Table 2 in Chapter 1 of Maria’s Restaurant shows the heat transfer multiplier for windows for heating as 17.94 and for cooling as 54.86. If the window size was changed to 200 square feet would the winter heat loss and the summer heat gain be changed enough to need a larger HVAC system?

The total winter loss was 34,384 Btuh before the window size was changed what is it after the change?

The total summer heat gain was 71,666 Btuh before the window size was changed what is it after the change?

For a building, the total summer heat gain due to infiltration is listed as 1,108 Btuh, and there is a total cooling load of 115,534 Btuh. The total winter heating load is listed as 111,764 Btuh with an infiltration load of 3,632 Btuh. Calculate what percentage of those values is due to the infiltration.

Based on the summer heat gains estimate the cooling equipment’s size in tons needed to cool the restaurant area, the kitchen area, and the total tonnage for the restaurant.

A cooling load calculation on Manual N states that the sensible heat is 75,000 Btuh and the latent heat is listed as 25,000 Btuh. What is the total cooling load?

Field Notes:

One would be surprised by how often a builder changes a wall or roofing material, without giving a thought to the HVAC design implications. Technicians who understand building materials and how they are put together as assemblies can often spot problems with changes made to the original design plans. Thus, those who only focus on the mechanical and electrical sections may miss a big design change during construction that wrecks their load calculations.