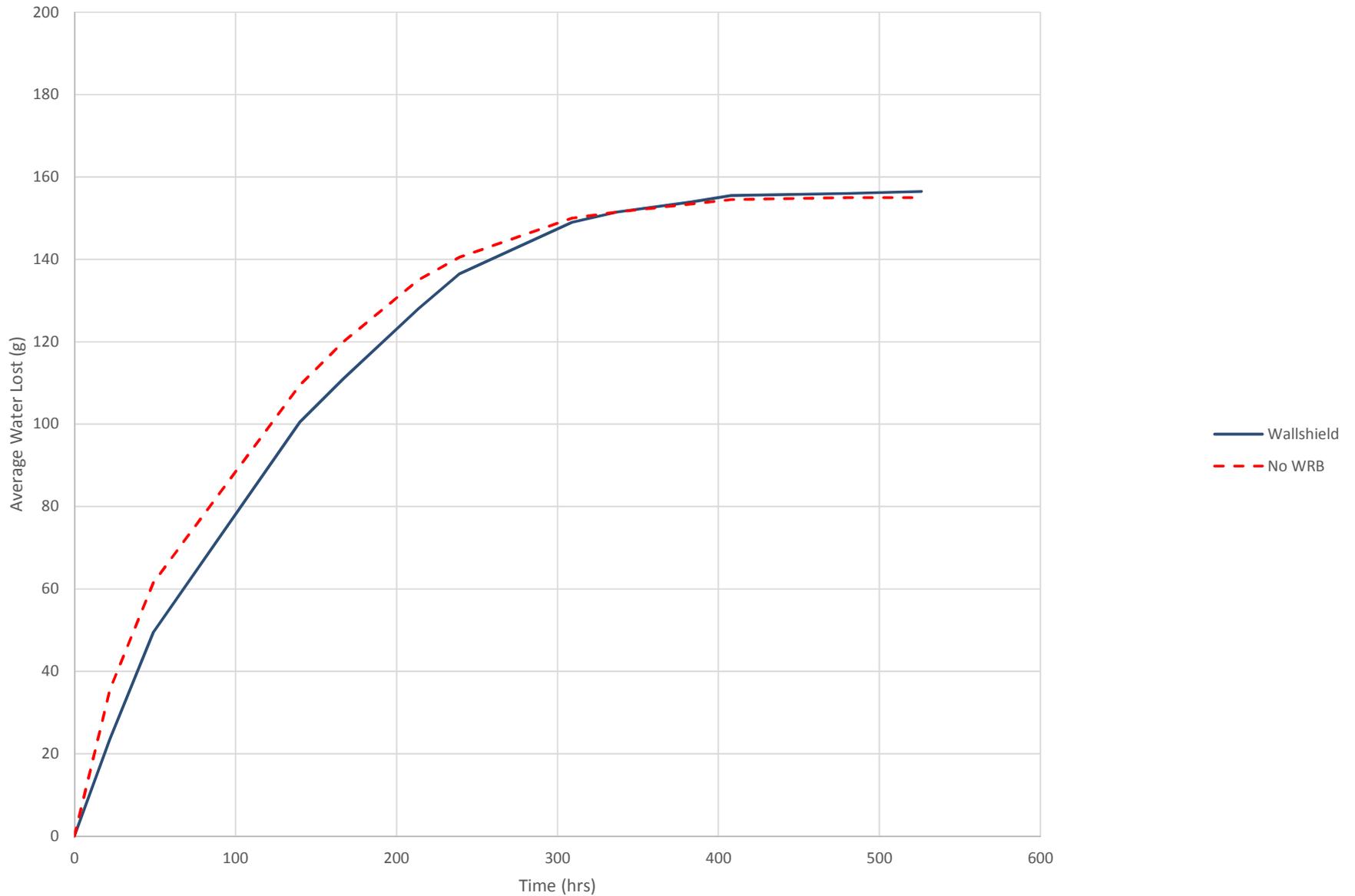
WRB installed on plywood in simulated ventilated cavity (50 ACH nominal, 71F +/-5%, 54% R.H. +/-8%)



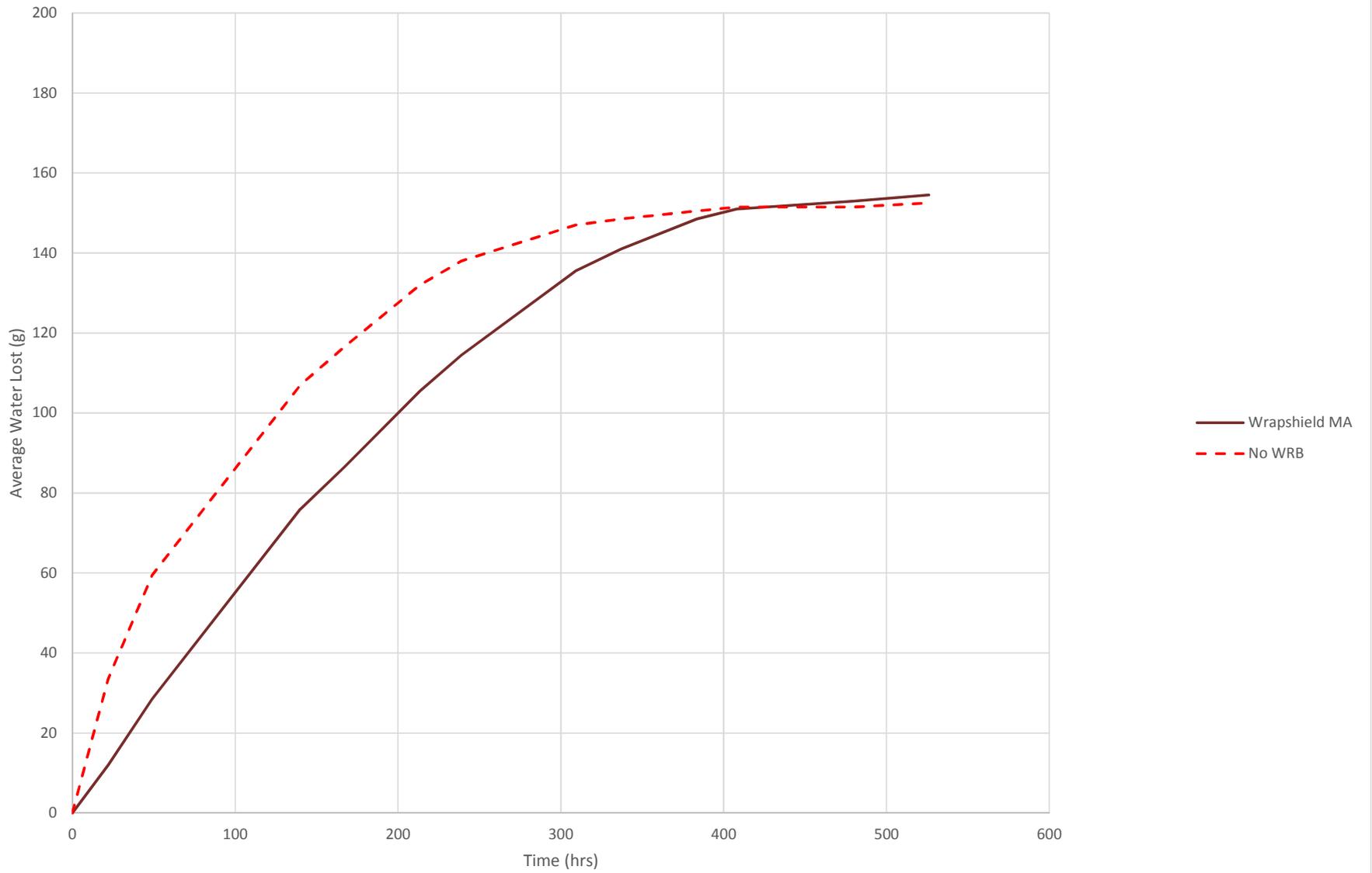
WRB installed on plywood in simulated ventilated cavity (50 ACH nominal, 71F +/-5%, 54% R.H. +/-8%)



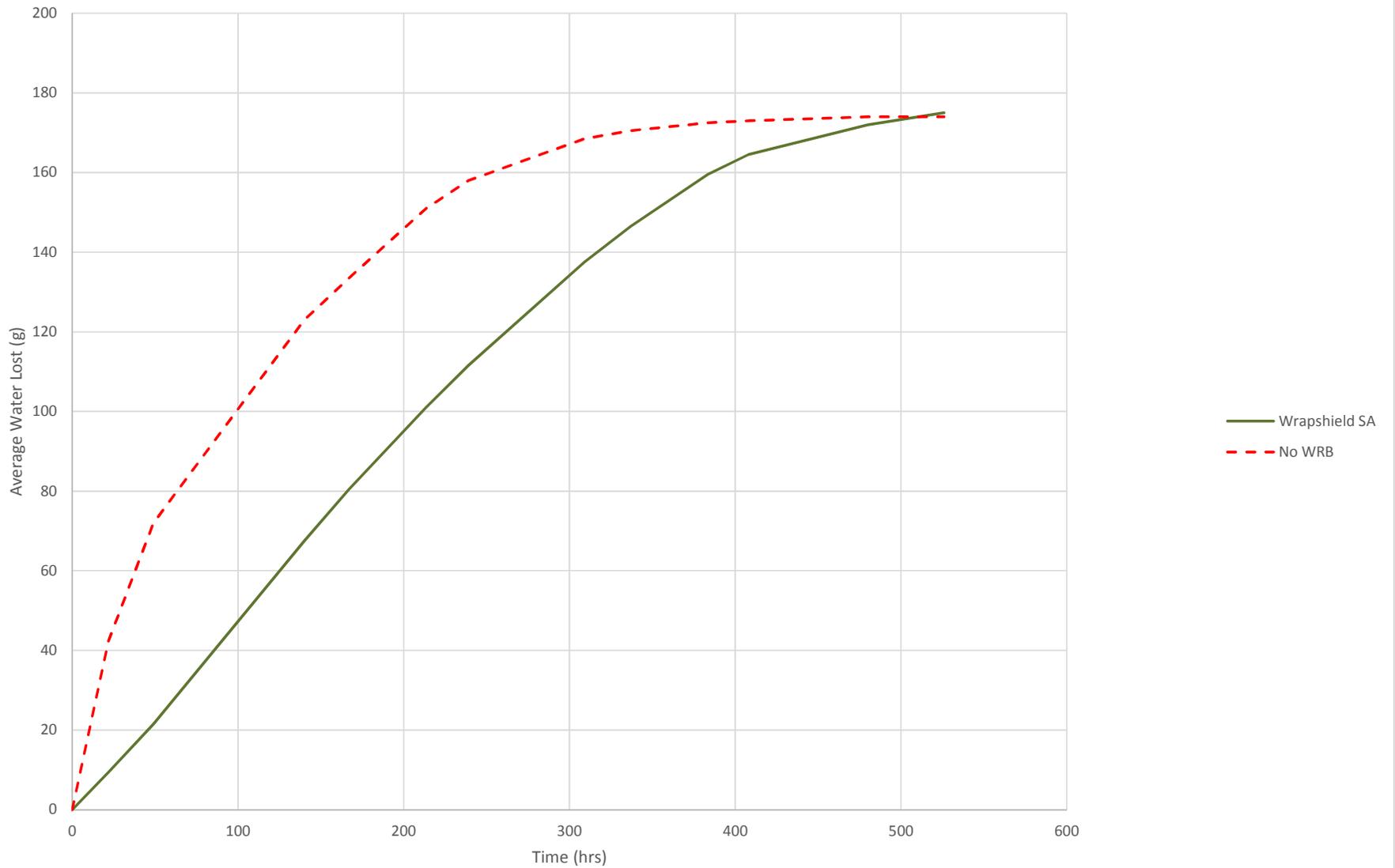
WRB installed on plywood in simulated ventilated cavity (50 ACH nominal, 71F +/-5%, 54% R.H. +/-8%)



WRB installed on plywood in simulated ventilated cavity (50 ACH nominal, 71F +/-5%, 54% R.H. +/-8%)



WRB installed on plywood in simulated ventilated cavity (50 ACH nominal, 71F +/-5%, 54% R.H. +/-8%)



# Appendix B: Product Data

## DuPont™ Tyvek® CommercialWrap® PHYSICAL PROPERTIES DATA SHEET

PROPERTIES	METHOD	DUPONT™ TYVEK® COMMERCIALWRAP®
Air Penetration Resistance	Gurley Hill (TAPPI T-460) (sec/100cc)	>1500
	ASTM E1677 (cfm/ft²@1.57 psf)	Type 1
	ASTM E2357 (cfm/ft²@1.57 psf)	.01
Water Vapor Transmission	ASTM E96-00 Method A (g/m²·24 hrs) (perms)	163 23
	Method B (g/m²·24 hrs) (perms)	200 28
Water Penetration Resistance	ATCC 127 (cm)	280
Basis Weight	TAPPI T-410 (oz/yd²)	2.7
Breaking Strength	ASTM D882 (lbs/in)	38/35
Tear Resistance (Trapezoid)	ASTM D1117 (lbs)	12/10
Surface Burning Characteristics	ASTM E84 Flame Spread Index	10 Class A
	Smoke Developed Index	10 Class A
	CAN/ULC S102-07 Flame Spread Classification Smoke Developed Classification	5 35
Ultra Violet Light Exposure (UV)		270 days (9 months)

These values represent roll averages. Individual roll results may differ due to normal manufacturing variations.

For more information about DuPont™ Tyvek Weatherization System products, please call 1-800-44-Tyvek or visit us at [www.Construction.Tyvek.com](http://www.Construction.Tyvek.com)

**WARNING:** DuPont™ Tyvek® is combustible and should be protected from a flame and other high heat sources. If the temperature of DuPont™ Tyvek® reaches 750 °F (400 °C), it will burn and the fire may spread and fall away from the point of ignition.



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 DELTA® Rainscreen Systems  
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 Air & Water-Resistive Barriers  
 Water-Resistive Barriers for open joint claddings  
 DELTA® Vapor Barrier  
 DELTA® Below Grade Moisture Protection  
 DELTA® Civil Engineering Products

DELTA® protects property.  
Saves energy.  
Creates comfort.

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## DELTA®-VENT SA



Premium self-adhesive water-resistant and air barrier. Highly vapor permeable, water-tight, and aggressively self-adhering. The only self-adhering WRB and air barrier with the security of a self-adhesive edge lap.

DELTA®-VENT SA eliminates leaks at fasteners and helps improve the performance of the building enclosure with increased air-tightness.

DELTA®-VENT SA not only passes, but also dramatically exceeds the most stringent requirements of the Air Barrier Association of America (ABAA) and of the National Building

Code of Canada (NBC 2010) based on the results of ASTM E2357 - 11 Standard Test Method for Determining Air Leakage of Air Barrier Assemblies.

DELTA®-VENT SA is a three ply membrane. It has a printed top layer of spun-bonded polypropylene. The center is a vapor-permeable water-tight polymeric sheet. The adhesive is applied to the bottom layer of spun bonded polypropylene. This provides DELTA®-VENT SA with high tensile strength and reliable long term adhesion. DELTA®-VENT SA passes ASTM D 1970 Nail Sealability test for sealing around fasteners.

Available everywhere.

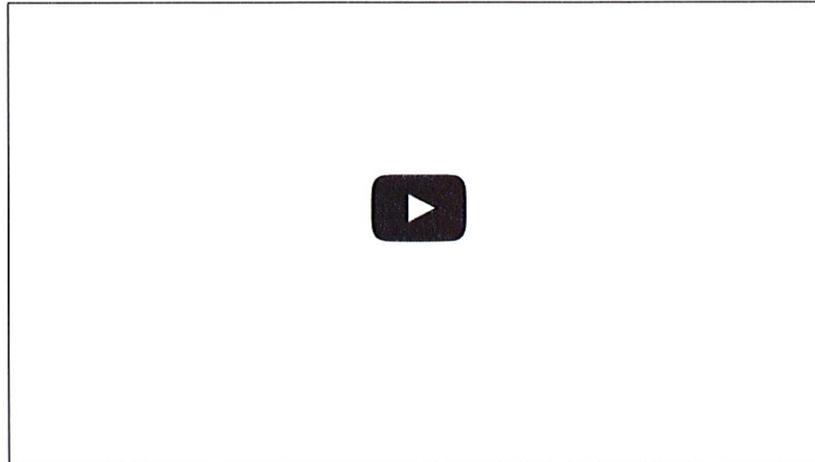
[ICC ESR 2932](#)

[\\*NEW\\* DELTA®-VENT SA Technical Guide](#)

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Properties Material Application Technical Data Accessories Downloads

Product name	DELTA®-VENT SA	
Color	gray	
Water vapor transmission	214 g/m <sup>2</sup> /24 h	ASTM E96-05, Proc. A
	343 g/m <sup>2</sup> /24 h	ASTM E96-05, Proc. B
Vapor permeance	31 perms [grains/h/ft <sup>2</sup> /in Hg]	ASTM E96-05, Proc. A
	50 perms [grains/h/ft <sup>2</sup> /in Hg]	ASTM E96-05, Proc. B
Air Leakage of Air Barrier Assemblies	< 0.2 L/(s·m <sup>2</sup> ) @ 75 Pa (0.04 cfm/ft <sup>2</sup> @ 1.57 lb/ft <sup>2</sup> ) as per ABAA and NBC requirements	ASTM E2357-11
Breaking strength	MD 71 lb	ASTM D5034-95 (2001)
	CD 65.4 lb	
Elongation at break	MD 27.8 %	ASTM D5034-95

	CD 60.1 %	(2001)
90° Peel adhesion	Pass	AAMA 711-5.3 (ASTM D3330)
Accelerated aging (U.V.)	Pass	AAMA 711-5.4
Trapezoid tearing strength	MD 21.6 lb CD 14.6 lb	ASTM D4533-04
Elevated temperature (176°F (80°C))	Pass (Level 3)	AAMA 711-5.5 (ASTM D3330)
Thermal cycling	Pass	AAMA 711-5.6
Adhesion after immersion in water	Pass	AAMA 711-5.8
Bent Test	Pass	ICC AC308, 3.3.4
Water resistance hydrostatic pressure	Pass (55 cm > 5 hours) 60 minute Grade D building paper equivalent	AATCC 127-1985
Linear dimensional change at elevated temperature (185°F (85°C))	MD -1.4% CD +0.1%	ASTM D1204-08
Resistance to puncture	78.6 lbs (333.1 N)	ASTM D154-99(10)
Low temperature flexibility	Pass	ASTM D1970-01
Nail Sealability	Pass	ASTM D1970-01
Crack bridging ability	Pass -15°F (-26°C)	ASTM C1305-06
Air Permeance	Pass (< 0.02 l/(s x m <sup>2</sup> )@ 75 Pa)	ASTM 2178
Flame Spread	14 NFPA Class A; IBC Class A	ASTM E84-09
Smoke developed	47 NFPA Class A; IBC Class A	ASTM E84-09
Application temperature	Minimum 40°F (5°C)	
Service temperature	-40°F (-40°C) to 176°F (80°C) W/ Primer -13°F (-25°C) to 176°F (80°C) W/O Primer	
Roll weight	approx. 40 lb (18 kg)	
Roll length	115' (35 m)	
Roll width	4' 11" (1.5 m)	
Maximum UV (sunlight) exposure	Always cover as soon as possible. Maximum exposure 50 days.	
Limitations	Avoid use of acidic silicones.	

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# BlueskinVP™ 160

Self-Adhered Water Resistive Air Barrier Membrane

## Physical Properties

<b>-Color</b>	Blue	<b>-Fire Testing</b>	Complies with NFPA 285 in various wall assemblies
<b>-Water Vapour Transmission</b> ASTM E96/A (Desiccant)	202 g/m <sup>2</sup> / 24 hours	<b>-Flame Spread Index</b> ASTM E 84	0.0 Class A
WVT -membrane	29 Perms	<b>-Smoke Developed</b> ASTM E 84	105 Class A
WVP -membrane	1658 ng/Pa.m <sup>2</sup> .s	<b>-Air Permeance</b> ASTM E 2178	Pass
WVT -membrane + primer + DensGlass® sheathing	18 Perms	(Maximum 0.02 l/m <sup>2</sup> @ 75Pa or 0.004 cfm/ft <sup>2</sup> @ 1.57psf)	Pass
<b>-Dry Tensile Strength</b> ASTM D 882	41 / 182N MD 29 lbf / 129N CD	<b>-Criteria for Water Resistive Barriers</b> ICC - ES AC38	Pass
<b>-Average Dry Breaking Force</b> ASTM D 5034	127 / 565N MD 91 lbf / 405N CD	<b>-Low Temp Flexibility</b> ICC - ES AC38/3.3.4	Pass
<b>-Accelerated Aging</b> ICC-ES AC48 25 cycles	Pass	<b>-Peel-adhesion to Unprimed Plywood</b> ICC AC38/AAMA 711-05	Pass
<b>-Cycling and Elongation</b> ICC-ES AC48 100 cycles at -20°F (-29°C)	Pass	Control baseline	Pass
<b>-Application Temperature</b> See Limitations	Minimum 20°F (-7°C)	After 7 day water immersion	Pass
<b>-Service Temperature Range</b>	-40°F to +180°F (-40°C to +82°C)	After accelerated aging	Pass
<b>-Thickness</b> TAPPI T-410	Nominal 23 mils	After UV exposure	Pass
<b>-Nail Sealability</b> ASTM D 1970	Pass	<b>-Water Penetration Resistance around Nails</b> AAMA 711-05 & modified ASTM D 1970	Pass

## Compliance Standards

<b>ICC</b> AC38, AC188	<b>CGSB</b> 51.32	<b>AAMA</b> 711-05	<b>NFPA</b> 285
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## Packaging

-Roll Length	100 ft (30.48 m)	-Roll	<b>48"</b> (1.22 m) Blue HE160GUSA941
		Width/color/sku	<b>12"</b> (300mm) Blue HE160GUSA988
			<b>9"</b> (225mm) Blue HE160GUSA986
			<b>6"</b> (150mm) Blue HE160GUSA971
			<b>4"</b> (100mm) Blue HE160GUSA974

## Description

**BlueskinVP™160** is a self-adhered vapor permeable, water resistive air barrier membrane consisting of an engineered film and a patented, permeable adhesive technology with split-back poly-release film. **BlueskinVP™160** is fully adhered to the wall substrates in a 'weatherboard' method without mechanical attachment. Covered by: US patent 6,901,712, Canadian patent 2,413,550.

## Features

- Meets highest industry standards for commercial air barriers & assemblies
- Sheds water while allowing vapor to pass through – allowing walls to drain and substrates to dry
- Creates a continuous plane of air-tightness – improving building thermal performance
- Fully adhered to substrates, eliminating water migration

Henry Company: 999 N. Sepulveda, Ste. 800 El Segundo CA 90245

Tel: 800-486-1278 Email: [techservices@henry.com](mailto:techservices@henry.com)

[www.henry.com](http://www.henry.com)

REV: 08/12/2013

## **Uses**

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**BlueskinVP™160** creates a water resistive barrier and air barrier when applied outside of the wall sheathing and behind the exterior wall cladding. Used for transitions, rough openings, fenestration and full-wall applications. **BlueskinVP™160** may also be used as a transition membrane with Air-Bloc 31 or Air-Bloc 33 systems.

## **Storage**

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Store rolls on end, on original pallets or elevated platform. Protect from weather or store in an enclosed area not subject to heat over 120°F (49°C). In cold weather, it is recommended to warm rolls to 50°F (18°C) or above prior to application to assure adhesion to substrate.

## **Limitations**

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**Membrane must be rolled after application to ensure adhesion to substrate and laps.** Not designed for permanent exposure, protect installed membrane as soon as possible. Maximum exposure not to exceed 150 days. See Guide Specifications for further limitations. Excessive moisture in substrate or laps can inhibit adhesion. Do not expose the backside of the substrate to moisture or rain. Protect exposed back-up walls against wet weather conditions during and after application of membrane, including wall openings and construction activity above completed air barrier installation.

For installations less than 40°F (4°C), an approved Henry® primer as listed below in the Surface Preparation section is always required for all substrates. For more information, please review the Henry® BlueskinVP™ Cold Weather Application Tech Talk which is available on the Henry® website or contact your local Henry representative.

## **Surface Preparation**

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Acceptable substrates are exterior-grade gypsum sheathing board such as DensGlass®, LP® FlameBlock®, plywood, OSB, precast or cast-in-place concrete, concrete block, steel, aluminum and galvanized metal. All surfaces to receive **BlueskinVP™160** must be dry and clean of oil, dust, frost, bulk water and other contaminants that would be detrimental to adhesion of membrane. Strike masonry joints full-flush. Concrete surfaces must be smooth and without large voids, spalled areas or sharp protrusions. Concrete must be cured a minimum of 14 days. Curing compounds and release agents used in concrete construction must be resin based without oil or wax.

All surfaces to receive **BlueskinVP™160** require an application of approved adhesive-primer, applied by lamb's wool roller, brush or spray at the appropriate rate depending on porosity and texture of surface and allowed to dry as required by the adhesive-primer before **BlueskinVP™160** is applied. Ensure that all surfaces receive **BlueskinVP™160** in the same day.

Note: Generally, priming wood substrates that are clean, dry and over 40°F is not required if **BlueskinVP™160** has good adhesion and is to be covered immediately. If appropriate adhesion is not obtained due to conditions beyond the control of the installer or **BlueskinVP™160** is expected to be exposed beyond 48hrs, then the application of adhesive-primer will be required to the substrate as required above. Provisions for the use of full coverage adhesive-primer should always be included in construction bids.

Approved adhesive-primers include **Blueskin® Adhesive**, **Blueskin® LVC Adhesive**, or **Aquatac™ Primer**.

## **Application**

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Refer to BlueskinVP™160 Guide Specification for detailed application information, see [www.henry.com](http://www.henry.com) website. BlueskinVP™160 must be installed in a consecutive weatherboard method starting at bottom or base of wall and working up; providing minimum of 2" (5cm) side laps and 3" (7.6cm) end laps. Cut to manageable lengths, position membrane for alignment, remove protective poly-film and firmly apply pressure to assure adhesion. Eliminate fish-mouths, wrinkles or gaps and roll entire membrane surface (including seams) with a counter top or "J-roller" with adequate pressure [+5lbs] to ensure full contact and adhesion. Seal membrane terminations, heads of mechanical fasteners, masonry tie fasteners, around penetrations, duct work, electrical and other apparatus extending through the **BlueskinVP™160** water resistive air barrier membrane and around the perimeter edge of membrane terminations at window and door frames with **HE925 BES Sealant**.

Cover rough openings and transitions with **BlueskinVP™160** per **Henry** details. Fenestration (window and doors) must be flashed per window/door manufacturers' recommendation, local building code requirements, ASTM 2112 and AAMA guidelines. Use pre-cut rolls of **Blueskin® SA** or **SALT** for sill pan flashings per **Henry** published window flashing guidelines. For application of Blueskin SA or SALT over BlueskinVP™, the surface of BlueskinVP™ must be primed.

Insulation clips and brick-ties should be mechanically fastened through the membrane into solid backing and sealed with **Henry HE925 BES Sealant**.

## **Limited Warranty**

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### **Product Warranty:**

We, the manufacturer, warranty only that this product is free of defects, since many factors which affect the results obtained from this product - such as weather, workmanship, equipment utilized and prior condition of the substrate - are all beyond our control. We will replace at no charge any product proved to be defective within 12 months of purchase, provided it has been applied in accordance with our written directions for uses we recommended as suitable for this product. Proof of purchase must be provided. **DISCLAIMER OF WARRANTIES:** The Limited Warranty is IN LIEU OF any other warranties express or implied including but not limited to any implied warranty of MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, and we, the manufacturer, shall have no further liability of any kind including liability for consequential or incidental damages resulting from any defects or any delays caused by replacement or otherwise.

### **Assembly Warranty:**

Assembly warranties are available for job specific applications when applied per Henry published systems guidelines found on [www.henry.com](http://www.henry.com) or [www.bakor.com](http://www.bakor.com). For application for extended warranties up to 12 years contact Henry Warranty Administration Department at [Warranty@henry.com](mailto:Warranty@henry.com)

## **STATEMENT OF RESPONSIBILITY**

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The technical and application information herein is based on the present state of our best scientific and practical knowledge. As the information herein is of a general nature, no assumption can be made as to a product's suitability for a particular use or application and no warranty as to its accuracy, reliability or completeness either expressed or implied is given other than those required by law. The user is responsible for checking the suitability of products for their intended use. Henry Company data sheets are updated on a regular basis; it is the user's responsibility to obtain and to confirm the most recent version. Information contained in this data sheet may change without notice.

## PERM-A-BARRIER® VPS

Self-adhering vapor permeable air barrier membrane

### Description

Perm-A-Barrier® VPS (Vapor Permeable Sheet) is a vapor permeable air barrier membrane consisting of a proprietary breathable carrier film with a specially designed adhesive.

Perm-A-Barrier VPS provides superior protection against the damaging effects of air and water ingress on building structures. The product creates a solid barrier against air infiltration and exfiltration, which minimizes associated energy loss and condensation problems.

Perm-A-Barrier VPS is vapor permeable for wall assemblies requiring this “breathable” characteristic. As a vapor permeable membrane, Perm-A-Barrier VPS permits the diffusion of water vapor that may otherwise condense in the wall structure; but is impermeable to liquid water, which allows the material to act as a water drainage plain.

### Advantages

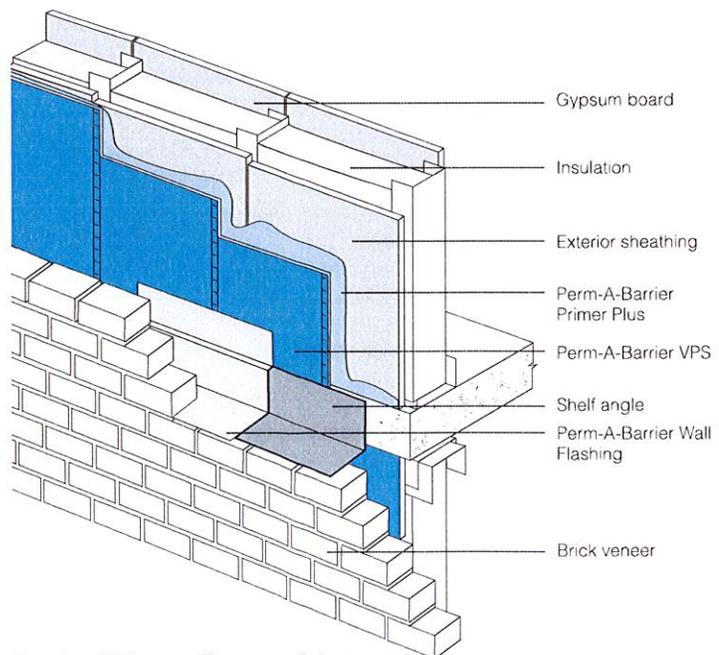
- **Fire Resistant**—meets NFPA 285 as part of various wall assemblies with foam plastic insulation
- **Air tight**—protects against air passage and associated energy loss

### Product Advantages

- NFPA 285 compliance
- Air tight
- Vapor permeable
- Water resistant
- Self-adhered
- Controlled thickness
- Lightweight and flexible
- Strong adhesion to prepared construction substrates



- **Vapor permeable**—“breathable” membrane prevents moisture from being trapped in the wall cavity by allowing walls the ability to dry
- **Water resistant**—resists hydrostatic water pressure and wind driven rain
- **Self-adhered**—eliminates the need for mechanical fasteners
- **Controlled thickness**—factory made sheet ensures constant, non-variable site application
- **Lightweight**—allows for easy handling and installation
- **Flexible**—accommodates minor settlement and shrinkage movement; bridges crack and joints in substrate
- **Strong adhesion**—to prepared construction substrates such as plywood, oriented strand board (OSB) block, masonry and exterior gypsum boards



### Typical Vapor Permeable Air Barrier Application

Drawings are for illustration purposes only. Please refer to [graceconstruction.com](http://graceconstruction.com) for specific application details.

- **Compatible** with Grace Perm-A-Barrier Flashing Systems

## Principal Applications

Vapor permeable air barrier for new and remedial commercial and residential applications. Perm-A-Barrier VPS is installed onto exterior wall substrates and behind the exterior cladding.

## System Components

- **Perm-A-Barrier VPS** — for use on above-grade walls at installation temperatures above 40°F (5°C)
- **Perm-A-Barrier Primer Plus** — water-based vapor permeable primer used to facilitate tenacious adhesion of Perm-A-Barrier VPS to the substrate
- **Perm-A-Barrier Wall Flashing** — heavy duty, fully-adhered membrane for through-wall flashing detailing
- **Perm-A-Barrier Detail Membrane** — flexible, fully-adhered membrane for detail flashing areas
- **Bituthene® Liquid Membrane** — two-component, elastomeric liquid applied detailing compound used for details and terminations
- **Bituthene Mastic** — rubberized asphalt-based mastic used for details and terminations
- **Sealants** — refer to Technical Letter 1 for details on compatible waterproofing sealants

## Installation

### Safety

Refer to product label and Material Safety Data Sheet before use. All users should acquaint themselves with this information prior to working with the material. Carefully read detailed precaution statements on the product labels and MSDS before use. MSDSs can be obtained from our web site at [graceconstruction.com](http://graceconstruction.com) or by contacting Grace toll free at 866-333-3SBM (3726).

### Surface Preparation

Surface must be smooth, clean, dry and free of voids, spalled areas, loose aggregate, loose nails, sharp protrusions or other matter that will hinder the adhesion or regularity of the wall membrane installation. Clean loose dust or dirt from the surface to which the wall membrane is to be applied by wiping with a clean, dry cloth or brush. OSB and plywood must have moisture content below 12%.

### Temperature

Perm-A-Barrier VPS may be applied only in dry weather when air and surface temperatures are above 40°F (5°C).

### Application

Apply Perm-A-Barrier Primer Plus by air spray, brush or roller application. Allow Perm-A-Barrier Primer Plus to dry until surface becomes tacky. Drying times may vary depending on temperature and humidity conditions. Refer to Perm-A-Barrier Primer Plus product data sheet for installation recommendations and Technical Letter 2, *Substrate Preparation for Application of Perm-A-Barrier Products to Glass-Mat Faced Gypsum Sheathing* for priming requirements on specific glass-mat faced sheathing products.

### Membrane Application

Cut membrane into easily handled lengths. Apply membrane horizontally or vertically to primed substrates.

For conditions with existing masonry anchors (ties), apply Perm-A-Barrier VPS horizontally to primed wall, beginning at the base. Each length of the membrane must be installed so that the upper edge runs continuously along the underside of the line of masonry anchors (ties). Subsequent membrane applied above must overlap the sheet below by 2 in. (51 mm) immediately below the line of anchors (ties). The membrane may be cut to an appropriate width such that it fits between the rows of anchors and allows for a min. 2 in. overlap onto the membrane below. It will be necessary to cut the membrane at the location of the anchors projecting from the wall to enable the sheet to be laid in place. End laps that occur in subsequent lengths that follow should maintain a minimum overlap of 2 in. (51 mm). See Figures 1 and 2.

The membrane must be pressed firmly into place with a hand roller or the back of a utility knife as soon as possible, ensuring continuous and intimate contact with the substrate to prevent water from migrating under the membrane.

In certain applications such as on soffits or ceilings, backnail the membrane along the side lap prior to installing the next sheet of membrane or install a termination bar that spans the soffit to ensure positive contact to the substrate.

Apply Bituthene Liquid Membrane, Bituthene Mastic or compatible sealant to seal around the anchors. Fit the Perm-A-Barrier VPS

tightly around all penetrations through the membrane and seal using compatible sealant. Continue the membrane into all openings in the wall area, such as windows, doors, etc., and terminate at points that will prevent interior visibility. The installation must be made continuous at all framed openings, such as windows, doors, etc. Flash framed openings with Perm-A-Barrier Detail Membrane and overlap onto Perm-A-Barrier VPS in a shingled manner. Coordinate installation of the Perm-A-Barrier VPS with the roofing trade to ensure continuity with the roofing system at this critical transition area.

At the end of each working day, if the wall has been only partially covered, apply a bead of Bituthene Liquid Membrane, Bituthene Mastic or compatible sealant along the top edge of the membrane at its termination to prevent vertical drainage of precipitation from penetrating the end and undermining the membrane adhesion. Tool the compatible sealant to ensure it is worked into the surface. Inspect the membrane before covering and repair any punctures, damaged areas or inadequately lapped seams.

### Membrane Repairs

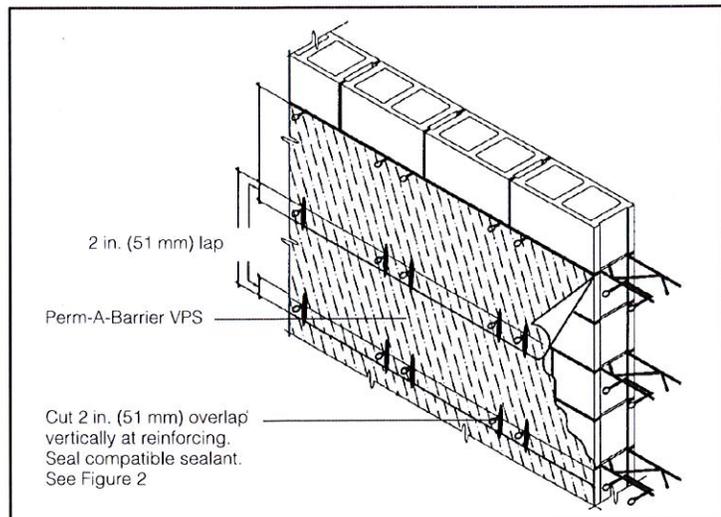
Repairs must be made using Perm-A-Barrier VPS sized to extend 6 in. (150 mm) in all directions from the perimeter of the affected area. If repairs are required, carefully cut out affected areas and replace in similar procedure as outlined in the text above. The repair piece must be pressed into place with a hand roller as soon as possible to ensure continuous and intimate contact with the substrate. Apply a bead of compatible sealant along the top edge of the repair piece.

### Membrane Protection

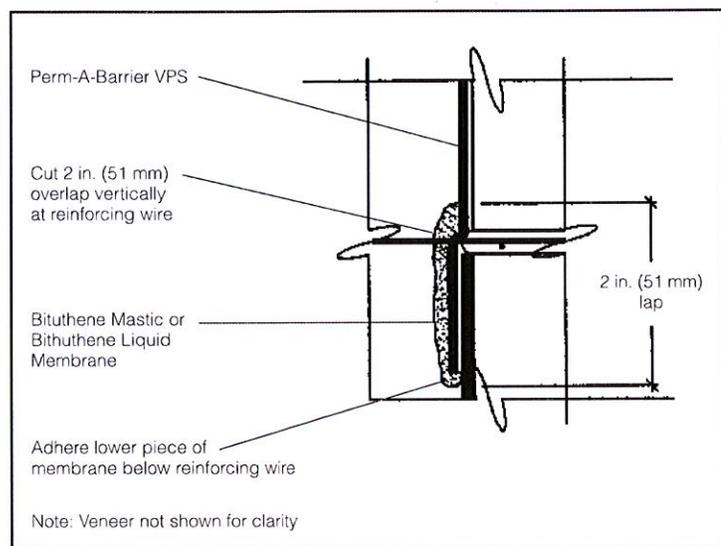
Perm-A-Barrier VPS must be protected from damage by other trades or construction materials.

### Storage and Handling Information

All materials must be protected from rain and physical damage. Pallets of Perm-A-Barrier VPS must not be double stacked on the job site. Provide cover on top and all sides, allowing for adequate ventilation. Store membrane where temperatures will not exceed 90°F (32°C) for extended periods. All products must be stored in a dry area away from high heat, flames or sparks. Store only as much material at point of use as is required for each day's work.



**Figure 1: Membrane System Detail**



**Figure 2: Horizontal Reinforcing**

### Limitations

Perm-A-Barrier VPS must not be applied in areas where they will be permanently exposed to UV light and must be covered within a reasonable amount of time, not to exceed 150 days.

### Warranty

Perm-A-Barrier products are warranted to be free of defects in manufacture for a period of 5 years. Material will be provided at no charge to replace any defective product.

### Technical Service

Support is provided by full-time technically trained Grace field sales representatives and technical service personnel, backed by a central research and development technical services staff.

## Supply

Product	Unit of Sale	Approximate Coverage	Weight	Palletization
<b>Perm-A-Barrier VPS</b>	1 roll	450 ft <sup>2</sup> (41.8 m <sup>2</sup> ) per roll 38.4 in x 141 ft (1.0 m x 43 m)	28.7 lbs/roll	25 cartons (25 rolls) per pallet
<b>Perm-A-Barrier Wall Flashing</b> —12 in. (305 mm) —18 in. (457 mm) —24 in. (610 mm) —36 in. (914 mm)	3 rolls 2 rolls 1 roll 1 roll	75 linear ft per roll 75 linear ft per roll 75 linear ft per roll 75 linear ft per roll	25 lbs/roll 37.5 lbs/roll 55 lbs/roll 75 lbs/roll	25 cartons (75 rolls) per pallet 25 cartons (50 rolls) per pallet 35 cartons (35 rolls) per pallet 25 cartons (25 rolls) per pallet
<b>Perm-A-Barrier Detail Membrane</b> —6 in. (152 mm) —9 in. (225 mm) —12 in. (305 mm)	6 rolls 4 rolls 3 rolls	75 linear ft per roll 75 linear ft per roll 75 linear ft per roll	11 lbs/roll 16 lbs/roll 22 lbs/roll	25 cartons (150 rolls) per pallet 25 cartons (100 rolls) per pallet 25 cartons (75 rolls) per pallet
<b>Bituthene Mastic—5 gal pail</b>	1 pail	approx. 120 ft <sup>2</sup> at 60 mils	54 lbs/pail	36 pails per pallet
<b>Bituthene Mastic—30 oz tube</b>	12 tubes	approx. 30 linear ft x ¼ in. bead	32 lbs/carton	72 cartons (864 tubes) per pallet
<b>Bituthene Liquid Membrane —1.5 gal pail</b>	1 pail	approx. 200 linear ft/gal @ 1" wide x 90 mils.	16 lbs/pail	100 pails per pallet
<b>Bituthene Liquid Membrane —4 gal pail</b>	1 pail	approx. 200 linear ft/gal @ 1" wide x 90 mils.	44 lbs/pail	24 pails per pallet
<b>Perm-A-Barrier Primer Plus —5 gal pail</b>	1 pail	450–500 ft <sup>2</sup> /gal (11–12 m <sup>2</sup> /L)	43 lbs/pail	36 pails per pallet
<b>Bituthene Adhesive Primer B2 LVC—5 gal pail</b>	1 pail	325–425 ft <sup>2</sup> /gal (7.5–10 m <sup>2</sup> /L)	44 lbs/pail	48 pails per pallet

## Typical Performance Properties

Test	Typical Value	Method
Color	Green	
Air permeance at test pressure of 1.57 psf (75 Pa)	< 0.002 L/sm <sup>2</sup> (0.0004 cfm/ft <sup>2</sup> )	ASTM E2178
Assembly air permeance at test pressure of 1.57 psf (75 Pa)	<0.004 L/s/m <sup>2</sup> (0.0008 cfm/ft <sup>2</sup> )	ASTM E2357
Water vapor permeance	Minimum 15 perms, Method A, Dry Cup	ASTM E96
	Minimum 15 perms, Method B, Wet Cup	
Water resistance	> 5 hours	AATCC-127 Hydrostatic Head Test 1, 2
Peel strength @ minimum temperature	> 5 pli to primed OSB, plywood and exterior gypsum board	ASTM D903
	> 4 pli to Perm-A-Barrier VPS	
	> 2.5 pli to primed CMU	
Pull adhesion	> 15 psi to primed exterior gypsum board	ASTM D4541
	> 12 psi to primed CMU	
Breaking force	55 lbs, Machine Direction	ASTM D5034
	44 lbs, Cross Direction	
Low temperature flexibility	Pass	ICC – AC38
Water penetration resistance around nails	Pass	ASTM D1970 Modified
Surface Burning Characteristics	Flame Spread Index, 10 Class A Smoke Developed Index, 30 Class A	ASTM E84
Wall assembly fire test	Pass as part of various wall assemblies with foam plastic insulation	NFPA 285

[www.graceconstruction.com](http://www.graceconstruction.com)

For technical assistance call toll free at 866-333-3SBM (3726)

Perm-A-Barrier and Bituthene are registered trademarks of W. R. Grace & Co.—Conn.

We hope the information here will be helpful. It is based on data and knowledge considered to be true and accurate and is offered for the users' consideration, investigation and verification, but we do not warrant the results to be obtained. Please read all statements, recommendations or suggestions in conjunction with our conditions of sale, which apply to all goods supplied by us. No statement, recommendation or suggestion is intended for any use which would infringe any patent or copyright. W. R. Grace & Co.—Conn., 62 Whittemore Avenue, Cambridge, MA 02140. In Canada, Grace Canada, Inc., 294 Clements Road, West, Ajax, Ontario, Canada L1S 3C6.

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PAB-0971 Printed in U.S.A. 09/12 FA/PDF

**GRACE**



**1. Product Name**

**WrapShield® with Integrated Tape  
Water Resistive Vapor Permeable Air Barrier  
Sheet Membrane**

**2. Manufacturer**

VaproShield, LLC.  
915 26th Avenue, NW #C5  
Gig Harbor, WA 98335  
Toll Free: (866) 731-7663  
Phone: (253) 851-8286  
Email: [info@vaproshield.com](mailto:info@vaproshield.com)  
Web: [www.vaproshield.com](http://www.vaproshield.com)

**3. Product Description**

**BASIC USE AND APPLICATIONS**

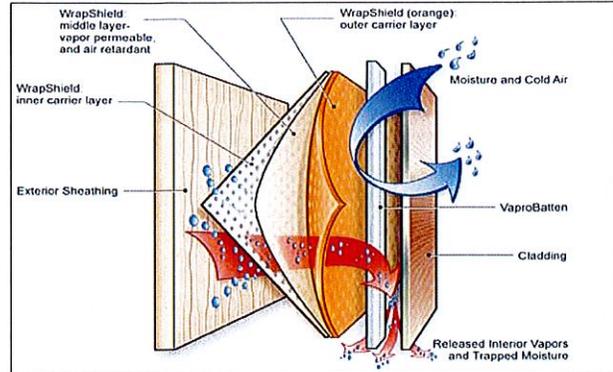
WrapShield with Integrated Tape is a mechanically attached high performance Water Resistive Barrier (WRB) and Air Barrier (AB) material with integrated tape, designed for above grade use in wall assemblies.

**BENEFITS**

WrapShield with Integrated Tape is recommended for applications requiring a high level of vapor permeability while limiting Air Leakage and Infiltration through the Building enclosure. WrapShield with Integrated Tape provides outstanding liquid water holdout capabilities as a Water Resistive Barrier (WRB) and it can perform as an Air Barrier (AB) when installed according to VaproShield’s published installation instructions. The incorporation of the integrated tape at the horizontal seams makes installation quick and efficient, while offering a superior mechanically attached air barrier system.

**MATERIAL**

WrapShield with Integrated Tape is manufactured from 100% flash spun bonded, high-density polypropylene fabric. It is bonded by heat and pressure without binders or fillers into tough, durable sheets. WrapShield with Integrated Tape has a triple-layered construction to achieve the ideal combination of performance characteristics. WrapShield with Integrated Tape meets the following basic criteria: vapor permeable, water resistant, wind resistant, UV stabilized, rot proof, and tear resistant.



**SIZE:**

Roll Size: 59 inches by 164 feet (1500 mm by 50 m)

**4. Technical Data**

Tested in accordance with: ICC-ES AC 38 criteria to meet IBC and IRC requirements for Weather Resistive Barriers; and tested in accordance with CCMC testing requirements.

**WrapShield Testing**

Property	Standard/Test	Result
<b>Air Barrier Testing</b>		
Air Permeance of Building Materials	ASTM 2178	0.0095 L/s/m <sup>2</sup> 0.0019 cfm/ft <sup>2</sup> PASS
Air Leakage through Wall Systems	ASTM E-283	0.00017 L/s/m <sup>2</sup> 0.000034 cfm/ft <sup>2</sup> PASS
Air Retarder Materials & Systems	ASTM E-1677	Type 1 Air Barrier PASS
Tensile Strength	ASTM D882	MD - 44.8 lbf/inch (4.94 N/mm) CD - 25.1 lbf/inch PASS
Water Resistance (control and weathered specimens)	AATCC 127 (55cm Hydrostatic Head of Water for 5 hrs)	No leakage noted on underside of control or weathered samples PASS
Water Vapor Transmission	ASTM E96	308.9 g/m <sup>2</sup> 24 hrs 2860 ng/Pa/s/m <sup>2</sup> 50 Perms PASS
Flamespread Index	ASTM E-84	10 - Class A PASS
Smoke Development Index	ASTM E-84	35 - Class A PASS

**SUSTAINABLE DESIGN BENEFITS**

WrapShield with Integrated Tape Water-Resistive Vapor-Permeable Air Barrier Sheet Membrane protects against water intrusion but allows building materials that may have become wet during the construction phase to dry out, reducing the risk of wood rot, deterioration or corrosion.

**RELATED LEED CREDITS**

WrapShield membrane contributes to LEED points, is 100 percent recyclable and is free of urea-formaldehyde components.

- IEQ Credit 3.1: Construction Indoor Air Quality Management Plan-During Construction
- EA Credit 1: Optimize Energy Performance

**5. Installation**

**STORAGE AND HANDLING**

Rolls should be stored on a clean, dry, level surface – either flat or upright – and kept under cover.

**PREPARATION**

- WrapShield with Integrated Tape can be installed over multiple substrates including: Plywood, OSB, Framing Lumber, Gypsum Sheathing, Rigid Insulation, and Semi-Rigid Insulation (Mineral Fiber).
- WrapShield with Integrated Tape can be installed over wet substrates to limit further water intrusion and to allow the substrate to dry during the construction period. See Installation Instructions on website for step by step pictures of installation.

**FASTENING GUIDELINES**

- WrapShield with Integrated Tape is mechanically fastened to the substrate. Stainless Steel Staples or Cap Nails may be used as temporary fasteners during installation but only at locations that will be covered by the shingling of the next layer of material. See complete Installation Instructions on website for additional information.
- DO NOT place fasteners in the Integral Tape overlap area prior to removal of the release papers and sealing of the Integral Tape seam. Fasteners should be placed in the overlap area only after the Integral Tape release papers have been removed and the horizontal joint is sealed.
- Join horizontal seams by pulling and removing both release papers simultaneously (the underside of the overlapping upper course and the top side of the lower course).
- Exposed fasteners for the WrapShield with Integrated Tape WRB/AB will require VaproCaps

and #6, #7, or #8 size corrosion protected bugle headed screws of the appropriate thread design and length for the underlying substrate and framing material.

- VaproCaps are washers that have been extensively tested for both water and air leakage and substitutions are not recommended.

**BEST PRACTICE OVERVIEW**

- Horizontal overlaps must be at 6" in order to properly seal the Integral Tape joint. Vertical overlaps are to be 12" minimum and require double sided VaproTape, Tremco Butyl Sealant or Dow 758 Sealant, to provide an Air Barrier Seal. Vertical overlaps are to be staggered a minimum of 24" and should not occur directly above or below windows or doors.
- Always install WrapShield with Integrated Tape in a "weatherboard or shingle fashion" with the upper courses lapped on top of the courses below, using the dotted line provided at 6" down from the top edge.

**GENERAL**

- See [www.VaproShield.com](http://www.VaproShield.com) for complete installation instructions.

**LIMITATIONS**

- WrapShield with Integrated Tape should be covered within six months of installation
- Contamination of WrapShield membrane with building site chemicals which make it more wettable (e.g., surfactants), adversely affects its water resistance and therefore its contribution to the water resistance of the overall wall system.
- The WrapShield membrane should not be subjected to asphaltic materials, chemicals, surfactants, or cleaning compounds that could affect the water resistance of the fabric surface; if exposed, replace affected fabric.

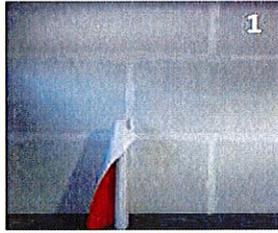
**6. Availability**

VaproShield products are available throughout North America; go to [www.vaproshield.com](http://www.vaproshield.com) or contact VaproShield for local contact information: USA Toll Free (866) 731-7663 or Canada (866) 871-8263.

**7. Warranty**

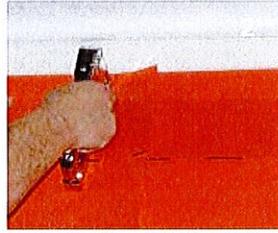
A 20 Year Product Warranty is available.

See [www.vaproshield.com](http://www.vaproshield.com) for complete set of installation instructions.



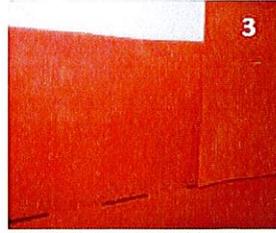
**1**  
Begin installation at the base of the wall, progressing in a shingle fashion upwards.

Snap a level chalk line for guidance.



**2**  
Install with SS staples in the top 2" above the Integrated tape.

Avoid stapling in the tape area.



**3**  
Line up the bottom of the upper course of material with the dotted line on the lower course of material, creating a 6" overlap.



**4**  
Overlap vertical seams by 12" minimum. Vertical seams can be sealed with Double sided VaproTape or Dow 758 sealant.

**SEE 2 VERT SEAM OPTIONS BELOW:**

VAPROTAPE OPT: #5A – 5D

DOW 758 OR TREMCO BUTYL SEALANT OPT #6A-6D



**5A**  
Install Double-Sided VaproTape on underlying layer of membrane perpendicular and continuous with the Integral Tape above and below. Remove lower release film from tape, applying hand pressure to place the tape in position.



**5B**  
Roll tape with weighted roller to activate built-in primer.



**5C**  
Remove secondary release paper from top of tape.



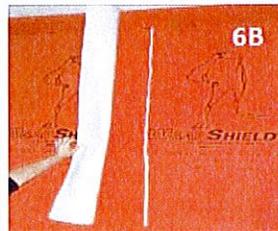
**5D**  
Lay overlapping layer of WrapShield onto vertical tape joint and smooth with hand pressure.



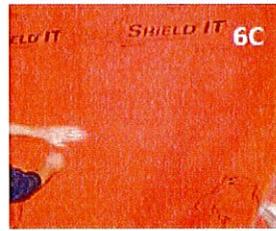
Cut and pull back release paper at bottom of membrane tape joint where horizontal joint intersects with vertical joint.



**6A**  
Overlap vertical seams by 12" minimum.  
Apply Dow 758 or Tremco Butyl sealant bead just below Integrated Tape line at the vertical seam joint.



**6B**  
Apply Dow 758 or Tremco Butyl sealant in a single bead down the membrane to the bottom of the sheet.



**6C**  
Lay overlapping layer of WrapShield onto vertical sealant joint and smooth with hand pressure.

Cut and pull back release paper at bottom of membrane sealant joint where horizontal joint intersects with vertical joint.



**6D**  
Go over sealant joint with a weighted Roller.



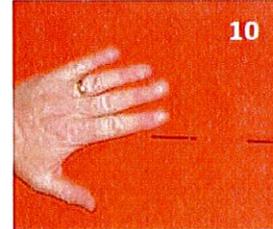
**7**  
Begin joining horizontal seams by removing both release papers (the underside of the overlapping upper course and the top side of the lower course).



**8**  
Line up both release papers together so they can be pulled down the wall with one hand.



**9**  
Use the opposite hand to smooth the two layers together as the release paper is removed.



**10**  
Smooth out wrinkles with hand pressure.



**1. Product Name**

**WrapShield SA® Self-Adhered**

**Water Resistive Vapor Permeable Air Barrier Sheet Membrane**

**2. Manufacturer**

VaproShield, LLC.  
 915 26th Avenue, NW #C5  
 Gig Harbor, WA 98335  
 Phone: (866) 731-7663 USA / (866) 871-8263  
 Canada  
 Fax: (253) 858-3297  
 Email: [info@vaprosshield.com](mailto:info@vaprosshield.com) or [info@vaprosshield.ca](mailto:info@vaprosshield.ca)  
 Web: [www.vaprosshield.com](http://www.vaprosshield.com) or [www.vaprosshield.ca](http://www.vaprosshield.ca)

**3. Product Description**

**BASIC USE AND APPLICATIONS**

WrapShield SA® Self-Adhered sheet membrane is used above grade, behind rain screen wall cladding assemblies such as pressure equalized cladding systems incorporating composite and metal materials, masonry and stone veneers, stucco and EIFS.

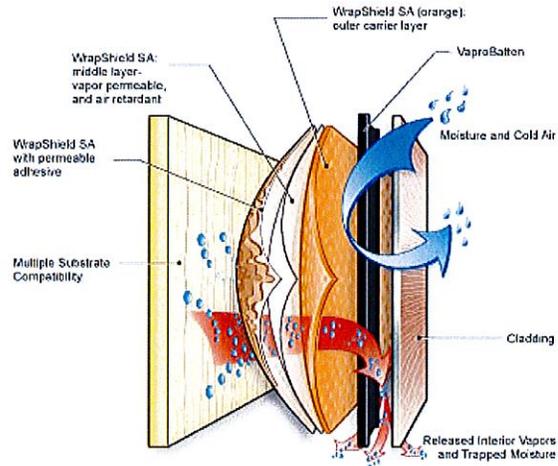
**BENEFITS**

**WrapShield SA® Self-Adhered** a fully self-adhered weather resistive and air barrier sheet membrane fully bonds to almost any substrate, does not require the use of primers, emits no VOC's, does not require special equipment for installation. Installation: WrapShield SA Self-Adhered keeps construction schedules moving as it can be installed in extreme temperatures of 20°F (-6°C) and rising. The ability to install WrapShield SA Self-Adhered horizontally or vertically also helps reduce labor requirements.

With a vapor permeance rating of 50 perms WrapShield SA® Self-Adhered prevents air leakage and allows the wall assembly to breathe or 'dry-out' as necessary to adapt to the seasonal changing of the building which helps to ensure good indoor air quality while reducing conditions conducive to mold, mildew, lumber distortion and metal corrosion.

**Multiple Substrate Compatibility:**

- Exterior Gypsum
- Plywood
- DensGlass® Gold
- Pre-painted Steel
- Most Rigid Insulation
- Galvanized Metal
- OSB
- Aluminum (Painted/Mill)
- Precast Concrete
- Anodized Aluminum
- Concrete Block
- Rigid Vinyl
- Cast-in-place Concrete
- GlasRoc®



**MATERIAL**

WrapShield SA Self-Adhered weather resistive and air barrier sheet membrane is manufactured from a zero VOC, fully self-adhered weather resistive, vapor permeable, air barrier, sheet membrane consisting of multiple layers of UV stabilized, spun-bonded polypropylene fabric.

SIZE: 59 inches by 164 feet Roll (1.5m by 50 m)  
 COLOR: Orange

**4. Technical Data**

Tested in accordance with ICC-ES AC 38 criteria to meet IBC and IRC requirements for Weather Resistive Barriers.

**SUSTAINABLE DESIGN BENEFITS**

WrapShield SA Self-Adhered Water-Resistive Vapor-Permeable Air Barrier Sheet Membrane is highly UV resistant: It can remain exposed for up to 180 days prior to installation of cladding system, although VaproShield recommends covering with cladding as soon as possible. WrapShield SA Self-Adhered protects against water intrusion but allows building materials that may have become wet during the construction phase to dry out, reducing the risk of wood rot, deterioration or corrosion.

**RELATED LEED CREDITS**

WrapShield SA Self-Adhered membrane contributes to Environmental Quality ("EQ") credit 4.1: Low-Emitting Materials: Adhesives & Sealants, under United States Green Building Council's Rating System for New Construction and Major Renovations (LEED-NC), version 2.2, core and shell (LEED-CS), version 2.0.

WRAPSHIELD SA<sup>®</sup> SELF-ADHERED Testing  
 Acceptance Criteria for Weather Resistive Barriers | AC 38 (polymeric-based barrier)

PROPERTY	TEST/STANDARD	RESULT
Roll Length		164' (50m)
Roll Width		59' (1.5m)
Nominal Thickness	Calibrated Deadweight Micrometer	26 mils (0.65mm)
Basis Weight	Electronic Weigh Scale	8.2575 oz/sq. yd.
Roll Weight		The weight is 54 lbs (24 kg)
Application Temperature		Air & surface minimum + 20°F
Service Temperature		- 40°F to 220°F (-40°C to 93.3°C)
Water Resistance	AATCC - 127	PASS (22 in. head of water – 5 hrs)
Air Permeance	ASTM 2178	0.0000263 cfm/ft <sup>2</sup>
		0.000134 L/s/m <sup>2</sup>
Air Barrier	ASTM E 2357.05*	PASS <0.01 cfm/ft <sup>2</sup>
Water Vapor Transmission	ASTM E96 – Method B	50 Perms
Peel Adhesion	ASTM D3330	37.6 oz/in
Tensile Strength	ASTM D882	MD 44.8 lbf/in CD 25.1 lbf/in
Flame Spread	ASTM E-84	10 – Class A
Smoke Development Index	ASTM E-84	15 – Class A

\*As tested per ASTM E 2357 on the following substrates: DensGlass® Gold, CMU Block

**5. Installation**

**PREPARATION**

- All surfaces must be dry, sound, clean and free of oil, grease, dirt, excess mortar or other contaminants detrimental to the adhesion of the water resistive air barrier membrane and flashings. Fill voids and gaps in substrate greater than ¼ inch in width to provide an even surface. Strike masonry joints full-flush.
- WrapShield SA Self-Adhered membrane requires a drainage cavity or rain screen system to be incorporated into all WRB/AB installations. Black VaproBattens™ accomplish this and are available as a corresponding accessory.
- Use VaproLiqui-Flash™ vapor permeable water resistive flashing for window and door rough openings.
- Self-adhered air barrier transition and flashing membrane shall be VaproFlashing SA™ Self-Adhered, a zero VOC self-adhered water-resistive vapor permeable membrane.
- See [www.VaproShield.com](http://www.VaproShield.com) for complete installation instructions.

**STORAGE AND HANDLING**

Store material rolls on end in original packaging. Protect rolls from direct sunlight and inclement weather until ready for use.

**GENERAL**

- See [www.VaproShield.com](http://www.VaproShield.com) for complete installation instructions and instructional videos.

**LIMITATIONS**

- WrapShield SA Self-Adhered should be covered within 180 days of installation
- Minimum recommended application temperature for self-adhered membrane and flashings to be above 20 degrees F (minus 6.0 degrees C).
- Contamination of WrapShield SA Self-Adhered membrane with building site chemicals which make it more wettable (e.g., surfactants), adversely affects its water resistance and therefore its contribution to the water resistance of the overall wall system.
- The WrapShield SA Self-Adhered membrane should not be subjected to asphaltic materials, chemicals, surfactants, or cleaning compounds that could affect the water resistance of the fabric surface; if exposed, replace affected fabric.

**6. Availability**

VaproShield products are available throughout North America.

**7. Warranty**

A 20 year product warranty is available.



**1. Product Name**

**RevealShield™ with Integrated Tape:  
Water Resistive Vapor Permeable Air Barrier  
Sheet Membrane**

**2. Manufacturer**

VaproShield, LLC.  
915 26th Avenue, NW #C5  
Gig Harbor, WA 98335  
Phone: (866) 731-7663 USA / (866) 871-8263 Canada  
Fax: (253) 858-3297  
Email: [info@vaprosshield.com](mailto:info@vaprosshield.com) or [info@vaprosshield.ca](mailto:info@vaprosshield.ca)  
Web: [www.vaprosshield.com](http://www.vaprosshield.com) or [www.vaprosshield.ca](http://www.vaprosshield.ca)

**3. Product Description**

**BASIC USE AND APPLICATIONS**

RevealShield with Integrated Tape is a UV resistant black colored mechanically attached high performance Water Resistive Barrier (WRB) and Air Barrier (AB) material with integrated tape, **designed for use behind open joint wall cladding applications.**

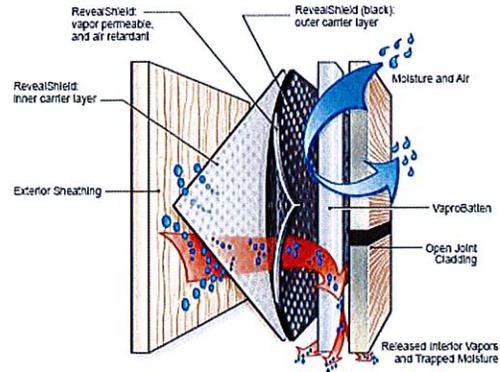
**BENEFITS**

RevealShield with Integrated Tape is for use behind open joint cladding applications, requiring only a single layer UV resistant black membrane material at open joint locations. RevealShield has high vapor permeability and limits Air Leakage and Infiltration through the Building enclosure. RevealShield with Integrated Tape provides outstanding liquid water holdout capabilities as a Water Resistive Barrier (WRB) and it can perform as an Air Barrier (AB) when installed according to VaproShield's published installation instructions. The incorporation of the integrated tape at the horizontal seams makes installation quick and efficient, while offering a superior mechanically attached air barrier system.

**MATERIAL**

RevealShield with Integrated Tape is manufactured from spun bonded, black polyester fabric, with a UV stable coating. It is bonded by heat and pressure into tough, durable sheets. RevealShield with Integrated Tape has a multi-layered construction to achieve the ideal combination of performance characteristics required under an open joint cladding system. RevealShield with Integrated Tape meets the following basic criteria: UV stabilized, vapor permeable, water resistant, wind resistant, rot proof, and tear resistant.

**REVEALSHIELD™ UNSURPASSED IN PERFORMANCE**



SIZE: 59 inches by 164 feet Roll (1500 mm by 50 m)  
COLOR: **Black**

**4. Technical Data**

Tested in accordance with ICC-ES AC 38 criteria to meet IECC, IBC and IRC requirements for Weather Resistive Barriers; and tested in accordance with CCMC testing requirements.

**REVEALSHIELD TESTING**

Property	Standard/Test	Result
<b>Air Barrier Testing</b>		
Air Permeance of Building Materials	ASTM 2178 (Required per ABAA protocol)	0.0002 L/s/m <sup>2</sup> PASS
Air Leakage through Wall Systems	ASTM E-283	0.00017 L/s/m <sup>2</sup> 0.000034 cfm/ft <sup>2</sup> PASS
Air Retarder Materials & Systems	ASTM E-1677	Type 1 Air Barrier PASS
Tensile Strength	ASTM D828	MD - 39 lbf/inch XMD 21.3/lbf/inch PASS
Water Resistance (control and weathered)	AATCC 127 (55cm Hydrostatic Head for 5 hrs)	No leakage noted control or weathered PASS
Water Vapor Transmission	ASTM E96 (Method B)	262.6 g/m <sup>2</sup> 24 hrs 41.4 Perms PASS
Flame spread Index	ASTM E-84	10 - Class A PASS
Smoke Development Index	ASTM E-84	35 - Class A PASS

## PRODUCT DATA SHEET

### SUSTAINABLE DESIGN BENEFITS

RevealShield with Integrated Tape Water-Resistive Vapor-Permeable Air Barrier Sheet Membrane is **highly UV resistant: It can remain exposed for up to 180 DAYS prior to installation of open joint cladding system while also able to maintain inherent resistance to PERMANENT UV exposure behind open joints up to two inches wide with a maximum of 40% open wall area.** RevealShield protects against water intrusion but allows building materials that may have become wet during the construction phase to dry out, reducing the risk of wood rot, deterioration or corrosion.

### RELATED LEED CREDITS

RevealShield membrane contributes to LEED points:

- IEQ Credit 3.1: Construction Indoor Air Quality Management Plan-During Construction
- EA Credit 1: Optimize Energy Performance

## 5. Installation

### PREPARATION

- RevealShield with Integrated Tape can be installed over multiple substrates including: Plywood, OSB, Framing Lumber, Gypsum Sheathing, Rigid Insulation, and Semi-Rigid Insulation (Mineral Fiber).
- RevealShield with Integrated Tape can be installed over damp substrates to limit further water intrusion and to allow the substrate to dry during the construction period. See Installation Instructions on website for step by step pictures of installation.
- RevealShield requires a drainage cavity or rain screen system to be incorporated into all WRB/AB Installations. **Black VaproBattens** accomplish this and are available as a corresponding accessory.

### FASTENING GUIDELINES

- RevealShield with Integrated Tape is mechanically fastened to the substrate. Stainless Steel Staples or Cap Nails may be used as temporary fasteners during installation but only at locations that will be covered by the shingling of the next layer of material. See complete Installation Instructions on website for additional information.
- **DO NOT** place fasteners in the Integrated Tape overlap area prior to removal of the release papers and sealing of the horizontal Integrated Tape seam. Fasteners should be placed in the overlap area only after the Integrated Tape release papers have been removed and the joint is sealed.

## 07 27 27 Water Resistive Air Barrier Membrane

- Join horizontal seams by pulling and removing both release papers simultaneously (the underside of the overlapping upper course and the top side of the lower course).
- Exposed fasteners for the RevealShield with Integrated Tape WRB/AB will require **VaproCaps** and #6, #7, or #8 size corrosion protected bugle headed screws of the appropriate thread design and length for the underlying substrate and framing material.
- **VaproCaps** are washers that have been extensively tested for both water and air leakage and substitutions are not recommended.

### BEST PRACTICE OVERVIEW

- Horizontal overlaps must be at 6" in order to properly seal the Integrated Tape joint. Vertical overlaps are to be 12" minimum and require Dow 758 Sealant, to provide an Air Barrier Seal. Vertical overlaps are to be staggered a minimum of 24" and should not occur directly above or below windows or doors.
- Always install RevealShield with Integrated Tape in a "weatherboard" or "shingle fashion" with the upper courses lapped on top of the courses below, using the dotted line provided at 6" down from the top edge.

### STORAGE AND HANDLING

Rolls should be stored on a clean, dry, level surface – either flat or upright – and kept under cover.

### GENERAL

- See [www.VaproShield.com](http://www.VaproShield.com) for complete installation instructions.

### LIMITATIONS

- RevealShield with Integrated Tape should be covered within one month of installation
- Contamination of RevealShield membrane with building site chemicals which make it more wettable (e.g., surfactants), adversely affects its water resistance and therefore its contribution to the water resistance of the overall wall system.
- The RevealShield membrane should not be subjected to asphaltic materials, chemicals, surfactants, or cleaning compounds that could affect the water resistance of the fabric surface; if exposed, replace affected fabric.

## 6. Availability

VaproShield products are available throughout North America.

## 7. Warranty

A 20 Year Product Warranty is available.



### 1. Product Name

**RevealShield SA™ Self-Adhered  
Water Resistive Vapor Permeable  
Air Barrier Sheet Membrane  
(RevealShield SA™)**

### 2. Manufacturer

**VaproShield, LLC.**  
915 26th Avenue, NW #C5  
Gig Harbor, WA 98335  
Tel: (866) 731-7663 USA / (866) 871-8263 Canada  
Fax: (253) 858-3297  
Email: [info@vaproshield.com](mailto:info@vaproshield.com) or [info@vaproshield.ca](mailto:info@vaproshield.ca)  
Web: [www.vaproshield.com](http://www.vaproshield.com) or [www.vaproshield.ca](http://www.vaproshield.ca)

### 3. Product Description

#### BASIC USE AND APPLICATIONS

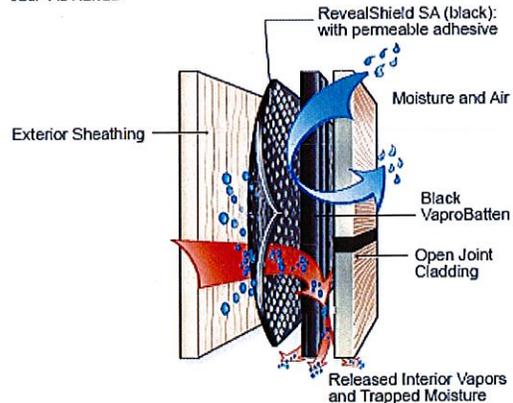
**RevealShield SA™** is a fully self-adhered water resistive and air barrier sheet membrane used above grade, behind rain screen open joint wall cladding assemblies.

#### BENEFITS

**RevealShield SA™** is specifically designed for open joint rain screen wall cladding systems, where permanent UV exposure is inherent. With a vapor permeance of over 40 perms and an air leakage rate of 0.00001 L/s/m<sup>2</sup> @ 75 Pa, RevealShield SA™ protects against water intrusion and prevents air leakage, allowing the wall assembly to breathe or 'dry-out', as necessary to meet the conditions of seasonal changes for each climate zone. The combined water and air protection along with breathable membrane attributes help to ensure good indoor air quality by reducing conditions conducive to mold, mildew, lumber distortion and metal corrosion.

**RevealShield SA™** is a single layer sheet membrane that fully bonds to almost any substrate, does not require the use of primers, emits no VOC's, and does not require special equipment for installation. Cladding open Joints can be up to 1 1/2" and up to 40% of the total elevation area.

### REVEAL SHIELD SA™ UNSURPASSED IN PERFORMANCE SELF-ADHERED



*RevealShield SA Self-Adhered, UV stable membrane for open joint cladding construction.*

**RevealShield SA™** keeps construction schedules moving and labor costs down as it can be installed either horizontally or vertically in extreme temperatures of 20°F (-6° C) and rising.

**RevealShield SA™** is a zero VOC fully self-adhered membrane consisting of multiple layers of UV stabilized proprietary material that can remain exposed under open joint cladding systems and is available with a 20 Year Product Warranty when installed per VaproShield installation instructions.

#### MATERIAL

SIZE: 59 inches by 102 feet Roll (1.5m by 31.1m)  
COLOR: Black

#### MULTIPLE SUBSTRATE COMPATIBILITY:

- Exterior Gypsum Sheathing (all major brands)
- Most Rigid Insulation
- Precast Concrete
- Concrete Block
- Cast-in-place Concrete
- Plywood
- Pre-painted Steel
- Galvanized Metal
- Aluminum (Painted/Mill)
- Anodized Aluminum
- Vinyl Window and Door Frames
- Fiberglass Window and Door Frames

### 4. Technical Data

Tested in accordance with ICC-ES AC 38 criteria to meet IBC and IRC requirements for Water Resistive Barriers.

**SUSTAINABLE DESIGN BENEFITS**

**RevealShield SA™** is highly UV resistant. It can remain exposed for up to 180 DAYS prior to installation of cladding system, although VaproShield BEST PRACTICES recommend covering with cladding as soon as possible.

**Testing Data Highlights:**

Property	Standard/Test	Result
<b>Air Barrier Testing</b>		
Air Permeance Of Building Materials	ASTM 2178	0.00001 L/S/m <sup>2</sup> @ 75 Pa PASS
Air Barrier System Test	ASTM E 2357	PASS
<b>Elongation Strength</b>		
Elongation Strength	ASTM D 5034	PASS
Water Resistance (control and weathered specimens)	AATCC 127 (55cm Hydrostatic Head of Water for 5 hours)	No leakage noted on control or weathered Samples PASS
Water Vapor Transmission	ASTM E96 (Method B)	254.6 g/m <sup>2</sup> 24 hrs 41 Perms
Flamespread Index	ASTM E-84	0-Class A PASS
Smoke Development Index	ASTM E-84	75-Class A PASS
UV Stability	AC38 Section 4.1.2	PASS
Service Temperature		-40°F to 250°F
Application Temperature		20°F and rising

**RELATED LEED CREDITS**

**RevealShield SA™** contributes to Environmental Quality ("EQ") credit 4.1: Low-Emitting Materials: Adhesives & Sealants, under United States Green

Building Council's Rating System for New Construction and Major Renovations (LEED-NC), version 2.2, core and shell (LEED-CS), version 2.0.

**5. Installation**

See [www.VaproShield.com](http://www.VaproShield.com) for complete installation instructions and installation instructional videos.

**STORAGE AND HANDLING**

Store material rolls on end in original packaging. Protect rolls from direct sunlight and inclement weather until ready for use.

**LIMITATIONS**

- **RevealShield SA™** should be covered within 180 days of installation.
- Minimum recommended application temperature for self-adhered membrane and flashings to be above 20 degrees F (minus 6 degrees C).
- **RevealShield SA™** membrane should not be subjected to asphaltic materials, chemicals, surfactants, or cleaning compounds that could affect the water resistance of the fabric surface. If exposed, replace affected material.
- Open joint spacing not to exceed 2" with maximum open area not to exceed 40% of total elevation area of open joint cladding.

**6. Availability**

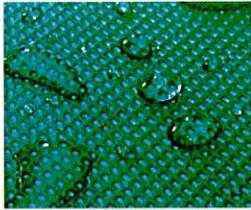
VaproShield products are available throughout North America, Central and South America.

**7. Warranty**

A 20 Year Product Warranty is available.

**WALLSHIELD®**

[Benefits](#)  
[Testing](#)  
[Specifications](#)  
[Installation](#)  
[Related Products](#)  
[Details](#)  
[Tapes/Adhesives](#)

**WALLSHIELD®****Unsurpassed in Performance**

With a rating of 212 perms, **WALLSHIELD®** allows trapped interior moisture to escape, reducing the risk of mold, mildew and rot.

[Printer Friendly English \(PDF, 2.2MB\)](#)  
[ICC-ES Approval English\(PDF, 414kb\)](#)

**WRAPSHIELD®****WRAPSHIELD SA®****REVEALSHIELD™****REVEALSHIELD SA™****WRAPSHIELD RS™****SLOPESHIELD®****SLOPESHIELD SA®****Rain Screen****Components****3D Window Flashing****Elements****VaproLiqui-Flash****Tapes/Adhesives****VaproCaps****WALLSHIELD® Approvals and Testing**

PROPERTY	STANDARD/TEST	RESULT
Tensile Strength	<b>ASTM D882</b>	MD - 28.2 lbf/inch (4.94 N/mm) CD - 22.6 lbf/inch <b>PASS</b>
Water Resistance (control and weathered specimens)	<b>AATCC 127</b> (55cm hydrostatic head of water for 5 hrs)	No leakage noted on underside of control or weathered samples <b>PASS</b>
Water Vapor Transmission	<b>ASTM E96*</b> (Method B)	1309.7 g/m <sup>2</sup> 24hrs 12126.4 ng/Pa/s/m <sup>2</sup> 212 Perms <b>PASS</b>
Low Temperature Bend	5 specimens bent over a 1/16 inch mandrel at 32°F	No cracking or de-lamination noted. <b>PASS</b>

**FIRE TESTING**

PROPERTY	STANDARD/TEST	RESULT
Wall Assembly Fire Test	NFPA 285	<b>PASS</b> with diverse assemblies***
Flamespread Index	<b>ASTM E84</b>	5 – Class A <b>PASS</b>
Smoke Development Index	<b>ASTM E84</b>	70 – Class A <b>PASS</b>

**INDEPENDENT TESTING**

PROPERTY	STANDARD/TEST	RESULT
Nominal Thickness	Calibrated Deadweight Micrometer	0.023 inch (0.58mm)
Basis Weight	Electronic Weigh Scale	5.16 oz/yd <sup>2</sup> (0.55 oz/ft <sup>2</sup> ) 175g/m <sup>2</sup>
Drying Rate Analysis of Wet Plywood & OSB**	Water Loss (g) Over 100 hrs at 70°F, 50% RH	280 grams of water vapor lost through <b>WALLSHIELD®</b> membrane (four times nearest competitor)

Tested in accordance with ICC-ES AC 38 criteria to meet IBC and IRC requirements for Weather Resistive Barriers (ICC Certificate #ESR-1916).

\*ASTM E 96 - Method B (wet cup method) typically gives a more realistic result for permeance of highly permeable products than does the Method A (dry cup/desiccant method).

\*\*Test report available upon request from VaproShield LLC

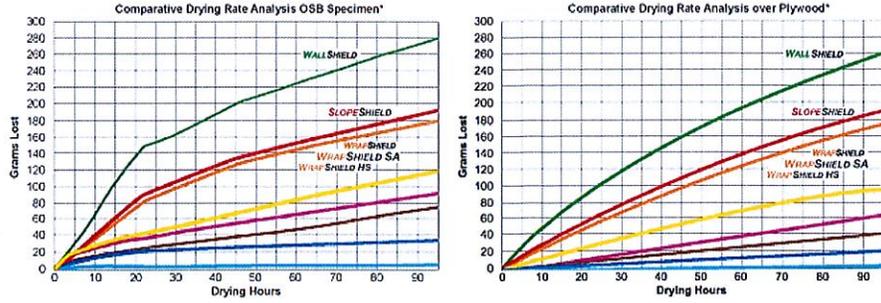
\*\*\* Contact the VaproShield Team to learn more about NFPA compliance and testing.

[Printer Friendly English \(PDF, 2.2MB\)](#)  
[ICC-ES Approval English\(PDF, 414kb\)](#)

**REFERENCES**

AATCC - American Association of Textile Chemists & Colorists  
 ASTM - American Society for Testing & Materials  
 ICC-ES-AC - International Code Council, Evaluation Service Report

Third Party Testing Drying Rate Comparisons



- |   |  |
|---|--|
| <p><b>Self-Adhered Membranes</b></p> <ul style="list-style-type: none"> <li>■ WrapShield Self-Adhered Vapor Permeable Air Barrier*</li> <li>■ Henry VP 160 without primer**</li> <li>■ Grace Ice &amp; Water Shield*</li> </ul> | <p><b>Mechanically Attached Membranes</b></p> <ul style="list-style-type: none"> <li>■ WallShield Air/Vapor Permeable*</li> <li>■ WrapShield Vapor Permeable Air Barrier*</li> <li>■ WrapShield H5 Rain Screen Membrane Air Barrier*</li> <li>■ SlopeShield Roofing Underlayment*</li> <li>■ Tyvek Commercial*</li> <li>■ Tygar*</li> <li>■ Jumbo Tex 60 min paper (2 layers)*</li> <li>■ Dow Weathermate Plus*</li> </ul> |
|---|--|

\*Copy of test available  
 \*\*Used upon manufacturer's published technical data  
 Third party testing clearly shows superior drying capability of WallShield, WrapShield, WrapShield SA, WrapShield HS, and SlopeShield

VaproShield breathable membranes are unsurpassed in their ability to dry wet sheathing. Third-party testing results clearly indicate the superior drying capability of both WALLSHIELD® and WRAPSHIELD®. Drying is essential in preventing the damaging effects of mold, mildew and rot resulting in repair costs, poor indoor air quality and strain on HVAC systems.

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# DUPONT™ TYVEK® FLUID APPLIED WB

FOR USE ON MOST COMMERCIAL WALL SUBSTRATES INCLUDING CMU AND GYPSUM SHEATHING



## PRODUCT INFORMATION—FEATURES/BENEFITS

### Air and Water Barrier Performance

- Offers an ideal combination of air and water holdout with vapor permeability.
- Air Barrier Association of America evaluated to exceed ABAA, ASHRAE 90.1 and IECC air leakage requirements when tested in accordance with ASTM E2357.

### Ease of Installation

- Single component, one-coat application.
- Can be sprayed or pressure rolled for fast and easy application.
- Can be installed at temperatures as low as 25°F (-4°C).
- Exhibits extremely low shrinkage during curing, minimizing the risk of cracking and pin-holing. Helps improve installer quality control from wet to cured products helping to reduce coats to a one-coat application.
- Offers 2 to 3 times the coverage of competitive products. Approximately 55 to 65 sq. ft. / gallon in one coat.

### High Performance Durability

- The formulation of DuPont™ Tyvek® Fluid Applied is not water soluble and is essentially unaffected by liquid water even before curing. Can be installed on damp surfaces when no moisture is transferred to the skin when the substrate is touched.
- The cured membrane exhibits exceptional extension and recovery properties (99% recovery per ASTM D412). When stretched it acts like a rubber band and will retract as a building moves allowing the membrane to move with the building.
- Easily withstands high wind loads.
- Withstands nine months of UV exposure.

### Sustainable Solutions

- DuPont™ Tyvek® Fluid Applied products may contribute toward LEED® points in the areas of Energy and Atmosphere (EA): Optimizing the Building Envelope and Indoor Environmental Air Quality (EQ): Construction IAQ Management Plan and Low Emitting Materials. In addition, the use of a continuous air barrier is a pre-requisite for LEED applications requiring compliance with ASHRAE 90.1-2010.
- By helping to effectively seal the building envelope and reducing air leakage, the DuPont™ Tyvek® Fluid Applied WB helps reduce the amount of energy required for heating and cooling.
- Low VOC.

### Complete System

- Part of a complete, integrated fluid applied weather barrier system, all backed by a limited warranty from DuPont. For best results, use with DuPont™ Tyvek® Fluid Applied Flashing & Joint Compound and DuPont™ Sealant for Fluid Applied Systems.

## DESCRIPTION

DuPont™ Tyvek® Fluid Applied WB is based on a unique formulation using silyl-terminated polyether polymer technology. It offers low shrinkage during curing, superior elasticity and recovery and can be easily applied in one coat.

## TYPICAL PROPERTIES

Please contact your local DuPont™ Tyvek® Specialist before writing specifications around this product. Product properties are as follows:

Test Method	Property	Unit	Value
ASTM E2178	Air Penetration Resistance	cfm/ft² @ 75 Pa (1.57 psf)	0.0002
Gurley Hill (TAPPI T-460)	Air Penetration Resistance	sec/100 cc	>10,000
ASTM E2357	Wall Assembly Air Penetration Resistance	cfm/ft² @ 75 Pa	<0.01
ASTM E283	Wall Assembly Air Penetration Resistance	cfm/ft² @ 75 Pa	<0.01
ASTM E1677	Wall Assembly Air & Water Leakage	Type	Type I
AATCC 127	Water Penetration Resistance	cm	>1000
ASTM E331	Wall Assembly Water Penetration Resistance	Tested to 15 psf	No leakage
ASTM E96-00	Water Vapor Transmission	Method B perms	25
ASTM C1305	Low Temperature Crack Bridging	No cracking	PASS
ASTM D4541	Adhesion Strength - Concrete	psi	>33
ASTM D4541	Adhesion Strength - Exterior Gypsum (delaminates fiberglass topsheet)	psi	>25
ASTM D903	Peel Strength	lbf/in (aluminum)	13.3 Cohesive failure
ASTM C794	Adhesion-In-Peel	lbf/in (mortar)	PASS
ASTM D412	Tensile	psi	169
ASTM D412	Elasticity	%	400
ASTM D412	Recovery	%	99
ASTM D2240	Hardness	Shore A	71
Accelerated weathering (G155)	Ultraviolet Light Exposure (UV)	months	9
ASTM 1970	Nail Sealability	No leakage	Pass
NFPA 285	Flame Propagation, Multiple Assemblies	—	Pass
ASTM E84	Surface Burning Characteristics	Class Flame Spread Index Smoke Developed Index	Class A 25 25
ASTM C1250	VOC	% (by wt.) g/L	<2 25-30



The miracles of science™

## DUPONT™ TYVEK® FLUID APPLIED WB

A DURABLE, VAPOR PERMEABLE FLUID APPLIED WEATHER BARRIER

### APPLICATION/USE INSTRUCTIONS

#### Use Conditions

Use when ambient temperatures are above 25°F (-4°C). Do not thin. Stirring not necessary.

#### Active Ingredients

Calcium carbonate

#### Safety Precautions for Use

Vapor harmful if using spray application. Use in a well ventilated area. Use a NIOSH approved respirator. If vapors are inhaled, immediately remove from exposure and contact a physician. Avoid contact with eyes and skin. Protective eye wear and gloves are recommended.

CAUTION: Use only as directed. Avoid contact with eyes. First Aid: Eye Contact; Wash thoroughly with water. If irritation persists, contact a physician. Skin Contact; Rinse thoroughly with citrus-based cleaners. KEEP OUT OF REACH OF CHILDREN.

#### Preparation

Remove all surface dust, dirt and loose mortar. Surface must be clean, free from frost, grease, dirt, or other contaminants and must be reasonably smooth. Mortar joints in concrete block and voids in poured concrete shall be filled flush and smooth and allowed to cure for a minimum of 24 hours. Product can be installed on damp surfaces provided no moisture is transferred to the skin when the substrate is touched. This flexibility reduces substrate preparation and protection requirements.

#### Application

Complete all joint fill and flashing beforehand. Tyvek® Fluid Applied WB may be sprayed, rolled or brush applied. Application using a pressure roller, such as a Graco Pressure Roller, is preferred. Apply in a single application at 25 mils thick, spot check with a wet mil gauge. Inspect surface for voids and pinholes and repair as necessary.

#### Curing

DuPont™ Tyvek® Fluid Applied Weather Barrier is tack free or dry to touch within 2 hours at 70°F and 50% relative humidity. Curing occurs within 24 hours at 70°F and 50% relative humidity. Facade may be applied after 24 hours. Tack free time and complete cure will vary with temperature, humidity and substrate conditions.

#### Clean-Up

Clean tools with mineral spirits, citrus-based cleaners, or gel-based paint stripper. Material should not be left in the pump, hose, gun, or pressure roller. After applying, flush system with a citrus-based cleaner, or mineral spirits until the system is clean. Avoid using water for cleanup. Low pressure portions of the system should be taken apart and cleaned by hand. Before the next usage, flush any remaining solvent out of the system before applying Fluid Applied WB to the wall. Be sure that system is fully clean of any product before introducing a different product. If system is not fully clean, products can react and cause products to cure in the system.

#### Equipment

Application using a pressure roller, such as the Graco Pressure Roller, is the preferred method of installation of Tyvek® Fluid Applied WB. The pressure roller can be used in conjunction with the a variety of pumps, such as the Graco IronMan 300E, IronMan 500G, GH 733, GH 833 or equivalent. All manufacture limitations should be followed. DuPont™ Tyvek® Fluid Applied WB may be sprayed using a high pressure air powered, airless sprayer such as the Graco X70 Xtreme® Sprayer with a 0.017" – 0.025" tip. All filters should be removed.

Please refer to DuPont™ Tyvek® Fluid Applied WB Installation Guidelines for complete instructions.

### APPROVALS / SPECIFICATIONS

#### MOISTURE PROTECTION – WEATHER-RESISTANT BARRIERS

The 2009/2012 International Building Code (IBC, Section 1403.2 Weather Protection) requires that exterior walls shall provide the building with a weather-resistant exterior wall envelope. This shall include flashing, as described in Section 1405.4.

DuPont™ Tyvek® Fluid Applied System products have been tested and meet weather-resistant barrier codes and standards requirements. The following test methodologies were used:

- ASTM E96-2010, Standard Test Methods for Water Vapor Transmission of Materials; Water resistive barriers are typically vapor permeable, which is generally desirable because it allows for drying of incidental moisture intrusion into the wall assembly.
- AATCC-127, Hydrostatic Head Test for WRB Materials, measuring pressure to failure or time of failure at a given pressure.
- ASTM E331-2000, Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, And Curtain Walls by Uniform Static Pressure.

#### AIR LEAKAGE CONTROL – AIR BARRIERS

ASHRAE 90.1 2010 (American Society of Heating, Refrigerating and Air-Conditioning Engineers) requires that the entire building envelope shall be designed and constructed with a *continuous air barrier*. This is a mandatory provision for the building envelope. IECC 2009/2012 (International Energy Conservation Code) for commercial buildings also requires a *continuous air barrier*. These codes are being adopted in many states across the United States. DuPont™ Tyvek® Fluid Applied System products have been tested and meet air barrier codes and standards requirements. The following test methodologies were used:

- ASTM E 2178-2008, Standard Test Method for Air Permeance of Building Materials
- ASTM E 283-2004, Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen

- ASTM E 2357-2011 Standard Test Method for Determining Air Leakage of Air Barrier Assemblies
- ASTM E1677-2011, Standard Specification for Air Barrier (AB) Material or System for Low-Rise Framed Building Walls
- ASTM E779-10 Standard Test Method for Determining Air Leakage Rate by Fan Pressurization (whole building)

Tyvek® Fluid Applied Weather Barrier System products have been evaluated according to Air Barrier Association of America (ABAA) protocol and are listed at the ABAA website under "ABAA evaluated Air Barrier Assemblies", [http://www.airbarrier.org/materials/assemblies\\_e.php](http://www.airbarrier.org/materials/assemblies_e.php)

#### NOTICE

DuPont™ Tyvek® Fluid Applied WB should be covered with the facade within 9 months to limit UV exposure. Follow facade manufacturer's installation and maintenance requirements in order to maintain water holdout.

#### MATERIAL STORAGE/DISPOSAL:

Storage and Disposal: DuPont™ Tyvek® Fluid Applied products should be stored in a clean, dry environment, 50°- 80°F, (10°- 27°C). Storage of the products in temperatures outside that range for short periods of time is acceptable. Please refer to the DuPont™ Tyvek® Fluid Applied FAQ's.

#### SHELF LIFE AND STORAGE

The shelf life is 12 months for an unopened container from the date of manufacture. Reference the "Use By" date printed on the container. Store opened containers with a plastic protective liner.

#### PACKAGING

DuPont™ Tyvek® Fluid Applied WB is available in 5 gallon pails and 50 gallon drums.

#### WARRANTY

Backed by a limited product warranty, see [www.fluidapplied.tyvek.com](http://www.fluidapplied.tyvek.com).

#### LIMITATIONS

DuPont™ Tyvek® Fluid Applied WB should not be used for below grade applications or in applications in which it will be permanently exposed. Asphalt based adhesives are not recommended for use with this product.





# Cat 5®

*air and water-resistive barrier*

Cat 5® is part of the family of PROSOCO R-GUARD® products developed to prevent the movement of water and air through building envelopes. Utilize Cat 5® as the primary air and water barrier over above grade wall assemblies prepared with R-GUARD Joint & Seam Filler and R-GUARD FastFlash®.

## OVERVIEW

PROSOCO R-GUARD® Cat 5® Air & Water-Resistive Barrier is a fluid applied, waterproofing, and air and water barrier membrane that combines the best of silicone and polyurethane properties. This single component, Silyl-Terminated-Poly-Ether (STPE) is roller applied to produce a highly durable, seamless, elastomeric weatherproofing membrane on exterior sheathing, CMU back-up walls, and pre-cast concrete. Cat 5® is proven to prevent water and air penetration of the building envelope in conditions ranging from everyday weather to the drenching rains and 155 mph winds of a Category 5 hurricane.

Cat 5® can be applied in unfavorable weather conditions to dry or damp substrates. This feature eliminates many weather-related construction delays and accelerates the "drying in" of new buildings. The durable, elastomeric membrane adheres to most surfaces, is immediately waterproof and is compatible with most sealants and waterproofing or air barrier components.

## SPECIFICATIONS

For all PROSOCO product specifications visit [www.prosoco.com](http://www.prosoco.com).

## ADVANTAGES

- Solvent free. Isocyanate free. Phthalate free. Complies with all VOC regulations.
- Silane functional polymer provides superior long term adhesion, crack bridging and weathering characteristics. Self seals fastener penetrations.
- Bonds to most common building materials without priming to produce a durable, weatherproof membrane which will not tear or displace when subjected to wind loads during construction. Easy to repair if damaged.
- Will not tear or lose effectiveness when exposed to weather during construction.
- May be fully exposed to UV and weather for up to 12 months. If longer, contact for inspection.
- Service temperature from -75°F to 300°F (-59°C to 149°C).
- Single component – saves time.
- Easy roller application in all climates.
- Bonds and cures in wet weather and on damp substrates.
- No shrinkage. No staining. No yellowing.
- Breathable. Allows damp surfaces to dry.
- Will not support mold growth.
- Stops penetration of air and water under normal and extreme weather conditions.
- Air Barrier Association of America (ABAA) approved product.
- Illustrations depicting the use of PROSOCO R-GUARD® products are available at [www.prosoco.com](http://www.prosoco.com) by downloading the R-GUARD Installation Guidelines.

## Limitations

- Not for use as a liquid flashing membrane. Use R-GUARD FastFlash®.
- Not for use in place of appropriate through-wall flashing.
- Not for use below grade or in locations designed to be continuously immersed in water.

## REGULATORY COMPLIANCE

### VOC Compliance

PROSOCO R-GUARD® Cat 5® is compliant with the following national, state and district VOC regulations:

- US Environmental Protection Agency
- California Air Resources Board SCM Districts
- South Coast Air Quality Management District
- Maricopa County, AZ
- Northeast Ozone Transport Commission

## TYPICAL TECHNICAL DATA

R-GUARD CAT 5®	
FORM	adobe brown heavy liquid
SPECIFIC GRAVITY	1.40–1.55
pH	Not applicable
WT/GAL	12.3 lbs
TOTAL SOLIDS	99%
VOC CONTENT	<30 g/L
FLASH POINT	>200°F (>93°C)
FREEZE POINT	Not applicable
SHELF LIFE	1 year in tightly-sealed, unopened container
CURED PROPERTIES	
Hardness, Shore A	20–25
Tensile Strength	100 psi
Elongation at Break	250%
Water Vapor Transmission	18 perms (ASTM E96)
Transfer-Free Time	2–4 hours
PERFORMANCE AT 12 WET MILS*	
Air Infiltration	Meets and exceeds air barrier performance requirements (ASTM E2178)
Air Leakage of Air Barrier Assembly	Passed: 0.000 L/s·m <sup>2</sup> at 300 Pa (ASTM E2357)
Water Penetration (static pressure)	No water penetration (ASTM E331)
Fastener Sealability	No water infiltration (ASTM D1970)
Surface Burning	Flame Spread: 10 (ASTM E84) Smoke Developed: 0 NFPA and ICC Class A Building Material

\*Unless otherwise required by the referenced test method, test results cited were achieved when the product was applied at 12 wet mils to DensGlass® gold fiberglass mat gypsum sheathing. Please refer to Page 4 for a complete list of performance test results.

Illustrations depicting the use of PROSOCO R-GUARD® products are available at [www.prosoco.com](http://www.prosoco.com) by downloading the R-GUARD Installation Guidelines.

## PREPARATION

Protect people, vehicles, property, plants and all other surfaces not intended to receive Cat 5®. Apply to clean surfaces free of contaminants. Chemical residues, surface coatings or films may adversely affect adhesion. Remove and replace damaged sheathing. On exterior sheathing, repair cracks larger than 1/2-inch. Fill open joints, seams and cracks using R-GUARD Joint & Seam Filler.

In rough openings and outside corners, prime all raw gypsum board edges with R-GUARD GypPrime. Use R-GUARD Joint & Seam Filler on joints, seams and all other interfaces. Flash rough openings using R-GUARD FastFlash®. Let Joint & Seam Filler and FastFlash® skin over before applying Cat 5®.

### Surface and Air Temperatures

Surface and ambient temperatures should be 40°F (4°C) and rising and below 110°F (43°C) during application and drying. Wind and high temperatures will accelerate drying. **Hot Weather Precautions:** If air or surface temperatures exceed 95°F (35°C), apply to shaded surfaces and before daytime air and surface temperatures reach their peak. Hot surfaces may be cooled with a mist of fresh water. Keep containers closed and out of direct sunlight when not in use. **Cold Weather Conditions:** May be applied to frost-free substrates at temperatures below 32°F (0°C). Product will not start curing and drying until temperature rises to and remains above 32°F (0°C). **Low Humidity Conditions:** Curing may take longer than 12 hours. Lightly misting treated surfaces with fresh water will accelerate curing. **Uncured material may delay construction.**

Though R-GUARD Cat 5® may be applied to damp surfaces and tolerates rain immediately after application, do not apply to surfaces with standing water or frost.

### Equipment

Apply using standard 1/4 inch to 3/8 inch nap rollers.

### Storage & Handling

Store in a cool, dry place. Keep container tightly closed when not dispensing. Do not open container until preparation work has been completed. Do not alter or mix with other chemicals. When stored at or below 80°F (27°C) R-GUARD Cat 5® has a shelf life of 12 months after the date of manufacture. This shelf life assumes upright storage of factory-sealed

## ALWAYS TEST

**ALWAYS TEST** a small area of each surface to confirm suitability and desired results before starting overall application. Test with the same equipment, recommended surface preparation and application procedures planned for general application.

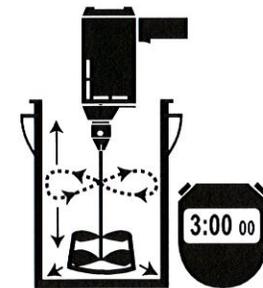
containers. Do not double stack pallets. Dispose of unused product and container in accordance with local, state and federal regulations.

## APPLICATION

Before use, read "Preparation" and "Safety Information."

### Dilution & Mixing

Apply as packaged. Do not dilute or alter, or use for applications other than specified. Using a low-speed drill and paddle, mix well from top to bottom and side-to-side for a minimum of 3 minutes before use. Avoid mixing air into the product.



### Coverage Rates

Coverage rates will vary depending on surface porosity, moisture uptake, and other factors. Unless otherwise required by the referenced test method, test results cited were achieved when the product was applied at 12 wet mils to DensGlass® gold fiberglass mat gypsum sheathing. Many gypsum sheathing products require additional material to achieve hide and the desired mil thickness for a pinhole free coating. In some cases, two coats may be required. Actual rates must be determined through mock-up applications.

For more information regarding coverage rates as it pertains to glass-mat sheathing, please consult the AMT Laboratories Technical Bulletin available at [www.prosoco.com/AirBarriers](http://www.prosoco.com/AirBarriers).



# Cat 5®

**PRODUCT DATA SHEET**  
**PROSO CO**  
SINCE 1939

PROSO CO R-GUARD® Cat 5® is sold in 5 gallon containers.

R-GUARD Cat 5®	COVERAGE RATES
EXTERIOR GYPSUM BOARD OSB PLYWOOD	50-100 SQ.FT. PER GALLON
CMU	50-80 SQ.FT. PER GALLON

## Application Instructions

- Roller apply to exterior wall assembly using vertical strokes with a slight diagonal slant. Ensure there are no pinholes, voids or gaps in the membrane. **NOTE:** If air or surface temperatures exceed 95°F (35°C), apply to shaded surfaces and before daytime air and surface temperatures reach their peak.
- Seal masonry ties and properly prepared penetrations as work progresses. Some sheathing will require additional material to achieve a continuous coating. Inspect surface after initial application and touch-up as needed.
- Allow product to cure and dry. Wind, high temperatures and high humidity will accelerate drying. Low temperatures and low relative humidity will extend cure time. Lightly mist treated surfaces with fresh water to accelerate cure.
- Inspect membrane before installing cladding. Fill deep gouges with R-GUARD Joint & Seam Filler. Repair any punctures or damaged areas. If the surface of the primary air barrier or liquid flashing membrane is damaged during construction, remove all loose surface contaminants before selective re-coating with additional Cat 5® or FastFlash®. Overlap repairs, penetration treatments, transitions, rigid flashing and other air barrier components to ensure positive drainage and continuity of the air and water-resistive barrier.

## Cleanup

Clean tools and equipment with mineral spirits or similar solvent immediately after use.

## Curing and Drying

At 70°F (21°C) and 50% relative humidity, product skins in approximately 2 hours and cures in approximately 12 hours when applied at 12 mil thickness.

R-GUARD Cat 5® is moisture curing. Low temperatures and low relative humidity slow cure time. Wind, high temperatures and high humidity accelerate drying.

## SAFETY INFORMATION

PROSO CO R-GUARD® Cat 5® contains calcium carbonate and may cause eye and skin irritation. Use with adequate ventilation, safety equipment and job site controls during application and handling. Read the full label and MSDS for precautionary instructions before use.

### First Aid

**Eye Contact:** Immediately rinse eyes with water. Remove any contact lenses. Hold eyelids apart to ensure rinsing of the entire surface of the eyes and lids with water. Continue flushing eyes with running water for at least 15 minutes. Get medical attention if irritation develops.

**Skin Contact:** Wash affected areas with large amounts of running water and soap for 15 minutes. Remove contaminated clothing and shoes. Wash clothing and decontaminate shoes before re-use. Get medical attention if irritation develops and persists.

**Inhalation:** Remove from area to fresh air. If not breathing, clear airway and start mouth-to-mouth artificial respiration or use a bag mask respirator. Get immediate medical attention. If victim is having trouble breathing, transport to medical care and if available, give supplemental oxygen.

**Ingestion:** DO NOT induce vomiting. DO NOT give anything by mouth to an unconscious or convulsing person. Get immediate medical attention.

**24-Hour Emergency Information: INFOTRAC at 800-535-5053**

## WARRANTY

Information and recommendations are based on our research and the research of others, and are believed to be accurate. No guarantee of their accuracy is made because we cannot anticipate every application or variations encountered in building surfaces, job conditions and methods used. The purchasers shall make their own tests to determine the suitability of such products for a particular purpose. PROSO CO, Inc. warrants this product to be free from defects.

Where permitted by law, PROSO CO makes no other warranties with respect to this product, express or implied, including without limitation the implied warranties of merchantability or fitness for particular purpose. PROSO CO's liability shall be limited in all events to supplying sufficient product to re-treat the specific areas to which defective product has been applied. Acceptance and use of this product absolves PROSO CO from any other liability, from whatever

## BEST PRACTICES

R-GUARD Cat 5® bonds tenaciously. Carefully protect all nearby surfaces not intended for treatment. Immediately clean up incidental contact using mineral spirits or similar solvent.

On R-GUARD Cat 5® projects, always use Joint & Seam Filler, FastFlash® and AirDam® where required. Do not substitute.

Prepare all rough openings with R-GUARD Joint & Seam Filler and FastFlash®. Allow to skin over before installing Cat 5®. Overlap Cat 5® onto FastFlash® by 2 inches or more.

A slightly diagonal vertical application stroke provides best coverage.

Coverage rates will vary depending on surface porosity, moisture uptake, and other factors. Many gypsum sheathing products require additional material to achieve hide and the desired mil thickness for a pinhole free coating. In some cases, two coats may be required. Actual rates must be determined through mock-up applications.

For more information regarding coverage rates as it pertains to glass-mat sheathing, please consult the AMT Laboratories Technical Bulletin available at [www.prosoco.com/AirBarriers](http://www.prosoco.com/AirBarriers).

**Hot Weather Precautions:** If air or surface temperatures exceed 95°F (35°C), apply to shaded surfaces and before daytime air and surface temperatures reach their peak. Hot surfaces may be cooled with a mist of fresh water. Surfaces may be damp but must be free of standing water before application. Keep containers closed and out of direct sunlight when not in use. **Cold Weather Conditions:** May be applied to frost-free substrates at temperatures below 32°F (0°C). Product will not start curing and drying until temperature rises to and remains above 32°F (0°C). **Low Humidity Conditions:** Curing may take longer than 12 hours. Lightly mist treated surfaces with fresh water to accelerate cure. **Uncured material may delay construction.**

Wind, high temperatures and high humidity accelerate drying. At 70°F (21°C) and 50% relative humidity, product will skin in approximately 2 hours and cure in approximately 12 hours when applied at 12 mil thickness.

Low temperatures and low relative humidity will extend cure time. Mist surfaces with fresh water to accelerate cure.

Illustrations depicting the use of PROSO CO R-GUARD® products are available at [www.prosoco.com](http://www.prosoco.com) by downloading the R-GUARD Installation Guidelines.

To schedule field technical support, contact your PROSO CO Technical Customer Care toll-free at 800-255-4255. Field visits by PROSO CO personnel are for the purpose of making technical recommendations only. PROSO CO is not responsible for providing job site supervision or quality control. Proper application is the responsibility of the applicator.

source, including liability for incidental, consequential or resultant damages whether due to breach of warranty, negligence or strict liability. This warranty may not be modified or extended by representatives of PROSOCO, its distributors or dealers.

### CUSTOMER CARE

Factory personnel are available for product, environmental and job-safety assistance with no obligation. Call 800-255-4255 and ask for Customer Care - technical support.

Factory-trained representatives are established in principal cities throughout the continental United States. Call Customer Care at 800-255-4255, or visit our web site at [www.prosoco.com](http://www.prosoco.com), for the name of the PROSOCO R-GUARD® representative in your area.

ICC-ES AC212 <sup>1</sup> – ACCEPTANCE CRITERIA FOR WATER-RESISTIVE COATINGS USED AS WATER-RESISTIVE BARRIERS OVER EXTERIOR SHEATHING			
Test	Method	Criteria	Results
Tensile Bond	ASTM C 297	Minimum 15 psi (105 kPa)	Pass
Freeze-Thaw	ICC-ES AC212	No cracking, checking, crazing, erosion, delamination or other deleterious effects	Pass
Water Resistance	ASTM D 2247	No cracking, checking, crazing, erosion, delamination, or other deleterious effects	Pass
Water Vapor Transmission	ASTM E 96 Wet Cup	Measure	18 perms at 12 mils
Water Penetration	ASTM E 331	No visible water penetration at the sheathing joints as viewed from the back of the panel	Pass
Structural, Racking, Restrained Environmental Conditioning & Water Penetration	ASTM E 1233 A ASTM E 72 ICC-ES AC212 ASTM E 331	No cracking of the coating	Pass
Weathering	ICC-ES AC212 AATCC <sup>2</sup> 127	No cracking of the coating; no water penetration	Pass
Air Permeance	ASTM E 2178	≤ 0.02 L / s·m <sup>2</sup> at 75 Pa (≤ 0.004 cfm / ft <sup>2</sup> at 1.57 psf)	Pass: 0.0009 L / s·m <sup>2</sup> at 75 Pa (0.00018 cfm / ft <sup>2</sup> at 1.57 psf)
ABAA: AIR BARRIER ASSOCIATION OF AMERICA ACCEPTANCE CRITERIA FOR LIQUID APPLIED MEMBRANES			
Test	Method	Criteria	Results
Air Permeance	ASTM E 2178	≤ 0.02 L / s·m <sup>2</sup> at 75 Pa (≤ 0.004 cfm / ft <sup>2</sup> at 1.57 psf)	Pass: 0.0009 L / s·m <sup>2</sup> at 75 Pa (0.00018 cfm / ft <sup>2</sup> at 1.57 psf)
Air Leakage of Air Barrier Assemblies	ASTM E 2357	≤ 0.2 L / s·m <sup>2</sup> at 75 Pa (≤ 0.04 cfm / ft <sup>2</sup> at 1.57 psf)	Pass: 0.0105 L / s·m <sup>2</sup> at 75 Pa (0.0021 cfm / ft <sup>2</sup> at 1.57 psf)
Water Resistance	AATCC <sup>2</sup> 127	No water infiltration after exposure to 55 cm head of water for 5 hours	Pass
Fastener Sealability	ASTM D 1970	No water infiltration	Pass
Pull Adhesion	ASTM D 4541	110 kPa (16 psi) or substrate failure	Pass
ICC-ES AC212	Entire Suite of Tests	Pass	Pass
Crack Bridging	ASTM C 1305	Pass	Pass
Water Vapor Permeance at applied thickness	ASTM E 96	Report in Ng/(Pa·s·m <sup>2</sup> )	Wet: 1015 Ng/(Pa·s·m <sup>2</sup> ) Dry: 860 Ng/(Pa·s·m <sup>2</sup> )
FIRE TESTING			
Test	Method	Criteria	Results
Fire Propagation Characteristics of Exterior Non-load-bearing Wall Assemblies	NFPA <sup>3</sup> 285	Must resist flame propagation and flame spread	Pass <sup>4</sup>
Determining Ignitability of Exterior Wall Assemblies	NFPA <sup>3</sup> 268	Cannot exhibit sustained flaming when exposed to radiant heat flux of 12.5 kW/m <sup>2</sup> ± 5% for 20 minutes	Pass <sup>5</sup>
Surface Burning Characteristics	ASTM E 84	Criteria for ICC and NFPA Class A Building Material: Flame Spread ≤ 25 Smoke Developed ≤ 450	Meets Class A Building Material Flame Spread: 10 Smoke Developed: 0

All testing was completed by independent, accredited laboratories.

#### NOTES:

- 1: International Code Council Evaluation Service Acceptance Criteria 212
- 2: American Association of Textile Chemists and Colorists
- 3: National Fire Protection Association
- 4: Southwest Research Institute Report No. 01.17421.01.001
- 5: Southwest Research Institute Report No. 01.17421.01.002

**ICC-ES AC212<sup>1</sup>**  
**ACCEPTANCE CRITERIA FOR WATER-RESISTIVE COATINGS USED AS WATER-RESISTIVE BARRIERS OVER EXTERIOR SHEATHING**

Test	Method	Criteria	Results
Tensile Bond	ASTM C 297	Minimum 15 psi (105 kPa)	Pass
Freeze-Thaw	ICC-ES AC212	No cracking, checking, crazing, erosion, delamination or other deleterious effects	Pass
Water Resistance	ASTM D 2247	No cracking, checking, crazing, erosion, delamination, or other deleterious effects	Pass
Water Vapor Transmission	ASTM E 96 Wet Cup	Measure	18 perms at 12 mils
Water Penetration	ASTM E 331	No visible water penetration at the sheathing joints as viewed from the back of the panel	Pass
Structural, Racking, Restrained Environmental Conditioning & Water Penetration	ASTM E 1233 A ASTM E 72 ICC-ES AC212 ASTM E 331	No cracking of the coating	Pass
Weathering	ICC-ES AC212 AATCC <sup>2</sup> 127	No cracking of the coating; no water penetration	Pass
Air Permeance	ASTM E 2178	≤ 0.02 L / s·m <sup>2</sup> at 75 Pa (≤ 0.004 cfm / ft <sup>2</sup> at 1.57 psf)	Pass: 0.0009 L / s·m <sup>2</sup> at 75 Pa (0.00018 cfm / ft <sup>2</sup> at 1.57 psf)

**ABAA: AIR BARRIER ASSOCIATION OF AMERICA ACCEPTANCE CRITERIA FOR LIQUID APPLIED MEMBRANES**

Test	Method	Criteria	Results
Air Permeance	ASTM E 2178	≤ 0.02 L / s·m <sup>2</sup> at 75 Pa (≤ 0.004 cfm / ft <sup>2</sup> at 1.57 psf)	Pass: 0.0009 L / s·m <sup>2</sup> at 75 Pa (0.00018 cfm / ft <sup>2</sup> at 1.57 psf)
Air Leakage of Air Barrier Assemblies	ASTM E 2357	≤ 0.2 L / s·m <sup>2</sup> at 75 Pa (≤ 0.04 cfm / ft <sup>2</sup> at 1.57 psf)	Pass: 0.0105 L / s·m <sup>2</sup> at 75 Pa (0.0021 cfm / ft <sup>2</sup> at 1.57 psf)
Water Resistance	AATCC <sup>2</sup> 127	No water infiltration after exposure to 55 cm head of water for 5 hours	Pass
Fastener Sealability	ASTM D 1970	No water infiltration	Pass
Pull Adhesion	ASTM D 4541	110 kPa (16 psi) or substrate failure	Pass
ICC-ES AC212	Entire Suite of Tests	Pass	Pass
Crack Bridging	ASTM C 1305	Pass	Pass
Water Vapor Permeance at applied thickness	ASTM E 96	Report in Ng/(Pa·s·m <sup>2</sup> )	Wet: 1015 Ng/(Pa·s·m <sup>2</sup> ) Dry: 860 Ng/(Pa·s·m <sup>2</sup> )

**FIRE TESTING**

Test	Method	Criteria	Results
Fire Propagation Characteristics of Exterior Non-load-bearing Wall Assemblies	NFPA <sup>3</sup> 285	Must resist flame propagation and flame spread	Pass <sup>4</sup>
Determining Ignitability of Exterior Wall Assemblies	NFPA <sup>3</sup> 268	Cannot exhibit sustained flaming when exposed to radiant heat flux of 12.5 kW/m <sup>2</sup> ± 5% for 20 minutes	Pass <sup>5</sup>
Surface Burning Characteristics	ASTM E 84	Criteria for ICC and NFPA Class A Building Material: Flame Spread ≤ 25 Smoke Developed ≤ 450	Meets Class A Building Material: Flame Spread: 10 Smoke Developed: 0

All testing was completed by independent, accredited laboratories.

**NOTES:**

- 1: International Code Council Evaluation Service Acceptance Criteria 212
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Product Bulletin

# Sto Gold Coat®

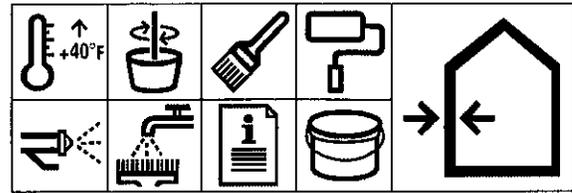
80265 Sto Gold Coat®

Fluid-applied vapor permeable air barrier

ASHRAE 90.1 Compliant      ASHRAE 189.1 Compliant

ICC Code Recognition      ASTM E-2357 Evaluated

CCMC Evaluation Report



## Technical Data

### StoGuard® Assembly with Sto Gold Fill® and Sto Gold Coat®

REPORT	TEST METHOD	TEST CRITERIA	TEST RESULTS
<b>Air Leakage of Air Barrier Assembly</b>	ASTM E-2357	≤ 0.2 L / s·m <sup>2</sup> at 75 Pa (≤ 0.04 cfm / ft <sup>2</sup> at 1.57 psf)	0.016 L / s·m <sup>2</sup> at 75 Pa (0.003 cfm / ft <sup>2</sup> at 1.57 psf)
<b>Water Penetration Resistance after UV Exposure &amp; Heat Aging</b>	AC 212, Section 4.8 and AATCC 127 (Water Column Method)	210 hours UV exposure, then 25 cycles drying at 120°F (49°C) and soaking, then 21.6 in (55 cm) hydrostatic head for 5 hours without cracking, bond failure or water penetration	No cracking, no bond failure, no water penetration after UV exposure and heat aging.
<b>Structural Loading / Water Penetration Testing</b>	ASTM E-1233/ ASTM E-331	No water at exterior plane of sheathing (exterior gypsum, Dens-Glass® Gold, plywood, OSB) after 10 cycles at 80% design load and 75 minutes water spray at 6.24 psf (299 Pa) pressure differential with water spray rate of 5 gal/ft <sup>2</sup> ·hr (3.4 L/m <sup>2</sup> ·min)	No water penetration
<b>Cyclic Pressure/ Water Penetration Testing</b>	ASTM E-283/ ASTM E-331	No water penetration or evidence of elevated moisture levels in plywood sheathing after 10 cycles of conditioning at 299 Pa (6.24 psf) positive and negative pressure followed by 75 minutes water spray at 6.24 psf (299 Pa) pressure differential with water spray rate of 5 gal/ft <sup>2</sup> ·hr (3.4 L/m <sup>2</sup> ·min)	No water penetration, no elevated moisture levels
<b>Water Resistance Testing</b>	ASTM D-2247	Absence of deleterious effects after 14 day exposure	No deleterious effects after 14 day exposure
<b>Resistance to Mold Growth</b>	ASTM D-3273	No mold growth after 28 days	No mold growth after 28 day exposure
<b>Freeze/Thaw Resistance</b>	ICBO Method (AC 24)	No visible effects (cracking, checking, delamination, erosion) when reviewed at 5x	No visible deleterious effects at 5x magnification
<b>Water Vapor Permeance</b>	ASTM E-96 Method B (Water Method)	Measure	5.7 perms a 5-7 DFT [327 ng/(Pa·s·m <sup>2</sup> )]
<b>Air Barrier</b>	ASTM E-2178	< 0.02 L/s·m <sup>2</sup> @ 75 Pa (< 0.004 cfm/ft <sup>2</sup> @ 1.57 psf)	0.001 L/s·m <sup>2</sup> (0.0002 cfm/ft <sup>2</sup> )
<b>Structural Integrity</b>	ASTM E-330	2 inches (51 mm) water pressure (positive and negative) for 1 hour	No loss of structural integrity
<b>Nail Sealability</b>	ASTM D-1970		Pass
<b>Flexibility</b>	ASTM D-522	No cracking or delamination using 1/8" (3 mm) mandrel at 14° F (-10° C) before and after aging	No cracking or delamination before and after aging
<b>Tensile Adhesion</b>	ASTM C-297	> 15 psi (103 kPa)	Gypsum (ASTM C79): > 30 psi (206 kPa) Gypsum (ASTM C1177): > 30psi (206 kPa) Exposure OSB: > 50 psi (344 kPa) Exterior Plywood: > 90 psi (620 kPa)
<b>Tensile Bond:</b>	ASTM D-4541	Dow 790 to Sto Gold Coat Dow 795 to Sto Gold Coat	55 psi 89 psi
<b>Surface Burning</b> (with StoGuard Fabric)	ASTM E-84	Flame Spread: ≤ 25 Smoke Developed: ≤ 450	Flame Spread: 15 Smoke Developed: 40 ICC and NFPA Class A Building Material

Sto Gold Coat is a ready-mixed flexible waterproof air barrier membrane for use in StoTherm® NExT Systems. It is applied directly to vertical above grade wall sheathing and concrete masonry, and functions as a waterproof air barrier when combined with StoGuard joint and rough opening treatment.

Sto Gold Coat is one component of the StoGuard Assembly, a fluid-applied membrane that offers a superior waterproof air barrier.

- Coverages (per pall)**  
 Dens-Glass Gold: 425-525 ft<sup>2</sup> (39-49 m<sup>2</sup>)  
 Exterior Gypsum: 550-650 ft<sup>2</sup> (51-60 m<sup>2</sup>)  
 Plywood: 550-650 ft<sup>2</sup> (51-60 m<sup>2</sup>)  
 OSB: (2 coats): 225-275 ft<sup>2</sup> (20.9-25.5 m<sup>2</sup>).  
 CMU: (2 coats): 100-300 ft<sup>2</sup> (9.3-28 m<sup>2</sup>)

- When used with StoGuard Fabric to treat the sheathing joints and rough openings:**  
 Dens-Glass Gold: 400-500 ft<sup>2</sup> (37-46 m<sup>2</sup>)  
 Exterior Gypsum: 500-600 ft<sup>2</sup> (46-56 m<sup>2</sup>)  
 Plywood: 400-500 ft<sup>2</sup> (37-46 m<sup>2</sup>)  
 OSB: 300-400 ft<sup>2</sup> (33-42 m<sup>2</sup>)  
 CMU: (2 coats) 100-300 ft<sup>2</sup> (9.3-28 m<sup>2</sup>)

Coverage may vary depending on application technique and surface conditions.

- Packaging**  
 5 gallon (19L).  
**Shelf Life**  
 12 months, if properly stored and sealed.  
**Storage:**  
 Protect from extreme heat [90°F (32° C)], freezing and direct sunlight.

# Technical data sheet:

## SIGA-Majvest®



**Last updated on:** 11/12/2012

**Distributor:** SIGA Cover, Inc.

**Type of application:** facade membrane for rainproof and windtight facades in exterior applications

**Instructions:** see Manual

**Pallet:** 20 rolls bound in layers

**Construction:** 3-layered; microporous functional layer, reinforced on both sides with PP nonwoven.

### Characteristics:

		Standards	Units	Values
<b>Dimensions:</b>	Length / Width / Straightness		m / m / - feet / feet / -	50 / 3.0 / passed 164 / 9.8 / passed
<b>Total weight:</b>			g/m <sup>2</sup> oz/ft <sup>2</sup>	130 0.43
<b>Thickness:</b>			mm mils	0.5 20
<b>Tear strength:</b>	MD CD	ASTM D-1117	lbs	25 30
<b>Breaking strength:</b>	MD CD	ASTM-D882	lbs/in	31 22
<b>Water vapor transmission:</b>		ASTM E-96 Method B	US perm	68
<b>Resistance to water penetration:</b>		AATCC-127	cm	> 100
<b>Flame Spread Index:</b>		ASTM E-84	Class	A

## TYPAR® METROWRAP For Commercial Applications:

### TYPICAL CHARACTERISTICS:

Thickness		12.1 m
Basis Weight	Tappi T-410	3.5 oz/yd <sup>2</sup>
Breaking Strength (grab tensile)	(ASTM D-5034) (ASTM D-5034)	93lbs MD 95lbs CD
Trapezoidal Tear Resistance	(ASTM D-1117)	60lbs MD 67lbs CD
Water Penetration Resistance	ATTC-127	980 cm
Air Penetration Resistance	Tappi T-460	>4800 sec/100cc
Water Vapor Transmission	ASTM E 96 Method A	10 Perms
Ultra Violet Light Exposure Resistance (UV)		12 months
Surface Burning Characteristics	ASTM E84	
Flame Spread Index		Class A
Smoke Development Index		PASS

**Roll sizes:** 10 ft x 100 ft, 5 ft x 150 ft

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MADE IN USA. ICC #ESR-1404 • CCMC #12884-R • CCMC #12892-R  
Please visit [typar.com](http://typar.com) for installation instructions and warranty information  
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