

## **Pushover Analysis of Reinforced Concrete Buildings Using Full Jacket Technics: A Case Study on an Existing Old Building in Madinah**

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**Abstract :** The retrofitting of existing buildings to resist the seismic loads is very important to avoid losing lives or financial disasters. The aim at retrofitting processes is increasing total structure strength by increasing stiffness or ductility ratio. In addition, the response modification factors (R) have to satisfy the code requirements for suggested retrofitting types. In this study, two types of jackets are used, i.e. full reinforced concrete jackets and surrounding steel plate jackets. The study is carried out on an existing building in Madinah by performing static pushover analysis before and after retrofitting the columns. The selected model building represents nearly all-typical structure lacks structure built before 30 years ago in Madina City, KSA. The comparison of the results indicates a good enhancement of the structure respect to the applied seismic forces. Also, the response modification factor of the RC building is evaluated for the studied cases before and after retrofitting. The design of all vertical elements (columns) is given. The results show that the design of retrofitted columns satisfied the code's design stress requirements. However, for some retrofitting types, the ductility requirements represented by response modification factor do not satisfy KSA design code (SBC- 301).

**Keywords :** concrete jackets, steel jackets, RC buildings, pushover analysis, non-Linear analysis

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