



By [Meghan Hall](#)

[685 Florida Street](#) in San Francisco is now home to the nation's first condominium project to pair Passive House Certification with positive-net-energy technologies. Called Sol Lux Alpha, the six-story, four-unit development was just completed and accredited as Passive House Certified in April 2018.

Conceived by Off the Grid Design, the condominiums meet Passive House Institute Standards, which originated in Germany. According to Off the Grid's CEO John Sarter, the team was inspired to bring the concept to the United States after seeing it work in other locations around the world. When

speaking about why Off the Grid Design chose Passive House over other standards, Sarter said there were many options to choose from, including LEED, the Living Building Challenge and Zero Net Energy Challenge. While many of these standards focus on the quality of construction, few, according to Sarter, focus on trying to eliminate greenhouse emissions.

“I’ve been designing and building for 32 years, but in that time I haven’t found a metric and methodology that really focuses on reduction of energy use as much as Passive House does,” he explained. “Sustainable building standards are great, but really in my mind our energy use is probably the biggest issue of our time and that’s where we need to focus.”

Passive House is a metric that specifies how a building utilizes a total source of energy over each square foot of space. The ultimate goal is to regulate energy output by carefully utilizing highly insulated walls, eliminating thermal barriers and creating effective ventilation systems to create a more airtight, and therefore more energy efficient, building.

Although the standard was established in the 1990s, Sarter believes that there is no better time than now to introduce net-positive housing into the market, since technology has advanced and more and more people are pushing for sustainable modes of construction. However, the process didn’t come without its challenges. Sol Lux Alpha was originally slated to be completed in the second half of 2016, but was instead just completed this spring.

“We don’t rush through things just because there’s a fast way to do it,” said Sarter.

However, Sarter does believe that the delays and the extra time it took to complete the project were absolutely worth it. Construction stalled not only because the team was using technology that the City of San Francisco had not previously approved, but also because the cutting-edge technology the team sought was rapidly changing.

“Technology was advancing so quickly that we changed battery vendors three times over the course of the project,” said Sarter.

The complex features all the bells and whistles of a typical development such as high end finishes and a rooftop deck and garden, but the development’s innovative energy-saving technology is an amenity all on its own due to its functionality and design.

The roof, for example, is home to SunPreme bi-facial solar panels which absorb sunlight both directly and from reflective surfaces in the surrounding neighborhood. And, because each panel can absorb sunlight through its top and bottom, extra energy is generated.

“Those photo cells collect light from the surrounding neighborhood and they produce 25 to 30 percent extra energy generation,” explained Sarter. “It’s over our deck and lets in filtered light too, so it’s a really nice design element.”

The complex also includes 12 Tesla Powerwalls. Each unit has three of these battery-packed walls, which can power an entire unit for two to three days. Electric vehicle chargers, LED lighting, Bosch

appliances and vampire outlets were also added in order to minimize power. Any excess power generated can be sold back to the grid, so homeowners are able to develop revenue from their homes.

“You’ll never have an energy bill here,” said Sarter. “The resilience this kind of building creates is a luxury.”

Sarter estimates that the total cost to construct the development is in the \$6 million to \$7 million dollar range, and that each condominium will sell for between \$2.5 million and \$3.5 million, although the units have not been officially priced out yet. Sarter does believe, however, that the units will sell quickly.

“The societal value of what we’ve done here is something you can’t really put a price on,” said Sarter. “It’ll be interesting to see how the public receives that.”

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