ROBUSTNESS OF MODIFIED SPECIAL HYBRID RC FRAMES

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Abstract

Modified special hybrid moment resistant reinforced concrete frames detailing are different from the usual frames detailing as the precast beams are post-tensioned assembled and the joints have a specific detailing. The unbounded post-tensioning tendons are placed in centroid of the beams and are designed to remain elastic under all external loadings, while the horizontal joints are provided with special ductile connection reinforcement that is designed to yield. The specimen has been tested previousely at lateral seismic type loading. This paper is focused on another type of accidental loading, neglected in common design, namely explosion. In this cases it is analyzed the capability of the structure to avoid the progressive collapse in case of a column failure. The detailing of the beam-column joints is considered to be favorable to develop the catenary effect when overloading occurs. The test was made on the same specimen initially tested under seismic type loading, so the results have to be taken into account only from the qualitative point of view.

Key Words

Modified special hybrid joints; robustness; catenary.

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