

Trend of Recent Techniques Regarding Seismic Design of Railway Structures

Yoshitaka MURONO Tsutomu SATO

Railway structures in Japan are designed based on the “Design Standards for Railway Structures: Volume of Seismic Design: (1999)” (Abbreviation: Seismic Design Standard). The Seismic Design Standard has been issued in December 1999 after severe damages to urban facilities during the 1995 Hyogoken-Nambu earthquake. In the design standard, the “two-step design procedure” and the “performance based design method” were introduced. A severe ground motion caused by a near fault region, as well as the inter-plate earthquake, which is conventionally considered, was taken into account. After the Hyogoken-Nambu earthquake, a large number of earthquake ground motion came to be recorded by a seismometer net developed rapidly, and a study on the estimation method of strong ground motion progressed. In addition, the seismic design methodology made a rapid progress with the advance of experiment technique and equipment and the advance of numerical analysis technique. In this report, based on such a background, the trend of recent seismic design technology is introduced.