AMIE’s Anatomy

If the structure’s energy store runs low, the vehicle’s battery and on-board natural-gas generator feed electricity to the structure via a wireless charging pad.

AMIE’s integrated panel system combines the functions of a conventional wall system—structure, insulation, air and moisture barriers, and exterior cladding—into a single unit.

AMIE’s battery stores excess energy for use after sundown or for charging the battery in the hybrid vehicle.

The 3-D-printed panels create a structural design optimized for live loads, lateral forces, and impact resistance.

AMIE’s rooftop-mounted 3.2 kW solar photovoltaic system powers the structure’s lights and appliances.

An ORNL-designed computer system monitors and manages the flow of energy inside the structure and between structure and vehicle.

The precise additive manufacturing process can lead to zero-waste construction and buildings that can be ground up and reprinted in different forms.

A central island features sink, dishwasher, stove, microwave, refrigerator, and bed.

Three-dimensional printing allows for complex organic geometries with rounded corners and curved surfaces that reduce localized stress and mitigate turbulent exterior airflow.

Ring assembly