

Study on Static Analysis and Design of Reinforced Concrete Exterior Beam-Column Joint

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Abstract

In reinforced cement concrete, the beam-column joint is always considered as critical structural elements. Therefore, the analysis, design and construction of beam-column joint are indeed a very important task. Due to the geometrical conditions and the basic complexity of the load transfer mechanism, the design code on seismic behavior of moment-resisting frame received many conflicting reviews on the beam-column joint design to date. In fact, the overall structural performance of the entire building components in an earthquake majorly depends on the load-bearing capacity of the beam-column joint. During such an earthquake action, the beam-column becomes more vulnerable and unable to achieve its desired efficiency. The earthquake so far has shown that there are two major failures that occur at the beam-column joint such as (i) Joint shear failure (ii) End anchorage failure due to inadequate reinforcement detailing. This paper focuses on the experimental study of exterior beam-column joint casted as per IS 456:2000 and tested on loading frame.

Keywords

- **Beam-column joint**
- **Anchorage mechanism**
- **Joint shear failure**