

The Prize of AIJ 2011 (Research Theses Division)

A Series of Studies on Characteristics of Sensory Evaluation  
of Environmental Vibration and Performance Assessment

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The recipient has conducted a factual study on vibration sensation with a central focus on testing the effect of floor vibration, vibration induced by wind and traffic, etc. on subjects. Existing methods used for the evaluation of environmental vibration are based on physical perception; here, the recipient has proposed a new method for the evaluation of environmental vibration that considers various factors influencing human response with original ideas.

On the basis of the results of these studies, various characteristics of vibration sensation are clarified. Some vibration tests were performed that focused on the influences of the situations and visual sensations of subjects on their perception threshold of horizontal vibration. The results of the tests show that a subject's situation greatly influences his/her perception threshold, and visual sensation affects the ability of a subject to perceive horizontal vibration in low frequency. These results have been presented in the "Guidelines for the evaluation of habitability to building vibration."

Other tests were performed to set a habitability grade based on the consciousness of residents about the performance level of environmental vibration. The habitability grade of environmental vibration has been published in the "Design Handbook for Habitability to Environmental Vibration."