

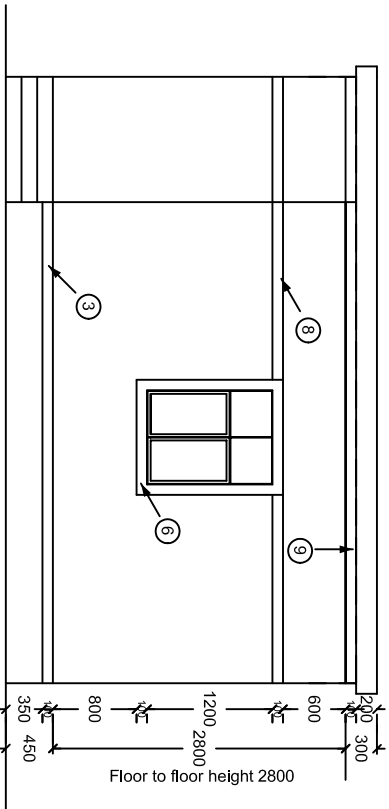
# **A typical design of small dwelling unit for Seismic zone III, IV and V showing architectural and structural drawings for Brick wall & Stone Masonry wall**

*Prepared by*

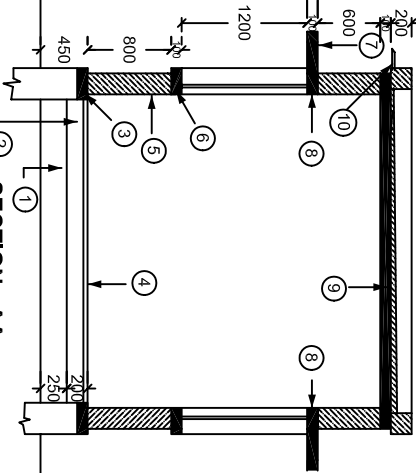
Prof A S Arya  
National Seismic Advisor



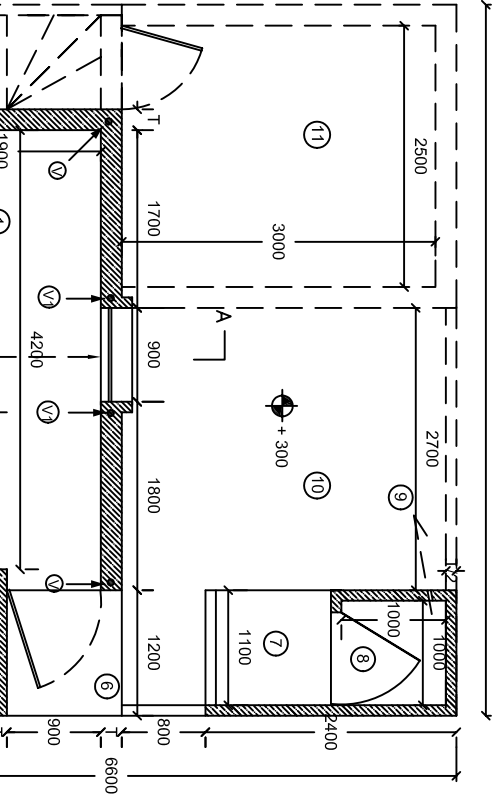
**Government of India  
Ministry of Home Affairs  
National Disaster Management Division**



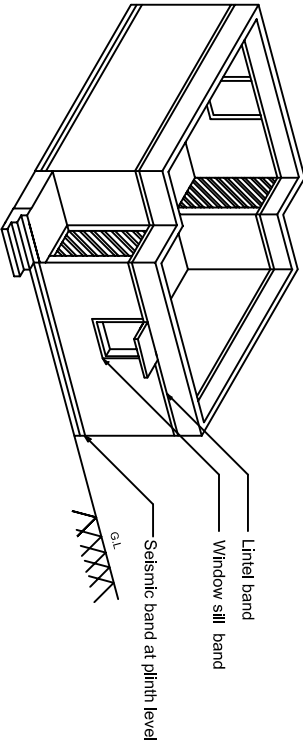
FRONT ELEVATION



| FOR SECTION |                                                                       |
|-------------|-----------------------------------------------------------------------|
| 1           | Compacted earth                                                       |
| 2           | 75mm - 100mm Bk.bat concrete                                          |
| 3           | 75mm - 100mm thk.plinth band                                          |
| 4           | 40mm thk.cement floor with red oxide & groove.                        |
| 5           | T thk masonry wall                                                    |
| 6           | 75mm - 100mm thk. window sill band                                    |
| 7           | Projection over window                                                |
| 8           | 75mm - 100mm thick lintel band                                        |
| 9           | 100mm thk. RCC slab laid to slope to drain rain water through spouts. |
| 10          | PVC pipe for water spout                                              |



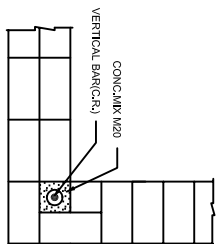
| FOR PLAN |                                      |
|----------|--------------------------------------|
| 1        | Living space                         |
| 2        | Dining/living space for ladies       |
| 3        | Possible partition                   |
| 4        | Cooking                              |
| 5        | Front Entrance                       |
| 6        | Rear Verandah                        |
| 7        | Washing                              |
| 8        | W.C.                                 |
| 9        | Connection to two pit latrine system |
| 10       | Courtyard                            |
| 11       | Future Room                          |
| 12       | Future Staircase                     |



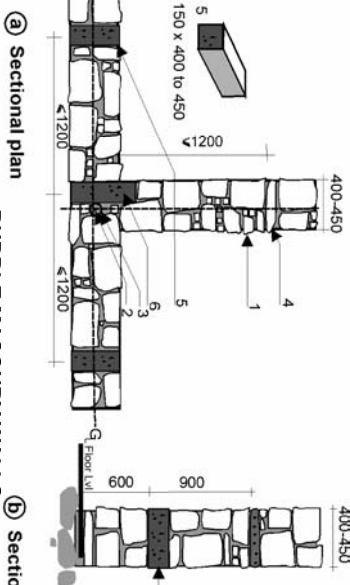
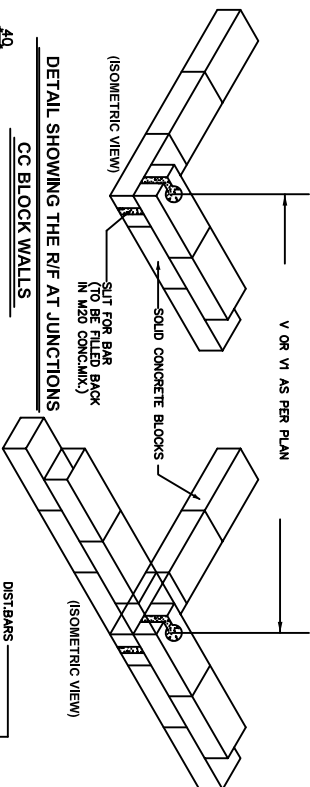
GROUND FLOOR PLAN

| LEGEND               |                         |
|----------------------|-------------------------|
| Proposed Const.      | BUILT UP CARPET AREA :- |
| Prop. Future Extn.   | ROOM: 16.00 Sq.m.       |
| 12 mm dia steel bars | TILET: 1.00 Sq.m.       |
| 10 mm dia steel bars | TOTAL: 17.00 Sq.m.      |
| 230 mm               | TO OBTAIN COVERED AREA  |
| 200 mm               | ADD WALL AREA TO CARPET |
| 400 mm               | AREA                    |

|            |                          |
|------------|--------------------------|
| DATE:-     | 10.06.2004               |
| Dwg. No.:- | NSA/A-01                 |
| 500        | 1000                     |
| 1000       | 2000mm                   |
| 0          | All dimensions are in mm |



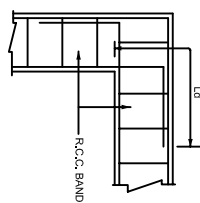
CORNER REINFORCEMENT (C.R.)  
IN BRICK WORK (TYP.)



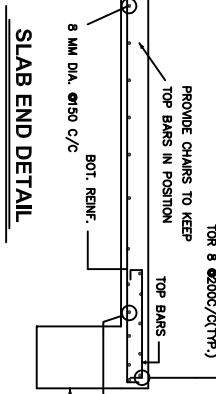
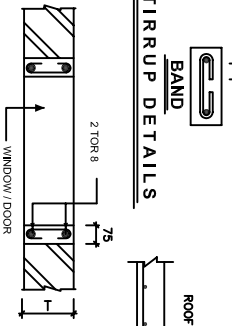
- 400-450
1. Stone wall  
2. Vertical steel bar  
3. casing pipe  
4. 'through' stone  
5. Concrete block  
6. Long concrete block  
150 x 150 x 400-450 mm long  
150 x 150 x 550-600 long

Sectional plan

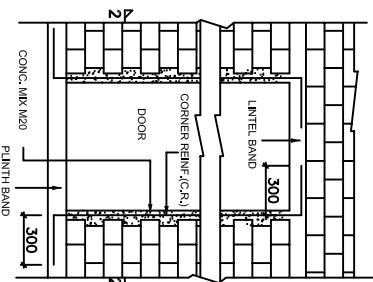
Sectional elevation



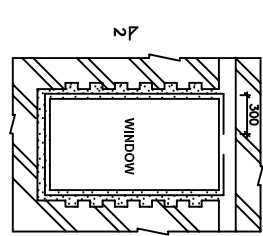
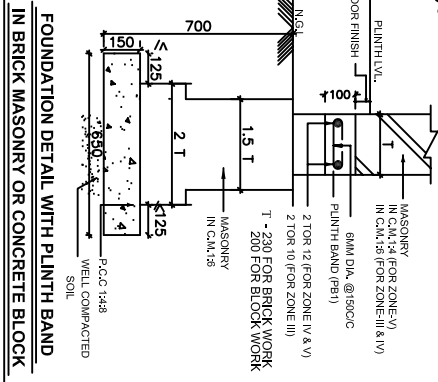
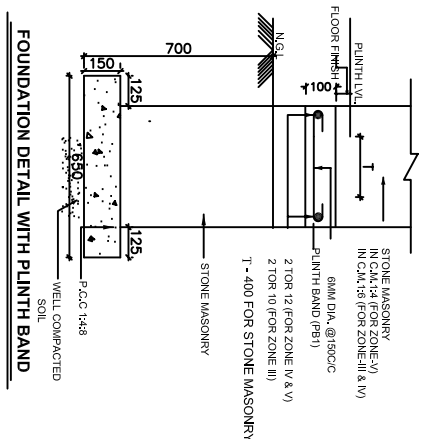
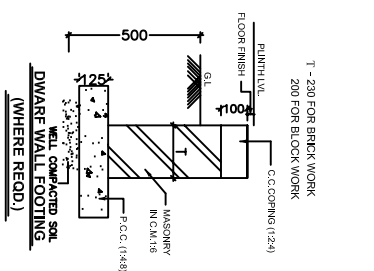
DETAIL OF BAND AT ENDS



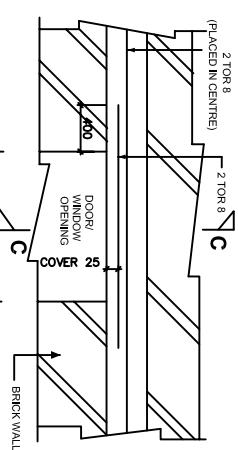
SLAB END DETAIL



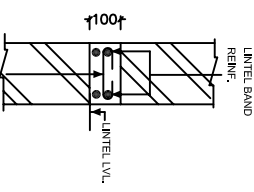
SECTION 2-2



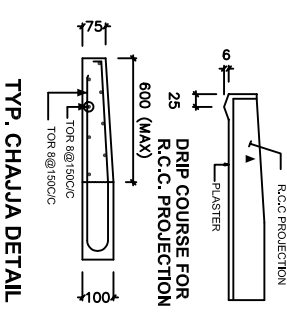
REINFORCING DETAILS  
AT JAMBS



TYP. LINTEL BAND



SEC. C-C  
(FOR 230/200 THK WALL)



TYP. CHAJUA DETAIL

SPECIFICATIONS:-

- 1) P.C.C. below Masonry works shall be in Concrete M1k 1:5:10
- 2) Masonry work shall be in C.M. 1:4 in Zone V & 1:6 in Zone IV
- 3) Thick Masonry shall be in C.M. 1:4
- 4) All R.C.C. work shall be in Concrete M1k M 20 (or nominal m1k 1:1:5:3)
- 5) All Reinforcement shall be of TOR STEEL Fe 415 Bars.
- 6) Inside plastering (if done optionally) shall be 12 mm thick in C.M. 1:6
- 7) If needed, roof & other R.C.C. members shall be plastered in C.M. 1:3.
- 8) External Plaster shall be in C.L.M. of 1:1:3 M1k or C.M. 1:6 m1k.
- 9) Terracing shall be optional
- 10) Room floor optional
- 11) Door & window frames & shutters and all finishing items (optional)

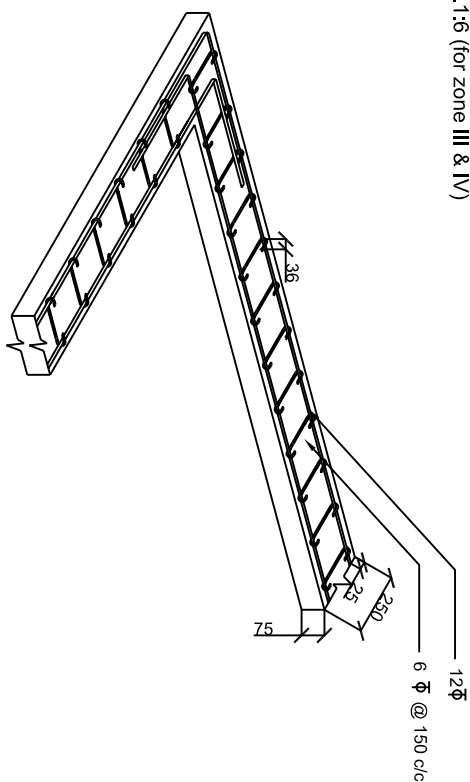
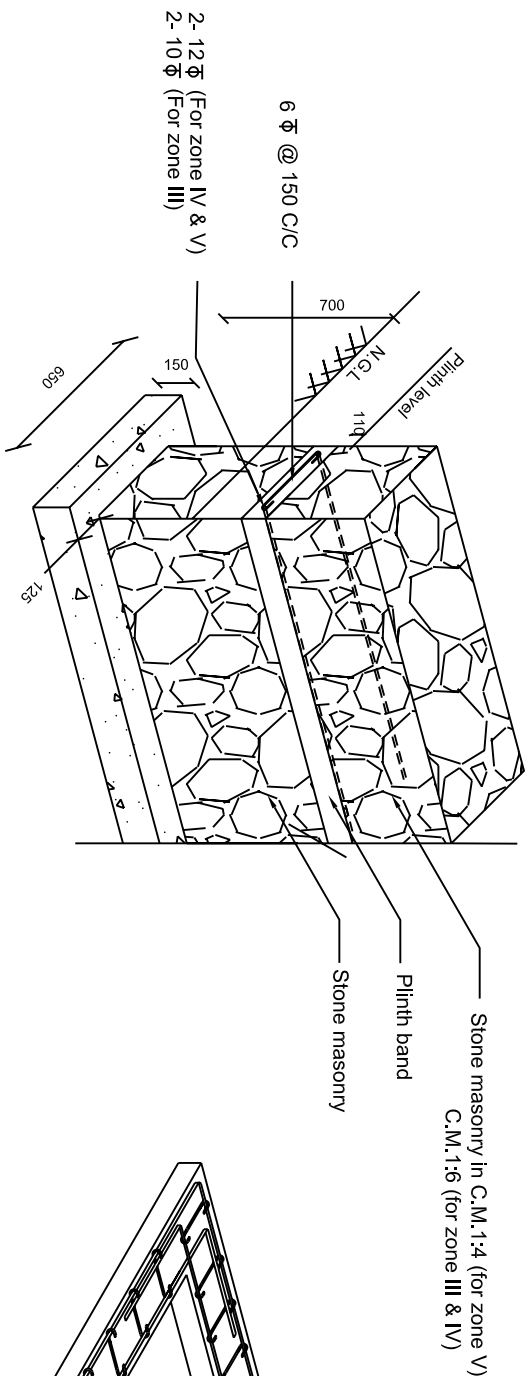
Date:- 10.06.2004

Scale:- 1:10

Dwg. No.NSAS-01

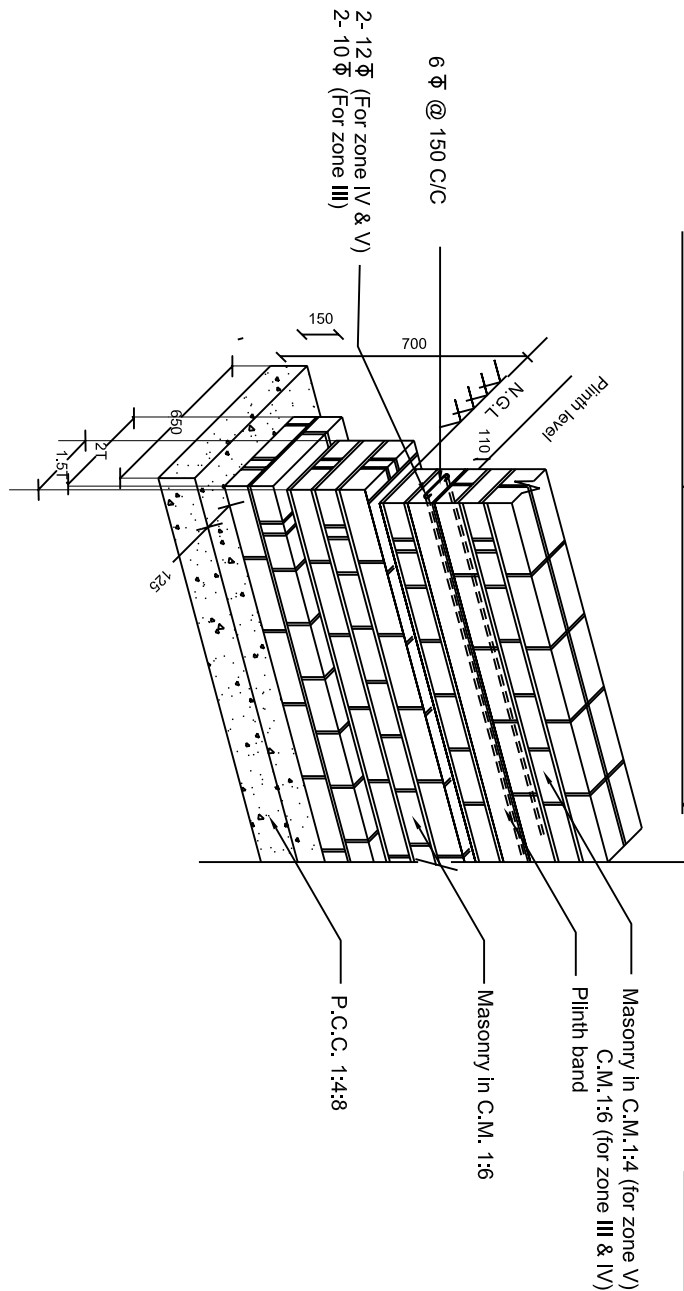
All dimensions are in mm

AN EXAMPLE FOR SMALL DWELLING UNIT



Foundation detail with plinth band in stone masonry

Seismic Band at plinth level



Foundation detail with plinth band in brick masonry

**LEGEND**

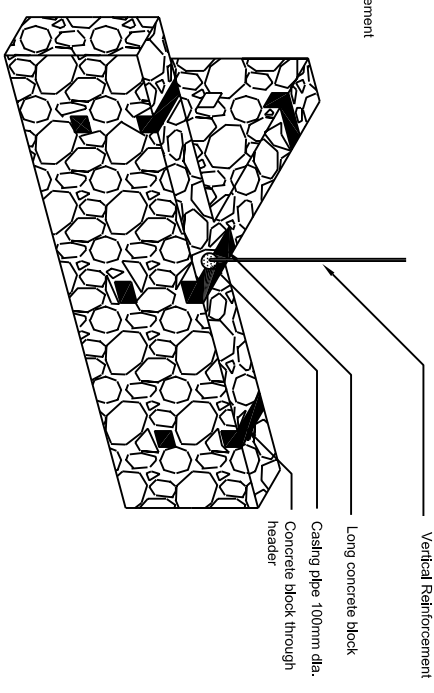
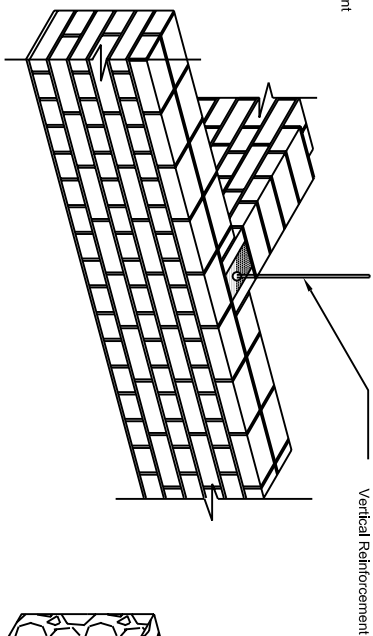
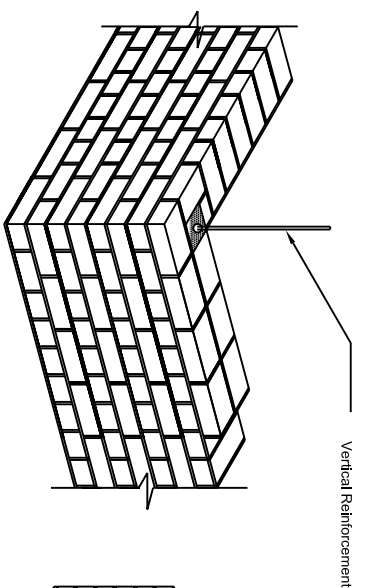
T For Brick wall - 250 mm  
T For Stone wall - 400 mm

**Details of Foundation and  
Seismic Band at Plinth Level**

**AN EXAMPLE FOR  
SMALL DWELLING  
UNIT**

Dwg. No. NSAS-03

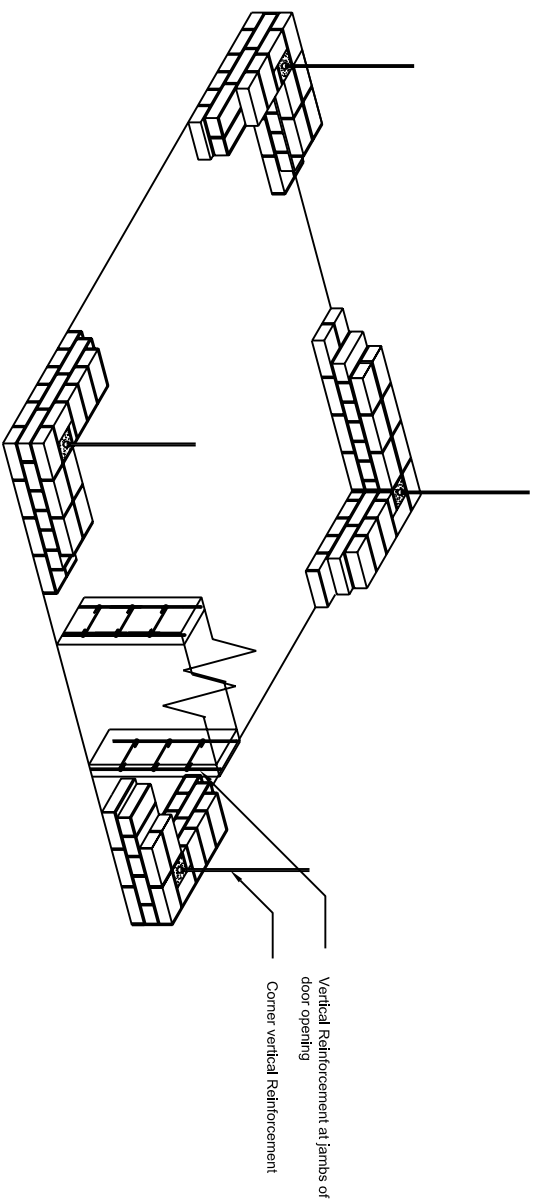
All dimensions are in mm



Vertical steel bars at corners and T-junction in brick masonry  
( Create pockets of 14\*14 mm (1/2\*1/2 brick) in brick work and fill with M20 micro concrete after every 2 courses)

Details of providing vertical steel bars at T-junction in Rubble masonry wall

1. Build stone masonry around casing pipe
2. Rotate casing pipe to loosen and raise above masonry
3. Fill the hallow pocket with M20 micro concrete



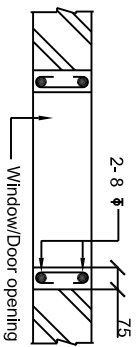
Details of providing vertical steel bars in brick masonry

**Details of providing vertical steel bars at corners, T-junctions of walls and jambs of openings**

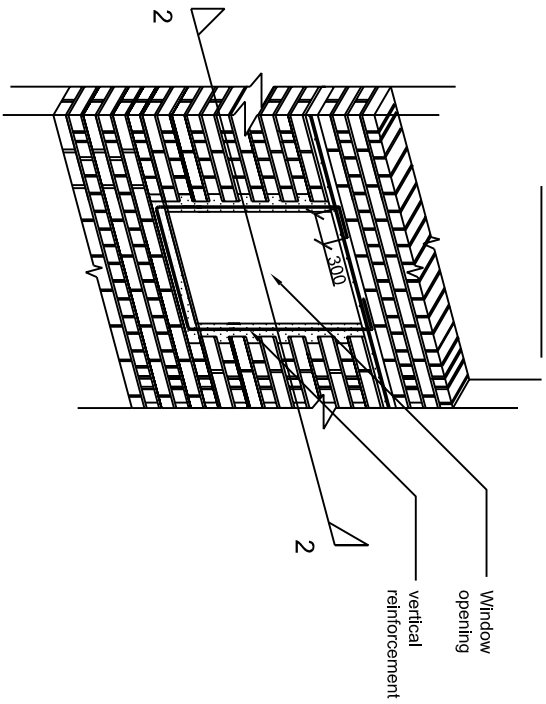
**AN EXAMPLE FOR SMALL DWELLING UNIT**

Dwg. No. NSA/S-04

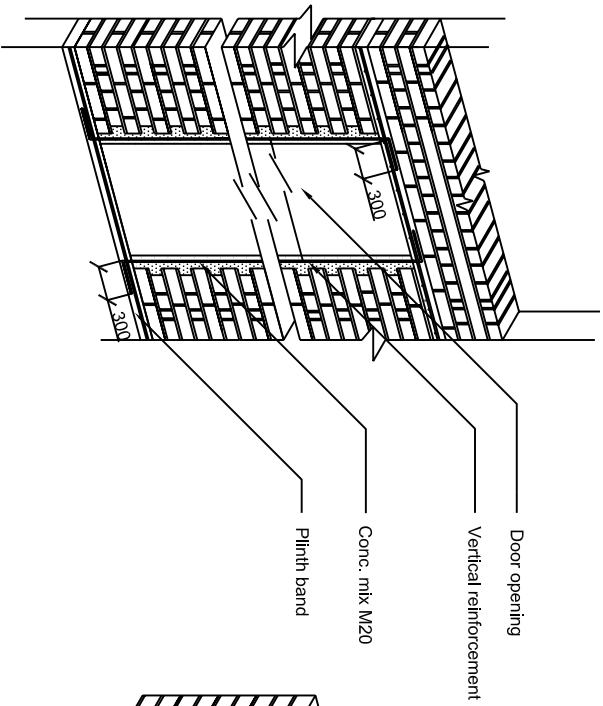
All dimensions are in mm



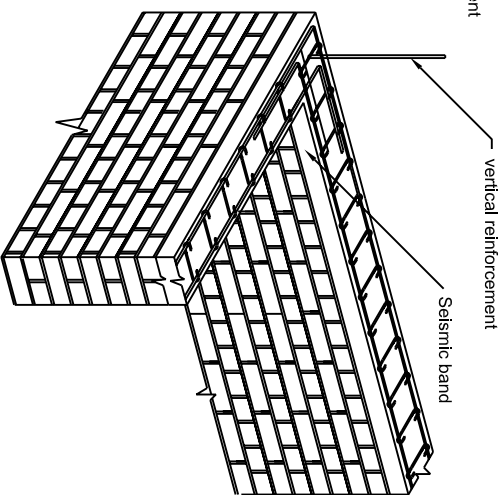
SECTION 1 - 1



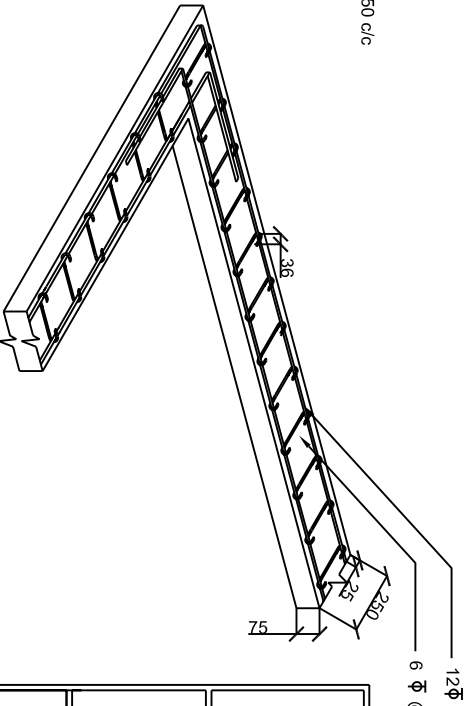
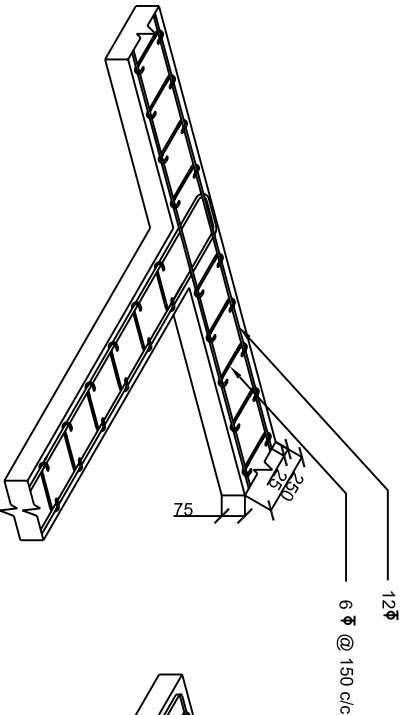
Strengthening masonry around  
Window opening



Strengthening masonry around door  
opening

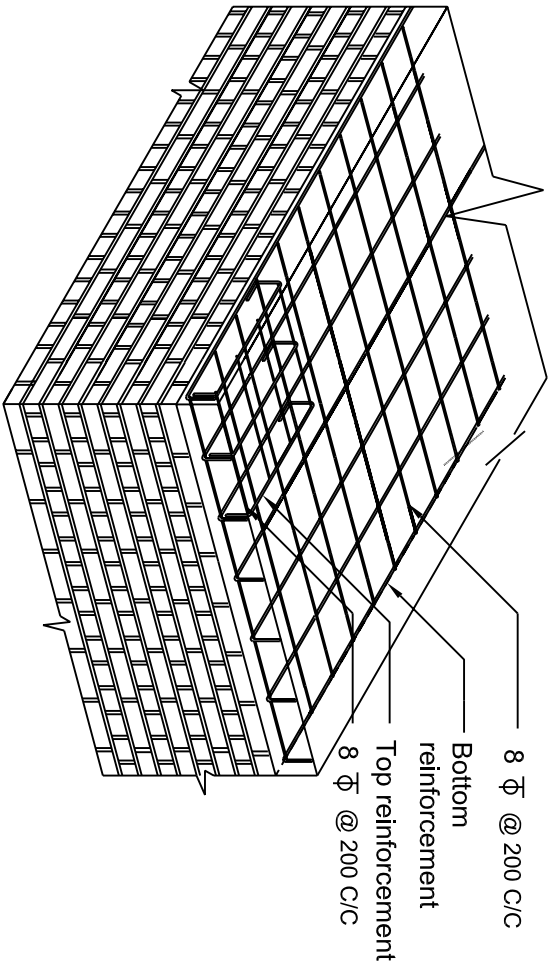
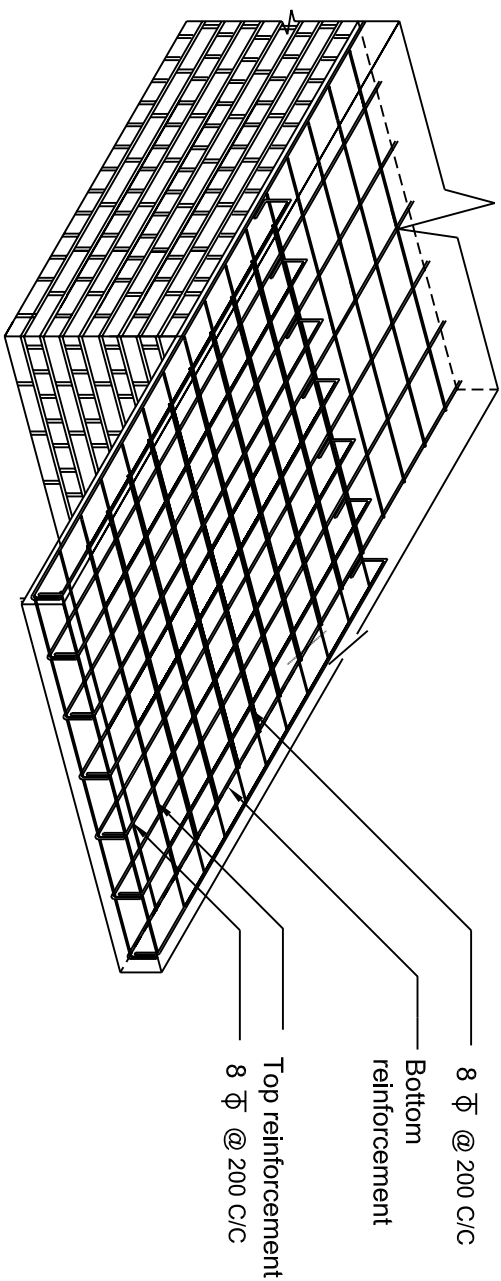


Details of R.C. Band



Details of R.C. Band at corner and T-junction

|                                                                          |  |                          |
|--------------------------------------------------------------------------|--|--------------------------|
| Details of seismic band at lintel level and vertical bars in brick walls |  |                          |
| Similar details to be followed in concrete block and stone masonry walls |  |                          |
| AN EXAMPLE FOR SMALL DWELLING UNIT                                       |  |                          |
| Dwg. No. NSA/S-05                                                        |  | All dimensions are in mm |



Slab corner details

Details of slab

AN EXAMPLE FOR  
SMALL DWELLING  
UNIT

Dwg. No. NSAS-06

All dimensions are in mm