

The Shores of Lake Phalen



SIPs and radiant heating cut energy use for senior living community

Located in a heavily wooded area adjacent to the banks of Lake Phalen in Minneapolis, Minnesota, The Shores of Lake Phalen senior living community offers senior housing in a peaceful, natural setting.

For building owner Coventry Senior Living, energy costs on the 86,750 sq. ft. facility account for a large percentage of total operating expenses. Based on their success with past projects, they specified structural insulated panels (SIPs) to improve the building's energy efficiency and create a more comfortable indoor environment.



**Structural Insulated
Panel Association**

PROJECT AT A GLANCE

LOCATION: **Minneapolis, MN**

SQUARE FOOTAGE: **86,750**

ARCHITECT: **Kaas Wilson Architects**

BUILDER: **Nottingham Construction**

SIP MANUFACTURER: **Energy Panel Structures**

A Strategy for Energy Efficiency

Coventry Senior Living partnered on the project with Kaas Wilson Architects, a firm that specializes in senior housing design. One of the design goals that Kaas Wilson received was to lower operating costs for the large facility by reducing energy use.

“In Minnesota it is cold a lot of the time and energy efficiency is a concern as well as heating costs,” said Kaas Wilson Project Designer Kim Behrens. “Creating a really thermally tight building reduces energy costs in the long run and they expect this building to operate for a long time.”

Wilson notes that Kaas Wilson received specific directions from Coventry Senior Living to look at SIPs for the building enclosure, based on the results of the 41,600 sq. ft. Coventry Senior Living facility in Mahtomedi, Minnesota.

“Every operator and owner has their own idea of what they like to see and the use of SIPs was

SIPs and radiant heating create a more comfortable indoor environment for the 86,750 sq. ft. senior living facility



something that was very important to Coventry,” said Behrens. “They had done several projects with SIPs already and were really happy with the results.”

SIPs reduce heat loss by establishing a continuous barrier of rigid foam insulation without studs at regular intervals that cause thermal bridging through the building envelope. Air infiltration is another major source of heat loss in buildings. SIPs are manufactured in panels as large as 8 ft. by 24 ft., limiting the number of gaps that need to be sealed.

Builder Nottingham Construction oversaw the installation of SIPs from Energy Panel Structures. Joints between the panels were sealed against air leakage as they were assembled. This not only helped the building’s energy efficiency, but also greatly improved the interior comfort by eliminating drafts and cold spots.

“It was important to get the building comfortable for the residents and through SIPs we were able to maximize the efficiency of the building and provide a pretty consistent comfort level,” said Greg Johnson, one of Coventry Senior Living’s owners. “There are not a lot of cold spots or drafts, and we attribute that to the panels as well.”

Another critical factor in the building’s energy efficiency is the heating system: an in-floor hydronic radiant system powered by a central 94% AFUE natural gas boiler. Heated water is circulated through tubing in the floors on each of the three stories for a consistent, even temperature.

Residents can adjust the temperature in their individual units using through-wall packaged terminal air conditioners (PTACs) that provide both heating and air conditioning.

Kaas Wilson also incorporated high performance, low-E windows and energy star appliances. Energy-saving fluorescent lighting, compact fluorescent bulbs, and LEDs were combined to meet the ASHRAE 90.1-2004 standard for lighting.



Creating a Comfortable Indoor Environment

Every aspect of the interior, from the lighting schemes down to the carpeting, was chosen with the occupants in mind. The Shores of Lake Phalen houses independent living, assisted living, and memory care living areas spread throughout the facility, with a number of shared common areas. Although assisted and independent living units have kitchens, common dining areas are provided to promote socialization among residents.

“There are a lot of common areas in the building in addition to the units,” said Behrens. “These activity spaces promote socialization because we want people to stay active and make friends, which is not as easy to do when you’re a senior.”

Interior corridors are well lit and floored with carpeting that avoids sharp light to dark color contrasts. Behrens explains that color choices have been selected to aid seniors with poor vision and declining depth perception.

All corridors also have handrails and are sized to accommodate scooters and wheelchairs. According to Behrens, the floor plan is designed to be accommodating, minimize the amount of travel, and give residents as much independence as possible. Along with the thermal comfort of the SIP building enclosure and radiant heating, Kaas Wilson strove to make a healthy indoor environment by selecting low- and no-VOC interior products.

“Anywhere you live you want to make sure people are in a healthy environment, especially in new construction because you don’t want the offgassing, so we make a point of specifying the right products,” said Behrens.

With a warm, healthy, and accommodating indoor environment, residents at The



Common areas provide residents with opportunities for socialization

Shores of Lake Phalen enjoy social activities and the serenity of the wooded, lakeside setting. Originally the site of recreational cabins that were painted red, the new facility pays a slight homage to the cabins it replaced, with red gable ends dotting the roofline around the entire building.

The decision to build with SIPs sped up the construction process and reduced operating costs for building owner Coventry Senior Living. With two SIP projects now under his belt, Greg Johnson intends to keep replicating the success the company has experienced using the energy-efficient combination of SIPs and radiant heating.

“We have noted the efficiency at which our Energy Panel Structures-built buildings operate, resulting in a significant reduction in energy consumption and savings for the ownership group,” he said. “Equally important is the positive feedback we have received from our residents regarding the comfort of the building and overall appeal of the design and layout.”





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