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Acoustic and vibration characteristics of floated floors concrete structures

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The floating floor with multi-layers of resilient materials was investigated for the isolation of floor impact sound. The floor structures were evaluated in the reduction of the heavy-weight impact sound, which is mainly affected by the boundary conditions of the tested floors. The values of single-number ratings for floor impact sounds decrease dramatically for floated floors. Insertion loss is determined by the vibration characteristics of a bare slab, such as transmissibility. The logarithmic decrement (ξ) of the vibration responses was 4 times higher than that of the bare slab. Above 125 Hz, the vibration between the slab structure and floating floor is isolated effectively. It was revealed that the resonant frequency of the slab structure and the damping factor of the floating floor are important aspects for impact sound isolation.