



Real world hydronic system technology for Green Building design.

# century village

NEW CONSTRUCTION, MANHATTAN, MT



**systems** made **easy**



Taco LoadMatch® Real world hydronic system technology for Green Building design.

# century village retirement facility

## **LoadMatch® System Adds Comfort and Savings to Montana Retirement Facility**

Project Snapshot: A new senior living community in the heart of Manhattan, Montana provides year-round indoor comfort for its residents with a LoadMatch® single pipe system combined with an integrated Tri-Water piping system. The LoadMatch system design, provided by Taco, won over the developers because of its installation and projected energy savings, estimated to be nearly \$27,000 in just a few years of operation.

The project is unique in that it replaced less expensive PTAC air conditioning units with more efficient – and more expensive – heat pumps. However, the heat pumps were installed in a less expensive, more competitive, first-cost integrated piping LoadMatch® Tri-Water system for heating, cooling and fire protection.

### **Century Village Senior Living Community Project:**

#### **General Contractor:**

Murray Brothers Construction, Belgrade, MT

#### **Mechanical Contractor:**

PhD Mechanical, Helena, MT

#### **Architect:**

The Springer Group, Bozeman, MT

#### **Tri-Water Engineering:**

Sprinkler Technology Design, Bozeman, MT

#### **HVAC Equipment Supplier:**

Vemco, Inc., Billings, MT





## The Client:

The Century Village retirement community was built by the developer/contractor firm of Murray Brothers Construction, of Belgrade, MT. With 30 years' experience as builders, 15 of them as general contractors, Don and John Murray are part owners of the Century Village development, which is operated by an outside management company.

## The Buildings:

Plans for Century Village call for three build phases: Phase 1, completed in May 2005, contains 36 assisted living units, expandable to over 70 residents. The units are linked to a common living room area, a dining room and recreational area. Phase 2, scheduled for completion by the end of 2005, will provide 8 independent living cottages situated around the main facility. All common areas in the Phase 1 portion of the development and the cottages have radiant heat under the floors, and all unit walls are insulated with urethane to prevent cold air infiltration in Montana's chilly winters. Lowell Springer, A.I.A., of Bozeman, MT was the architect on the project.

## The HVAC System:

The Murray brothers had initially thought of installing a lower cost PTAC system for summer cooling

needs. Going forward, their sensitivity to future operating costs was paramount. Architect Springer, who had worked with the LoadMatch® system in previous projects, felt that a LoadMatch® Tri-Water hydronic system with integrated piping was the right solution.

Springer invited Taco to propose a LoadMatch® system that would provide an integrated piping system combining heat, cooling and fire protection. The resulting system design employed 55 water source heat pumps instead of PTACs. Should supplemental heat be needed on very cold days, the system's more efficient and lower operating cost natural gas boiler would provide it.

## The Taco LoadMatch® Solution:

Because LoadMatch® is a single pipe system, heat, cooling and support for the fire sprinkler system all come directly off the main (single) pipe loop. In essence, the HVAC piping was free. Less expensive installation costs were thereby achieved due to the fact that one pipe could provide water for all three functions - less pipe was needed and no ductwork was involved.

Taco's LoadMatch® system provides better comfort than DX air systems as well as conventional 4-pipe hydronic systems. It is self-balancing

and eliminates the need for most balancing valves by replacing them with small, energy-efficient LoadMatch® circulators. The LoadMatch® circulators direct water to where it needs to go, as opposed to forcing the water through the system's piping loop.

## Results:

In the case of the Century Village project, the LoadMatch® Tri-Water system solution brought the project costs for heating and cooling into line with the developers' budget for the project. What's more, the system is expected to generate nearly \$27,000 in energy savings within just a few years. Says Don Murray, "The LoadMatch® system is functioning very well, and our residents enjoyed a comfortable summer. In terms of indoor comfort, we expect the system will do just as well when the cold weather arrives."

## You'll be more comfortable.

LoadMatch<sup>®</sup> provides better comfort than all air-systems, as well as conventional hydronic systems. LoadMatch<sup>®</sup> is a self balancing system and assures the required flow to all heating and cooling units at all times. Your heating and air conditioning system will deliver BTU's where they're needed, and when they're needed.

## You'll save energy.

With less pipe and the elimination of control valves and most balancing valves, lower pump head and less power is required to move the water.

## You'll save money.

Fewer parts, about 40% less pipe and fittings, no control valves and almost no balancing valves reduce first costs. Lower pump head and operation of pumps to match the load reduce operating and maintenance costs. All this adds up to big savings on the system, typically up to 30% of life cycle costs.

## Contact Us

Taco engineers are at the forefront of Green Building hydronics, designing components and systems to help you meet the challenges of environmentally sensitive – and budget conscious – design and build. Visit our web site at [taco-hvac.com](http://taco-hvac.com) or e-mail [greenteam@taco-hvac](mailto:greenteam@taco-hvac) for more information or to talk to a Taco Green Building professional.

