

Las Vegas Digital Project Representation - Solar Decathlon 2017

<https://youtu.be/bsOyBJSh-KQ>

Video and/or computer-animated walkthrough of the design from the University of Nevada, Las Vegas team, submitted as part of the Design Development deliverable, representing approximately 90% complete design. Learn more about this team and house at

<https://www.solardecathlon.gov/2017/competition-team-las-vegas.html>.

Text-alternative version:

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Las Vegas is becoming the next destination for retired seniors with active lifestyles. We believe that no matter your age, you should be living passionately. Team Las Vegas' Design; — is a low-cost, energy-efficient, health-conscious home for the active aging citizens of Las Vegas and the desert Southwest.

Our home beautifully combines the history of the past with the technology of the future. We push forward the cutting edge of sustainability & home automation technology. Designed with the user in mind, we strive to balance sustainable design with premium comfort. Active aging with sustainable living is now a reality.

We gather solar energy using photovoltaic panels and solar thermal collectors. A Tesla battery stores the photovoltaic energy to be used at night or during a grid outage. If that outage does occur, the battery can power all critical electrical loads.

Solar thermal energy is collected by evacuated tube collectors on our modular Mechanical Unit. Inside the unit, energy is stored within our solar thermal tank, providing hot water & heating, for the home.

This module can also be used on any home, to deliver solar powered heating and hot water.

Our home is designed in two modules to maximize space and minimize transport logistics.. Advanced framing techniques are used to minimize raw materials and maximize insulation space.

The large and comfortable decks surrounding the home allow for a seamless transition between indoor and outdoor living.

Water conservation and reuse is a vital element in our design. Greywater, rainwater, and AC condensation is recycled to meet all of the home's irrigation needs. Our green wall is a source of further water filtration and acts as a living garden.

Outside, an automated shade structure and deep overhangs keep the home cool during the summer, but allows the sun to heat the home in the winter.

A conveniently located car charging station provides fast and easy charging.

Our floor plan is simple and spacious. We aim to provide a clear circulation path, to mitigate wandering in older persons, and encourage physical activity. Adjustable countertops and cabinets, provide ease and comfort for everyday tasks, such as meal preparation.

Our home keeps you safe, with slip resistant flooring and fall detection sensors.

Energy efficient lights with smart sensors respond to natural light, minimizing energy usage, without sacrificing lighting conditions.

The home is connected to the cloud, to monitor building performance, systems operations, and human interaction.

Notifications of potential intruders or hazards are sent to your phone or smart device.

Our automation app lets you control the home remotely, or use Alexa when you're home.

We create an optimally conditioned environment using multi-zone sensor feedback around the home, which saves energy and money, by automatically switching between passive, supplemental and active systems.

Sensible and latent loads are removed at the source with exhaust, and replaced with fresh air which is conditioned using our Phase Change Material. Air temperatures are maintained at ideal conditions, while odors, allergens, and harmful particles are filtered out using a carbon and HEPA filtration system.

Mechanical systems are supplemented by redundant solutions. Solar thermal heat is used to primarily heat the home, while heat pumps can also be used for heating and dehumidification. Individual mini-split heat pumps can cool partial loads while all the units combined can meet and exceed summer cooling demands.

Promoting the concept of healthier environments is key for an aging population. Designing for an aging population encompasses a stress free environment for the user to enjoy day to day living.

Sustainability, universal design, and modern living work together with the psychological and physical needs associated with aging.

Our home helps you live passionately by embracing every moment, simplifying your life, and giving you freedom.

Credits:

Production:

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