

Justification for liberal power provision exists also in the possibility of varying demand due to changes in ventilation requirements, intensity of occupation, and weather conditions.

The motive power of fans should be determined in accordance with the Standard Test Code for Disc and Propeller Fans, Centrifugal Fans and Blowers, as adopted by the AMERICAN SOCIETY OF HEATING AND VENTILATING ENGINEERS and the *National Association of Fan Manufacturers*.

Fans may be driven by electric motors, steam engines (either horizontal or vertical), gasoline or oil engines, and turbines, but as previously stated the drive commonly used is the electric motor.

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Chapter 29

AIR DISTRIBUTION

Definitions, Grille Locations, Standards for Satisfactory Conditions, Factors Affecting Distribution for Cooling and Heating, Air Outlet Noises, Selection of Supply Outlets, Balancing System

CORRECT air distribution contributes as much or more to the success of a forced air heating, ventilating, cooling or air conditioning system as does any other single factor. Supplying the proper amount of air is one problem; properly distributing it from the point where it leaves the fan is another. The distribution problem may be further divided into: (a) distribution to the various spaces served by the system, (b) distribution in these spaces. This discussion is primarily limited to division (b), reference being made to the duct system only insofar as it affects the performance of the air distribution outlets.

Definitions

1. *Supply Opening*: Any opening through which air is delivered into a space which is being heated, or cooled, or humidified, or dehumidified, or ventilated.
2. *Exhaust Opening*: Any opening through which air is removed from a space which is being heated, or cooled, or humidified, or dehumidified, or ventilated.
3. *Outside Air Opening*: Any opening used as an entry for air from outdoors.
4. *Grille*: A covering for any opening and through which air passes.
5. *Damper*: A device used to vary the volume of air passing through a confined cross-section by varying the cross-sectional area.
6. *Multiple Louver Damper*: A damper having a number of adjustable blades.
7. *Single Louver Damper*: A damper having one adjustable blade.
8. *Face*: A grille with provision for attaching a damper.
9. *Register*: A face with a damper attached.
10. *Flange*: The portion (either integral or separate) of a grille, face, or register extending into the duct opening for the purpose of mounting.
11. *Frame*: The portion (either integral or separate) of a grille, face, or register extending around the duct opening for the purpose of mounting.
12. *Margin*: The margin of a grille, face, or register is one-half of the difference between the duct dimension and over-all dimension measured either horizontally or vertically.
13. *Fret*: The member separating the openings of a grille, face, or register.
14. *Free Area*: The total minimum area of the openings in the grille, face, or register through which air can pass.
15. *Core Area*: The total plane area of the portion of a grille, face, or register bounded by a line tangent to the outer edges of the outer openings through which air can pass.
16. *Mean Area*: The total of the core and free areas divided by two.
17. *Duct Area*: The area of a cross-section of the duct based on the inside dimensions at the point where the grille, face or register is mounted.