

Distribution of Shear Forces in Walls having Openings

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Abstract:

This paper investigates the accuracy of distributing the total shear force on a wall with openings. The widely used method of dividing the wall into piers and approximating their rigidity using prismatic beam theory (classical method) is compared to the finite element method. Four walls or models are chosen with the first having openings at the same elevation while the remaining three having openings on different elevations. The results of this study are then presented showing that serious under-estimating of the shear force on the smaller piers can develop. This will normally occur when piers have considerable difference in their relative rigidity and that is usually when the classical method is used.

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