

## CHAPTER 3 - ACOUSTIC COMFORT

400

### 403.02 SILENCERS



#### INTENT

To improve building acoustic performance by utilising suitable noise reduction strategies in mechanical systems.

#### REQUIREMENT

For all new buildings, the mechanical systems must be designed, equipped and selected with noise control materials, to reduce the transmission of sound and noise through these systems.

Systems include HVAC, air ducts, water pipes and its suspension and installation requirements.

#### SIGNIFICANCE

Well-designed buildings tend to incorporate efficient acoustic design. This is required as sound can affect the building occupants, physiologically and psychologically. In mechanical systems, airflow tend to generate turbulence, noise and rumble.

The adverse effect of noise varies between various building typologies. In educational facility, background noises affect student's learning ability, while in a healthcare facility it can affect the patient's healing outcome. Hence, it is important noise control materials are considered to reduce the transmission of sound and noise.

By the control of excessive noise, building's acoustic environment is maintained thereby increasing workplace comfort and productivity.

#### APPLICABILITY

This regulation is applicable to all building types. Refer to Table 101.07(1) in Section One - Administration for detailed applicability levels.

#### IMPLEMENTATION

The objective of this regulation is to design and select noise control materials to reduce the noise generated in the mechanical systems which includes air handling units, ductwork, cooling towers, chillers, piping networks, pumps and ventilation fans.

Sound generation occurs over a wide range of frequencies. Acoustic analysis of transmission of sound and noise considers measurement of sound at varying frequency levels as perceived in a particular environment. Human ear can perceive sounds at frequencies ranging from 20 Hz to 16,000 Hz.