

Contribution of the Mode Vibration to Heavy Weight Floor Impact Noise

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Jae-Seung, Hwang Hong-Gun, Park Dae-Ho, Moon

Key Words : Vibration Mode(), Heavy Weight Floor Impact Noise(), Residential Houses (), Numerical analysis ()

ABSTRACT

The floor impact noise arising between upper and lower households in residential houses has been known as one of major causes worsening residential environment and still led to serious social troubles in a residential community. It is known that the heavy weight floor impact noise is induced by flexural vibration modes in the relatively lower frequency ranges. In this study, a procedure is examined to evaluate the relations between the vibration modes and the corresponding noise of the slab. In the process, for simplicity of the numerical analysis, it is assumed that the slab is simply supported plate-like structure and the acoustic mode formed in the lower room by acoustic boundary conditions is ignored.

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E-mail : jshwang@jnu.ac.kr
Tel :062-530-1641, Fax : 062-530-.250

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2.1

x 5100mm
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 180mm, 4500
 4
 20Hz
 170 Hz
 9
 3%
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 Rayleigh Green function

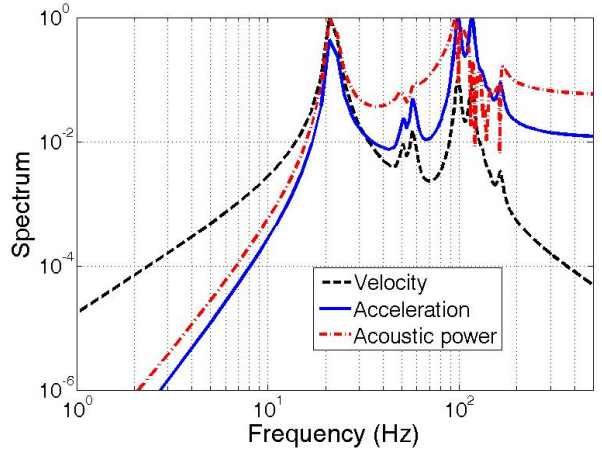


Fig.1 Vibration mode- acoustic power correlation

1-500Hz
 2Hz

2.2

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 Fig. 1
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 50 Hz,
 100Hz
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