



Tech Tip Indoor Temperature drop

During the summer, one of the typical checks a technician makes is the indoor temperature drop across the system.

Usually it is taken at the supply and return grilles subtracting the Supply temperature from the Return temperature.

Ex:

Return temp 78

Supply temp 56

22 degree temperature drop.

Getting the split is the easy part, knowing what it is telling you, is more important.

The Relative humidity of the return air is needed to help with the evaluation. A Psychrometer is as important a tool in the AC markets as a voltmeter.

Moisture is a form of heat (Latent heat) and the system has to remove it to make our customers comfortable.

If the humidity is high, like here in south Louisiana, the unit has to work hard to remove that moisture and cannot lower the temperature as well.

Ex: 90% RH = 8-12 degree drop typical

But in a much drier climate, like Arizona, the unit works less on removing humidity and can therefore remove more “Sensible heat” or measurable heat.

Ex: 20% RH = 21-25 degree drop typical

If the system is charged properly and running in high stage the readings below should provide good target numbers to work from.

Typical Indoor Temperature drop vs. Relative Humidity							
20%	30%	40%	50%	60%	70%	80%	90%
21 to 25	20 to 24	19 to 21	18 to 19	14 to 17	14 to 16	9 to 14	8 to 12

If the system has a 22 degree temp drop and the Return air RH is 80% the temperature drop is higher than the typical readings, therefore you can also look for:

- Low indoor airflow
- Dirty blower wheel or coil

If the system has a 14 degree temp drop and the Return air RH is 40% the temperature drop is lower than the typical readings, therefore you can also look for:

- High indoor airflow
- Heating element staying energized
- Leaking ductwork
- Poorly insulated ductwork