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A method for evaluating the earthquake resistant capacity of small-scale buildings by means of microtremors analysis

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ABSTRACT Taking all things of earthquake protection into consideration, the dynamic properties of buildings are extremely important, because the defect of them may lead to the cause of heavy casualties. We have investigated the dynamic properties of many residences (about 110 buildings), namely the natural period T_0, quality factor Q, and maximum amplification ratio R_0, by use of microtremors analysis of the ground and buildings. The earthquake resistant capacity index C has been introduced such an empirical formula as $C=100 \cdot T_0^2 \cdot \sqrt{Q} \cdot R_0$.
The validity of this method has been examined through the investigation of the dynamic properties of small-scale buildings of four construction types, being referred to the wooden residences damaged from Kobe earthquake in 1995.

Key words: earthquake resistant capacity, microtremors

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