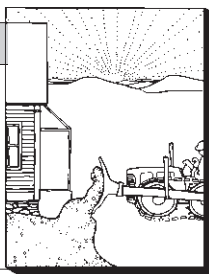


# A Potful of Innovation

by John D. Wagner



These panels made of pressed straw are fire-resistant due to naturally occurring silica. When exposed to flame, the silica chars and absorbs high temperatures.



**B**iomes. Zeolite absorption. Bedouin societies. No, this is not the opening dialogue of Terminator Part II. But these are terms commonly used by the staff at the Center for Maximum Potential Building Systems, known affectionately as "The Pot." The 14-year-old company, based in Austin, Texas, has assembled a wide range of talents and people, some visionary, some practical, and all skilled at using unusual resources and unique building techniques. Though the building projects vary, The Pot's goal is to use local resources in innovative ways and not exhaust them beyond the area's ability to rebound.

Their approach to problems has taken them to Congressional committee hearings, consultancies across the U.S., and even to foreign countries where over-logged forests deprive local residents of traditional building materials.

Sometimes The Pot comes right to your door. For instance, 10 years ago, the staff resided briefly in Crystal city, Texas, after the utility company shut off the town's gas supply over a contract dispute. The mission was to avoid a serious health emergency: no hot water. While there, The Pot staff oversaw the installation of some 800 wood stoves—some joined functionally with the hot-water systems—and they got a factory up and running that turned out five \$150 solar water heaters a day with a staff of five.

Sometimes rather than invent a new technology, The Pot recycles one that has worked well elsewhere. Making walls out of straw, for instance, is an old European method, still practiced. Pliny Fisk, the director of research for The Pot, points out, "There is a 70-unit public-housing project right now going up in France that is using these walls. And all those picture-postcard old towns you see in Germany have houses built with these kinds of walls. It's a very sound ideal; they've passed the applicable codes."

A house The Pot built in

Weberville, Texas, uses panels made with this method, which involves hand-stuffing and hand-tamping clay-coated straw into a plywood form.

The straw is fire resistant. When it is exposed to flame, the silica naturally contained in the straw chars, and the char retards fire. Also, the clay binder starves the panel's interior of oxygen, further inhibiting fire. A similar construction method, one that presses straw into panels at a moderately high temperature, is used by Mansion Industries in California. Their panels, Fisk says, pass the U.S. codes for industrialized buildings.

Other structural "innovations" from The Pot include using Texas-grown bamboo for structural members and as "rebar" in concrete. Compared to standard rebar, bamboo takes 171 times less energy to make and creates 210 percent more jobs, says The Pot. In fact, The Pot used bamboo trusses in a house its staff built in Carrizo Springs, Texas.

"Not everything we do on projects in the South will work everywhere else," Fisk explains. "Let me stress that we do research on the region before recommending a certain building practice."

Before a project is started anywhere, an analysis is done of the geographical and ecological area, or "biome." The Pot also examines the available labor, material resources, and community needs in order to make efficient use of resources. Here's an example: Flyash is a waste product of coal production, but high-calcium coal produces a flyash which, when mixed with lime slag, makes a quick-set concrete with a compression strength of 12,000 psi. The Pot uses flyash in many building components, from roof tile and structural columns, to foundation cement and septic-system components.

Another object of interest at The Pot is zeolite, an aluminum silicate that naturally occurs with coal. Fisk claims that it is an excellent absorption medium in solar refrigeration, and



This community center in Carrizo Springs, Texas, uses bamboo trusses, and caliche-block bearing walls. The floors are mesquite wood, which is so populous in Texas, defolianters are sprayed to keep it down.



The straw walls in this Weberville, Texas, house are made by hand-tamping clay-coated straw into a plywood form. The practice is ancient, but the walls meet modern codes.



A five-person crew produced five solar hot-water heaters a day, each costing \$150, at this Crystal City, Texas, factory. Recycled fluorescent bulbs and printing plates served in the collector.

that a 10-square-foot solar collector in a zeolite-based system can produce as much as 15 pounds of ice per day.

Other projects include a machine that can produce 30,000 pressed-earth blocks a day, and the Larado Blueprint farm just outside of Austin, which cools with a Persian evaporative wind tower and shades its gardens with techniques learned from the great Bedouin tent societies of the Arabian

Desert. A list of projects would go on for pages.

Now in its second decade, The Pot is busier than ever. "Currently," Fisk says, "we are involved in projects ranging from organic farming to Department of Energy-sponsored building projects. When you start to think of ways to apply this type of thinking to technology and resources, it's endless." ■