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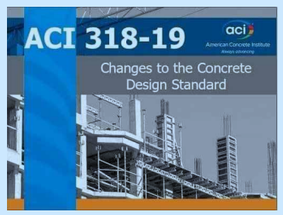

PREPARE BY DR-Majid Albana
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Notes

THE BUILDING SYSTEM WILL BE CONSIDER AS SHEAR WALL BUILDING WITH COLUMNS AND THE SLAB WILL BE AS Solid SLAB WITH M. BEAMS.THE SOFTWARE USED IN DESIGN (CSI ETABS 2022, AND CSI SAFE 2022&PROKON) IS THE GENERAL PROGRAM USED IN THIS DESIGN

job title

VILLA

Structural Drawings

DRWG. TITLE:

DESIGNED BY DR-Majid Albana

CHECKED BY

SCALE As Shown

DATE 11/2024

SHEET NO. Str. 1

GENERAL :-

1. ALL DIMENSIONS TO TAKE PRECEDENCE OVER SCALE SHOWN ON PLANS, SECTIONS AND DETAILS, (DO NOT SCALE FROM DRAWINGS).
2. ALL DIMENSIONS ARE IN MILLIMETRES AND ALL LEVELS IN METRES (UNO).
3. THE STRUCTURAL DRAWINGS SHOULD BE USED IN CONJUNCTION WITH THE ARCHITECTURAL, MECHANICAL,CIVIL,PLUMBING AND ELECTRICAL DRAWINGS.
4. ALL OPENINGS SIZE AND LOCATION SHOULD BE VERIFIED AND CHECKED WITH SERVICES DRAWINGS,WHERE OPENINGS SIZES ARE NOT SHOWN ON THE STRUCTURAL DRAWINGS, SITE ENGINEER SHALL INTRODUCE SUCH OPENINGS WITH PROPER FRAMING INCLUDING ANY REVISION TO THE SIZES SHOWN ON THE DRAWINGS.
5. DESIGN STANDARED & LOADS :-
   - DESIGN & CONSTRUCTION OF REINFORCED CONCRETE STRUCTURES MEMBERS SHALL IN ACCORDANCE WITH ACI-318-95 (ULTIMATE STRENGTH DESIGN METHOD).
   - ALL RETANING WALL STRUCTURE SHOULD BE AS BRITISH 8 97- 110 or ACI - 93 - 318.
   - MASONARY BRICK OR CONCRETE BLOCK ACCORDING TO B.S - 5628.
6. LOADING :-
   - MINIMUM DESIGN LOAD (LIVE LOAD) ACCORDING TO IBC-09.
   - SEISMIC LOAD ACCORDING TO IRAQI SEISMIC CODE 1997.
   - WIND LOAD ACCORDING TO ASCE-05.
7. FOR TYP. SECTIONS & DETAILS SEE ST-G2.

FOUNDATION AND EARTH WORK :-

1. FOUNDATION DESIGN BASED ACCORDING TO THE SOIL REPORT PREPARED BY THE & RESEARCH (( )2023\ \ \ ).
2. BEARING CAPACITY ACCORDING TO THE SOIL REPORT IS (90K/m²) AT DEPTH OF (-4.00m) BELOW THE EXISTING N.G.L.
3. A WELL COMPACTED SUB-BASE LAYERS OF A TOTAL THICK AS INDICATED IN THE DWG. SHOULD BE USED UNDER FOOTING WITH FOLLOWING SPECIFICATIONS :-
   - THE DIMENSION OF THE SUB-BASE LAYERS SHOULD BE LARGER THAN THE DIMENSIONS OF THE FOUNDATION FROM ALL SIDES BY 0.25m.
   - THE VALUE OF CALIFORNIA BEARING RATIO (C.B.R) SHALL NOT BE LESS THAN (35% ASTM D) 1883 AT 95% OF THE MAXIMUM DRY DENSITY ESTABLISHED ACCORDING TO (ASTM D)1557.
   - LIQUID LIMIT ≤ 25%.
   - PLASTICITY INDEX ≤ 6%.
   - ORGANIC MATERIAL ≤ 2%.
   - SO_3 ≤ 5%.
   - TOTAL SOLUBLE SALTS ≤ 5%.
   - GYPSUM CONTENT ≤ 10.75%.
   - RELATIVE COMPACTION 95% (MODIFIED PROCTOR).
4. SULPHATE RESISTANT CEMENT TYPE 5 SHOULD BE USED IN ALL CONCERET WORK IN CONTACT WITH EARTH OR BELOW D.P.C. LEVEL.
5. BACKFILL AROUND FOOTINGS AND UTILITY TRENCH WITHIN THE BUILDING AREA SHOULD BE DONE WITH APPROVED SELECTED CLASSIFIED MATERIAL FREE OF CLAY AND SHOULD BE MECHANICALLY COMPACTED IN LAYERS, NOT EXCEEDING 250mm LOOSE THICKNESS TO 90% OF MAXIMUM PROCTOR DENSITY.

CONSTRUCTION JOINT AND WATERPROOFING :-

1. CONSTRUCTION JOINT :-
   - CONSTRUCTION JOINT IN FLOORS SHOULD BE LOCATED WITHIN THE MIDDLE THIRD OF SPANS OF SLABS ,BEAMS & GIRDERS,JOINT IN GIRDER SHOULD BE OFFSET A MINIMUM DISTANCE OF TWO TIMES THE WIDTH OF INTERSECTING BEAMS.
   - AT CONSTRUCTION JOINTS SURFACES SHOULD BE ROUGHENED BY BROOMING OUT MORTAR, EXPOSING 12mm OF COARSE AGGREGATE TWO HOURS AFTER PLACING CONCRETE.
   - CONSTRUCTION JOINTS FOR STRUCTURAL SLAB / FOUNDATION / WALLS ETC. AND VOLUME OF CASTING IN A POUR SHOULD BE APPROVED BY THE ENGINEER.
   - CONSTRUCTION JOINTS SHOULD BE DOWELED, KEYED AND THOROUGHLY CLEANED, ALL CONSTRUCTION JOINTS SHOULD BE CONSTRUCTED IN ACCORDANCE WITH THE TYPICAL CONSTRUCTION JOINT DETAILS SHOWN ON THE STRUCTURAL DRAWINGS,CONTRACTOR HAVE TO PREPARE ANY MISSING DETAILS NOT COVERED IN THE STRUCTURAL DRAWINGS AND SUBMIT FOR ENGINEER'S APPROVAL.
2. WATERPROOFING :-
   - WATER STOPS SHOULD BE USED AT ALL CONSTRUCTION,CONTRACTION & EXPANSION JOINTS,WHERE WATERPROOFING SYSTEM IS APPLIED ALL INTERSECTION PIECES OF WATER STOPS SHOULD BE FACTORY MOLDED.
   - ALL CONCRETE WORKS IN CONTACT WITH SOIL FOR NORMAL STRUCTURE SHOULD BE COATED WITH PROTECTIVE LAYER.

. all dim. from ARCH D.W.G.

REINFORCED CONCRETE :-

1. COMPRESIVE STRENGTH OF CONCRETE SHOULD BE DETERMIND BY THE TABLE BELOW :-

MEMBER TYPE \ LOCATIONS	MINIMUM 28 DAYS CUBE COMPRESSIVE STRENGTH (Fcu) (MPa)	AGGREGATE MAX. SIZE
SCREED	20	10 mm
BLINDING OR LEAN CONCRETE	20	20 mm
SLABS	40	20 mm
PILES	-	20-38 mm
FOUNDATIONS	40	20 mm
COLUMNS AND SHEAR WALLS	50	20 mm
SUSPENDED SLAB, BEAMS AND WALLS	40	20 mm
WATER RETAINING STRUCTURES	-	20 mm
PLAIN CONCRETE	25	20 mm

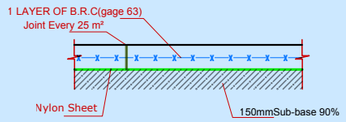
2. SULPHATE RESISTANT CEMENT TYPE 5 SHOULD BE USED IN ALL CONCERET WORK IN CONTACT WITH EARTH OR BELOW D.P.C LEVEL.
3. REINFORCMENT STEEL CONFORM TO ASTM A615 & A616 OR A617 BARS SHOULD BE GRADE 400 FY=410N/mm (60000psi).
4. PLACING OF REINFORCEMENT SHOULD BE ACCORDING TO ACI-315 DETAILING MANUAL.
5. MINIMUM BARS COVER :-

MEMBER	(mm)
SLABS	25
BEAMS & GIRDERS	40
COLUMNS	40
INTERIOR WALLS	25
EXTERIOR FACE OF WALL	40
FORMED FOUNDATION	50
NON-FORMED FOUNDATION	75

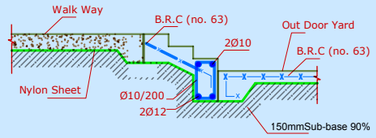
6. MINIMUM BARS SPACING :-
   - CLEAR SPACING BETWEEN PARALLEL BARS SHALL NOT BE LESS THAN BAR DIAMETER OR 4/3 OF MAXIMUM AGGREGATE SIZE BUT NOT LESS THAN 25mm.
   - CLEAR SPACING BETWEEN LAYERS OF BARS TO BE NOT LESS THAN 25mm AND THE UPPER BARS SHOULD BE OVER THE LOWER BARS .
   - IN COLUMNS CLEAR DISTANCE BETWEEN LONGITUDINAL BARS SHOULD BE NOT LESS THAN 1.5 BAR DIAMETER NOR LESS THAN 40mm.
7. MINIMUM LAP LENGTH (UNLESS NOTED ON DRAWINGS) SHOULD BE AS TABLE BELWO :-

BAR DIA.(mm)	10	12	16	18	20	22	25
LAP LENGTH (mm) IN COLUMNS	400	500	600	650	700	800	900
LAP LENGTH (mm) IN ELSE WHERE	400	600	700	800	900	1000	1250

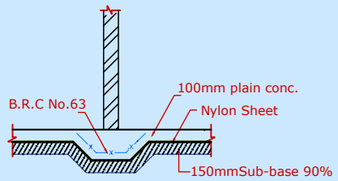
   - LAP LOCATION IN SLABS AND BEAMS :-
     * AT SUPPORT FOR BOTTOM BARS.
     * AT MID SPAN FOR TOP BARS.
   - LAP LOCATION IN FOUNDATION :-
     * AT SUPPORT FOR TOP BARS.
     * AT MID SPAN FOR BOTTOM BARS.
8. VERTICAL REINFORCEMENT IN COLUMN :-
   - WHERE COLUMN FACE ARE OFFSET 75mm OR MORE SPLICE OF VERTICAL BARS TO THE OFFSET FACE SHOULD BE MADE BY SEPARATE DOWELS OVER LAP AS SPECIFIED ABOVE.
   - WHERE A LONGITUDINAL BARS ARE OFFSET AT SPLICE THE SLOPE OF INCLINED ADJACENT PORTION SHALL NOT EXCEED 1:6 (HORIZANTAL:VERTICAL).
   - CHANGING OF REINFORCEMENT BETWEEN FLOORS WHERE SUCH SITUATION OCCURS THE REINFORCEMENT OFF SHOULD BE CUT OFF AT DISTANCE 75mm BELOW FLOOR LEVEL SPACED 100mm AND PLACED BEFOR THE POINT OF BEND.
   - WHERE LONGITUDINAL BARS OFFSET,PROVIDE 4TIES.
9. HOT & COLD WETHERING SHOULD BE ACCORDING TO ACI-305R-99.
10. ALL REINFORCING BAR BENDS TO BE MADE COLD.
11. IN ONE-WAY SLAB, SHRINKAGE & TEMPERATURE REINF. STEEL EXTENDING IN THE LONG DIRECTION SHALL BE PLACED IN THE PLACE OF, AND TIED TO THE MAIN REINF. EXTENDING IN THE SHORT DIRECTION.
12. MIXING & PLACING CONCRETE SHOULD BE DONE ACCORDING TO ACI - 318M - 95 (CHAPTER 5) CONDUIT OR PIPE SIZE SHALL NOT EXCEED 30% OF SLAB THICKNESS UNLESS SPECIFICALLY DETAILED,OTHERWISE CONCENTRATIONS OF CONDUITS OR PIPES SHOULD BE AVOIDED EXCEPT WHERE DETAILED OPENINGS ARE PROVIDED,ALL SUBJECTED TO ENGINEER'S APPROVAL.



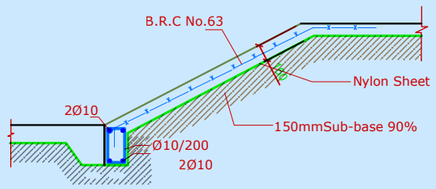
Typical Detail Of Out Door Yard



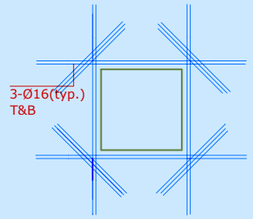
Typical Sec. For Stair On Earth



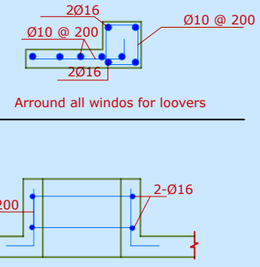
CONSTRUCTION OF PARTITION ON GROUND SLAB
provid construction joint for max.(5mx5m)



Typical Sec. Of Ramp

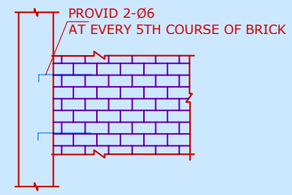


TYPICAL REINF. AROUND OPENNINGS UP TO 600

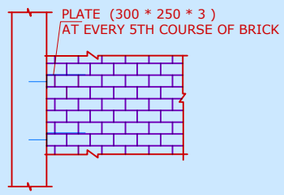


TYPICAL UP STAND DETAIL ROOF OPENNINGS

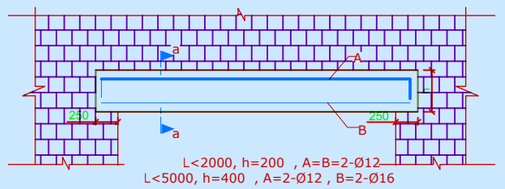
Arround all windos for loovers



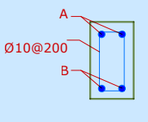
CONECTION BETWEEN BRICK WALL AND R.C. COLUMN
proposel 1



CONECTION BETWEEN BRICK WALL AND R.C. COLUMN
proposel 2



LINTEL REINFORCEMENT



SEC. (a - a)

ABBREVIATIONS :-

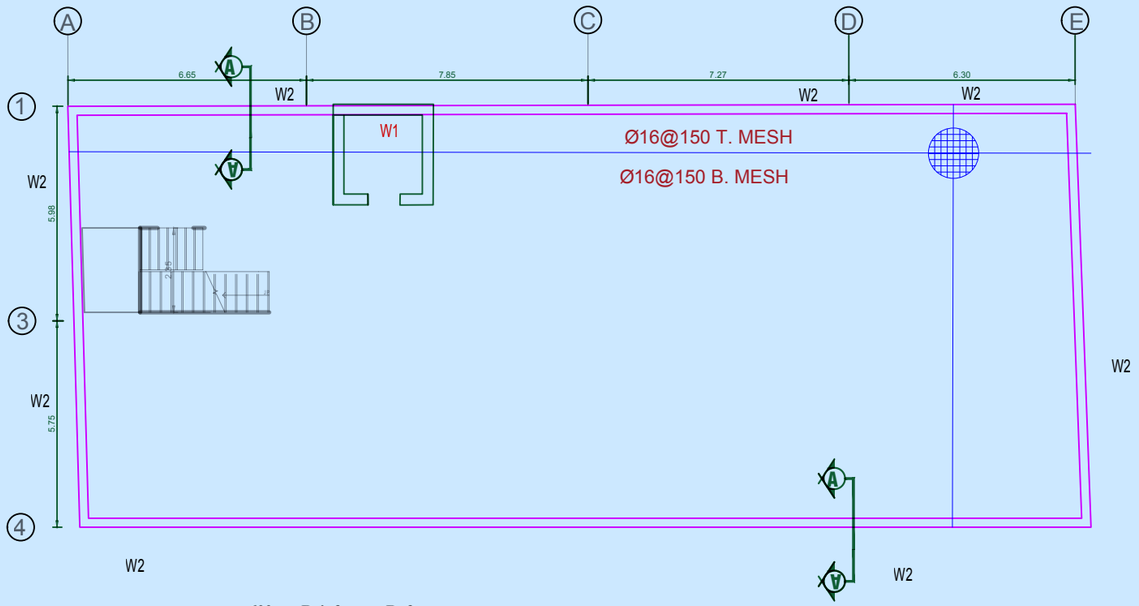
ADD	ADDITIONAL
ARCH	ARCHITECTURAL
B	BEAM
BOTT	BOTTOM
C1	COLUMN TYP C1
CANT	CANTILEVER
CJ	CONSTRUCTION JOIN
CL	CENTRE
C	COULMN
CONC	CONCRETE
DET	DETAIL
DIM	DIMENSION
DWG	DRAWING
D	DEPTH
E.A	EACH
E.F	EACH FACE
E.J	EXPANSION JOINT
ELEV	ELEVATION
E.W	EACH WAY
EXP	EXPANSION
F	FOOTING
F1	FOOTING TYPE-1
FDN	FOUNDATION
F.F.L	FINISH FLOOR LEVEL
GEN	GENERAL
GL	GRID LINE
LL	LIVE LOAD
MAX	MAXIMIM
MECH	MECHANICAL
MIN	MINIMUM
mm	MILLIMETRES
SEC	SECTION

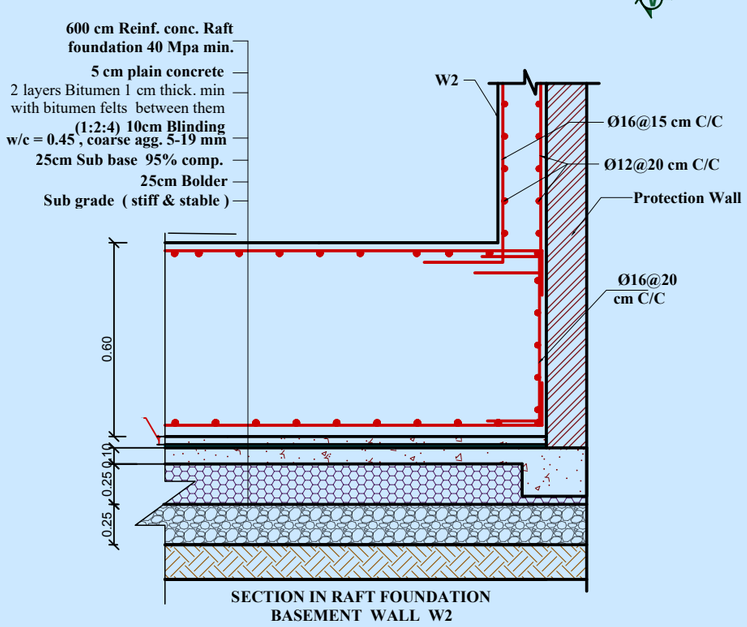
no.	date	initials	revision

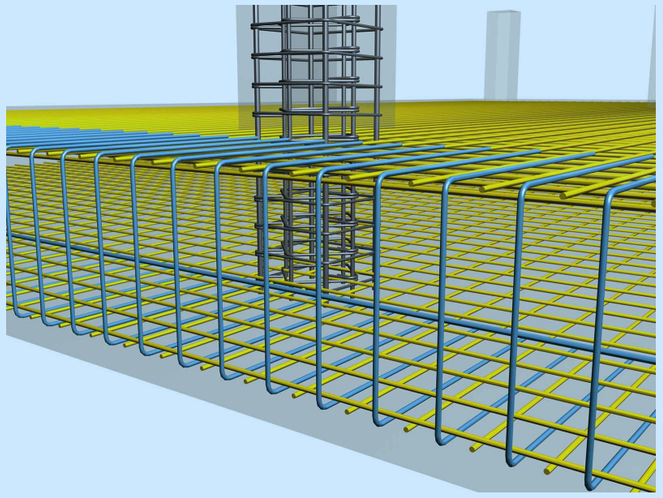
job title
(A)

drawing title
GENERAL NOTES

designed ENG : DR-Majid Albana	project manager	
checked	scale	date
drawn	job no.	sheet no. 2
approved		







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-Fcu = 40 N/mm2
-Fy = 420 N/mm2.

CONCRETE COVERS

-SLABS	= 25 mm
-BEAMS	= 40 mm
-COLUMNS	= 40 mm
-WALLS	= 25 mm
-SLAB ON GRADE	= 50 mm
-RAFT FOUNDATION	= 75 mm

Typical Section (A-A) of raft foundation

Foundation Plan

THICK. = 600 mm

MINIMUM LAP LENGTH (UNLESS NOTED ON DRAWINGS) SHOULD BE AS TABLE BELWO :-

BAR DIA.(mm)	10	12	16	18	20	22	25
LAP LENGTH (mm) IN COLUMNS	400	500	600	650	700	800	900
LAP LENGTH (mm) IN ELSE WHERE	400	600	700	800	900	1000	1250

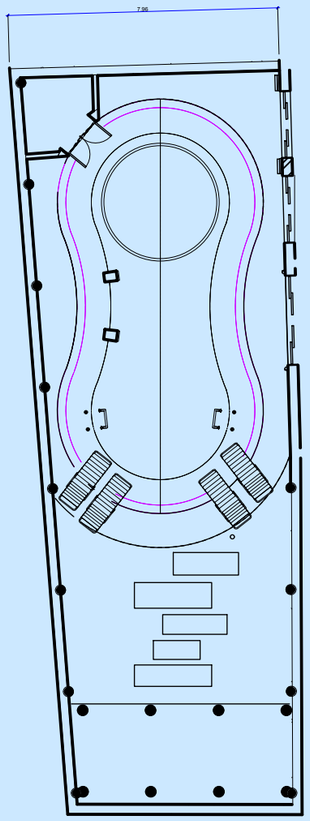
. all dim. from ARCH D.W.G.

no.	date	initials	revision

job title: (A)

drawing title: PLAN OF FOUNDATION REINFORCEMENT&SEC.

designed: ENG : DR-Majid Albana
project manager:
checked:
drawn:
approved:
scale: 1-100
date: 11 /2024
job no.: 4
sheet no.: ST/D/04



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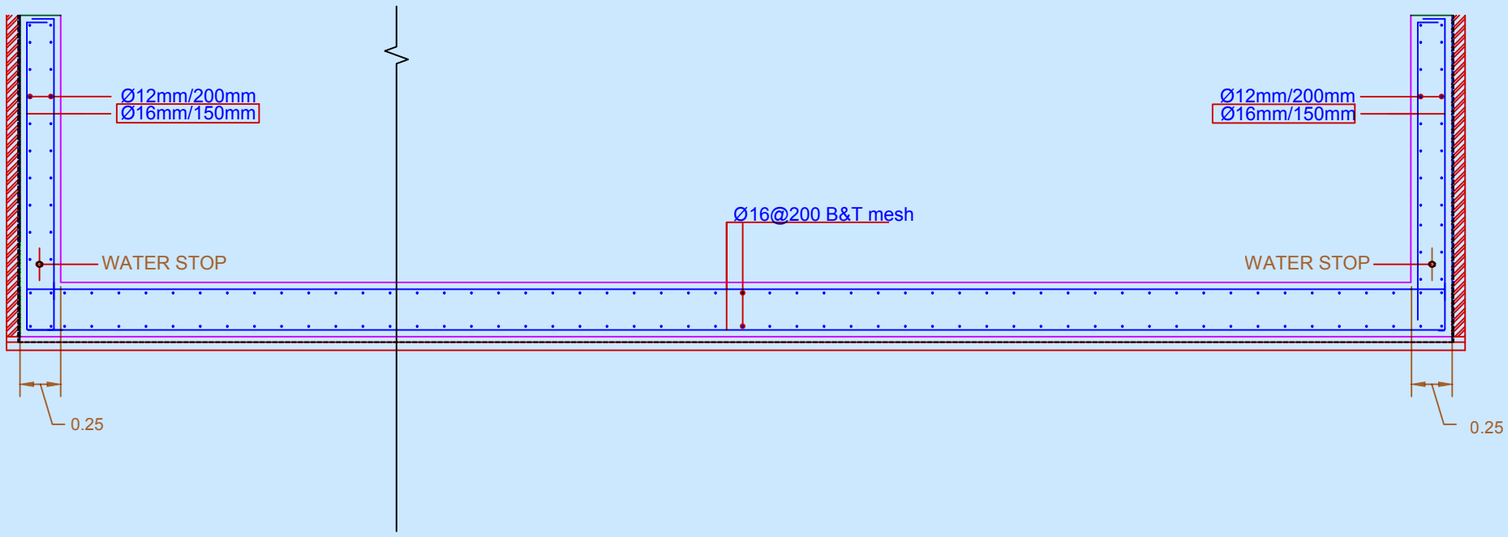
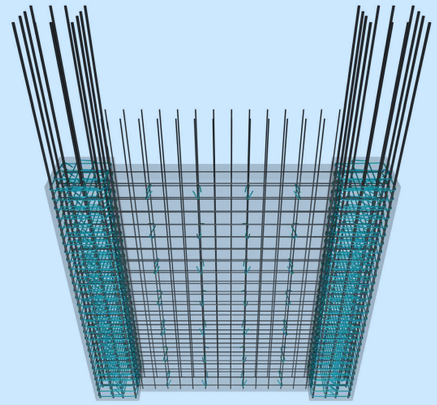




swimming pool

RAFT THICKNESS = 300 mm

MINIMUM LAP LENGTH (UNLESS NOTED ON DRAWINGS) SHOULD BE AS TABLE BELWO :-

BAR DIA.(mm)	10	12	16	18	20	22	25
LAP LENGTH (mm) IN COLUMNS	400	500	600	650	700	800	900
LAP LENGTH (mm) IN SLAB & BEAMS	400	600	700	800	900	1000	1250

Foundation Plan

THICK. = 600mm

. all dim. from ARCH D.W.G.

no.	date	initials	revision

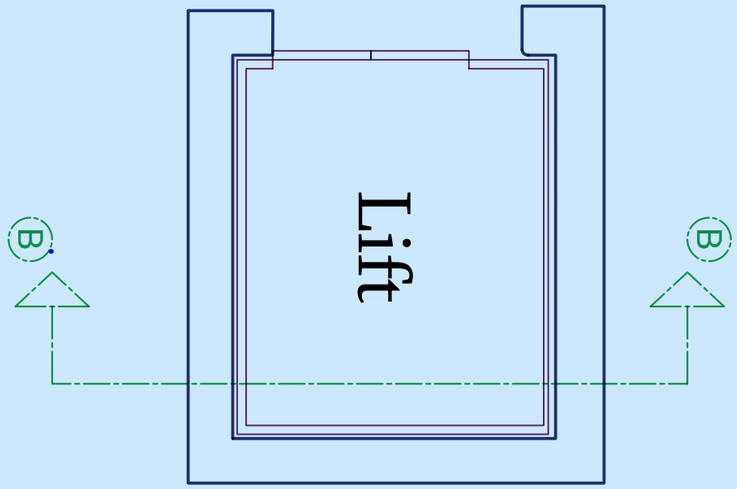
job title

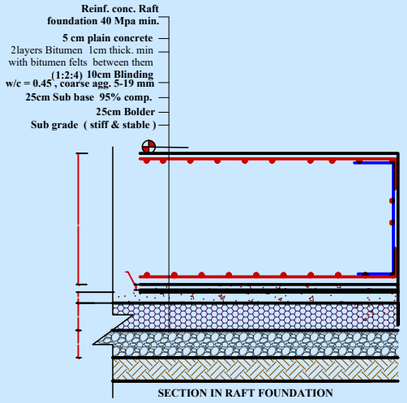
(A)

drawing title

PLAN OF FOUNDATION
REINFORCEMENT&SEC.

designed: ENG : DR-Majid Albana	project manager	
checked	scale: 1-100	date: 11 /2024
drawn	job no.: 5	sheet no.: ST/D/05
approved		





Typical Section (A-A) of raft foundation

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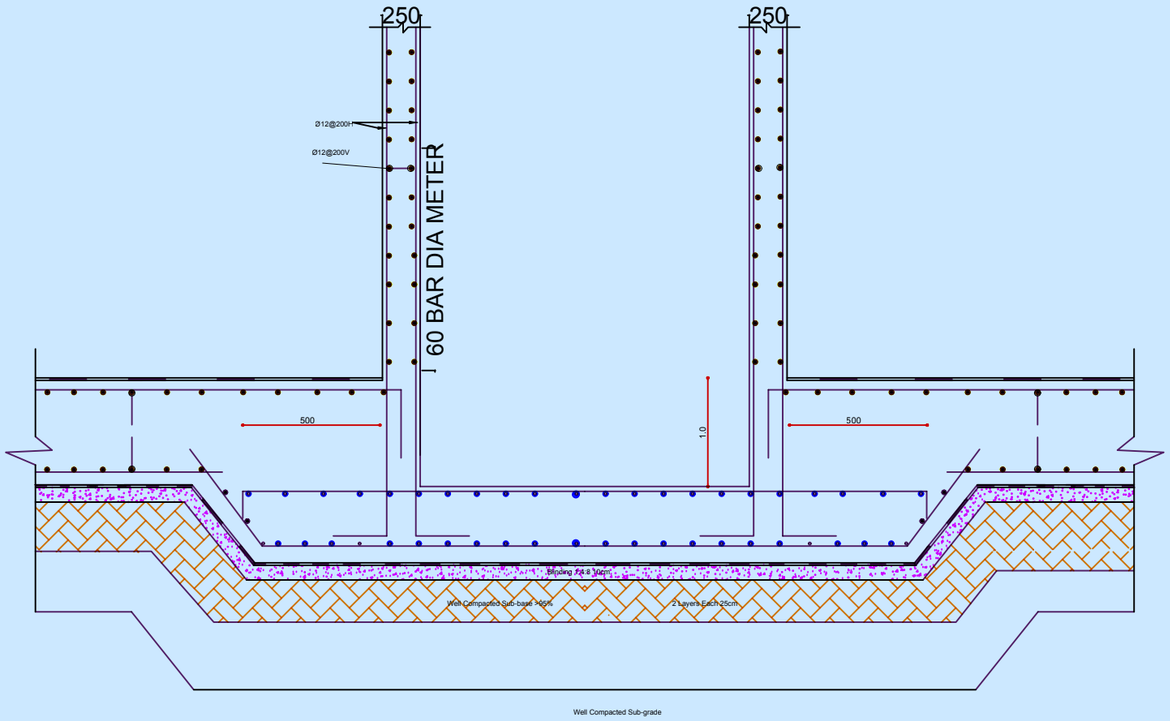
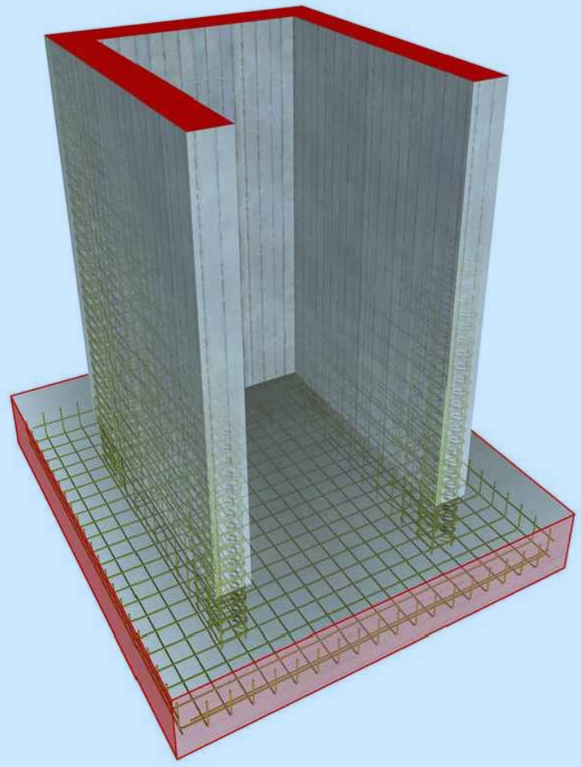


Section B'-B'



no.	date	initials	revision

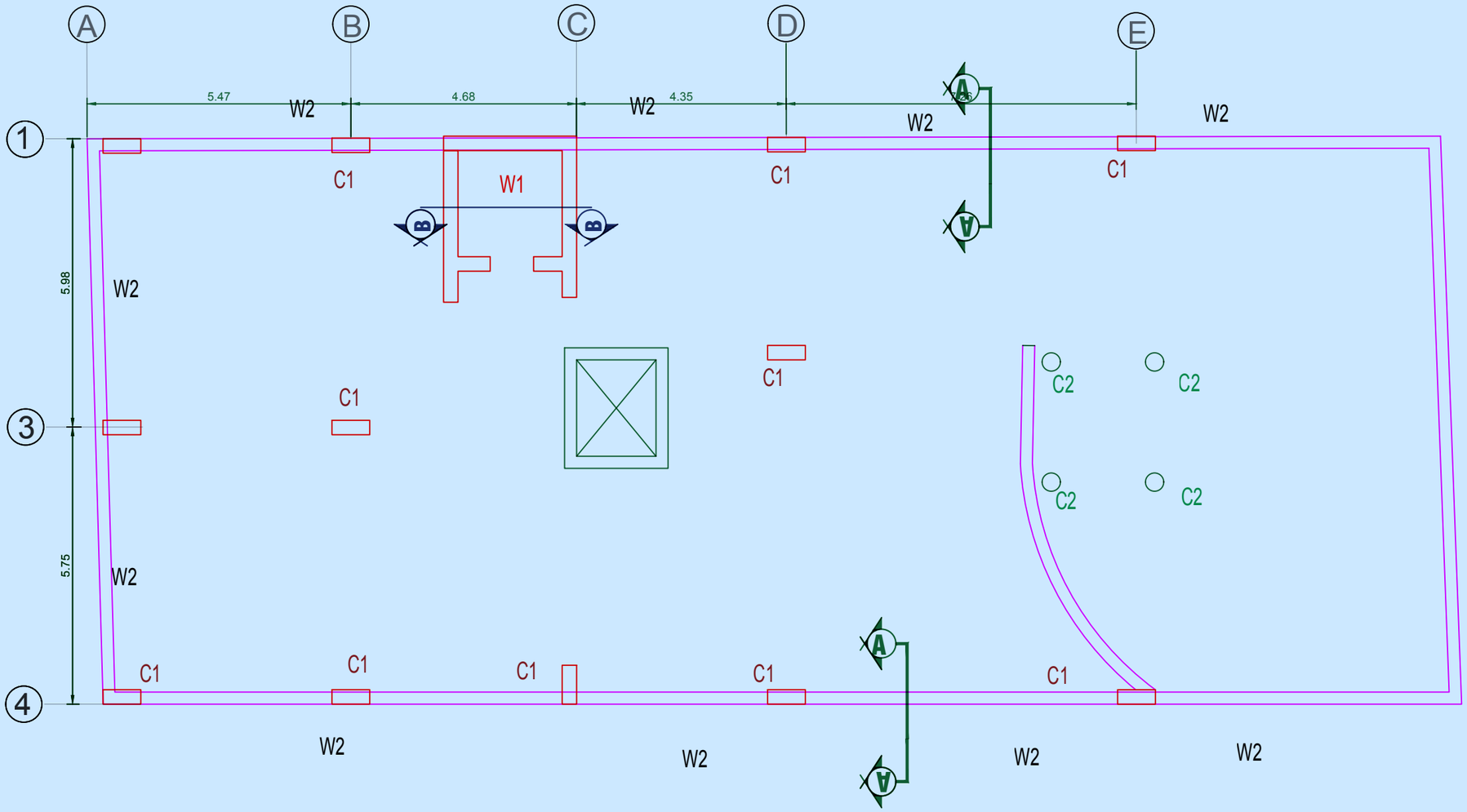
job title

(A)

drawing title

Section A'-A' lift detail

designed	project manager	
ENG : Majid Albana		
checked	scale	date
ENG : Majid Albana	1-100	11/2024
drawn	job no.	sheet no.
ENG : Majid Albana	5	ST/D/06
approved		



SCHEDULE OF COLUMNS AND WALLS

COLUMNS OR WALLS ID	SIZE		REMARK
	LENGTH (mm)	WIDTH (mm)	
C1	800	250	
C2	400		
W1	250		lift ☐
W2	250		just in basement

Notes

-Fcu = 50 N/mm2
-Fy = 420 N/mm2.

CONCRETE COVERS

-SLABS	*= 25 mm*
-BEAMS	*= 40 mm*
-COLUMNS	*= 40 mm*
-WALLS	*= 25 mm*
-SLAB ON GRADE	*= 50 mm*
-RAFT FOUNDATION	*= 75 mm*

COLUMNS & WALL KEY PLAN

. all dim. from ARCH D.W.G.

no.	date	initials	revision

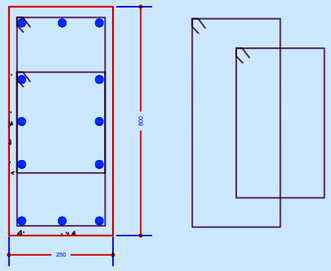
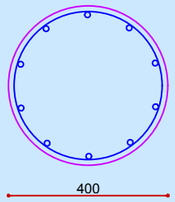
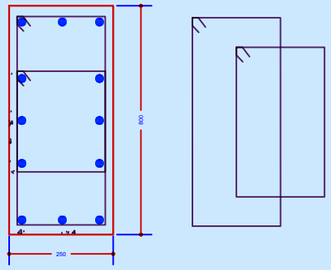
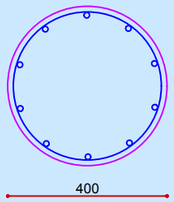
job title

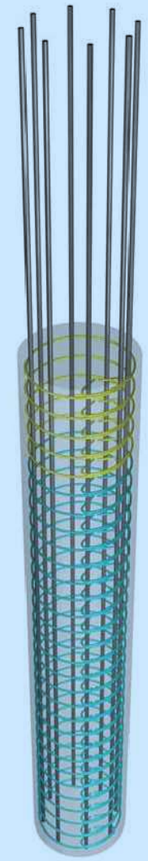
(A)

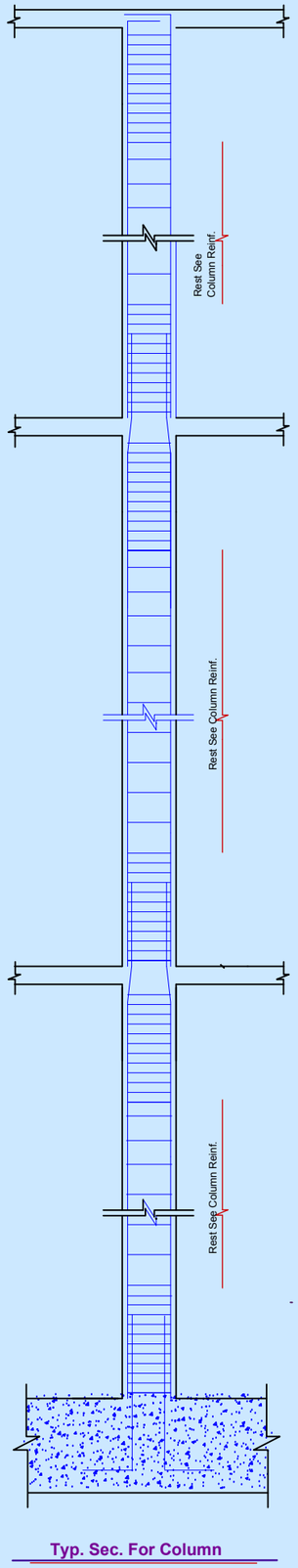
drawing title

COLUMNS & WALL KEY PLAN

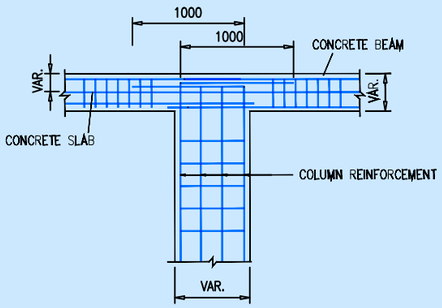
designed: ENG : DR-Majid Albana	project manager
checked	scale: 1-100 / date: 11 /2024
drawn	job no.: 8 / sheet no.: ST/D/08
approved	

			12 - Ø16	10 Ø16
Main Bar	Roof Floor		Ø10@200 2Ties/Set	Ø10@200 1Ties/Set
Ties				
Section		C 50		
Main Bar	2 rd Floor		12 - Ø16	10 Ø16
Ties			Ø10@200 2Ties/Set	Ø10@200 1Ties/Set
Section	BASEMENT foundation level	C 50		
Dowels			12 - Ø16 C 1	10 Ø16 C 2

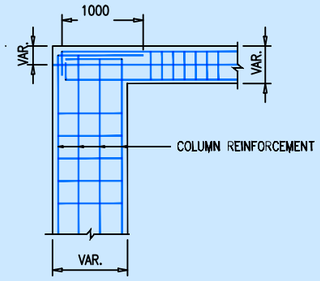




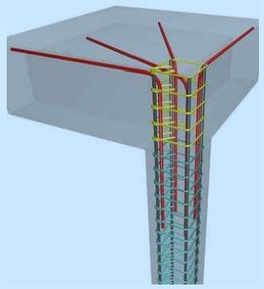
Typ. Sec. For Column

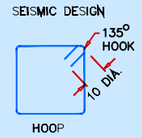


TYPICAL INTERNAL COLUMN TO BEAM DETAIL



TYPICAL EDGE COLUMN TO BEAM DETAIL





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no.	date	initials	revision

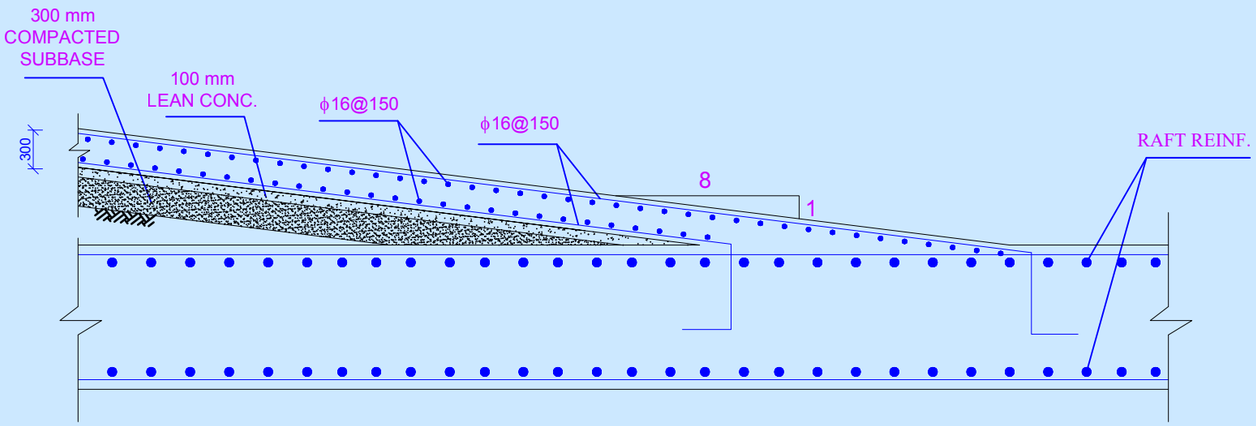
job title

(A)

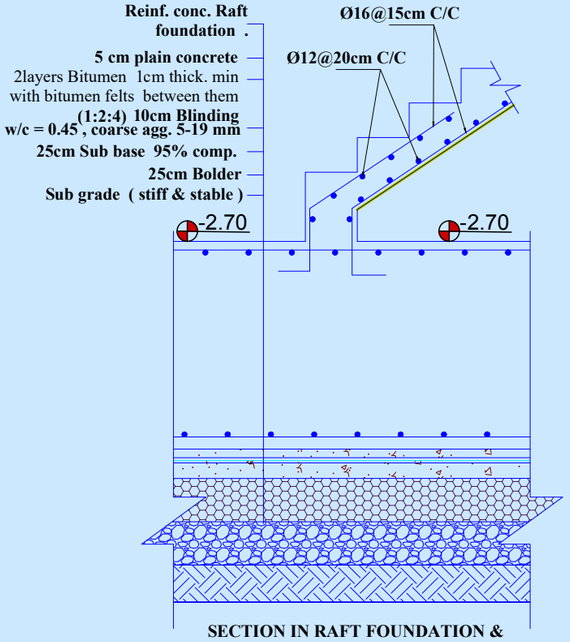
drawing title

SCHEDULE OF COLUMN

designed ENG : DR-Majid Albana		project manager	
checked		scale 1-100	date 11 /2024
drawn		job no. 9	sheet no.
approved			



SEC. J-J



SECTION IN RAFT FOUNDATION &
STAIR NECK

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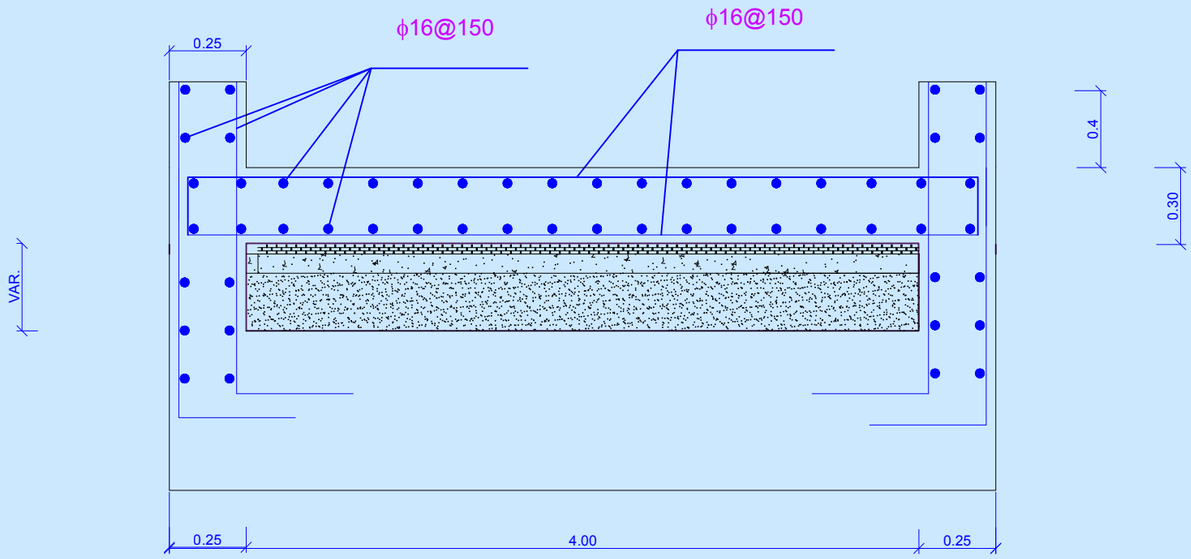
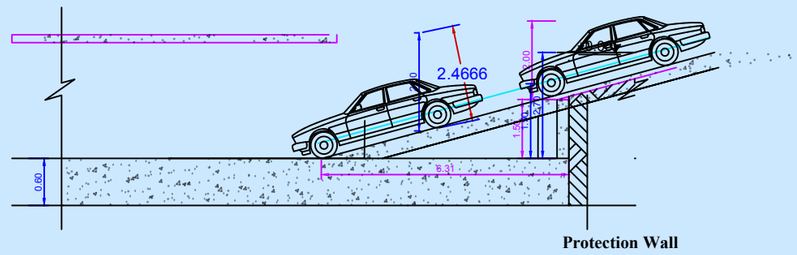


SEC. K-K



RAMP

no.	date	initials	revision

job title

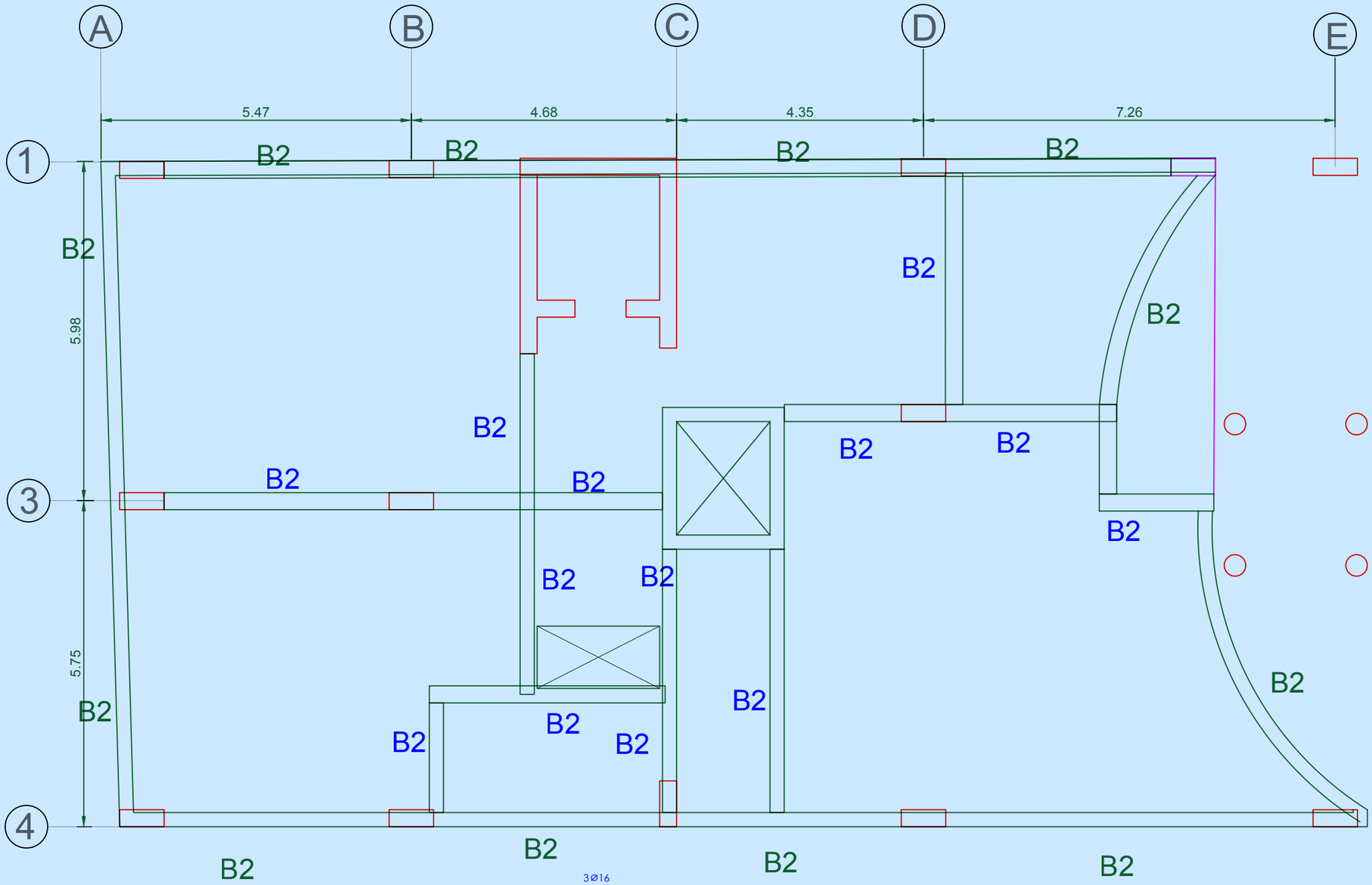
(A)

drawing title

RAMP

REINFORCEMENT&SEC.

designed: ENG : DR-Majid Albana	project manager	
checked	scale: 1-100	date: 11 /2024
drawn	job no.: 10	sheet no.: ST/D/10
approved		



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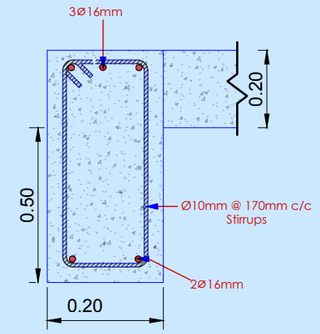
Notes

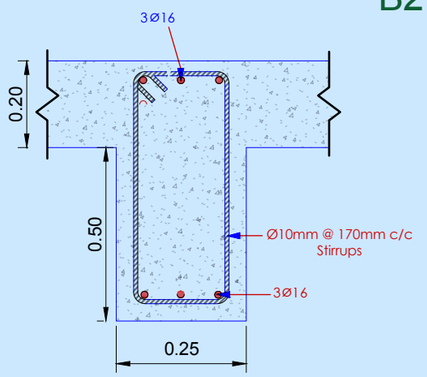
-Fcu = 40 N/mm2
-Fy = 420 N/mm2.

CONCRETE COVERS

-SLABS	= 25 mm
-BEAMS	= 40 mm
-COLUMNS	= 40 mm
-WALLS	= 25 mm
-SLAB ON GRADE	= 50 mm
-RAFT FOUNDATION	= 75 mm



B1 Detail



B2 Detail

BEAM KEY PLAN

. all dim. from ARCH D.W.G.

no.	date	initials	revision

job title
(A)

drawing title
BEAM KEY PLAN

designed ENG : DR-Majid Albana	project manager	
checked	scale 1-100	date 11/2024
drawn	job no. 11	sheet no. ST/D/08
approved		

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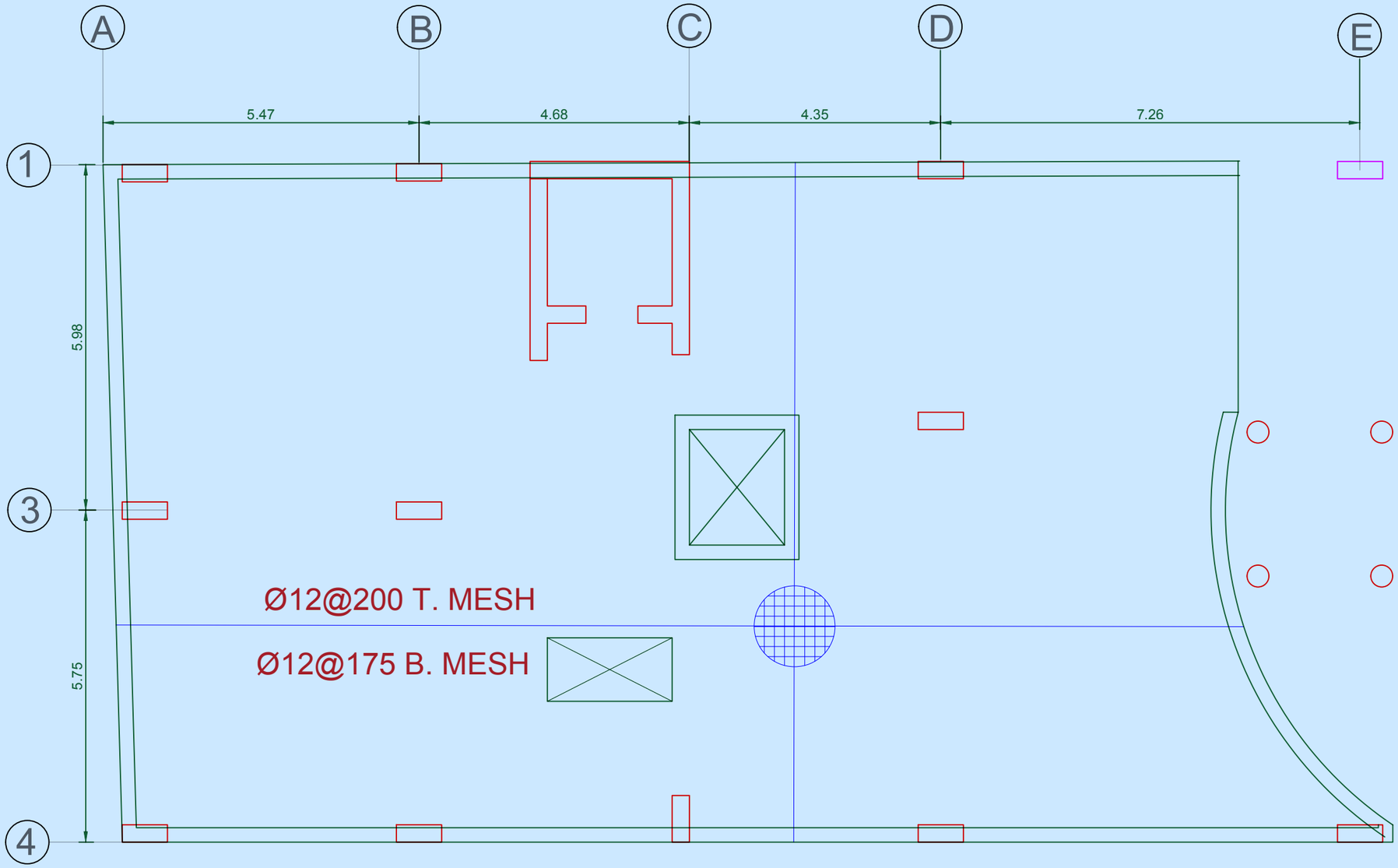


Notes

-Fcu = 50 N/mm2
-Fy = 420 N/mm2.

CONCRETE COVERS

-SLABS	= 25 mm
-BEAMS	= 40 mm
-COLUMNS	= 40 mm
-WALLS	= 25 mm
-SLAB ON GRADE	= 50 mm
-RAFT FOUNDATION	= 75 mm

PLAN OF SLAB BASEMENT

SLAB THICKNESS = 200 mm

MINIMUM LAP LENGTH (UNLESS NOTED ON DRAWINGS) SHOULD BE AS TABLE BELWO :-

BAR DIA.(mm)	10	12	16	18	20	22	25
LAP LENGTH (mm) IN COLUMNS	400	500	600	650	700	800	900
LAP LENGTH (mm) IN SLAB & BEAMS	400	600	700	800	900	1000	1250

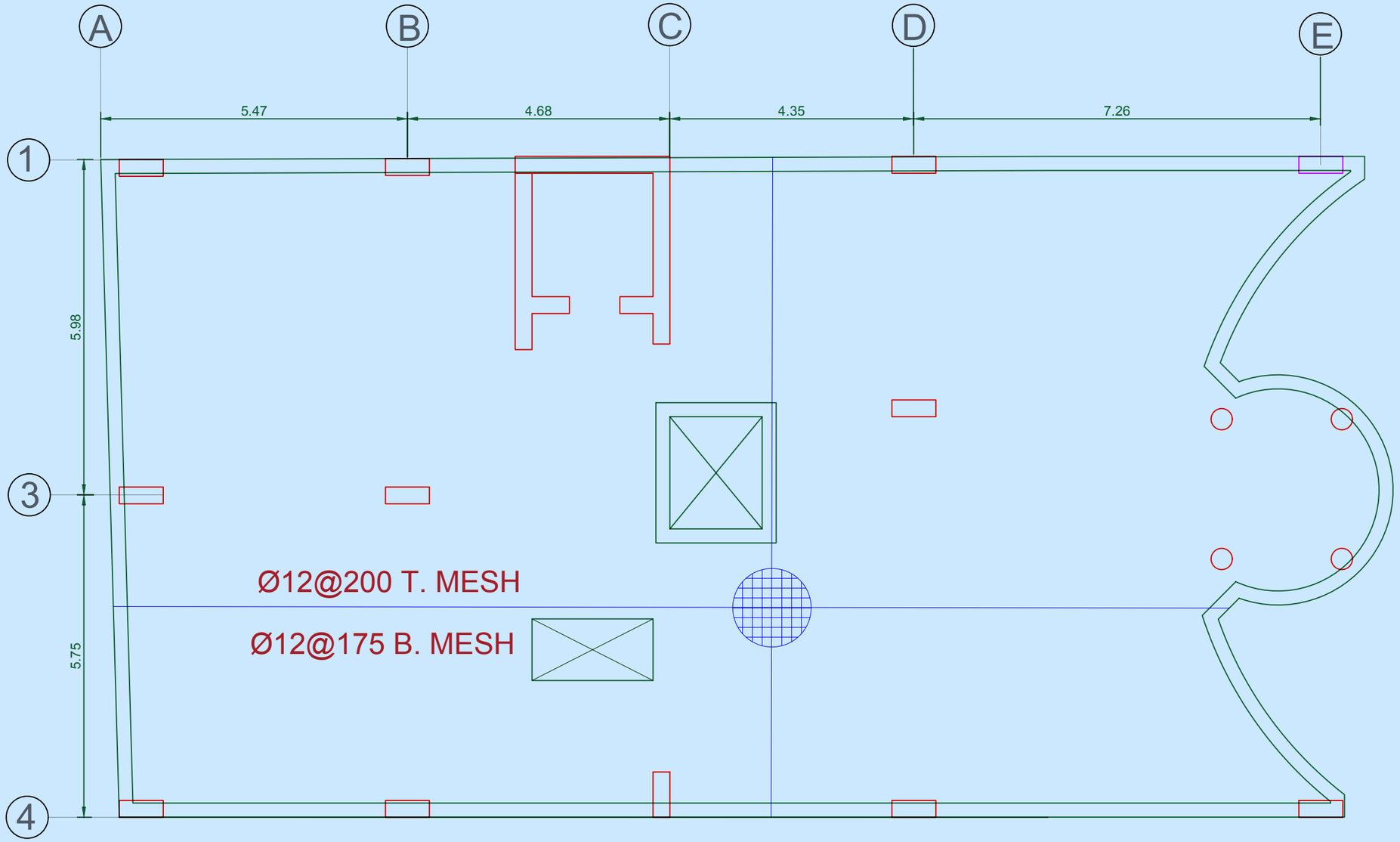
. all dim. from ARCH D.W.G.

no.	date	initials	revision

job title
(A)

drawing title
PLAN OF SLAB BASEMENT
REINFORCEMENT&SEC.

designed: ENG : DR-Majid Albana	project manager	
checked	scale: 1-100	date: 11 /2023
drawn	job no.: 13	sheet no.: ST/D/08
approved		



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Notes

-Fcu = 40 N/mm2
-Fy = 420 N/mm2.

CONCRETE COVERS

-SLABS	= 25 mm
-BEAMS	= 40 mm
-COLUMNS	= 40 mm
-WALLS	= 25 mm
-SLAB ON GRADE	= 50 mm
-RAFT FOUNDATION	= 75 mm

PLAN OF GROUND FLOOR

SLAB THICKNESS = 200 mm

MINIMUM LAP LENGTH (UNLESS NOTED ON DRAWINGS) SHOULD BE AS TABLE BELWO :-

BAR DIA.(mm)	10	12	16	18	20	22	25
LAP LENGTH (mm) IN COLUMNS	400	500	600	650	700	800	900
LAP LENGTH (mm) IN SLAB & BEAMS	400	600	700	800	900	1000	1250

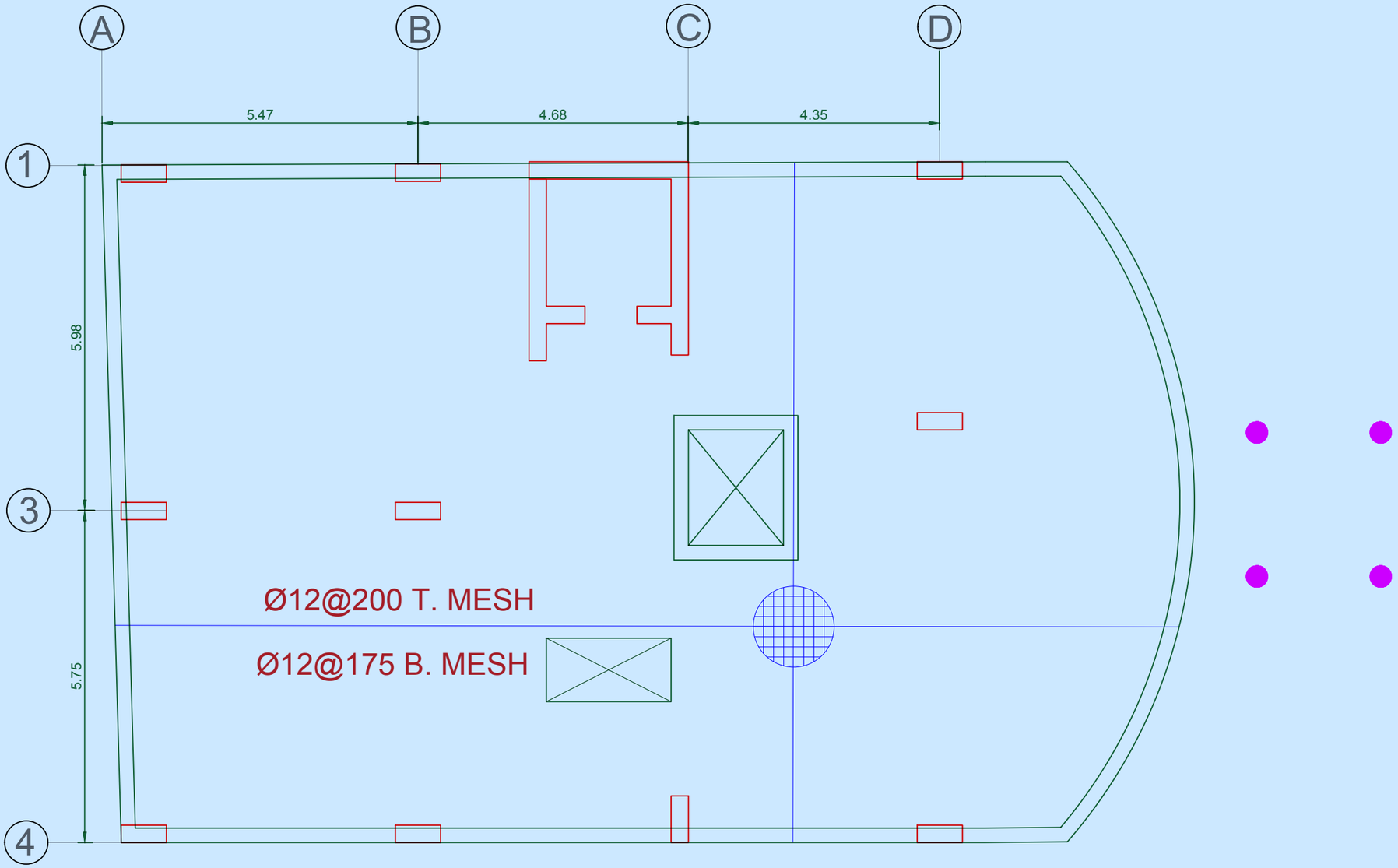
. all dim. from ARCH D.W.G.

no.	date	initials	revision

job title
(A)

drawing title
PLAN OF SLAB
REINFORCEMENT&SEC.

designed: ENG : DR-Majid Albana	project manager
checked	scale: 1-100 / date: 11/2024
drawn	job no.: 14 / sheet no.: ST/D/08
approved	



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Notes

-Fcu = 40 N/mm2
-Fy = 420 N/mm2.

CONCRETE COVERS

-SLABS	= 25 mm
-BEAMS	= 40 mm
-COLUMNS	= 40 mm
-WALLS	= 25 mm
-SLAB ON GRADE	= 50 mm
-RAFT FOUNDATION	= 75 mm

PLAN OF 1ST FLOOR

SLAB THICKNESS = 200 mm

MINIMUM LAP LENGTH (UNLESS NOTED ON DRAWINGS) SHOULD BE AS TABLE BELWO :-

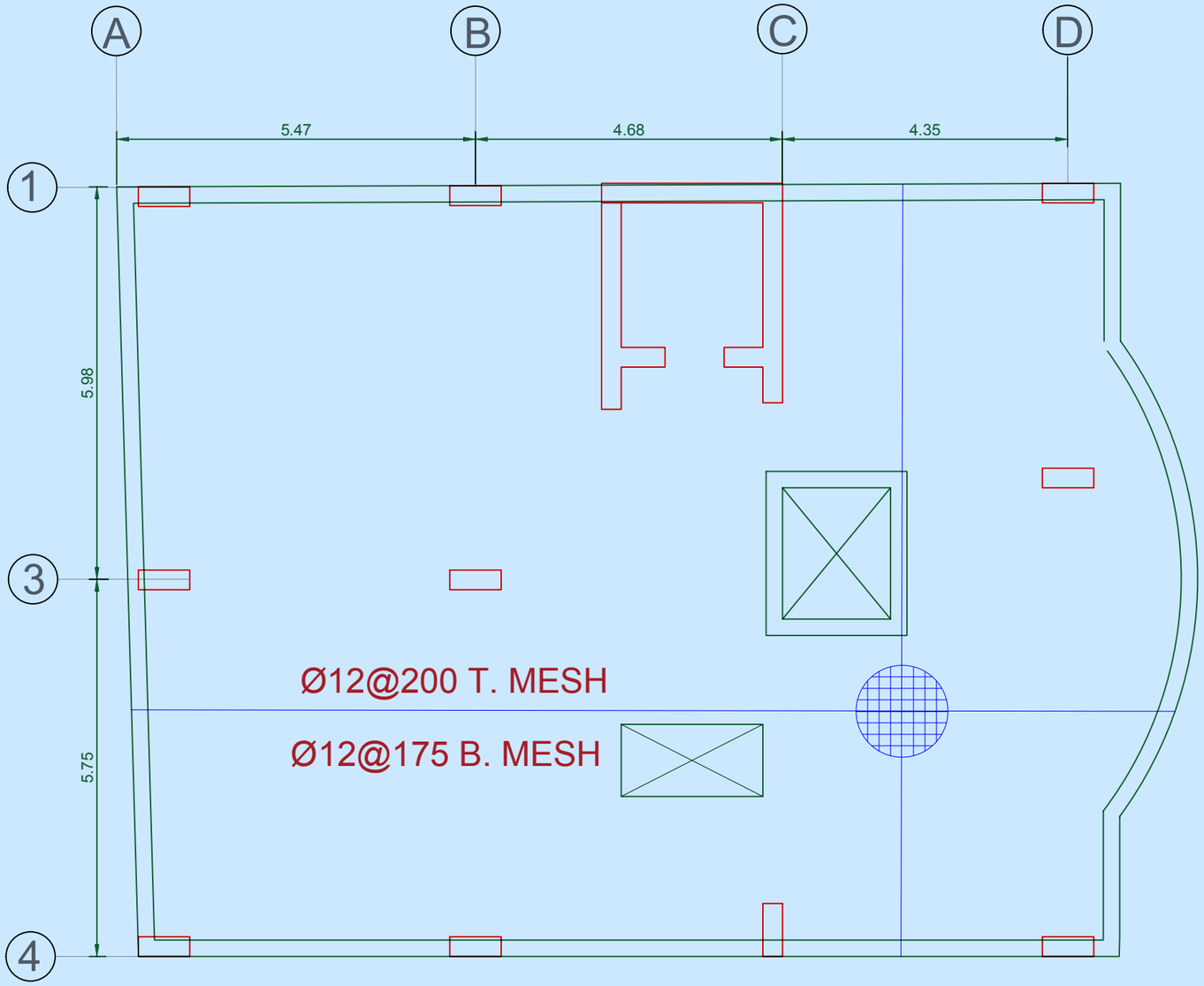
BAR DIA.(mm)	10	12	16	18	20	22	25
LAP LENGTH (mm) IN COLUMNS	400	500	600	650	700	800	900
LAP LENGTH (mm) IN SLAB & BEAMS	400	600	700	800	900	1000	1250

no.	date	initials	revision

job title
(A)

drawing title
PLAN OF SLAB
REINFORCEMENT&SEC.

designed: ENG : DR-Majid Albana	project manager	
checked	scale: 1-100	date: 11/2024
drawn	job no.: 15	sheet no.: ST/D/08
approved		



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Notes

-Fcu = 40 N/mm2
-Fy = 420 N/mm2

CONCRETE COVERS

-SLABS	= 25 mm
-BEAMS	= 40 mm
-COLUMNS	= 40 mm
-WALLS	= 25 mm
-SLAB ON GRADE	= 50 mm
-RAFT FOUNDATION	= 75 mm

PLAN OF 2ND FLOOR

SLAB THICKNESS = 200 mm

MINIMUM LAP LENGTH (UNLESS NOTED ON DRAWINGS) SHOULD BE AS TABLE BELWO :-

BAR DIA.(mm)	10	12	16	18	20	22	25
LAP LENGTH (mm) IN COLUMNS	400	500	600	650	700	800	900
LAP LENGTH (mm) IN SLAB & BEAMS	400	600	700	800	900	1000	1250

no.	date	initials	revision

job title
(A)

drawing title
PLAN OF SLAB
REINFORCEMENT&SEC.

designed: ENG : DR-Majid Albana
project manager:
checked:
scale: 1-100
date: 11/2024
drawn:
job no.: 16
sheet no.: ST/D/08
approved:

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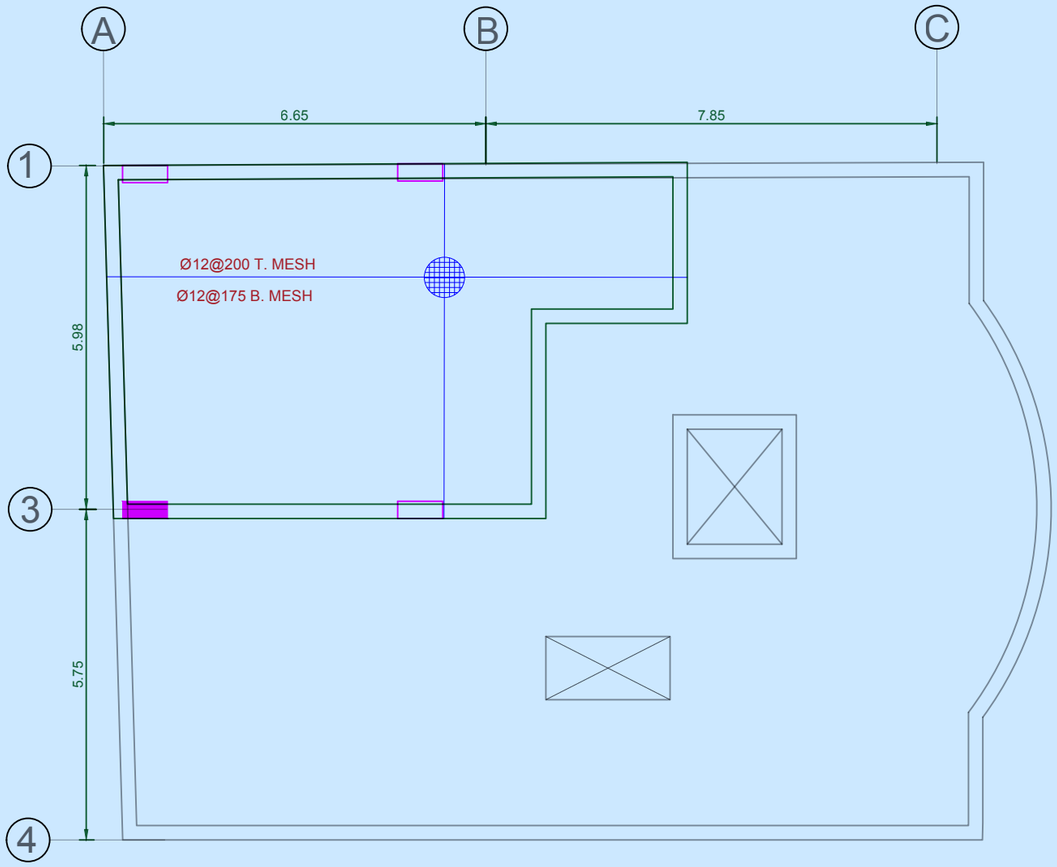
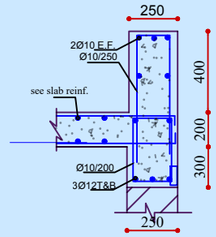
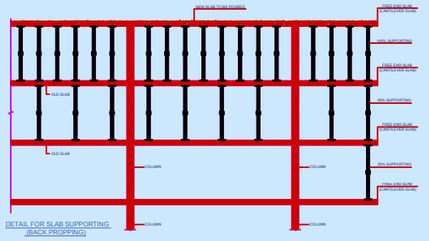
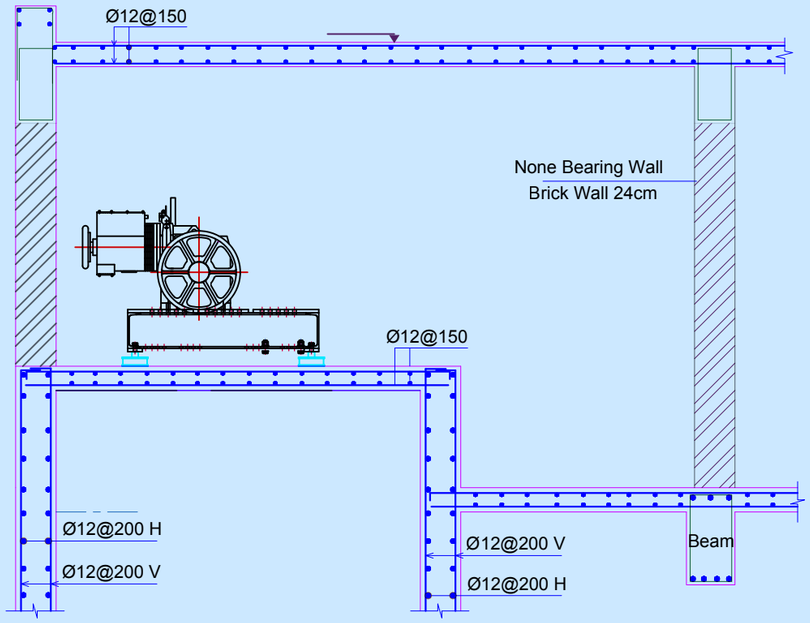




sec. b-b roof





25 mm Camber slab camber 25 mm

PENT HOUSE

SLAB REINFORCEMENT (3rd floor)

SLAB THICKNESS = 200 mm

MINIMUM LAP LENGTH (UNLESS NOTED ON DRAWINGS) SHOULD BE AS TABLE BELWO :-

BAR DIA.(mm)		10	12	16	18	20	22	25
LAP LENGTH (mm) IN	COLUMNS	400	500	600	650	700	800	900
LAP LENGTH (mm) IN	SLAB & BEAMS	400	600	700	800	900	1000	1250

. all dim. from ARCH D.W.G.

no.	date	initials	revision

job title: (A)

drawing title: PLAN OF SLAB PENT HOUSE REINFORCEMENT&SEC.

designed: ENG : DR-Majid Albana	project manager	
checked	scale: 1-100	date: 11/2024
drawn	job no.: 17	sheet no.: ST/D/12
approved		