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Experimental Studies on Prestressed Precast Concrete Bridge Piers

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Abstract : This paper deals with experimental studies on pre stressed precast concrete columns with continuous reinforcing bars and pre stressing tendons. Design requirements on minimum transverse reinforcement ratio are not included in current design codes. Pre stressing introduces additional compression to the column. Precast columns with different transverse reinforcement ratios were tested to derive adequate design requirement. Displacement ductility of the pre stressed precast columns was evaluated and compared with previous studies. Design of axial steels including reinforcing bars and pre stressing tendons influenced on the seismic performance. Without significant increase of transverse reinforcement ratio, the specimens showed required displacement ductility without reduction of their flexural strength. Design recommendations for precast bridge piers were derived.

Keywords : displacement ductility, flexural strength, prestressed precast column, transverse reinforcement
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