

High-rise complex solves runoff



re-freeze damage with this simple system

As urban building space dwindles, cities depend on stackable real estate solutions. Because of limited street level access, more living and office spaces are soaring above parking and retail. Often garage decks become additional parking. But sometimes they're converted to outdoor recreational space for tenants. These rooftop playgrounds offer spectacular views and can include swimming pools, grills, hot tubs and bars. So what happens in winter? Where does all the snow go?

The Challenge

The sun can bring enough warmth to a deck during winter months to melt the snow which then flows from the roof drain into the drain pipe on the next floor. In one particular case it was the parking garage where the ambient temperature is lower than the sun-warmed deck. When the garage temperature falls to 31° or below, the runoff water in the pipe can freeze and burst the pipe.

The Solution

To prevent pipe damage in the unheated spaces below the deck, Delta-Therm recommended that drain pipes on the top floor ceiling of the parking garage be heated with heat trace cable. All pipes in danger of freezing are now protected by three heating circuits. The system is simple.



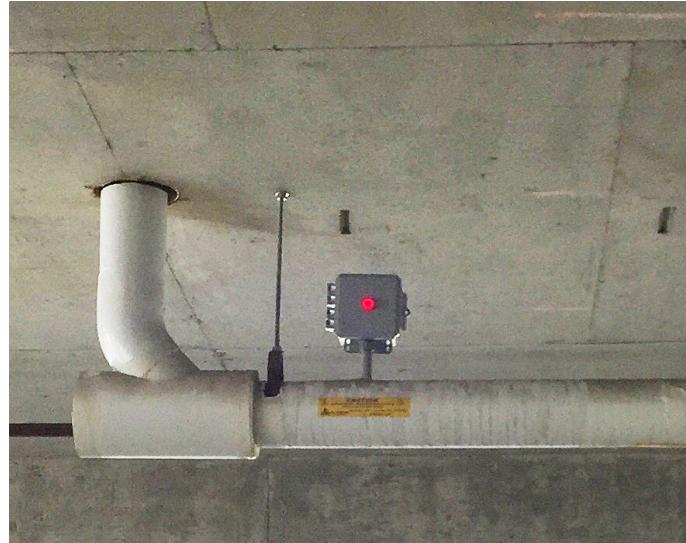
1. Beneath the insulation, drain pipes are traced with electric heating cable and wired to a sensor that activates the system automatically when the temperature drops below 40°F.

Temperature Control

The entire system is controlled with a single ambient thermostat to activate all heat trace cable in the top floor of the garage at 40°F. The OTS-F1 thermostat is connected through conduit to a 4-circuit GFPE panel mounted on the other side of the concrete garage wall. There, in the utility room, the GFPE relay panel provides code-required 30mA ground fault protection without the need for modifications to the Power Distribution Panel.



2. The thermostat is connected to the ground fault relay panel in the utility room on the other side of the wall. Capillary bulb not shown.



3. Monitor light reports power is applied to the cable.

Monitoring the system

Monitoring is easy for the staff. An OL-PC Monitor Light is mounted at the end of each run. If one of the monitor lights is out during a cold weather walk-through, the location is reported. To save diagnostic time, the indicator lights inside the GFPE panel in the utility room will indicate to an electrician exactly if and which circuit is in ground fault. Because the 3 circuits operate independently in the panel, only the circuit in ground fault is affected. The rest of the system continues to function normally. Dry alarm contacts also provide remote ground fault monitoring.

The Results

After 3-and-a-half years, including 3 intense winters, the pipe freeze protection system in the parking garage is performing like a champ. The sun takes care of the snow on the rooftop play area; and the pipe freeze protection system makes sure the runoff is safely out of the building preventing any damage to the structure or the vehicles parking there. Its simple application requires only simple maintenance:

- Annual visual inspections and verification that cables and circuits are ready for operation before winter.
- A monthly GFPE test, if required, takes just seconds and involves pushing a few buttons.



4. Internal lights tell the electrician which circuit is in ground fault.

For more information about this and other simple heat trace solutions, visit www.delta-therm.com or call (800)526-7887.

About Delta-Therm

Located in Crystal Lake, Illinois, Delta-Therm Corp. has been engineering simple, effective heat trace solutions for complex commercial applications since 1968. What started with a patented snow melt assembly has grown to include commercial and industrial Snow Melting, Roof Deicing, Pipe Freeze Protection, Process Temperature Maintenance, Data Center Freeze Protection, Permafrost Prevention, Zoo Den Heating, and Floor Warming heat trace cables, controls and power control panels. (800) 526-7887. www.delta-therm.com.