

rooms for ship's personnel and offices within conditioned passenger areas. Third class staterooms are air conditioned on some ships, depending on the particular trade. Theaters, lounges, smoking rooms, beauty shops, barber shops and similar closed public spaces are usually air conditioned.

All messrooms, recreation rooms, captain's and chief engineer's state-rooms and offices, crew's inboard rooms and those having fixed portlights are usually air conditioned on passenger vessels. Other living spaces are air conditioned on some ships and only ventilated and heated on

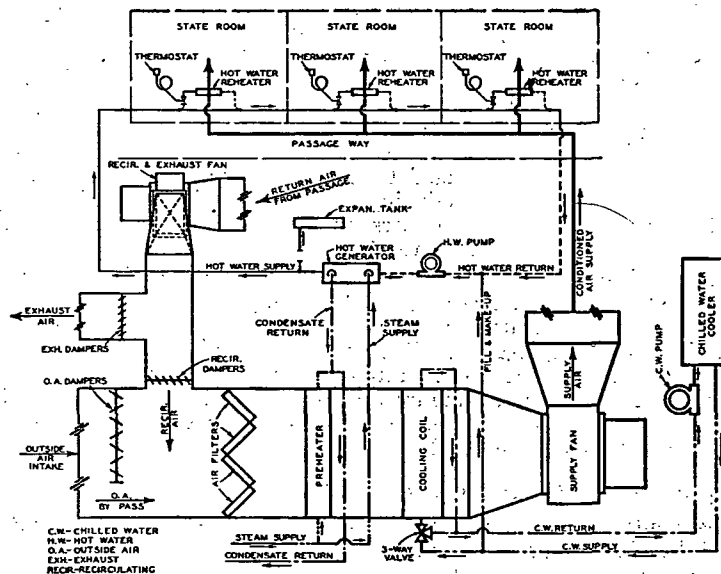


FIG. 1. ARRANGEMENT OF AIR CONDITIONING SYSTEM WITH CENTRAL SUPPLY EQUIPMENT AND INDIVIDUAL HOT WATER ROOM REHEATERS

others. The treatment depends on the requirements of the operator and the proposed itinerary of the vessel.

TYPICAL SYSTEMS OF COMFORT AIR CONDITIONING

The various types of comfort conditioning systems used to date generally have followed conventional lines, except for those serving staterooms, offices, and similar small spaces. Large public spaces are fitted with individual systems which supply dehumidified and cooled air during the cooling cycle and warm air during the heating cycle. In many cases these rooms are fitted with large glass windows and doors, and require direct radiation to offset the downdraft which would occur in cold weather. Finned-tube radiation running the full length of the glass area is commonly used for this purpose.

Systems serving most public spaces are designed to provide all outside air as long as the refrigeration load is less than the capacity of the cooling equipment. Many central systems are simplified by using 100 per cent outside air all-year-round.

An important problem in ship air conditioning concerns the treatment of the small spaces such as passenger staterooms, offices, and crew quarters. Low headroom, congested quarters, double berths, and unsymmetric arrangements make each space a problem in air distribution and treatment.

The simplest system used for small spaces consists of a central filter bank, supply fan, preheater, and cooling and dehumidifying coil. Zone

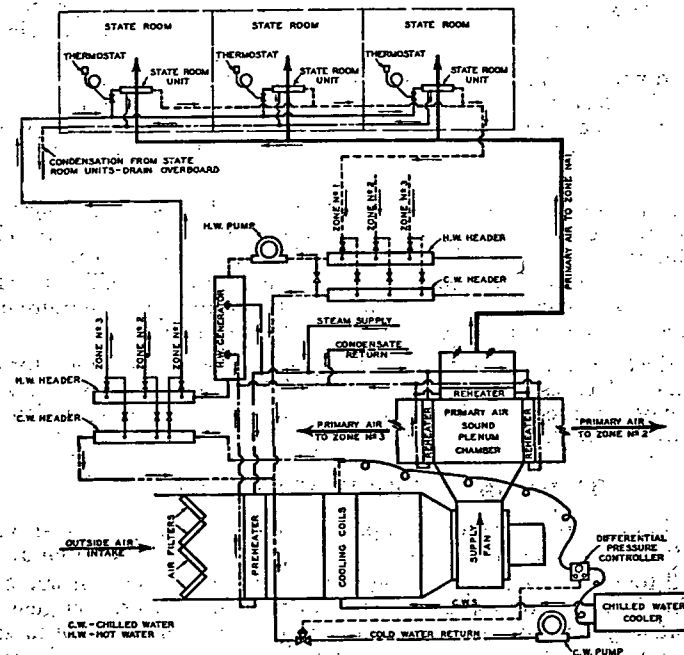


FIG. 2. ARRANGEMENT OF AIR CONDITIONING SYSTEM WITH CENTRAL SUPPLY EQUIPMENT AND INDIVIDUAL ROOM INDUCTION UNITS

reheaters are provided to take care of variations in heating loads. Control of room temperature is achieved by manual dampers in the air supply to the space. A recirculation-exhaust fan is provided, which operates in conjunction with automatic dampers to utilize the maximum quantity of outside air consistent with the capacity of the cooling coils. Manual speed reduction, without recirculation, is normally provided during the heating cycle. This system is used principally for third class, crew, and officer's accommodations. The average total air per person is about 45 cfm, and average outside air about 15 cfm.

A more popular system utilizes the same central supply equipment and recirculation-exhaust system as the one just described, except that the zone reheaters are omitted. Each space is provided with a small hot water reheat, automatically controlled by a room thermostat. Heat is provided through a forced circulation, single pipe, hot water system in most cases. Fig. 1 shows a diagrammatic arrangement of this system. It