

LEED Opportunities

This guide is intended to outline opportunities available to achieve credits towards sustainable building in accordance with Leadership in Energy and Environmental Design (LEED®) Canada— NC Rating System 1.0 Addendum, March 2007. More comprehensive details, including assessment tools, are available upon request.

The Following opportunities exist when using Brown's Concrete Hardscape Products:

1. Waste Management (MR) Credits 2.1 & 2.2
2. Resource Reuse (MR) Credits 3.1 & 3.2
3. Recycled Content (MR) Credits 4.1 & 4.2
4. Local/Regional Material Use (MR) Credits 5.1 & 5.2
5. Durable Building (MR) Credit 8
6. Reduce Site Disturbance (SS) Credits 5.1 & 5.2
7. Stormwater Management (SS) Credits 6.1 & 6.2
8. Heat Island Effect (SS) Credits 7.1 & 7.2
9. Water Efficiency (WE) Credits 1.1, 1.2, 2, 3.1 & 3.2
10. Flexible by Design (ID) Credit 1.x

Waste Management (MR) Credits 2.1 & 2.2 (Points: 2)

The ultimate objective is to prevent materials from landfill disposal; because the measurements are typically made on a weight basis and concrete products are a relatively heavy construction material, it is imperative to redirect the associated by-products from disposal. Saw-cut scraps and broken pieces can be crushed and reused onsite as fill material. Intact and unused product can typically be returned for re-sale, redirected to other projects, or donated to charitable organizations such as Habitat for Humanity.

With respect to the packaging, pallets can be returned to the manufacturing plant for continued use, while the plastic wrap and/or banding can be recycled in most municipalities.

Resource Reuse (MR) Credits 3.1 & 3.2 (Points: 2)

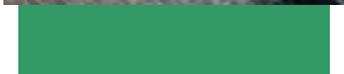
Although similar to the previous, the intent herein is to reuse salvaged building materials and products in order to reduce demand for virgin materials, and to reduce waste. When an existing building is demolished, materials can be salvaged and reused in either the same application, or reprocessed for a different use in the new project. Reused pavers or retaining wall blocks salvaged on-site are examples of the former, while crushed concrete used as road base or retaining wall backfill typifies the latter.

It is important to note that the salvaged materials can be sourced from other sites. As these credits are done on a cost basis, the value of any salvaged material irrespective of source can be used to offset the total material costs.

Recycled Content (MR) Credits 4.1 & 4.2 (Points: 2)

The basic ingredients of concrete include cement, aggregates, water and pigments. The cement used in the production of our concrete products contains 6% post-industrial recycled material. Being Supplementary Cementing Materials, there is a double benefit of reducing cement requirements while utilizing a waste material; as a result, the LEED Canada credit applies a multiplier of 2 to the reduction in cement content. The pigments used to create our vibrant coloured products contain 65% post-consumer recycled materials.

The use of recycled materials as aggregate alternatives and recycled mix water are under ongoing investigation. At Brown's, we do not want to compromise quality for the sake of potential credits.



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**A Commitment to
Quality as Strong as
our Product.**

Local/Regional Material Use (MR) Credits 5.1 & 5.2 (Points: 2)

Aggregates, which constitute approximately 84% by weight of our concrete products, are from sources and reserves located within 25 km of our manufacturing facility. Our cement is derived from the nearest available manufacturing facility to us. Ultimately, less than 1% by weight of the materials used in production of our products comes from beyond a 400 km radius.

Our centralized location in Sudbury not only brings us to within an 800 km radius of all major communities within Northern and Southern Ontario, but also places us at the crossroads of the main inter-Canada rail lines. Our close proximity to shipping terminals in Killarney and Manitoulin make barging another transportation alternative.

Durable Building (MR) Credit 8 (Points: 1)

Although the building envelope is of primary consideration when assessing durability, it is clear that hardscape products should also be considered therein as they too have long term maintenance, repair and replacement costs due to environmental exposure.

With our aggregate supply being derived from granite, which is one of the hardest and most durable construction materials in use, Brown's products have proven to be some of the strongest in the industry. According to the Interlocking Concrete Pavement Institute, the durability of concrete products coupled with proper installation practices results in a proven long service life.

Reduce Site Disturbance (SS) Credits 5.1 & 5.2 (Points: 2)

Both Permeable paver systems, like our AquaPave® System, and retaining walls, like our Rosetta® and Parkwall Systems, have been effectively used to reduce the development footprint and in turn provide more open natural areas. With permeable paver systems, parking, infiltration and detention facilities are all combined in one location, therein reducing if not eliminating the need for retention ponds. Retaining walls have been used to maximize usable space by allowing for significant grade changes with a very small footprint.

Stormwater Management (SS) Credits 6.1 & 6.2 (Points: 2)

Permeable pavers systems are becoming recognized by several regulatory agencies as a Best Management Practice (BMP) for dealing with stormwater onsite. Runoff rates from commonly recurring rainfall events are reduced by up to 100%. Treatment of nutrients, removal of metals, and buffering of pH are all proven benefits. Where the proprietary Inbitex® is used as part of the AquaPave® System, hydrocarbon contamination can also be dealt with.

Heat Island Effect (SS) Credits 7.1 (Points: 1)

Light coloured pavers are used extensively for non roof applications to help reduce the Heat Island Effect. Brown's has had tests conducted on several colour shades, with and without white cement added, to verify which blends meet the necessary albedo rating of 0.3 (albedo being a measure of the products solar reflectance).

Water Efficiency (WE) Credits (Points: 5)

Water efficiency opportunities exist where permeable paver systems are used for water harvesting. The water can be used for landscape irrigation (Credits 1.1 & 1.2) and/or grey water purposes (Credit 2), therein reducing the burden on municipal water supply and wastewater systems (Credits 3.1 & 3.2).

Innovative Design (ID) Credit 1.x (Points: 1-4; Max. Points in ID Category are 4)

Hardscape products can be used for both structural and aesthetic purposes, and provide a wide range of profiles, textures and colour options that require little or no additional treatment to achieve aesthetically pleasing results. The wide range of modular component sizes allows their use on intricate designs both on the exterior and interior of buildings; examples of the latter include inside courtyard garden/retaining walls or paving of roof/parking decks.

Additional innovative design alternatives with permeable pavers could include: recharge of groundwater; roof water management; de-icing salt reduction; and, tree root protection.