

### Concrete Production

Concrete draws upon some of the earth's most common and abundant minerals for its raw materials. Portland cement, which makes up about 12 percent of concrete, is manufactured from limestone, clay and sand. Sources of aggregates are plentiful: sand, gravel and crushed stone. A growing list of recycled materials supplement the three basic ingredients of cement, water and aggregate. In addition to aggregate, concrete may contain recycled materials such as slag or fly ash, diverting these materials from landfills. The concrete facility uses measures to conserve water and energy in operations. All of these responsible measures reduce the carbon footprint.

Even the actual process of making cement can use recycled materials. High-energy wastes such as old tires can be safely recycled as fuel for the cement-making process. Each year, a single cement kiln could recycle one million tires, conserving fossil fuels and placing less demand on landfill space. Other recycled waste includes used motor oil, disposable diapers, industrial solvents and sludge.

The concrete industry has an ECO Concrete Facility Certification program available to recognized provincial concrete associations across Canada. ECO is a voluntary facility identification of environmental compliance and sustainable practices.

### Transportation

Concrete and its constituent materials are highly local or regional. Wood and steel products, on the other hand, typically travel hundreds or even thousands of miles. GPS dispatch delivery systems will optimize truck delivery and minimize road congestion and delivery times on site.

### Storm Water Management

Pervious Concrete for driveways, parking lots and common areas are a sensible way to have rain water just infiltrate into the ground. This replenishes Aquifers, diverts storm water from rivers and streams and takes the burden off of water treatment facilities. Water can also be collected and recycled.

### Additional Information

To find out more about residential concrete products and how the concrete experts in each province can assist your team in building Green, visit [www.crmca.ca](http://www.crmca.ca) where all Canadian provincial concrete associations are listed. You can also visit the concrete residential website at [www.concretethinker.com](http://www.concretethinker.com). These sites give builders, designers, architects, developers and city planners information on how concrete products contribute to sustainability.

ATLANTIC CONCRETE ASSOCIATION ..... [www.atlanticconcrete.ca](http://www.atlanticconcrete.ca)  
 ASSOCIATION BÉTON QUÉBEC ..... [www.betonabq.org](http://www.betonabq.org)  
 READY MIXED CONCRETE ASSOCIATION OF ONTARIO ..... [www.rmcao.org](http://www.rmcao.org)  
 MANITOBA READY MIX CONCRETE ASSOCIATION ..... [www.mrmca.com](http://www.mrmca.com)  
 SASKATCHEWAN READY MIXED CONCRETE ASSOCIATION INC. .... [www.srmca.org](http://www.srmca.org)  
 ALBERTA READY MIXED CONCRETE ASSOCIATION ..... [www.armca.net](http://www.armca.net)  
 B.C. READY-MIXED CONCRETE ASSOCIATION ..... [www.bcrmca.bc.ca](http://www.bcrmca.bc.ca)  
 CEMENT ASSOCIATION OF CANADA ..... [www.cement.ca](http://www.cement.ca)



### Storm Water Management


Energy Efficiency  
 No Mold or Mildew  
 100% Recyclable  
 Minimize Waste  
 Colour & Texture  
 Property Protection  
 Ease in Construction  
 Thermal Mass

### Responsible Concrete Suppliers

Polished and Stained Floors  
 Concrete Countertops  
 Indoor Air Quality  
 Insulated Walls  
 Water Collection  
 Radiant Floors  
 Quiet







You might already know that concrete offers exceptional stability, durability and design flexibility for the residential marketplace, however you may not realize how many important environmental advantages are offered through every stage of manufacturing and use, and because old concrete can be 100% recycled, the cycle can continue indefinitely. In fact, concrete is one of the single most environmentally friendly construction products available. Here are just a few of the reasons:

### Energy Efficiency

The thermal mass of concrete buildings and homes saves energy year-round by reducing temperature swings. During the air-conditioning season, the building will require cooling mainly at night – an off-peak time when electric companies can produce power more efficiently and conserve fossil fuels. Many of today's concrete wall systems, such as Insulating Concrete Forms (ICFs) combine the mass of concrete with foam insulation. The resulting exterior wall envelope utilizes thermal mass, reduced air infiltration and increased R value that can reduce heating and cooling costs by as much as 40 percent.

Radiant floor heating with concrete suspended and on-grade floors is gaining popularity providing ease of construction and comfort assisting in energy efficiency.

### Durability and Property Protection

Concrete doesn't rust, rot, or burn, reducing the need for maintenance and reconstruction. Housing stock, which might have to be torn down and rebuilt after a few decades, can stand for generations when concrete wall systems are utilized. Homes that might otherwise succumb to natural disasters have an increased likelihood of surviving events such as hurricanes, tornados and fires when concrete products are used in place of wood. Concrete is not damaged by moisture and can generally "breathe" and dry if not prohibited by adjacent structures. Homes built with concrete provide a quiet indoor environment. Concrete driveways will far outlast their asphalt competitors, while items such as fibre-cement siding are much more durable than competing cladding materials. By simply outlasting other materials, concrete conserves energy and resources.

### Healthier Indoor Environment

Concrete promotes a healthier indoor atmosphere. In homes built with exterior concrete framing systems, the solid concrete walls act as a continuous barrier against air infiltration, which can greatly reduce the level of airborne dust and allergens when a fresh air exchanger and humidifier are used. Concrete floors offer a healthy environment as well, and do not promote the growth of mold or mildew.

### Concrete Homes Increasing in Popularity

The percentage of homes built with concrete walls is increasing as builders and buyers better understand the features and benefits of concrete in their homes. The difference can't be measured only by numbers, but also by attitudes. Not many years ago, the very idea of building a concrete home drew either blank stares or prompted questions about why anyone would want to do such a thing. Now, however, many consumers have heard of the concept, understand its benefits, and want to know how much it will cost and where to find the nearest supplier or builder. They want proven construction systems. A combination of factors is driving this change – a rise in energy prices, an increase in the amount and destructiveness of natural disasters, and the phenomenal rise of the green building movement have all played their part.

### Aesthetic Considerations

Many people still have the mistaken perception that a concrete home looks not unlike a bunker or fallout shelter. In fact, with most concrete wall systems in use today, it's impossible to drive down the street and pick out which home is concrete. Typically, the interior surface is finished with drywall, or with some systems such as precast concrete, are simply painted. Exterior finishes can include siding, stucco, brick or stone. The main difference is that the walls of a concrete home are thicker, however the only way to tell on a finished home is by the greater depth of the windowsill – a definite bonus in the eyes of many homeowners. For both outdoor and indoor areas, decorative concrete is rapidly growing in popularity. Traditional concrete flatwork can be stained, stamped, stenciled or polished to achieve a wide variety of patterns, colours and textures. Exposed basement walls are being coloured to match the exterior. Beautiful custom concrete countertops can achieve a similar range of styles.

### Waste Reduction

Concrete simplifies construction by minimizing the number of different building products involved – less sheathing and insulation, and fewer components than wood-frame construction. Plus, concrete is manufactured on an "as needed" basis, eliminating the waste inherent in sheet goods and dimensional products for framing. Building with concrete puts less waste in our landfills. If replacement or demolition is required, old concrete can be ground up and reused as coarse aggregate, fill or pavement sub-base material.

### Concrete Performance

Because of its ability to provide total performance, concrete is no longer considered a commodity; it is a Strategic Construction Material. Concrete construction is easy, as concrete is readily manufactured to reduce labour from placement in walls and floors (Self-Consolidating Concrete SCC), to provide interior or exterior architectural finishes, minimizing waste and of course assisting in building to Green Building Standards.



**Every building material consumes resources and takes a toll on the environment, with even fully recycled products consuming energy. But the true measure of a product's environmental impact is sustainability – satisfying our current needs without sacrificing our ability to meet the needs of future generations.**