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A Study on Performance-Based Design Analysis for Vertical Extension of Apartment Units

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Abstract : There is no reinforcement example for the renovation of the vertical and horizontal extension to existing building structures which is a shear wall type in apartment units in Korea. Among these existing structures, the structures which are shear wall type are rare overseas, while Korea has many shear wall apartment units. Recently, in Korea, a few researchers are trying to confirm the possibility of the vertical extension in existing building with shear walls. This study evaluates the possibility of the renovation by applying performance-based seismic design to existing buildings with shear walls in the analysis phase of the structure. In addition, force-based seismic design, used by general structural engineers in Korea, is carried out to compare the amount of reinforcement of walls, which is a main component of wall structure. As a result, we suggest that performance-based design obtains more economical advantages than force-based seismic design.

Keywords : design for extension, performance-based design, remodeling, shear wall frame, structural analysis
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