

What I (Jamie) am Looking for in a 90% or greater Carrier Gas Furnace

All Values are subject to field experience and must be used in prospective to SMB09-0022.

Carrier Stated that their furnace has an acceptable CO threshold of ≤ 200 ppm This is key to troubleshooting a failed HX.

Understand that the HX validation Form must be completed and submitted for HX Credit. All HX are subject to reversal once inspected by the Carrier Representative.

CO ppm	Excess Air %	My Normal Expectation CO ppm	Excess Air %	Outside My Normal Parameters of Excess Air %
≤ 200	≥ 30 or ≤ 140	< 38	50 to 138	< 40 and > 140

I anticipate; normally on a new start-up ≤ 38 ppm CO and an excess air value of $< 140\%$.

If the unit is existing and no baseline has been established; I anticipate the CO < 120 ppm. I personally have not seen a issue in or with its operation (this is a general statement applied to a fixed speed unit, a variable speed inducer often extends this value).

However, if this is true (higher CO {meaning above 100ppm [my value]}) Excess Air is key to understanding what is happening in HX ... it must be evaluated.

My excess air target value is between 50 and 90%.

Most often I have found the excess air to be $> 80\%$ and $< 140\%$ most often ranging not greater than 135%.

In general if excess air is $< 30\%$ the unit may/will soot; if the excess air is $> 140\%$ you will experience hard light off, possible burner pulsation and/or excessive inducer vibration.

One can correct this by checking for proper intake disk usage, proper placement of the NAT/LP gas shutter, re-sizing oversized venting, locating HX or gasket leakage. There are other items that may lead to this situation, consult the burner pulsation page and SMB09-0022 and class material.

All values are for high fire Only!