



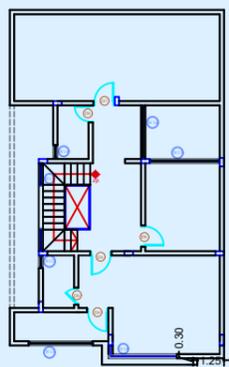
PREPARE BY DR-Majid Albana  
 majidalbana@hotmail.com  
 +9647702724811

Notes

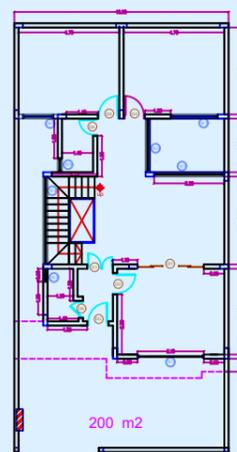
THE BUILDING SYSTEM WILL BE CONSIDER AS SHEAR WALL BUILDING WITH COLUMNS AND THE SLAB WILL BE AS solid SLAB .THE SOFTWARE USED IN DESIGN (CSI ETABS 2023, AND CSI SAFE 2023&PROKON) IS THE GENERAL PROGRAM USED IN THIS DESIGN

job title  
**House 200 m2**

Structural Drawings



200 m2



200 m2

DRWG. TITLE:

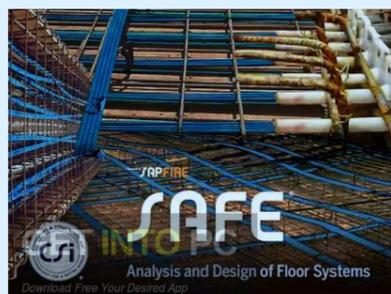
DESIGNED BY **DR-Majid Albana**

CHECKED BY \_\_\_\_\_

SCALE As Shown

DATE **11 /2023**

SHEET NO. Str. **1**



**GENERAL :-**

- ALL DIMENSIONS TO TAKE PRECEDENCE OVER SCALE SHOWN ON PLANS, SECTIONS AND DETAILS, (DO NOT SCALE FROM DRAWINGS).
- ALL DIMENSIONS ARE IN MILLIMETRES AND ALL LEVELS IN METRES (UNO).
- THE STRUCTURAL DRAWINGS SHOULD BE USED IN CONJUNCTION WITH THE ARCHITECTURAL, MECHANICAL, CIVIL, PLUMBING AND ELECTRICAL DRAWINGS.
- 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.
- 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.
- LOADING :-
  - MINIMUM DESIGN LOAD (LIVE LOAD) ACCORDING TO IBC-09.
  - SEISMIC LOAD ACCORDING TO IRAQI SEISMIC CODE 1997.
  - WIND LOAD ACCORDING TO ASCE-05.
- FOR TYP. SECTIONS & DETAILS SEE ST-G2.

**FOUNDATION AND EARTH WORK :-**

- FOUNDATION DESIGN BASED ACCORDING TO THE SOIL REPORT PREPARED BY THE & RESEARCH ( ) 2023 \ \ \ ).
- BEARING CAPACITY ACCORDING TO THE SOIL REPORT IS (7K/ m²) AT DEPTH OF (-2.00m) BELOW THE EXISTING N.G.L.
- 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 LIMITE ≤ 25%.
  - PLASTICITY INDEX ≤ 6%.
  - ORGANIC MATERIAL ≤ 2%.
  - SO<sub>3</sub> ≤ 5%.
  - TOTAL SOLUBLE SALTS ≤ 5%.
  - GYPSUM CONTENT ≤ 10.75%.
  - RELATIVE COMPACTION 95% (MODIFIED PROCTOR).
- SULPHATE RESISTANT CEMENT TYPE 5 SHOULD BE USED IN ALL CONCRET WORK IN CONTACT WITH EARTH OR BELOW DP.C. LEVEL.
- 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 :-**

- 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.
- 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 :-**

- 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                     |           | 35  | 20 mm               |
| COLUMNS AND SHEAR WALLS         |           | 40  | 20 mm               |
| SUSPENDED SLAB, BEAMS AND WALLS |           | 35  | 20 mm               |
| WATER RETAINING STRUCTURES      |           | -   | 20 mm               |
| PLAIN CONCRETE                  |           | 25  | 20 mm               |

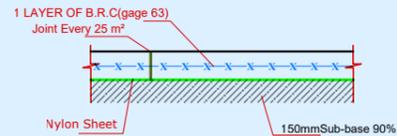
- SULPHATE RESISTANT CEMENT TYPE 5 SHOULD BE USED IN ALL CONCRET WORK IN CONTACT WITH EARTHOR BELOW D.P.C LEVEL.
- REINFORCMENT STEEL CONFORM TO ASTM A615 & A616 OR A617 BARS SHOULD BE GRADE 400 FY=410N/mm (60000psi).
- PLACING OF REINFORCEMENT SHOULD BE ACCORDING TO ACI-315 DETAILING MANUAL.
- MINIMUM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

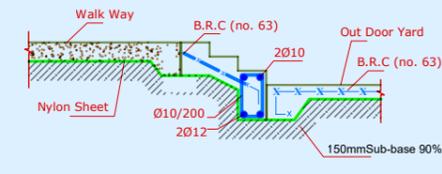
- MINIMUM BARS SPACING :-
  - CLEAR SPACING BETWEEN PARA LLEL BARS SHALL NOT BE LESS THAN BAR DIAMETER OR 4/3 OF MAXIMUM AGGREGATE SIZE BUT NOT LESS THAN 25mm.
  - CLEAR SPACING BETWEEN LAYERS OF BARS TO BE NOT LESS THAN 25mm AND THE UPPER BARS SHOULD BE OVER THE LOWER BARS .
  - IN COLUMNS CLEAR DISTANCE BETWEEN LONGITUDINAL BARS SHOULD BE NOT LESS THAN 1.5 BAR DIAMETER NOR LESS THAN 40mm.
- 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 |

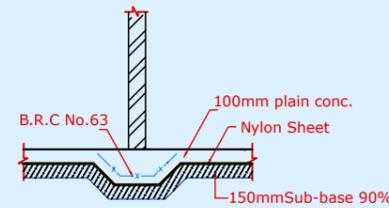
- LAP LOCATION IN SLABS AND BEAMS :-
  - AT SUPPORT FOR BOTTOM BARS.
  - AT MID SPAN FOR TOP BARS.
- LAP LOCATION IN FOUNDATION :-
  - AT SUPPORT FOR TOP BARS.
  - AT MID SPAN FOR BOTTOM BARS.
- VERTICAL REINFORCEMENT IN COLUMN :-
  - WHERE COLUMN FACE ARE OFFSET 75mm OR MORE SPLICE OF VERTICAL BARS TO THE OFFSET FACE SHOULD BE MADE BY SEPARAT E 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 (HORIZONTAL: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 BEFORE THE POINT OF BEND.
  - WHERE LONGITUDINAL BARS OFFSET,PROVIDE 4TIES.
- HOT & COLD WETHERING SHOULD BE ACCORDING TO ACI-305R-99.
- ALL REINFORCING BAR BENDS TO BE MADE COLD.
- 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.
- 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.



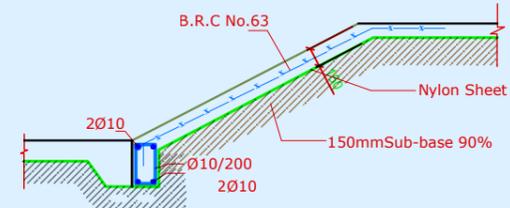
**Typical Detail Of Out Door Yard**



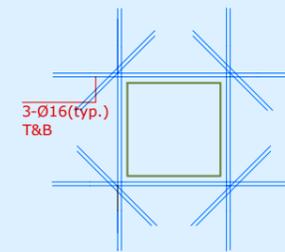
**Typical Sec. For Stair On Earth**



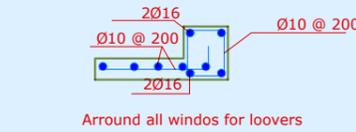
**CONSTRUCTION OF PARTITION ON GROUND SLAB**  
provid construction joint for max.(5mx5m)



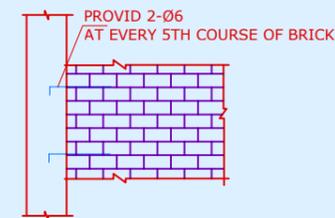
**Typical Sec. Of Ramp**



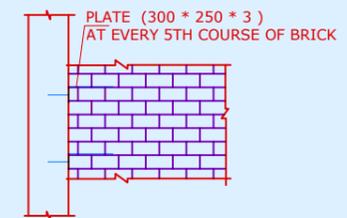
**TYPICAL REINF. AROUND OPENNINGS UP TO 600**



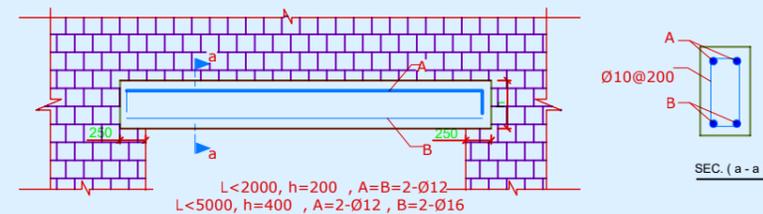
**TYPICAL UP STAND DETAIL ROOF OPENNINGS**



**CONECTION BETWEEN BRICK WALL AND R.C. COLUMN proposal 1**



**CONECTION BETWEEN BRICK WALL AND R.C. COLUMN proposal 2**



**LINTEL REINFORCEMENT**

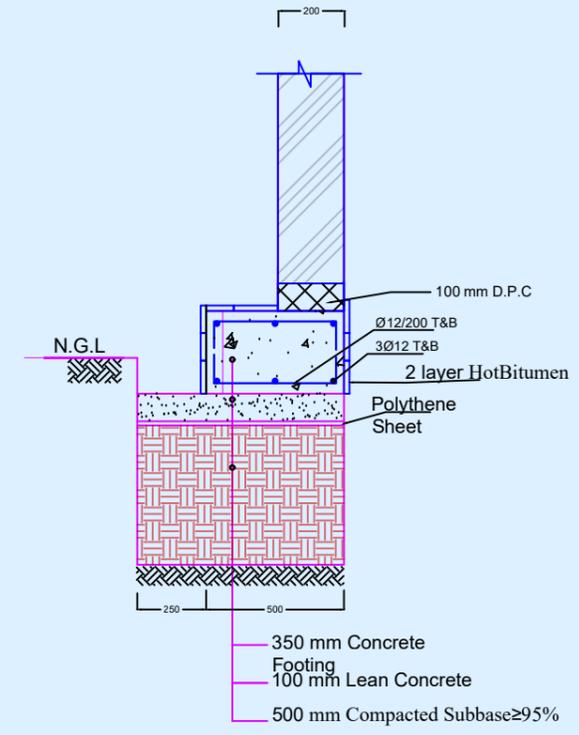
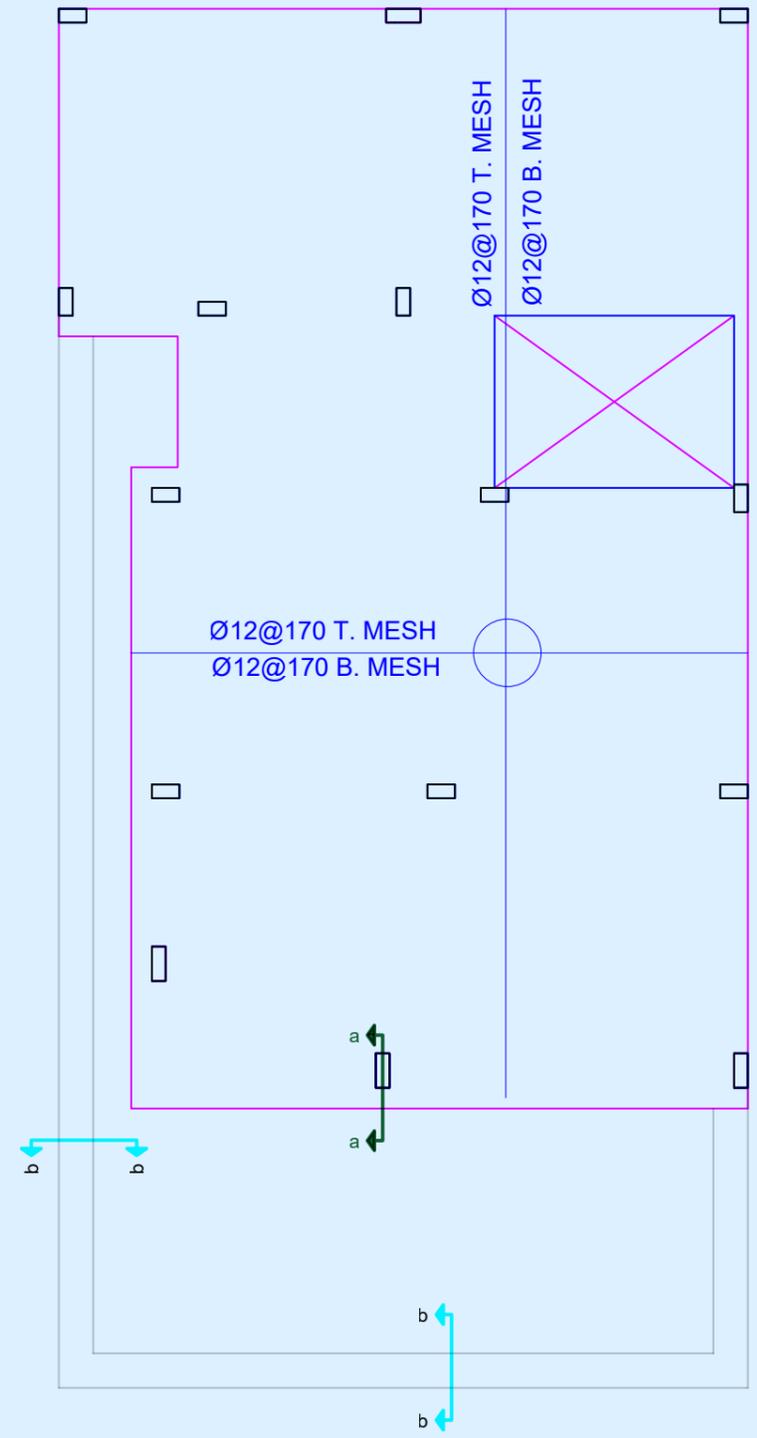
**ABBREVIATIONS :-**

|       |                    |
|-------|--------------------|
| ADD   | ADDITIONAL         |
| ARCH  | ARCHITECTURAL      |
| B     | BEAM               |
| BOTT  | BOTTOM             |
| C1    | COLUMN TYP C1      |
| CANT  | CANTILEVER         |
| CJ    | CONSTRUCTION JOINT |
| 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   | MAXIMUM            |
| MECH  | MECHANICAL         |
| MIN   | MINIMUM            |
| mm    | MILLIMETRES        |
| SEC   | SECTION            |

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| no                   | date                 | initials  | revision |
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|                      |                      |           |          |
|                      |                      |           |          |
| job title            |                      |           |          |
| (A)                  |                      |           |          |
| drawing title        |                      |           |          |
| <b>GENERAL NOTES</b> |                      |           |          |
| designed             | project manager      |           |          |
| checked              | ENG. DR-Majid Albana | scale     | date     |
| drawn                | job no.              | sheet no. |          |
| approved             |                      | 2         |          |

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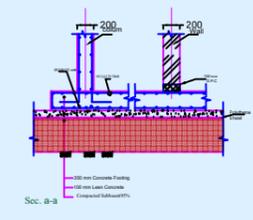
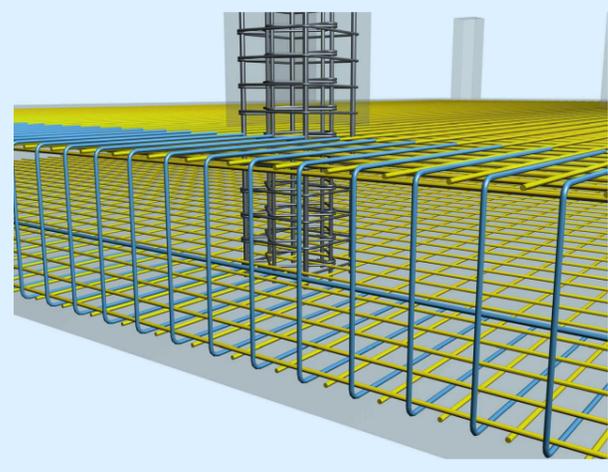


Sec.b-b for Fence Footing

- $f_{cu}$  = 35 N/mm<sup>2</sup>  
- $f_y$  = 420 N/mm<sup>2</sup>.

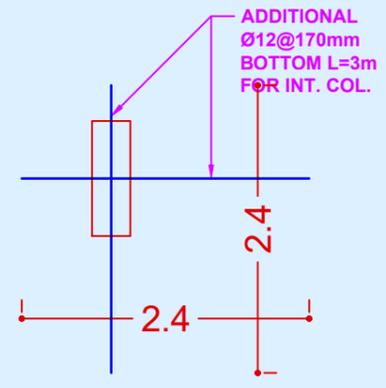
CONCRETE COVERS

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

# Foundation Plan

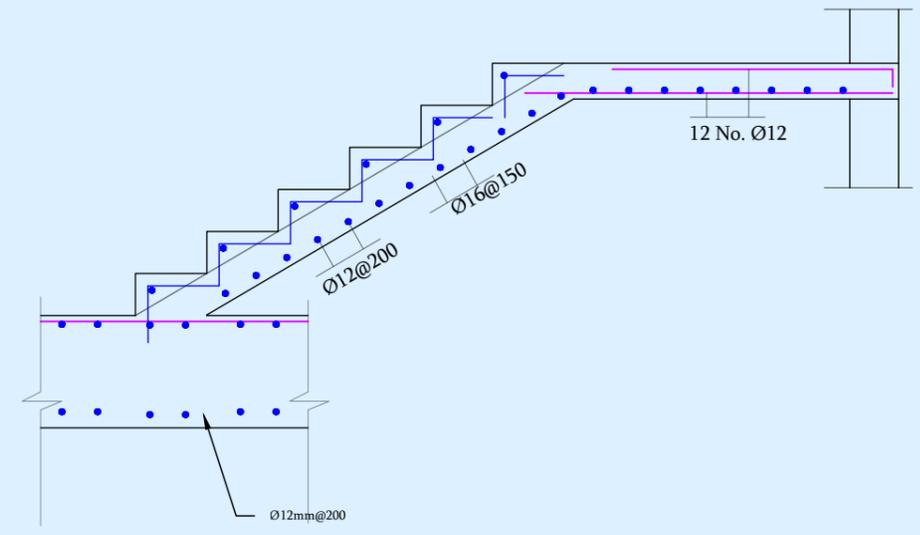
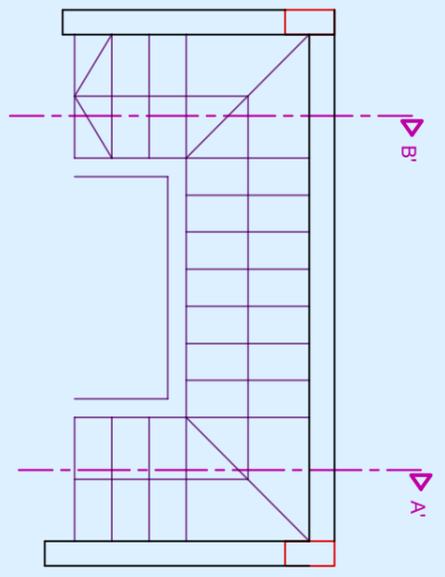
THICK. = 350 mm

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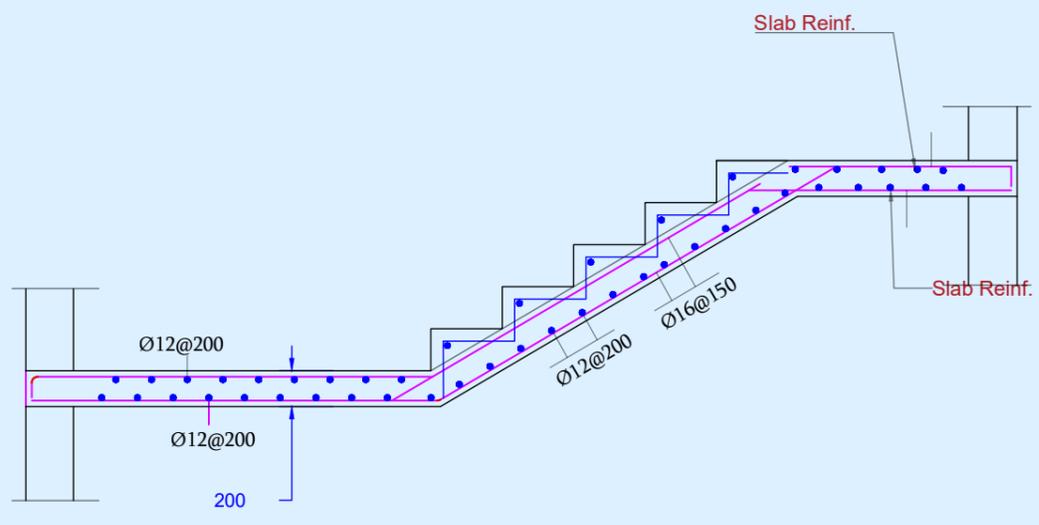
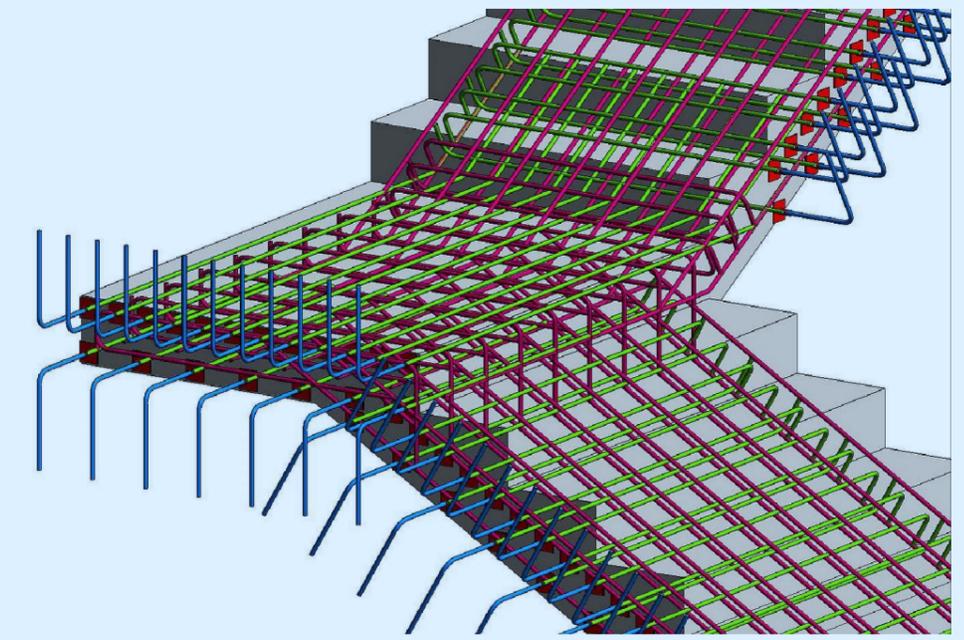
job title  
(A)

drawing title  
**PLAN OF FOUNDATION REINFORCEMENT&SEC.**

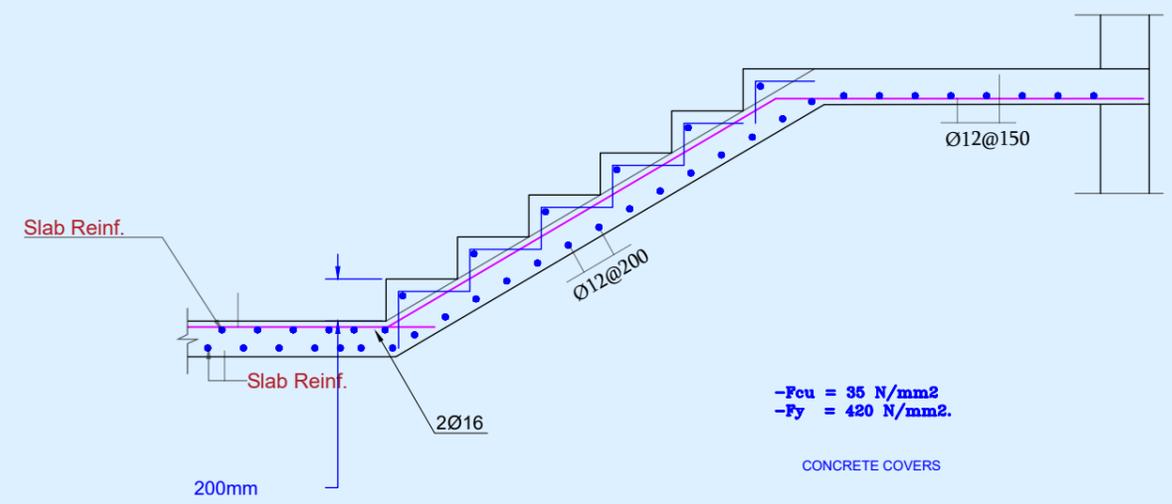
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| checked                           | scale<br><b>1-100</b>       |
| drawn                             | date<br><b>11 /2023</b>     |
| approved                          | job no.<br><b>3</b>         |
|                                   | sheet no.<br><b>ST/D/04</b> |



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



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



-Fcu = 35 N/mm<sup>2</sup>  
-Fy = 420 N/mm<sup>2</sup>.

CONCRETE COVERS

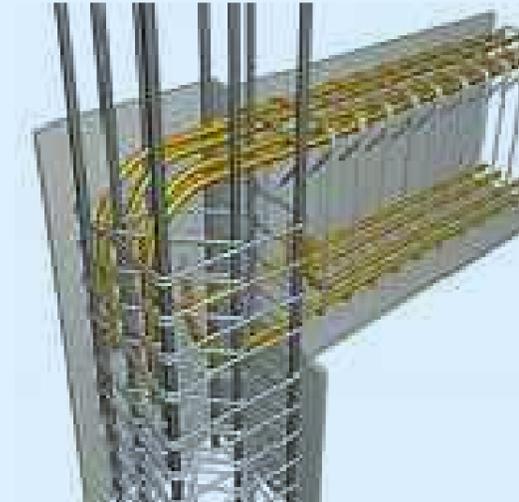
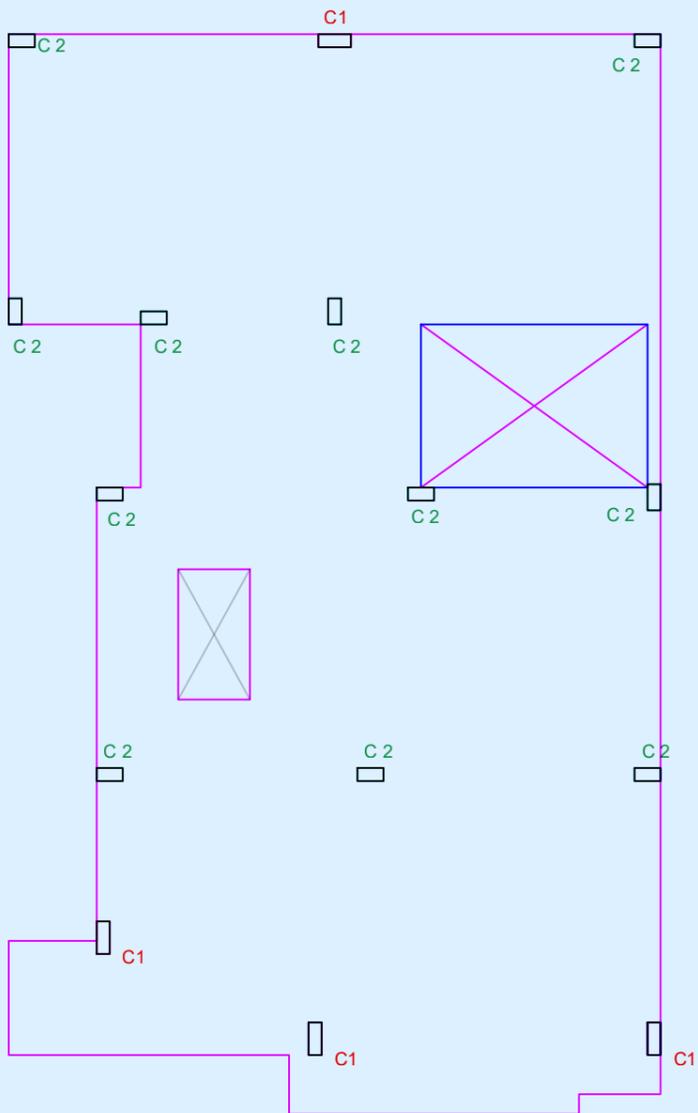
- SLABS = 25 mm
- BEAMS = 40 mm
- COLUMNS = 40 mm
- WALLS = 25 mm
- SLAB ON GRADE = 50 mm
- RAFT FOUNDATION = 75 mm

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

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|---------------|-----------------------|-----------------|----------|
| no.           | date                  | initials        | revision |
|               |                       |                 |          |
| job title     |                       |                 |          |
| (A)           |                       |                 |          |
| drawing title |                       |                 |          |
| Stairs detail |                       |                 |          |
| designed      | ENG - DR-Majid Albana | project manager |          |
| checked       |                       | scale           | 1-100    |
| drawn         |                       | date            | 11 /2023 |
| approved      |                       | job no.         | 4        |
|               |                       | sheet no.       | ST/D/07  |

**SCHEDULE OF COLUMNS AND WALLS**

| COLUMNS<br>OR WALLS<br>ID | SIZE           |               | REMARK |
|---------------------------|----------------|---------------|--------|
|                           | LENGTH<br>(mm) | WIDTH<br>(mm) |        |
| C1                        | 200            | 500           |        |
| C2                        | 200            | 400           |        |
|                           |                |               |        |



**Notes**

- $f_{cu} = 40 \text{ N/mm}^2$
- $f_y = 420 \text{ N/mm}^2$ .

**CONCRETE COVERS**

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

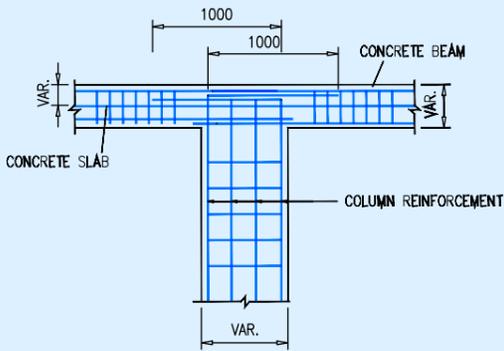
- THE GEOTECHNICAL INVESTIGATION REPORT THE BEARING CAPACITY OF THE SOIL 70 kN/m<sup>2</sup>
- THE BUILDING IS DESIGNED FOR GROUND FLOOR + 1st FLOORS

**COLUMNS & WALL KEY PLAN**

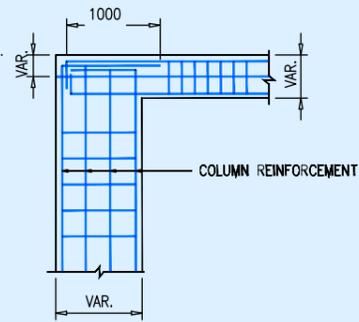
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| job title               |                       |                 |          |
| (A)                     |                       |                 |          |
| drawing title           |                       |                 |          |
| COLUMNS & WALL KEY PLAN |                       |                 |          |
| designed                | ENG : DR-Majid Albana | project manager |          |
| checked                 |                       | scale           | 1-100    |
| drawn                   |                       | date            | 11/2023  |
| approved                |                       | job no.         | 5        |
|                         |                       | sheet no.       | ST/D/08  |

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

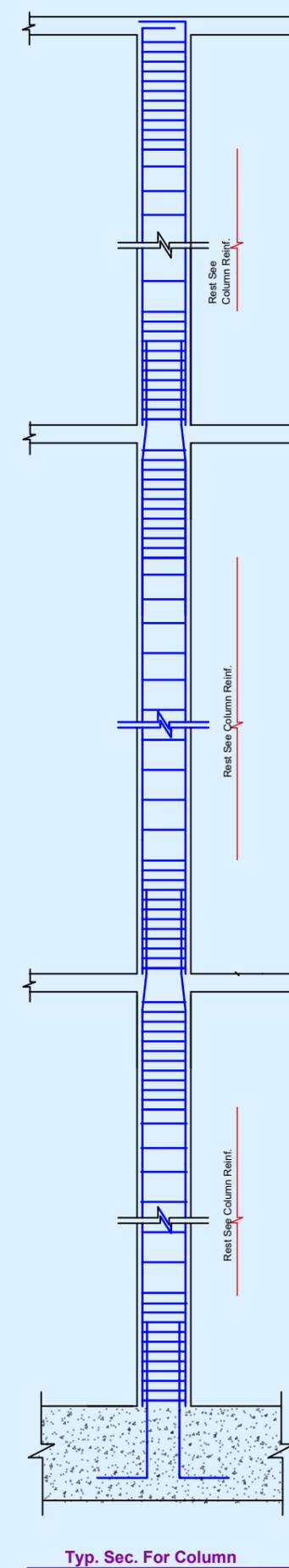
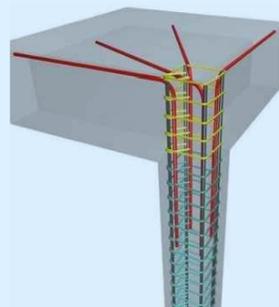
|          |                               |      |                        |                        |
|----------|-------------------------------|------|------------------------|------------------------|
| Main Bar |                               |      | 4 - Ø16+4 - Ø12        | 4 - Ø16+4 - Ø12        |
| Ties     |                               | fcu  | Ø10@200<br>2Ties/Set   | Ø10@200<br>2Ties/Set   |
| Section  | Roof Floor                    | C 40 |                        |                        |
| Main Bar | 1st Floor                     |      | 4 - Ø16+4 - Ø12        | 4 - Ø16+4 - Ø12        |
| Ties     |                               |      | Ø10@200<br>2Ties/Set   | Ø10@200<br>2Ties/Set   |
| Section  | Ground Level foundation level | C 40 |                        |                        |
| Dowels   |                               |      | 4 - Ø16+4 - Ø12<br>C 2 | 4 - Ø16+4 - Ø12<br>C 1 |



TYPICAL INTERNAL COLUMN TO BEAM DETAIL



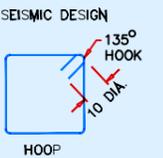
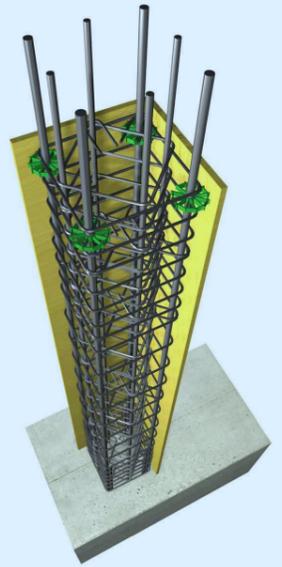
TYPICAL EDGE COLUMN TO BEAM DETAIL



Typ. Sec. For Column

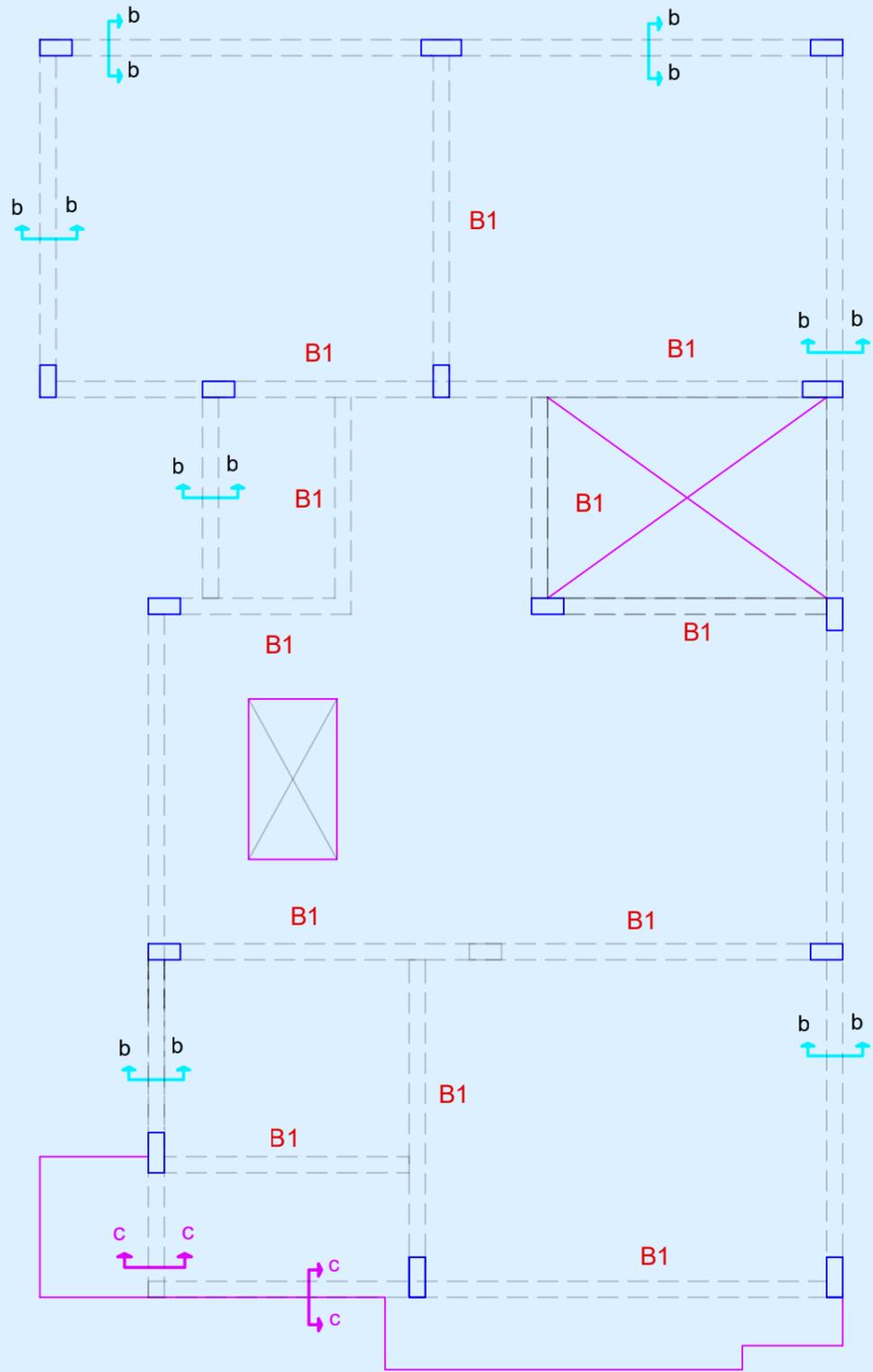

  
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| no.                | date                  | initials        | revision |
|                    |                       |                 |          |
| job title          |                       |                 |          |
| (A)                |                       |                 |          |
| drawing title      |                       |                 |          |
| SCHEDULE OF COLUMN |                       |                 |          |
| designed           | ENG : DR-Majid Albana | project manager |          |
| checked            |                       | scale           | 1-100    |
| drawn              |                       | date            | 11/2023  |
| approved           |                       | job no.         | 6        |
|                    |                       | sheet no.       |          |

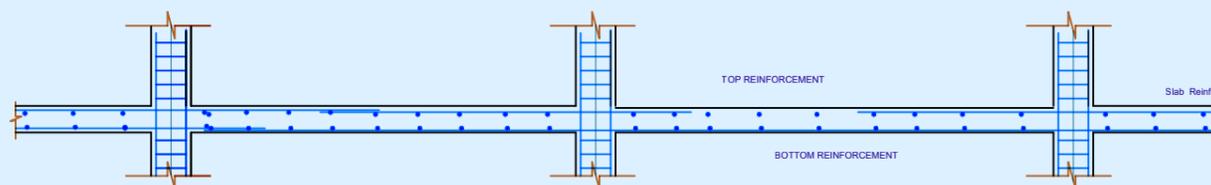
. all dim. from ARCH D.W.G.



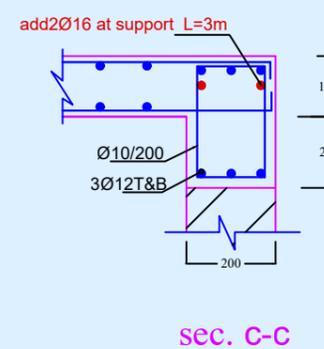
BEAM KEY PLAN

SLAB REINFORCEMENT (GROUND FLOOR)

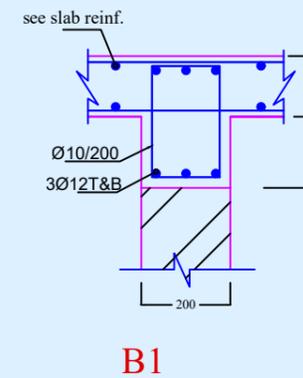
SLAB THICKNESS = 170 mm



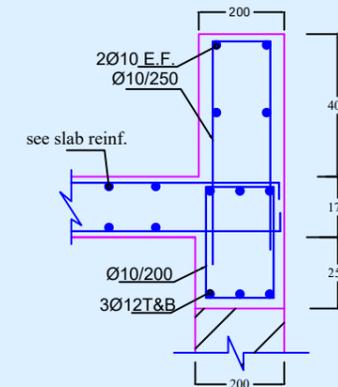
Typical SLAB reinforcement



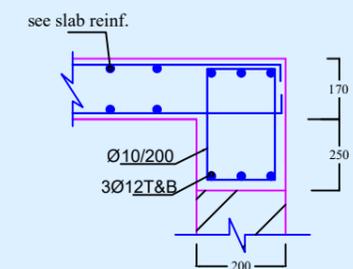
sec. C-C



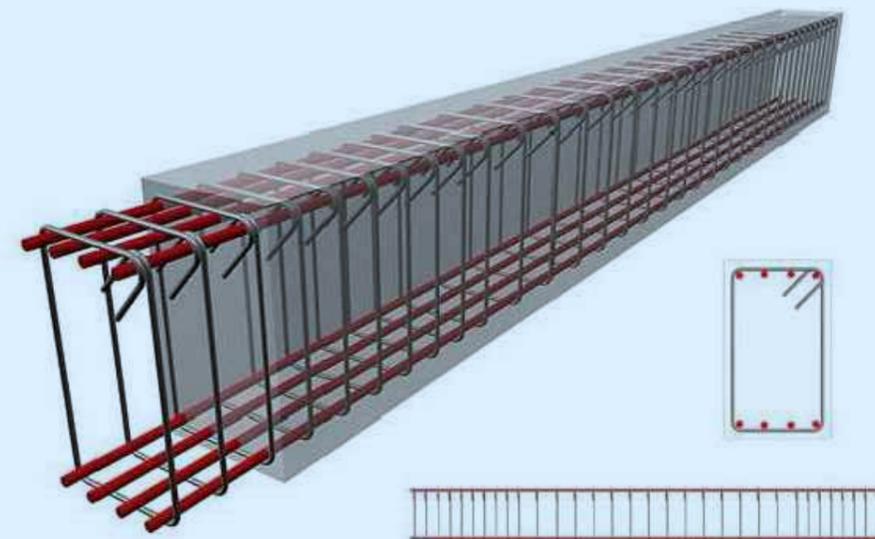
B1



sec. b-b roof



sec. b-b



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 | 550 | 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 |
|-----|------|----------|----------|
|     |      |          |          |
|     |      |          |          |

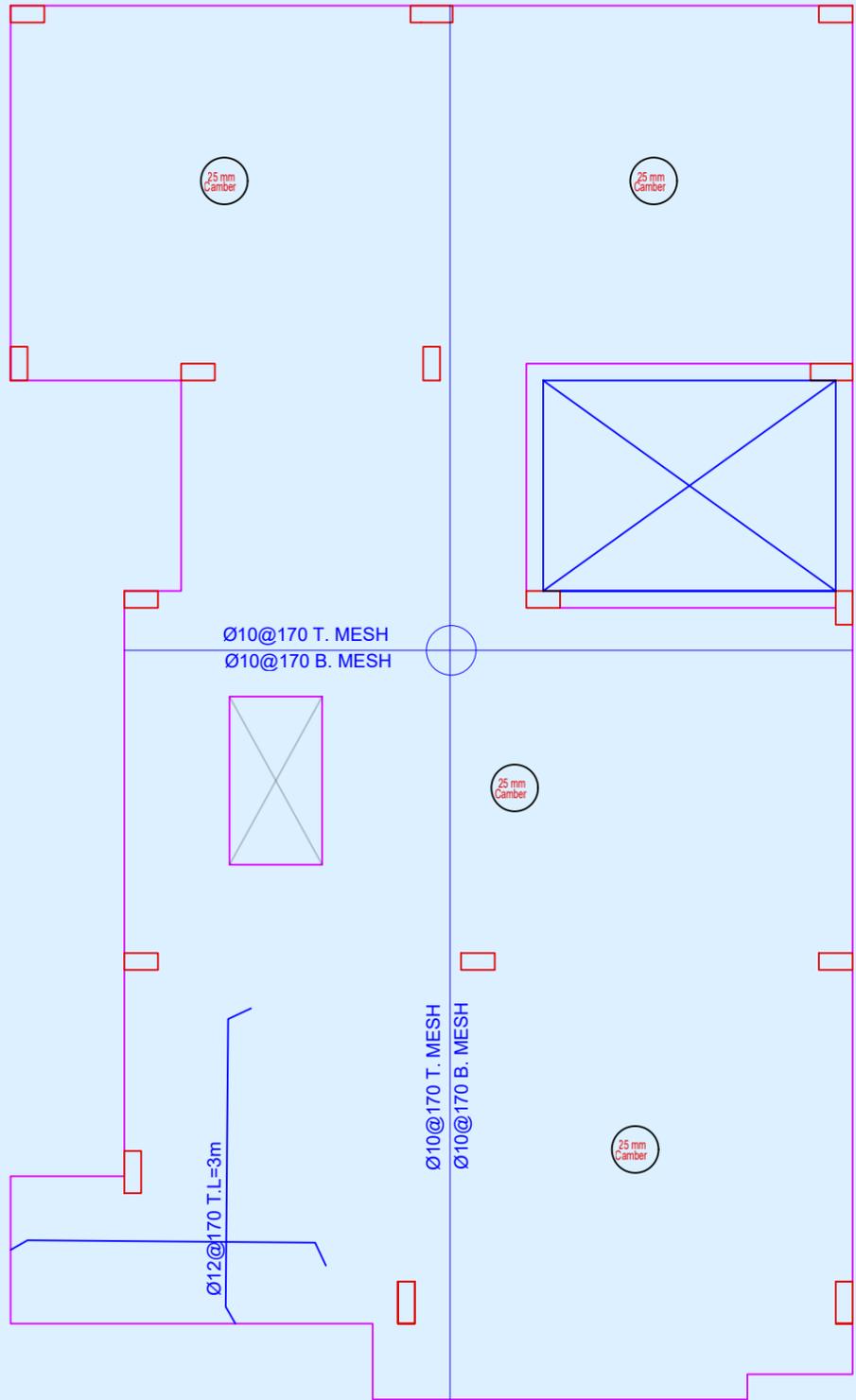
job title

(A)

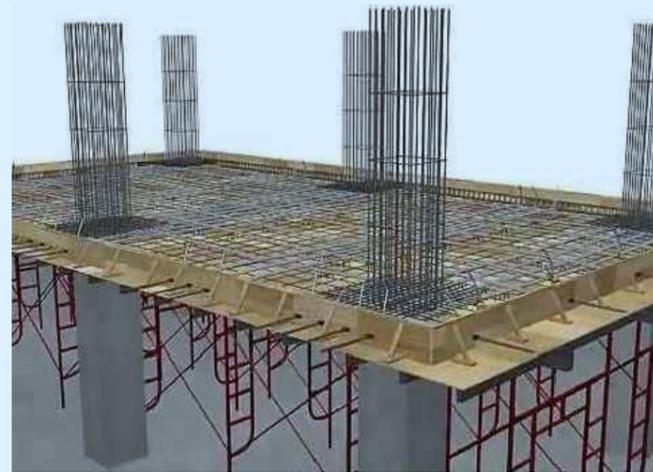
drawing title

**BEAM KEY PLAN**

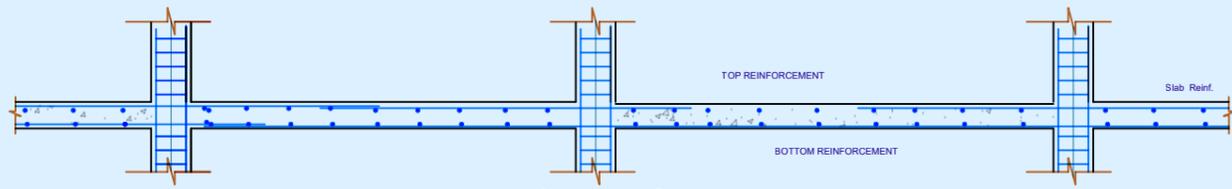
|          |                       |                 |          |
|----------|-----------------------|-----------------|----------|
| designed | ENG : DR-Majid Albana | project manager |          |
| checked  |                       | scale           | 1-100    |
| drawn    |                       | date            | 11 /2023 |
| approved |                       | job no.         | 7        |
|          |                       | sheet no.       | ST/D/12  |



25 mm Camber slab camber 25 mm



**SLAB REINFORCEMENT (GROUND FLOOR)**  
SLAB THICKNESS = 170 mm



Typical SLAB reinforcement

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

| BAR DIA. (mm)                   | 10  | 12  | 16  | 18  | 20  | 22   | 25   |
|---------------------------------|-----|-----|-----|-----|-----|------|------|
| LAP LENGTH (mm) IN COLUMNS      | 400 | 500 | 600 | 550 | 700 | 800  | 900  |
| LAP LENGTH (mm) IN SLAB & BEAMS | 400 | 600 | 700 | 800 | 900 | 1000 | 1250 |

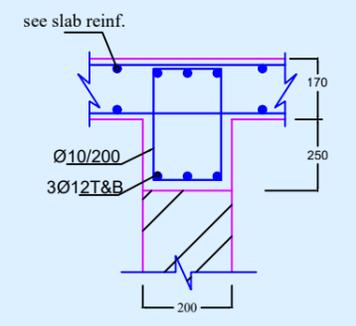
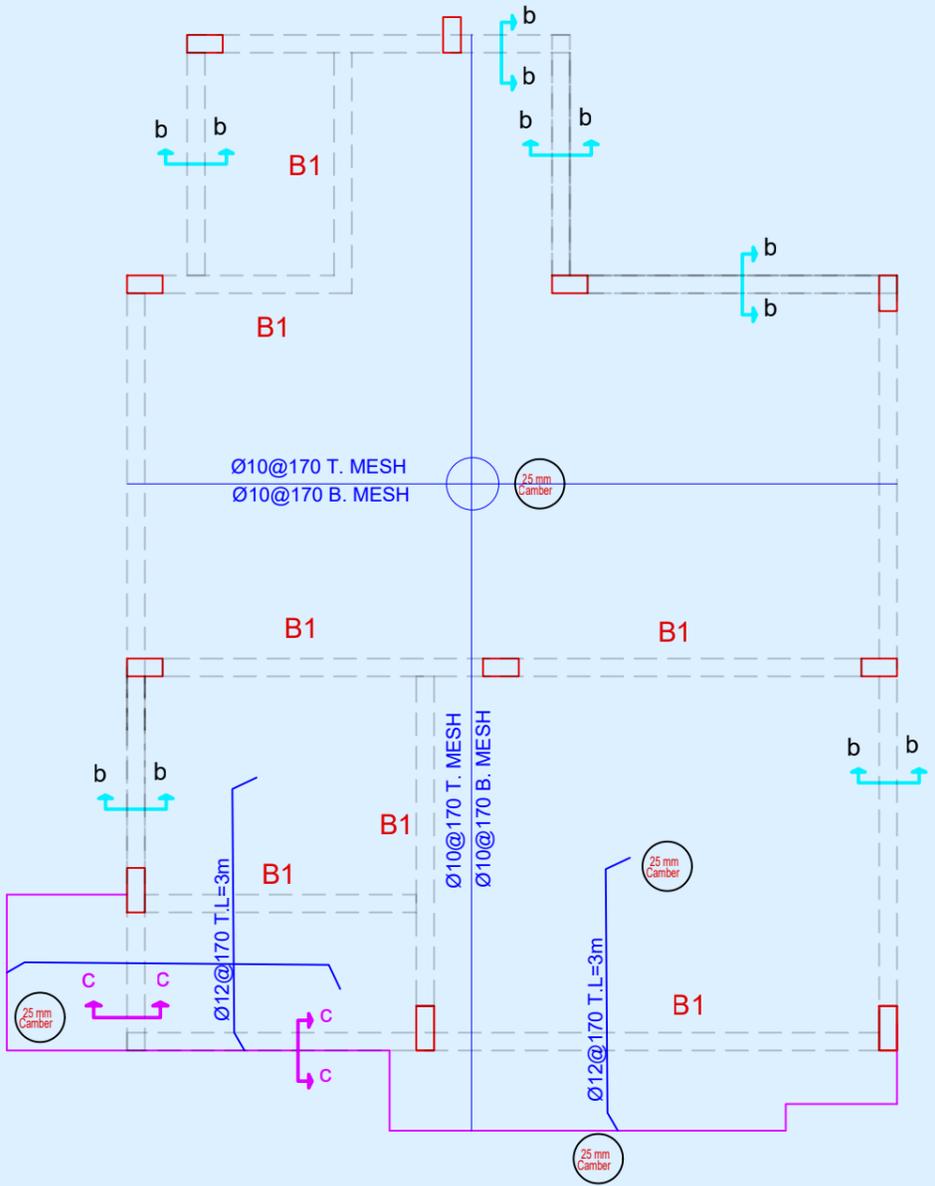
all dim. from ARCH D.W.G.

| no. | date | initials | revision |
|-----|------|----------|----------|
|     |      |          |          |
|     |      |          |          |
|     |      |          |          |

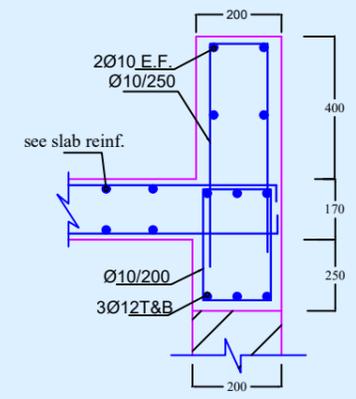
job title  
**(A)**  
drawing title  
**PLAN OF SLAB REINFORCEMENT&SEC.**

|                                   |                 |                      |
|-----------------------------------|-----------------|----------------------|
| designed<br>ENG : DR-Majid Albana | project manager |                      |
| checked                           | scale<br>1-100  | date<br>11 /2023     |
| drawn                             | job no.<br>8    | sheet no.<br>ST/D/12 |
| approved                          |                 |                      |

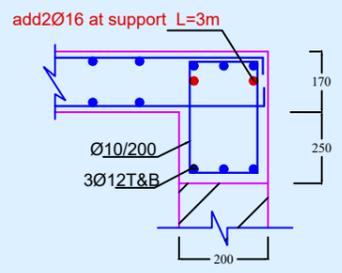
25 mm Camber slab camber 25 mm



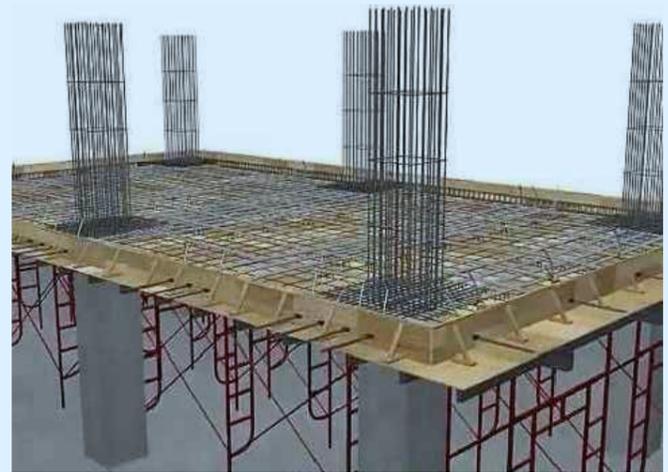
B1



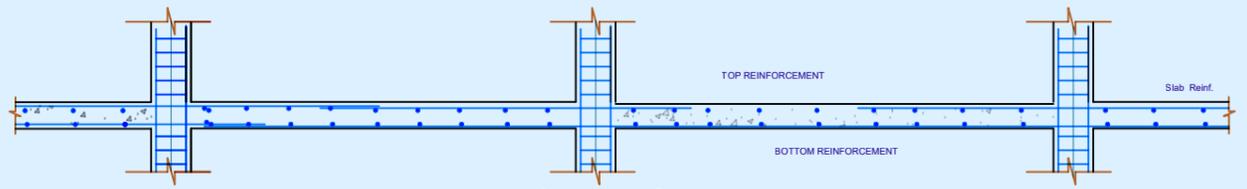
sec. b-b roof



sec. C-C



**SLAB REINFORCEMENT (1st FLOOR)**  
SLAB THICKNESS = 170 mm



Typical 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 | 550 | 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    |
| drawn              |                       | date            | 11 /2023 |
| approved           |                       | job no.         | 9        |
|                    |                       | sheet no.       | ST/D/12  |