

8. Construction Experiment and Practical Application of Seismic Retrofitting Method using Spray Mortar for Existing Shear Walls

Takeshi Kishimoto, Masanori Kono, Kozo Hattori, Hideyuki Furuta

Seismic retrofitting method using spray mortar for strengthening an existing shear wall by increasing its thickness has been developed. In the method, wall thickness is increased by spraying polymer cement mortar instead of pouring concrete. Since the method does not use any concrete pump truck, agitator truck or formwork, space requirements are minimal. Furthermore, since the newly developed method achieves integrity with an existing structure by use of the adhesion of epoxy resin instead of post-installed anchors, noise and vibration caused by anchor installation can be eliminated, and the building being worked on can be used while its shear walls are being strengthened. In this study, a full-scale validation experiment was conducted to check on ease of execution of spraying and on compressive strength characteristics and method of management of the sprayed and hardened polymer cement mortar used. Following the experiment, the method was used to seismically retrofit of a real building.

Key words: seismic retrofit, polymer cement mortar, spraying, minimal space requirement, low noise and low vibration