

Concrete Points to Green

ICFS PROVIDE THE ENERGY SAVINGS REQUIRED BY GREEN-BUILDING PROGRAMS

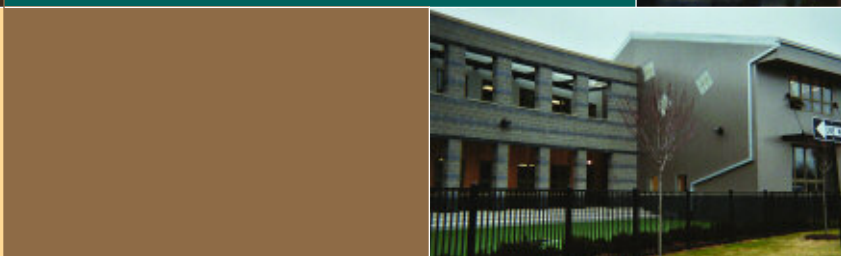
BY VERA M. NOVAK, LEED AP

THE QUESTION HAS CHANGED from “should we go green” to “how do we do it.” The initial flurry of youthful enthusiasm now has morphed into the more laborious challenge of implementing these great ideals. The need emerged for an “organic” stamp of approval, which in turn generated a plethora of benchmark performance criteria as tools and guidance for the building trades. These too have evolved and gained greater clarity of purpose. Initially enamored with sexy new green materials, many of these checklists have refocused on the core issue: The most significant environmental impact of a building is the lifetime cost of heating and cooling the building—energy savings.



CLEARVIEW ELEMENTARY SCHOOL, HANOVER, PA., ACHIEVED A LEED GOLD RATING. ITS INSULATING CONCRETE FORMS HELPED CAPTURE ALL 10 ENERGY OPTIMIZATION POINTS.

PHOTOS COURTESY OF ECO-BLOCK, DALLAS





[Top] Insulating concrete forms are stacked like blocks and filled with reinforced concrete. PHOTO COURTESY OF TEAM OXYGEN, SALT LAKE CITY

[Bottom] Insulating concrete form walls provide continuous insulation for the Surry Grand Crown Resorts, Branson, Mo. PHOTO COURTESY OF REWARD WALL SYSTEMS INC., OMAHA, NEB.

Energy savings is at the core of the U.S. Green Building Council's (USGBC's) LEED programs. In LEED for New Construction, energy optimization can earn up to 10 points out of a possible 69. Equally important, such a building will enjoy a minimum of 42 percent energy savings during its lifetime. Just think about the reduction in consumption of natural resources.

On the residential side, the newly proposed LEED for Homes awards 10 points for an ENERGY STAR with Indoor Air Package designation and another two points (a maximum of 16) per Home Energy Rating System (HERS) designation over a minimum level of 86. That is a total of 26 points out of a possible 108 that is dedicated to an energy-efficient structure.

The ENERGY STAR program seeks a 30 percent reduction of energy consumption; many state green-building programs model themselves after this program and augment the minimum energy threshold.

So the challenge is set for engineers, architects and developers who are looking to gain points in the green checklist systems. Energy points count. Where to find a solution that is both energy efficient and cost efficient? Enter insulating concrete forms (ICFs).

ENERGY STAR SOLUTION

More than half the energy loss in a frame home is from air infiltration and heat loss through the walls. Air leaks are a big headache for builders. There is no "hole fixer" subtrade. As a result, in the average American home, more than half the volume of air inside the house leaks through walls every hour. That means a homeowner is heating and cooling the great outdoors! And don't forget, a hole in the insulation means the R-value is 0 at that point.

What if you were to get rid of all the air leaks and ensure the insulation in the walls is continuous? ICFs can do just that. These foam forms are stacked like blocks and filled with reinforced concrete. No air can leak through these walls and the insulation has to be continuous or it wouldn't hold concrete.

The addition of the solid concrete wall also provides a thermal mass that absorbs excess heat and helps protect the indoor temperature from fluctuations. The combined result is a system that

VISITORS TO YELLOWSTONE NATIONAL PARK TOUR HOMES BUILT WITH INSULATING CONCRETE FORMS.

PHOTO COURTESY OF QUAD-LOCK
BUILDING SYSTEMS LTD.,
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THE USE OF ICFs ALSO MIGHT PROVIDE SOME EXTRA POINTS, INCLUDING FOR MINIMAL SITE IMPACT, REDUCED WASTE, EFFICIENT USE OF BUILDING MATERIAL, RECYCLED MATERIAL, LOCAL CONTENT, DURABILITY AND LOW MAINTENANCE.

◀ Insulating concrete forms allow for the introduction of replacement air through a controlled source, which can include a filtration system.

PHOTO COURTESY OF REWARD WALL SYSTEMS INC., OMAHA, NEB.

significantly can help reduce energy consumption. How much? ICF structures have earned the 10 USGBC energy credits; they regularly test at a HERS of 94 and above; and they consistently qualify for the ENERGY STAR designation.

POINTS PLUS

But the story doesn't stop there. Programs, such as the ENERGY STAR with Indoor Air Package and American Lung Association Health House, award points for IAQ. In the case of ICFs, the zero air infiltration through the walls allows for the introduction of replacement air through a controlled source, which can include a filtration system. The "fresh" outdoor air can be cleaned of any particles that may trigger allergies. The foam used for ICFs also is a clean product with no offgassing of formaldehyde or other toxic fumes.

The use of ICFs also might provide some extra points, including for minimal site impact, reduced waste, efficient use of building material, recycled material, local content, durability and low maintenance. The ability of the concrete wall to reduce noise is a benefit not to be overlooked and a great tool to meet sound reduction criteria. In areas of severe weather, reinforced concrete walls often are the most cost-effective solution to meet wind-load requirements.

However you count the points, the bottom line is environmental stewardship in the construction industry. This new paradigm has helped our industry re-evaluate our technologies and materials. In this new light, ICFs have emerged a champion in helping achieve the goals of sustainable construction. ♻️

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▲ Insulating concrete form walls meet sound reduction criteria at the Surry Grand Crown Resorts, Branson, Mo. PHOTO COURTESY OF REWARD WALL SYSTEMS
 ▶ Martin Middle School, Raleigh, N.C., features insulating concrete forms in part because they provide a thermal mass that absorbs excess heat and helps protect the indoor temperature from fluctuations. PHOTO COURTESY OF REWARD WALL SYSTEMS

FOR MORE INFORMATION ABOUT INSULATING CONCRETE FORMS, VISIT THE INSULATING CONCRETE FORM ASSOCIATION'S WEB SITE, WWW.FORMS.ORG.



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