

On Track for 2010

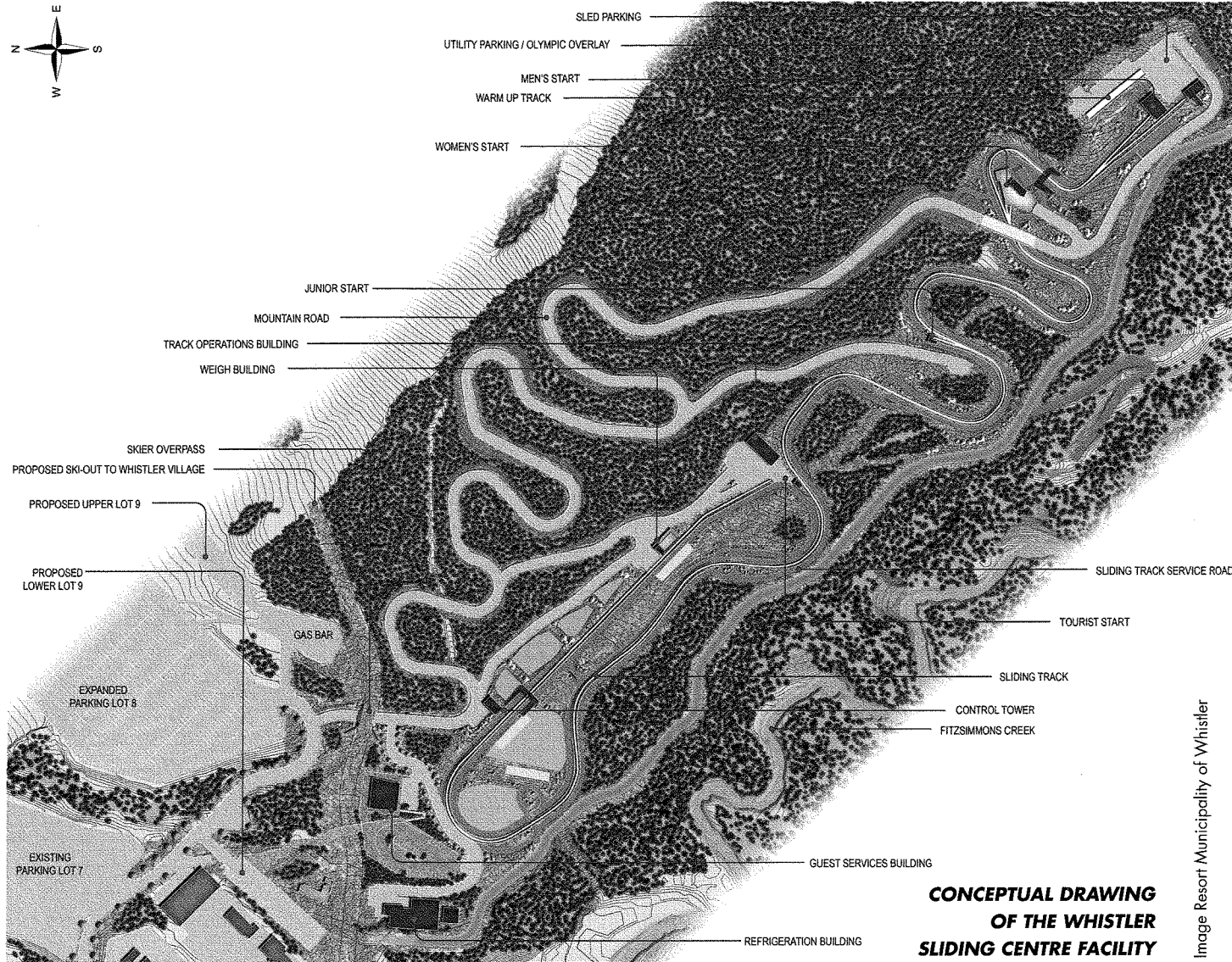
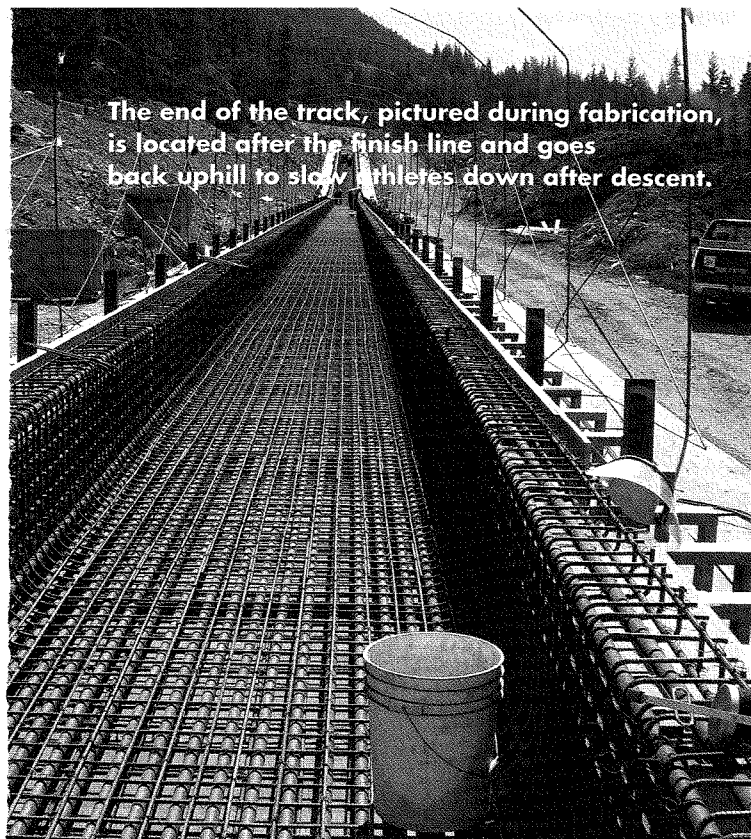


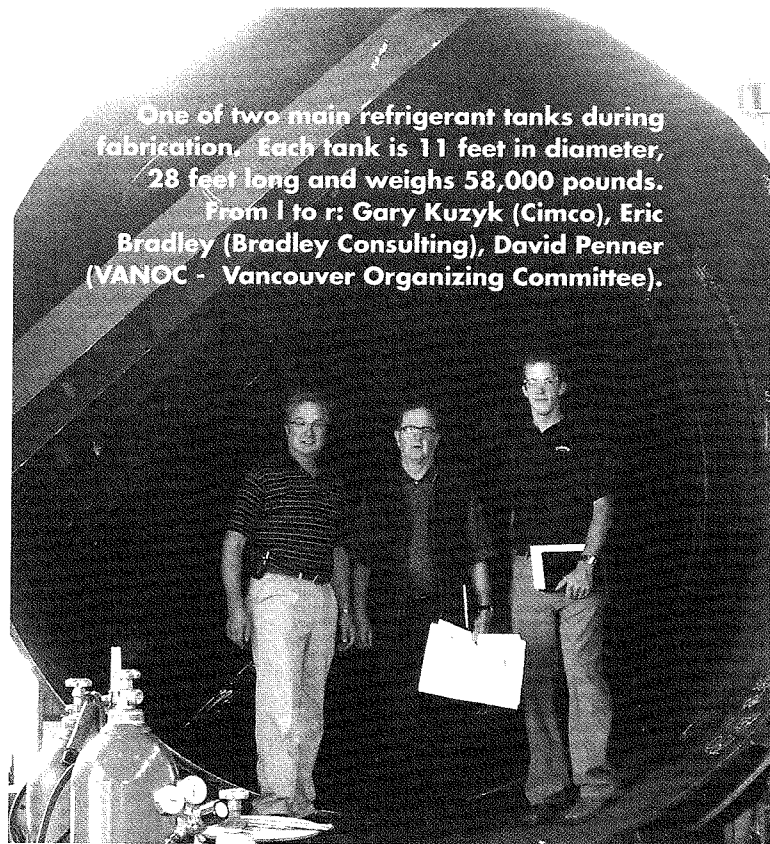
Image Resort Municipality of Whistler

With an elevation of 2,284 metres and an average snowfall of more than 30 feet per year, Blackcomb Mountain in Whistler, BC may seem a less than ideal jobsite. Add to that a task of Olympic proportions governed by some of the world's most stringent installation guidelines and you have Cimco Refrigeration's latest undertaking: the Whistler Sliding Centre.

The Sliding Centre, which is currently under construction, features a 1,450-metre concrete track, divided into four sections (see sidebar), with a 175-metre vertical drop and 16 corners. It will be the venue for the bobsled, luge and skeleton events during the 2010 winter Olympics and, when completed, the track is expected to be one of the most challenging in the world.



The end of the track, pictured during fabrication, is located after the finish line and goes back uphill to slow athletes down after descent.



One of two main refrigerant tanks during fabrication. Each tank is 11 feet in diameter, 28 feet long and weighs 58,000 pounds. From l to r: Gary Kuzyk (Cimco), Eric Bradley (Bradley Consulting), David Penner (VANOC - Vancouver Organizing Committee).

Occupying approximately 15.6 hectares of Crown land, the Centre will feature a refrigeration plant that will capture waste heat generated through the cooling process and transfer it to other buildings on the site to reduce energy demand.

Wayne Dilk, vice president, western region, for Cimco Refrigeration, explained that there are two parts to the project: the infrastructure that the track sits on and the compression system. The track and infrastructure are

about 45 per cent complete, with work shut down for the winter. Work continued on the compression system through the winter and it is expected to be 50 per cent complete by mid-April.

When asked if there were challenges to face when planning and designing for this project, Dilk chuckled. "There were all kinds of issues: early snowfall, environmental issues, as well as accessibility issues because of the mountainous terrain," he said.

Vancouver's Olympic and Paralympic Games in 2010 are expected to attract a television audience of close to three billion, in addition to the thousands who will flock to British Columbia from around the world to see the games. Dilk explained that aside from the initial challenges encountered with this project there is also added pressure due to the high profile of the venue.

He noted that the International Olympic Committee (IOC) has standards governing just about every facet of the project. "They cover everything from wildlife, to environmental concerns, to safety and these standards are much more intolerant than normal Canadian or American standards," said Dilk. There is also a third-party environmental monitor who remains on the site during all construction.

In terms of comparable Canadian projects, the next closest thing Cimco has worked on, according to Dilk, was the sliding centre track constructed for the Calgary Winter Olympics in 1988. This track, which is still operational, is 1,460 metres long and contains more than 100,000 metres of steel refrigeration piping that accommodates a direct feed of ammonia.

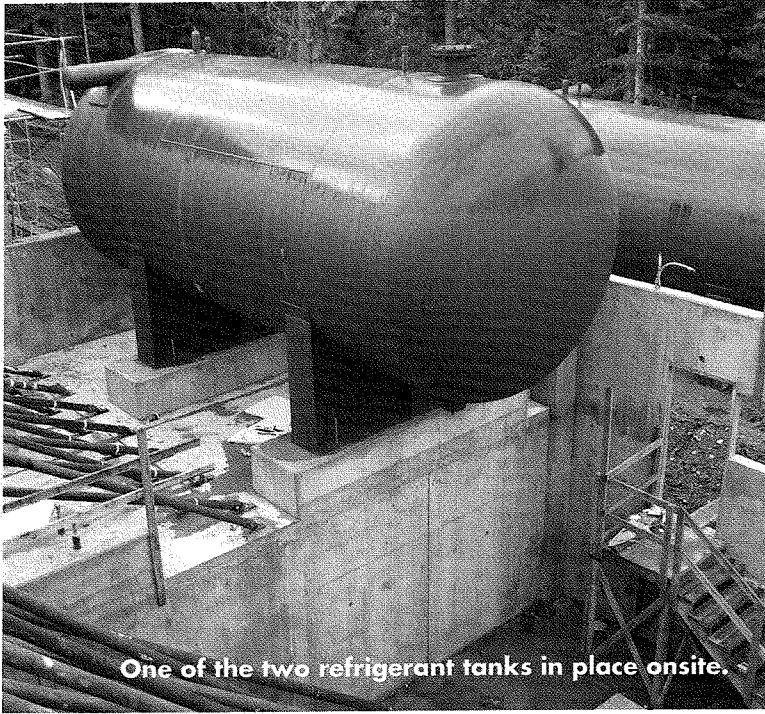
This is similar to the Whistler Sliding Centre track,

SLIDING CENTRE REFRIGERATION SPECS:

- Total number of evaporators: 122
- Total evaporator load: 1,400 tons of refrigeration (TR)
- Total flow rate of refrigerant going up to tracks: 305 US GPM
 - Track 1: 135 US GPM @ 325 ft Head
 - Track 2: 55 US GPM @ 453 ft Head
 - Track 3: 65 US GPM @ 554 ft Head
 - Track 4: 50 US GPM @ 653 ft Head
- Total hp of compressors: 2,100 hp
- Refrigerant condition:
 - Low side: Working: 16 psi and 0F
 - Design pressure: 300 psi
 - Intermediate side: Working: 41 psi and 27F
 - Design pressure: 300 psi
 - High side: Working: 160 psi and 90F
 - Design pressure: 300 psi
- Total track length: 5,955 ft
- Total elevation difference (highest evaporator to refrigeration room): about 550 ft
- Heat recovery: 100 TR

PROJECT PROFILE

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One of the two refrigerant tanks in place onsite.

which contains 90,000 metres of steel refrigeration piping. Going up the mountainside there is also a 700-foot elevation change from top to bottom. According to Dilk, the length of the track in addition to the change in elevation made the Whistler venue a difficult project to tackle. The pump heads required to pump ammonia up the mountain are just one unique feature of the design.

A key difference between the two facilities is the fact that the sliding centre in Calgary has multiple ammonia pumping stations, whereas the Whistler venue has just one pumping station at the bottom of the hill. Dilk attributes this improvement to the development of multi-stage ammonia pumps.

To spite the many challenges involved with a job of this scale, the project is on track and scheduled for completion in September of 2007, in time to allow athletes two full seasons of training prior to the Vancouver 2010 Winter Games.

"What you do with one of these things, because they're only built every four years, is you go back to the latest one, and see what was done wrong and you don't do that again," said Dilk.

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