

عنوان مقاله:

NEUTRAL AXIS LENGTH VARIATION OF SELF-CENTERED RC SHEAR WALL UNDER LATERAL NONLINEAR
STATIC LOAD

محل انتشار:

هشتمین کنفرانس بین المللی زلزله شناسی و مهندسی زلزله (سال: 1398)

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نویسندگان:

Fahimeh Shahpouri - *Ph.D. Candidate, Department of EQ. Eng. Faculty of Civil and Envl. Eng. Tarbiat Modares University, Tehran, Iran*

Abbas Ali Tasnimi - *Professor in Struct. Faculty of Civil and Envl. Eng. Tarbiat Modares University, Tehran, Iran*

خلاصه مقاله:

The use of RC rocking walls provides ample rocking mode of behavior and reduces the residual displacements. The main features of the rocking systems are the Self-Centering behavior after a seismic event provided by unbounded posttensioned tendons (PT) connecting the top of the wall to the foundation exhibiting low damage, compared to traditional reinforced concrete shear walls. The rocking wall placed on top of the foundation with no longitudinal reinforcing bar crossing the wall-foundation joint, thus avoiding tension in concrete. These systems accommodate displacement seismic demand by the development of a concentrated gap opening between the wall and the foundation instead of an extended plastic hinge as in traditional shear walls. By applying lateral load, the concrete at the reversible tip (toe) of the wall is under considerable compressive forces. In order to improve the overall behavior of the wall, the concrete at these locations must be confined. This paper summarises the variation of neutral axis length (i.e., contact length) under lateral monotonic loading utilizing numerical finite element analysis on Self-Centred RC Shear Wall. Variations of neutral axislength is monitored for four states on the capacity curve of the wall. These states are corresponded to the commencement of gap opening at the heel (toe), yielding, maximum strength and lastly at collapse prevention (where the capacity curve begins to drop down). To verify the accuracy of the nonlinear numerical analysis, a tested self-centred walls were modelled numerically using finite element software (ABAQUS). Material nonlinearity for concrete, reinforcement and prestressing cables, are considered

کلمات کلیدی:

Torsional Irregularity, Mid-Rise Building, RC-Shear Wall, Coupling beam, Opening

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