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Interior commercial surface heating holds big potential

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YOU CAN OFFER your commercial client a heating system which costs the same or perhaps slightly more than any conventional system to build, but which can cut his operating costs by 50%. You can eliminate dust problems, keep floors dry at all times, provide instant temperature recovery after closing overhead doors, and reduce heat source horsepower by 40%. You can keep overhead areas free of piping and mechanical obstructions, and instantly warm vehicles and equipment brought into the building for servicing. You can reduce employee absenteeism due to illness and increase productivity with better thermal comfort.

This may sound too good to be true to both you and your client, but these are the advantages of a radiant heating system. There are many applications in commercial/industrial buildings where floor heating, wall heating and snow melting don't just heat the building but save the building owner money while increasing productivity and safety for the businesses in these buildings.

Real life application

I compiled some data over the 1995-1996 heating season on a new commercial building built in Boston.

I knew the figures would be good, but they turned out to be phenomenal. The following is perfect example of an application that is representative of thousands of others throughout Europe, U.S. and Canada demonstrating the cost effectiveness of commercial radiant systems.

The Boston building is a new overnight package distribution center. It's much bigger than the building it replaced, 96,695 sq. ft versus 23,575 sq. ft, and higher, 24 ft as opposed to 20 ft. The old structure was heated with gas-fired unit heaters and the new one with atmospheric gas-fired boilers with hydronic radiant heating.

The heating period for both was October 31, 1995 to April 9, 1996, with 5,156 degree days.

But check out the fuel used: the old building used 23,139 therms, while the new one used 49,601. Therms per square foot for the old building were 1.02, while the new building used just 0.51 therms per square foot.

Simply stated, fuel consumption was reduced by 50%! This reduction in fuel consumption benefits everyone involved, the building owner, the business owner, and the employees. Just think of what we could do to reduce the national debt

if we could retrofit all the buildings in Washington, D.C.!

System efficiency is only part of the story. The rest have been mentioned at the beginning of this article, but to the building owner they are the frosting on the cake.

One footnote on the figures. The new building was in full heating operation throughout the October-April period whereas the old building was put into temperature setback on January 18, 1996, when the company moved to the new building. I have not taken the reduced building temperature in the old building into account. This could well mean that the radiant system is 10% to 20% more efficient than has been realized.

During normal operation in the distribution center all the overhead doors are open from 5 a.m. until noon to allow for constant delivery truck movement, so there is a high heat loss factor. The manager of the buildings commented that in the old building everyone was standing there ice cold in full winter gear, whereas in the new building everyone feels comfortable working in normal clothing. Radiant floor heating made the difference.

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