

## Comparison of Effect of Pre-Stressed Strand Diameters Providing Beamm to Column Connection

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**Abstract :** In this study, the effect of pre-stressed strand diameters, providing the beam-to-column connections, was investigated from both experimental, and analytical aspects. In the experimental studies, the strength, stiffness, and energy dissipation capacities of the precast specimens comprising two pre-stressed strand samples of 12.70 mm, and 15.24 mm diameters, were compared with the reference specimen. The precast specimen with strands of 15.24 mm reached 96% of the maximum strength of the reference specimen; the amount of energy dissipated by this specimen until end of the test reached 48% of the amount of energy dissipated by the reference sample, and the stiffness of the same specimen at a 1.5% drift of reached 77% of the stiffness of the reference specimen at this drift. Parallel results were obtained during the analytical studies from the aspects of strength, and behavior, but the initial stiffness of the analytical models was lower than that of the test specimen.

**Keywords :** precast beam to column connection, moment resisting connection, post tensioned connections, finite element method

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