

FEW RECOMMENDATIONS

For Single Storey Masonry Houses in Cement Sand Mortar

1



Steep and unstable slopes

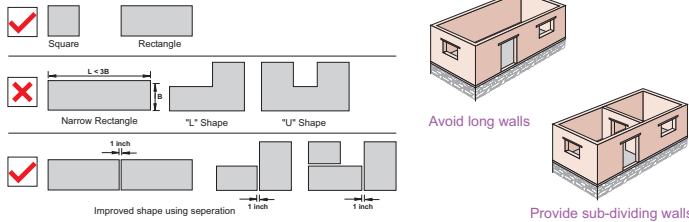
Rock fall area

Avoid to construct a house near river banks

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.

2



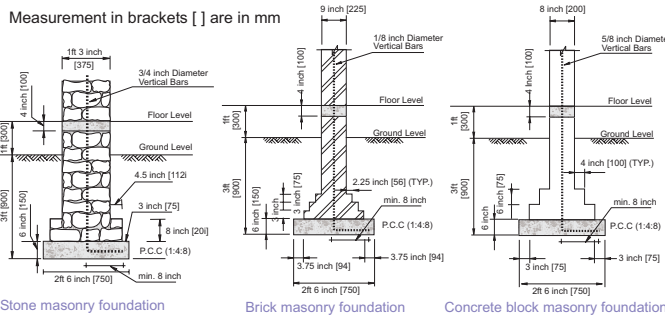
Avoid long walls

Provide sub-dividing walls

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.

3



Stone masonry foundation

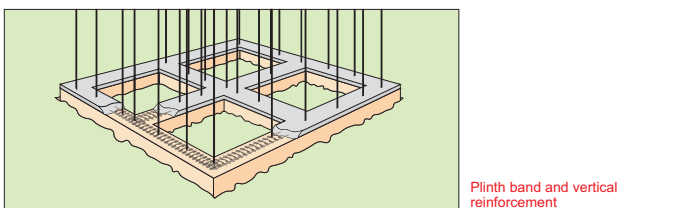
Brick masonry foundation

Concrete block masonry foundation

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 some nominal reinforcement in foundation bed concrete;
- If stone soling 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 figure.

4



Plinth band and vertical reinforcement

Plinth

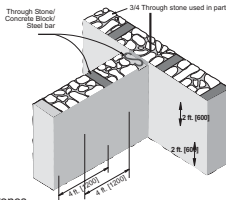
- Plinth should be at least 1ft. above the ground level
- Provide a reinforced concrete band at plinth level, as shown in figure.
- Minimum thickness of plinth band should be 3 to 4 inch and width should be equal to wall thickness. Main reinforcement should be 2 Nos. 1/2 inch diameter (4 sutar) bars.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

5

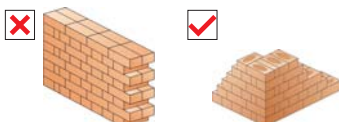


Through stones in stone masonry wall

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



Through Stone Concrete Block Steel bar

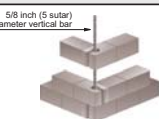


Stepped brick wall construction in place of tooth construction

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



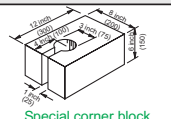
Lay the walls straight in plumb and at right angle. Make steps as shown in picture and then fill the middle part



Vertical reinforcement in block wall



Concrete block wall



Special corner block for placing vertical reinforcement

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 2 ft. 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 inch diameter (2 sutar) well packed with mortar.

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.