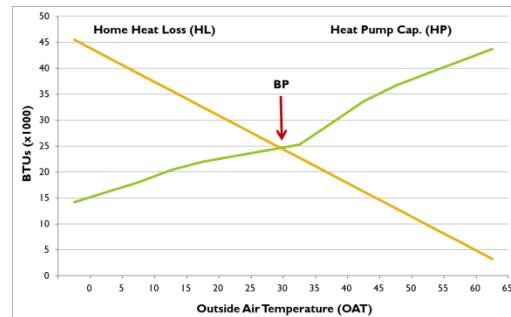


Balance Point Updates

The PTCS program has been allowing variances for air source heat pumps with a reported balance point between 31 and 35 degrees since 2014. Starting on October 1, 2019, balance points above 30 degrees will no longer go into "Pending" status for manual approval. After this date the project will show as "Rejected" in the registry.

The purpose of including a balance point requirement of 30 degrees or less for PTCS heat pump installations is to maximize the amount of heat provided by the heat pump and to reduce the amount of electric resistance strip heat that is required to heat the home. Heat pumps can provide 100% of the heat for a home if the capacity of the heat pump exceeds the heat loss rate of the home. The balance point is the outdoor temperature, below which, the heat pump requires additional heat to maintain the desired temperature of the home (refer to graph above).



We have found the following as potential causes of higher than expected balance points:

The following sizing assumptions and principles can be used to achieve a 30 degree or less balance point:

Window U-Value: For vinyl windows, unless you know the labeled U-value, use a value between 0.35 and 0.40

Duct Loss Multiplier: Values of 0.20 or greater should be reserved for uninsulated ducts that are fully in unconditioned attics or crawlspaces

Infiltration: Air changes per hour tend to be lower for newer homes. Assume the following for winter infiltration unless you have testing data for the house.

- Homes built before 1980: 0.80 ACH
- Homes built 1980 to 2000: 0.5 ACH
- Homes built after 2000: 0.35 ACH
- Summer infiltration should be about half the winter infiltration.

Indoor Design Temperature: Use 68 or 70 degrees for indoor heating design temperature and 75 for indoor cooling design temperature

Balance Point Calculation Line: Set your line for zero heat loss at 65 degrees, not 70 or 75 degrees. The other end of the line is set at your calculated heat loss at your outdoor design temperature or at 30 degrees.

If you have other questions about appropriate sizing assumptions, feel free to contact Bruce Manclark at bruce.manclark@clearesult.com