

# **SEISMIC CAPACITY OF REINFORCED CONCRETE BUILDINGS DAMAGED BY 1995 HYGOKEN-NAMBU EARTHQUAKE**

KANG-SEOK LEE  
Graduate Student  
Institute of Industrial Science  
University of Tokyo, Japan

YOSHIAKI NAKANO  
Associate Professor, ditto

FUMITOSHI KUMAZAWA  
Senior Research Engineer  
Large Scale Structure Testing Division  
Department of Production Engineering  
Building Research Institute, Japan

TSUNEO OKADA  
Professor  
Shibaura Institute of Technology, Japan

## **1. INTRODUCTION**

In the early morning on January 17, 1995, the Hanshin-Awaji District was strongly shaken and a large number of buildings were destructively damaged. The authors carried out field surveys of reinforced concrete public buildings in the affected area, and their damage levels were investigated.

This paper describes damage levels and the results of seismic evaluation of affected buildings, and the correlation between their damage levels and seismic capacities is discussed.

## **2. INVESTIGATED BUILDINGS AND THEIR DAMAGE LEVELS**

Figure 1 shows the epicenter of Hyogoken-nambu Earthquake and the location of investigated six reinforced concrete buildings. The outline of each damaged building is summarized in Table 1.

The damage level of an entire building was judged basically in accordance with *the Japanese Guideline for Damage Level Classification*<sup>1)</sup>; i.e. damage to each structural member was first categorized into one of 5 classes (I~V) shown in Table 2, and the damage level of the entire building was then identified from D-index calculated in accordance with the Guideline. The definition of D-index is briefly described in Appendix 1.

Damage to each investigated building can be summarized as follows.