

adequate induction and mixing with the room air thereby preventing the immediate dropping of the air stream and resulting objectionable cold drafts. This is one of the limitations to the size of such suspended units inasmuch as it is difficult to distribute from one point a large refrigeration tonnage without cold drafts.

Where the units are located without 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 critical and is influenced both by the building construction, economies of connections and by the distribution of load. Normally with a cooling system, it is desirable to blow the conditioned air toward the exposed walls or windows. This delivers the cool air to the point where it is most needed. These problems are discussed in considerable detail in Chapter 19.

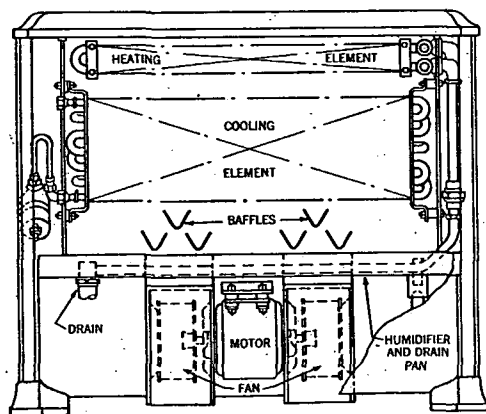


FIG. 10. FLOOR TYPE UNIT CONDITIONER FOR HEATING AND COOLING

There are a wide variety of outlet types used. 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.

Construction of Apparatus

The types and designs of air conditioning units in production and proposed are legion. 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.

Fig. 10 shows an all-year floor type conditioning unit for exposed location and with direct expansion coil supplied with refrigerant from

a remotely located compressor. A cooling coil for use with chilled water can 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 installation. The illustration indicates an evaporative type humidifier and drain pan.

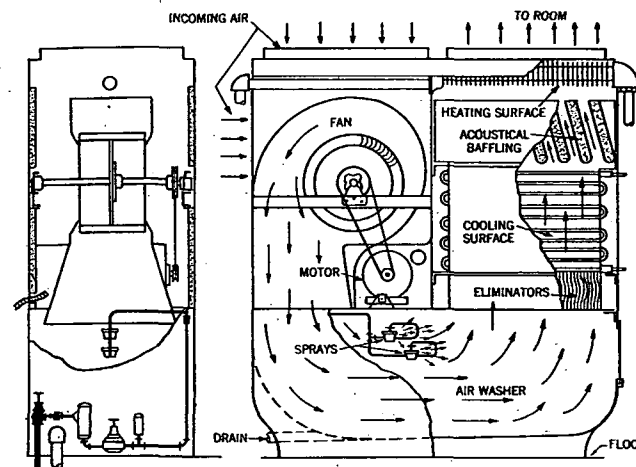


FIG. 11. CONDITIONING UNIT WITH TOP INLET AND OUTLET

Other units are on the market 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 conditioner, 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 horizontally through an atomizing spray air washer. The path then continues upward through eliminators, a cooling surface and a heating surface before it leaves the unit. With steam or hot water connected to the heating element, tempered water to the sprays and refrigerated water to