upward immediately at the unit, with sufficient horizontal component to carry it to the most remote point in the room. Such a distribution permits the cool air to drop slowly over the entire zone and return to the inlet of the unit below the breathing line and along the floor. The location of doorways, air vents, and heat exposed walls should be carefully observed, as they have a marked effect on the direction of the air flow and on its uniformity of temperature.

With the suspended type of unit, located within the conditioned space, sufficient outlet air velocity should be provided to give adequate induction and mixing with the room air thereby preventing the immediate dropping of the air stream and resulting objectionable cold drafts.

Where the units are located outside the conditioned space, air distribution is more frequently provided through multiple outlets located in ducts from the conditioning unit. The location of these outlets is quite

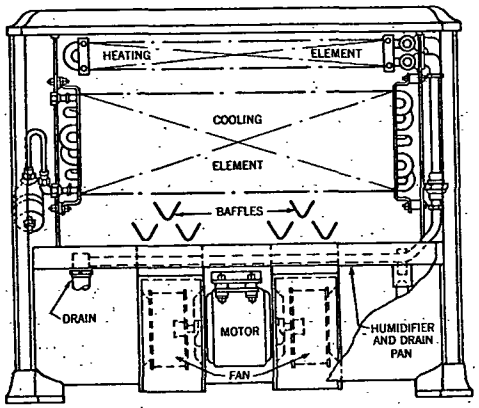

FIG. 10. FLOOR TYPE HEATING AND COOLING UNIT

critical and is influenced both by the building construction, economies of connections and by the distribution of load.

There are a wide variety of outlet types used, and most of these have fixed delivery characteristics, thus requiring careful consideration in their location. Some types of outlets are now available with adjustable vanes thereby permitting some alteration in the delivery of the air stream after installation. This frequently eliminates objectionable down drafts resulting from the impingement of the air stream against posts, pillars, lighting fixtures, and beams.

TYPES OF UNITS

Several types and designs of air conditioning units in production and proposed are available for selection. New designs are constantly appearing, with new improvements, greater capacities, wider range of application and superior construction. It will be impossible to cover in this chapter the many types of construction on the market. Illustrations

of current makes and models will be found in the *Catalog Data Section*. A few typical designs of conditioning units will be described in detail.

An all-year floor type heating and cooling unit for an exposed location and with direct expansion coil supplied with refrigerant from a remotely located compressor is shown in Fig. 10. A cooling coil for use with chilled water may be substituted for the direct expansion coil indicated. The fans below the separate cooling and heating elements deliver the air against deflectors thereby obtaining distribution across the face of the element and preventing condensate from dripping down into the fans. The plate upon which the fans are mounted serves as the drip pan from which the water is conducted to the drain. Separate elements are used for heating and for cooling. Thus this unit may be used automatically for heating and cooling without manual control. When the unit is used for summer conditioning only, the heating coil may be omitted for the

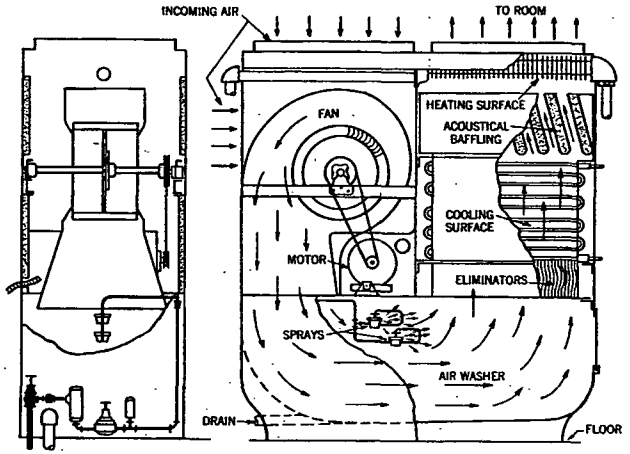

FIG. 11. CONDITIONING UNIT WITH TOP INLET AND OUTLET

installation. The illustration indicates an evaporative type humidifier and drain pan.

Other units are available in which a target spray humidifier is substituted for the evaporative type thereby providing a unit for summer cooling and dehumidification, at the same time supplying humidification in winter for application in rooms with other existing heat sources.

Still another unit is available in which the fans are mounted at the top of the unit delivering directly through a grille and drawing their air supply through the cooling and heating coils. Other variations in proportion and details of construction of this general arrangement are common. With this type of unit, ventilation is usually provided by means of a separate duct connected to the inlet of the unit.

An entirely different arrangement shown in Fig. 11 places both the air inlet and the discharge at the top of the unit. The fan at one side discharges the air downward to the bottom where it turns and passes hori-