



You can make your NEW HOUSE safe against EARTHQUAKE !

FOLLOW 10 RECOMMENDATIONS

For Single Storey Masonry Houses in Cement Sand Mortar

1

Site Selection

- Avoid steep & unstable slopes;
- Avoid areas susceptible to landslides and rockfall;
- Avoid construction on loosely filled grounds;
- Place house away from the river banks;
- Avoid construction too close to visible, permanent, deep and active faults;
- Distance between house and tree or with adjoining house be preferably at least equal to the height of tree or house, whichever is larger.



Steep and unstable slopes



Rock fall area



Avoid to construct a house near river banks

2

Shape of House

- Construct regular shaped houses like square, rectangular or circular;
- Subdivide complex shaped buildings by providing gaps at appropriate locations. The gap should be minimum 1 inch for one storied house;
- Avoid long and narrow structures. Length of a house should not be more than 3 times its width;
- Construct compact box type layout with all building components such as floor, walls and roof tied-up with each other;
- Maximum room size should be limited to 15ft x 15ft.



Imposed shape using separation



Avoid long walls



Provide sub-dividing walls

3

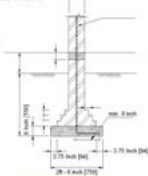
Foundation

- Use continuous strip footing;
- In case of soft soil, the depth of foundation below existing ground level should be at least 3 ft. For rocky areas minimum depth should be 1.5 ft.;
- Minimum width of footing should be 2.5 ft.;
- Make the excavated surface level before laying the foundation;
- In case of loose soil, provide 2 nos. 1/2 inch (4 sutar) diameter main bars with 1/8 inch (1 sutar) rings at 6 inches spacing in foundation bed concrete through out all the walls;
- If stone soring is used under foundation reduce the thickness of foundation strip to 3 inch;
- Foundation Details: Foundation for various masonry options should be as shown in the figure.

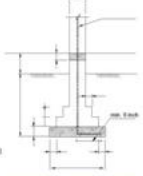
Measurement in brackets [] are in mm



Stone masonry foundation



Brick masonry foundation

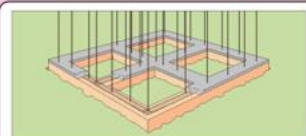


Concrete block masonry foundation

4

Plinth

- Plinth should be at least 1 ft above the ground level
- Provide a reinforced concrete band at plinth level, as shown in figure.
- Minimum thickness of plinth band should be 3 to 4 inch and width should be equal to wall thickness. Main reinforcement should be 2 Nos. 1/2 inch diameter (4 sutar) bars. Use 1/8 inch diameter (1 sutar) rings at 6 inch. Hook length should be 2.5 inch. Bars shall have a clear cover of 1 inch



Plinth band and vertical reinforcement

5

Walls

- Masonry should be laid staggered so that the vertical joints don't form a continuous line.
- At corners or wall junctions, through vertical joints should be avoided by properly laying the masonry. Never make vertical "teeth".

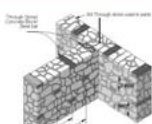
Stone Wall

- Wall Thickness: 15 inches
- Boulder stone should not be used in its natural shape. Boulders should be dressed or semi-dressed before they are laid.
- The inner and outer wythes of the wall should be interlocked with through stones. No large space between two wythes should be left for filling with pebbles or mortar.
- Through Stone: Through stone of full length equal to wall thickness should be used in every 2ft. lift at not more than 4ft. apart horizontally, placed in staggered position. A through stone could be a stone, concrete block or an S-shaped steel bar of min. 1/4" Ø (2 sutar) well packed with mortar.



Through stones in stone masonry wall

Dressed or semi dressed stones should be used. Instead of rubbles and rounded stones.



Through stone should be used. It should also extend up to 1/2" above the mortar joint.



Stepped brick wall construction in place of both construction



Use well burnt, regular sized bricks. Over under burnt and deformed bricks shall not be used.



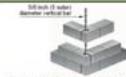
Lay the walls straight in plumb and at right angle. Make depth in shown in picture and that fit the middle part

Brick Wall

- Wall Thickness: 9 inches
- Stepped Construction: Stepped wall construction is better than toothed, when there is a need for future extension or continuation of work.

Concrete Block Wall

- Wall Thickness: 8 inches
- Solid blocks are preferable as compared to hollow blocks.
- Special corner blocks with side hole are required for placing vertical reinforcement.



Vertical reinforcement in block wall



Concrete block wall



Special corner block for placing vertical reinforcement