LoadMatch® SYSTEM

Real world hydronic system technology for Green Building design.

stone child community college

NEW CONSTRUCTION, NORTHERN MONTANA

systems made **easy**

stone child community college

LoadMatch® System suits new construction .

Project Snapshot: A major new structural addition to a small community college on an indian reservation in Montana comes equipped with the heating comfort provided by a new Taco single-pipe LoadMatch® hydronic system. Stone Child Community College serves students of the Chippewa-Cree tribe who live on the Rocky Boy Reservation in northern Montana. This year the community college, one of 32 in the nation dedicating to educating Native Americans and preserving their culture, brought three new buildings on line: a cultural learning facility, Sitting Old Woman Hall, a library and student services building, and Kennewash Hall, a 25,000 sq. ft. main academic and administration building.

For Kennewash Hall, a variable air volume (VAV) with hydronic reheat LoadMatch® system was installed, and is now providing daily in-door comfort for students, instructors and administrators. For this design/build project, the tribe's architectural firm, Springer Group Architects, convinced college officials that a Taco LoadMatch® hydronic system wouldn't cost much more than the all-air system they originally called for, and would be more comfortable and reliable in its delivery of BTUs within the two-story building through the cold Montana winters.

Stone Child Community College Project:

Owner's Representative/Construction Manager:
Frank Henry, Box Elder, MT

Architect:
Springer Group Architects, Bozeman, MT

LoadMatch® System Engineering:
Three Rivers Engineering, Bozeman, MT

Installation:
Nault Plumbing & Heating, Havre, MT
Rude Sheet Metal, Cut Bank, MT

The Client:

By 2000 the Rocky Boy Indian Reservation's Stone Child Community College had simply run out of room in the local high school at the Rocky Boy Agency, where it had occupied space since 1990, and a 50-acre site on the reservation was dedicated for the new campus. With funding from a variety of U.S. government agencies and private foundations, the new $4 million campus began to take shape three years ago. It now consists of the three buildings, with room to expand.

The Building:

Bozeman-based Springer Group worked closely with tribal members and college faculty in the design of the new campus's centerpiece academic building, Kennwash Hall, named after Chief Kennewash, an original tribal member and strong supporter of education during his lifetime. The building's design combines traditional Native American aesthetic in a thoroughly contemporary building. To that end, the iconic shape and design of Kennewash Hall, supervised by Springer Group partner Doug Morley, emphasized the unique tradition and sense of space of Native Americans, especially as an oral culture given to occupy round buildings and not rectilinear ones.

Morley's design for Kennewash Hall provides a dimension to the $2 million building that is particularly appropriate for its role as a tribal college. In the middle of the building's rotunda stands a large wooden pillar. The rotunda was designed to evoke a sun dance lodge, both with its shape, and especially through its commanding center wooden pillar; twisted wooden stairways connect the building's two floors, and large windows on both floors allow a flood of light into the building.

Kennewash Hall contains 16 classrooms, six computer labs, and two science labs. Satellite and high-speed Internet access are tied into the college's network. The general contractor for the building was Arrow Construction, a tribal business located in nearby Box Elder.

The LoadMatch® Heating system:

The college originally wanted an all-air heating system designed to minimum code standards. Considering the severity of Montana winters, however, a system had to be designed to handle minus 30º days and nights, and Springer Group Architects, working with design engineering firm Three Rivers Engineering, didn't feel that gas-fired furnaces would be sufficient or meet minimum code standards for ventilation. A higher performance preheat system was necessary. Even though hydronic systems usually cost more than than all-air systems, the LoadMatch® design that designer John Tetrault came up with - a VAV reheat system employing Taco 00® LoadMatch® circulators - didn't cost all that much more. The supply piping is located on the first floor with the return on the second. Kennewash Hall has a central mechanical room linking all occupied areas and has a single air cooled chiller for summer cooling needs.

The Taco LoadMatch® Solution:

Taco LoadMatch® provides better comfort than DX air systems as well as conventional four-pipe hydronic systems. It is self-balancing and eliminates the need for most balancing valves and expensive, energy-consuming control valves by replacing them with small, energy-efficient Taco LoadMatch® circulators. The Taco 00® circulators direct water to where it needs to go, as opposed to forcing the water through the conventional system's long piping loop. John Tetrault calls the LoadMatch® system "a great application, with significant dollar savings for a building over the life of the system."

For Kennewash Hall, one of the big considerations for the heating system was a desire for low maintenance. "They wanted as few potential problems as possible with a new heating system," says Doug Morley. "And it needed to be accessible. With LoadMatch®, because there's no control valves, there's a lot less stuff in the ceiling, and Taco's 00® circulators have a long field history of being virtually maintenance free."

Results:

Kennewash Hall was finished in the spring of 2003, and classes for the new academic year commenced in September. Stone Child Community College now has an enrollment of some 300 students, and room for more. Despite the tough northern Montana winters, the LoadMatch® heating system will meet winter's match with the warm, uniform comfort of hydronic heat.

You'll be more comfortable.

LoadMatch® provides better comfort than all air-systems, as well as conventional hydronic systems. LoadMatch® 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.

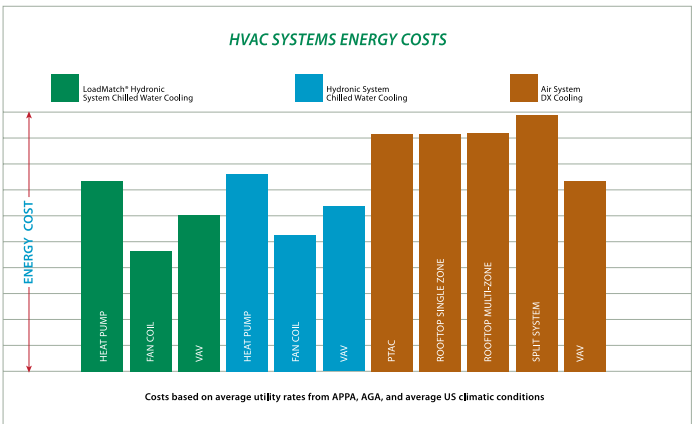
With less pipe and the elimination of control valves and most balancing valves, lower pump head and less power is required to move the water.

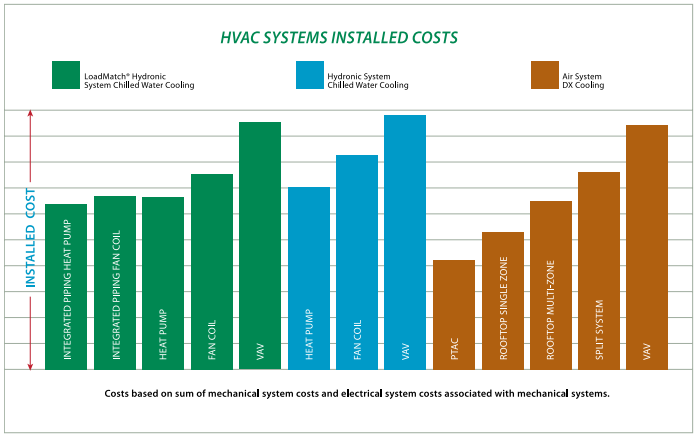
You'll save money.

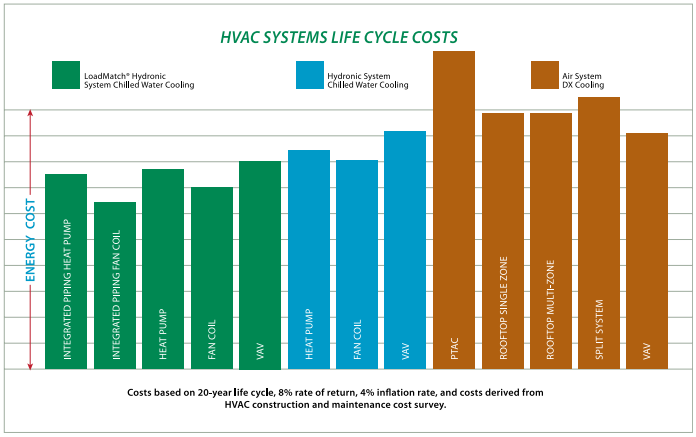
Fewer parts, about 40% less pipe and fittings, no control valves and almost no balancing valves reduce first costs. Lower pump head and operation of pumps to match the load reduce operating and maintenance costs. All this adds up to big savings on the system, typically up to 30% of life cycle costs.

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** or e-mail **greenteam@taco-hvac** for more information or to talk to a Taco Green Building professional.







Taco®
systems made easy
www.taco-hvac.com

Taco, Inc., 1160 Cranston Street, Cranston, RI 02920 (401) 942-8000 / Fax (401) 942-2360
Taco (Canada) Ltd. 6180 Ordan Drive, Mississauga, Ontario L5T 2B3 (905) 564-9422 / Fax (905) 564-9436