

## REHABILITATION AND RETROFITTING OF BUILDING STRUCTURES

UMA SHANKAR .K, ARUN PRAKASH .K & PRADEEP KUMAR .S

Assistant Professor, Knowledge Institute of Technology, Salem, Tamil Nadu, India

### ABSTRACT

Retrofitting reduces the vulnerability of damage of an existing structure during a future earthquake. It aims to strengthen a structure to satisfy the requirements of the current codes for seismic design. In this respect, seismic retrofit is beyond conventional repair or even rehabilitation. The principles of seismic retrofit refer to the goals, objectives and steps. The steps encompass condition assessment of the structure, evaluation for seismic forces, selection of retrofit strategies and construction. The applications include different types of buildings, industrial structures, bridges, urban transport structures, marine structures and earth retaining structures.

The benefits of retrofitting include the reduction in the loss of lives and damage of the essential facilities, and functional continuity of the life line structures. For an existing structure of good condition, the cost of retrofitting tends to be smaller than the replacement cost. Thus, the retrofitting of structures is an essential component of long term disaster mitigation.

It was proposed to seismically upgrade a seven story non-ductile concrete framed building of early nineties vintage. Analysis results revealed that the structures did not have sufficient structural capacity to resist even a moderate earthquake. To ensure a higher level of safety, reduce the risk of exorbitant repair costs and minimize building downtime after an earthquake, it was intended that the seismic upgrade of the structural system will target the performance standard of 'immediate occupancy'. A dual stage approach was used to address this complex retrofit issue.

The first part consisted of providing robust concrete moment frames in each direction using the time tested jacketing methodology. This ensured adequate strength and stiffness to the structure.

**KEYWORDS:** Building, Maintenance, Retrofitting, Structures, Concrete, Steel and Polymers



**Best Journals**  
Knowledge to Wisdom

Submit your manuscript at [editor.bestjournals@gmail.com](mailto:editor.bestjournals@gmail.com)

Online Submission at [http://www.bestjournals.in/submit\\_paper.php](http://www.bestjournals.in/submit_paper.php)