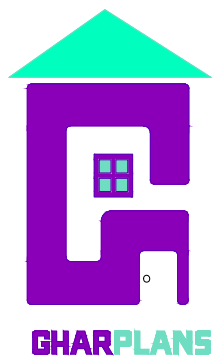


PROJECT:

STRUCTURAL DESIGN OF RESIDENTIAL
UNIT IN SHEIKHUPURA

CONSULTING ARCHITECT:



GHAR PLANS, 469 BLOCK G1
JOHAR TOWN, LAHORE PUNJAB
WWW.GHARPLANS.PK

1. GENERAL

- 1- READ ALL DRAWINGS IN CONJUNCTION WITH ARCHITECTURAL, PLUMBING/SEWERGE, MECHANICAL, ELECTRICAL AND ALL OTHER RELEVANT DRAWING.
- 2- NOTES GIVEN IN THIS DRAWING ARE APPLICABLE TO ALL DRAWINGS UNLESS MENTIONED OTHERWISE. NOTES WRITTEN ON A DRAWING, SHALL BE APPLICABLE TO THAT PARTICULAR DRAWING ONLY UNLESS OTHERWISE CROSS-REFERRED.
- 3- ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE SPECIFICATIONS OF THE CONTRACT DOCUMENTS. IN ABSENCE OF ANY SPECIFICATIONS, ALL MATERIALS & WORKMANSHIP SHALL CONFORM TO RELEVANT ACI, BRITISH OR PAKISTANI CODES & STANDARDS AND SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER.
- 4- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF THE STRUCTURES DURING CONSTRUCTION. HE SHALL ALSO VERIFY ALL DIMENSIONS AND LEVELS BEFORE EXECUTION OF WORK. ANY DISCREPANCY, ERROR OR OMISSION, IF FOUND, SHALL BE BROUGHT TO THE NOTICE OF THE ENGINEER FOR CORRECTION AND APPROVAL.
- 5- THE CONTRACTOR SHALL COORDINATE WITH ARCHITECTURAL AND VARIOUS SERVICES DRAWINGS FOR SIZES & LOCATION OF ALL STRUCTURAL MEMBERS, FLOORS, WALLS, OPENINGS, PIPES ETC.
- 6- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE EXECUTION OF DEWATERING SYSTEM WHERE SO REQUIRED DURING CONSTRUCTION.
- 7- ALL LEVELS AND DIMENSIONS ARE IN FEET & INCHES UNLESS OTHERWISE NOTED.
- 8- DO NOT SCALE THE DRAWINGS. DIMENSIONS, GIVEN ON THE DRAWING, SHALL GOVERN.
- 9- BACK FILLING AROUND FOUNDATION & WALLS SHOULD BE DONE SIMULTANEOUSLY ON BOTH SIDES TO AVOID ANY LATERAL DISPLACEMENT. BACK FILLING UNDER FLOORS AND AROUND FOUNDATIONS SHALL BE DONE IN LAYERS NOT EXCEEDING 6 in. IN THICKNESS AND COMPACTED UPTO 95% MPD.

2. FOUNDATIONS

- 1- THE DESIGN OF FOUNDATION IS BASED ON AN ALLOWABLE BEARING CAPACITY OF 1.0 TON/SQ.FT.
- 2- ALL FOUNDATIONS SHALL BE PLACED ON COMPETENT BEARING STRATA. IF ACCEPTABLE BEARING STRATA IS NOT FOUND AT INDICATED DEPTHS OF FOUNDATION, THE ENGINEER SHALL BE NOTIFIED IN WRITING FOR HIS INSTRUCTION. ALL FOUNDATIONS THAT MAY LIE IN THE FILL AREA SHOULD BE SUPPORTED ON THE NATURAL SOIL.
- 3- THE BED OF FOUNDATION SHOULD BE THOROUGHLY COMPACTED PRIOR TO LAYING FOUNDATION. ANY LOOSE, WET, SOFT SOIL PATCH SHOULD BE REPLACED WITH WELL-COMPACTED SELECTED GRANULAR FILL COMPACTED TO 95% MODIFIED AASHTO DENSITY.
- 4- THE FOUNDATION BED SOIL SHOULD BE PROTECTED FROM INGRESS OF MOISTURE FROM ANY SOURCE BY PROVIDING ADEQUATE SURFACE DRAINAGE SYSTEM AND ENSURING LEAK PROOF JOINTING OF SEWERAGE AND WATER SUPPLY LINES. EXCESSIVE AND UNCONTROLLED WATERING FOR CURING AND COMPACTION OF BACK FILL MATERIAL SHOULD BE AVOIDED.

3. CONCRETE

3.1 STRENGTH

- 1- STRUCTURAL DESIGN IS BASED ON THE AMERICAN CONCRETE INSTITUTE CODE OF REINFORCED CONCRETE, ACI 318 AND UNIFORM BUILDING CODE.
- 2- ALL STRUCTURAL CONCRETE SHALL CONFORM TO AMERICAN CONCRETE INSTITUTE (ACI) REQUIREMENTS.
- 3- THE MINIMUM COMPRESSIVE CYLINDER STRENGTH AT 28 DAYS FOR VARIOUS STRUCTURES SHALL BE AS GIVEN IN THE FOLLOWING TABLE.

STRUCTURE/STRUCTURAL ELEMENT	MINIMUM COMPRESSIVE CYLINDER STRENGTH AT 28 DAYS Psi
BLINDING CONCRETE	1500
BEAMS, LINTELS, COLUMNS, COL. FOUNDATION & SLABS	3000

3.2 MIX DESIGN

THE MIX DESIGNS FOR THE SPECIFIED GRADES OF CONCRETE MEETING ALL REQUIREMENTS OF STRENGTH, WORKABILITY AND DURABILITY, SHALL BE CARRIED OUT BY THE CONTRACTOR AND SUBMITTED FOR THE APPROVAL OF THE ENGINEER. CHEMICAL ADDITIVES AS RETARDERS/SUPER PLATICIZER MAY BE USED SUBJECT TO THEIR APPROVAL BY THE ENGINEER.

3.3 AGGREGATE SIZE

MAXIMUM AGGREGATE SIZE SHALL BE AS FOLLOWS UNLESS OTHERWISE APPROVED BY THE ENGINEER.

STRUCTURAL ELEMENT	MAX. AGGREGATE SIZE (Inch)
FOUNDATION AND FOOTINGS MORE THAN 3.0 FT.	2"
UP TO 3.0 FT.	1½"
BEAMS, LINTELS, COLUMNS & SLABS	3/4"

3.4 CONSTRUCTION JOINTS

- 1- GENERALLY, THE CONSTRUCTION JOINTS AS INDICATED ON THE DRAWINGS WILL BE FOLLOWED. HOWEVER THE CONTRACTOR MAY USE AN ALTERNATE CONSTRUCTION JOINTS ARRANGEMENT TO SUIT HIS REQUIREMENTS, WITH PRIOR APPROVAL OF THE ENGINEER. FOR THIS PURPOSE, THE CONTRACTOR SHALL HAVE TO SUBMIT HIS PROPOSAL FOR THE APPROVAL OF THE ENGINEER ONE WEEK IN ADVANCE OF HIS SCHEDULED CONCRETE POURING DATE.
- 2- SURFACE OF CONCRETE CONSTRUCTION JOINTS SHALL BE ROUGHENED, CLEANED AND LAITANCE REMOVED.

3.5 EMBEDDED ITEMS

BEFORE PLACING CONCRETE, IT SHALL BE ENSURED THAT ALL EMBEDDED ITEMS ARE IN POSITION AND SECURELY FASTENED/WELDED IN PLACE. EMBEDDED ITEMS SHALL BE FREE OF OIL AND OTHER FOREIGN MATTER SUCH AS LOOSE COATING OF RUST.

3.6 CHAMFER

CHAMFER ALL THE EDGES OF PERMANENTLY EXPOSED CONCRETE CORNERS WITH A 45° BEVEL OF 3/4"x3/4" UNLESS OTHERWISE NOTED ON DRAWINGS.

3.7 FINISHES

FINISHES OF CONCRETE SURFACES SHALL BE AS PER SPECIFICATIONS AND ARCHITECT'S REQUIRMENT.

REINFORCING STEEL

ALL REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO THE LATEST ASTM A615 GRADE 60 HAVING A MINIMUM YIELD STRENGTH OF 60,000 PSI.

4.1 CONCRETE PROTECTION TO REINFORCEMENT

MINIMUM CLEAR CONCRETE COVER TO REINFORCEMENT SHALL BE AS FOLLOWS, UNLESS OTHERWISE SPECIFIED ON THE DRAWINGS.

STRUCTURAL ELEMENT	COVER (inch)
1- FOUNDATION, FOOTINGS, ETC.	2"
2- BEAMS, LINTELS, COLUMNS, ETC.	1½"
3- SLABS	3/4"

4.2 DETAILING OF REINFORCEMENT

ADDITIONAL BARS EQUAL TO 1/2 REINFORCING BARS AREA, INTERRUPTED BY OPENING, SHALL BE PROVIDED AT EACH SIDE OF OPENING AND SHALL EXTEND EQUAL TO SPLICE LENGTH (3'-0" MIN.) BEYOND OPENING. MIN. 2-#5 BARS ON EACH SIDE AND FACE SHALL BE USED. FOR OPENINGS LESS THAN 12"x12", OFFSET THE REINFORCEMENT TO CLEAR OPENING AND NO ADDITIONAL REINFORCEMENT SHALL BE PROVIDED.

A. ACCESSORIES

BAR SUPPORTS, SPACERS AND OTHER ACCESSORIES ARE NOT SHOWN ON THE DRAWINGS. THE RECOMMENDATIONS OF ACI-315 OR OTHER SUPPORTING SYSTEM AS APPROVED BY THE ENGINEER MAY BE USED.

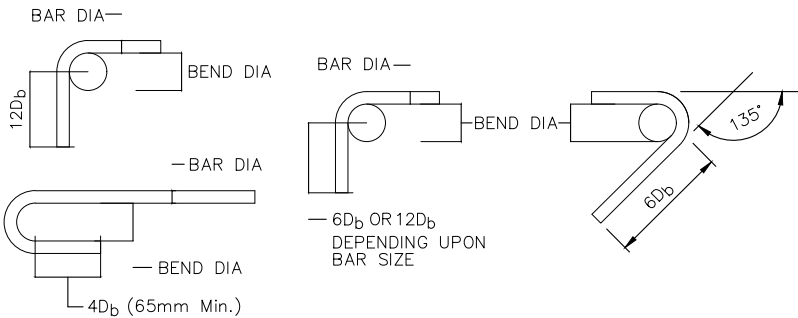
B. STANDARD REINFORCEMENT DETAILS

a) MINIMUM BEND DIAMETERS

THE BEND DETAILS SHALL BE AS SHOWN IN THE TABLE AND FIGURES BELOW.

TABLE (1) - MINIMUM DIAMETER OF BEND

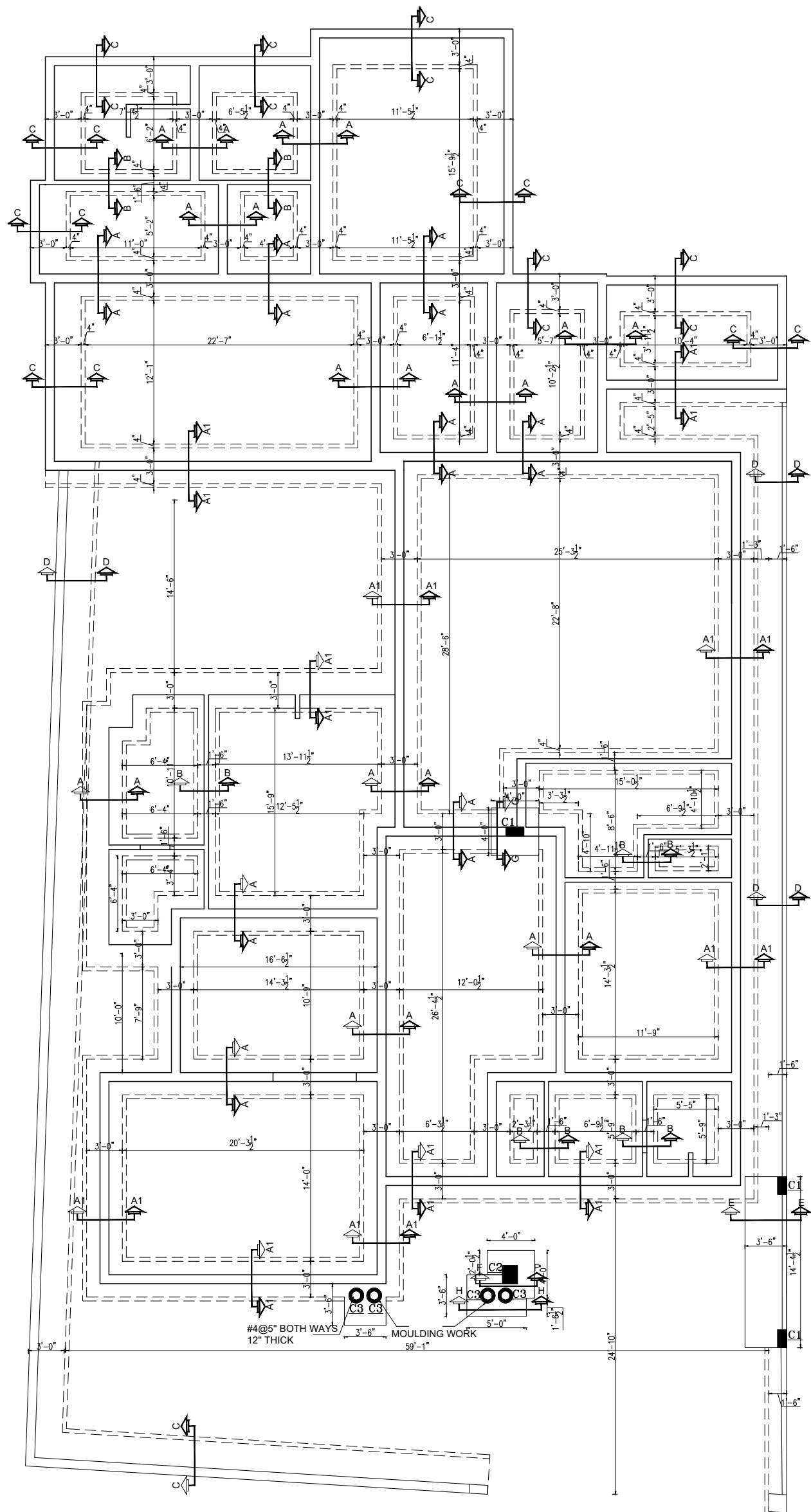
BAR SIZE	MINIMUM DIAMETER OF BEND
#3 Through #5	4Db
#6 Through #8	6Db
#9, #10 and #11	8Db



STANDARD HOOKS FOR REINFORCEMENT OTHER THAN STIRRUPS, TIES & HOOPS STANDARD HOOKS FOR STIRRUPS TIES AND HOOPS

IF THE DRAWINGS ARE NOT FOLLOWED THE CONSULTANT WILL BE RELIEVED OF HIS RESPONSIBILITIES

			FOR REVIEW		
		ARCHITECTURAL CONSULTANT:	DESIGNED BY:	DRAWING NO.:	
		 469 BLOCK G 1 JOHAR TOWN LAHORE, PUNJAB, 54000 WWW.GHARPLANS.PK	ENG. A. QADRI	S-01	
			DRAWN BY:	REVISION:	
			M. SIMON	0	
		PROJECT/CLIENT:		APPROVED BY:	DATE:
		STRUCTURAL DESIGN OF RESIDENTIAL UNIT IN SHEIKHUPURA		ENG. A. QADRI	14-10-2022
DRAWING TITLE:		SCALE:	SHEET:		
GENERAL NOTES FOR STRUCTURE DETAILS		NTS	A3		



FOUNDATION LAYOUT PLAN

		FOR REVIEW	
		DESIGNED BY:	DRAWING NO.:
		ENG. A. QADRI	S-02
		DRAWN BY:	REVISION:
		M. SIMON	0
		APPROVED BY:	DATE:
		ENG. A. QADRI	14-10-2022
		SCALE:	SHEET:
		NTS	A3

ARCHITECTURAL CONSULTANT:



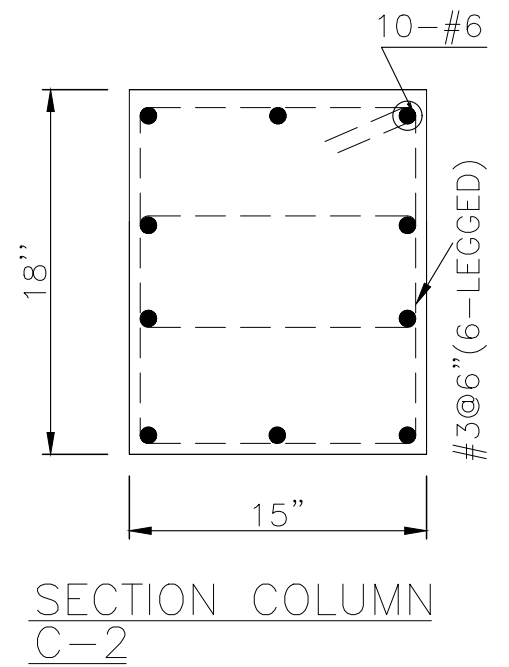
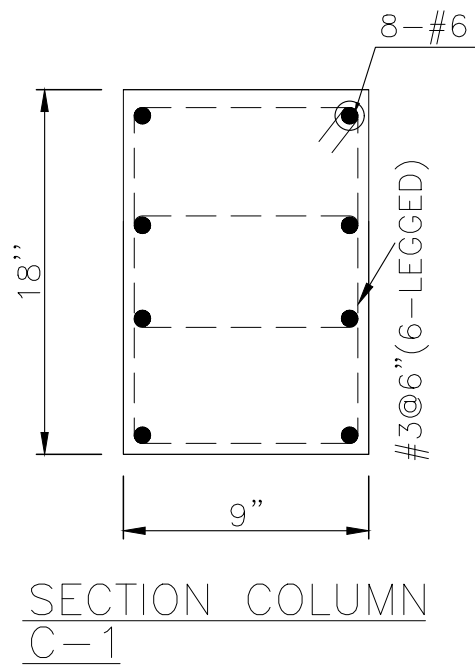
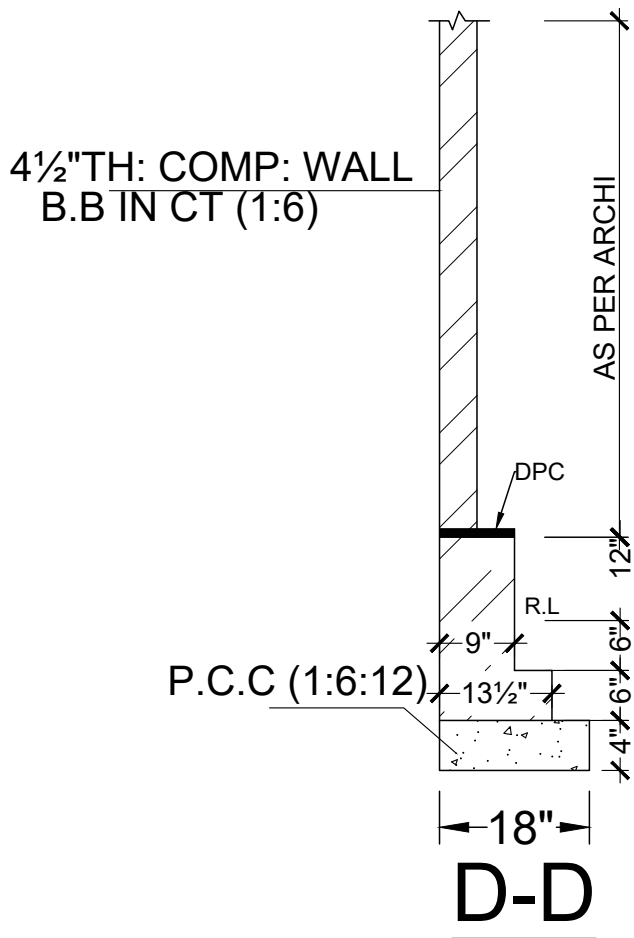
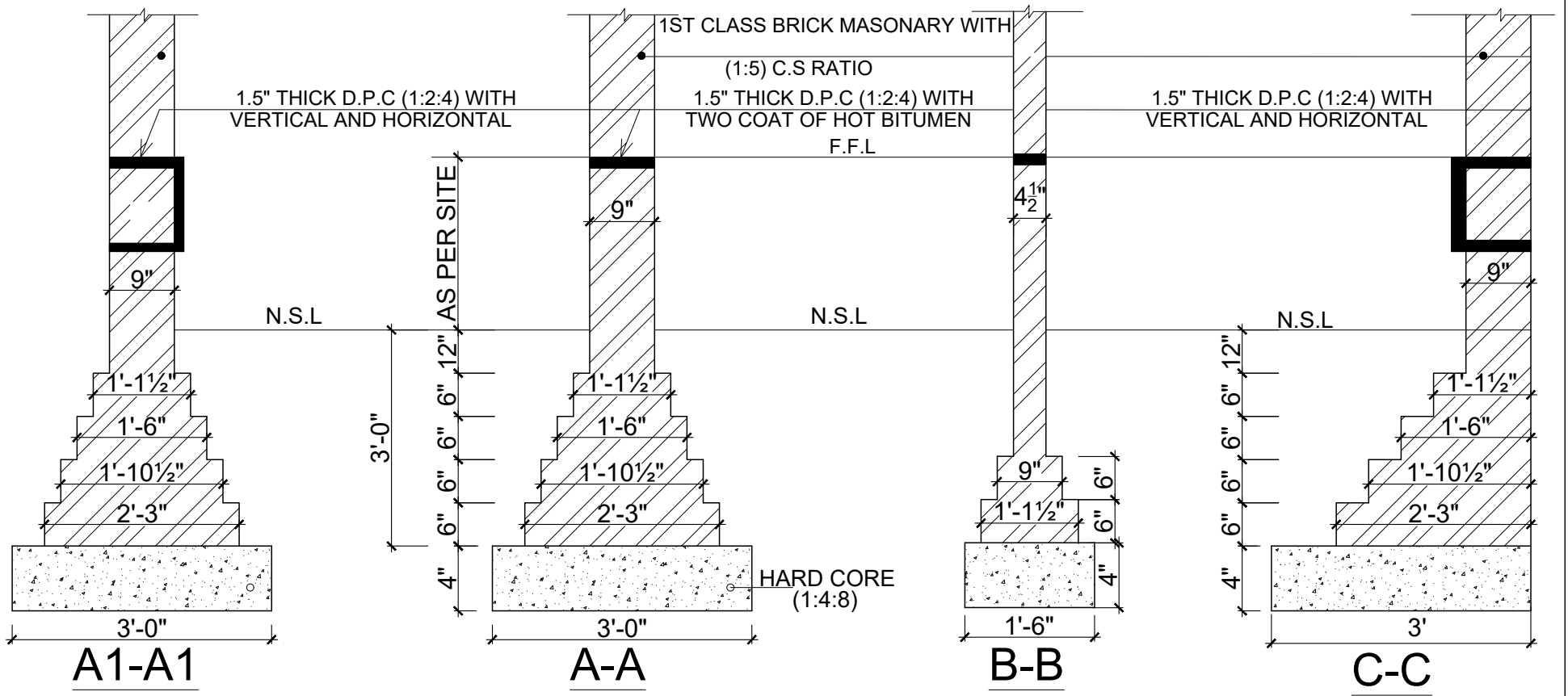
469 BLOCK G 1 JOHAR
TOWN LAHORE, PUNJAB,
54000
WWW.GHARPLANS.PK

PROJECT/CLIENT:

STRUCTURAL DESIGN OF RESIDENTIAL UNIT
IN SHEIKHUPURA

DRAWING TITLE:

FOUNDATION LAYOUT PLAN
DETAILS



ARCHITECTURAL CONSULTANT:



469 BLOCK G 1 JOHAR
TOWN LAHORE, PUNJAB,
54000
WWW.GHARPLANS.PK

PROJECT/CLIENT:

STRUCTURAL DESIGN OF RESIDENTIAL UNIT
IN SHEIKHUPURA

DRAWING TITLE:

FOUNDATION SECTION
DETAILS

DESIGNED BY:

ENG. A. QADRI

DRAWN BY:

M. SIMON

APPROVED BY:

ENG. A. QADRI

SCALE:

NTS

FOR REVIEW

DRAWING NO.:

S-03

REVISION:

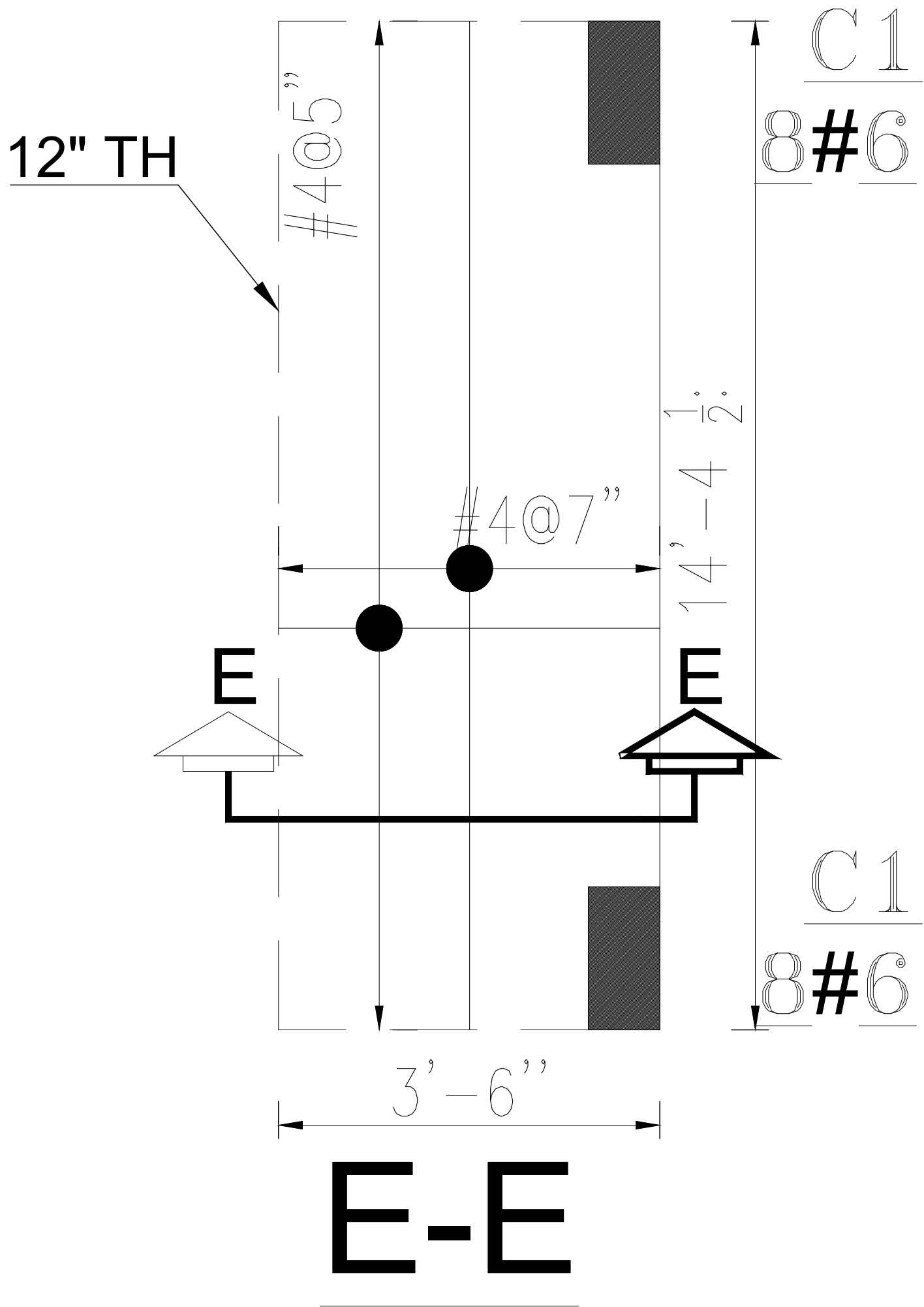
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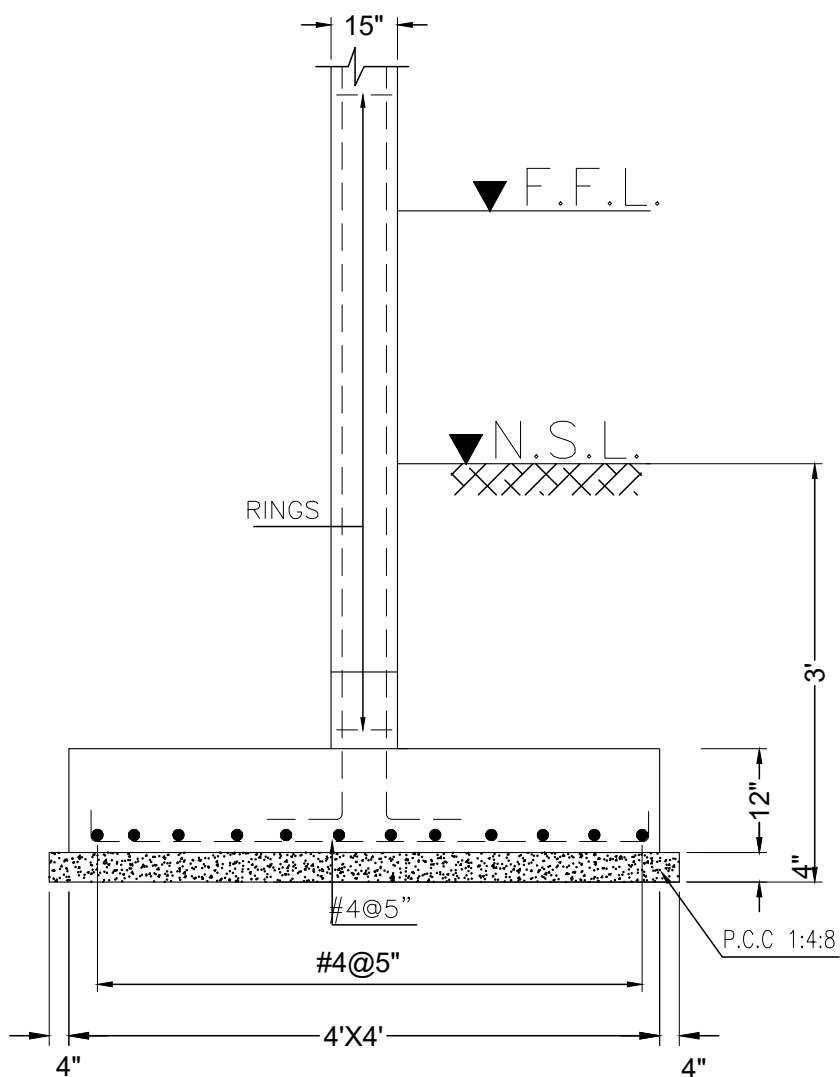
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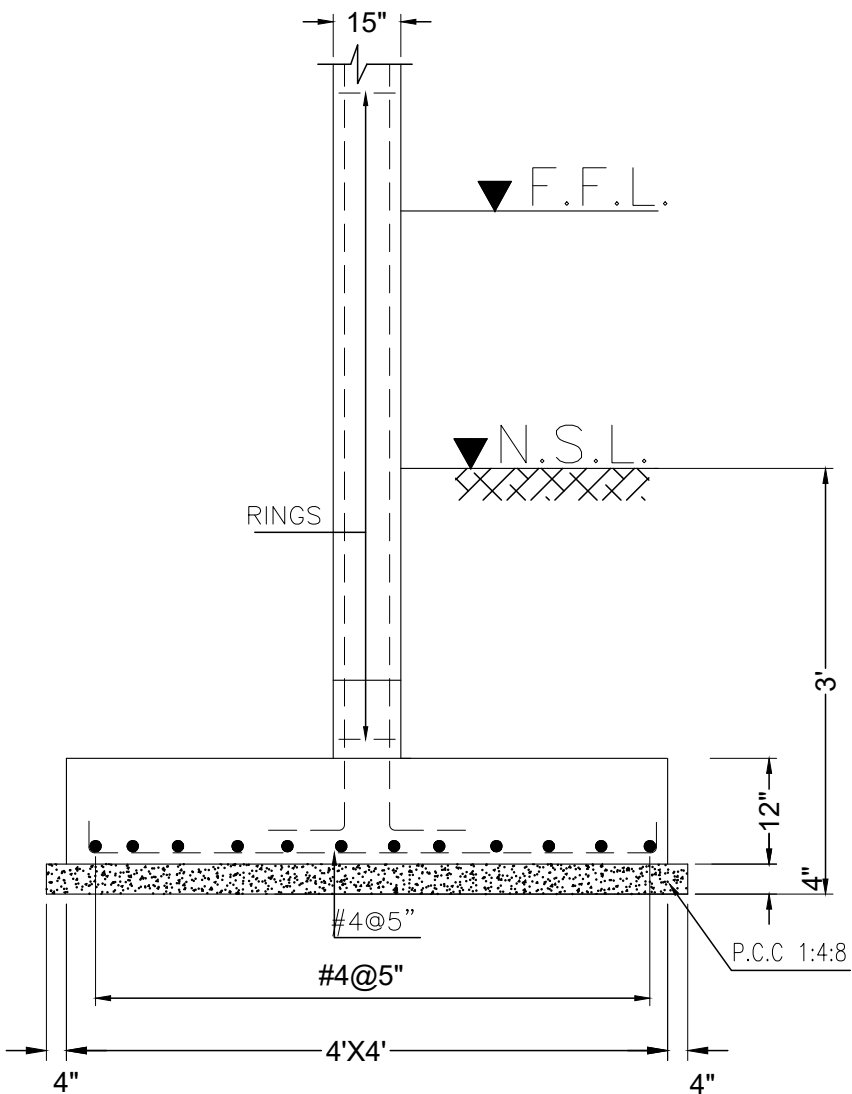
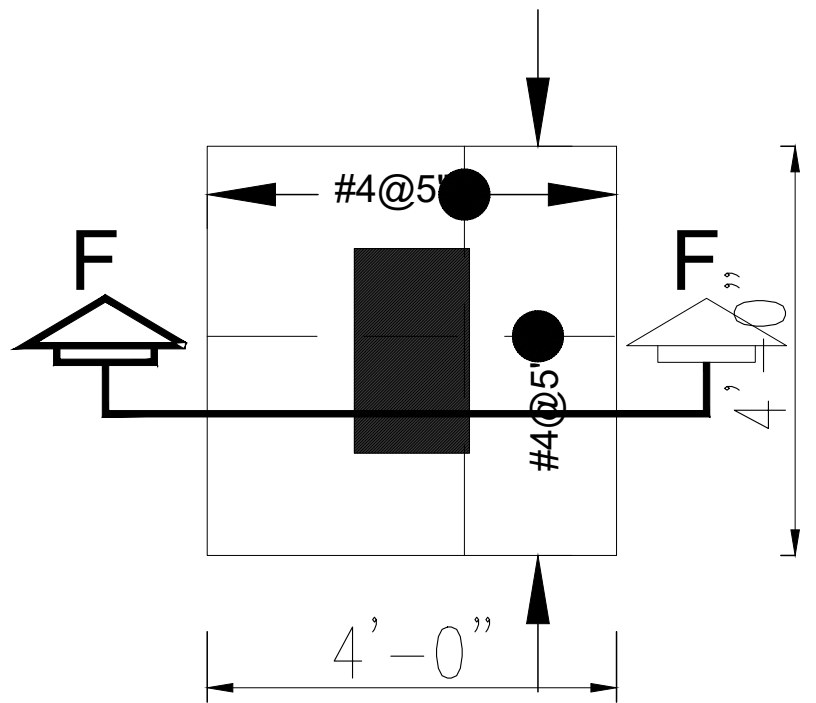
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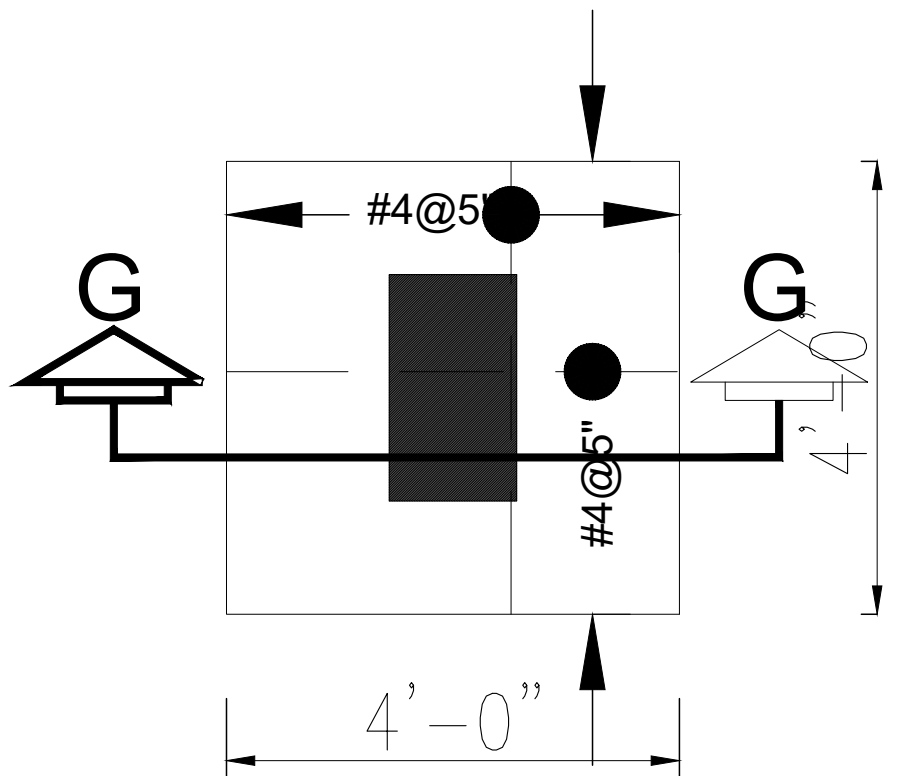
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				ENG. A. QADRI	S-04
				DRAWN BY:	REVISION:
				M. SIMON	0
			PROJECT/CLIENT:	APPROVED BY:	DATE:
				ENG. A. QADRI	14-10-2022
			DRAWING TITLE:	SCALE:	SHEET:
				COL SECTION DETAILS	NTS



SECTION F-F



SECTION G-G



ARCHITECTURAL CONSULTANT:



469 BLOCK G 1 JOHAR
TOWN LAHORE, PUNJAB,
54000
WWW.GHARPLANS.PK

PROJECT/CLIENT:

STRUCTURAL DESIGN OF RESIDENTIAL UNIT
IN SHEIKHUPURA

DRAWING TITLE:

COL SECTION
DETAILS

DESIGNED BY:

ENG. A. QADRI

DRAWN BY:

M. SIMON

APPROVED BY:

ENG. A. QADRI

SCALE:

NTS

FOR REVIEW

DRAWING NO.:

S-04

REVISION:

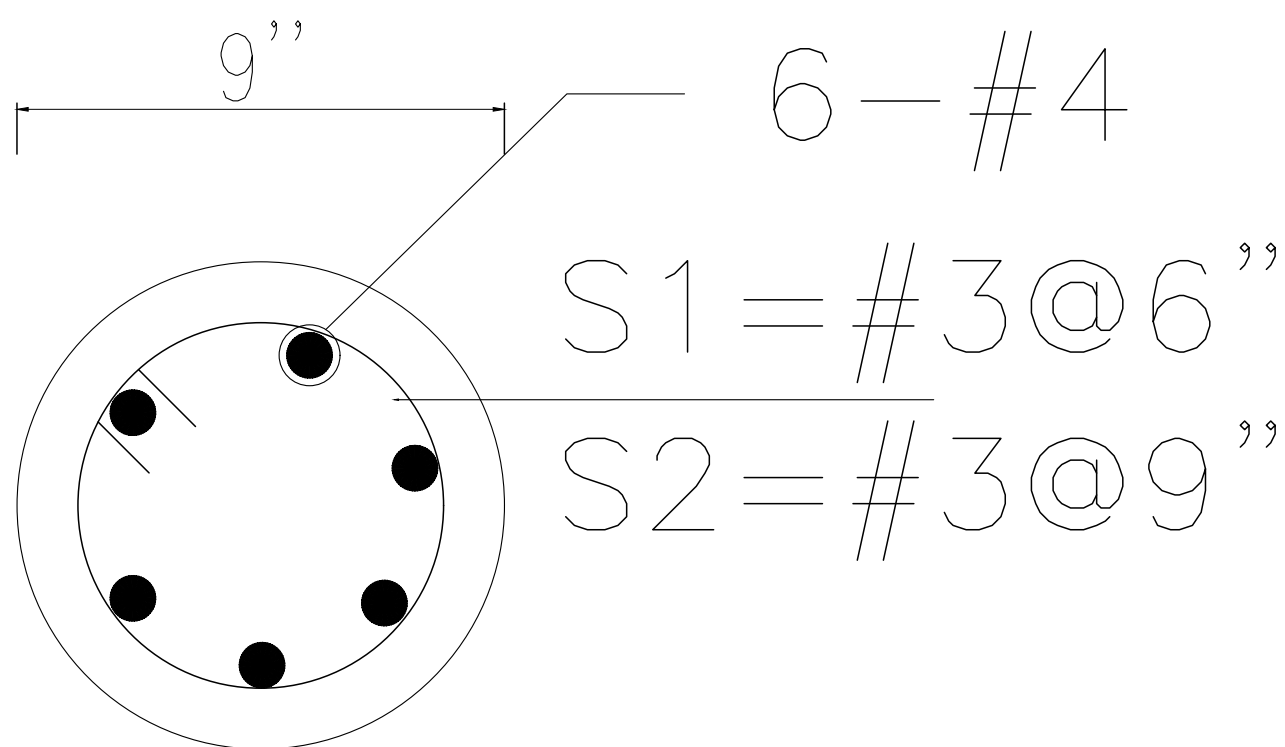
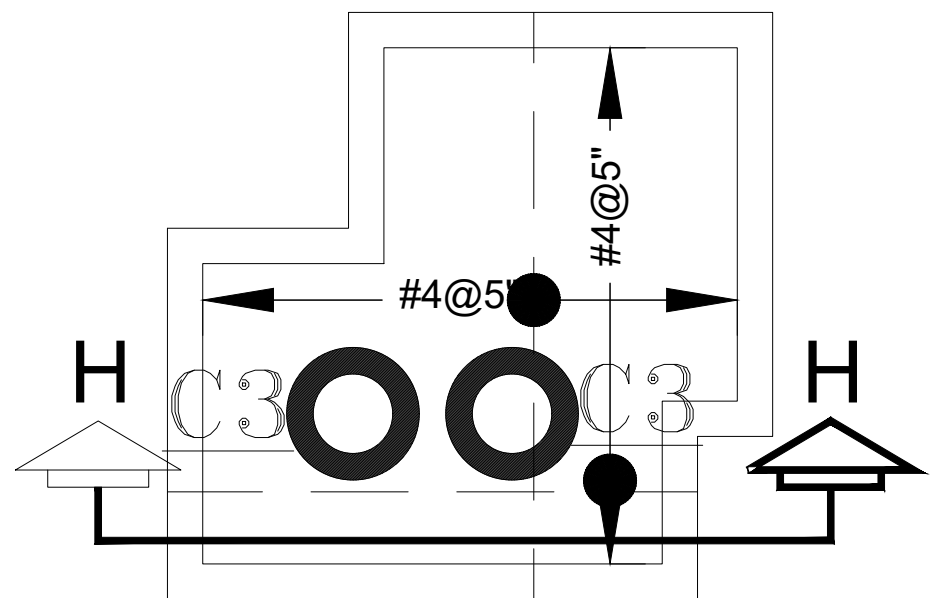
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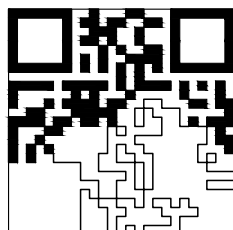
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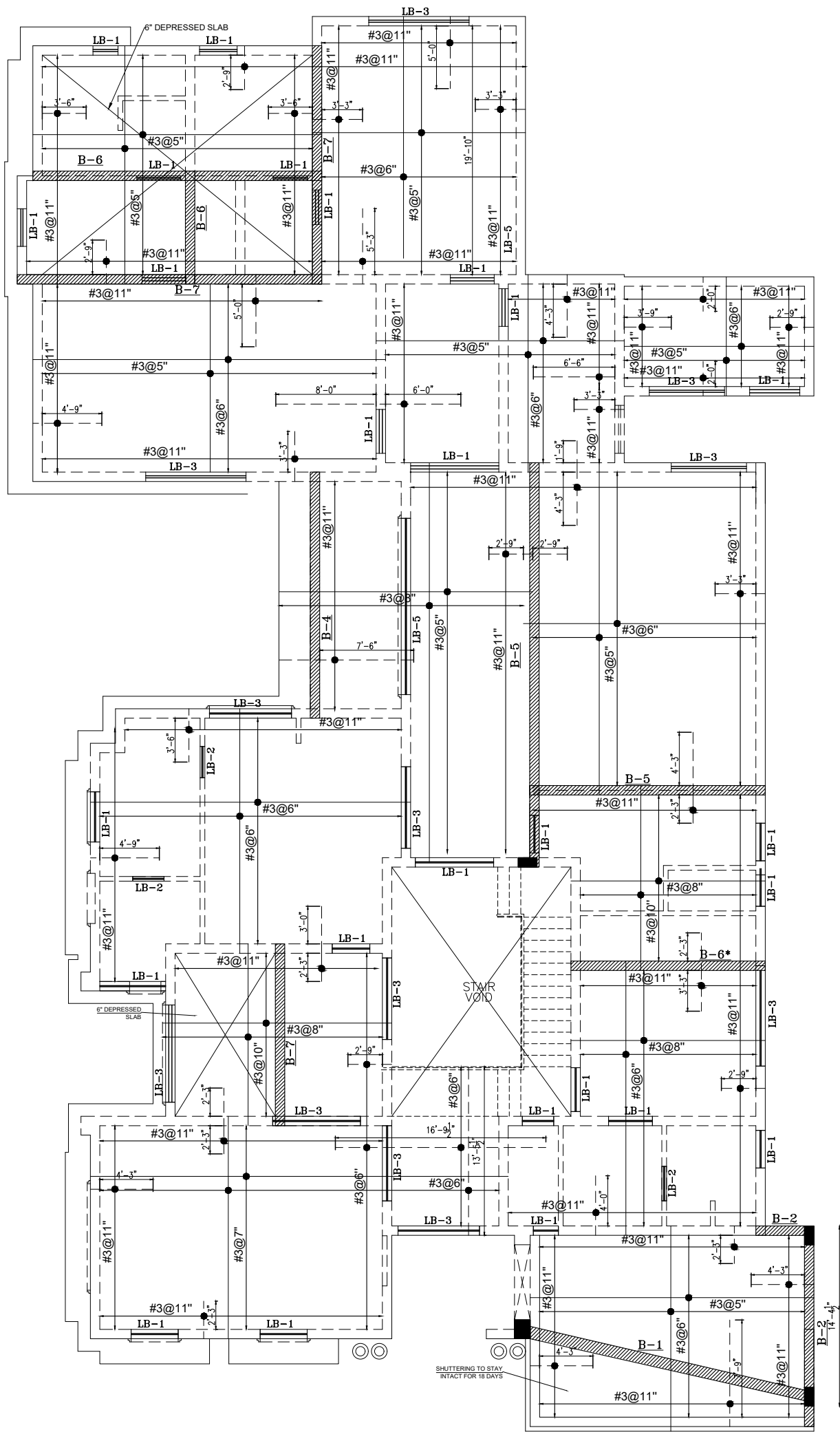
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SECTION	COLUMN
C-3	



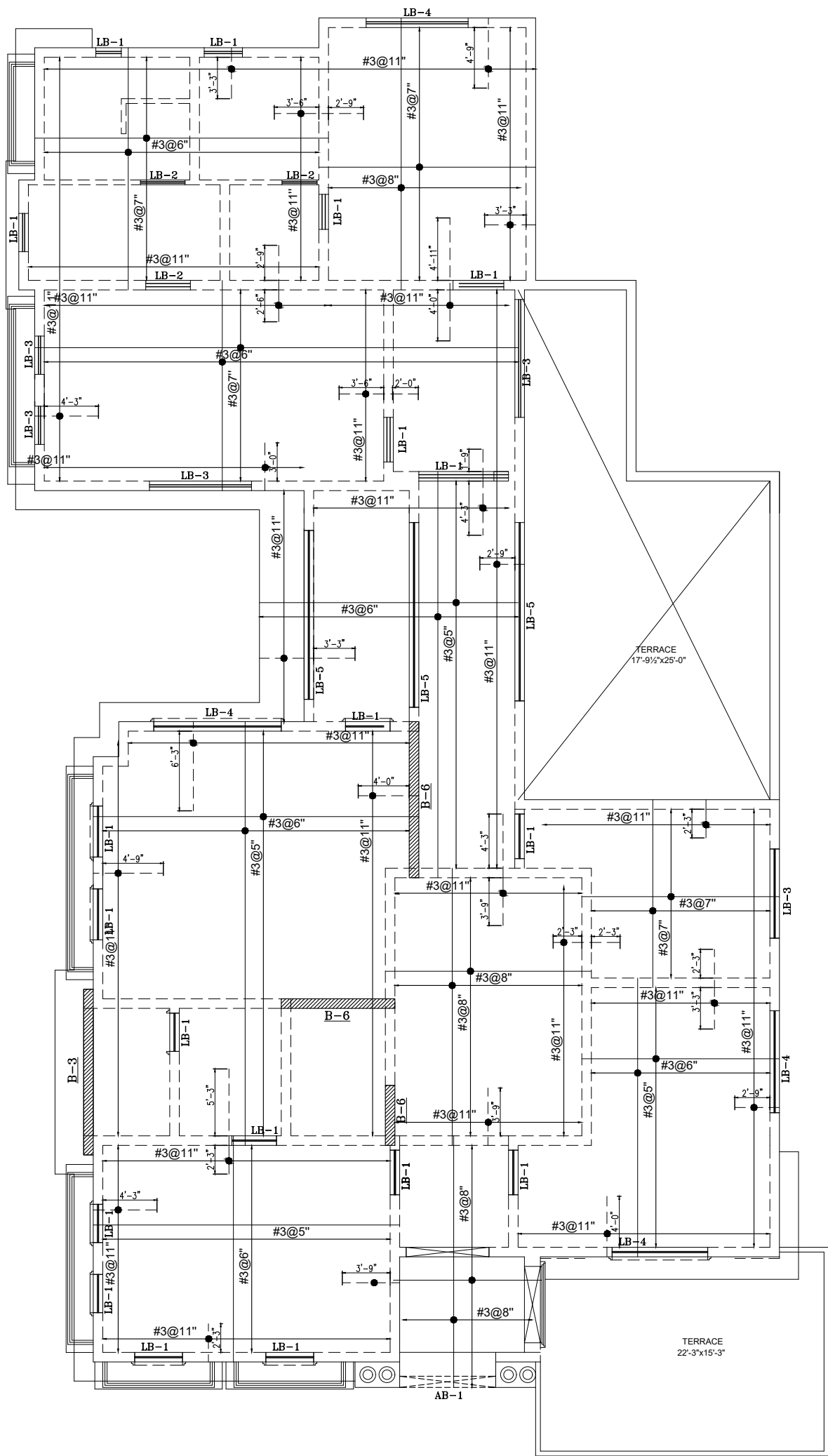
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GROUND FLOOR REINFORCEMENT PLAN

SLAB=6"

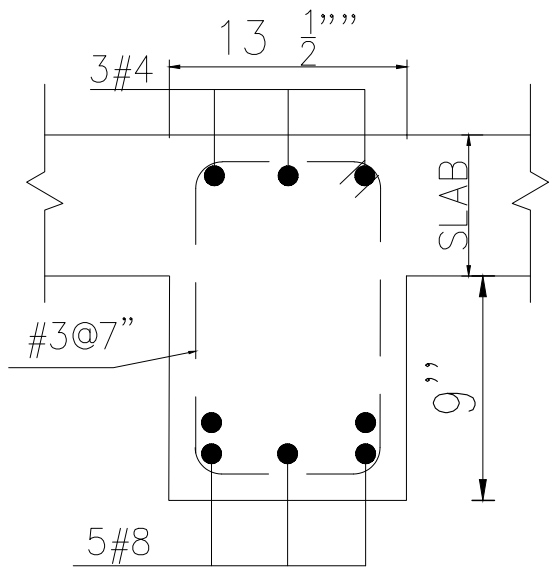
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				ENG. A. QADRI	S-06
				DRAWN BY:	REVISION:
				M. SIMON	01
		PROJECT/CLIENT:		APPROVED BY:	DATE:
		STRUCTURAL DESIGN OF RESIDENTIAL UNIT IN SHEIKHUPURA		ENG. A. QADRI	14-10-2022
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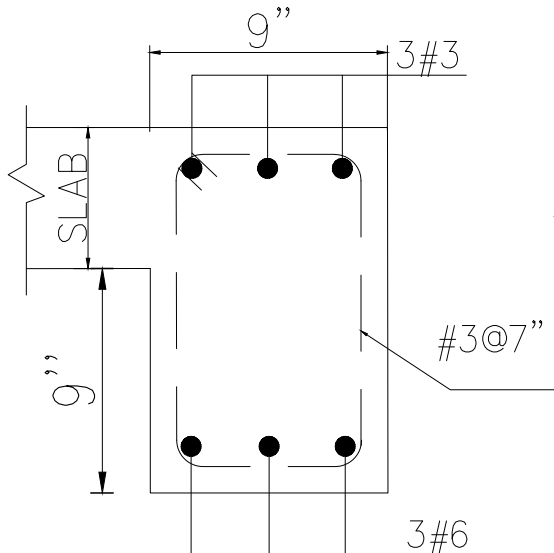
FIRST FLOOR REINFORCEMENT PLAN

SLAB=6''

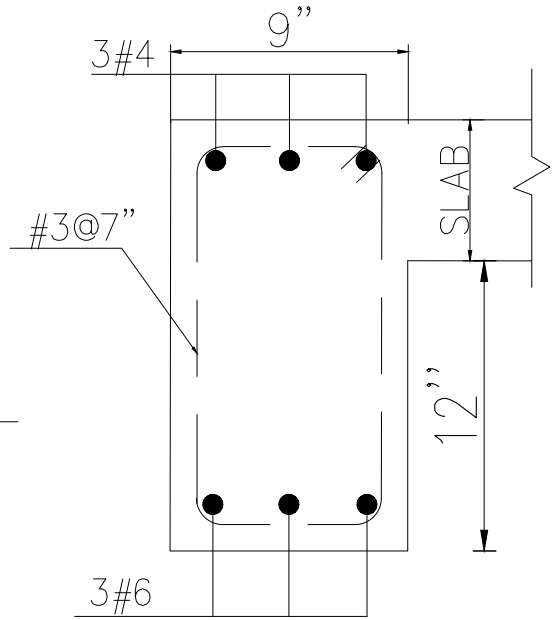
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			M. SIMON	01
		PROJECT/CLIENT:	APPROVED BY:	DATE:
		STRUCTURAL DESIGN OF RESIDENTIAL UNIT IN SHEIKHUPURA	ENG. A. QADRI	14-10-2022
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FIRST FLOOR REINFORCEMENT PLAN	NTS	A3		



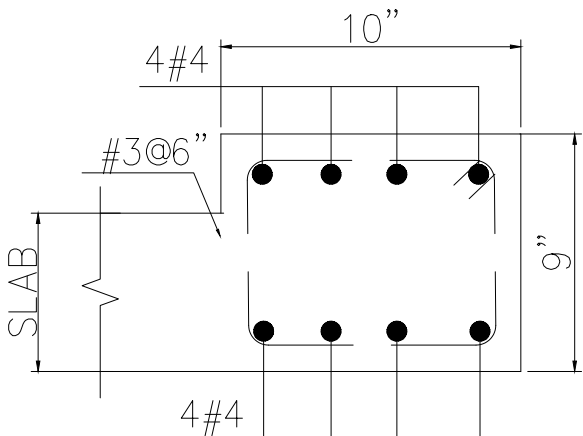
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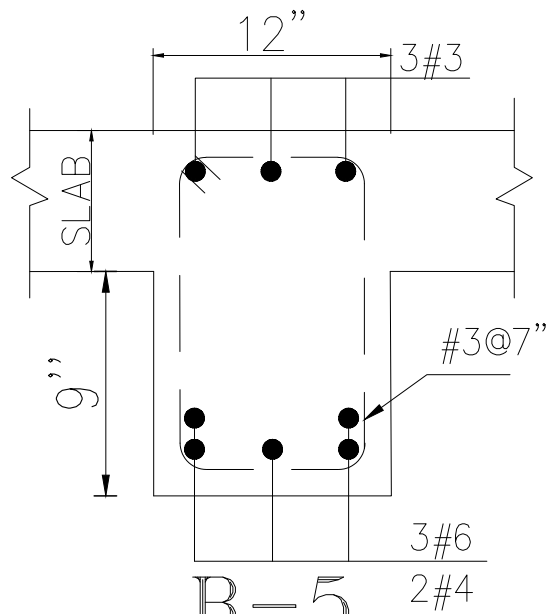
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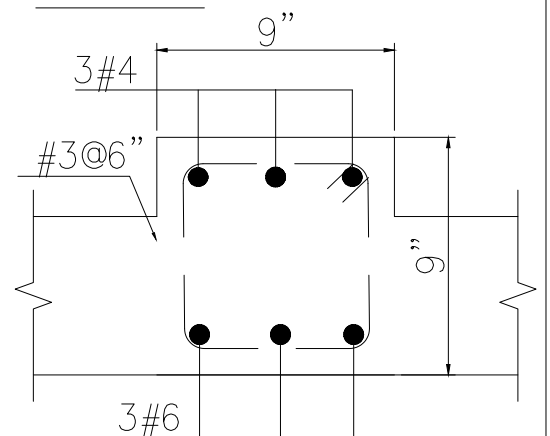
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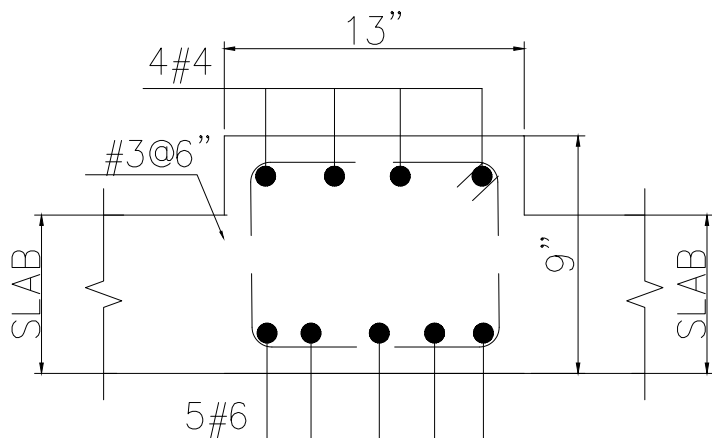
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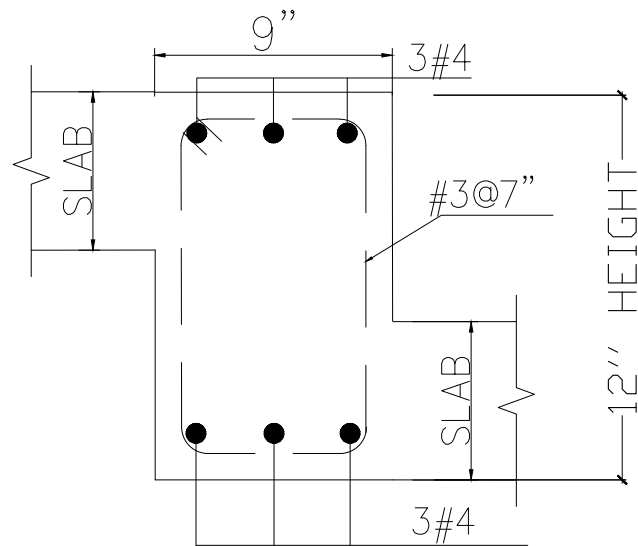
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B-6

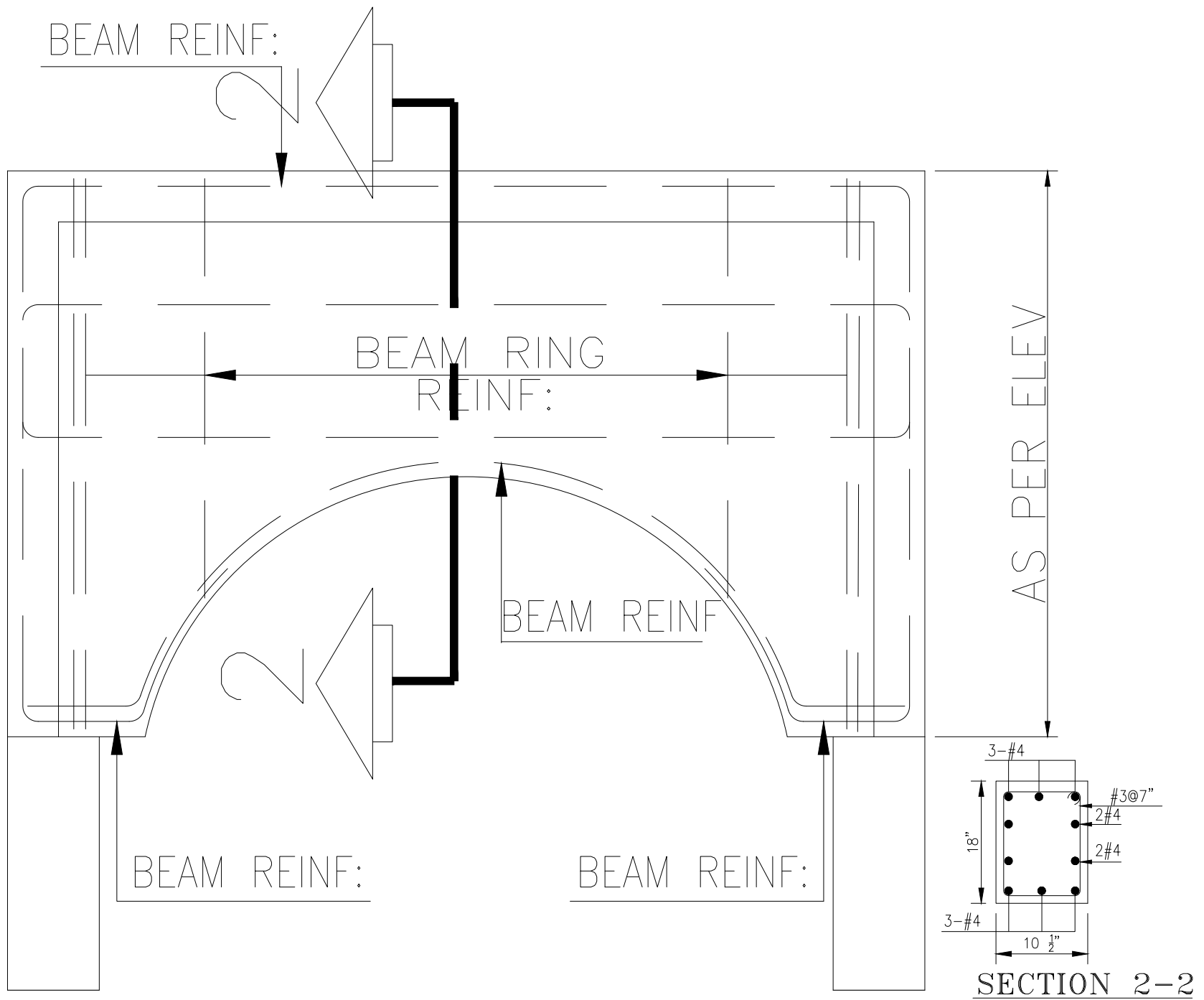


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B-7

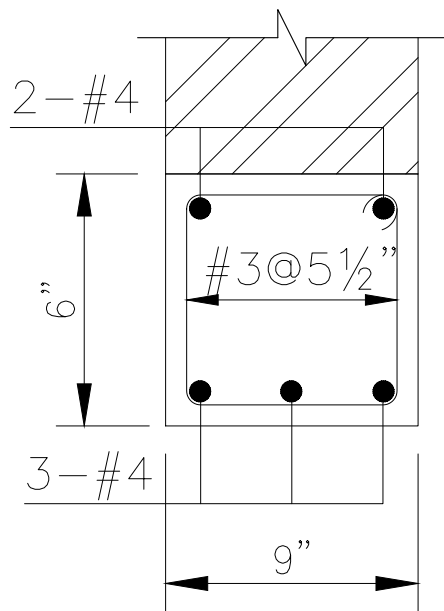
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BEAM SECTION DETAILS		NTS	A3		



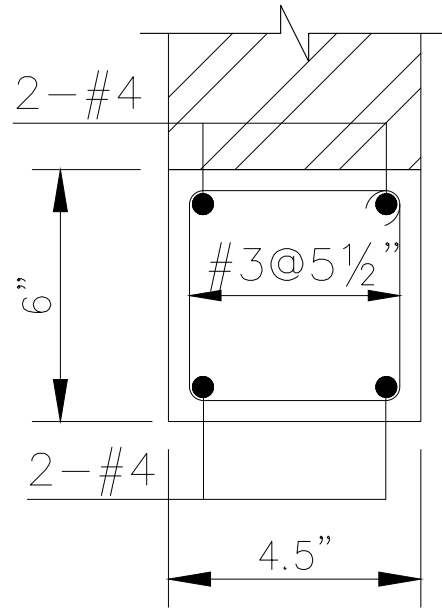
TYP. ELEVATION FOR ARCH

AB-1

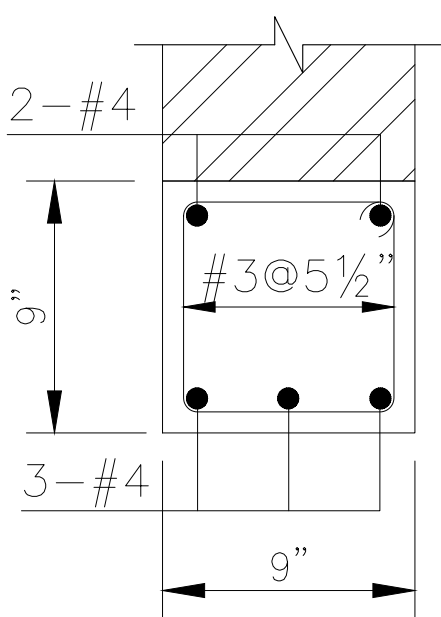
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			M. SIMON	REVISION:
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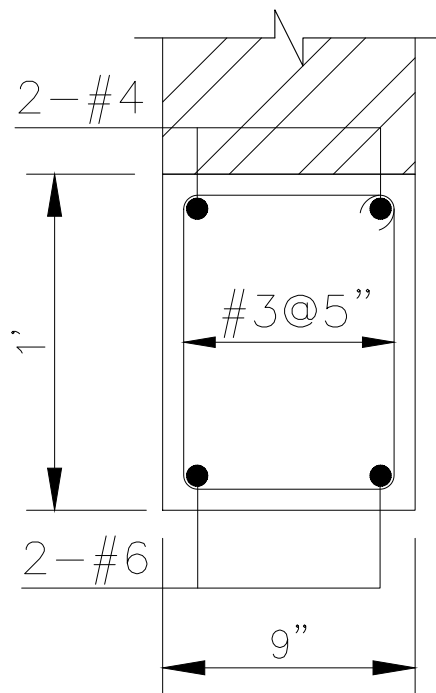
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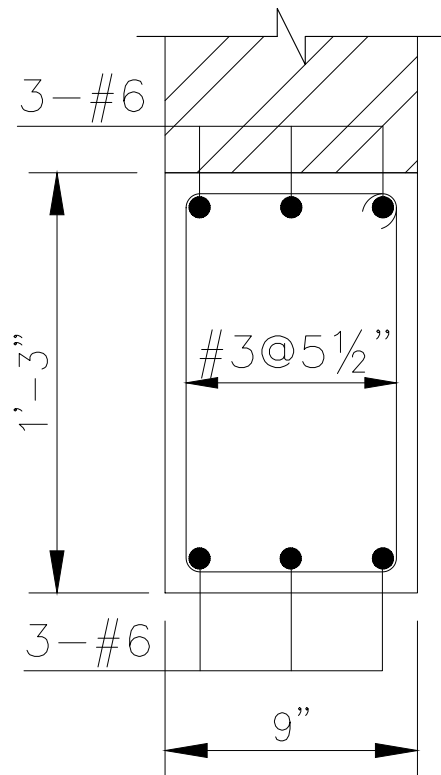
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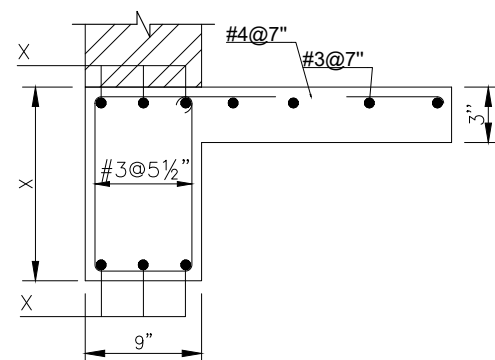
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LINTEL LB-4

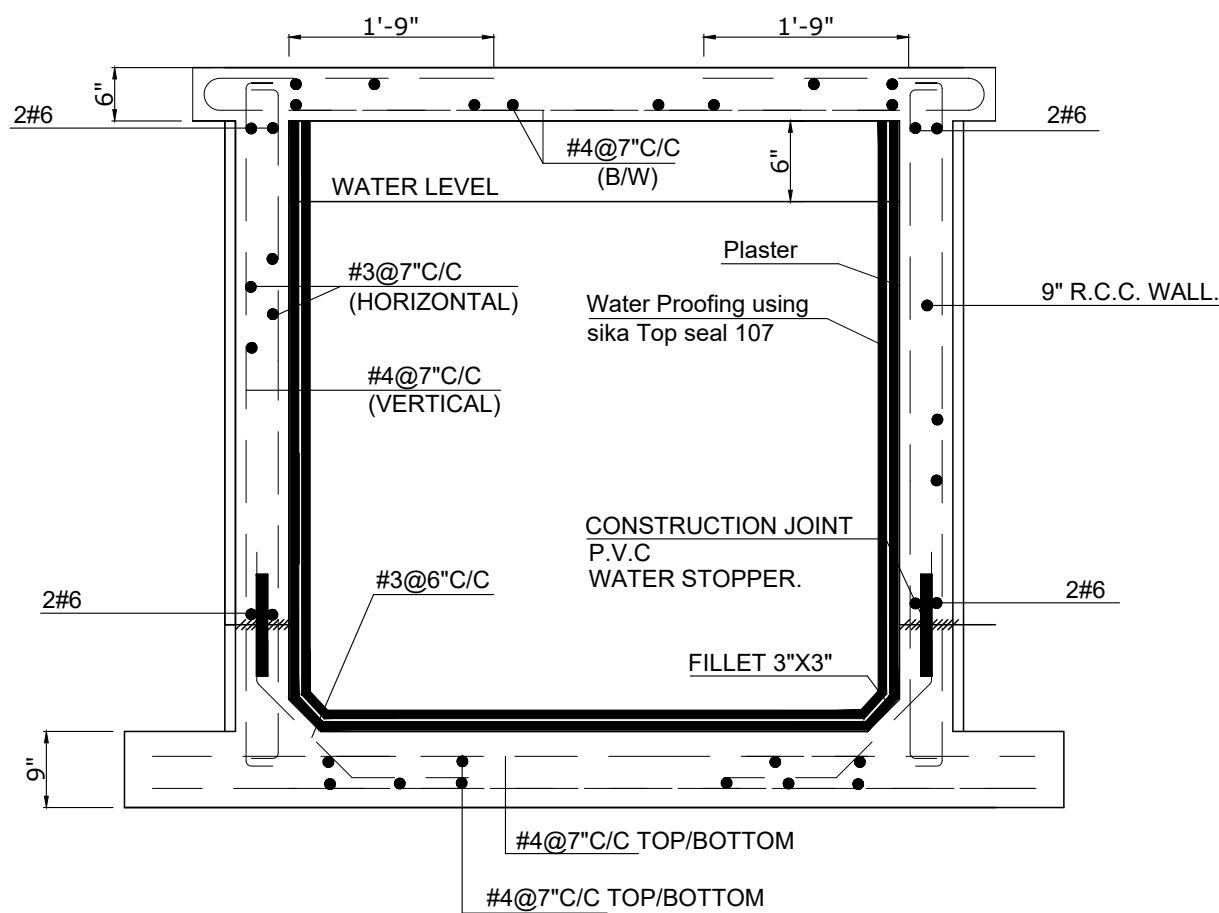


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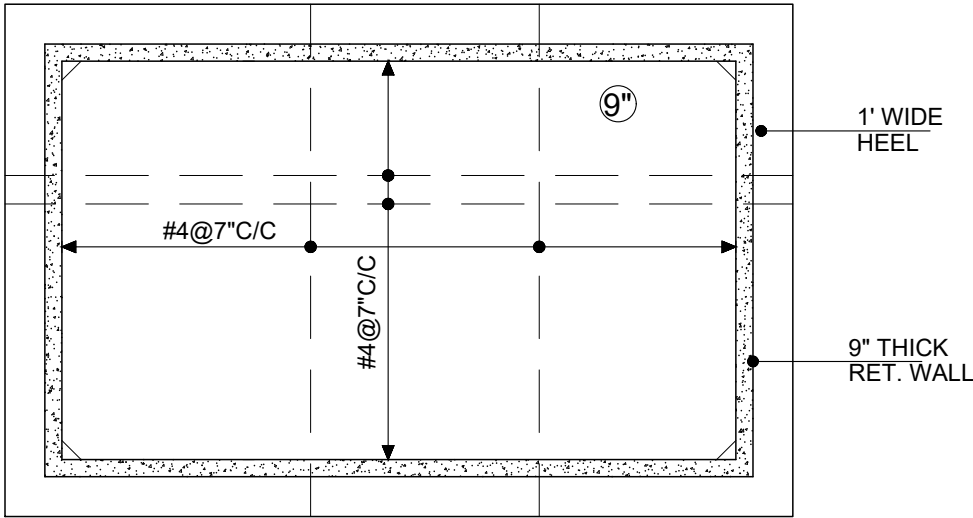


TYPICAL SUNSHADE
USE IN CONJUNCTION WITH
PROVIDED LINTEL DETAILS

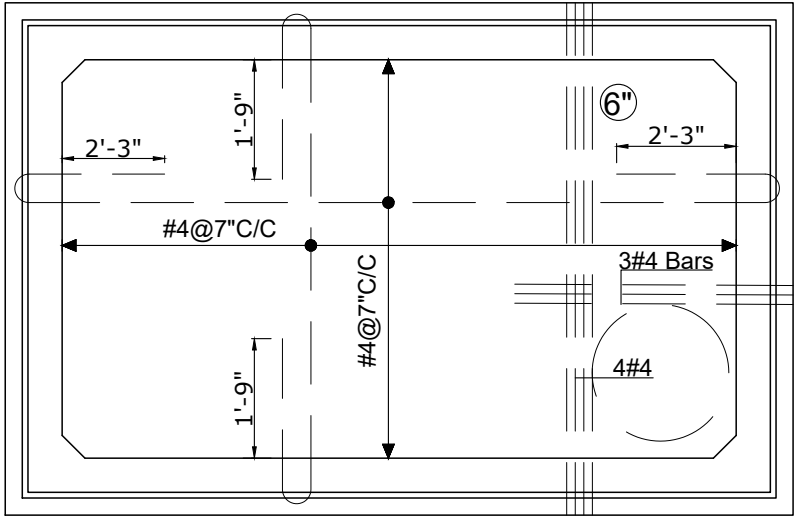
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		M. SIMON	0	
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		STRUCTURAL DESIGN OF RESIDENTIAL UNIT IN SHEIKHUPURA	ENG. A. QADRI	14-10-2022
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LINTEL DETAILS	NTS	A3		



CROSSSECTION OF UGWT

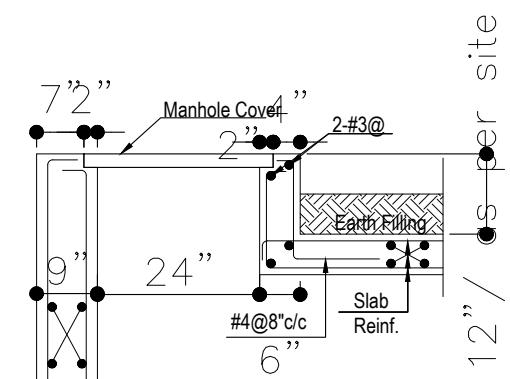


FLOOR SLAB 9" THICK

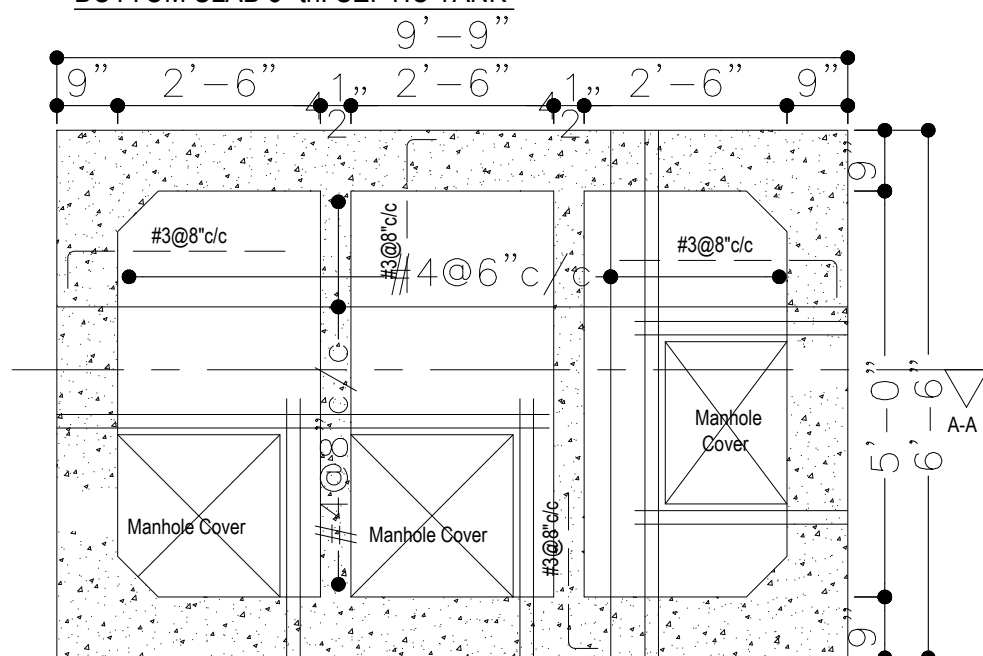
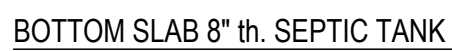


TOP SLAB 6" THICK

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		ARCHITECTURAL CONSULTANT:  469 BLOCK G 1 JOHAR TOWN LAHORE, PUNJAB, 54000 WWW.GHARPLANS.PK		DESIGNED BY:	DRAWING NO.:
				ENG. A. QADRI	S-11
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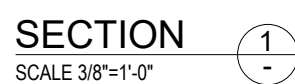
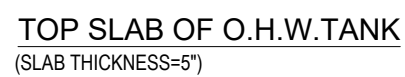
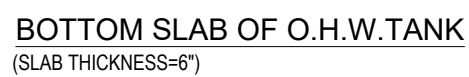


DETAIL OF MANHOLE COVER

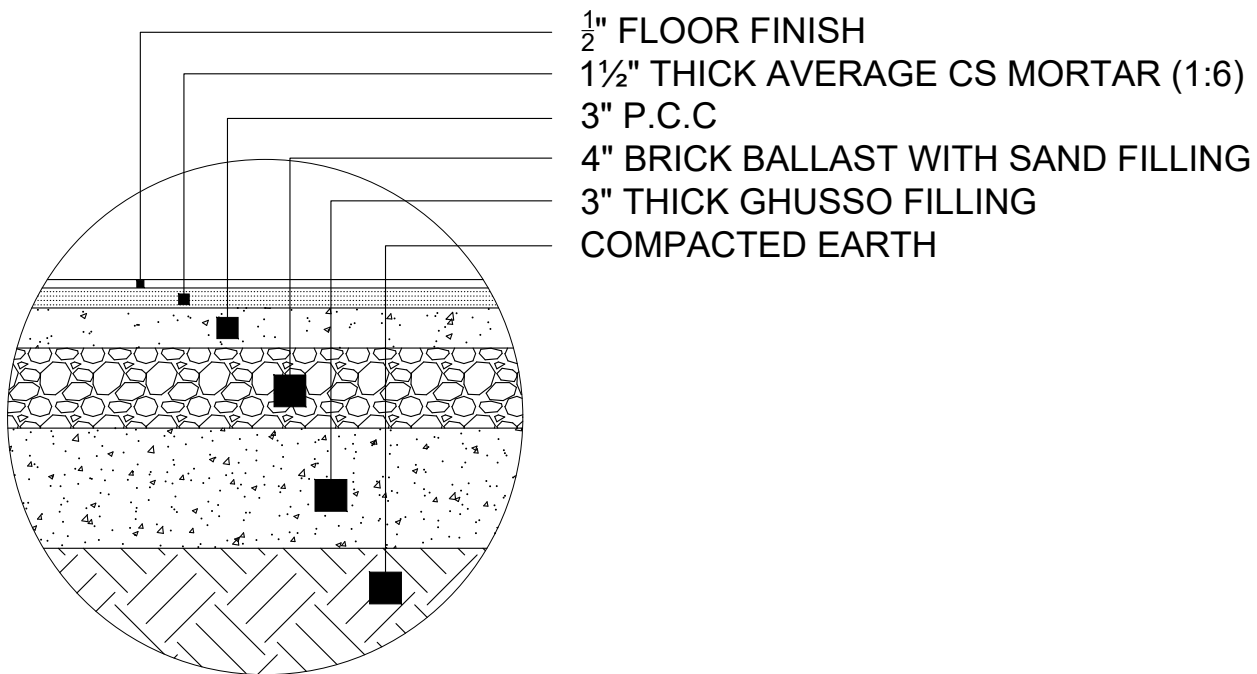


TOP SLAB 8" th. SEPTIC TANK

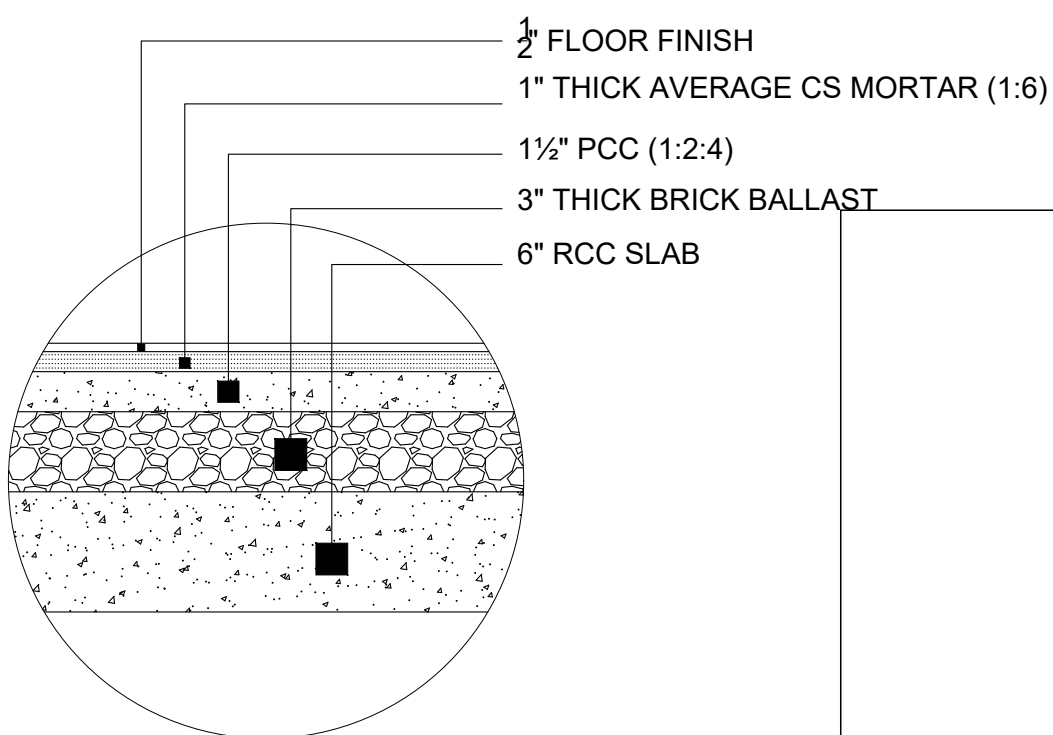
				FOR REVIEW	
		ARCHITECTURAL CONSULTANT:		DESIGNED BY:	DRAWING NO.:
		 469 BLOCK G 1 JOHAR TOWN LAHORE, PUNJAB, 54000 WWW.GHARPLANS.PK		ENG. A. QADRI	S-12
				DRAWN BY:	REVISION:
				M. SIMON	0
		PROJECT/CLIENT:		APPROVED BY:	DATE:
		STRUCTURAL DESIGN OF RESIDENTIAL UNIT IN SHEIKHUPURA		ENG. A. QADRI	14-10-2022
DRAWING TITLE:		SCALE:	SHEET:		
SEPTIC TANK DETAILS		NTS	A3		



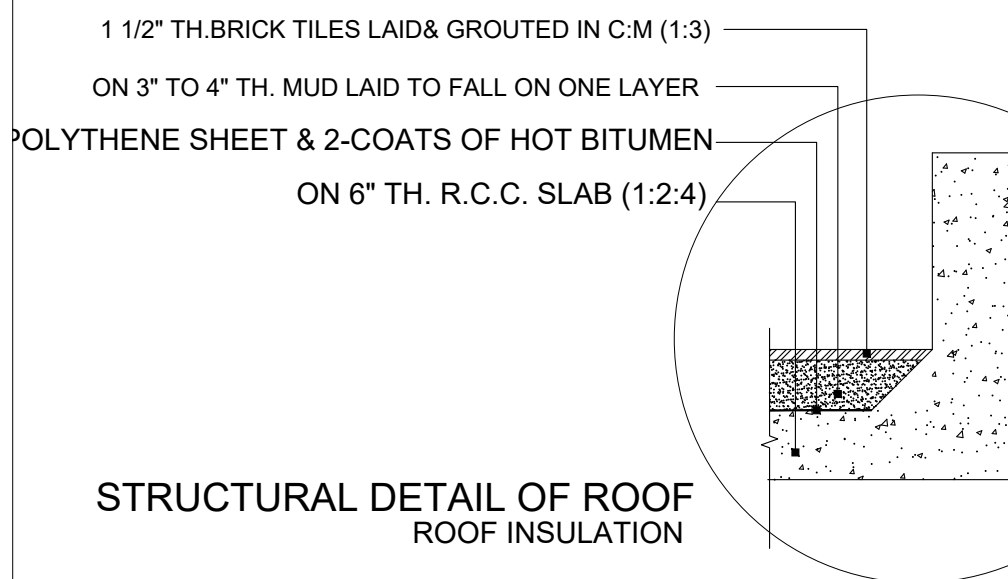
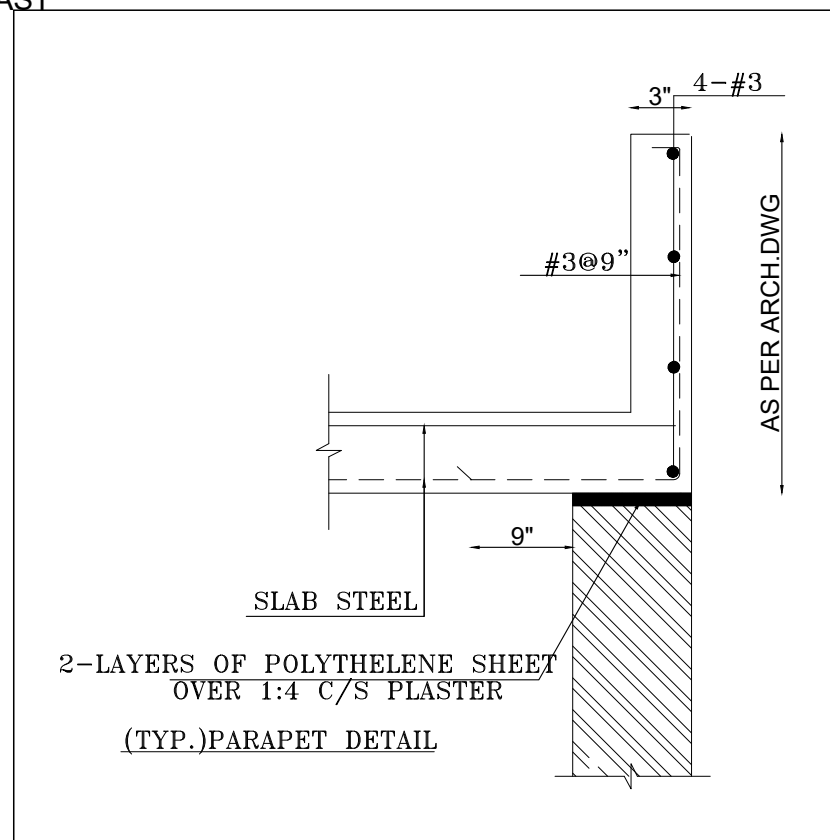
SCALE 3/8"=1'-0"				FOR REVIEW	
		ARCHITECTURAL CONSULTANT:	DESIGNED BY:	DRAWING NO.:	
		 469 BLOCK G 1 JOHAR TOWN LAHORE, PUNJAB, 54000 WWW.GHARPLANS.PK	ENG. A. QADRI	S-13	
			DRAWN BY:	REVISION:	
			M. SIMON	0	
		PROJECT/CLIENT:	APPROVED BY:	DATE:	
		STRUCTURAL DESIGN OF RESIDENTIAL UNIT IN SHEIKHUPURA	ENG. A. QADRI	14-10-2022	
		DRAWING TITLE:	SCALE:	SHEET:	
		O.H.W.T DETAILS	NTS	A3	



STRUCTURAL DETAIL OF FLOOR



STRUCTURAL DETAIL OF 1ST SLAB



STRUCTURAL DETAIL OF ROOF
 ROOF INSULATION

		FOR REVIEW			
		ARCHITECTURAL CONSULTANT:	DESIGNED BY:	DRAWING NO.:	
		 469 BLOCK G 1 JOHAR TOWN LAHORE, PUNJAB, 54000 WWW.GHARPLANS.PK	ENG. A. QADRI	S-14	
			DRAWN BY:	REVISION:	
				M. SIMON	0
		PROJECT/CLIENT:	APPROVED BY:	DATE:	
		STRUCTURAL DESIGN OF RESIDENTIAL UNIT IN SHEIKHUPURA		ENG. A. QADRI	14-10-2022
DRAWING TITLE:		SCALE:	SHEET:		
ROOF FLOORING DETAILS		NTS	A3		