BUILDING ENVELOPE SYSTEMS®

Air Barrier Systems





Save energy, reduce utility costs, improve air quality and protect your building with a Henry air barrier system.



Henry: A pioneer in air barrier systems

Henry's experience is unparalleled

Henry Company's roots date back to the 1930s when the company served as a supplier of construction coatings and cements. Recognized for its innovative technologies, Henry Company helped revolutionize energy-efficient construction with the introduction of air barriers more than 30 years ago. Since then, Henry has continued to expand its line of air barriers as part of its broader line of world-class Building Envelope Systems®.

Henry is the #1 Choice of Professionals®

Our strong commitment to research and development and continuous improvement has resulted in numerous breakthroughs and "firsts" in air barrier technology, including:

- The **first** solvent-based, vapor-permeable, fluid-applied air barrier
- The **first** water-based, vapor-permeable and non-permeable fluid-applied air barriers
- The **first** UV-resistant, fluid-applied air barrier
- The **first** self-adhered, vapor-permeable air barrier

Henry provides the industry's most complete air barrier system

Henry is the only company in the industry to offer a complete line of air barrier systems. Over 10 fully integrated air barrier systems afford you the ultimate in design flexibility. Henry offers systems for designs in cold climates with interior batt insulation, systems for climates where the dew point changes dramatically throughout the year, systems that are UV-resistant, sheet-applied, liquid-applied, water-based, and solvent-based, all with a full complement of accessory products.

"Buildings use massive quantities of raw materials, and consume nearly half of the energy used in the U.S. and 70% of the electricity generated."

-Architectural Record News



The benefits of air barriers

What's an air barrier?

An air barrier material resists air leakage and is designed to form a continuous plane around a building to prevent uncontrolled air movement in and out of the building envelope.

What's a vapor barrier?

Vapor barriers limit the amount of water vapor diffusing through the wall as a result of different vapor pressures. With the advent of modern building science, it has been found that air leakage – and not vapor diffusion – is the real problem. In fact, air leakage accounts for over 200 times the amount of moisture transmitted by diffusion.*

What's a rain barrier?

The function of a rain barrier is to keep liquid water from entering the building enclosure. Combined with flashing and other materials, the rain barrier ensures that there is a shingled assembly to direct liquid water to the exterior.**

* R. Quirouette, The Difference Between a Vapor Barrier and an Air Barrier.

** Air Barrier Association of America

An airtight building

An air barrier system of seamless continuity, structural integrity, and time-tested durability helps designers eliminate uncontrolled air leakage while offering many other benefits — for a typical initial investment of less than 1-2% of the cost of the building.

Energy efficiency

Air movement through the wall assembly is far greater than many designers imagine. A study on air barriers by the National Institute of Science and Technology revealed that the right air barrier can help improve building performance by reducing heating and cooling costs by as much as 36%.[†]

† NIST Report 7238

LEED certification

Air barriers may help designers meet changing building code requirements and achieve U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) standards for Optimizing Energy Performance, while minimizing condensation that can cause corrosion, decay and loss of insulation value.

Environmental separation

Air barrier systems separate the outside environment from the desired interior environment, allowing control over temperature, humidity, moisture and air quality throughout the building and in all types of weather.

Mold control

Without an air barrier membrane, moisture accumulation in the wall assembly through condensation can be difficult to control. Air carries moisture and moisture feeds mold.







"Controlling moisture is key to preventing mold growth..."

-American Lung Association

Air barrier systems can solve many common building environment problems cost effectively and efficiently

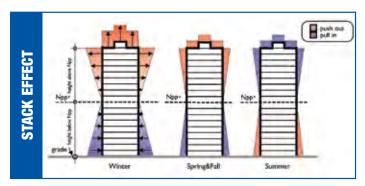
According to *The American Institute of Architects,* "Buildings use massive quantities of raw materials and consume nearly half of the energy used in the U.S. and 70% of the electricity generated."

Unfortunately, many design and construction professionals don't fully understand the effects of air pressure and moisture movement that affect energy efficiency.

Henry's Building Science Specialists can help you identify and address common problems caused by the forces that drive air movement in buildings, such as:

- **Wind cycling** from sustained winds that have the potential to damage air barriers that are improperly selected and installed
- Fan pressurization from HVAC units that may lead to unnecessary exfiltration or infiltration of air and moisture through the building envelope
- Stack effect phenomenon in which outside and inside temperatures, coupled with decreasing air pressures with increases in height, result in pressure differences affecting air flow across the building envelope
- **Barometric cycling** in which barometric pressure rises, sucking humid interior air into the wall cavity, resulting in condensation
- **Thermal cycling** caused by temperature differences from one side of the building to another or from daytime highs to nighttime lows

Too often, these problems are improperly addressed by oversizing the HVAC system to compensate for energy loss — a costly solution that does not address the resulting moisture build-up.

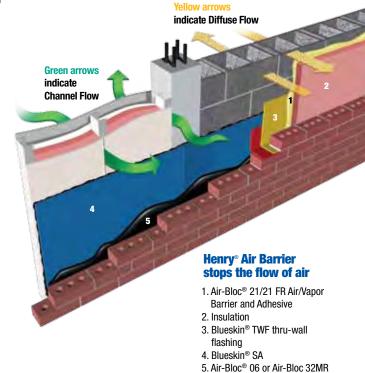


*Neutral Pressure Plane



"Estimates range from 30 to 200 times more moisture transport occurs via air flow than vapor diffusion."

-Rick Quirouette, *The Difference Between a Vapor Barrier* and an Air Barrier, Air Barrier Association of America



Air/Vapor Barrier

Choosing the right air barrier system

Climate is key

Henry[®] air barrier systems are designed to weather even the most extreme environments.

Cold climate

Controlling the flow of warm, moist interior air onto cold surfaces within the building envelope is a concern in design and construction.

Marine

Heavy precipitation and high relative humidity requires designs that prevent the flow and trapping of moisture into the wall assembly.

Hot-dry/mixed-dry climate

Intense solar radiation and thermal cycling is a concern. Preventing uncontrolled air leakage of conditioned interior air helps to manage cooling loads in the building and save energy.

Mixed-humid climate

Design and construction needs to control the infiltration of moisture-laden air into the building envelope and keep moisture away from cold surfaces while promoting drying to both the interior and exterior of the assembly.

Hot-humid climate

High moisture coupled with intense solar radiation is typical in this climate. Controlling the infiltration of this moisture-laden air into the building envelope and decreasing cooling loads are major design and construction goals.



Holocaust Museum, Washington, DC

Architect: Pei Cobb Freed & Partners

Problem:

Extremes of a mixed-humid climate challenge the demand for strict control of the humidity, temperature and air quality of the interior environment.

Solution

A Henry non-permeable air barrier system creates a seamless environmental separation.



University of Washington, Bothell, WA

Architect: NBBJ Architects

Problen

The wet, almost rain forest humidity of the Northwest maritime climate can cause deterioration, rot, mildew and mold.

Solution

Henry air barrier systems control the infiltration of rain and moisture, resisting premature failure of the wall assembly.



Louisiana Cancer Research Center, New Orleans, LA

Architect: RMJM, Lyons and Hudson Architects

Problen

Hot humid climate makes it difficult to maintain HVAC efficiency and prevent high relative humidity from entering the interior walls.

Solution:

Blueskin® SA, non-permeable air barrier separates the hot and humid exterior climate from the controlled interior environment of the research center.



Other selection criteria

The selection and placement of these barrier products is based on several factors, including exterior climate, direction of airflow and structural design.

Wall construction: Designing for climate and comfort

Henry offers products to enhance indoor comfort in all climates. Our specialists can help you spec just the right barrier for your wall construction.

- Vapor-permeable assemblies for all climates Promotes drying of the wall cavity in either direction
- 2 Non-permeable assemblies for high humidity or cold climates Stops high water vapor drives through the envelope
- Non-permeable assemblies for hot/humid climates

 Reduces thermal bridging, preventing infiltration of hot, humid air
- Typical UV-resistant assemblies for architectural panels with open joints

Ensures long-term durability

Understanding vapor drive

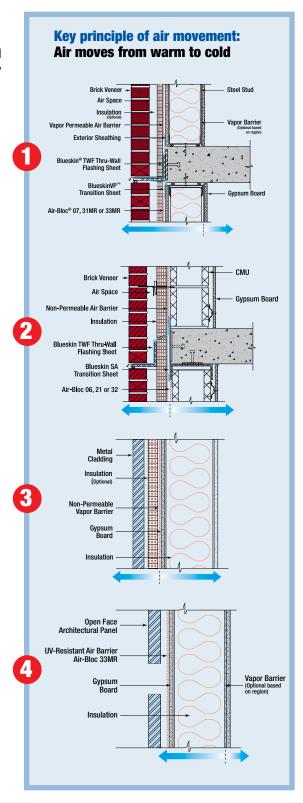
A phenomenon called vapor drive moves water vapor from areas of high density to low density, resulting in condensation on cool surfaces. Henry offers a variety of permeable and non-permeable air barriers to manage vapor diffusion.

Non-permeable air barrier membranes act as air, vapor and rain barriers. When positioned on the warm side of the insulating layer, they serve as an efficient vapor barrier, preventing moisture condensation through the wall cavity.

Vapor-permeable air barrier membranes are air-tight and water-tight. However, they are highly vapor permeable and typically can be positioned anywhere in the wall assembly for greater design flexibility.

Fluid vs. Sheet-applied installation

Henry offers a full range of air barrier products from heavy duty, seamless, rubberized fluid barriers that can be applied by brush, trowel or spray directly to the substrate with adequate thickness for spanning cracks and pores, to self-sealing sheet-applied membranes that apply quickly and easily. We also provide technical support to ensure fast, error-free installation.



Blueskin self-adhered air barrier systems

Energy costs Air barrier systems vs. WRB only (no air barrier) City Annual Savings % (gas/electric respectively) Office Retail Apartment Bismarck, ND 42%/26% 26%/2% 40%/9% Minneapolis, MN 43%/33% 28%/18% 43%/14%

57%/28% 38%/9%

64%/14%

77%/9%

St. Louis, MO

Phoenix, AZ

57%/0% 2005 NIST report #7238

57%/12%

The many benefits of Blueskin

Uncontrolled air leakage and rain penetration cause a wide range of building problems: wasted energy, uncomfortable drafts, mold growth and premature deterioration of the building itself through masonry cracking, spalling, corrosion of brick ties and wall flashings, efflorescence and more. Unfortunately, traditional building wraps often don't prevent this kind of air leakage, as they require a high level of detailing, fastening and taping that are often lacking in the field.

Studies show that the integrity of the Building Envelope System® is critical, as up to 25-40% of energy consumed to condition indoor space in wellinsulated homes is due to air leakage through the building envelope.*

Henry's innovative Blueskin air barrier membranes eliminate unwanted air leakage, reduce energy costs and install quickly and easily.

Blueskin SA non-permeable air barrier for increased building longevity

Proven effective for more than two decades, Blueskin SA self-adhering non-permeable air barrier membrane consists of an SBS rubberized asphalt compound integrally laminated to a blue engineered film. The membrane is specifically designed to be self-adhered to a prepared substrate, providing an air/vapor/water barrier.*

Blueskin SA offers the following features:

• SBS-modified membrane, flexible at low temperatures

• Thickness controlled at point of manufacture • Excellent adhesion to prepared substrates of concrete, concrete block, primed steel, aluminum mill finish, anodized aluminum, galvanized metal, gypsum board

and plywood

 Increases building longevity by providing greater moisture and water protection than traditional water resistant barriers

 Membrane is self-sealing when penetrated with self-tapping screws



- 1. Blueskin SA
- 2. Insulation
- 3. Brick tie



BlueskinVP[™] vapor permeable air barrier: The next generation in building wraps

Picking up where traditional polymeric wraps leave off, the BlueskinVP engineered film is fully adhered to the sheathing using a patented adhesive and convenient peel-n-stick system — no fasteners required. It functions not only as a water resistant barrier and rain barrier, but also eliminates uncontrolled air leakage caused by various mechanisms, such as stack effects, wind effects and mechanical air handling effects. BlueskinVP provides a continuous plane of air tightness for increased energy efficiency and protection from unwanted moisture and mold.

Architects, contractors and property owners/managers have embraced Blueskin® technology for its ability to deliver a number of important benefits:

- Enhances occupant comfort by eliminating drafts
- Improves performance of insulation for lower energy costs
- Improves air quality by increasing mold prevention
- Provides a healthier building environment



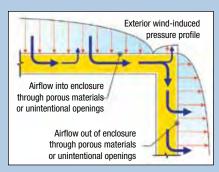
BlueskinVP provides a continuous plane of air-tightness to block the movement of air and moisture.



Traditional mechanically fastened wraps may shed water, but fully bonded BlueskinVP provides impenetrable protection against air and water.

Wind washing

Positive and negative pressures on the building envelope drive air and moisture into and out of the structure through porous materials or unintentional openings. BlueskinVP prevents pressure cycling to improve the thermal and moisture performance of exterior walls.



Thermal Control in Buildings, Building Science Digest 011, by John Straube 2006 Building Science Press

Self-adhered—no staple holes and tears that allow air and moisture to pass through walls

Air Tight
Water Tight
Weather Tight

Air-Bloc® and Permax® spray applied solutions



Air-Bloc fluid membranes keep walls dry

Fluid membranes provide a seamless, fully bonded membrane that seals around penetrations such as brick ties. There's no need to worry about primer application, overlap of rolls, adhesion to the substrate or caulking penetrations. Fluid-applied air barriers in wall assemblies can mitigate or eliminate pressure difference, one of the major forces that cause water infiltration into walls.

Air-Bloc air barriers for every climate

Henry offers a wide range of Air-Bloc fluid membranes to meet your specific climate and construction needs. Non-permeable membranes act as air, vapor and water barriers; vapor permeable membranes protect against unwanted air and water leakage, while allowing water vapor to escape as needed.

Air-Bloc fluid membranes are available in solvent- and water-based formulations, with products available for cold weather application, UV resistance and guickset installation.

Industry's first barrier membranes with antimicrobial agents

Henry Company is the first to integrate antimicrobial agents into sprayapplied air barrier technology. Henry Air-Bloc MR air and water barriers incorporate a universally dispersed, nontoxic, solvent-free biocidal agent throughout the cured membrane, which helps to resist exponential proliferation of mold, mildew and fungus on the membrane's surface. The U.S. Center for Disease Control and Prevention reports that inhibiting exponential proliferation of mold protects respiratory health. Henry air barriers, now with antimicrobial protection, offer an additional line of defense against exponential mold growth.

Air-Bloc fluid membranes adhere easily to most construction surfaces, including masonry, stone, wood, gypsum board and metal, and can be applied using a brush or spray to form a seamless protective membrane.

For more information on Air-Bloc spray-applied membranes – now with antimicrobial agents – please see our selection chart on the next spread.

PERMAX® spray polyurethane foam improves thermal performance and functionality as an air/water barrier

Design professionals and building owners and occupants desire improved long-term thermal performance. High performance walls must balance performance with total thickness and cost. Spray polyurethane foam (SPF) is recognized as a modern solution in all climatic zones.

Whether inside the wall cavity or in the stud-space, PERMAX SPF offers a variety of benefits, including:

- Integrated air/water/vapor barrier system
- Assembly meeting ASTM E2357 air leakage requirements
- True continuous insulation (ci) within the wall cavity as recommended by ASHRAE 189.1
- Elimination of mechanical fasteners for insulation resulting in fewer thermal breaks in wall assemblies
- Improved thermal performance with an R-value of 6.5/inch thickness
- Excellent sound-deadening properties
- Seasonally adjusted formulations for ease of application as well as proper density

Henry SPF features

PERMAX 2.0

- Premium 2.0 lb/ft3 density closed cell
- Meets leading industry system standards
- Aged R-value of 6.5 per inch thickness
- Non-permeable > 2 inch thicknesses
- Applicable to all wall and ceiling applications

PERMAX SPF is both CHC- and HCFC-free, formulated for ease of mixing and application at the jobsite, and low odor.

PERMAX SPF increased thermal performance can assist design professionals to meet both LEED and ASHRAE 189.1 "Standard for the design of high-performance, green buildings except low-rise residential buildings" plus exceed local building codes.



can save 38-48% in utility bills."

> -Honeywell Report, Residential Insulation Case Studies

Vapor-permeable air barrier membranes

PRODUCT	Air-Bloc® 07	Air-Bloc® 31MR	Air-Bloc® 33MR	BlueskinVP™ 100	BlueskinVP™ 160	
ТУРЕ	Polymer-Modified Bitumen	Elastomeric Emulsion	Elastomeric Emulsion	Microporous Laminate	Microporous Laminate	
SELECTION FEATURES	 Solvent-based formulation Can be applied in cold temperatures Seamless monolithic membrane Excellent adhesion to most surfaces Seals around penetrations and brick ties 	 Low VOC content Low odor Can be applied to damp (or green) concrete Seals around penetrations and brick vapor-permeable Low VOC content Low odor Excellent for use open face wall classes Mold-resistant 		 Designed for residential applications Self-adhered High water vapor permeable Bridges cracks Excellent adhesion to prepared substrates Functions as a WRB* 	 Increased tensile strength for commercial installations Self-adhered High water vapor permeable Bridges cracks Excellent adhesion to prepared substrates Functions as a WRB* Compatible with Henry Air-Bloc 31MR and Air-Bloc 33MR 	
AIR BARRIER	YES	YES	YES	YES	YES	
VAPOR BARRIER	NO	NO	NO	NO	NO	
RAIN BARRIER	YES	YES	YES	YES	YES	
AIR LEAKAGE (ASTM 2178) (ASTM 2357)	0.0014 CFM/ft ² Pass	0.0002 CFM/ft² Pass	0.0016 CFM/ft ² Pass	0.004 CFM/ft ²	Pass	
VAPOR PERMEANCE (ASTM E96)	400 ng/Pa.m².s (7 perms)	704 ng/Pa.m².s (12.3 perms)	655 ng/Pa.m².s (11.6 perms)	1914 ng/Pa.m².s (33 perms)	1658 ng/Pa.m².s (29 perms)	
WATERTIGHTNESS (CGSB 37.58-M86)	Pass	Pass	Pass	Pass	Pass	
ELONGATION (ASTM D412)	130%	1000%	200%			
APPLICATION TEMPERATURE	Minimum 10°F (-12°C)	Minimum 41°F (5°C)	Minimum 41°F (5°C)	Minimum 41°F (5°C)	Minimum 41°F (5°C)	
COVERAGE	13.5 to 22.5 ft²/gal	18.6 ft²/gal	16.7 ft²/gal	Rolls: 4", 6", 9", 12", 60" wide	Rolls: 4", 6", 9", 12", 60" wide	
COLOR	Black	Gray	Black	Blue	Blue	
APPLICATION METHOD						
TROWEL	YES	YES	YES			
BRUSH/ROLLER		YES	YES			
SPRAY	YES	YES	YES			
SELF-ADHESIVE				YES	YES	



Non-permeable air & vapor barrier membranes

Air-Bloc® 06	Air-Bloc® 21	Air-Bloc® 32MR	Blueskin® SA & Blueskin® SA LT	Foilskin/Metal Clad	Blueskin® TWF	
Elastomeric Bitumen	Synthetic Rubber Adhesive	Elastomeric Emulsion	SBS Rubberized Asphalt	SBS Rubberized Asphalt	SBS Rubberized Asphalt	
temperatures • Seamless monolithic membrane • Excellent adhesion to most surfaces • Seals around penetrations and brick ties • Cold applied by spray or trowel	 Economical: functions as air/vapor barrier and insulation adhesive Adheres to most types of insulation Can be applied in cold temperatures Smooth workability Seals around penetrations and brick ties Seamless monolithic membrane 	 Water-based formulation Low voc content Can be applied to damp (or green) concrete Excellent elongation and recovery Seals around penetrations and brick ties Seamless monolithic membrane Mold-resistant formulation 	 Self-adhered application Excellent adhesion to prepared substrates Factory-controlled thickness Self-sealing when penetrated with self-tapping fasteners Excellent compatibility with Henry Air-Bloc membranes and adhesives 	 UV-resistant Self-adhered application Excellent adhesion to prepared substrate Factory-controlled thickness Self-sealing when penetrated with self-tapping fasteners 	 Excellent for use as through-wall flashing Self-adhered application Strong, durable film High temperature-resistant compound Excellent compatibility with Henry Air-Bloc membranes and adhesives 	
YES	YES	YES	YES	YES	YES	
YES	YES	YES	YES	YES	YES	
YES	YES	YES	YES	YES	YES	
0.000023 CFM/ft ²	0.0026 CFM/ft ²	0.00012 CFM/ft ² Pass	0.0001 CFM/ft² Pass	0.0001 CFM/ft²	0.0001 CFM/ft ²	
1.2 ng/Pa.m².s (0.02 perms)	1.7 ng/Pa.m².s (0.03 perms)	5 ng/Pa.m².s (0.08 perms)	1.6 ng/Pa.m².s (0.03 perms)	2.8 ng/Pa.m².s (0.05 perms)	1.6 ng/Pa.m².s (0.03 perms)	
Pass	Pass	Pass	Pass	Pass	Pass	
1200%	250%	800%	200%	40%	200%	
Minimum 10°F (-12°C)	Minimum 10°F (-12°C)	Minimum 41°F (5°C)	SA - Min. 41°F (5°C) SA LT - Min. 10°F (-12°C)	Minimum 25°F (-4°C)	Minimum 25°F (-4°C)	
18 ft²/gal	13.5 ft²/gal	14-22 ft²/gal	Roll Widths: 4", 6", 9", 12", 18", 36" Roll Length: 75'	Roll Widths: 4", 6", 9", 12", 18", 36" Roll Length: 33.3'	Roll Widths: 18", 36" Roll Length: 75'	
Black	Cream	Beige	Blue	Aluminum	Yellow	
YES	YES	YES				
		YES				
YES		YES				
			YES	YES	YES	

EAKOR WATERPROOFING FOR ALL FOUNDATIONS

Put our resources to work for you

Our team of building science experts is your best resource for the latest information on energy savings and air barrier technology. And they're just a phone call away:

- AlA-accredited lunch-and-learn seminar at your location
 - Expert speaker
 - Multi-media presentation
 - Educational materials for all participants
 - AIA CEU credit
- One-on-one consulting in person or by phone
- Educational materials download

Call us today: 800-486-1278 to schedule your seminar.



"The air barrier system needs to be identified in the construction documents on the building enclosure details, with a strong focus on intersections of different enclosure systems and transitions. You have to be able to trace through from one identified plane of air tightness in the first assembly through a sealed joint to the plane of air tightness in the adjacent assembly. The specifications should have a special section on the air barrier system that includes all accessory materials."

-Commissioning the Air Barrier System, Wagdy Anis, AIA, ASHRAE Journal, March 2005

Primers, mastics and adhesives

					Use with			
Product	Туре	Coverage	Packing	Application	Blueskin [®] SA + SA LT	Blueskin [®] TWF	BlueskinVP™	
Primers								
Aquatac™ Primer	Polymer Emulsion Water-based	250 to 500 ft²/gal	1 gal, 5 gal	Roller or spray	YES	YES	NO	
Blueskin [®] Adhesive	Rubber Resin Solvent Type	125 to 250 ft²/gal	4.5 gal	Brush or roller	YES	YES	NO	
Blueskin [®] Spray-Prep	Rubber Resin Solvent Type	35 to 55 ft²/can	30 to 55 ft ² /can	Aerosol can, 19 oz can	YES	YES	NO	
Hi-Tac™ Primer	Rubber Resin Solvent Type	125 to 250 ft²/gal	4.5 gal	Brush or roller	YES	YES	NO	
Blueskin [®] LVC	Rubber Resin Low VOC Solvent Type	250 to 500 ft²/gal	4.5 gal	Brush or roller	YES	YES	YES	
Mastics and Adhesives								
HE925 BES Sealant	1 Part, Moisture Cure Sealant	16 ft²/gal	10 oz cartridge	Cartridge gun	YES	YES	YES	
Air-Bloc® 21	Rubber-Based Insulation Adhesive	13.5 ft²/gal	5 gal	Trowel	YES	YES	NO	



Superior quality:

Henry Building Envelope Systems[®] is recognized worldwide for its innovative technologies. Our leadership position is a direct result of more than 70 years in the research, development and manufacture of high-quality construction products.

For more information, visit www.henry.com.

For assistance, call our building science group at 800-486-1278.

For more information, visit www.henry.com or, for assistance, call our Building Science Group at 800-486-1278.



Henry's Building Envelope Systems® protect your building from foundation to roof.



Henry is your single source supplier for Vegetative Roof Assembly™



Keep the rain away with Henry's waterproofing products.



Save energy with Henry's Energy Star®qualified cool roof technology.



Stay warm with Permax® polyurethane foam insulation



Henry Maintenance Systems

Need technical assistance? Call us at 800-486-1278 or visit us at www.henry.com



Henry Company

909 N. Sepulveda Blvd., Ste 650 El Segundo, CA 90245 1-800-598-7663 techservice@henry.com

Henry Company Canada

15 Wallsend Drive Scarborough, ON M1E 3X6 1-416-724-2000 www.henry.com

www.henry.com

 $DENSGLASS, the color \ GOLD \ and \ the \ GEORGIA-PACIFIC \ logo \ are \ trademarks \ owned \ by \ or \ licensed \ to \ Georgia-Pacific \ Gypsum \ LLC.$