



Commercial Case Study

Geothermal Systems Help Promote Tranquility and Relaxation at The Carneros Inn Luxury Resort in Napa

Located among an expanse of grape vines, farmland and orchards in a 27-acre Napa Valley countryside setting, The Carneros Inn provides an ideal mix of simplicity and sophistication for its guests. The resort property's design draws from the local countryside, featuring barn and silo structures, as well as a series of 86 cottages that provide guests with quaint, relaxing seclusion and a host of modern amenities.

With a nod to its surroundings, The Carneros Inn was conceptualized in 1998 to incorporate natural beauty while ensuring sustainability through a number of ecologically minded design and construction principles. This included the use of bioswales for storm water management, water recycling via an onsite membrane bioreactor plant, centralized infrastructure for domestic hot water, and efficient, waste-

minimizing construction processes.

"When we began designing the property in 1998, the green building movement certainly didn't have the footing it does now," said Nicholas

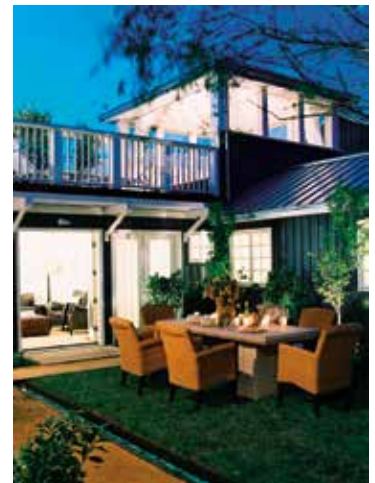


Monroe, general manager of Carneros Holdings, LLC. "For us it was about cultivating an experience of tranquility, and providing a true 'getaway' setting for guests looking to relax, unwind and assimilate into the Napa Valley experience. Sustainability and resource management turned out to be logical extensions of this vision, which was certainly a great bonus for us."

Promoting both comfort and efficiency, independent geothermal heating and cooling systems were installed in each of the 86 resort cottages, as well as in 24 additional privately owned homes in a villa also located on The Carneros Inn property. In total, 168 ClimateMaster Genesis (GR)

Series geothermal heat pumps were installed, one in each of the 86 cottages, and three in each of the 24 homes.

The 300-foot boreholes drilled by Western Development Company (WDC) are also individual to and underneath each cottage, and act as an individual supply to the 2-ton cottage units and 2- and 3-ton units in the private residences. Boreholes were drilled within the property line of each corresponding cottage or home, after which the structure itself was built on top of it. Drilling on the project took place from 2002 to 2003, and all of the resort cottages and privately owned homes followed in their completion over the course of 2003 to 2006.





With all resort cottages and private residences having been occupied for the past six years, management and facilities representatives from The Carneros Inn have reported an overall satisfaction with the installed HVAC systems, as have their guests. According to Monroe, the geothermal units have provided efficient heating and cooling that also does not detract from the guest relaxation experience.

"The goal was to avoid having our guests' moonlight stroll or glass of wine on the patio interrupted by the sound of condensing units everywhere, particularly as the cottages are located on a dense site," Monroe said.

"We're pleased that HVAC system functioning goes virtually unnoticed by our guests, and is only remotely a thought on chilly evenings or during the warmest parts of the summer. And even then, it's just a matter of adjusting the thermostat to their liking."



Monroe also shares an expectation of notable energy savings from the renewable energy sourcing of the geothermal systems.

"We don't really have a like-for-like comparison on the property, however we did construct 17 orchard units with traditional forced air HVAC systems in the last few years, and plan to measure energy consumption in them as well," Monroe explained. "In the meantime, The Carneros Inn has been recognized as both a superior resort property and a thoughtfully designed one at that, having received numerous development, design and industry awards of which we are very proud."

In addition to being recognized by the Urban Land Institute and the National Association of Home Builders (NAHB), The Carneros Inn has received accolades from Travel + Leisure magazine, Condé Nast Traveler, and other notable construction and travel industry entities.



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