# Right Side Mosul Low Cost House Unit

Package - 01





	Right Side Mosul Low Cost House	Unit			
Works Drawings					
A.	Structural Drawings	NUM.			
1	General Notes	ST-001			
2	General Details	ST-002			
3	Foundations Plan & Details	ST-01			
4	Ground , First & Second Axis Of Columns & Details	ST-02			
5	Ground Beams , Slab On Grade & Details	ST-03			
6	Ground , First & Second Framing Plan	ST-04			
7	Ground , First & Second Floor Reinf. Plan ( X Dir.)	ST-05			
8	Ground , First & Second Floor Reinf. Plan ( Y Dir.)	ST-06			
9	Beams Details	ST-07			
10	Stair Details	ST-08			
В.	Architectural Drawings	NUM.			
1	Plot Survey	AR-PL-01			
2	Plot Survey with Building	AR-PL-02			
3	Site Plan	AR-PL-03			



## Works Drawings



Structural Drawings



# STRUCTURAL LIST OF DRAWING

NUM.	TITLE	SCALE	PAPER	REVISION
ST-000	List Of Drawing		A1	REV - 01
ST-001	General Notes		A1	REV - 02
ST-002	General Details		A1	REV - 01
ST-01	Foundations Plan & Details	1:100 ,1:20	A1	REV - 02
ST-02	Ground , First & Second Axis Of Columns & Details	1:100 ,1:20	A1	REV - 01
ST-03	Ground Beams , Slab On Grade & Details	1:100 ,1:20	A1	REV - 02
ST-04	Ground , First & Second Framing Plan	1:100	A1	REV - 01
ST-05	Ground , First & SecondFloor Reinf. Plan ( X Dir.)	1:100	A1	REV - 01
ST-06	Ground , First & SecondFloor Reinf. Plan ( Y Dir.)	1:100	A1	REV - 01
ST-07	Beams Details	1:50 , 1:20	A1	REV - 01
ST-08	Stair Details	1:50 , 1:20	A1	REV - 02

Notes:

dimensions are in centimeters

unless is noted

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This drawing is to be read in

conjunction with all other relevant drawings.

Legend:

Project:	
150 Apart Buildir	

List Of Drawings

Mosul

Scale:	SN: ST-000
Format:	

rev. Description Date

A Concept Design

Arch: M.Abudib

Approved by:

R.Almasri

Client: UN-HABITAT



#### A- GENERAL NOTES:

- 1. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO STARTING CONSTRUCTION AND THE CONSULTANT SHALL BE NOTIFIED OF ANY DISCREPANCIES OR INCONSISTENCIES.
- 2. ALL DIMENSIONS TO TAKE PRECEDENCE OVER SCALE SHOWN ON PLANS . SECTIONS AND DETAILS.
- NOTES AND DETAILS ON DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS.
- UNLESS OTHERWISE SHOWN . ALL DIMENSIONS AND ALL LEVELS ARE IN CENTIMETERS
- 5. SEE ARCHITECTURAL DRAWINGS FOR THE FOLLOWING:
- SIZE AND LOCATION OF ALL FLOOR AND ROOF OPENINGS. DIMENSIONS NOT SHOWN ON STRUCTURAL DRAWINGS.
- 6. SEE MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS FOR THE FOLLOWING INFORMATION.
- PIPE RUNS, SLEEVES, HANGERS, TRENCHES, WALL AND SLAB OPENINGS ETC. ELECTRICAL CONDUIT RUNS, BOXES, OUTLETS IN WALL AND SLABS .
- CONCRETE INSERTS FOR ELECTRICAL, MECHANICAL OR PLUMBING FIXTURES.
- 7. THE CONTRACT STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE UNLESS OTHERWISE INDICATED. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION.
- SUCH MEASURES SHALL INCLUDE BUT NOT BE LIMITED TO BRACING, SHORING OF LOADS DUE TO CONSTRUCTION EQUIPEMENT ETC. SUPERVISION TO THE SITE BY THE STRUCTURAL ENGINEER SHALL NOT INCLUDE INSPECTION OF THE ABOVE ITEMS. OPENINGS , POCKETS ETC. SHALL NOT BE PLACED IN SLABS , DECKS, BEAMS, JOISTS, COLUMNS, WALLS, ETC. UNLESS SPECIFICALLY DETAILED ON THE STRUCTURAL DRAWINGS . NOTIFY THE STRUCTURAL ENGINEER WHEN DRAWINGS BY OTHERS SHOW OPENINGS , POCKETS, ETC . BUT NOT LIKEWISE SHOWN ON THE STRUCTURAL RAWINGS.
- 9. ALL HEAVY EQUIPEMENT PIECES WITH A UNIT LOAD HIGHER THAN THE DESIGN LOAD SHALL NOT BE PLACED ON ANY FLOOR WITHOUT THE APPROVAL OF
- 10. CONSTRUCTION MATERIALS SHALL BE SPREAD OUT IF PLACED ON FRAMED FLOORS OR ROOF LOAD SHALL NOT EXCEED DESIGN LIVE LOAD FOR EACH PARTICULAR LEVEL.
- 11. OVER-EXCAVATION UNDER FOOTINGS SHALL BE BACKFILLED WITH MASS CONCRETE.
- 12. ABBREVIATIONS AND SYMBOLS:

&	– AND	MIN	- MINIMUM
(L=), ()	<ul><li>LENGTH</li></ul>	NTS	- NOT TO SCALE
<b>◎</b> , / – AT		No.	- NUMBER
DET.	<ul><li>DETAIL</li></ul>	RC	<ul> <li>REINFORCED CONCRETE</li> </ul>
EL.	<ul><li>ELEVATION</li></ul>	ST	<ul> <li>STRUCTURAL</li> </ul>
FL	<ul> <li>FINISHED LEVEL</li> </ul>		<ul> <li>STRUCTURAL FLOOR LEVEL</li> </ul>
MAX	- MAXIMUM	T=	- THICKNESS OF SLAB
VAR.	<ul> <li>VARIABLE</li> </ul>	TYP.	- TYPICAL

#### **B- MATERIALS:**

ALL MATERIALS TO BE USED IN THE CONJUNCTION SHALL COMPLY WITH THE REQUIREMENTS OF CURRENT RELEVANT BRITISH STANDARDS UNLESS NOTED BELOW

CONCRETE UNLESS OTHERWISE NOTED CONCRETE SHALL BE :

2.1. BLINDING CONCRETE
GRADE 15. PARTLAND CONTENT 200kg./m.cu. MINIMUM. MAXIMUM AGGRETE SIZE 20mm.

2.2. FOUNDATION & SUPER STRUCTURE
GRADE 30. 28 DAYS , STRENGTH 30 N/mm.sq

MAXIMUM AIGRETTE SIZE 20mm. FOR SUB-STRUCTURE USE MSRPC.

- 2.3. ALL REINFORCED CONCRETE IS TO MADE FROM CEMENT, FINE AGGREGATES ( SAND & CRUSHER FINES ) COARSE, AGGREGATES ( 10mm & 20mm ) AND WATER.

   2.4. THE CONTRACTOR IS TO SUBMIT PROPOSED MIX DESIGNS, TOGETHER WITH NOT LESS THAN 4 nos. 7 DAYS AND 4 nos. 28 DAYS CUBE TEST RESULTS FOR APPROVAL WELL BEFORE COMMENCEMENT OF CONCRETE WORKS.

   2.5. THE FOLLOWING TEST RESULTS ARE TO BE SUBMITTED ALONG WITH THE PROPOSED MIX DESIGNS.

- TESTS SHOW COMPLIANCE WITH BS 12 ( OPC ) OR BS 4027 ( SRC ). CEMENT
- SEIVE ANALYSIS, CHEMICAL ANALYSIS (CHLORIDES AND SULPHATES), ABSORPTION TESTS, SOUNDNESS, POTENTIAL ALKALI REACTIVITY.
   SEIVE ANALYSIS, CHEMICAL ANALYSIS (CHLORIDES AND SULPHATES), ELONGATION INDEX, FLAKINESS INDEX, ABSORPTION TEST, SOUNDNESS, POTENTIAL ALKALI REACTIVITY. FINE AGGREGATES
- COARSE AGGREGATES
- DISSOLVED SOLID
- REINFORCEMENTE
  - DETAILS OF ADMIXTURE AND ADDITIVES ARE TO BE SUBMITTED ALONG WITH THE PROPOSED MIX DESIGNS.
  - 'T' DENOTES HOT ROLLED DEFORMED HIGH YIELD BOND STEEL REINFORCEMENT, CHARACTERISTIC
- STRENGTH 420 N/mm. sq.
- 3.2. THE FOLLOWING TEST RESULTS FOR EACH BAR DIAMETER AND EACH SOURCE OF SUPPLY, ARE TO BE SUBMITTED FOR APPROVAL.

  - TENSION TESTS ( YIELD AND ULTIMATE ) ELONGATION.
    CROSS SECTIONAL AREA.
    CHEMICAL ANALYSIS.
- BEND AND REBEND TESTS.
- 3.3. CONCRETE COVER TO REINFORCEMENTIS TO BE :

SUB STRUCTURE	SUPER STRUCTURE		
FOUNDATION - 50mm ALL FACES	COLUMNS – 25mm		
TIE BEAMS - 40mm ALL FACES	BEAMS - 25mm TOP & BOTTOM		
COLUMNS - 50mm	SLAB — 25mm TOP & BOTTOM		

REINFORCEMENT LAP LENGTHS ARE TO BE :

50 TIMES DIAMETER OF SMALLER LAPPED BAR REINFORCEMENT. 40 TIMES DIAMETER OF SMALLER LAPPED BAR REINFORCEMENT. TENSION COMPRESSION

300 mm FOR MESH REINFORCEMENT.

OR AS SHOWN ON REINFORCEMENT DRAWINGS.

#### C- GROUND BEARING SLABS :

- BACKFILL IS TO COMPRISED GRANULAR MATERIALS PLACED IN LAYERS 250mm THICK AND COMPACTED TO A MINIMUM OF 95% OF MAXIMUM DRY DENSITY.
- UNLESS SHOWN TO THE CONTRARY ON THE DRAWINGS, THE GROUND BEARING SLABS SHALL BE CAST MONOLITHICLY WITH THE TIE BEAMS AND COLUMN WITH CONTINUITY OF REINFORCEMENT IN THE GROUND FLOOR SLAB.

#### D- CONSTRUCTION JOINTS AND SHRINKAGE STRIPS:

- 1. BACKFILL IS TO COMPRISED GRANULAR MATERIALS PLACED IN LAYERS 250mm THICK AND COMPACTED TO A MINIMUM CONSTRACTION AND SHRINKAGE STRIPS
- SURFACE OF CONCRETE CONSTRUCTION JOINTS SHALL BE CLEANED AND LAITANCE REMOVED.
  IMMEDIATELY BEFORE NEW CONCRETE IS PLACED, ALL CONSTRUCTION JOINTS SHALL BE WETTED AND STANDING WATER REMOVED.
- CONSTRUCTION JOINTS IN FLOOR SHALL BE LOCATED WITHIN THE MIDDLE THIRD OF SPANS OF SLABS, BEAMS AND GIRDERS. JOINTS IN GIRDERS SHALL BE OFFSET A MINIMUM DISTANCE OF TWO TIMES THE WIDTH OF INTERSECTING BEAMS.
- BEAMS, GIRDERS AND HAUNCHES SHALL BE PLACED MONOLITHICALLY AS PART OF A SLAB SYSTEM, UNLESS OTHERWISE SHOWN IN DESIGN DRAWINGS OR SPECIFICATIONS.
- BEAMS, GIRDERS OR SLABS SUPPORTED BY COLUMNS OR WALLS SHALL NOT BE CAST OR ERECTED UNTIL CONCRETE IN VERTICAL SUPPORT MEMBERS IS NO LONGER PLASTIC.

#### E- FOUNDATIONS

- AFTER REACHING THE SUGGESTED FOUNDATION LEVEL. EXPERIENCED GEOTECHNICAL ENGINEER SHOULD BE CONSULTED TO
- INSURE THE SIMILARITY BETWEEN THE RECOMMENDATIONS IN HIS REPORT WITH THE SITE CONDITIONS.

  ALL FOOTING EXCAVATIONS SHALL BE CLEANED OF LOOSE MATERIAL AND WATER.
- ALL FOUNDATION MATERIAL SHALL BE INSPECTED BY THE ENGINEER BEFORE ANY CONCRETE IS PLACED.
- WHERE VERIFIED FOUNDATION MATERIAL IS FOUND LOWER THAN THE UNDERSIDE OF FOUNDATIONS AS DETAILED, BACK FILL THE SPACE BETWEEN FOUNDING MATERIAL AND FOOTING SOFFIT WITH LEAN CONCRETE (f'c = 12 MPA ).
- 5. EXCAVATION , BACK FILLING & FOUNDATION : EXCAVATION , BACK FILLING & FOUNDATION :
  FOUNDATION SHOULD BE BASED ON UNDISTURBED SOIL STRATA . THE FOUNDATIONS DESIGN IS BASED ON THE ALLOWABLE BEARING
  PRESSURE OF (4 Kg/CM²) THE CONTRACTOR IS RESPONSIBLE TO VERIFY OF THE SOIL BEARING PRESSURE CAPACITY BY SPECIALIZED CONSULTANT.
  THE CONTRACTOR IS RESPONSIBLE TO CLEAR THE CONSTRUCTION SITE AND TO REMOVE ALL EXISTING MISCELLANEOUS FILL.
  BOTTOM OF EXCAVATIONS SHOULD BE SMOOTH AND FREE FROM LOOSE EARTH OR CLAY AND SOFT AREAS SHOULD BE COMPACTED TO THE REQUIRED
- DENSITY.
  6. ALL WALLS AND COLUMNS SHALL BE CONCENTRIC WITH SUPPORTING FOUNDATIONS UNLESS OTHERWISE NOTED ON THE DRAWINGS

#### F- CAMBER NOTES:

UNLESS OTHERWISE INDICATED, PROVIDE MINIMUM CAMBER FOR BEAMS WITH SPAN IN EXCESS OF 8.0 m AS FOLLOWS: CONTINUOUS BEAM - 1.5 mm PER m OF SPAN (i.e. A 10m SPAN BEAM WILL HAVE 15 mm CAMBER AT MIDSPAN). SIMPLE BEAM - 2.0 mm PER m OF SPAN AT MIDSPAN.

#### G- GENERAL REQUIREMENT OF CONCRETE :

NO	TESTS	TEST METHOD	SPECIFICATION LIMIT
1	TEMPERATURE ( AT PLACEMENT )	ASTM 1064	30° C MAX.
2	SLUMP mm ( AT PLACEMENT )	BS 1881; PART 102	FOR ALL GRADES : 150 ± 25 mm
3	WATER PERMEABILITY	DIN 1048	10mm MAX.
4	RAPID CHLORIDE PENETRATION ( RCP )	ASTM C1202	1000 coul. MAX.
5	WATER ABSORPTION	BS 1881; PART 122	1.5% coul. MAX.
6	CHLORIDES BY WEIGHT OF CEMENTATIONS MATERIAL	BS 1881; PART 124	15% coul. MAX.
7	SULPHATES ( 503 ) BY WEIGHT OF CEMENTATIONS MATERIAL	BS 1881; PART 124	4.0% coul. MAX.

#### H- CONCRETE:

1. CONCRETE STRENGTH AND QUALITY:

CONCRETE STRENGTH CYLINDER 150X300MM (Kg/cm²)		CONCRETE CLASSIFICATION ACCORDING TO ACI-318 CODE FOR REINFORCED CONCRETE	TYPE OF STRUCTURE ELEMENT
	300	C30	COLUMNS
	250	C25	REINFORCED CONCRETE STAIRS
	250	C25	REINFORCED CONCRETE SLABS AND BEAMS
	250	C25	FOUNDATION
	120	C12	PLAIN CONCRETE

- 2. CONCRETE SHOULD BE CONSOLIDATED BY VIBRATION. CURE ALL CONCRETE SURFACES AS DIRECTED BY THE SPECIFICATION
- 3. SIZES OF CONCRETE ELEMENTS DO NOT INCLUDE THICKNESS OF APPLIED FINISHES.
- 4. BEAM DEPTHS INCLUDE SLAB THICKNESS WHERE SLAB IS PLACED INTEGRALLY WITH THE BEAM.

#### I— REINFORCEMENT

1. STEEL SHALL BE DEFORMED BARS (FY=400 Mpa.),

#### Notes

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This drawing is to be read in conjunction with all other relevant

Legend:

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			4	_
			- 1	~

150 Apartments Buildings

Drawing

**General Notes** 

Location:

Format

Mosul

SN: Scale: ST-001

Date Description

16-12-20°

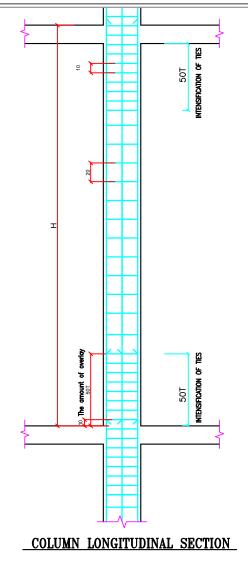
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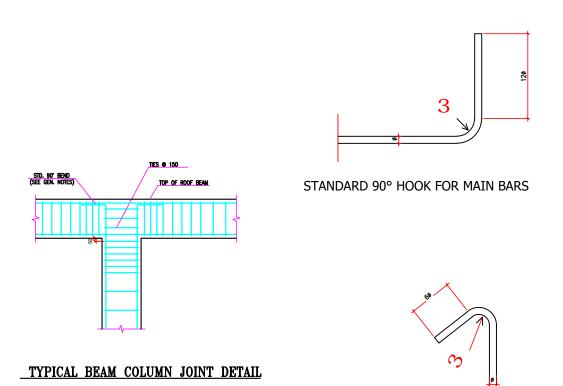
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R.Almasri

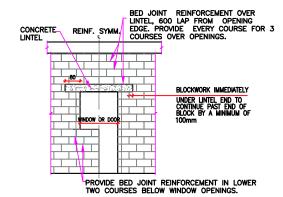
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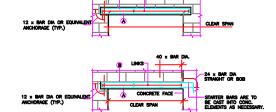




STANDARD 135° HOOK FOR STIRRUPS AND COLUMN TIES



## TYPICAL BLOCKWORK DETAIL AT WINDOW OR DOOR OPENING SCALE 1:50



TYPICAL STANDARD LINTELS (NON LOAD BEARING BLOCK WALLS)
SCALE 1:25

## SCHEDULE OF INSITU LINTELS UNO.

SIZE BXD	MAX SPAN	REINFOR A (BOT.)		LINKS	DETAILS
100X200	1500	1ø14	1ø14	ø8/150	
100X300	3000	1ø18	1ø18	ø8/150	
150X200	1500	1ø16	1ø16	ø8/150	
150X300	3000	1ø20	1ø20	ø8/150	
200X200	2000	2ø12	2ø12	ø8/150	
200X300	3000	2ø18	2ø18	ø8/150	
300X300	3000	3ø16	3ø16	ø8/150	

### NOTES:

- 1. BEARING ON BLOCK WALL ON EITHER SIDE OF OPENING SHALL BE AT LEAST EQUAL TO THE OVERALL DEPTH OF THE LINTEL.
- 2. OVERALL LINTEL DEPTHS COULD BE INCREASED TO SUIT BLOCKWORK COURSING

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Legend:

Project:

150 Apartments Buildings

Drawing:

**General Details** 

Location:

Mosul

SN: Scale: ST-002

Format

Date Description 16-12-2018

Arch: M.Abudib

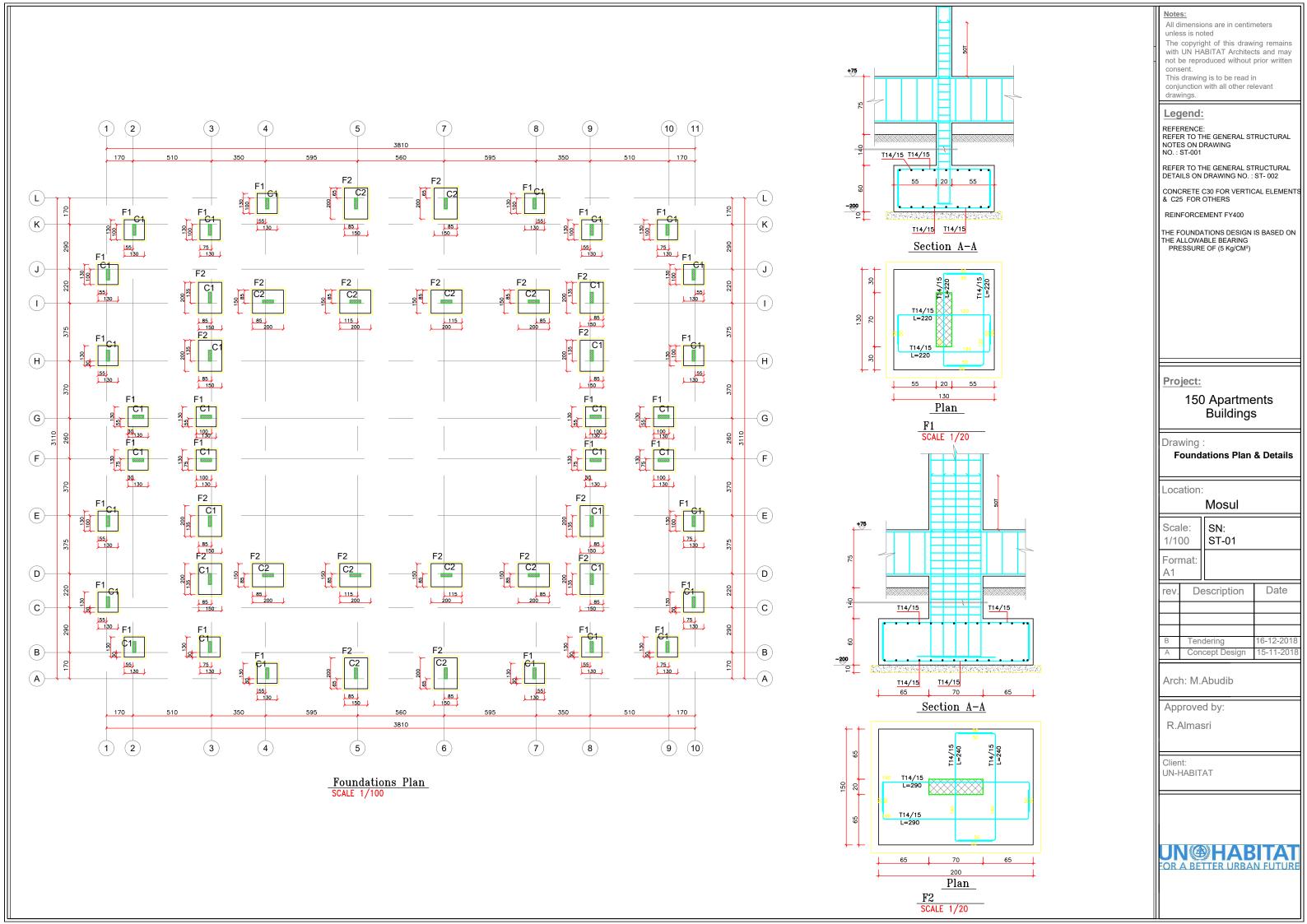
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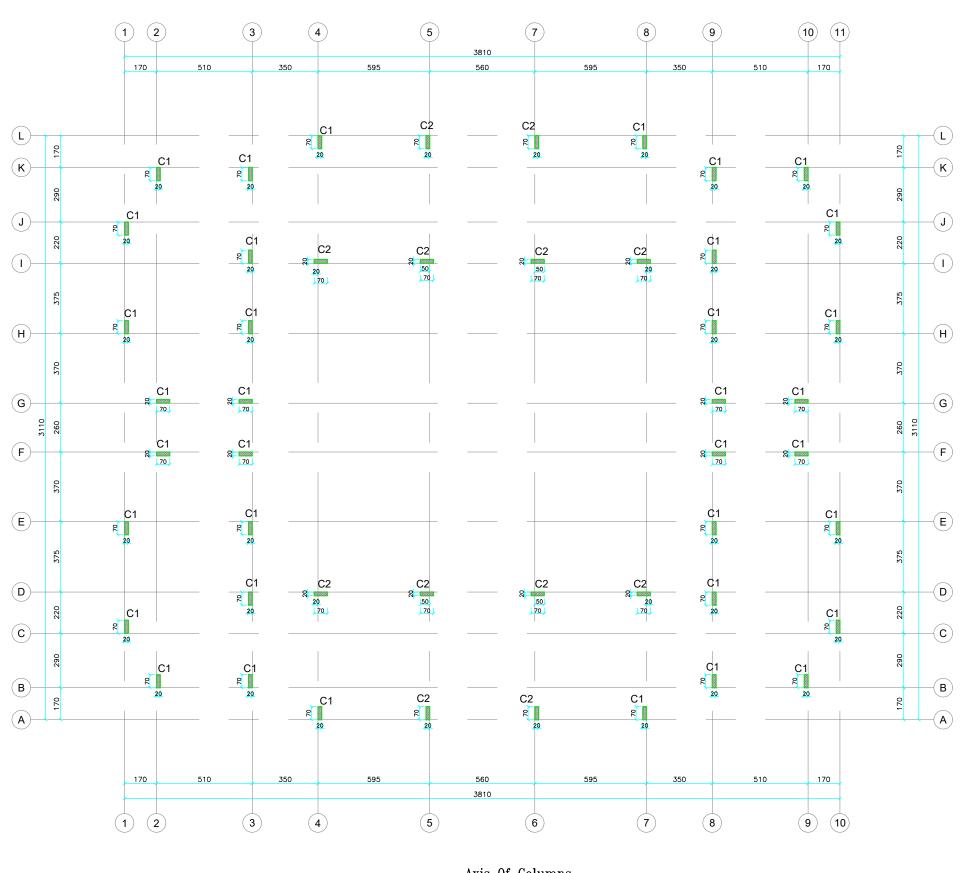
R.Almasri

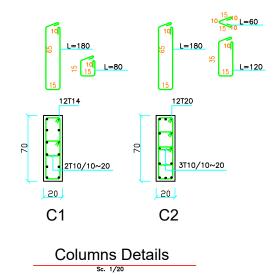
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REFER TO THE GENERAL STRUCTURAL NOTES ON DRAWING NO. : ST-001

REFER TO THE GENERAL STRUCTURAL DETAILS ON DRAWING NO.: ST- 002

CONCRETE C30 FOR VERTICAL ELEMENTS & C25 FOR OTHERS

REINFORCEMENT FY400

Project:

Right Side Mosul Buildings

**Axis Of Columns & Details** 

Location:

Mosul

Scale: SN: 1/100 ST-02

Format:

Date Description Tendering

Arch: M.Abudib

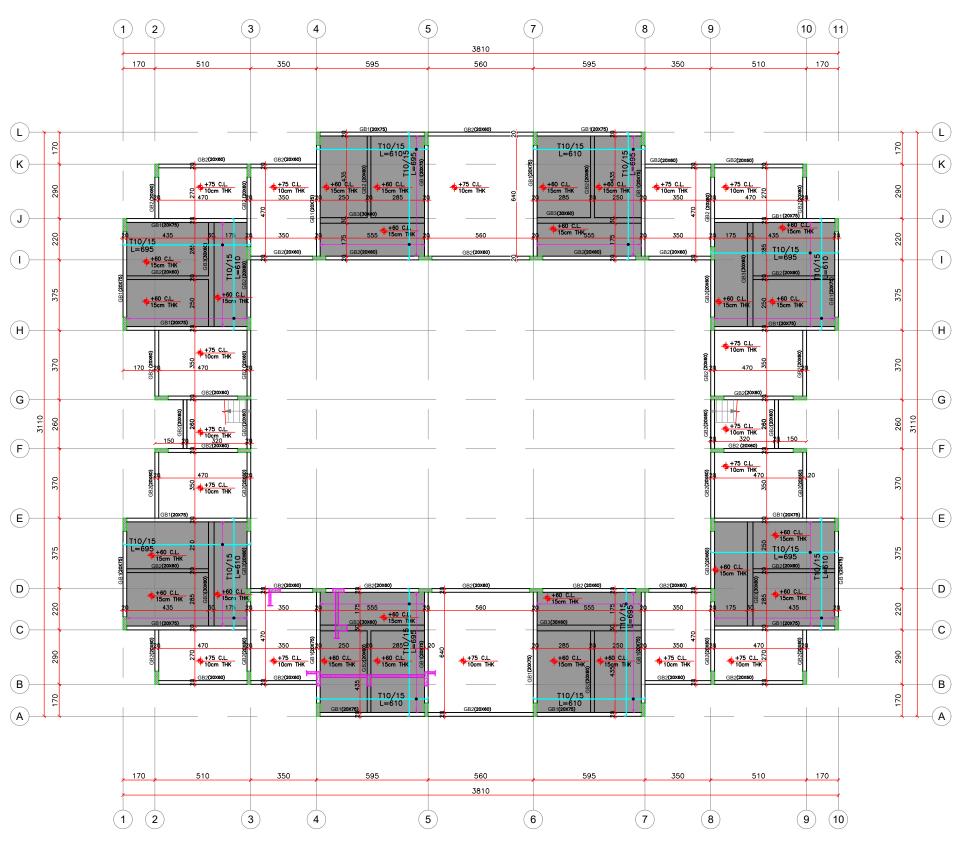
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R.Almasri

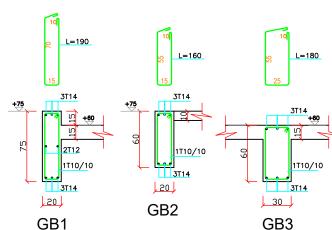
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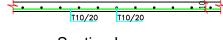
Axis Of Columns SCALE 1/100



Ground Beams & Slab On Grade SCALE 1/100



**Ground Beams Sections** 



Section In Slab On Grade Sc. 1/20

Notes:

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unless is noted

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Legend:

REFER TO THE GENERAL STRUCTURAL NOTES ON DRAWING NO. : ST-001

REFER TO THE GENERAL STRUCTURAL DETAILS ON DRAWING NO.: ST- 002

CONCRETE C30 FOR VERTICAL ELEMENTS & C25 FOR OTHERS

REINFORCEMENT FY400

Project:

150 Apartments Buildings

Drawing:

Ground Beams , Slab On Grade & Details

Location:

Mosul

Scale: SN: 1/100 ST-03

Format

Date Description Tendering Concept Design

Arch: M.Abudib

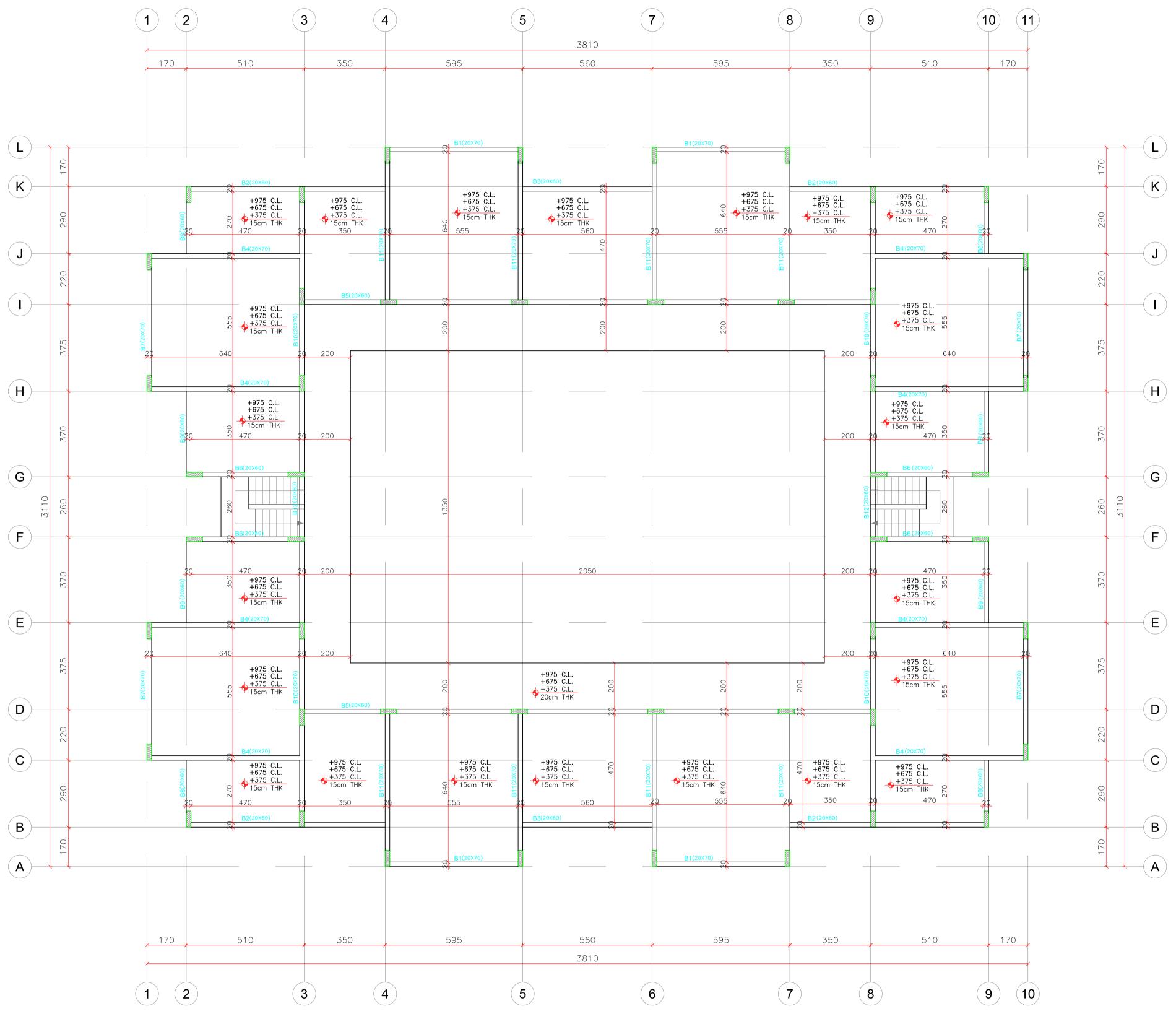
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Client:

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Ground, First & Second Framing Plan
SCALE 1/100

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Legend:

REFERENCE:
REFER TO THE GENERAL STRUCTURAL
NOTES ON DRAWING
NO.: ST-001

REFER TO THE GENERAL STRUCTURAL DETAILS ON DRAWING NO.: ST- 002

CONCRETE C30 FOR VERTICAL ELEMENTS & C25 FOR OTHERS

REINFORCEMENT FY400

**Project:** 

150 Apartments Buildings

Drawing:

Ground , First & Second Framing Plan

Location:

Mosul

SN:

ST-04

Format:

Scale:

1/100

ev. Description Date

A Concept Design 15-11-2018

Arch: M.Abudib

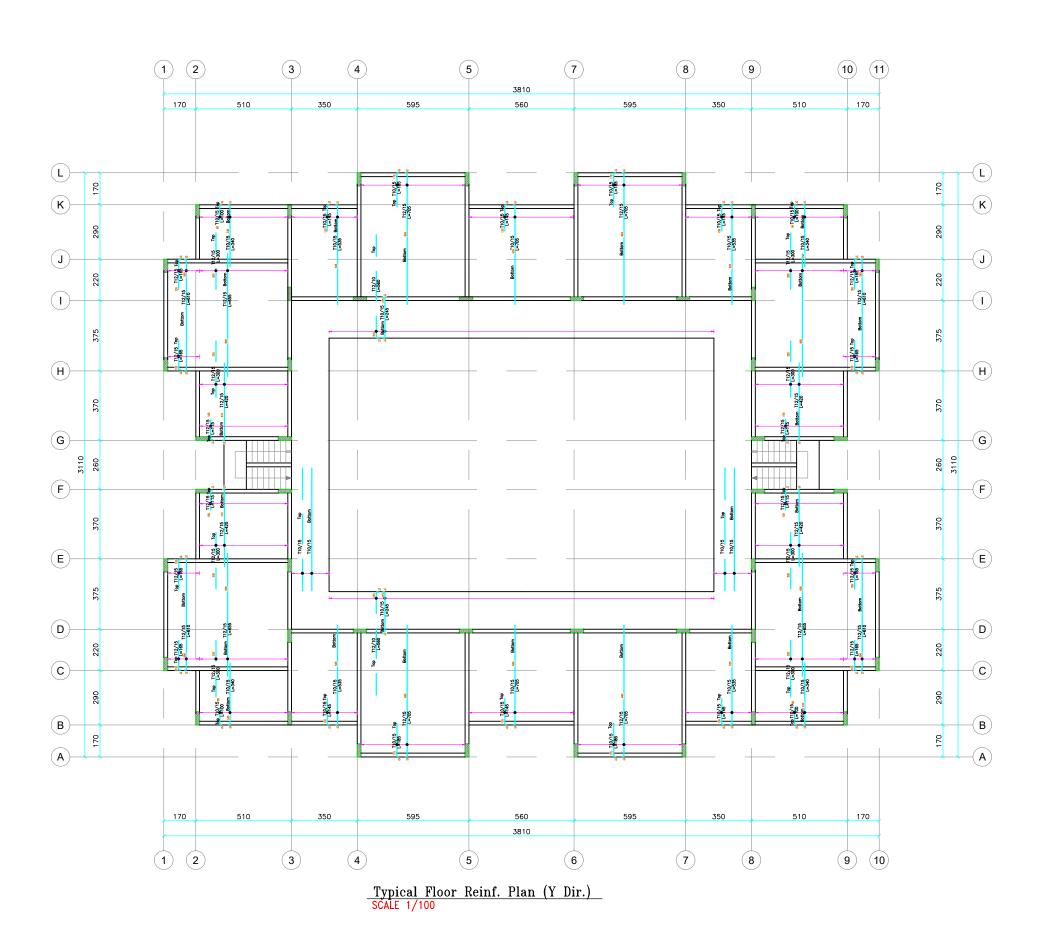
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Client:

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#### Legend:

REFERENCE: REFER TO THE GENERAL STRUCTURAL NOTES ON DRAWING NO.: ST-001

REFER TO THE GENERAL STRUCTURAL DETAILS ON DRAWING NO. : ST- 002

CONCRETE C30 FOR VERTICAL ELEMENTS & C25 FOR OTHERS

REINFORCEMENT FY400

TOP REINFORCEMENT BOTTOM REINFORCEMENT

Project:

150 Apartments Buildings

Drawing

Ground , First & Second Floor Reinf. Plan (Y Dir.)

Location:

Mosul

Scale: SN: 1/100 ST-06 Format:

> Date Description 6-12-2018 Tendering

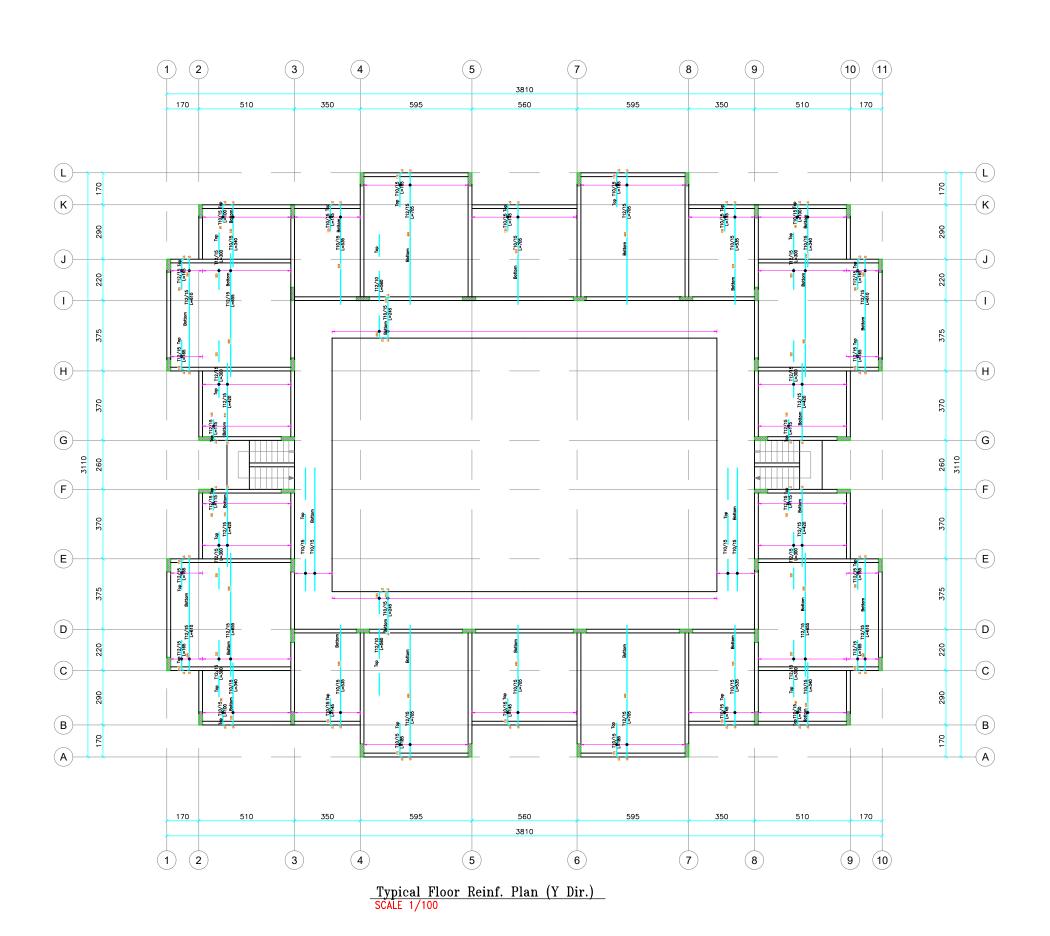
Arch: M.Abudib

Approved by:

R.Almasri

Client: **UN-HABITAT** 

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#### Legend:

REFERENCE: REFER TO THE GENERAL STRUCTURAL NOTES ON DRAWING NO.: ST-001

REFER TO THE GENERAL STRUCTURAL DETAILS ON DRAWING NO. : ST- 002

CONCRETE C30 FOR VERTICAL ELEMENTS & C25 FOR OTHERS

REINFORCEMENT FY400

TOP REINFORCEMENT BOTTOM REINFORCEMENT

Project:

150 Apartments Buildings

Drawing

Ground , First & Second Floor Reinf. Plan (Y Dir.)

Location:

Mosul

Scale: SN: 1/100 ST-06 Format:

Description

6-12-2018 Tendering

Date

Arch: M.Abudib

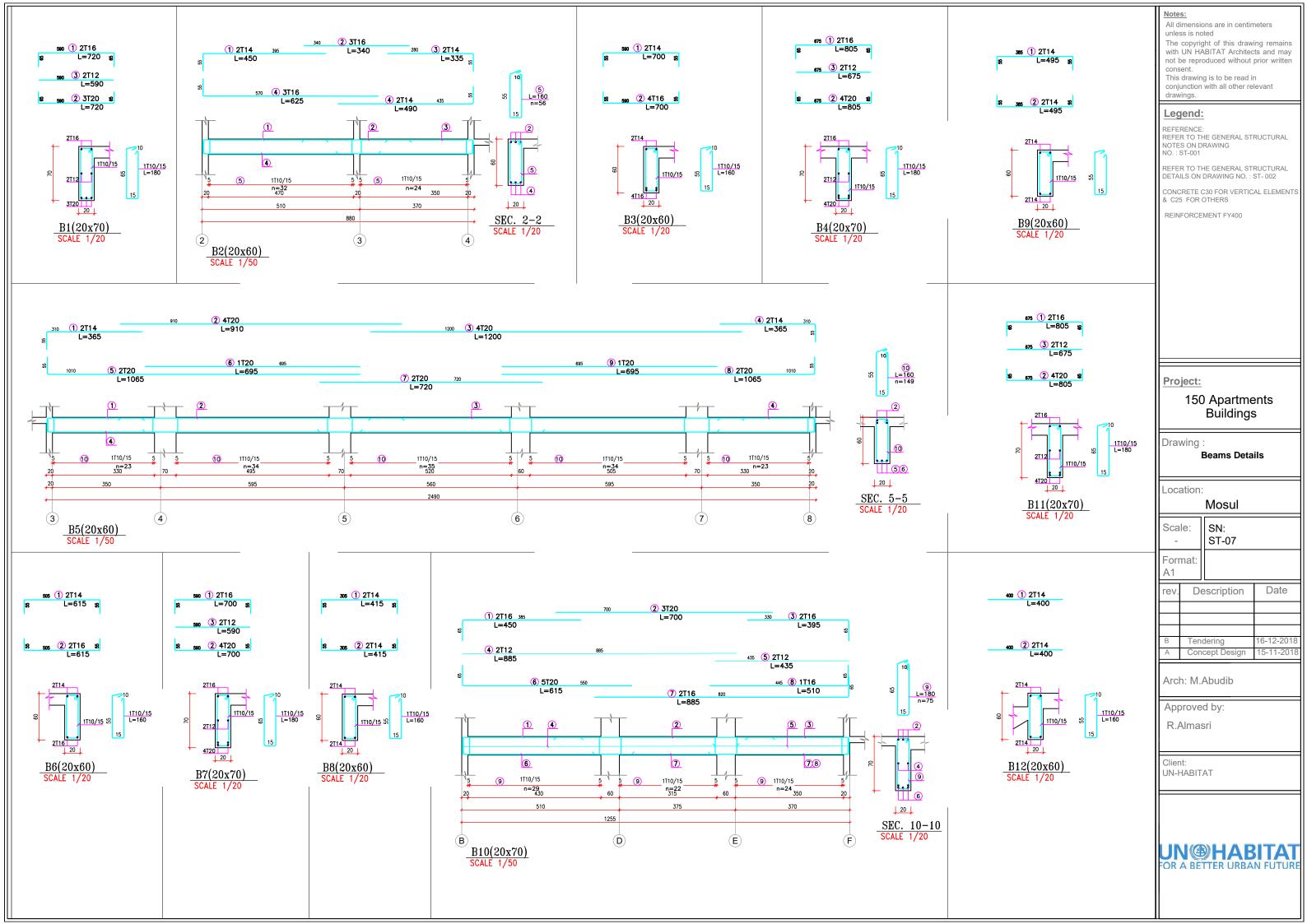
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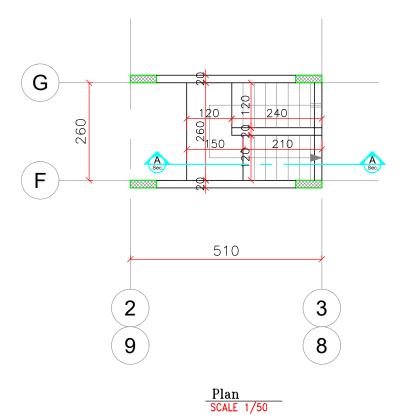
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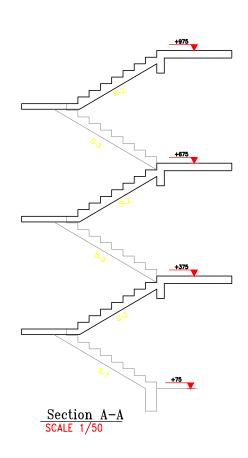
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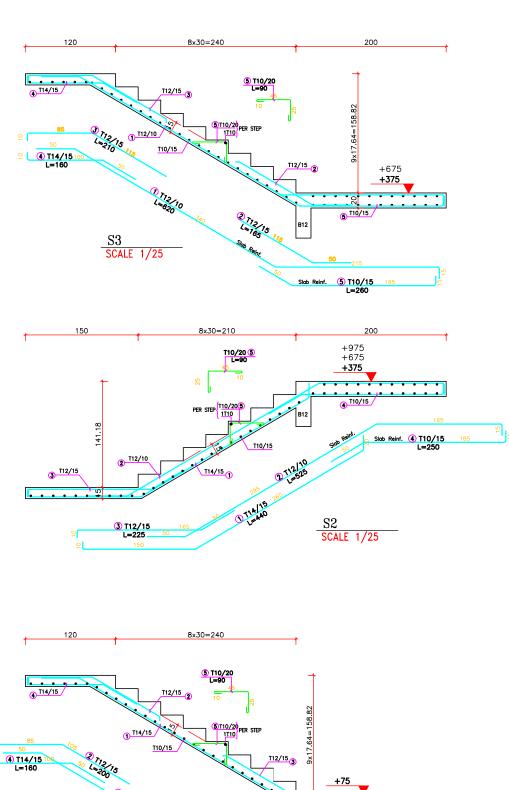
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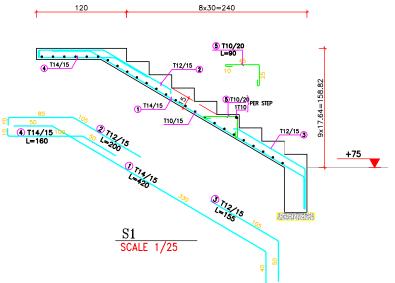












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unless is noted

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Legend:

REFERENCE: REFER TO THE GENERAL STRUCTURAL NOTES ON DRAWING NO.: ST-001

REFER TO THE GENERAL STRUCTURAL DETAILS ON DRAWING NO.: ST- 002

CONCRETE C30 FOR VERTICAL ELEMENTS & C25 FOR OTHERS

REINFORCEMENT FY400

Project:

150 Apartments Buildings

Drawing:

Stair Details

Location:

Mosul

Scale: SN: ST-08 Format:

Date Description 6-12-2018 Tendering

Arch: M.Abudib

Approved by:

R.Almasri

Client: UN-HABITAT



**Architectural Drawings** 



