MASTER'S DISSERTATION AT ENGINEERING ACOUSTICS

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THE EFFECT OF FURNITURE ON ROOM ACOUSTIC PARAMETERS AND ITS DEPENDENCE ON DIFFERENT SUSPENDED CEILINGS' SOUND ABSORPTIVE PROPERTIES

BACKGROUND

In ordinary public rooms such as classrooms and offices, the baseline of acoustical treatment is an absorbent suspended ceiling. Due to the non-uniform distribution of the absorptive material, the scattering as well as the absorption properties of furniture will have a significant influence on room acoustic parameters such as reverberation time, speech clarity and sound strength. In particular, the absorption of the sound scattered energy will depend on the absorbing efficiency of the suspended ceiling. This effect is not accounted for in classical diffuse field models such as the Sabine formula.

AIMS AND METHODS

This paper investigates the effect of the scattering and absorptive properties of objects in a room and how it depends on different types of suspended ceilings. Using Sabine formula and the Statistical Energy Analysis model, this study aims to analyze (i) the effect on room acoustic parameters such as reverberation time, speech clarity and sound strength as well as (ii) how the equivalent scattering absorption area is related to the absorbing efficiency of the suspended ceiling.

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