Thornton Tomasetti

Acoustic, Noise & Vibration Considerations for Building Design 2023.

Presentation length: 60 minutes.

1 HSW LU from AIA

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.

Learning objectives:

- Explain noise and vibration criteria, and how they can drive the design of a building.
- Explain 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.
- Describe how sound and vibration move throughout a building.
- Describe 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.

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

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