



TAKE THE LEAD

HELPING COMMERCIAL BUILDINGS MEET LEED REQUIREMENTS

THE U.S. GREEN BUILDING COUNCIL'S LEADERSHIP IN ENERGY AND ENVIRONMENTAL DESIGN (LEED) SYSTEM IS THE NATIONALLY ACCEPTED BENCHMARK FOR THE DESIGN, CONSTRUCTION AND OPERATION OF HIGH-PERFORMANCE GREEN BUILDINGS.

- OVER 4.2 BILLION SQUARE FEET OF COMMERCIAL BUILDING SPACE IS INVOLVED WITH THE LEED GREEN BUILDING CERTIFICATION SYSTEM.
- EVERY BUSINESS DAY, \$464 MILLION WORTH OF CONSTRUCTION REGISTERS WITH LEED.
- THERE ARE LEED PROJECTS IN ALL 50 STATES AND 69 COUNTRIES.

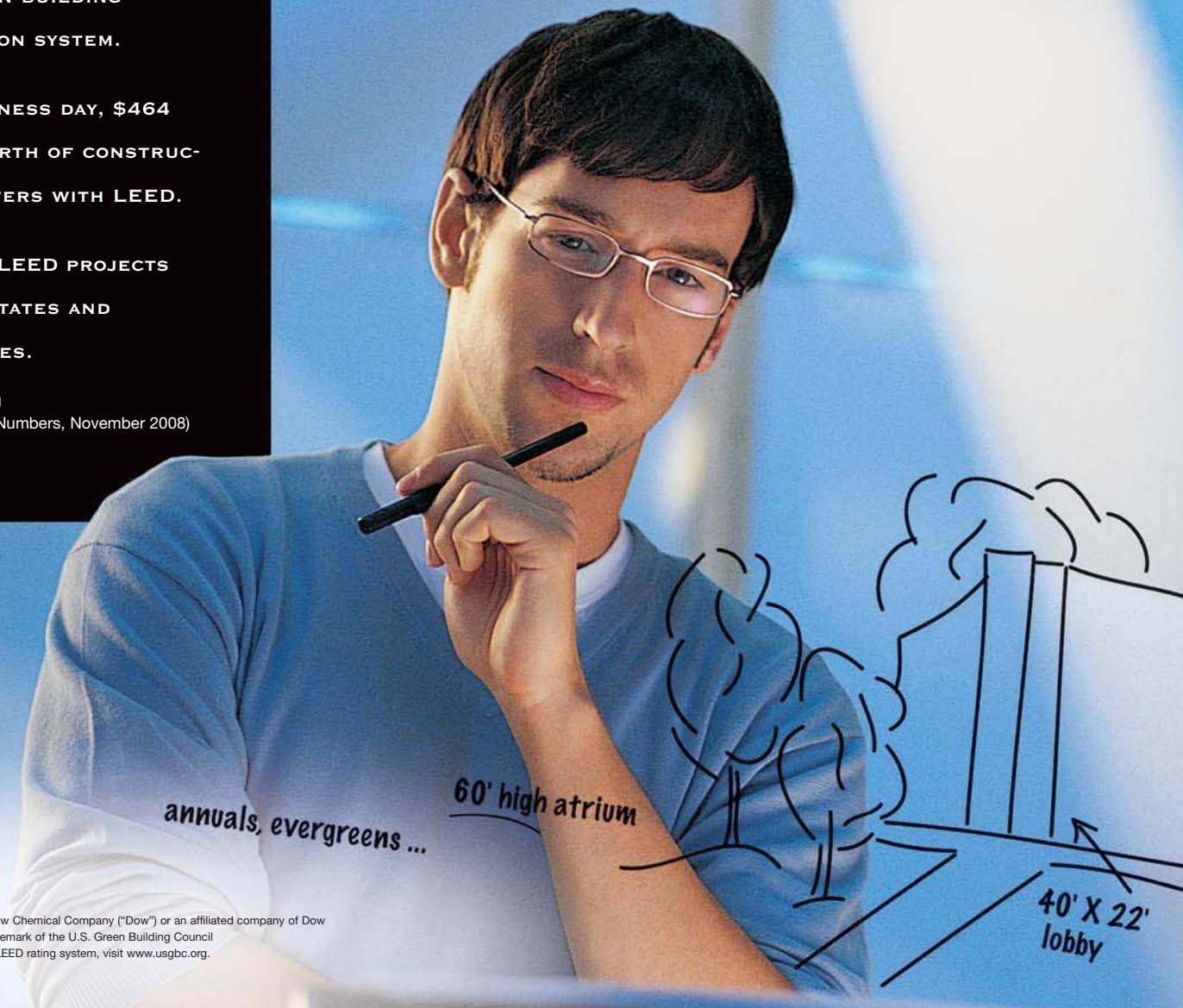
Source: www.usgbc.org
(Green Building by the Numbers, November 2008)

LEAD BY EXAMPLE

With the invention of its flagship STYROFOAM™ Brand Extruded Polystyrene Insulation more than 60 years ago, Dow began planting seeds for today's energy-efficient green designs with insulation, innovative systems and a growing portfolio of products and application-specific solutions for foundations, walls, roofs and more.

Today, Dow Building Solutions continues to leverage decades of building science expertise and applies a systematic approach to developing integrated systems and product solutions to help optimize building performance, maximize energy efficiency, manage moisture and reduce greenhouse gas (GHG) emissions.

As a member of the USGBC, Dow shares a common goal in transforming the way buildings are designed, built and operated, for a more sustainable future.



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LEED is a registered trademark of the U.S. Green Building Council
For more details on the LEED rating system, visit www.usgbc.org.

ADDRESS CLIMATE CHANGE.

**DOW BUILDING SOLUTIONS
HAS EMBRACED THE
CHALLENGE OF
ARCHITECTURE 2030
TO ACHIEVE CARBON
NEUTRALITY IN NEW
BUILDINGS BY 2030.**

www.architecture2030.org

INSULATE TO MAKE A CHANGE FOR THE BETTER

Insulating a building envelope not only enhances the building's energy efficiency, it's a cost-effective way to reduce greenhouse gas emissions.

According to the graph below, an investment in insulation has the most potential for generating positive economic returns over a building's life cycle, while helping reduce GHG emissions. Starting first with the lowest marginal cost GHG abatement options – insulation improvements – can have an immediate positive impact on the environment, on the sustainability of buildings around the world and on the bottom line for businesses globally.

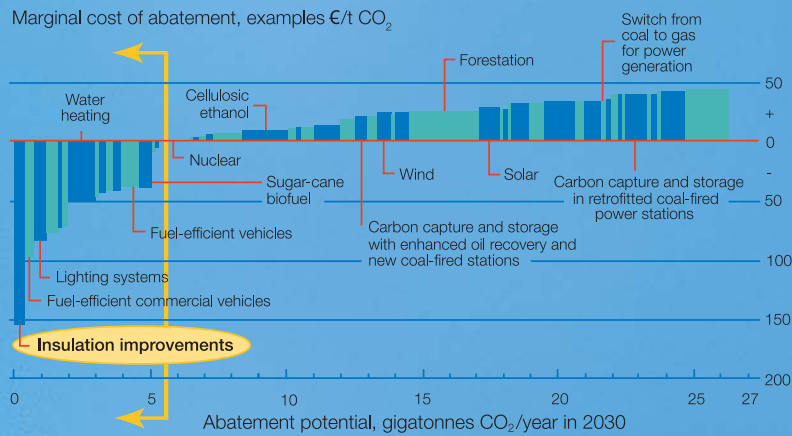
Research results are consistent with what Dow and the building industry have known for many years: **Building insulation is one of the best ways to reduce GHG emissions, save money and improve the bottom line.**

As part of Dow's 2015 Sustainability Goals to address energy efficiency and climate change, Dow Building Solutions is doing its part by helping preserve the environment with insulation and air sealants that help reduce greenhouse gas emissions, manage the consumption of natural fuel sources and much more.

www.dow.com/commitments

BUILDING INSULATION COST-EFFECTIVELY REDUCES GREENHOUSE GAS EMISSIONS GLOBALLY

The cost of cutting GHG emissions in different ways



Source: Study conducted by McKinsey & Company, and Vattenfall

McKinsey & Company studied the costs of implementing various GHG abatement options. "Insulation improvements" is among the more economical measures at the left of the arrows that provide the fastest payback and should be implemented before doing any of the other measures. And as the graph shows, "insulation improvements" is by far the best measure in terms of a negative marginal cost. This graph represents only a few of the abatement options researched. For the graph in its entirety, visit www.mckinseyquarterly.com/A_cost_curve_for_greenhouse_gas_reduction_1911.

estimate landscaping %

LEADING PRODUCTS

LEED 2009 emphasizes performance: Today's buildings must do more than look good to be green, they must perform well over time.

Dow Building Solutions employs a design philosophy focused on products and integrated systems developed for long-term performance.

STYROFOAM™ BRAND EXTRUDED POLYSTYRENE INSULATION

STYROFOAM™ Brand Extruded Polystyrene (XPS) Insulation is known around the world for its exceptional thermal and moisture-resistant properties. The extensive STYROFOAM™ Brand XPS portfolio includes specialized products designed for insulation applications from foundation to roof.

Foundations

STYROFOAM™ Brand HIGHLOAD 40, 60 and 100
STYROFOAM™ Brand PERIMATE™
STYROFOAM™ Brand Protection Board III
STYROFOAM™ Brand SCOREBOARD™
STYROFOAM™ Brand Square Edge
STYROFOAM™ Brand Tongue and Groove

Walls

STYROFOAM™ Brand CAVITYMATE™ products
STYROFOAM™ Brand Square Edge
STYROFOAM™ Brand Tongue and Groove
STYROFOAM™ Brand Z-MATE™

Roofs

STYROFOAM™ Brand DECKMATE™ Plus and DECKMATE™ Plus FA (flat and tapered)
STYROFOAM™ Brand HIGHLOAD 40, 60 and 100
STYROFOAM™ Brand PLAZAMATE™
STYROFOAM™ Brand ROOFMATE™ and Ribbed ROOFMATE™

DESIGNED TO PERFORM

Covering a wide range of commercial building applications, including foundations, walls and roofs, products from Dow Building Solutions offer:

DURABILITY

High-performance building products from Dow are not only designed to perform a specific function, they are designed to last. This is key to sustainability.

INNOVATION

New products and integrated systems, including Dow's three-in-one THERMAX™ Wall System that meets continuous insulation requirements, answer the continually changing needs of the construction industry.

DOW POLYISOCYANURATE INSULATION

Dow polyisocyanurate (ISO) insulation products feature a uniform, closed-cell foam core for better insulation and higher R-values.

With a distinct free-rise formulation and glass-fiber-reinforced polyisocyanurate foam core, THERMAX™ products offer fire resistance and may be left exposed in many applications.

The THERMAX™ family of products includes:

- THERMAX™ (ci) Exterior Insulation
- THERMAX™ Heavy Duty
- THERMAX™ Heavy Duty Plus
- THERMAX™ Light Duty
- THERMAX™ Metal Building Board
- THERMAX™ Sheathing
- THERMAX™ White Finish

Additional ISO products include TUFF-R™ and Super TUFF-R™ Commercial Insulation – tough on job site damage and energy loss – and ISOCAST™ R Insulation – designed for use in concrete sandwich panel construction.

PRODUCTS THAT HELP SEAL AGAINST AIR INFILTRATION AND MOISTURE INTRUSION

- FROTH-PAK™ Foam Sealant
- FROTH-PAK™ FS Foam Insulation
- GREAT STUFF PRO™ Gaps & Cracks Insulating Foam Sealant
- GREAT STUFF PRO™ Window & Door Insulating Foam Sealant
- STYROFOAM™ Brand Spray Polyurethane Foam (CM Series)
- WEATHERMATE™ SILL SEAL Foam Gasket
- WEATHERMATE™ Flashing

LOW-VOC ONE-COMPONENT ROOFING ADHESIVES

- INSTA STIK™ Quik Set Commercial Roofing Adhesive
- TILE BOND™ Roof Tile Adhesive

QUALITY

Dow products have been proven to perform, over and over, in real buildings under real-world conditions.

COMFORT

Insulation and sealant products from Dow manage moisture to reduce condensation and minimize mold and mildew formation.

ENERGY EFFICIENCY

Dow insulation, sealant and complementary products enhance the building envelope, reducing fuel consumption.

SUSTAINABILITY

Dow insulation products provide long-lasting thermal performance, thereby lowering GHG emissions for the life of a building.

INNOVATIVE SYSTEMS

Dow Building Solutions continues to leverage decades of building science expertise and applies a systematic approach to a growing number of integrated systems and product solutions to help building owners optimize energy efficiency, manage moisture and reduce greenhouse gas emissions.



THERMAX™ WALL SYSTEM

Achieve efficiency at every level with the THERMAX™ Wall System: simplified design, streamlined construction and reduced energy consumption for a smaller carbon footprint. Dow's three-in-one system with THERMAX™ (ci) Exterior

Insulation, WEATHERMATE™ Flashing and STYROFOAM™ Brand Spray Polyurethane Foam (CM Series) meets all applicable IBC and ASHRAE 90.1-2007 requirements, and may contribute to significant LEED credits.

PROTECTED MEMBRANE ROOF

More than 40 years ago, Dow roofing experts took a completely new look at roof design – and turned the industry upside down. In a protected membrane roof (PMR) assembly, the insulation is placed on top of the

membrane – improving the performance and longevity of the roof system.

The insulation in a PMR assembly must be able to withstand wet environments and foot traffic. That's why durable, moisture-resistant STYROFOAM™ Brand XPS Insulation is an ideal choice for PMR. Only extruded polystyrene insulation meets the requirements of the National Roofing Contractors Association for use in green roof systems.

STYROFOAM™ Brand XPS Insulation can be reused for several membrane life cycles. Also, a cool roof can be achieved with a white reflective membrane or the use of stone ballast.

Dow patented the innovative protected membrane roof assembly in 1968, literally turning roofing theory upside down.



DOW BUILDING SOLUTIONS PRODUCT CATEGORIES AND APPLICATIONS

LEED CREDITS⁽¹⁾

	EA Prereq. 2 (required)	EA 1	SS 5.1	SS 5.2	SS 6.1	SS 6.2	SS 7.2	WE 1.1	WE 1.2	MR 3.1	MR 3.2	MR 4.1	MR 4.2	MR 5.1	MR 5.2	EQ 7.1	ID 1.1	ID 1.2	ID 1.3
Foundations																			
STYROFOAM™ Brand XPS	☑	☑												☑	☑	☑			
Walls																			
STYROFOAM™ Brand XPS	☑	☑												☑	☑	☑			
Dow Polyisocyanurate Insulation (ISO)	☑	☑										☑	☑			☑			
STYROFOAM™ Brand and FROTH-PAK™ Spray Foam	☑	☑										☑	☑			☑			
THERMAX™ Wall System	☑	☑								☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
Roofs																			
STYROFOAM™ Brand XPS for Conventional Roofs	☑	☑												☑	☑	☑			
STYROFOAM™ Brand XPS for PMR/Green Roof Applications	☑	☑	☑	☑	☑	☑	☑	☑	☑			☑	☑	☑	☑	☑	☑	☑	☑
ISO for Concealed Roof Applications	☑	☑										☑	☑			☑			
Enhanced Protection Against Air and Moisture																			
FROTH-PAK™ and GREAT STUFF PRO™ Sealants	☑	☑														☑			
WEATHERMATE™ Flashing	☑	☑																	

(1) Potential credit contributions are based on LEED 2009 New Construction and Major Renovations draft document.

LEED CREDIT OPPORTUNITIES WITH DOW PRODUCTS

Energy-efficient Dow products may contribute to significant LEED credits as highlighted below. For more detail, see these Dow publications:

- STYROFOAM™ Brand Insulation, LEED and Green Roof Assemblies Information Sheet (Form No. 179-05082/178-00698)
- THERMAX™ Wall System and LEED Information Sheet (Form No. 179-04504)

ENERGY AND ATMOSPHERE (EA)

Prerequisite 2 – Minimum Energy Performance
Credit 1 – Optimize Energy Performance (1-19 points)

- Insulation, flashings (as part of a system) and sealants
- For green roof applications, STYROFOAM™ Brand XPS Insulation is part of a protected membrane roof design
- STYROFOAM™ Brand XPS Insulation and THERMAX™ Insulation can be used as continuous insulation around the building envelope
- As part of the THERMAX™ Wall System, STYROFOAM™ Brand Spray Polyurethane Foam (SPF) (CM Series) in the cavity helps achieve higher energy-efficiency levels for a building by serving as an air barrier.

INDOOR ENVIRONMENTAL QUALITY (EQ)

Credit 7.1 – Thermal Comfort: Design (1 point)

- Dow rigid insulation and SPF products meet ASHRAE requirements for humidity control
- Sealants reduce air infiltration
- Insulated concrete systems
- STYROFOAM™ Brand XPS and THERMAX™ Insulation (moderating temperature of the wall cavity reduces potential for dew point condensation)
- The THERMAX™ Wall System can help achieve better energy efficiency to meet the ASHRAE 55.2 Thermal Environmental Design Standards to provide comfort for building occupants.

INNOVATION IN DESIGN PROCESS (ID)

Credits 1.1 to 1.3 – Innovation in Design (1 point each)

- STYROFOAM™ Brand XPS Insulation for PMR/green roofs
- The THERMAX™ Wall System provides insulation, air barrier and flashing in one system with exceptional energy efficiency, durability and versatile veneers to meet diverse needs in the market.

In conjunction with other items found in a steel frame and steel roof building, the THERMAX™ Wall System can contribute to ID credits. Considering the high recycled content of the steel plus recycled content in other materials used on a project, an additional Exceptional Performance credit can be achieved if the total recycled content of the material is 30 percent or higher.

MATERIALS AND RESOURCES (MR)

Credit 3.1 – Materials Reuse: 5 Percent (1 point) and
Credit 3.2 – Materials Reuse: 10 Percent (1 point)

- THERMAX™ Wall System: In addition to THERMAX™ (ci) Exterior Insulation, many steel stud wall components, such as steel, veneer and drywall, can be salvaged, refurbished or reused materials as long as they are in desired conditions. Consult the architect and/or owner to identify these components during the design and construction process.

Credit 4.1 – Recycled Content: 10 Percent (post-consumer plus half pre-consumer) (1 point) and
Credit 4.2 – Recycled Content: 20 Percent (post-consumer plus half pre-consumer) (1 point)

- Dow polyisocyanurate insulation has up to 29 percent post-consumer recycled content, depending on product and thickness. In addition to Dow polyisocyanurate insulation, many other steel stud wall components, such as steel and veneer, provide post-consumer and pre-consumer recycled content.
- STYROFOAM™ Brand XPS Insulation for walls and green roofs

Credit 5.1 – Regional Materials: 10 Percent Extracted, Processed and Manufactured Regionally (1 point) and
Credit 5.2 – Regional Materials: 20 Percent Extracted, Processed and Manufactured Regionally (1 point)

- STYROFOAM™ Brand XPS Insulation for green and conventional roofs, walls and foundations
- THERMAX™ Wall System: In addition to THERMAX™ (ci) Exterior Insulation, many steel stud wall components, such as steel and veneer (brick, vinyl, metal, etc.), may be harvested, processed and manufactured regionally. Consult specific manufacturers for regional material qualification.

SUSTAINABLE SITES (SS)

Credit 5.1 – Site Development: Protect or Restore Habitat (1 point) and Credit 5.2 – Site Development: Maximize Open Space (1 point)

- STYROFOAM™ Brand XPS Insulation for green roofs

Credit 6.1 – Stormwater Design: Quantity Control (1 point) and
Credit 6.2 – Stormwater Design: Quality Control (1 point)

- STYROFOAM™ Brand XPS Insulation for green roofs

Credit 7.2 – Heat Island Effect: Roof (1 point)

- STYROFOAM™ Brand XPS Insulation for green roofs

WATER EFFICIENCY (WE)

Credit 1.1 – Water-Efficient Landscaping: Reduce by 50 Percent (1 point) and Credit 1.2 – Water-Efficient Landscaping: No Potable Use or No Irrigation (1 point)

- STYROFOAM™ Brand XPS Insulation for green roofs

COMMITMENT IN ACTION

Dow Building Solutions and its parent company, The Dow Chemical Company, are committed to ongoing efforts to reduce energy use, waste and greenhouse gas emissions at all of their facilities. For example, since 1994 Dow has reduced its energy intensity (Btu per pound of product) by 22 percent. By year-end 2007, Dow saved over \$7 billion and 1,500 trillion Btu. Other green-related achievements include:

- The U.S. Environmental Protection Agency (EPA) named The Dow Chemical Company a **2008 ENERGY STAR Partner of the Year**.
- A Dow senior research leader has been recognized by the Intergovernmental Panel on Climate Change as a co-recipient of the 2007 **Nobel Peace Prize** for implementing Dow's new foaming agent technology. This zero ozone-depleting formula will enable Dow's North American production sites to cut their greenhouse gas emissions in half. This development is well ahead of the Montreal Protocol requirements.

- Dow's photovoltaic program was a recipient of the \$20 million Solar America Initiative Pathways Program by the U.S. Department of Energy. Dow's project is to create an aesthetically pleasing – and cost-effective – **solar roof system incorporated into the building envelope**.
- Dow received its **sixth Green Chemistry Award** since 1996 through the 2008 Presidential Green Chemistry Challenge Awards for Dow AgroScience's spinetoram – an innovative insect control technology.
- Dow awarded research grants totaling more than **\$6.4 million** to Cardiff University and Northwestern University as part of the 2007 Dow Methane Challenge, with a focus on the conversion of plentiful methane to chemical feedstocks.

For more information, visit www.dow.com/commitments.

For more information about Dow products that support sustainable design objectives, call Dow at 1-866-583-BLUE (2583) or visit www.dowbuildingsolutions.com.

To learn more about LEED, visit www.usgbc.org.

Dow Building Solutions

For Technical Information: 1-866-583-BLUE (2583)

For Sales Information: 1-800-232-2436

www.dowbuildingsolutions.com

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STYROFOAM™ Brand Extruded Polystyrene Insulation

CAUTION: This product is combustible. Protect from high heat sources. A protective or thermal barrier may be required as specified in the appropriate building code. For more information, consult MSDS, call Dow at 1-866-583-BLUE (2583) or contact your local building inspector. In an emergency, call 1-989-636-4400.

Dow Polyisocyanurate Insulation

CAUTION: This product is combustible and shall only be used as specified by the local building code with respect to flame spread classification and to the use of a suitable thermal barrier. For more information, consult MSDS, call Dow at 1-866-583-BLUE (2583) or call your local building inspector. In an emergency, call 1-989-636-4400.

WARNING: Rigid foam insulation does not constitute a working walkable surface or qualify as a fall protection product.

STYROFOAM™ Brand Spray Polyurethane Foam contains isocyanate, hydrofluorocarbon blowing agent and polyol. Read the instructions and Material Safety Data Sheets carefully before

use. Wear protective clothing, gloves, goggles and proper respiratory protection. Supplied air or an approved air-purifying respirator equipped with an organic vapor sorbent and a particle filter is required to maintain exposure levels below ACGIH, OSHA, WEEL or other applicable limits. Provide adequate ventilation. Contents under pressure. STYROFOAM™ Brand SPF should be installed by a trained SPF applicator.

FROTH-PAK™ Polyurethane Spray Foam contains isocyanate, hydrofluorocarbon blowing agent and polyol. Read the instructions and Material Safety Data Sheets carefully before use. Wear protective clothing, gloves, goggles or safety glasses, and proper respiratory protection. Supplied air or an approved air-purifying respirator equipped with an organic vapor sorbent and a particle filter may be required to maintain exposure levels below ACGIH, OSHA, WEEL or other applicable limits. Provide adequate ventilation. Contents under pressure.

GREAT STUFF PRO™ Insulating Foam Sealants contain isocyanate and a flammable blowing agent. Read the label and Material Safety Data Sheet carefully before use. Eliminate all sources of ignition before use. Wear gloves, and goggles or safety glasses. Provide adequate ventilation or wear proper respiratory protection. Contents under pressure.

INSTA STIK™ Quik Set Commercial Roofing Adhesive and TILE BOND™ Roof Tile Adhesive contain isocyanate and a hydrofluorocarbon blowing agent. Read the label and Material Safety Data Sheet carefully before use. Wear gloves, and goggles or safety glasses. Provide adequate ventilation or wear proper respiratory protection. Contents under pressure.

Building and/or construction practices unrelated to building materials could greatly affect moisture and the potential for mold formation. No material supplier including Dow can give assurance that mold will not develop in any specific system.

