

New Thermal Storage Technology Makes 'Faster, Cheaper, Better' Hot Water a Reality For Low-Income Housing Units

Pilot program in California may change the way MDU (multi-dwelling unit) buildings provide hot water to their residents, more reliably and affordably

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/EINPresswire.com/ -- The typical American household spends about one out of every four of its energy dollars just to heat hot water—which means reducing that expense is a top priority in improving its occupants' standard of living, especially in income-challenged communities. To change that ratio, one design-build contractor in California's Bay Area recently took an entirely new approach to reducing energy costs by replacing conventional water tanks and heating elements with new materials and technologies-- ones promising to significantly lower hot water system installation, operating and maintenance costs.



PowerPanel's Thermal Tank, consisting of lightweight EPP foam blocks which greatly reduces installation time and costs. An engineered plastic, EPP provides superior insulation and is corrosion-free

In order to upgrade the 25-year-old 32-family complex with a new thermal hot water system, the property's management sought assistance from the design-build contractor [Carbon Zero Buildings](#) (CZB), which serves the multifamily residential market across California and is one of the largest project developers in the state focused on the low-income multifamily energy retrofit segment. CZB, in turn, enlisted the assistance of several expert resources in the renewable energy space including Solera Systems' Josh Plaisted.

Explains CZB's joint owner Greg Sherman, "because states today including California will

progressively reduce energy incentives, any “carbon zero” solution simply has to add more value while costing less to implement and operate in order for a building’s owner to justify it.” That ruled out conventional steel pressurized storage tanks made from traditional materials for several reasons, including equipment and installation cost.

Josh Plaisted of Solera explains the reason: "A pressurized storage tank made from traditional steel can weigh a half ton and be a challenge to move into position and install. Moreover, traditional pressurized steel tanks require regular and costly maintenance in order not to “rust out” in as little as 10-15 years. That’s why the project team turned to [PowerPanel](#) in Michigan for their solution: an unpressurized thermal storage tank design consisting of thermoplastic building blocks weighing no more than 25 pounds, which can be hand-carried into place."

Continues Solera's Plaisted, “with this technology PowerPanel’s Thermal Tank can literally be “walked into” a tight installation space and assembled by several people in less than an hour, which makes it much easier and more economical to install. Equally important, unlike conventional tank materials the high-tech Expanded Polypropylene Plastic (EPP) foam blocks comprising PowerPanel’s modular tank design are immune from corrosion and deterioration, making this type of advanced storage tank a better capital investment for a building operator over the long run.”

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Our Thermal Tank’s flexibility is a real asset to both system designers and installers as well as building managers”

*Garth Schultz, inventor &
PowerPanel founder*

“Our Thermal Tank’s flexibility is a real asset to both system designers and installers as well as building managers,” added PowerPanel’s founder and chief engineer Garth Schultz. “They’re very customizable for different applications, accommodating a wide range of heat exchangers, sensors and other devices to meet system engineers’ needs.”

To maximize system efficiency and cost-effectiveness, the

team integrated the advanced PowerPanel Thermal storage tank into a system fed by dual Heat Pumps, which work by extracting excess heat from the atmosphere and other sources and



Thermal Tank installed on-site at the project. Its modular 'building block' design enabled the team to hand-carry it in and easily set it up in a tight space, in a fraction of the time a conventional tank would need

applying it where it can be most useful; in this application heating hot water. Between the heat pumps' thermal generating efficiency and the Thermal tank's ultra-high storage efficiency—the EPP foam is so effective an insulator that it only loses less than 2.4°F (1.3°C) per day—the new hot water system will be able to achieve the economic and sustainability goals envisioned by its design and installation team.

At press time the California MDU water heating prototype had come on-line in a 60-day evaluation period, to verify performance and as proof-of-concept. Following success at that, CZB expects to adopt the new design as part of their portfolio for multi-dwelling unit projects.

For more information about PowerPanel's Thermal Storage technology, visit <https://ThermalEnergyHQ.com>.

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About PowerPanel: founded in 2016 by Garth Schultz, a veteran of clean vehicle development as well as clean agriculture initiatives, PowerPanel's mission today is advancing the field of hybrid solar energy with its efficient photo-voltaic plus thermal technology (PVT). The company's patented advances in PVT represent a technological leap in solar energy generation since the first demonstrations of the solar electricity module itself over four generations ago.

Today, PowerPanel manufactures the highly successful [GEN20 line of PVT systems](#) incorporating the company's advanced Thermal Tank storage technology. GEN20 Portable Systems are providing clean, hot water along with electricity for essential applications as part of relief efforts ranging from the hurricane-struck Caribbean to Ukraine. Larger GEN20 Integrated Systems are successfully operating at hotels, resorts, and other multi-dwelling units, as well as serving health care, food, laundry, and other facilities. PowerPanel is headquartered in Oxford, Michigan USA, where it manufactures its products.

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