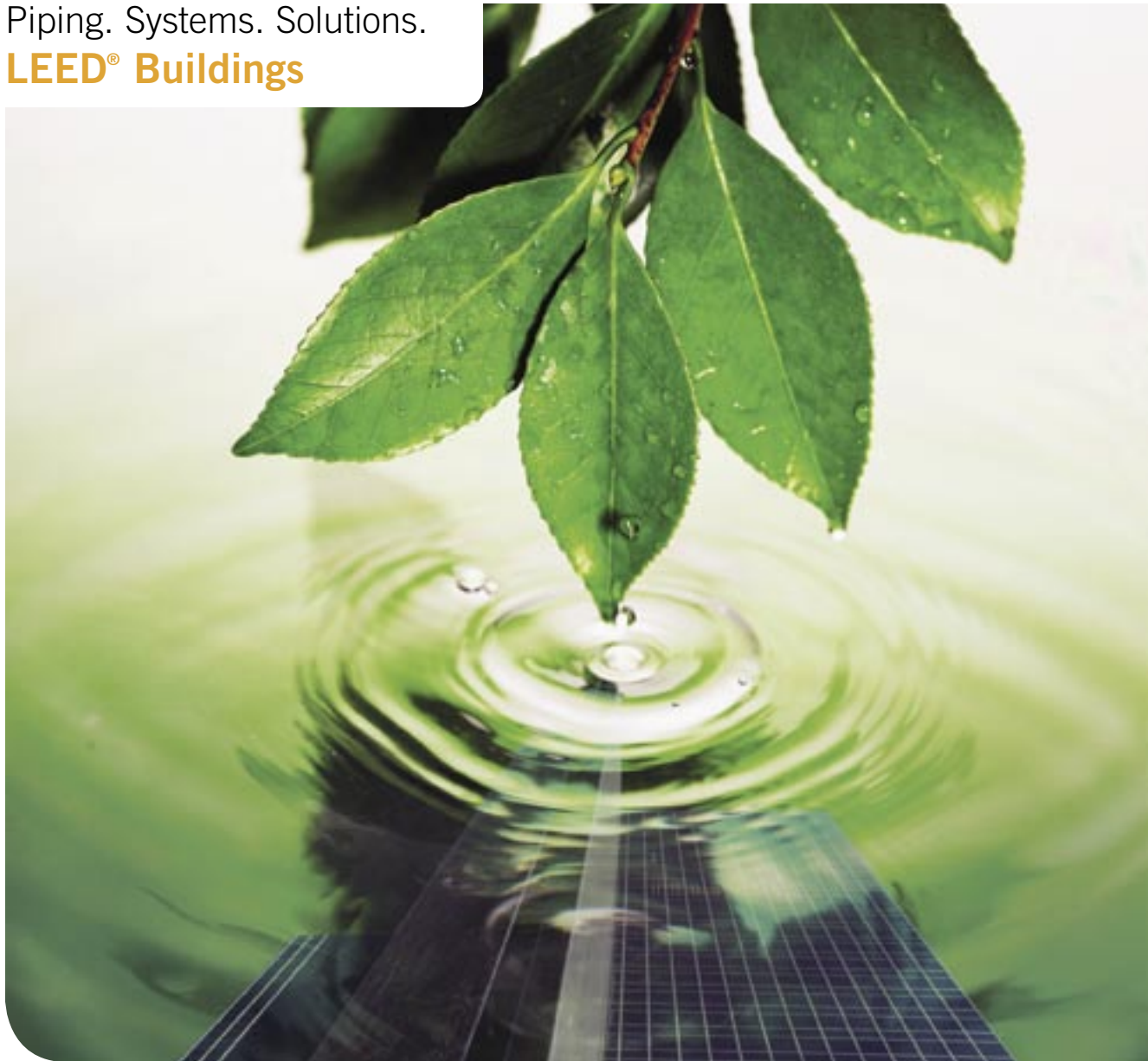


Piping. Systems. Solutions.  
**LEED® Buildings**



**Victaulic®**

## Victaulic ingenuity

Victaulic grooved end piping solutions for sustainable design

Today's engineering and construction professionals are increasingly focused on constructing buildings that are sustainable, flexible, and energy efficient. The demand for building materials, products and design solutions that factor into creating a sustainable environment has risen dramatically.

Victaulic is committed to providing design and construction professionals with piping system solutions that help them achieve their individual sustainability goals while at the same time contributing to the surrounding ecosystem's overall wellness through environmentally sound business practices and processes.



## What is LEED®?

### The LEED Green Building Rating System

LEED stands for Leadership in Energy and Environmental Design. LEED is a rating system that provides an industry-wide standard for what constitutes a "green building." LEED is sanctioned by the United States Green Building Council (USGBC) and has been adopted by the Canada Green Building Council\* (CaGBC). Through a set of scientifically-based performance criteria and a certification point system, design and build professionals can earn LEED certification status and in doing so contribute to designing and building a sustainable environment.

It is possible to earn LEED certification points by specifying and integrating Victaulic piping system products. This brochure discusses piping system strategies for building owners and design teams involved in new construction/ major renovation projects (LEED-NC) and building owners and service providers that address building operation, on-going upgrades and performance improvements to existing buildings (LEED-EB\*\*). LEED-NC and LEED-EB standards can be viewed by logging onto [www.usgbc.org](http://www.usgbc.org).

\* For more information about LEED accreditation in Canada, log onto [www.cagbc.ca](http://www.cagbc.ca).

\*\* Scheduled for release to the public in 2005.

### LEED-NC credit categories and point system

Sustainable sites [SS]	14 pts
Water efficiency [WE]	5 pts
Energy & atmosphere [EA]	17 pts
Materials & resources [MR]	13 pts
Indoor environmental quality [EQ]	15 pts
Innovation & design process [ID]	5 pt

**Total 69 pts**

### LEED-EB credit categories and point system

Sustainable sites [SS]	16 pts
Water efficiency [WE]	5 pts
Energy & atmosphere [EA]	22 pts
Materials & resources [MR]	10 pts
Indoor environmental quality [EQ]	18 pts
Innovation & design process [ID]	5 pt

**Total 76 pts**

## Victaulic products & LEED®



The Victaulic grooved end piping system solution is the most versatile, economical and reliable method of joining pipe for commercial HVAC, industrial, fire protection, water, wastewater, mining and oil field applications. Building owners, engineers and contractors look for optimum system performance, ease of installation and long-term maintainability and reliability when specifying and installing Victaulic products.

*Victaulic manufactures a complete line of ductile iron couplings, valves and fittings for commercial HVAC and fire protection applications*

Victaulic grooved end piping system products help designers and building contractors achieve LEED certification in the following ways:

- Victaulic ductile iron castings are made from 90%\* recycled scrap metal recovered from internal manufacturing processes and from scrap metal purchased from others
- Victaulic products contribute to a project's stormwater management planning
- Victaulic products contribute to water use reduction, thus conserving one of the Earth's most precious natural resources – H<sub>2</sub>O
- Victaulic products reduce overall energy consumption through more efficient water flows and higher C<sub>v</sub>s
- Specifying Victaulic products eliminates unnecessary pipe joint welding, thus protecting the Earth's ozone layer
- Victaulic products are designed to reduce piping system vibration in HVAC and fire protection systems, thus contributing to the comfort, well-being and productivity of a building's occupants
- Finally, specifying and installing Victaulic products promotes "green" site planning and on-site building construction practices, thus contributing to the ecological preservation of your site

\* Current estimate as of print date

## Victaulic solutions and LEED® categories

The following is a summary of LEED credits that might be obtainable when you specify the Victaulic piping system solution for both new construction and existing building projects. Please consult the LEED-NC (new construction) and LEED-EB (existing building) documents for additional clarification.

### sustainable sites [SS]

#### STORMWATER MANAGEMENT

**INTENT:** Limit disruption of natural water flows by minimizing stormwater run-off (gray water capture), increasing on site infiltration and reducing contaminants in the water supply.

**SOLUTION:** When integrated into a system design, Victaulic products contribute to the management of infiltration and run-off, and the reuse of gray water for custodial and wastewater purposes. This conserves valuable environmental assets, and manages the site's water resources available to it.

### water efficiency [WE]

#### WATER USE REDUCTION

**INTENT:** Maximize water efficiency within buildings to reduce the burden on municipal water supply and wastewater systems.

**SOLUTION:** Specifying Victaulic grooved end couplings, fittings, and valves as an integral part of your building's mechanical piping system can result in up to a 20% reduction in the amount of water used. Because of more efficient flows and higher  $C_v$ s, less resistance and less pressure drop is experienced, and smaller pipe diameters can be used.

### energy & atmosphere [EA]

#### OPTIMIZE ENERGY PERFORMANCE

**INTENT:** Design the building envelope and systems to maximize energy performance. Use a computer simulated model to assess the energy performance and identify the most cost effective energy measures. Quantify energy performance as compared to baseline building.

**SOLUTION:** Victaulic products achieve energy savings through more efficient water flows and higher  $C_v$ s in regulated type systems (HVAC and service hot water systems as defined by ASHRAE). Because there is less pressure drop (smaller pipe diameters), less energy is consumed.

#### ADDITIONAL/CONTINUOUS COMMISSIONING & MAINTENANCE

**INTENT:** Verify and ensure that the entire building is designed, constructed, and calibrated to operate as intended.

**SOLUTION:** Applicable to all building components, including piping.

#### OZONE DEPLETION/PROTECTION

**INTENT:** Reduce ozone depletion and support early compliance with the Montreal Protocol. Install base building level HVAC and refrigeration equipment and fire suppression systems that do not contain HCFCs or Halon.

**SOLUTION:** OEM-manufactured HVAC systems that utilize Victaulic components contribute to LEED certification points. Since grooved piping systems are mechanical and don't require welding, there are no airborne health hazards. For every grooved end joint installed, the ozone depletion rate is reduced.

A comprehensive list of LEED-NC and LEED-EB credits, including those for which Victaulic products apply, is shown on pages 6 and 7.

## materials & resources [MR]

### RESOURCE REUSE

**INTENT:** Extend the lifecycle of targeted building materials by reducing environmental impacts related to materials during manufacturing and transport.

**SOLUTION:** Victaulic reuses reclaimed materials in its manufacturing processes to produce its products. LEED certification points can be accrued depending on the percentage of materials salvaged.

### RECYCLED CONTENT

**INTENT:** Increase demand for building products that have incorporated recycled content materials, therefore reducing the impacts resulting from the extraction of new materials.

**SOLUTION:** Victaulic ductile iron castings are made from 90%\* recycled scrap metal that is melted down and reused. This consists of scrap derived from our manufacturing processes and from scrap metal purchased from other sources. In many cases, this is worth 2 pts.

### LOCAL/REGIONAL MATERIALS

**INTENT:** Increase demand for building products that are manufactured locally, thereby reducing the environmental impacts resulting from their transportation and supporting the local economy.

**SOLUTION:** In North America, Victaulic operates manufacturing plants that produce product locally in Easton, PA; Alburtis, PA; Leland, NC; and Richmond Hill, Ontario Canada. Additionally, Victaulic manages a worldwide distribution and delivery system that aims to produce products close to the markets it serves.

\* Current estimate as of print date

## indoor environment & quality [EQ]


### THERMAL COMFORT

**INTENT:** Provide for a thermally comfortable environment that supports the productive and healthy performance of the building occupants.

**SOLUTION:** In existing building retrofit projects, the use of Victaulic products eliminates both health and fire hazards normally associated with systems and products that require welded joints. Consequently, Victaulic products contribute to the overall safety and comfort of the building occupants.



*The LEED-certified Social Security Annex building in Baltimore, MD features an HVAC system that utilizes Victaulic products.*

A close-up photograph of several small, brown, gilled mushrooms growing on a bed of vibrant green moss. The background is softly blurred, showing more of the natural setting.

## Frequently Asked Questions

LEED®  
Leadership in Energy  
& Environmental Design

### What are the USGBC and CaGBC?

The USGBC and CaGBC combined comprise the foremost coalition of leaders from across North America's building industry working to promote buildings that are environmentally responsible, profitable and healthy places to work.

#### WHAT IS A LEED ACCREDITED PROFESSIONAL?

LEED Accredited Professionals are experienced building industry practitioners who have demonstrated their knowledge of integrated design and their capacity to facilitate the LEED certification process on the LEED Professional Accreditation exam. The exam tests an individual's understanding of green building practices and principles, and familiarity with LEED requirements, resources, and processes. The accreditation program recognizes expertise in green building and LEED to help meet the growing demand from the public and private sectors for green buildings.

#### CAN A SINGLE BUILDING PRODUCT ACHIEVE POINTS IN THE LEED RATING SYSTEM? WHAT PART DO BUILDING MATERIALS PLAY IN THE LEED RATING SYSTEM?

The vast majority of building products will only contribute to achieving LEED points. LEED mostly sets performance-based requirements. In attempting to meet these requirements, LEED practitioners identify products that have desired attributes. Some LEED points will require that certain limits or minimums be met. Other points will necessitate gathering specific product data into a spreadsheet in order to calculate the aggregate environmental or health value of a set of products.

**DO ANY OTHER LEED RATING SYSTEMS EXIST BESIDES LEED-NC?**

Yes.

There are several in progress – LEED-EB, and LEED-CI for Commercial Interiors, are scheduled for release to the public in 2005. LEED-CS Core and Shell extends the green building rating system to commercial office real estate and addresses several performance areas, including water use efficiency and indoor environmental quality, among other criteria.

**HOW DO BUILDINGS BECOME LEED CERTIFIED AND WHAT ARE THE BENEFITS OF CERTIFICATION?**

Essentially a building becomes LEED-certified once it has met the required total number of points as stated in the applicable standards document. There are different standards for each set of criteria, so be sure to consult the correct document. These can be found on both the USGBC and CaGBC websites.

The benefits of certification are numerous – from professional self-improvement to national, regional and local recognition for environmental stewardship. Additionally, there are state and local tax incentives offered to owners whose buildings qualify for LEED certification. Green building is just plain good business – and good for business.

## Where can I find more information about LEED®?

Specifying engineers seeking additional information about the USGBC, the CaGBC, the LEED Rating System, or sustainable design in general are encouraged to visit the following websites and consult the following resources:

### USGBC

USGBC offices: 202-828-7422

[www.usgbc.org](http://www.usgbc.org)

[www.usgbc.org/LEED](http://www.usgbc.org/LEED) (for full documentation)

### CaGBC

CaGBC offices: 613-241-1184

[www.cagbc.ca](http://www.cagbc.ca)



# LEED® Green Building Rating System

LEED-NC	LEED-EB	
● PREREQ	● PREREQ	PREREQ
● 1 PT	● 1 PT	CREDIT 1
● 1 PT	● 2 PTS	CREDIT 2
● 1 PT		CREDIT 3
● 1 - 4 PTS	● 1 - 4 PTS	CREDIT 4
● 1 - 2 PTS	● 1 - 2 PTS	CREDIT 5
● 1 - 2 PTS	● 1 - 2 PTS	CREDIT 6
● 1 - 2 PTS	● 1 - 2 PTS	CREDIT 7
● 1 PT	● 1 PT	CREDIT 8
	● 1 - 2 PTS	CREDIT 9
14 PTS	16 PTS	
	● PREREQ	PREREQ
	● PREREQ	PREREQ
● 1 - 2 PTS	● 1 - 2 PTS	CREDIT 1
● 1 PT	● 1 PT	CREDIT 2
● 1 - 2 PTS	● 1 - 2 PTS	CREDIT 3
5 PTS	5 PTS	
● PREREQ	● PREREQ	PREREQ
● PREREQ	● PREREQ	PREREQ
● PREREQ	● PREREQ	PREREQ
● 2 - 10 PTS	● 2 - 10 PTS	PREREQ
● 1 - 3 PTS	● 1 - 3 PTS	CREDIT 1
● 1 PT	● 1 - 3 PTS	CREDIT 2
● 1 PT	● 1 PT	CREDIT 3
● 1 PT	● 1 - 4 PTS	CREDIT 4
● 1 PT	● 1 PT	CREDIT 5
17 PTS	22 PTS	CREDIT 6

## sustainable sites [SS]

- PREREQ Erosion & Sedimentation Control
- CREDIT 1 Site Selection
- CREDIT 2 Urban Redevelopment
- CREDIT 3 Brownfield Redevelopment
- CREDIT 4 Alternative Transportation
- CREDIT 5 Reduced Site Disturbance
- CREDIT 6 Stormwater Management
- CREDIT 7 Heat Island Effect
- CREDIT 8 Light Pollution Reduction
- CREDIT 9 Green Site and Building Exterior Management

## water efficiency [WE]

- PREREQ Minimum Water Efficiency
- PREREQ Discharge Water Compliance
- CREDIT 1 Water Efficient Landscaping
- CREDIT 2 Innovative Wastewater Technologies
- CREDIT 3 Water Use Reduction

## energy & atmosphere [EA]

- PREREQ Fundamental Building Systems Commissioning
- PREREQ Comprehensive Building Commissioning/Retro Commissioning
- PREREQ Minimum Energy Performance
- PREREQ CFC Reduction in HVAC&R Equipment
- PREREQ Ozone Protection
- CREDIT 1 Optimize Energy Performance
- CREDIT 2 Renewable Energy
- CREDIT 3 Additional/Continued Commissioning and Maintenance
- CREDIT 4 Ozone Depletion
- CREDIT 5 Measurement & Verification
- CREDIT 6 Green Power

LEED-NC	LEED-EB	
<ul style="list-style-type: none"> <li>● PREREQ</li> <li>● 1 - 3 PTS</li> <li>● 1 - 2 PTS</li> <li>● 1 - 2 PTS</li> <li>● 1 - 2 PTS</li> <li>● 1 - 2 PTS</li> <li>● 1 PT</li> <li>● 1 PT</li> </ul> <p style="text-align: center;"><b>13 PTS</b></p>	<ul style="list-style-type: none"> <li>● PREREQ</li> <li>● 1 PT</li> <li>● 1 PT</li> <li>● 1 PT</li> <li>● 1 PT</li> <li>● 1 PT</li> <li>● 1 PT</li> <li>● 1 - 3 PTS</li> </ul> <p style="text-align: center;"><b>10 PTS</b></p>	<p><b>materials &amp; resources [MR]</b></p> <ul style="list-style-type: none"> <li>PREREQ Storage &amp; Collection of Recyclables</li> <li>PREREQ Waste Management</li> <li>CREDIT 1 Building Reuse</li> <li>CREDIT 2 Construction Waste Management</li> <li>CREDIT 3 Resource Reuse</li> <li>CREDIT 4 Recycled Content</li> <li>CREDIT 5 Local/Regional Materials</li> <li>CREDIT 6 Rapidly Renewable Materials</li> <li>CREDIT 7 Certified Wood</li> <li>CREDIT 8 Occupant Recycling</li> </ul>
<ul style="list-style-type: none"> <li>● PREREQ</li> <li>● PREREQ</li> <li>● 1 PT</li> <li>● 1 PT</li> <li>● 1 - 2 PTS</li> <li>● 1 - 4 PTS</li> <li>● 1 PT</li> <li>● 1 - 2 PTS</li> <li>● 1 - 2 PTS</li> <li>● 1 - 2 PTS</li> </ul> <p style="text-align: center;"><b>15 PTS</b></p>	<ul style="list-style-type: none"> <li>● PREREQ</li> <li>● PREREQ</li> <li>● PREREQ</li> <li>● 1 PT</li> <li>● 1 PT</li> <li>● 1 PT</li> <li>● 1 - 7 PTS</li> <li>● 1 - 2 PTS</li> <li>● 1 - 2 PTS</li> <li>● 1 - 3 PTS</li> <li>● 1 PT</li> </ul> <p style="text-align: center;"><b>18 PTS</b></p>	<p><b>indoor environmental quality [EQ]</b></p> <ul style="list-style-type: none"> <li>PREREQ Minimum IAQ Performance</li> <li>PREREQ Environmental Tobacco Smoke (ETS) Control</li> <li>PREREQ Asbestos Removal or Encapsulation</li> <li>CREDIT 1 Carbon Dioxide (CO<sub>2</sub>) Monitoring</li> <li>CREDIT 2 Ventilation Effectiveness</li> <li>CREDIT 3 Construction IAQ Management Plan</li> <li>CREDIT 4 Low-Emitting Materials</li> <li>CREDIT 5 Indoor Chemical &amp; Pollutant Source Control</li> <li>CREDIT 5 Green Housekeeping</li> <li>CREDIT 6 Controllability of Systems</li> <li>CREDIT 7 Thermal Comfort</li> <li>CREDIT 8 Daylight &amp; Views</li> <li>CREDIT 9 Contemporary IAQ Practice</li> </ul>
<ul style="list-style-type: none"> <li>● 1 - 4 PTS</li> <li>● 1 PT</li> </ul> <p style="text-align: center;"><b>5 PTS</b></p>	<ul style="list-style-type: none"> <li>● 1 - 4 PTS</li> <li>● 1 PT</li> </ul> <p style="text-align: center;"><b>5 PTS</b></p>	<p><b>innovation &amp; design process [ID]</b></p> <ul style="list-style-type: none"> <li>CREDIT 1 Innovation in Design/Operations and Upgrades</li> <li>CREDIT 2 LEED® Accredited Professional</li> </ul>
<b>69</b> PTS	<b>76</b> PTS	<p>Integrating Victaulic products and solutions into a building's infrastructure may contribute to obtaining up to <b>25</b> points in LEED-NC projects, and up to <b>23</b> points in LEED-EB projects.</p>



Victaulic is a national member of the United States Green Building Council and the Canada Green Building Council.



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