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An experimental investigation for external RC sl wall applications

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Abstract. The strength and rigidity of most reinforced concrete (RC buildings in Turkey, which are frequently hit by destructive earthqu not at a sufficient level. Therefore, the result of earthquakes is a si loss of life and property. The strengthening method most commonl preferred for these type of RC buildings is the application of RC infi walls (shear walls) in the frame openings of the building. However the whole building has to be emptied and additional heavy costs a during this type of strengthening, users prefer not to strengthen t buildings despite the heavy risk they are exposed to. Therefore, it necessary to develop easier-to-apply and more effective methods rapid strengthening of housing and the heavily-used public buildin cannot be emptied during the strengthening process (such as hosp and schools). This study empirically analyses the different methods new system which can meet this need. In this new system, named "external shear wall application", RC shear walls are applied on th external surface of the building, along the frame plane rather than building. To this end, 7 test samples in 1/2 and 1/3 geometrical sca designed to analyse the efficiency of the strengthening technique the shear wall leans on the frame from outside of the building (ext shear wall application) and of the strengthening technique where a space is left between the frame and the external shear wall by usi coupling beam to connect elements (application of external shear w coupling beam). Test results showed that the maximum lateral loa capacity, initial rigidity and energy dissipation behaviours of the sa strengthened with external shear wall were much better than thos bare frames.

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