

## **8. Development of an Anchor-saving Out-frame Seismic Retrofit Method - Method of Connecting Additional Slabs with Existing Slabs Using Steel Pipes -**

Takeshi Kishimoto, Masanori Kono, Kozo Hattori, Toshikazu Yamaguchi

An anchor-saving out-frame seismic retrofit method was developed in which dowel anchors and connecting steel pipes are used in combination to integrate an existing building with additional frames in a seismic retrofit method for additionally installing frames outside the building. It was experimentally confirmed that the number of dowel anchors could be reduced by having connecting steel pipes bear part of the seismic shear force to be carried by dowel anchors. Applying the developed method to seismic retrofit work has enabled the reduction of the period of anchor construction that produced noise and vibration, and of the burden on building occupants.

**Key words:** seismic retrofit, connecting steel pipes, existing slabs, dowel anchors