



Development of a New Seismic Retrofit Method Reinforcing only Two-sides of RC Bridge Pier with Bar Cut-off Sections

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Abstract

The new seismic retrofitting method in which reinforcing members were placed only on two-sides of pier structure in order to improve bending moment capacity at termination of main reinforcements was developed, which enables to avoid replacement of machine room under viaduct. In this paper, beam tests were carried out and it was clarified that bending moment carried by reinforcing members were proportional to flexural rigidity of reinforcing members and reinforced length within shear span. Then cyclic loading tests for model specimen of existing pier structures were carried out and it was also clarified that bending moment capacity at longitudinal bar cut-off points in which moment capacity are smaller than base of the pier could be improved by proposed retrofitting method and damage at the cut-off points can be avoided under seismic loading.

Keywords: reinforced concrete bridge pier, cut-off, two-sides retrofitting method, improving flexural capacity

1 Introduction

After the damage of pier structures during Hyougoken-nanbu Earthquake occurred in 1995, seismic retrofitting works have been undertaken. In many pier structures, longitudinal bar cut-off points were mainly damaged as shown in Figure 1 during current occurred earthquakes. The damage were due to the fact that moment capacity at bar cut-off points were smaller relative to base of pier in many existing pier structures.

Therefore, retrofitting works have been done by reinforced concrete jacketing method or steel jacketing method in pier structures. But there are



Figure 1. Failure of pier at bar termination zone