Assembling all puzzle pieces

Due Date: 2024-11-21

Document all your work in a post on the course website.

In this acoustical assignment, you analyze a room by identifying its primary function. By consulting specifications from industry standards and design guidelines determine the acoustical design criteria. From assessment of acoustically significant surfaces, Sabine and Eyring calculations you adjust a model to match measured reverberation times. If necessary, discuss errors of measurement or model.

Your final evaluation determines if the room is adequately treated acoustically, proposing modifications or additional treatments based on your analysis to enhance the room's design for optimal acoustics if applicable.

For this summarization you can also copy-paste from previous assignments.

Instructions

Visit your favorite room / space and discuss the following points.

- What is the primary function of the room and why?
- Which specifications, standards, guidelines are applicable? If no inputs can be found in the documents, consult the internet and choose a suitable specification.
- Where are acoustically effective elements (absorbers) located?
- How are they designed (approx. areas, materials, presumed absorption properties in the high-frequency range, mid-frequency range, low-frequency range)?
- Which furnishings could favor the diffuse reflection of sound?
- Is there anything special to note about the geometry of the room (concave, convex surfaces, extended parallel surfaces, etc.)?
- Which surfaces are particularly sound-reflecting?
- How are the absorbers positioned (rather clustered or limited to one area, or balanced overall room surfaces)? Is this arrangement acoustically suitable or are the measures simply positioned 'where there's some space'?

- What is the visual impact of the acoustic measures, how are they integrated into the architectural language of the space?
- Measure the reverberation time of the room, or rely on the reverberation times you have already empirically determined.
- Try to get the full picture. Compare primary use, acoustic specification, acoustic treatments, simple calculations and measured room acoustic criteria.
- Reasoning: Suggest further suitable acoustic measures and justify them, if needed. If the room is acoustically treated correctly, explain why - based on the primary use, the acoustic specification and the measurements.