

RETROFITTING ANALYSIS AND PREDICTION ON RESIDENTIAL BUILDING WITH NDT AND ETABS

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Abstract: Civil engineering structures can be damaged due various reasons which include earthquakes, cyclones, blasting, etc. This kind of loading collapses the shape upfront or reasons vast harm to them. When the damage is minor, it is possible to retrofit the structure. A evaluation of the to be had literature has disclosed that umpteen numbers of retrofitting methodologies are available. The study is carried out for the behaviour of G+2 storied R.C frame buildings. Floor height provided as 3 m. And also, properties are defined for the frame structure. Models are created in ETABS software. Various types of load are considered. For static behaviour dead load of the building is considered as per IS 875 Part 1 and live load is considered as per IS 875 Part III, lateral load confirming IS 1893(part 1)2016.

Keywords: *Retrofitting, Nano Concrete, Glass Fiber Reinforced Polymer*

I INTRODUCTION

Retrofitting is making changes to an current constructing to defend it from flooding or other dangers such as excessive winds and earthquakes. You have already visible an instance of these modifications, and you'll study more within the following chapters. But you may be thinking at this factor why retrofitting is vital. Why aren't houses and different buildings constructed in such a manner that they won't want these adjustments? One purpose is that construction technology, which includes both strategies and materials, keeps to improve, as does our know-how of dangers and their outcomes on homes. Many homes existing nowadays were built when little changed into known about where and how regularly floods and different hazardous activities would occur or how homes ought to be protected, and houses being built today may advantage from improvements based on what we study in the future. As a result, retrofitting has turned out to be an important and critical device in risk mitigation.

Jacketing of columns is composed of introduced concrete with longitudinal and transverse reinforcement around the present columns. This type of strengthening improves the axial and shear electricity of columns while the flexural power of column and electricity of the beam-column joints continue to be the same. It is also discovered that the jacketing of columns is not successful for enhancing the ductility. A foremost advantage of column jacketing is that it improves the lateral load ability of the constructing in a fairly uniform and distributed way and as a result averting the attention of stiffness as inside the case of shear walls. This is how essential strengthening of foundations may be avoided. In addition the authentic function of the

building may be maintained, as there are not any main changes within the unique geometry of the building with this technique.

Objective

- To study various retrofitting technique of RCC building.
- To analyse G+2 building for seismic load by Using ETABS and find beam column failure for seismic load
- Comparative Analysis of retrofitting for GFRP and Nano-cement to the beam column connection in ANSYS.

II. STATE OF DEVELOPMENT

This article summarizes previous studies on the reasons that contribute to the usage or avoidance of Retrofitting.

Arif, M., Akhtar, S et. al. It has been mounted in the studies pronounced that the retrofitting has achieved well under almost all the loading situations, whether it is tension, compression, flexure, shear, torsion, fatigue, effect or the dynamic loading. A large quantity of experimental and analytical research coping with retrofitting structural elements, having various shapes and sizes, subjected to exceptional loading conditions are suggested in literature. These researches have installed the fabric worthiness to be used in diversified applications and prove it to be a sturdy alternative to traditional construction material.

D. G. Gaidhankar et. al 2017 Retrofitting is a twine mesh reinforcement impregnated with mortar to produce elements of small thickness, high sturdiness and resilience and, when properly shaped, high strength and rigidity. To skip these troubles and directly determine the reaction of retrofitting in unconventional applications, numerical simulations exploiting the Finite Element Method (FEM) have yielded crucial outcomes in current years.