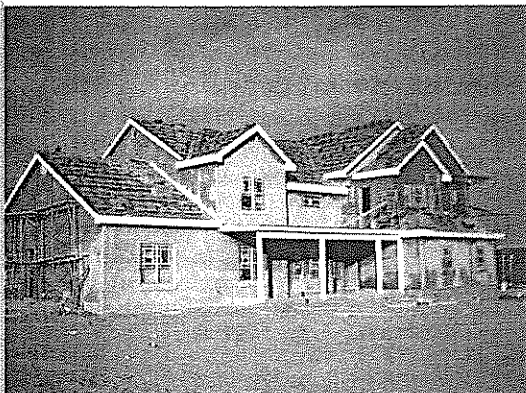


**"YOU DON'T HAVE** the kind of protection with a wood frame house that concrete provides," exclaims Rod Lilly, a Mesa, AZ, Fire Department shift battalion chief who owns a 2,500 sq.ft. ranch-style home.

## Five-Hour Fire Rating

*Plus R-38 Insulation Value Catch Firemen's Eyes*



**A BIG ADVANTAGE** to this system is that sprinkling systems, firestops and similar code requirements such as wind strapping — sometimes adding as much as \$1.50 per sq.ft. to the overall cost of the house — simply aren't needed.

**Y**ou've got to wonder why eight members of the Mesa, AZ, fire department — battalion chiefs, captains and fire fighters, the guys that brazenly jump through windows and rescue frightened children from burning buildings — all live in concrete homes.

Part of the answer is Dan Chouinard. In the past three years this aggressive Mesa, AZ, general contractor has built 33 upper scale concrete homes, plus helped these firemen build their own homes. The rest of the answer is the insulating concrete forming (ICF) system he uses: Rastra, a full-grid, insulating form panel made of 100% recycled polystyrene, cement and additives in which you place cement grout to form monolithic post-and-beam insulated outside and inside walls, floors and even roofs.

"You don't have the kind of protection with a wood frame house that concrete pro-

vides," exclaims Rod Lilly, a shift battalion chief for whom Chouinard recently built concrete walls for a 2,500 sq.ft. ranch-style home that Lilly finished for his wife, their two daughters and five dogs. All interior walls in this house are wood frame with pre-framed roof trusses and R-44 blown-in insulation in the attic. Most of the exterior is finished in stucco except for a 36" strip of brick veneer running around the front and wrapping around the corners. "Concrete exterior walls probably won't make our jobs as fire fighters any easier since most fires start within the house," says Lilly. "But knowing it slows things down brings peace of mind."

Tim Sullivan, a fireman who moonlights as a framer on his off days, agrees. He built a two-story, 4,500 sq.ft., country-style home using this system on the first floor only. He didn't use it on the second floor because the

walls don't line up with first floor walls in the plan he used. "Knowing that the exterior walls are fireproof is very important to me," he says. "I'm really pleased with it."

With fire protection not always reliable in the rural area 20 miles east of Mesa where Chouinard helped him build a 2,700 sq.ft. ranch-style home, fireman Pat Couden feels this system provides the best protection he can furnish for his wife and two young boys during his 24-hour work shifts. "Everything on the inside can be replaced, he says, "But I can't replace my family."

What excites these firemen is Rastra's five hour fire rating brought to light last August in tests by Braun Intertec, a Portland, OR, independent laboratory. Manufactured by Rastra and marketed by Environmental Building Technologies (EBT), Santa Barbara, CA, Rastra is made of Thastyron, a mixture of recycled polystyrene beads, Portland cement, admixtures and water then molded into panels up to 10 feet long and 7 1/2, 15 or 30 inches wide. Standard units form the walls, while end elements form wall-ends, corners, door and window casings, lintels and ceilings. "It is fairly lightweight, cuts easily, and stays where you put it until you grout it," says Chouinard. "You get a rigid, plumb, true building system that never moves." And according to the University of California, your walls are 700% stronger than wood framing.

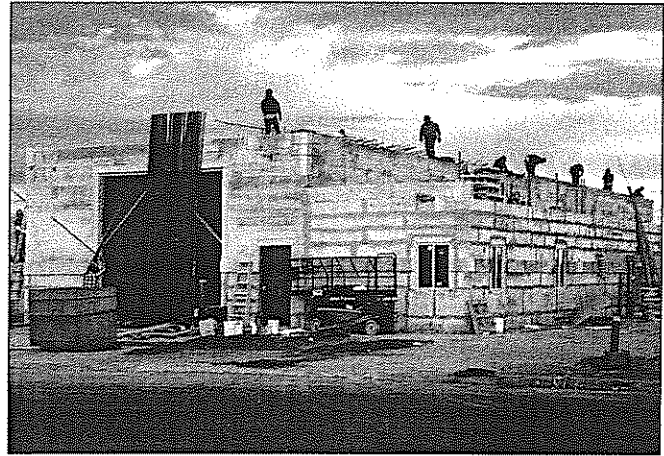
The fire rating is a big plus, but Chouinard and these firemen all confide the system's energy rating is what first caught their eye. Panels range in insulation values from R-21 to R-38, depending on which you choose, and have a dB 53 sound absorption rating. "With an R-40 in my walls I save on utilities for the life of the house," says Couden.

Design-builder Chuck Bohenic, Mesa, AZ, insists the biggest advantage to this system is that sprinkling systems, firestops and similar code requirements such as wind strapping — sometimes adding as much as \$1.50 per sq.ft. to the overall cost of the house — simply aren't needed. This high-end home builder is eliminating lumber as much as possible from his homes, using concrete and steel not only to build exterior walls but also floors and roofs. The 10-inch thick walls he builds with the Rastra system allow him to recess doors and windows to impart an authentic Santa Fe-style to his homes, his specialty.

"Anybody who is looking for a \$500,000 house is a pretty sophisticated buyer who wants the state of the art," Bohenic explains. "The quality of lumber and the price we're paying is disgusting. This system makes concrete even more competitive cost-wise."

The system also works well in commercial applications. David Chase, Los Angeles, CA, general contractor, says insulated concrete walls are quick and easy to build using this system. Panels stack on top of each other. You glue them together with commercially available non-expansive foam adhesive and fill voids with eight-inch slump, 3/8 masonry grout with a 28 day strength of 2000 psi, using no admixtures and no vibration, either during or after placement. Many builders we talked with use a #4 Grade 60 deformed bar spaced at 15" on center horizontally and vertically.

Currently Chase is constructing 13 truck wash buildings located throughout the US with a crew of eight men using the Rastra system. These buildings contain a 128' long by 32' wide by 16' 6" high washing bay, a pump room and small office area complete with restrooms. When big garage doors are open at either end, it doesn't pay to heat and cool these barn-sized buildings. You lose money every time someone opens a door, no matter what time of year. By using R-36 ICFs, a swamp cooler and a bay heater, Chase is able to provide a comfortable environment and increase the life of the build-



**THE RASTRA SYSTEM works well in commercial applications. You glue panels together with commercially available non-expansive foam adhesive and fill voids with eight-inch slump, 3/8 masonry grout with a 28 day strength of 2000 psi, using no admixtures and no vibration, either during or after placement.**

ings which, due to the corrosive nature of the cleaning chemicals, generally have a life of five years when built with concrete block.

This system is easy to install, but Chase found his greatest time savings in the roof construction. Previously he used precast concrete. But it had a six to eight week waiting period, coming in with a high price. Now he uses a recently developed precast insulated roof built by Rastra, which is engineered to freespan 32 feet and withstand heavy snow loads and high winds. It is shipped to the job site within a week. "This new method is shaving two weeks off what it would take us to do these buildings in block," Chase confides. "It's the greatest time saver I've got."

These walls require less finish work. Most contractors coat surfaces with Rastra Skim and Rastracrete inside and out — no furring strips, no insulation, no additional soundproofing, no fire retardant materials, no drywall. Just skin coat the forms and move on, they say. In the truck wash buildings Chase protects walls from harsh chemicals with a tough, spray-on, three-layer urethane sealant that contains a colored glaze especially made for this ICF system and comes with a 20-year warranty. "I've done a lot of block buildings and this is by far the easier, stronger way to go," Chase says enthusiastically. "It's more expensive, but in the long run it's going to pay for itself."

**Selling this concrete wall system** hasn't been difficult, insists Chouinard. Currently he is building eighty condos in Casa Grande, AZ, and expects to build another 20 homes for his growing fire fighter clientele. EBT backs him up with engineering on difficult jobs. "My goal is to get these blocks into schools and warehouses," he says excitedly. "You can downsize air conditioning and heating elements by at least one-third."

Others see similar potential. "I like to tell my clients there is always a payback on what you frame into your house," says Bob Rubin, a Mesa, AZ, 20-year veteran design builder who builds only pre-sold construction in Florida and Arizona. Recently he asked Chouinard to build concrete walls for two 8,000 sq.ft. homes. "People are very energy-efficiency minded, especially in the bigger homes where they have a large monthly cooling or heating bill," he says. "By putting money into construction up front, you assure a payback. The future is in this type of construction."