

Seismic risk communication with owners in structural design

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ABSTRACT

Structural performance decision-making for a building is to determine the risk of failure probability concerning human life and property. However, private building owners have poor experience and knowledge about risk or decision-making for structural performance. As a result, structural engineers, with support of design codes, decide all performance and risk without consulting or explaining to owners. As in other professions, structural engineers need to begin to communicate with owners on matters of risk.

This paper describes citizen's attitudes using questionnaire results as a basic survey to establish a framework of risk-communication methods with building owners. This survey specifies contents and requirement for risk communication for seismic safety focusing on the owner's trust of engineers and decision-making for performance. The goal of communication is a reasonable selection of seismic safety performance level.

The first citizen's attitudes survey was carried out on the web in 2006 and obtained 535 people's opinions. The respondents were men and women more than 30 years old, who have lived in a relatively high seismic hazard area (Tokyo, Hokkaido, and Hyogo). Their answers didn't show difference between genders. There was a little difference of living area or experience of big earthquake. This survey defines the developing process for citizens with three steps in risk communication. The first step is recognition that risk and information disclosure is needed. The second step is owner's involvement in decision-making and deeper understanding of risks. The last step is reasonable decision-making of owners supported by structural designers. The results of this first survey

indicate that Japanese citizens have reached the second step with understanding risks based on relatively correct knowledge, but they cannot yet stand on the third step. For establishing a process of risk communication based on trust, we professionals should understand the present requirement of owners and users and then we have to support improved decision making by owners.

A Second survey was carried out on the web in 2008 with 580 citizens. The respondents live in all prefectures and are from 30 years to 60 years old. This survey showed that respondents feel that there is no or little information about soil, piles, or material strength when they buy a brand new home. They also feel unsafe, and it means distrust to professionals. Over the half of respondents think self-check on trust of the design result. Many respondents were undecided on numerous parts of the survey, indicating that much needs to be done to improve risk communication. They are so interested in risk communication, and they need not a commentary but explanation of engineer. The explanation of performances before the agreement is especially needed.

Risk communication is essential to owners but it also has difficulty under present circumstances. Contents of communication which designers should explain before the agreement and method of decision-making are also considered in this paper.

REFERENCES

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