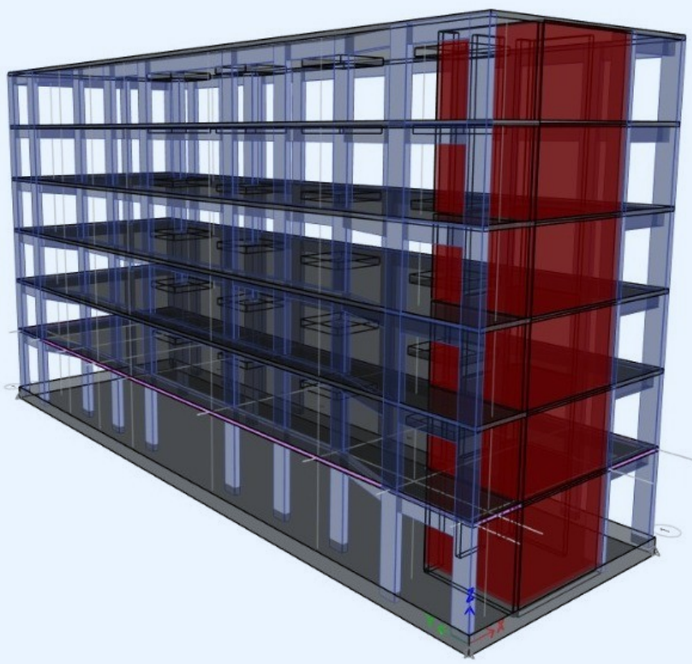
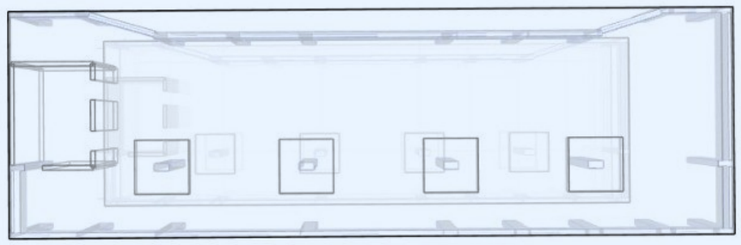
PREPARE BY DR-Majid Albana
majidalbana@hotmail.com
+9647702724811





Notes

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

job title

6 FLOORS BUILDING

DRWG. TITLE:

DESIGNED BY DR-Majid Albana

CHECKED BY

SCALE As Shown

DATE 2/2025

SHEET NO. Str. 1

EXCAVATION, BACK FILLING & FOUNDATION

1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO INVESTIGATE OR TO CHECK THE SOIL GEOTECHNICAL PROPERTIES BY HAVING SPECIALIST AND AFTER COMMENCING OF THE UNDERGROUND WORK.
2. FOOTINGS FOR BUILDING SHALL BE FOUNDED ON UNDISTURBED SOIL.
   RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE ELEVATION OF FOOTING TO OBTAIN SUCH BEARING PRESSURE. UNDER NO CONDITION FOOTINGS SHOULD BE PLACED ON LOOSE, SOFT OR UNDESIRABLE MATERIAL. IF SUCH MATERIALS ARE ENCOUNTERED, THEY SHOULD BE REMOVED UNTIL FIRM LAYERS ARE ENCOUNTERED AND REQUIRED BEARING PRESSURE IS OBTAINED.
3. THE SITE SHOULD BE CLEARED OF ALL BOULDERS, DEBRIS, DECOMPOSABLE MATERIAL SUCH AS WOOD, GRASS, PLANTS, ...ETC. ALL EXISTING MISCELLANEOUS FILL SHOULD BE REMOVED FROM AREAS WHERE STRUCTURAL SUPPORT IS REQUIRED. ANY SOIL AT STRIPED LEVEL THAT SOFTENS DUE TO RAINFALL, GROUND WATER, DISTURBANCE OR ANY OTHER CAUSE SHOULD BE EXCAVATED AND REPLACED WITH CONTROLLED FILL. BOTTOM OF EXCAVATIONS SHOULD BE SMOOTH AND FREE OF LOOSE EARTH OR SAND. ANY LOOSE OR SOFT AREAS SHOULD BE COMPACTED TO THE REQUIRED DENSITY.
4. IF DURING CONSTRUCTION ANY SIGNIFICANT VARIATIONS FROM WHAT IS REPORTED IN THE GEOTECHNICAL SOIL REPORT, THE ENGINEERS SHOULD BE NOTIFIED TO VISIT THE SITE AND ASSESS THE SITUATION.
5. PRIOR TO PLACEMENT OF BLINDING CONCRETE FOR FOUNDATIONS, WHEREVER POSSIBLE, BOTTOM OF EXCAVATIONS SHALL BE COMPACTED BY HEAVY VIBRATORY ROLLER TO 95% MIN. OF MODIFIED PROCTER DENSITY FOR COHESIVE AND WELL GRADED SOILS. 100 MM BLINDING CONCRETE THICK E. BE POURED UNDER THE RAFT FOOTINGS.
6. PROVIDE A POLYETHYLENE FILM (0.2MM) BELOW ALL GROUND LEVEL SLABS. FILM TO BE FIRMLY ANCHORED TO GROUND AND ADEQUATELY LAPPED.
7. BEFORE ANY BACKFILLING, ALL FORMS SHOULD BE REMOVED BUT IN NO CASE LESS THAN 24HOURS AFTER PLACING CONCRETE. ALL DEBRIS SHOULD BE CLEANED OUT.
8. USE WELL GRADED, NON COHESIVE SOILS FOR BACKFILLING. BACKFILL MATERIALS SHOULD NOT CONTAIN ANY ROOTS, CONSTRUCTION DEBRIS, DELETERIOUS MATERIALS, ORGANIC MATTERS, COBBLES OR BOULDERS(SIZE>80MM). THE FINES PERCENTAGE SHOULD NOT EXCEED 15% AND THE SOIL SHOULD BE NON PLASTIC.
9. IT IS EXPECTED THAT THE LAND WILL BE GRADED AND LEVELED TO THE FINAL FINISHED GRADE.
10. CLEAN SAND, FREE OF SALTS AND ORGANIC MATERIALS, AND WITH LESS THAN 10% PASSING THE NO. 200 SIEVE, IS CONSIDERED SUITABLE MATERIAL. BACKFILL MATERIALS SHOULD BE PLACED IN LOOSE LIFTS HAVING THICKNESS OF NOT MORE THAN 25 cm COMPACTED TO THE REQUIRED DENSITY, USE VIBRATORY ROLLER FOR COMPACTING GRANULAR SOILS.

    TO AVOID STRESSING THE DUCT.
    ALL STRUCTURAL FILL MATERIAL SHALL BE COMPACTED TO A DRY DENSITY OF AT LEAST 95% OF THE MAXIMUM DRY DENSITY OBTAINED BY THE MODIFIED PROCTOR TEST, USE NUCLEAR DENSITY GAUGES AS PER ASTMD-2922 TO MONITOR COMPACTION WORKS. NO BACKFILLING SHALL BE PERFORMED BEFORE CASTING OF THE SLABS THAT SUPPORT THE RETAINING WALLS.
11. FOR WALLS HAVING FILL ON BOTH SIDES, BACK FILLING OPERATION SHALL PROCEED SIMULTANEOUSLY IN EQUAL LIFTS. DIFFERENTIAL ELEVATION OF TOP OF LIFTS BETWEEN EACH SIDE SHALL NOT EXCEED 50 cm.
12. ALL CONNECTIONS OF PIPING BETWEEN THE STRUCTURES AND THE EXTERIOR BE DELAYED TO A LATER STAGE OF CONSTRUCTION AFTER WHICH MOST OF THE SETTLEMENT WOULD HAVE TAKEN PLACE, UNLESS FLEXIBLE SLEEVES ARE USED.
13. ALL SERVICE LINES SHALL BE LAID OUT IN A CLEAN SAND BED COMPACTED TO THE REQUIRED DENSITY.
14. UTILITY TRENCHING SHALL BE SUCH THAT DUCT RUNS CAN BE MADE AS STRAIGHT AS POSSIBLE, BOTH HORIZONTALLY AND VERTICALLY, AND IF A DEFLECTION MUST BE MADE IN A DUCT LINE, THE DEFLECTIONS SHOULD BE ALONG A SMOOTH AND GRADUAL CURVE

6) CONSTRUCTION JOINTS AND CONTROL JOINTS:

1. CONSTRUCTION JOINTS IN FLOOR SHALL BE LOCATED WITHIN THE MIDDLE THIRD OF SPANS OF SLABS, BEAMS AND GIRDERS, U.N.O. ON DWGS.
2. BEAMS, GIRDERS AND HAUNCHES SHALL BE PLACED MONOLITHICALLY AS PART OF A SLAB SYSTEM, UNLESS OTHERWISE SHOWN IN DESIGN DRAWINGS OR SPECIFICATIONS.
3. CONTROL JOINTS IN SLAB ON GRADE SHALL BE SPACED AT 6.00 METERS (MAX.) INTERVAL ON BOTH DIRECTIONS. THE RESULTING PANEL SHOULD BE APPROXIMATELY SQUARE. A CHECKERED BOARD PATTERN.
4. IN WALLS HAVING FREQUENT OPENINGS, SPACING OF CONTROL JOINTS 6.00 METERS APART IS CONSIDERED MAXIMUM. THE SPACING IN WALLS WITHOUT WINDOWS SHOULD NOT BE MORE THAN 7.50 METERS AND A JOINT WITHIN 3.00 METERS OF EACH CORNER IS DESIRABLE.
5. VERTICAL CONSTRUCTION JOINT SPACING IN WALLS SHALL NOT BE MORE THAN 12.00 METERS AND LOCATED WITHIN THE MIDDLE THIRD OF THE SPAN BETWEEN COLUMNS.

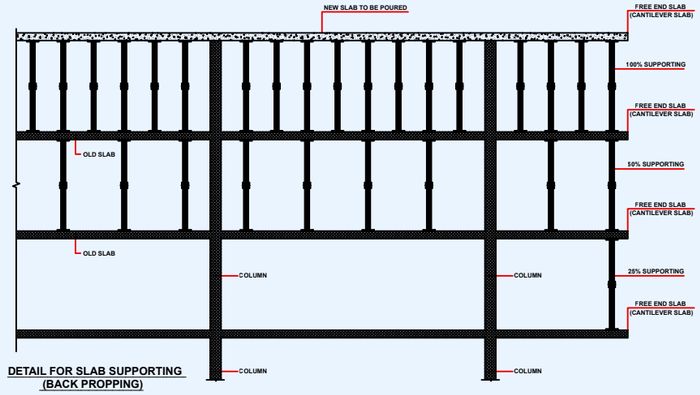
THE DESIGN LOADS

1) SUPER IMPOSED DEAD LOAD (SDL) :

FLOOR SCREED	0.80	KN/m²
TILES	0.20	KN/m²
False Ceiling & MECHANICAL DIVISIONS	0.50	KN/m²
EXTERNAL & INTERNAL PARTITION WALL Bricks	2.5	KN/m²
TOTAL ----------	4.00	KN/m²

2) LIVE LOADS:

RESIDENTIAL AREAS	3.0	KN/m²
STAIRCASE	4.0	KN/m²



DETAIL FOR SLAB SUPPORTING (BACK PROPPING)

3) WIND LOADS:

The main wind force resisting system (MWFRS) and all components and cladding (C&C) are determined in accordance to the ASCE (2016).
All other parameters related to wind load are estimated according to (UnifiedFacilities Criteria (UFC) 2013).
Based on aforementioned codes and standards, wind parameters for Baghdad city
Table 1.1: Wind Parameters for Baghdad that are Adopted in the Analysis.

Table 1.1

Wind Parameter	NOTATION	NOTATION	Reference
Basic Wind Speed	V	161 km/h	ASCE (2016), (Unified Facilities Criteria (UFC) 2013)
Exposure Category	B		ASCE (2016)
Topographic Factor	Kzt	1	ASCE (2016)
Gust-Effect Factor	G	0.85	ASCE (2016)
Directionality Factor	Kd	0.85	ASCE (2016)

4) SEISMIC LOADS:

Seismic Design Categories (SDCs) are adopted from ASCE (2016). All other parameters related to seismic zone are estimated according to (Iraqi seismic code (2017).
Table 1.2: Seismic Parameters for Baghdad that are Adopted in the Analysis.

Table 1.2

seismic Parameter	NOTATION	NOTATION	Reference
Seismic Design Category	D		ASCE (2016), the soil type has been Assumed
Response Modification Coefficient	R	5	ASCE (2016)
Topographic Factor	Kzt	1	ASCE (2016)
Overstrength Factor	Ω_o	2.5	ASCE (2016)
Importance Factor	I	1	ASCE (2016)
Mapped Maximum Considered Earthquake (MCER), 5% damped, spectral response acceleration parameter at short periods	Ss	0.30	Iraqi seismic code 2017
Maximum Considered Earthquake (MCER), 5% damped, spectral response acceleration parameter at a period of 1 s	S1	0.10	Iraqi seismic code 2017
Seismic coefficient	Ca	0.12	Soil investigation report
Seismic coefficient	Cv	0.18	Soil investigation report
Undrained shear strength kN/m2	Vs	53.70	Soil investigation report
Soil type"stiff soil"	SD		Soil investigation report

GENERAL NOTES :-

Frameworks removal time :

Type of framework	Min. period before striking formworks
Vertical framework of the column	24 hrs
Vertical framework of the shear walls	2-3 days
framework of the slab and beam a. span up to 6 m a. span from 6-8 m	 14 days 20 days

* Seismic Load assumed also According to the Iraqi Code 2016.
* Load Pattern assumed for Seismic (EX,-EX,+EX,EY,-EY,+EY)
* SS=0.30
* S1=0.1
* Soil Profile Type =E
* Occupancy Importance =1
* Response Modification R =5.00
* System Overstrength Omega =2.50
* Deflection Amplification Cd=4.5
* Soil Profile Type =E

drawing title

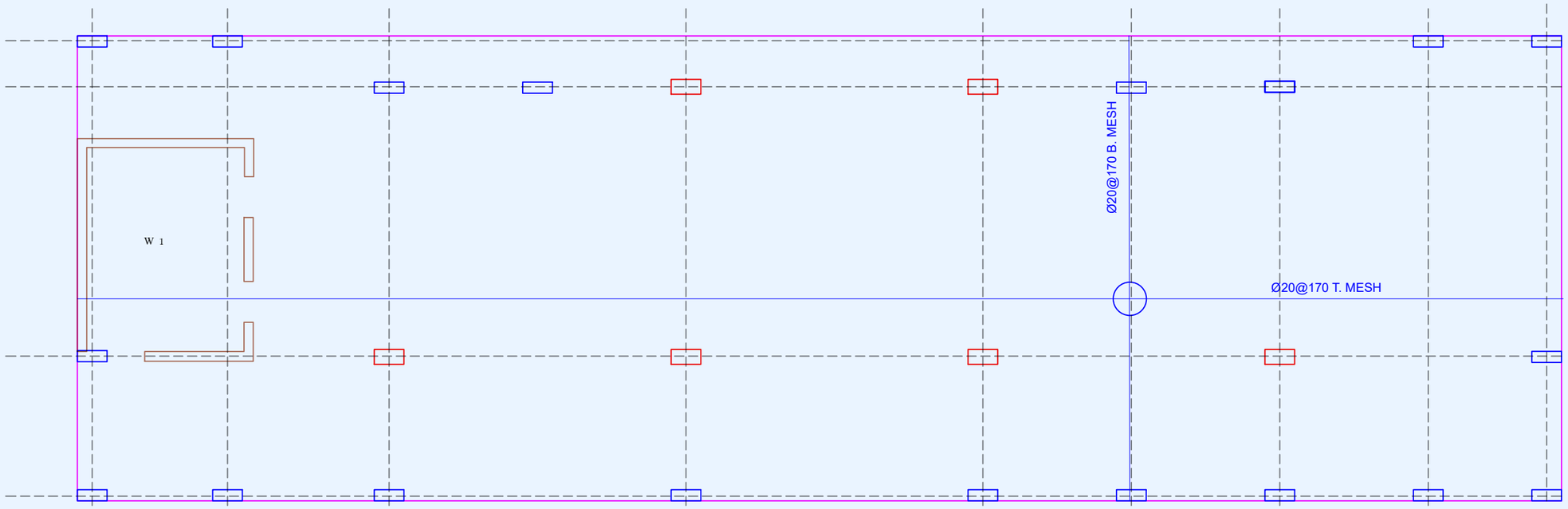
THE DESIGN LOADS

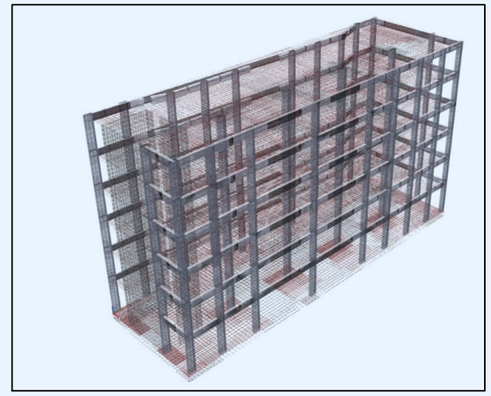
designed ENG :DR- Majid Albana	**project manager**	
checked	**scale** 1-100	**date** 1/2025
drawn	**job no.** 2	**sheet no.** ST/D/03
approved		

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

Eng MAJ D A bana
المصمم الاستشاري
د. ماجد البنا
+964 770 272 4811
+964 782 595 3403
www.majidalbana.com
majidalbana@hotmail.com

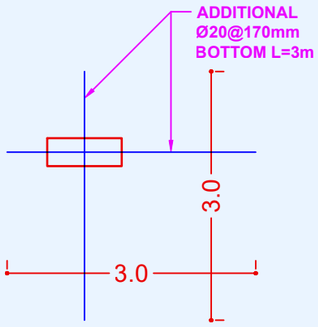




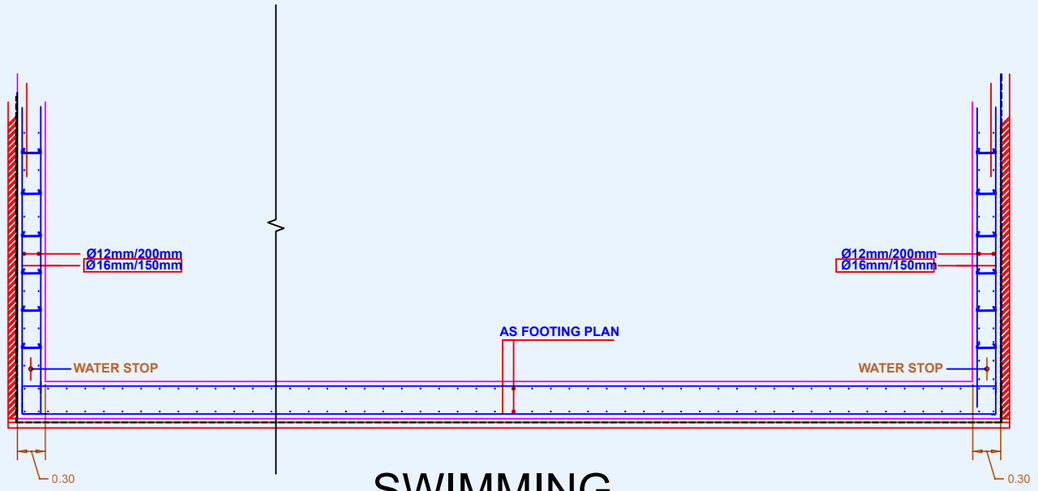
-Fcu = 40 N/mm2
-Fy = 420 N/mm2.

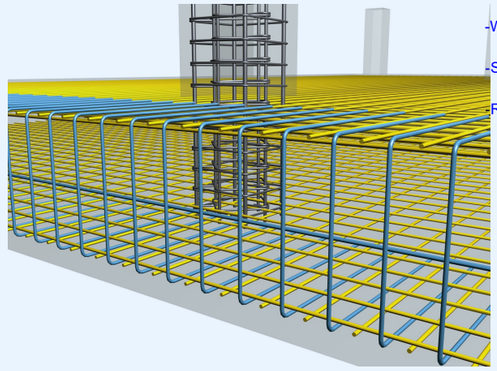
CONCRETE COVERS

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



for all int. columns





SWIMMING

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

Foundation Plan

THICK. = 800 mm

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

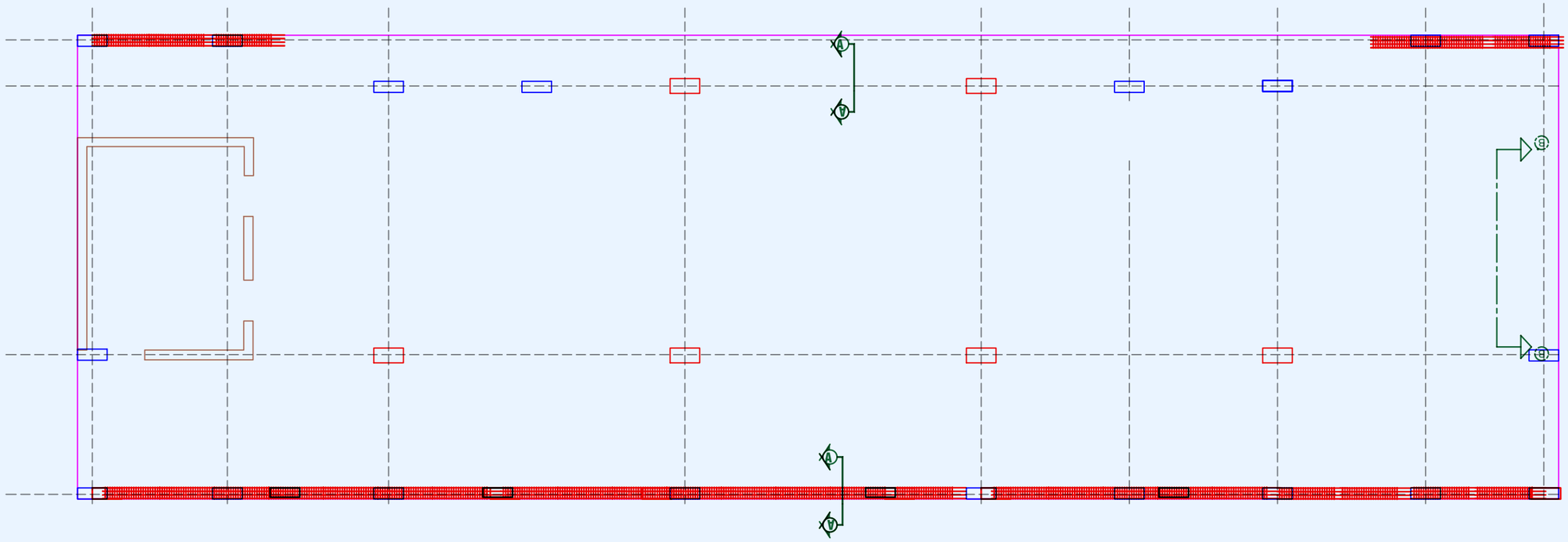
no.	date	initials	revision

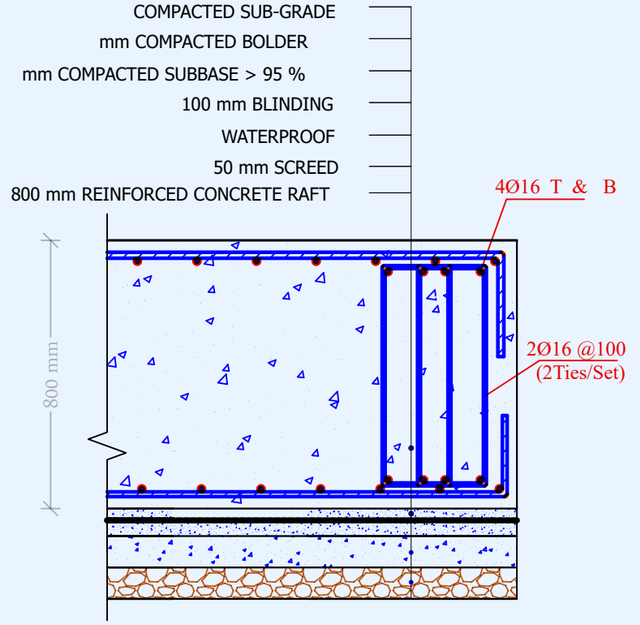
job title
(A)

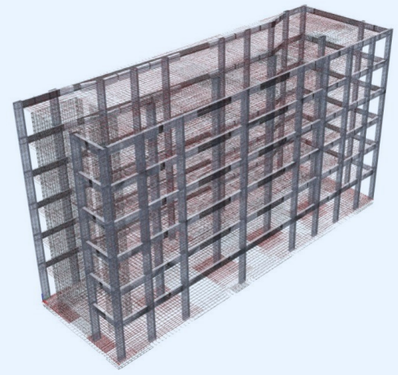
drawing title
PLAN OF FOUNDATION REINFORCEMENT&SEC.

designed: ENG : DR-Majid Albana	project manager	
checked	scale: 1-100	date: 2 /2025
drawn	job no.: 4	sheet no.: ST/D/04
approved		

Eng MAJ D A bana
المصمم الاستشاري
د. ماجد البنا
+964 770 272 4811
+964 782 595 3403
www.majidalbana.com
majidalbana@hotmail.com







RAFT FOUNDATION PUNCHING REINF.

Section A-A

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.

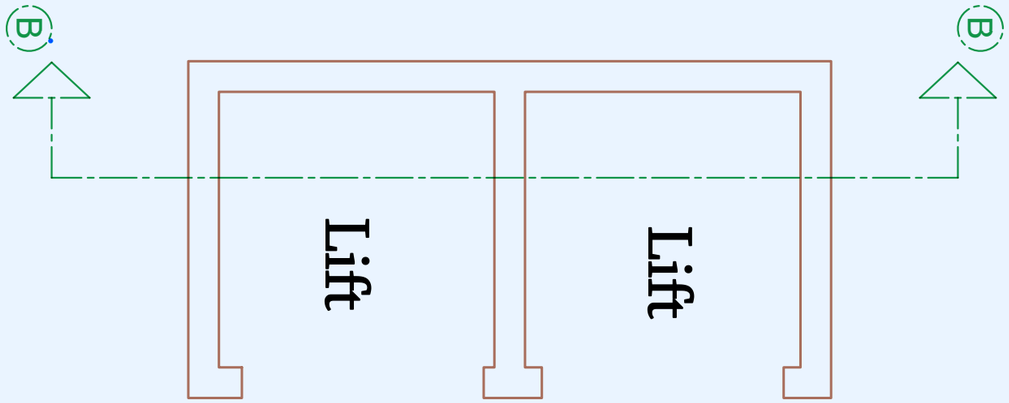
no.	date	initials	revision

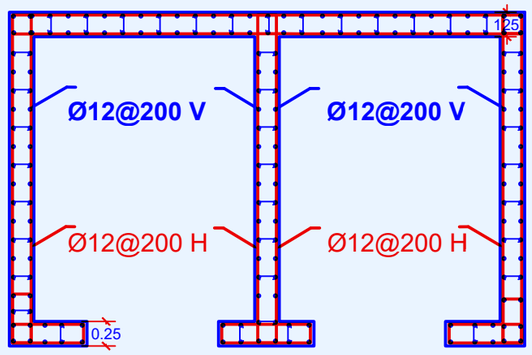
job title
(A)

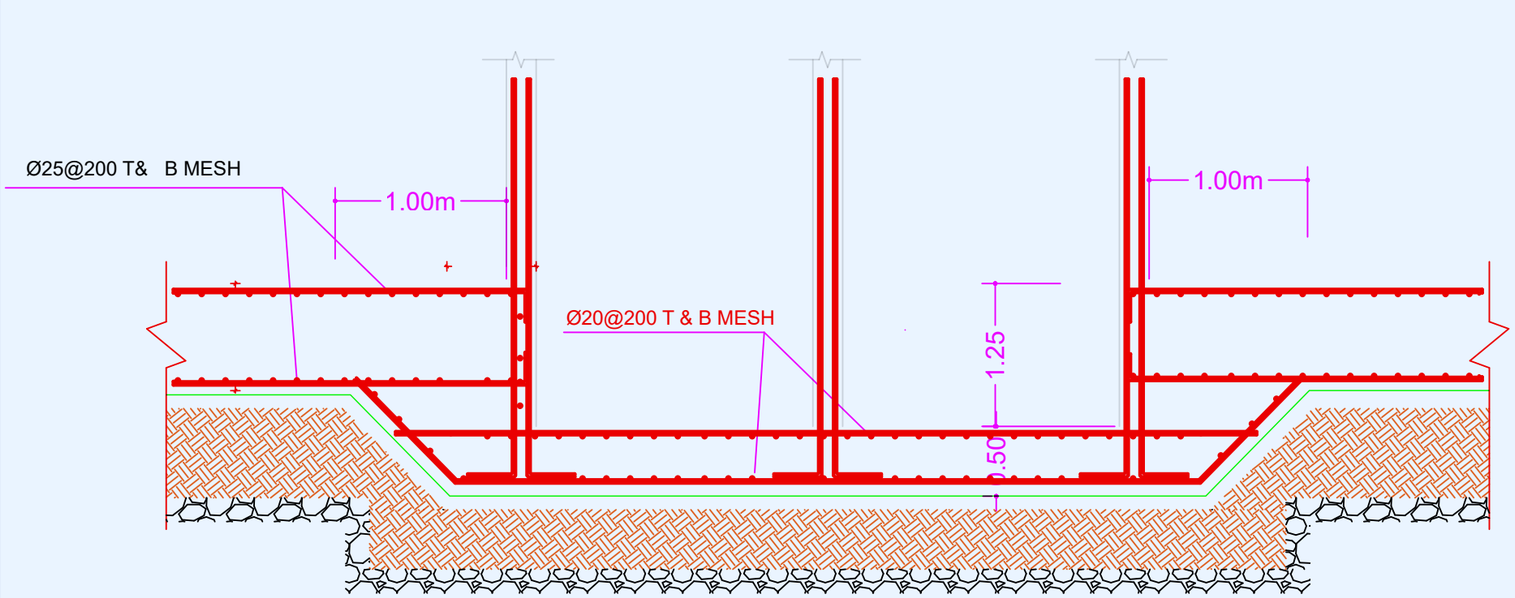
drawing title
PLAN OF FOUNDATION REINFORCEMENT&SEC.

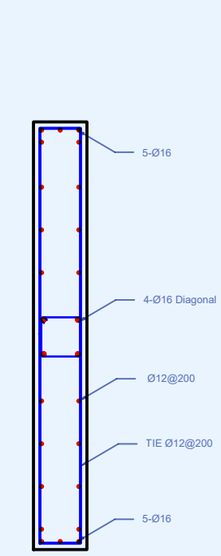
designed	project manager	
ENG : DR-Majid Albana		
checked	scale 1-100	date 2/2025
drawn	job no. 5	sheet no. ST/D/04
approved		

Eng MAJ D A bana
المصمم الاستشاري
د. ماجد البنا
+964 770 272 4811
+964 782 595 3403
www.majidalbana.com
majidalbana@hotmail.com

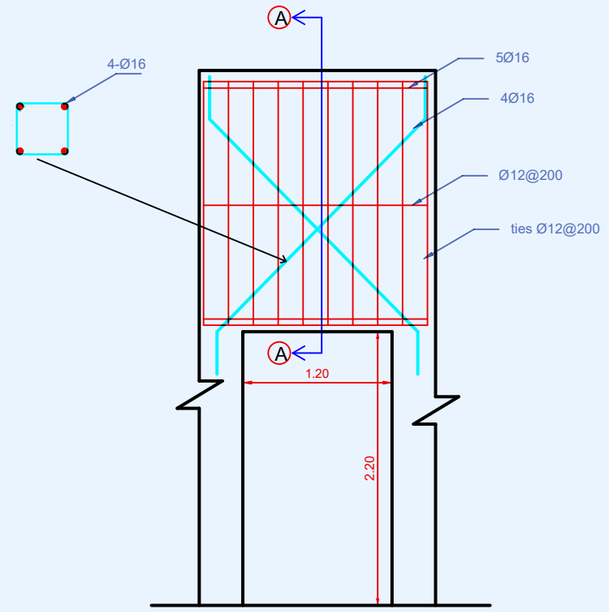








SECTION A-A



1 F4/ SPANDREL BEAM DETAILS
SCALE

Section B'-B'

no.	date	initials	revision

job title
(A)

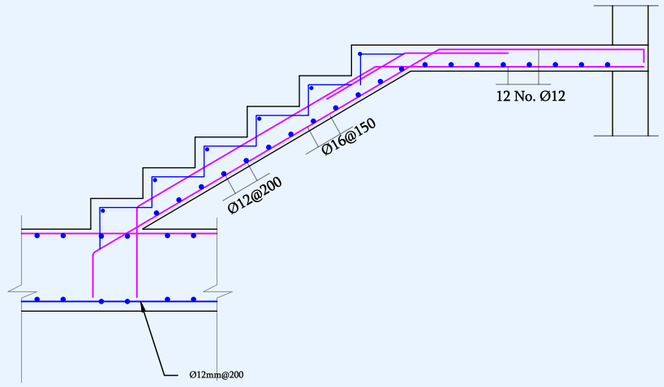
drawing title
Section B-B lift detail

designed ENG : Majid Albana	project manager	
checked ENG : Majid Albana	scale 1-100	date 2/2025
drawn	job no. 6	sheet no. ST/D/06
approved		

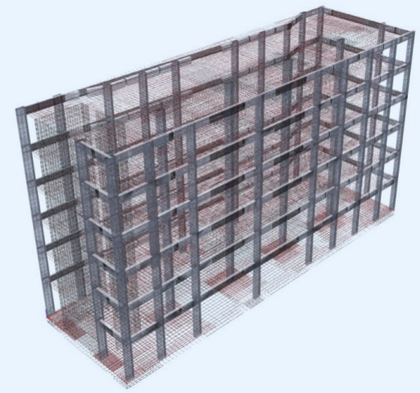
Eng MAJ D A bana
المصمم الاستشاري
د. ماجد البنا
+964 770 272 4811
+964 782 595 3403
www.majidalbana.com
majidalbana@hotmail.com

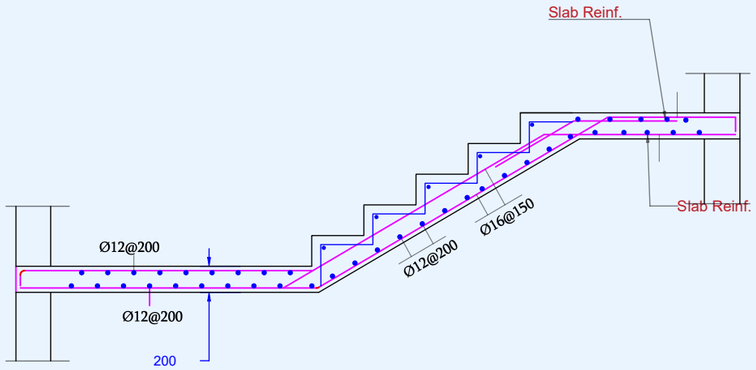
MINIMUM LAP LENGTH (UNLESS NOTED ON DRAWINGS) SHOULD BE AS TABLE BELWO :-

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

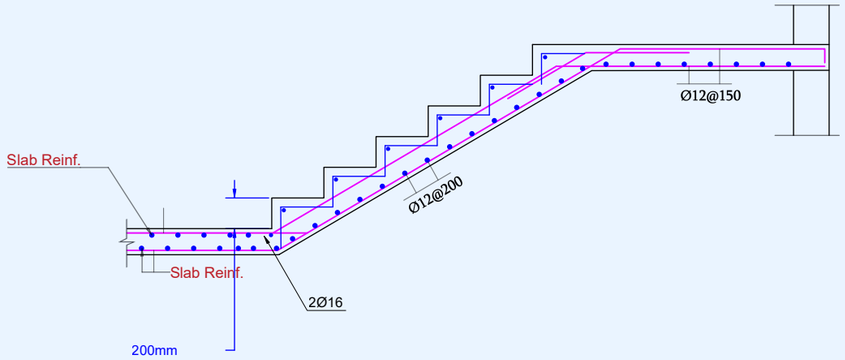


SECTION A'-A' (between Foundation & landing)





SECTION A'-A' (between slab & landing)



-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

-THE BUILDING IS DESIGNED FOR
BASEMENT + GROUND FLOOR +
12FLOORS + PENT-HOUSE

Stairs detail

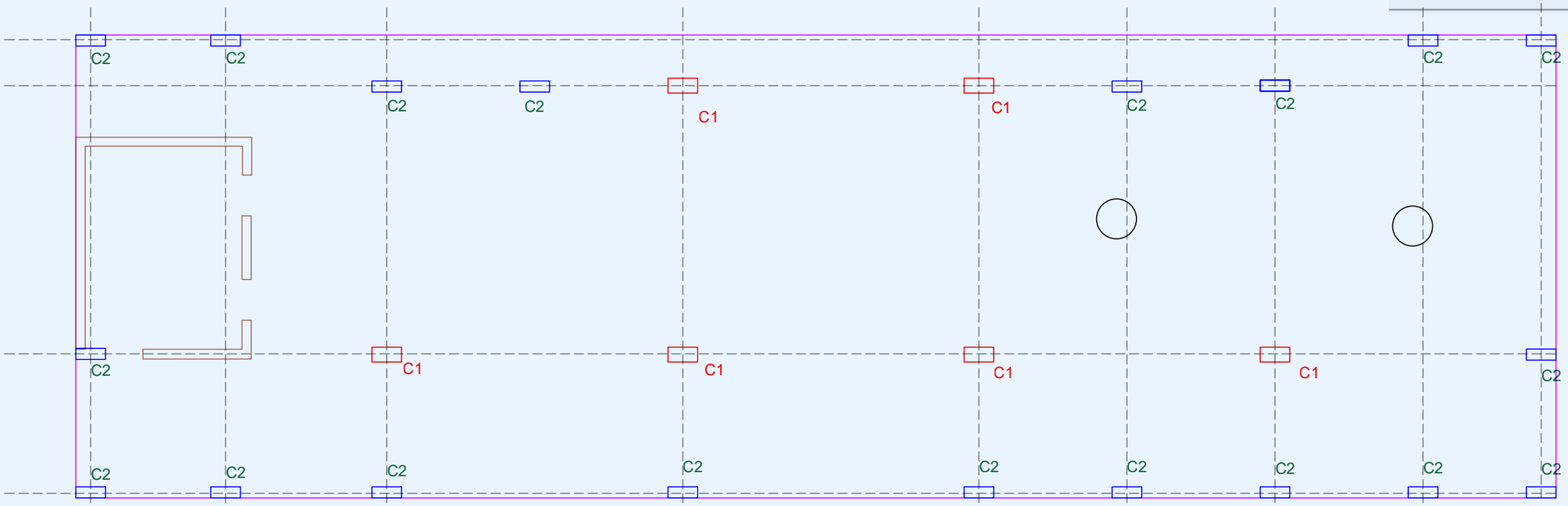
no.	date	initials	revision

job title: (A)

drawing title: **Stairs detail**

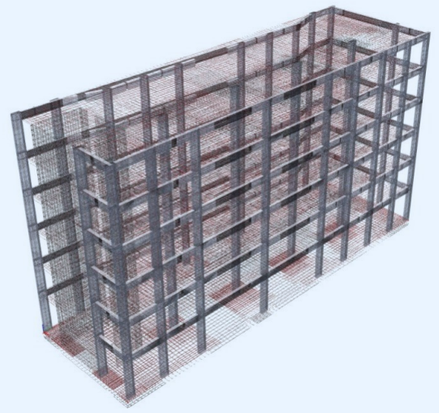
designed: ENG : DR-Majid Albana	project manager	
checked	scale: 1-100	date: 2/2025
drawn	job no.: 7	sheet no.: ST/D/07
approved		

Eng MAJ D A bana
المصمم الاستشاري
د. ماجد البنا
+964 770 272 4811
+964 782 595 3403
www.majidalbana.com
majidalbana@hotmail.com



SCHEDULE OF COLUMNS AND WALLS

COLUMNS OR WALLS ID	SIZE (mm)	WIDTH (mm)	REMARK
C1	800	400	
C2	800	300	
W1	250		LIFT



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

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

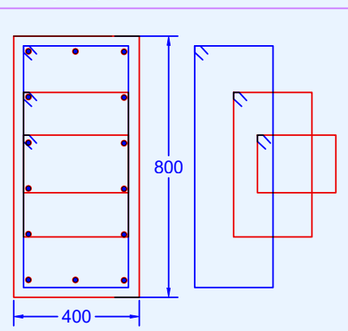
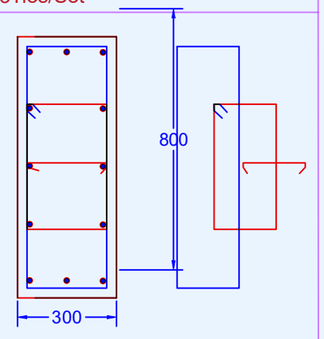
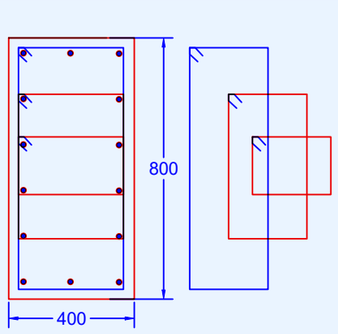
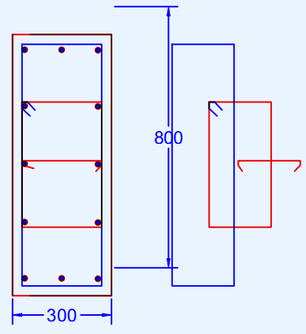
COLUMN KEY PLAN

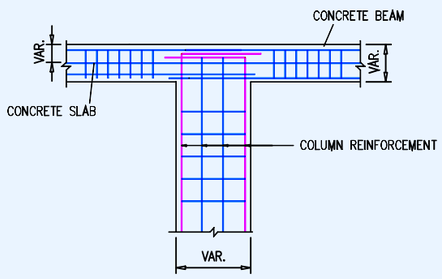
no.	date	initials	revision

job title
(A)

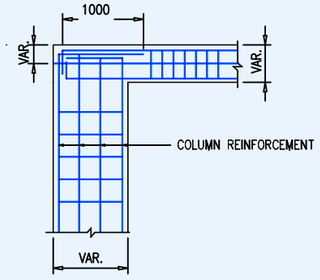
drawing title
WALL KEY PLAN

designed: ENG : DR-Majid Albana	project manager	
checked	scale: 1-100	date: 2/2025
drawn	job no.: 8	sheet no.: ST/D/08
approved		

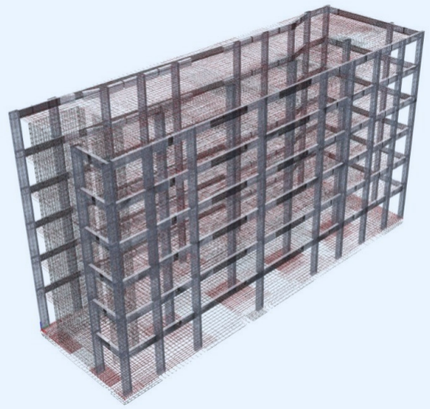
			14- Ø20	12- Ø20
Main Bar	Roof Floor		Ø12@200 3Ties/Set	Ø12@200 3Ties/Set
Ties				
Section	4rth Floor	C 50		
Main Bar	3 rd Floor		14- Ø20	12- Ø20
Ties			Ø12@200 3Ties/Set	Ø12@200 3Ties/Set
Section	Ground Level foundation level	C 50		
Dowels			14 - Ø20 C 1	12 - Ø20 C 2

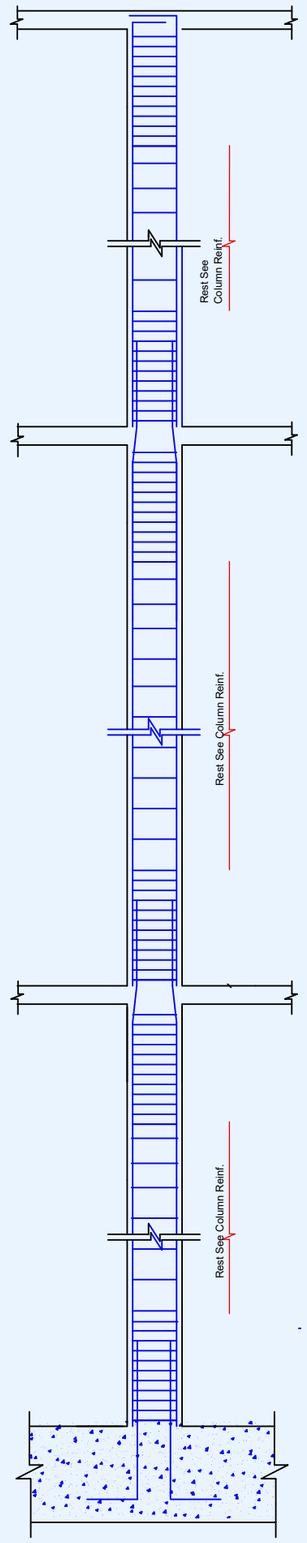


TYPICAL INTERNAL COLUMN TO BEAM DETAIL

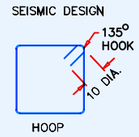


TYPICAL EDGE COLUMN TO BEAM DETAIL





Typ. Sec. For Column



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

no.	date	initials	revision

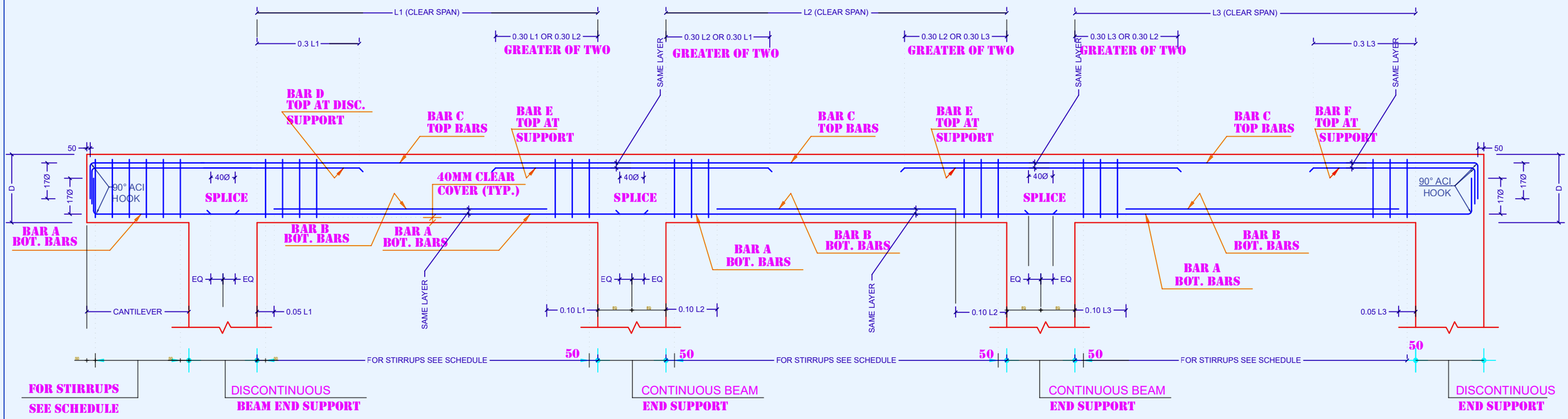
job title

(A)

drawing title

SCHEDULE OF COLUMN

designed ENG : DR-Majd Albana	project manager	
checked	scale 1-100	date 2/2025
drawn	job no. 9	sheet no.
approved		

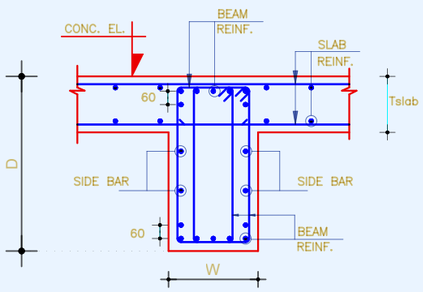


NOTES:

1. REFER TO BEAM SCHEDULE FOR NO. AND SIZE OF TOP AND BOTTOM BARS REQUIRED PER BEAM.
2. PROVIDE 60MM CENTRE TO CENTRE WHEN SCHEDULES CALL FOR 2 LAYERS OF REBARS.
3. FOR CANTILEVER BEAMS OR RIBS, BARS SHOULD BE EXTENDED UP TO ONE HALF THE CANTILEVER SPAN.

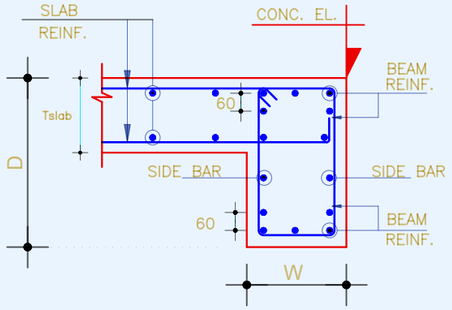
TYPICAL BEAM LONGITUDINAL SECTION

NOT TO SCALE



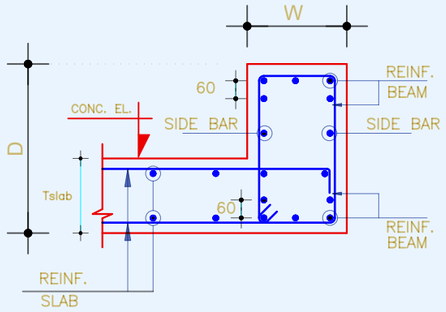
Type (1)

TYPICAL INTERNAL BEAM SECTION
N.T.S



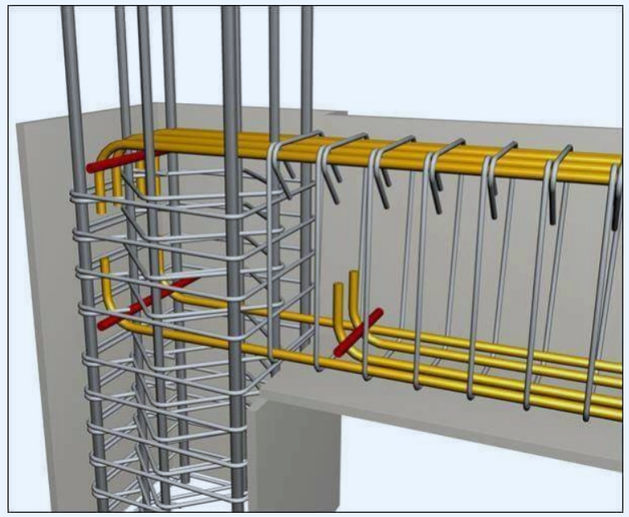
Type (2)

TYPICAL EDGE BEAM SECTION
N.T.S



Type (4)

TYPICAL EDGE INV. BEAM SECTION
N.T.S



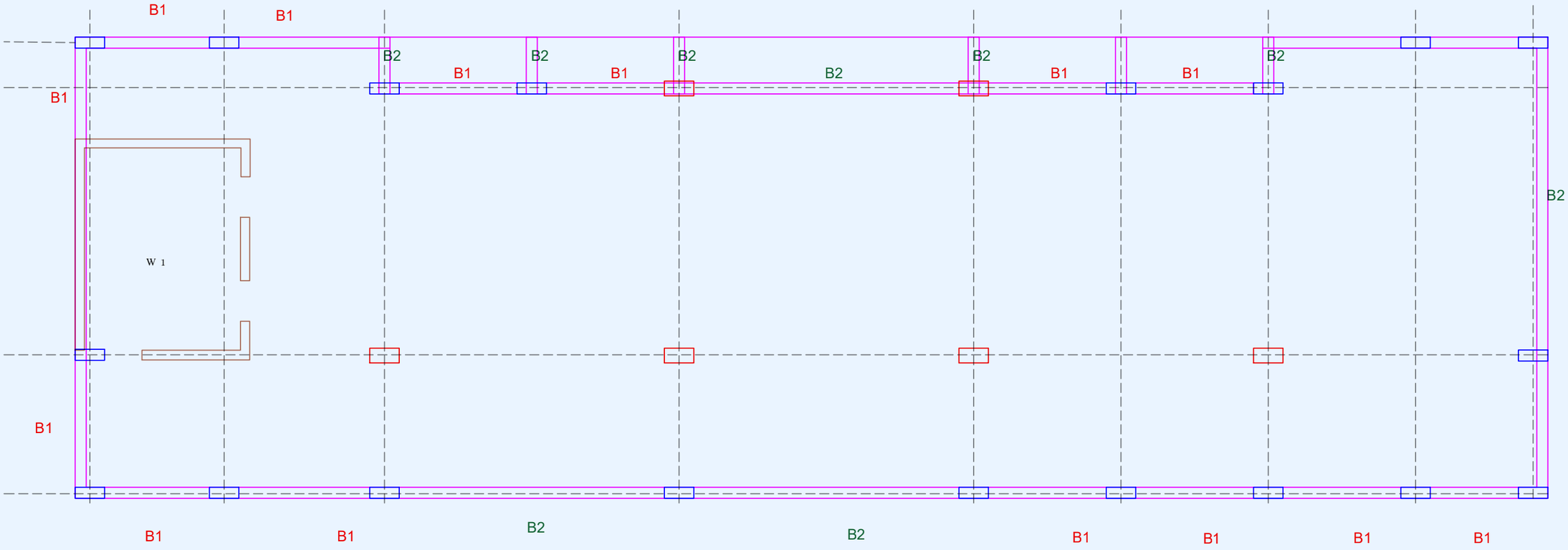
no.	date	initials	revision

job title
TYPICAL BEAM LONGITUDINAL SECTION
(A)

drawing title

designed ENG : DR-Majid Albana		project manager	
checked		scale 1-100	date 2/2025
drawn		job no. 10	sheet no.
approved			

Eng MAJ D A bana
المصمم الاستشاري
د. ماجد البنا
+964 770 272 4811
+964 782 595 3403
www.majidalbana.com
majidalbana@hotmail.com



BEAM KEY PLAN

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.

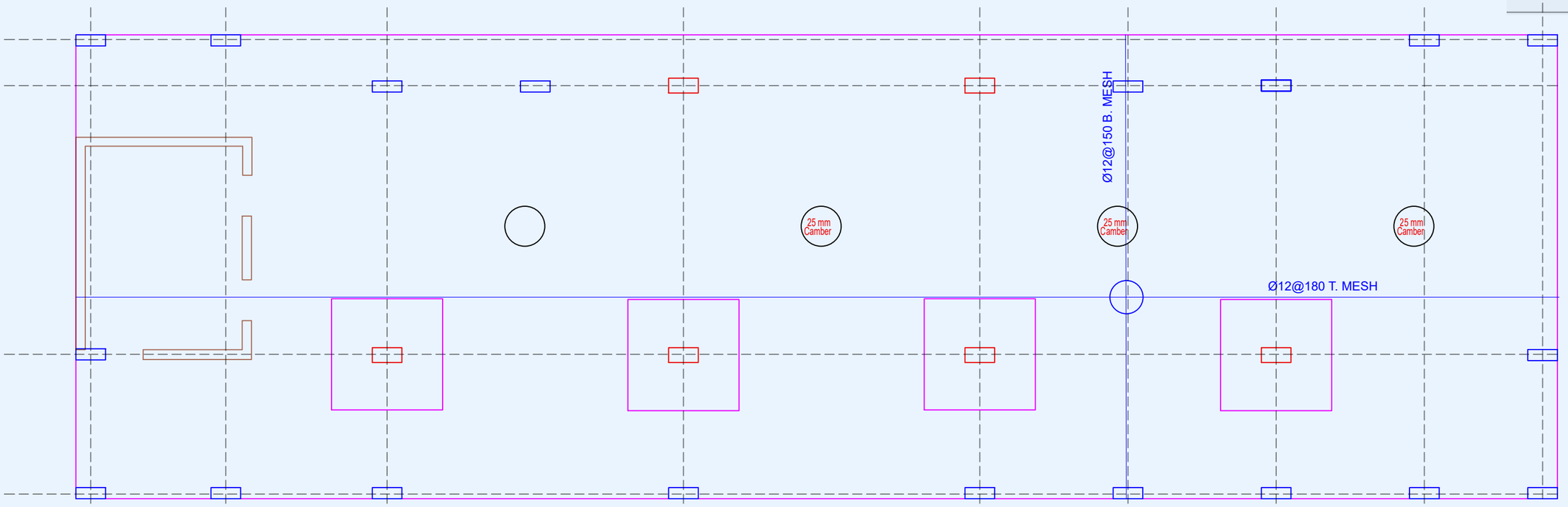
no.	date	initials	revision

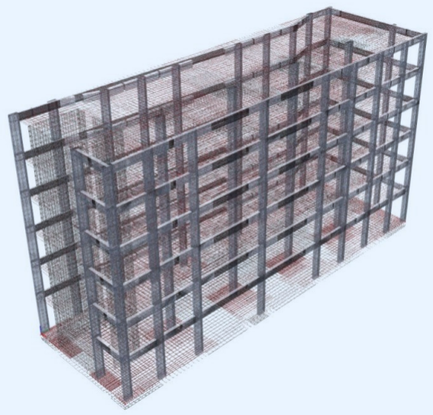
job title
(A)

drawing title
BEAM KEY PLAN

designed	project manager
ENG : DR-Majid Albana	
checked	scale 1-100 / date 2/2025
drawn	job no. 11 / sheet no. ST/D/08
approved	

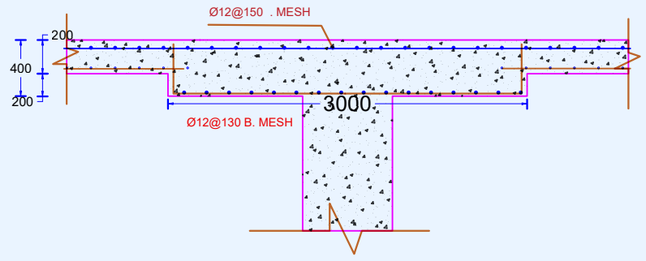
Eng MAJ D A bana
المصمم الاستشاري
د. ماجد البنا
+964 770 272 4811
+964 782 595 3403
www.majidalbana.com
majidalbana@hotmail.com





25 mm Camber

25 mm Camber slab camber 25 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

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

SLAB REINFORCEMENT (TYPICAL FLOOR)

SLAB THICKNESS = 200 mm

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

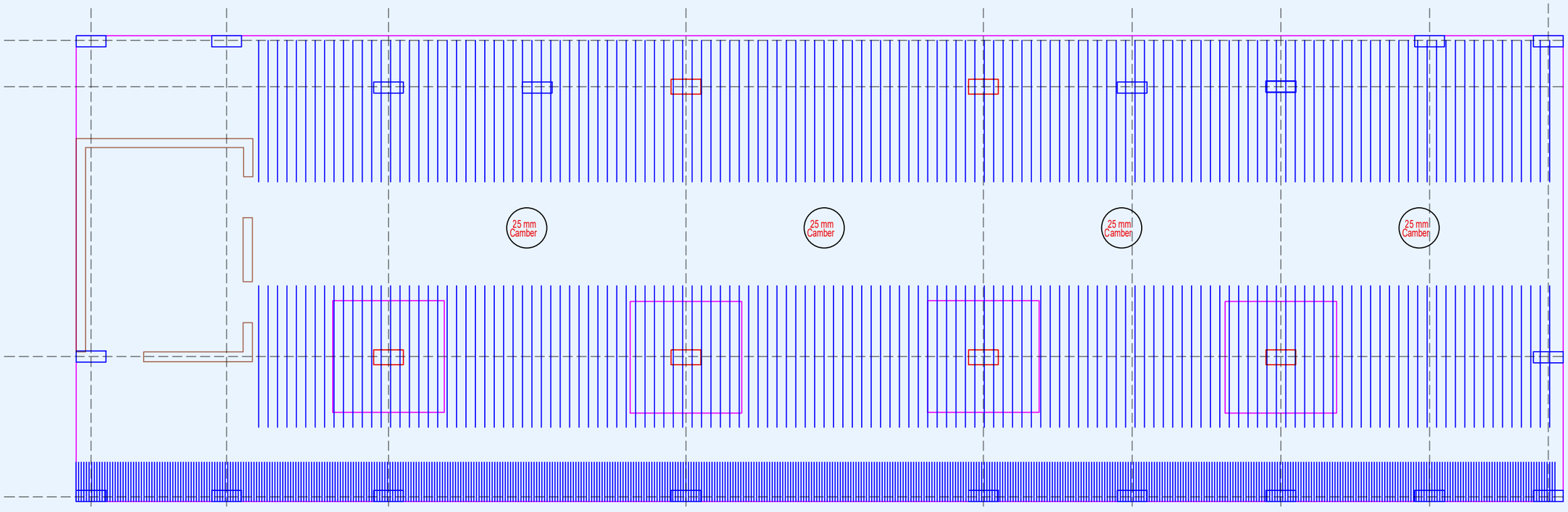
no.	date	initials	revision

job title: (A)

drawing title: WALL KEY PLAN

designed	project manager	
ENG : DR-Majid Albana		
checked	scale 1-100	date 1/2025
drawn	job no. 12	sheet no. ST/D/08
approved		

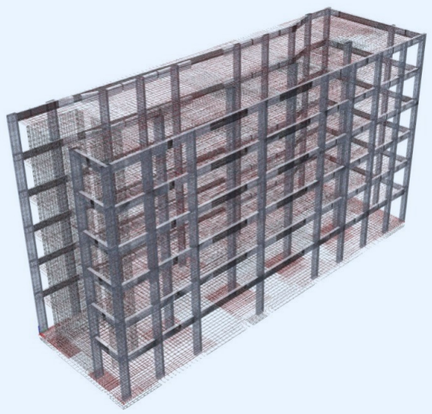
Eng MAJ D A bana
المصمم الاستشاري
د. ماجد البنا
+964 770 272 4811
+964 782 595 3403
www.majidalbana.com
majidalbana@hotmail.com



Ø12mm @ 180 mm
Top
Additional

Ø12mm @ 180 mm
Top
Additional

Ø12mm @ 180 mm
Top
Additional



Top Additional dir x

SLAB REINFORCEMENT (TYPICAL 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 ELSE WHERE	400	600	700	800	900	1000	1250

Notes

CONCRETE COVERS

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

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

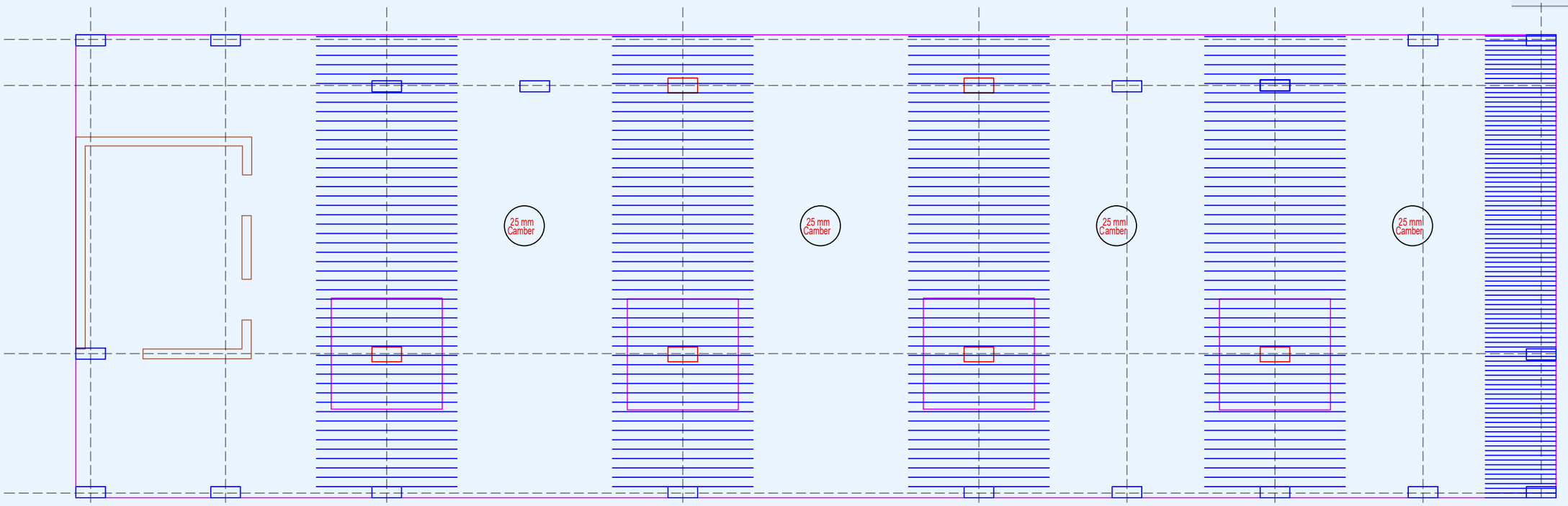
no.	date	initials	revision

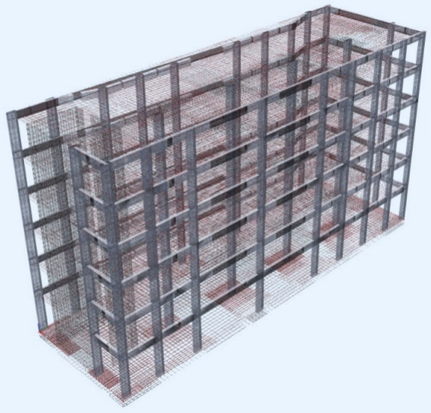
job title
(A)

drawing title
WALL KEY PLAN

designed	project manager
ENG : DR-Majid Albana	
checked	scale 1-100 / date 1/2025
drawn	job no. 13 / sheet no. ST/D/08
approved	

Eng MAJ D A bana
المصمم الاستشاري
د. ماجد البنا
+964 770 272 4811
+964 782 595 3403
www.majidalbana.com
majidalbana@hotmail.com





Top Additional dir y

SLAB REINFORCEMENT (TYPICAL 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 ELSE WHERE	400	600	700	800	900	1000	1250

Notes

CONCRETE COVERS

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

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

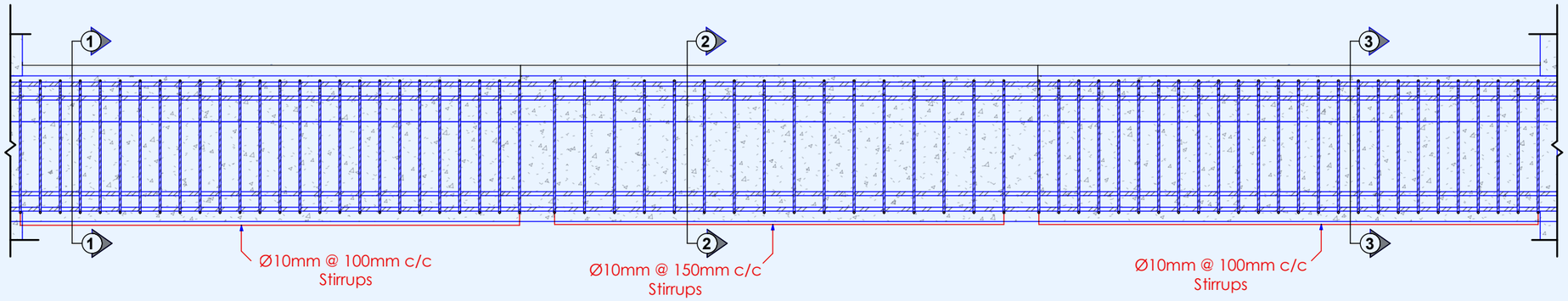
no.	date	initials	revision

job title: (A)

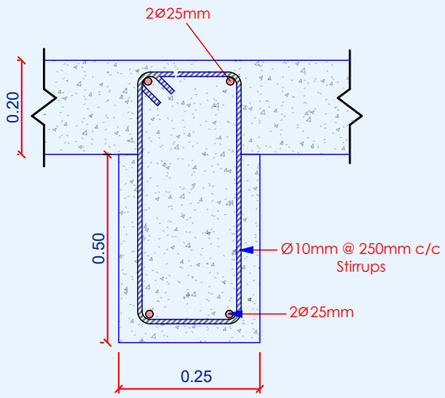
drawing title: WALL KEY PLAN

designed	project manager	
ENG : DR-Majid Albana		
checked	scale 1-100	date 1/2025
drawn	job no. 14	sheet no. ST/D/08
approved		

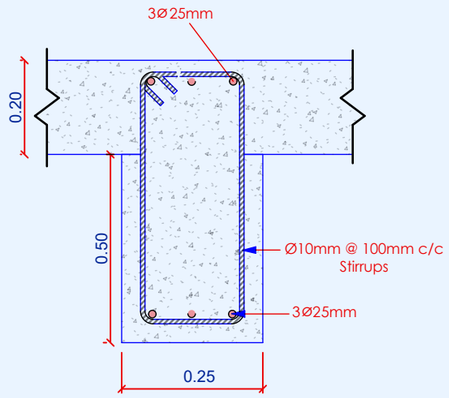
Eng MAJ D A bana
المصمم الاستشاري
د. ماجد البنا
+964 770 272 4811
+964 782 595 3403
www.majidalbana.com
majidalbana@hotmail.com



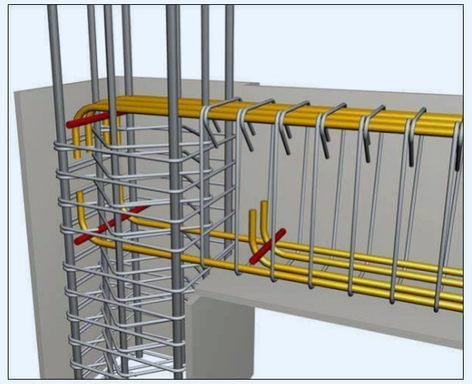
Beam - Longitudinal Section



B1 Detail



B2 Detail



no.	date	initials	revision

job title

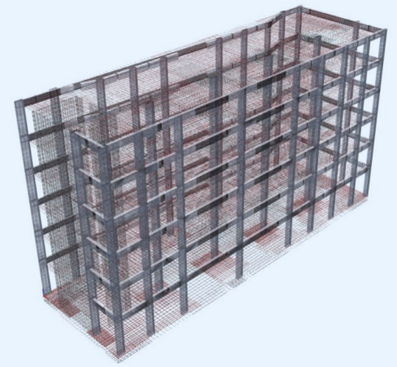
(A)

drawing title

PLAN OF PENTHOUSE SLAB REINFORCEMENT&SEC.

designed: ENG : DR-Majid Albana	project manager	
checked	scale: 1-100	date: 1/2025
drawn	job no.	sheet no.
approved	15	

Eng MAJ D A bana
المصمم الاستشاري
د. ماجد البنا
+964 770 272 4811
+964 782 595 3403
www.majidalbana.com
majidalbana@hotmail.com



SLAB REINFORCEMENT (PENTHOUSE)

SLAB THICKNESS = 200 mm

no.	date	initials	revision

job title

(A)

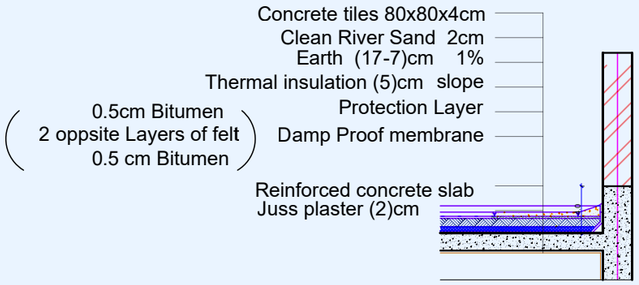
drawing title

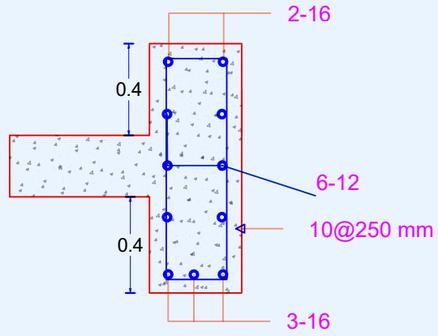
PENTHOUSE

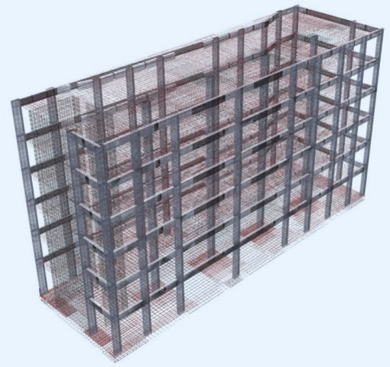
REINFORCEMENT&SEC.

designed	project manager	
ENG : DR-Majid Albana		
checked	scale 1-100	date 1/2025
drawn	job no. 16	sheet no.
approved		

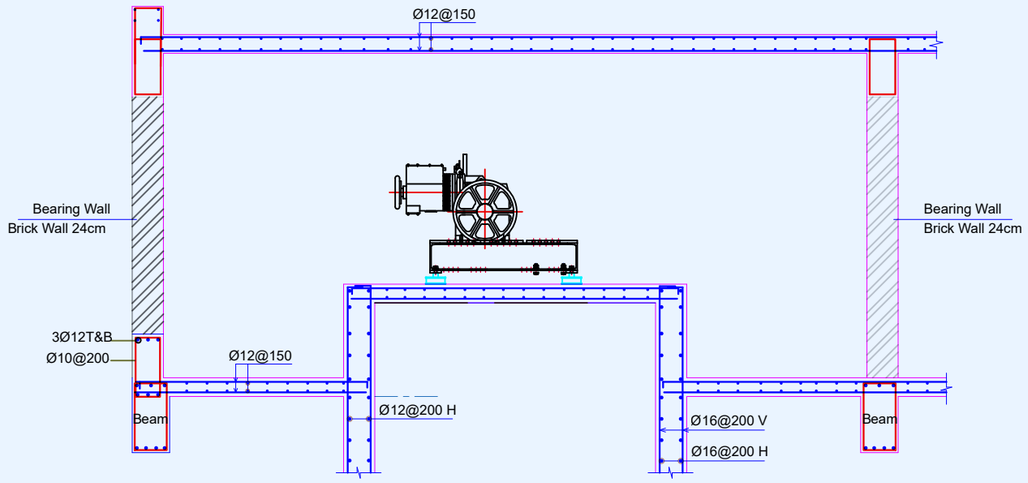
Eng MAJ D A bana
المصمم الاستشاري
د. ماجد البنا
+964 770 272 4811
+964 782 595 3403
www.majidalbana.com
majidalbana@hotmail.com







sec. 2-2



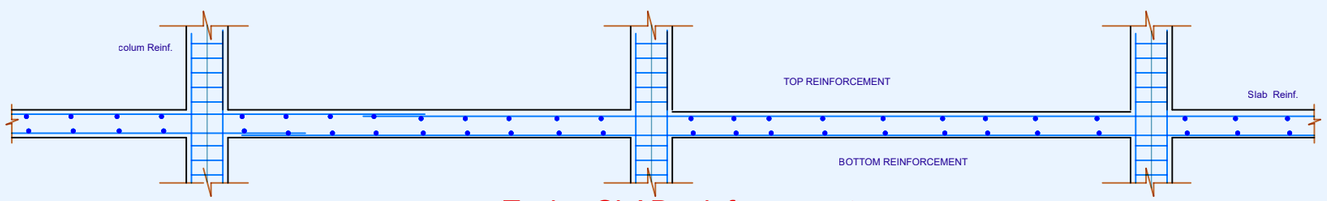
25 mm Camber

slab camber 25 mm

Section 5-5

SLAB REINFORCEMENT (PEN HOUSE FLOOR)

SLAB THICKNESS = 250 mm



Typica SLAB reinforcement

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 PENTHOUSE SLAB REINFORCEMENT&SEC.

designed ENG : DR-Majid Albana	project manager	
checked	scale 1-100	date 1/2025
drawn	job no. 17	sheet no.
approved		