locate the equipment adjacent to the conditioned area, with supply and return duct connections. Compressor compartment heat is removed by the same methods described previously.

On water units of the vertical type of 5 hp and under, use is made of air distributor headers, equipped with directional louvers, on one or more sides, for discharging the air directly into the conditioned space in which the unit is located. Above 5 hp this method usually becomes impractical and a system of ducts is employed. Arrangements for outside air supply are similar to those in central plant design, although simpler, hand operated dampers are usually employed.

Accessory equipment for the self-contained unit conditioners includes heating coils, humidifiers, and controls for utilizing the unit for winter

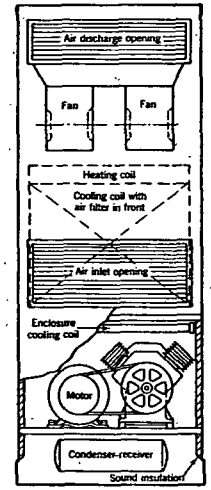


FIG. 2. SELF-CONTAINED WATER-COOLED AIR CONDITIONER

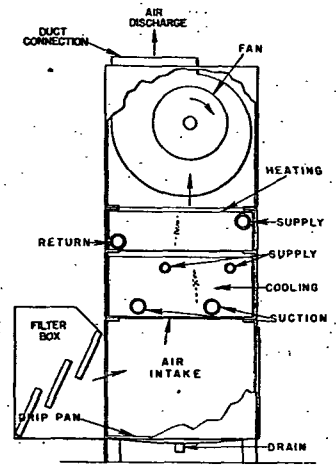


FIG. 3. VERTICAL REMOTE TYPE UNIT AIR CONDITIONER

heating and ventilating. Refinements of dust and odor control and constant temperature and humidity regulation are considered to be special application problems with this type of equipment.

A typical unit with water-cooled condenser is illustrated in Fig. 2. The header arrangement permits air distribution in several directions, and in such a way as not to fall on the room occupants. All side panels are removable for complete access to equipment. It is only necessary to bring water, drain and electrical service to the unit, and a source of heat if desired.

Remote type units cover a much broader range of size and application and generally are used in connection with or in lieu of a central plant system. They may be used individually or in groups in the place of self-contained equipment.

Without the weight of the refrigerating equipment, these units may be suspended from roofs or ceilings, or located wherever space permits on roofs and in basements, or in the conditioned area itself. All combinations of filtering, humidification, cooling and heating may be

employed, with control as elaborate or as simple as is required. The remote unit is particularly adaptable where a variety of application conditions is to be met from a single source of refrigeration, such as the modern industrial plant which may have a laboratory, executive offices, a cafeteria, together with various processing departments.

The cooling and heating mediums, consisting of a refrigerant, chilled water or brine, and steam or hot water, are piped to the units, and transfer takes place by means of coils, or in the case of air washers, by means of water or brine sprays in the air stream, or a combination of the two.

The floor mounted or vertical type and the suspended or horizontal type of remote units are respectively shown in Figs. 3 and 4. The cabinets are generally of sheet steel, insulated to prevent heat transfer, finished to

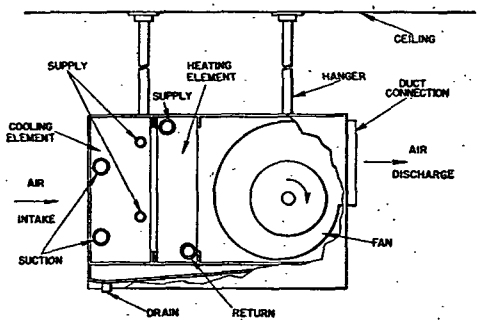


FIG. 4. HORIZONTAL REMOTE TYPE UNIT AIR CONDITIONER

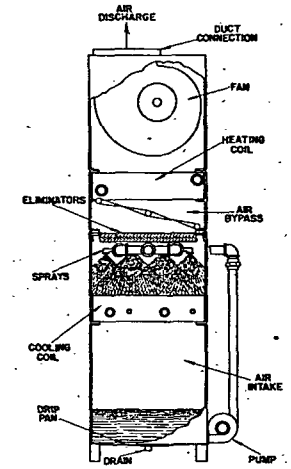


FIG. 5. (*right*) SPRAY TYPE REMOTE UNIT AIR CONDITIONER

prevent corrosion and suitable for applying additional decoration if desired.

A spray type remote unit is illustrated by Fig. 5. Many designers prefer the air washing and coil wetting features. Air is circulated by means of attached or built-in fans, delivering the conditioned air through a system of ducts which include outside air connections if desired.

Some types of units, mostly those suitable for suspension, employ a propeller fan such as in Fig. 6. These are located in the conditioned area, are without ducts and seldom do more than cool and dehumidify, due to the design of the propellor fan for moving air against low resistance. Generally these units are provided with a lint screen instead of filters to limit resistance to air flow.

Individual floor mounted type remote units are available for use in offices or hotel rooms. Similar in appearance but somewhat smaller in size than the self-contained room unit, this form of equipment may be grouped:

1. Mechanical, year 'round type containing blowers, filters, humidifiers and coils, with outside air connection. Manual or automatic controls provided with each unit.
2. Mechanical, semi-year 'round type with no outside air connection, containing