



Real world hydronic system technology for Green Building design.

# whistler resort apartments

NEW CONSTRUCTION, BRITISH COLUMBIA



**systems** made **easy**



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

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## **LoadMatch® System suits new apartment building.**

Project Snapshot: The Whistler Resort in British Columbia, Canada, completed a new, three-story, 57-unit apartment building for its year-round employees at the end of 2001. The building's heating, cooling and domestic hot water needs are supplied by ground source heat pumps connected to a Taco LoadMatch® heating and single-pipe hydronic system. The LoadMatch® system of over 120 Taco circulators supplies heat and cooling water to fan coils located in each apartment unit. The installation and start-up of the system encountered fewer problems than the mechanical contractor has ever experienced with any other hydronic system he has dealt with, and the system today functions extremely well and efficiently.

### **Whistler Employee Housing Project:**

#### **Construction Management:**

Glacier Creek Contractors, Pemberton, BC

#### **LoadMatch® System Engineering:**

Yoneda Engineering, Vancouver, BC

#### **Installation:**

CIR Mechanical, Vancouver, BC

BC Comfort, Vancouver, BC

#### **Manufacturers Representative:**

Equipco, Vancouver, BC





## The Client:

Nestled in the spectacular Coast Mountains of British Columbia, 75 miles north of Vancouver, the Whistler Resort is a year-round world class recreational and resort facility that offers a full range of outdoor seasonal activities ranging from downhill skiing, snowboarding, cross-country skiing and mountain biking on Whistler and Blackcomb Mountains, to backpacking, golf and fishing. The resort, which started as a fishing lodge in 1914, has been recognized as one of North America's best ski resorts, and its massive high-alpine terrain is said to rival the major ski resorts of Europe. It has the largest vertical drop on any ski area in North America.

## The Building:

Designed by Walter Francl Architect of Vancouver, the building houses about 90 individuals in one or two bedroom units. Occupants range from wait staff in the resort's restaurants to teachers and ski instructors. The building, which comes with an underground garage, is managed by the Whistler Housing Authority.

## The Heating System:

The new system combines a ground loop heat pump system and fan coils in each of the building's 60 apartment units. The eight ground loop heat pumps, located in the building's mechanical room, pump a mixture of water and glycol through seven miles of interconnected pipe. Geothermal heat

and cooling comes from some 80 holes drilled down approximately 200 ft. below the surface to multiple underground wells. Taco's LoadMatch® system complements the ground source heat pumps, and the addition of variable speed drives makes for only a 10° temperature difference between supply and return. By design, the system's heating water temperature is maintained at around 115°F, and the system, according to Darrell Anderson of CIR Mechanical, which did the installation and start-up, works fine with the lower water temperature.

## The Taco LoadMatch® Solution:

Taco LoadMatch® 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 and expensive, energy-consuming control valves by replacing them with small, energy-efficient Taco LoadMatch® circulators. The circulators direct water to where it needs to go, as opposed to forcing the water through the system's piping loop.

Mechanical contractor CIR Mechanical added three A.O. Smith propane water heaters to create an indirect domestic water exchanger for the building. This added extra capacity allows for preheating of domestic hot water up to 125°-145°F, and is yielding energy cost savings.

## Results:

"The ground source heat pump in combination with the LoadMatch® system works beyond expectation," says Darrell Anderson. "The system is so sufficient that it even self-purges itself of air, making it essentially self-balancing." In the year since its installation toward the end of 2001, according to Tim Wake of the Whistler Housing Authority, the system has required "some tweaking here and there" but has functioned without any problems.

## 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.

