

Development of seismic design and analysis method for RC frames with infill walls

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ABSTRACT

Low-rise RC frames with Infilled walls are widely used in many areas around the world. It is well known that the presence of infill walls can have adverse effects on the seismic response of the frame due to infill-frame interactions. Despite their widespread usage, clear design strategies to prevent undesirable failure modes due to the infill-frame interactions are not normally given in design codes. This paper proposes a practical design method for RC with infilled frames. The method is based on controlling failure mechanism of the frame. The key design assumption was first validated using single-degree-of-freedom systems. The approach was then applied to design an example RC frame with infilled walls. A computer model of the example frame that could accurately represent the complex behavior of infill-frame interactions was created. Nonlinear dynamic analysis was carried out to verify the effectiveness of the proposed design method.

Keywords: RC frames with Infill Walls, Collapse Simulation, Pushover Analysis