

# Case Study – Project in Action

## HYDRONIC SNOW & ICE MELT SYSTEM CLEARS PATH WHERE PIONEERS ONCE WALKED

PEX Provides Safe, Reliable Solution for Large Area; Named Project of the Year by the Plastics Pipe Institute

**SALT LAKE CITY** - The modern solution for defeating ice and snow to make areas safe for visitors to a new historical site here required more than 40,000 feet of crosslinked polyethylene (PEX) barrier tubing installed as 165 loops serviced by nine custom-made manifolds. The system also saved 30,000 square feet of new concrete from salt damage.

*This Is The Place Heritage Park* is a 450-acre living history Utah State Park that offers visitors a look at life in 19th Century Utah from the Mormon arrival in 1847 to statehood in 1896. The location of the park is where, on July 24, 1847, Brigham Young first saw the Salt Lake Valley after a 1,300-mile journey. It would soon become the new home for the Mormon pioneers.

Located on the east side of Salt Lake City at the foot of the Wasatch Range and near the mouth of Emigration Canyon, it sees more snow and higher winds than the surrounding area. The blowing and drifting snow accumulates in different spots, compounding the problems for snow removal crews as well as creating obstacles for visitors.

“In a hydronic snow and ice melting (SIM) system,” explained Lance MacNevin, P. Eng., director of engineering for the Plastics Pipe Institute, Inc.’s (PPI) Building & Construction Division, “a heated water/glycol solution is circulated through a network of pipes embedded in an outdoor area to melt snow and ice, leaving areas dry. The flow of the heated fluid can be controlled by advanced outdoor sensors to only operate when needed, using

no energy when not operating. The energy produced in high-efficiency boilers is used to warm the outdoor surfaces to approximately 36 degrees Fahrenheit (2°C), minimizing energy consumption when in operation.” PPI is the major North American trade association representing the plastic pipe industry.



“This is one of the largest snow/ice melting systems in the area,” stated David M. Fink, PPI president “We are continually seeing the growing use of hydronic systems because of the practicality, efficiency and the cost-effectiveness. This includes the low maintenance required during a very long use life. We have heard that this system has exceeded expectations in its ability to melt blowing snow.”

It was named 2021 Project of the Year for the Building & Construction Division of PPI. The association’s annual awards program recognizes projects and members for exceptional contributions to the industry. Submissions in the association’s divisions are reviewed, evaluated and voted upon by the PPI members

Valentiner Construction (Midway, Utah) was the general contractor for the new 12,000 square foot Welcome Center and surrounding plaza. As it is with all facilities in cold climates,

# Case Study – Project in Action

the concern during the design of *This Is The Place Heritage Park* was the safety of visitors during periods of ice and snow. Using traditional methods of salt or other types of ice melt plus equipment were considered to be expensive and could damage the new concrete.

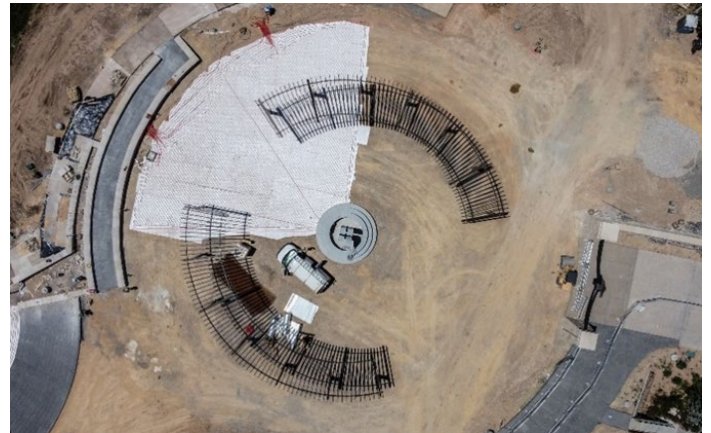
“The chief executive officer of the park had found a solution for his home driveway, which was an outdoor SIM system,” explained Kaj Valentiner, project foreman for Valentiner Construction. “He thought that an equally effective solution could be applied to the walkway areas around the park’s new Welcome Center even though the area is many times larger. He knew that there would be significant time and expense to remove snow and ice using traditional methods and also had seen firsthand how badly salt can damage concrete, with the unsightliness and the need for continuous repairs. We were about to lay 30,000 square feet of new concrete so we sure wanted to avoid all that.”



Thornton Plumbing & Heating, Inc. (Midvale, Utah), a third-generation family business with decades of experience in installing SIM systems from driveways, including the Park’s CEO’s, to large ski resorts, was brought in to team with Valentiner on the project.

According to Chris Barker, Thornton vice

president, the project would be at the high end of the size scale for SIMs. “A typical SIM project averages around 10,000 square feet. This one as designed would encompass a large circular area of nearly 30,000 square feet.”



The project used 40,173 ft (12,245 m) of 3/4 in. RAUPEX® crosslinked polyethylene (PEXa) O<sub>2</sub> barrier tubing in 165 circuits serviced by nine custom-made manifolds. Three NTI FTG 2000 high-efficiency stainless steel boilers, located in the Welcome Center mechanical room, now provide up to a total of six million Btus of energy. Heated fluid is transferred to the remote manifolds for the SIM area through 4,000 ft (1,219 m) of two-inch diameter high-density polyethylene (HDPE) buried piping. Two Tekmar 654 snow melting controls with slab sensors automatically turn the system on and off.

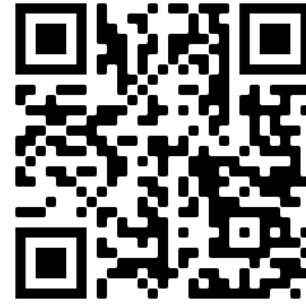
PPI’s MacNevin reported, “The durability and flexibility of PEX tubing simplified this large-scale hydronic installation for the mechanical contractor, helping the crew stay on schedule and deliver an efficient SIM system that surpassed the expectations of the owner. Considering the circular shape of the area, it was appreciated that the PEX tubing remained flexible even at cold installation temperatures.

# Case Study – Project in Action

And the enormous scope of the job is worth noting. For example, makeshift roads had to be built to get concrete trucks close enough to pump-in spots while facing challenges in coordinating schedules between SIM installers and concrete installers. Just-in-time delivery of the 40,000 feet of tubing from REHAU prevented it from becoming a roadblock on the site.

“We are happy that the CEO of this park recognized the inherent safety benefits of a hydronic snow and ice melting system, especially for a project that is intended to be used by the public throughout the year. It is definitely worthy of receiving the PPI BCD Project of the Year Award.”

More information can be found at <https://plasticpipe.org/building-construction/index.html>



# # #



Jonathan Bittenbender (right), director, engineering of REHAU, receives the Project of the Year Award from PPI President David M. Fink.



**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.*