Using Table 13 on page 58 in the Guide & Workbook what is the preferred noise criterion for selecting diffusers in nonindustrial applications?

NC ˂ 30 the white areas in the chart.

Using Table 13 on page 58 in the Guide & Workbook what is the NC value for a 27×27 diffuser providing 3,600 CFM of airflow

NC ≥ 40 the red area in the chart.

Using Figure 27 on page 60 in the Guide & Workbook, if a grill was going to be placed in a corner which of the 4 grille types below would you select?

For most locations the third from the left, the corner 2 direction supply register. The single direction diffuser on the left side might be selected for applications where the airflow from the corner all goes in one direction.

Using Table 13 on page 58 in the Guide & Workbook what would the face velocity be for a 9×9 Corner diffuser at 0.050 IWC of pressure loss?

900 FPM

Using Table 13 on page 58 in the Guide & Workbook what would the throw be in the X & Y directions for a 9×9 corner diffuser at 0.050 IWC of pressure loss?

Four to six feet in the X and Y directions.

Using Table 13 on page 58 in the Guide & Workbook what would the Ak be for a 12×12 corner diffuser?

0.40 Square Feet

Using Table 13 on page 58 in the Guide & Workbook what would the CFM be for a 6×6 corner diffuser at 0.020 IWC of pressure loss?

50-60 CFM depending on the face velocity

Using Table 14 on page 59 in the Guide & Workbook what would the recommended cooling temperature differential for out selected two way diffuser in an 8 foot ceiling application?

20O Fahrenheit

Using Table 14 on page 59 in the Guide & Workbook what would the recommended CFM for out selected two way diffuser in an 11 foot ceiling application?

450 + 800 ÷ 2 = 625 CFM

Field Notes:

Everything covered in this lesson for supply diffusers is also true for return grilles. They will have identical charts (except for the numbers). In the field it is very common for supply registers to be noisy because they are undersized it is even more common for return grilles to be undersized and noisy. Under sizing also often causes the entire system to have low airflow due to the added pressure drops. Custom or site built supply and return grilles should always be evaluated to see what the pressure drop is and if they are causing a major restriction on the HVAC system. As discussed earlier, a larger blower motor may be needed to generate the higher RPMs needed to overcome the pressure drops across undersized supply diffusers and return grilles. Warning: the resulting increase in noise level may not be welcomed by the customer! The best approach is always to try and increase the diffuser or grill size so it accommodates the design airflows at a reasonable noise level.