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(Research Article)
1/3 Octave band analysis of physical form in the great historical mosques of Tabriz

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Abstract

Mosques are among the buildings that sound has a special role in the explanation of their quality. It seems that different physical forms in mosques also play a role in the field of acoustics, domed, columned and arched buildings offer different qualities of sound. To analyze this feature, the current study has selected 5 samples of large historical mosques in Tabriz as a study sample, which are classified into 5 formal groups. The method is field research based on ISO3382 and visual surveys and Background Noise, Sound Pressure Level and Reverberation Time were measured in the empty position of the samples and at two standing and sitting heights to simulate the prayer positions. Findings of the study consider the arched form to have a balanced behavior, evaluating the maximum RT both at standing and sitting position at a frequency of 100 Hz and related to the domed sample. Another part of the findings, according to the visual surveys, shows that the combination of spatial elements plays a great role in the distribution of sound, and the scattering of the main frequencies of the speech in all the mosques is desirable and intense.

Keywords: Architecture, Acoustics, Physical form, Great mosques.

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