

4. Seismic Strengthening Methods by Shear Walls with Adhesive Joints - Part 2 Horizontal Loading Tests of Seismically Retrofitted Shear Walls with an Opening Using Epoxy Resin Joints -

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The Okumura shear wall seismic retrofit method using adhesive joints requires no anchors and is composed of the “ultra high strength fiber reinforced concrete block method” and “precast concrete plate method with built-in steel plate braces”. These methods are designed for shear walls with no opening and no methods of stress transfer or reinforcement around the opening have yet been established. No opening can therefore be installed. In this study, in order to make the “precast concrete plate method with built-in steel plate braces” applicable to cases with an opening for passage, detailed drawings were prepared for reinforcement around the opening, and 1/2-scale horizontal loading tests were conducted using the location of the opening and the shapes of top and bottom beams as parameters. As a result, it was found that the ultimate shear strength of a shear wall with an opening with a reinforced area around the opening can be evaluated using a strength calculation formula for combined ultimate strengths of surrounding columns and precast concrete plate side walls, and that the refined precast concrete plate method is effective for seismic retrofit.

Key words : seismic retrofit, epoxy resin, steel plate braces, precast plates, shear walls with an opening