

Section 7

Green Building and LEED Certification

- 7.1 Sustainable Building Construction
- 7.2 Energy Efficient Buildings
- 7.3 Energy Efficient and Environmental Design and Construction Protocols
- 7.4 Fox Blocks ICF Walls and Sustainable Building Construction



Section 7: Green Building and LEED Certification

7.1 Sustainable Building Construction

In 1983 The United Nations commission known as the Bruntland Commission developed the concept of sustainable development. It is an elegantly simply concept which is easy to understand and should be straight forward to put into practice. The definitions is:

“Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”

This concept can be applied all the way from use of non-renewable natural resources to climate change and the initiatives to reduce the release of greenhouse gasses. This has evolved, with respect to material use, to concepts such as cradle-to-grave and then to cradle-to-cradle. Concepts such as environmental-foot-print, carbon-foot-print and zero-energy-houses, all describe initiatives to reduce our present impact on the environment so that future generations can enjoy access to these resources.

It is easy to see that this concept of sustainable development can be considered for design, construction and operation of buildings. That is where Fox Blocks ICF Wall Systems fit in very well.

During the construction phase there is typically significantly less waste generated at Fox Blocks jobsites, as the reversible interlock enables most cut-offs to be used elsewhere in the build. This more efficient use of materials reduces the environmental impact associated with construction

It is well recognized that the operation of buildings in the US consumes 40% of the total energy used and more than 60% of the electrical energy used in the US. Therefore, design, construction and operation of buildings so as to use less energy is a significant step towards achieving a sustainable economy and society.

Fox Block ICF walls can be part of this movement towards green construction and sustainable buildings. Fox Block walls have high continuous insulation values as well as the ICF Effect (see Chapter 8). These enable buildings with Fox Block walls to have excellent thermal performance, reducing energy consumption and costs of operation, while maintaining a very comfortable interior environment.

It is acknowledged that the Fox Block forms and the concrete placed in the forms have significant embodied energy, however over the service life of the building, the savings in energy consumed in operation of the building will be many multiples of the embodied energy in the Fox Blocks walls. Further, concrete structures are very durable and so should remain in active service many years longer than a typical frame structure. This means the Fox Block walls provide the opportunity for continued beneficial returns in the form of reduced energy requirements for decades longer than typical construction. Quite simply decisions made in the design of a building can determine the energy cost of the building for decades. Fox Block walls are part of the movement towards sustainable buildings.



7.2 Energy Efficient Buildings

Energy efficient buildings are buildings which through their design, construction and operation consume less energy than typical buildings in a region.

As noted earlier buildings consume 40 % of the total energy used in the USA and 60% of the electricity used in the USA. Achieving savings in the energy performance of buildings will have a big impact on the reduction in use of energy, reduction in release of green house gasses and improved energy security.

Innovators and industry have developed many technological improvements that reduce the energy consumption of buildings. Fox Block ICFs are such a development because they provide enhanced thermal performance for the occupants over the service life of the building.

The construction and operation of energy efficient buildings are seen as a real benefit to society. All levels of government and many governmental agencies have, are and will continue to implement programs to encourage and accelerate this change in society. Several well known examples are Energy Star and Environmental Choice ECO LOGO. Programs such as these incent people to make decisions to more energy efficient and sustainable practices.

There are many other programs which encourage this change in behaviour to lead to the construction of more energy efficient buildings. Examples are Leadership in Energy and Environmental Design (LEED) and the program developed by the NAHB-RC around the National Green Building Standard they developed. In addition there are many local and state or provincial programs as well, so check with you municipal levels of government and your state or province. Also the utility companies in your region many have programs or information about locally available programs which you may be able to take advantage of.

Collectively we are making progress. This can most easily be seen as the 'best practices' of 5 or 10 years ago are no longer 'best practice'. It is a positive reality that the bar is continually being moved higher. With each new round of incentives the energy efficiency and other environmental metrics are raised to a new higher level.



7.3 Energy Efficient and Environmental Design and Construction Protocols:

7.3.1 Leadership in Energy and Environmental Design (LEED)

The best known sustainable development design and construction protocol is LEED. LEED programs have been developed and are being used in 16 countries including USA and Canada.

In the USA there are 2 LEED Guides for which Fox Block ICF can make a contribution to the project point score:

LEED 2009: Reference Guide for Green Building Design and Construction for the Design, Construction and Major Renovations of Commercial and Institutional Buildings Including Core & Shell and K-12 School Projects, and

LEED 2008: Reference Guide For Homes.

Of interest to us is what sections Fox Block walls may make contributions to the LEED point scores. For the LEED 2009 Guide, Fox Block walls may contribute to point(s) in the following sections:

- EA Prerequisite 2, Minimum Energy Performance
- EA Credit 1, Optimize Energy Performance
- MR Credit 4, Recycled Content
- MR Credit 5, Regional Materials (within 500 miles of Omaha)
- Schools: IEQ Credit 4.6, Low-Emitting Materials – Ceiling and Wall Systems

For the LEED 2008 Reference Guide For Homes, Fox Block walls may contribute to point(s) in the following sections:

- ID 2, Durability: Planning, Management & Verification
- EA 1, Optimize Energy Performance
- EA 2, Insulation
- EA 3, Air Infiltration
- MR 2, Environmentally Preferable Products
- MR 3, Waste Management
- EQ 10, Garage Pollutant Protection

In Canada the current guide is the LEED Canada Reference Guide for Green Building Design and Construction 2009 (NC & CS). This guide addresses the requirements for New Construction and Major Renovations (NC) and Core & Shell (CS). With this protocol Fox Blocks walls may contribute points in the following sections:

- EA Prerequisite 2, Minimum Energy Performance
- EA Credit 1, Optimize Energy Performance
- MR Credit 4, Recycled content
- MR Credit 5, Regional Materials
- RB Credit 1, Durable Buildings



7.3.2 NAHB Standard and Administrative Protocol

Recently the National Association of Home Builders (NAHB) and its research subsidiary (NAHB-RC) developed the National Green Building Standard, ICC 700-2008.

The NAHB-RC is also set up to administer both the House Certification Program and the Green Approved Products Certification Program.

With the National Green Building Standard Fox Block walls may contribute towards credits in:

- Recycled- Content Building Materials, Section 604.1
- Building Envelope, Section 703.1
- Insulation and Air Sealing, Section 703.2

7.4 Fox Blocks ICF Walls and Sustainable Building Construction

Sustainable development, sustainable construction and green building are dynamic growth areas with frequent new developments.

Fox Blocks walls are well positioned in this growing field to be a cost effective wall system with specific contributions towards:

- Market for recycled materials,
- Reduced waste from the construction,
- Energy efficient building operation and
- More durable buildings.

The decision to build with Fox Blocks ICF Wall Systems is a significant step towards making our society more sustainable, while at the same time increasing the comfort and security of the building occupants.

