



Chiller solution provides reliable comfort; meets noise abatement and aesthetics challenges; reduces energy consumption and maintenance costs.

Challenge

With pipes collapsing, the geo-thermal field located under the Discovery Bay Resort was losing capacity daily. Multiple equipment failures were impacting the distribution of heating, cooling and domestic hot water to suites, and resulting in comfort issues for condo owners. The failing geo-thermal field issue was also being reflected in high maintenance costs, with technicians making frequent visits to repair or replace the thirty-nine compressors in use at the resort. As Discovery Bay Resort considered replacing its geo-thermal system with a new chiller system design, they encountered additional challenges related to noise abatement and space limitations. It was critical that any new equipment would operate at low sound levels so as not to disturb condo owners or renters; and with the resort bordering a lake, there was virtually no option to expand the property to accommodate a chiller inside or out.

Solution

Discovery Bay Resort contacted their consulting engineer to discuss solutions to their comfort and space issues. The engineer evaluated the situation, looked at several system designs and considered the possibility of making use of the existing mechanical room. Due to space limitations, it was determined that some equipment would need to be installed outside and that the only workable location would require costly, custom sound attenuation to maintain an acceptable environment for condo owners and vacation renters.

Based on a previous working relationship, the consulting engineer contacted Trane to discuss the project. After listening carefully to the compelling challenges, Trane proposed its air-cooled chiller (model RTAE) with InvisiSound® Ultimate acoustic reduction treatment to answer comfort issues, as well as provide low-sound level operation to preserve the restful environment.

Demonstrating low noise operation

With noise abatement being of high importance, Trane took Discovery Bay Resort owners and the consulting engineer to a nearby hospital site, where the air-cooled chillers were installed, to demonstrate the product's low-sound operation. Trane measured the dB while the chiller was in operation to prove the technology. Resort owners were also afforded the opportunity to talk with hospital representatives about their experience with the Trane chillers.



DISCOVERY BAY RESORT KELOWNA, BC

Project Highlights

Challenge

- Failing geo-thermal field
- Comfort issues
- Rental income loss
- High maintenance costs
- Noise abatement
- Limited equipment space
- Aesthetics

Solution

- Trane air-cooled chiller (model RTAE) with InvisiSound Ultimate acoustic reduction treatment
- Extended entrance platform for installation

Results

- Easy fit installation
- Reliable comfort
- Acceptable noise levels
- Lower energy consumption

Adding acoustical treatment to low sound system design

The Trane chiller's quiet operation is a result of its design with variable-speed compressors and condenser fans, and an integrated compressor muffler. Matching operation to demand levels, the compressors and condenser fans reduce speed and overall sound levels during off-peak hours, with an integrated compressor muffler further reducing noise. The InvisiSound® Ultimate package adds acoustical treatments to key sound-generating components, including the compressor's suction and discharge lines, limiting sounds normally emitted from the lines. The package also incorporates a patented compressor enclosure and metallic bellows at compressor suction, and discharge connection points to absorb vibrations from normal compressor operation.

Selecting location for optimal function and aesthetics

Optimal performance, noise reduction and aesthetics were key drivers as Trane worked with the resort and consulting engineer to select an installation site for the chiller. After determining that the best location would be outside, above the main entrance, the doorway platform was extended and steel columns were added to support the heavy equipment. In the center of the complex, in close proximity to condos, the chiller operates quietly to keep occupants comfortable throughout the resort. The equipment's location also keeps the chiller hidden from view helping to overcome aesthetics challenges.

Ensuring reliable comfort and efficiency

The 275-ton Trane helical rotary air-cooled chiller delivers the highest combination of part-load and full-load efficiencies, as well as reliable operation to provide dependable cooling for unit owners. The chiller features a direct-drive, specific-speed screw compressor; variable-speed, permanent magnet motors powering the compressor and condenser fans; and third generation Adaptive Frequency™ drive (AFD3) for increased efficiency.

Results

A Trane air-cooled chiller (model RTAE) proved to be the ideal solution to the Discovery Bay Resort's challenges, providing reliable comfort, easily fitting the property's only viable location, encompassing acceptable noise levels, and providing lower energy consumption than the resort's aging system. The chiller solution also lowered the overall design and installation cost by 50 percent compared to competitor solutions and assured the project fit within the property owner's budget.

"We wanted our condo owners to have the best option available and the Trane air-cooled chiller was the best option," said Gerard Fougere, vice president, Discovery Bay Resort. "With its close proximity to bedrooms, our owners might still hear some noise, but they generally are very pleased."

"Our maintenance team is also very happy with the Trane chiller," added Fougere. "Reliability is a big thing in keeping our condo residents and vacation renters happy. A service crew used to always be on site servicing the old equipment. We no longer have that. The Trane air-cooled chiller works great – no issues."

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ABOUT DISCOVERY BAY RESORT

Located in the heart of downtown Kelowna, Discovery Bay Resort is a luxury first-class resort offering stunning views of the city, the mountains, and Okanagan Lake. Visitors enjoy miles of waterfront property in a park-like setting, with shops, restaurants, a casino, and live entertainment venues also within walking distance.

The complex includes 236 individually-owned accommodations designed as either condo or multi-level townhouse style units, with approximately 50 percent used as rental properties and the others owner occupied.



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