Henry®

Commercial Air Barrier Systems

BUILDING ENVELOPE SYSTEMS®

ROOFING | AIR BARRIERS | WATERPROOFING

The challenge is clear.

The primary function of a building has long been to protect its occupants and contents from outside elements. Increasingly, this goal is expanding to include protecting the building and its systems from damage as well as minimizing the building's energy use and environmental impact.

As a result, architects and contractors now have to meet the challenges of changing building codes, increasingly strict environmental regulations and the growing expectations of building owners and managers. What was done in the past is no longer adequate.

The solution is here.

By providing a seamless building envelope, Henry commercial air barrier systems can eliminate uncontrolled air leakage, reducing energy use and providing better control of temperature, moisture, air quality and humidity in commercial structures.

Henry Building Envelope Systems® are designed to help the building perform at a higher level over a longer period of time, not only reducing energy costs but protecting the building's structure and systems by preventing penetration of the elements at cracks, crevices, terminations, penetrations and transitions.

The result is an effective building envelope and a healthier, stronger and more energy efficient structure.

The importance of air barriers

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%.†

LEED certification
Air barriers 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.

† NIST Report 7238

Understanding air, vapor and water-resistive barriers

Air barriers are not to be confused with vapor barriers or water resistive barriers, each of which has a different role to play. It's important to understand the functions of each in order to determine the best materials for specific building assemblies.

Air Barriers, which can also serve as vapor barriers, can be placed anywhere within the assembly to stop the movement of air. Vapor barriers cannot be air barriers; water resistive barriers are not necessarily air barriers.

Vapor Barriers control water vapor from passing through the material. They are typically installed on the warm side within the assembly.

Water-Resistive Barriers are installed on the exterior side of the assembly to block bulk water that enters past the cladding.

The forces that drive air movement

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

As buildings have grown taller, so have expectations for the effectiveness of building systems to protect these valuable assets and the people within them. Goals include healthier interior air and increased energy efficiency, even in the most extreme climates, in order to reduce massive electricity use in buildings – estimated to account for 70% of the total electricity generated in the U.S.* Common problems caused by the forces that drive air movement in buildings include:

- **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.

Moisture transport is up to 200 times more likely to occur with air flow than vapor diffusion.

*The American Institute of Architects

Choosing the right air barrier system

Climate is key

Air barrier systems are designed to weather even the most extreme environments.

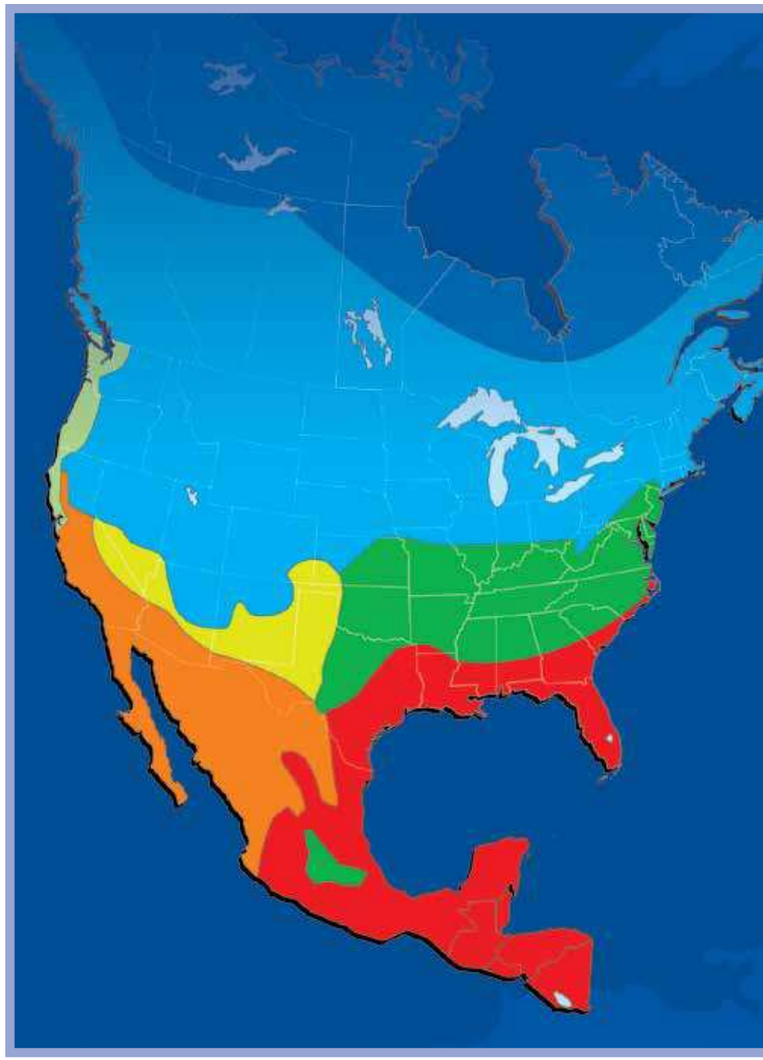
Cold climate
Controlling the flow of warm, moist interior air onto cold surfaces within the building envelope is a concern in design and construction.

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.



Other selection criteria

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

Wall construction: Designing for climate and comfort

There are various different air barrier products designed to enhance indoor comfort in all climates. It is important to choose the right barrier for your wall construction.

1. **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
3. **Non-permeable assemblies for hot/humid climates**
   Reduces thermal bridging, preventing infiltration of hot, humid air
4. **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. Permeable and non-permeable air barriers can help manage vapor diffusion.

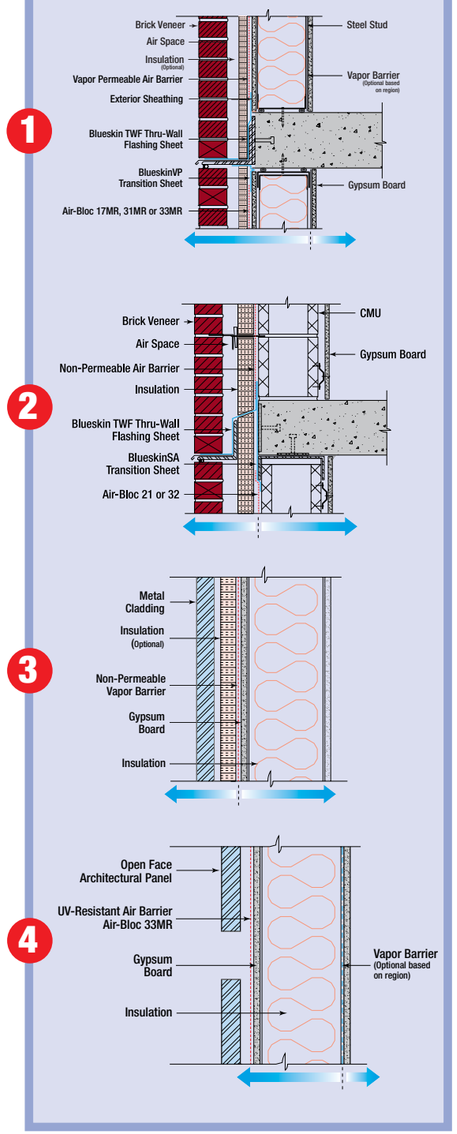
Non-permeable air barrier membranes act as air, vapor and rain barriers. When positioned on the warm side of the insulating layer, they serve as an efficient vapor barrier, preventing moisture condensation through the wall cavity.

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

Air barriers are available in two application methods – fluid and sheet. They both may perform the same function but selecting which one to use is typically based on temperature during installation, construction substrate or even personal preference of design or contractor.

Key principle of air movement:
Air moves from warm to cold



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®.

Continuous innovation and industry leadership
Combining research, testing and building science expertise, Henry has continued to develop innovative air barrier technologies. We played a major role in the development of:

- Solvent-based, vapor-permeable, fluid-applied air barriers
- Water-based, vapor-permeable and non-permeable fluid-applied air barriers
- UV-resistant, fluid-applied air barriers
- Self-adhered, vapor-permeable air barriers

Henry provides one of the industry's most complete air barrier systems
Henry is one of the only companies in the industry to offer a complete line of air barrier systems. Over nine 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, and 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

Blueskin self-adhered air barrier systems

A continuous, consistent plane of protection

Henry's innovative, self-adhering Blueskin air barrier membranes help eliminate unwanted air leakage by creating a continuous barrier upon installation. In addition to creating a more comfortable, healthy indoor environment, this lessens demands on the building's HVAC system, reducing energy costs. Precise manufacturing controls the thickness of the membrane to help ensure uniform performance. Convenient roll packaging makes for easy handling on site; installation is quick and easy.

Blueskin SA

Non-permeable air barrier provides superior protection, longer building life

Proven effective for over two decades, Blueskin SA self-adhering non-permeable air barrier membrane provides greater moisture and water protection than traditional water resistant barriers. Consisting of an SBS rubberized asphalt compound integrally laminated to a blue engineered film, this membrane is specifically designed to adhere to prepared substrates, providing an air/vapor/water barrier.

- Flexible at low temperatures
- Impermeable to air, moisture vapor and water
- 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
- Self-sealing when penetrated with self-tapping screws

Blueskin VP160

Vapor permeable air barrier: The next generation in building wraps

Picking up where traditional polymeric wraps leave off, Blueskin VP160 provides a continuous plane of air tightness for increased energy efficiency and protection from unwanted moisture and mold. The product's engineered film is fully adhered to the sheathing using a patented adhesive for convenient peel-n-stick installation – no fasteners required. Blueskin VP160 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. Benefits include:

- Enhanced occupant comfort by eliminating drafts
- Improved performance of insulation for lower energy costs
- Improved air quality by helping to reduce mold proliferation

Air-Bloc fluid-applied air barrier systems

Fully bonded to keep walls dry

Fluid membranes provide a seamless, monolithic membrane that seals around penetrations such as brick ties – no need to worry about primer application, overlap of rolls, adhesion to the substrate or caulking penetrations. Fluid-applied air barriers can mitigate pressure differentiation, one of the major forces that cause water infiltration into wall assemblies.

Air-Bloc air barriers for every climate

Henry offers a range of Air-Bloc fluid membranes to meet specific requirements. These include solvent- and water-based formulations, with products available for cold weather application, UV resistance and quickset installation. 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. Henry Air-Bloc fluid membranes are compatible with a wide range of transition membranes and other construction materials.

The first barrier membranes with antimicrobial agents

Henry Company is the first to integrate antimicrobial agents into spray-applied air barrier technology. Henry Air-Bloc MR air and water barriers incorporate a universally dispersed, nontoxic, solvent-free biocidal agent throughout the cured membrane, providing an additional line of defense against exponential proliferation of mold, mildew and fungus on the membrane's surface.

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.

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

"Homeowners with spray polyurethane insulation can save 38-48% in utility bills."

–Honeywell Report,
Residential Insulation Case Studies

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.

Would your wall assemblies pass the NFPA 285 fire test?

Henry air barriers: helping prevent fire spread in multistory buildings

Established by the National Fire Protection Association, NFPA 285 is a method for testing the rate of fire spread within vertical wall assemblies in multistory commercial buildings. The NFPA 285 test was developed to help builders and owners reduce the potential for the upward spread of fire, should disaster strike.

NFPA 285 is becoming increasingly necessary due to the increasing use of products that boost a building's energy efficiency. While new cladding materials, insulation, and weather barriers have been proven to cut a building's energy consumption and lifecycle costs, they are also combustible components.

Once such components are within wall assemblies, they present specific fire risks for non-load-bearing exterior walls in multistory buildings, as these assemblies allow air to move freely through wall cavities. Accordingly, code compliance now includes wall assemblies with combustible cladding materials, insulation and weather barriers if they are installed on non-combustible construction types I-V.

Henry Company offers one of the industry's broadest lines of Commercial Air Barrier products that are compliant with NFPA 285 standards in various wall assemblies.

The NFPA 285 test: 30 minutes of flame

NFPA 285 testing helps to identify wall assemblies which limit the spread of interior fires to other floors or adjacent areas in multistory buildings. It is an assembly test that requires the construction of a two-story apparatus in a testing facility, then a monitored burn of the assembly for 30 minutes. The test focuses on flame propagation in key areas:

- Exterior wall assembly surface
- Vertically within combustible components from one story to the next
- Over the interior wall assembly surface from one story to the next
- Laterally from fire origin to adjacent compartments or spaces

Vapor-permeable air barrier membranes

Product	Air-Bloc 17MR	Air-Bloc 31MR	Air-Bloc 33MR	Blueskin VP160
Application	Liquid	Liquid	Liquid	Sheet
Type	Polymer-Modified Bitumen	Elastomeric Emulsion	Elastomeric Emulsion	Microporous Laminate
Features	• Low temperature application • Low VOC content and low odor • Superior fire resistance	• High water vapor permeance • Low VOC content and low odor • Can be applied to damp (or green) concrete	• Longterm UV resistant • Low VOC content and odor • For use with open face wall cladding	• Self-adhered • High water vapor permeance • High tensile strength
Size(s)	5-gallon, 55-gallon	5-gallon, 55-gallon	5-gallon, 55-gallon	4' x 100'
Air Leakage				
ASTM 2178	✓	✓	✓	
ASTM 2357	✓	✓	✓	✓
Vapor Permeance ASTM E96 Method B	14 perms	21 perms	11.6 perms	29 perms*
Approved for NFPA 285 assemblies	✓	✓	✓	✓
Watertightness CGSB 37.58-M86	✓	✓	✓	✓
Elongation ASTM D412	420%	1000%	200%	
Minimum Application Temperature	20°F / -7°C	40°F / 4°C	40°F / 4°C	20°F / -7°C
Dry Film Thickness	37 mils	35 mils	55 mils	Factory controlled thickness
Solids Content By Volume	53%	45%	58%	
Color	Graphite	Gray	Black	Blue
Application Method				
Trowel	✓	✓	✓	
Brush/Roller		✓	✓	
Spray	✓	✓	✓	
Self-Adhesive				✓

* Method A

Non-permeable air and vapor barrier membranes

Air-Bloc 21	Air-Bloc 32MR	Blueskin SA	Blueskin SA LT	Metal Clad
Liquid	Liquid	Sheet	Sheet	Sheet
Synthetic Rubber Adhesive	Elastomeric Emulsion	SBS Rubberized Asphalt	SBS Rubberized Asphalt	SBS Rubberized Asphalt
• Low temperature application • Cures to a flexible film • Adheres to most types of insulation	• Low VOC content and low odor • Can be applied to damp (or green) concrete • Mold-resistant	• Self-adhered • Excellent adhesion to prepared substrates • Self-sealing	• Low temperature application • Self-adhered • Self-sealing	• Reflective film surface • UV and weather-resistant • Excellent adhesion to primed surfaces
5-gallon	5-gallon, 55-gallon	3' x 75'	3' x 75'	3' x 33.3'
✓	✓	✓	✓	✓
	✓	✓	✓	
<0.1 perms	<0.1 perms	<0.1 perms	<0.1 perms	<0.1 perms
✓	✓	✓	✓	✓
✓	✓	✓	✓	✓
250%	800%	200%	200%	85%
10°F / -12°C	40°F / 4°C	41°F / 5°C	10°F / -12°C	20°F / -7°C
69 mils	40 mils	Factory controlled thickness	Factory controlled thickness	Factory controlled thickness
55%	55%			
Cream	Beige	Blue	Blue	Aluminum
✓	✓			
	✓			
	✓			
		✓	✓	✓

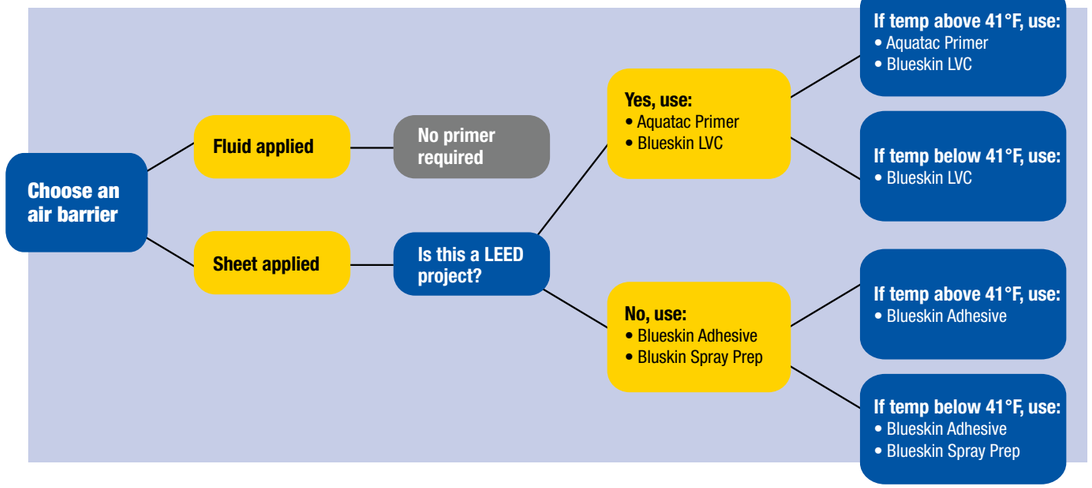
Information provided should be used as a guide. For the most up to date product information, refer to specific product technical data sheets at www.henry.com.

Primers, mastics and adhesives

Product	Type	Coverage	Size(s)	Color	Application	Use with: Blueskin SA	Blueskin SA LT	Blueskin TWF	Blueskin VP160
Primers									
Aquatac Primer	Polymer Emulsion Water-Based	250 to 500 ft²/gallon	5-gallon	Aqua	Roller, Spray	✓	✓	✓	
Blueskin Spray Prep	Rubber Resin Solvent-Based	35 to 55 ft²/can	15 oz.	Clear Amber	Aerosol Spray	✓	✓	✓	✓
Hi-Tac Primer	Rubber Resin Solvent-Based	125 to 250 ft²/gallon	3.5 L, 17 L	Yellow	Brush, Roller	✓	✓	✓	
Blueskin LVC Adhesive	Rubber Resin Low VOC Solvent-Based	250 to 500 ft²/gallon	4.5-gallon, 27-pound	Blue	Brush, Roller	✓	✓	✓	✓
Adhesives and Sealants									
Blueskin Adhesive	Rubber Resin Solvent-Based	125 to 250 ft²/gallon	5-gallon	Blue	Brush, Roller	✓	✓	✓	
925 BES Sealant	1-Part Moisture Cure	16 ft²/gallon	10.3 oz.	Black, Gray	Cartridge	✓	✓	✓	✓
212 Crystal Clear Sealant	1-Part Thermoplastic	3 ft²/quart	10.1 oz., quart	Clear	Cartridge	✓	✓	✓	✓

How to select the best primer for your project

There are many factors that play a part in choosing the right primer for a structure. The chart below walks you through the primer selection process. Whether you're working on a LEED project, using sheet-applied vs. fluid-applied membranes, or installing in below-freezing temperatures, Henry has the right primer solution for your job.



Henry Building Envelope Systems® – the total package, for total protection

For over 80 years, Henry Company has been providing solutions for the effective control of air, vapor and moisture in commercial buildings. Our experience has confirmed that the building envelope doesn't stop at the wall, and that the building envelope needs to be seen as a system. So today, our Building Envelope Systems® include an entire portfolio of interrelated solutions to help you meet the challenges you face.

Henry offers comprehensive solutions from the foundation to the roof, all proven effective in commercial structures throughout the world. Equally important, we know how to connect the individual systems at critical terminations, penetrations and transitions to create a building envelope system that optimizes the comfort, efficiency and the integrity of commercial structures.

Waterproofing

You have just one chance to get waterproofing right. Once the building is complete, the opportunity to integrate an optimized waterproofing system into the building envelope is lost. Henry provides proven, comprehensive waterproofing solutions that keep the structure dry and protect it from damage due to water infiltration.

Walls

Designing air barrier systems for modern structures has never been more challenging. A designer has to balance air leakage, water resistance, vapor management, thermal controls and fire resistance, all while keeping an eye on the budget. Henry's Building Envelope Systems® include an entire portfolio of air barrier solutions to help you meet your goals.

Roof

Driving rain, baking heat, bitter cold and ice build-up are just a few climate characteristics that can affect any structure. A Henry roofing system and its membranes can survive these damaging elements and provide long-term benefits to owners. Henry offers a complete array of roofing systems including SBS Modified Bitumen, Self-Adhered Membranes and hot rubberized asphalt. We also provide a complete, single source for vegetative roofing assemblies. All Henry roofing systems are backed by Henry's comprehensive warranties.

For more information, visit www.henry.com
or for technical assistance call us at 800-486-1278.

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