Self-contained air conditioning units for stores and other commercial establishments have achieved prominence in the last few years. These units range in capacity from 1 to 15 hp. The equipment is enclosed in steel casings and in sizes up to 10 hp is finished to harmonize with the interior of commercial establishments. The units use water cooled condensers and are designed for floor mounting. Units in sizes up to and including 5 hp usually include air distributors to discharge the air directly into the conditioned space, thus eliminating the cost of duct work. The air distributors are adjustable to direct the air flow in such a manner to provide even air distribution in the space being conditioned. These units may use 100 per cent recirculated air or may supply quantities of ventilation air by means of a duct connected from outdoors to the inlet of the unit.

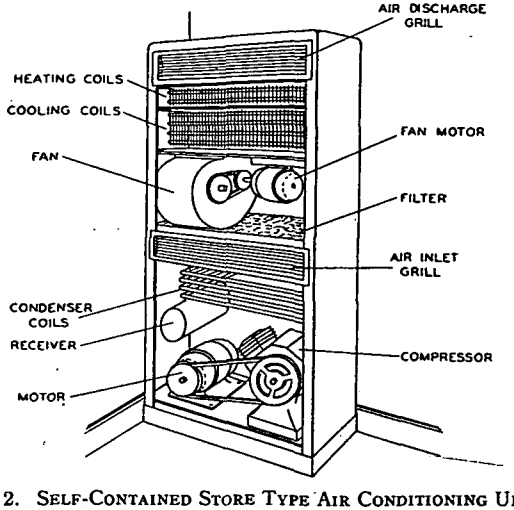


FIG. 2. SELF-CONTAINED STORE TYPE AIR CONDITIONING UNIT

Self-contained store units above 5 hp are usually located adjacent to the conditioned space and ducts connected from the unit to outlets in the conditioned space. This is necessary because it is not usually possible to evenly distribute the large volumes of air handled by these units from a single air distributor. The larger units are therefore not as decoratively finished since they are placed outside the conditioned space.

Another problem in the design of these units is to provide a means of removing the heat of compression and the heat of the motor from the unit. This may be done by a small water cooled cooling coil placed inside the condensing unit compartment. The same water is passed through the water cooled condenser. In the larger sizes, the enclosure around the condensing unit is perforated or screened so that the ambient air removes the condensing unit heat. This is possible since the units are placed outside the conditioned space and appearance of the unit is not a major factor. A third method used with units located in the

conditioned space is to pass some of the recirculated air through the condensing unit compartment then up into the air conditioned section. This method reduces the net cooling effect of the unit since some of the cooled air is used to remove heat from the condensing unit enclosure.

Store units usually provide for the inclusion of heating coils and humidifying equipment as optional equipment where winter ventilation and circulation are desired.

A typical self-contained store air conditioning unit is illustrated in Fig. 2. In this particular unit the air enters a grille located at the front of the unit, passes through a filter, and is discharged by a blower through a cooling and heating coil to an adjustable discharge distributor. The air is delivered in a manner to insure good distribution without being directed at the occupants. In some designs the air may be discharged

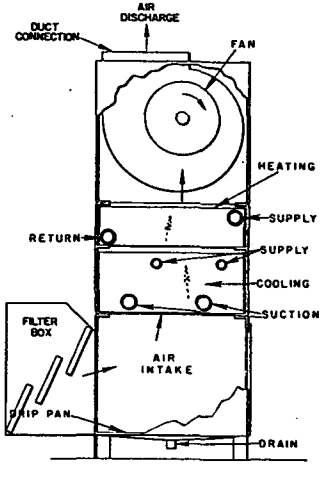


FIG. 3. VERTICAL REMOTE TYPE AIR CONDITIONING UNIT, YEAR 'ROUND

from the sides of the unit as well as from the front. The refrigerating effect is furnished by a reciprocating compressor belt connected to a motor, all mounted on a resilient base to reduce vibration. The heat dissipated by the condensing unit is generally removed by water cooling. Panels are removable for servicing and replacement of filters. The motor starter and other controls are mounted inside the enclosure and the unit may be operated either as a cooling unit or circulating unit by using the manual switches mounted on the side panel, or it may be automatically controlled by means of a thermostat.

Remotely located air conditioning units vary widely in details of construction and are different from the self-contained type of unit in that the sources of refrigeration or heating are not enclosed in the unit.

The vertical floor type remote unit shown in Fig. 3 consists of a fan section, housing one or more fans, mounted on a coil section in which are located a heating coil and a cooling coil, which may be built for