



MECHANICAL JOINING SYSTEM BENEFITS NEW NAPA VALLEY RESORT

*Hydronic Water Pipelines Run in Time to Beat
 Area Fires*

CALISTOGA, Calif. - The new Four Seasons resort under construction here 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 Napa Valley resort, which is scheduled to open in 2019, will have 85 guest rooms and 20 private residence villas. For the five-star resort that includes 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, WA), used some 5,000 feet of high-density polyethylene (HDPE) pipe in diameters of two, four, six and eight inches 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, Inc. (PPI), this type of hydronic system is a very efficient way to heat and cool a complex of this size.

The Four Seasons requested an HDPE piping system as a more affordable and non-corrosive alternative to copper. 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 Victaulic (Easton, PA), which would increase the speed of installation while providing a permanent joint that could also be buried.



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.



According to Jared Goodreau, construction manager with Greenberry, "Victaulic's technology makes HDPE pipe extremely easy to work with. The pipe can be joined very quickly and with minimal labor, resulting in huge cost savings and a shortened project timeline. Without Victaulic's HDPE technology, we would have needed 75 percent more labor for the installation of the HDPE systems. Additionally, with less labor needed, we were able to reallocate workers to other portions of the project and this meant building slabs were poured ahead of schedule."

The SDR 11 PE4710 HDPE pipe was joined in narrow trenches using Victaulic® plain end and transition couplings, *Mechanical-T* outlets, and plain end fittings. This also gave Greenberry the ability to make pipe length changes onsite. Additionally, Victaulic's "bolt pad-to-bolt pad" visual confirmation ensured correct installation. This was important because it allowed the general laborers onsite to install the pipe faster and immediately verify joint integrity.



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.

Throughout both heated and chilled water systems, full pressure of 60 psi was achieved without an internal pipe stiffener. The 100° F (38° C) 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. This included: *Victaulic* Coupling for Plain End HDPE Pipe – Style 905, *Victaulic* Transition Coupling for HDPE-to-Steel Pipe – Style 907, *Victaulic Mechanical-T* Outlet – Style 920, and *Victaulic* HDPE Plain End Fittings.



Without *Victaulic*'s coupling technology, more than 75 percent additional labor would have been needed for the installation of the HDPE piping systems.



According to Lance MacNevin, P.Eng, director of engineering for the Building and Construction Division of the Plastics Pipe Institute, Inc. (PPI), "More design engineers and contractors are turning to plastic pressure pipe materials such as HDPE for major piping projects. By using a simple, proven mechanical joining system for HDPE, contractors can move forward on schedule regardless of the weather forecast. 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 the major North American trade association representing all segments of the plastic pipe industry.

Important for piping systems in the areas of Northern California 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 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.

"If we had used another way to connect the water pipes it would have taken more time. We are excited for future projects where we can use HDPE pipe and Victaulic," Goodreau said.

For additional information, go to the Plastics Pipe Institute's website at:

www.plasticpipe.org.

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