

August/September 2008

ICF BUILDER

The Insulating Concrete Forms Magazine

Fireproof ICFs

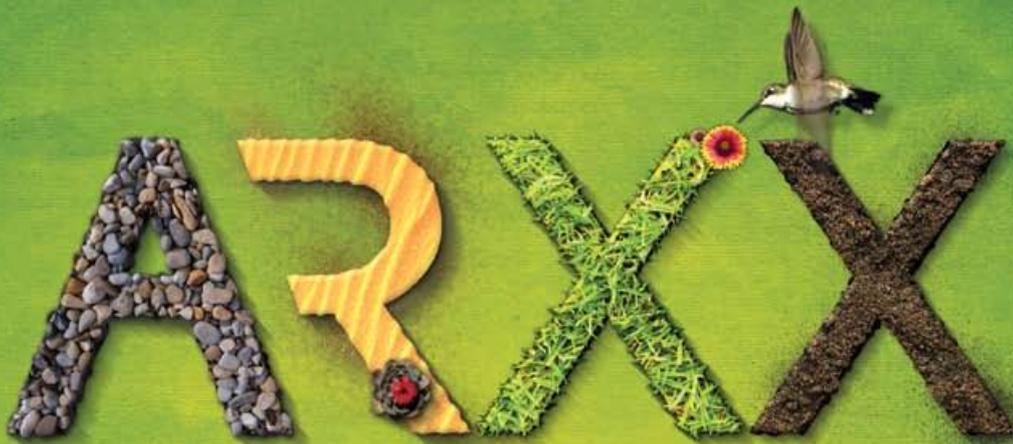
Concrete Roofs

Disaster-Resistant Finishes

Arxx-PolySteel Merger

Sloped Decks

\$4.95



Sustainability is in our nature.

Conserving the environment with energy-efficient building solutions.

ARXX is changing the landscape of the ICF Industry.

Our vision is clear. Our future is bright.

ARXX® Forms | APEX® Block | PolySteel® Forms

Consolidate any ICF project

With the **assurance** that the concrete
is perfectly consolidated... **Void Free**

**JOB PROVEN
RUGGED**

Oztec's Rebar Shaker[®] and Pencil Head Vibrator provide a winning combination for your next ICF project.

The Rebar Shaker[®] simply slipped over the top of the rebar, vibrates and consolidates concrete in seconds... *void free*.

If the rebar is more than 12 inches apart, the Oztec "QD" Quick Disconnect System allows the unit to be easily and quickly changed to the Pencil Head for perfectly consolidated concrete.

Can be used in either position

Proud sponsor of



OZTEC
Concrete Vibrating Equipment



All Oztec power units come standard with the Quick Disconnect "QD" system for instant change of shaft and head on the job site.

PROUDLY MADE IN
USA

Oztec Industries, Inc.
Tel: 1.800.533.9055 516.883.8857

See OZTEC's full line of products and power units on our web site: www.oztec.com

Inside This Issue

Features

14 Arxx Acquires PolySteel

Arxx Corp. and American PolySteel, both pioneers in the ICF industry, have announced they are joining forces to gain better market position.

18 Fireproof ICFs

Well-known for resistance to hurricanes and tornadoes, ICFs are also extremely good at protecting occupants and their belongings from wildfire, arson, and accidental flames.

24 Sloped Concrete Roofs

Building a pitched concrete roof is one of the most difficult challenges for the contractor. They maximize their efficiency and disaster resistance, but don't look anything like a bunker.

28 Total Concrete Shells

By Pieter Vanderwerf
Disaster-proof energy efficient concrete roofs are a key part of completing a robust building envelope. This reknown ICF expert explains advantages and options.

34 Disaster-Resistant Finishes

These finishes are a perfect match for ICFs. They're reasonably priced and easy to apply, but they've withstood fire, tornado debris, and even gunfire with minimal damage.



18

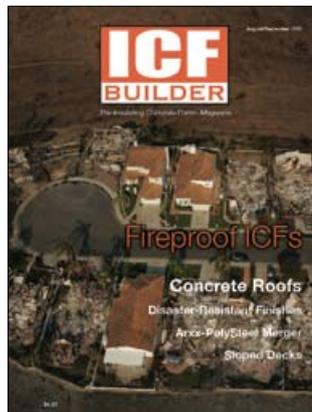


24



28

On the Cover: Only three houses on this street near San Diego survived last fall's fires. For more on ICF fire resistance, see the story on p. 18. Photo by Sean Hafferty/San Diego Union-Tribune.



Departments

6 As I See It

8 ICF News Roundup

13 New Faces

40 New Products

ICF BUILDER

Publisher

Summit Publishing, LLC

Advertising

Craig Shorts

Editorial Director

Clark Ricks

Circulation Manager

Monica Hall

Art Director

Jason Robinson

Webmaster

Brad Moulton

Contributors

David Hall

Chuck Lohre

Pieter Vanderwerf

Jim Offner

Jeff Schommer



Summit Publishing

884 East 700 North
Mapleton, UT, 84664-3761

toll free: 877-229-9174
editorial: ext. 2
advertising: ext. 1
subscriptions: ext. 3
fax: 801-494-3232
www.icfmag.com

Volume 4 Number 4

ICF Builder magazine is published bi-monthly: February, April, June, August, October, and December by Summit Publishing, LLC, 884 East 700 North, Mapleton, UT, 84664-3761. Subscription price: \$30 per year.

Application to mail at Periodicals Postage Rates is pending at Springville, UT and at other locations. POSTMASTER: Send address changes to ICF Builder Magazine, 884 East 700 North, Mapleton, UT, 84664-3761

Copyright © 2008 by Summit Publishing. All rights reserved. Printed in the USA. ICF Builder is a trademark of Summit Publishing.

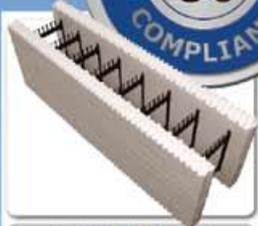
Build your Business with **BuildBlock**[®]

INSULATING CONCRETE FORMS

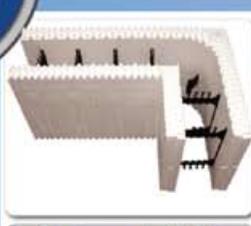


Build your ICF business with a block you can be proud to represent.

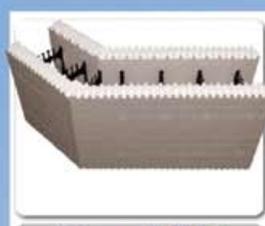
- Fully assembled and completely reversible
- Strong interlocking connections
- Molded-in plastic webs on 6" centers
- Extra heavy-duty attachment points (500 lbs.)
- Deep, snap-in rebar fingers
- Molded-in "tape measure" and cut lines



Straight 4", 6" & 8" Concrete Cores



90° Corner 4", 6" & 8" Concrete Cores



45° Corner 4", 6" & 8" Concrete Cores



Brick Ledge 6" & 8" Concrete Cores



Double Taper Top 6" & 8" Concrete Cores

BuildBlock[®] MANUFACTURING FACILITIES NATIONWIDE



Build your ICF business with BuildBlock's revolutionary distribution model.

- Protected Territory for Master Distributors
- Repeat income from dealers in your protected territory
- Corporate assistance on large projects
- Master Distributor pricing for ICFs and accessories
- Special pricing programs for Distributors, Dealers, and Contractors
- Nationwide manufacturing facilities help to decrease shipping distances and costs

Build your Business with **BuildBlock**[®]

INSULATING CONCRETE FORMS

www.buildblock.com/opportunity | (866)222-2575



As I See It...

Of Most Importance

by Clark Ricks

I'm going to break with tradition and discuss a topic that has nothing to do with ICFs. I'm doing so because it's a subject of critical importance.

This fall, citizens of the United States will elect a new president. The election will be, I believe, the most important in a generation. The reason? At least half a dozen major issues are at or near the "tipping point," and the next president of the United States will have to address these issues. His decisions will determine the direction this country will take for the next 15 or 20 years, perhaps more.

I'll list just a few:

The Supreme Court: Bush has appointed two conservative judges to the bench—Alito and Roberts—and the court is nearing a conservative majority. Several aging, liberal justices have put off retirement hoping to be replaced by one with similar views. But they can't stay on the bench forever—notably Stevens, who turns 89 in April—but also Breyer, Ginsburg, and Scalia, who are all past 70.

Replacing Stevens with a more conservative justice could restrict a number of so-called "rights," most notably abortion.

Immigration: As a former governor of Texas popular with Hispanics, Bush was supposed to resolve this issue, but didn't. With an estimated 12 million illegal immigrants already in the country and more coming every day, it cannot be ignored any longer. Everyone recognizes the importance of the issue, but no one has solutions. Those of us in the construction industry recognize any solution will have serious implications on wages and labor availability. The next president will decide.

The Iraq War: The two leading candidates are polar opposites on this issue. Do we commit to having troops there for a generation, like we have in Germany and Korea, or do we support a candidate who wants a complete withdrawal of troops by the end of his term?

Energy Policy: Current energy prices are great for promoting ICFs, but they're unsustainable. Fuel prices may be the straw that breaks the economy's back. More drilling? More refineries? More solar, wind, and nuclear power generation? We can't conserve our

way out of this crisis; the next president will have to set a long-term energy policy.

Economy: Home prices are falling, foreclosures are rising. Residential construction is practically at a standstill. And that doesn't even address the falling dollar, white-collar jobs moving overseas, or the sky-high price of gasoline that's forcing middle income families to choose between food or fuel. We need a president that can get the economy growing again.



You'll have two months to determine which man will lead this country the direction you want. Choose wisely.

Health Care: As a small business executive, I'm personally acquainted with the crushing weight of health insurance. I'm sure you are, too. Government "efficiency" makes me leery of nationalized healthcare, but the current private-sector system is crippling.

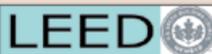
Social Security: I pay Social Security, but I have no confidence the system will still exist when I reach retirement age.

With baby boomers starting to draw on the system, more will be taken out than contributed starting in 2017. Do we want to increase FICA taxes, decrease boomer benefits, or privatize the system and put it all in the stock market?

As I mentioned above, these are major issues. And the next president will have to deal with them. And once the course has been set, the country likely will not move far from it for the next 20 years or so.

It doesn't matter what your personal politics are. Just vote. My preferred candidate didn't win the primaries, but the issues at stake here are too major for any of us to just "sit this one out."

This issue will likely be landing on your desk about the same time the major parties finalize their presidential picks. You'll have two months to determine which man will lead this country the direction you want it to go. Choose wisely. ■

FASTFOOT®

BUILD HEALTHY FROM THE GROUND UP

(604) 596-3278 www.fastfoot.com (888) 303-3278

The only footing form that provides complete moisture & mold protection.



They say beauty lasts but a moment...
but once you see how our coatings perform, you'll know that's just not true.



Finally, an earth-friendly product that will stand the test of time.

Request a FREE architect kit today, filled with resources and information about LEED and how GREEN your next project can be.



Request ORO's free architect kit today by calling us today at 1-888-676-2683 or visiting our website www.oro coatings.com.



ICF News Roundup

Housing Prices Dip to Pre-Bubble Levels

As the housing slump continues, prices in most areas have fallen dramatically. According to the most recent data, in the first quarter of 2008, only eight out of 330 metropolitan housing markets can now be considered overvalued. That's down from 53 metro areas in mid-2006.

"We've covered a lot of territory in terms of restoring balance in the housing market," said National City's chief economist, Richard DeKaser. "The froth has been completely blown away."

In Stockton, Calif., the average price of a single-family home has fallen 35% in the past 24 months. In Las Vegas, home prices have come down nearly 20% in the same period.

New Code Compliance For Perma Crete



Perma Crete, an exterior cementitious coating, is now code certified for both horizontal and vertical applications.

George Henderson, president and CEO of Quality Systems, Inc., which makes Perma Crete, says the product has successfully completed all the requirements to be certified for horizontal and vertical surface applications by the International Code Council's Evaluation Service (ICC-ES). He claims it is the only surfacing product to have both certifications.

Perma Crete's acrylic polymer cement compound can be applied over concrete, foam, masonry, aggregate, or steel, and has a compressive strength of more than 6,000 psi.

Creatherm Begins California Manufacturing

Creatherm, which markets a number of EPS-related products, has reached an agreement with Aptco LLC to manufacture their products in California. Previously, all

Creatherm manufacturing locations had been east of the Mississippi River.

The agreement with Aptco creates additional production capacity, and also enables Creatherm to better service its growing customer base on the West Coast while reducing shipping expenses.

Initially, Aptco will manufacture the S45 floor panel, a rigid foam board with raised knobs used in under slabs with radiant heating. The agreement also allows Aptco to manufacture new products currently in development.

2008 Home Starts Down 36%

Housing starts for 2008 are expected to be 36% lower than 2007 levels, the sharpest drop in three straight years of declines.

According to a recent Portland Cement Association (PCA) report, the decline is due to a weak economy, tight credit, and a huge housing inventory that must be sold off before construction recovers.

"Despite large home price declines and improved affordability, sales remain sluggish and offer little hope that the inventory glut will be worked off anytime soon," says PCA Chief Economist Ed Sullivan.

Sullivan says current home inventories stand at a 10.5-month supply, nearly triple the 3.5-month supply that normally exists. And rising home foreclosures will add to the market's inventory in 2008 and 2009.

The PCA now predicts further declines in 2009, with a recovery starting in 2010, although the hardest hit states, like California, Florida, Arizona, and Nevada may not see a turnaround until 2011 or 2012.

Fox Blocks Adds Mass. Facility



Fox Blocks, a division of Airlite Plastics

Company has begun manufacturing at a second satellite plant in Northbridge, Mass.

The forms are also made in Orlando, Fla. and at the company's flagship plant at its headquarters in Omaha, Neb.

"As Fox Blocks grows its ICF market share with factory direct shipments, additional manufacturing facilities will help ease freight costs and shorten delivery times to its customers throughout the U.S. and Canada," says Dave Jackson, sales and marketing manager for the company.

As part of Fox Blocks' expansion in the Northeast, the company has hired a sales representative, Bob Hearn, to focus on that region of the country. Hearn will be assisting Fox Blocks customers from his field office in Coventry, Conn.

USGBC to Change LEED Rating System

U.S. Green Building Council (USGBC) is revising the scoring method used in its trend-setting LEED green building certification system.

LEED 2009 is intended to be the next evolution of the rating system, reducing carbon emissions, improving energy efficiency, and advancing other environmental and health goals.

"When it was introduced in 2000, the LEED Green Building Rating System helped to spark a revolution that is changing the way we build and operate our offices, schools, hospitals and homes," said Rick Fedrizzi, president, CEO and founder of the USGBC. "LEED 2009 resets the bar for green building leadership because the urgency of our mission has challenged the industry to move faster and reach further."

Detailed information about the proposed changes can be found on USGBC's Web site (www.usgbc.org). Additional information, including the integration of Life Cycle Assessment (LCA) into LEED, will be added in late summer.

BuildBlock Expands Product Line



BuildBlock Building Systems now offers a number of ancillary products that complement its line of BuildBlock Insulating Concrete Forms (ICFs).

It now offers Form-A-Drain footing system, the Lite-Deck ICF floor and roof system, and Andersen windows and doors.

"Our goal is provide our customers with everything they need to create an energy-efficient building envelope," says Jason Fisher, BuildBlock business development manager. "These products are the perfect complement to our ICFs for accomplishing that purpose."

CertainTeed Form-A-Drain is a patented 3-in-1 foundation solution that forms footings, provides an integrated drainage system, and can be easily adapted

to vent radon where needed. Lite-Deck, manufactured by Lite-Form Technologies, is a light-weight stay-in-place EPS form used to construct concrete floors, roofs, and decks for commercial and residential construction. Andersen windows and doors are rated "among the best" by consumers in a 2007 J.D. Powers customer satisfaction survey. Andersen's StormWatch line of coastal windows and doors are especially well-suited for "Fortified" ICF structures.

Product and ordering information can be found on the MyBuildBlock Online Ordering System available through the company's website at www.buildBlock.com.

BuildBlock Launches 12th Manufacturing Facility

BuildBlock Building Systems has expanded manufacturing again, partnering with Plymouth Foam in the state of Minnesota. The move brings the number of manufacturing facilities to an even dozen.

The company claims it now has more

manufacturing locations than any other North American ICF. "Today's unprecedented fuel costs make this a tremendous benefit to our customers," said BuildBlock CEO Mike Garrett. "We continue to invest in manufacturing in order to save our customers on their freight expenses."

Plymouth Foam is located in Becker, Minn., about 50 miles northwest of Minneapolis/St. Paul. They began manufacturing the BuildBlock line of ICFs in June.

"Minnesota has the highest ICF sales in the country," Garrett said. "In the past, freight costs have affected our ability to be truly competitive within this market. Our new facility in Becker will make BuildBlock more competitive, as well as affordable and convenient for our customers."

BuildBlock's other facilities are in Alabama, California, Colorado, Florida, Indiana, Massachusetts, Missouri, Utah, Wisconsin, and two plants in Idaho. They also have foreign licensees in Europe and the Middle East.

Reality?

TIRED of losing money on every payroll?

Reality Check.

Find out why more than 500,000 workers clocked in today with The JobClock System!

THE JOBLOCK®. THE CONTRACTOR'S TIMECLOCK™

RUGGED • EASY-TO-USE • ACCURATE • OPERATES 24/7 • ATTACHES ANYWHERE

Call today: (888) 788-8463 • www.jobclock.com

Equip Yourself With The Best!



Under-Slab Insulation



Under-Slab Vapor Barrier



Protective Form Cover

Designed for the ICF industry, the **Insul-Tarp® Form Cover** protects the pour from unwanted debris and allows for a stronger cure.



Insulation Solutions®

Insulation Solutions, Inc.
401 Truck Haven Rd. • East Peoria, IL 61611
Ph: 309-698-0062 • Fax: 309-698-0065

www.InsulationSolutions.com

IntegraSpec ICF Grows Again



IntegraSpec has added two employees at its Kingston, Ontario, head office.

Danielle Boulianne will be assisting with orders, logistics, accounting, and customer service. She has an education in computer networking and office administration with field experience in high volume customer oriented business.

Dave Kellam is now manager of distribution and sales, and will work with new distributors.

Greenblock Fire Test Results



Greenblock® Worldwide Corporation has received a 4-hour fire resistance rating for their 6-inch core insulated concrete form (ICF) assembly.

The company had previously completed evaluation testing on its 4-inch core ICF wall system and achieved a two-hour rating.

"We were confident that we would get a 3-hour with our 6" block," said Steve Reiter, who handles building code issues for Greenblock. "However, the 4-hour rating was a pleasant surprise."

The test was conducted by Intertek Testing Services, an internationally recognized testing agency.

With a 4-hour fire resistance evaluation, Greenblock's 6-inch core ICFs are well-suited to meet the strictest of commercial building designs. Educational, government and healthcare facilities all look for wall system designs that provide the maximum protection against weather, pollutants and fire. Greenblock's 6-inch core ICF wall system easily exceeds these requirements and still offers the design flexibility found more commonly in the smaller concrete core ICFs.

"We've now effectively brought together the two most important aspects of structural design for the architects and

engineers of these projects," said Reiter. "Maximum protection and structural integrity along with design flexibility and appearance."

The complete fire resistance evaluation report is available on the technical section of the Greenblock website, www.greenblock.com.

ICF Homebuilder On "Top 400" List

Homecrete Homes, the nation's largest ICF homebuilder, has once again made Professional Builder magazine's list of America's 400 largest home builders.

While most of the builders on the list have seen significant decreases in revenue and closings between 2006 and 2007, Homecrete actually moved up in the rankings from 372 to 366.

Based in Stuart, Fla. the company is currently active on Florida's Treasure Coast and California's Kern County, building more than 300 homes per year.

"It's a buyers market, so you have to offer a product that sets you apart from the competition," said Robert Cenk, vice president of operations for Homecrete. "Every Homecrete home is built with Greenblock Insulated Concrete Forms, which provide our homeowners with a house that can withstand the worst of our Florida weather. The ICF walls also provide R-values that are triple that of concrete blocks, which means significantly lower utility bills".

Homecrete has six models to choose from, and also builds custom homes and commercial projects with ICF technology.

Green Building Helps During a Slowdown

Attendees at the National Green Building Show, held May 11-13 in New Orleans, were told that the vast majority of homeowners are oblivious to the options and benefits of building green.

But at a time when construction is nearing a standstill in many parts of the country, contractors who know how to build and sell "green housing" are doing remarkably better than their competitors. And when the housing industry recovers,

green business “appears headed for a galloping rate of growth,” according one a market analyst at the show.

“We have hit the tipping point for builders going green,” said Harvey M. Bernstein, who oversaw the latest green building survey conducted by McGraw Hill Construction. “Green is driving a lot of what really is happening in this marketplace.” Forty percent of those surveyed by McGraw Hill said that the down market has made it easier to market green homes, and 16% said that the housing slump has made it much easier, said Bernstein, noting many respondents said it was keeping their businesses alive during the slowdown.

The report states that green building is projected to double over the next five years, reaching a 12% to 20% share of the U.S. housing market with \$40 billion to \$70 billion in sales in 2012.

Green homes are defined by McGraw Hill as those containing energy-efficient, indoor air quality, water-efficient, resource-efficient and site management features. More information on the green building survey can be found at: analyticsstore.construction.com.

Housing Slump Worst In Post-WWII-Era

Remember when construction was booming and demand for concrete created cement shortages across the country?

A record consumption of 128 million metric tons was reached in 2005. Peak-to-trough declines in consumption will total nearly 30 million metric tons, marking one of the worst industry downturns since the Great Depression. The U.S. economy is suffering from a severe economic weakness and its impact on cement consumption and the construction industry will not be mild, according to the latest Portland Cement Association (PCA) forecast of cement, concrete, and construction.

In 2008, portland cement consumption is expected to drop 11 percent, followed by an additional 5.5 percent in 2009. PCA predicts total cement consumption in this year to be 101.7 million metric tons.

“We are currently in the third year of

FLEX-C-MENT

REALISTIC
Vertical Stamping

Decorative Overlay Systems
“Less prep work means more profits”

PHONE: 888-515-2132
www.flex-c-ment.com

EXCELLENT HANDS ON TRAINING

Building outside the box

We're building a company that thinks outside the box
— providing added value to you and your clients.

Offering a comprehensive building system...

- Full line of ICF products
- AmDeck® Floor & Roof System
- Amvic Buck System
- Contribution to LEED Certification

...and full service & support:

- New Amvic Design Software (ADS)
- Technical, Installation and Architectural manuals
- Training & Continuing Education Seminars

Amvic the power of added value
building system
stranger every day

Call today for more information
1.877.470.9991
www.amvicsystem.com

a four-year industry contraction that began in 2006," Edward Sullivan, PCA chief economist said. "High fuel prices, slow job creation, and tight lending standards will all adversely impact the entire spectrum of construction activity."

Sullivan anticipates that while harsh residential conditions continue to act as a significant drag on cement consumption, the nonresidential sector will also see large declines for the next two years.

"Although it grew nearly 11 percent in 2007, nonresidential construction spending is expected to fall almost eight percent in 2008 and another 12 percent in 2009," Sullivan said. "Nonresidential construction is closely tied to economic activity. As the economy softens, the expected return on commercial investments decline, reducing the incentive to build and expand."

An additional slowdown in public construction, which accounts for nearly half of total cement consumption in the United States, is predicted for 2009 and will continue through 2010.

PCA targets the second half of 2010 with the trend of strong growth in cement consumption. By this time, according to the PCA report, all regions of the United States should be experiencing a recovery in housing and nonresidential construction will be on the upswing.

NRMCA Manual Prevents Backing Accidents



The National Ready Mixed Concrete Association (NRMCA) offers a *Backing Accident Prevention Kit* to help reduce accidents in the ready mixed concrete industry.

An NRMCA study has shown that 11% of a company's truck mixer fleet will have a backing accident each year. Many of these accidents happen even with a spotter at the job site, notes NRMCA Managing Director of Compliance David Ayers, because not all spotters know the hand and arm signals to back up a mixer.

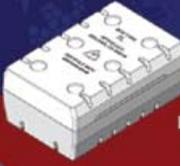
"The backing accident rate is unacceptable and we must address this serious safety issue immediately" said Gary Mullings, NRMCA's senior vice president of operations and compliance.

Backing accidents can lead to higher insurance premiums, damaged equipment, and injuries.

The kit includes a hand and arm signal reference card in English and Spanish. ■

Correction: The June/July ICF News Roundup mentioned that Amvic Building System has a window and door block-out system. This system uses vinyl components, not EPS foam.

ASK HOW WE CAN CUT YOUR TOOLING COSTS BY HALF!

APTCO, LLC.

EXPANDABLE POLYSTYRENE CUSTOM MOLDER

OPERATING 24/7/365 + HUGE WAREHOUSE = JIT INVENTORY

APTCO, LLC, established in 1996, has grown to be one of the largest Expandable Polystyrene custom molders in North America. Our central California location enables us to efficiently service the entire Western region of the U.S. to include southern Canada and northern Mexico.

- ▶ In business for over 12 years
- ▶ 61 presses under one roof
- ▶ State of the art bar coding system
- ▶ Dedicated warehousing for ICF's which provides "Just In Time" inventory
- ▶ Centrally located on the west coast
- ▶ Environmentally conscious
- ▶ Unique mold designs that can cut cost by up to 50%
- ▶ 24/7, year round operation to accommodate your needs

APTCO, LLC
 Sales - 661.979.1251 Office - 480.306.5432 Fax - 480.502.3368
 Email - bobshelker@aptcollc.com

www.aptcollc.com





In The News

New Faces

New CEO at Cement Association



The Portland Cement Association (PCA) has a new president and CEO. The board of directors named Brian A. McCarthy to fill position at meetings held last October.

“PCA has an outstanding and well-earned reputation as a top trade association,” says McCarthy. “I hope to continue that tradition while moving forward to meet new challenges and opportunities.”

He fills a position previously held by John P. Gleason, Jr., who retired earlier this year after serving as PCA president since 1986.

Prior to his current position, McCarthy served as chief operating officer for the Computing Technology Industry Association (CompTIA), a trade association representing all sectors of the information technology industry. McCarthy led efforts to expand the group’s membership and its products and services. Today, CompTIA has members in more than 100 countries and has become the world’s largest provider of vendor-neutral IT certifications.

Prior to joining CompTIA in 1999, McCarthy was executive director of the International Reprographic Association, Printing Industry of Indiana, and Master Printers Association of Illinois. He is a graduate of University of Illinois.

New Hire at Greenblock



Eric Williams has been hired by Greenblock Worldwide, Inc. Williams, an ICF marketing expert, has worked previously for American PolySteel and BuildBlock Building Systems, and will be on hand at the upcoming ICFA meeting in Portland. With his new responsibilities, he will be based in Edmond, Oklahoma.

Sales Transfer at Con Forms



Con Forms, manufacturer of a popular line of concrete pumping systems and accessories, has announced that Brenda Pangrac, has relocated from the Houston branch to the company’s national headquarters in Port Washington, Wisconsin.

Pangrac has worked for Con Forms in Houston for over 20 years. She will be joining the inside sales team in Wisconsin while still serving clients in Texas and Louisiana customers.

New Residential Coordinator at PCA



Lindsey Kuhn has joined the PCA as residential department promotion coordinator. Kuhn will, among other duties, assist staff in managing PCA’s presence at trade shows, produce an electronic newsletter, revise the residential website, produce and revise publications and represent PCA at meetings and through presentations. Lindsey’s hiring brings the residential department back to full strength for the first time since August 2007.

Lindsey’s previous position was with Ozinga Ready Mix in Mokena, Ill., where she was involved in marketing, public relations and interdepartmental education for their decorative concrete division. Lindsey is a graduate of Trinity Christian College in Palos Heights, Ill. ■

MIKEY BLOCK
Easy to Build.
Tough to Beat.

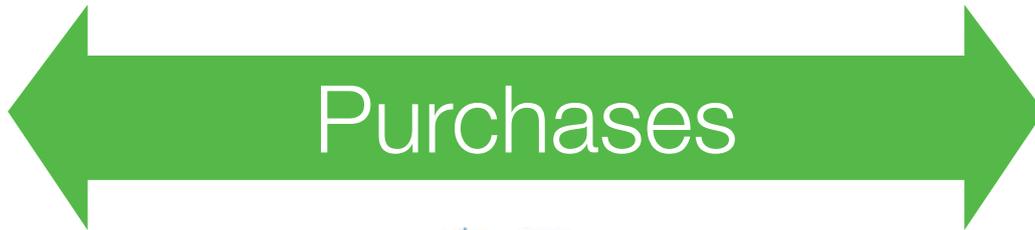
Mikey Block is the **Easy-To-Build** ICF system. Our OSB inserts make stacking the blocks **quick and easy**, and provide a convenient attachment detail for drywall and lath. Our Foam Bucks make door and window placement **a breeze**. Mikey Block uses **less concrete** and requires **less bracing**, saving you **time and money!**

MIKEY BLOCK...Easy to Build. Tough to Beat.

Mikey Block LLC
501 E. 27th St. Tucson, AZ 85713
PH. 520.623.3023

FAX 520.623.8811
www.mikeyblock.com
mikey@mikeyblock.com

ARXX™



Industry Pioneers Join Forces

Arxx Corporation has purchased American PolySteel, LLC; the move joins two of the oldest insulating concrete form manufacturers in North America.

"After celebrating 30 years of leadership in the ICF industry, we are pleased to be joining the Arxx organization," says Patrick Murphy, President of American PolySteel.

The move is the latest in a series of acquisitions by Arxx, which was purchased by a group of investors last fall. (See "The New Face of Arxx" on p.16 in the Apr. '08 issue of this magazine.)

"Our overall strategy moving forward is to position ourselves globally, with a major presence in both residential and commercial markets," says Robert Coveney, vice president of sales and marketing at Arxx. "Clearly, the best way to fast track this goal is to add a few of the players with

those capabilities to our organization."

"American PolySteel is a solid company, with a great reputation and solid positioning in the market place," Coveney continues. "Because of the work they've done, they were a great match."

"PolySteel has a very strong brand and distribution network, and is an extremely well respected company," adds Frank O'Dea, president and CEO of Arxx. "It also shares the same goal of providing sustainable building solutions globally."

American PolySteel is the only company that offers a "Cradle-to-Cradle" certified ICF. They also offer the most diverse line of ICFs, with both a flat wall and



waffle-grid form, and a choice between plastic and steel ties. The plastic tie form is a knockdown, field-assembled variety, which gives installers a full range of options.

These products will be another "element" Arxx Corporation can offer as part of their "green envelope solutions" strategy.

"PolySteel's ICF products and solutions complement what is currently being offered by Arxx," says O'Dea, "so this outcome was a

very logical step for the two companies.”

Coveney also notes that PolySteel has “very good positioning in the UK” and internationally, which will strengthen the Arxx Corp.’s position overseas.

Andy Horgan, who oversaw PolySteel’s international markets, is moving into a similar responsibility with Arxx. Virtually all the other PolySteel execs, including president Pat Murphy, are in short-term “transitional” positions through the end of the year.

At the distributor level, however, executives claim very little will change. “A PolySteel distributor will be a PolySteel distributor and Arxx is Arxx,” says Coveney. “Our long term interest is keeping the PolySteel brand intact.”

Individual distributors, however, are more cautious. Murphy admits that some of them have expressed “some anxiety about the transition.”

“We have tried to make clear that this represents an extraordinary opportunity to do things that otherwise would not have been possible,” says Murphy. “In a short period of time, an overwhelming majority of our distributors have said they’re happy with that. There’s a real opportunity to expand their product line, and speak from a stronger position of industry leadership.”

With the new ownership, PolySteel distributors will get better marketing and technical support—departments which have been consolidated to Arxx headquarters—and a network of regional managers.

“What we’re doing is bringing some support,” confirms Coveney. “Anytime there’s change, there will be some insecurity, but once distributors have three months of living it, and know that it really is ‘business as usual,’ they’ll see it’s a great deal.”

Arxx regional managers are optimistic as well, acknowledging there may be some short-term issues to work out. “We’re excited about the growth of the company and the ability to provide better, stronger service to distributors across the board,” says Randy Daniels, regional manager for southern California and surrounding areas. “In the long run, it will be good.”

Arxx Corp. has not yet completed
Continued on bottom of p. 16

www.giraffebracing.com

Giraffe
Insulated Concrete Form
BRACING

From Standard 10' Bracing to Tall Wall Applications up to 20' High

See Our Web Site for Amazing Features—Like the Only Efficient and Organized Racking System on the Market!

See us at the ICFA show in Portland

call 1-888-890-6050

LEGALETT®

Conquer Unstable Soils

LEGALETT Radiant Floors eliminate frost walls and minimize excavation. Building on unstable and difficult soils is fast and cost effective with LEGALETT!

www.legalgett.com • 1.866.299.7567

Arxx Acquires Uniscaffold

In yet another acquisition, Uniscaffold LLC has been purchased by Arxx Building Systems.

Uniscaffold claims to be the fastest and most cost-effective bracing system in the world for ICF tall walls, functioning as bracing, scaffolding, and staging area in a single product.

The design is based on the Arxx high wall bracing system, which Uniscaffold inventor Al Peterson modified to create his improved product. The system has braced walls more 50 feet tall, and contractors say it saves significantly on time, money, and peace of mind.

Peterson will continue his association with the product, serving as commercial technical support and scaffolding manager for Arxx.

“Our new adventure with Arxx will really help get the commercial tall wall market into full speed for Arxx and Uniscaffold,” says Peterson.

As part of the acquisition agreement, Uniscaffold will only be sold to qualified Arxx distributors. ■






- ▶ Custom Build
- ▶ Solid Vinyl Windows & Doors
- ▶ Steel Reinforced
- ▶ Tilt & Turn
- ▶ French Doors
- ▶ Tilt & Sliding Doors
- ▶ Shutters & Screens
- ▶ Maximum Energy Efficiency
- ▶ Superior Design
- ▶ High Performance
- ▶ Available in 33 Colors
- ▶ Residential & Commercial

ASTM E-1886 • ASTM E-1996



LARGE MISSILE IMPACT TESTED



Phone: 770-287-9194 • Fax: 770-287-9828

www.europeanwindows.com



Continued from p. 15

their growth-by-acquisition strategy. In February, the original investor DFJ Element was joined by venture capitalist firms Nth Power and Emerald Technology. Funded to the tune of C\$16 million, they received even more financing when a fourth investor, Saint Gobain Corp. joined the group. Saint Gobain is a multinational construction products company, best known in North America as the parent company of CertainTeed.

“We are better positioned financially than anyone else in the ICF industry,” says Coveney. “We’re open to more acquisitions, if the right opportunities present themselves, but they have to match our strategy and market position.” ■



In today's changing economy,

THERE'S ONE CONSTANT...

World of Concrete—the industry's only annual international event dedicated to the commercial concrete and masonry construction industries. Focus on keeping your business strong.



hanley wood

FEBRUARY 3 - 6, 2009 | SEMINARS: FEBRUARY 2 - 6
Las Vegas Convention Center | Las Vegas, Nevada

FOCUS ON POTENTIAL. 1,700+ leading industry suppliers in more than 900,000 square feet of exhibits featuring innovative products, technologies, tools and equipment to give you new ways to sustain and grow your business.

FOCUS ON OPPORTUNITY. Outdoor Exhibits & Event Areas provide a continuous, hands-on supply of solid ideas, techniques, demonstrations, resources and connections that will help you compete.

FOCUS ON EDUCATION. The industry's top program with more than 150 seminars packed with powerful strategies and the knowledge you need now to improve your skills and manage your business.



For more information, call (toll free) 866-962-7469 | Email: contactus@worldofconcrete.com | To exhibit: exhibit@worldofconcrete.com

REGISTER ONLINE AT: www.worldofconcrete.com
and SAVE on Seminar and Exhibits-Only fees.

SOURCE CODE: ICF

Certified by the U.S. Department of
Commerce International Buyer Program





The Aledort residence in Rancho Bernardo, Calif., endured a literal baptism of fire during last fall's firestorms near San Diego. The fires destroyed more than 2,000 homes, but the Aledort residence survived unscathed, thanks in large part to its fireproof ICF walls.

FireProof ICFs

Photo by Nadia Borowski Scott/San Diego Union-Tribune

In most areas of the United States, the greatest threat to homes and commercial structures is not hurricanes and tornadoes, but wildfire.

The U.S. Fire Administration (<http://www.usfa.dhs.gov>) reports that fire kills more Americans than all natural disasters combined—averaging more than 3,700 people—plus another 20,000 injured—every year in the last decade. Direct property loss due to fires in 2006 is estimated at \$11.3 billion.

Fortunately, homes and buildings made from insulating concrete forms (ICFs) offer exceptional protection from the flames.

“Of all construction materials, concrete is one of the most resistant to heat and fire,” reports the Portland Cement As-

sociation. “Experience shows that concrete structures are more likely to remain standing through fire than are structures of other materials. Unlike wood, concrete does not burn. Unlike steel, it does not soften and bend.”

Laboratory tests have shown that while wood frame walls exposed to flames will collapse in an hour or less, ICF walls can withstand the intense heat for four hours or more. Field evidence supports this conclusion.

Business Protection

Tony Ellsworth, owner of Ellsworth Bikes in Ramona, California, credits ICFs with saving his business from intense wildfires last fall. The walls of his high-end bicycle manufacturing facility are made

from ICFs instead of traditional wood studs and sheet rock.

The Witch Creek Fire, which tore through the San Diego region last October, is likely the worst natural disaster to ever hit that area. It forced more than half a million people from their homes and destroyed more than 2,000 residences.

“In an event like that, the fire departments’ primary concern is saving lives,” says Ellsworth. “To expect a fire truck to be sitting there on the curb just to protect your house is not always realistic.”

Ellsworth’s neighborhood was hit hard. “The flames came right up to the doorstep and completely surrounded the home. Then the winds changed, and the fire came back again,” says Ellsworth. Forced to evacuate during the worst of the

fires, he was shocked by the devastation he returned to.

"It brought tears to my eyes," he says. "I was seeing house after house that had been completely leveled, and then there, on top of an absolutely charred hill, was my home and warehouse, virtually unscathed."

Ellsworth was first introduced to ICFs when he began building in 2002, and he was so impressed that he became a form distributor.

He found that neighbors' interest in the material skyrocketed after the fires. "Almost immediately, people were asking me to tell them about this." He organized a "fire survivor workshop" that met weekly to help them sort out rebuilding options, file claims with the insurance industry, and talk about ICFs.

"Sustainability means energy conservation and wise use of resources, but it means more than that," he says. "It means being able to stand up to whatever disasters or threats are likely in your area so you don't have to rebuild."

Wildfires

Pat Callahan's home was also targeted by last fall's fires. Even though the raging inferno burned right up to the walls—the intense heat melted the vinyl windows—the house survived largely unscathed.

The 3,200-sq.-ft. home outside of Escondido is made from Nudura ICFs, with a 6" core of solid concrete in the exterior walls. "I swear by that type of construction," Callahan says.

The home had been completed barely 6 months when the fires came. It's one of the few that survived. "Everything to the west is gone," said Callahan, who evacuated when the flames approached. "The wind was incredible." When the vinyl window frames melted, the glass collapsed inward, and the home suffered minor smoke damage. Otherwise, damage was minimal.

Five miles away in Rancho Bernardo, Lorraine Aledort waited out the fire in her ICF home. After years of construction, she and her husband had moved in just weeks before the fire.

In addition to the ICF walls, Aledort

incorporated a number of other fire-resistant building techniques. These include a concrete tile roof, aluminum frame windows, interior fire sprinklers, and large wooden beams that resist fire better than smaller ones.

"My subs (subcontractors) called me the queen of overkill," said Aledort.

But the measures work. Surrounded by charred vegetation and ruined homes, the Aledort residence stands out like an

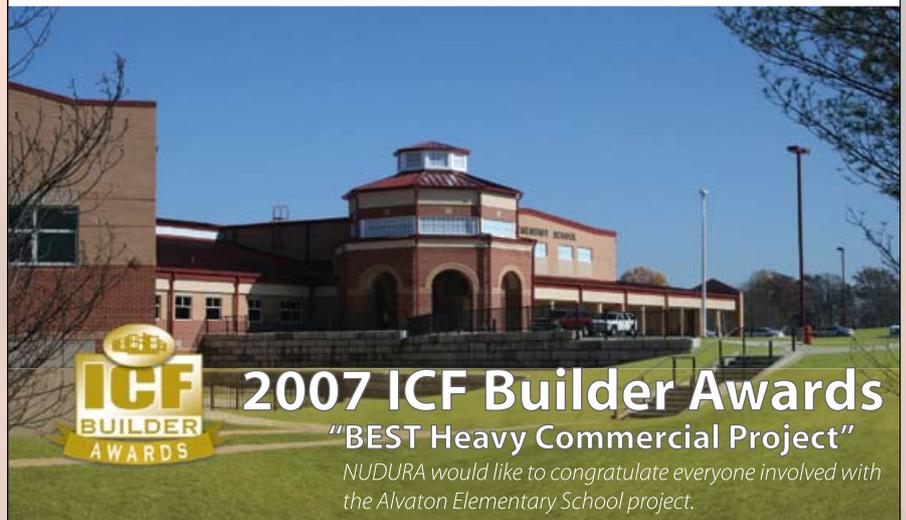


oasis in a fire-scarred desert.

"It was comforting to know that the home itself was going to be fire-resistant," she says.

The Better Way To Build

Join builders around the globe that have switched to NUDURA



"BEST Heavy Commercial Project"
NUDURA would like to congratulate everyone involved with the Alvaton Elementary School project.



T Forms



45's



Custom Radius Walls



Largest Standard form on the market



90's



Brick Ledges

NUDURA gives you the most diverse range of forms to build with and the most technologically advanced.

- NUDURA® Forms are larger covering 12 sq. ft. reducing labor and increasing productivity.
- NUDURA® Patented Locking Mechanism stops float and compression, eliminating the need to secure forms with tape or wire.
- NUDURA® Forms come to the job site pre-assembled available in 5 standard core thicknesses, using NUDURA's innovative hinged folding web.

Visit Nudura.com and download our product catalogue.

Contact us today for a local distributor in your area

www.nudura.com 866-468-6299



Building Has Evolved™

™ are registered trademarks of Nudura Corporation



Photo Courtesy Reward Wall Systems

Built in a rural region of the Oregon Coast, a fire in the Anderson residence garage burned for 35 minutes before the fire department arrived, yet the damage was contained to the garage, and no personal belongings were lost.

George Easton an ICF designer and builder involved with the construction of both homes, says they came through with flying colors.

I wouldn't have minded staying inside," he says.

Bill Rentsch, owner of Rentsch Construction in Reno, Nev. had a similar close call. Rentsch and his wife Cindy had been living in their new home less than a year when a fast-moving wildfire swept

through the area. Fueled by tinder-dry brush and pushed along by winds that gusted to 40 miles an hour, the whole area was soon engulfed in flames.

"The flames got within 20 feet of the house, and the heat of the fire was so intense it broke one window," said Daniel Rentsch, architectural designer of the home and son of the owners. "But... it didn't suffer even smoke damage."

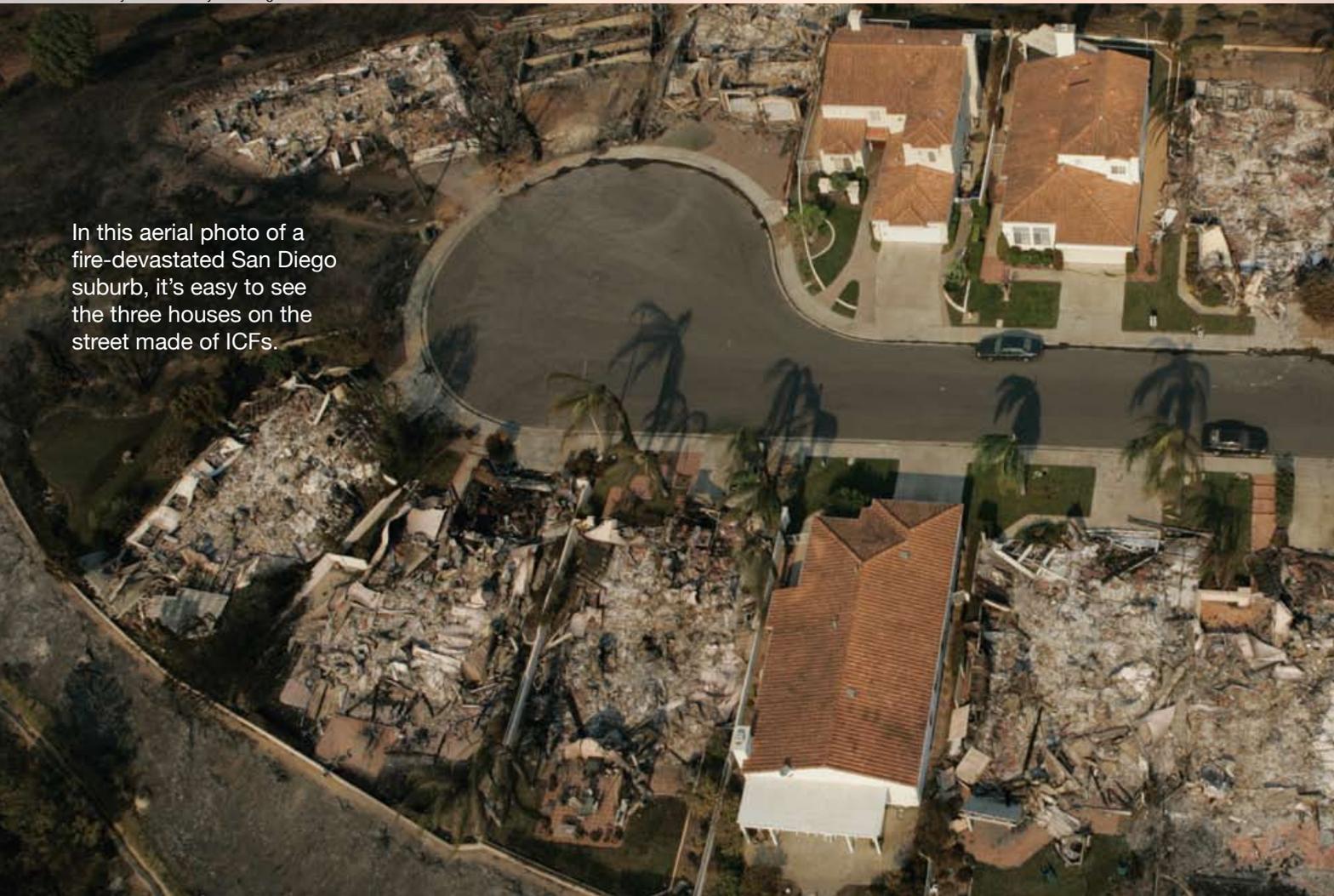
Most of the neighbors were not so

lucky. Fifteen homes in the neighborhood burned to the ground, leaving only the chimneys to mark the sites of what were once stick-built homes.

The Rentsch's had built with Nudura ICFs, using an 8-inch core for the walkout basement and 6-inch core for the rest of the house. The fire-resistance and tightness of the exterior walls saved the home—and all their personal belongings inside.

Photo by Sean Hafferty/San Diego Union-Tribune

In this aerial photo of a fire-devastated San Diego suburb, it's easy to see the three houses on the street made of ICFs.



Accidental Fires

Of course, not all dangerous fires start outside the residence. Neal and Linda Anderson had a fire break out in their home just three months after they moved in. Built on a remote area of the Oregon coast, the home was everything the Anderson's had hoped for, with a beautiful view of the beach and the abundant wildlife.

According to Mary Lou Fletcher, fire marshal in nearby Pacific City, hot ashes smoldering in a garage trashcan triggered the blaze, eventually spreading into the attic before it triggered a smoke detector.

The family and neighbors stood in the driveway and watched it burn for 35 minutes before the volunteer fire department arrived with a truck large enough to tackle the blaze.

Built from Reward ICFs, the home was not fire-proof, but it did resist the flames far better than an ordinary house would.

"Any other house would have burned to the ground," says Fletcher. "When there is a fire in this remote of an area...by the time we get to the scene, the frame houses are gone. But in this case, the plastic flowers in front of the house didn't even melt."

Despite significant damage to the interior, Linda Anderson says, "We were able to save all our furniture, clothing, jewelry and photographs."

"I'm so grateful for these walls," she continued. "I built them the first time for their energy efficiency. I wasn't even thinking about



ECO-BLOCK

GREENER, STRONGER, SAVING EARTH'S ENERGY




If this storm was coming at your home... How safe would you be?



F2 Tornado
Attica, KS May 12, 2005
as seen on the
History Channel Program
Shockwave - Episode 1



Home after storm remodel
with roof replaced.



This family survived the storm with
ECO-BLOCK walls still standing!

ECO-BLOCK is the superior insulating concrete form. It's simple, easy to learn, easy to install. It's faster, taking less time with fewer people. It's better, making it more versatile and easier to build. Stronger, quieter, safer, and vastly more energy efficient.

- Superior Thermal Comfort
- Contributes Significantly to Green/LEED ratings
- Peaceful, Quiet Interior
- Measureable Energy Savings
- Fire, Wind, and Storm Resistant
- Improved Indoor Air Quality



ECO-BLOCK®
Insulating Concrete Forms
800-503-0901
www.eco-block.com



REDUCE YOUR PROBLEMS WITH THE RUFF-NECK.™



Demand it from your pumper – or have your own!

CON FORMS 5" TO 3" REDUCING HOSE BEATS THE REST!



- Increases operator control
- Reduces form blowouts
- Reduces boom weight
- Reduces placement line cost
- Increases project safety

CALL 800-223-3676

or visit www.conforms.com for more information.




© 2007 Construction Forms, Inc.

CON FORMS | LEADING THE WAY IN CONCRETE PUMPING SYSTEMS

fire. There is no doubt in my mind that they saved our house, and may have saved our lives.”

Arson

Fire investigators in Kansas City, Kansas, say ICFs saved a home there when it was targeted by arsonists.

Just days before the new owners were set to move into the Habitat for Humanity home someone threw a gasoline firebomb at it.

Dennis Cranor, the local arson investigator, says that the damage was minimal compared to what it would have been with a wood frame house.

Built from Arxx ICFs and sheathed in fiber-cement siding, there was virtually nothing flammable for the flames to ignite. When firefighters arrived, the burning gasoline and glass, spread 12 to 15 feet along the front porch of the house, was easily extinguished.

Damage was limited to the plastic porch soffit, which had melted, and the front door, which the firefighters had kicked in to gain entry to the unoccupied house. There was no significant damage to the interior. “There was also some soot on the siding, but that wiped off pretty easily,” says Kelly Willoughby, executive director of Heartland Habitat for Humanity.

The local ABS news affiliate reported, “If the house had been wood, it would have been a total loss.”

Instead, repairs cost less than \$500, according to Willoughby.

Since the arson attempt, Heartland has constructed more than a dozen other ICF homes. “We are very proud of the quality of our ICF homes and continue to build as many possible,” she says.

Why ICFs Work

Insulating concrete forms resist fires in several ways.

The most obvious is their structural concrete core that will not weaken, warp, twist, or burn regardless of the fire’s heat.

In so-called “fire-wall” tests, ICF walls are subjected to continuous gas flames and temperatures of up to 2000°F for as long

as 4 hours. All of the leading ICF brands took the heat without any sign of weakening. In contrast, wood frame walls typically collapse in an hour or less. Note that these tests were performed on monolithic, or “flat-wall ICFs, with no breaks in the concrete layer. Screen-grid ICFs have fire ratings of two hours or less.

The concrete core also prevents fire by slowing the conduction of heat from one side of the wall to the other. In PCA fire tests, ICF wall segments did not allow enough heat through to start a fire on the cool side of the wall for 2-4 hours.

Contrary to popular belief, the foam used in ICFs will not burn. It will melt if exposed to high heat, but it will not contribute any fuel to the fire. In fact, it is virtually “self-extinguishing,” thanks to a flame retardant all of the leading ICF manufacturers add to the EPS foam.

The PCA conducted a flame spread test, and found that ICF foam is five times better than wood. They used the “Steiner Tunnel Test” to compare the two materials. In the test, technicians lined a tunnel with the test material, ran a fire at one end, then measured how far the flames spread. “The flames travel about one-fifth as far down a tunnel lined with ICF foams as they spread down a tunnel lined with wood,” the PCA report states.

The PCA also reports that smoke creaked by melting EPS is ‘no more toxic’ than burning wood, based on a review of existing studies conducted by The Southwest Research Institute. Studies by Reward Wall Systems report “less than half the toxins” of burning pine.

Additional Fireproofing

Of course, those who live in fire-prone areas are wise to take additional steps in addition to ICF walls. Aledort, the



Rancho Bernardo homeowner, used several, including sturdy windows and fire-resistant exterior finishes and roofing. Fiber-cement sid-

ing, stucco, and masonry are a few popular fire-proof finish options. Landscaping can also play a major role in keeping your home safe from wildfire.

On the inside, smoke detectors, automatic sprinkler systems, and steel wall studs can reduce the risk of interior fires getting out of control.

Business Advantages

Easton, a designer and builder near San Diego, says his business has skyrocketed since the catastrophic wildfires last fall.

“I don’t know how many homes we’ve built,” he says. “For a while we were designing a house a week.”

ICF’s fire resistance gives contractors and distributors a unique business advantage, offering homeowners unprecedented safety from fires and other natural disasters.

Reward was the first company to earn a noncombustible building code approval. Several others, including Greenblock, Logix, and PolySteel have a fire rating of 4 hours or more on their 6” core ICF.

Gray “composite” ICFs, such as Rastra and Amazon, are virtually fireproof even without cladding.

Kelvin Doerr, vice president of engineering and technical services at Reward Wall says, “[ICF] structures are widely known for their safety in tornadoes and hurricanes. Of equal importance is safety in case of fire, and Reward walls offer unprecedented fire safety.”

Easton notes that in his area, concrete roofs are becoming increasingly popular. (See related story on p. 24) “We’re doing more and more homes with flat roofs,” he says. He built several homes this style on the nearby La Jolla Indian Reservation, where nearly 90% of the structures were destroyed by fire. “They told me there were embers coming down as big as hot cakes,” Easton says. Concrete roofs can also be sloped, and can be created using steel joists, EPS decking, or pre-cast concrete slabs.

“If you build with ICFs,” he says, “you don’t ever need to lose another house to fire. ■

Why Didn't We Use This Photo?



The home in the photo above perhaps the most famous “fireproof ICF” photo, isn’t actually made from ICFs. First publicized by the Portland Cement Association (PCA) more than 10 years ago, it has since been used by ICF organizations, the concrete masonry council, and removable concrete form promoters. In fact, the home wasn’t built with any of these technologies, despite appearing on numerous ICF and masonry contractor websites.

The house in the dramatic photo, is actually traditional wood frame construction. I’ve spoken personally with the

Laguna Beach, Calif. fire marshal and several local ICF distributors who confirm this fact.

Mike Collignon, residential program coordinator at PCA, also confirmed that the home is wood frame.

The photo was taken by an Associated Press photographer shortly after the Laguna Beach wildfires of 1993 in Southern California. Because of the home’s dramatic survival, it was closely inspected by local building code officials and fire inspectors to determine why it had survived when all the others on the hillside were destroyed.

The answer, in short, was attention to detail—something that will increase the fire resistance of any home. The exterior finish, a true cement-based stucco, was a full ½” thick and meticulously applied. Even the soffits and undersides of the decks were stuccoed, so the flames were unable to find a foothold. Similarly, the roof tiles are a fire-proof cement/clay tile, which prevented the roof from catching fire.

“It does prove that cement-based materials have excellent fire resistance,” says Collignon, “but to say it’s anything but a wood-frame house would be inaccurate.” ■

RAM
SNAP
Made in the USA

ONE FASTENER DOES IT ALL!



COMPATIBLE WITH ALL ICF BLOCKS

1-888-572-6762
www.RamSnapPro.com

More Versatility. Less of Everything Else.

The vertical ICF that is:

- Simpler** — Half the parts, half the training.
- Faster** — 2/3 the labor and time for assembly.
- Lower investment** — Build from the ground, without scaffolding.



T
SYSTEM

www.tfsystem.com 866.983.9960

Insulated Concrete Forms
The Vertical ICF

Sloped Concrete Roofs

Topping an ICF structure with a concrete roof has a number of advantages. Perhaps the most obvious is disaster resistance. A concrete slab will protect belongs and occupants from hurricanes and tornadoes, and is completely fireproof. (For more information, see *Total Shell, Total Protection* on page 28 of this issue.)

They can support an enormous amount of weight, so concrete roofs can be converted into decks, rooftop gardens, or even additional parking space.

And coupled with a foam forming system, such as Lite-Deck, concrete can create a high-performance roofing system that “completes the energy envelope.” Just like ICF walls, the combination of foam and concrete in the roof protects interior spaces from outside temperature fluctuations. Near airports, these “ICF roofs” have proven to dramatically reduce sound infiltration.

But just because a home has a concrete roof doesn't mean that it has to be flat. Thanks to innovative forming systems and improved design software, sloped concrete roofs are easier now than ever before. A few builders, like Mike and Dustin King of Ateq Engineering, are taking on incredibly complex roof designs, with multiple hips, valleys, and ridgelines, and constructing them out of concrete.

The Kings have designed and built a number of complex, sloping concrete roofs in North Texas. One was installed on the 15,000 sq. ft. Hoffman residence just east of Dallas in Forney, Texas. It has 15 rooms on three levels, and the roof is unbelievably multi-faceted. King even did the bay window roof.

“Most of it was done the same way we do a typical Lite-Deck installation,” says Dustin King. “When it's on a slope like that, we take a piece of wood and cut it to match the slope, so the shoring can brace off a surface parallel to the floor. We can run a screw through

the top of the bracing, through the wood and into the light-gauge steel stud to make sure that nothing moves.”

He uses adjustable Pro-Shore bracing, with beams running 6 feet on center and posts about every 4 feet.

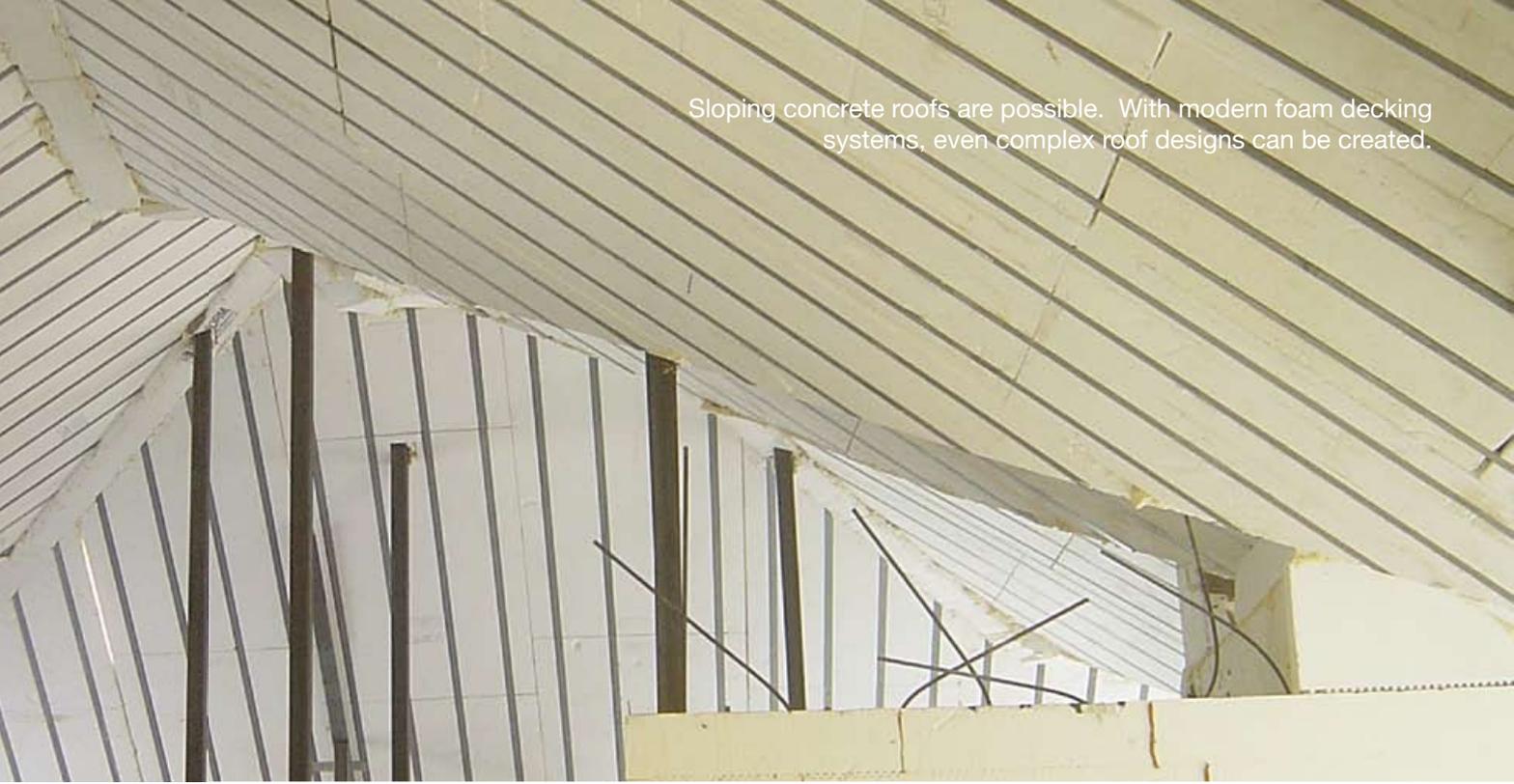
King uses a regular low-slump concrete for most roofs. “We used a 3-inch-slump mix on that project—it has a 7:12 slope—and it stayed in place no problem. I think the steepest we've personally done is a 9:12 pitch, and it worked out just fine.

Pat Boeshart, inventor of the Lite-Deck system, points out that placing concrete on a sloped surface is not new. “They've been

Foam decking creates a series of beam pockets, which are filled with reinforced concrete. Pockets running parallel to the ridgeline are usually cut into the foam on site. Some designers recommend a monolithic slab poured over the top of the beams. Others design the final roof finish to be applied over the foam.



Sloping concrete roofs are possible. With modern foam decking systems, even complex roof designs can be created.



doing it since the 1960s on concrete-lined canals and stormwater drainage channels,” he says.

Perhaps the most difficult challenge for sloped roofs is the engineering and design work.

“A sloped concrete roof is much more complicated,” King confirms. “Hips and valleys have to be engineered, and a lot of it is using experience and professional judgment.”

On the Hoffman home, King spec'd a steel I-beam at the ridge line, with the Lite-Deck running perpendicular to the ridge. “We’ve done a lot of steel ridge beams, but we’ve also done a number of

concrete beams too,” he says.

Channels for concrete beams were cut into the foam at all the hips and valleys. A channel was also cut in the foam halfway between the eaves and the primary ridge line, to tie the other concrete beams together and help support the ridgeline.

One unusual feature of this home is that the roof does not have a monolithic slab poured over the Lite-Deck. Concrete was placed in the beam pockets level with the surface of the foam, but no additional concrete was poured above that.”

“There’s no reason why you couldn’t do the slab,” says King. “In this case, it was just the way it was done.” The roof was surfaced with Fossilcrete, which was stamped and colored to resemble shingles. The same product was used on the exterior walls, which were carved to resemble ashlar-cut limestone.

Cloyd “Joe” Warnes, a concrete expert and consulting engineer, has more than 40 years of experience with pitched concrete roofs. He built one of the first “all concrete” homes in California in 1966 as part of a study by the U.S. Dept. of Housing and Urban Development (HUD). Warnes points out that if the concrete roof is properly tied into the ICF walls, the entire structure is significantly stronger.

That’s precisely what King did with the Hoffman home. “We brought the bars out of the ICF wall several feet and tied them into the roof beams. All of the beam connections have ample connecting steel in them.”

All three major brands of foam decking, Lite-Deck, Insuldeck, and Amdeck, have engineering details available on how to make these connections.

Warnes notes that pitched roofs can be built using a number of other technologies—such as steel joists and plywood—but only foam decking includes the insulation, sound attenuation, and other



All Photos Courtesy Lite-Form Technologies



Foam decking can be capped with a solid concrete slab for maximum protection, or finished with just the beam pockets (bottom right.) The decision will affect the amount of bracing required when the foam panels are set in place (bottom left.)

All Photos Courtesy Lite-Form Technologies

features most owners will want.

At a presentation he gave at the fall 2006 ACI meeting, he explained the general design process. First, design the structural supports at the ridgelines and in the valleys. Second, determine how the building eaves will be formed and shored. Next, calculate the planking (or other forming) requirements, shoring and rebar needed.

The actual construction process follows those steps quite closely. After the ridgeline beams are installed, contractors form the eaves, shore them, and then place the forming for the rest of the roof. After that is also shored, the rebar is placed and tied into the walls. Any additional beam pockets are cut into the foam at this time. When everything is in place, the concrete is poured, first in the beam pockets, and then as a slab over the entire structure.

The Hoffman home is built without eaves, but King says there are a number of different ways it can be done. “We’ve done it a

couple of different ways. You can end the concrete at the wall, but run the foam out past the wall as eaves. We’ve also formed the eaves with plywood, shored it real well, and poured it with the rest of the roof. Western Forms has an eave form that we’ve used and had good success.” Another possible method is to frame out the eaves as with traditional construction.

Whatever method of pitched roof construction you choose, King says one key is to work closely with the installer and manufacturer. “The beams on that job came out of our plant at Amarillo, and were delivered to the jobsite pre-cut,” says King. “We worked closely with Ross Raines [the builder] to ensure it went well.”

With foam decking, interior finishes are installed just like they would be in ICF walls. Chases and light boxes are cut in with a hot knife. Insuldeck has pre-cut utility chases molded into the foam. Sheet rock is attached to the integral furring strips. Sometimes, a dropped ceiling—similar to commercial construction—is installed.



Fast Facts

Location: Forney, Texas

Size: 13,000 sq. ft.

Completion Date:

August 2007

Owner: Alan Hoffman

Builder: Ross Raines

Roof Installer:

Ateg Engineering

Project Engineer:

Ateg Engineering

Exterior Walls:

Buildblock ICF

Roof: Lite-Deck

Exterior Finish: Fossilcrete

King and Warnes are both enthusiastic about the future of pitched concrete roofing. Warnes claims that with the worldwide availability of foam decking, "the last barrier to practical construction of all concrete houses has now been breached."

King was introduced to the technology through Pat Boeshart and others at Lite-Deck, and calls it "the greatest thing." "It really is a great product," he says. "We're still developing what you can do with foam." ■



LITE-DECK[®]Tilt
Site-Cast Concrete Wall System

The Site-Cast, EPS Tilt-up Form System with
MORE PROFIT CHOICES!



Insulated Panels • Sandwich Panels • Un-Insulated Panels

Regional MFG. : FL GA HI NE OK SD TX VA DR

LiteForm
TECHNOLOGIES

©2008 LITEFORM TECHNOLOGIES

PO Box 774 - Sioux City, IA. 51102

Email: general@liteform.com

Ph: 800-551-3313 or 402-241-4402

www.liteform.com

YOKE & TIE™ — REBAR CHAIRS FOR
ICF FLOORING & DECKING SYSTEMS



Use Yoke & Tie™ instead of rebar and wire to support and straighten perimeter walls when installing any ICF decking system.

VBUCK[®] Brand Ancillary Products for all
Insulating Concrete Form Structures.

Since 1995

www.vbuck.com • 1.888.578.2825

Vbuck® is made of
100% Post-Industrial
Waste 



Total Shell Total Protection

by Pieter Vanderwerf

Are you putting a Chevy roof on a Cadillac house?

Around the year 2000, people in the ICF industry started to use the name “total shell” for a building with ICF walls and a concrete roof. This type of construction offered to extend the benefits of ICF walls. Resistance to natural disasters would be more complete, energy efficiency even greater, sound penetration even lower, and interior comfort better.

Hundreds or thousands of total shell buildings have been constructed in North America since. To date the building performance appears to bear out the high hopes. However, the cost and logistics of building a concrete roof are serious considerations.

The Principle

To understand the value of a total concrete shell, imagine building a house with just one wall of concrete. The other three walls and roof are still wood frame. What happens when a severe

hurricane blows through? Depending on the wind speeds and the care used to build the frame, there is a good chance that the frame portions of the house are destroyed. The concrete might fall over too because it had nothing supporting it. The interior would be trashed. So the construction of one concrete wall was virtually no help at all.

If two walls were constructed with concrete, they have a better chance of remaining standing because each one would support the other. But otherwise, things would be not be much better.

Once you get up to four concrete walls, we know from experience that the walls will almost certainly remain standing. The roof may blow off and the interior might be trashed. But on the plus side, rebuilding would be cheaper and easier because the exterior walls would be usable.

But if the roof were also concrete, then (1) the structure could withstand all but the most severe disasters, and (2) the interior

should be spared significant damage.

Similar reasoning goes for the other benefits of ICF walls. Adding a concrete roof will sharply improve energy efficiency, sound reduction, and comfort by fixing a major “weak spot” in the building envelope.

Wind Resistance And Roofs

In the wake of Hurricane Andrew (1992), an engineering research team headed by Dr. Ronald Zollo of the University of Miami surveyed the damage. They observed that many of the houses had lost their roofs. This apparently happened through either one of two mechanisms.

In some cases, the wind got underneath the eaves and peeled off a sheet of plywood there. Once one sheet was gone, more wind entered through the hole and peeled off a second, and so on. With the sheathing gone it was easy for the wind to blow over the trusses or blow them off altogether.

In other cases, the wind blew in through broken windows or the garage door. Air rushed in through these openings, creating pressure inside the house that suddenly popped the whole roof off.

The remaining walls were then without the diaphragm that connected them structurally. With the roof gone, the walls of many wood frame homes collapsed under the continued wind. The



Photo Courtesy Insul-Deck

concrete homes fared much better, but some of them lost some of the weaker parts of their exterior walls.

But even if the walls survive, losing a roof that is, say, a third of the total exterior surface can still result in damage that is the bulk of the value of the building. According to Rose Geier Grant, Research Program Director for State Farm Insurance, “High wind situations usually also involve rain. So when the roof is gone the contents and finish materials of the building become water damaged. The wind rushing indoors at the same time also smashes things inside. In

floorSPAN™

by Metwood

The Ultimate ICF Concrete Floor System

Do more in one pour with *floorSPAN™*. Because *floorSPAN™* is based on Metwood's patented *SPANtechnologies™*, the system can accommodate large rooms with fewer vertical supports. *floorSPAN™* is sure, solid, and Radiant Ready. For Decks and Mezzanines use *deckSPAN™*. Run utilities and HVAC right through Beams!

SPEED SCHEDULES

1. Install Beams.
2. Install Decking and Reinforcement.
3. Install Radiant Tubing.
4. Pour Floor.



Spans up to 34' x 38' Without Vertical Supports

- Radiant Ready
- Run Utilites and HVAC
through Beams

For more information visit us on the web at:

www.metwood.com

METWOOD
BUILDING SOLUTIONS
A Publicly Traded Company, NASD-MTWD

Build Green... Build Greenblock®

- ~ Strong
- ~ Safe
- ~ Quiet
- ~ Energy Efficient

Builders... Earn up to 20 LEED Points when you
Build with Insulated Concrete Forms from Greenblock

Building green for over 40 years.

800-216-1820 | www.greenblock.com

BarrierXT

New Revolution in Under Concrete Insulation



New!
3/4"
Thick

- 3/4" Thick 4'x60' Rolls
- Insulates from Heat Loss
- Patented Self Taping Seams
- 100% Moisture-Proof
- Radiant floors
- Snow and ice melt
- Sub-floor insulation

Call Northwestern Ohio Foam Products to find out why **The Barrier** and **BarrierXT** are the best solutions for under slab insulation.



800-339-4850

WWW.THEBARRIER.COM

many cases when the roof goes, we end up declaring the building a total loss for insurance purposes."

Of course a concrete roof changes this equation. Concrete is heavy. Almost all concrete roofs are connected to the walls through rebar that extend a couple of feet into each member. The roof is also reinforced by more rebar at regular intervals. For these reasons it is difficult to blow all or part of the roof off, even if broken windows or garage doors provide an easy path for air to get inside and pressurize the house. When the "irresistible force" of wind meets the "immovable object" of a reinforced concrete roof, the roof usually wins.

Concrete Benefits

In the most wind-prone areas, a concrete roof can significantly reduce insurance premiums. But it has marketing benefits anywhere disaster strikes.

David Pfanmiller of Security Building Group has constructed homes with a concrete ceiling (or "lid") along the coasts of Mississippi and the Carolinas. "The biggest payoff on the Gulf Coast is insurance. Right along the coast commercial insurers aren't issuing policies anymore, so you have to get your coverage from the state wind pool. On a \$500,000 house your premium is around \$12,000 per year—way above what it is in most places. But in our construction we try to meet the requirements for what the state calls a 'fully wind-resistant structure', and the only way to do that is with a concrete lid. If you meet those requirements, you can get the insurance down to \$3,000-4,000."

In Florida, says Bev Sturm of Bankers' Insurance, there is also a discount. The state of Florida mandates that all insurers

Placing concrete for a "lid".



Photos Courtesy: Lite-Form

must reduce the wind portion of the premium by certain amounts for important disaster-resistance measures. The discount for a concrete roof works out to about 5%.

According to Sturm, "Practically everyone in Florida gives a discount for concrete walls. We insurers vary a bit, but some companies have a premium that's 25% lower for a house with concrete walls. But the roof discount is legislated here in Florida. There's no choice and no variation. Otherwise, insurers might not give it."

In fact, a check with local offices across the U.S. reveals that almost no one outside of Mississippi and Florida offers a discount for a concrete roof. Even insurers in wind-prone North Carolina don't make a distinction between houses that have concrete roofs and those that don't, says Pfanmiller.

On the other hand, the market appeal of a concrete roof can be high in wind-prone areas regardless of whether there is an insurance discount. A survey of homebuyers sponsored by the Portland Cement Association in 1998 found disaster resistance to be the second most-cited reason that people choose ICFs for their houses (after energy efficiency). Not surprisingly, those citing disaster resistance tended to be concentrated on the coasts and in Tornado Alley.

Other Benefits

The other reasons to build a concrete roof are to extend the other benefits of concrete walls: energy efficiency, sound reduction, and comfort. Conventional wood roofs are a weak point for all of these purposes.

The energy efficiency of ICFs derives primarily from their high insulation levels, air tightness, and thermal mass. An ICF



Photos Courtesy Insul-Deck

Tired of Loosing ICF Jobs to Block or Poured Walls?

Sell *InSoFast*™ Panels to cover New or Existing Poured or Masonry Block Walls



- ✓ Fast, Easy Installation (200-300 SF per Hr)
- ✓ Full 1½" wide Studs for Solid Attachment
- ✓ Integrated Wiring Chases, both vertical and horizontal, means no Hot Knife needed
- ✓ Drainage Channels for Moisture Protection

When ICFs aren't in the Budget!



888-501-7899
www.InSoFast.com
 Dealer Inquiries Welcome

INNOVATIVE FIRE RATED INTERIOR CEMENT PLASTER

GigaCrete is proud to introduce Plastermax-ICF Base and Finish Coat - one of the only fire rated interior coatings for direct application over commercial and residential ICF construction. As a high-abuse resistant alternative to gypsum board, Plastermax-ICF is Class A fire rated with zero flame spread and smoke developed indexes. And, as an environmentally-friendly product, Plastermax-ICF exceeds USEPA and California air quality and VOC standards.

Build strong. Build forward.

PLASTERMAX™ -ICF

Base Coat

- Direct applied over ICF systems
- Code required fire protection for EPS foam
- One coat application - no lath required
- Eliminates requirement to install gypsum board

Finish Coat

- High abrasion & impact resistant veneer plaster finish
- Smooth and textured finishes
- Readily accepts paint & stain
- Ideal for high abuse commercial applications



WWW.GIGACRETE.COM

888-988-GIGA (4442)



Photo Courtesy FEMA

Inside a house that lost its roof in a windstorm.

concrete roof provides the same properties for the top of the building. In all these ways they exceed a conventional wood frame roof. Other types of concrete roofs must be well insulated to provide the same energy efficiency, but with that insulation in place they will perform in much the same way as the ICF roof.

Sound travels through wood frame much more easily than concrete because of the lower mass of the material. Sound through the roof is one of the major reasons ICF houses are not even quieter than they are. The concrete roof stops up that weakness.

Interior comfort is determined by the same factors that improve energy efficiency, so a concrete roof completes the “comfort shell” just as it completes the thermal shell.

The Last Weak Point

The one major part of the building envelope not yet accounted for is the windows. If a total shell building has cheap windows it will fall short of its potential just as an ICF house with a frame roof falls short. Double-pane, low-E, argon-filled windows help greatly in energy efficiency, sound reduction, and comfort. And these are usually included in quality construction anyway.

But for high wind resistance, more is needed. Conventional windows are susceptible to breaking from flying debris or severe air pressure. Once the windows are broken, more debris and high wind can go inside and do damage. The solution is either shutters or impact-resistant windows. Either of these stops most projectiles without allowing a complete break and a path into the house.

How to Build Them

A key question is whether the concrete roof needs to be sharply pitched. It is difficult to cast concrete on a slope, and nearly impossible to cast it when that slope is greater than 4-in-12. Not surprisingly, costs tend to rise rapidly with the slope. Many of the roofs constructed to date are therefore conventional gable or hip roofs with a pitch of about 3-in-12.

An alternative is to construct a less expensive “flat” roof. Most of these are actually very gently sloped from one end of the building to the other, creating what is technically a shallow shed roof. However, such a roof

requires that snow loads and water sealing be carefully considered.

Another alternative is to construct what builders are calling a “lid”. This is a truly flat deck to create a ceiling over the top floor. A conventional truss roof goes over this lid for water runoff and appearances. The truss roof may tear off in high winds. But the lid still protects the interior below the attic.

The popular new way to build a concrete roof or lid is with an ICF deck system. These systems consist of long foam forms, called “sections,” that are reinforced with light-gauge steel “joists”. Crews set them on the walls and brace them from below every 5-6 feet. Reinforcing steel, wire mesh, and concrete go on top to create a structural concrete deck with an under layer of foam. The steel joists inside the foam provide a place to attach sheetrock and fixtures. Clear spans of 38 feet have been achieved, according to George Hofer of Insul-Deck Corp. The final assembly, as with an ICF wall, is already insulated because the foam stays in place.

The ICF deck system is the most practical way to build a conventional-style pitched concrete roof. It is relatively easy to cut foam and light-gauge steel to create the angles needed for eaves and ridges.

If it is acceptable to build a shed roof or a lid, there are many other options. Perhaps the most popular is the composite steel bar joist system. With this system, the crew sets a series of special steel bar joists on top of the walls, slightly over four feet on center. Crossbars connect the joists. Workers lay standard sheets of plywood between the joists, resting on the crossbars. Mesh goes on top, and then the crew casts concrete 3-4 inches deep. The concrete locks onto the top of the joists. The crossbars and plywood are removed from below, leaving an elevated concrete slab with a deep joist about every four feet below. According to Jerry Rhodes of Hambro Structural Systems, clear spans of over 40 feet are possible with a deep enough joist. As there is no insulation in the system, it must be added if needed.

Cost

The biggest negative in deciding on a concrete roof is always cost. Contractors quote installed prices on concrete roofs that are 2-4 times the cost of a conventional wood truss roof. The lowest cost is for a flat roof or lid built by an experienced crew using one of the uninsulated systems.

The cost of ICF deck systems is usually closer to the high end because of the cost of the form material. But they do not require added insulation. Pitched roofs are at the top of the cost scale, and can go even higher for complex shapes.

According to product managers at major window manufacturers, impact-resistant windows typically cost over 15% more than conventional windows.

The Bottom Line

It is hard to argue with the benefits of a total concrete shell. The superior envelope provides disaster resistance, energy efficiency,

Placing concrete for a pitched roof on ICF deck forms.

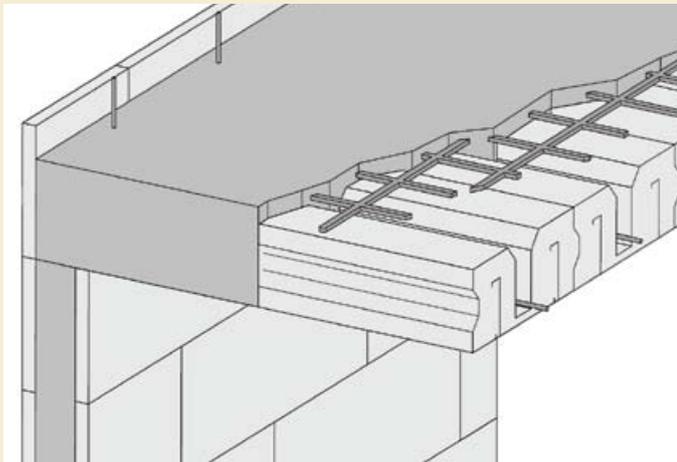


Photo Courtesy, Insul-Deck



Photos Courtesy ECO-Block

The ICF walls of the Robbins' home outside Attica, Kansas, withstood a direct hit from violent tornado. The concrete walls saved their lives. Unfortunately, the wood-frame roof was lifted away in the storm, and many of their belongings were ruined.



Cutaway view of a flat roof formed with an ICF deck system.

sound reduction, and comfort far more complete than with other materials. The availability and experience of crews to do the work is also increasing as the practice becomes more common. Still, reports of contractors suggest that currently concrete roofs and lids go on no more than about 5% of all ICF homes, and a somewhat higher percentage of the small commercial buildings.

The value is there. Future use will depend on how cost-effective the market can make the products and installation.

Pieter Vander Werf is President of Building Works, Inc., a consulting company that helps companies with new construction products. He can be reached at pvander@buildingworks.com, and his company at www.buildingworks.com. ■

2008 ICFA Annual Meeting & EXPO

2008 ICFA Excellence Awards
EXPO Hall - with NEW Live Demos!

Exciting Keynote: "Integrating Sustainability - A Business Case for Lean and Green"

TWO Educational Tracks:

For the Contractor:	❖ High Performance Homes	❖ Rightsizing HVAC Systems
	❖ Update on Concrete	❖ Combining Forces: ICFs, SIPs, Steel
Growing the Market:	❖ Marketing Tech & Talk	❖ Reaching the Commercial Market
	❖ The Green Building Market	❖ Production Builder View on ICF

EXTRAS! Pre/ Post Conference Events
 NAHB Course "Building with ICFs" & **NEW ICFA** "Sustainable Solutions with ICFs"

Sept. 29 – Oct. 1 ❖ Portland, OR
 Register today at: www.forms.org

Disaster Resistant Finishes

A range of ICF-friendly finishes exist that are reasonably priced, easy to apply, and look great, while withstanding nearly every threat imaginable.

Photo Courtesy ORO Coatings

In standing up to Mother Nature's worst—hurricanes, tornadoes, and fire—the exterior finish is almost as important as the wall itself?

Luckily a range of ICF-friendly finishes exist that are reasonably priced, easy to apply, and look great, while withstanding nearly every threat imaginable. One company manufactures a ballistic-grade stucco that claims to be literally bulletproof, even stopping rounds from an AK-47.

Even if the project isn't in a war zone, there's a host of reasons you may want to consider these ultra-durable finishes. Careless lawn trimmers, errant golf balls, and other hazards can damage a home's finish. And in the commercial sector, warehouses, factories, and restaurants with drive-through lanes will appreciate a finish that can withstand an occasional bump from cars or forklifts.

Masonry

Perhaps the most durable finish is masonry. Whether it takes the form

of brick, cultured stone, or actual quarried rock, this finish will withstand the elements for centuries. (See *Alternative Wall Finishes* in the Dec. '06 issue).

They look great, and best of all—because the structural wall is foam and concrete instead of OSB and lumber—moisture and mold are virtually nonexistent. They are absolutely fireproof, and can withstand nearly all wind-driven debris.

In air cannon tests conducted by Texas Tech University, the brick façade fractured only when the 8' long 2x4 projectile impacted at speeds of more than 60 miles per hour—conditions that only occur within extremely strong tornadoes. Quarried stone is even more durable.

The only drawback to masonry veneers is that they are among the most costly to install and repair.

Siding

Siding has a mixed record on durability. Vinyl and metal siding cannot be considered durable, considering



Photo by David Lindsey



Despite a direct hit from a category 3 hurricane, the fiber-cement siding on this ICF condo stood up extremely well, losing only a few improperly installed planks.

how easily they crack or dent. Similarly, wood products' flammability and constant maintenance rule them out.

Fiber cement siding, on the other hand, has proven to be a cost-effective, disaster resistant option. They're available in a wide range of color and style options, and are virtually indistinguishable from quality cedar siding.

Cement siding also has an excellent record on disaster resistance.

Photo by Ricky Wilkerson



When Hurricane Katrina roared through Gulf Shores, Miss., the Wilkerson's ICF home stood strong, although the vinyl siding on one side was torn to shreds.

Used on the Grand Caribbean Condominiums in Gulfport, Miss., the finish has withstood two hurricanes with virtually no damage. It took a direct hit from Hurricane Ivan in 2004. Despite winds reaching 125 miles per hour, damage was limited to a few improperly fastened planks.

The material has also proven its fire resistance, withstanding wildfires in Nevada and California, and arson in Kansas City. (See



As an ICF builder, isn't one of your best selling points the strength of the wall? **Then why put a soft shell on a hard core?!** The solution is PermaCrete— an ICC-ES code compliant, cementitious coating specifically tested by ICC-ES for ICF construction. No surface is stronger, and no surface is more durable!

PERMA•CRETE®

www.permacrete.com

(800) 607-3762



GO VERTICAL!

- Engineered Technology Uses 40% Less Concrete
- The Fastest & Most Versatile ICF Available
- Choose from Exposed or Buried Studs
- Exceeds "R30" Insulating Value



HOBBS
e
E-RATED WALLS

The Next
Generation of ICF's

Distributorships Available

HOBBS
BUILDING SYSTEMS

866-904-9255 Ext. 2
www.hobbsbuildingsystems.com

Photo Courtesy OFO Coatings



related story on page 22). In the Kansas City incident, gasoline was actually splashed on the planks, but they still did not catch fire.

Stucco and Acrylics

Perhaps the easiest finish for ICFs is also one of the most durable. Stucco and acrylic stucco can stand up to the very worst of the elements, and are extremely easy to apply (See *Keys to a Great Stucco Finish* in the June '05 issue).

Several recent innovations have made this type of finish even more durable than ever before.

Up to 6,000 PSI: PermaCrete is one finish with a proven track record in the ICF industry. It's one of the strongest, with a compressive strength of more than 6,000 psi. According to George Pinger, vice-president of sales, it's 10 to 12 times stronger than the typical EIFS coating.

"We are considered an ultra-high impact coating with a single layer of 4 ½ oz. mesh," says Pinger. "When we do an impact test and drop a 160-pound weight on our coating, it creates a barely detectable nipple."

A true cement-based coating, PermaCrete can be spray-applied with a hopper gun directly on the ICFs, and is the only cementitious coating code-approved for both vertical and horizontal applications.

Another advantage: The base coat can be colored to match the finish, which makes repairs harder to spot.

Fights Stains: Dennis Rose, technical director at Total Wall, offers another option. "Our Tuff-II system, custom developed for ICFs, has taken off like gangbusters; it's even surprised us," he says.

"It's a medium-hard acrylic that has incredible strength, with silica powder for immense density," he continues. "We've added a broad spectrum preservative to fight fungus, and use non-chalking titanium for maximum brilliance. It doesn't have

Green Product
Non-Toxic
Low Odor

VOC-Free
Water Clean-up

AMES' BLUE MAX™ LIQUID RUBBER

Impervious Rubber Membrane

Ames' Blue Max™ is a special blend of adhesive, high-strength, elastomeric liquid rubber. It is a new, impenetrable, rubber technology for waterproofing in extreme wet situations. It is high in solids and dries to a tough, elastic membrane that is up to 800% elastic to resist cracking and peeling. Blue Max glues surfaces together. It flows into cracks and crevices as a liquid and sets up as a durable rubber to seal leaks wherever they occur. Blue Max is available in a thick trowel-grade and a heavy duty sprayable grade. It dries to a translucent blue color.

Waterproofs & Seals:

- Foundations & Basement Walls
- Insulated Concrete Forms (ICF)
- Cisterns & Ponds
- Flat Roofs
- Concrete Block
- Underlayment & Sheathing
- Liquid Alternative to Tyvek type Systems
- Replaces Bitumen

Ames Research Laboratories, Inc.
PO Box 1350
Jefferson, OR 97352 USA
Toll-Free: 1-888-345-0809
amesstaff@amesresearch.com
www.amesresearch.com

Concrete & ICF

Sprays on

Concrete block water tank demo

- 400 gallons
- No mortar

Roofs & ponding water situations



Coatings in high-traffic areas often need tougher finishes. Damage such as this vandalism can be repaired. However, double mesh or a stronger finish could have prevented it from occurring.

much lime or limestone in it either, which keeps efflorescence down." Made with 100% acrylics, the polymers keep dirt and stains off. "In a disaster situation this is a very positive thing," says Rose, noting the trait also comes in handy for day-to-day living.

Used with the typical 4 1/2 oz. fiberglass mesh, the product is impervious to the dents, dings, and other impingement damage. "It looks like concrete, but does not crack," he says. "It's very hard, but also very resilient. It will stand up to a weed eater or the neighbor kid's baseball no problem."

The system uses the same product for both the base coat and the skim coat, and adheres tenaciously to EPS foam. "We use the maximum amount of bond promoter allowed by law," Rose says. "And because it's the same product, we can color integrally all the way back to the ICF. Basically, it's a high end product without a high end price."

One final advantage: Because it's a synthetic, it doesn't harden in the pail, so the homeowner can keep a small amount on hand for any minor repairs that do need to be made. "As long as it doesn't freeze, or get above 100 degrees, it will last years. It melds with itself quite nicely," he says.

Old-World Finish: One recent entry to the ICF finishes market is Sider-Oxydro.

"It's a true portland cement-based stucco, but it's flexible enough to be applied directly to the ICF, similar to an acrylic finish," says Ivan Burgand. "There's no metal lath, no 1/2-inch scratch coat,"

For extra impact resistance, Burgand recommends using hi-impact mesh closer to the ground. "You could also go to six ounce mesh if you want," he says.

Installation Services for the ICF Industry

- Custom Homes
- Production Subdivisions
- Multi-Family
- Remodel
- Hotels/Motels
- Health Care
- Schools
- Government
- Light Commercial

**Company Owned
Tall Wall Scaffolding
(Engineered to 96 Ft.)**

Insulated Concrete Walls
icwTM

800-981-8627
www.icwalls.com

plumwall

Design. Build. Exceed.

Manufacturing Residential And Commercial
I.C.F. Bracing Systems

905-706-PLUM (7586)
www.plumwall.com

**-Galvanized Strongback
-Fast Adjustable Platform
(Same foldup design)**

Plumwall Ltd. · 1180 Scugog Line 8-Port Perry ON-L9L 1B2
Phone: 905-706-PLUM (7586) · Fax: 905-985-3550
www.plumwall.com

If the base coat is built up to a ¼ inch, Burgand says the finish will withstand virtually any accidental impact.

Withstand a Forklift: A final option is Oro Coatings. “If you follow the installation correctly, this coating simply will not crack unless there’s major structural failure,” says Chris Tidwell, marketing director for the company.

“It’s rock hard on the surface, but still flexible enough that it will not crack.”

“If you really wanted to make it disaster-proof, you can double stack the mesh, putting two layers of 4 ½-oz. mesh in the same base coat. It uses a little extra base, but not much, and it will take the impact of a forklift.”

“Whenever there’s a question of durability, double up the

Despite being hit by an out-of-control driver going 90 mph, the coating on this ICF wall required only minimal patching.



mesh—usually just the bottom six feet—and it will stand up to anything.

“The one thing that I really like people to understand is that it will stand up to abuse, its extremely durable, but it’s also environmentally friendly. It uses 48% recycled materials, but it performs like its all virgin. The price point of the product is about the same price as a regular stucco, but can add 3-9 LEED credits just by using Oro.

The Decision

Disaster-resistant finishes span the full range of architectural options. From brick, stone, and cement-board siding to modern stuccos and acrylic finishes, they can achieve any look the designer wants while still providing protection and peace of mind for the homeowner.

When selecting any finish, the decision typically revolves around colors, textures, and price. But maintenance and durability should also be considered, even if the region is not prone to natural disasters.

The same qualities that let these finishes stand up to fire, bullets and wind-blown debris can also resist the wear and tear of day-to-day living.

A finish that doesn’t dent, crack, stain, or puncture will reduce maintenance, eliminate repairs, improve appearances, and help the occupants enjoy greater peace of mind. ■

Email: juangarcia@thebarrierinsulation.com

THE BARRIER INSULATION.COM

PROTECTION FROM THE ELEMENTS

CALL NOW:
602. 690. 1365



Easy To Install »



Comes With a Self Taping Edge

Install Tubing »



Pour The Slab »



The Barrier is a 100% Vapor and Moisture Barrier, which provides a K-Value of .06 Btu/hr ft. °F and a R-Value of 1.7 hr ft. 2 °F/Btu

“The Barrier” is outstanding for all concrete and radiant floor applications, basement wrap, snowmelt systems and more. When utilized with an ICF wall system in combination with an SIP or ICF roof area, **“The Barrier”** completes the energy envelope of the structure by creating an energy efficient floor.

*The Finest ICF Projects on the Continent
Deserve Recognition*

Join us for a relaxing evening event with light refreshments while we award the industry's finest projects.

There is still time to submit your project!

Entry Deadline is October 24th 2008



**ICF
BUILDER
AWARDS**



Stop by booth N664 for an invitation

Date: Tuesday, February 3, 2009 - 5:30 p.m.

Where: World of Concrete – Las Vegas - North Hall N263



New Products

R-ETRO Tie From Quad-Lock



The R-ETRO system from Quad-Lock gives homeowners with traditional concrete basements an easy way to retrofit them with high quality rigid foam insulation.

The tie, which resembles half of a regular Quad-Lock tie is mechanically attached to the exposed wall surface, and can be attached to any wall structure: wood, concrete, steel, brick or masonry block. Used in conjunction with standard R-18 Quad-Lock panels, the wall is assembled in courses like a regular ICF wall.

It can be attached to either face of the wall, but is designed for the interior, where the ties can be used as attachment points for drywall or other finishes, just like regular ICF construction.

Douglas Bennion, senior training consultant at the company, notes that EPS foam is the best performing insulation on the market, and when properly installed, also reduces air infiltration.

Introduced briefly at the World of Concrete as the ReFit tie, the renamed system is now available through Quad-Lock dealers across the U.S. and Canada.

The system is faster than adding framing and then filling the frame with batt insulation, and it's non-invasive, meaning occupants can continue to inhabit the space while the system is being installed.

"Adding new insulation can bring dramatic energy savings to buildings" states Hubert Max Kustermann, CEO of Quad-Lock Building Systems. "The R-ETRO System will increase the R-value to R-23 or more [on a wood-frame structure. In the case of a brick or masonry block it will rise to R-20 or more.

"And, the building owner can install this system himself!" says Kustermann.

For more information, call 888-711-5625 or email info@quadlock.com.

Eco-Wall from Eco-Block



Eco-Wall, a new product from Eco-Block, allows installers to insulate and finish additional living space without having deal with wood or steel studs.

It provides a continuous layer of R-11 expanded polystyrene

(EPS) insulation, with embedded polypropylene attachment strips for easy connection of interior finish materials.

Kay Hale, marketing director for the company, explains that "Eco-Wall is ideal for finishing basement areas which are prone to moisture, since all the components are made from plastic and are not susceptible to mold or mildew."

The panels are fastened together with an Eco-Clip approximately every 24" on center, which is then mechanically fastened to the existing concrete or block wall with a 1½" Tapcon or Powder Actuated Fastener.

The clip provides a 1" air gap between the concrete and the insulation, which makes a convenient chase for electrical wires. The EPS can also be cut with a hot knife or hand saw if necessary. Drywall is screwed directly to the embedded polypropylene strips.

For more information, visit www.eco-block.com or call 800-503-1644

InSoFast Offers More Options



InSoFast is an insulating system applied to masonry block or poured walls. According to inventor Ed Scherrer, it offers a solution for the two biggest problems plaguing the ICF industry—cost and training. "First and most commonly heard is that ICFs don't fit into the budget; the second is that the contractor is unwilling to install ICFs," he says.

While InSoFast is not an ICF, it has similar insulating properties.

As the construction industry looks at methods to address moisture issues, InSoFast provides moisture drainage channels on the back side of the panel, as well as flashed seams to keep moisture safely away from the drywall.

The integrated network of wiring chases provides an easy, hassle free installation for wiring after the panels have been installed.

These features, along with an impressive installation rate of 200 to 300 sq. ft. per hour, make InSoFast an exciting new option for today's contractor.

For more information, visit www.InSoFast.com or call 888-501-7899.

Better Molding Machines From Promass



The new molding machines from Promass Engineering have been redesigned to produce a better, stronger EPS using less energy than previous machines.

The machines' unique

wiring and steam tubing layout produces better fusion between the beads and an improved surface appearance, says Gianluca Bazzica.

“Steam chamber volumes are sized according to the part size, and mold construction is designed for optimum heat transfer,” he says. The new machines use less than a quarter pound of water (0.2343 lbs of steam) per pound of EPS produced.

The machines work best with custom-designed molds, but will produce savings even with standard or converted molds, Bazzica says.

For more information, or to schedule a visit to the Promass plant, visit www.promass.com or call 678-294-2668.

Spray-On ICF Coating

PermaCrete now manufactures a line of spray-on exterior finishes perfect for ICF construction. While the coating does require some trowel work, it is much faster, durable, and economical than competitive products, says Walt Lippincott, a Perma Crete executive.

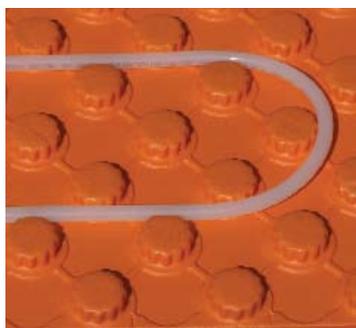
According to Lippincott a crew of 3 can complete about 1,200 to 1,500 square feet per day. “We are many times harder and stronger than DryVit, Sto or Synergy over ICF block, EPS, cement block, brick and many other surfaces,” he says.

Perma Crete is an ICC-compliant polymer cement surface system. It recently received ICC-ES approval for both horizontal and vertical surfaces. Lippincott says it is the only coating in the U.S. that has been specifically tested by the ICC-ES over Insulated Concrete Forms. “We deal very extensively with almost all of the major ICF manufacturers,” he adds.

Installed cost should average well under \$2.75 per sq. ft., including product, labor, and shipping cost.

For more information, visit www.permacrete.com or call 800-607-3762.

New Radiant Floor Panel



A third radiant floor panel from Creatherm is now available.

The T45 Floor Panel combines the benefits of the first two foam panels into a single product.

Basically, the T45 has the knob pattern of the S45 panel but measures a full inch

thinner. The lower height profile makes it ideal for over-pour or retrofit applications

The T45 comes in interlocking panels that measure 2' x 4' x 1.8" thick and features a staggered snap-tight grid for optimal tubing spacing. On-center points exist every three inches. The T45 floor panel can accommodate 1/2", 5/8" or 3/4" PEX Tubing. However, it does not allow tubes to be installed at a 45 degree angle.

The new panel will be manufactured at existing Creatherm production facilities in the eastern U.S. as well as by Aptco, LLC in California.

For more information, visit www.creatherm.com or call 317-705-2897.

T-Form From Amvic

In Mid-August, Amvic Building System will begin marketing a T-Block ICF. The new form is designed to meet the growing need of the commercial market, and is intended to increase jobsite efficiency and productivity.



The form will be available in nominal 6" and 8" core sizes, and features the 1" deep reversible interlock which is standard on all Amvic forms. It contains molded-in polypropylene reinforcement in addition to the 6"-on-center webs, which “virtually eliminates the chance of form failure,” according to the press release.

The T-Block will be available in “short” and “long” configurations. Alternating between the short and long forms as the wall goes up will ensure joints are staggered for maximum strength.

Previously, installers had to build T-intersections on site. The process was time-consuming and required additional bracing. With the new form, Amvic hopes its installers can achieve greater productivity and profits.

For more information, visit www.amvicsystem.com or call 877-470-9991. ■

We Want To Hear From You



It's time to plan our 2009 editorial calendar,

and now's your chance to give us a hand. Let us know what you would like to see in future issues of ICF Builder Magazine.

editor@icfmag.com • www.icfmag.com
877-229-9174

Construction Friendly... at a Lower Price



- Full service and support
- Special corner brackets for extra strength
- Pricing available online, sold factory direct
- Easy-to-use reversible pre-assembled blocks
- Easier application of wall coverings



1-877-FoxBlocks.com

Ad Index

Amazing Brace	42
Ames Research Laboratories	36
Amvic Building System	11
APTCO	13
ARXX Building Products	IFC
BuildBlock	5
Construction Forms	21
Eco-Block	21
Epro Waterproofing Systems	IBC
European Windows	16
Exaktime	9
Fab-Form (Fastfoot)	6
Flex-C-Ment	11
Fox Blocks	42
GigaCrete USA	31
Giraffe Bracing	15
Greenblock	30
HOBBS Building Systems	36
ICF Builder Awards	39
ICF Builder Media Kit	41
ICFA (Insulating Concrete Forms Assoc.)	33
ICW (Insulated Concrete Walls)	37
InSoFast	31
Insulation Solutions	10
Legalet	15
Lite Form Technology	27
Metwood Building Solutions	29
Mikey Block	13
Northwestern Ohio Foam Products	30
NUDURA	19
ORO Coatings	7
Oztec Industries	3
Perma Crete	35
Plumwall	37
RamSnap	23
TF System	23
The Barrier Insulation	38
Total Wall	BC
Vinyl Technologies (Vbuck)	27
World of Concrete	17

AMAZING BRACE

One of the original fabricators of ICF Bracing systems in North America!



Safe - All Alignment Bracing systems conform to CSA Standards and meet or exceed OSHA Standards.

Strong - The jack assembly is the strongest on the market and the strongback supports are made from 14 ga. galvanized coated steel.

Versatile - Alignment/bracing systems are offered in standard 8'-10'-12' heights as well as 16'-18'-20'-24' for tall walls.

Longlasting - Parts are finished with a galvanizing and powder coating system that provides excellent durability and corrosion resistance for years of use.

Need a Bracing Rack?

Amazing for storage and Rental Control



Quality dealers and distributors welcome!

Contact: Jerry Albert • 905-372-7413 • Fax: 905-372-6511 • Email: jfalbert@r450.com
www.lakeland-multitrade.com • 566 D'Arcy St. Cobourg, ON K9A 4A9



Visit
www.icfmag.com/ads
for additional information
on these advertisers.

ICF Pre-Planning ...



epro Innovative Engineered Solutions for Commercial and Residential Waterproofing

- Blindsight Waterproofing
- Methane Barrier
- Reinforced Deck Waterproofing
- Cavity Wall Air Barrier
- ICF Waterproofing
- Underslab Waterproofing



epro Services, Inc.

- 800-882-1896 •
- www.eproserv.com •

Dealer, Installer, and Representative Inquiries Welcomed

EXPERIENCE THE DIFFERENCE **EXPERIENCE THE DIFFERENCE**

America's ICF Stucco Company

Over 29 years of proven product history means your ICF projects get the protection they deserve. Top quality products with unmatched service and support.

With thousands of satisfied customers across the nation it's far from lonely at the top! Give us a call, you're going to love the view!

TOTAL WALL

Total Quality. Total Service. Total Satisfaction.

888.702.9915 www.totalwall.com

Dealer Inquiries Now Welcome!