

10.1 GREEN BUILDERS

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Green Builders

The trend toward “Green”, sustainable, environmentally responsible construction is here to stay. Pick up any newspaper or magazine and you’ll see that the trend is exploding, both in residential as well as commercial construction. In fact, many local, state and federal agencies are now adopting Green building standards as a way to preserve our natural resources and reduce our dependency on fossil fuels.

As members of the United States Green Building Council (USGBC), National Association of Homebuilders Green Building Program (NAHB) and the Green Building Initiative (GBI), Greenblock is committed to providing products and services to the Green Building community that will result in conservation of our natural resources. Public and private building owners are demanding high-performance, earthfriendly construction methods and materials. It has been documented that the ongoing energy use of a building is the single greatest environmental impact of that building and continues to impact the environment for decades, even centuries.

What is LEED?

Leadership in Energy and Environmental Design (LEED) is a rating system devised by the United States Green Building Council (USGBC) to evaluate the environmental performance of a building and encourage market transformation towards sustainable design. The system is credit-based, allowing projects to earn points for environmentally friendly actions taken during construction and use of a building. LEED was launched in an effort to develop a “consensus-based, marketdriven rating system to accelerate the development and implementation of green building practices.” The program is not rigidly structured; not every project must meet identical requirements to qualify.

LEED was created to:

- define “green building” by establishing a common standard of measurement

- promote integrated, whole-building design practices
- recognize environmental leadership in the building industry
- stimulate green competition
- raise consumer awareness of green building benefits
- transform the building market

LEED provides a complete framework for assessing building performance and meeting sustainability goals. Based on well-founded scientific standards, LEED emphasizes state of the art strategies for sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality.

LEED recognizes achievements and promotes expertise in green building through a comprehensive system offering project certification, professional accreditation, training and practical resources.*

*Excerpt from U.S. Green Building Council's website

Detailed information on the LEED program and project certification process is available from USGBC at <http://www.usgbc.org/>.

Using Greenblock Insulated Concrete Forms for the exterior walls of your home or building can be a major contributor toward LEED certification.

Points towards LEED certification can be gained in two ways:

1. **Directly** - By meeting a LEED requirement.
2. **Indirectly** - By enabling/facilitating a LEED requirement or by reducing the incremental cost of a LEED requirement.

Direct Points

The following are points that can be gained directly by using ICF.

Energy & Atmosphere Prerequisite 2 – Minimum Energy Performance (Required) An ICF building envelope exceeds the mandatory performance requirements defined in ASHRAE 90.1 for insulation, thermal mass, and reduced air infiltration.

Energy & Atmosphere Credit 1 – Optimize Energy Performance (1-10 Points) An ICF building envelope will significantly reduce the heating and cooling loads through its contribution to thermal insulation, thermal mass and reduced air infiltration. These features add to the overall building

performance, which combined with other systems could significantly optimize energy performance.

Materials & Resources Credit 2 - Construction Waste Management (1-2 Points) Waste generated by ICF construction is typically as low as 1-5%. When compared to the waste of alternative methods of construction this is a significant reduction. In addition, the EPS used in ICF is recyclable and often construction waste may be resold to the manufacturer.

Materials & Resources Credit 4 – Recycled Content (2 Points) The polypropylene webs in most ICFs are typically made of 100% post-industrial recycled materials and often make up approximately 60% of the product by weight. In addition, Portland cement used in the form cavity can contain a significant amount of fly ash (recycled).

Materials & Resources Credit 5 – Regional Materials (1-2 Points) Depending on the building site location, some or all of the ICF materials may have been manufactured within a 500 mile radius (If the product is shipped by water or rail, this radius is expanded to 1500 miles). In addition, it is highly likely that the aggregate concrete used to fill the forms will qualify.

Indirect Points

The following are points that can be gained indirectly by using ICF.

Sustainable Sites Credit 5 – Protect or Restore Habitat (1 Point) ICF construction can help to protect the habitat on a construction site. Bracing is typically installed only on the interior of the structure and minimal construction activity occurs outside the perimeter.

Sustainable Sites Credit 7 – Landscape and Exterior Design to Reduce Heat Islands, Non-Roof (1 Point) ICF walls provide designers with greater flexibility when choosing exterior finish materials, including light colored and highly reflective finishes.

Energy & Atmosphere Credit 2 – Renewable Energy (3 Points) As the energy performance of a building is improved with an appropriate design using ICF, the total energy use of a building will also be reduced. As a result, a given amount of renewable energy generation will make up a larger percentage of total energy.

Energy & Atmosphere Credit 6 – Green Power (1 Point) As the energy

performance of a building is improved with an appropriate design using ICF, the total energy use of a building will also be reduced. As a result, the cost to purchase a green power contract will be reduced.

Materials & Resources Credit 7 – Certified Wood (1 Point) With ICF construction the need for wood framing is reduced. As a result, the incremental cost to use certified wood products is also reduced.

Materials & Resources Credit 8 – Durable Building (1 Point) As a building envelope product, ICF is highly durable and accommodates several water damage protection strategies (for damp-proofing and waterproofing) that can be practiced on a site specific basis.

Indoor Environmental Quality Prerequisite 1 – Minimum IAQ Performance (Required) ICFs release zero VOCs and/or air borne particulates post-construction and any adhesive and/or caulking required during construction can be met using low VOC levels. The walls also have very low air infiltration. The requirements for ventilation defined in ASHRAE 62.1 can be met easily without concern for contaminants from the wall envelope.

Indoor Environmental Quality Credit 2 – Ventilation Effectiveness (1 Point) When properly installed, ICF will contribute to an airtight envelope which would make it much easier for the HVAC designer to achieve increased ventilation while minimizing energy consumption.

Indoor Environmental Quality Credit 3 – Construction IAQ Management (2 Point) ICFs release zero VOCs and/or air borne particulates post-construction and any adhesive and/or caulking required during construction can be met using low VOC levels. This leads to an improved IAQ for workers and occupants during construction. In addition, ICF is moisture resistant and will not promote the growth of mold and mildew ensuring that the IAQ standards can be met before occupancy.

Indoor Environmental Quality Credit 6 – Controllability of Systems, Perimeter (1 Point) As the energy performance of a building is improved by using ICF in the design, the thermal frequency will be reduced. As a result, the designer will have more control over ventilation systems, and more freedom to incorporate operable windows into the regularly occupied areas.

Indoor Environmental Quality Credit 7 – Thermal Comfort (1 Point) The air tightness and thermal mass of an ICF envelope facilitate the

implementation of design features that address thermal comfort such as controls for temperature, thermal radiation, humidity and air flow.

Indoor Environmental Quality Credit 8 – Daylight & Views (1 Point) As the energy performance of a building is improved by using ICF in the design, the thermal frequency will be reduced. As a result, the designer will have more control over ventilation systems, and more freedom to design a window layout such that daylight exposure and views are improved.

Conclusion

We hope that this has helped to clear up some of the confusion about how ICF can contribute points towards LEED Certification. It is important to understand that each individual case will produce different results but overall, using ICF for the exterior building envelope of a structure can contribute significant points.

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