



SATURN SERVICE CENTER

RADIANT HEATING SYSTEM

PROJECT PROFILE

REHAU's Radiant Heating System Increases Energy Savings, Comfort for Saturn Service Center

Severe winters are no longer a bear for technicians working at the Saturn Service Center in White Bear Lake, Minnesota. They stay as warm as if it were summer outside, thanks to the installation of a REHAU radiant floor heating system.

The 10,000 ft² (930 m²) service department presented a particular challenge in that it was designed with two large lifting garage doors and five standard lifting garage doors, all of which were significant sources of heat loss. In addition, an existing oil reclamation boiler system that disposes used motor oil in an environmentally friendly manner was to be incorporated as the heat source.

Spriggs Plumbing, Heating and Process Piping of St. Paul, the mechanical contractors for the project, worked in partnership with Harold Bruner, design engineer for Michel Sales Co., to finalize a design of the system.

To accommodate the reclamation boiler's location, the design incorporated 1 in. RAUPEX O₂ Barrier crosslinked polyethylene (PEXa) pipe as the distribution piping to the PRO-BALANCE manifolds. Conventional distribution piping typically utilizes rigid steel or copper pipe which is more expensive and harder to install than the flexible RAUPEX pipe.

To calculate water temperature and flow rates for the system, REHAU designed the system to ensure the floor could deliver the proper amount of heat. A sophisticated outdoor reset system also plays a major role in determining the temperature of the water flowing through the radiant system.

The system's 3/4 in. RAUPEX heating pipe was installed in the center of a 4 in. concrete slab-on-grade, at 12 in. on-center spacing. A 3/4 in. pipe was chosen instead of the 1/2 or 5/8 in. pipe typically used, in order to accommodate installation of the longer loop lengths of 350 to 450 ft (170 to 137 m).

A PRO-BALANCE manifold is employed in each of the four individual zones, with flow gauges on each manifold circuit. "The result is a much more targeted supply of heat and heat recovery, especially compared to forced-air systems which heat an entire space at once," explained Bruner.



Project: Saturn Service Center in White Bear Lake, MN

Type of Construction: Automotive service center renovation, 2002

Scope of Project: 10,000 ft² (930 m²)

Engineer: Michel Sales Company

Contractor: Spriggs Plumbing, Heating and Process Piping

REHAU System Used: Radiant heating (RAUPEX® pipe, PRO-BALANCE® manifolds)

"Our heat savings has been noticeable, between the efficiency of the radiant system and the fact that we're basically self-sustaining on waste use from oil changes," said Mike Griffith, service manager for the Saturn Service Center. "We really couldn't have asked for more between the savings and the comfort this system provides."

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