

# Cultured Log Systems

Sustainable worry-free solutions to building the log home

BY CHARLES FINN

IT WOULD BE DISINGENUOUS TO SAY that I was completely fooled. I had come, after all, for the express purpose of looking at them, knowing they weren't real. Now that I was there, however, less than two feet away, I was more than just dutifully impressed. With my eyes closed, I placed my open

palm on the concrete "logs" and ran my fingertips over the "grain." I opened my eyes and squinted at the manufactured "bug holes." While Stewart Hansen, President of Cultured Log Systems (CLS) in Missoula, listed the benefits, I kept stealing furtive glances at the building, raising my eyes quickly as if to catch it off guard. Energy savings and green building prac-



tices, Hansen was explaining, are big selling points, as is the ease of maintenance. But I'm a poet—beauty and aesthetics are my stock in trade. If I could be won over this easily, I thought, well, what was the stir being created in the termite communities, and the confused discussions going on with the flickers and the wasps?

Cultured Logs are a new "green" building material. They are faux logs, a patented system of concrete logs made to look like the real thing—which they do. The system was developed by CLS in conjunction with Missoula Concrete Construction, and is being touted by industry professionals as a viable alternative to cutting live trees. To date, the nascent company has built 28 homes, ranging from the first house they put up, a 1,000 square-foot home in Potomac, Mont., to 10,000 square-foot dream homes in Colorado, California, West Virginia and beyond.

The logs themselves come in four different styles, or looks: 16-inch hand-hewn logs, 12-inch round logs, 8-inch timber logs and 8-inch D-logs. Each log is made from a mold patterned from a real tree, with multiple molds made for each of the four profiles. More impressive than their realistic appearance is the practical benefits Cultured Logs have over true wood logs; in energy savings, time of construction, long-term maintenance

and lower insurance premiums. The biggest allure, however,—especially here in the fire prone west—is that they are as close to fireproof as you'll get. "Hold a match to our logs all day long," Hansen says, "and they won't ignite."

The idea for Cultured Logs was sparked in 2000 when fire raged through the Bitterroot Valley, charring 356,000



Top: Dan Larsen, managing partner of Madison Valley Ranch, stands in front of his Cultured Log home near Ennis, Mont.

Left: Sunset at CLS Natural Dream Home promotional project in Colorado.

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acres and burning a total of 334 homes, outbuildings and vehicles. That summer, Dick Morgenstern walked his property in Frenchtown breathing the smoke and wondering: How could I build a house that wouldn't burn? Morgenstern was the President of Missoula Concrete Construction and had

Top left: Featuring amazing replicated details, Cultured Logs have a variety of different styles, this is a 16-inch hand hewn log. Bottom left: An 8-inch D- log shows the bug holes, wood grain and coloring possible with Cultured Logs. Above: This worry-free Cultured Log home sits on the shores of Henry's Lake, Idaho and fits into the mountain architecture of the area.



worked in construction for 40 years. The answer, it turned out, was embedded into the fibers of his clothing. It was sitting in his garage with Portland written all over it.

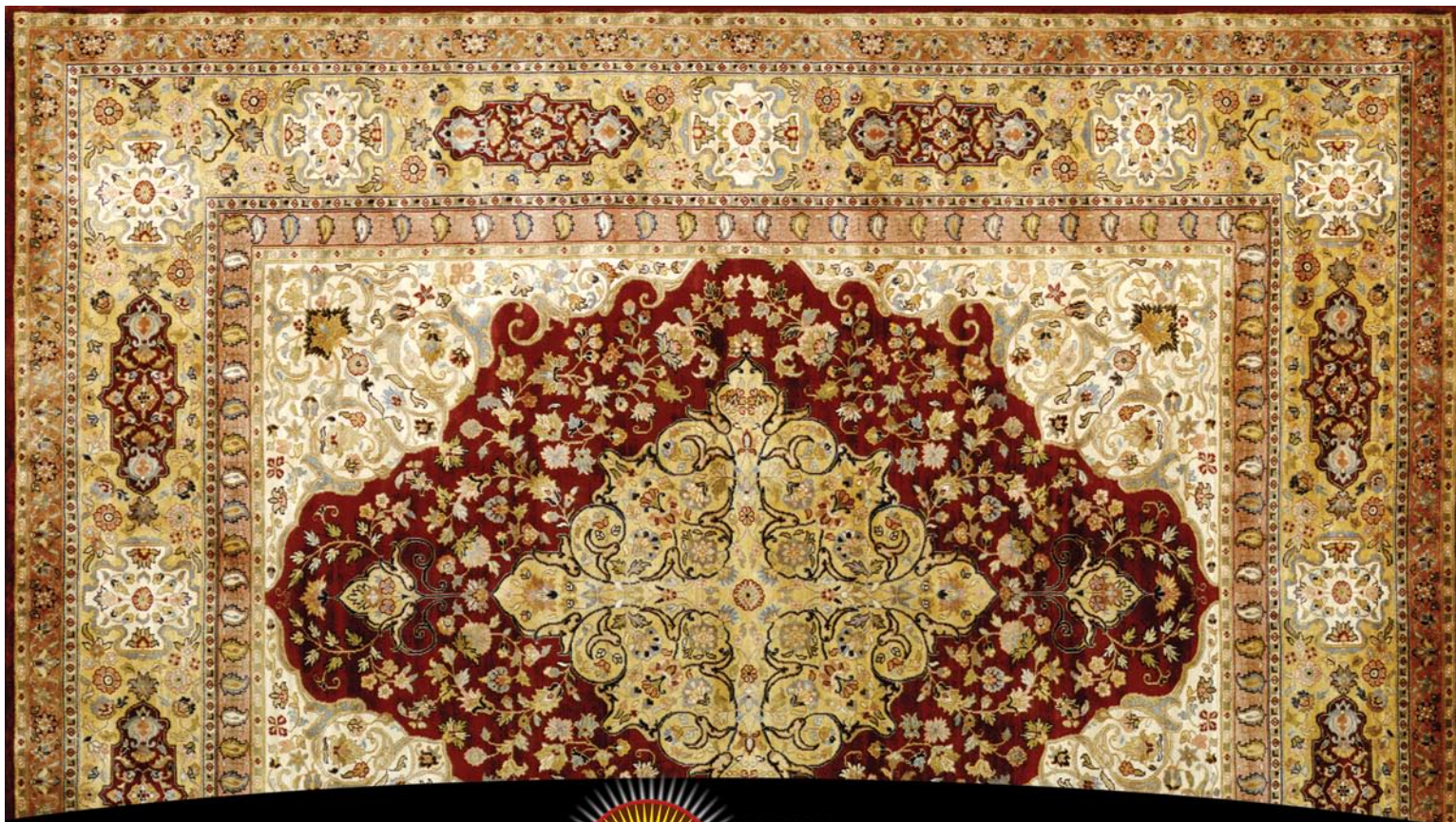
Out came the chainsaw. Down came the 60-foot fir tree in his front yard. With an adze Morgenstern hand-hewed the supine trunk. Next he set to creating a mold, experimenting with different materials until he had a realistic looking concrete replica of that original tree, something Paul Bunyan himself could be excused for dulling his blade on.

CLS, it is important to note, is a construction material company. They are not general contractors. What they do is deliver and erect their shell, the concrete exterior, usually in a fraction of the time a traditional log builder would take to put up their shell. The owner then finishes the interior however they wish, often incorporating real logs. Unlike traditional log homes, CLS homes will not settle or sag. "Come back in 150 years," Hansen says, "and nothing is going to have happened to it. It's not going to crack. It's not going to shift." Engineer, Tom Beaudette, of Beaudette Consulting Engineers in Missoula, compares a CLS home to a wood home and says, "A CLS home

is significantly stronger in distributing snow loads. It just is. And it is significantly more efficient at transferring earthquake forces. That's the nature of working with concrete instead of wood." These two factors alone make CLS homes popular in places like Yellowstone Club, West Yellowstone and Gardiner.

The logs themselves are a sandwich affair, eight inches thick, reinforced with #4 rebar and have a Styrofoam core. Not surprisingly, houses built with cultured logs are incredibly tight, making them 30 – 40percent more energy efficient than houses built using other materials and methods. In the spring of 2005, the Missoula-based company, the National Center for Appropriate Technology, did a blower door test, a kind of air efficiency test, on a CLS home. "The conclusion," Hansen reports, "was the way we build these homes is six times more efficient – airtight that is – than a traditional stick frame home, and seven times more efficient than a log home. So you can imagine the savings that come along. Obviously, you don't have to heat it or cool it as much. You're not burning as much fossil fuels. You reduce your carbon footprint."

Concrete, Hansen readily admits, is not the most envi-



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ronmentally friendly building material out there. Cement makes up a large proportion of concrete, and huge amounts of energy go into its production. In keeping with their green philosophy, CLS uses a percentage of fly ash, a by-product of coal production in lieu of cement. “We’ve been experimenting with how to recycle fly ash to reduce the amount of cement we use,” he says, “subsequently reducing the amount of energy required to produce cement in the first place. So that’s another green angle.”

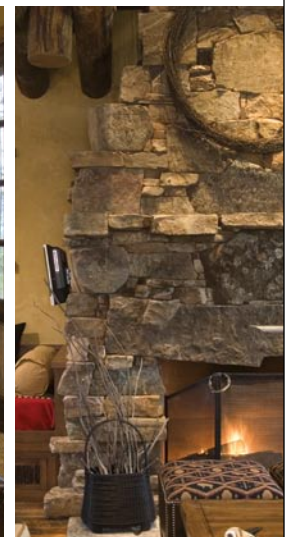
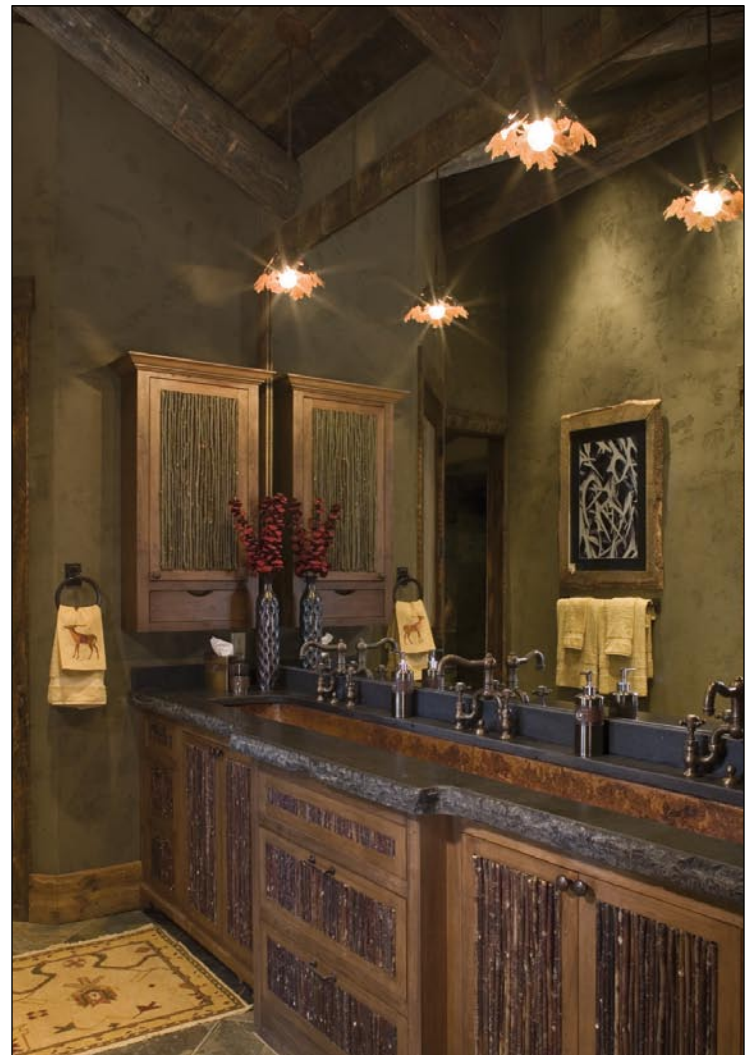
For many people, the western dream is not complete without a log home. But quality logs and timbers, especially long ones, are becoming increasingly difficult to find – and expensive. The wakening reality also include mold and bug infestations, and annual time and money spent re-staining and chinking. A case in point is Dan Larson, owner of Madison Valley Ranch outside of Ennis, Mont. Larson has two traditional log homes that are 12-years-old, with what he calls, “Many of the challenges of a log building: settlement, cracks, bugs, minimal insulation.” When looking to expand their operation they turned to CLS.

“To put it in perspective,” Larson says, “we just spent over \$100,000 doing repairs and maintenance and upgrades and we hoped to avoid most if not all of those expenses with the cultured log product. What’s amazing is we were all skeptical about a concrete log building that could look like logs – until we saw it.”

“A lot of the homes we’re building right now,” Hansen says, “are vacation homes, second homes, retirement homes, and the last thing a person wants to worry about is spending the first couple of weeks of their vacation getting the bugs out, getting flies out, patching up little holes. Plus, they don’t have to worry about it burning down. So it started out as how do you build a home that doesn’t burn, but the whole value proposition expanded from there when we started talking about what concrete can give you opposed to wood, and we started seeing all these technical, structural advantages.”

In the end, Hansen concludes, “Architects can build whatever they want. Builders can put it up fast. Home owners love it, they can get it insured. You’re spending 99 percent of your time on the inside of the house anyway. As long as you can get the look and the feel on the outside, and you don’t have to worry about it, that’s a win-win for everyone.

Except for the termites, of course. Except for the lonely wasps, and the broken-hearted flickers. **H**



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