**Recent Earthquakes and New Concepts for Earthquake-resistant Design**

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Akira WADA[[1]](#footnote-1)

**Abstract**

Over the last 100 years or so, engineers have developed methodologies for design and technologies for earthquake-resistant structures. A prevailing design approach today is to allow for inelastic deformations of a structural system in a strong earthquake. While this approach likely ensures life safety, a large number of buildings are typically damaged to the extent that they require significant retrofit or need to be demolished. This leads to significant costs and extensive community disruption. In 2016 in Japan, one of the most technologically advanced countries in the world, the Tainan earthquake in February and the Kumamoto earthquake in April resulted in about 10,000 buildings being tagged as collapse risks and they had to be abandoned by their 100,000 occupants. Learning from this and prior earthquake experiences, we have changed our philosophy for earthquake-resistant design for the 21th century. The presentation will focus on these new trends in seismic design.

1. Professor Emeritus, Tokyo Institute of Technology [↑](#footnote-ref-1)