

Peak 2 Peak gondola line, and below, steel building cable car terminals.



**Whistler/Blackcomb.** It's one of the most popular ski resorts in Canada, and in less than a year these two peaks will host numerous events during Vancouver's 2010 Olympic and Paralympic Winter Games.

The resort presented a major challenge to organizers – shuttling people quickly from one peak to the other. The solution: the Peak 2 Peak gondola, featuring 28 cabins that travel from the top of one mountain to the other, a distance of more than four kilometres. To build the terminals where riders board, the project owner tapped Colony Management Inc. Colony builds steel building systems, popular in remote areas with industries such as mining, so Colony's expertise easily covered mountain peaks. The resulting terminals now protect the cable car machinery from snow and wind loads.

"If you put two buildings on the peaks of separate mountains in a high seismic zone with high wind and snow loads, that's a very challenging project to take on," says Meredith Perez, marketing supervisor for Behlen Industries LP. "But we did it. It's an extreme example of where our buildings can work. It's very difficult to build on a mountain top."

"Whistler is a huge step for us and for steel buildings because it was so different than any of our other featured buildings," says David A. Thompson, president of Colony Management Inc.

As architects and designers face demands for better building performance at lower costs, steel building systems are turning into churches, airplane hangars, office buildings, auto dealerships, even La-Z-Boy Furniture Galleries. Yet steel building systems, or pre-engineered buildings as they are still commonly called, continue to trigger traditional preconceptions of boxes, barns and sheds, to the chagrin of the people who make them.

They commonly play the part of the local hockey arena or factory, as well as facilities for remote petroleum or mining sites. What each use has in common is the need for "clear-span" construction, where support posts for the roof would interfere with the way the building owner wants to use the interior. While an obvious choice for ice pads, industrial designers appreciate the ability to set up production lines unconstrained by structural elements of the building itself.

But taking steel buildings further into mainstream use calls for sowing different perspectives among builders. Consider the cost of a building, for instance. Steel building proponents want decision makers to shift their focus away from capital costs and towards the cost of operating a building over its lifetime.

Even the capital cost disadvantage versus traditional steel and concrete structures can be mitigated when clear span construction ranks high on a project priority list. For instance, Carole Lacasse, director of sales and marketing for Honco Steel Buildings, makes the following claim about Honco buildings: "The foundations are simpler. They do not need to be reinforced due to concentrated loads caused by columns, since Honco buildings don't have columns. The load of the building is distributed uniformly by the walls along the foundations."

Speaking of Behlen's products, Perez concurs. "Corr-Span frames are much lighter and you can save up to 15 per cent on the foundation alone."

Also, one company and one trade erects the structure, and since it goes up faster than it would using other building methods, a shorter construction phase can mean lower labour costs.

The single source of responsibility also results in flexibility when dealing with design changes. "When Whistler wanted to make a change to the building, we could make the change and tell them what it would cost them," says Thompson. "They could make knowledgeable decisions on what they wanted to do."



## BUILD IT UP

### STEEL BUILDING SYSTEMS OFFER BETTER BUILDING PERFORMANCE AT LOWER COSTS

by Luigi Benetton

Asking for design changes while following another building method, according to Thompson, yields a "guesstimate on what the cost would be. Colony can give them a hard figure. Whistler could quickly decide whether to move ahead with a change or not."

That steel building systems consume less power to heat and illuminate comes as no surprise to industry veterans. "They've always been green," says Perez. "It's just a matter of the industry promoting that more strongly than in the past."

The key raw material – steel – is entirely recyclable. "Recycled content is a minimum of 25 per cent of the content in all steel today," says Perez. "It can go up to 100 per cent depending on the method used to make it."

Wall and attic cavities make high R-values attainable, since they accommodate large quantities of blown insulation. "It is not compressed by structural elements such as girts," says Lacasse, adding that Honco buildings omit efficiency-sapping thermal bridges.

"The Honco roof truss is designed to integrate a structural ceiling," says Lacasse. "The space created between the ceiling panels and the roof panels being well ventilated allows insulation to stay dry and permanently efficient."

"Steel buildings are airtight," adds Perez, "which helps the R-value."

Cost and environmental arguments, as potent as they are, can be outweighed by long-held building industry preconceptions.

"In the '70s," Perez explains,

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“companies offered pre-set designs for buildings. You didn’t have a lot of design flexibility. That’s not true of the industry anymore, but some engineers and architects still hold that perception.”

Indeed, architects adorn today’s steel buildings with masonry, canopies, curtain walls and other design finishes, sometimes to the point that only a trained eye would recognize them for what they are.

Burk Blanck, general manager for Agway Metals, says that attractiveness can stem from the steel itself. “Siding comes in many colours,” says Blanck. “It can be arranged horizontally, vertically or diagonally to get a specific look.”

“We’ve done churches, recreational centres and two-storey office buildings,” says John Marchetti, marketing co-ordinator for Robertson Building Systems. “We can do arches, peaks – the design possibilities are endless.”

When asked how he envisions the industry five years from now, Marchetti turns the question on its head. “If you go back five years, you rarely saw steel churches,” he says.

“The architect often hides steel buildings behind other materials that are placed around the structure to hide the fact that it’s a steel building,” Thompson adds. “On the Whistler project, the owners embraced the concept of a steel structure. The structure itself is part of the design. We have these sawhorse columns that we built into the building. The architect clad that wall with a translucent Rodeca panel to show off the steel, which was designed in geometric shapes.”

Training and profile-raising initiatives are coming from the Canadian Sheet Steel Building Institute (CSSBI). In the words of Steve Fox, CSSBI’s general manager: “We’re a marketing vehicle. We perform outreach to architects, builders and others. We show them the attributes of steel buildings.”

For instance, the CSSBI offers data sheets on its website to combat a lack of awareness of steel building engineering data, particularly in response to seismic activity or exposure to fire. “We are now seeing changes in construction systems, and our building structures are now certified in more markets,” says Lacasse.

The most vexing matter may be the way in which industry representatives must still refer to their structures. “We try to use ‘steel building systems,’ although we still refer to ourselves as pre-eng since that’s what engineers and architects still know us as,” Perez admits. “We go to a trade show and say ‘We make steel building systems.’ And after a pause, we say: ‘you know, pre-engineered buildings.’”

“The word hasn’t reached everyone yet,” Perez laughs. ■



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