Using Figure 18 on Page 49 in Maria’s Restaurant Guide & Workbook, find the FPM for Zone 1 and 2 Supply airflow if the duct size was changed to 26” × 24”.

Zone 1: (26 × 24) ÷ 144 = 4.3333 and 2,400 CFM ÷ 4.3333 = 554 FPM

Zone 2: (26 × 24) ÷ 144 = 4.3333 and 3,200 CFM ÷ 4.3333 = 739 FPM

Using Figure 18 on Page 49 in Maria’s Restaurant Guide & Workbook, find the FPM for Zone 1 and 2 Supply airflow if the duct size was changed to 25” × 25”.

Zone 1: (25 × 25) ÷ 144 = 4.34 and 2,400 CFM ÷ 4.34 = 553 FPM

Zone 2: (25 × 25) ÷ 144 = 4.34 and 3,200 CFM ÷ 4.34 = 737 FPM

Note: not a field measurable difference from the previous duct sizing question above.

Using Figure 20 on page 50 In the Guide 7 Workbook, Find the CFM corresponding to a FR of 0.045 for galvanized metal duct.

250 CFM

Using Figure 20 on page 50 In the Guide 7 Workbook, Find the CFM corresponding to a FR of 0.045 for duct board.

180 CFM

Using Figure 20 on page 50 In the Guide 7 Workbook, Find the FR that provides 310 CFM for Duct Board at this duct size setting.

FR = 0.125

Using Figure 20 on page 50 In the Guide 7 Workbook, Find the FR that provides 310 CFM for galvanized metal duct at this duct size setting.

FR = 0.69 or 0.70…it is almost there…close enough!

Field Notes:

A common problem found in the field is an immediate reduction in duct size at the equipment inlet and outlet. This is made worse if the reduction is square and not tapered. The author once found a supply duct that was ½ the size of the outlet with the top half just blocked off in the outlet (see sketch below). The call was for no cooling in the building. The duct restriction was causing turbulence in the airflow and a high operating static pressure. The reason the system was not cooling was because the blower motor kept shutting down on an internal overload.

