

4. Experimental Study on Rationalization of Design for Pile Cap Using Precast Pile Embedment Method

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The width of precast pile caps is typically set at $2.5D$ (where D = pile diameter). Numerous experiments on specimens with $2.5D$ have also been reported in previous studies. Furthermore, according to the literature from the Architectural Institute of Japan, shear reinforcement effects cannot be considered in design formulas for the pile head embedded portion.

In this study, we performed bending shear experiments using specimens with a pile cap width of $2.0D$ to present the damage process of the pile caps and the effects of various parameters on the results. Additionally, we considered shear reinforcement effects to propose a formula for evaluating the maximum strength of the pile head embedded portion.

Keywords: precast pile, pile cap, pile head embedded, bending shear experiment, shear reinforcement