

## Feeling the heat



Accent Refrigeration owner Art Sutherland stands near piping that feeds geothermal heat to Westhills homes. He plans to link that system to the new ice sheet at City Centre Park.

*Edward Hill/News staff*

By [Edward Hill - Goldstream News Gazette](#)

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**Langford's new ice sheet aims for ultra-efficiency**

Chilled above ground and sweltering below, City Centre Park's new ice rink has ambitious plans to host one of the most efficient heat-capture systems in North America.

If construction stays on schedule, hockey players could be on the new ice sheet for the 2011 season. A few feet below their skates will be a massive sand bed, absorbing all waste heat expelled from the arena's ice plant.

Recreation centres routinely capture a portion of heat generated from refrigeration, usually a small portion. Art Sutherland, owner of Accent Refrigeration and three-time ice maker for the Winter Olympic Games, plans to capture it all.

"We are taking things a step further. Most recreation centres capture about 10 per cent of the energy coming out of refrigeration – 90 per cent goes to waste," Sutherland says. "This facility will be unique in North America. It will use or share 100 per cent of its heat."

The bed of sand, two feet thick and the size of a hockey rink, will act as a geothermal sponge, storing and feeding energy to the rest of the building. With a peak temperature at about 35 C, the radiant heat is enough to warm dressing rooms, floors and public areas.

For more heavy-duty tasks, Sutherland says his ultra-efficient ammonia heat pumps will allow energy to be ramped up to create hot water and power equipment such as the dehumidifier, a machine that keeps the ice dry and traditionally runs off natural gas.

"We can regenerate the dehumidifier without fossil fuels at all," Sutherland says. "It's the first of its kind on Vancouver Island."

Moreover, during the summer, the same heat pump system will extract energy to run air conditioning through the bowling centre and the arena's public areas.

The system couldn't seek perfect efficiencies, though, without the Westhills development geothermal system. Deep beneath Langford's Goudy turf field, hundreds of boreholes endlessly draw heat from the earth, funneling it into a pump house and into about 75 nearby homes.

A water pipe is already in the ground to pump excess heat from the ice rink to Westhills – houses in the winter are almost always hungry for more energy. And the heat flows both ways. If the ice rink ever needed more power, it can draw from the borehole field.

"We are the first one with the ability to use 100 per cent of our heat only because of sharing with Westhills," Sutherland says. "Westhills is a good energy marriage for any excess waste heat from the ice rink."

Sutherland estimates the arena refrigeration system cost about 30 per cent more than a conventional ice plant, but expects "less than a three year pay back." A federal-provincial infrastructure grant is funding \$8.9 million of the \$14.1 million budget, with Langford borrowing the most of the remainder.

"Langford has a good opportunity to go on the global efficiency map," he says. "It's a wonderful thing for the community and us. It certainly will set a new standard."

The building flooring is in and steel framing is underway, on schedule and on budget, says Coun. Lanny Seaton, chair of parks and recreation. The project was due to finish by next spring but the federal

government extended the grant period to October.

“We are still shooting for March 31,” Seaton says. “The extension gives us some leeway if there is a supply problem.”

Seaton expects the facility to be open for hockey programs in the fall. Equipment and lane material is expected in February for 20 lanes of 10-pin bowling.

Although the initial cost is higher, Seaton said Accent Refrigeration is installing the ice plant at-cost, and will be maintaining the system. Accent plans to relocate its offices into the building and establish a refrigeration training centre on site.

Langford Mayor Stew Young said the city is fortunate to have world-class refrigeration specialists to look after the arena. “There’s not many centres that can say someone who looked after Olympic ice three times will be maintaining their ice.”

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