

without being used to the best advantage. Many State codes for ventilation of public buildings make this arrangement mandatory.

In rooms without wardrobes or cloakrooms the vent flue may be located diagonally opposite the unit, and two such flues generally are desirable, one near each opposite interior corner of the room. This gives the air an opportunity to mix thoroughly with the room air before dropping to the vent opening.

Individual and Corridor Vent Flue Systems

The individual vent flue system and the corridor vent flue or central vent flue system are the methods generally used with unit ventilating machines.

The individual vent flue system, Fig. 5, provides for separate vent flues from each room.

The corridor vent or central vent outlet system, Fig. 6, provides for outlets centrally located to take care of a group of classrooms, the air passing from the classrooms, wardrobe or cloakroom to the corridor, and from the corridor to the central outlets. The grilles between the wardrobes and corridors may be near the ceiling, provided the air leaves the classroom to enter the wardrobes below the breathing line in the classrooms. A velocity of 800 to 900 ft. per minute may be used for the central outlet from the corridor.

Where the law and where the type of building construction will permit, the escaping spent air from the building may circulate throughout the attic on its way out.

Chapter 10

PIPING FOR STEAM HEATING SYSTEMS

Definitions; Data on Pipe Sizes; Systems of Steam Heating; Pipe Size Tables; Piping Connections.

DATA for the selection of pipe sizes for steam heating systems have been developed through the cooperative research investigations of the AMERICAN SOCIETY OF HEATING AND VENTILATING ENGINEERS and the *Heating and Piping Contractors National Association*. These data are the basis of the information contained in this chapter from which contractors, heating engineers and architects may select pipe sizes with a degree of accuracy that was heretofore impossible.

DEFINITIONS

Equivalent radiation means the equivalent capacity of heat-emitting units in terms of the standard capacity of cast iron radiation. (240 B.t.u. per square foot).

Piping systems for steam heating are broadly classified as one-pipe, two-pipe, vapor and vacuum systems. With any of them the condensation may be returned to the boiler by gravity or by mechanical devices.

A few of the terms used in describing these systems are defined as follows:

Air-Vent systems may be one-pipe or two-pipe and are essentially systems of steam circulation which have air valves at the radiators and which work in cycles, generating enough pressure to eject the air, then letting the pressure run down preparatory to another cycle. The use of non-return air valves does not change such systems from being air-vent systems, though they might logically be called air-vent vacuum systems.

Vacuum systems are two-pipe systems, with the heating elements equipped with outlet traps which drain to a power driven pump or its equivalent which removes the air and the condensation.

Vapor systems are the same as vacuum systems except that some air eliminating device other than a pump removes the air while the condensation returns by its own weight to the boiler, or to a receiver, which must be lower than the radiation. If the plant uses a condensation pump rather than a vacuum pump, it is still a vapor rather than a vacuum system.

Differential vacuum systems shall be defined as those which operate with a fixed differential between the radiation and the return line, and with steam supplied to the radiation at pressures below or above atmosphere.