

Delta-Therm Heats Wisconsin's Dudley Tower

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CLIENT

In the Ojibwa language, Wausau means "a place that can be seen far away." So it's fitting that the city should be home to Dudley Tower, the tallest structure in central Wisconsin. Built in 2007, the 10-story office building has 500 employees, two of its occupants being a well-known law firm, and Miron Construction Co., one of the largest contractors in the Midwest.

CHALLENGE #1

Employees enter the building by walking up one of several attractive two-inch thick concrete staircases, or utilizing a long, sloped concrete ramp, also two-inches thick. In the winter, keeping these areas free of snow and ice was a constant battle.

Shoveling and salting was labor intensive given the



During the winter months snow and ice made both stairs and ramp difficult and dangerous to use.



Snow melted stairs prevent accumulation and provide safe access during a storm.

PROJECT POINTS

- ✦ Located on the Wisconsin river, Dudley Tower, is the tallest structure in Central WI.
- ✦ M.I. snow melting cable assemblies installed in 2009 melt snow before it accumulates.
- ✦ Delta-Therm's system required less material and worked 3x as fast as the previously installed system.

number of snowfalls each year in the Wausau area. The building's corner location, at First and Scott Streets, made it susceptible to tremendous wind currents. Its close proximity to the Wisconsin River exacerbated the situation.

"With the winter time conditions, which we found out afterward, just to keep the snow cleared was a full time job," said Wade Reimer of Miron Construction Co. "Then having a place to go with all the snow. We had challenges there."

At the time of construction, the International Energy Conservation Code prohibited the installation of heat trace cables in sidewalks or pathways in the state of Wisconsin unless the building was used for medical purposes. Though the owner and its builders wanted to take a proactive stance against snow and ice, they could not do so legally. However, said Reimer, "the owner of the building had the vision that the law would be repealed."

In 2008, the law was repealed and not a moment too soon. Workers had had enough of shoveling and salting after one full season. Dudley Tower now had the green light to pursue a better method.

CHALLENGE #2

After opting to install a competitor's cable and retrofitting 3,000 square feet, the owner expected to be free from snow and ice woes. But a year later when the system wasn't performing adequately, Delta-Therm was called in. It was determined that the

system's 37 watts per square foot was not enough to melt the snow and ice. But because it partially melted it, ice formed at the nose of the stairs creating a hazard instead of preventing one.

"With the present system that we have in place, we have had to barricade off the corner stairs," said Reimer. "We don't even use those stairs when it snows. We have chains that we hang across."



The pavers can reach 100°F when the ambient outdoor temperature is 0°F.

SOLUTION

In the fall of 2009, Reimer supervised a project to replace half of the competitor's cable with Delta-Therm's mineral insulated cable. Portions of stairs, landings and the handicapped ramp were treated.

"The system runs about a third of the time as what the competitor's system would run," he said. "You're using more energy for a shorter duration of time, and you're getting safer conditions."

Delta-Therm's system has weathered 15 to 20 snow storms since then, enough for Reimer to make some startling observations.

"I could get the pavers to be 100 degrees at a 0 degrees outside temperature," he said.

Delta-Therm's president Tom Slagis offered cautious calculations when consulting with Dudley Tower, recommending a minimum wattage output of 55 watts per square foot.

"There were some shortfalls on our competitor's design that were never addressed," said Slagis. "Our design was



The M.I. snow melting cable assemblies are tied to rebar before the concrete is poured.

based on ASHRAE standards and our own empirical data that tells us we should be around 55 watts per square foot on a typical application.”

Reimer boosted that to 80 watts per square foot, and asked for four runs of cable on each stair tread instead of three.

“We wanted a clean walking surface,” said Reimer.

Slagis also identified several “heat sinks,” or areas between the heated portions of pavement and stairs that needed to be insulated. Reimer was able to address those trouble spots to prevent heat loss.

“We had the opportunity to tear all that out and put insulation between the heat sinks and the heated areas,” he said. “We would not have done that if we hadn’t gone with Delta-Therm.”



leaders in engineered heat trace

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RESULTS

Quality

Reimer is convinced that the Delta-Therm system is superior to the competitor’s system.

“As it snows, it doesn’t even stay wet for very long and you’ll see steam coming off of the pavers,” Reimer said. “It dries very quickly and we have a large handicapped ramp so that’s a very important thing.”

Meanwhile, the competitor’s cables are not fully melting the snow and ice.

Installation

Reimer says his workers were able to space the Delta-Therm cable farther apart than the competitor’s cable, therefore getting the same amount of heat, but buying less cable because of its quality.

“It’s able to take on more wattage so you’re able to raise the heat temperature a lot quicker and sustain the heat a lot better than you are with that other cable,” he said.

Maintenance

The competitor’s cable, which is one continuous piece, will have to be entirely removed if there’s a problem with performance. Delta-Therm’s cable comes in sections making replacement, if needed at all, a whole lot easier.

“I think that through all of this, the Delta-Therm system is probably going to be easier to maintain or to replace a component of it,” Reimer said.

“I’m a firm believer in the mineral insulated cable versus the competitor’s cable,” said Reimer. “It’s built a lot better, the connections are all well-thought through, and designed properly.”

Know How

Delta-Therm was better than the competitor at communicating with and meeting the needs of its client.

“I would say they were more knowledgeable by far, and by far more professional,” said Reimer. “We’ve got a system in the ground that’s working, and Tom is still calling me wondering how it’s going every time we have a snow storm. I never heard anything from the other people.”