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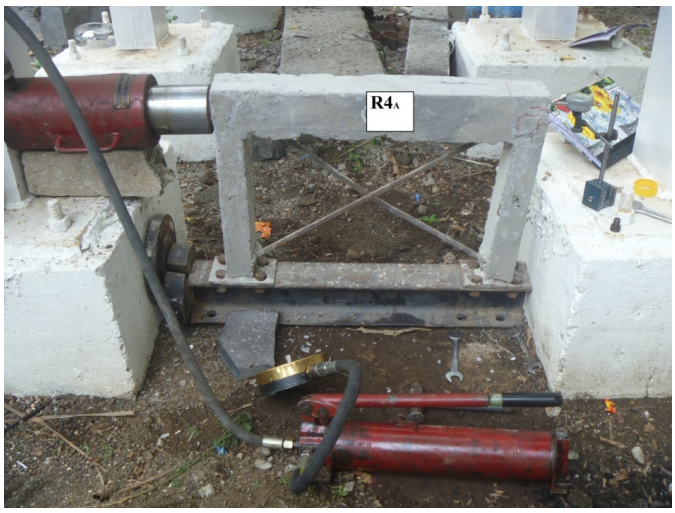

Research Paper

Effect of Steel Bracing on Ultimate Strength and Stiffness of Reinforced Concrete Frames.

Damodar Dubey Sh-k and Kute S.

J. Civil Eng. Urban., 7(6): 80-86, 2017; pii:S2252043017000012-7

Abstract

Infilled walls are normally considered as non-structural elements. However these walls are effective in carrying lateral loads. In this regard, an experimental investigation was planned and conducted to study the effect of braced Reinforced Concrete (R.C.) frames in contrast to the bare frames. All these frames were tested up to collapse and subjected to only horizontal loads to obtain an efficient and probable solution for soft storey. In comparison to bare R.C. frames, steel braced R.C. frames have an increase by a notable amount for stiffness and ultimate lateral load capacity. Central braced system is additional effectual than that of corner and diagonal braced system. For the similar load braced R.C. frames have considerable less deflection than that of the bare R.C. frames. The contribution of central and diagonal bracing in comparison to corner bracing is observed to be 20% and 50% correspondingly. The percentage increase in stiffness for braced frames in comparison to bare R.C. frame is 71.1%, 139.6% and 111.4% consonantly.
Keywords: Central braced frame, Lateral load, Soft storey, Diagonal bracing, R.C. Frame, Stiffness.

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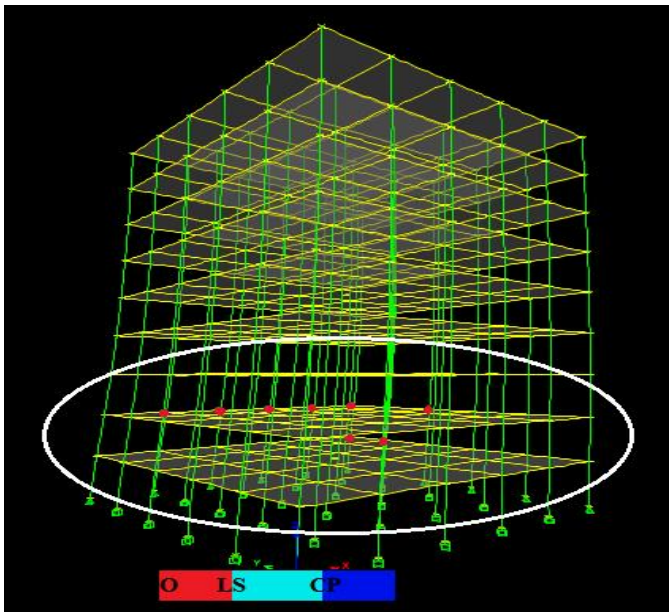


Research Paper

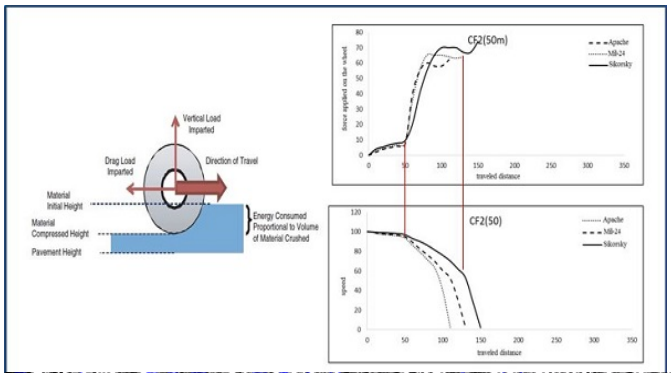
Evaluation of Seismic Response Modification Factor for Asymmetric Structures.

MagarPatil H. R.

J. Civil Eng. Urban., 7(6): 87-94, 2017; pii:S2252043017000013-7

Abstract

The research revealed that three major factors, such as reserved strength, ductility and structural redundancy affect the actual value of response modification factor (R). Those must be taken into consideration while determining appropriate 'R' for symmetric and asymmetric structures. The evaluation of 'R' is done by static-nonlinear analysis using ETABS. Also, ETABS is used to get the sequence and mechanism of plastic hinge formation. The procedure is validated by comparing results with Indian standard codal provisions for symmetrical structures and then those are evaluated for irregular structures. The 'R' calculated for symmetrical structure confirms evaluation procedure. Current Indian seismic design code never mentions about redundancy in structures. While irregularities in structural layout are punished, providing redundancy must be encouraged by the code. The values of 'R' for irregular structure varies. Hence a single value of R for all buildings of a given framing type, irrespective of plan and vertical geometry, cannot be justified.
Keywords: Response Modification Factor, Static Nonlinear Pushover Analysis, Regular And Irregular Structure, Plan Irregularity, Elevation Irregularity.



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