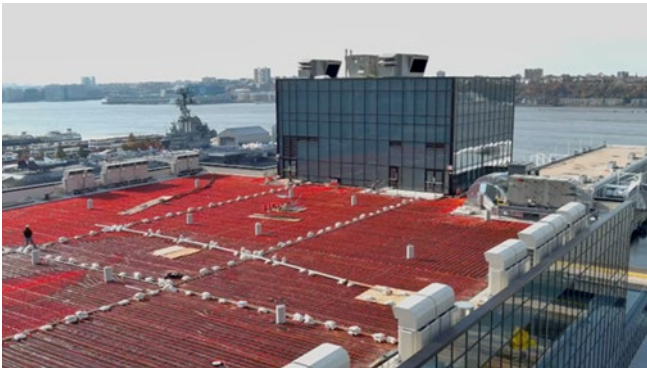


Case Study – Project in Action

DEFEATING SNOW, ICE AND NO PARKING SIM System on Roof of NYC Car Dealership Provides Solution



NEW YORK - Combating snow, ice, and limited-to-no parking, the Toyota-Lexus dealership in Manhattan found that adding a hydronic snow and ice melting (SIM) system on its rooftop would let it store vehicles on-site without worrying about winter weather.

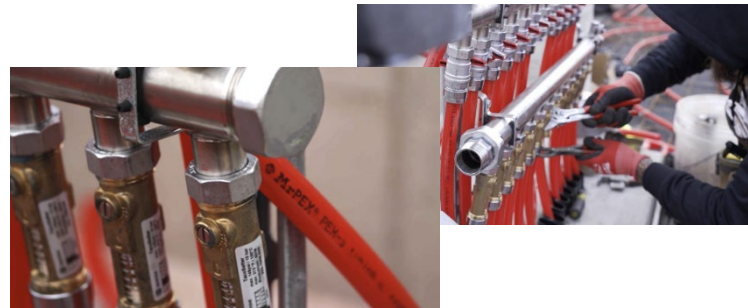


To use the 40,000 square-foot roof to store its cars, the Manhattan dealership near the Hudson River decided to install a snow and ice melting system using nearly seven miles of PEX tubing. The aircraft carrier museum the USS Intrepid (CVA11) can be seen in the background. Photo by Todd Plitt

With its showroom on the fourth floor of the Eleventh Avenue building on Manhattan’s westside, known as Hell’s Kitchen, the dealership decided to use the 40,000 square foot eighth-floor roof as a convenient and practical way to keep inventory ready to show. SIM tubing was also installed on the ramp leading to the roof.

For the SIM system, nearly seven miles of nominal 3/4 oxygen barrier PEX-a tubing from MrPEX® Systems (Ramsey, MN) was used. The nearly five-hundred-foot-long loops of tubing were laid at 12-inch spacing and arranged into 72 circuits that were embedded in concrete. Seven 1-1/2-inch stainless steel manifolds distribute the heated water/glycol mixture throughout the system.

“We designed the system to not only take into account the ambient temperature ranges, but also the wind coming off the Hudson River,” explained Steve Little, Warmfloors Inc. (Bozeman, MT). “Mathematically you can easily figure out what the heat load is of a house or a building on the coldest day because they are both enclosed. That might be 20 or 25 BTU/h per square foot. But the snow melt here can be five times more, six times more - you got wind. But one of the good things, there's heated space below the roof.



Seven 1-1/2-inch stainless steel manifolds distribute the heated water/glycol mixture throughout the SIM system. Photos by Todd Plitt

“The tubing from MrPEX gave us the results we were looking for, but one of the other critical components were the boilers. That was the hard stuff – getting the right size that would also fit on the roof. We wanted the boilers as close to the tubing as possible. This would maximize the heat efficiency and also get that heat to the tubing quickly. The boilers have to match the amount of tubing you put in. And you want them close to the tubing because otherwise your pressure drops and pipes get bigger, and they also need to be fairly close to where the distribution manifolds are.”

A Pipe Performance Report from the Field

Case Study – Project in Action

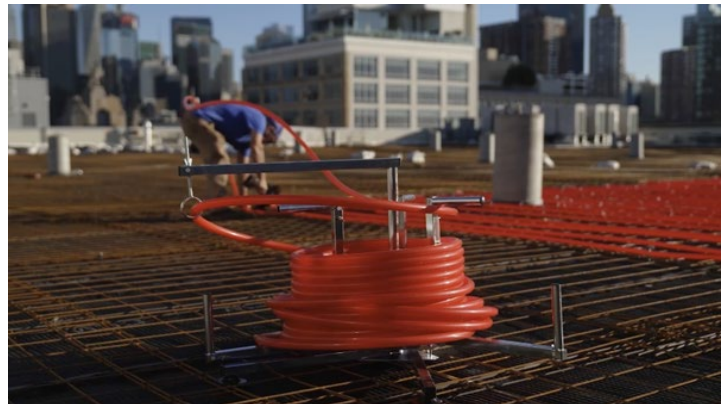
“There are two areas to the whole snow melt system”, Little continued. “The rooftop needed two HTP EliteXL ELX-1000BN Boilers at one million BTU/hr input each. The smaller ramp area needed two HTP EliteXL ELX- 800BN Boilers at 800 thousand BTU/hr input each. I used snow and ice melting charts to estimate the BTU/hr-ft² to size the output of the system and boilers. While the HTP Elite XL boilers are great, I ultimately chose them because they are relatively light with a small footprint and they easily fit through the doors.”

The entire SIM installation was done by E-Travis Mechanical, Inc. (Woodland Park, N.J.). According to company founder and owner Ezzy Travis, “There are two mechanical rooms, east and west. One is under the ramp to the roof and the other is inside of the building. We also ran the SIM system inside the ramp even though it’s inside the building but is exposed to the weather from the roof.” Manifolds are located in these mechanical rooms.

Travis started out in the plumbing business as a teenager, eventually founding his own company ten years ago. Growing up in New York City gave him an advantage. “I’ve been in the business for about 25 plus years, specializing in old hydronic heating systems and steam systems. Living and working in the city, I got to see a lot of really odd and interesting things. Certain things in New York that you don’t see anywhere else in the country, just like putting a SIM system on the roof of a commercial building. I don’t recall ever seeing a project like that. It’s just uncommon, but makes a lot of sense.”

Travis relied on his experience to move equipment and the 37,000 feet of PEX in one of the tightest and most congested areas of Manhattan. “We also had many meetings with the city, the owner, the contractor and others to obtain the necessary work orders and permits, and to plan out the logistics.”

The E-Travis crew had between four to twelve members. “At the beginning, we needed all twelve to stage the equipment, do the layout and secure the PEX to the wire mesh using an automatic tying machine, not zip ties. But even at more than 40,000 square feet of area, the job went quickly mainly because of all the planning. The first phase – the main roof on the eighth floor - took us only six days. After that, we primarily had four of us. Then we did the second part a month later, which was the ramp and the lower area. And that took us just one day.”



Setting up 500-foot reels of MrPEX tubing on uncoiler devices enabled the E-Travis Mechanical crew to work quickly and efficiently. Photo by Todd Plitt



Installing PEX to wire mesh using an automatic tying machine enabled the large job to go quickly. Photo by Todd Plitt

“PEX tubing is an ideal product for these types of systems. It is both flexible and strong, and has the pressure and temperature capabilities for delivering high amounts of thermal energy to meet demanding winter requirements.” stated Lance MacNevin, P. Eng., director of engineering for the Plastics Pipe Institute’s (PPI) Building & Construction Division. “The alternative would have been the use of heavy, noisy snow removal equipment on the rooftop of this building, but there was still no convenient location to dump all the snow. Putting a hydronic snow and ice melting system on the roof of a

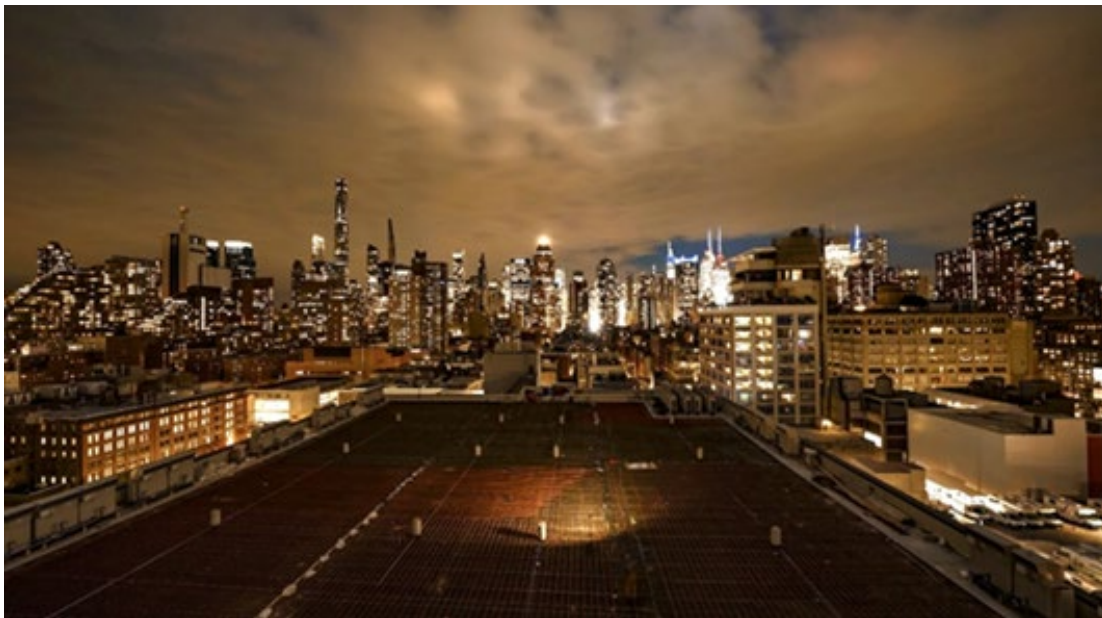
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commercial building to allow cars to park there was a true marriage of need coming together with the solution. This hydronic system is not only convenient, but will probably save the dealership owners a lot of money over the years, while making it safer and easier to show cars during the winter. PPI recommends these systems for many types of outdoor facilities.”

More information can be found at www.plasticpipe.org/buildingconstruction



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The new PEX SIM rooftop system fits right in with the New York City skyline. Photo by Todd Plitt



About PPI:

The Plastics Pipe Institute, Inc. (PPI) is the major North American trade association representing the plastic pipe industry and is dedicated to promoting plastic as the materials of choice for pipe and conduit applications. PPI is the premier technical, engineering and industry knowledge resource publishing data for use in the development and design of plastic pipe and conduit systems. Additionally, PPI collaborates with industry organizations that set standards for manufacturing practices and installation methods.

A Pipe Performance Report from the Field