

CONTRACTOR

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Industrial and commercial buildings ideal for floor heat

BY JOE FIEDRICH
Hydronic heating authority

FLOOR HEATING IS an ideal way to heat commercial, industrial and institutional buildings. There are four main reasons why:

1. Ease and cost effectiveness of installation.
2. Flexibility of interior design and equipment layout, and elimination of safety hazards.
3. Dramatic increase in heating efficiency
4. Superior heating comfort for building occupants.

Ease, cost effectiveness

Anytime there's concrete being poured for a commercial floor, whether for a new automobile repair shop, factory, airplane maintenance hangar, day care center, fire station, animal shelter or a bank lobby, you can cost-effectively integrate hydronic tubing into the pour. This will allow the concrete slab to be used as a massive radiator, offering all the advantages of radiant heat to the building owner.

As a rule of thumb, if the on-grade insulation and wire mesh or rebar have been prepared by the general contractor, then the distribution

manifolds and tubing installation, as well as pressure testing of the system, can be done at a rate of 180 square foot floor coverage per manhour.

This translates into approximately 25c labor and \$1.50 tubing and manifold cost per square foot of slab radiator. Add another 30c for the 1" insulation board below the slab, and the most efficient radiator you could possibly create costs the building owner not more than \$2.05 per square foot.

Most zoo buildings in Europe have been equipped with radiant slab heating for the past 10 years.

This dollar figure is based on using cross-linked polyethylene (PEX) with an oxygen barrier, which is the safest and most reliable tubing to use for installation.

High quality tubing is your cheapest insurance policy against system breakdown. If you as the contractor, try to cut your tubing cost by using non-crossed linked, non-barrier tubing material you may save the building owner 50c a square foot at best. But at what cost to the system?

The initial installation costs of a commercial floor heating system versus conventional heating methods, such as unit heaters or fan coil units, are only slightly higher with a cost difference payback of not more than one or two heating seasons at the most.

Interior design

Office furniture, equipment and machinery placement within the available floor space is totally unrestricted. Since there's no forced air, it's dust-free. Moreover, wet floors dry immediately, an important consideration in work shops, lobbies and animal shelters where wet floors can be a safety hazard.

Efficiency increase

As a rule, the more volume and space there is in any given application (i.e. the higher the ceilings) the higher the fuel efficiency of the radiant slab system will be in comparison with other conventional means of heating.

High temperature stratifications below the building's roof are eliminated. Depending on building height, the actual ceiling temperatures are 5°F-15°F lower than at head level of the occupants standing on the radiator. This means that the temperature differential between outdoor temperature and ceiling temperature is dramatically reduced.

Fuel reductions of 30%-50% with commercial high mass slab heating

are absolutely realistic, providing the proper control strategies are applied. Constant circulation via mixing valve control with weather anticipating outdoor reset, heating water modulation, and indoor space temperature and/or slab temperature feedback compensation will provide the best results.

Superior heating comfort

Standing on warm radiant slabs in a working environment will make all the difference for the employees.

Productivity is improved, absenteeism greatly reduced and the radiant cooling effect of cold equipment brought in from the outside is quickly eliminated. The equipment heats up rapidly as it stands on the giant slab radiator while the snow and water evaporate. Just think of the applications: automobile repair shops, fire stations, auto body shops, airplane hangars, storage buildings, woodworking shops, machine shops, warehouses. Huge overhead doors open and close, but the heat recovery with a giant radiator slab is almost instant.

Animal shelters are ideal candidates. Animal stay healthy, produce more eggs, milk and meat. The slabs can be hosed down and dry quickly. Most zoo buildings in Europe have been equipped with radiant slab heating for the past 10 years. Dog kennels, pig, chicken and cattle farms are a natural. Plants in greenhouses increase their growth rate.

Just think of the application of radiant slabs in churches, cathedrals and synagogues. It is up to your imagination where to apply commercial radiant slabs!

The author is president of Stadler Corp. (tel. 781/275-3122), a Bedford, Mass.-based supplier of hydronic heating equipment