

3D-Printed Houses

As many electric cooperatives work to increase economic development in their regions and attract new employees, some are finding that a lack of available, affordable housing is becoming a major impediment. Among the solutions they're pursuing is 3D-printed structures, which involves using a robotic arm and a concrete extruder to construct walls and foundations quickly and efficiently. Here's how it works.

Walls

- Double-skin walls with gaps for plumbing, wiring, HVAC, insulation
- 150 layers per 9' wall
- 3/4-inch-thick layers

••• Framing tower

Rebar for reinforcement

Concrete hopper

Printer framing rails

Track

Hose

Robotic arm extruder

Nozzle

Concrete mix

Electrical outlet box openings

Temporary wood supports

Modular track system

Pre-polished concrete floor slab

Advantages

- Faster construction
- More flexible design
- Less expensive:
35%-50% of a standard home
- More durable
- More energy efficient
- Less construction waste

Custom CAD design