

# HEAT

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## Heat Pump Doesn't Reach Set Point

Have you heard from your customer “it’s just not warm in here like I think it should be”? A heat pump is dependent on outdoor temperatures as to how much temperature it can make indoors. So for example when it gets below 35 degrees outside the heat produced indoors is diminished, but the thermal load is increased. At some point on the scale as the temperature outside slides down the unit isn’t going to be able to keep up with the set-point demand inside. The complaints start to come in. Newer higher efficiency units are better able to keep up at a lower ambient temperatures but this is how the system works, so as the temperature plunges the compressor runs longer and longer. Eventually the temperature in the room begins to drift off of set-point. “It’s just running, and running, and running all the time” is heard. Actually when it is running all the time it still is an efficient way to heat but it’s hard to convince your customer of that. It’s definitely cheaper than resistance heat or propane back-up. Back to the problem, if the outdoor temp is above 35 degrees or so and the unit is still not keeping up then we may have a problem with the system. Any demand above 2 degrees more than the current set-point will call on the emergency heat. We want to do our diagnostics within one degree of set-point so we can be on compressor heat only.

Some things to check are; low refrigerant charge, non or underperforming thermal expansion valve, a blocked drier, an outdoor coil with something preventing airflow such as snow, leaves or ice. Is the outdoor fan running the proper speed? Check the

**compressor performance. Do you have a thermostat issue, or cold air infiltration issue, or missing insulation? Another common issue is that some customers are requesting too much set-back during their un-occupied period where the heat pump just can't recover in a reasonable amount of time. This appears like the machine is not working properly. In cold temperatures it's best to open all the doors and let the system run. No set-back. Have the customer give that a chance before condemning the system.**