



Uponor

RADIANT HEATING AND
SNOW AND ICE MELTING
SYSTEMS

DISTRIBUTION CENTER

CASE STUDY

Managing Costs, Comfort and Convenience

Managing a 50,000-square-foot distribution center requires organization and efficiency. Just ask Dennis Prosperi, one of the owners of Henri Studio, the world's largest designer and manufacturer of original cast-stone fountains and statuary. The company ships premier garden products all over the world from its distribution center in Wauconda, Ill.

"The facility serves as the hub of our business, so it must run as efficiently as possible," says Prosperi. "When designing it, one of our main concerns was finding the right heating system. Research led me to hydronic heating systems. I was very pleased when I learned that it offered everything I needed for our warehouse — comfort, safety, convenience and cost efficiency."

Prosperi says radiant heating offered him the kind of consistent comfort and heat recovery a forced-air system could not provide.

"A forced-air system makes no sense in a warehouse with 30-foot high ceilings and numerous windows," says Prosperi. "You can't beat the rapid heat recovery in the shipping area where doors open and close constantly."

He also appreciates the temperature control with radiant floor heating. Eight heating zones provide continuous comfort throughout the warehouse. "In the warehouse, we can adjust the temperature according to traffic flow and concentration of employees," he says.

Safety is also an important consideration. Since installing a snow and ice melting system at the front entrance of the warehouse, Prosperi has fewer concerns and also less maintenance. Warehouse employees enjoy ice-free sidewalks without the maintenance costs of snow blowers, front loaders, salt and sand.

Prosperi's decision to install radiant floor heating was based on considerable forethought and research. To demonstrate the efficiency of a radiant system versus alternative heating systems, Uponor prepared a heat-loss analysis.

The preliminary data revealed Prosperi could potentially save about \$11,000 annually. Exceeding the estimate, actual energy savings were nearly \$19,000. The savings essentially paid for the system in as little as two years.

"Choosing an Uponor radiant heating system was the best decision," he says. "I would highly recommend it to anyone."



The Uponor radiant heating system keeps the Henri Studio distribution center warm and comfortable.



Summary of Benefits

Comfort and Convenience

The warmth provided by the Uponor radiant floor heating system is noticeable throughout the warehouse. Despite 30-foot ceilings and numerous windows, the warehouse maintains an even temperature. In the shipping area, where doors are opened and closed constantly, there is rapid heat recovery. And since employees feel comfortable and warm, they are more productive.

Safety

Since installing the radiant floor heating and snow and ice melting systems, Prosperi has fewer concerns about the safety of his employees. Warehouse employees can now enjoy sidewalks free from snow and ice.

Cost Efficiency

By choosing a hydronic heating system instead of roof-top units, Henri Studio improved energy efficiency. As a result, fuel savings for the distribution center were \$18,939 in the first year.

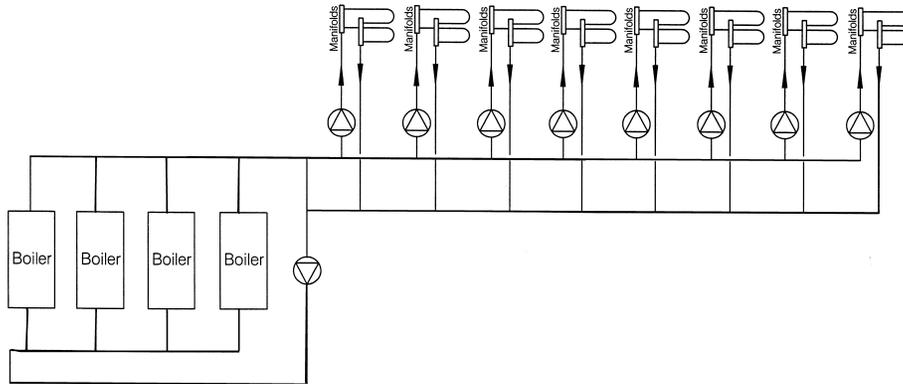
Mechanical System Information

The distribution center features radiant floor heating and snow and ice melting systems in the warehouse, office and sidewalk. A vapor barrier and foam perimeter insulation was used and Wirsbo hePEX™ plus tubing was placed 12 inches on center in the office and up to 24 inches on center in the interior of the warehouse. Four 500,000 BTU/h boilers supply heated water to the network. Eight heating zones,

each with an individual thermostat, provide appropriate and flexible temperature control.



Despite 30-foot ceilings and numerous windows, the warehouse maintains an even and comfortable temperature.



Project Data

Type of Structure:	Distribution center
Area Heated:	50,000 square feet (building) 200 square feet (sidewalk)
Floor Construction:	Slab on grade
Outdoor Design Temperature:	-10°F
Heat Plant Size:	Four 500,000 BTU/h boilers
Energy Source:	Natural gas
System Supply Water Temperature:	120°F
Tubing Type:	5/8" Wirsbo hePEX™ plus
Number of Loops, Average Length:	50 loops, 500 feet
Number of Manifolds:	8
Tubing Spacing:	12 to 24" on center

The design information in this case study is provided for illustrative purposes only. The actual requirements of similar projects will depend on regional climatic conditions, project-specific heat loss, owner expectations, applicable building codes, etc. Please contact your Uponor representative for assistance in designing your specific projects.