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Study of the Seismic Behaviour of Confined Masonry Structure

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Abstract- The article focused really confined masonry structure because of unreinforced masonry building was collapse but using multistoried building using confined masonry structure example likes as Pakistan Afghanistan slightly in damage by earthquake just we are taking example low-rise, medium rise building in different seismic zone first we have been taken low rise building the reinforce concrete used at every floor and also used post cast are used each intersection of interior and exterior wall For medium rise building used additional ring beams and tie column or post cast used as intermediate column and also proved horizontal belts are placed at masonry wall at used spacing 2-3m and 1-1.5 respectively. Model experimentally masonry good strength and deformable seismic reliability we can also applied up to 10 stories in seismic zone

Keywords: Confined Masonry; Ring Band; Tie Beams; Tie Columns

I. INTRODUCTION

Four Seismic zone divination just we are taking example Pakistan .Confined masonry is best suitable in seismic zone according economically point of view in seismic zone lot of building were damage by using unreinforced masonry in past earthquake therefore to improve the horizontal load bearing capacity and seismic reliability of masonry building . we can avoid using to sufficient strength prove tie –beam and column .confined resist both lateral and gravity load also. tie beam beam resist overturning moment and confinement effect due to tie beam and column. They improve wall displacement capacity and seismic cyclic load. More stiffness and mass distribution.

II. ANALYTICAL MODEL

Tie beam and column prevents diagonal cracks and also surface area restricted by tie beam and column between bands. Experimental results show that the horizontal bearing capacity wall was better of RC belts. it was best then mortar joints reinforce . Column provided in the structures was increase the horizontal and vertical load bearing capacity of the wall and it given the partial method on the improvement of ductility and bearing capacity of was masonry building. The confining members was reduce the brittleness of the masonry wall under earthquake load and hence improving by this earthquake performance
They are shown here in figure 1 below

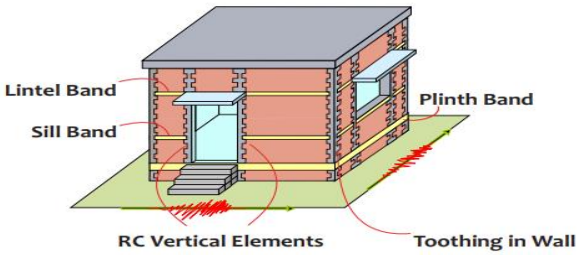

Fig. 1. Confined Masonry earthquake-resistant structure

A. Roof Slab

Roof slab is directly tough with the wall and transfer loads to walls and both elements resistant against earthquake

B. Walls

Masonry structure transfer all vertical loads from roof slab to foundation and to resist the seismic forces, only confined wall are be able to resist the forces

C. Plinth Beam

Transfer the loads from the walls to the foundation and protect the first floor wall.

D. Foundation

Transfer by it all the loads from the structure to the ground

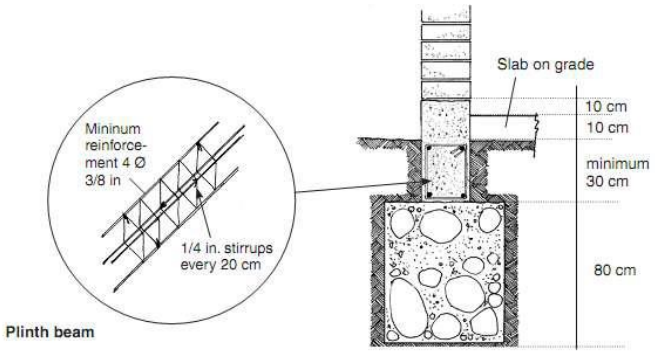

Fig. 2. Plinth beam/band Steel Reinforcement

The behavior of strip foundation is totally depends on the ground conditions. A trench digging modern for continuous foundation should be made. Bottom of trench should be compacted and leveled. Reinforcement bars of columns previously assembled so as a basket are placed and previously fixed into the foundation with reinforcement of all columns placed and provisionally fixed, was continuous foundation filled with simple concrete

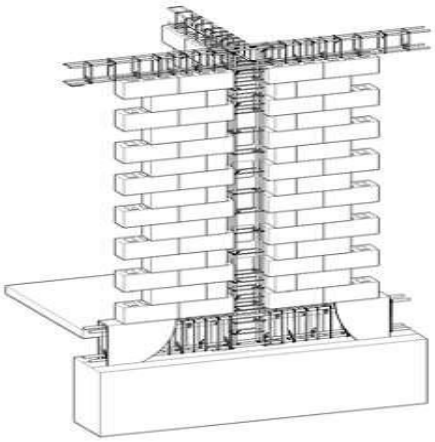

Fig. 3. Beam with Column Reinforcement

About the over above plinth beam, it starts layering of brick/block units over mortar bed, forming masonry wall. Toothed edge has been left on each side of the wall. Toothed edges are essential for adequate wall confinement, which contributes to satisfactory earthquake performance. Masonry wall structure is uniform and regular. Details of confined masonry walls shown in following figure 4

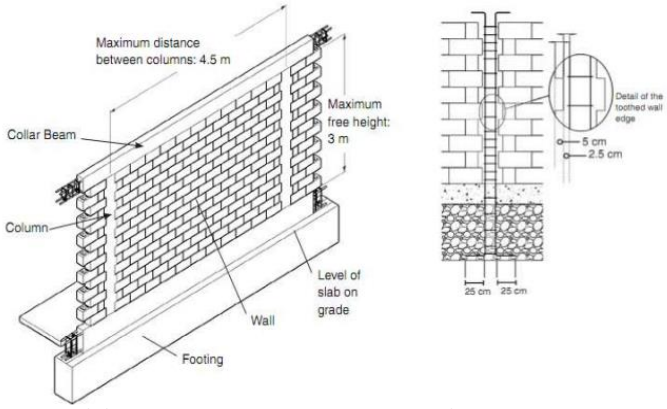

Fig. 4 Left figure shows maximum distance the confined elements with the masonry wall and right figure shows toothed edges of the wall with tie columns.

Wall density of at least 2% in each of two orthogonal directions is required to ensure good earthquake performance of confined masonry construction in building. Since the earthquake performance of confined masonry buildings largely depends on the shear resistance of masonry walls Confined masonry structures will be more safe and stable if the walls are symmetrical along both sides, as shown in fig. 05. Wall density we keeps at least 2%in in at least two or orthogonal direction is be ensure good earthquake performances confined masonry structure its behavior largely depend on shear resistance among masonry wall its more safe at list there some description in figure 5

Fig. 5. Poor and good distribution of wall left and right respectively

E. Horizontal and Rc band provide at sill

The band mainly a role of "crack stopper" blocking diagonal cracks before they also provided stretch over the whole wall panel, thus its ensuring an increase in wall homogeneity during seismic load due to earthquake. here shown as in figure 6

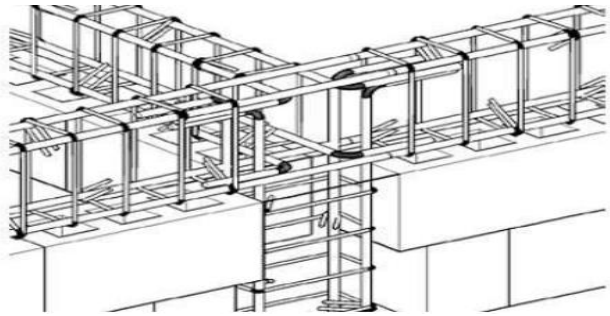

Fig. 6. earthquake performances. In tie beam and column

Length of opening should be not more than half of total length of wall Length of opening = l < L/2.
L= length of opening Good location Wall.

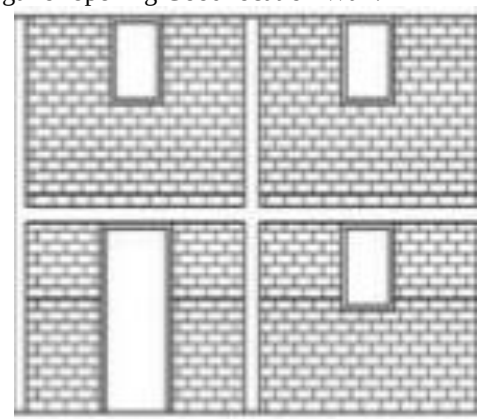

Fig. 7. Good location of window and doors openings for confined masonry structures.

Table 1 Comparison between Confined Masonry building with RC frame construction

	Confined masonry construction	RC frame construction
Gravity and lateral load resisting system	Masonry walls are the main load bearing elements and are expected to resist both gravity and lateral loads.	RC frames resist both gravity and lateral loads through their relatively large beams, columns
Foundation Construction	Strip footing beneath the wall and the RC plinth beam	Isolated footing beneath each column
Time period	Its take less time all complication	more time for completion
Economical	More economical than RC frame	Less economical than confined masonry

Fig. 8. Confined masonry structure defined seismic reinforcement

III. CONCLUSION

Above discussion and experimental analysis results we will be prefer confined masonry structures are best suitable in earthquake seismic zone region because it was in good in strength ductility reliable deformable more in stiffness ,stability economically more easier in construction

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