

CONTRACTOR

THE NEWSMAGAZINE OF MECHANICAL CONTRACTING

Reprint from February 1997

Consider installation options in wood-frame construction

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radiant heating IN conjunction with U.S. wood-frame construction presents serious challenges when it comes to choosing the type of installation method and control strategy most suitable for the application.

At least a half-dozen different installation methods are being offered by system suppliers. In most cases, the specifier or installer must decide what type of installation technique will be used for the job.

Most installing contractors who have tried different methods still can be perplexed about why a certain method works beautifully on one job whereas other jobs turn into never-ending nightmares, resulting in very disillusioned radiant heating system owners.

Unfortunately, a high percentage of poor-performance cases are presently in the field, and people will have to deal with them down the road. Our company has been involved in every conceivable installation known in the field of radiant heating, and we have made the effort to find out what works and why.

According to our experience, the two types of installation described below have had the highest rates of

success, although they may present their own set of problems.

'Wet Method'

This method of installing floor heating is to staple tubing to the top of the subfloor and then pour lightweight gypsum concrete over it. This is the most common method of installation and is rooted in methods used in Europe where "wet" installations are most common.

Its biggest advantage is that this method always works well in Btuh output performance, but it has its pitfalls. Here are a few:

- Floor height and weight build-up, which requires long-term planning and framing adaptations. This method is possible mainly in new construction; for retrofit, it is seldom an option because of the height build-up.
- Installation of hardwood strip flooring is impractical or next to impossible.
- Costs are also a factor. It is difficult to find an experienced and knowledgeable concrete applicator who can offer reasonable prices, especially on small to medium jobs of 1,000 sq. ft. or less.
- Moisture-curing problems, installation temperature requirements, concrete preparation, handling, installation and con-

struction logistics add an enormous hidden cost factor. Other uncontrollable variables include existing finished floor problems from cracked tiles, moisture-buckled wood floors, separating and popping natural stone tiles, to overheated and disintegrating gypsum concrete.

In many cases, the homeowner and general contractor have not selected the proper type of finished floor for the installation method. If a problem develops, most likely it will involve moisture. Be aware of this and make sure that enough time has been allotted to allow the heat slab to dry before attempting to apply the finished floor, especially floating hardwood floors.

'Dry Method'

Another common method for wood-frame buildings utilizes a dry system on top of the subfloor. Over the subfloor is laid a second layer of plywood panels with heat transfer plates, then the tubing is fitted in. The finished floor is then directly laid on top of this sandwich.

The following are some advantages of these installations:

- Btuh output is excellent.
- Since there is no great thermal mass to heat up and cool down, the flywheel effect is eliminated, system response time is fast and temperature control is easy.
- The light weight and low profile of the system make it ideal for new or retrofit construction as no framing adaptations need to

be made. Long term planning is eliminated as the floor height can be easily adjusted to adjoining floors so floor heating can be installed even when construction has already begun.

- The tubing is exposed and visible during the nailing of hardwood flooring so mistakes should be a rare occurrence. Should a mistake be made, the tubing can be easily repaired.
- Since there are no moisture problems to worry about, hardwood floors can be installed easily and remain trouble free. Expansion noises are eliminated and the heat distribution is extremely even over the entire floor surface.
- It is cost competitive with all methods.
- The biggest advantage is that the dry panel system can be installed by the heating contractor from beginning to end. The contractor can see the complete system fully exposed when finished with the installation, before laying finished floors over it.

The heating contractor has full control over the whole installation process. That's important because he will be blamed if anything goes wrong. The less he depends on subs the better, and this system removes one more uncontrolled variable, the mason.

In terms of performance, efficiency, control, comfort, ease of installation, installation cost, customer satisfaction and peace of mind, the dry method over the subfloor wins my vote.

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