

# Experimental Study on the Shear Behavior of Joints in Precast Concrete Wind Tower with Various Joint Types and Lateral Force Levels

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In response to the need to develop large wind towers, precast concrete towers are being promoted to overcome the high-cost and limitations of the traditional steel towers. The precast segmental construction method requires the presence of segmental joints to transfer the loads between neighboring segments, which stresses the importance of securing structural safety and serviceability. Therefore, need is for dedicated research on the behavior of the segmental joint. This experimental study examines the shear behavior of joints in precast segmental specimens with shear keys considering different joint types and lateral force levels to develop precast wind towers using 80-MPa high strength concrete. Analysis is done on the load-displacement relation according to the type of the shear keys and on the failure modes of the shear keys according to the cracking pattern at failure.

Keywords: wind power, precast concrete tower, shear key, segmental joint, high strength

