Think Sustainability

CLAY BRICK Association of Canada
According to the World Business Council, the building and construction industry uses three billion tons of raw materials annually. Moreover, operation and maintenance of buildings account for 40% of the world’s total energy consumption. Not surprisingly, in an industry so dependent upon natural resources, the development of a comprehensive global standard for environmental sustainability is now a vital priority.

So what exactly is sustainability? The most widely accepted definition, as it relates to building and construction, was agreed upon at a 1987 United Nations conference, and comprises those initiatives which

“meet present needs without compromising the ability of future generations to meet their needs”

Specifically, sustainability initiatives must strive to:
- Reduce material requirements
- Reduce energy requirements
- Reduce toxins from products and processes
- Increase durability
- Increase recyclability
- Increase use of renewable resources

In order to comply consistently with the criteria of sustainability as they relate to this concept, building materials, as well as the methods by which they are produced, must accommodate the needs of their present end-users, minimize depletion of the earth’s precious natural resources – both finite and renewable – and remain benign relative to ecosystems.

Clay, the principal component of clay brick, occurs naturally and abundantly throughout the world. And, since after 'processing,' the final product – clay brick – remains chemically inert and virtually identical to the natural deposits from which it is made, clay brick can, in many respects, be viewed as a building material which is naturally sustainable.

### Improved Resources Management

Canada’s clay brick industry adheres to strict operating principles which ensure the choices of future generations are not compromised by activities of the current one. To that end, once mining operations at a quarry are complete, the land is carefully and meticulously backfilled and returned to a state as close as possible to what it had been, to ensure that it continues to offer future generations equivalent potential for use and development.

As an example, the site of a major clay quarry in Cooksville, Ontario, which was formerly operated by a leading clay brick manufacturer, has been successfully reclaimed and developed following closure of the quarry, and is now home to a thriving community of family housing, parks and community facilities.

The goal of the Clay Brick Association of Canada’s members is to make clay mining operations environmentally neutral. In fact, from one perspective, it actually optimizes benefits from the land for current and future generations; if quarry land had actually been developed before the clay was mined, future generations would not have had the opportunity to access that clay. And, although the clay used to make clay brick is a very prevalent natural resource (existing resources will supply the needs of humans for thousands of years to come), Canadian brick manufacturers work diligently to ensure quarry sites are reused responsibly and efficiently, by redeveloping them in a manner consistent with the criteria of the sustainability concept.
Clay Brick: Reduced Energy Consumption

Another key criterion of sustainability is a reduction in the amount of energy required to produce building materials. Over the past twenty years, Canada's clay brick industry has successfully committed to and accomplished a significant reduction in the energy needed to manufacture brick. It's working. In 2004, the energy required to manufacture a clay brick is just 50% of what it was in 1981.

Another aspect of sustainability which contributes positively to reducing energy consumption is dematerialization within the manufacturing process. In short, dematerialization translates to doing more with less. One of the goals of sustainability is to accomplish dematerialization without compromising the quality or performance attributes of the product or project.

In addition to energy reductions within the manufacturing process, clay brick has an intrinsically high thermal mass coefficient, which reduces the energy requirements of heating and cooling a building. Again, when one considers energy savings in manufacture and use of building products, clay brick is a natural choice.

Clay Brick: Reduced Emissions for a Cleaner World

In December of 2002, the Federal Government of Canada ratified the Kyoto Protocol, a UN-sanctioned initiative which established minimum reduction targets for greenhouse gas emissions, in order to ensure that the world's ecosystems would remain sustainable.

Subsequently, Canada has approved a national strategic action plan of action for the implementation of sustainable developments with measurable indicators. And Canada's clay brick manufacturers are on track to achieve the goals envisioned at Kyoto.

The clay brick industry has aggressively reduced environmental emissions and effluents throughout all steps in the manufacturing process. For instance, the sediment ponds used to collect runoff from mining and manufacturing plants already meet or exceed provincial environmental standards.

Clay Brick: Mother Nature Makes It Virtually Inert

Since clay occurs naturally, it is virtually inert and remains so when formed into bricks. Consequently, clay brick is the only cladding material which emits no gases, needs no maintenance, and is impervious to chemical leaching. Moreover, brick is naturally fireproof and requires no coatings or cleaning products which could potentially produce environmentally harmful off-gassing, or toxic fumes when burning.
Building Timeless Beauty One Course at a Time

Another important facet of sustainability in building materials is durability. As Keats once wrote, “a thing of beauty is a joy forever.” Forever is a long, long time, but when it comes to lasting beauty, buildings constructed with clay brick have proved throughout history they can stand the test of time. Durability translates into lower environmental life cycle costs.

Century old brick homes are almost commonplace. Great castles, churches, houses, walls and many other types of buildings not only remain, but are in fact still in use hundreds, even thousands, of years later. Such beautiful and lasting edifices give us insight into our ancestral connections and also serve to inspire our commitment and global responsibility to the world’s future generations.

Available in Many Colours — All of Which Are Green

In addition to its aesthetic beauty and innate durability, clay brick is virtually inert and is used in its natural state. Therefore, it is an environmentally neutral building material. Moreover, the manufacturing process which creates clay brick is also environmentally benign. The LEED Building Rating System (Leadership in Energy & Environmental Design) is a voluntary building rating system which evaluates and rewards construction compliance with principles of environmental performance on a holistic or ‘whole-building’ perspective. LEED points can be earned through compliance within a number of earth-friendly building objectives, including:

- Site sustainability
- Water efficiency
- Energy and atmosphere
- Materials and resources
- Indoor environmental quality
- Innovation & design process

For more information on the LEED system relative to the use of clay and concrete masonry building products, see the Guide to Sustainable Design with Concrete, available from Masonry Canada.

The Clay Brick Association of Canada’s members are:

Brampton Brick, Hanson Brick, JAZBRICK, Paisley Brick and Shaw Brick.

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