

Is Precast Concrete The Housing Answer?

A Virginia cattleguard manufacturer sees the future in concrete housing.

By Glenn Eberhardt

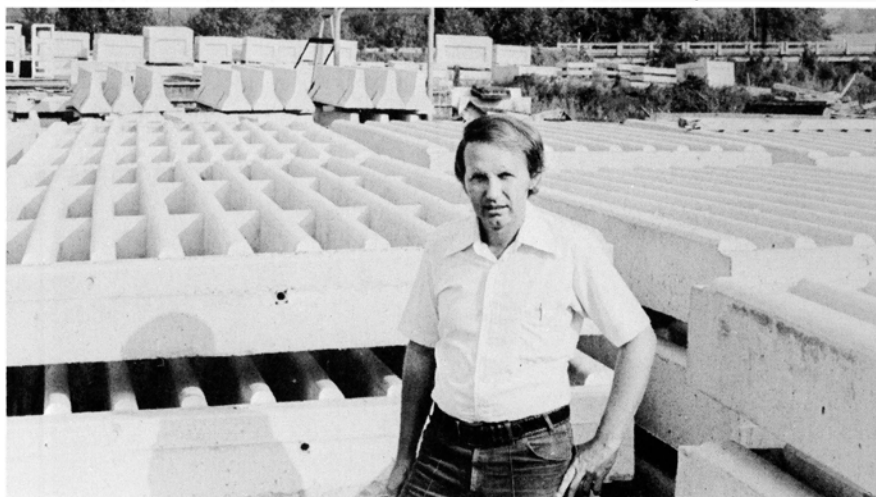
Escalating costs of labor, material and land have put substantial new housing beyond the reach of many Americans. Similarly, dwindling energy supplies and rapidly rising energy costs add a new and burdensome dimension to the ownership of good housing by families of moderate means.

But an answer to these problems may be springing from an abandoned corn field at Midland in Virginia's Fauquier County. There, the Smith Cattleguard Company is busy turning out precast concrete in a variety of shapes. Some of those shapes form what Rodney I. Smith, the company's 36-year-old president, believes is the low-cost housing of the immediate future.

The company, a family-controlled corporation, got its start about 15 years ago when David Smith, now 70 and still an active farmer and company vice president, sold his first concrete cattleguard to a neighbor for \$140.

The cattleguard (a grating over which cattle will not pass, eliminating the need for inconvenient gates) has enabled the Smiths to parlay a \$4,000 investment into a business that grossed more than \$930,000 from its Midland plant last year.

The product line has grown from cattleguards to heated water troughs and



Rodney Smith started his company with cattleguard production.

other farm-related items, and on to underground utility vaults and highway median barriers. Franchises have been sold in Georgia, Kentucky, Texas, Illinois and Missouri. New franchise-holders are being sought in North Carolina, Tennessee, Arkansas, Florida, Ohio and Pennsylvania.

Precast concrete housing is not new and the younger Smith, who describes himself as the company's research and development man, has been toying with the idea for at least 10 years. Now, he believes, the time has come for a really practical concrete house; one that can be marketed as a single-family dwelling unit or stacked and clustered.

What Smith has come up with is a three-bedroom home occupying 975 square feet of floor space that can be erected on a field-cast slab in three days and finished and fully equipped in another seven. The entire package, he says, will sell for \$17,900.

Admittedly, this is no luxury home. It is designed to provide basic, low-cost, durable, and almost maintenance-free shelter.

In the past, low-cost housing has meant government projects, usually shoddily built at inflated prices, or partially finished, packaged, wooden homes and mobile homes good for only a few years and financed at higher than normal interest rates.

Smith's house, a prototype of which was recently erected near the Midland plant, is none of these things. It was shipped in 38 precast panels insulated throughout with polyurethane (2½" in the roof panels and 1½" in the wall panels) and finished inside with a smooth fiberglass, reinforced concrete mix to provide additional insulation and a pleasing, paintable interior.

More than 400 feet of post tension cables were used inside the eight roof panels, in addition to reinforcing rods and welded wire mesh throughout. The cables were pulled to a tension of about 26,000 p.s.i. to draw the roof slabs together as a monolith. All panels were then welded in place.

The result is a good-looking, 80-ton structure that is virtually stormproof



The Smith Company hopes precast concrete houses are the future.



David Smith, 70, still active in company and on the farm.

Housing

and fireproof, and thoroughly protected against migrating dampness and chill associated with earlier masonry buildings. Double insulated windows and wall to wall carpeting are calculated to make the house a real energy-saver. In addition, Smith says the building is readily adaptable to a solar energy system.

Smith hopes to initially market the house in northern Virginia, moving to other areas through franchises. The buildings, he feels, are ideally suited to farm tenant use and in such storm-prone areas as the Gulf Coast as recreation homes.

There are, of course, stumbling blocks.

One of these is tradition. It will take a while for most people to accept the all-concrete home. But, Smith points out, economics are a powerful factor in overcoming tradition.

Stumbling Blocks

Another problem is building codes which vary from state to state and even from county to county. Smith feels his prototype home can meet most standards and in some respects certainly exceeds the standards in use in many communities. In any event, adjustments can be made in most cases to conform with local regulations.

A third, and perhaps most serious obstacle could be opposition from the building trades unions. On-site labor requirements are minimal. A good crane operator and a welder are the only skilled people needed for shell construction. Finishing, of course, requires electricians, plumbers and a few carpenters, but most of the work is done at the plant.

While employment in the factory will increase as it decreases in the field, it is not likely that the reduction in traditional trades will be taken lightly in heavily-unionized areas. Still, Smith feels, the heavy hand of economic reality will eventually soften union opposition.

That a need for low-cost, durable housing exists, particularly in the southern and border states, cannot be denied. Rodney Smith thinks his concrete houses can fill that need now. **S**