



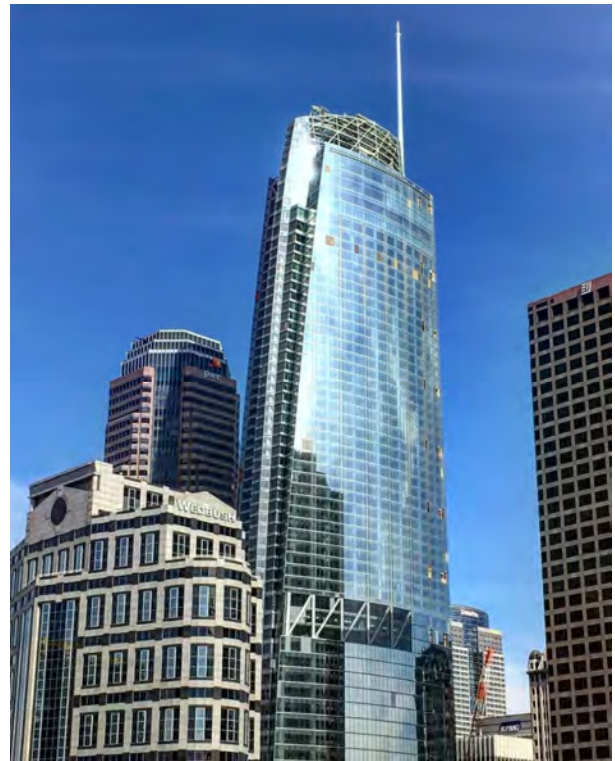
THERMAL COOLING SYSTEM PROTECTS 82 MILLION POUND CONCRETE FOUNDATION

*More than 20 miles of PEX Tubing
 Needed at Tallest Building in Los Angeles;
 Project Wins Industry Honors*

LOS ANGELES - PEX — crosslinked polyethylene — pipe is usually found in traditional radiant heating and cooling systems, but recently it was used in a new application that is gaining popularity. More than 20 miles of flexible, durable PEX tubing enabled 82 million pounds of concrete to properly cure for the base of the recently opened Wilshire Grand Center, here. Named Project of the Year for the Building & Construction Division of the Plastics Pipe Institute, Inc. (PPI), it won the award for the PEX tubing manufacturer and PPI member company, Uponor, Inc. (Apple Valley, Minn.). PPI is the major North American trade association representing all segments of the plastic pipe industry. The Projects of the Year is an annual PPI event.

Opened in 2017, the 2.1-million-square-foot Wilshire Grand Center is the tenth tallest building in the United States and is designed to achieve LEED® Gold certification. During construction, a new trend in commercial building construction was used. Called concrete thermal cooling, it is a hydronic piping system that kept the concrete foundation at an even temperature as it cured, which prevented cracking. Uponor's 3/4-inch PEX tubing was intertwined throughout the rebar in the concrete base of the 21,200 cubic yard foundation that was poured in less than 19 hours. This accomplishment set a Guinness

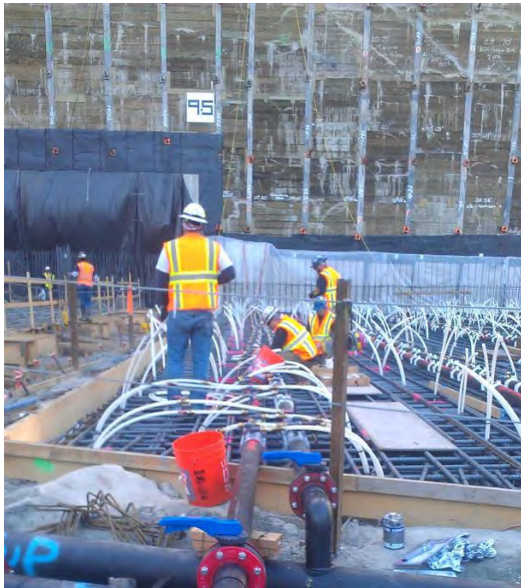
World Record for the largest continuous concrete pour in a 24-hour period.



"To say the least, this project was on the magnitude of building a pyramid in Egypt," stated Tony Radoszewski, CAE, president of PPI. "The foundation is a massive block of concrete that needed to be poured without interruption and kept at a specific temperature in order to maintain structural integrity. To do this successfully in less than 24 hours, it required more than 400 workers, eight concrete plants, 208 mixers and more than 2,000 truckloads. But all that work and dedication by the crews would have been wasted if that foundation cracked. The miles of the PEX tubing prevented that from happening. It was an amazing feat, one that our members agreed



should be recognized as the Project of the Year." Radoszewski and the division's director of engineering, Lance MacNevin, P. Eng., presented the award to Uponor during the association's annual membership meeting in May at the Coeur d'Alene Resort in Idaho.



The slab, 84 feet below street level, is 17 feet 7 inches deep. As concrete cures it becomes exothermic, releasing energy and heating up. The PEX tubing system was designed to draw off that heat by circulating 40,000 gallons of water chilled to 40 degrees F. The water ran through the system and was monitored by 24 sensors for two weeks. Afterwards, the tubing was filled with grout and remained in the slab.

More than 100,000 feet of Uponor's 3/4" PEX tubing helped cool the concrete as it cured. It was critical for the temperature of the curing concrete to be kept below 160 degrees F. The tubing, which was spaced at six inches on center, dropped down 18 feet from the HDPE supply header and looped back up.

According to Mike Martin, piping department manager of Couts Heating and Cooling, Inc. (Corona, Calif.), the installing contractor for the tubing cooling system, PEX was the ideal product for the application due to the pipe's durability and fast installation.

"The lighter weight of PEX made it easier to move around the jobsite," he explained, "and its extreme flexibility made it fast and easy to install around the rebar in the base of the structure. Also, PEX is very forgiving — the installers were walking on it and dumping concrete on it, and it never damaged the pipe. Plus, any kinks in the pipe were easily repaired with a quick shot of heat from a heat gun, which is a big advantage for certain PEX tubing. This eliminated the need to add in couplings in the slab. Additionally, because PEX is available in long, continuous coil lengths up to 1,000 feet, it made the installation much quicker as installers didn't have to stop to make connections. The longer coil lengths also minimized scrap waste on the jobsite."



According to Martin, these concrete thermal cooling systems are becoming one of the latest trends in commercial construction to keep concrete from cracking, and helping buildings and bridges maintain structural integrity. More and more general contractors are reaching out to this company to do these types of jobs, creating a new application for PEX piping in large commercial structures. Wilshire Grand Center was the first concrete thermal cooling system for Coutts. Since then, the company has completed two bridges with concrete thermal cooling systems using PEX as the heat transfer tubing.



Kate Olinger (center) of Uponor receives the PPI Building & Construction Division Project of the Year Award from Lance MacNevin (left), director of engineering for the division, and PPI President Tony Radoszewski, CAE.

"Using flexible, durable PEX tubing in the Wilshire Grand Center ensured a solid, strong concrete foundation free from cracking and structural compromise," stated MacNevin. "Its durability stands up to high temperatures, pressures and jobsite rigors, and its lighter weight makes it easy to maneuver around the jobsite and install. Since the 1970s, PEX has been used for hydronic heating and cooling applications, helping designers to achieve high building efficiency and occupant comfort. And now, PEX is being used for concrete thermal cooling systems, providing even more benefits for structures around the globe."

The Projects of the Year program is held annually by PPI to recognize the use of plastic pipe in exceptional applications. Submissions are reviewed, evaluated and voted upon by PPI members. Additional information can be found at the PPI website: www.plasticpipe.org.