DRAWING INDEX

Sl No	Drg.No	Rev.No	Drawing Title	Remarks
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REVISION DETAILS

Rev.No.	Particulars	Date
0	Detailed Design	30-07-2019

DETAILED DESIGN DRAWING

KERALA PUBLIC WORKS DEPARTMENT
OFFICE OF THE JOINT DIRECTOR
REGIONAL DESIGN OFFICE, KOZHIKODE

PREMETRIC HOSTEL AT NENMENI, MALAPPURAM

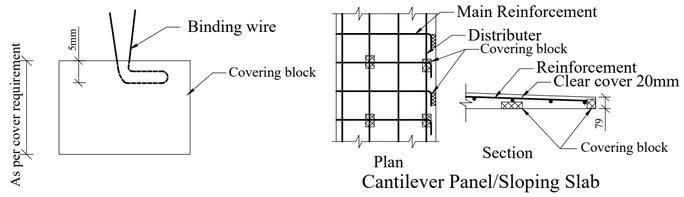
DRAWING INDEX

FILE NO.	AR.DRG.NO.	SCALE	DRG.NO.	SHEET NO	DATE
RDO/KKD/BL-13/AHE1/18	160/17(D)-Rev dt.13.06.19	1:100	RDO/KKD/BL-13/18	S000	30/07/2019

DRAWN	DRAUGHTSMAN	PRASY M
DESIGNED	ASSISTANT HIGHWAY ENGINEER	ARYA N
REVIEWED	BRIDGE ENGINEER	FIROSE T P
APPROVED	JOINT DIRECTOR (IN CHARGE)	MANISHA P S

1. ARCHITECTURAL DRAWING.
   - The drawings are prepared based on architectural drawings referred to in the structural design drawings.
2. DIMENSIONS
   - All dimensions are in millimetres and all levels are in metres unless otherwise specified.
   - Written dimensions shall be accepted. No dimensions shall be scaled off from the drawings for arriving at any dimensions.
3. CONCRETE
   - Unless specified otherwise, grade of concrete mix shall be M30 conforming to IS 456-2000.
   - Only vibrated concrete shall be used for all concrete works.
   - The specifications regarding the size of aggregate sampling, testing of cement and aggregates and other technical specifications mentioned in the tender documents shall be strictly followed.
   - The production and quality assurance of concrete shall be as per clause 10 of IS 456-2000.
   - Precast mortar blocks of same strength of that of structural concrete shall be used for cover blocks at bottom and sides of reinforcement.
4. REINFORCEMENT AND DETAILING
   - Unless specified otherwise High strength deformed bars of minimum grade Fe 500D conforming to IS 1786-1979 shall be used. Only tested quality steel shall be used and test certificates for each consignment shall be produced before using the steel on the job.
   - The steel bars shall be placed and tied in such a way that the bars are not displaced during concreting.
   - Laps/splices shall not be provided at maximum bending moment zones. Laps/splices shall be staggered by atleast 600mm and not more than 50% of the bars in a section shall be laped/spliced at that section.
   - Not more than half the column bars shall be lapped at a section
   - The top and bottom longitudinal steel for beams framing in to both the sides of columns should extent through the column without splicing/lapping.
   - Lap length in reinforcing bars shall conform to clause 26.2.1 of IS 456-2000.
   - For construction in coastal areas considering the salinity in air extra cover of minimum 10mm shall be given for exposed members.
   - Nominal cover to all steel reinforcement to meet durability requirement under mild exposure shall be as follows unless otherwise specified.
     i) Slab - 20mm for main reinforcement up to12 mm diameter bar
     - 20mm for reinforcement above 12mm diameter bar
     ii) Beam - 25mm(Minimum)
     iii) Column - 75mm upto ground level and 40mm above ground level.
     iv) Foundation - 75mm according to the exposure conditions
     v) Side of pile,pile cap, Grade Beam - 75mm
     vii)Water retaining structures
     Water face - 50mm
     Other faces - 25mm

   In any case the clear cover shall not be less than the largest bar dia, used in that element.
5. COVERING BLOCK
   - Cover block should be cast at site as per the required cover with same mix as that of member to be casted.
   - Covering blocks sre to be tied at sides of column reinforcement and beam reiforcement. If required at end of beam reiforcemennt and end of cantilever slab reiforcement.
   - Covering blocks shall be given curing for a minimum of 28 days. Cover to foundation at bottom and sides shall be cast in advance and provided.
   - Necessary care should be take while casting cover block as shown



Cantilever Panel/Sloping Slab

   - While casting cantilever slab instruction shall be given to place cover block and reiforcement as shown above

6 FOUNDATION.
   - The safe bearing capacity of the soil has been taken as specified in the design drawing sheet for foundation based on the soil investigation report received or as informed by the Chief Engineer , Buildings . This shall be verified and ascertained at site. If there is variation in the bearing capacity of the soil at the founding strata leading to a lesser or uneconomical value ,the matter shall be reported to the design wing with actual safe bearing capacity for suitable revision of foundation design drawing.
   - P.C.C. 1:4:8 by volumetric proportion shall be laid as per dimensions indicated in the relevant drawing to serve as a levelling course.
   - Where footings are to be founded along a slope or near the edge of a slope, the distance of the sloping surface at the base level of the footing to the centre of the footing shall not be less than twice the width of the footing for normal loading.
   - When adjacent footings are to be placed at different levels, the distance between edges of the footings shall be such as to prevent undesirable overlapping of stresses in soil and disturbance of the soil strata under the higher footing due to excavation for the lower footing. If sufficient space is not avilable the matter should be reported to the design wing for suitable solutions. However the slope of joining line of edges of adjacent footings should not be steeper than one horizontal to one vertical unless other wise specified.
   - For additional details refer to clause 7. 1.4.3 of national building code of India 2005
7. CONSTRUCTION JOINTS
   - Concreting shall be carried out continuously up to predetermined construction joints. All construction joints which are hardened shall be roughened which shall even be swept cleanand thoroughly wetted. Cement slurry shall be applied on the surface before it is dry.The fresh concrete should be thoroughly vibrated and shall be well rammed against the prepared surface before the grout sets. Construction joints should comply with IS 11817.
8. REMOVAL OF FORMWORKS
   - Forms shall not be released until the concrete has achieved a strength of at least twice the stress to which the concrete may be subjected at the time of removal of form work.Where ever possible the form work shall be left longer as it would assist the curing .Forms may be removed as per clause 11.3 of IS 456/2000.
   - Where the floor above is likely to be over loaded by construction materials or other reasons, the formwork for that floors shall be retained during the duration of the loading and reproping for the floors below, if required shall be done.
   - The supports for the beams shall be retained until the concreting of the floors above is completed and the full strength frame action.
   - Exposed slabs (roof slabs, open verandah, slabs around open courtyard) shall be given a minimum slope of 1 in 100 or as required, in form work itself so as to drain the rain water. Even if there is vertical expansion, the intermediate floor slab can be given slope as above.
9. FILLER WALLS/PARTITION WALLS
   - The construction of filler walls/partition walls/filling in depressed floors etc. shall be taken up only after the floor frame supporting it has attained full strength and the formwork released.
   - The construction of the above item of work shall be taken up from top floor to downwards where ever possible.
   - 150mm thick RCC band with 2 Nos 6mm plain bars shall be provided at a height of 1.5m intervals for all half brick wall construction.
   - Properly designed bed blocks shall be provided under beams resting on walls.
   - Reinforcements for lintels, sun shades, slab projections, parapet etc. shall be provided suitably at site by the Engineer in charge.
   - The filler walls or partitions walls shall be constructed only as per AR drawings and deviation from the AR drawings is not permitted at any stage unless otherwise noted in the structural drawing.
   - Concealed beam of 300x120 with 4 Nos 12mm dia bar at top and bottom and 8mm dia, 2 legged stirrups at 150 c/c shall be provided with in the floor slab to support half brick wall of maximum height 2.4m if sub beams are not provided in the structural drawing.
10 DELAYED CONSTRUCTION
   - In case construction is not envisaged above any floor level the reinforcement provided for that floor beams and slab shall not be less than that proposed for the roof level beams or slab.
   - In such cases provide temperature reinforcement at top face of that floor slab 8 mm dia Fe 500D bars @ 300 c/c as a mesh in portions not covered by structural steel. main structural elements.
11. WATER TANK
   - Light weight water tanks of PVC, Ferro cement etc. shall be provided only at location marked in Roof key plan.
   - The location of ducts for sanitary line and AC shall be identified and proper workingdrawing prepared showing these items and work carried out with out interfering the main structural elements.

13. LOADING
   - Generally live loads are as specified in IS 875 is adopted for design.
   - The following dead loads on slab in addition to self weight are taken for design.
     Weather proof on roof 2.50KN/m²
     Floor finish 1.00KN/m²
   - Wall loads are considers only on beams where walls are shown in Architectural drawing. Hence walls cannot be constrcucted where wall loads are not considered.
   - The work shall be executed in accordance with sound engineering practice and as per ADS specification indicated in relevant codes of practice and National Building Codes.
   - Proper co-ordination between electrical, mechanical and all such other trades should be maintained with civil works before starting the structural work.If any changes required they If any changes required they shall be brought to the notice of the design office.
   - If there is any ambiguity in the drawings or if the structural drawings are not agreeing with the AR drawings ,the same may be got clarified from the design wing before execution of work.
   - No change in design shall be effected with out proper authority.
   - Sufficient drain water pipes should be provided to drain the rain water from roof or shade slabs.
   - The slope to the roof of porch, general roof tank roof, lift roof etc shall be given in form work itself.
   - Waterproofing arrangements shall be made for toilet slabs.
   - Electrical conduits shall be provided in beam and slabs at the time of casting.Provision for electrical ducts/conduits/cables shall be provided at the time of csting column, beam, slab, staircase etc. in order to avoid cutting of strucural members afterwards.
   - For electrification wiring do not pass through column, beam cross section
   - Provision for toilet pipe outlets of required dimension shall be made at the time of casting the toilet beams / slabs
14 END COLUMNS
   - Construction should be stopped considering development length of reinforcement barsfrom beams(refer detailing) anchored into the columns.
15. SUPERVISION
   - Strict supervision shall be ensured by the Executive Engineer - concerned during the execution of the work at site.
16. Tread / riser stair slab link will be connected to the floor beam.
17. Casting of kicker is carried out with proper cleaning and clearing the joint (Removing loose aggregate laitance) and also needle vibrators are used. Kicken shall be constructed along with casting of slab.
18. The material used for construction should be as per the Architectural Drawing and the Structural design.

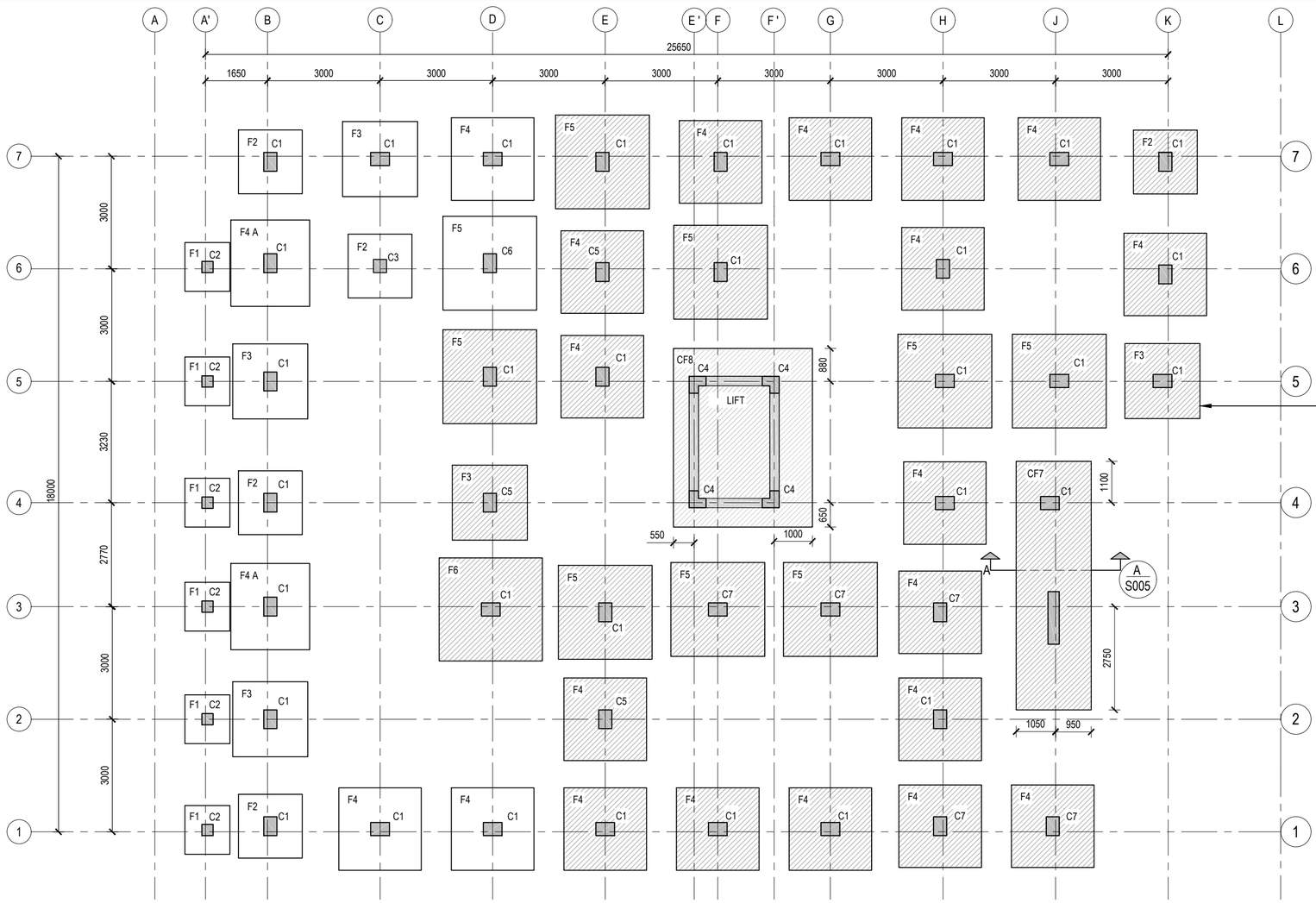
SPECIAL NOTE
   - This drawing supersedes drawing No DRIQ/BL/25/2003 dated 9-10-2003.

OFFICE OF THE CHIEF ENGINEER (DESIGN & ADMINISTRATION)
DRIQ BOARD, KERALA PWD, THIRUVANANTHAPURAM

GENERAL NOTES

FILE NO.	SCALE	DRAWING NO.	SHEET NO.	DATE.
	NOT TO SCALE	DRIQ/BL/ /2012	1/3	/ /2012

DRAWN	DRAUGHTSMAN	
DESIGNED	ASSISTANT DIRECTOR	
CHECKED	DEPUTY DIRECTOR	
REVIEWED	JOINT DIRECTOR	
RECOMMENDED	DIRECTOR	
APPROVED	CHIEF ENGINEER	



1 FOUNDATION LAYOUT

LEGEND
CJ - Construction Joint
EF - Each Face
UNO - Unless noted otherwise

FOOTING SCHEDULE

Footing Notation	Size (LxB) mmxmm	Depth (D) mm	Reinforcement along		Remarks
			X- direction	Y- direction	
F1	1200 x 1300	500	T12 @ 150 c/c	T12 @ 150 c/c	Isolated Footing
F2	1700 x 1700	500	T12 @ 150 c/c	T12 @ 150 c/c	Isolated Footing
F3	2000 x 2000	600	T16 @ 200 c/c	T16 @ 200 c/c	Isolated Footing
F4	2200 x 2200	600	T16 @ 200 c/c	T16 @ 200 c/c	Isolated Footing
F4A	2100 x 2300	600	T16 @ 200 c/c	T16 @ 200 c/c	Isolated Footing
F5	2500 x 2500	700	T16 @ 200 c/c	T16 @ 200 c/c	Isolated Footing
F6	2750 x 2750	750	T16 @ 200 c/c	T16@ 200 c/c	Combined Footing
CF7	2000 x 6620 See Plan	700	Short Direction T12 @ 200c/c(Top) T16@200 c/c(Bottom)	Long Direction (Main Bars) T16 @ 150c/c(Top) T20@100 c/c(Bottom)	Combined Footing
CF8	3700 x 4760 See Plan	600	T16 @ 200c/c (Top & Bottom)	T16 @ 200c/c (Top & Bottom)	Raft at lift pit bottom level

SPECIAL NOTES

1. Strict supervision shall be ensured by the Executive Engineer concerned during the execution of the work at site.
2. The site shall be levelled as per the Architectural requirements by cutting & filling the sloping land. Retaining walls shall be provided, wherever found necessary as per the actual site conditions.
3. Depth of excavation for footings shall be 2.00 m (minimum) from the proposed Ground Level or from existing Ground Level whichever is deeper. Actual level of footings shall be confirmed with site conditions and Architectural drawing.
4. Lift pit depth shall be minimum of 1600 mm from Ground Floor Level and shall be confirmed with lift Manufacturer prior to execution.
5. Approved type of PVC water stop (250 mm wide) shall be used along the CJ as shown in section AA in Sheet No- S005.
6. At car porch, the plinth beam should be laid at 150 mm lower level than the finished ground level.
7. The end columns are to be cast at a lower level so that the development length for the reinforcements can be provided as per codal provisions.
8. The slope to drain off rain water from the roof of Porch, General Roof, Tower roof, Machine room roof etc. shall be given in formwork itself.

NOTE ON CONCRETE & REINFORCEMENT:

1. Concrete grade shall be as follows
   - All RCC works - M30
2. Grade of Steel
   All steel reinforcement to be used shall be high yield strength deformed bars of Grade Fe 500 D and conforming to IS 1786 - 2008 which shall be manufactured by primary steel producers .
3. Concrete cover to reinforcement.
   The minimum cover measured from the surface of the concrete to the outermost reinforcing bar including links and stirrups shall not be less than the following unless noted otherwise.
   - RCC Footing & column below G.L - 75mm
   - Column above GL - 40mm
   - Beams - 30mm(min.)
   - Slabs, Stairs - 20mm
4. Lap length
   Where lap splices are used, lap length shall be as stated in the following table except where noted otherwise.

Dia of bar	12	16	20	25
Lap length in mm	600	800	1000	1250

Where bars of different diameter are lapped the lap length shall be based on the larger dia of bar. All laps shall be staggered unless stated otherwise.
In case of columns / beams bigger diameter bars shall be placed in corners / outer layer.

GENERAL NOTES:

1. All dimensions are in mm unless otherwise specified.
2. All setting out dimensions and levels shall be as per Architectural drawing.
3. The Structural design is based on Architectural drawing No.AR 160/17(D) -Rev.dt. 13-06-2019.
4. The design of foundation is based on the sub soil investigation report prepared by Esteem Developers (P) Ltd. Metro palace, Kochi;Vide letter No. D4-3709/2015, dt.19-04-2018 of Executive Engineer, PWD Buildings Division, Malappuram.
5. For the detailed general notes and typical reinforcement details refer Drg. No. DRIQ/BL/35/2012 sheet No.1/3,2/3,3/3.
6. Loads taken for design :
   In addition to the self weight of the RC.Structure, the following loads are accounted for the design :-
   (a) General Roof Slab (Terrace) :-
   - Weather proof course - 2.5 kN / m²
   - Live load - 2 kN / m²

   (b) Stair roof, Machine roof & Porch Roof Slab:-
   - Weather proof course - 2.5 kN / m²
   - Live load - 1.5 kN / m²

   (c) Floor Slabs:-

   First Floor

Area	Floor Finish (KN/m2)	Live Load (KN/m2)
• Dormitory	2.50	2.00
• Drying Area	2.50	3.00
• Lobby Area	2.50	3.00
• Sick room	2.50	2.00
• Smart class room	2.50	3.00
• Server room	2.50	7.50
Second Floor		
• Library	2.50	6.00
• Recreation	2.50	3.00
• Store	2.50	5.00
• Future expansion area	2.50	3.00
• Future toilet location considered in between grids D.E/5.7		
Roof		
• Machine Floor	2.50	7.50

   (d) Toilets:-
   - Weight of filling, finish & partition loads are taken
   - Live load - 2.0 kN/m²

   (e) Stair case:-
   - Floor Finishes - 2.50 kN/m²
   - Live load - 3.0 kN/m²

7. The structure is designed for seismic zone III as per IS 1893 Part I : 2002
8. The building is designed for (G+2) Floors only as per the Architectural drawing requirements.
9. Wall loads are taken only for the beams wherever walls are shown in the Architectural drawing.
10. The foundation is designed as per the Soil Investigation Report vide reference letter in note 4 above,considering SBC of 20T/m² at a founding level of 2.0 m from initial ground level. This SBC and founding depth shall be verified and ascertained at site before execution. If there is any variation in founding depth & SBC, the matter shall be reported to the Design wing with actual SBC for suitable revision.
11. In case of isolated footings centre of gravity of column shall coincide with the centre of gravity of footing.
12. Plinth beams are provided at plinth level (UNO) in the longitudinal and transverse direction as per the Ground Floor Framing Plan.
13. Special care shall be taken while providing plinth beams connecting columns wherever steps/porch comes (without affecting construction of steps/porch).
14. Do not scale of the drawing, only figured dimensions shall be followed.

REVISION DETAILS		
Rev.No.	Particulars	Date
0	Detailed Design	30-07-2019

DETAILED DESIGN DRAWING

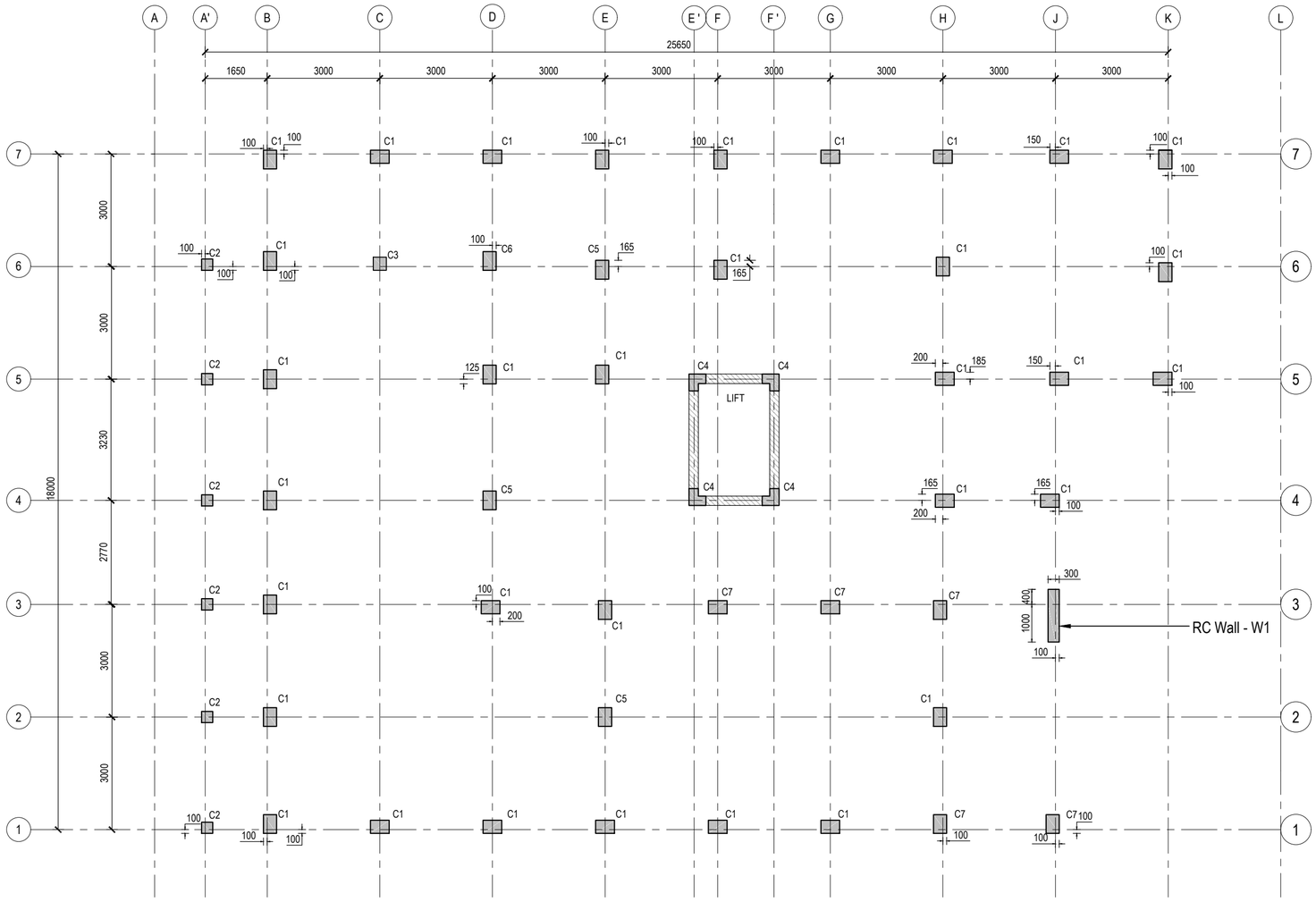
KERALA PUBLIC WORKS DEPARTMENT
OFFICE OF THE JOINT DIRECTOR
REGIONAL DESIGN OFFICE, KOZHIKODE

PREMETRIC HOSTEL AT NENMENI, MALAPPURAM

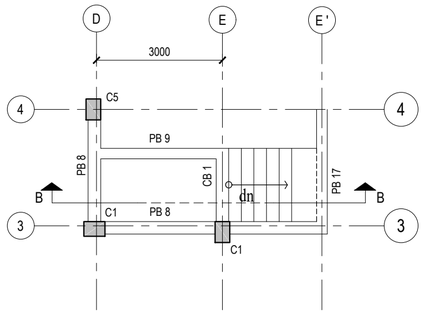
FOUNDATION LAYOUT

FILE NO.	AR.DRG.NO.	SCALE	DRG.NO.	SHEET NO	DATE
RDO/KKD/BL-13/AHE1/18	160/17(D)-Rev dt.13.06.19	1:100	RDO/KKD/BL-13/18	S001	30/07/2019

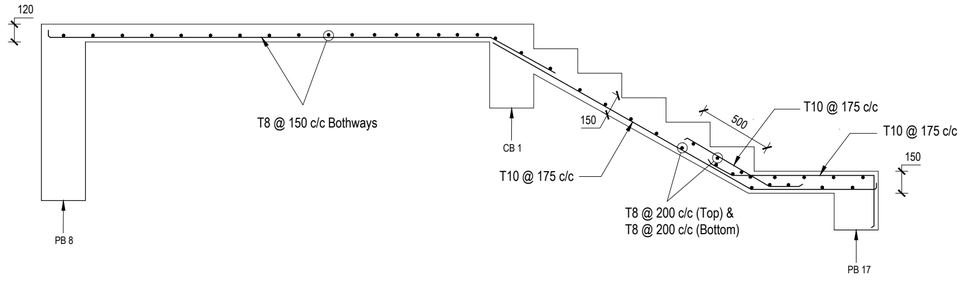
DRAWN	DRAUGHTSMAN	PRASY M
DESIGNED	ASSISTANT HIGHWAY ENGINEER	ARYA N
REVIEWED	BRIDGE ENGINEER	FIROSE T P
APPROVED	JOINT DIRECTOR (IN CHARGE)	MANISHA P S



2 COLUMN LAYOUT



PLAN OF SLAB & STEPS BETWEEN GRIDS D - E '/ 3 - 4



SECTION B-B

NOTE:-

1. Refer to Drg . RDO/KKD/BL-13/18 Sheet No.S001, for General Notes and Special Notes, which shall be strictly followed at site.

NOTE ON CONCRETE & REINFORCEMENT:

1. Concrete grade shall be as follows
   - All RCC works - M30
2. Grade of Steel
   All steel reinforcement to be used shall be high yield strength deformed bars of Grade Fe 500 D and conforming to IS 1786 - 2008 which shall be manufactured by primary steel producers .
3. Concrete cover to reinforcement.
   The minimum cover measured from the surface of the concrete to the outermost reinforcing bar including links and stirrups shall not be less than the following unless noted otherwise.
   - RCC Footing & column below G.L - 75mm
   - Column above GL - 40mm
   - Beams - 30mm (min.)
   - Slabs, Stairs - 20mm
4. Lap length
   Where lap splices are used, lap length shall be as stated in the following table except where noted otherwise.

Dia of bar	12	16	20	25
Lap length in mm	600	800	1000	1250

Where bars of different diameter are lapped the lap length shall be based on the larger dia of bar. All laps shall be staggered unless stated otherwise. In case of columns / beams bigger diameter bars shall be placed in corners / outer layer.

REVISION DETAILS		
Rev.No.	Particulars	Date
0	Detailed Design	30-07-2019

DETAILED DESIGN DRAWING

KERALA PUBLIC WORKS DEPARTMENT
OFFICE OF THE JOINT DIRECTOR
REGIONAL DESIGN OFFICE, KOZHIKODE

PREMETRIC HOSTEL AT NENMENI, MALAPPURAM

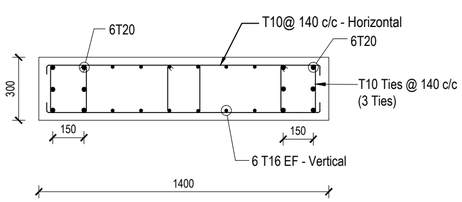
COLUMN LAYOUT & STEP DETAILS

FILE NO.	AR.DRG.NO.	SCALE	DRG.NO.	SHEET NO	DATE
RDO/KKD/BL-13/AHE1/18	160/17(D)-Rev dt.13.06.19	1:100	RDO/KKD/BL-13/18	S002	30/07/2019

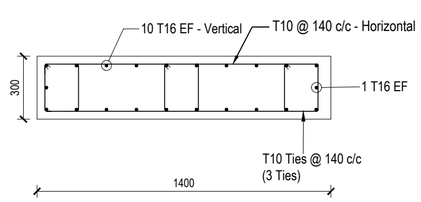
DRAWN	DRAUGHTSMAN	PRASY M
DESIGNED	ASSISTANT HIGHWAY ENGINEER	ARYA N
REVIEWED	BRIDGE ENGINEER	FIROSE T P
APPROVED	JOINT DIRECTOR (IN CHARGE)	MANISHA P S

	C1	C2	C3	C4	C5	C6	C7	C8
FROM TERRACE TO UPPER ROOF LEVEL				250, 200, 450, 450 Main - 5 Ø16+3 Ø12 T1 - Ø10 @ 85 c/c T2 - Ø10 @ 150 c/c H1 - 450			400, 350 Main - 8 Ø16 T1 - Ø10 @ 85 c/c T2 - Ø10 @ 150 c/c H1 - 450	400, 350 Main - 8 Ø16 T1 - Ø10 @ 85 c/c T2 - Ø10 @ 150 c/c H1 - 450
FROM FIRST FLOOR TO TERRACE LEVEL					500, 350 Main -10 Ø16 T1 - Ø10 @ 85 c/c T2 - Ø10 @ 150 c/c H1 - 500			
FROM GROUND FLOOR TO FIRST FLOOR LEVEL	500, 350	300, 300	350, 350	250, 200, 450, 450	500, 350 Main -10 Ø16 T1 - Ø10 @ 85 c/c T2 - Ø10 @ 150 c/c H1 - 500			
FROM FOOTING TO GROUND FLOOR LEVEL	Main -10 Ø16 T1 - Ø10 @ 85 c/c T2 - Ø10 @ 150 c/c H1 - 500	Main - 4 Ø16 T1 - Ø10 @ 85 c/c T2 - Ø10 @ 150 c/c H1 - 450	Main - 8 Ø16 T1 - Ø10 @ 85 c/c T2 - Ø10 @ 150 c/c H1 - 450	Main - 8 Ø16 T1 - Ø10 @ 85 c/c T2 - Ø10 @ 150 c/c H1 - 450	500, 350 Main -10 Ø16 T1 - Ø10 @ 85 c/c T2 - Ø10 @ 150 c/c (3 Ties for T1 & T2) H1 - 450	500, 350 Main -10 Ø16 T1 - Ø10 @ 85 c/c T2 - Ø10 @ 150 c/c (3 Ties for T1 & T2) H1 - 450	500, 350 Main -10 Ø16 T1 - Ø10 @ 85 c/c T2 - Ø10 @ 150 c/c H1 - 450	
COLUMN	C1	C2	C3	C4	C5	C6	C7	C8

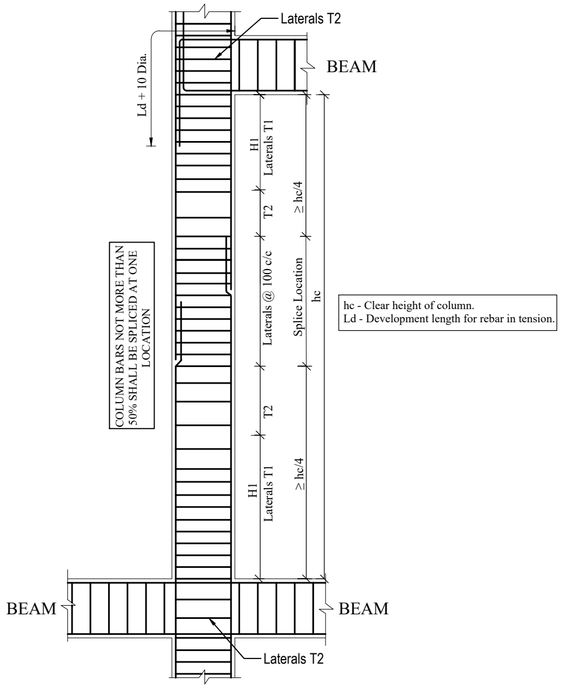
3 COLUMN SCHEDULE



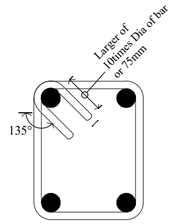
WALL W1 FROM FOUNDATION TO GROUND FLOOR LEVEL



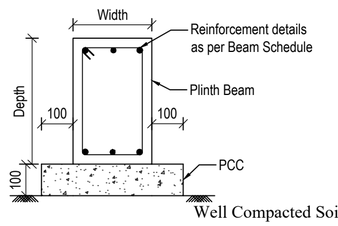
WALL W1 FROM GROUND FLOOR LEVEL TO TERRACE LEVEL



TYPICAL VERTICAL SECTION OF COLUMNS SHOWING SPECIAL CONFINING TIES FOR DUCTILITY REQUIREMENT



DETAIL OF HOOK FOR STIRRUPS & TIES



TYPICAL SECTION FOR PLINTH BEAM

Note:
Width and depth of beam shall be as per Plan and Beam Schedule.

NOTE:-

1. Refer to Drg . RDO/KKD/BL-13/18 Sheet No.S001, for General Notes and Special Notes, which shall be strictly followed at site.

NOTE ON CONCRETE & REINFORCEMENT:

1. Concrete grade shall be as follows
   - All RCC works - M30
2. Grade of Steel
   All steel reinforcement to be used shall be high yield strength deformed bars of Grade Fe 500 D and conforming to IS 1786 - 2008 which shall be manufactured by primary steel producers .
3. Concrete cover to reinforcement.
   The minimum cover measured from the surface of the concrete to the outermost reinforcing bar including links and stirrups shall not be less than the following unless noted otherwise.
   - RCC Footing & column below G.L - 75mm
   - Column above GL - 40mm
   - Beams - 30mm (min.)
   - Slabs, Stairs - 20mm
4. Lap length
   Where lap splices are used, lap length shall be as stated in the following table except where noted otherwise.

Dia of bar	12	16	20	25
Lap length in mm	600	800	1000	1250

Where bars of different diameter are lapped the lap length shall be based on the larger dia of bar. All laps shall be staggered unless stated otherwise. In case of columns / beams bigger diameter bars shall be placed in corners / outer layer.

REVISION DETAILS		
Rev.No.	Particulars	Date
0	Detailed Design	30-07-2019

DETAILED DESIGN DRAWING

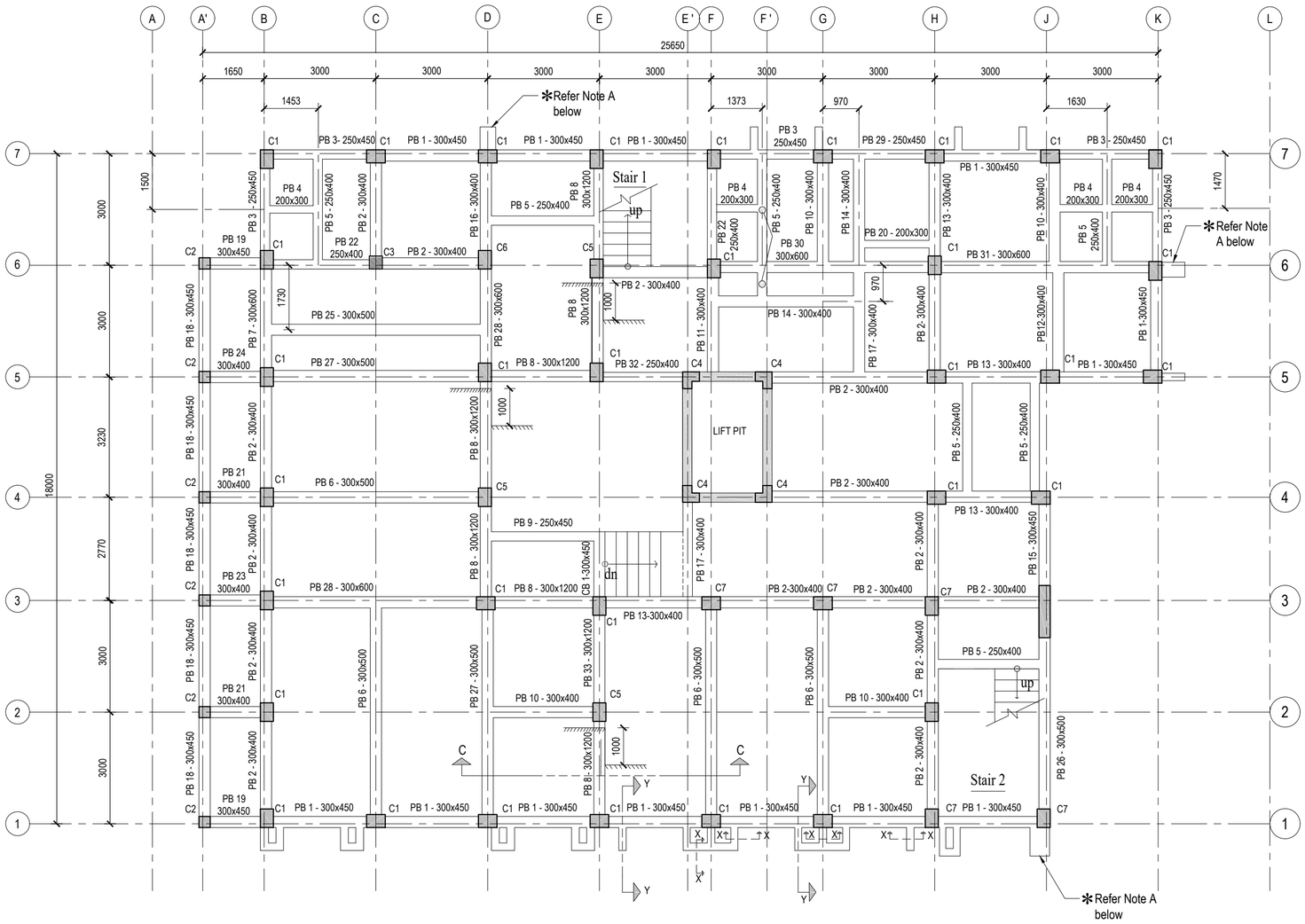
KERALA PUBLIC WORKS DEPARTMENT
OFFICE OF THE JOINT DIRECTOR
REGIONAL DESIGN OFFICE, KOZHIKODE

PREMETRIC HOSTEL AT NENMENI, MALAPPURAM

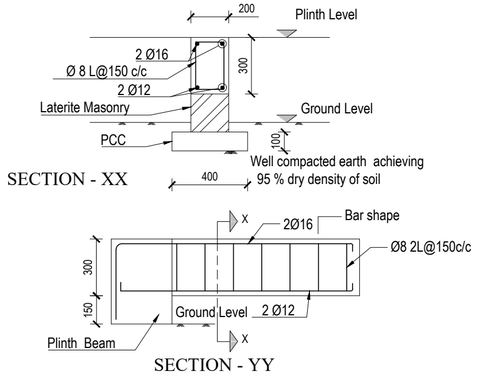
COLUMN SCHEDULE

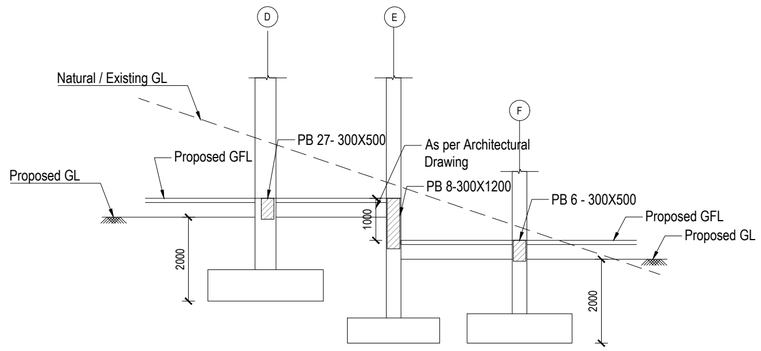
FILE NO.	AR.DRG.NO.	SCALE	DRG.NO.	SHEET NO	DATE
RDO/KKD/BL-13/AHE1/18	160/17(D)-Rev dt.13.06.19	1:100	RDO/KKD/BL-13/18	S003	30/07/2019

DRAWN	DRAUGHTSMAN	PRASY M
DESIGNED	ASSISTANT HIGHWAY ENGINEER	ARYA N
REVIEWED	BRIDGE ENGINEER	FIROSE T P
APPROVED	JOINT DIRECTOR (IN CHARGE)	MANISHA P S



4 FRAMING PLAN AT GROUND FLOOR





✻ Note A :-
For wider beams of width 450 mm, use 4 Ø16 at top and 4 Ø12 at bottom as main bars.

Note:
Refer to Special Notes 2 & 3 in sheet S001

N

NOTE:-

1. Refer to Drg . RDO/KKD/BL-13/18 Sheet No.S001, for General Notes and Special Notes, which shall be strictly followed at site.

SPECIAL NOTES:-

1. For beam reinforcement detailing and anchorages to the columns, follow Typical reinforcement details of Beams(seismic)-Type 1 in sheet 3/3 of DRIQ-Typical reinforcement detailing.
2. Clarification if any required for the details furnished, may be obtained before starting the work.
3. The details shall be checked personally by a competent technical person of the Contractor and the Department and discrepancy/ mistake, if any, found during construction shall be brought to the notice of undersigned before proceeding with the work.
4. Form work shall be removed in such a way that the assumed support conditions are not altered during the form work removal.
5. Adequate support shall be provided for the floors during construction of upper floors to avoid excessive loading during construction.
6. Section BB is indicative only; Existing Ground Level is as per the actual site condition/contour maps.
7. Minor structural detailing to match with Architectural Elevation requirements shall be fully coordinated with Architectural drawings prior to execution at site.

REVISION DETAILS		
Rev.No.	Particulars	Date
0	Detailed Design	30-07-2019

DETAILED DESIGN DRAWING

KERALA PUBLIC WORKS DEPARTMENT
OFFICE OF THE JOINT DIRECTOR
REGIONAL DESIGN OFFICE, KOZHIKODE

PREMETRIC HOSTEL AT NENMENI, MALAPPURAM

FRAMING PLAN AT GROUND FLOOR

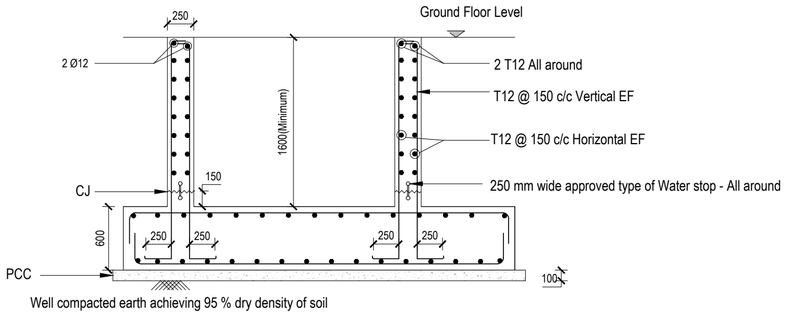
FILE NO.	AR.DRG.NO.	SCALE	DRG.NO.	SHEET NO	DATE
RDO/KKD/BL-13/AHE1/18	160/17(D)-Rev dt.13.06.19	1:100	RDO/KKD/BL-13/18	S004	30/07/2019

DRAWN	DRAUGHTSMAN	PRASY M
DESIGNED	ASSISTANT HIGHWAY ENGINEER	ARYA N
REVIEWED	BRIDGE ENGINEER	FIROSE T P
APPROVED	JOINT DIRECTOR (IN CHARGE)	MANISHA P S

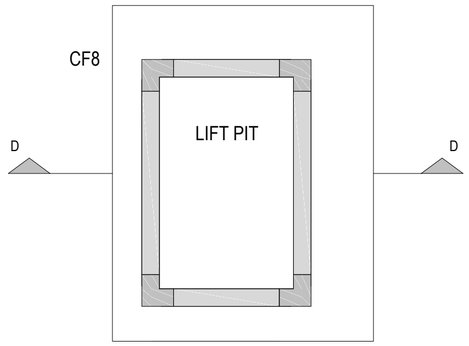
GROUND FLOOR BEAM REINFORCEMENT DETAILS

BEAM MARK	SIZE (mm)		LONGITUDINAL REINFORCEMENT DETAILS					STIRRUPS (mm)				SIDE FACE REINF.(EACH FACE)	REMARKS
	WIDTH	DEPTH	BOTTOM REINF.(mm)		TOP REINFORCEMENT (mm)			SPACING AT			NO OF LEGS		
			B1	B2	LEFT	MIDDLE	RIGHT	LEFT	MIDDLE	RIGHT			
PB 1	300	450	3 ϕ16	_	3 ϕ16	2 ϕ16	3 ϕ16	Φ8 @ 100 c/c	Φ8 @ 150 c/c	Φ8 @ 100 c/c	2 L	—	
PB 2	300	400	3 ϕ16	_	3 ϕ16	2 ϕ16	3 ϕ16	Φ8 @ 100 c/c	Φ8 @ 150 c/c	Φ8 @ 100 c/c	2 L	—	
PB 3	250	450	3 ϕ16	_	3 ϕ16	2 ϕ16	3 ϕ16	Φ8 @ 100 c/c	Φ8 @ 150 c/c	Φ8 @ 100 c/c	2 L	—	
PB 4	200	300	2 ϕ16	_	2 ϕ12	2 ϕ12	2 ϕ12	Φ8 @ 170 c/c	Φ8 @ 170 c/c	Φ8 @ 170 c/c	2 L	—	
PB 5	250	400	3 ϕ16	_	2 ϕ16	2 ϕ16	2 ϕ16	Φ8 @ 150 c/c	Φ8 @ 200 c/c	Φ8 @ 150 c/c	2 L	—	
PB 6	300	500	2 ϕ16 + 1 ϕ20	_	3 ϕ16	2 ϕ16	3 ϕ16	Φ8 @ 100 c/c	Φ8 @ 150 c/c	Φ8 @ 100 c/c	2 L	1 ϕ12	
PB 7	300	600	2 ϕ20 + 1 ϕ16	_	3 ϕ16	2 ϕ16	3 ϕ16	Φ8 @ 100 c/c	Φ8 @ 100 c/c	Φ8 @ 100 c/c	2 L	1 ϕ12	
PB 8	300	1200	3 ϕ20	2 ϕ12	2 ϕ20 + 1 ϕ16	2 ϕ20	2 ϕ20 + 1 ϕ16	ϕ10 @ 100 c/c	ϕ10 @ 120 c/c	ϕ10 @ 100 c/c	2 L	5 ϕ12	
PB 9	250	450	3 ϕ16	_	2 ϕ16	2 ϕ16	2 ϕ16	Φ8 @ 150 c/c	Φ8 @ 150 c/c	Φ8 @ 150 c/c	2 L	—	
PB 10	300	400	3 ϕ16	_	2 ϕ16	2 ϕ16	3 ϕ16	Φ8 @ 100 c/c	Φ8 @ 150 c/c	Φ8 @ 100 c/c	2 L	—	
PB 11	300	400	3 ϕ16	_	2 ϕ16	2 ϕ16	3 ϕ16	ϕ10 @ 150 c/c	ϕ10 @ 150 c/c	ϕ10 @ 100 c/c	2 L	—	
PB 12	300	400	3 ϕ16	_	3 ϕ16	2 ϕ16	2 ϕ16	Φ8 @ 100 c/c	Φ8 @ 150 c/c	Φ8 @ 100 c/c	2 L	—	
PB 13	300	400	3 ϕ16	_	3 ϕ16	2 ϕ16	3 ϕ16	Φ8 @ 100 c/c	Φ8 @ 100 c/c	Φ8 @ 100 c/c	2 L	—	
PB 14	300	400	3 ϕ16	_	2 ϕ16	2 ϕ16	2 ϕ16	Φ8 @ 100 c/c	Φ8 @ 150 c/c	Φ8 @ 100 c/c	2 L	—	
PB 15	300	450	3 ϕ16	_	3 ϕ16	2 ϕ16	3 ϕ16	Φ8 @ 100 c/c	Φ8 @ 100 c/c	Φ8 @ 100 c/c	2 L	—	
PB 16	300	400	3 ϕ16	_	2 ϕ20 + 1 ϕ16	2 ϕ16	3 ϕ16	Φ8 @ 100 c/c	Φ8 @ 150 c/c	Φ8 @ 100 c/c	2 L	—	
PB 17	300	400	3 ϕ16	_	2 ϕ16	2 ϕ16	2 ϕ16	ϕ10 @ 100 c/c	ϕ10 @150 c/c	ϕ10 @ 100 c/c	2 L	—	
PB 18	300	450	2 ϕ16+ 1 ϕ12	_	2 ϕ16+ 1 ϕ12	2 ϕ16	2 ϕ16+ 1 ϕ12	Φ8 @ 100 c/c	Φ8 @ 150 c/c	Φ8 @ 100 c/c	2 L	—	
PB 19	300	450	2 ϕ16 + 1 ϕ12	_	2 ϕ16 + 1 ϕ12	2 ϕ16	3 ϕ16	Φ8 @ 100 c/c	Φ8 @ 100 c/c	Φ8 @ 100 c/c	2 L	—	
PB 20	200	300	3 ϕ16	_	2 ϕ12	2 ϕ12	2 ϕ12	Φ8 @ 150 c/c	Φ8 @ 150 c/c	Φ8 @ 150 c/c	2 L	—	
PB 21	300	400	2 ϕ16	_	2 ϕ16	2 ϕ16	2 ϕ16	Φ8 @ 100 c/c	Φ8 @ 100 c/c	Φ8 @ 100 c/c	2 L	—	
PB 22	250	400	3 ϕ16	_	3 ϕ16	2 ϕ16	3 ϕ16	Φ8 @ 100 c/c	Φ8 @ 150 c/c	Φ8 @ 100 c/c	2 L	—	
PB 23	300	400	2 ϕ16	_	2 ϕ16	2 ϕ16	2 ϕ20+ 1 ϕ16	Φ8 @ 100 c/c	Φ8 @ 100 c/c	Φ8 @ 100 c/c	2 L	—	
PB 24	300	400	2 ϕ16	_	2 ϕ16	2 ϕ16	3 ϕ16	Φ8 @ 100 c/c	Φ8 @ 100 c/c	Φ8 @ 100 c/c	2 L	—	
PB 25	300	500	2 ϕ20 + 1 ϕ16	_	2 ϕ16	2 ϕ16	2 ϕ16	Φ8 @ 100 c/c	Φ8 @ 150 c/c	Φ8 @ 100 c/c	2 L	1 ϕ12	
PB 26	300	500	2 ϕ16 + 1 ϕ20	_	2 ϕ16 + 1 ϕ20	2 ϕ16	2 ϕ16 + 1 ϕ20	Φ8 @ 100 c/c	Φ8 @ 100 c/c	Φ8 @ 100 c/c	2 L	1 ϕ12	
PB 27	300	500	2 ϕ16 + 1 ϕ20	_	3 ϕ16	2 ϕ16	2 ϕ20+ 1 ϕ16	Φ8 @ 100 c/c	Φ8 @ 150 c/c	Φ8 @ 100 c/c	2 L	1 ϕ12	
PB 28	300	600	2 ϕ20 + 1 ϕ16	_	2 ϕ20 + 1 ϕ16	2 ϕ20	2 ϕ20+ 1 ϕ16	Φ8 @ 100 c/c	Φ8 @ 100 c/c	Φ8 @ 100 c/c	2 L	1 ϕ12	
PB 29	250	450	3 ϕ16	_	3 ϕ16	2 ϕ16	3 ϕ16	Φ8 @ 100 c/c	Φ8 @ 100 c/c	Φ8 @ 100 c/c	2 L	—	
PB 30	300	600	3 ϕ20	_	4 ϕ16	2 ϕ20	3 ϕ20	ϕ10 @ 100 c/c	ϕ10 @ 125 c/c	ϕ10 @ 100 c/c	2 L	1 ϕ12	
PB 31	300	600	3 ϕ20	_	3 ϕ20	2 ϕ20	4 ϕ16	ϕ10 @ 100 c/c	ϕ10 @ 150 c/c	ϕ10 @ 100 c/c	2 L	1 ϕ12	
PB 32	250	400	3 ϕ16	_	2 ϕ16	2 ϕ16	2 ϕ16	Φ8 @ 100 c/c	Φ8 @ 150 c/c	Φ8 @ 100 c/c	2 L	—	
PB 33	300	1200	3 ϕ20	2 ϕ12	3 ϕ20	3 ϕ20	3 ϕ20	ϕ10 @ 100 c/c	ϕ10 @120 c/c	ϕ10 @100 c/c	2 L	5 ϕ12	
CB 1	300	450	2 ϕ16	_	3 ϕ20	3 ϕ20	3 ϕ20	ϕ10 @ 100 c/c	ϕ10 @100 c/c	ϕ10 @100 c/c	2 L	—	Cantilever Beam
LANDING BEAMS													
LB 1	300	400	3 ϕ16	_	3 ϕ16	2 ϕ16	3 ϕ16	Φ8 @ 100 c/c	Φ8 @150 c/c	Φ8 @100 c/c	2 L	—	
LB 2	200	350	2 ϕ16	_	2 ϕ20 + 1 ϕ16	2 ϕ20 + 1 ϕ16	2 ϕ20 + 1 ϕ16	ϕ10 @ 150 c/c	ϕ10 @ 150 c/c	ϕ10 @ 150 c/c	2 L	1 ϕ12	Backspan of Cantilever
LB 3	200	350	2 ϕ16	_	2 ϕ20 + 1 ϕ16	2 ϕ20 + 1 ϕ16	2 ϕ20 + 1 ϕ16	ϕ10 @ 100 c/c	ϕ10 @ 100 c/c	ϕ10 @ 100 c/c	2 L	1 ϕ12	Cantilever Beam
LB 4	200	350	3 ϕ16	_	2 ϕ16	2 ϕ16	2 ϕ16	Φ8 @150 c/c	Φ8 @150 c/c	Φ8 @150 c/c	2 L	—	
LB 5	300	400	3 ϕ16	_	3 ϕ16	2 ϕ16	3 ϕ16	Φ8 @ 100 c/c	Φ8 @150 c/c	Φ8 @ 100 c/c	2 L	—	

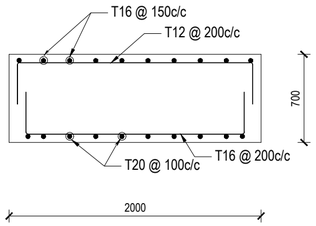
Note:
Bottom reinforcement 'B1' is at bottom most layer and 'B2' is at second layer with spacer bars.



SECTION - DD



PLAN OF LIFT PIT



SECTION AA THROUGH FOOTING CF7

(FROM DRAWING S001)

NOTES:-

1. Refer to Drg . RDO/KKD/BL-13/18 Sheet No.S001, for General Notes and Special Notes, which shall be strictly followed at site.
2. For beam reinforcement detailing and anchorages to the columns, follow Typical reinforcement details of Beams(seismic)-Type 1 in sheet 3/3 of DRIQ-Typical reinforcement detailing.

NOTE ON CONCRETE & REINFORCEMENT:

1. Concrete grade shall be as follows
   - All RCC works - M30
2. Grade of Steel
   All steel reinforcement to be used shall be high yield strength deformed bars of Grade Fe 500 D and conforming to IS 1786 - 2008 which shall be manufactured by primary steel producers .
3. Concrete cover to reinforcement.
   The minimum cover measured from the surface of the concrete to the outermost reinforcing bar including links and stirrups shall not be less than the following unless noted otherwise.
   - RCC Footing & column below G.L - 75mm
   - Column above GL - 40mm
   - Beams - 30mm (min)
   - Slabs, Stairs - 20mm
4. Lap length
   Where lap splices are used, lap length shall be as stated in the following table except where noted otherwise.

Dia of bar	12	16	20	25
Lap length in mm	600	800	1000	1250

Where bars of different diameter are lapped the lap length shall be based on the larger dia of bar. All laps shall be staggered unless stated otherwise. In case of columns / beams bigger diameter bars shall be placed in corners / outer layer.

REVISION DETAILS		
Rev.No.	Particulars	Date
0	Detailed Design	30-07-2019

DETAILED DESIGN DRAWING

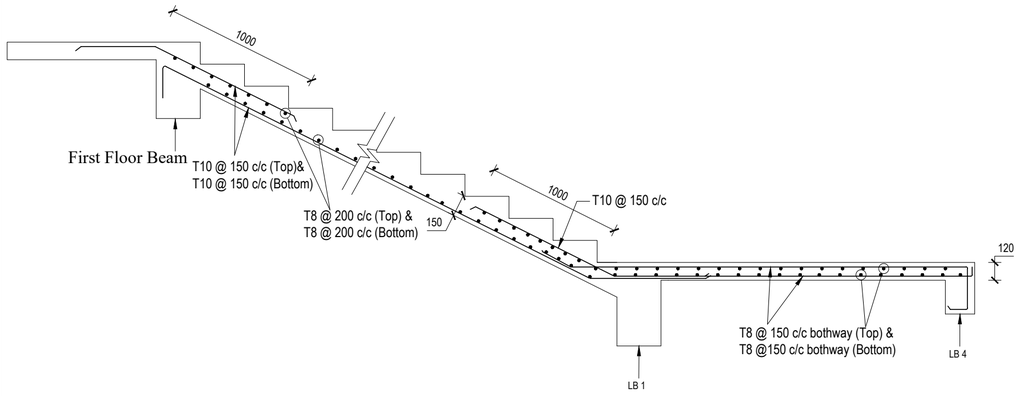
KERALA PUBLIC WORKS DEPARTMENT
OFFICE OF THE JOINT DIRECTOR
REGIONAL DESIGN OFFICE, KOZHIKODE

PREMETRIC HOSTEL AT NENMENI, MALAPPURAM

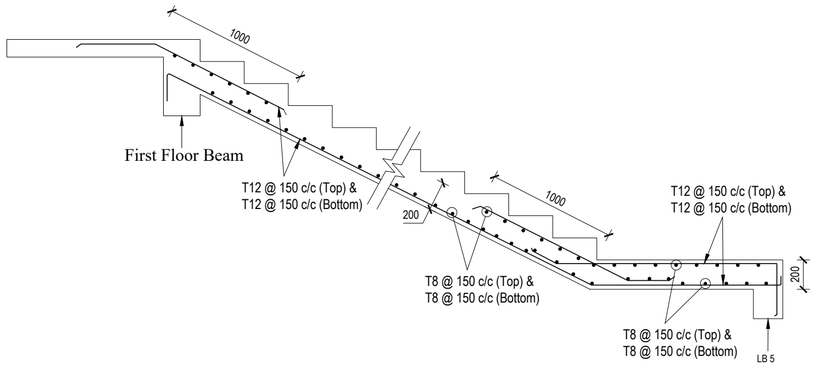
GROUND FLOOR BEAMS & LIFT PIT DETAILS

FILE NO.	AR.DRG.NO.	SCALE	DRG.NO.	SHEET NO	DATE
RDO/KKD/BL-13/AHE1/18	160/17(D)-Rev dt.13.06.19	1:100	RDO/KKD/BL-13/18	S005	30/07/2019

DRAWN	DRAUGHTSMAN	PRASY M
DESIGNED	ASSISTANT HIGHWAY ENGINEER	ARYA N
REVIEWED	BRIDGE ENGINEER	FIROSE T P
APPROVED	JOINT DIRECTOR (IN CHARGE)	MANISHA P S



SECTION F-F



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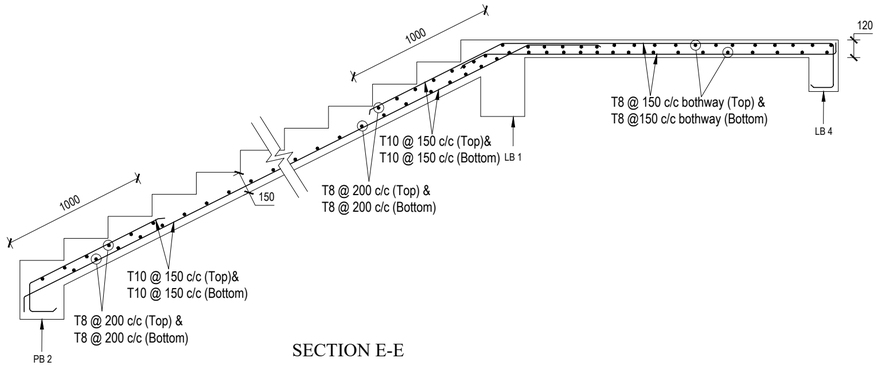
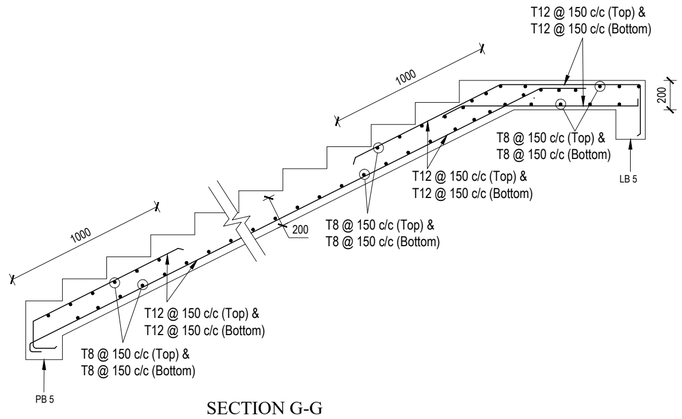
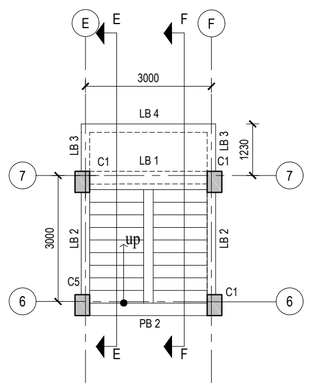


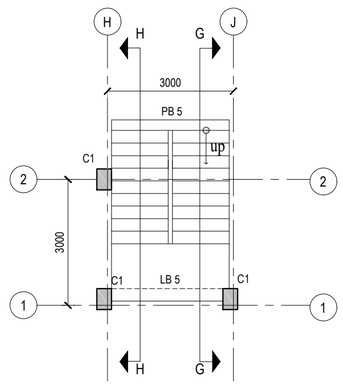
SECTION E-E



SECTION G-G



FRAMING PLAN ABOVE
LANDING LEVEL FOR STAIR - 1



FRAMING PLAN ABOVE
LANDING LEVEL FOR STAIR - 2

N

NOTE:-

1. Refer to Drg . RDO/KKD/BL-13/18 Sheet No.S001, for General Notes and Special Notes, which shall be strictly followed at site.

NOTE ON CONCRETE & REINFORCEMENT:

1. Concrete grade shall be as follows
   - All RCC works - M30
2. Grade of Steel
   All steel reinforcement to be used shall be high yield strength deformed bars of Grade Fe 500 D and conforming to IS 1786 - 2008 which shall be manufactured by primary steel producers .
3. Concrete cover to reinforcement.
   The minimum cover measured from the surface of the concrete to the outermost reinforcing bar including links and stirrups shall not be less than the following unless noted otherwise.
   - RCC Footing & column below G.L - 75mm
   - Column above GL - 40mm
   - Beams - 30mm (min.)
   - Slabs, Stairs - 20mm
4. Lap length
   Where lap splices are used, lap length shall be as stated in the following table except where noted otherwise.

Dia of bar	12	16	20	25
Lap length in mm	600	800	1000	1250

Where bars of different diameter are lapped the lap length shall be based on the larger dia of bar. All laps shall be staggered unless stated otherwise. In case of columns / beams bigger diameter bars shall be placed in corners / outer layer.

REVISION DETAILS		
Rev.No.	Particulars	Date
0	Detailed Design	30-07-2019

DETAILED DESIGN DRAWING

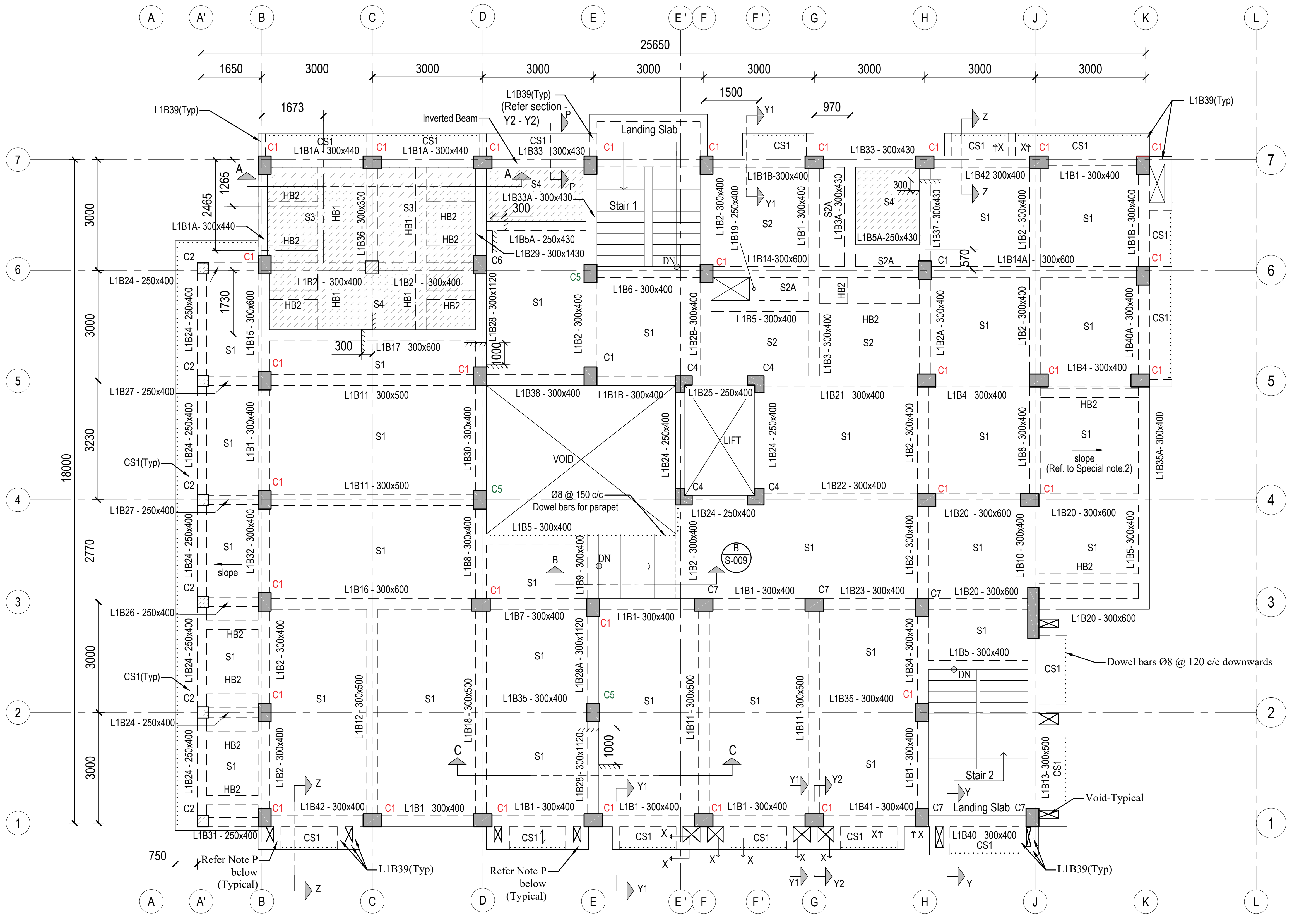
KERALA PUBLIC WORKS DEPARTMENT
OFFICE OF THE JOINT DIRECTOR
REGIONAL DESIGN OFFICE, KOZHIKODE

PREMETRIC HOSTEL AT NENMENI, MALAPPURAM

STAIRCASE DETAILS

FILE NO.	AR.DRG.NO.	SCALE	DRG.NO.	SHEET NO.	DATE
RDO/KKD/BL-13/AHE1/18	160/17(D)-Rev dt.13.06.19	1:100	RDO/KKD/BL-13/18	S006	30/07/2019

DRAWN	DRAUGHTSMAN	PRASY M
DESIGNED	ASSISTANT HIGHWAY ENGINEER	ARYA N
REVIEWED	BRIDGE ENGINEER	FIROSE T P
APPROVED	JOINT DIRECTOR (IN CHARGE)	MANISHA P S

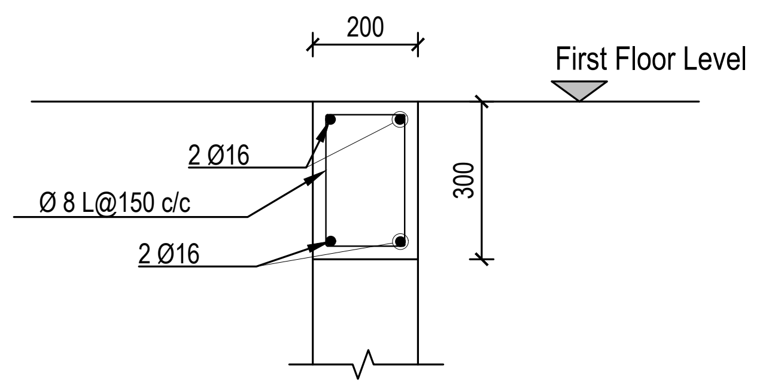


FRAMING PLAN AT FIRST FLOOR

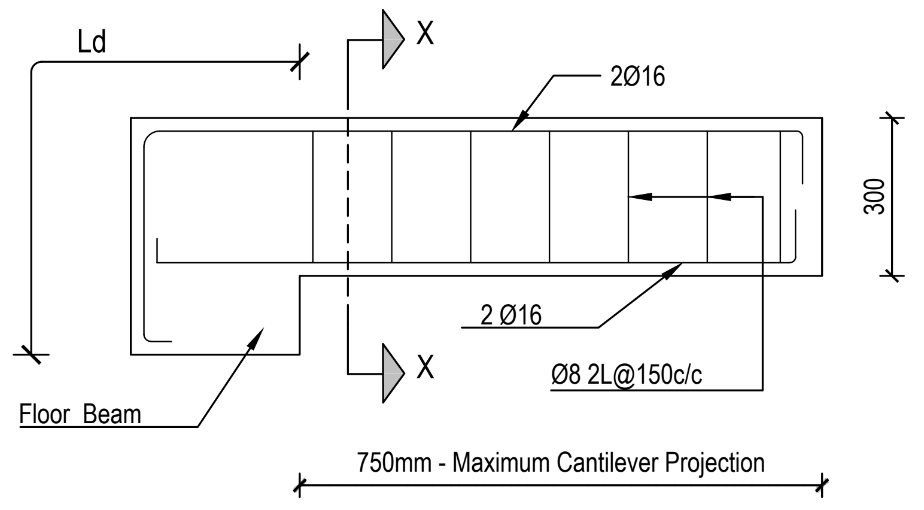
Note P :- All external dummy box type block works for elevation purpose shall be 100mm thick hollow blocks, as clarified by Architect.

SLAB SCHEDULE

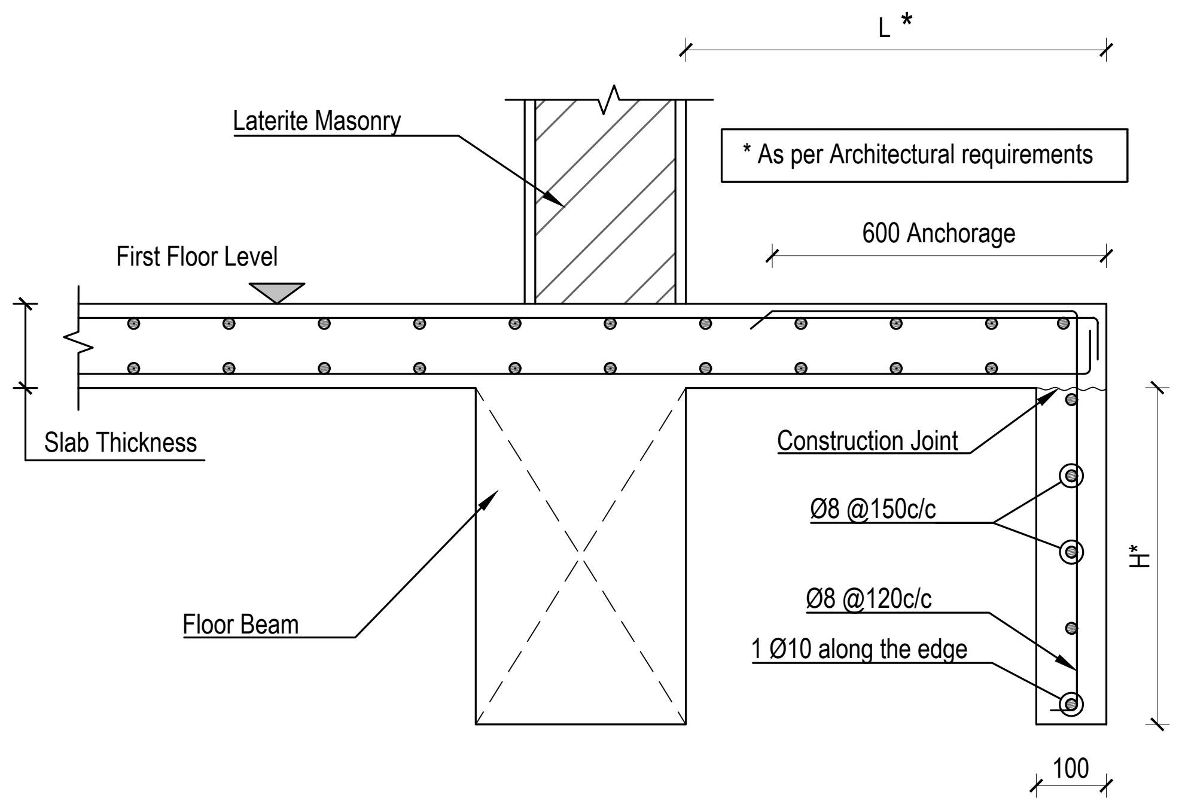
Slab Notation	Thickness (mm)	Reinforcement Detail		Type	Remarks
		Short span	Long span		
S1	120	#8 @ 125 c/c	#8 @ 150 c/c	Two way - Cranked Slab	-
S2	130	#8 @ 140 c/c	#8 @ 140 c/c	Two way - Cranked Slab	-
S2A	130	#8 @ 140 c/c	#8 @ 140 c/c	Top & Bottom mesh	-
S3	140	#10 @ 150 c/c	#10 @ 150 c/c	Top & Bottom mesh	Sunken Slab
S4	130	#8 @ 150 c/c	#8 @ 150 c/c	Top & Bottom mesh	Sunken Slab
CS1	120	#8 @ 150 c/c (Top) #8 @ 300 c/c (Bottom)	#8 @ 200 c/c (Top) #8 @ 300 c/c (Bottom)	Top & Bottom mesh	Cantilever Slab



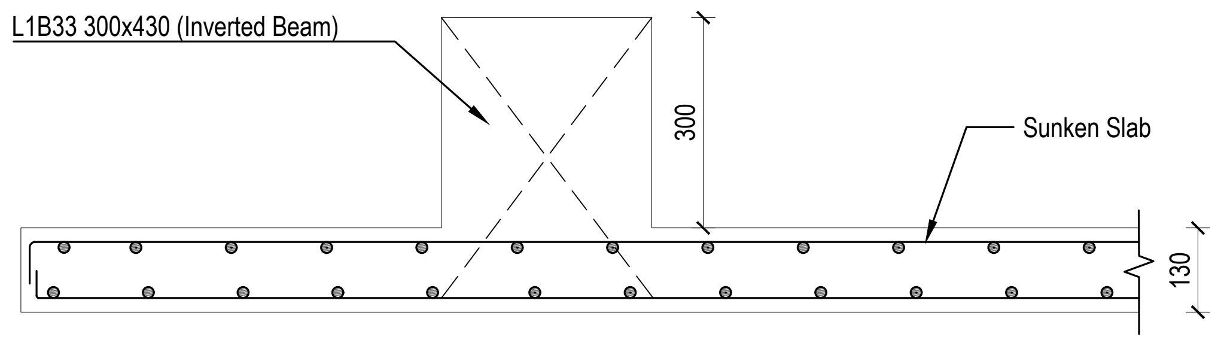
TYPICAL SECTION - XX (L1B39)



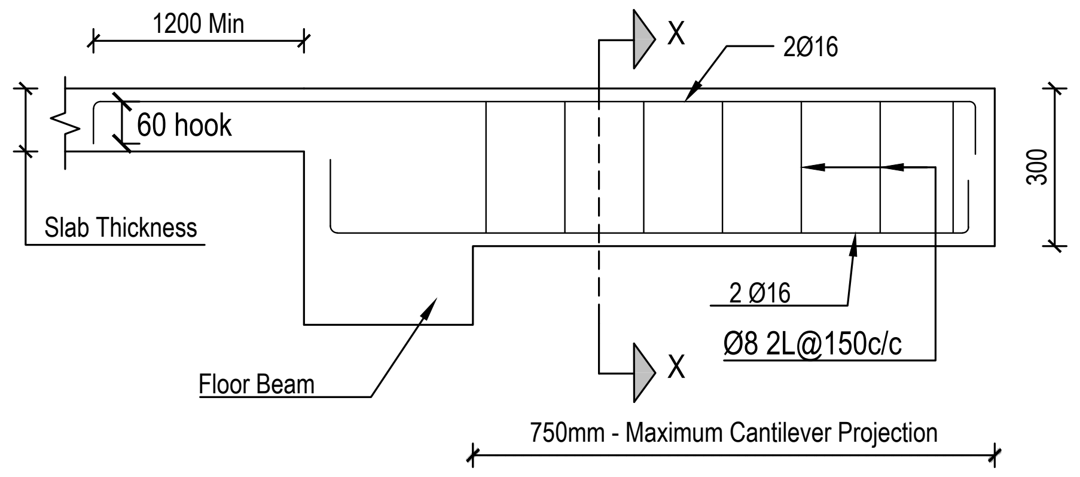
TYPICAL SECTION - YY (L1B39)



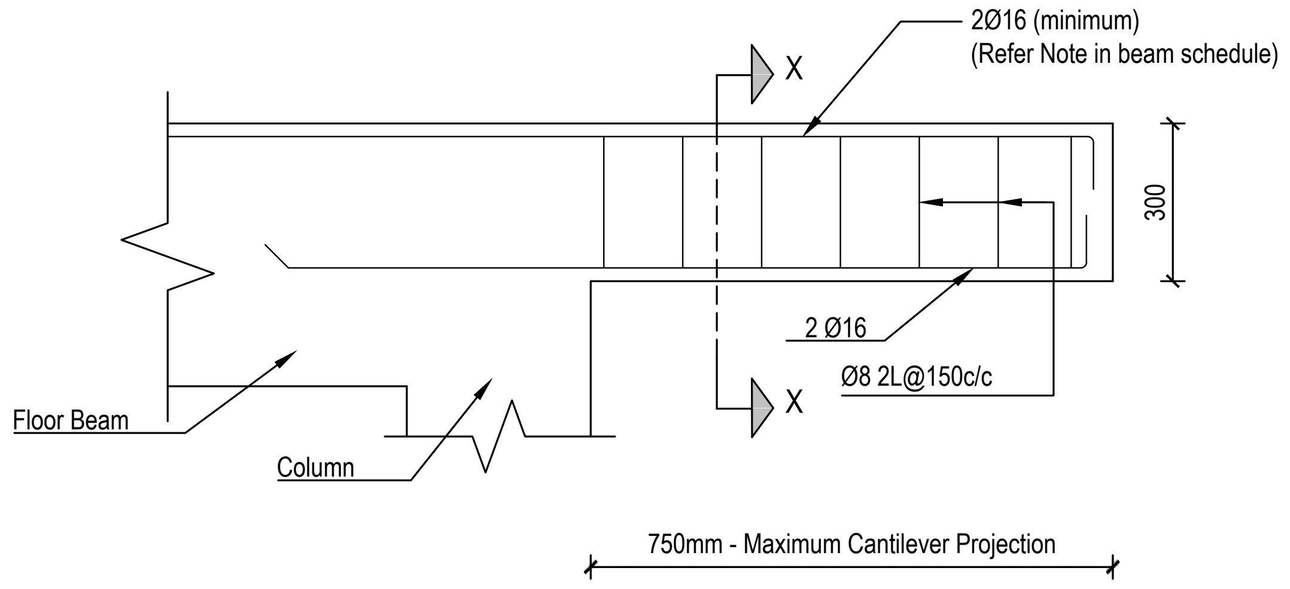
TYPICAL SECTION Z-Z
(Through window wherever applicable as per elevation requirements)



SECTION P - P



TYPICAL SECTION - Y1-Y1 (L1B39)



TYPICAL SECTION - Y2-Y2 (L1B39)

NOTE:-

1. Refer to Drg . RDO/KKD/BL-13/18 Sheet No.S001, for General Notes and Special Notes, which shall be strictly followed at site.

NOTE ON CONCRETE & REINFORCEMENT:-

1. Concrete grade shall be as follows
    - All RCC works - M30
2. Grade of Steel
   All steel reinforcement to be used shall be high yield strength deformed bars of Grade Fe 500 D and conforming to IS 1786 - 2008 which shall be manufactured by primary steel producers .
3. Concrete cover to reinforcement.
   The minimum cover measured from the surface of the concrete to the outermost reinforcing bar including links and stirrups shall not be less than the following unless noted otherwise.
    - RCC Footing & column below G.L - 75mm
    - Column above GL - 40mm
    - Beams - 30mm (min.)
    - Slabs, Stairs - 20mm
4. Lap length
   Where lap splices are used, lap length shall be as stated in the following table except where noted otherwise.

Dia of bar	12	16	20	25
Lap length in mm	600	800	1000	1250

Where bars of different diameter are lapped the lap length shall be based on the larger dia of bar. All laps shall be staggered unless stated otherwise. In case of columns / beams bigger diameter bars shall be placed in corners / outer layer.

SPECIAL NOTES:-

1. For beam reinforcement detailing and anchorages to the columns, follow Typical reinforcement details of Beams(seismic)-Type 1 in sheet 3/3 of DRIQ-Typical reinforcement detailing.
2. The slope to drain off rain water from the roof of Porch, General roof, Tower roof, Machine room roof etc. shall be given in formwork itself.
3. Clarification if any required for the details furnished, may be obtained before starting the work.
4. The details shall be checked personally by a competent technical person of the Contractor and the Department and discrepancy/mistake, if any, found during construction shall be brought to the notice of undersigned before proceeding with the work.
5. Form work shall be removed in such a way that the assumed support conditions are not altered during the form work removal.
6. Adequate support shall be provided for the floors during construction of upper floors to avoid excessive loading during construction.
7. RCC sunshades ,RCC vertical boards etc shall be provided at site as per the Architectural elevation requirements.
8. Minor structural detailing to match with Architectural Elevation requirements shall be fully coordinated with Architectural drawings prior to execution at site.

REVISION DETAILS

Rev.No.	Particulars	Date
0	Detailed Design	06-02-2021

DETAILED DESIGN DRAWING

KERALA PUBLIC WORKS DEPARTMENT
OFFICE OF THE JOINT DIRECTOR
REGIONAL DESIGN OFFICE, KOZHIKODE

PREMETRIC HOSTEL AT NENMENI, MALAPPURAM

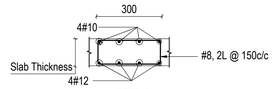
FRAMING PLAN AT FIRST FLOOR

FILE NO.	AR.DRG.NO.	DRG.NO.	SCALE	SHEET SIZE	SHEET NO	DATE
RDO/KKD/BL-13 /AHE1/18	160/17(D)-Rev dt.13.06.19	RDO/KKD/BL-13/18	1:100	A1	S007	06/02/2021

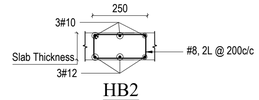
DRAWN	DRAUGHTSMAN	PRASY M / ASWATHI DEV K K
DESIGNED	ASSISTANT HIGHWAY ENGINEER	RESHMA K V
REVIEWED	BRIDGE ENGINEER	FIROSE T P
APPROVED	JOINT DIRECTOR	SHARAFUDEEN M K

DETAILS OF REINFORCEMENT FOR BEAMS - FIRST FLOOR

Beam Mark	Size (mm)		Longitudinal Reinforcement Details				Stirrups							Side face Reinforcement (on each face)	Remarks
			Bottom Reinforcement	Top Reinforcement			Left		Middle		Right		No. of legs		
	b	D		Left	Middle	Right	Φ	c/c spacing	Φ	c/c spacing	Φ	c/c spacing			
L1B1	300	400	2#16+1#12	3#16	2#16	3#16	8	85	8	130	8	85	2	-	-
L1B1A	300	440	2#16+1#12	3#16	2#16	3#16	8	85	8	130	8	85	2	-	-
L1B1B	300	400	2#16+1#12	3#16	2#16	3#16	8	85	8	110	8	85	2	-	-
L1B2	300	400	2#16+1#12	2#16+1#12	2#16	2#16+1#12	8	85	8	150	8	85	2	-	-
L1B2A	300	400	2#16+1#12	2#16+1#12	2#16	2#16+1#12	8	85	8	100	8	85	2	-	-
L1B2B	300	400	2#16+1#12	2#16+1#12	2#16	2#16+1#12	8	85	8	120	8	85	2	-	-
L1B3	300	400	2#16+1#20	2#16	2#16	3#16	8	100	8	150	8	100	2	-	-
L1B3A	300	430	2#16+1#20	2#16	2#16	2#16	8	100	8	150	8	100	2	-	-
L1B4	300	400	3#16	2#16+1#20	2#16	2#16+1#20	8	85	8	100	8	85	2	-	-
L1B5	300	400	3#16	2#16	2#16	2#16	8	100	8	150	8	100	2	-	-
L1B5A	250	430	2#16+1#12	2#16	2#16	2#16	8	150	8	150	8	150	2	-	-
L1B6	300	400	3#16	2#16+1#12	2#16	3#20	8	85	8	100	8	85	2	-	-
L1B7	300	400	2#16+1#12	2#20+1#16 (T1)+2#16 (T2)	2#16	3#16	8	85	8	100	8	85	2	-	-
L1B8	300	400	2#16+1#12	2#20+1#16	2#16	2#16+1#12	8	85	8	100	8	85	2	-	-
L1B9	300	400	3#16	2#20+1#16 (T1)+2#16 (T2)	2#20+1#16 (T1)+2#16 (T2)	2#20+1#16 (T1)+2#16 (T2)	10	85	10	85	10	85	2	-	Cantilever
L1B10	300	400	2#20+1#16	2#20+1#16 (T1)+2#16 (T2)	2#20	2#20+1#16	8	85	8	100	8	85	2	-	-
L1B11	300	500	3#20	2#20+1#16	2#20	2#20+1#16	8	100	8	140	8	100	2	1# 12	-
L1B12	300	500	3#20 (B1) +2#16 (B2)	2#20+1#16 (T1)+2#16 (T2)	2#20	2#20	10	100	10	150	10	100	2	1# 12	-
L1B13	300	500	2#20+1#16	3#20	2#20	2#20+1#16 (T1)+2#16 (T2)	10	100	10	130	10	100	2	1# 12	-
L1B14	300	600	3#20 (B1)+2#16 (B2)	3#20	2#20	3#20	10	100	10	100	10	100	2	1# 12	-
L1B14A	300	600	3#20	3#20	2#20	3#20	8	100	8	100	8	100	2	1# 12	-
L1B15	300	600	2#20+1#16	3#16	2#16	3#16	10	100	10	100	10	100	2	1# 12	-
L1B16	300	600	3#20(B1)+2#16 (B2)	2#20+1#16 (T1)+2#16 (T2)	2#20	2#20+1#16 (T1) + 2#16 (T2)	10	100	10	150	10	100	2	1# 12	-
L1B17	300	600	3#20 (B1)+2#20+1#16 (B2)	2#20	2#20	2#20	8	100	8	150	8	100	2	1# 12	-
L1B18	300	500	3#20	2#20+1#16	2#20	2#20+1#16	8	100	8	150	8	100	2	1# 12	-
L1B19	250	400	2#16	2#12	2#12	2#12	8	140	8	140	8	140	2		-
L1B20	300	600	3#16	3#20 (T1)+2#16 (T2)	3#20 (T1) + 2#16 (T2)	3#20 (T1)+2#16 (T2)	10	100	10	100	10	100	2	1# 12	Cantilever & its back span
L1B21	300	400	2#16+1#20	2#16+1#20	2#16	2#16+1#20	8	85	8	100	8	85	2	-	-
L1B22	300	400	2#16+1#20	2#16+1#12	2#16	3#20 (T1) + 2#16 (T2)	8	85	8	150	8	85	2	-	-
L1B23	300	400	2#16+1#12	3#16	2#16	3#20 (T1) + 2#16 (T2)	8	85	8	150	8	85	2	-	-
L1B24	250	400	2#16+1#12	2#16+1#12	2#16	2#16+1#12	8	85	8	110	8	85	2	-	-
L1B25	250	400	2#16+1#12	3#16	2#16	2#16+1#20	8	85	8	100	8	85	2	-	-
L1B26	250	400	2#16+1#12	2#16	2#20+1#16 (T1) + 2#16 (T2)	2#20+1#16 (T1) + 2#16 (T2)	8	85	8	100	8	85	2	-	-
L1B27	250	400	2#16+1#12	2#16	2#20+1#16	2#20+1#16	8	85	8	100	8	85	2		-
L1B28	300	1120	2#20+1#16 (B1) + 2#16 (B2)	2#20+1#16	2#20	2#20+1#16	10	100	10	125	10	100	2	5#12	-
L1B28A	300	1120	2#20+1#16 (B1) + 2#16 (B2)	2#20+1#16 (T1)+2#16 (T2)	2#20+1#16 (T1) + 2#16 (T2)	2#20+1#16 (T1)+2#16 (T2)	10	100	10	125	10	100	2	5#12	-
L1B29	300	1430	3#20 (B1) +2#16 (B2)	2#20+1#16	2#20+1#16	2#20+1#16	10	100	10	100	10	100	2	5#12	-
L1B30	300	400	2#16+1#12	2#16+1#12	2#16	2#20+1#16	8	85	8	150	8	85	2	-	-
L1B31	250	400	2#16+1#12	2#16+1#12	2#16	3#16	8	85	8	130	8	85	2	-	-
L1B32	300	400	2#16+1#12	2#16+1#12	2#16	3#16	8	85	8	150	8	85	2	-	-
L1B33	300	430	3#16	3#16	2#16	3#16	8	85	8	100	8	85	2	-	-
L1B33A	300	430	2#16+1#12	2#16+1#12	2#16	3#16	8	85	8	100	8	85	2	-	-
L1B34	300	400	3#16	3#16	2#16	2#16+1#12	10	85	10	150	10	85	2	-	-
L1B35	300	400	2#16+1#12	2#16	2#16	3#16	8	85	8	125	8	85	2	-	-
L1B35A	300	400	2#16+1#12	2#16	2#16	2#16+1#20	8	85	8	110	8	85	2	-	-
L1B36	300	300	3#16	2#16+1#12	2#16	2#16+1#12	8	85	8	125	8	85	2	-	-
L1B37	300	430	2#16+1#12	2#16+1#12	2#16	2#16+1#12	8	85	8	150	8	85	2	-	-
L1B38	300	400	2#16+1#12	2#20+1#16	2#16	3#16	8	85	8	150	8	85	2	-	-
L1B39	200	300	2#16	2#16	2#16	2#16	8	150	8	150	8	150	2	-	Refer Note (a)
L1B40	300	400	2#16+1#12	2#16+1#20	2#16	3#16	10	85	10	150	10	85	2	-	-
L1B40A	300	400	2#16+1#12	2#16+1#20	2#16	3#16	8	85	8	130	8	85	2	-	-
L1B41	300	400	2#16+1#12	3#16	2#16	2#16+1#20	8	85	8	130	8	85	2	-	-
L1B42	300	400	2#16+1#12	3#16	2#16	3#16	10	85	10	150	10	85	2	-	-
LANDING BEAMS SCHEDULE - FOR STAIRS FROM FIRST FLOOR TO SECOND FLOOR															
LB1	300	400	3#16	3#16	2#16	3#16	8	100	8	150	8	100	2	-	
LB2	200	400	2#16	2#20+1#16	2#20+1#16	2#20+1#16	10	150	10	150	10	150	2	1# 12	Back span of cantilever
LB3	200	400	2#16	2#20+1#16	2#20+1#16	2#20+1#16	10	80	10	80	10	80	2	1# 12	Cantilever Beam
LB4	200	400	3#16	2#16	2#16	2#16	8	150	8	150	8	150	2	-	
LB5	300	400	3#16	3#16	2#16	3#16	8	100	8	150	8	100	2	-	

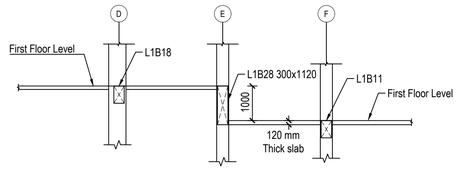


HB1

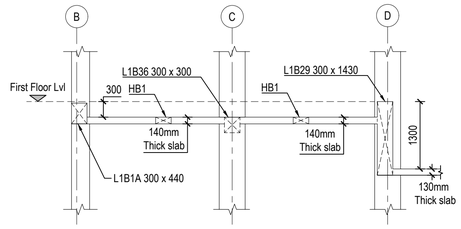


HB2

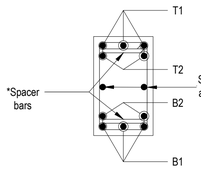
DETAIL OF HIDDEN BEAMS



SECTION C-C



SECTION - AA



LEGEND
- T1 - Topmost layer
- T2 - Top second layer with spacer bar
- B1 - Bottomost layer
- B2 - Bottom second layer with spacer bar

*Spacer bar diameter shall be the maximum diameter of the longitudinal bar but not less than 20 mm.

CROSS SECTION OF BEAM (TYPICAL)

Note (a) :- Minimum top steel required is 2#16 . However, top steel of the corresponding back span may be extended to this beam, which shall be more than 2#16 (For ease of construction).

N

NOTE:-

1. Refer to Drg . RDO/KKD/BL-13/18 Sheet No.S001, for General Notes and Special Notes, which shall be strictly followed at site.
2. For beam reinforcement detailing and anchorages to the columns, follow Typical reinforcement details of Beams(seismic)-Type 1 in sheet 3/3 of DRIQ-Typical reinforcement detailing.
3. For two way slab reinforcement details, refer to Typical reinforcement detailing of slabs in sheet 3/3 of DRIQ - Typical reinforcement detailing.

NOTE ON CONCRETE & REINFORCEMENT:

1. Concrete grade shall be as follows
   - All RCC works - M30
2. Grade of Steel
   All steel reinforcement to be used shall be high yield strength deformed bars of Grade Fe 500 D and conforming to IS 1786 - 2008 which shall be manufactured by primary steel producers .
3. Concrete cover to reinforcement.
   The minimum cover measured from the surface of the concrete to the outermost reinforcing bar including links and stirrups shall not be less than the following unless noted otherwise.
   - RCC Footing & column below G.L - 75mm
   - Column above GL - 40mm
   - Beams - 30mm (min.)
   - Slabs, Stairs - 20mm
4. Lap length
   Where lap splices are used, lap length shall be as stated in the following table except where noted otherwise.

Dia of bar	12	16	20	25
Lap length in mm	600	800	1000	1250

Where bars of different diameter are lapped the lap length shall be based on the larger dia of bar. All laps shall be staggered unless stated otherwise. In case of columns / beams bigger diameter bars shall be placed in corners / outer layer.

REVISION DETAILS		
Rev.No.	Particulars	Date
0	Detailed Design	06-02-2021

DETAILED DESIGN DRAWING

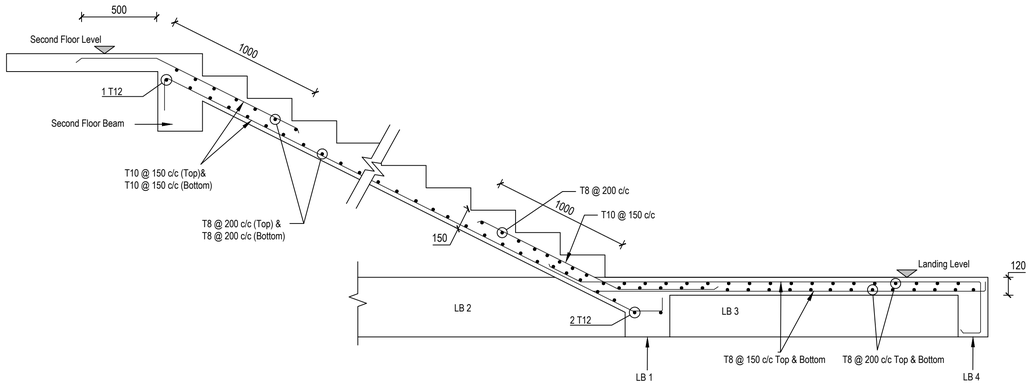
KERALA PUBLIC WORKS DEPARTMENT
OFFICE OF THE JOINT DIRECTOR
REGIONAL DESIGN OFFICE, KOZHIKODE

PREMETRIC HOSTEL AT NENMENI, MALAPPURAM

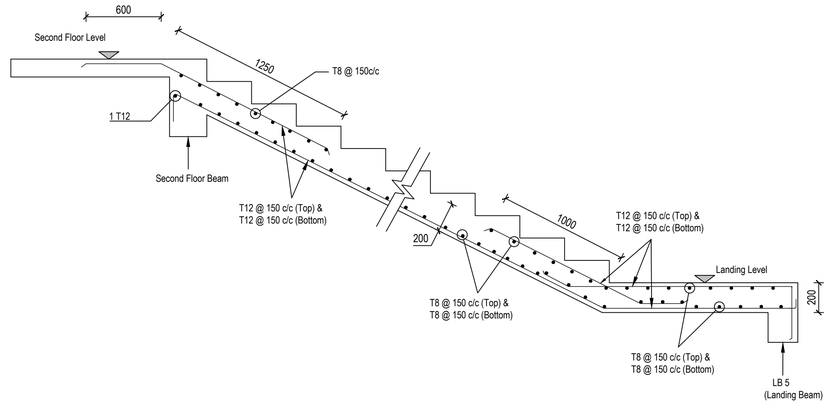
REINFORCEMENT DETAILS OF BEAMS AND SLABS AT FIRST FLOOR

FILE NO.	AR.DRG.NO.	DRG.NO.	SCALE	SHEET SIZE	SHEET NO	DATE
RDO/KKD/BL-13/AHE1/18	160/17(D)-Rev dt.13.06.19	RDO/KKD/BL-13/18	1:100	A1	S008	06/02/2021

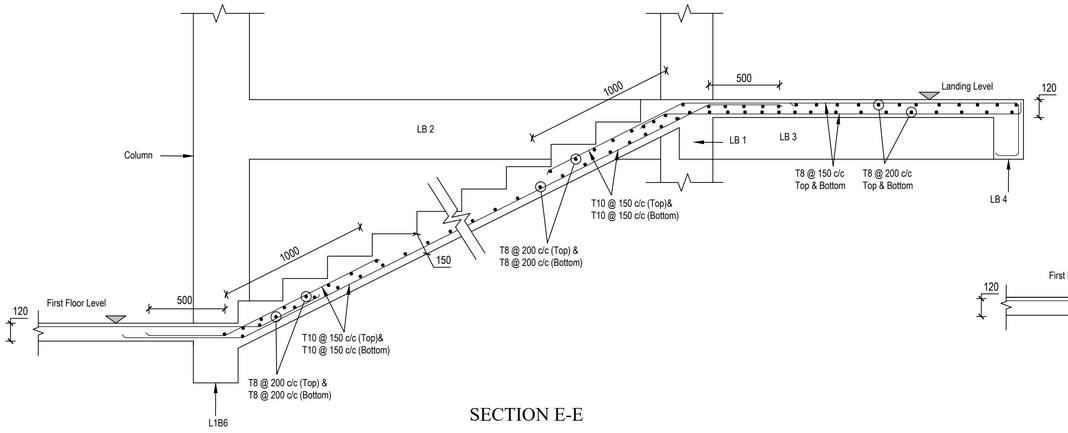
DRAWN	DRAUGHTSMAN	PRASY M / ASWATHI DEV K K
DESIGNED	ASSISTANT HIGHWAY ENGINEER	RESHMA K V
REVIEWED	BRIDGE ENGINEER	FIROSE T P
APPROVED	JOINT DIRECTOR	SHARAFUDEEN M K



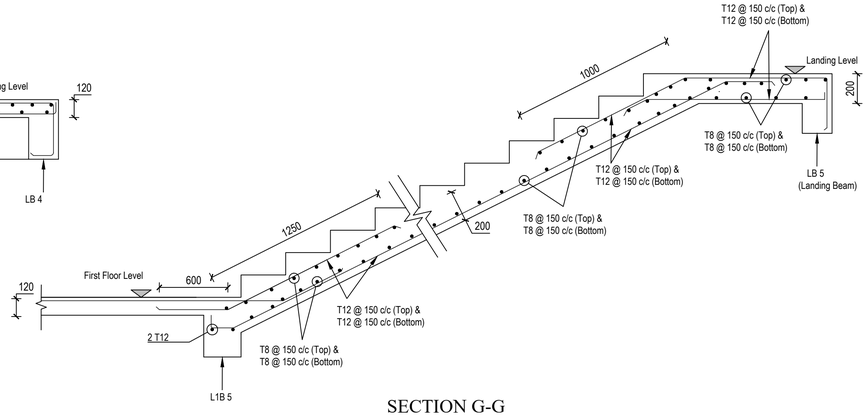
SECTION F-F



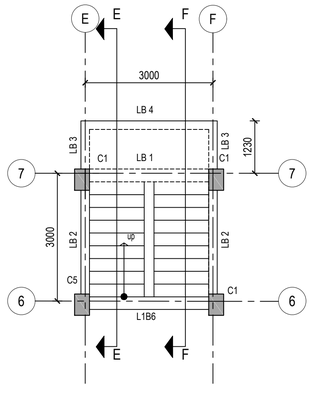
SECTION H-H



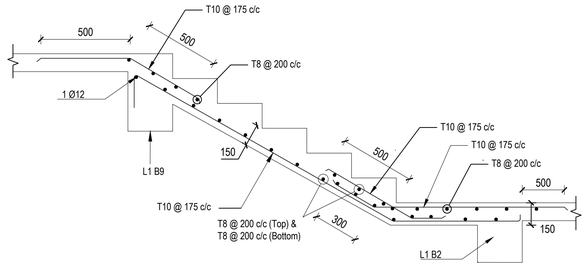
SECTION E-E



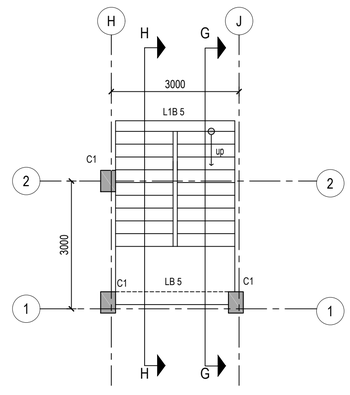
SECTION G-G



FRAMING PLAN ABOVE
LANDING LEVEL FOR STAIR - 1



SECTION $\frac{\text{B - B}}{\text{S-007}}$ - DETAIL OF STEPS



FRAMING PLAN ABOVE
LANDING LEVEL FOR STAIR - 2

NOTE:-

1. Refer to Drg . RDO/KKD/BL-13/18 Sheet No.S001, for General Notes and Special Notes, which shall be strictly followed at site.
2. For beam reinforcement detailing and anchorages to the columns, follow Typical reinforcement details of Beams(seismic)-Type 1 in sheet 3/3 of DRIQ-Typical reinforcement detailing.
3. For two way slab reinforcement details, refer to Typical reinforcement detailing of slabs in sheet 3/3 of DRIQ - Typical reinforcement detailing.

NOTE ON CONCRETE & REINFORCEMENT:-

1. Concrete grade shall be as follows
   - All RCC works - M30
2. Grade of Steel
   All steel reinforcement to be used shall be high yield strength deformed bars of Grade Fe 500 D and conforming to IS 1786 - 2008 which shall be manufactured by primary steel producers .
3. Concrete cover to reinforcement.
   The minimum cover measured from the surface of the concrete to the outermost reinforcing bar including links and stirrups shall not be less than the following unless noted otherwise.
   - RCC Footing & column below G.L - 75mm
   - Column above GL - 40mm
   - Beams - 30mm (min.)
   - Slabs, Stairs - 20mm
4. Lap length
   Where lap splices are used, lap length shall be as stated in the following table except where noted otherwise.

Dia of bar	12	16	20	25
Lap length in mm	600	800	1000	1250

Where bars of different diameter are lapped the lap length shall be based on the larger dia of bar. All laps shall be staggered unless stated otherwise. In case of columns / beams bigger diameter bars shall be placed in corners / outer layer.

SPECIAL NOTE:-

1. For Landing beam details, refer to drawing No.S008

REVISION DETAILS		
Rev.No.	Particulars	Date
0	Detailed Design	06-02-2021

DETAILED DESIGN DRAWING

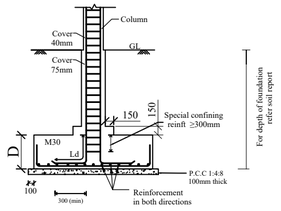
KERALA PUBLIC WORKS DEPARTMENT
OFFICE OF THE JOINT DIRECTOR
REGIONAL DESIGN OFFICE, KOZHIKODE

PREMETRIC HOSTEL AT NENMENI, MALAPPURAM

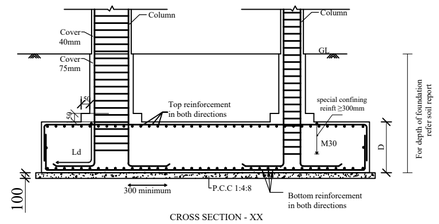
STAIRCASE DETAILS - FIRST FLOOR TO SECOND FLOOR

FILE NO.	AR.DRG.NO.	DRG.NO.	SCALE	SHEET SIZE	SHEET NO	DATE
RDO/KKD/BL-13 /AHE1/18	160/17(D)-Rev dt.13.06.19	RDO/KKD/BL-13/18	1:100	A1	S009	06/02/2021

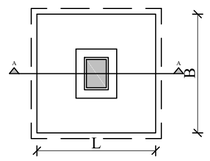
DRAWN	DRAUGHTSMAN	PRASY M / ASWATHI DEV K K
DESIGNED	ASSISTANT HIGHWAY ENGINEER	RESHMA K V
REVIEWED	BRIDGE ENGINEER	FIROSE T P
APPROVED	JOINT DIRECTOR	SHARAFUDEEN M K



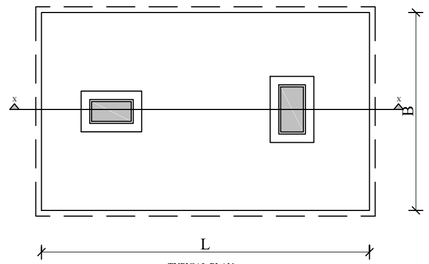
CROSS SECTION - AA



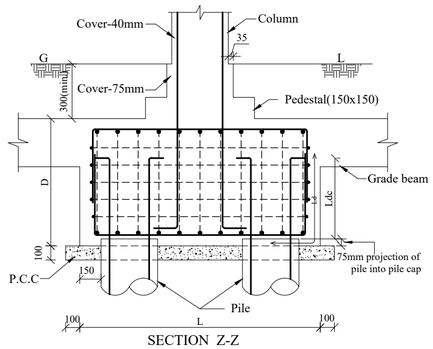
CROSS SECTION - XX



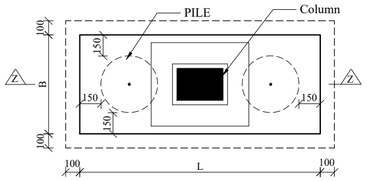
TYPICAL PLAN
ISOLATED FOOTING



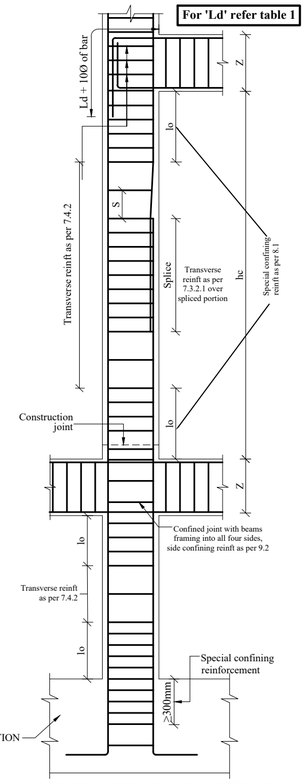
TYPICAL PLAN
COMBINED FOOTING



SECTION Z-Z



LAYOUT PLAN -PILE CAP FOR TWO PILE



TYPICAL COLUMN TIE SPACING DETAIL
(SEISMIC)

NOTES:

1. As per cl.7.3.2.1 of IS 13920-2016

a) Not more than 50% of area of steel bars shall be lapped at any one section and lap length should not less than development length of longitudinal bars in tension.

b) In lapping zone, spacing of links shall not exceed 100mm.

c) Lap splices shall be provided only in the central half of clear column height and not i) Within a joint. ii) Within a distance of 2d from the face of beam.

2. As per cl.8.1(a) of IS 13920-2016 special confining reinforement shall be provided for columns over a length l_0 on either side of joint and the length l_0 shall not less than .

a) Larger lateral dimension of column.

b) 1/6 of clear height of column(hc).

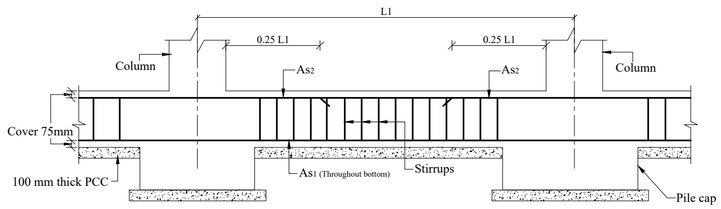
c) 450mm.

3. Minimum confining reinforcement for column shall be provided as per clause 8.1.(b)(c) of IS 13920. For other portions provide minimum spacing of half the least lateral dimension of column with link arrangements as specified in structural drawings.

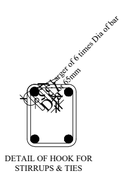
4. Confining stirrups in beam column junction shall be provided in 'Z' portion as per cl.9.2.1 of IS 13920-2016.

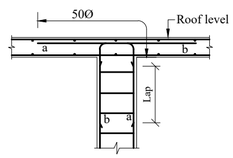
5. When column terminates into footing or mat special confining reinforcement shall extend at least 300mm into the mat as per cl.8.2. of Is 13920-2016.

5. All dimensions are in mm unless noted otherwise.



TYPICAL REINFORCEMENT DETAILING OF A GRADE BEAM

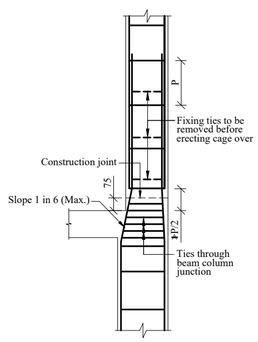




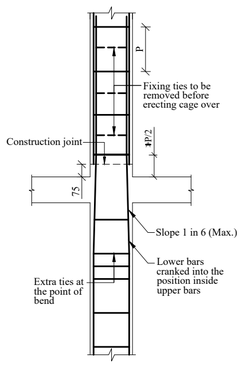
G. TYPICAL DETAILS OF
TERMINATION OF COLUMN BARS INSIDE A SLAB

TABLE - 1

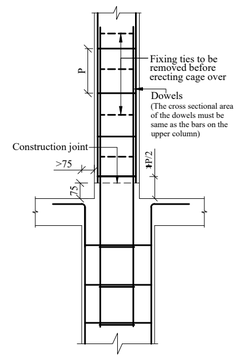
Development length, Ld (In terms of dia of bars) for Fe500D		
Grade mix of concrete	Tension (Ld)	Compression (Ldc)
M30	50Ø	35Ø



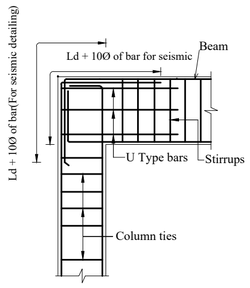
SPLICING WHEN THE LOWER BARS
CRANKED INTO A POSITION INSIDE THE
UPPER BARS WITH STEPPING OF
COLUMNS ON ONE SIDE



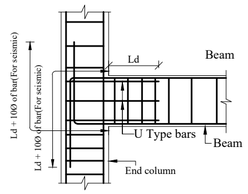
SPLICE WITH LOWER BARS CRANKED
INTO POSITION INSIDE UPPER BARS
(INTERMEDIATE FLOOR)



SPLICING AT THE FLOOR LEVEL
WHEN THE RELATIVE DISPLACEMENT OF
COLUMN FACES IS MORE THAN 75 mm.

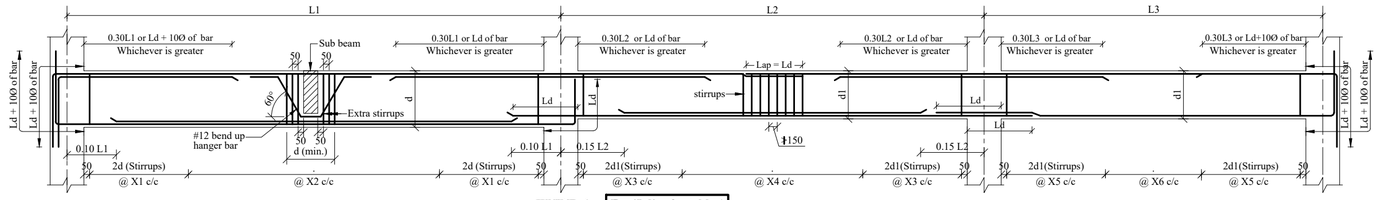


TYPICAL DETAILS OF A BEAM - COLUMN
JUNCTION AT ROOF LEVEL.

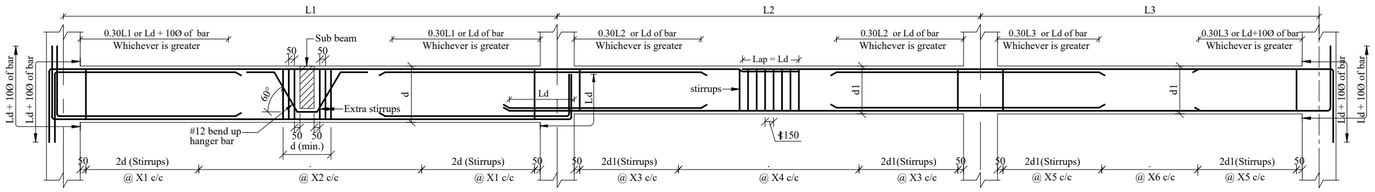


H. TYPICAL DETAILS OF A BEAM-COLUMN
JUNCTION AT EXTERIOR COLUMN

OFFICE OF THE CHIEF ENGINEER (DESIGN & ADMINISTRATION) DRIQ BOARD, KERALA PWD, THIRUVANANTHAPURAM				
TYPICAL REINFORCEMENT DETAILING				
FILE NO.	SCALE	DRAWING NO.	SHEET NO.	DATE.
	NOT TO SCALE	DRIQ/BL/ /2012	2/3	/ /2012
DRAWN	DRAUGHTSMAN			
DESIGNED	ASSISTANT DIRECTOR			
CHECKED	DEPUTY DIRECTOR			
REVIEWED	JOINT DIRECTOR			
RECOMMENDED	DIRECTOR			
APPROVED	CHIEF ENGINEER			



TYPE-1 **For 'Ld' refer table 1**



TYPE-2

TYPICAL REINFORCEMENT DETAILING OF BEAMS(SEISMIC)

NOTES:

1. As per cl.6.2.6 of IS 13920-2016

a) Not more than 50% of area of steel bars shall be lapped at any one section and lap length should not less than development length of longitudinal bars in tension.

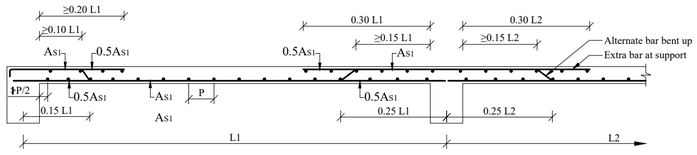
b) In lapping zone, spacing of links shall not exceed 150mm.

c) Lap splices shall not provided o i) Within a joint. ii) Within a distance of 2d from the face of column. ii) Within a quarter length of beam adjoining the location where flexural yeilding may occure.

2. spacing of links(x1) over a length 2d at either end of beam shall not exceed i) d/4 ii) 8 times dia of smallest reinforcement bar c)100mm. The first link shall be at a distance not exceeding 50mm from the joint face

Over the remaining length vertical links(x2) shall be provided at a spacing not exceeding d/2.

3. All dimensions are in mm unless noted otherwise.



TYPICAL REINFORCEMENT DETAILING OF SLABS

Note on slab reinforcement:-

If the slab reinforcement at top of slab at beam suports differs on adjacent spans, larger reinforcement of the slab at supports shall be followed on each side at suports

NOTES

1.For seismic detailing provide x1 c/c fo a distance of 2d from the face of column & x2 c/c for mid span.

TABLE - 6

Minimum spacing of stirrups for midspan of beam	
Depth of beam	Minimum spacing
400	200
450	200
500	230
600	270
700	320
750	350
800	370

OFFICE OF THE CHIEF ENGINEER (DESIGN & ADMINISTRATION) DRIQ BOARD, KERALA PWD, THIRUVANANTHAPURAM				
TYPICAL REINFORCEMENT DETAILING				
FILE NO.	SCALE	DRAWING NO.	SHEET NO.	DATE.
	NOT TO SCALE	DRIQ/BL/ /2012	3/3	/ /2012
DRAWN	DRAUGHTSMAN			
DESIGNED	ASSISTANT DIRECTOR			
CHECKED	DEPUTY DIRECTOR			
REVIEWED	JOINT DIRECTOR			
RECOMMENDED	DIRECTOR			
APPROVED	CHIEF ENGINEER			