

THE JURY IS STILL OUT ON NEW ENERGY POLICY



On August 8, 2005, the first comprehensive energy policy in over a decade, the U.S. Energy Policy Act of 2005, was signed into law. Part of it is designed to provide financial incentives to commercial building owners and to contractors who build energy efficient buildings and homes. Basically the bill provides the following residential and commercial construction tax incentives:

- **Commercial** -
 - A \$1.80 per square foot tax deduction to business taxpayers

continued on page 6

Index

15,000 Sq. Ft House	2
21,700 Sq. Ft Medical Bldg	2
Home Lacks Furnace/AC	3
From the President	4
Providing tools for Success	4
Technical Tips	5

REWARD HOME STILL STANDING AFTER TORNADO STRIKES STOUGHTON, WISCONSIN

The ability of ICF homes to withstand hurricane- and tornado-force winds has long been known, but was made even more evident last week when a tornado destroyed most of the homes in one Stoughton, Wisconsin, neighborhood. When the air cleared, one home was still standing with almost no damage: **a concrete home, currently under construction, built with iForm™.**

The F-3 tornado tore through Stoughton, a town of 12,500 located in south-central Wisconsin near Madison on August 18th, with the most severe part hitting the neighborhood in which the Reward home was under construction. A total of 45 homes were leveled or sustained moderate to severe damage in the immediate area. The storm was so severe that debris was found 75 miles to the east in Milwaukee. Meteorologists believe 26 tornadoes touched down in a 100-mile-long area. In an average year Wisconsin sees just 21 tornadoes all told.

Begun last spring, the Reward house was under roof, the windows and doors were installed and the house was about a week from being drywalled when the storm hit. “We lost the roof of the garage and screened-in porch, and all the windows were broken,” says homebuilder Randy Settersten of Settersten Builders.



Reward stands alone. This house, built with iForm, withstood the F-3 tornado that destroyed neighboring homes.

Structural engineer Boyd Coleman of Struc Rite Design in Waukesha, WI, was called in to inspect the damage. “Although I’m familiar with ICF construction, this was the first I had seen of an ICF building that had gone through something like this,” he said. “I was surprised to see so much debris stuck in the foam.” (One photo shows a 2 x 4 stuck in the foam having been stopped by the reinforced concrete. Flying debris is the primary cause of injury and death during tornadoes and hurricanes.)

Coleman looked for structural damage to the house and found that the walls had stayed in place with no movement. He found damage to the top plate where the garage roof was blown off, but no damage to the concrete. The roof trusses were in tact where Simpson hurricane clips were used, and on smaller walls where they weren’t used, the trusses had come up less than a quarter of an inch.

Construction continues on the approximately 5,000 square foot, three-story house beginning with replacing the roof over the garage and porch and re-shingling the entire house. Settersten says they also will replace all the windows and doors. He estimates that progress will be back to where it was the day before the storm within two to four weeks from the date of the storm, and he hopes to complete the home

continued on page 3

Got Some Spare Time? Build a 15,000 Square Foot House.



The quality of Reward's iForm, the 8" wall and the recessed plastic ties were what caused the owner/builder to choose Reward.

Because of a non-compete agreement related to the sale of his real estate business, real estate financier James Brumbaugh, of Pittsburgh, Pennsylvania, found himself with a two-year break from work. He decided to go back to his roots and build his dream home 45 miles to the north on the banks of the Allegheny River in Armstrong County where he and his wife had grown up.

And what a house it turned out to be! A 14,800 square foot house plus a 10-car detached garage with self-contained apartment. The house contains more than 30 rooms including eight bathrooms, seven guest suites, a 17-seat movie theater, an English style pub, a library, a workout room complete with massage and steam rooms and a whole-house elevator among others.

"I thoroughly researched every aspect of this house before I built it," says Brumbaugh. "I went to several trade shows to look at the different ICFs and chose Reward, because they offered an eight-inch flat concrete wall." Brumbaugh went on to explain that he had looked at several other ICFs, but the quality of Reward's iForm, the eight-inch wall, and the recessed plastic ties were what caused him to choose Reward.

Brumbaugh and his family have lived in the house for approximately two years, and really love their energy savings. "We were able to heat the house for about \$110 per month at the prices we were paying for fuel at the time, and we have zero drafts," he says. Brumbaugh encountered a common problem with his HVAC contractor regarding sizing the HVAC for ICF construction. Although he had an energy audit done that indicated seven tons of HVAC as sufficient, the contractor talked them into installing 15 tons. "That was way overkill," says Brumbaugh. "Seven tons would have been more than enough."

PROJECT PROFILE

- Near Parker, Pennsylvania north of Pittsburgh
- Three stories
- 13,300 finished; 14,800 total
- Rock and limestone exterior finish
- Imitation slate/recycled rubber roof materials
- Dimensional asphalt shingles
- 700 yards of concrete used during construction
- HVAC: 10 heating zones; 4 air conditioning zones
- HEPA air filtration plus UV lighting for allergen-free air
- Average monthly heating costs: \$110
- 11" and 13" iForm

21,700 SQUARE FOOT MEDICAL OFFICE BUILDING



The increase in cost for steel framing made ICF an attractive alternative with better end results.

PROJECT PROFILE

- Shawnee, Kansas
- Single story medical office building
- Divided into seven office spaces
- Exterior finish: stone, brick and EIFS
- Roof materials: Concrete tiles
- Building length: 325 feet
- HVAC: Unit specific and designed for each client
- Winner of the Shawnee Economic Development Council Award, an annual award for developments that improve the city of Shawnee
- 11" iForm

Fish Development of Shawnee, Kansas, didn't search out a client to build a project for. They built a medical office building in Shawnee and waited for the clients to come to them. Shawnee is one of the fastest growing communities in Kansas City with a lot of young families, and there is a real need of medical office space in the area. To date an orthodontist has leased one of the seven spaces available, with an optometrist and an infant care group soon to come. The company is looking for a great anchor company, such as a pediatric/family practice, to occupy the 7,700 square foot center space with an atrium.

Shawnee offers a unique opportunity for ICF construction according to Horst. "Shawnee has banned the use of metal panels on the walls for industrial developments. They require the buildings to be finished with stucco, brick or stone," he says. "That increases the infill cost and makes ICFs more competitive."

Horst says when the cost of steel framing shot up, he began to look at ICFs as a way of doing the flatwork and the walls of the building with the same crew. "I researched several ICFs and concluded that Reward has the best form.

continued on page 3

continued from page 2

Our crews can build a 10,000 square foot building in about a week and are getting faster with more experience. It's still slower than wood frame, but the end result is so much better." He added that ICFs eliminate the forming and erection time associated with tilt-up.

In addition to the medical office building, Fish Development has completed three office/warehouse buildings with Reward and they have five more planned, plus a church. Although none of the buildings has been complete long enough to get a true picture of energy usage, Horst says the occupants really appreciate the level of noise reduction ICFs offer. ■



the high 80's to mid 90's this summer," says Sullivan.

Maguire recommended a heated water system for the in-floor heating, but because the house is not a permanent residence, Sullivan didn't want to worry about draining water hoses and other maintenance issues connected with a water system and chose to install an electrical system instead. Each room has its own thermostat, so the heat can be adjusted according to how much the room is being used.

The property includes an 1,100 square foot outbuilding, also built with iForm, for the storage of boats, boating equipment and maintenance equipment. ■

7,000 SQUARE FOOT HOUSE LACKS FURNACE AND AIR CONDITIONER



Energy efficient Reward walls allow the owners of this house to get by without air conditioning.

PROJECT PROFILE	
• Harwood, Ontario	• Roof materials: Asphalt shingles
• 1-story w/walkout basement	• Suspended concrete decks with stamped concrete
• House: 7,000 square ft	• Suspended concrete floor in garage over in-ground swimming pool
• Outbuilding: 1,100 square ft	• 11" iForm
• HVAC: None	
• Electric in-floor heating	
• Exterior finish: Stone	

Hard as it is to believe (especially when you are headquartered in Nebraska) some people who live in cool, dry climates are able to get by without installing air conditioning in their Reward ICF homes.

Such is the case with a 7,000 square foot house completed in June 2005 in Harwood, Ontario. However, the same house also lacks a furnace due to the electric in-floor heating chosen by owner Glenn Sullivan, an electrical contractor.

The Reward ICF walls, proper window sizing and the location of shade trees are the reasons no air conditioning is required according to Reward builder-dealer John Maguire. And because the house is located beside a lake, cool lake breezes also help. "Getting along without air conditioning has never been an issue in the 15 years I've lived in this area, in spite of temperatures that reached

TORNADO (cont. from pg 1)

before January. "I'd really like to get these folks into their home before Christmas," he says.

"This event confirms everything we have always said about ICF construction," says Reward President Ed Storm. "It graphically illustrates that ICF walls can save lives. That's why we work so hard to get the word out about our product's safety—not only for storms, but for fire as well."

Reward offers a \$1-per-form discount to families who must rebuild in the wake of devastating storms like the tornados that ripped through Wisconsin. Reward will donate one dollar per form to the owners of any building when:

1. The building is damaged or destroyed by hurricane or tornado and is located in an officially declared federal disaster area.
2. The building is rebuilt using the Reward system.

To qualify, orders must be placed within 120 days of the natural disaster. Reward encourages local distributors, dealers and installers to participate in this program as well by donating a portion of the cost of each form.

This offer is not limited to families in Wisconsin, but applies to anyone who must rebuild after destruction by hurricane or tornado. ■

From the President by Ed Storm

We often speak of ICF buildings as being “value-added” structures. What that means is that when you build with ICFs you add value to your project because it is stronger, safer, more energy efficient and more comfortable than other buildings.

Not only do we produce a value-added product, but I believe that Reward Wall Systems, Inc. is the most value-added ICF company in the industry. Reward is a complete package—we provide our customers with more and higher quality products, tools and services than any other ICF company, including:



- Our versatile iForm™ product line that allows you to build concrete widths of 4", 6", 8" and 10" — fifteen separate forms in all.

- Our innovative customized xLerator™ reinforcement pieces. Only Reward offers xLerator, and we developed it to solve the problems of cumbersome, time-consuming and incorrect ledge reinforcement.

- The ICF industry's leading commercial and residential code approvals including the broadest, most extensive non-combustible approval. No matter what or where you choose to build, you can easily obtain your building permits without struggling with code officials.

- A comprehensive product manual that includes product specifications, compatible products, step-by-step procedures, installation details and engineering tables. In addition to the print version, our manual is available on our web site and on CD, both of which also contain our estimating software.

- Tools for architects and designers, such as CSI Specifications, AutoCAD details and an easy-to-use Architect and Designer Guide

- A web site that continually receives praise as being the most informative and easy to navigate site of any ICF company. There we provide a wealth of information for audiences ranging from home buyers to ready mixed producers. The site features more than eighty project profiles, downloadable technical research reports and technical installation tips. It is a tool you can use to access almost any information you need for building with Reward.

- One-stop shopping. With the same phone call, you can order your forms plus the bracing, connectors, anchor tunnels, foams and glues you need to install them.

- On-site training. We have professional building consultants who can come to the jobsites of first-time Reward ICF builders to be sure that construction with Reward goes smoothly from the get-go.

- A first-class marketing department that attracts and educates your potential customers through articles and advertisements in national trade magazines. They also provide a wide range of marketing support such as promotional brochures, pre-designed ads, quarterly newsletter, 3-in-1 home finance program, an interactive home plan CD, customer conventions and home show materials.

Best of all, Reward offers an enthusiastic sales and support staff to provide our customers with the information or help they need whenever they need it. We continue to add sales staff in the parts of the country where they are most effective, and who are constantly available by cell phone. And all levels of our corporate staff are completely accessible. No matter what your question, we find the answer for you.

This list doesn't begin to show all of the services and tools we provide, but it gives you a good idea why I say Reward Wall Systems is a value-added company. At Reward, we don't just sell forms. We do everything we can to help you succeed.

CONSUMER PROMOTIONS KIT PROVIDES TOOLS FOR SUCCESS

Two of the primary ways Reward building professionals get the word out about the benefits of ICF construction are home shows and local parades of homes, and Reward Wall Systems is coming out with a package of materials that can help make these events more successful.

“Savvy builders know there is more to a home show or an entry in a parade of homes than just setting up a display,” says Vice President for Marketing Brandie Allen Rezac. “With a little planning for before and during the event and most importantly follow up afterwards, our customers will come away with more sales.”

The Reward Consumer Promotions Kit contains the tools you need to make your next appearance at a home show or parade of homes successful and profitable—all in an 8" x 11" box. The kit contains:

- The Consumer Promotions Manual—
A complete guide for how to:
 - advertise in a home show or parade of homes directory
 - set up an effective display
 - drive visitors to your booth or open house
 - interact effectively with your visitors
 - follow up after the show to lock in leads
- Marketing Tools CD-Artwork and templates to make your advertising easy, including:
 - An ICF video loop
 - iForm fact sheet
 - Green building fact sheet
 - Lead sheet template
 - Three professionally designed display posters
- Home Plan CD
- Promotional buttons to wear at your show

A professionally designed 3' x 5' show banner is included in separate packaging.

“It's been my experience that most of our customers know how to set up an attractive home show booth or open house display. What this kit will do is help them to capitalize on what they already do well by driving more people to see it, making sure they remember it and following up afterwards,” says Allen-Rezac.

The Reward Consumer Promotions Kit will be available by the end of September, just in time for fall home shows and parades of homes. Call 800-468-6344 to find out more. ■

PUTTING ENERGY EFFICIENCY IN PERSPECTIVE

Energy efficiency becomes important when you realize that approximately 70% of the energy purchased by a homeowner is used for heating and cooling living space. To understand how Reward walls achieve their energy efficiency, you first have to understand the two basic principles of heat transfer:

- Heat is in constant motion
- Hot air always flows to cold air until temperature balance is reached

Heat Transfer and Increased Energy Costs

Heat infiltration or **convection** is the movement of heat by the actual movement of heated air. When outside air leaks into a home through intended or unintended openings, conditioned air is replaced with unconditioned air and must be heated or cooled again. This process is often referred to as air infiltration. Preventing **air infiltration** is essential for achieving energy efficiency and maintaining a healthy environment.

Heat absorption, or **conduction**, is heat transfer by the direct contact of heated molecules with unheated ones. Heat moves directly from one molecule to another through contact, always moving from the hotter molecule to the cooler molecule. This is what happens when you grab a hot handle of a cast iron frying pan. A material's R-value measures the material's ability to resist heat absorption. It is important to remember the R-value is only one aspect of energy efficiency and is not the most important. Heat radiation is the movement of heat away from an object by means of electromagnetic waves. A prime example of radiation is the transfer of heat from the sun to the earth. In your home, an example would be the sun shining through the window to heat the floor inside. Heat transfer depends on properties of the surface on which the waves strike.

How to Stop Heat Transfer

There are three basic ways to stop heat transfer:

Building Tightness - Inhibiting Air Infiltration

- It is estimated that 20 to 40% of the heating and cooling load in houses compensates for air infiltration from the outside to the inside of the house, but not for heat conduction from the inside to the outside.
- Wood frame homes have a large number of gaps that allow air to pass through
- Air infiltration rates in new wood frame homes average approximately 0.35 per hour at naturally occurring air pressures.
- This rate of air infiltration means that the amount of air entering the building each hour equals half the amount contained in the building.
- Air infiltration rates for homes built with Reward ICFs average approximately .04 - .09 per hour.

R-Values-Inhibiting Heat Absorption

- R-value measures how well a material resists conduction of heat from one side to the other.
- Standard 2 x 4 wood frame construction with R-13 insulation,

without finishes and of good construction has an R-value that can be as low as 8, but averages around 9.5.

- R-values for wood frame walls are lower than the R-values of their insulation because of conduction of heat through the lumber, which has low R-value and because of thermal gaps or bridges in construction.
- A Reward wall is a consistent, solid wall of EPS and concrete that provides an R-value of 22 and effectively performs to a higher R-value.

Thermal Mass

Thermal mass reflects the principle that exterior walls made of heavy materials maintain more even interior temperatures and consume less heating and cooling energy than walls made of light materials and insulated to the same R-value. For example, in non-insulated adobe homes of the Southwest, the sun warms the adobe walls slowly during the day, and by the time the air cools off in the evening, the walls have become warm and pass this heat to the interior during the night.

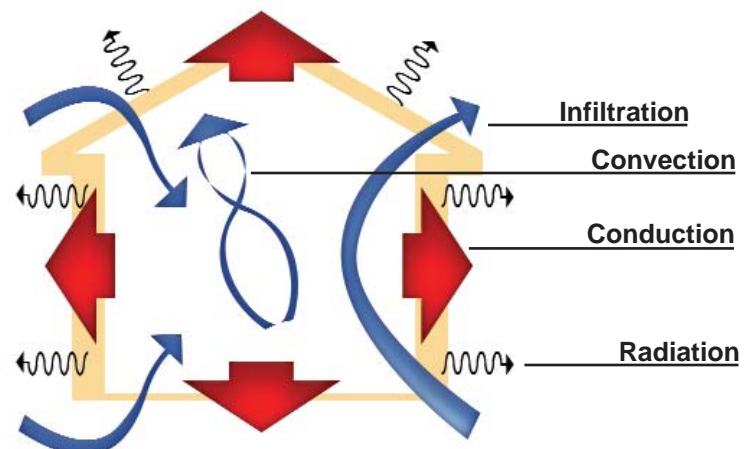
Although no scientific tests have been performed showing the combined effects of all the energy efficient factors on any wall system, studies show that the combined effects of R-value and thermal mass, and the wicking of the ground temperature result in a much greater degree of energy efficiency.

The Bottom Line

Studies have shown that a standard wood frame house would need to be built to an R-45 or 50 to equal the energy efficiency of typical ICF construction in some climates. Reward structures have an effective R-32 when taking into consideration the walls and the thermal mass. All other things being equal, Reward ICFs should reduce heating and cooling costs from 50% to 80%.

To sum up, the concrete in a Reward wall acts as an insulating thermal mass, the exterior polystyrene moderates the temperature of the concrete, and the interior polystyrene provides even more insulating power, providing unparalleled energy efficiency. ■

COMPARATIVE HEAT LOSS



ENERGY POLICY (cont. from pg 1)

for commercial buildings that achieve a 50% reduction in annual energy cost to the user compared to a base building defined by the industry standard.

- **Residential -**

- A \$1,000 tax credit to a contractor who builds a home that reduces energy use for heating and cooling alone by 30% based on the 2003 International Energy Conservation Code, with 10% coming from improvements in the building's envelope.
- A \$2,000 tax credit to a contractor who builds a home that reduces energy use for heating and cooling alone by 50% based on the 2003 International Energy Conservation Code, with 10% coming from improvements in the building's envelope.

Incentives apply to homes placed in service during 2006-2007, although the incentives may be extended through 2009.

At first glance this new energy policy seems to hold a lot of potential for contractors who build with ICF. ICF walls can easily meet and surpass the 10% reduction in heating and cooling costs standard. Plus a \$1,000 or \$2,000 tax credit

would help to level the playing field between ICF and steel or wood frame construction, and a \$1.80 per square foot tax deduction would be a great selling point to a commercial building owner. But closer examination shows there are still some unanswered questions and issues related to qualifying for the tax credits, such as:

- How the energy efficiency is evaluated
- Whether a software program can be used, and if so which program qualifies
- Whether a third party inspector would be required
- What type of verification builders can give to their tax accountants to show that they qualify for the tax credit

Reward Wall Systems, Inc. is monitoring the situation and will report more when the picture becomes clearer. "This legislation could have great potential for those who build with ICFs," says Chief Operating Officer Hank Pfeiffer. "As a company we just want to be sure we understand all the issues, and then analyze if there is anything we can do to help our customers take advantage of it." ■

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