Delta-Therm Ice Melt Cables Preserve and Protect Chicago Landmark

Melting snow and ice is normally done for safety concerns. But Delta-Therm's mineral insulated roof deicing cable assemblies went one step further to save the delicate exterior of a historic church in Chicago.

CLIENT

Located at the corner of Adams and Ashland in Chicago's Jackson Blvd. Historic Landmark District stands Church of the Epiphany, an 1885 Romanesque church. The historic gem boasts two Tiffany mosaics on either side of its altar, stained glass windows, light fixtures from the 1920s, and walls of terra cotta blocks, among other unique architectural elements.

Built in the Richardsonian style after the famous 18th century architect who built Boston's Trinity Church, the building is well known for its historical significance to the Chicago area and represents one of only three churches to have 19th century stenciling. The stenciling features a delicate lily motif that runs throughout the interior of the church.

"If you could select a dozen churches in Chicago that are of great significance to the city, it would be in the top 12 in terms of its architecture," said Ward Miller, an architect on the Church of the Epiphany Restoration Project.

The fragility of such a structure - with all its beauty, history and architectural significance – was discovered several years ago when parish members learned the exterior of their church was in great jeopardy.

CHALLENGE

Water and ice were wreaking havoc, causing structural damage every winter to the delicate sandstone exterior. Possibly due to undersized downspouts and high gables, a frozen waterfall would form and cling to the north side of the building, shielded from sun by mature trees. The process occurred when snow and ice would fall, melt, and drip down the sandstone only to refreeze later in the afternoon or evening. Layer upon layer would build up, and soon it was apparent that the original sandstone exterior was being compromised. The frozen mass, said Miller, "was three times the actual size of the stone work at the corner." In addition, water was infiltrating over the southeast corner of the church, damaging interior and exterior walls. Rotted window frames, loose bricks, and gutters dislodging were all indicative of water damage and drainage problems that needed immediate attention.

PROJECT POINTS

- 1200' of M.I. roof deicing cable assemblies installed in 2001 alleviated the giant ice dam.
- Delta-Therm's product was removed and successfully reinstalled on a new asphalt roof.
- "It really did resolve all our issues pertaining to ice and drainage," said Miller. "It was a very happy, happy congregation."

"It was really more of an issue about preserving this historic landmark for the next century," Miller explained.

SOLUTION

Renovations at the church took place over a period of 10 years. To address the frozen waterfall, in 2001, 1,200 feet of Delta-Therm's mineral insulated roof deicing cable assemblies were installed in a zig zag pattern, attached at the lower two feet of the lowest part of the gabled roof. Melt water was sent down a drain."The roof deicing system was designed to be removable because they were going to replace the roof," said Ada Cryer of Delta-Therm. When it came time for the scheduled roof tear-off, Delta-Therm's product was removed and successfully reinstalled on a new asphalt roof.

Delta-Therm deicing cable is installed behind the brick façade to create a heated drain path for snow melt water to follow.

"It's my understanding that they re-used the entire system," said Miller. "That was the original intent."

In addition, heat tape installed on the flying butresses above a breezeway prevented snow and ice build-up. This allowed the sidewalk below, which was a pathway connecting the church to its school (now a parish/community house) to remain clear and dry.

RESULTS

"People were absolutely delighted that the system worked as well as it did," said Miller. "It was almost unbelievable. We were just so impressed by the difference it made in alleviating a terrible situation."

Members of Church of the Epiphany began questioning if they had gotten the same amount of snowfall the year the system was installed. But after two years, they began to realize that the system was 100% efficient in alleviating the frozen waterfall and keeping the sidewalks clear.

"There was absolutely no icing on the facade," said Miller.

The public right of way is clear each winter. Sidewalks around the church do not have ice pooling from the church's dramatic roof since the heat tape melts it before it can accumulate and drip over the roof edge onto the sidewalks below.

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DELTA-THERM CORPORATION®

6711 Sands Road Suite A
Crystal Lake, IL 60014
(800) 526-7887
WWW.DELTA-THERM.COM