Colorado State Veterans Center
Homelake Domiciliary Renovation

Monte Vista, Colorado

BOULDER ASSOCIATES

ARCHITECTS

A NEW BEGINNING

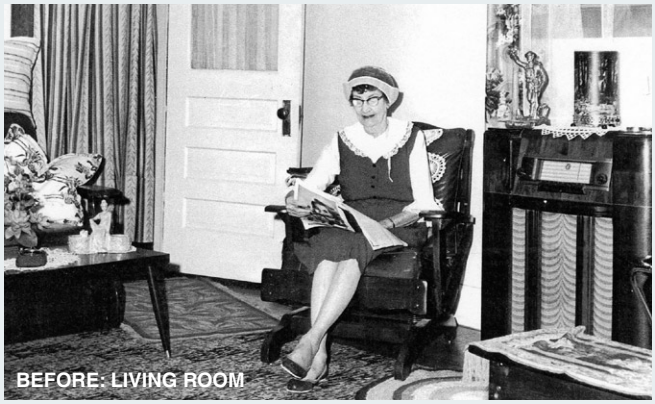
The renovation of 24 historical duplex cottages on the campus of the Colorado State Veterans Center at Homelake is a unique project, incorporating current building technologies while simultaneously restoring the historic characteristics of the original 1914, 1932, and 1939 cottages. Located in the San 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 campus offers numerous services to the residents, including a small market, dining center, library, chapel, beauty parlor & barber shop, laundry, museum, medical clinic and pharmacy. All are within walking distance, but community bicycles are also available. Located near Monte Vista, Colorado, the Homelake residents experience snow averages of 30 inches and single digit temperatures in the winter months followed by comfortable summers with highs in the low 80s in July and dry weather year-round.

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

BEFORE & AFTER

BEFORE: 1942



BEFORE: LIVING ROOM

AFTER: 2010

AFTER: LIVING ROOM

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 attic 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 florescent 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

BEFORE: LIVING ROOM AND BEDROOM

AFTER: BEDROOM

MEMORIAL STATUE

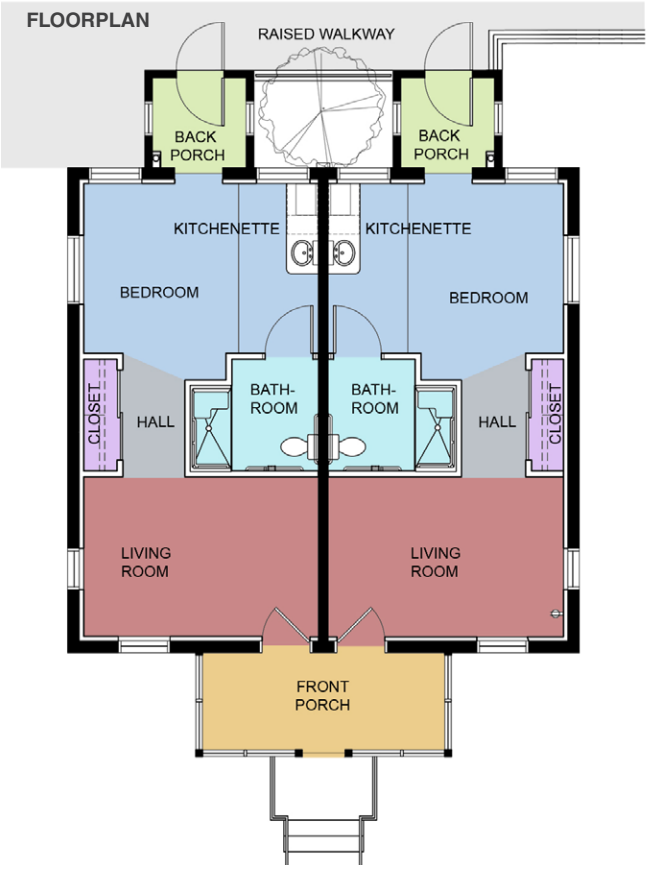
imported varieties. Significant savings from reduced water use will also be realized with low-flow showers and faucets in all units, and low-flow toilets in those that required replacement.

Eco-friendly materials were used to complete the renovations and provide superior indoor air quality. Low-emitting paints, coatings, adhesives, carpet and particleboard—as well as a continuous 48-hour flush-out the period before the units were occupied—provided a healthy environment for the residents from day one. The project team gave priority to regionally manufactured materials and products with high recycled content whenever possible. Forest Stewardship Council (FSC) certified wood was selected for interior wood elements of the project including the trim, interior doors, cabinets and countertop substrates.

The renovation of the cottages also included an accessibility upgrade—making every one of them compliant with ADA and universal design standards. An elevated concrete boardwalk now flows between the back-to-back cottages, making each unit accessible from the rear door and creating community space for the neighborhood. A similar boardwalk was added to the third row of cottages, adjacent to open space.

To help keep the residents informed of the construction activities, the contractor and CDHS staff held meetings and conducted tours with the residents and their families throughout the process. The resident's handbook also identifies all the sustainable features of their homes and provides information related to green practices the residents can implement within their own homes.

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



PROJECT TEAM

Architects: Boulder Associates

Interior Design: Boulder Associates

Contractors: Siemens Industry, Inc. & Torres Builders

MEP Engineers: Caveo Consulting Engineers

Landscape Architects: Ouellette & Associates

Green Rater: Headwaters Energy & Finance

BOULDER ASSOCIATES

ARCHITECTS

Design Leaders for Health & Aging

boulderassociates.com | 800.499.7796

BOULDER
1426 Pearl St., Ste. 300
Boulder, CO 80302

SACRAMENTO
1331 21st St.
Sacramento, CA 95811

ORANGE COUNTY
15615 Alton Pkwy., Ste. 270
Irvine, CA 92618

SAN FRANCISCO
5 Third St., Ste. 430
San Francisco, CA 94103