

Development and Application of OpenSees for a RC Frame in Fire



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1 Fire Following Earthquake



San Francisco earthquake, 1906



Kobe earthquake, 1995

Fire following an earthquake is an important factor causing damage to buildings and life-line structures It is important to understand the behaviour of structures subjected to post-earthquake fires.

2 Experiment in India Simulated gravity loading of 2nd and 3rd above floor Reaction Extended Steel framing column wall svstem Superimposed live load on floor 1 1500 Roof slab 120 thk Roof beam 230 x 230 Thermocouples at five Hydraulic different elevation levels jack in three plan locations of fire compartment 5000 3000 Typical column, 300 x 300 4300 Ventilation opening Plinth beam, 230 x 230 Fire level/Top of beam Footing, 1100 x 1100 x 500 1300 Bricked box container filled with sand with fuel tray on top

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Raft top

>Understanding of the mechanics of the response of earthquake damaged structures subjected to fire

(level with the top of beam)

Raft top

Understanding behaviour of structural materials subjected to fire after damage and to develop constitutive laws for programming into computational models

3 OpenSees

- An open source, object oriented software framework



Modelling the experiment

