

11. Development of a Method of Seismic Retrofit by Spiral Lining with Reinforcing Bars

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The “spiral lining method using high-tension reinforcing bars” developed for seismic retrofit of viaduct columns has been implemented at numerous construction sites. In order to handle column shapes to which high-tension bars are inapplicable and to further reduce costs, a method was developed for spiral lining using reinforcing bars. This paper outlines the spiral lining method using reinforcing bars and describes the seismic performance identified by alternate loading and unloading tests.

The spiral lining method using reinforcing bars enables the lining of acute-angled or large-cross-section columns and reduces costs by 5% by using reinforcing bars. In order to verify seismic performance, alternate loading and unloading tests were conducted. As a result, it was verified that the newly developed method provides strength and deformation capacity equivalent to those offered by conventional spiral lining methods using high-tension reinforcing bars.

Keywords: reinforcing bars, spiral linings, seismic retrofit, viaduct columns, alternate loading and unloading tests