

TEXAS GENERAL LAND OFFICE

# Resilient Home Program



# Introduction:

## What is the Resilient Home Program?



The Resilient Home Program (RHP) will replace owner-occupied single family homes damaged by Hurricane Harvey with a reconstructed home that meets additional resiliency and mitigation standards. Applicants who are waitlisted for the Homeowner Assistance Program (HAP) due to insufficient federal funding will be offered an opportunity to have their homes replaced with one of **five improved resiliency options**:

1. Tilt-wall construction
2. Steel-frame construction
3. Structural composite lumber construction
4. 3D-printed construction
5. Wood-frame construction

This program will serve as a showcase for more resilient residential construction practices and provide the opportunity to disseminate these practices through the residential construction industry on a scale larger than previously attempted. This program will also include standard mitigation measures such as home elevation.

As with HAP, RHP will offer applicants the opportunity to participate in the order of the application submission date. The type of housing offered may be limited by site conditions such as lot size and whether elevation is federally required.

## Who qualifies?

The GLO's Homeowner Assistance Program (HAP) received more applications than the program could serve with available federal funds. The Resilient Home Program (RHP) will use new federal funds to serve additional waitlisted HAP applicants first-come, first-serve, in the order of the application submission date.

Applicants will be notified through the contact information listed on their application. If you are currently waitlisted for HAP and wish to verify your contact information is up-to-date, please log in to your application through the portal available at <https://recovery.texas.gov/hap>. You can also receive assistance by emailing [cdr@recovery.texas.gov](mailto:cdr@recovery.texas.gov) or calling 1-844-893-8937 or 512-475-5000.

# Home Type: Tilt-wall construction



## What is tilt-wall construction?

Tilt-wall construction uses concrete for the slab, wall panels, and roof structure. This method is one of the **fastest growing construction mediums** available today. Tilt-wall construction offers homeowners a cost-effective, energy-efficient, and durable residence with unlimited architectural versatility and appeal.

First, a series of tilt-up concrete panels are constructed off-site and then transported to the job site location where the wall and roof panels are installed.

The final phase involves the installation and the interior build-out of doors, windows, HVAC, plumbing, electrical, bathrooms, kitchen, and flooring.

The overall construction period from start (slab poured) to finish (interior complete) is approximately **60 days**.



## Why choose tilt-wall construction?

### Significantly Lower Homeowner's Insurance

Concrete homes cost less to insure, ranging up to 25% in savings in comparison to wood or steel-built homes.

### Pest Control & Mold Protection

Minimal maintenance. Concrete is not organic, so pests such as termites, mold, and dry rot fungi are not a problem.

### Wind Force Sustainability

Concrete homes can withstand damaging winds and flying debris better than wood or steel frame homes.

### Quicker Construction Duration

Approximately 60 days from slab pour to completion.

### Fireproof Slab

Concrete does not burn unlike the wood frame in traditional home construction.

### Reduced Noise

Concrete homes can reduce outside sound as much as 75% in comparison to wood-built homes.

# Home Type: Steel-frame construction



## What is steel-frame construction?

Steel-frame homes are structured more like those with wood frames, meaning they're built by assembling various components—not poured or molded like concrete or concrete-based material. Steel framing offers a strong, accurate, stable, and durable framing alternative to traditional wooden frames. In fact, lightweight steel framing is the **superior choice for residential construction**.

Steel frames come in a wide range of sizes and shapes, much more so than standard lumber, and yield a high-quality home. Most steel construction involves extremely strong light gauge steel. Prepared in a factory and assembled on-site, steel framing can accommodate essentially any structural need. Buildings can deteriorate over time without regular maintenance and care. Steel framing, however, is a good building alternative because it is known for its ability to withstand common causes of deterioration, requiring low maintenance needs.



Your steel building lifespan can increase if you maintain it regularly and address small damage in a timely manner. There are many reasons why home builders are turning to steel framing as replacements for wood, especially for those who want to leave a smaller ecological footprint.

## Why choose steel-frame?

There are **five primary benefits** to using steel-frame construction:

1. Steel-frame is more durable than wood-frame.
2. Better resistance to insect damage, warp, rot and mold.
3. Steel buildings last anywhere from 50 to 100 years.
4. Steel is widely recognized as one of the safest options for construction in part due to its natural strength and fire-resistant nature.
5. Modern steel has rapidly become one of the most energy-efficient building materials.

# Home Type:

## Structural composite lumber construction



## What is structural composite lumber construction?

Structural composite lumber construction homes are traditional construction homes that utilize some engineered structural composite wood material components. These components consist of pieces or strands of wood that are layered together with adhesive and re-sawn into needed sizes. Components can also include cross-laminated veneer and wood fibers. These homes have the same features as the traditional wood frame construction. These home designs are super-charged for energy efficiency with green-friendly and Energy Star® features, as well as enhanced construction methods for flood resiliency.

Structural composite lumber construction homes include traditional elevations accepted in all neighborhoods. These homes utilize sustainable wood components for durability, lower greenhouse emissions, and are less energy-intensive than concrete and steel construction. Building with wood is better for the climate and has up to 40% lower emissions than concrete construction. These homes require less maintenance than traditional homes. These homes have **spray foam insulation**, which reduces energy consumption with lower utility bills.



## Why choose structural composite lumber construction?

Structural composite lumber construction homes require less maintenance than traditional construction, which is cost effective. Composite materials are less likely to fade, warp, or mold over time. This construction is resistant to rot and decay, so you don't have to put as much energy into maintaining it over time. These components are designed for better performance, greater strength, and greater durability. Our construction methodology includes a unique wall system that is created to protect homes from moisture intrusion, mold, and conditioned air loss. Structural composite lumber construction homes have increased market value and insurance savings.

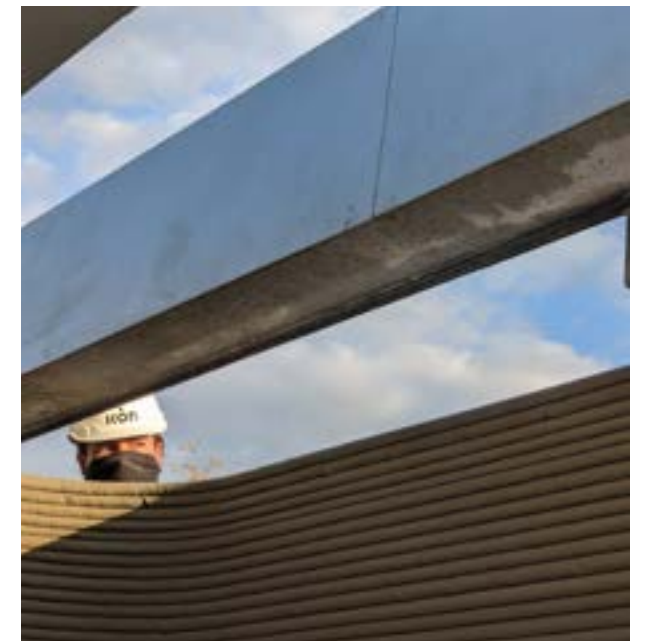
# Home Type: 3D-printed construction



## What is 3D-printed construction?

ICON 3D-printed homes are built out of cementitious mortar very similar to concrete and thus provide superior resilience in hurricane and flood-prone regions including withstanding damaging winds and flying debris. Each home is provided with a dedicated standby power panel and manual transfer switch for essential loads, such as lights, refrigerator and electrical outlets throughout the home. Homeowners can use this dedicated panel and transfer switch to easily add a backup generator or photovoltaic - battery backup system to operate essential loads without reworking the home's electrical service.

ICON's concrete-based walls provide high thermal mass and increased insulation compared to conventional construction. The thermal mass decreases the home's temperature fluctuations during extreme weather events and combined with the increased insulation reduces energy consumption and lowers homeowner energy bills. ICON's Vulcan construction technology system can 3D print the wall system of homes ranging from 500 - 2,000 square feet in days, thus increasing overall construction time.



## Why choose 3D-printed construction?

ICON's proven 3D printing technology provides safer, more resilient homes that are designed to withstand extreme weather and greatly reduce the impact of natural disasters, while providing maximum efficiency. 3D-printed homes can be built at increased speeds with less waste and more design freedom. Conventional materials like drywall and particle board are some of the least resilient materials ever invented. ICON's Lavacrete, a cementitious-based material, is a well understood, affordable, resilient material. ICON's 3D-printed homes feature a continuous thermal envelope creating comfort and high energy efficiency.

# Home Type: Wood-frame construction



## What is wood-frame construction?

Wood-frame construction homes are traditional construction homes that utilize enhanced, flood-resilient construction methods. These enhanced methods include interior water-resistant and mold-resistant wall coverings four feet from the floor, water and mold-resistant flooring, flood-resistant cabinetry. Wood-frame homes utilize sustainable wood components for durability, lower greenhouse emissions, and are less energy-intensive than concrete and steel construction. These homes offer increased flood warranty, are Fortified Gold™ Certified Homes, and meet Green Building Standards. Wood-frame homes offer lower construction costs than concrete or steel materials, are more efficient, and offer greater sustainability than traditional construction.

Wood-frame construction homes have **spray foam insulation**, which reduces energy consumption with lower utility bills. These homes will be quieter due to the noise attenuation of the spray foam insulation. These homes also have a conditioned attic space for storage and better indoor air quality. HVAC ductwork and equipment is installed in a conditioned attic space to reduce utility costs. These traditional construction elevations are accepted in all neighborhoods and can be maintained as a traditional home.



## Why choose wood-frame construction?

Wood-frame construction homes are flood resilient and offer water and mold resistant materials up to feet high within the home, including flooring and cabinetry. Our construction methodology includes a unique wall system that is created to protect homes from moisture intrusion, mold, and conditioned air loss. These homes also have increased market value and insurance savings. Wood-frame construction homes have spray foam insulation and a conditioned attic space for storage.

# Resilient Home Program

For more information, visit  
[recovery.texas.gov/rhp](https://recovery.texas.gov/rhp)

## Participating Builders:

