

Aeon Alliance Expansion



SIPs help save energy for affordable housing residents

Nonprofit housing developer Aeon has built or renovated over 1,900 affordable housing units in the Minneapolis-St. Paul metro area. In 2011, the organization sought to expand its popular Alliance Apartments for formerly homeless adults with 51 new units that would offer residents the energy savings, comfort and health benefits of a LEED platinum building. Working with Cermak Rhoades Architects, Aeon succeeded in reducing energy use under a tight construction budget by building with structural insulated panels.



**Structural Insulated
Panel Association**

PROJECT AT A GLANCE

LOCATION: **Minneapolis, MN**

SQUARE FOOTAGE: **33,124**

ARCHITECT: **Cermak Rhoades Architects**

BUILDER: **Weis Builders**

BUDGET: **\$10 Million**

SIP MANUFACTURER: **Extreme Panel Technologies**

Building Green on a Budget

Minneapolis-based Cermak Rhoades Architects was given the task of designing the new 33,124 sq. ft. building that would be connected to the existing Alliance Apartments by an interior walkway. The project also involved moving a century-old brick home, dubbed The Mansion, to make room for the expansion. At its final resting place 80 feet from its original location, The Mansion was completely remodeled to create 10 additional units. Together, the three buildings provide safe housing and a sober living environment for the formerly homeless.

“Sustainability is one of Aeon’s core values,” said Larry Prinds, Senior Project Architect at Cermak Rhoades. “They are always trying to incorporate green and sustainable materials into each project as much as their budget allows.”

An interior walkway and courtyard connect the 51-unit expansion to the existing Aeon Alliance Apartments.



Prinds and his colleagues looked for ways to improve the building's energy efficiency and sustainability, keeping in mind that the project was a possible candidate for the LEED for Homes mid-rise multifamily pilot program.

They specified 6-inch-thick structural insulated panels (SIPs) from Extreme Panel Technologies as the wall system to limit heating and cooling loss through the building envelope. SIPs consist of a core of rigid insulating foam sandwiched between two structural facings. By enclosing the four-story building with continuous insulation and a complete air barrier, SIPs reduced both thermal bridging and air leakage for improved energy efficiency, while also reducing sound transmission from the nearby interstate freeway.

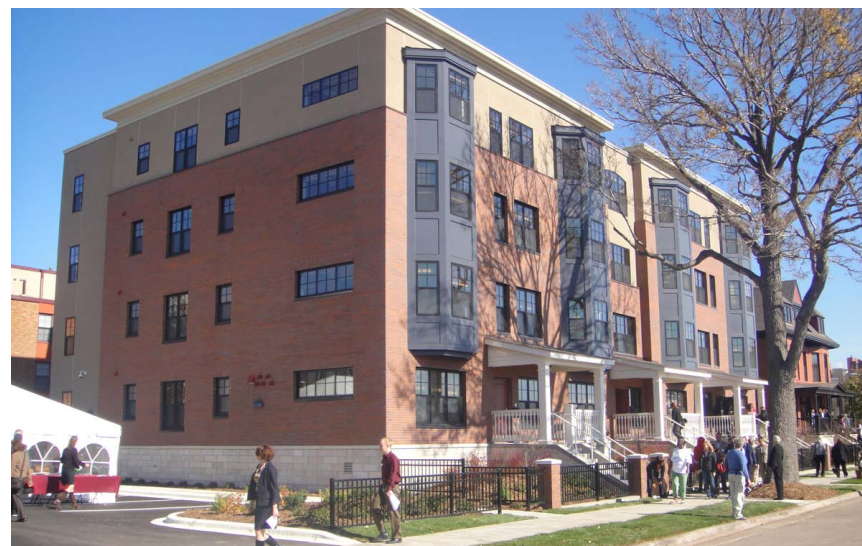
"We chose SIPs with our eye on the prize that we may want to do LEED certification," said Prinds. "SIPs were a little more expensive than standard framing, but we chose them after evaluating their efficiency, cost, impact on building performance, and other factors."

Safe and Sustainable Housing

SIPs were only one part of a comprehensive energy reduction strategy that also included an insulated Thermomass foundation, high performance windows, and ENERGY STAR lighting and appliances. The building features an innovative split ductless air-source heat pump with individual air handlers in each unit. Centrally located roof-mounted heat pumps distribute refrigerant to the in-room fan units where it is used to heat or cool the space, replacing relatively inefficient and leaky metal air ducts with a closed-circuit system of pipes.

To limit solar heat gain, the roof is coated with reflective white roofing material that keeps the building cool during the summer. A partial green roof provides additional insulation and helps manage stormwater runoff.

Structural insulated panel walls helped Cermak Rhoades Architects save energy and reach LEED Platinum.



Residents also enjoy improved indoor comfort thanks to low or no VOC finishes and noise-deadening glass that cuts out noise from the nearby freeway.

Cermak Rhoades succeeded in incorporating these high-tech sustainable features into a design that matched Minneapolis' historic Elliot Park neighborhood. With the remodeled Victorian mansion standing nearby and walk-out entrances on the ground floor units, the brick-faced Alliance Addition offers a townhouse feel and affordable utility bills for low-income residents.

"As developers and owners of supportive and affordable housing, Aeon is interested in breaking boundaries with their work," said Prinds. "They want to show that what is often seen by the mass market as marginal housing can be as good as any other type of housing."



Walk-out entrances for ground floor apartments and a brick facade helped match the historic neighborhood.



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