



# Little (Precast) House



Precast concrete log homes offer key benefits compared to typical wood logs

**A** new technique for making log homes replicates the look of wood logs so well that it might fool termites — at least until they tried to bite into one. The homes feature precast components that are cast and stained to resemble wood logs, creating a design that offers great potential for homes around the country, its makers say.

“We see a lot of people who don’t want to deal with the problems created by wood logs,” says Tom Beaudette, principal in Beaudette Consulting Engineers, which helped create the connection designs and schematics.

The concept has been developed by Cultured Log Systems in Missoula, Mont., which worked with Missoula Concrete Construction to create the system and products. The precast homes were the brainstorm of Missoula Concrete’s former owner, Dick Morgenstern, explains Doug Bauer, president. Morgenstern saw impending problems with finding large enough logs to continue building log homes in the region, where they were quite popular. In addition, wood logs had significant drawbacks that he thought could be overcome with precast concrete designs.

#### **Tree Provides Template**

To create a template, Morgenstern cut down a tree in his own front yard (“I don’t think his wife has forgiven him,” Bauer says) and used it to create a rubber mold.

## **On The Prairie**

— Craig A. Shutt



*Several styles of logs are available, and while they resemble hand-hewn wood, they actually consist of precast concrete.*

The panels are 16 inches high, 8 inches wide and a maximum of 28 feet long.

From that, reverse impressions were made to create a form liner for the precast logs.

The panels created from the design are 16 inches high, 8 inches wide and a maximum of 28 feet long. That height can be formed into two 8-inch logs or other configurations as well, Bauer notes. Three styles of log currently are offered as standard designs: a 16-inch-tall panel with a hand-hewn, squared-off look; a panel with two 8-inch-tall D-logs; and a 16-inch-tall panel with a squared-off style Bauer calls the "back East look." Each log also includes an insulated core to improve energy efficiency.

Rebar connects the logs vertically, explains Stewart Hansen, president of Cultured Log Systems. "The height that can be created is unlimited," he says. Most homes to date have been two stories, but four or five stories is possible by simply using a wider foundation and slightly thicker logs at the base, he notes.

A wide range of roof styles can be attached to the logs, Beaudette says. "We can adapt the system to almost any type of roofing the homeowner desires." Standard connections are used throughout, making it an easy system to replicate, he adds. "The homes use typical structural details that are normal for any residential situation," he says. "And the logs won't move around."

### Benefits Compared To Wood

Indeed, one key advantage the structures offer is that they won't shrink, settle or shift as log homes often do, Beaudette says. There are

other benefits to the precast design, too:

- The precast components arrive at the site ready to erect, unlike wood-log packages that can require modifications at the job site. The precast logs are cast to architectural specifications in advance, and the factory casting of the pieces ensures openings are precise to window and door manufacturers' specifications, says Hansen.
- There is no need to restrain or seal the logs annually, as there often is with wood logs. This can save more than \$750 per year in maintenance costs.
- Precast concrete's composition makes the logs fire resistant, providing a three-hour fire rating. That durability produces a minimum of a 20-percent reduction in insurance costs compared to comparable log or frame homes, Hansen says.
- The homes are resistant to insects and decay, as well as mold and fungus, due to their inorganic material. That saves further by alleviating the need to prevent these problems.
- The precast mix can include recycled materials such as fly ash. The thermal mass of the concrete helps to retain heated or cool air, which is aided by the interior insulation. That can produce savings of between 30 and 40 percent on heating and cooling costs, Hansen says.

In general, the precast log homes have lower material costs and also



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save on erection labor. Typical labor on a log home costs \$25-\$35 per square foot, Hansen estimates, which will cost a homeowner between \$50,000 and \$70,000 less for a 2,000-square-foot home. "This is a substantial savings in anyone's budget."

The system has been well received in Montana, Hansen notes, and the process is poised for expansion. "It's a patented system, and we've been waiting for that to be completed," he explains. "So we've been intentionally quiet until early last year." Currently, the homes are being shipped only to Montana and Idaho locations, Bauer notes. "But we've had interest from down in Virginia, so there's real potential for expansion."

The construction method and appearance continue to be refined, he adds. "This is our laboratory out here. We're still in the process of determining how best to market the homes before we try to expand nationwide." The company hopes to license other precasters to sell the homes and cast the logs. "It's taking off so quickly that it's apparent we won't be able to keep up with demand from one facility, and the shipping costs from Montana would be prohibitive in some cases."

"The full potential remains to be seen," says Beaudette. "But we do a lot of log and timber construction out here, and this new approach is proving very popular. More and more, these precast designs will take off as word of mouth spreads and more structures are constructed. The homeowners are telling others that these are thermally well insulated homes that are a structurally super-efficient design. You can't tell the difference between this and wood unless you get right up to it and pound on it. The texture and color are very good." ■

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The logs save money on maintenance, energy, insurance and other long-term costs.



## PROJECT

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