

# ICYNENE® AND YOUR LEED® PROJECTS

CaGBC LEED CREDIT OPPORTUNITIES FOR  
ICYNENE SPRAY FOAM INSULATION PRODUCTS



**ICYNENE®**

HEALTHIER, QUIETER, MORE ENERGY EFFICIENT™



## Only Icynene Delivers Products To Address Your Insulation Needs

*"Icynene insulation products can play a key role in energy efficient and environmentally responsible design, and are used in many of the industry's best structures."*

– Derek Satnik, Managing Partner, Mindscape Innovations

### Icynene and LEED Programs in Canada

LEED: "Leadership in Energy and Environmental Design" is a green building program designed to quantify the environmental benefit of various green building strategies in a rating system format, which ultimately includes a certification program that places a certification label on the constructed building. This document outlines the eligibility of Icynene's spray foam insulation products for points in the following LEED rating systems:

- **LEED Canada–New Construction (NC) (2009)**, owned and delivered by the Canada Green Building Council (CaGBC) in Canada;
- **LEED Canada–Homes (2009)**, owned and delivered by the CaGBC in Canada.

*"CaGBC LEED Credit Opportunities for Icynene Spray Foam Insulation Products" has been prepared based on a 3rd party review by Mindscape Innovations Group, a LEED for Homes provider licensed by both the U.S. and Canadian Green Building Councils to certify LEED Homes and an experienced Commercial LEED Consultant. It outlines the potential direct points that are relevant to the LEED programs based on a systems approach to design and construction.*

Please note that it is important to understand the difference between claiming that a certain product will earn points as opposed to claiming that it will contribute towards points. The reality is that the LEED programs reward buildings, not products, so although our product(s) may be a vital contributor towards an earned point, it may not be the only contributor for that point.

# RESPONSIBILITY

## Icynene's Corporate Sustainability Philosophy

Icynene believes that being a good corporate neighbor and a responsible steward of the world's resources means providing innovative solutions that help address issues such as energy consumption and global warming. As one of the foremost manufacturers of spray foam insulation for the North American construction market, Icynene is leading the insulation industry to a new level of sustainability through its commitment to environmentally-preferable, spray foam technology that not only provides superior energy efficiency but is HFC-free.

Icynene is also dedicated to reducing its own environmental footprint and educating our employees on conservation issues, teaching them how to be greener, and directing them to additional environmental resources. The Icynene Go Green initiative is an all-inclusive environmentally friendly green program that allows all staff the opportunity to actively participate.

We are proud to have our Company and products associated with sustainable groups and non-government organizations such as CaGBC, Built Green Canada, Collaborative for High Performance Schools and more.



# ENVIRONMENTAL ADVANTAGE

*“Green buildings absolutely need to be energy misers. But to be green and durable and energy efficient, we need a new mantra: Manage energy and moisture with equal intensity.”<sup>1</sup>*

– Peter Yost

Peter Yost is Technical Director for GreenBuildingAdvisor.com and has made significant contributions to the building industry through his involvement with the NAHB Research Center, Building Science Corporation and EEBA.



*Our light density spray foams are ideal for many applications.*

## The Icynene Difference

Because LEED certifies buildings, not products, there are other benefits of Icynene products which go above and beyond those rewarded by LEED.

These relate to;

- Total building durability / longevity
- Impacts on Global Warming
- Other Occupant Health Issues

### Building Durability / Longevity

Icynene products insulate and air-seal in one step. Additionally, independent testing has confirmed that Icynene spray foam products are not a source of food for mould; and as an air barrier material, they reduce the airborne introduction of moisture, nutrients, and mould spores into the building envelope.

**Icynene light density spray foam products** create an effective, vapour permeable air barrier that can move with the building. Being water vapour permeable, they allow moisture to diffuse through the insulation and dissipate from the building envelope.

Water can be forced into the foam under pressure because it is open celled. Water will drain by gravity, given favorable drying potential, and upon drying all chemical and physical properties are fully restored.

This makes Icynene light density spray foam products well suited for many applications but particularly anywhere diffusion or drainage is advantageous to the design of the building envelope.



Canada - 2007 Buildings Energy End-Use

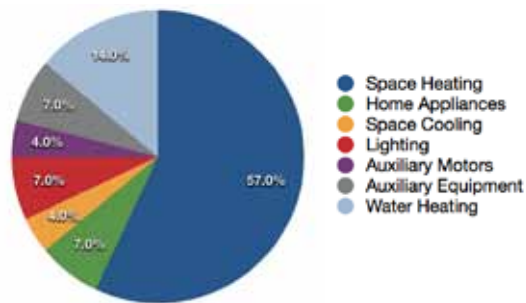


Figure 1: Breakdown of Energy End-Use for Canadian Buildings<sup>7</sup>

Source: Energy Use Data Handbook<sup>7</sup>

Consult Icynene Product Spec sheets on [Icynene.com](http://Icynene.com) for the most definitive source of product information.

## Global Warming and Ozone Depletion

When used in place of air-permeable insulation, all Icynene spray foam insulation products can reduce home heating and cooling costs by up to 50% and lead to a reduction in CO<sub>2</sub> and other greenhouse gas emissions. With the average North American home contributing approximately 10 tonnes of greenhouse gas per year<sup>2</sup> – primarily due to heating and cooling – using Icynene can make a significant difference to the environment!

All Icynene products are 100% water-blown. As such, the blowing agent used is not a hydrofluorocarbon (HFC) nor is it an ozone depleting substance. HFCs are High Global Warming Potential (GWP) gases<sup>3</sup> used in the manufacture of some medium density foams. They can exhibit a GWP as high as 950 times the level of carbon dioxide<sup>4</sup>. The insulating foam sector is predicted to become the second largest source of HFC emissions<sup>5</sup>. By choosing a foam insulation that is HFC free, you are making a responsible choice for your building and the environment. Icynene spray foam products are manufactured without HFCs. Instead they use a blowing agent that has the lowest possible GWP of 1.

## Other Occupant Health Issues

Polybrominated diphenyl ether flame retardants (PBDEs) are man-made chemicals added to a wide variety of consumer products to make them less likely to catch fire. Because the recent Canadian assessment of PBDEs concluded that these substances may have a harmful effect on the environment, the Government of Canada has proposed that use and/or release to the environment of these PBDEs be strictly controlled. Specifically, the manufacture of the PBDEs assessed has been prohibited in Canada and the use and importation of some of the PBDEs has also been prohibited.<sup>6</sup>

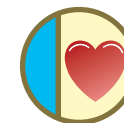
Icynene spray foam insulation is, and has always been, PBDE-free. Furthermore, it meets the requirements of a fire-rated product without the need for this chemical.



Air Barrier



Moisture Management



Healthier

# LEED REFERENCE MAP



Icyne's North American manufacturing facility that serves customers throughout the Canada and the U.S., is located in Mississauga, Ontario, Canada.

**Local / Regional Content:** goods are defined as being "local" or "regional" within all forms of LEED if they are (80% by mass) extracted, processed, manufactured and shipped from within 800 km of the jobsite when shipped by truck, or 2,400 km when shipped by rail or boat, or a proportional combination of these two.

*Note: Icyne cannot consistently guarantee the source location of our raw materials.*

*\*\* Regional Sourcing Reference Map for use with LEED-NC Canada: Credit MRC5 and LEED for Homes Canada: MRC2*

## ACCESSIBILITY

For persons with physical handicaps, accessibility is a necessity which enables them to achieve independence. The Canadian law of accessibility is derived from many sources including section 15 of the Charter of Rights and Freedoms, which states that "every individual is equal before the law" and that one of the prohibited grounds of discrimination is "physical disability." Icyne supports the concept of universal accessibility in building design and its products help architects design buildings without barriers.

We also support universal access to technology. The Icyne.com website is compliant with most international web accessibility standards. But we have gone one step further by providing disabled persons access to a turn-key web accessibility solution, eSSENTIAL Accessibility, which makes our website fully accessible to individuals with physical disabilities. This solution gives them the tools needed to overcome the barriers to accessing a website from a standard PC.



# ICYNENE AND LEED CANADA–HOMES



## LEED Canada for Homes 2009

LEED is a third-party certification program and an internationally accepted benchmark for the design, construction and operation of high performance green buildings. It provides building owners and operators the tools they need to have an immediate and measurable impact on their buildings' performance. The Canadian rating systems are an adaptation of the US Green Building Council's (USGBC) LEED Green Building Rating System, tailored specifically for Canadian climates, construction practices and regulations. The rating systems are adapted to the Canadian market through an inclusive process that engages stakeholders and experts representing the various sectors of the Canadian industry.

**LEED Canada for Homes** is a rating system that promotes the design and construction of high-performance green homes and applies to single family homes and multifamily buildings up to 3 residential stories. A green home uses less energy, water and natural resources; creates less waste; and is healthier and more comfortable for the occupants. LEED Canada for Homes, which launched in 2009, measures green homebuilding performance based on eight categories: sustainable sites, water efficiency, materials & resources, energy & atmosphere, indoor environmental quality, location & linkages, awareness & education, and innovation. Within each of these areas, projects earn points toward certification. LEED has four levels of certification: Certified, Silver, Gold and Platinum, with Platinum representing the highest level of achievement.



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For more information, visit [Icynene.com](http://Icynene.com)

# ICYNENE AND LEED CANADA–HOMES

## Icynene insulation products in LEED Canada for Homes 2009

LEED Canada for Homes 2009	Total Available Points	Relevant Benefit of Icynene Insulation and Air Barrier Material	Maximum Icynene Direct Point Contribution
			ICYNENE LD-C-50 <sup>®</sup>
EAC1.1: Optimizing Energy Performance	Prerequisite	Icynene Spray Polyurethane products may help meet energy performance prerequisites of ERS 76 or HERS 80.	Prerequisite
EAC1.2: Optimizing Energy Performance	34	<p>Up to 15% energy savings can be achieved with Icynene insulation versus traditional energy options. This can earn up to 15 points, assuming the minimum energy performance requirements for EAC1.1 were met through other means.</p> <p>*Icynene insulation products can reduce heating and cooling costs by up to 50%. The Energy Use Data Handbook (Canada) 2009 shows that nearly 60% of all building energy consumption is attributed to space heating and cooling. See 2007 Buildings Energy End-Use Chart.</p> <p>In Canada, households use energy primarily for space and water heating, space cooling, the operation of appliances and lighting. Of these activities, space heating consumes the most energy in the residential sector. It accounted for 62.7 percent of the total residential energy consumed in 2007. (source: <a href="http://oee.nrcan.gc.ca/Publications/statistics/sheu-summary07/space-heating.cfm?attr=0">http://oee.nrcan.gc.ca/Publications/statistics/sheu-summary07/space-heating.cfm?attr=0</a>)</p>	15*
EAC2: Insulation <sup>1</sup>	2	<p>Icynene insulation may contribute towards the enhanced insulation requirements necessary for 2 points, both by offering high R-values and by greatly simplifying the effort required to achieve HERS Grade 1 workmanship.</p> <p>Effective R-values of wall, ceiling, floor and basement components must exceed those specified in IECC2004 code by 20%.</p>	2
EAC3: Air Infiltration <sup>1</sup>	3	Greatly reduced or minimal envelope air leakage can be expected with Icynene's superior air-sealing capabilities. Air changes of 2.0 ACH @ 50 Pa or better are commonly achieved with Icynene insulation.	3
MRC2: Environmentally Preferable Products	8	<p>Projects local to Toronto, Ontario may earn 0.5 points</p> <p>**See reference map. Please note, Icynene cannot consistently guarantee the source location of our raw materials.</p> <p>Another 0.5 point can be earned for low VOC emission compliance with California Practice for Testing of VOCs from Building Materials Using Small Chambers. Icynene products listed here are Collaborative for High Performance Schools (CHPS) EQ 2.2 Section 01350 compliant.</p>	1**

1. Please note that LEED Canada for Homes 2009 includes both a "performance" path of calculated energy use (EAC1) and a prescriptive path (EAC2-6). These two paths are mutually exclusive, so only one can be used. For the purpose of this report, only Eca1 has been summed into the point total.





# ICYNENE AND LEED CANADA-NC

## LEED Canada for New Construction and Major Renovation (NC) 2009

LEED is a third-party certification program and an internationally accepted benchmark for the design, construction and operation of high performance green buildings. It provides building owners and operators the tools they need to have an immediate and measurable impact on their buildings' performance. The Canadian rating systems are an adaptation of the US Green Building Council's (USGBC) LEED Green Building Rating System, tailored specifically for Canadian climates, construction practices and regulations. The rating systems are adapted to the Canadian market through an inclusive process that engages stakeholders and experts representing the various sectors of the Canadian industry.

The **LEED Canada-NC** rating system applies to new construction and major renovations of commercial and institutional buildings, i.e., buildings regulated by Part 3 of the National Building Code. It also applies to retail, mid- and high-rise multi-unit residential buildings (MURBs), public assembly buildings, manufacturing plants, and other types of buildings. Launched in 2004, LEED Canada-NC promotes a whole-building approach to sustainability by recognizing performance in seven categories: Sustainable Sites, Water Efficiency, Energy and Atmosphere, Materials and Resources, and Indoor Environmental Quality. Two additional categories, Innovation in Design and Regional Priority address sustainable building expertise in terms of design measures not covered by the other categories.



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# ICYNENE AND LEED CANADA-NC

## Icynene insulation products in LEED Canada for New Construction and Major Renovation 2009

LEED Canada for New Construction 2009	Total Available Points	Relevant Benefit of Icynene Insulation and Air Barrier Material	Maximum Icynene Direct Point Contribution
			ICYNENE LD-C-50®
EAP2: Minimum Energy Performance	Prerequisite	Icynene products may contribute towards meeting minimum energy performance improvements of:  PATH 1: reduce design energy consumption by 23% for new buildings or 19% for major renovations compared with a reference building designed to the Model National Energy Code for Buildings 1997 (MNECB), or  PATH 2: reduce design energy cost by 10% for new buildings or 5% for major renovations compared to reference building designed to ASHRAE/IESNA 90.1-2007	Prerequisite
EAC1: Optimize Energy Performance	19	Up to 15% energy savings can be achieved with Icynene insulation versus traditional energy options for a typical Canadian building. This can earn up to 8 points, assuming the minimum energy performance requirements for EAP2 were met through other means.  * Icynene insulation products can reduce heating and cooling costs by up to 50%. The Energy Use Data Handbook (Canada) 2009 shows that nearly 60% of building energy consumption is attributed to space heating and cooling. See 2007 Buildings Energy End-Use Chart.	8*
MRC5: Regional Materials	2	Projects local to Toronto, Ontario may contribute towards the minimum 10% (1 pt) of local content credit (20% local content required for 2 pts).  **See reference map. Additionally, Icynene cannot consistently guarantee the source location of our raw materials.	1**
IEQP1: Minimum Indoor Air Quality Performance	Prerequisite	The reduction in air leakage and accompanying moisture movement of Icynene's insulation products may contribute towards meeting the minimum requirements of sections 4-7 of ASHRAE 62.1-2007, Ventilation for Acceptable Indoor Air Quality.	Prerequisite



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visit [Icynene.com](http://Icynene.com) or call 1-800-758-7325**

**Please consult current Icynene Product Spec Sheets on [Icynene.com](http://Icynene.com)  
for the most definitive source of product information.**

ENDNOTES:

1. Source: [http://greensource.construction.com/people/2009/01\\_Sustainability.asp](http://greensource.construction.com/people/2009/01_Sustainability.asp)
2. American Public Transport Association – September 2007 - [http://www.apta.com/research/info/online/climate\\_change.cfm#cc17](http://www.apta.com/research/info/online/climate_change.cfm#cc17)
3. EPA - Air Quality: Revision to Definition of Volatile Organic Compounds [http://www.epa.gov/ttn/oarp/t1/fr\\_notices/final16.pdf](http://www.epa.gov/ttn/oarp/t1/fr_notices/final16.pdf)
4. [www.fluorocarbons.com/en/families/hfcs/environment\\_hfc\\_245fa.html](http://www.fluorocarbons.com/en/families/hfcs/environment_hfc_245fa.html)
5. IPCC (2005) *ibid* Chapter 11, p411
6. Source: <http://www.hc-sc.gc.ca/hl-vs/iyh-vsv/environ/pbde-eng.php>
7. Energy Use Data Handbook Tables (Canada), Office of Energy Efficiency, Natural Resources Canada, 2009, Residential and Commercial Handbook Tables 1, accessed online 2010/06/08  
@: [http://oee.nrcan.gc.ca/corporate/statistics/neud/dpa/handbook\\_tables.cfm?attr=0](http://oee.nrcan.gc.ca/corporate/statistics/neud/dpa/handbook_tables.cfm?attr=0)

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