

# CONTRACTOR<sup>®</sup>

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## Northwestern Mutual *building anything but ordinary*

**BY ROBERT P. MADER**  
OF CONTRACTOR'S STAFF

OAK CREEK, WIS. — The Grunau Co. recently completed the plumbing, HVAC and specialty metal work on the two-year \$125 million first phase project of Northwestern Mutual's Franklin, Wis., campus.

The insurance firm bought the site of an old drive-in theater for its new headquarters campus that will handle the company's needs for the next 20 years. The site includes a main office building, parking garage, power house and cooling tower/pump house. The site has room for as many as four more buildings, said Dave Brown, Grunau's plumbing superintendent on the project.

Grunau was only able to pull it off with numerous coordination meetings to avoid conflicts both underground and in the 5-ft space between floors. The job was complicated by the fact that the HVAC delivery system is under the floor, and by the giant cafeteria.

Contrary to the old say-

ing, if you work for Northwestern Mutual, there is a free lunch. The kitchen has its own Cemline steam water heater, its own water softener, and its own water chiller in the mechanical room for cold water for the soft drink dispensers and drinking fountains.

"The kitchen is quite big," Brown said. "They have a 'Jacuzzi' for the pots and pans. There are lots of walk-in coolers and freezers, about five of them. The kitchen goes on and on with all the hot wells and washing areas; the dishwashing area is a big island for all the plates and stuff that people drop off.

"There have got to be upwards of 60 hub drains and about 320 floor drains and cleanouts, and they all have to hit their spots and locations," Brown noted.

The soda lines come from a remote room for the syrup and CO<sub>2</sub> through an 8-in. plastic sleeve. Refrigerant lines run underground from the mechanical room to evaporators in the salad bars. The kitchen area also has lines for clear water waste, greasy waste



**There is a free lunch at Northwestern Mutual and the huge first floor cafeteria with its water supply lines, floor drains and hub drains made the job a challenge for Grunau Co.**

and the usual vents and sanitary lines.

"It was very congested in underground because there were so many elevations," Brown said.

The kitchen is served by a 12,000-gal. grease trap that originally was supposed to be built on site out of concrete, but Grunau opted to buy it from a vendor.

Clear water drains go to a sump crock that's 15-ft. deep and 6-ft in diameter. Its fabrication was problematic because Grunau hit groundwater and had to dewater the site while it

was building the sump. Equipped with 50 gpm Weil Pump Co. duplex pumps, the sump crock handles water from the drain tiles and elevator drains.

The parking garage has its own concrete sump with duplex pumps. The garage has as many as 50 drains ranging from 8-in. up to 15-in.

If the system is overwhelmed by rain, clear water is pumped to retention ponds on the campus.

There are no sewage ejectors on the job. Moreover, Grunau didn't need

pressure booster pumps on the incoming side because city water pressure was adequate.

Water comes into the building and passes through one of three Hellenbrand Water Conditioners Inc. water softeners in the building's central plant. The water softeners have capacities of 126,000 grains, 160,000 grains and 300,000 grains. The big one handles makeup water for the HVAC system.

From there, water passes through carbon filters and some of it goes through a reverse osmosis system to serve the Liebert air conditioners in the computer room and the Cemline steam water heaters. The RO system can deliver 13 GPM and the water is stored in a 500-gal. tank.

A recirculating system and remote chillers in the mechanical room supply water to all of the building's drinking fountains. UV light sterilizes the drinking water before it goes to the bubblers.

Grunau had to deal with a crowded ceiling space, Brown noted, and they had to blow the drawings up to one-quarter

scale so they could see the pipe, conduit and ductwork clearly. The mix includes domestic water for bathrooms and kitchenettes, waste and vent lines, sprinkler piping and HVAC piping. They typically let their HVAC division place the ductwork first.

"We had to find a place for the roof drains without coming out of the ceiling or through the light fixtures," Brown said.

Domestic plumbing includes Kohler fixtures and stainless sinks, Sloan valves and lots of granite countertops. The exterior of the building is clad in granite too.

And this doesn't include all of the plumbing in the powerhouse, such as eye-washes, bathrooms, hub drains and floor drains. The powerhouse includes a well to supply water for the cooling tower if the city water supply ever fails.

The Grunau mechanical team installed an underfloor HVAC system in the 500,000-sq.ft. facility, making it one of only a handful of buildings in southeastern Wisconsin to have such a system.



**Prefabricating and installing the toilet carriers was easy. There are so many pipes in the ceiling that Grunau had to blow the plans up to one-quarter scale to see them all.**

"We worked closely with Northwestern Mutual, the engineer and the general construction manager to ensure the highest quality of work and to maintain the sophistication and integrity of this building," said Paul Grunau, Grunau's president.

Early on in the project planning, Northwestern Mutual identified the underfloor HVAC system as one part of its larger strategy to create a highly efficient and cost-effective facility.

The uniqueness of the underfloor system prompted Grunau to research the system extensively to learn as much about it as possible prior to installation.

"The underfloor system was one of the things for which Grunau Co. felt particularly responsible,"

said Project Manager Jeff Kuhnke. "We spent a lot of time learning how to best do our job. We took it upon ourselves to help coordinate the other trades' work with the system."

The underfloor system places the heating and cooling vents under a raised floor instead of in the ceiling. This type of system allows individuals to control the climate at the workstations with a personal vent. In addition, interior layouts are more easily configured and an underfloor system helps eliminate dust and draft problems, and improves indoor air quality because the clean air is supplied closer to the occupants than from a ceiling diffuser.

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