Building on years of experience in multifamily housing design, DBA Architects is pioneering a new breed of assisted living facilities—energy-efficient buildings designed around a small house concept meant to imbue the institutional facility with a residential feel. By incorporating advanced technologies like structural insulated panels (SIPs) and radiant heating, DBA succeeded in reducing operating costs while creating a more comfortable, home-like environment for Coventry’s senior residents.
For project architect Matt Bialecki, the new Ashokan buildings presented an ideal opportunity for sustainable architecture, demonstrating how decreasing the carbon footprint of the built environment can directly affect the adjacent natural environment.

Initial discussions proposed one large building that would house the guest rooms, kitchen, dining area, and performance hall. Bialecki then suggested four smaller buildings, creating a number of open spaces and embracing the surrounding landscape.

“I thought it should be a village,” said Bialecki. “It should be a series of buildings broken down into separate functions. When you do that you create a whole opportunity for exterior courtyards and commons.”
“I like the fact that it is a good solid wall, it is not a hollow wall,” said Baker. “The insulation is more continuous, and there are fewer interruptions for studs and framing.”

Framing crews sealed between the large panel sections as they were assembled, minimizing opportunities for air leakage. Air leakage is a major source of heat loss, and can cause drafts, cold spots or condensation. Unlike traditional wood-frame construction, SIPs have a solid core of insulating foam that is fully enclosed in a code-compliant air barrier to virtually eliminate air movement.

For space heating, Baker specified a hydronic radiant heating system with a 96 percent efficient natural gas boiler. The system pumps heated water through tubing in the floor for a consistent and comfortable temperature. This is supplemented with a central air source heat pump for common areas and individual air handlers in each unit so residents can adjust their room temperature and use air conditioning if needed.

Maintaining good indoor air quality for Coventry’s chemically-sensitive patients was another top priority for Baker and his design team. All paints and carpets used in the building were low VOC. The airtight SIP construction allowed better control over indoor air quality by limiting incoming air to controlled sources, while whisper-quiet exhaust fans helped provide continuous ventilation.

For Coventry’s residents, the SIP building enclosure, radiant heating system, mechanical ventilation, and in-room air handlers resulted in a healthier and more agreeable living environment.

DBA Architects designed Coventry Senior Living with three distinct interior “neighborhoods,” each with their own common areas and dining rooms. This

Creating a Small House

Residential-inspired finishes inside and out create a home-like feel for residents.
small house concept encourages interaction between residents and diminishes the institutional feel common in large assisted living facilities. It also limits travel between living quarters and daily activities for elderly residents.

Baker worked to instill the home-like feel throughout the building’s design, making the interior spaces and the building’s façade reminiscent of a residential setting.

“We tried to scale down the building in terms of living areas and public spaces to make it more intimate and not institutional,” said Baker. “The finishes, decorating, and furnishings are like those you would find in a home.”

“The outside of the building is also a residential scheme, with finishes of siding and brick veneer, a large outdoor porch area on each floor, and architectural detailing and trim around the windows,” Baker added.

Rather than design the facility as a simple box shape, Baker added a number of bumpouts and shingled overhangs to make the exterior more interesting and blend in with the residential neighborhood. Although these complex features would have added time and labor to a conventionally-framed building, the framing process went quickly with prefabricated SIPs.

“It is very efficient when all the panels are pre-cut, and it is probably easier to set those panels than framing the walls onsite when you consider all the ins and outs of the design,” said Baker. “From what the contractor experienced during the first few panels, to the end of the construction process, it was a night and day difference in terms of speed of erection. It really flew once they got the handle on what they were doing.”

With a residential-inspired design inside and out, along with a comfortable and healthy indoor environment, Coventry Senior Living offers an attractive living option for seniors and their families. The building’s exceptional energy efficiency and innovative design earned the 2012 SIPA Building Excellence Award for Multifamily Housing.

Structural insulated panels, in-floor hydronic heating, and individual air handlers in each unit combined to produce a more comfortable indoor environment.