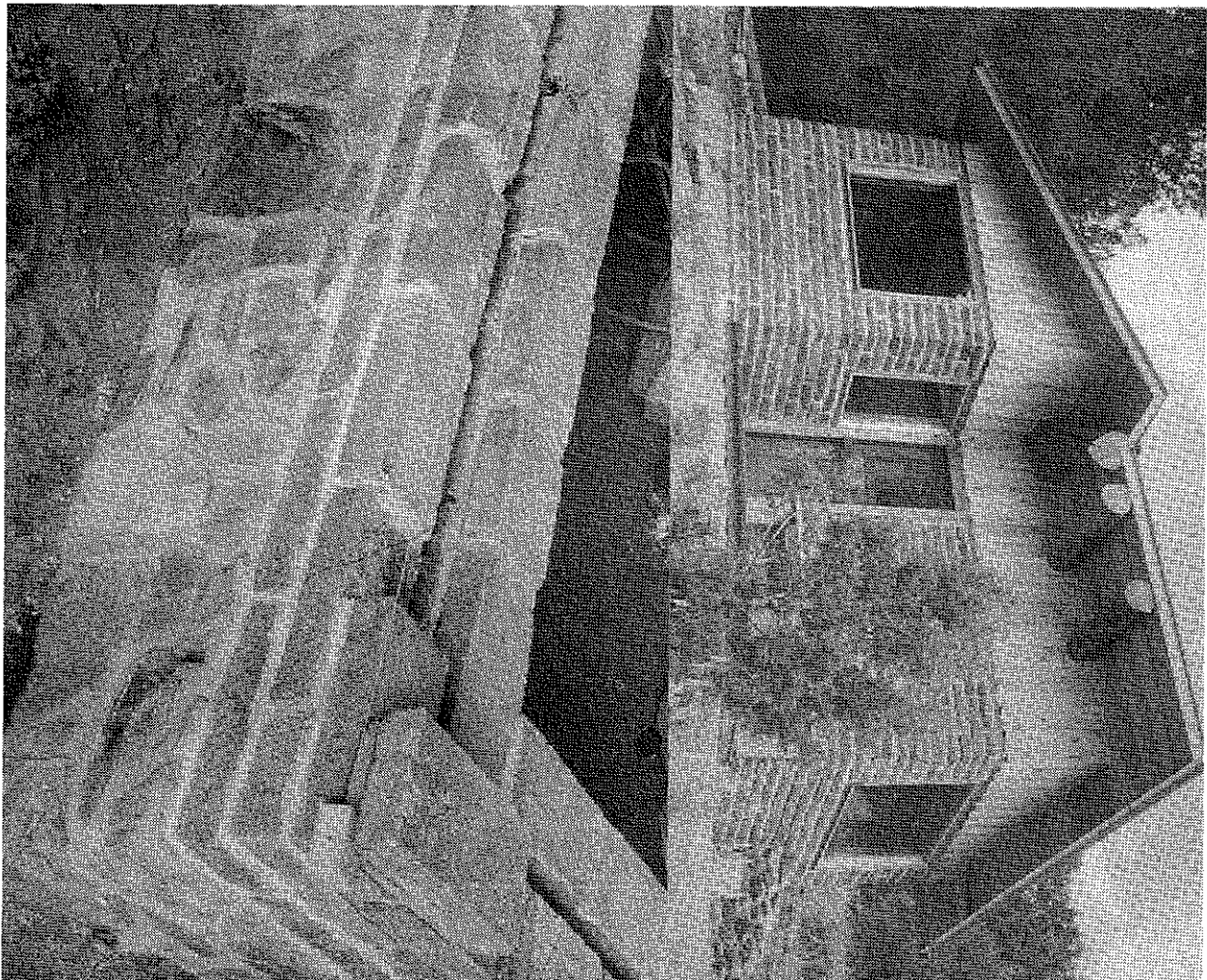
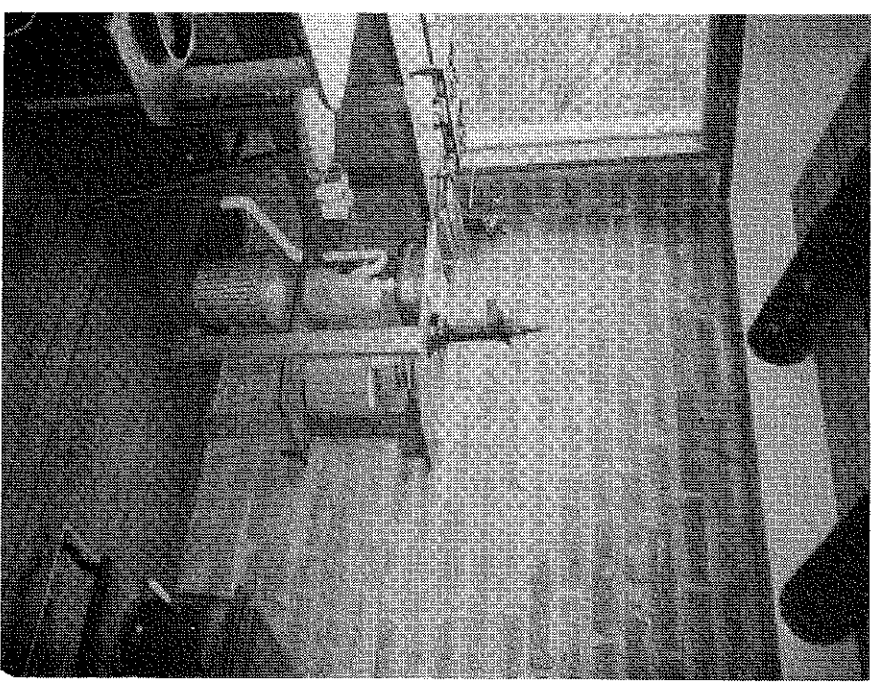


PUMICE ADOBE for Colorado High Mountain Retreats..



By
**PAUL
MOTSINGER**
Crestone,
Colorado



There is a particular pleasure in building with adobe - laying brick on solid brick. The satisfaction is greater when you've been able to form the mud into your own bricks. In October of '91, I became involved in a project that allowed me to do this.

William Porter, a Colorado native with a background in construction and an appreciation for the properties of adobe, had a long-time dream. He envisioned individuals and families participating in the building of low-cost, energy efficient, quality homes. Local production of adobe block seemed a logical choice. This was born the non-profit, *Sangre de Cristo Solar Adobe Works*.

An assembly of well used equipment was purchased and transported over the mountains to a site at 8000 feet in the San Luis Valley of southern Colorado. The equipment consisted of an eight yard concrete truck (to mix adobe mud), a hopper/shaker table, conveyor belt, and a *Moldmaster* laydown machine with several sizes of forms.

I had been developing my own non-profit project, the *Baca Center for High Altitude Sustainable Agriculture*, or BCHASA. Its purpose is to serve as a model for environmental education in food production, resource conservation, waste disposal- and building technology. We were just getting started and looking for a way to build our first structures when I was introduced to Will. As a result, I was inspired to bring along my old '58 Ford tractor and join in the *Adobe Works* start-up.

Will had decided on a volcanic pumice called *scoria*, as the aggregate base for his adobe. Mined just across the border in New Mexico, *scoria* is red in color, lightweight, and non-expansive when wet. It has a coral-like texture, is pitted with holes, and being sharp, has terrific

holding power. Mixed in a ratio of five parts *scoria* to one part of a local clay soil, with 4% asphalt emulsion (by weight), the resulting block were one-third lighter than the average adobe of the same size. Besides being easier on the back, the lightweight block provided a good balance of insulation and mass.

The adobes are strong, surviving the back-of-truck drop test. They have proved water-resistant, withstanding four years of exposure in uncovered stacks with minimal erosion. An attractive brick red color, these *scoria/pumice* adobes can be cut or drilled cleanly and easily, yet hold a masonry nail like a vise.

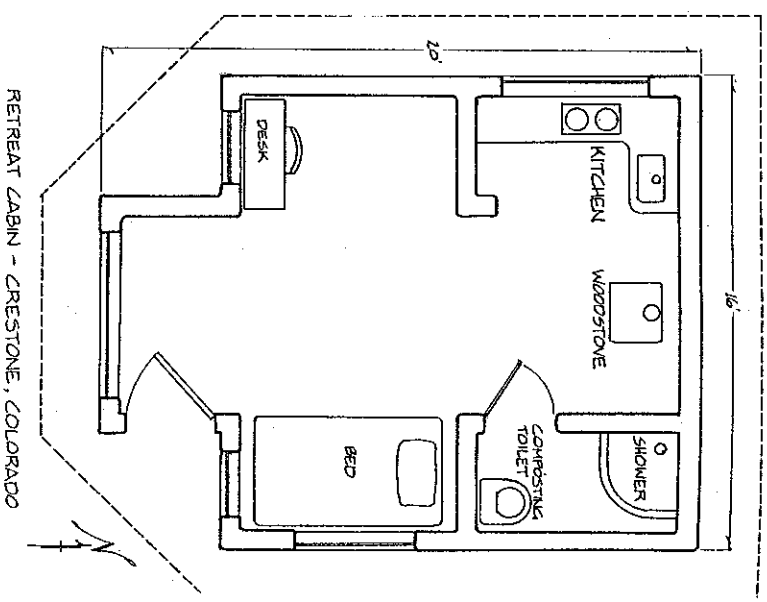
There were some kinks. An estimated 60% of the labor was spent smoothing out the sand bed between laydowns. More labor went into cleaning the sand off the adobes, after they had dried sufficiently to be stood on edge. Next time, we would speed the process via a reusable sheeting spread over the laying area- or perhaps by grading and packing the ground surface.

I thought it was enjoyable working with the mud and we certainly had some beautiful surroundings, but it was still hard labor. It was difficult finding helpers willing to sweat on a regular basis. Those who talked the most about building their own never seemed to make it out to the yard! A more suitable location with better access, possible clay on site, and a water source would help. Until these problems are worked out, the *Adobe Works* is on hold.

In the meantime, BCHASA has forged on to produce four small cabins, using the *scoria/pumice* adobes. The first is a test structure on the BCHASA site, and the later ones are retreat cabins for a Buddhist group. Two were constructed using a single eight inch thick wall, and have performed well. The others are double wall, with a two inch cavity in the

center filled with the same type of *scoria*, but in a 3/4" screened size. The total wall thickness on these double-adobe walls is 18". I've monitored the first double wall cabin over three winters for interior and exterior temperatures. With no interior heat source, the temperature inside has never varied more than two degrees on any given day, while outside, temperatures have swung as much as sixty degrees. Structurally, the double wall has worked well for keying in window and door frames- and the pleasure of that warm, wide window sill.

The material has gotten raves from all who've seen it, built with it, or lived in it. Hopefully, one day, I'll be able to turn my stockpile of *scoria* adobes into that dream home. ❖



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photo by Adobe Builder—



*Ingeniero Gustavo
Espinoza Zelaya,
Supervisor of Works,
Valle State, Honduras.
To the side, one of
his projects, an
Adobe schoolhouse—
see page 24—*

*Ingeniero Gustavo
Espinoza Zelaya,
Supervisor de Obras,
del Departamento de
Valle, Honduras. Al
lado, una construcción
nueva en adobe, para
una escuela— que es
su proyecto. Más en
página 24—*



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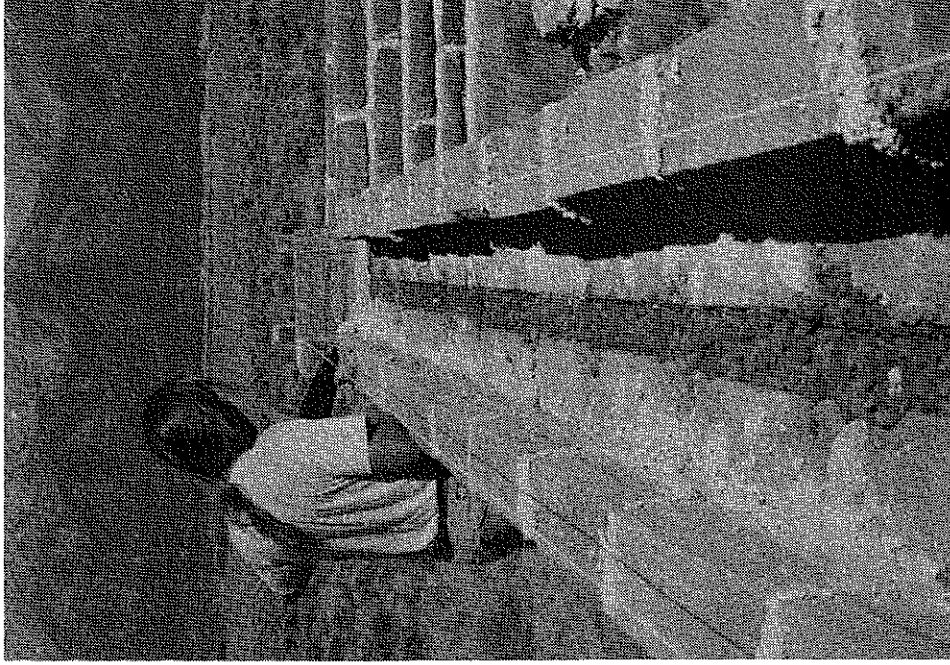
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photo by Mottisinger—



Above: Bond beam cavity atop double adobe wall in Colorado. Note middle section, filled with insulating scoria/pumice. Cavity will be filled with required continuous steel and concrete. See page 32—

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