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CENTRAL DESIGNS ORGANISATION

DESIGN CIRCULAR No. 20 (REVISED) 2006

(A) GENERAL NOTES:-

1. Work shall be taken up only for the approved scheme.
2. All dimensions are in mm unless otherwise specified.
3. In case of any discrepancy in drawings or site conditions or architectural drawings, the same shall be brought to the notice of CDO for reconciliation before execution.
4. No dimension shall be scaled out, only written dimensions shall be followed.
5. All centre line dimensions shall be extracted from the Architectural Drawings.
6. If the area requires any filling, such filling would be kept to the minimum and plinth level would be decided accordingly.
7. Filling of earth shall be done simultaneously for equal depths on both sides of the wall.
8. If it is a filled up area it should be ensured that the foundation rests on the original / virgin soil at the specified depth as recommended by the soil consultant.
9. It may be ensured by the Executive Engineer- in-charge that houses/buildings under construction are situated sufficiently away from a retaining wall, nallah, well or ditch so as to ensure the stability of soil / building. If necessary, soil consultant should be consulted and report may be sent to CDO.
10. It must be ensured by EE- in -charge that there existed no nallah, water course at site which might have been filled up and may get activated, leading to ingress of water below foundations and differential settlements thereof. Effective drainage arrangement shall be made for life time of the structure.
11. 115 mm thick walls and those above cantilever are to be non-load bearing, which will be constructed after deshuttering the slab above, unless specified otherwise.
12. Projections provided for ornamental effect in elevation shall be suitably anchored back to the main structure.
13. Masonry where supported on cantilevers shall be firmly tied to main structure in accordance with IS 4326-1993.
14. Between adjoining footings at different levels, a clear horizontal distance shall be maintained so that slope of the joining line of footing beds is not steeper than 1 vertical :2 horizontal. Where required suitable drop in steps shall be provided in the foundation bed maintaining a slope not steeper than 1 vertical :2 horizontal for the cross- wall also.
15. Water tank shall not be placed directly over terrace slab.
Tanks shall be supported on beams and rested on side supports
16. Design for compound/partition walls and plinth protection shall be finalized by the Engineer In-charge.
17. Expansion/separation joints are to be provided as per drawing/codal requirements (IS 3414-1968, IS 4326-1993 & IS 1893-2002).
18. The drawings shall not be used for other work/works of similar nature except for the one issued for.
19. The compound wall shall not be constructed along with walls of the main building.
20. In case during the excavation/piling work, the soil parameters/details are found different than that of given in soil investigation report and subsequent clarifications, it shall be immediately brought to the notice of CDO before further execution of work.
21. 80 mm thick lean concrete shall be laid underneath foundation, Grade Beam, Mat, Raft and Pile cap wherever required.
22. All IS Codes referred shall be followed as per upto date revisions/amendments.

7. Distribution reinforcement for suspended floor slabs, not shown in the drawings, shall be provided as $8 \phi @ 300$ c/c for 100 mm thick RCC slabs.

8. Floor slabs, except otherwise specified, are 100 mm thick. Reinforcement bending shall be done as per bar detailing schedule.

9. For all beams, bearing shall be structurally stable/sound.

10. Bed Blocks shall be provided under all the beams where supported on masonry walls.

Depressions in slabs wherever indicated are the maximum permissible.

These may be reduced as per site requirements.

11. Bearing for the slab shall be for full brick width of the wall/beam.

12. Ductility reinforcement detailing, for earthquake resistant designs, shall be provided as per IS 13920-1993.

13. Height of the column pedestal (including depth of the footing) shall be not less than 32.2 times the largest dia. of the column bar.

14. Clear height of the pedestal shall not exceed three times the least lateral dimension of the pedestal.

15. Suitable camber shall be provided for the large spanned and cantilever beams as per relevant CPWD specification. Centering for the cantilevers shall be removed only after adequate counter weight is available.

16. Side face reinforcement shall be provided for beams where depth of the web is more than 750 mm.

17. Additional reinforcement be provided around cut-outs/opening as per Fig. 9.10 & 9.11 (Page 130) of SP 34 (S & T) 1987.

18. The stirrups in beams / columns shall be closed one having a 135° hooks with extension at each end equal to $10 \times \text{Dia}$ of stirrups or 75 mm whichever is greater.

In case of secondary / simply supported beam lap shall not be provided in the middle one third of span.

When bar of two different diameter are to be spliced, the lap length shall be calculated on the basis of diameter of small bars.

(C) PILE - FOUNDATIONS

All piles shall be cast in design mix concrete of Grade M 35.

The pile details shown in drawing are subject to clearance of initial load test results by the Engineer-in-charge under intimation to CDO.

The minimum spacing of piles of uniform shaft, shall be three times the shaft dia. of the piles unless specified otherwise.

Generally the centre to centre spacing for bored cast-in-situ under-reamed piles in a group should be two times the bulb dia (D_u). It shall not be less than $1.5 D_u$.

The maximum spacing of piles shall not exceed 3 meter.

For the execution and testing of pile foundation, all the relevant clauses of IS Code 2911 (Part I to IV) with upto date amendments shall be followed.

The piles shall project 50mm into the cap/Grade beam/raft.

The reinforcement from the pile shall be properly anchored into the pile cap/grade beam/raft as per drawing.

Filling wherever required shall be done as per specifications, prior to taking up of the pile work.

Length of piles specified in the drawing are from the virgin soil only. (Refer Bore Hole logs in Soil Investigation report for level of virgin soil). Additional length, over and above the design length, shall be provided for the piles, equal to the filled up depth.

The Initial / routine test shall be carried out as per IS 2911 Part-IV-1985.

For intermediate piles wherever distances are not specified, shall be treated as centrally located.

(B) ADDITIONAL NOTES FOR RCC WORK:-

All the provisions of IS 456- 2000 shall be followed.

Unless noted otherwise, all Reinforced Cement Concrete work (except pile work shall be done in M-25 design mix concrete as per

C.P.W.D. specifications 2002 and IS 456-2000. All piles shall be provided in concrete grade M-35.

3. High yield strength deformed bars conforming to IS 1786-1985 (Grade Fe 415) shall be used. Testing shall be done to ensure that TMT bars, in case used, conform to IS 1786-1985 and Modulus of Elasticity conform to IS- 456-2000.
4. Generally not more than 1/3 rd of the steel reinforcement shall be lapped at one location (Restricted to Max. 50%).
5. The development length for reinforcement in tension and compression shall be as under :-

CONC. GRADE	Ld	Ldc
M 25	40.3 x db	32.2 x db
M 35	33.2 x db	26.55 x db

db = DIA. OF THE BAR

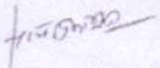

Ld = DEVELOPMENT LENGTH IN TENSION

Ldc = DEVELOPMENT LENGTH IN COMPRESSION

6. Nominal cover to all steel reinforcement including secondary reinforcement distribution & stirrups, unless shown otherwise in drawing shall be as follows (These are based on fire rating of one hour refer circular no.22/CDO)
Slabs 20 mm
Terrace slabs, chajjas, fins 25 mm
Beams (Clear to stirrups) 30 mm
columns (Clear to stirrups) 40 mm
Piles (Clear to stirrups) 50 mm
Footings and all foundation members 50 mm
Pile cap 60 mm
RCC Walls (230 MM Th.) 25 mm
RCC Walls (in contact with soil) 40 mm

THIS ISSUES WITH THE APPROVAL OF CHIEF ENGINEER (D)
VIDE CE(D) T.C./13/84/740DT:25.10.2006

PROJECT TITLE:

		
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