

Prediction of Heavy-Weight Impact Noise and Vibration of Floating Floor Using Modified Impact Spectrum

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Abstract : When an impact is applied to a floating floor, noise and vibration response of high-frequency range is reduced effectively, while amplifies the response at low-frequency range. This means floating floor can make worse noise condition when heavy-weight impact is applied. The amplified response is the result of interaction between finishing layer (mortar plate) and concrete slab. Because an impact force is not directly delivered to concrete slab, the impact force waveform or spectrum can be changed. In this paper, the changed impact spectrum was derived from several floating floor vibration tests. Based on the measured data, numerical modeling can describe the floating floor response, especially at low-frequency range. As a result, heavy-weight impact noise can be predicted using modified impact spectrum.

Keywords : floating floor, heavy-weight impact, prediction, vibration

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