



Acoustics, Noise & Vibration Control

Thornton Tomasetti

Acoustic, Noise & Vibration Considerations for Building Design

Summary

This seminar includes an overview of the basics of sound, and how it interacts with a building. An overview of room-acoustics is presented, focusing on how sound can move within a room to produce a pleasing environment for various uses. Consideration is given as to how an acoustics consultant can work interactively with the architecture team to produce a space that is pleasing to both the eye and the ear. Sound-isolation techniques to block the transmission of unwanted noise are presented, with several avoidable pitfalls demonstrated. Controlling the transmission of building-service equipment noise is discussed, covering mechanical, electrical and plumbing systems.

This seminar also includes an overview of the basics of vibration, and how it causes a structure to react. Vibration criteria for human comfort and ever-improving, sensitive equipment are discussed. The means by which vibration sources are identified in the field are presented, and whether a site can be made suitable for its intended use is discussed. Methods of isolating mechanical equipment are summarized, with several examples illustrated. Finally, basic and advanced methods of predicting footfall-induced vibrations are shown, highlighting the advantages and limitations of each.

Select project examples will be presented which highlight the importance of these issues.

Learning Objectives

1. Develop an understanding of how sound and vibration move throughout a building.
2. Develop an appreciation of noise and vibration criteria, and how they can drive the design of a building.
3. Understand how to block the transmission of unwanted noise and vibration from outside and between spaces in a building. These sources can include mechanical, electrical and plumbing services, footfall, transportation and construction.
4. Learn how an acoustics and vibration consultant can work interactively with the design team to produce a space that is aesthetically pleasing and suitable for its intended occupancy.

Presentation length: 60 minutes.

To schedule a presentation for your firm, email AcousticEd@ThorntonTomasetti.com.