

GRILLES

Supply Air Grilles



SELECTION OF SUPPLY GRILLES AND REGISTERS

- The performance data which follows permits quick, easy, and accurate selection of supply grilles and registers.
- Two groups of data are required for selection:
 - * Inherently required by the structural and room use considerations.
 - * The required performance characteristics of the supply outlets.
- Consider first the spaces which are to be conditioned and their effects upon outlet selections.

m³/s

The air volume to be delivered to each space is determined by overall system design, and the m³/s per outlet is determined by the number of outlets which supply each space.

NC Level

The permissible sound level in each space may be specified by the owner or the architect, or it may be determined as an engineering design goal. Figure 1 contains an abbreviated list of design goals for airconditioning sound control in common occupancies.

Throw Requirement

The required throw is determined from the building plan. Often the throw requirement will be the distance from the outlet to the opposite wall. Sometimes it will be the distance from the outlet to the intersection of its air system with air being delivered from another supply outlet.

Fig 1 - Recommended NC Level Design Goals

NC Range	Comm tel. voice		Typical appl.
20-25	Excel	9-15m	Concert hall, sound studios
25-30	Excel	6-12m	Legitimate theaters, board rooms
30-35	Good	3-9m	Private office, ball rooms, movie
35-40	Fair	1.8-4m	Libraries, lobbies, offices
40-45	Fair	1.2-3m	Halls, corridors, cafeterias
45-50	Poor	1-2m	Supermarkets, dept stores, restaurant kitchens
Over 50	Very Poor	0.3-0.6m	Manufacturing areas

- Other items to be considered are the spread requirement, permissible drop, and acceptable pressure drop.
- The air stream should spread sufficiently so that the wall or space at the end of the throw is blanketed.
- The drop of the air stream should not be so great that it is within 1.5m of the floor at the end of the throw.
- Finally, the allowance in the design of the system for outlet pressure loss should not be exceeded.
- After the design requirements - air flow, NC level, throw spread, and drop requirements - are known, the outlet can be selected

Selection of Grilles and Registers - 19mm Louvers

- The basic selection data are given in the Tables to follow for grilles and registers having louvers on a 19mm spacing.
- For each listed air volume, the static pressure drop and two values of throw are given for each grille area factor.
- The minimum throw is the distance the air will travel to a terminal velocity of 0.64m1s; the maximum throw is the distance of air travel to a terminal velocity of 0.41m1s.
- For each m³/s and the grille size, selection data are given at three spread angles -0°, 22½° and 45°.
- NC level is coded in 5 db increments for each m³/s, spread angle, and area factor in the table.