

Controlled Deconstruction and Rehabilitation of Fire Damaged Structure

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Abstract : In this paper, a case study of a 13 storied multi storied main headquarters building of the Lahore Development Authority Lahore Pakistan has been presented, the 9th floor of which caught fire due to short circuiting and the flare spread through air-conditioning ducts to top three floors, and the building remained under fire for 15 hours before it was quenched. Some columns at the upper 3 floors started crumbling down, which were immediately propped. A visual inspection of site was first carried out, followed by onsite material tests and lab tests for residual strengths, which led to the decision of removal of the top 3 floors in a planned sequence of diamond cutting of middle strips, column strips, and shear walls, in panels and their lifting up by overhead cranes. The waffle slabs were stitched and jacketed with low viscosity polymer layer. The damaged bars were supplemented. The cracked columns were jacketed as well. The validity of rehabilitation procedure was established by load deflection behavior tests and long term performance observation over a period of 5 years. The paper concludes that the procedures adopted could be recommended for such events.

Keywords : fire damage, shotcrete, waffle slabs, delamination, drying cracking, jacketing

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