

FROM THE FIELD

Fall heating issues; solving the client equation

BY DAN FOLEY CONTRIBUTING WRITER

When I started my company, one of my biggest fears was running into a technical problem that I could not resolve. Ten plus years in, I am still waiting for that problem to occur. Oh sure, I have run into difficult technical issues with the equipment we service and install. Some have required multiple trips back as well as manufacturer support but we have somehow managed to tackle all the mechanical problems thrown our way.

The curveball that I did not anticipate was the “people” problems that you run into when dealing with clients. Everyone has a different viewpoint and way of looking at things. I have found these problems to be much more difficult to resolve, requiring a different skill set and proficient communication skills to fix.

Every fall, as the weather begins to change in October, we have chilly nights where the temperature dips into the 30s and mild, sunny days where the temperature quickly rises into the mid-60s. The call will come in from a client, “That new boiler you just installed is not working. We have no heat! Get someone out here as soon as you can.”

We use a lot of condensing boiler technology with outdoor reset control. Typically, we remove a cast iron atmospheric boiler with setpoint control operating off of a high limit, which might have been set anywhere from 180 – 200 F. We will also typically incorporate an indirect DHW tank into our design.

I received such a call just last week on a brand new install. We had just installed a new condensing gas boiler and indirect DHW tank. It replaced a 40-year-old cast iron beast and tank-style water heater. It was tied into an existing high mass radiant floor heating system. The boiler had an integral outdoor reset control, and we had the curve dialed in to an optimal setting.

The morning after the first cold night, the client called me with a “no-heat” complaint. I decided to handle this one myself, as I was sure that this was not a mechanical problem. The old boiler operated off of a high limit setpoint control. The client was used to turning up the thermostat and quickly feeling the heat in the slab.

I got to the call around 10 a.m. The first thing I noticed when I walked into the boiler room was that the pipes were hot. The boiler had just cycled to satisfy a call for DHW, so I knew the boiler was working. The house was split into three zones. Two of the zones were satisfied. One zone was set for 70 F and the actual temperature in the zone was 69 F. My first thought was that this was hardly a “no heat” situation, but when a client has paid close to \$20 K for a new system, you respond quickly.

I checked to see that the thermostat signal was reaching the zone control and that the zone valve had opened. The zone pump was on and the boiler pump was on. The modulating boiler was operating on low-fire and the supply water temperature was about 90 F. As the ambient temperature was now 53 F, this was dead on to

the reset curve we had selected. The system was operating exactly as designed.

I tried explaining this to my client, but he was having none of it. “The old one didn’t do this. We paid top dollar for this system, and we expect it to work!” The only thing not working was my ability to explain outdoor reset to my client. His elderly mother lived in the house, and he wanted her to be warm. After failed attempts at trying to convince this homeowner that the system was operating properly, I gave in. Against my better judgment, I bumped up the reset curve to provide more heat into the radiant system. The boiler responded and settled in to a supply temperature of 105 F. Everyone was happy; I packed up and left.

The chilly morning turned into a beautiful fall afternoon, with temperatures peaking in the mid-60s. Then I received the call: The client called back to say that there was a problem. The thermostat was still set to 70 F, but the indoor temperature was now 76 F. Of course it was! We had injected way too much energy into the high mass slab. Between the time lag of the high mass concrete slab and the solar gain from the sunny day, the indoor temperature had overshot the thermostat setpoint.

I returned to find the boiler off and the pipes cold. I returned the reset curve to its previous setting and suggested that the client open the windows to let some of the crisp fall air into the overheated space. The boiler settings were right the first time. My failing was not technical, but in my ability to explain the operation of the system in a way my client could understand.

Two technical solutions come to mind. One would have been to use a more sophisticated control that employs an indoor sensor to provide feedback to the boiler control and adjusts the reset curve accordingly. This would take into account the slow response of the concrete slab as well as internal loads created by people, appliances and solar gain.

One boiler we use has a simple way of dealing with heat loads at the upper end of the reset curve. It uses a “boost” feature that can be activated if desired. If a heat demand has not been satisfied after a programmed period of time, typically set at 20 – 25 minutes, it boosts the supply water temperature until the heat demand is satisfied. It then reverts back to the programmed reset curve. This is a simple solution to this dilemma.

I wish I had done a better job of explaining how the new system would operate at the time it was installed; it may have avoided two service calls. Since the new system operated differently than the old system, the client incorrectly concluded that it was not working properly. The problem was strictly communication, not mechanical.

We do a lot of steam boiler replacements here in the

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D.C. area. These can be a technical challenge. You are matching current boiler technology to systems that were designed 100 years ago to run off coal. Again, we have managed to handle the technical challenges, but it is client expectations that seem to trip us up.

I have noticed that people pay close attention to their systems right after they are replaced, and rightfully so. They just paid a big chunk of money and they are more “aware” of their heating system. They notice things they did not notice before.

Another call came in last week. The replacement steam boiler we installed several weeks ago was not working. Again, as this was a call-back on a new installation, I went out on the call myself. I got there early on a cool fall morning. The ambient temperature was in the low 40s, and it was breezy – chilly but not cold.

When the client opened the front door, I felt a wave of heat roll over me. Something was working. She liked it warm in her house. The thermostat was set to 73 F and was reading 73 F. Perplexed, I went to the basement. The boiler was off, but the near boiler piping was smoking hot; it had just cycled off. Everything appeared to be working fine. Maybe there was an intermittent problem?

I went back upstairs to talk to the owner and inquire about the problem. “Oh, your new boiler has no problem keeping temperature and heats more evenly than the old boiler. The banging has also gone away.”

We had corrected some piping problems and fixed some issues with the main vents.

“The problem is that the radiators are not heating right.”

I went over to a large twenty-section column style radiator along the front of the house. The first four or five sections were hot, but the rest went from lukewarm to cold.

“That radiator always got hot all the way across, but now only the first few sections are hot. Something is wrong. The old boiler heated it all the way across,” she insisted. And she was right.

This radiator was the first radiator off the main. The old system lacked proper main vents on her one-pipe system. All of the air in the system vented out of the radiator vents. This made for uneven heating and temperature gradients between the rooms. But that first radiator got hot quick.

Now, with the proper main vents and balanced heating, the system was operating properly. On a mild day like this, only the first few sections will get hot before the thermostat is satisfied. Only on the coldest days will the radiators get hot all the way across. I had better luck explaining this to the client this go-around. She acknowledged that we had solved the banging problem and that the temperatures throughout the house were more even than before. I convinced her to wait for the first real cold weather and then see how the radiators heat.

Once again, the problem was not technical but client-related. I realized that, in order to avoid wasted time on “nuisance” calls, I need to do a better job of explaining how our systems operate to our clients. Their perception is our reality. Keep that in mind as you deal with your clients. We need to be able to explain how our complex mechanical systems work in a way that our clients can understand...or deal with the consequences, as I did. ●

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