



Uponor

RADIANT HEATING SYSTEMS
FIRE STATION

CASE STUDY

Comfort for the Firefighters, Economy for the Chief

When the volunteer fire department in Salisbury Center, N.Y. began planning a new fire station, one of the crew suggested radiant floor heating as an alternative to the more traditional heating systems. Neal Winkler, chief of the Salisbury Center Volunteer Fire Department, was willing to listen.

Chief Winkler wanted a system that was comfortable and economical, but also one that would enhance the maintenance of the equipment instead of adding to the work. The current fire station was drafty, cold and damp, using a baseboard system as its method of heat. According to Chief Winkler, the old method of baseboard heat permitted problems such as moisture and rust under the truck chassis.

But the chief wasn't completely sold on the idea. He wanted to see (and feel) the benefits radiant floor heating could provide. A visit to a nearby installation site convinced

him that radiant floor heating was the right choice.

He hired Appropriate Designs of Holland Patent, N.Y. for designing and Undersun Construction of Dodgeville, N.Y. for building the Salisbury Center's fire station with radiant floor heating.

"We see tremendous advantages with radiant floor heating," says Winkler. "Not only does it make our fire station more comfortable for staff and volunteers, it also extends the life of the trucks and equipment.

Chief Winkler says the system has operated trouble-free since the fire station was completed and comments that the savings in energy costs has been a welcome benefit.

"It's so efficient. Once we close those big doors, the station is warm and dry in short order," he says. "And thanks to the efficiencies we've gained, the payback for installation cost differences will be recouped in no time."



Firefighters are now more comfortable, and it's easier to keep the fire trucks clean and dry with Uponor radiant floor heating.



Summary of Benefits

Reduced Maintenance

The heat mass stored in the concrete slab floor quickly brings cold vehicles to room temperature. And washing the equipment inside during the winter is a pleasure because the garage floor dries quickly, as do trucks, hoses and other equipment. It's easier to keep things clean, and because the trucks dry faster, rust is inhibited.

Energy Efficiency

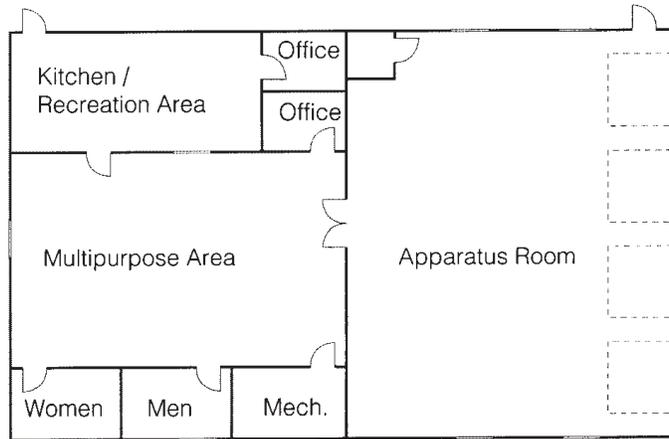
The bays are warm when the vehicles return from a fire call. Radiant floor heating provides almost instant heat recovery when the large bay doors open and close. Two separate heating zones maintain even temperatures in the garage and administration and meeting areas.

Comfort and Convenience

Despite high ceilings, wide bays and large doors, the fire station is consistently warm and quiet. In addition to offering better working conditions for firefighters, the fire station can hold classes and meetings in comfort.

Mechanical System Information

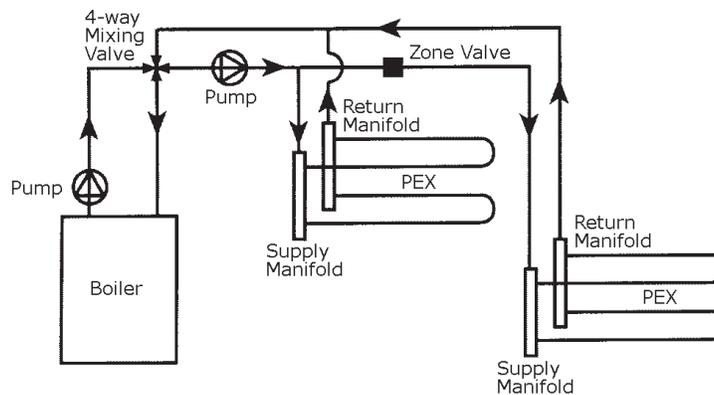
The slab-on-grade construction started with a vapor barrier and Styrofoam insulation. Wire mesh and Uponor PEX tubing was then covered with concrete. A 100,000 BTU/h non-condensing boiler provided heated water to the tubing network. Two separate heating zones, each with an individual thermostat, offered appropriate and flexible temperature control. The metal frame building had R-19 insulation on the exterior walls and R-30 in the ceiling.



Salisbury Center's fire station uses hydronic radiant floor heating in two thermostatic-controlled zones — one for the truck bays and the other for administration and meeting areas.

Project Data

Size of Structure:	4,000 square feet
Type of Construction:	Metal frame building
Floor Construction:	Slab-on-grade concrete
Outside Design Temperature:	-6°F
Room Setpoint Temperature:	55°F in the bays, 65°F in the offices
Heat Plant Size:	100,000 BTU/h non-condensing boiler
System Supply Water Temperature:	110°F
Tubing Type:	¾" PEX
Number of Loops, Average Length:	8 loops, 300 feet
Number of Manifolds:	2
Tube Spacing:	12" on center
Pumps and Pump Size:	Two 2264 Grundfos pumps
System Flow:	16 gallons per minute (gpm)



The design information in this case study is provided for illustrative purposes only. The actual requirements of similar projects will depend on regional climatic conditions, project-specific heat loss, owner expectations, applicable building codes, etc. Please contact your Uponor representative for assistance in designing your specific projects.