

Mechanical joining system benefits new Napa Valley resort

> *Hydronic water pipelines run in time to beat area fires.*



The eighth Four Seasons hotel in California is the first to include an onsite winery and vineyard. It's scheduled to open for guests this fall.

The new Four Seasons resort under construction in Napa Valley required an underground network of nearly a mile of pipe to provide hydronic hot and cold water to the new complex. Not just a luxury Four Seasons hotel, the resort, which is scheduled to open this fall, will have 85 guest rooms, 20 private residence villas and a six-acre private vineyard.

The cooling and heating water distribution lines for every building had to be installed quickly in order to meet tight construction schedules, which ultimately allowed the crew to beat the widespread fires that suddenly enveloped the area during the summer of 2017.

The contractor, Greenberry Industrial (Vancouver, Washington), used about 5,000 feet of high-density polyethylene (HDPE) pipe in 2-, 4-, 6- and 8-inch diameters for the heating and cooling system.

The layout required both insulated and non-insulated underground HDPE lines, which run from a central utility plant to each building throughout the property. According to the Plastics Pipe Institute (PPI), this type of hydronic system is an efficient way to heat and cool a complex of this size.

The Four Seasons requested an HDPE piping system as an affordable and non-corrosive option. To meet this requirement, the contractor needed a way to join HDPE pipe in a timely and cost-effective manner. To connect the pipe sections together and also where the HDPE pipe would transition to carbon steel in the water plant, Greenberry elected to use couplings from Easton, Pennsylvania-based Victaulic, which would increase the speed of installation while providing a permanent joint that could also be buried.

The Victaulic couplings joined the HDPE pipe quickly and with minimal labor, noted **Jared Goodreau**, construction

Photo credit: Four Seasons

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The insulated and non-insulated HDPE pipe is joined to Victaulic HDPE fittings using Victaulic Style 905 couplings. A fully restrained system, Victaulic fittings and couplings are designed to be buried.



Insulated and non-insulated HDPE pipe is joined using Victaulic fittings and couplings in both horizontal and vertical orientations for hydronic hot and cold water distribution at the new Four Seasons Napa Valley Resort in California.

manager with Greenberry, which led to cost savings and a shortened project timeline.

The SDR 11 PE4710 HDPE pipe was joined in narrow trenches using Victaulic plain-end and transition couplings, outlets and plain-end fittings. This also gave Greenberry the ability to make pipe length changes onsite.

Important for piping systems in areas prone to earthquakes, HDPE pipe can move with the ground while the couplings provide a rigid connection in the flexible pipe system.

Throughout both heated and chilled water systems, full pressure of 60 psi was achieved without an internal pipe stiffener. The 100° F hot water HDPE pipes were insulated, which was necessary because hot and cold lines were close together in the narrow trench.

More than 400 Victaulic fully self-restrained rigid couplings with standard EPDM gaskets were used along the pipeline to make both horizontal and vertical connections.

Many design engineers and contractors are choosing plastic pressure pipe materials such as HDPE for major piping projects, states **Lance MacNevin**, P.E., director of engineering for PPI's building and construction division.

"By using a simple, proven mechanical joining system for HDPE, contractors can move forward on schedule, regardless of the weather forecast," he says. "Without mechanical joining options, this hydronic distribution project would have consumed much more time, based on various environmental issues that were happening. Ultimately, the choice to use HDPE piping materials allowed the project to be completed ahead of the devastating wildfires that broke out in the region."

Victaulic is a member company of PPI, which

is a North American trade association representing all segments of the plastic pipe industry.

Important for piping systems in areas prone to earthquakes and seismic activity, HDPE pipe can move with the ground while the couplings provide a rigid connection in the flexible pipe system. According to PPI, because HDPE is a highly ductile material and has exceptional impact strength, it offers the lowest susceptibility to damage during regular operation and natural disasters such as earthquakes, hurricanes and tsunamis. To ensure joint integrity in a variety of conditions, Victaulic says it subjects its couplings to long- and short-term hydrostatic pressure testing at ambient and elevated temperatures, joint performance testing under vacuum conditions, cold temperature gasket sealing testing, allowable tensile load testing and angular bend testing. **pme**

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In the main utility room at the Four Seasons Napa Valley Resort, Victaulic couplings are used to transition the water feed lines from vertical to horizontal.

Photo credit: Victaulic