

CONTRACTOR

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Your expertise is appreciated here

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HEAT A building hydronically and you provide every level of heating comfort, whether it's a two-zone residence or a multizone commercial, institutional or industrial facility.

You're designing a heating system. How will the heat be dissipated?

You want to eliminate as much convection heat as possible.

The larger the heat radiating surfaces, the lower the heating medium temperature needs to be, resulting in a higher percentage of radiant heat output and less convection heat.

By using large-surface steel, cast iron or aluminum radiators or wall and floor surfaces as heat distribution points you'll keep the convection down and the heat close to the floor.

Large-surface panel-type radiators emit approximately 60% convection and 40% radiant heat, operating at water temperatures of 80°-160°F, depending on heating load.

A system in which the tubing is imbedded in the floors or walls offers hydronic radiant heating at its best.

One of your design goals should be to minimize on/off thermostat cycling. You can design a "continuous circulation operation" system, whereby heat is emitted continuously at lower temperatures with virtually no fluctuations in ambient temperatures.

One way to do this is to modulate the water temperature of the boiler by coupling it to an outdoor or indoor temperature reset control.

Hydronic contractors operate in a market where first-cost becomes secondary.

But in mild weather a boiler might not supply enough domestic hot water. So a better approach is to separate the boiler loop from the radiation loop by means of a three- or four-way mixing valve and to install a proportional weather-responsive controller.

The mixing valve (driven by an actuator) senses the outdoor temperature and the flow temperature of the radiation loop, and sends out properly tempered water.

When most of the heat distribution

system is radiant, there's no air circulation and less temperature stratification. This reduces heat loss through the roof and greatly reduces energy consumption, especially in high-ceiling areas.

The all-important zoning of the system can be done simply by installing non-electric temperature-sensing thermostatic valves in each room.

More elaborately, you can install remote electronic sensors and thermostats connected to the main distribution header.

For a heat source, you have many options, conventional and non-conventional: solar panels and heat pumps as well as condensing boilers, low temperature boilers and conventional boilers are options. Some boilers and heat pumps are 98% efficient.

For domestic hot water, an internal or external heat exchanger or indirect-fired hot water tank can be used in conjunction with a boiler.

Radiant heat distribution systems can be concealed behind walls and under floors, and still deliver heat where needed. This is an especial advantage in buildings having lots of window walls and high ceilings.

Upscale, hydronic heating systems enable you to operate in markets where your professional expertise is needed and appreciated and where first-cost is of secondary concern to customers.