

DUCT SYSTEMS

by

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Introduction

Ductwork is used to convey supply air, return air, or exhaust air from the source to an outlet. Various types of duct exist and should be selected on the basis of use, and location. It must be noted, mold will grow in any duct system that is not kept clean and dry.

Types

Ductwork can be separated into two major categories – rigid and flexible. Rigid ducts can be made from sheet metal or fiberglass. The most common flexible ducts are corrugated metal or fiberglass.

Metal

Metal ducts are normally constructed of various thicknesses of galvanized sheet metal. Aluminum or stainless can also be used. Ducts can be made square, rectangular, or round.

This type of duct requires the most skill to install. A well-maintained metal duct system can last indefinitely. A metal duct system provides a tougher surface which can be more thoroughly cleaned than other duct systems. Metal duct systems are normally installed in larger projects due to its higher cost.

Insulation must be installed inside or around metal ducts which convey conditioned supply air. Internal insulation has been widely used for years; however, older versions of the insulation were difficult to

clean and presented indoor air quality problems. External insulation is more accepted, but it does have its drawbacks. Externally insulated ducts easily transmit noise down the duct and into the space. Care should be taken to install attenuation devices in metal duct to reduce the transmission of noise.

Rigid Fiberglass

Fiberglass ducts are constructed using a fiberglass core and an exterior jacket. The jacket provides a vapor barrier for the duct system. The air stream is in direct contact with the fiberglass core. Rigid sheets, one inch or one-and-a-half inch thick, can be cut to any shape and size. Round ducts are normally purchased with the diameter required. New versions of the duct board can be coated to provide a harder, more durable and easily cleaned interior surface.

Installation

All ducts must be installed per the manufacturer's recommendations and SMACNA guidelines. Duct work should be sealed with tape or mastic to provide a system with low air leakage. Main trunk lines should be rigid. Branch lines can be any material. However, flexible duct attenuates noise. Flex duct should be kept to minimum lengths and properly supported due to its high friction loss. Access panels should be installed for inspection and cleaning.

