

AbsolutAire, Inc.

Effects of Moisture from the Direct Fired Burner Combustion Process

The direct fired burner will generate 11 grains of moisture for every 100° F ΔT. If you consider this the 'slope' of the line on the below Psychrometric chart, you can see the net conditions for the air leaving the direct fired make up air unit given any OA air conditions.

For example, OA1 is 30 degrees dry bulb and 50% RH. If heated to 70 degrees, the air will see a $(40/100) \times 11 = 4.4$ grains moisture increase. The resulting conditions are 70 degrees dry bulb and about 14% RH. For condition OA2, dry bulb is 45 and RH is 80%; when heated to 70 degrees the resulting conditions are 70 db and 35% RH.

Often times in the heating season, more moisture is required for comfort than the Direct fired burner will produce. When the direct fired burner is operating, the discharge relative humidity value will always be less than the outdoor entering value.

