



## **Acoustics**

### ***Standard Scope of Acoustics Services***

#### **Stage 1- Schematic Design: -**

- a. Define all areas requiring control reverberation time and specify design reverberation time (RT). B.
- b. Define all areas of construction, which require Sound Transmission Class (STC) performance.

A review of the proposed, Architectural, Interior, M&E practically achieving the functional design goals. This whole is divided into two areas:

Architectural acoustics.

Mechanical acoustics.

#### **Stage 1(a) - Architectural Acoustics: -**

- a. General review on design schemes. This will relate to advice on the acoustic implications of the building zoning in achieving design goals.
- b. Studies on the building design and construction. This will relate to the acoustic adequacy of the proposed floor slabs, partitions and external facade.
- c. Define all noise sources and estimation of noise intensities. This will be in the form of maximum sound power levels from mechanical plant estimation of occupancy noise level for various areas. Surveys will be required of prevailing ambient noise levels around the site to determine required facade sound insulation and maximum allowable intake / discharge noise levels.
- d. Preparation of sketches and details suggesting the detailing required maintaining acoustic integrity. This will relate to the specification of additional treatments to proposed construction to meet the acoustic design goal.
- e. Definition of areas that require absorptive treatments. This relates to areas that either require treatment to reduce reverberant noise levels at source or areas that have a requirement for the reverberation control to ensure a correct acoustic environment. This will include a review of proposed surface finishes and recommendation where appropriate.

#### **Stage 1(b) - Mechanical Acoustics: -**

- a. Design study of building services related noise by consultation with the design team and manufacturers. This will relate to acoustic requirement for all mechanical and electrical plant in terms of maximum sound power levels.
- b. Review of major plant installation i.e. chiller and diesel generator and provision of recommendations for noise control units or mechanical room treatment.
- c. Specification of sound attenuator requirements in terms of dynamic insertion loss, pressure loss and optimum location. Review and advice regarding velocities of airflow to ensure that regenerative airflow noise is minimized.
- d. Detailing acoustic requirements for duct and pipework penetrations and junctions.





- e. Review of acoustic requirements to control noise from fan coil units and grilles.
- f. Provisions of recommendations for control of vibration from all mechanical plant installations.
- g. Submit samples of materials, brochures and product. (General)

### **Stage 2 - Design Development and Reports: -**

- a. Provide specific design concepts to critical areas, for design team comment and review.
- b. Sketch detailing and finalising of design requirement after suitable liaison with the design team and their acceptance.
- c. Design of noise enclosure in the plant room level with isolation springs/ pads and silencer schedules as necessary.
- d. Submit specific brochures of materials and products.
- e. Attend design meetings, as required, when on visits to the site.
- f. At this stage of finalisation to the design intent we will issue formal technical reports clearly stating all pertinent information. This will be divided into architectural and mechanical issues.

### **Stage 3 - Contract Documentation, Costing and Review: -**

- a. Preparation of acoustical particular specification on architectural and mechanical work.
- b. Review draft project specifications and make additions and amendment to particular items (if required).
- c. Provide advice to Quantity Surveyor on cost estimations and provisional allowances for items related to acoustic.
- d. Review all tender documents pertaining to architectural and mechanical acoustics and make comments and recommendations and issue reports as when necessary.

### **Stage 4 - Final Building Check: -**

- a. Ensure all recommendations are implemented correctly without compromising the acoustic design.
- b. Inspection and measurements of architectural and building installation will be required.
- c. Provide testing and measurement with approved measuring equipment. Carry out Noise Criterion (NC) test to all areas, Reverberation Time (RT) and Sound Transmission Class (STC) tests (for operable wall ratings).
- d. Submit a final building check report covering all Areas that have been reviewed and documented and issue a defect listing and recommendation for remedial solutions.

*Note: Time at site is billable on a daily rate basis.*

