



An Introduction  
to

# Manitoba Chapter Canada Green Building Council

[www.cagbc.org/chapters/manitoba.php](http://www.cagbc.org/chapters/manitoba.php)

CIRCA – Assoc. of Cdn Ind. Recycling Coal Ash



# Manitoba Chapter Canada Green Building Council

**Mona Lemoine, Vice-President**

**CIRCA  
Association of Canadian Industries  
Recycling Coal Ash**

January 30, 2006  
The Fairmont Winnipeg Hotel,  
2 Lombard Place, Winnipeg, Manitoba

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## Agenda

1. Canada Green Building Council (CaGBC)
2. Manitoba Chapter, Canada Green Building Council (CaGBC)
3. What is LEED®?
4. Transforming Industry.

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## Canada Green Building Council

- National non-profit organization founded in December 2002 and based in Ottawa.
- Coalition of public and private building industry leaders promoting mainstream adoption of green building
- Affiliated with US Green Building Council (USGBC)

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## Canada Green Building Council

- License holder for LEED™ in Canada
- Developer of LEED™ Canada
- Administrator of LEED™ Canada & LEED™ BC Green Building Rating System

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## Why?

- Growing recognition of environmental consequences of business-as-usual in the buildings industry
- Response to enormous demand from people in all sectors of the industry who want to do things better

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## CaGBC Vision

*A transformed built environment  
contributing to a sustainable  
future*

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## CaGBC Mission

*Promote buildings that are environmentally  
responsible, profitable, and healthy places to  
live, work and play by engaging a national  
coalition of industry leaders to accelerate the  
mainstream adoption of green building  
principles, policies, practices, standards and  
tools.*

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# Manitoba Chapter Launch

Monday, May 16, 2005



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## Manitoba Chapter

- The Manitoba Chapter exists to promote green building in Manitoba and to connect the province to the activities of the CaGBC and other Chapters across the country.
- We are comprised of a diverse collection of professionals representing a wide cross section of fields, who promote buildings that are environmentally and economically sustainable, and healthy places to live, work and play.

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## Our Vision for Manitoba

*A culture of environmental stewardship, and social & economic prosperity.*

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## Our Mission

*Through education, collaboration, networking and advocacy the Manitoba Chapter of the Canada Green Building Council will achieve its vision by being a leader, showcasing innovation, and inspiring our stakeholders to create life-enhancing built environments.*

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## Our Values

The following values guide the actions and decisions of the Manitoba Chapter:

- Stewardship
- Leadership
- Integrity
- Collaboration
- Innovation

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## MB Chapter Activities

- 1. Networking**
- 2. Education**
- 3. Collaboration**

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## Education: Building Tours



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## Education: Building Tours



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## Education: Presentations



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## Collaboration (2005)

### **June 1 – Integrate Business Model**

Toronto Regional Workshop

Canada Green Building Council

### **June 17 – Green Standards Meeting**

Treasury Board

Province of Manitoba

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## Green Building Network Organizations already participating

- Building Energy Management Manitoba (BEMM)
- Manitoba Home Builders Association
- Home Expressions / Home Expo
- National Research Council (NRC)
- International Facility Management Association
- Building Owners and Managers Association (BOMA)
- Manitoba Hydro
- University of Manitoba:
  - Faculty of Architecture
  - Faculty of Engineering
- **Manitoba Eco Network**  
[www.cagbc.org/chapters/manitoba.php](http://www.cagbc.org/chapters/manitoba.php)
- Manitoba Association of Architects (MAA)
- American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)
- Association of Professional Engineers and Geoscientists of the Province of Manitoba (APEGM)
- Manitoba Environmental Industries Association (MEIA)
- Professional Interior Designers Institute of Manitoba (PIDIM)
- Winnipeg Construction Assoc.
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## Chapter Membership

- 250 +/- on Chapter e-mail list as of December 31, 2006
- Growing ~10 - 20% per month
- More than 100% growth since launch



## Chapter Sponsorship

### Current Sustaining Sponsors

- Cement Association of Canada
- University of Manitoba

### Sustaining Sponsors

- Silver \$2,000, Gold \$3,500, Platinum \$5,000

### Event Sponsors

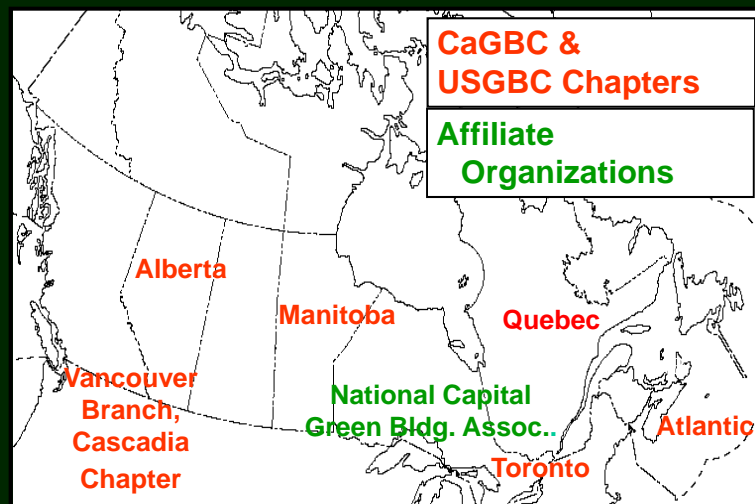
- \$500 / event

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## CaGBC Chapters



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## Canada Green Building Council



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## Environmental Impact of Buildings

- ~ 38% of total Canadian secondary energy use<sup>1</sup>
- ~ 30% of total Canadian greenhouse gas emissions<sup>2</sup>
- 40% (3 billion tons annually) of raw materials use globally<sup>3</sup>

\* Commercial and residential

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## What is 'Green Building'?

Design and construction practices that significantly reduce or eliminate the negative impact of buildings on the environment and occupants in five broad areas:



## What is 'Green Building'?

1. Sustainable site planning
2. Safeguarding water & water efficiency
3. Energy efficiency & renewable energy
4. Conservation of materials & resources
5. Indoor environmental quality



## Benefits of Green Buildings

- Environmental benefits
  - Reduce impact on the environment
- Economic benefits
  - Improve the bottom line
- Health and safety benefits
  - Enhance occupant comfort



## Economic Benefits The Hard Numbers

- Reduce operating costs
- Future Proofing
- Reduce or neutralize first costs
- Enhance asset value & increase profit
- Optimize life cycle economic performance
- Reduced Liability risk



## Economic Benefits The Soft Numbers

- Reduce liability
  - Improve risk management
- Increase retail sales with daylighting
  - Studies have shown ~40% improvement<sup>2</sup>
- Impact on Schools and Education



## Economic Benefits The Soft Numbers

- Improve productivity
  - Estimated \$29 –168 billion in national productivity losses per year<sup>1</sup>
- Reduce absenteeism and turnover
  - Providing a healthy workplace improves employee satisfaction



# What is LEED®?

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# LEED

GREEN BUILDING RATING SYSTEM

**Leadership in Energy & Environmental Design®**

A leading-edge system for designing, constructing, operating and certifying the world's greenest buildings.



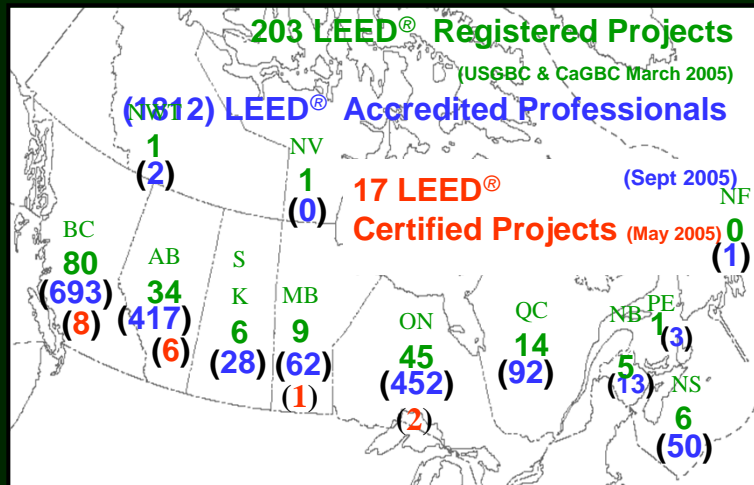


# Why was LEED® Created?

- Facilitate positive results for the environment, occupant health and financial return
- Define “green building” and prevent “greenwashing” (false claims)
- Promote whole-building, integrated design processes
- Transform the marketplace!



# LEED Projects & LEED APs





## Manitoba LEED® Buildings



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## LEED® in Canada

- PWGSC  
New large buildings LEED® Gold
- Cities of Vancouver and Calgary  
All new municipal buildings LEED®
- Dockside Green (Victoria)  
All buildings LEED® Platinum
- Toronto Waterfront Revitalization  
All buildings LEED® Gold

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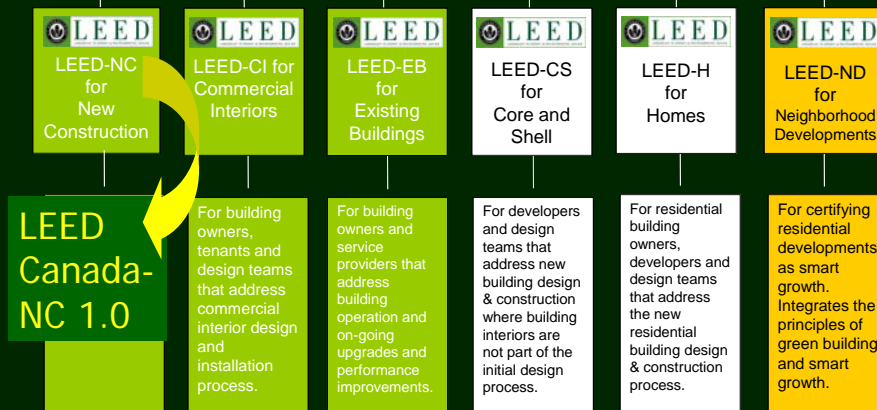


# LEED® Rating Systems

Operational

Pilot

Draft



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# LEED Rating System

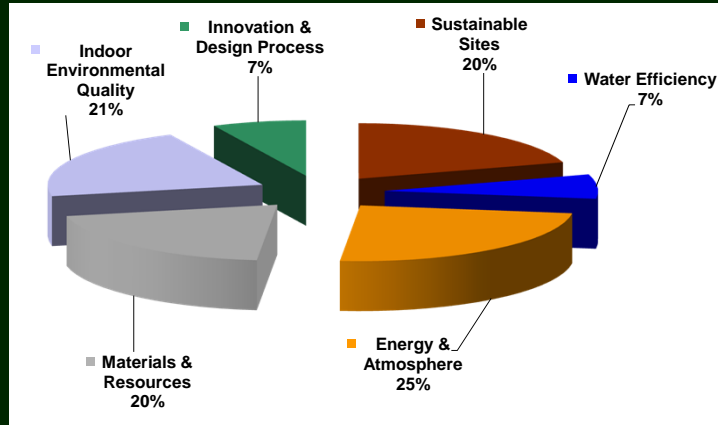
- 5 sustainable categories of concern
  - PLUS design process & innovation
- Rating system contains:
  - 7 prerequisites
  - 32 credits with 65 core points
  - 4 design process & innovation points
  - 1 LEED accredited professional point

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# LEED Point Distribution



# LEED Certification Awards

- Four levels of certification
  - LEED certified 26 - 32 points
  - Silver level 33 - 38 points
  - Gold level 39 - 51 points
  - Platinum level 52 + points
- 70 possible points



# Transforming Industry.

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## Transforming Industry

- In most construction projects, building materials are evaluated and selected based on performance, aesthetics, and cost.
- With "green" products, these traditional selection parameters are expanded to include both health and environmental impacts.

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

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## Transforming Industry

- The growing popularity of green buildings and green building programs (particularly the U.S. Green Building Council's LEED rating system - revised and adopted for Canada) is expanding both the demand for, and availability of, green products.



## Transforming Industry

- These changes are providing greater opportunities to improve the environmental performance of many building products.
- Shift towards a new design paradigm.



## Transforming Industry

- Instead of designing products and systems based on the take-make-waste model of the last century, products and services are being designed based on patterns found in nature.



## Green Products Environmental Attributes

- The majority of available green products have one or more of the following health and/or environmental attributes:
  - They promote good indoor air quality (typically through reduced emissions of VOCs and/or formaldehyde)
  - They are durable, and have low maintenance requirements;



## Green Products Environmental Attributes

- They incorporate recycled content (post-consumer and/or post-industrial);
- They have been salvaged from existing or demolished buildings for reuse;
- They are made using natural and/or renewable resources;
- They have low "embodied energy" (the energy required to produce and transport materials);
- They do not contain CFCs, HCFCs or other ozone depleting substances;

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

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## Green Products Environmental Attributes

- They do not contain highly toxic compounds, and their production does not result in highly toxic by-products;
- They are obtained from local resources and manufacturers;
- For wood or bio-based products, they employ "Sustainable Harvesting" practices;
- They can be easily reused (either whole or through disassembly);

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## Green Products Environmental Attributes

- They can be readily recycled (preferably in a closed-loop recycling system); and
- They are biodegradable.



## Green Products Characteristics

- The characteristics of green products can vary significantly depending on the material type.
- For example, the green attributes of a concrete mix, for instance, might include the use of fly-ash (a post-industrial recycled content material).



## Green Products Characteristics

- The green attributes of an interior paint might focus on low VOC content.
- Because of this high degree of variability, the evaluation of green products requires a working knowledge of:



## Green Products Characteristics

- Relevant health and environmental impact issues associated with different material types;
- Government, industry, and third-party standards for green products, where they exist; and



## Green Products Characteristics

- Available green products in the marketplace, including their specific green attributes, performance characteristics, appearance, and costs.



## Achieving LEED Credits

### Achieving LEED credits with Benjamin Moore Products:

1. Identified relevant LEED credit categories (to affect solely or as a team member).
2. Created A Product summary chart outline.
3. Created an Eco Spec Info Sheet.
4. Created a Benjamin Moore VOC Level Chart Legend.
5. Created a PowerPoint Presentation: Incorporating LEED into your specifications.



# Achieving LEED Credits

## EnviroGLAS Green Building Product Assessment and Evaluation:

1. Created an Environmental Policy Statement.
2. Created a marketing package outlining how their product is earth-friendly.:
  - EnviroGLAS is Made of Recycled Content
  - EnviroGLAS Conserves Natural Resources
  - EnviroGLAS Contributes to a Safe, Healthy Indoor Env't
  - EnviroGLAS is Sustainable
  - EnviroGLAS Saves Energy and Water
3. Created a fact Sheet on EnviroGLAS and LEED
4. [www.enviroglasproducts.com](http://www.enviroglasproducts.com)

[www.enviroglasproducts.com](http://www.enviroglasproducts.com)

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# Achieving LEED Credits



## Green Building Product Assessment and Evaluation

B. Kirk Teske, AIA, LEED AP  
Chairman of the USGBC North Texas Chapter

**Fact Sheet for use of EnviroGLAS Terrazzo on LEED® 2.0 Projects**  
EnviroGLAS® Epoxy Terrazzo Flooring is an environmentally beneficial construction material that can add significantly to the environmental goals of Green Buildings. Projects seeking certification under the U.S. Green Building Council's (USGBC) LEED® Rating System, Version 2.0, can expect this product to contribute to several of the LEED® credit areas. Of the 89 total points available, EnviroGLAS® Terrazzo can potentially contribute to 19 total points.

**Recycled Content Credit MR Credit 4.1 or 4.2 (1 to 2 points)**  
EnviroGLAS® Epoxy Terrazzo is comprised of Recycled Glass Aggregate, Recycled Glass Fibers, and Epoxy Resins. This product can be specified with 100% post-consumer glass or some mix of post-consumer and post-industrial product. The recycled content, by weight, of the final product is approximately 70%. As a result, up to 75% of the total value of the final product will contribute to the LEED® targeted percentages of total building recycled material value (2% Credit 4.1 and 10% Credit 4.2). A floor less percentage can be expected if you specify some of the post-industrial options.

**Regional Materials MR Credit 5.1 and 5.2 (1 to 2 points)**  
EnviroGLAS® Epoxy Terrazzo is fabricated and assembled on site therefore qualifying it as a regionally manufactured material. EnviroGLAS can produce the Recycled Glass Aggregate, Recycled Glass Fibers, and Epoxy Binders from regional sources (within 500 miles) for use in the final product assembly. With suppliers available across the United States, the use of EnviroGLAS® Epoxy Terrazzo can easily contribute to LEED® requirements for both Regionally Manufactured and Regionally Extracted materials on most U.S. Projects.

**Construction Waste Management MR Credit 2.1 or 2.2 (1 to 2 points)**  
EnviroGLAS® Epoxy Terrazzo can be a part of the construction waste management team – reducing glass waste and thereby avoiding disposal into the landfill. If desired, the salvaged glass can potentially be used in the flooring of the new building project.

**Low Emitting Materials – Adhesives and Resilient EQ Credit 4.3 (1 point)**  
EnviroGLAS® Epoxy Terrazzo utilizes binders, resins and primers with VOC limits that range from zero to 60 g/L (based on information provided to the reviewer). This is considerably below the VOC limits required for compliance with South Coast Air Quality Management District Rule #1288 VOC Limits and the Bay Area Air Quality Management District Regulation # Rule 16. Most of the epoxy manufacturers of zero and epoxy terrazzo systems have moved to 100% solids formulas, eliminating the addition of any VOC's to the material. EnviroGLAS can provide confirmation of VOC compliance from its epoxy manufacturer.

**Innovation in Design**  
EnviroGLAS® Epoxy Terrazzo can also potentially gain additional points under the LEED® Innovation in Design Category. Extensive use of this product as a permanent floor material can potentially result in an innovation with a Life Cycle Analysis that exceeds that of other floor materials. Extensive use could also contribute to the project existing in the Resource Conservation – reducing the total amount of waste handling required content value. These and other innovative materials can potentially earn the project additional LEED® Points. Items are awarded at the discretion of the reviewer (reviewer contacted with the USGBC).

EnviroGLAS® Products Inc. 3041 Laguna Drive Suite 204-2118  
Plano, Texas 75023. Phone: 1.888.523.7894. Fax: 772.746.6158. Website: [enviroglasproducts.com](http://enviroglasproducts.com)

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## Achieving LEED Credits

### EnviroGLAS Green Building Product Assessment and Evaluation:

EnviroGLAS® Epoxy Terrazzo flooring is an environmentally beneficial construction material that can aid significantly in the environmental goals of Green Buildings. Projects seeking certification under the U.S. Green Building Council's (USGBC) LEED® Rating System, Version 2.1, can expect this product to contribute to several of the LEED® credit points. Of the 69 total points available, EnviroGLAS® Terrazzo can realistically contribute to 7-plus project points.

[www.enviroglasproducts.com](http://www.enviroglasproducts.com)

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## Achieving LEED Credits

### Fact Sheet for use of EnviroGLAS on LEED®:

1. Fact Sheet for use on EnviroGLAS Terrazzo on LEED® 2.1 Projects.
2. Recycled Content Credit MR Credit 4.1 r 4.2 (1 to 2 points)
3. Regional Materials MR Credit 5.1 and 5.2 (1 to 2 points)
4. Construction Waste Management MR Credit 2.1 or 2.2 (1 to 2 points)
5. Low Emitting Materials - Adhesives and Sealants EQ Credit 4.1 (1 point)
6. Innovation in Design

[www.enviroglasproducts.com](http://www.enviroglasproducts.com)

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## Companies

Companies currently incorporating green principles:

- [www.interfaceflooring.com](http://www.interfaceflooring.com)
- [www.teknion.com](http://www.teknion.com)
- BASF, BP, S.C. Johnson, Nike, Ford Motor Company, Visteon, Volvo, Herman Miller, Victor Innovatex, Designtex, Rohner Textil, Pendleton, and Milliken & Co.



## Information and Sources

- “Incorporating LEED into your Specifications” by Keith Robinson, Master Specification writer and LEED AP, from his seminar at the RAIC Festival in Edmonton on May 5, 2005.
- “Translating LEED Requirements in the Built Form” by Peter Semchuk, CET, CCCA, LEED AP, Construction Canada July 2005 Vol. 47 No.4
- “Engineering a Sustainable World” by Interface Engineering. To order copies, go to [www.interface-engineering.com](http://www.interface-engineering.com) and fax or e-mail an order form for this free publication.



## Information and Sources

- "Cradle to Cradle: Remaking the Way We Make Things" by William McDonough and Michael Braungart
- Specification Guidelines and Green Product Standards:  
GreenSpec - The Environmental Building News Product Directory at [www.buildinggreen.com](http://www.buildinggreen.com)



[www.c2ccertified.com/](http://www.c2ccertified.com/)

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Thank You!