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All-in-all, the improvements will save significant dollars on utility bills, and the veterans have homes which serve their needs.

Colorado State Veterans Center Homelake Domiciliary Renovation
Monte Vista, Colorado
A NEW BEGINNING

The renovation of 24 historical duplex cottages on the campus of the Colorado State Veterans Center at Homelake is a unique project, incorporating current building technologies while simultaneously restoring the historic characteristics of the original 1914, 1932, and 1939 cottages. Located in the San Luis Valley, the domiciliary cottages offer an independent/assisted living setting for veterans. The residents range significantly in age, having served in the Vietnam or Korean Wars, and even a few in World War II.

The Colorado Department of Human Services (CDHS) owns and operates the domiciliary cottages and established a goal at the outset of the project to create healthy and comfortable living environments that were also resource efficient. These goals, as well as the State’s establishment of a LEED Gold target for new municipal buildings when the project was in early design, led the team to pursue LEED for Homes™ certification for the renovations. The LEED for Homes™ certification process provided the added benefit of third-party validation and a basis for tracking the sustainable features incorporated. In April of 2011, the Homelake Domiciliary became the first assisted living facility in Colorado to achieve LEED certification under the LEED for Homes™ program, earning a Platinum rating.

As part of the LEED for Homes™ process, the cottages’ energy efficiency was tested by a third party rater based on the internationally recognized HERS index scoring system. The initial evaluation showed that the existing cottages and central utility plant serving them were performing two times worse than code, at a HERS rating of 210. The renovated cottages are now performing 50% more efficiently than comparable new homes based on this system, earning HERS ratings of 49 and 50. A significant number of features incorporated into the home contributed to these outstanding results.

One large contributor is the closed-loop geothermal heat pump system that serves as both the heating and cooling system for homes. The ground source heat-pump system was installed to the north of the cottages and although this area appears untouched, 42 400-foot holes were drilled to install the piping, buried below grade to take advantage of the static temperature of the earth year round. In addition to the geothermal HVAC system, a new 11-panel solar thermal system at the facility’s central plant provides preheated domestic hot water for the cottages.

Energy modeling was used extensively to evaluate the effectiveness of potential improvements, and balance them to provide the most value for the dollar. Cellulose insulation was added to the attics of every cottage to bring them consistently up to R-50. Crawl spaces leading via tunnels to the central plant were insulated with spray foam to and R-value of 31.5, and interior walls furred in to add an additional R-21.4 on the inside of the exterior walls. These measures also served to significantly reduce the air infiltration in the leaky structures—a major cause of heat loss.

Some of the more visible features of the project include the energy-efficient under-counter refrigerators, compact fluorescent light bulbs, and insulated exterior doors. In the planning stages it was brought to the team’s attention that the windows installed in 1996 were not only a significant avenue for heat loss through the building envelopes, but lacked consistency with the original design. With assistance from the State Historical Fund, the State successfully obtained new wood replacement windows with high-performance glazing that also reflected the appropriate, historical configurations.

On the water side, a high-efficiency irrigation system has been installed to serve the landscaping associated with the cottages. This system utilizes non-potable water from multiple wells on the campus for the site irrigation needs. The system is designed to optimize the amount of water provided to grass and plantings by watering only when needed. During the irrigation season the system is controlled by a timer as well as a moisture sensor to delay irrigation in the event of significant amounts of precipitation. Hardy plants that are also native to this region were specifically selected as part of the landscape design, as they are generally less water-intensive than...
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A NEW BEGINNING

Before & After

BEFORE: 1942
BEFORE: LIVING ROOM
BEFORE: BEDROOM
BEFORE & AFTER

AFTER: 2010
AFTER: LIVING ROOM
AFTER: BEDROOM

MEMORIAL STATUE

DESIGN LEADERS FOR HEALTH & AGING
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