Using Table 9B on Page 37 in Maria’s Restaurant Guide & Workbook, find the total cooling capacity in Btuh for the XHP 7.5-86Z in operating in low speed on an 85OF outdoor temperature, and with a return air wet bulb temperature of 67OF and a fan CFM of 3,000.

For an outdoor temperature of 85OF the capacity is 48,700 Btuh. Note: kBtuh means 1,000 Btuh so the 48.7 is multiplied by 1,000 to get Btuh.

Using Table 9B on Page 37 in Maria’s Restaurant Guide & Workbook, find the total latent capacity in Btuh for the XHP 7.5-86Z in operating in low speed with a return air wet bulb temperature of 67OF on an 85OF day, with a fan CFM of 3,000 and a 75 OF outdoor dry bulb temperature.

From the chart: at 85OF the sensible over total heat ratio is 0.51 thus, with a total capacity of 48,700 Btuh our sensible capacity would be 48,700 × 0.51 = 24,873

Note: to double check simply divide 24,873 by 48,700 and make sure it equals 0.51.

Thus, the latent capacity would be 48,700 – 24,873 = 23,827 Btuh

Using Table 9C on Page 38 in Maria’s Restaurant Guide & Workbook, find the total latent capacity in Btuh for the XHP 10-86Z in operating in high speed with a return air wet bulb temperature of 67OF and a fan CFM of 3,200 with a 85OF outdoor dry bulb temperature.

From the chart: at 3,200 CFM & 85OF the sensible over total heat ratio is 0.66 thus, with a total capacity of 126,600 Btuh our latent capacity would be 126,600 × (1 - 0.66) = 43,044

Note: Took a short cut, the previous method works for this example too.

Find the sensible heat for the previous example where the latent heat is 42,840 and the total capacity is 126,000.

The total minus the latent equals the sensible. Thus, 126,600 – 43,044 = 83,556 Btuh

Note: 126,600 × 0.66 = 83,556 Btuh

Field Notes:

Changing fan speed and thus, the CFM changes the performance of the commercial equipment. This often happens when a pulley position is changed so the wrong size belt can be put on to get it running. The change in performance may then become the cause of many call backs and the change does not get caught.