

ART 2640, Building Systems of Interior Environments

Fall Semester 2020

Tuesdays & Thursdays 10:30-11:50

Online

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Acoustics in Interior Architecture

Concert Hall Acoustics

Some of the questions that arise when design and acoustics come together:

- The human relationship between sound and architecture.
- Sound, noise, and vibration what's the difference?
- The fundamental relationship between architecture, shape, form, volume and materials.
- Acoustics and the design process

[United States Gypsum \(USG\) Acoustics Matters](#)

Some of the components in the study of acoustics:

- Speed of sound, frequency, and wavelength.
- Fundamentals of sound propagation
- Sound Propagation, Representation & Measurement
- Sound Transmission mechanisms
- Sound isolation
- Acoustic properties of materials
- Noise and vibration theory and criteria
- Noise and vibration control from building systems and its implication on architectural design

Acoustic Bricks

Acoustic issues in designing interiors:

- Fundamentals of sound in enclosed spaces
- Surface material and geometry sound absorbing, reflecting and diffusing properties
- Relationship to human perception
- sound reflection sequence, sound in 3d, reverberation
- Good and bad examples of acoustics in the built environment
- principles of architectural acoustics: how we hear and perceive sound both indoors and outdoors,
- what are appropriate criteria for listening environments and privacy, and how architectural decisions of layout, materials, room shape, and design impact what we hear in and about a space.

- [USG 'Ensemble' Acoustical Drywall Ceiling](#)
- [Elbphilharmonie Concert Hall, Hamburg, Germany](#)
- [How Sound Works in Rooms](#)