

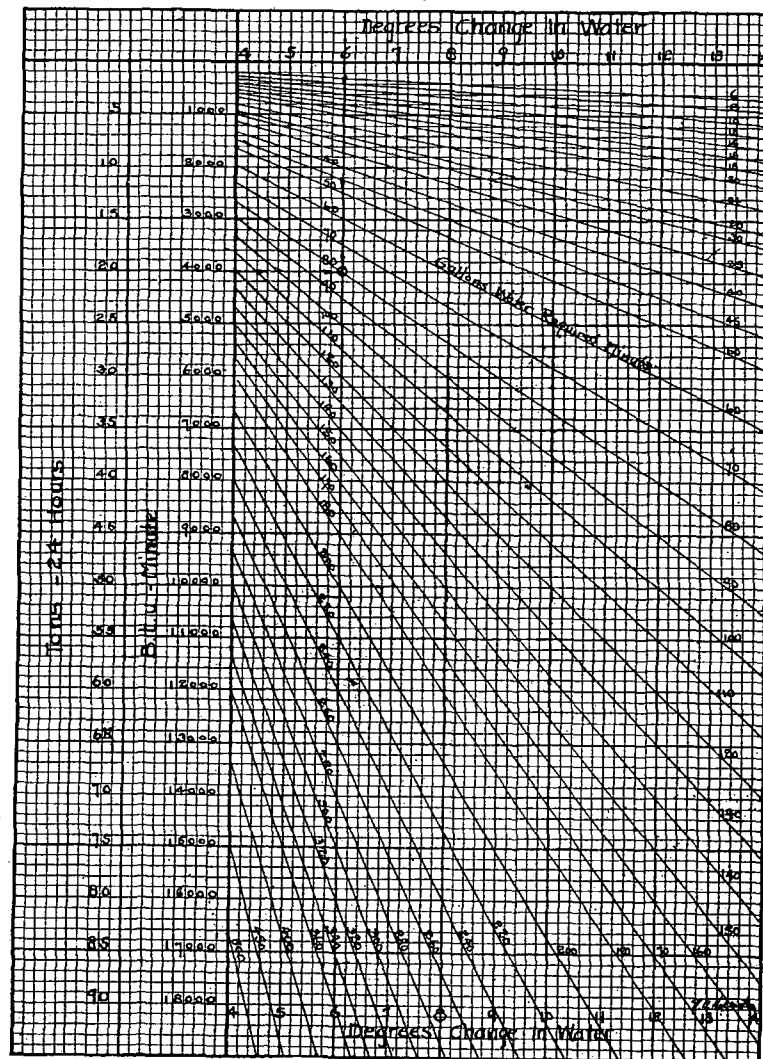


FIG. 77. GALLONS WATER REQUIRED PER MINUTE

1. Cheap method of securing an enormous radiating surface for heat transfer from the air.
2. Continuous cleaning radiating surface
3. Elimination of all frosting of the coils with the accompanying lowering of heat transfer from coil surface
4. High heat transfer from liquid to coil surface

With the comparatively small temperature differences encountered in such work, as 40 deg. water and 55 deg. air, the need of considerable heat absorbing surface is apparent. When water is sprayed the heat transfer must take place on the surface of the drops and the square feet of surface will depend upon how finely the water is divided. Ten gallons of water sprayed and divided into spheres of 0.25 in. diameter gives about 380 sq. ft. of drop surface. If divided into drops of 0.10 in. diameter spheres, the surface increases to about 1000 sq. ft. The water is divided into almost invisible drops and the square feet of radiating surface secured will make a heat transference which would require a large and expensive coil.

With water flowing over the cooling coils the rate of heat transfer is many times that secured with air passing over the coils even when the coils are dry and not frosted. With the correct design and proportioning 40, 50, or even 60 B.t.u. per hour per sq. ft. per deg. difference may be obtained in practical commercial units as compared to the 2 B.t.u. or 6 B.t.u. from dry coils to air. The high transmission from water to coil, frosting disadvantages and other factors all combine to necessitate much less water-to-coil surface than coil-to-air surface with an accompanying saving of cost, space, and weight.

LOW POWER FOR DRIVING COMPRESSOR

Many air conditioning installations are operated 24 hours per day and on every installation the power used for operation is important. The higher the ammonia temperature, the lower the power used by the compressor.

CLEANING UNIT

When using the coil-to-air bunker room designs in order to get contact between the coils and air, the coils must be close together, arranged in some staggered form or with deflectors and baffles. Such arrangements make it almost impossible to allow for proper cleaning.

Dirt collects on the wet surfaces as on the wet eliminator or scrubber plate surfaces in the dehumidifying unit but in the bunker room there is no flow of water to clean the surface. Fungus slime frequently collects which, together with rust and dirt and matter carried in by the air, makes cleaning desirable, if not an absolute necessity.

With the spray method the flowing water keeps all surfaces cleaner and the draining of the tanks gives a ready means of carrying away all matter collected.