

4. Experimental Study on Rationalization of Design for Pile Cap Using Precast Pile Embedment Method - Structural Experiment Assuming Steel Foundation Beams -

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The authors subjected five specimens to bending-shear experiments to assess the applicability of a pile cap using an embedded precast pile connection to a steel foundation beam system and to verify the proposed equations for obtaining the design limit values of the pile head embedment.

The results clarified load-deformation relationships and the pile cap failure process. Additionally, they confirmed the adequacy of the proposed equations for evaluating the maximum strength of each specimen with reasonable accuracy.

The results also suggest that the design can be rationalized by, for example, reducing the size of the pile cap. Based on the structural performance of each specimen, the authors present findings regarding the application of this system to a steel foundation beam system and the establishment of a corresponding design method.

Keywords: precast pile, pile cap, pile head embedment, bending-shear experiment, foundation beam