



Noise & Noise control in Airconditioning

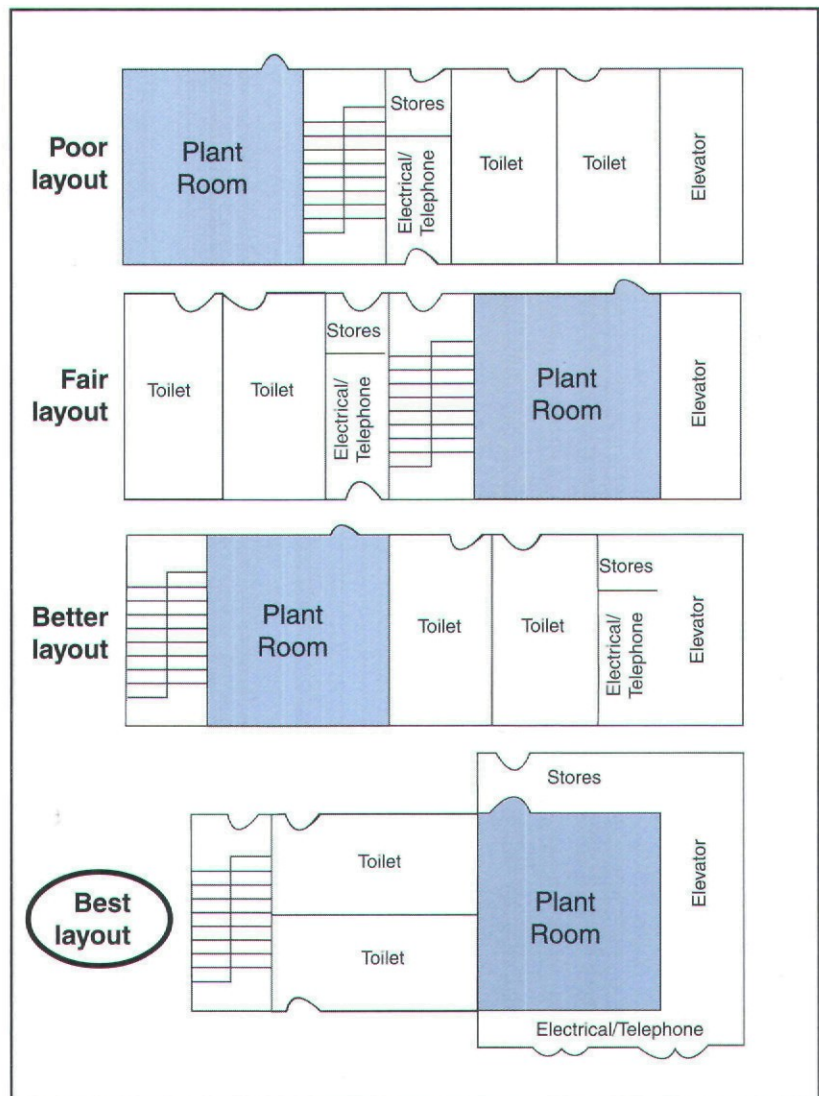
Sound is a result of vibration of air. When sound is unpleasant it is referred to as 'Noise'. In an airconditioning system sound emanates from the machinery such as fans, fan motors, compressors, pumps, air flow through ducts and diffusers, pipes & tubes and cooling tower fans.

The solutions are a) to reduce the original source of the sound by using well designed equipment; b) enclose the source in acoustically insulated space; and c) to absorb the sound using sound absorbing material.

- It is a practice to mount vibration producing machinery on anti-vibration mounts such as cork, rubber, springs and 'cushioned feet'. Plant rooms are acoustically insulated to prevent the machinery sound from permeating into the airconditioned space.
- Ducts are fitted with sound attenuators which work somewhat like the mufflers in the exhaust pipe of a car. In addition acoustic insulation is used on some portions of the duct, near the AHU discharge, where it is most prone to making noise.
- Pipes are insulated from the walls it passes through so that the vibrations are not passed into the structure.
- Cooling towers using Axial Fans are a little more noisy than those using Centrifugal fans. In the induced draft cooling tower the sound is higher at the fan discharge side of the tower. It is desirable to arrange the fan discharge side in such a way that windows do not overlook it.



- Inside the conditioned space, some noise can make an entry through the diffusers. Carpets and curtains inside the space help to dampen sound.
- Locating the plant room properly will help reduce noise levels within the conditioned space. We give below some examples of poor to best positioning of the plant room.



Best layout because the Plant Room is surrounded on four sides by utility areas, therefore less sound is transmitted to human occupied areas.

Fig. 48. Suggested positioning of Plant Room