



Houston, Texas

GEO HOME

PROJECT DETAILS

Completed:
December 2021

Climate:
Hot/Humid; Zone 2A

- Footprint:
- Single-story, net-positive energy home
 - 3,530 square feet
 - 5 bedrooms, 3 ½ baths
 - Solar-powered with battery backup

PROJECT TEAM

Builder:
GIGA Construction

Distributor:
Johnson Supply

HVAC Consultant:
New Balance A/C



EQUIPMENT

M- and P-Series Single-zone Mini-split Systems:

- (3) SUZ Outdoor Units
- (2) SVZ Multi-position Air Handlers
- (1) PEAD Horizontal-ducted Indoor Unit

PROJECT INSIGHTS

Geo is a net-positive energy home built for health, safety and a sustainable, nature-inspired living experience. Designed by GIGA Construction of Austin, Texas, Geo is the first project in the Houston 610 loop to pair a Tesla® solar roof with battery backup for electrical grid independence. The solar-powered residence keeps energy requirements low with an airtight envelope, insulation, LED lighting and highly efficient appliances.

Mitsubishi Electric's variable-capacity heat pumps provide consistent comfort and the energy-efficiency Geo needs to fulfill GIGA Construction's nature-inspired design. The heat pumps use minimal electricity generated by the home's photovoltaic array and can operate off-grid using only battery power for approximately four days. This gives Geo sustainable heating and air conditioning even during the night and on cloudy days. Powered by the sun, the Mitsubishi Electric system uses heat drawn from the outdoor air to keep Geo warm during the winter without burning fossil fuels. Electrical grid independence and maximal comfort with Mitsubishi Electric demonstrate how sustainable homes like Geo benefit both families and the environment.

BENEFITS

"Mitsubishi Electric heat pumps pair very well with a home run fully off a solar panel grid. A standard unitary system draws too much electricity with a hard start. If you want to run your HVAC solely on a solar panel roof, Mitsubishi Electric is the only route to go."

— Garrett Traweek, Territory Sales Manager, Johnson Supply

- Healthy, sustainable home with no gas lines in main envelope
- Variable-capacity heat pumps for air conditioning and gas-free heating
- INVERTER-driven compressors for minimal electrical usage
- Continuous fan movement for steady indoor temperatures
- 3 individually controlled comfort zones
- Quiet operation
- Air filtration
- South-facing 15.0 kW solar roof
- Two 13.5 kWh backup batteries
- Heat pumps and appliances can operate off-grid for 4+ days at moderate electrical usage

