

# CONTRACTOR<sup>®</sup>

THE NEWSMAGAZINE OF MECHANICAL CONTRACTING

Reprint from December 1998

## We can solve setback to radiant industry

BY JOE FIEDRICH  
*Hydronic heating authority*

The negative publicity that radiant heating is facing over rubber tubing does not surprise many of us who have been immersed in the industry for the past 15 years or so. Without pointing fingers, I think it is time to look at the root of the problem.

The main culprit is the lack of a national floor heating construction code, as well as state and local enforcement. In a newly emerging industry such as ours, entrepreneurship takes an ambitious course.

Everybody jumps on the bandwagon, trying to position himself in the beginning. Manufacturers, manufacturers reps, wholesalers and installers all get into the process, while some neglect component and system safety.

Floor heating and snow melting is a highly complex and specialized field in mechanical contracting. There is no room for a commodity product mentality and zero tolerance for mistakes.

Many manufacturers reps, after initial exposure, have realized this quickly and have withdrawn from our market because it did not fit into their line of work. It's too labor intensive and liability rich.

How can we prevent future debacles such as the one with which we are presently confronted?

To protect the industry and the end user from further disasters, the industry must adopt a uniform national standard for all aspects of the radiant system, not just tubing. The standards should be similar to din standards, which Europeans have embraced for the past 25 years, making floor heating a great success. Secondly, we need state-level enforcement.

Once an acceptable national standard has been established, the only state-level involvement must be enforcement. Local bodies should not be allowed to reinvent the wheel with additional standard variations.

For that we have a perfect system in place: The state building code and its local enforcers, the town building and plumbing inspectors.

The reality right now is that anything goes when it comes to building a hydronic floor system in most parts of the country. You could encase garden hoses in radiant slabs. Not one local inspector (with a handful of exceptions) would question it.

Much of this attitude has to do with the past insignificance of hydronics in this country. Local authorities don't see a threat to public health

and safety as long as the boiler has an H-stamp and a pressure relief valve.

Now, however, with floor heating and snow melting, the market has changed. Safety, health and property protection have become issues to occupants. What is worse than a failing floor heating system?

There's a logical approach to fix our standards dilemma quickly and for good. Since we do not have time to start from scratch, let's adopt the European din standards, which cover all aspects of system and component design.

It took the Europeans a decade to develop these standards. They have a 25-year track record, and they work in an environment where hydronics has 100% market share. (Hydronic systems in the United States and Canada are less than 7% but growing due to radiant.)

We can come up with standards quickly and efficiently if everybody pulls together and accepts the fact that the Europeans have the experience, know-how and time advantage in this technology.

The Europeans have copied us in other technologies in the past, benefited from them and profited. Their pride isn't hurt and they thank us.

Here are some of the important floor-heating din standards currently practiced and enforced in most European countries:

- Din 4725:  
Hot water floor heating systems; concepts; thermal testing; design and thermal performance.
- Din 4726:  
Pipelines of plastic tubing used in warm-water floor heating systems; general and oxygen diffusion rate requirements.
- Din 4729:  
Pipelines of cross-linked polyethylene of high density used in warm floor heating systems; special requirements and testing.
- Din 8075:  
Polyethylene (PE) tubing, PE 63, PE 80, PE 100, PE-HD; general quality requirements, testing, chemical resistance of tubing and fittings.
- Din 16892:  
Cross-linked polyethylene tubing; general quality requirements; testing.
- Din 16893:  
Cross-linked polyethylene tubing dimensions.

Secondly, we need reputable, independent testing labs, such as nsf or csa. We must also gear up for din standard procedures for long-term tubing behavior testing, oxygen diffusion rate testing, and long-term temperature and pressure cycle testing on related fittings. These are the three most important procedures for testing floor heating components.

Let the labs talk to din and other experienced European labs that have been involved in this business for many years. These labs include Studsvik in Sweden and TÜV in Germany.

To my knowledge, not a single oxygen-diffusion test bench currently operates for this application in North America.

With these procedures in place, manufacturers' self-proclaimed dif-

fusion rates and long-term temperature aging claims on tubing become things of the past.

There has been tubing used here that never would have passed the din standards.

Most importantly, an installer certification program has to be put into place. Every installer must pass a Radiant Panel Association - established training program. Rpa-certified system manufacturers must carry out the training.

And last, but not least, the industry must implement a tubing and fitting manufacturer quality control program and certification, such as iso certification and nsf supervision and inspection.

Even though many of these pieces of the puzzle are already in place and enforced for plastic potable water systems, the hydronic floor heating sector is still exposed to a loose array of good standard intentions.

The rpa will have to be the initiator and coordinator for these joint industry efforts. For the good of a great concept, for the good of our industry and for our biggest asset, the American public, let's do it!

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