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HYDRONIC SNOWMELT SYSTEM SPECIFIED FOR 160,000-SF MIXED-USE SENIOR LIVING REDEVELOPMENT IN WAYZATA, MN

CASE STUDY: COMMERCIAL SNOWMELT SYSTEM INSTALLATION — MRPEX SYSTEMS

PROJECT OVERVIEW

The redevelopment of the former Wayzata Mall site into The Promenade of Wayzata represents one of the more ambitious mixed-use builds undertaken in the region to date. Executed in multiple phases, the project scope includes independent living, assisted living, enhanced assisted living, and memory care units, along with a full-skilled nursing care facility. The development occupies six city blocks across 14.5 acres and integrates retail and landscaped common areas alongside residential structures. Sustainability and long-term site performance were core design criteria throughout.

DESIGN CHALLENGE: EXTERIOR SURFACE ICE MITIGATION

Snow and ice management was identified early as a critical design consideration, driven primarily by the occupancy profile of the site. Senior living and skilled care facilities carry elevated liability and safety requirements around walkable surface conditions, given the fall risk associated with ambulatory and mobility-assisted residents. Conventional mechanical snow removal methods — plowing, shoveling, chemical de-icing — were evaluated but presented ongoing operational costs, inconsistent surface conditions, and residual ice formation during freeze-thaw cycles.

The design team's engineering analysis concluded that a hydronic snowmelt system was the more effective long-term solution, provid-



ing continuous, automated surface conditioning rather than reactive, labor-dependent removal.

SYSTEM DESIGN AND MATERIALS

The specified system uses MrPEX barrier PEX tubing in 5/8-inch and 3/4-inch diameters, installed at 6-inch on-center spacing. Installation methods varied by application: tubing was tied directly to rebar within structural slab pours in vehicular and structural areas, and stapled to rigid foam insulation substrate in other zoned areas — standard practice for optimizing heat transfer while accommodating differing structural and load requirements across the site.

Fluid distribution is managed through a network of 160 manifolds, each fitted with 1½-inch stainless steel construction and integrated

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control valves, enabling zone-level isolation and flow balancing. In total, the system comprises 1,217 individual heating loops.

PROJECT SPECIFICATIONS (PHASES I & II)

PARAMETER	SPECIFICATION
Heated area	160,000 sq. ft.
Tubing installed	350,000 ft. (66+ miles)
Tubing material	MrPEX Barrier PEX
Tubing diameter	5/8" and 3/4"
Tubing spacing	6" O.C.
Manifolds	160 (1½" stainless steel, valved)
Heating loops	1,217

PROJECT TEAM

- **Project:** Wayzata Bay Redevelopment
- **Project type:** Commercial snowmelt
- **Location:** Wayzata, MN
- **Developer:** Senior Housing Partners
- **Engineer of record:** KFI / Steen Engineering
- **Mechanical contractor:** Associated Mechanical
- **Manufacturer's rep:** Mondale & Associates
- **Tubing supplier:** MrPEX Systems

and other salt-based compounds are effective at melting ice, but they carry a well-documented environmental cost: chloride does not break down and accumulates in soil, groundwater, and surface water, where it is toxic to aquatic life and can permanently degrade water quality.

Given the site's proximity to the watershed, the design team also evaluated stormwater filtration and chemical-capture infrastructure that would be needed to intercept de-icing runoff before it reached Lake Minnetonka. That analysis showed the capital cost of the filtration systems required to adequately protect the watershed would be substantially higher than the cost of the hydronic snowmelt installation itself. By melting snow and ice at the surface rather than treating it chemically, the project eliminates chloride runoff at the source, avoiding both the ongoing environmental impact and the added infrastructure cost of filtering it out downstream.

ENGINEERING TAKEAWAY

The scale of this installation — spanning multiple structural slab types and requiring precise zone control across 160 manifold stations — underscores the flexibility of MrPEX barrier PEX tubing systems for large commercial snowmelt applications. Beyond life-safety benefits for a vulnerable occupant population, the system reduces long-term operational costs associated with manual snow removal and de-icing chemical use, while supporting the development's broader sustainability objectives. The project stands as a reference case for specifying engineers evaluating hydronic snowmelt for large-footprint mixed-use or healthcare-adjacent developments in cold-climate regions.



ENVIRONMENTAL BENEFITS: PROTECTING THE LAKE MINNETONKA WATERSHED

Beyond occupant safety, the decision to specify a hydronic snowmelt system carried significant environmental weight. The Promenade of Wayzata sits adjacent to the Lake Minnetonka watershed, where stormwater runoff from paved surfaces drains directly toward one of Minnesota's most heavily used and ecologically sensitive lakes. Conventional de-icing chemicals such as sodium chloride, calcium chloride,

