

GOVERNMENT OF NEPAL  
MINISTRY OF EDUCATION, SCIENCE & TECHNOLOGY  
**CENTER FOR EDUCATION AND HUMAN RESOURCE DEVELOPMENT**  
SANOTHIMI, BHAKTAPUR, NEPAL

\*\*\*

ARCHITECTURAL, STRUCTURAL, ELECTRICAL & SANITARY DRAWING  
**TYPE DESIGN FOR MOUNTAINOUS REGION,**  
Contract ID: [CEHRD/SESP/SQ/Consultancy/02/2079/080]

FEBRUARY 2023



**Government of Nepal**  
**Ministry of Education, Science & Technology**  
**Center for Education and Human Resource Development**  
Sanothimi, Bhaktapur, Nepal

# **PREPARE SCHOOL BUILDING TYPE DESIGN FOR MOUNTAINOUS REGION**

**Contract ID: CEHRD/SESP/SQ/Consultancy/02/2079/080**

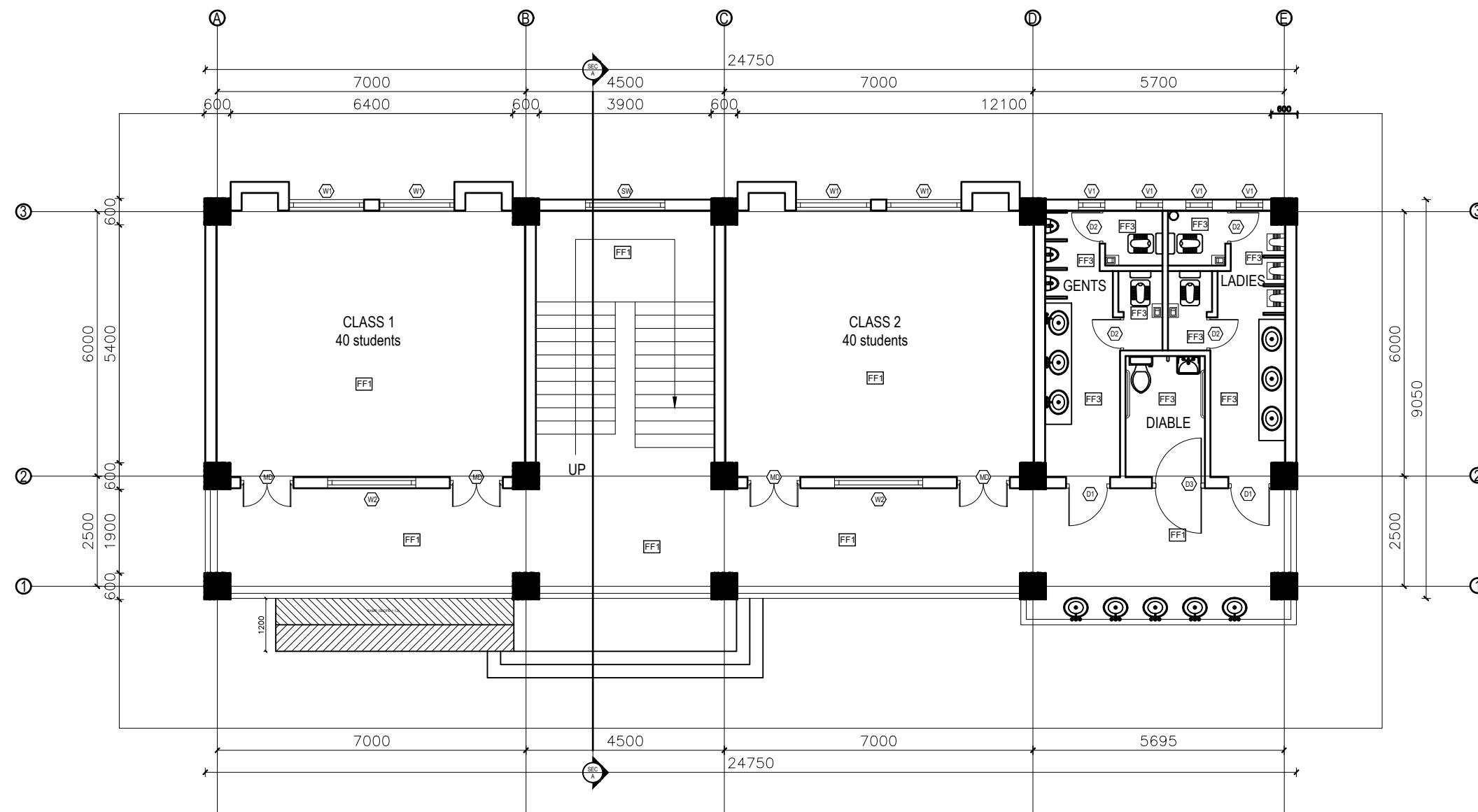
**DETAIL DESIGN AND DRAWING  
3 STORY@6 ROOM WITH  
(TOILET, WASH ROOM, CHANGING ROOM & BOOK CORNER)**

**SUBMITTED BY:  
SAGE ENGINEERING CONSULT**

**FEBRUARY, 2023**

# **ARCHITECTURE**

# **DRAWING**



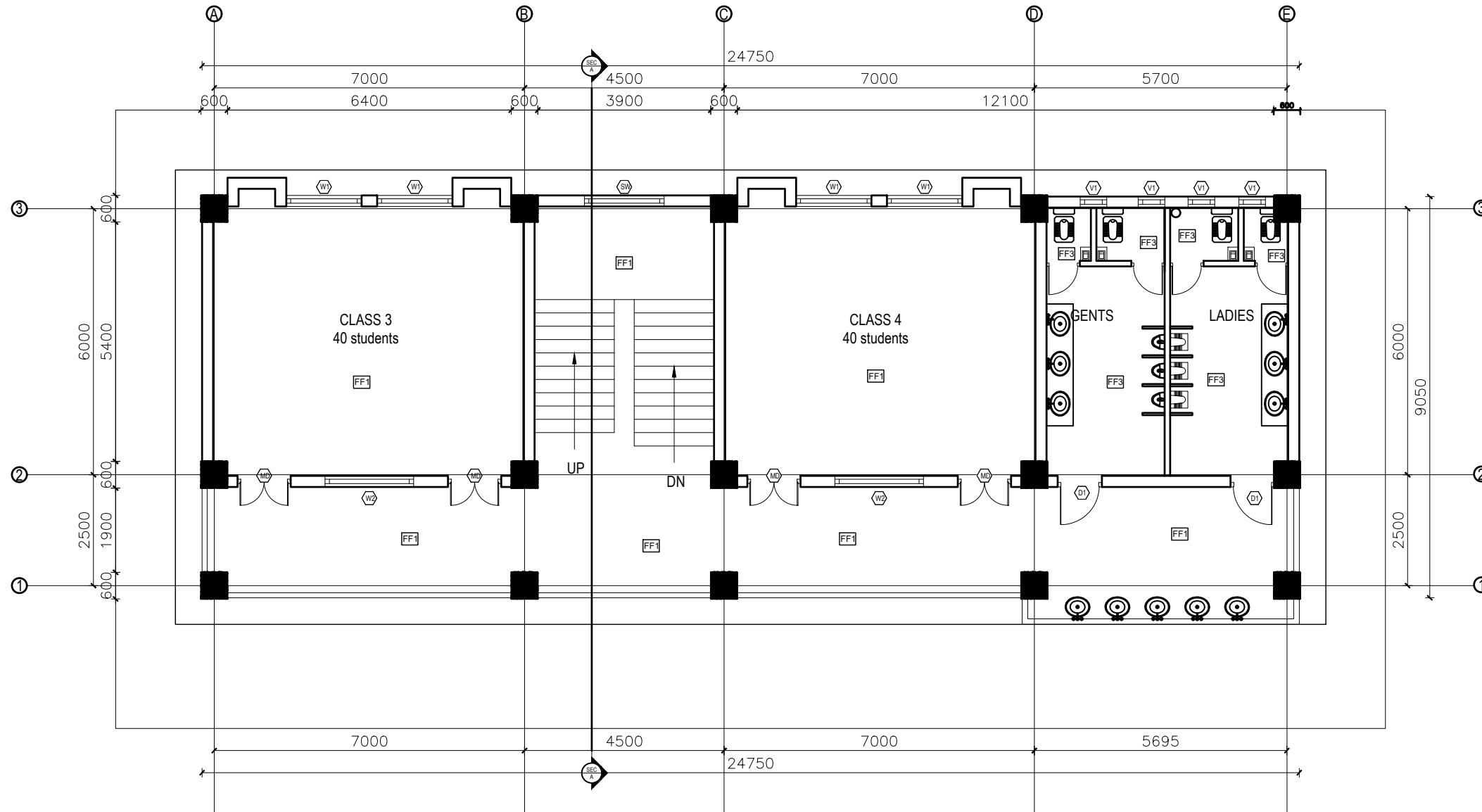
## GROUND FLOOR PLAN

FLOOR AREA: 225.74 sq.m

CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM		SHEET NO. AR-01	REVISION NO. R-00
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	<b>GROUND FLOOR PLAN</b>	SAGE ENGINEERING CONSULT Nepal	ENGINEER:	STRUCTURE ER.:		

NOTES:

1. All measurements are in mm unless otherwise noted.
2. Architectural drawing should be read in conjunction with Structural, Sanitary and Electrical drawings.
3. Site Engineer to notify the consultant if any discrepancy in dimensions found in drawings as per the site condition.
4. Sill and Lintel dimensions are measured from the Slab Lvl.
5. Dimensions are excluding the plaster/POP thickness.



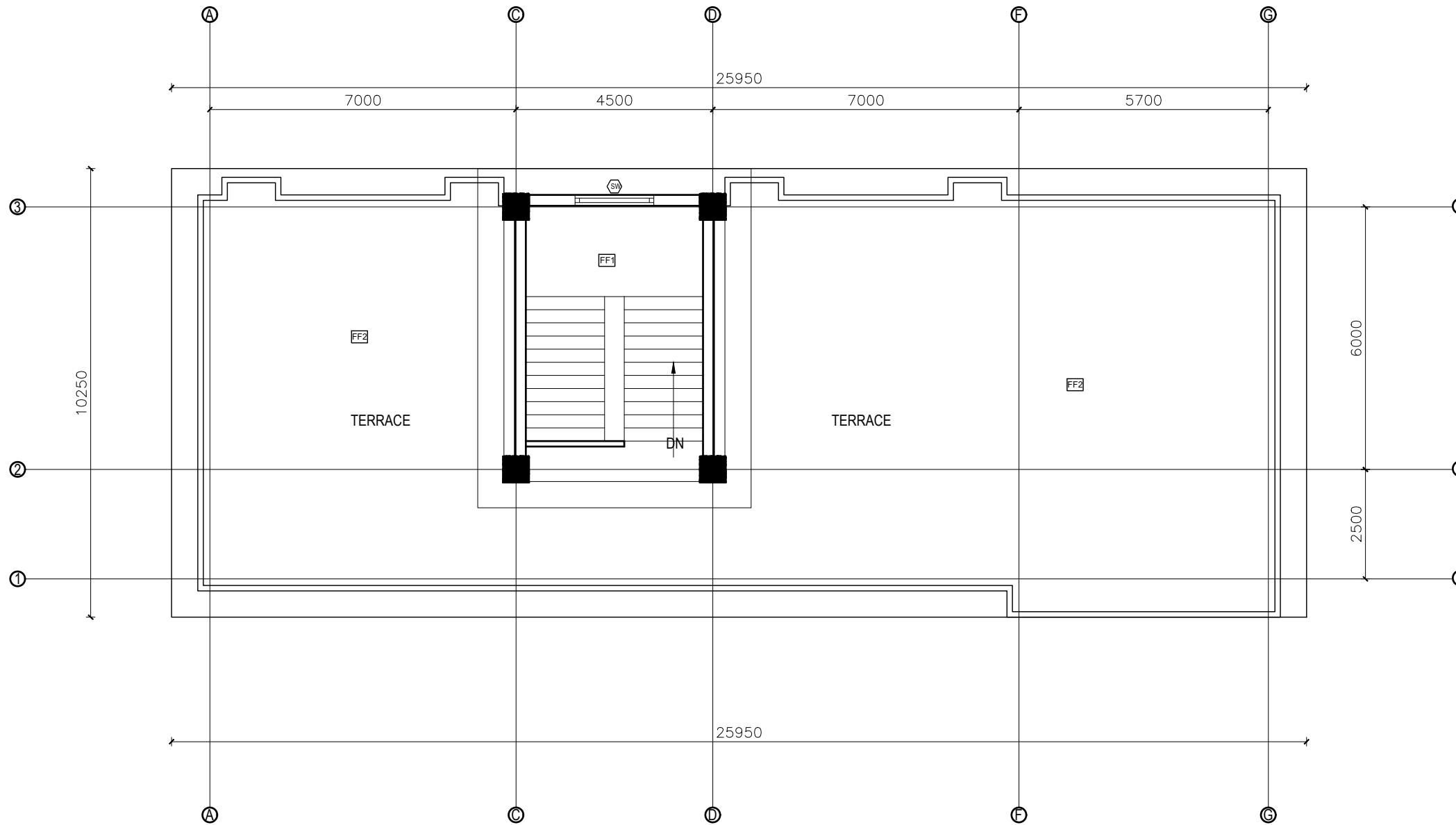
## FIRST&SECOND FLOOR PLAN

FLOOR AREA: 225.74 sq.m

CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM		SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	FIRST FLOOR AND SECOND FLOOR PLAN	SAGE ENGINEERING CONSULT Nepal	ENGINEER: ARCHITECT: DRAWN: SCALE : 1:120	STRUCTURE ER. : CHECKED: APPROVED: PAPER SIZE : A3		AR-02 R-00 DWG CODE 3S6R-MOUNTAINOUS DATE: FEBRUARY, 2023

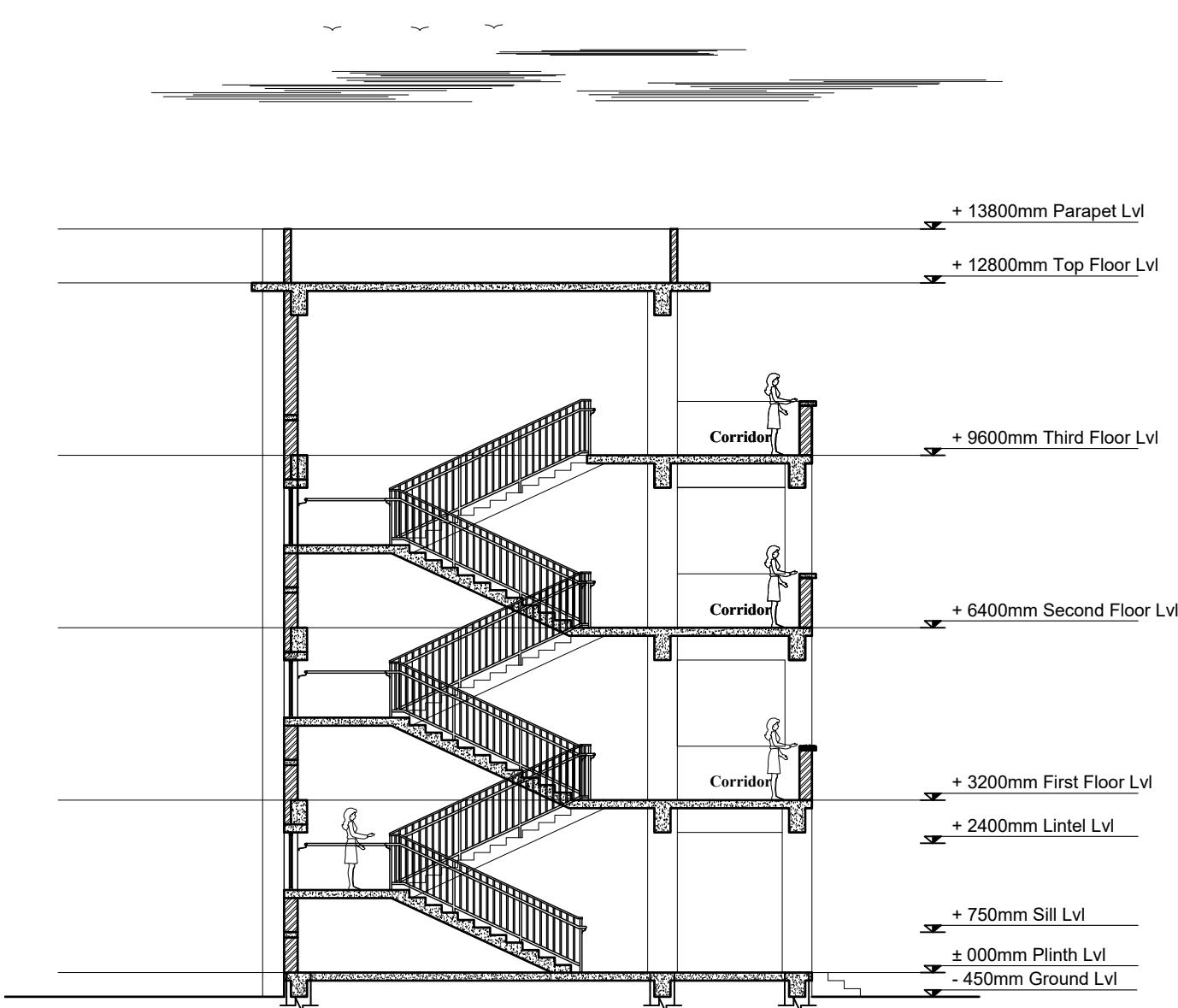
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**TOP FLOOR PLAN**  
FLOOR AREA: 33.07 sq.m

CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM		SHEET NO.	REVISION NO.
Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Santhimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	ROOF PLAN	SAGE ENGINEERING CONSULT Nepal	ENGINEER:	STRUCTURE ER. :	AR-03	R-00



SECTION AT A-A

OPENING SCHEDULE

S.N.	SYMBOL	SIZES	G.F.	F.F.	S.F.	TOTAL	SILL HT.	REMARKS
1.	MD	1200 x 2400	4	4	4	12	-	
2.	D1	1000 x 2400	2	2	2	6	-	
3.	D2	750 x 2100	4	4	4	12	-	
4.	D3	1200 x 2400	1			1	-	
5.	W1	1700 x 1650	4	4	4	12	750 MM	
6.	W2	2000 x 1650	2	2	2	6	750 MM	
7.	SW	1800 x 1070	1	1		2	1530 MM	
8.	V1	600 x 600	4	4	4	12	1800 MM	

FINISHING DETAILS:

FF1	38 mm PCC (M15) with 1:1 cement punning with floor hardener (Dreitop FH, mapetop, Sika Chapdur or equivalent)
FF2	50 mm PCC (M15) with 1:1 cement punning in a 600X600 thread cut grid with floor hardener (Dreitop FH, mapetop, Sika Chapdur or equivalent) and water proofing (safe-crete or equivalent)
FF3	6 mm thick porcelain non-glaze tile with 20 mm cement sand mortar (1:4)

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Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	SECTION AND OPENING SCHEDULE	SAGE ENGINEERING CONSULT Nepal	ENGINEER:	STRUCTURE ER. :		AR-04	R-00

SCALE : 1:120 PAPER SIZE : A3 DATE: FEBRUARY, 2023

DWG CODE  
3S6R-MOUNTAINOUS

NOTES:

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**FRONT ELEVATION**

CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM		SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region		SAGE ENGINEERING CONSULT Nepal	ENGINEER: ARCHITECT: DRAWN : SCALE : 1:120	STRUCTURE ER. : CHECKED: APPROVED: PAPER SIZE : A3		AR-05 R-00  DWG CODE 3S6R-MOUNTAINOUS  DATE: FEBRUARY, 2023

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5. Dimensions are excluding the plaster/POP thickness.

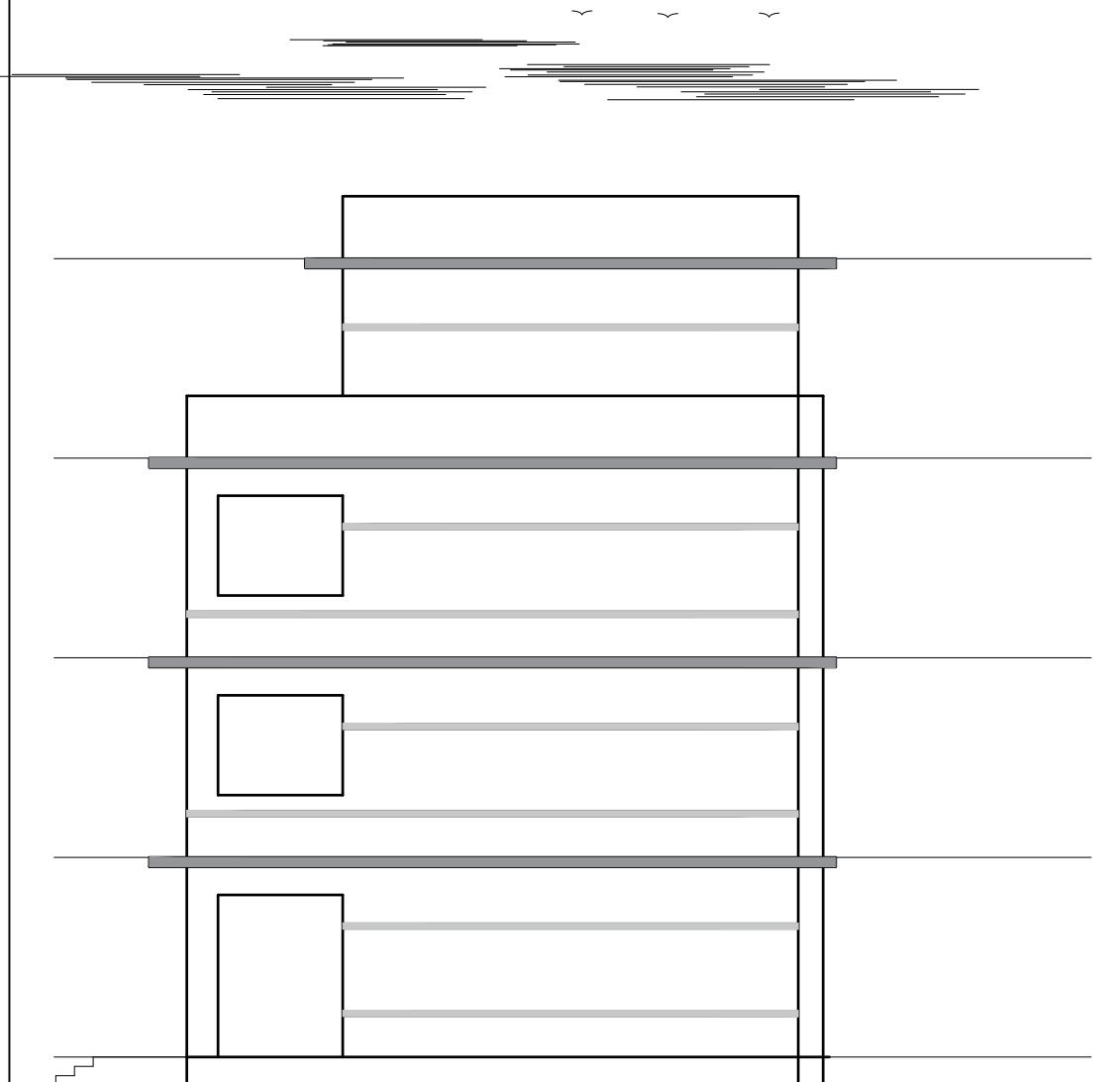


BACK ELEVATION

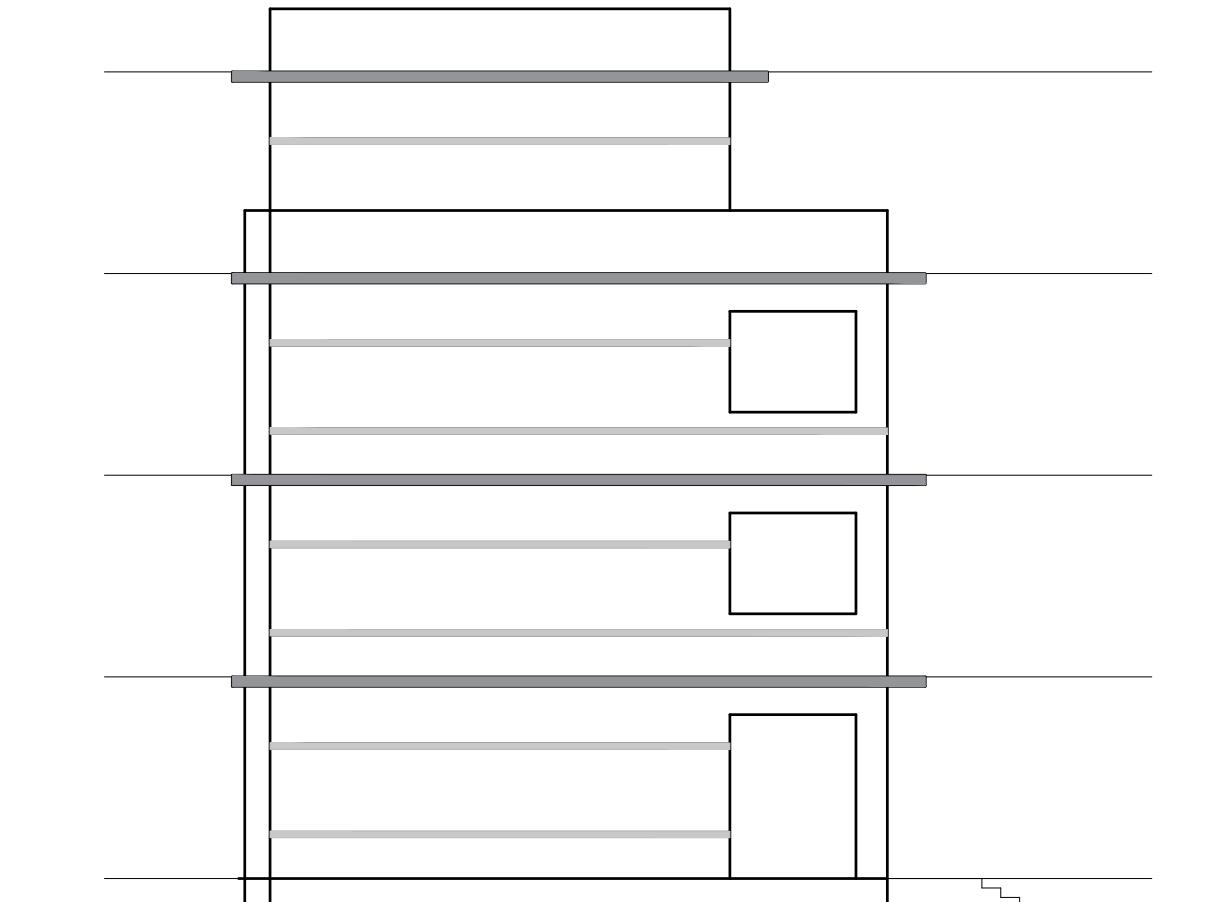
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 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	ELEVATION	SAGE ENGINEERING CONSULT Nepal	ENGINEER: ARCHITECT: DRAWN : SCALE : 1:120	STRUCTURE ER. : CHECKED: APPROVED: PAPER SIZE : A3	AR-06	R-00

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5. Dimensions are excluding the plaster/POP thickness.

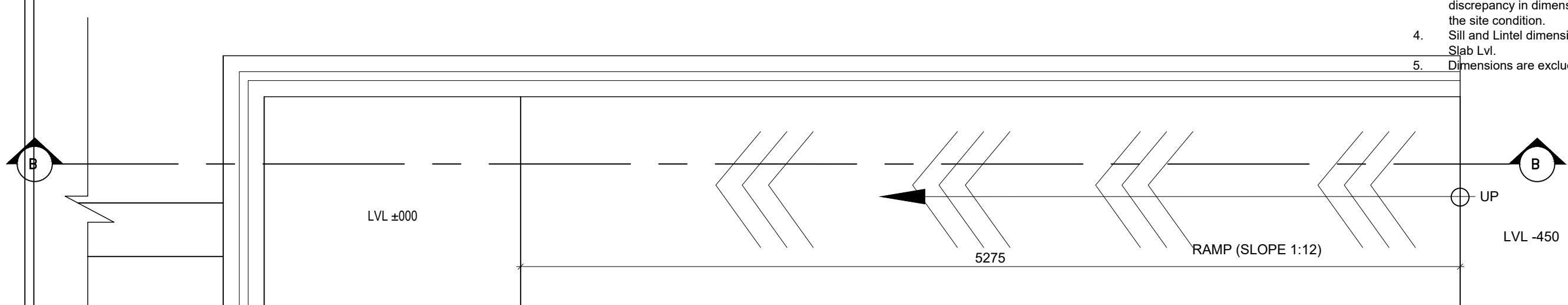


**SIDE-1 ELEVATION**

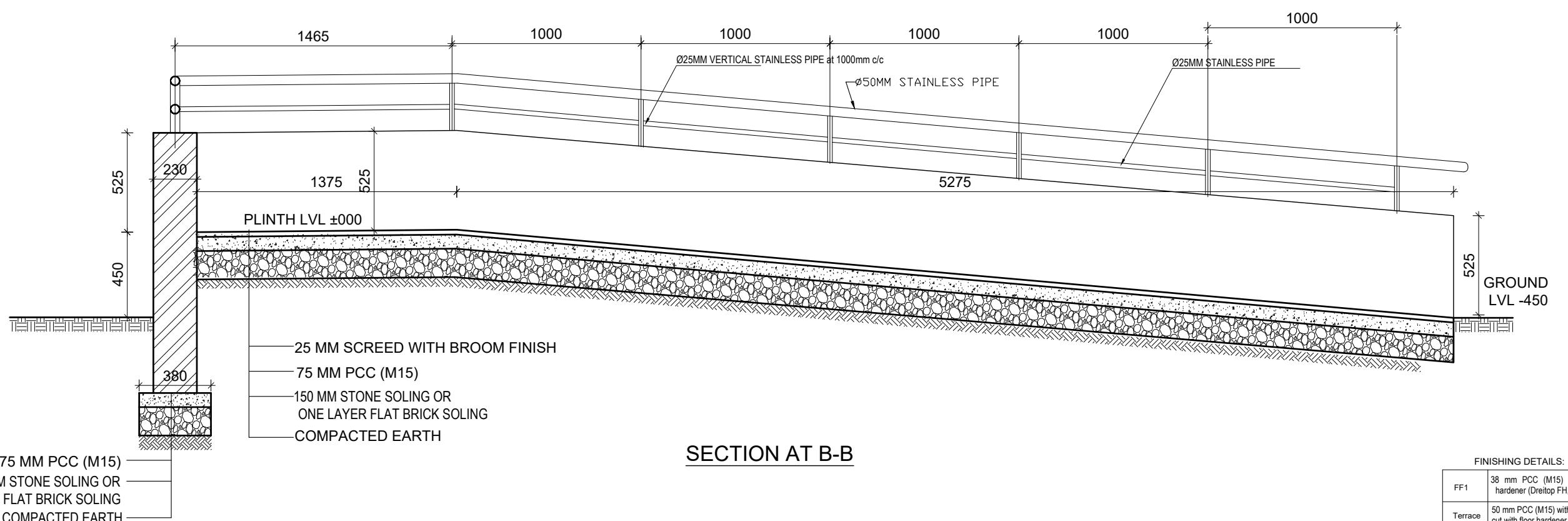


**SIDE-2 ELEVATION**

CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM		SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	ELEVATIONS	SAGE ENGINEERING CONSULT Nepal	ENGINEER: ARCHITECT: DRAWN : SCALE : 1:120	STRUCTURE ER. : CHECKED: APPROVED: PAPER SIZE : A3		AR-07 R-00 DWG CODE 3S6R-MOUNTAINOUS DATE: FEBRUARY, 2023



## RAMP PLAN



## SECTION AT B-B

FINISHING DETAILS:	
FF1	38 mm PCC (M15) with 1:1 cement punning with floor hardener (Dreitop FH, mapetop, Sika Chapdur or equivalent)
Terrace	50 mm PCC (M15) with 1:1 cement punning in a 600*600 grid thread cut with floor hardener (Dreitop FH, mapetop, Sika Chapdur or equivalent) and water proofing (safe-crete or equivalent)

CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM		SHEET NO. AR-08	REVISION NO. R-00
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	<b>RAMP DETAILS</b>	SAGE ENGINEERING CONSULT Nepal	ENGINEER:	STRUCTURE ER. :		

# **STRUCTURE DRAWING**

SN.	DRAWING LIST
1.	GENERAL NOTES
3.	FOOTING DETAIL FOR 100kN/m <sup>2</sup>
4.	TYPICAL FLOORING DETAIL
5.	SITE SPECIFIC DRAWING
6.	TYPICAL DETAILS OF FOUNDATION WALL
7.	COLUMN DETAIL
8.	BEAM PLAN
9.	BEAM DETAIL
10.	SLAB DETAIL
11.	STAIRCASE DETAIL
12.	BAND DETAIL
13.	RAILING DETAIL

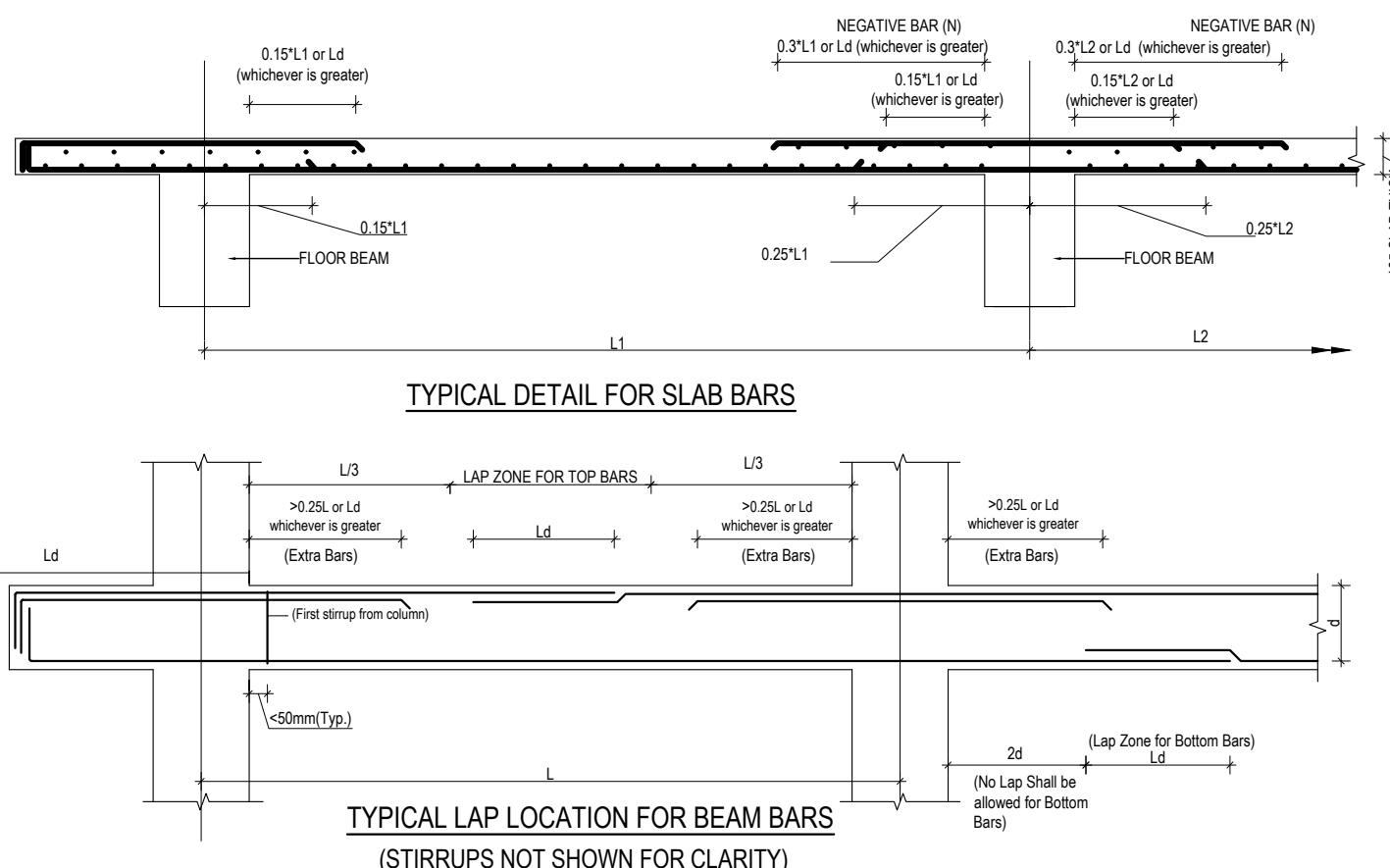
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 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	TABLE OF CONTENTS	SAGE Engineering Consult Nepal	ENGINEER: _____ ARCHITECT: _____ DRAWN: _____ SCALE : 1: 120	STRUCTURE ER. : CHECKED: _____ APPROVED: _____ PAPER SIZE : A3	R-00 DWG CODE: 3S6R-MOUNTAINOUS DATE: FEBRUARY, 2023

## GENERAL NOTES

1. USE M25 GRADE CONCRETE FOR SLAB, BEAM, COLUMN, FOUNDATION, SILL & LINTEL BANDS (ALL RCC WORKS)
2. USE Fe500 GRADE STEEL ( $f_y=500\text{N/mm}^2$ )
3. CLEAR COVER TO BARS
  - a. FOR CONCRETE MEMBERS IN CONTACT WITH SOIL = MIN 50mm
  - b. FOR COLUMN (FROM FACE TO LATERAL TIES) = 40mm
  - c. FOR BEAMS (FROM FACE TO LATERAL STIRRUPS) = 25mm
  - d. FOR OUTER BARS IN SLAB = 15mm
  - e. FOR STAIRCASE = 20mm
4. BARS IN COLUMNS SHALL BE SPLICED ONLY AT MID HEIGHT OF COLUMN

BAR DIA-(mm)	8	10	12	16	20	25
FOR M25 Ld	400	490	590	790	980	1230

7. TEMP./DISTRIBUTION REINFORCEMENT FOR SLAB - TMT 80 @ 200 C/C
8. CLEAR VERTICAL DISTANCE BETWEEN TWO ROWS (LAYER) OF BARS=25mm OR MAXIMUM SIZE OF REBAR
9. PROVIDE STIRRUPS OR TIES AT MIN 150 C/C AT LAP LOCATIONS IN BEAM AND AT MIN 100 C/C AT LAP LOCATION IN COLUMNS
10. FOUNDATION
  - 10.1 FOUNDATION DESIGN HAVE BEEN PROVIDED FOR SAFE BEARING CAPACITY OF 150KN/m2.  
THIS S.B.C. SHALL BE CONFIRMED FROM GEO TECHNICAL INVESTIGATION AND CONSULTED TO DESIGNER.
  - 10.2 IF SAFE BEARING CAPACITY OF SOIL IS FOUND LESS THAN 100KN/m2, SPECIAL STUDY FOR FOUNDATION DESIGN IS REQUIRED.
11. H = CLEAR SPAN OF FLOOR.
12. D=DEPTH OF BEAM
13. d=EFFECTIVE DEPTH OF BEAM
14. Ld=DEVELOPMENT LENGTH
15. The seismic gap shall be as per codal requirement.



Government of Nepal  
Ministry of Education, Science & Technology  
Center for Education and Human Resource Development  
Sanothimi, Bhaktapur, Nepal

## Prepare School Building Type Design for Mountainous Region

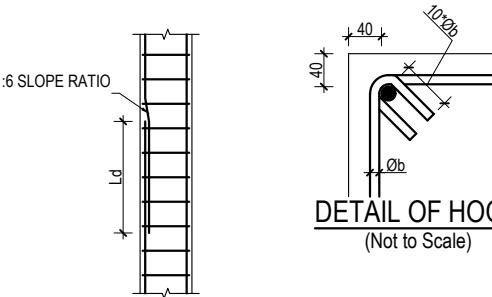
## GENERAL NOTES

## CONSULTANT

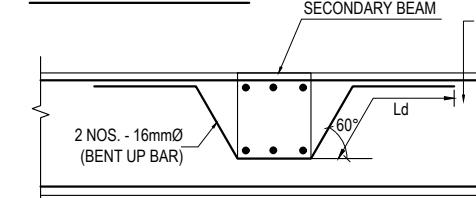
PLANNING DESIGN TEAM

SHEET NO. REVISION NO.  
R-00

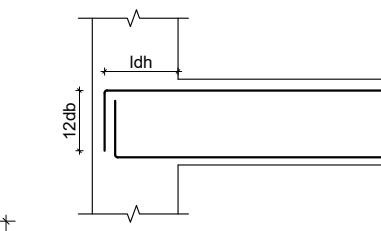
DWG CODE.  
3S6R-MOUNTAINOUS



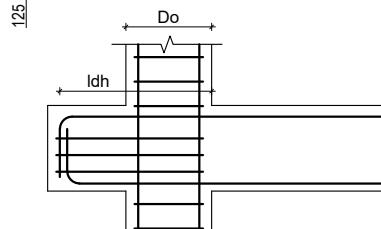
## LAPPING METHOD



## CONNECTION DETAIL BETWEEN MAIN & SECONDARY BEAM



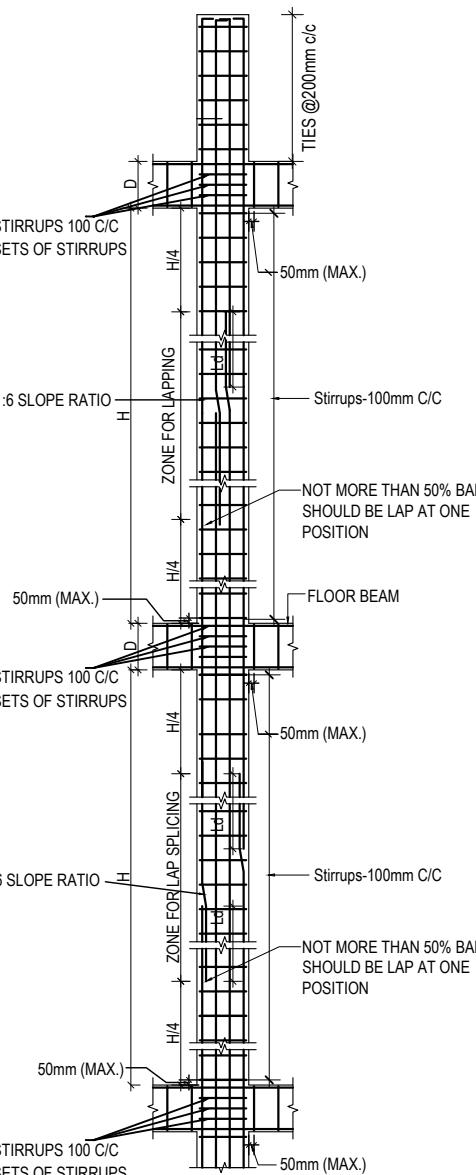
## ANCHORAGE OF BEAM LONGITUDINAL BAR IN COLUMN



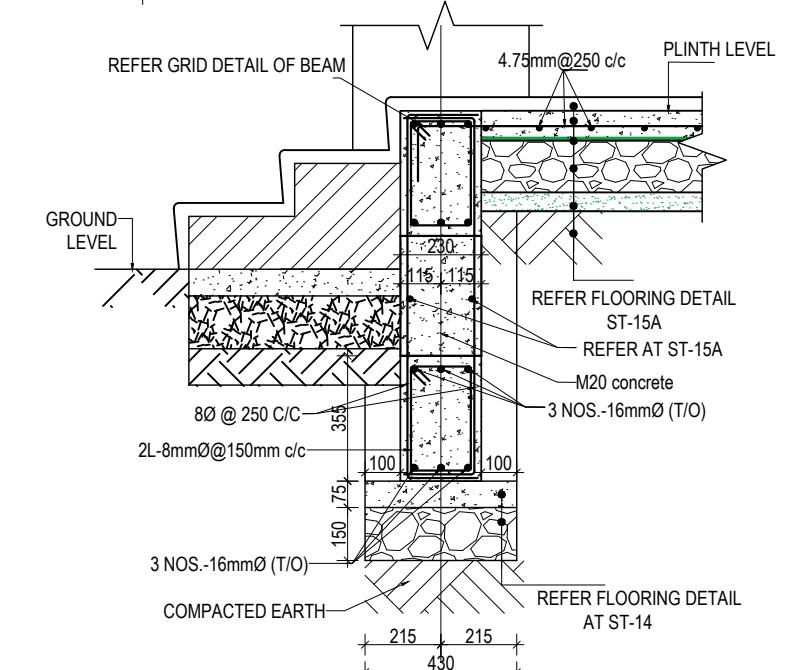
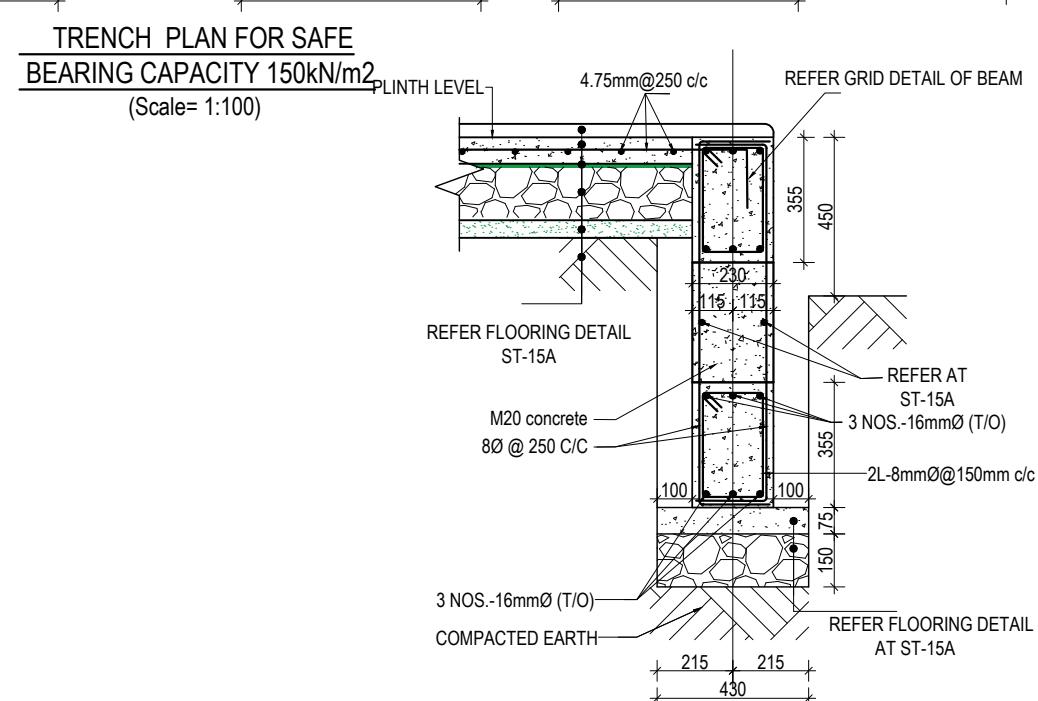
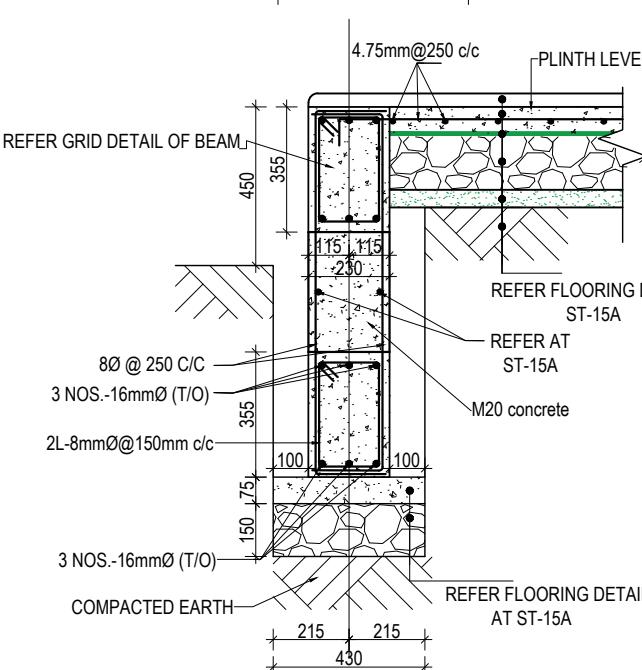
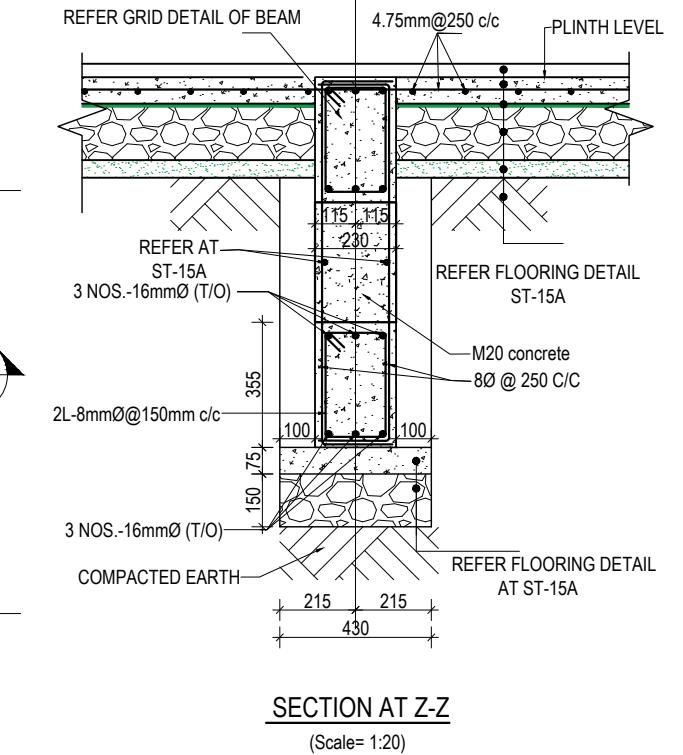
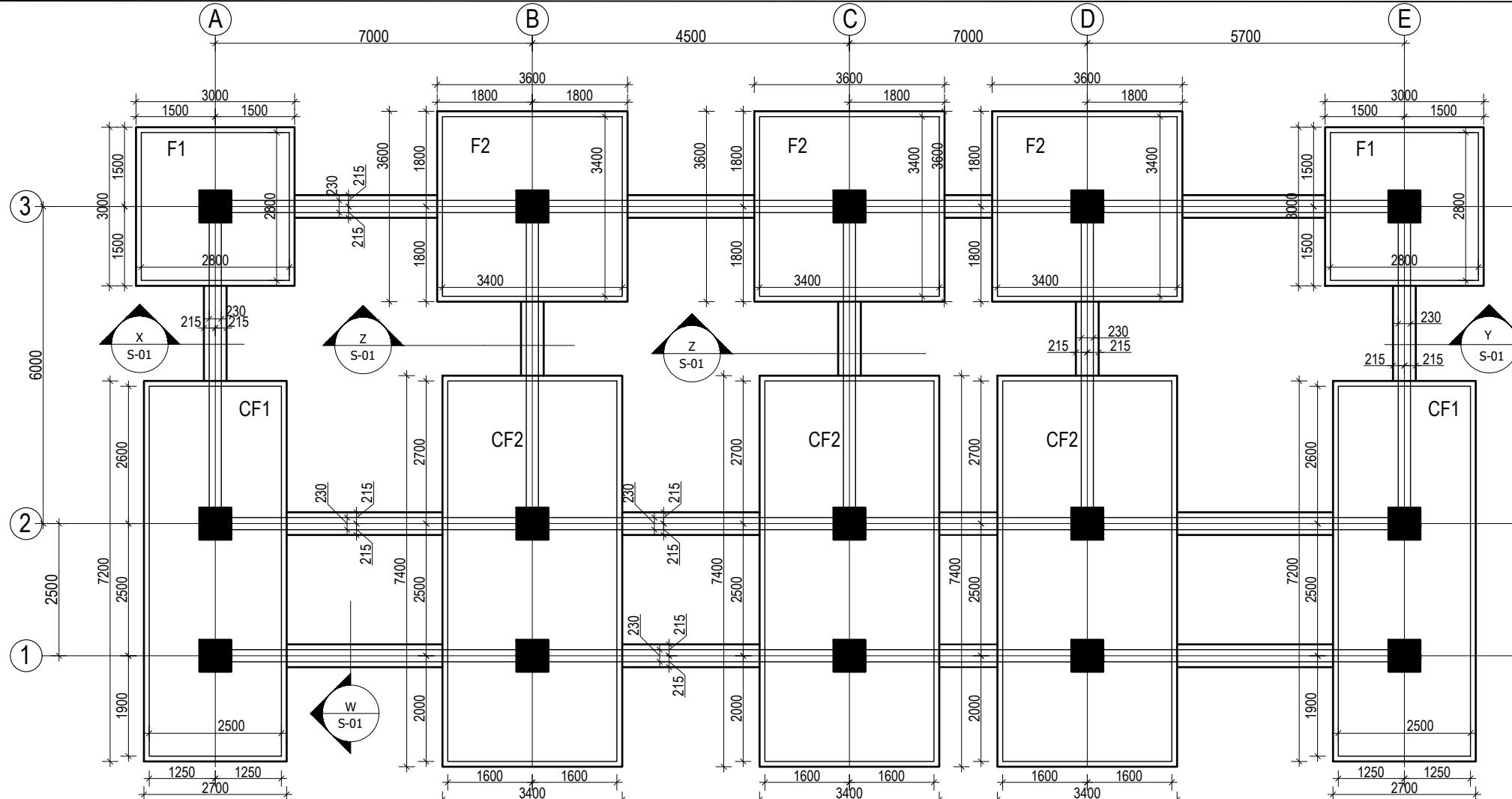
## PROVISION OF BEAM STUD

<b>fy</b>	<b>fck</b>	<b>db</b>	<b>Ldh</b>	<b>12dh</b>
<b>N/mm<sup>2</sup></b>	<b>N/mm<sup>2</sup></b>	<b>mm</b>	<b>mm</b>	<b>mm</b>
500	20	12	277	144
500	25	12	248	144
500	20	16	369	192
500	25	16	330	192
500	20	20	462	240
500	25	20	413	240
500	20	25	577	300
500	25	25	516	300

fy= yield strength of steel  
 fck= Characteristic Compressive strength of concrete  
 db= diameter of largest longitudinalbar in beam in mm



**CHAIR RESTING ON BOTTOM BARS**  
**@600 - 900 mm staggered position**



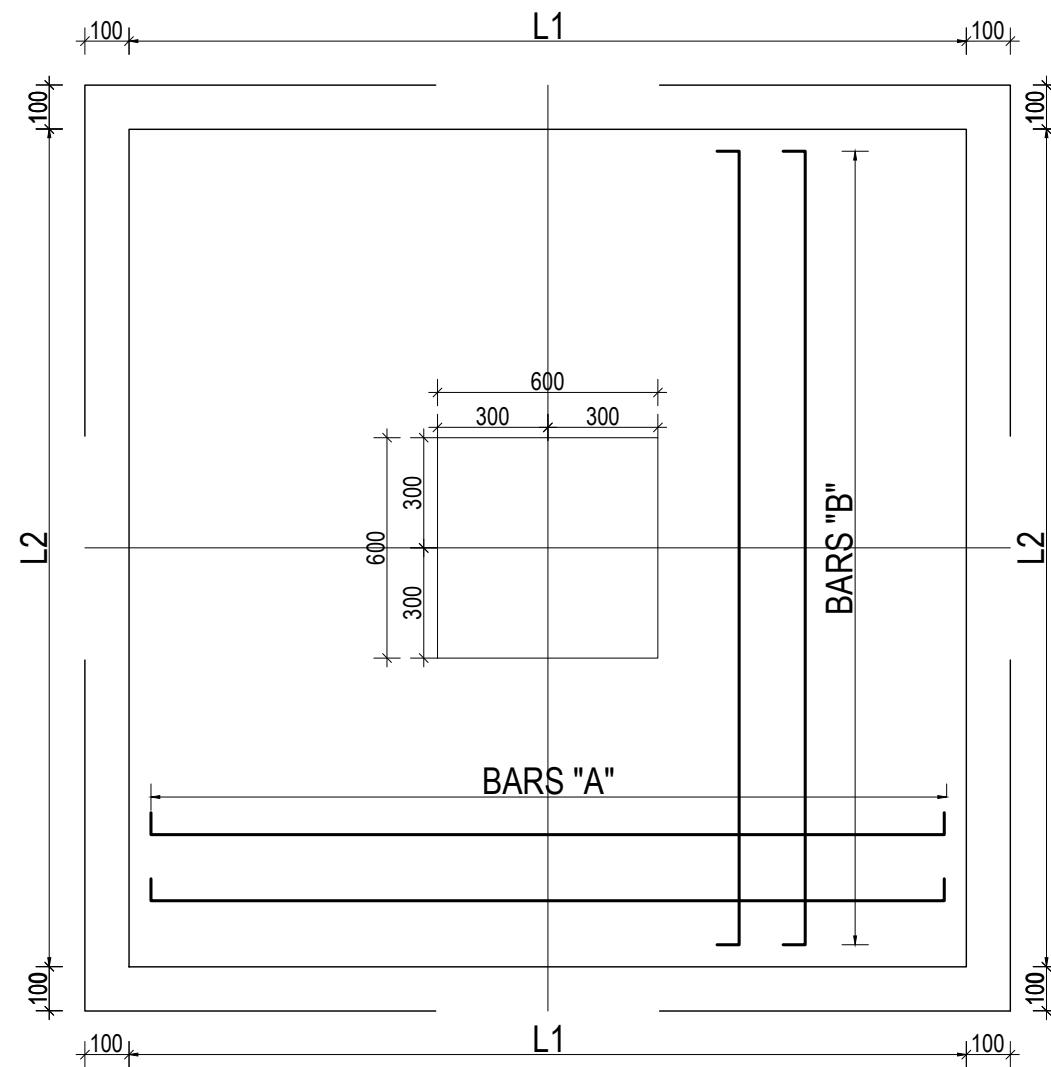
SECTION AT X-X  
(Scale= 1:20)

SECTION AT Y-Y  
(Scale= 1:20)

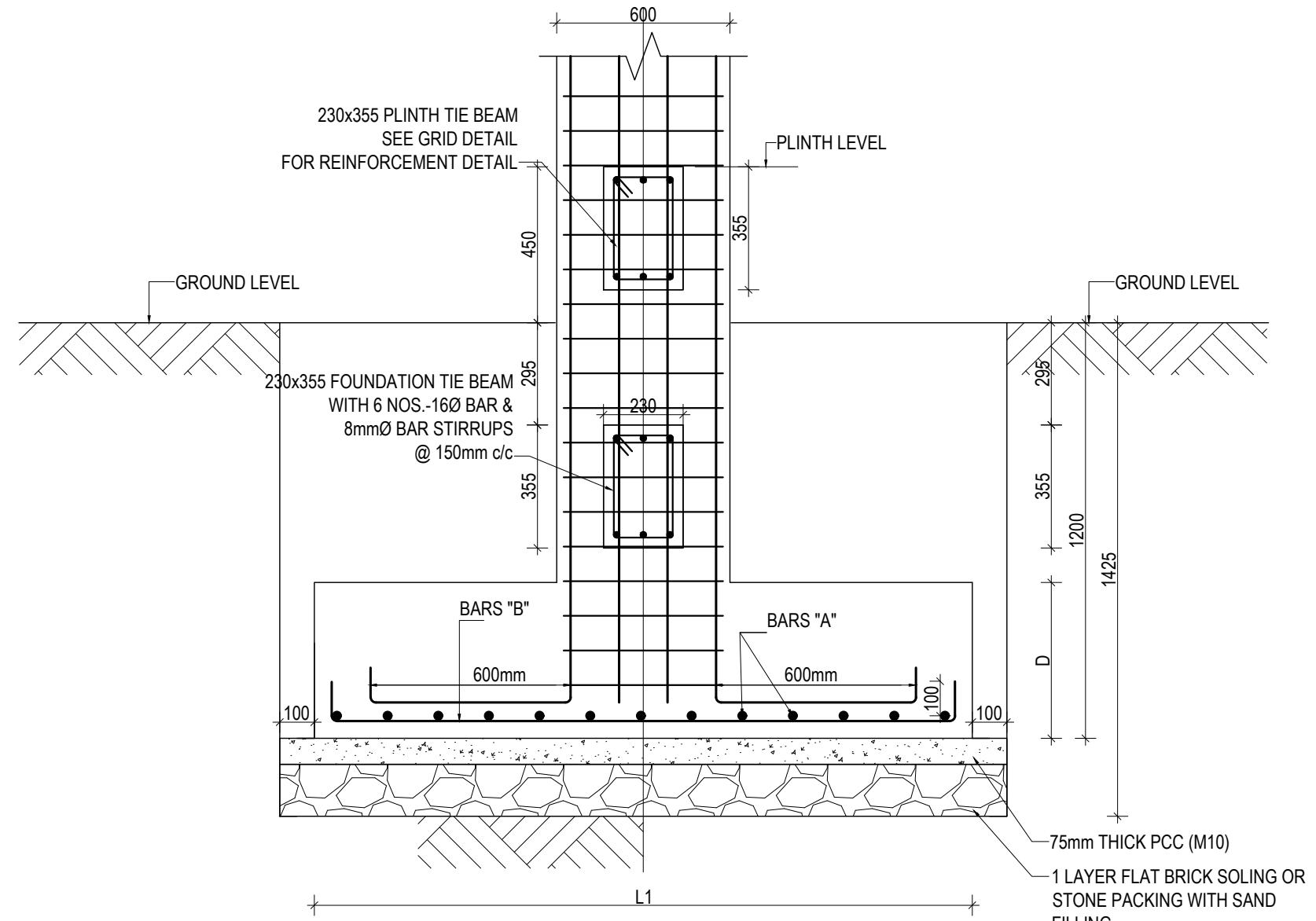
CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	TRENCH DETAIL FOR S.B.C 150kN/m <sup>2</sup>	SAGE Engineering Consult Nepal	ENGINEER: _____ ARCHITECT: _____ DRAWN: _____ SCALE : 1: 120	ST-01	R-00

DWG CODE:  
 3S6R-MOUNTAINOUS

PAPER SIZE : A3 DATE: FEBRUARY, 2023



TYPICAL ISOLATED FOOTING PLAN



TYPICAL ISOLATED FOOTING SECTION

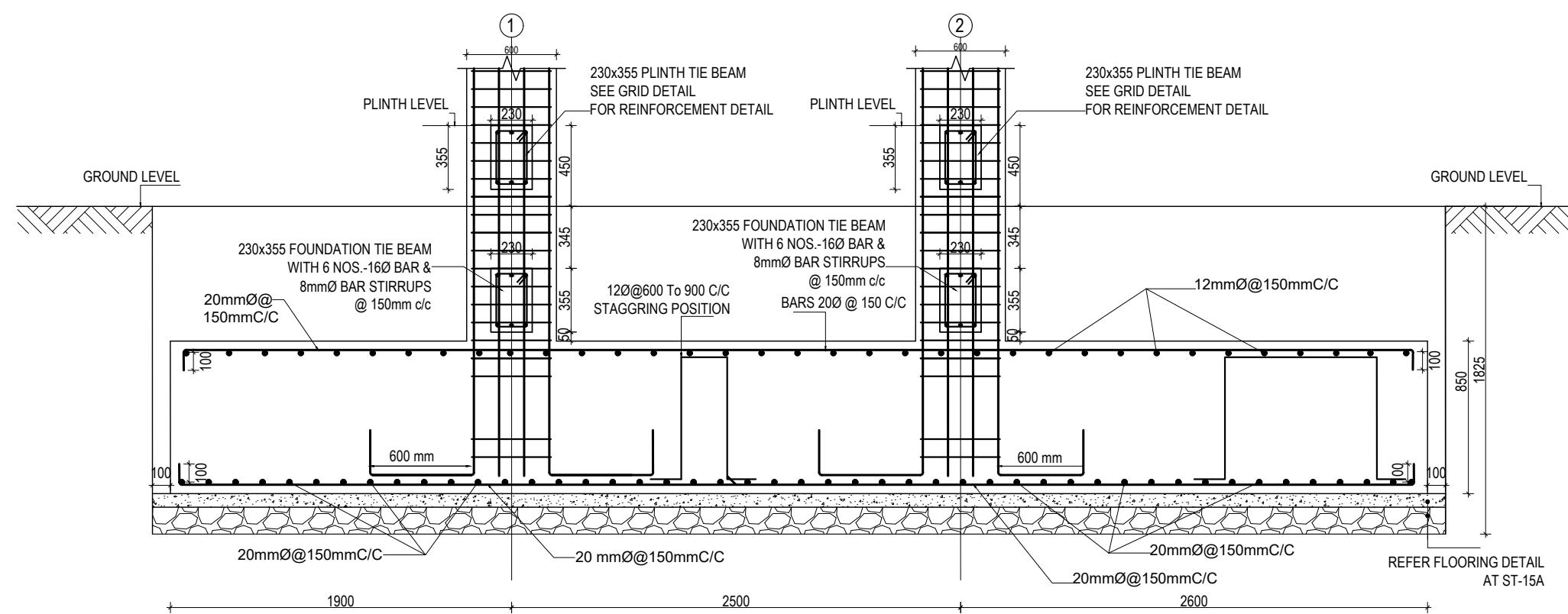
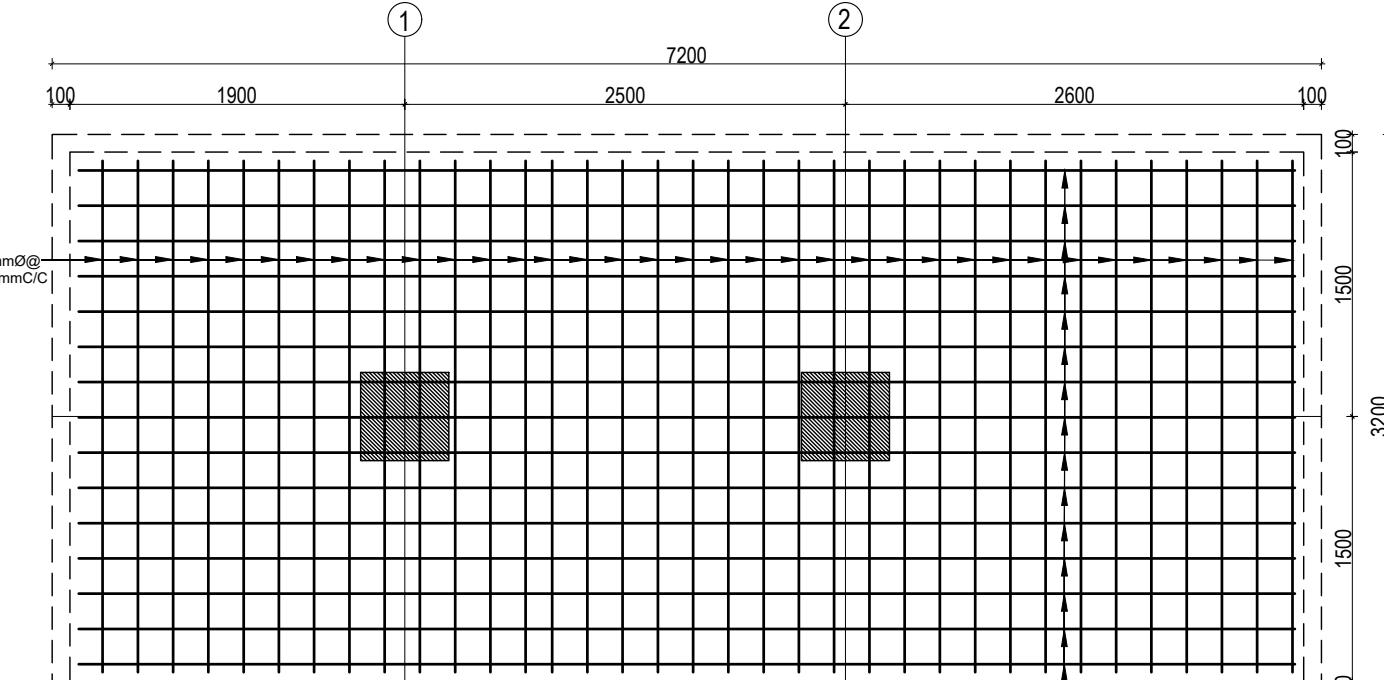
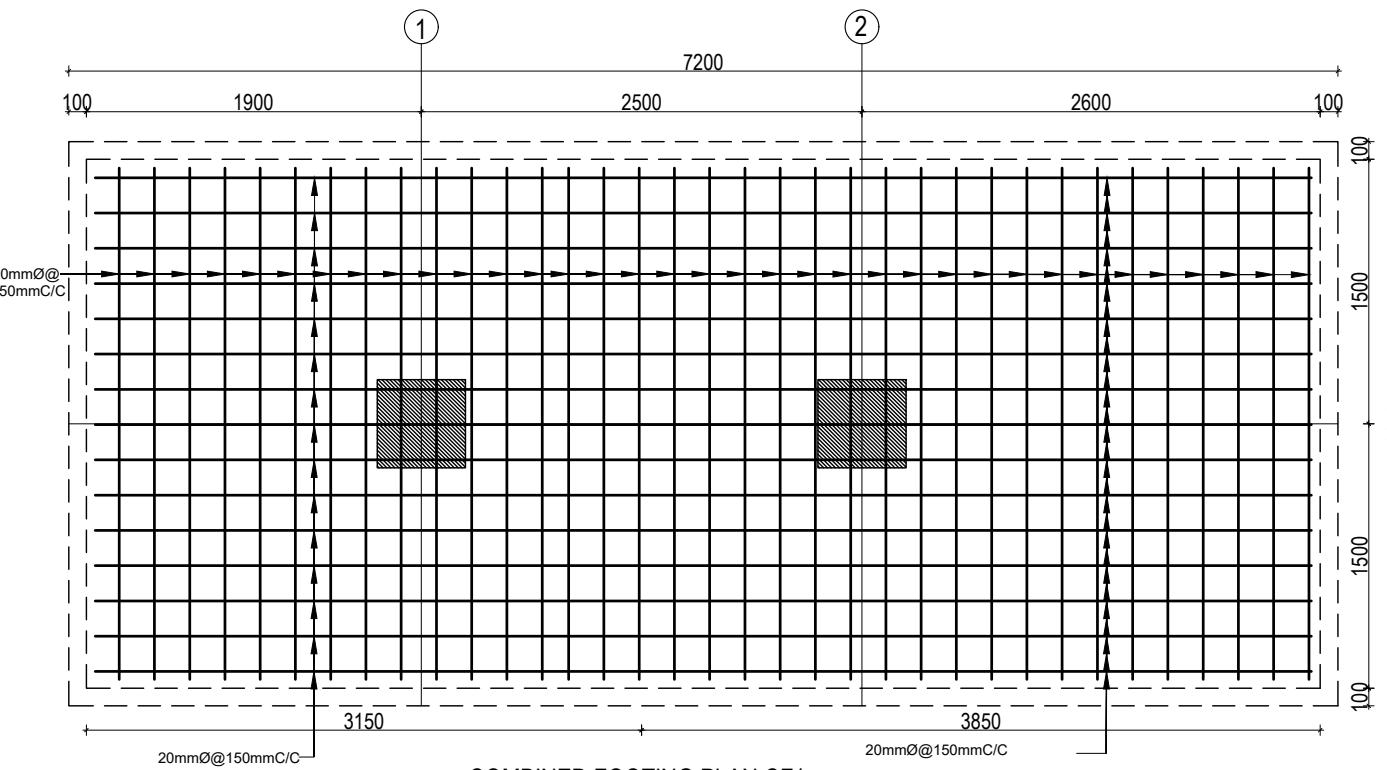
**ISOLATED FOOTING SCHEDULE FOR S.B.C 150 kN/m<sup>2</sup>**

FOOTING ID	L1	L2	DEPTH (D)	REINFORCEMENT DETAILS	
				BARS "A"	BARS "B"
F1	2800	2800	650	16Ø @ 150 C/C	16Ø @ 150 C/C
F2	3400	3400	750	16Ø @ 150 C/C	16Ø @ 150 C/C

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DWG CODE:  
 3S6R-MOUNTAINOUS

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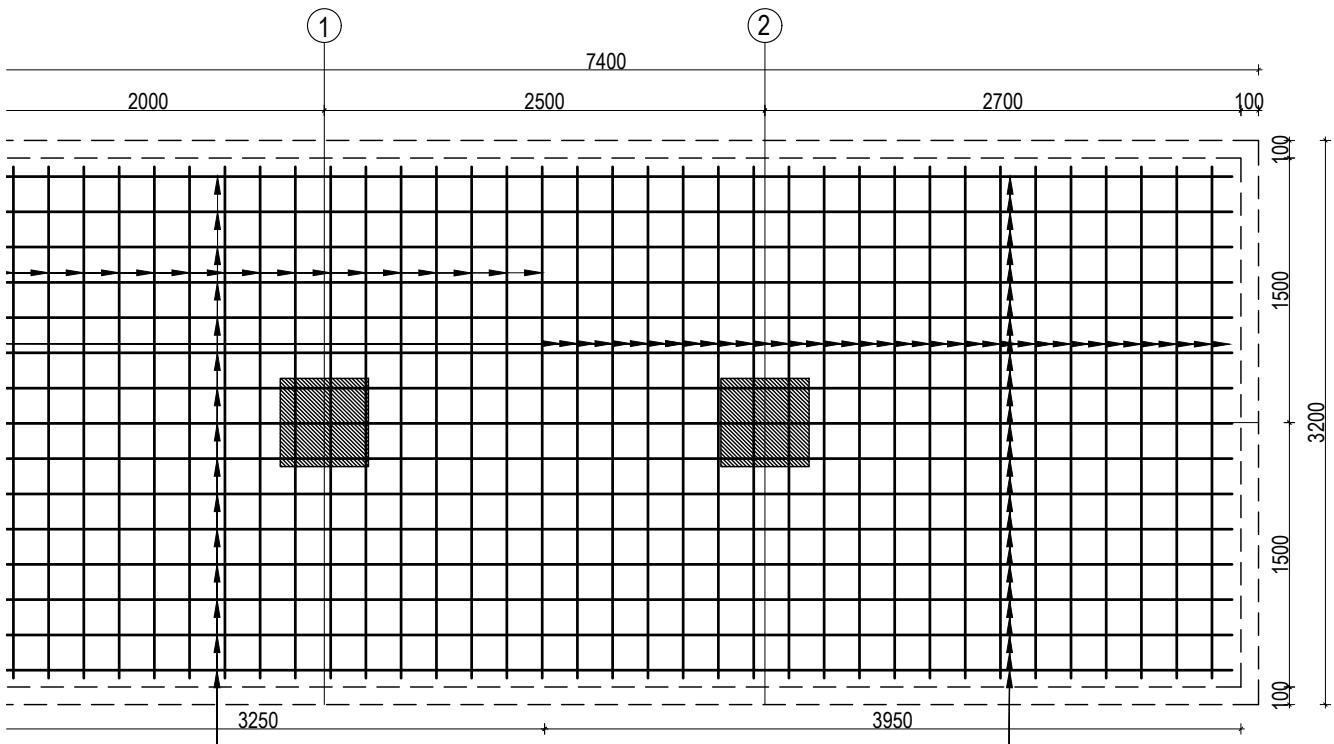


COMBINED FOOTING SECTION CF1

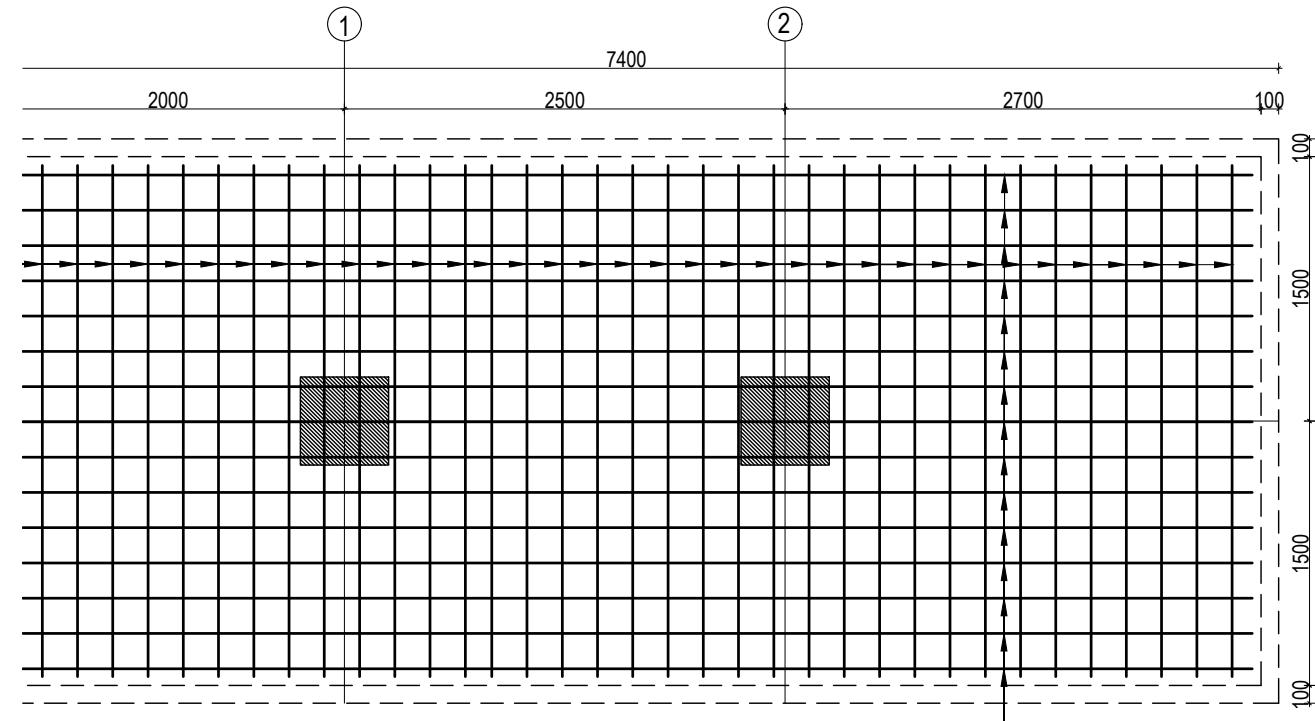
CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	FOOTING DETAIL FOR S.B.C 150kN/m <sup>2</sup>	SAGE Engineering Consult Nepal	ENGINEER: _____ ARCHITECT: _____ DRAWN: _____ SCALE : 1: 120	ST-03	R-00

STRUCTURE ER. :  
CHECKED:  
APPROVED:  
PAPER SIZE : A3  
DATE: FEBRUARY, 2023

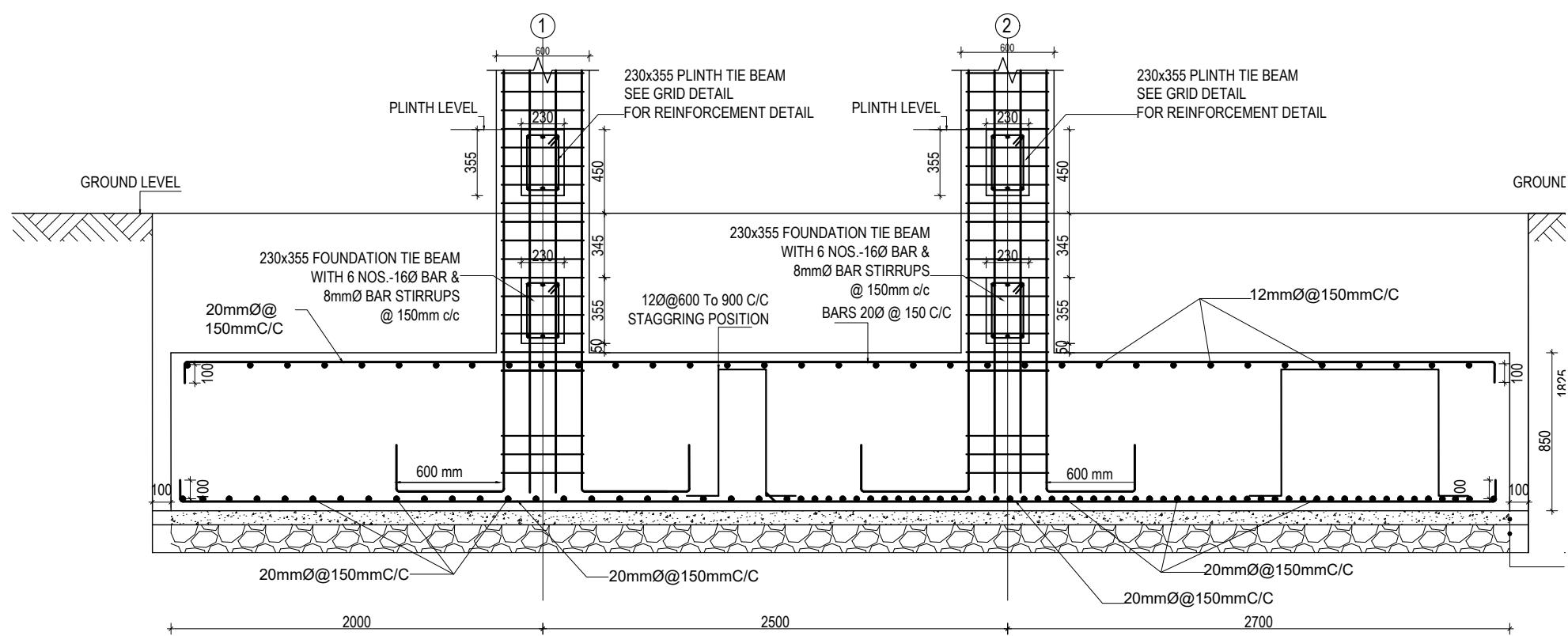
DWG CODE:  
3S6R-MOUNTAINOUS



COMBINED FOOTING PLAN CF2  
BOTTOM REINFORCEMENT

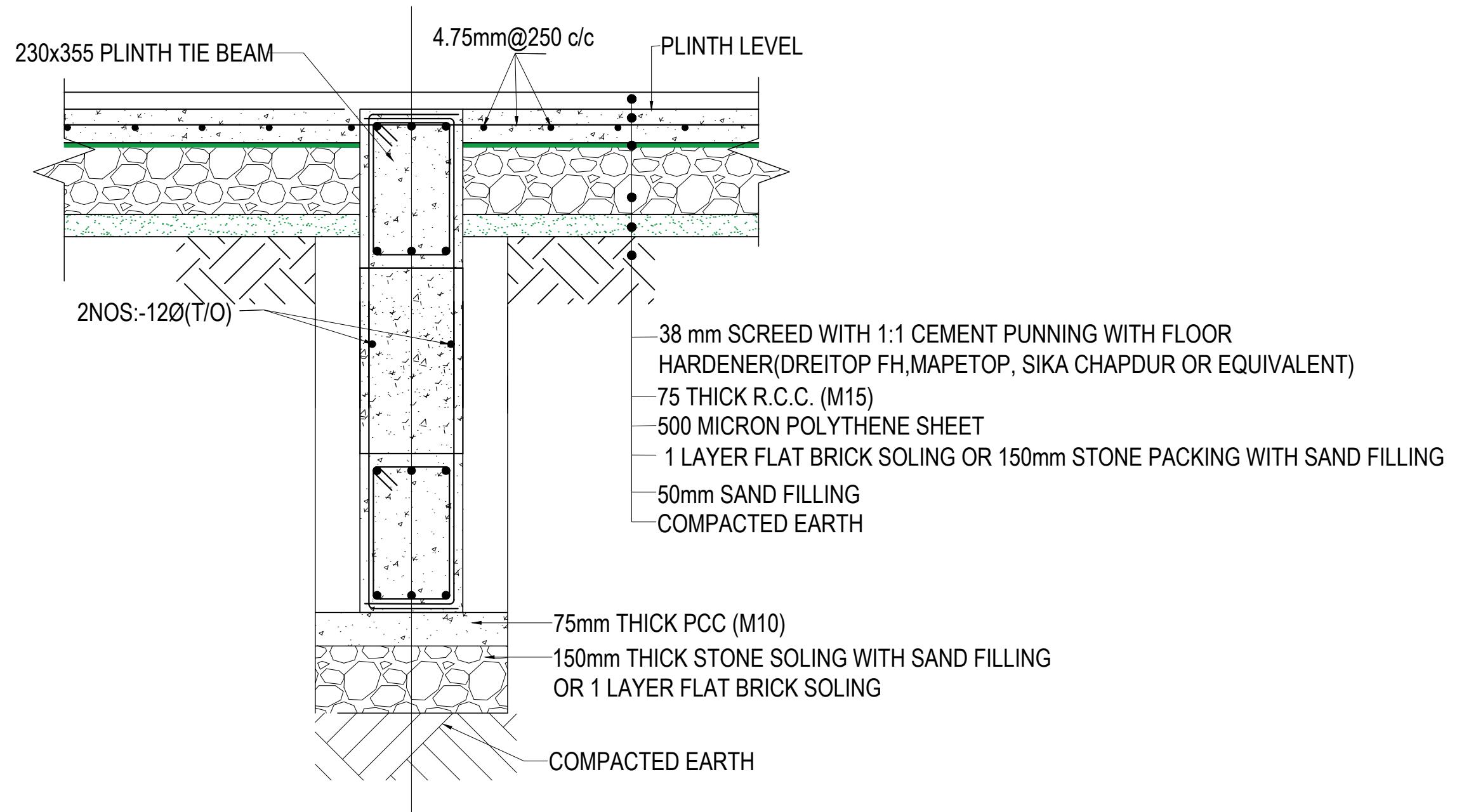


COMBINED FOOTING PLAN CF2  
TOP REINFORCEMENT



## COMBINED FOOTING SECTION CF2

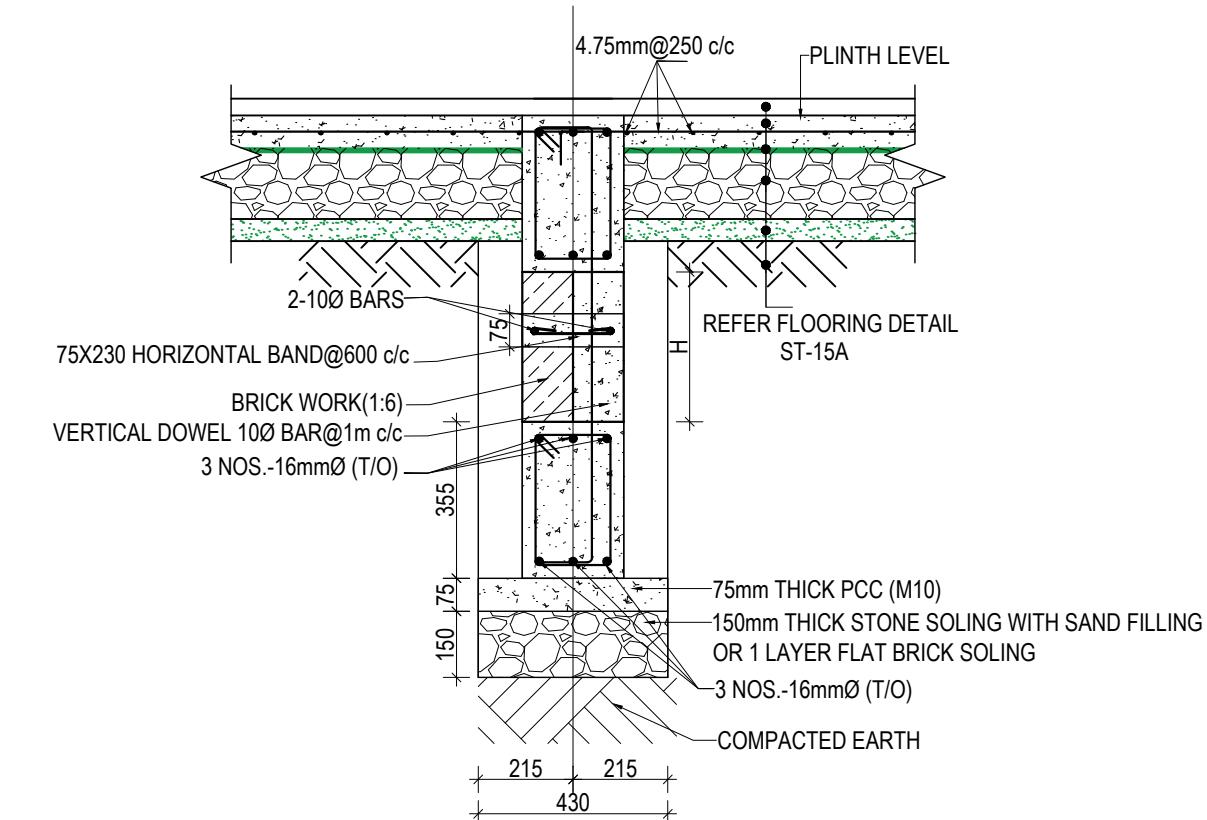
CLIENT		PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM		SHEET NO. ST-04	REVISION NO. R-00
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	FOOTING DETAIL FOR S.B.C 150kN/m2	SAGE Engineering Consult Nepal	ENGINEER: ARCHITECT: DRAWN: SCALE : 1: 120	STRUCTURE ER.: CHECKED: APPROVED: PAPER SIZE : A3	DATE: FEBRUARY, 2023	DWG CODE: 3S6R-MOUNTAINOUS	



### TYPICAL FLOORING DETAIL FF1

(Scale= 1:10)

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 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	TYPICAL FLOORING DETAIL	SAGE Engineering Consult Nepal	ENGINEER: _____ ARCHITECT: _____ DRAWN: _____ SCALE : 1: 120	ST-05	R-00 DWG CODE: 3S6R-MOUNTAINOUS DATE: FEBRUARY, 2023

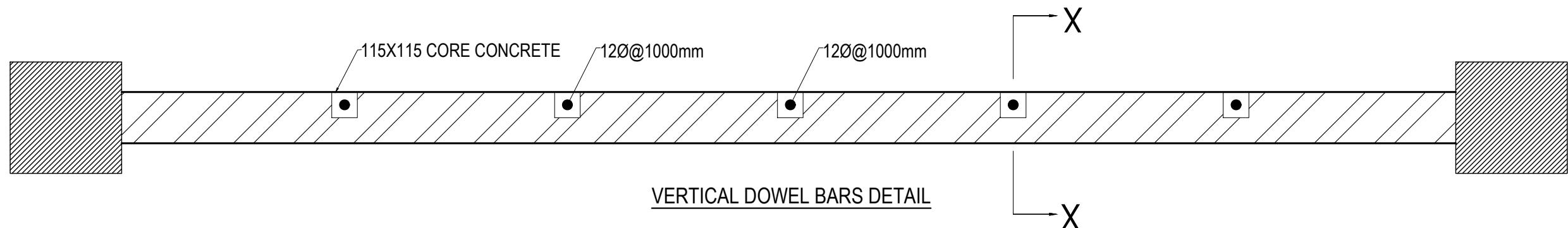


WALL DETAIL FOR DEPTH OF FOOTING MORE THAN 1500 mm

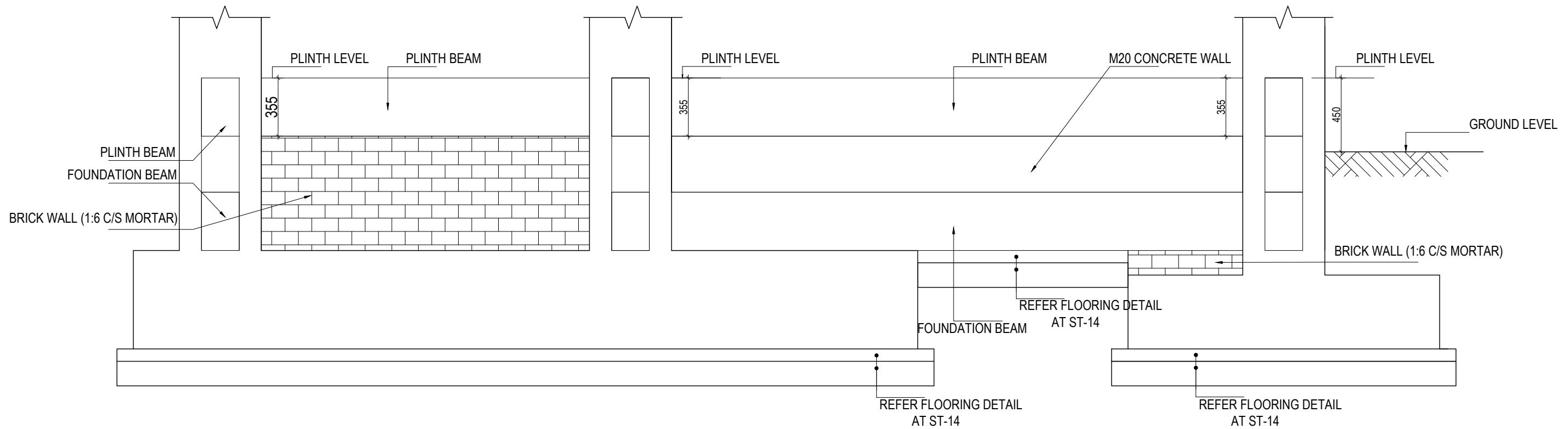
SECTION AT X-X

NOTES:-

- 1) BRICK WALL IS USED IF WALL IS CONFINED BY SOIL ON BOTH SIDES
- 2) IF THE HEIGHT OF THE BRICKWALL EXCEEDS 1800 mm ADDITIONAL BEAM SHALL BE PROVIDED OF SAME SIZE OF FOUNDATION BEAM(SAME REINFORCEMENT TO BE USED)

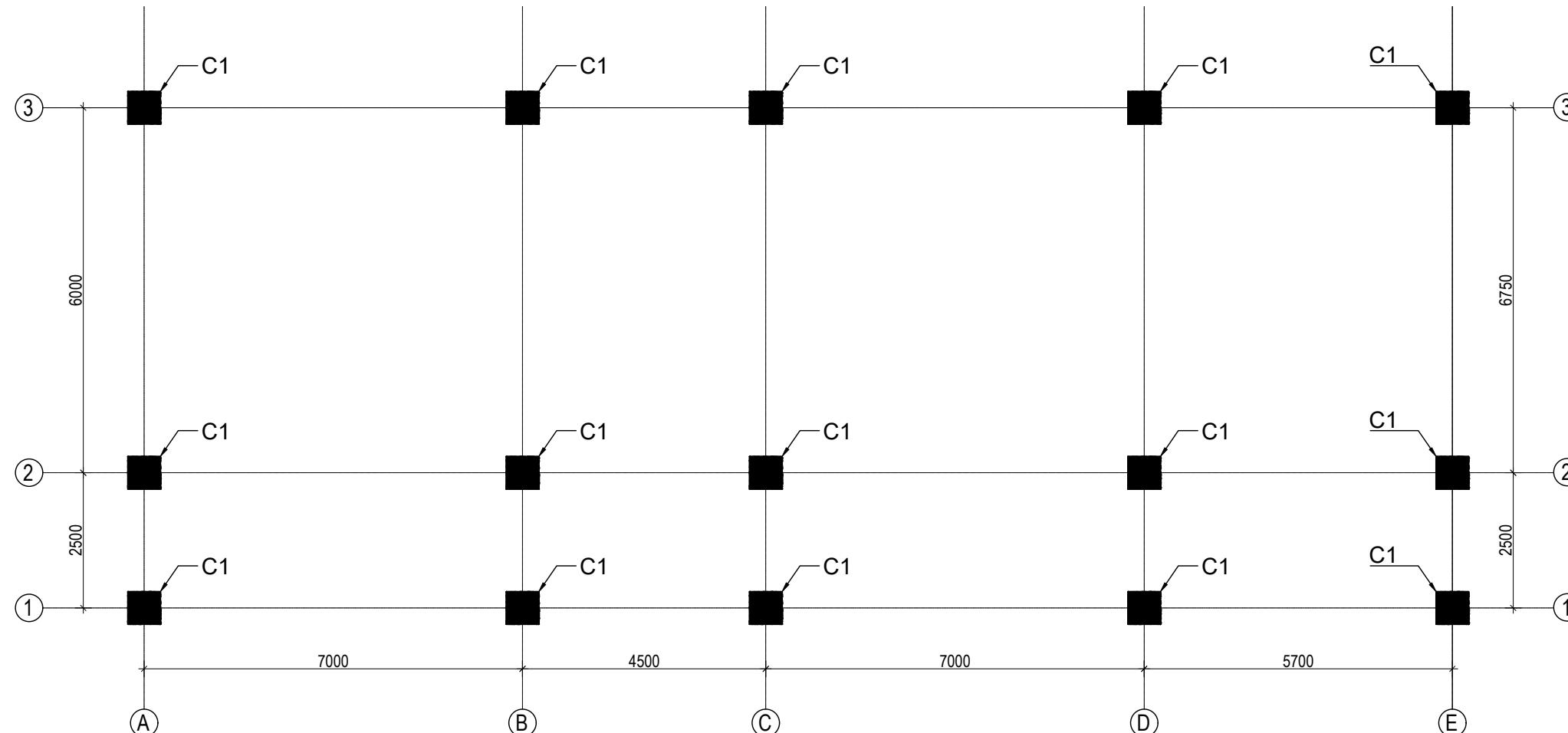


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 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	SITE SPECIFIC DRAWING	SAGE Engineering Consult Nepal	ENGINEER: _____ ARCHITECT: _____ DRAWN: _____ SCALE : 1: 120	ST-06	R-00



TYPICAL DETAIL OF FOUNDATION WALL

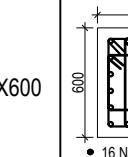
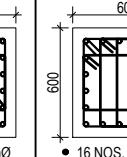
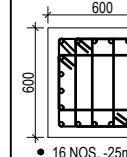
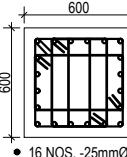
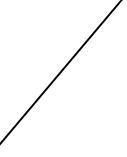
CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO. ST-07	REVISION NO. R-00
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	TYPICAL DETAIL OF FOUNDATION WALL	SAGE Engineering Consult Nepal	ENGINEER: _____ ARCHITECT: _____ DRAWN: _____ SCALE : 1: 120	STRUCTURE ER. : CHECKED: _____ APPROVED: _____ PAPER SIZE : A3	DWG CODE: 3S6R-MOUNTAINOUS DATE: FEBRUARY, 2023



**GROUND FLOOR COLUMN LAYOUT PLAN**

(SCALE 1:100)

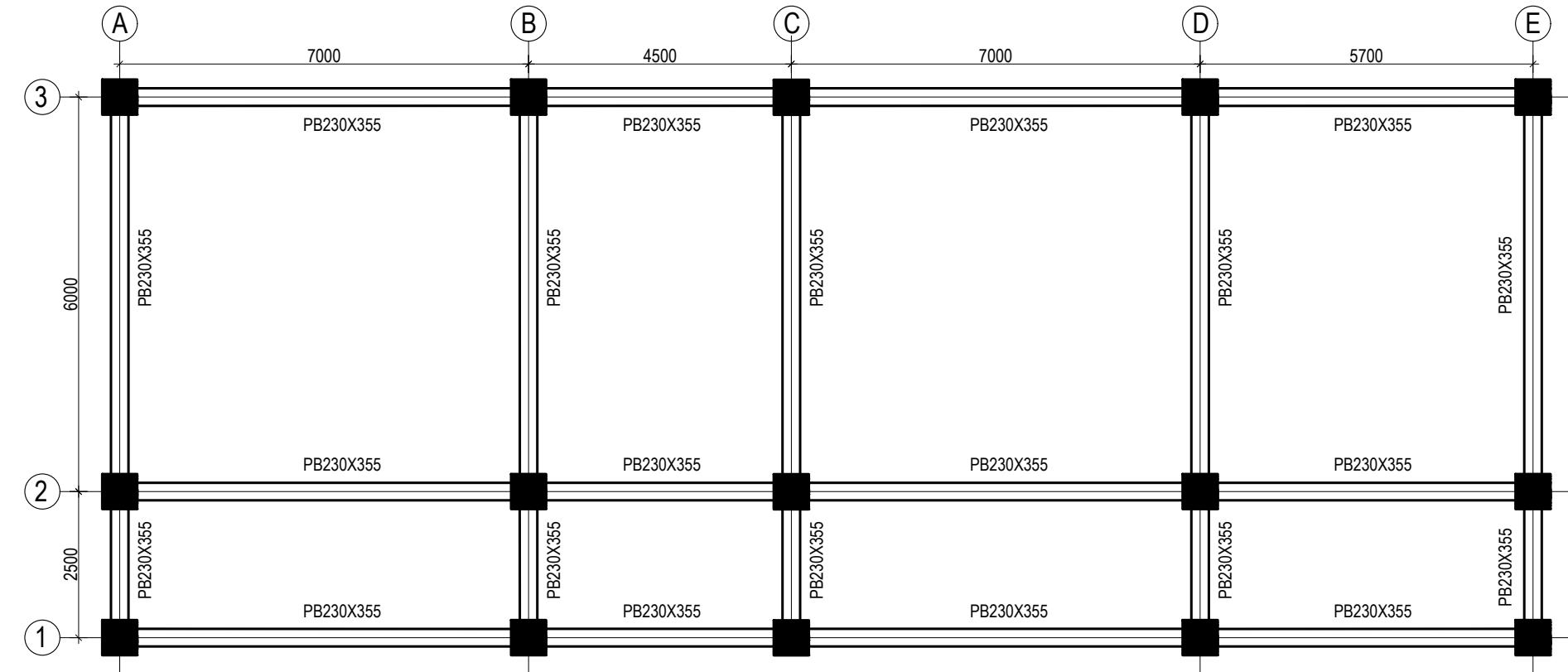
**COLUMN REINFORCEMENT DETAILS**

S. NO.	COLUMN	COLUMN SIZE	FLOOR					TIE BAR ORIENTATION
			GROUND FLOOR	FIRST FLOOR	SECOND FLOOR	THIRD FLOOR	TOP FLOOR	
1	C1	600X600	 • 16 NOS. -25mmØ	 • 16 NOS. -25mmØ	 • 16 NOS. -25mmØ	 • 16 NOS. -25mmØ	 • 16 NOS. -25mmØ	  A: 10Ø100c/c & B: 8Ø100c/c

CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	COLUMN DETAIL	SAGE Engineering Consult Nepal	ENGINEER: _____ ARCHITECT: _____ DRAWN: _____ SCALE : 1: 120	STRUCTURE ER. : CHECKED: _____ APPROVED: _____ PAPER SIZE : A3	ST-08 R-00

DWG CODE:  
 3S6R-MOUNTAINOUS

DATE: FEBRUARY, 2023



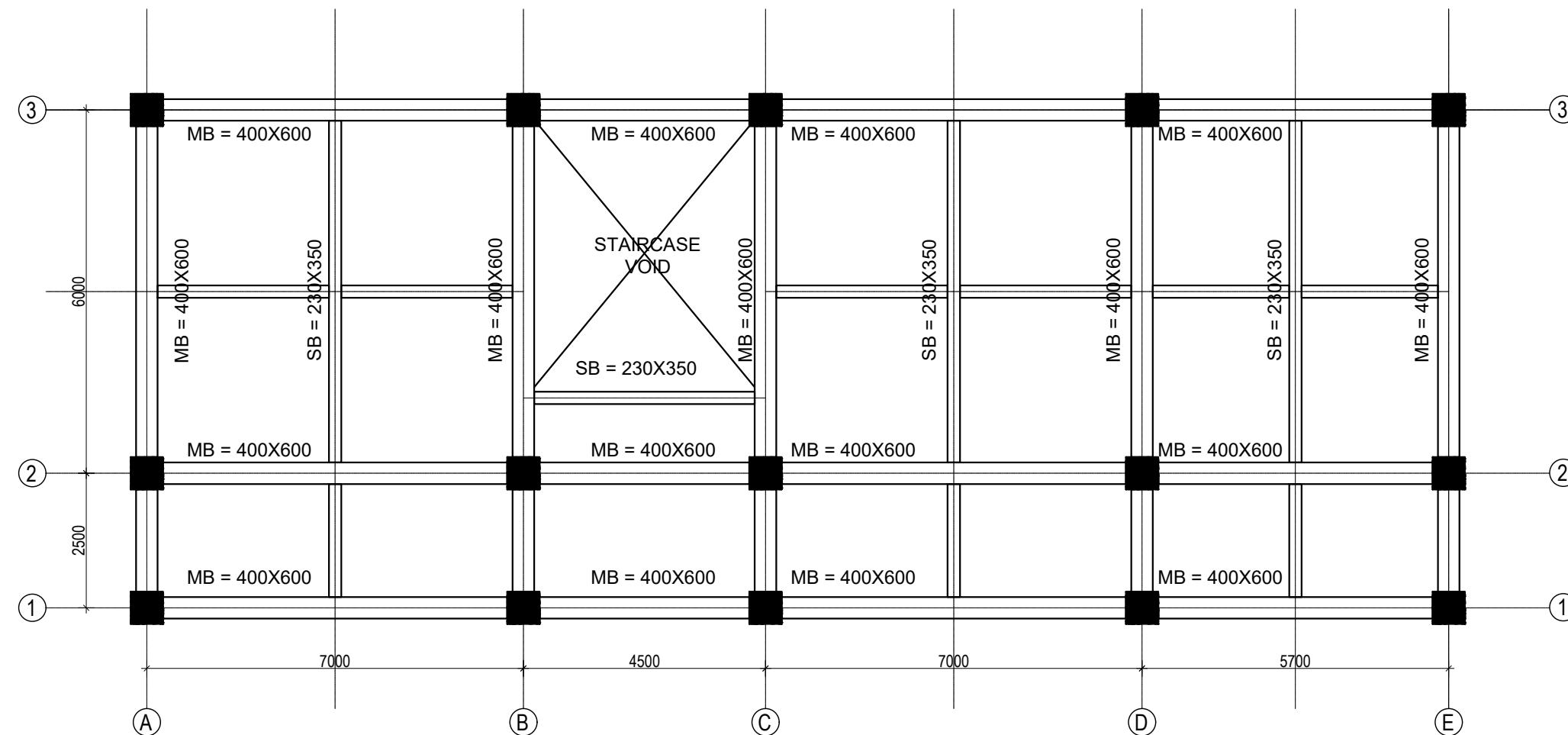
PLINTH BEAM LAYOUT PLAN

(Scale= 1:100)  
LVL:- PL+0000

CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	BEAM LAYOUT PLAN	SAGE Engineering Consult Nepal	ENGINEER: _____ ARCHITECT: _____ DRAWN : _____ SCALE : 1: 120	STRUCTURE ER. : CHECKED: APPROVED: PAPER SIZE : A3	ST-09 R-00

DWG CODE:  
 3S6R-MOUNTAINOUS

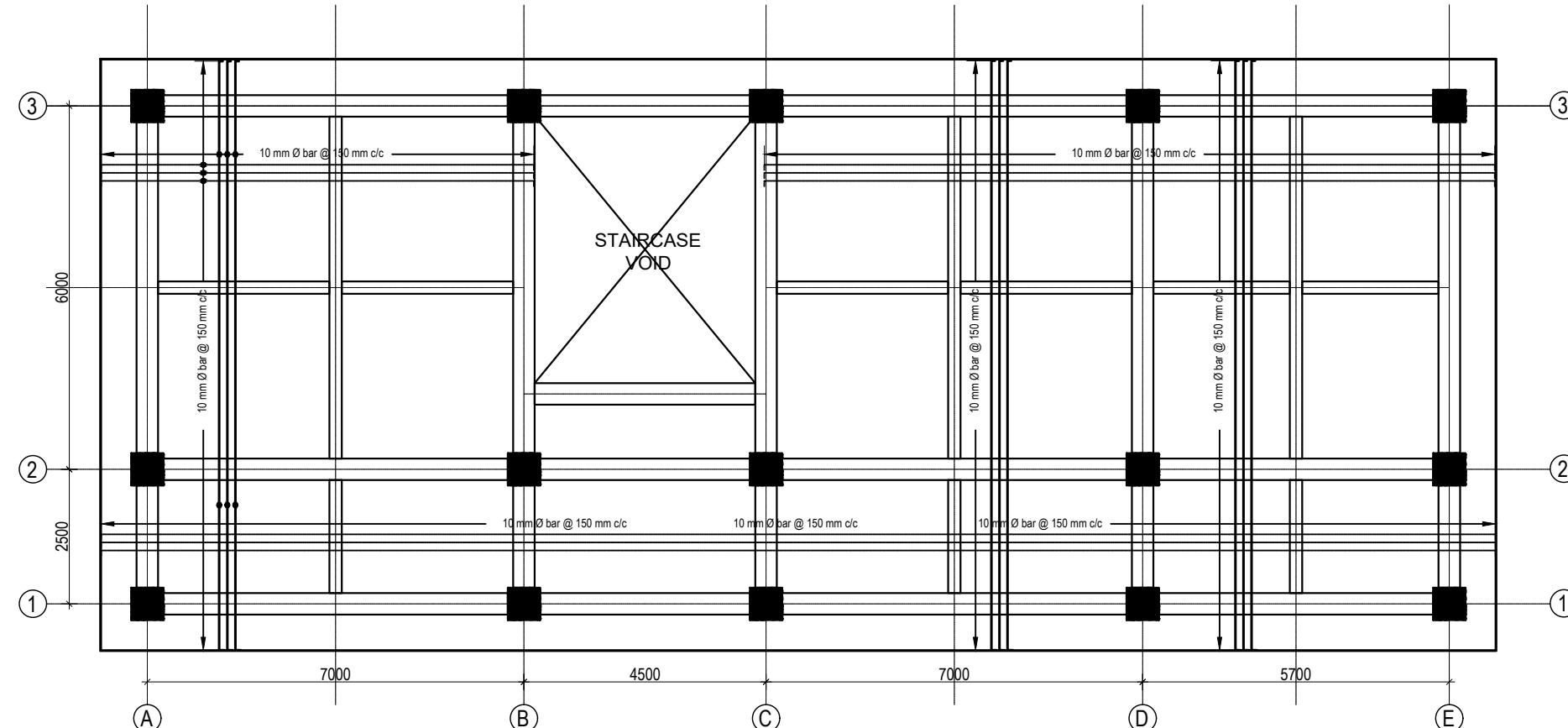
DATE: FEBRUARY, 2023



CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	BEAM LAYOUT PLAN	SAGE Engineering Consult Nepal	ENGINEER: _____ ARCHITECT: _____ DRAWN : _____ SCALE : 1: 120	ST-10	R-00

STRUCTURE ER. :  
 CHECKED:  
 APPROVED:  
 PAPER SIZE : A3  
 DATE: FEBRUARY, 2023

DWG CODE:  
 3S6R-MOUNTAINOUS



(Scale= 1:120)

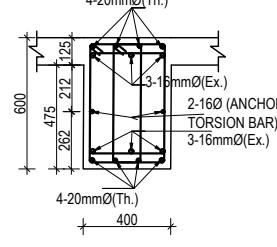
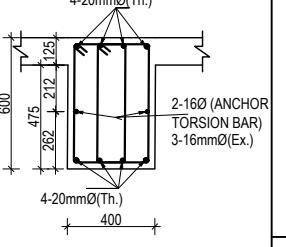
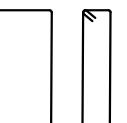
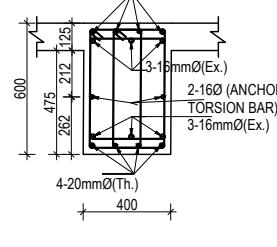
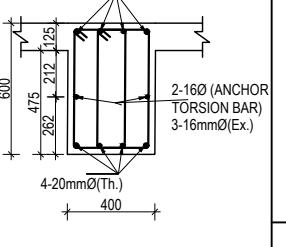
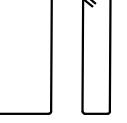
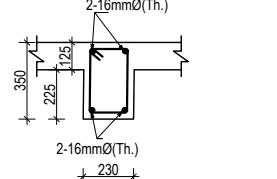
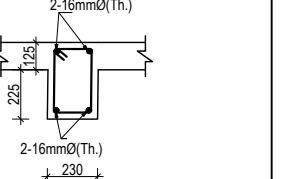
125 mm SLAB THICKNESS

CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	SLAB REINFORCEMENT DETAIL	SAGE Engineering Consult Nepal	ENGINEER: _____ ARCHITECT: _____ DRAWN: _____ SCALE : 1: 120	ST-11	R-00

DWG CODE:  
3S6R-MOUNTAINOUS

PAPER SIZE : A3 DATE: FEBRUARY, 2023

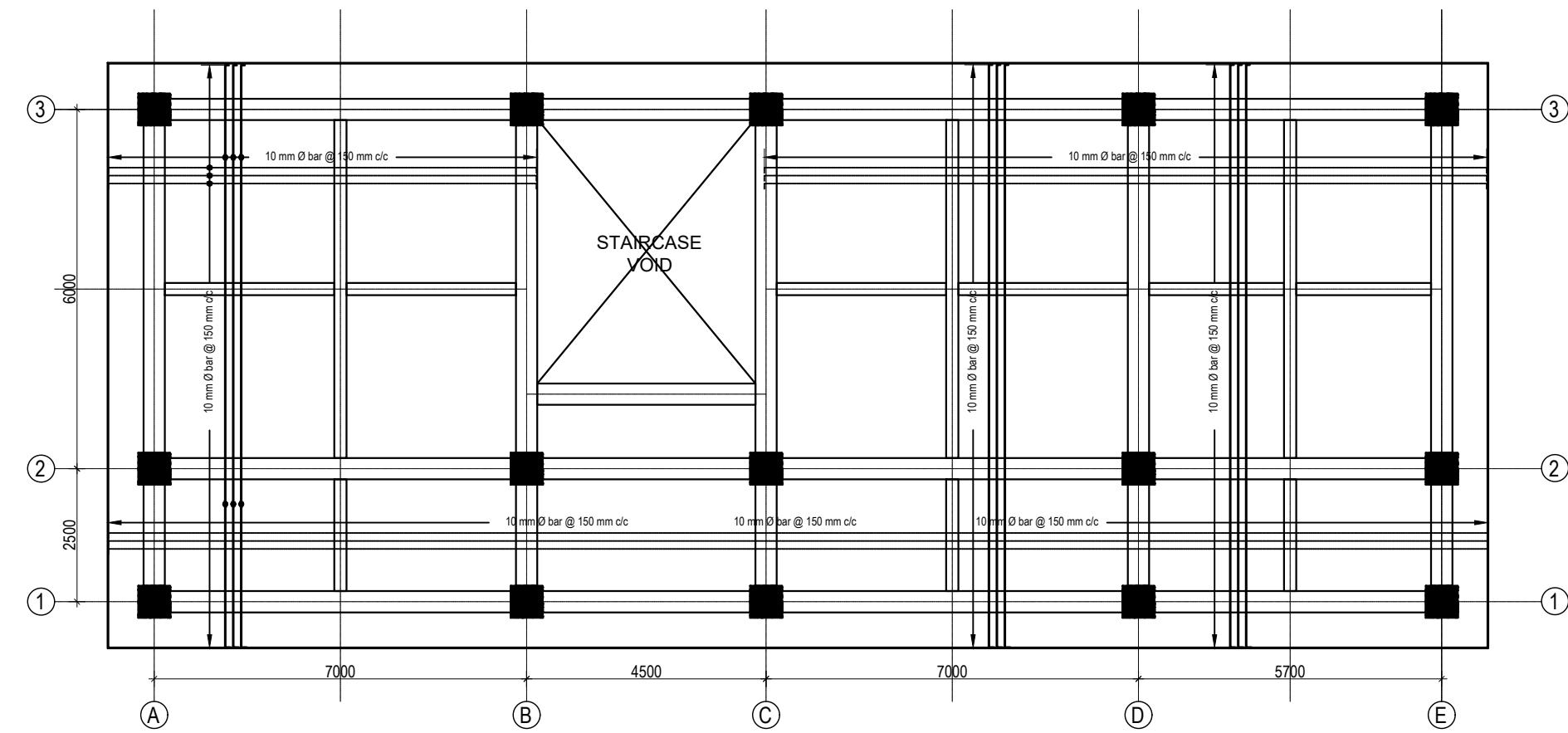
**COLUMN REINFORCEMENT DETAILS**

S. NO.	GRID	BEAM SIZE	AT SUPPORT	AT MID	STIRRUPS BAR ORIENTATION	FLOOR LVL
1	1-1	400X600				FIRST FLOOR BEAMS SECOND FLOOR BEAMS
	2-2					
	3-3					
2	A-A	400X600				REMAINING FLOOR BEAMS
	B-B					
	C-C					
	D-D					
	E-E					
3	Sec. beam	230X350				ALL FLOOR BEAMS

CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	BEAM DETAIL	SAGE Engineering Consult Nepal	ENGINEER: _____ ARCHITECT: _____ DRAWN: _____ SCALE : 1: 120	ST-12	STRUCTURE ER. : _____ CHECKED: _____ APPROVED: _____ PAPER SIZE : A3

DWG CODE:  
 3S6R-MOUNTAINOUS

DATE: FEBRUARY, 2023



## SLAB REINFORCEMENT DETAIL FOR TOP BARS

(GROUND,FIRST, SECOND AND THIRD FLOOR )

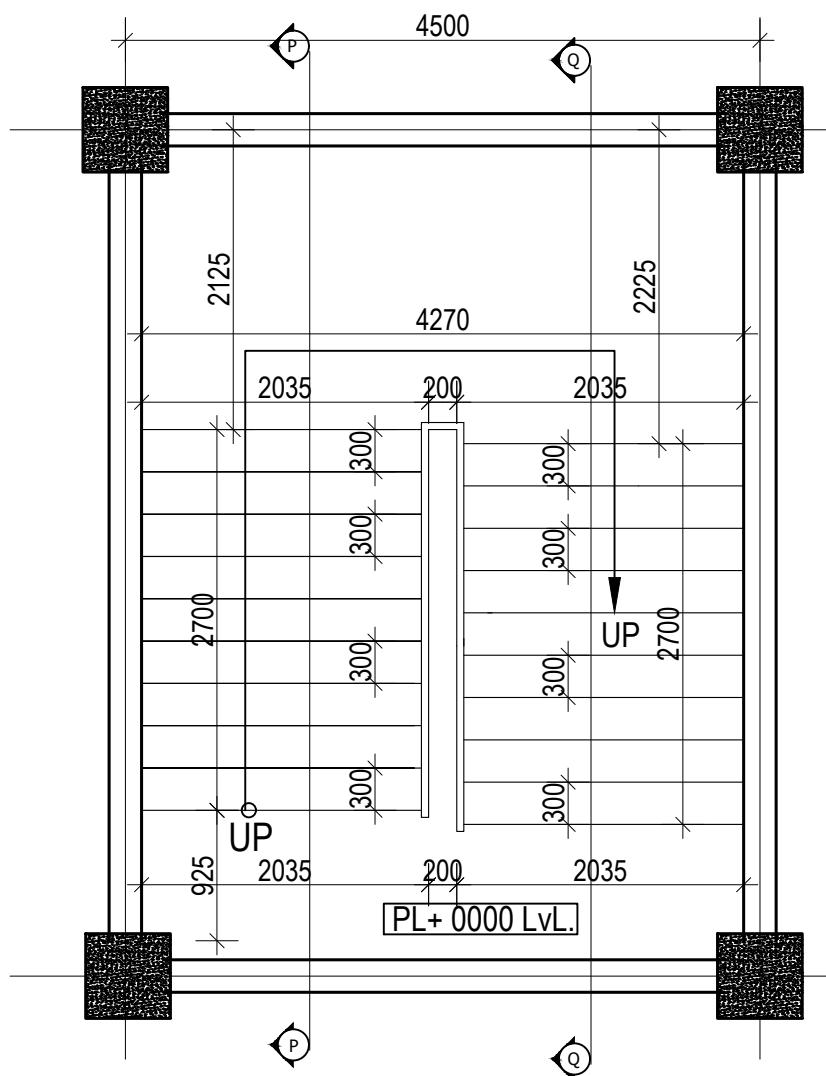
TOP REINFORCEMENT: a. FOR MAIN BEAM :10Ø@150 mm c/c

b. FOR SECONDARY BEAM :10Ø@200 mm

(Scale= 1:120)

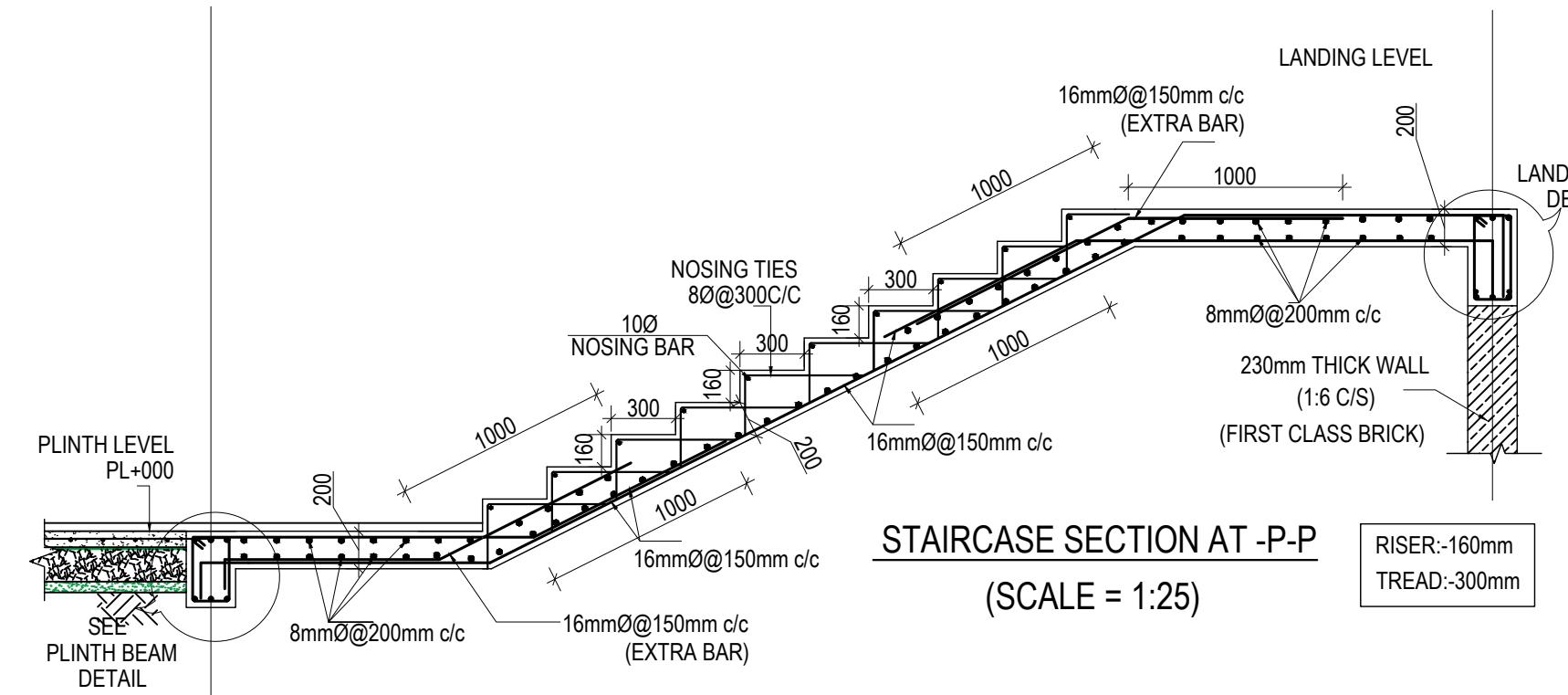
125 mm SLAB THICKNESS

CLIENT		PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM		SHEET NO. ST-13	REVISION NO. R-00
	Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	SLAB REINFORCEMENT DETAIL	SAGE Engineering Consult Nepal	ENGINEER:	STRUCTURE ER. :		

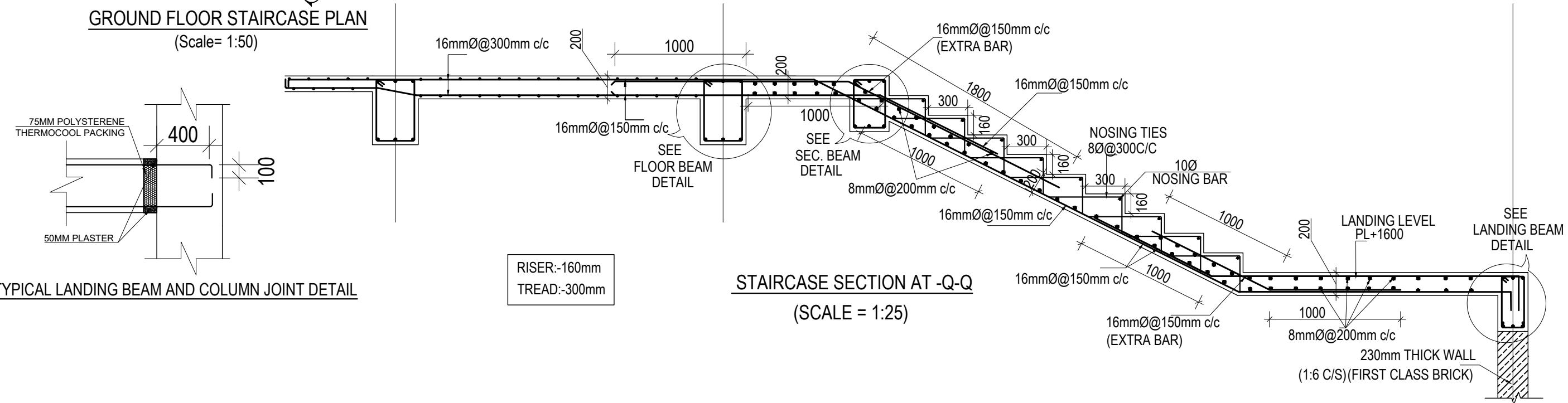


**GROUND FLOOR STAIRCASE PLAN**  
(Scale= 1:50)

## TYPICAL LANDING BEAM AND COLUMN JOINT DETAIL

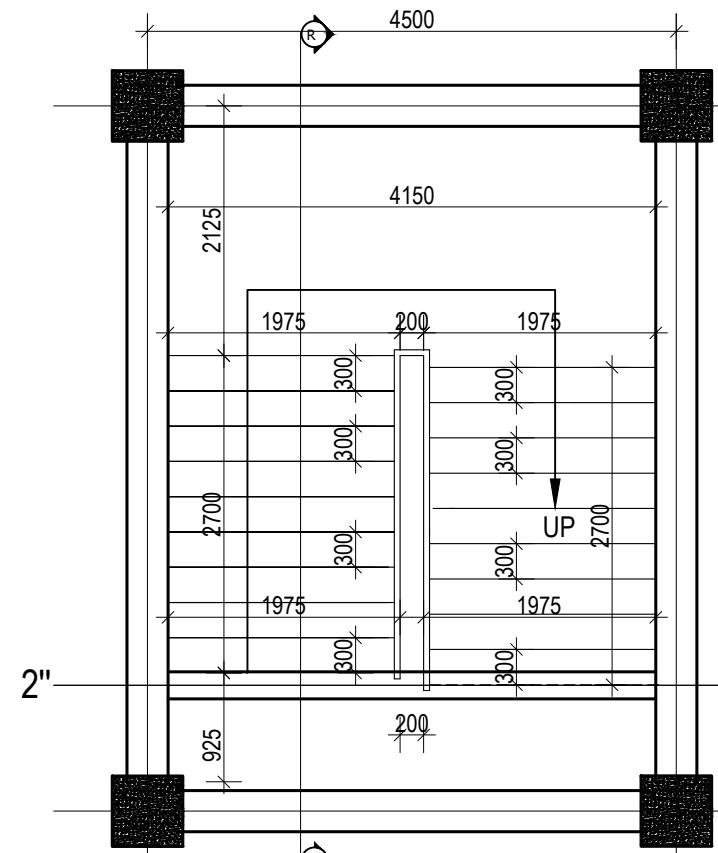


STAIRCASE SECTION AT -P-P  
(SCALE = 1:25)



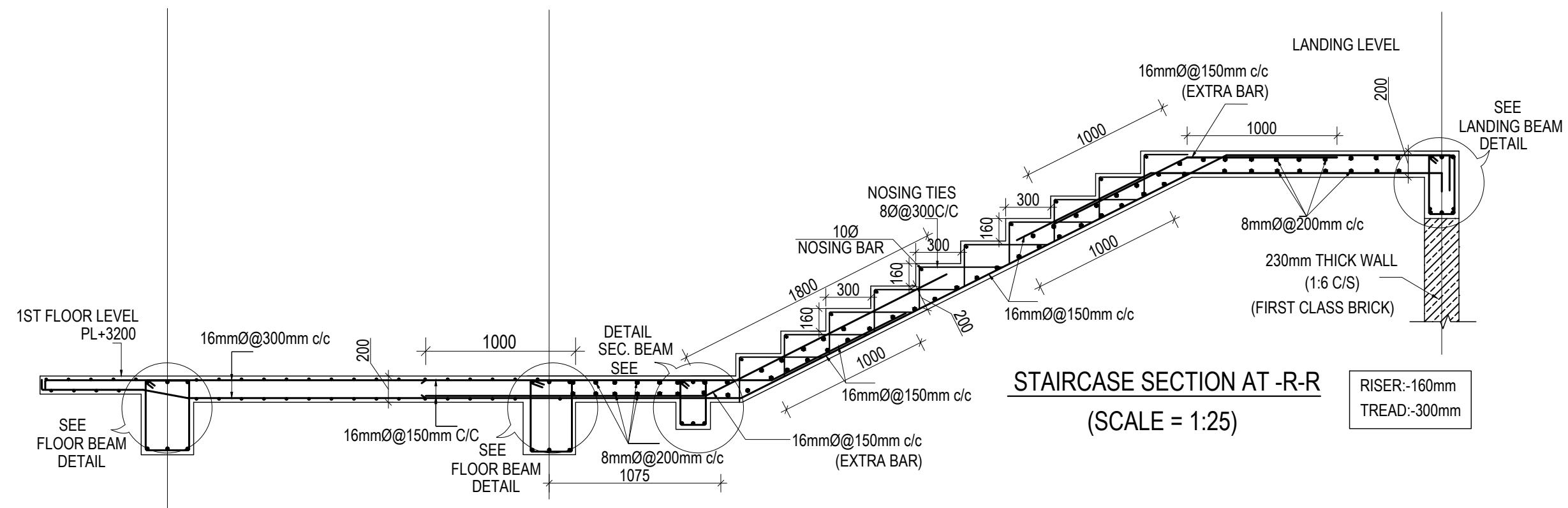
STAIRCASE SECTION AT -Q-Q  
(SCALE = 1:25)

CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM		SHEET NO. ST-14	REVISION NO. R-00
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	STAIRCASE DETAIL	SAGE Engineering Consult Nepal	ENGINEER:	STRUCTURE ER. :		



TYPICAL FLOOR STAIRCASE PLAN

(Scale= 1:50)

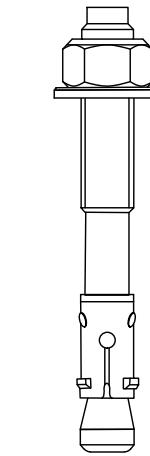
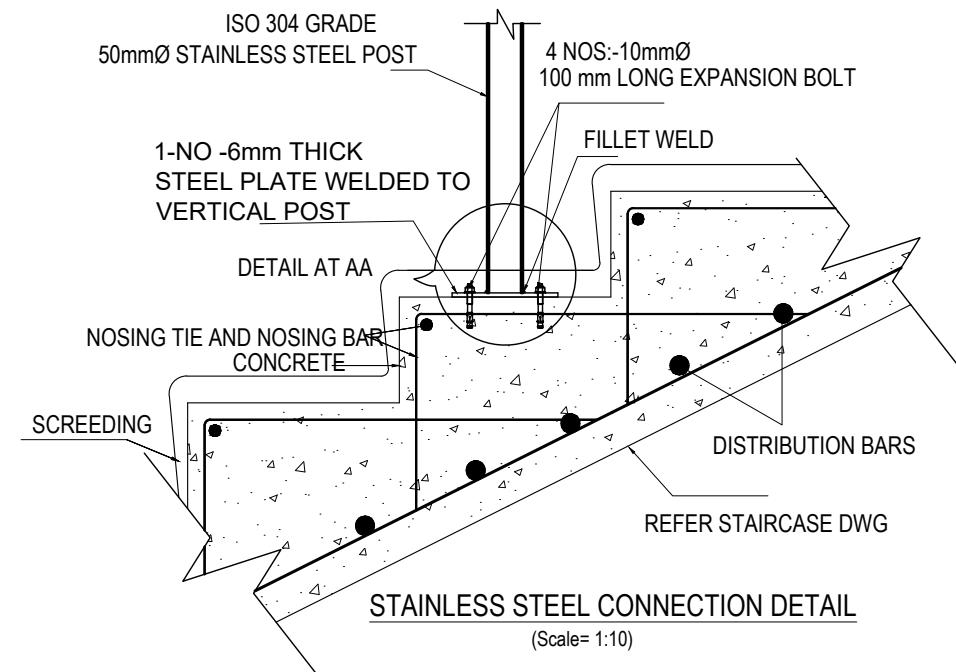


STAIRCASE SECTION AT -R-R  
(SCALE = 1:25)

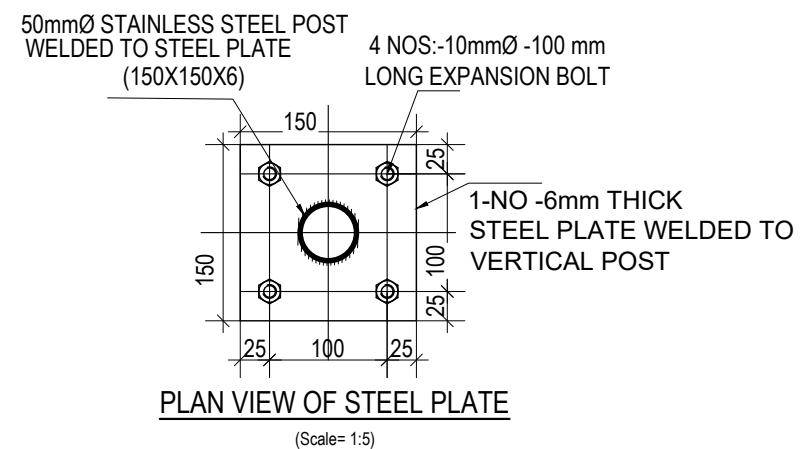
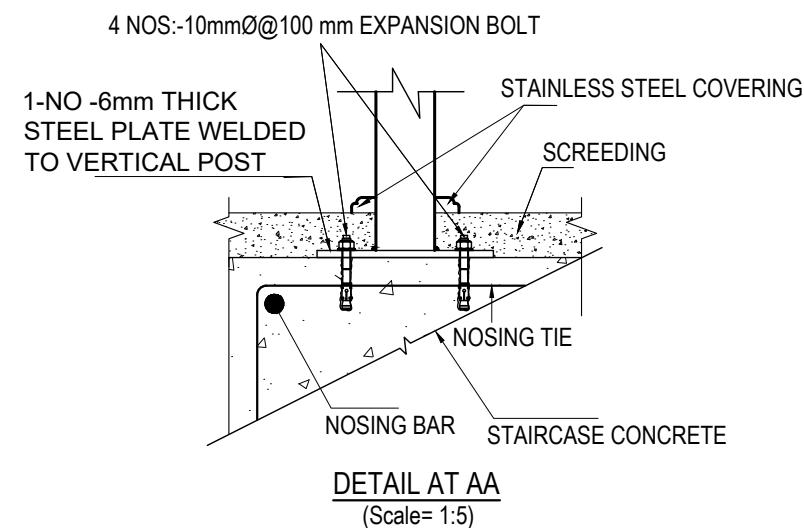
CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	STAIRCASE DETAIL	SAGE Engineering Consult Nepal	ENGINEER: _____ ARCHITECT: _____ DRAWN : _____ SCALE : 1: 120	ST-15	R-00

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3S6R-MOUNTAINOUS

PAPER SIZE : A3 DATE: FEBRUARY, 2023



**10mmØ-50 mm LONG EXPANSION BOLT**  
(Scale= 1:1)

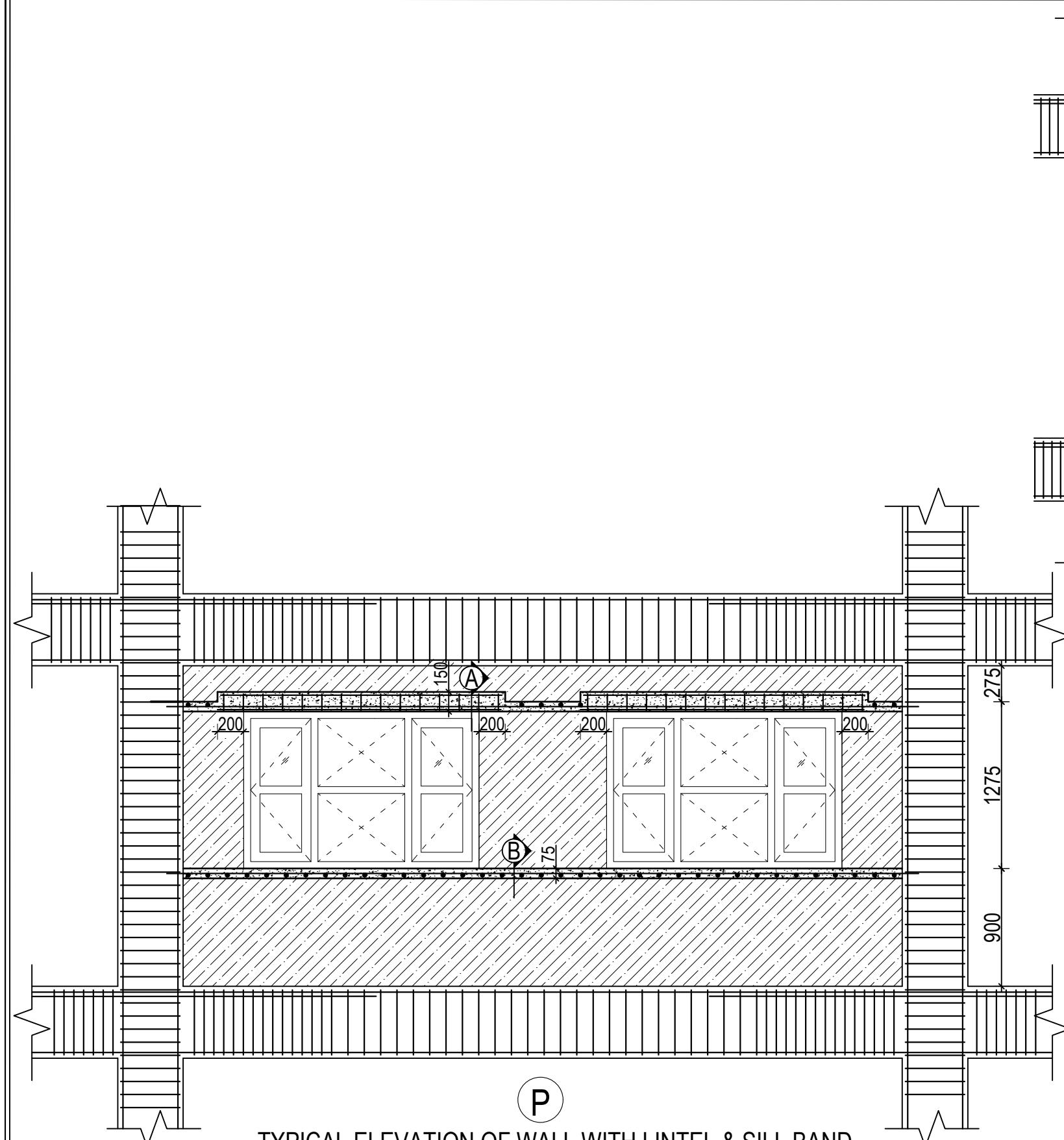


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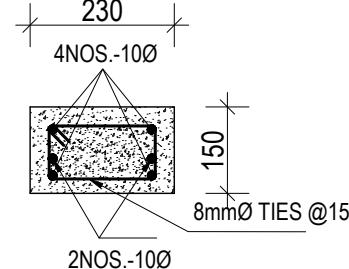
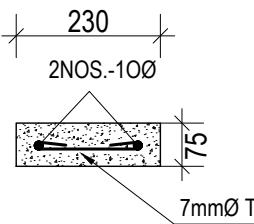
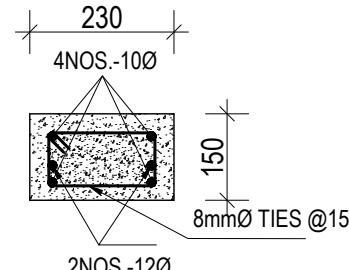
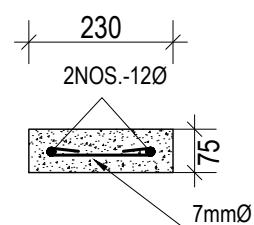
- 1) STAINLESS STEEL SHALL BE IN COMPLIANCE WITH ISO 304 GRADE
- 2) DRILLED HOLE SHALL BE PROPERLY CLEANED BEFORE EMBEDMENT OF BOLT

CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	STAIRCASE DETAIL	SAGE Engineering Consult Nepal	ENGINEER: _____ ARCHITECT: _____ DRAWN : _____ SCALE : 1: 120	ST-16	STRUCTURE ER. : _____ CHECKED: _____ APPROVED: _____ PAPER SIZE : A3

**P**  
TYPICAL ELEVATION OF WALL WITH LINTEL & SILL BAND  
 WITH WINDOWS  
 (Scale= 1:35)



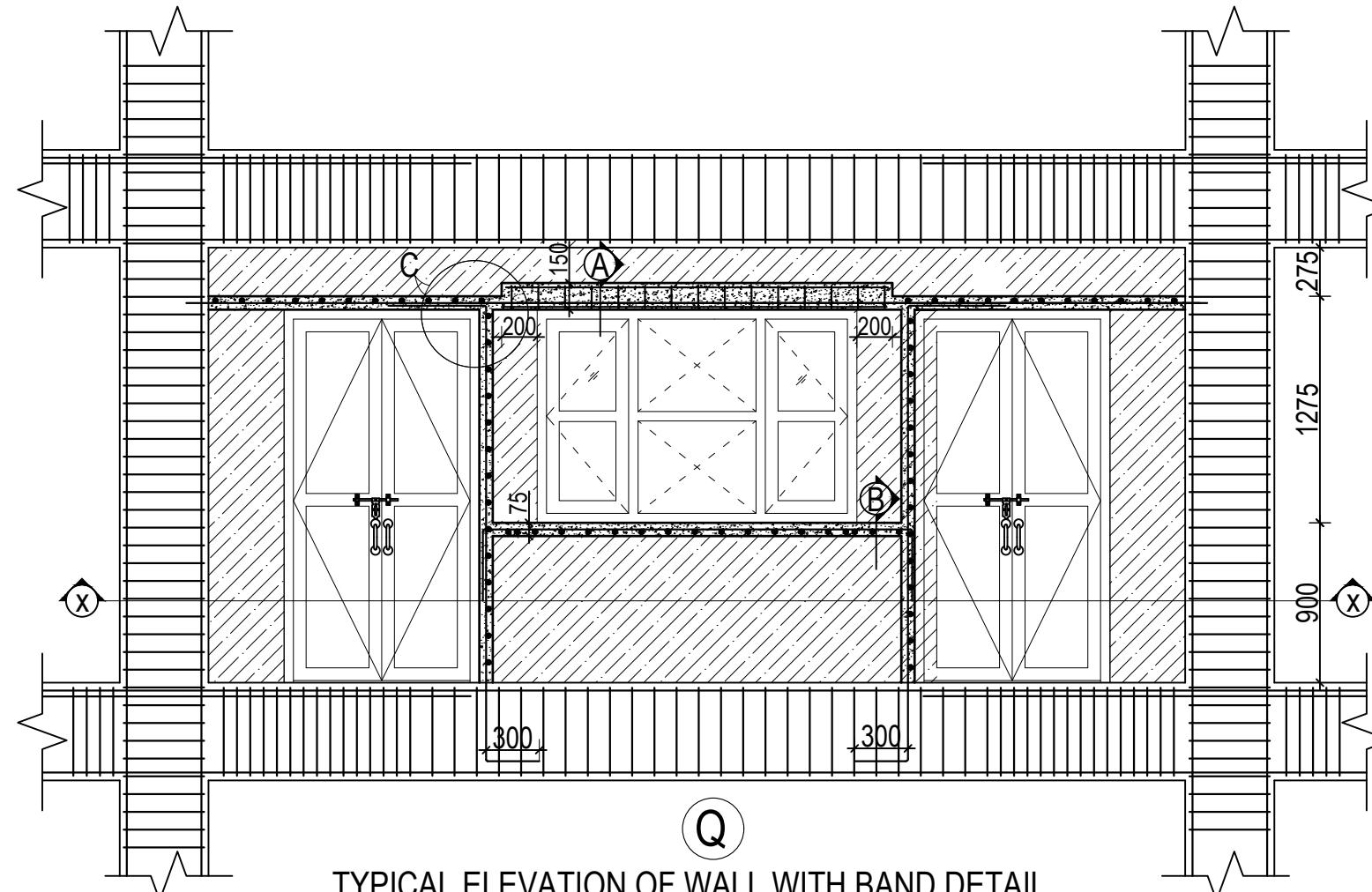
**R**  
TYPICAL ELEVATION OF WALL WITH BAND DETAIL  
 WITHOUT OPENINGS  
 (Scale= 1:40)

SN.	FLOOR	SECTION AT A-A	SECTION AT B-B
1.	GROUND,FIRST & SECOND FLOOR	 230 4NOS.-10Ø 8mmØ TIES @150mm c/c 2NOS.-10Ø	 230 2NOS.-10Ø 7mmØ TIES @150mm c/c
2.	THIRD FLOOR	 230 4NOS.-10Ø 8mmØ TIES @150mm c/c 2NOS.-12Ø	 230 2NOS.-12Ø 7mmØ TIES @150mm c/c

CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	TYPICAL WALL DETAIL UPTO SECOND FLOOR	SAGE Engineering Consult Nepal	ENGINEER: _____ ARCHITECT: _____ DRAWN: _____ SCALE : 1: 120	ST-17	R-00

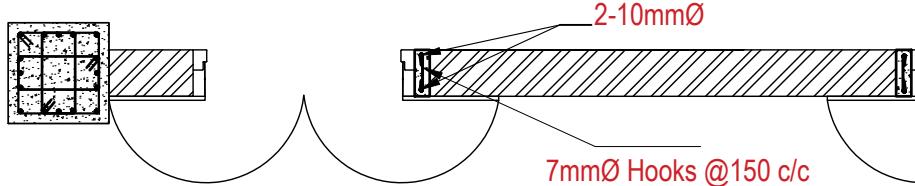
DWG CODE:  
 3S6R-MOUNTAINOUS

PAPER SIZE : A3 DATE: FEBRUARY, 2023

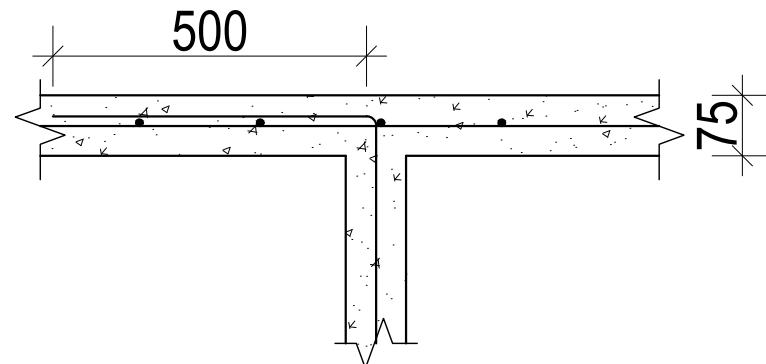


TYPICAL ELEVATION OF WALL WITH BAND DETAIL  
WITH DOORS AND WINDOWS

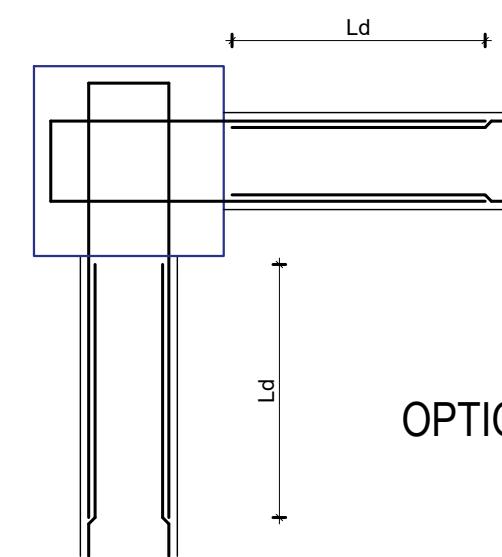
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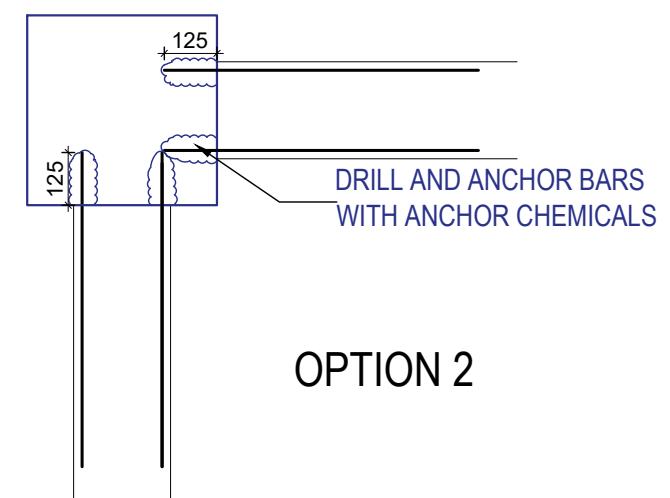
SECTION AT X-X



DETAIL AT C



OPTION 1



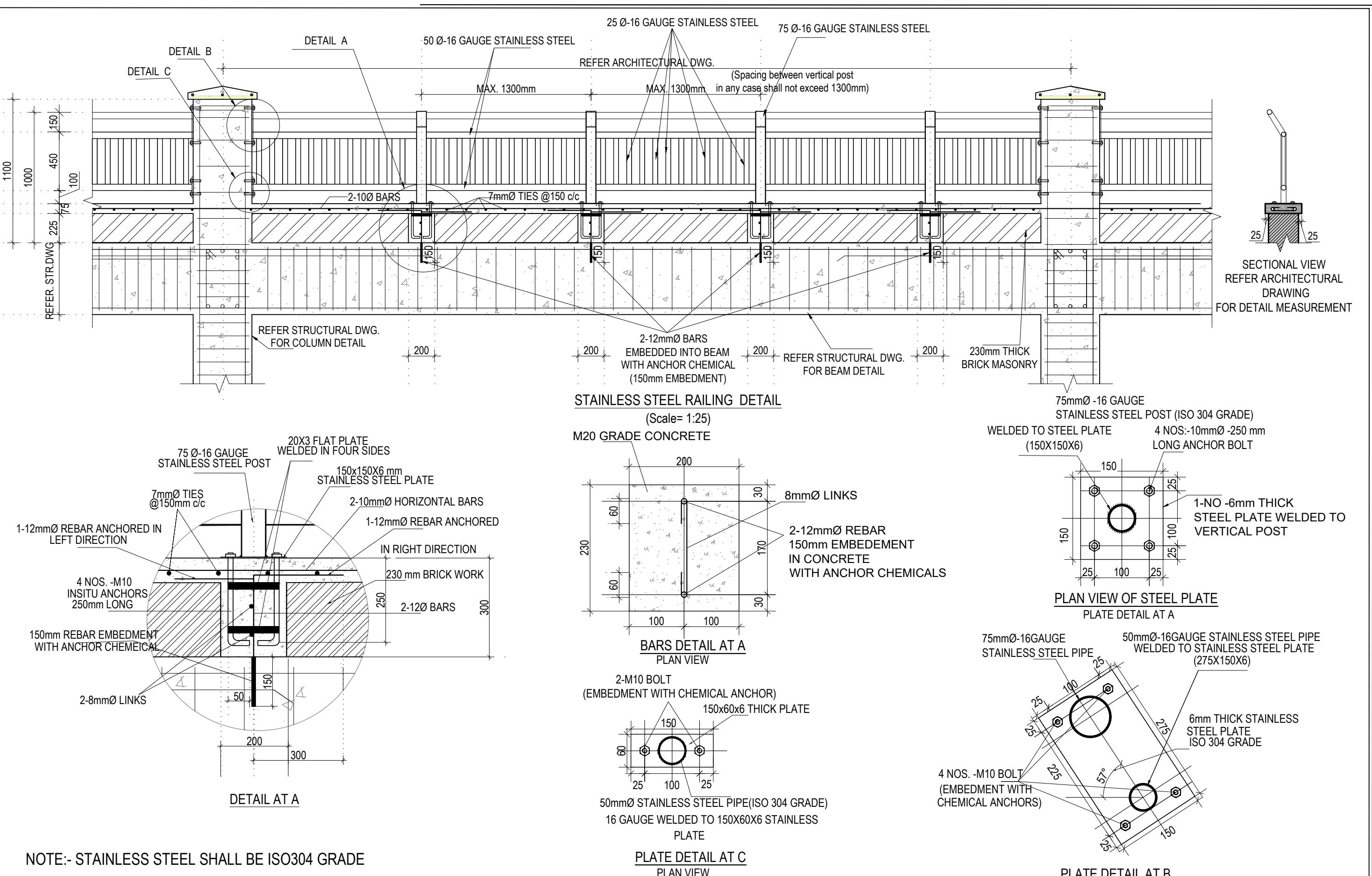
OPTION 2

CONNECTION OF BAND REBARS AND COLUMN

CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	TYPICAL WALL DETAIL UPTO SECOND FLOOR	SAGE Engineering Consult Nepal	ENGINEER: _____ ARCHITECT: _____ DRAWN: _____ SCALE : 1: 120	ST-18	R-00

DWG CODE:  
3S6R-MOUNTAINOUS

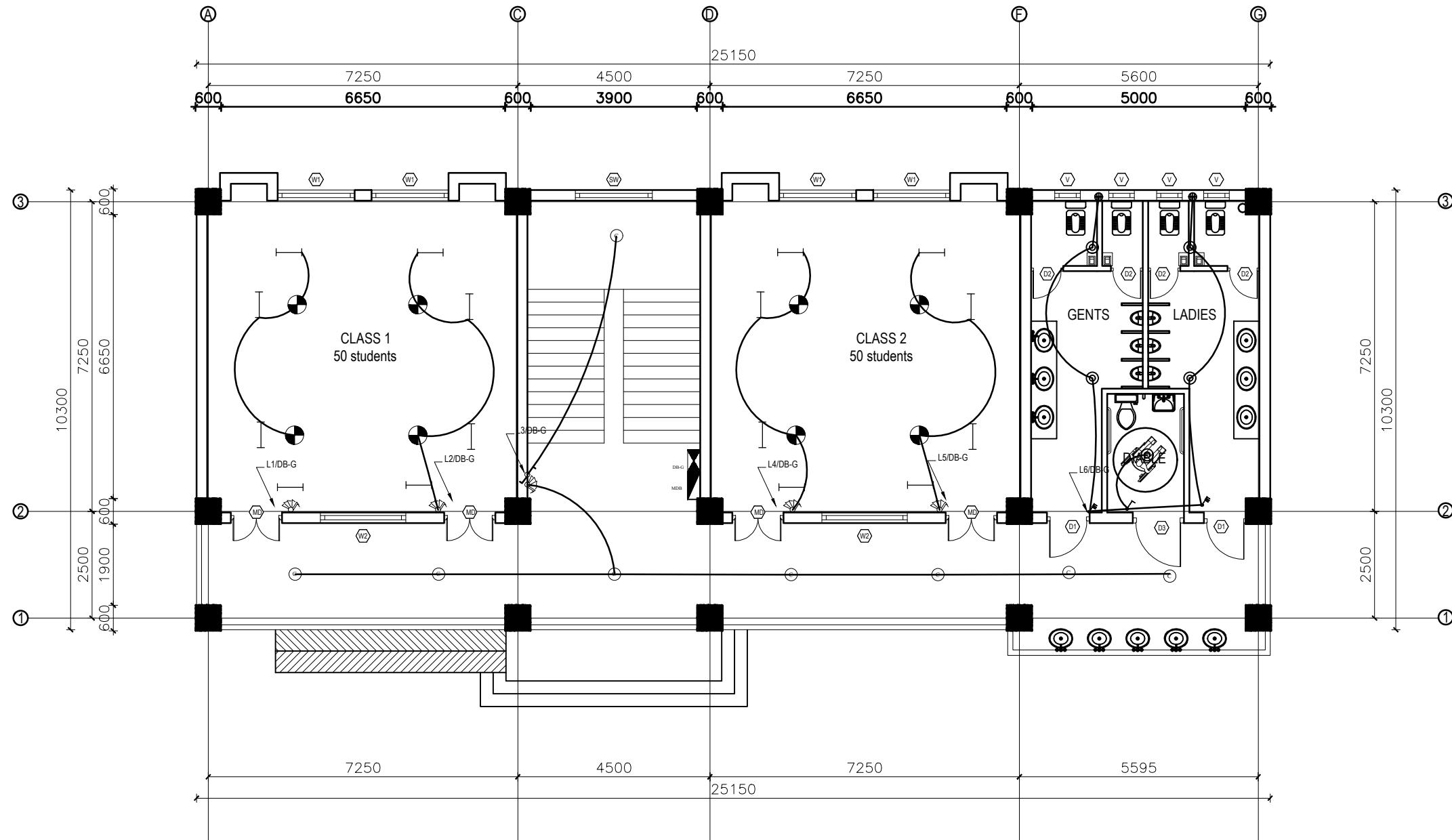
PAPER SIZE : A3 DATE: FEBRUARY, 2023



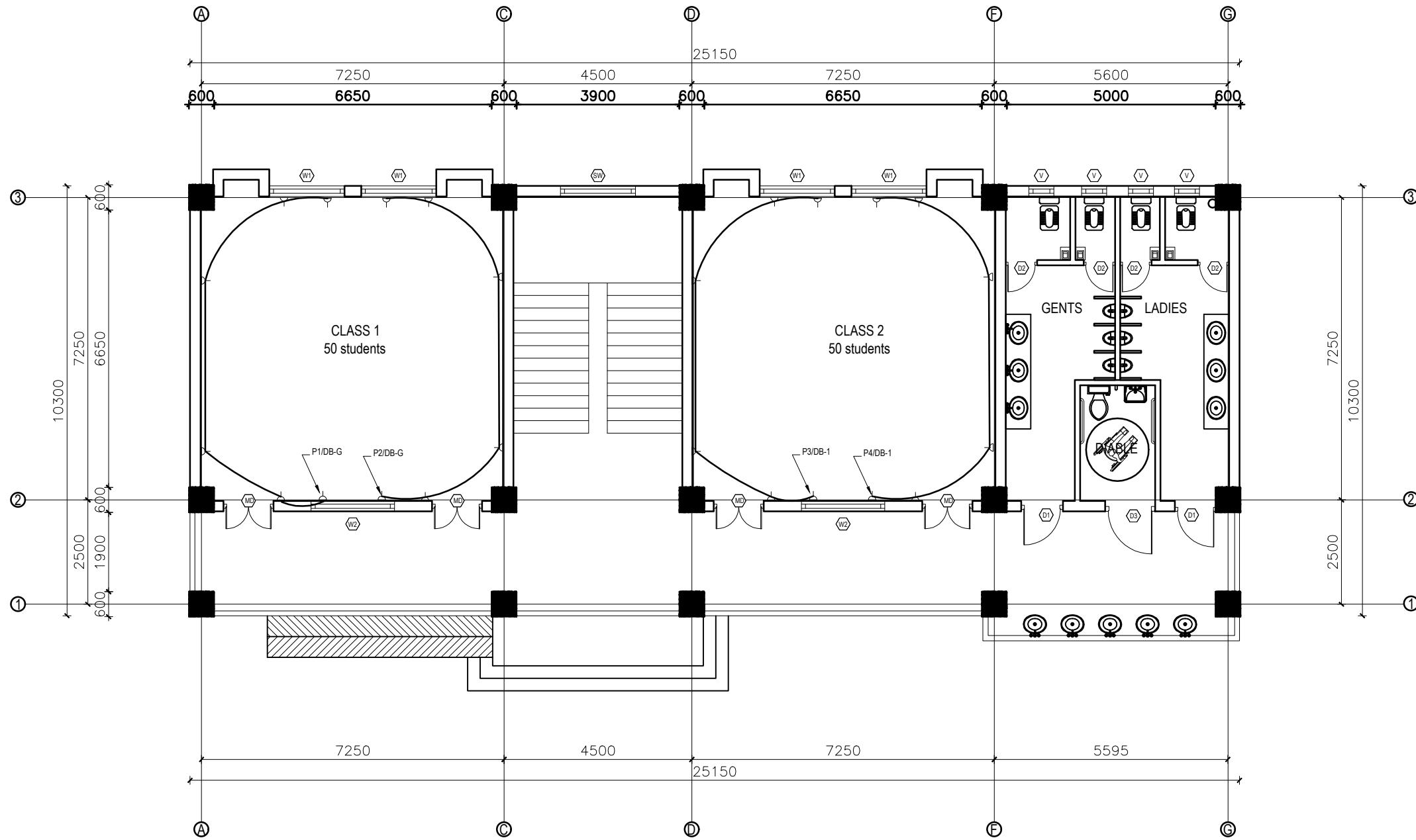
CLIENT		PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM		SHEET NO.	REVISION NO.
	Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	TYPICAL RAILING DETAILS	SAGE Engineering Consult Nepal	ENGINEER:	STRUCTURE ER. :	ST-19	R-00
					ARCHITECT:	CHECKED:	DWG CODE. 3S6R-MOUNTAINOUS	
					DRAWN :	APPROVED:		
					SCALE : 1: 120	PAPER SIZE : A3		
					DATE: FEBRUARY, 2023			

# **ELECTRICAL**

# **DRAWING**



CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM		SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Terai and Valley Region	ELECTRICAL DRAWING	IDEAL SOLUTION PVT.LTD.	ENGINEER:	STRUCTURE ER. :		



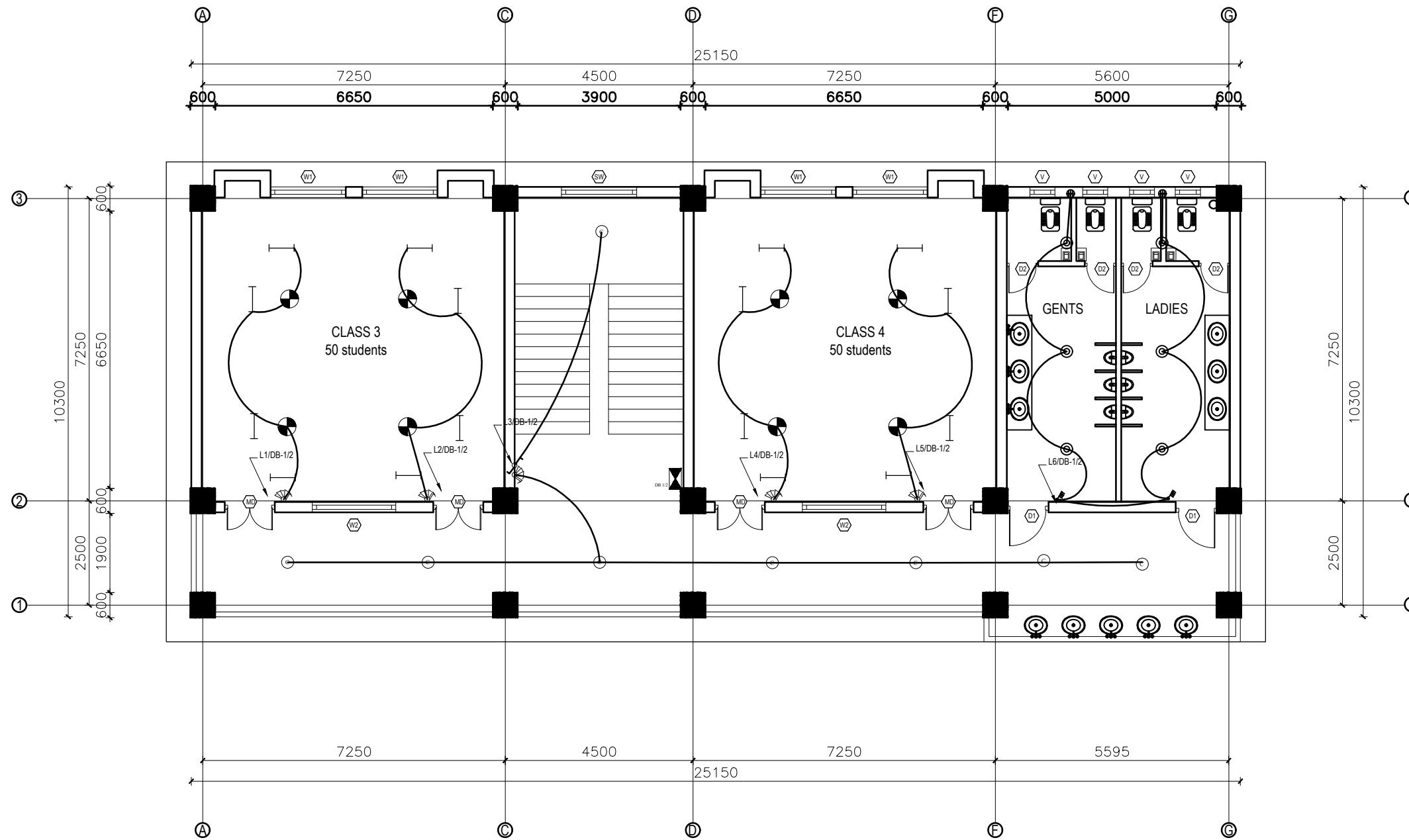
## GROUND FLOOR PLAN

FLOOR AREA: 260.805 sq.m

LEGEND		
SYMBOL	DESCRIPTION	MOUNT HEIGHT
—	40 W Tubelight	Attached to wall
○	12W CFL Light Bulb	Attached to ceiling
●	42" Ceiling Fan	Attached to ceiling
□	Power Socket	300mm from finished floor level
△	1,2,3 gang Switch	1.25m above finished floor level
△	4,5,6 gang Switch	1.25m above finished floor level
○	Two way Switch	1.25m above finished floor level
■	Distribution Box	2.5m above finished floor level
■	MDB	1m above finished floor level
■	9" Exhaust Fan	24" BELOW SLAB

EARTHING & LIGHTNING PROTECTION SYSTEM		
SYMBOLS	DESCRIPTION	MOUNTING HEIGHT
—	VERTICAL AIR TERMINAL	--
—	CLIP TO HOLD DOWN CONDUCTOR	--
—	EARTH TEST LINK	--
⊕	EARTH PIT	--

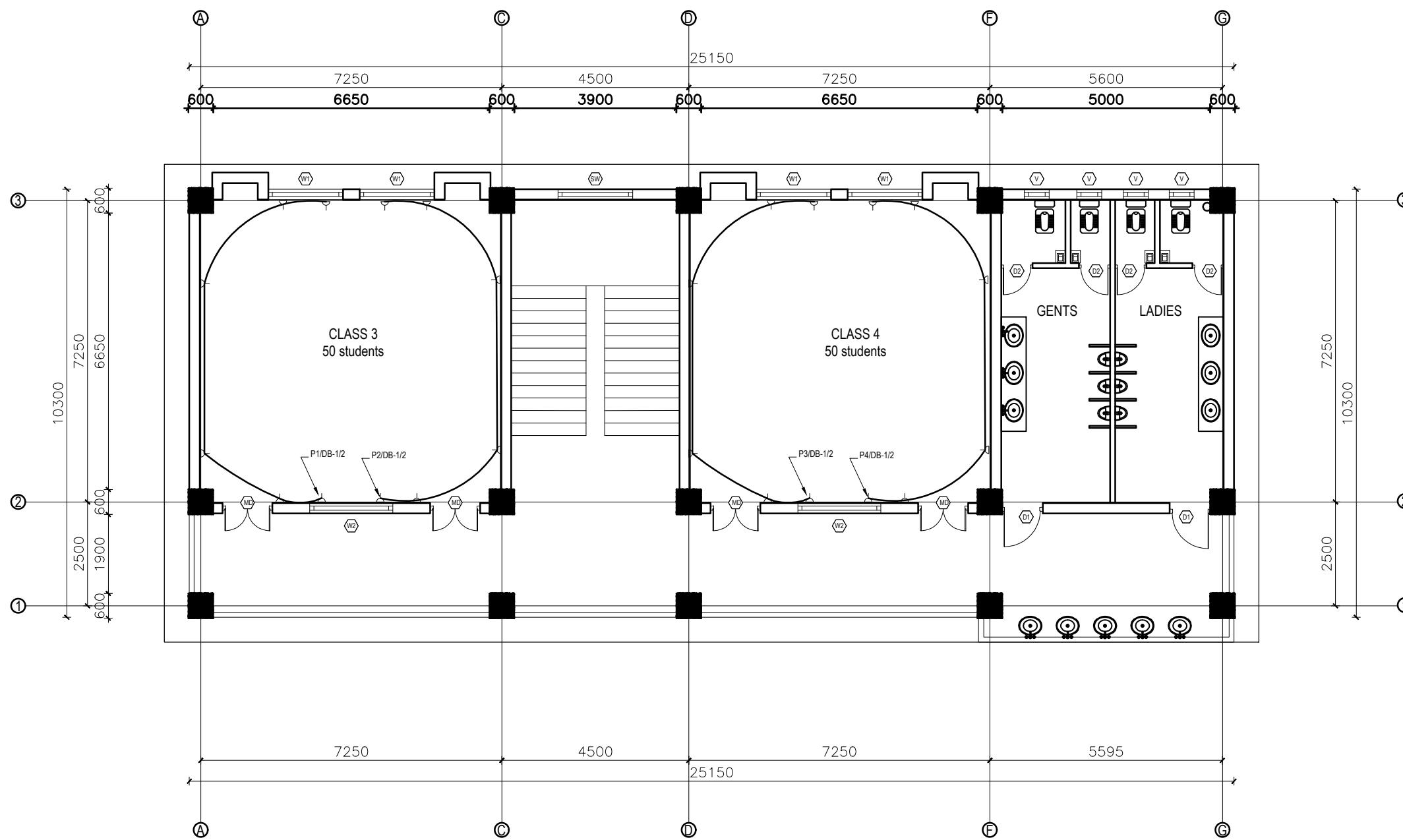
CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO.	REVISION NO.
Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Terai and Valley Region	ELECTRICAL DRAWING	IDEAL SOLUTION PVT.LTD.	ENGINEER: _____ ARCHITECT: _____ DRAWN: _____ SCALE : 1:20	STRUCTURE ER. : CHECKED: APPROVED: PAPER SIZE : A3	02 R-00
						DWG CODE. 3S12R DATE: FEBRUARY, 2023



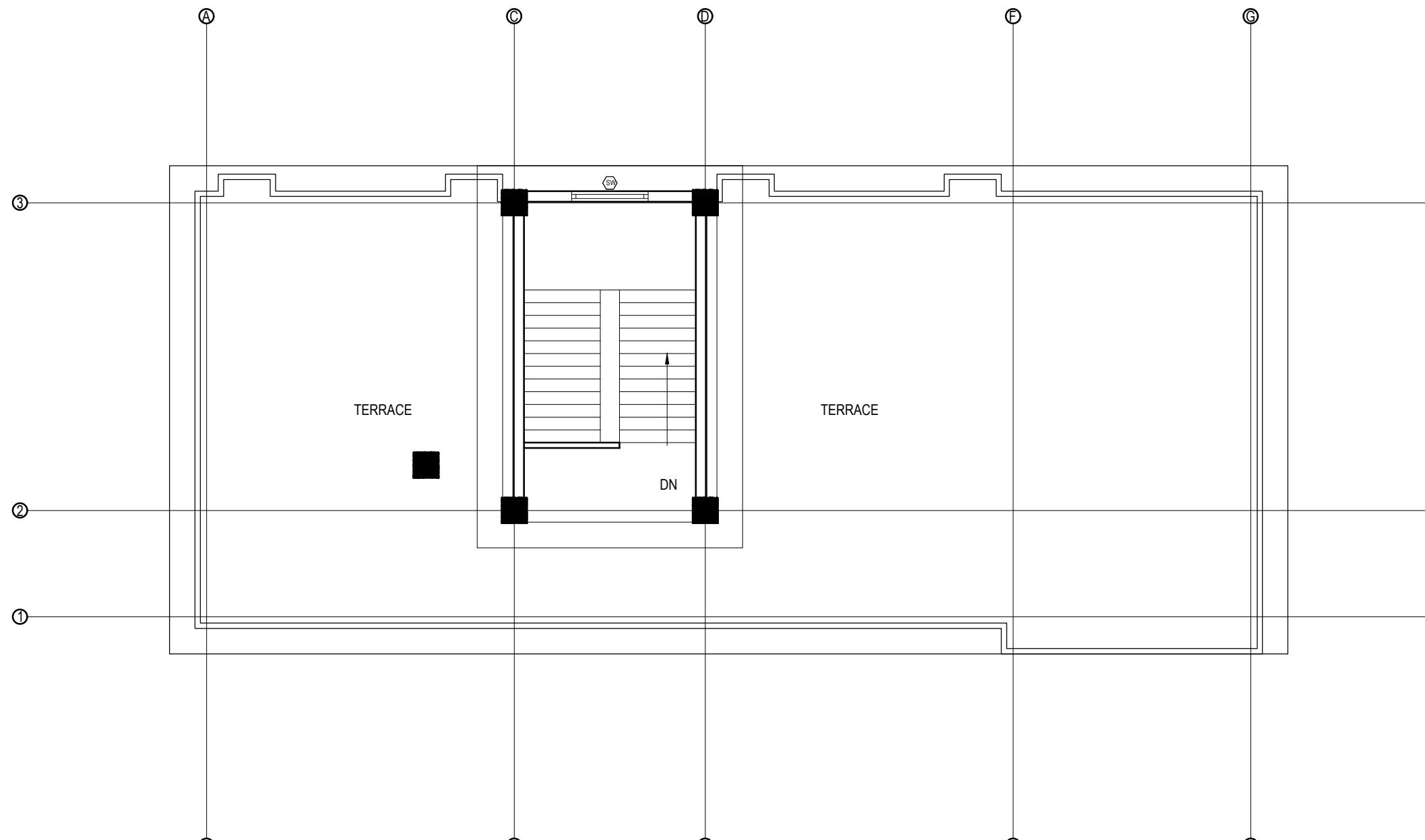
LEGEND		
SYMBOL	DESCRIPTION	MOUNT HEIGHT
—	40 W Tubelight	Attached to wall
○	12W CFL Light Bulb	Attached to ceiling
●	42" Ceiling Fan	Attached to ceiling
□	Power Socket	300mm from finished floor level
■	1,2,3 gang Switch	1.25m above finished floor level
△	4,5,6 gang Switch	1.25m above finished floor level
○○	Two way Switch	1.25m above finished floor level
■	Distribution Box	2.5m above finished floor level
■	MDB	1m above finished floor level
■	9" Exhaust Fan	24" BELOW SLAB

EARTHING & LIGHTNING PROTECTION SYSTEM		
SYMBOLS	DESCRIPTION	MOUNTING HEIGHT
—	VERTICAL AIR TERMINAL	-
○○	CLIP TO HOLD DOWN CONDUCTOR	-
□	EARTH TEST LINK	-
○	EARTH PIT	-

CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM		SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Terai and Valley Region	ELECTRICAL DRAWING	IDEAL SOLUTION PVT.LTD.	ENGINEER:	STRUCTURE ER. :	03	R-00



CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO.	REVISION NO.
Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Terai and Valley Region	ELECTRICAL DRAWING	IDEAL SOLUTION PVT.LTD.	ENGINEER: _____ ARCHITECT: _____ DRAWN: _____ SCALE : 1:20	STRUCTURE ER. : CHECKED: APPROVED: PAPER SIZE : A3	04 R-00 DWG CODE. 3S12R DATE: FEBRUARY, 2023



LEGEND		
SYMBOL	DESCRIPTION	MOUNT HEIGHT
—	40 W Tubelight	Attached to wall
○	12W CFL Light Bulb	Attached to ceiling
●	42" Ceiling Fan	Attached to ceiling
D	Power Socket	300mm from finished floor level
1,2,3 gang Switch	1,2,3 gang Switch	1.25m above finished floor level
4,5,6 gang Switch	4,5,6 gang Switch	1.25m above finished floor level
Two way Switch	Two way Switch	1.25m above finished floor level
■	Distribution Box	2.5m above finished floor level
■	MDB	1m above finished floor level
■	9" Exhaust Fan	24" BELOW SLAB

EARTHING & LIGHTNING PROTECTION SYSTEM		
SYMBOLS	DESCRIPTION	MOUNTING HEIGHT
Y	VERTICAL AIR TERMINAL	-
—	CLIP TO HOLD DOWN CONDUCTOR	-
■	EARTH TEST LINK	-
⊕	EARTH PIT	-

CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM		SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Terai and Valley Region	ELECTRICAL DRAWING	IDEAL SOLUTION PVT.LTD.	ENGINEER:	STRUCTURE ER. :		

<b>INSTALLATION CONSIDERATION</b>
* The switch box should be at 200mm from the door and 1250mm above floor.
* General room socket height should be at 150mm above skirting wall.
* Kitchen socket height should be at 450mm above kitchen top.
* Toilet socket/switch should be at 1250mm above floor level and mirror light at 50 mm above mirror as per mirror size.
* Exhaust fan should be at 600mm below slab.
* Wall Light should be at 2100mm from floor level.

CONDUIT SCHEDULE						
CABLE SIZES	NO OF MAXIMUM CABLE AND PVC FRLS CONDUIT SIZES					
	16 mm Dia.	20 mm Dia.	25 mm Dia.	32 mm Dia.	40 mm Dia.	50 mm Dia.
1.5 SQ. MM/Equivalent	5	7	10	14	—	—
2.5 SQ. MM/Equivalent	3	5	8	12	—	—
4.0 SQ. MM/Equivalent	—	3	6	10	12	—
6.0 SQ. MM/Equivalent	—	2	4	8	9	—
10 SQ. MM/Equivalent	—	—	3	6	8	—
16 SQ. MM/Equivalent	—	—	2	3	4	8

CONVERSION TABLE												
INCHES	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2	3	3-1/2	4	5	6
mm	16	20	25	32	40	50	65	80	90	100	130	150

\* Unless and otherwise stated, all final circuits shall be wired with multistranded CU wires in PVC Conduit and shall conform to the following schedule:

WIRING SYSTEM
Air Conditioner/Heater/Range/Appliances
RJ - 45 Data / TV Point
RJ - 11 Telecommunication point
Telephone Point
Outdoor Gate/ Post Top/Street Lights/Flood L
6 Amp switched outlet sockets
16 Amp Power Sockets Points
General Light Points (From DB to Switch Board)
Looping of Light Points

CABLE/CONDUCTOR SIZE	
2x4.0	+ 1x2.5 sq. mm copper wire
CAT 6	4 pairs Data cable
CAT 6	4 pairs Data cable
0.5mm dia	PVC Insulated Tinned Cu Cable
3 x 2.5	sq. mm copper M/S wire
2x2.5	+ 1x1.5 sq. mm copper M/S wire
2x4.0	+ 1x2.5 sq. mm copper M/S wire
2x2.5	+ 1x1.5 sq. mm copper M/S wire
2x1.5	+ 1x1.0 sq. mm copper M/S wire

**NOTE**

- \* Conduit Colors for Light/Power Circuit shall be Black, Security Wiring shall be Blue, Fire Alarm Wiring shall be Red, Low Voltage Circuits shall be Brown and UPS Circuits shall be Green.
- \* L-N stands for Lighting Circuit, P-N for Power Circuit, AC-N for Air Condition, M/PC-N for Pump/Motor & Lp-N Light Outlet Circuit, N (White, N, 120V).

\* For Circuit no., see Distribution Detail

\* Unless and otherwise stated, all final circuits shall be wired up by PVC CL M/S Wire in PVC Conduit and shall conform to the following schedule:

Rating (Amp)	6	10	20	32	40	63
Wire (sq. mm)	1.5	2.5	4.0	6.0	10	16

\* Unless and otherwise stated, maximum of 8 light points shall be wired in a final single lighting circuit where as maximum of 3 power socket outlet shall be wired in single power circuit.

\* Unless and otherwise stated, all 16 A outlets with the same circuit no. shall be wired in ring circuit.

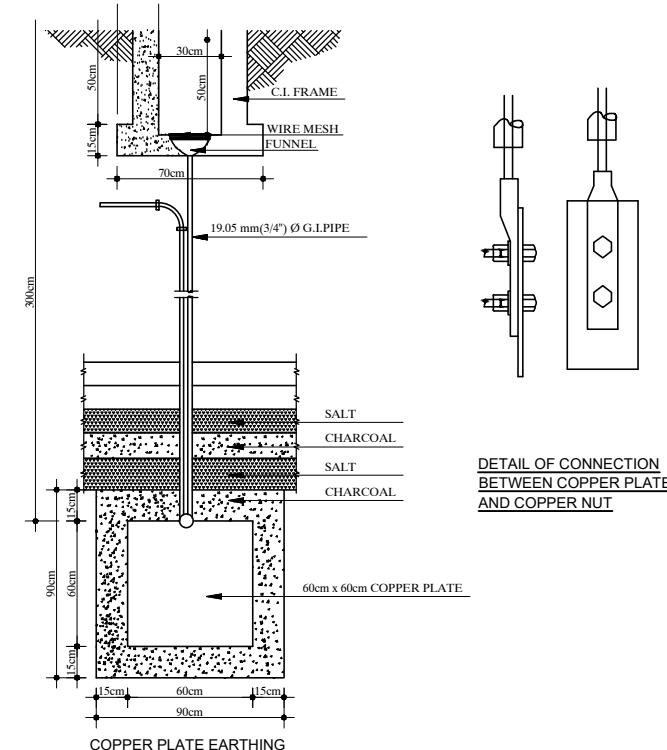
\* Electrical drawings are schematical only, scale: NTS,  
use as shown purpose, do not measure directly.

- \* Contractor should coordinate with interior for exact location of fixtures
- \* Run separate conduit for TV, TEL and PS wherever they are in matching places

- \* All the Kitchen/Bathroom Power Circuits should be feed by RCCB with 100 mA sensitivity – see schematic details.

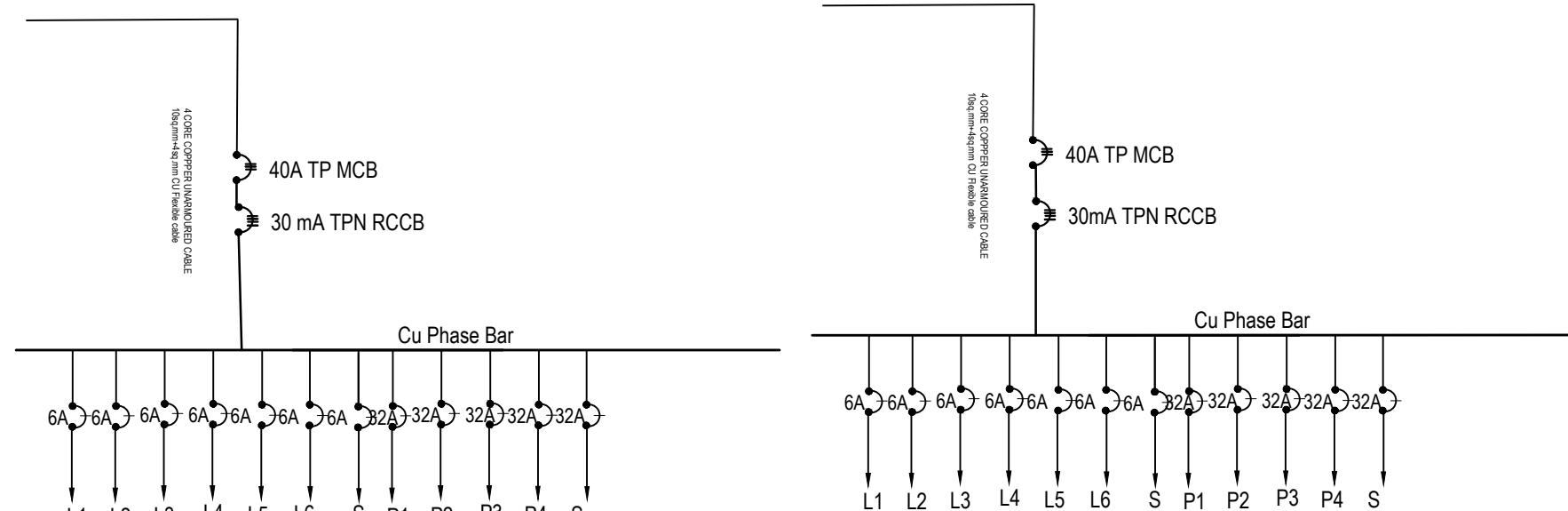
\* All the cables and conductors shall be PVC insulated CU and shall confirm to the following color codes:

Neutral of AC 1/3 Phase	Black
Grounding/ Bounding/Earthing	Green
loop/common wire for 2 way switch	White
Live Phase A of 3 Phase	Red
Live Phase B of 3 Phase	Yellow
Live Phase C of 3 Phase	Blue



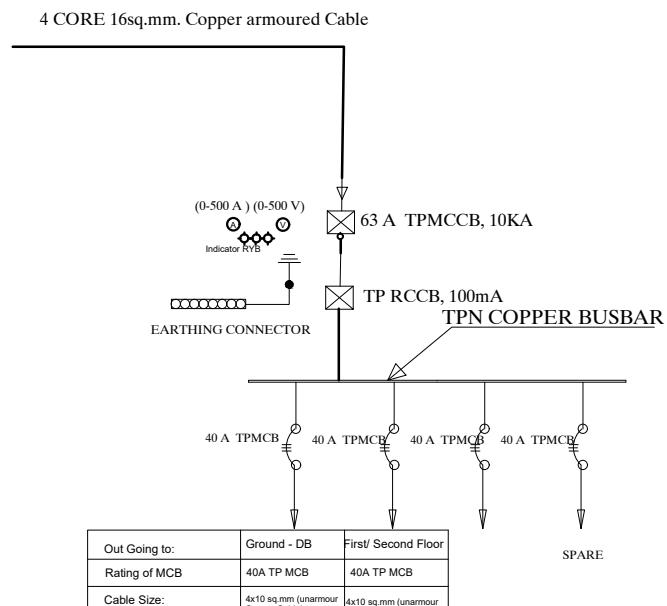
DETAIL OF CONNECTION  
BETWEEN COPPER PLATE  
AND COPPER NUT

## EARTHING DETAILS



GROUND FLOOR I/P DISTRIBUTION SYSTEM (DR-G)

## FIRST/SECOND FLOOR L/P DISTRIBUTION SYSTEM (DB-1/2)



## DETAILS OF Main -DB

CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM		SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Terai and Valley Region	<b>ELECTRICAL DRAWING</b>	IDEAL SOLUTION PVT.LTD.	ENGINEER:	STRUCTURE ER.:	<b>DWG CODE:</b> <b>3S12R</b>	
				ARCHITECT:	CHECKED:		
				DRAWN :	APPROVED:		
				SCALE : <b>1:20</b>	PAPER SIZE : A3		
				DATE: FEBRUARY, 2023			



**Government of Nepal**  
**Ministry of Education, Science & Technology**  
**Center for Education and Human Resource Development**  
Sanothimi, Bhaktapur, Nepal

# **PREPARE SCHOOL BUILDING TYPE DESIGN FOR MOUNTAINOUS REGION**

**Contract ID: CEHRD/SESP/SQ/Consultancy/02/2079/080**

**DETAIL DESIGN AND DRAWING  
3 STORY@12 ROOM WITH  
(TOILET, WASH ROOM, CHANGING ROOM & BOOK CORNER)**

**SUBMITTED BY:  
SAGE ENGINEERING CONSULT**

**FEBRUARY, 2023**

# **ARCHITECTURE**

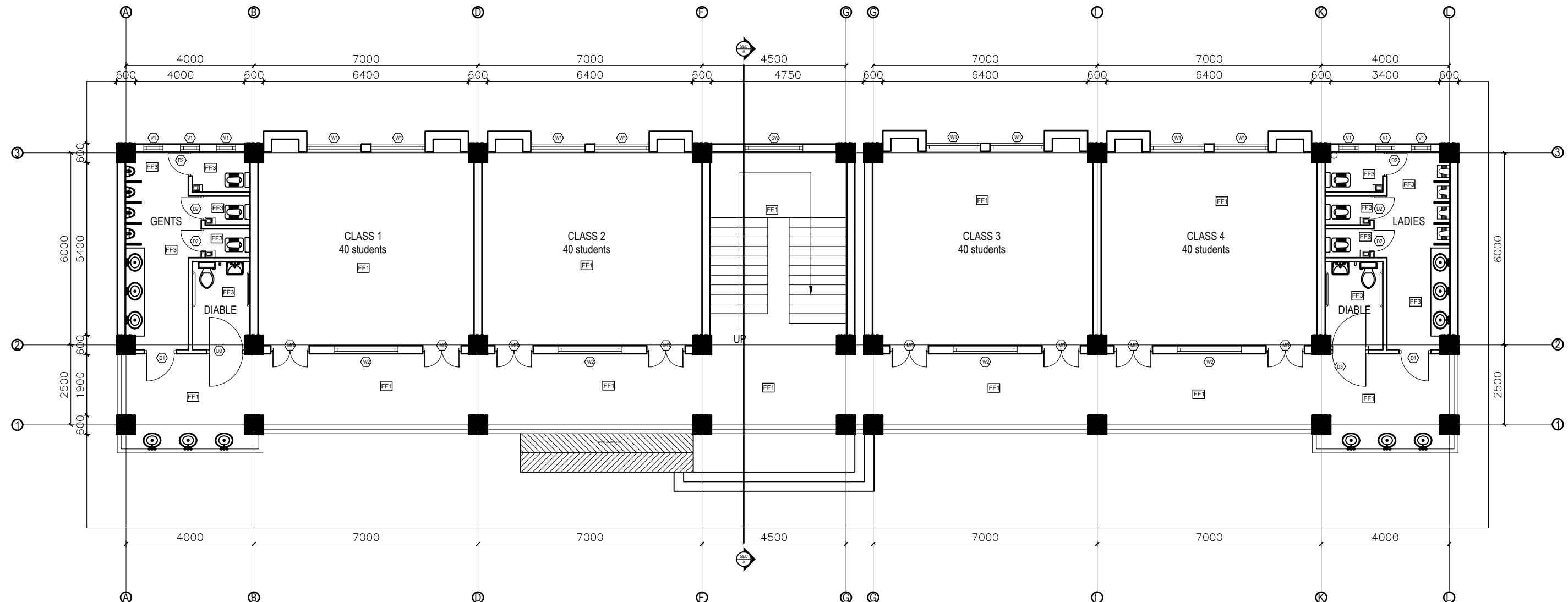
# **DRAWING**

FINISHING DETAILS:

FF1	38 mm PCC (M15) with 1:1 cement punning with floor hardener (Dreitop FH, mapetop, Sika Chapdur or equivalent)
FF2	50 mm PCC (M15) with 1:1 cement punning in a 600X600 thread cut grid with floor hardener (Dreitop FH, mapetop, Sika Chapdur or equivalent) and water proofing (safe-crete or equivalent)
FF3	6 mm thick porcelain non-glaze tile with 20 mm cement sand mortar (1:4)

NOTES:

1. All measurements are in mm unless otherwise noted.
2. Architectural drawing should be read in conjunction with Structural, Sanitary and Electrical drawings.
3. Site Engineer to notify the consultant if any discrepancy in dimensions found in drawings as per the site condition.
4. Sill and Lintel dimensions are measured from the Slab Lvl.
5. Dimensions are excluding the plaster/POP thickness.



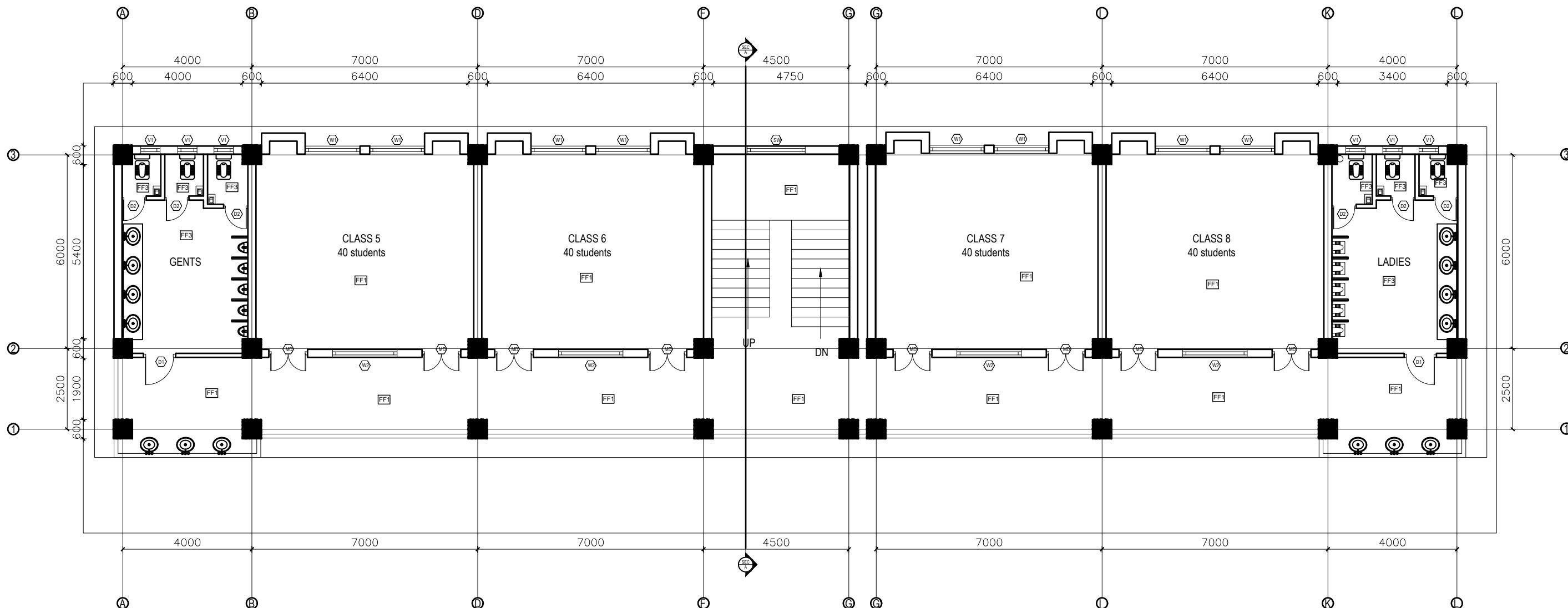
CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM		SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	GROUND FLOOR PLAN	SAGE ENGINEERING CONSULT Nepal	ENGINEER:	STRUCTURE ER. :		

FINISHING DETAILS:

FF1	38 mm PCC (M15) with 1:1 cement punning with floor hardener (Dreitop FH, mapetop, Sika Chapdur or equivalent)
FF2	50 mm PCC (M15) with 1:1 cement punning in a 600X600 thread cut grid with floor hardener (Dreitop FH, mapetop, Sika Chapdur or equivalent) and water proofing (safe-crete or equivalent)
FF3	6 mm thick porcelain non-glaze tile with 20 mm cement sand mortar (1:4)

NOTES:

- All measurements are in mm unless otherwise noted.
- Architectural drawing should be read in conjunction with Structural, Sanitary and Electrical drawings.
- Site Engineer to notify the consultant if any discrepancy in dimensions found in drawings as per the site condition.
- Sill and Lintel dimensions are measured from the Slab Lvl.
- Dimensions are excluding the plaster/POP thickness.



**FIRST&SECOND FLOOR PLAN**

FLOOR AREA: 382.71 sq.m

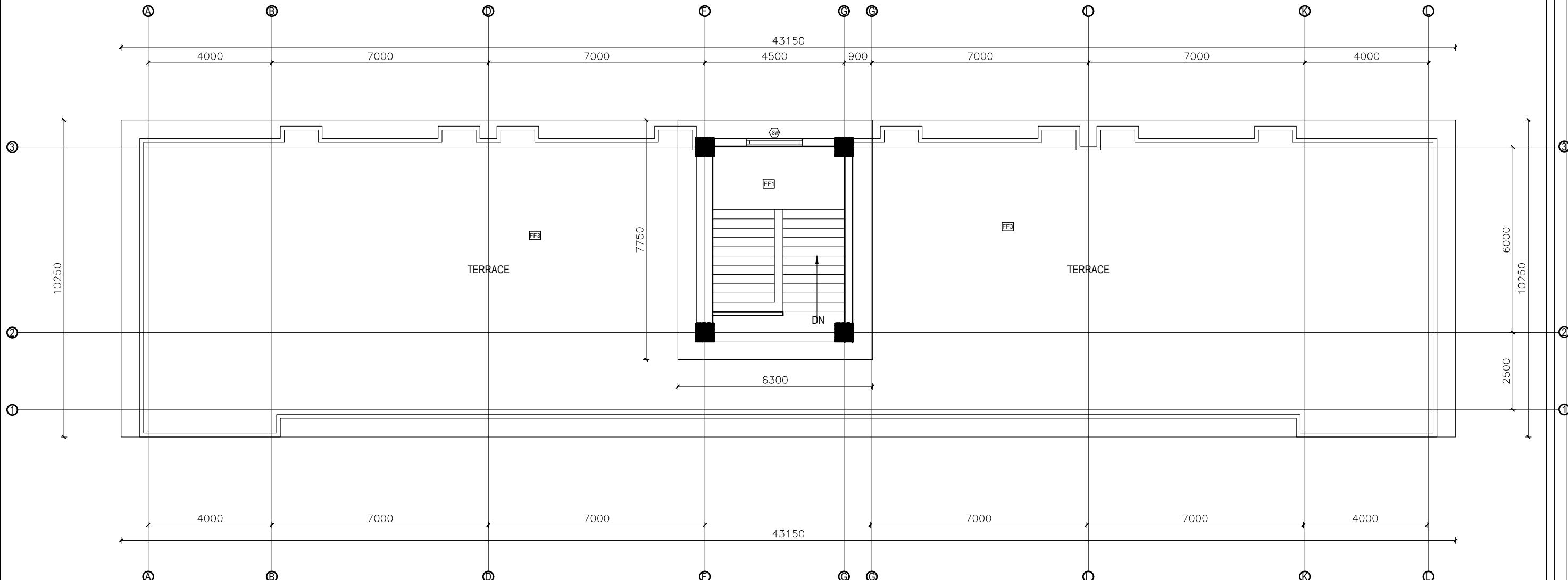
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 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	FIRST & SECOND FLOOR PLAN	SAGE ENGINEERING CONSULT Nepal	ENGINEER: ARCHITECT: DRAWN: SCALE : 1:120	STRUCTURE ER. : CHECKED: APPROVED: PAPER SIZE : A3		DWG CODE 3S12R-MOUNTAINOUS DATE: FEBRUARY, 2023

NOTES:

1. All measurements are in mm unless otherwise noted.
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3. Site Engineer to notify the consultant if any discrepancy in dimensions found in drawings as per the site condition.
4. Sill and Lintel dimensions are measured from the Slab Lvl.
5. Dimensions are excluding the plaster/POP thickness.

FINISHING DETAILS:

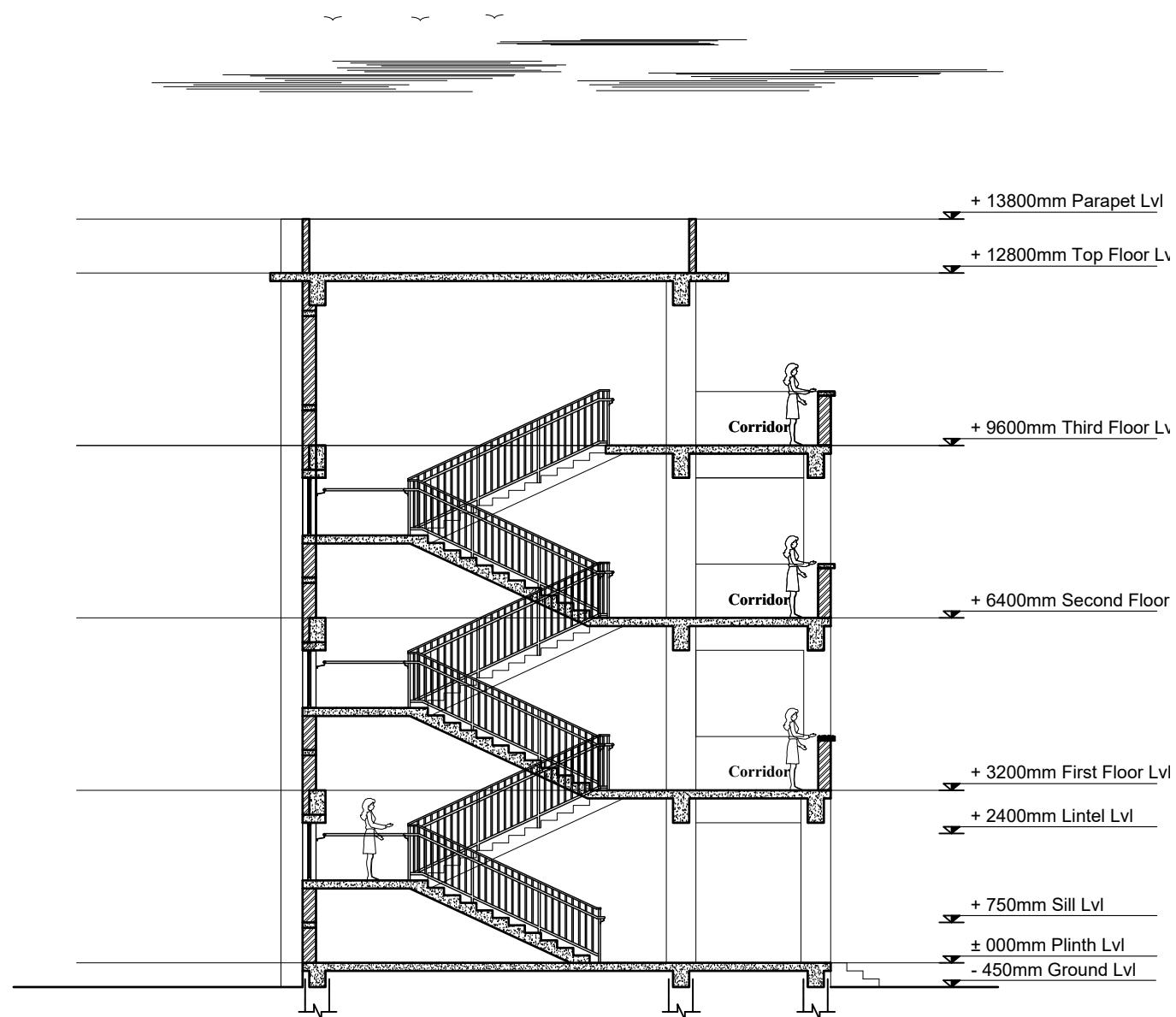
FF1	38 mm PCC (M15) with 1:1 cement punning with floor hardener (Dreitop FH, mapetop, Sika Chapdur or equivalent)
FF2	50 mm PCC (M15) with 1:1 cement punning in a 600X600 thread cut grid with floor hardener (Dreitop FH, mapetop, Sika Chapdur or equivalent) and water proofing (safe-crete or equivalent)
FF3	6 mm thick porcelain non-glaze tile with 20 mm cement sand mortar (1:4)



**TOP FLOOR PLAN**

FLOOR AREA: 33.07 sq.m

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Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	TOP FLOOR PLAN	SAGE ENGINEERING CONSULT Nepal	ENGINEER:	STRUCTURE ER. :	AR-03	R-00



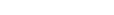
## SECTION AT A-A

## OPENING SCHEDULE

S.N.	SYMBOL	SIZES	G.F.	F.F.	S.F.	TOTAL	SILL HT.	REMARKS
1.	MD	1200 x 2400	8	8	8	24	-	
2.	D1	1000 x 2400	2	2	2	6	-	
3.	D2	750 x 2100	6	6	6	18	-	
4.	D3	1200 x 2400	2			2	-	
5.	W1	1700 x 1650	8	8	8	24	750 MM	
6.	W2	2000 x 1650	4	4	4	12	750 MM	
7.	SW	1800 x 1070	1	1		2	1530 MM	
8.	V1	600 x 600	6	6	6	18	1800 MM	

## NOTES:

1. All measurements are in mm unless otherwise noted.
2. Architectural drawing should be read in conjunction with Structural, Sanitary and Electrical drawings.
3. Site Engineer to notify the consultant if any discrepancy in dimensions found in drawings as per the site condition.
4. Sill and Lintel dimensions are measured from the Slab Lvl.
5. Dimensions are excluding the plaster/POP thickness.

CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM			SHEET NO. AR-04	REVISION NO. R-00
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	<b>SECTION AND OPENING SCHEDULE</b>	SAGE ENGINEERING CONSULT Nepal	ENGINEER:	STRUCTURE ER. :			

NOTES:

1. All measurements are in mm unless otherwise noted.
2. Architectural drawing should be read in conjunction with Structural, Sanitary and Electrical drawings.
3. Site Engineer to notify the consultant if any discrepancy in dimensions found in drawings as per the site condition.
4. Sill and Lintel dimensions are measured from the Slab Lvl.
5. Dimensions are excluding the plaster/POP thickness.



**FRONT ELEVATION**

CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM		SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	<b>ELEVATION</b>	SAGE ENGINEERING CONSULT Nepal	ENGINEER: ARCHITECT: DRAWN: SCALE : 1:120	STRUCTURE ER. : CHECKED: APPROVED: PAPER SIZE : A3	AR-05	R-00

NOTES:

1. All measurements are in mm unless otherwise noted.
2. Architectural drawing should be read in conjunction with Structural, Sanitary and Electrical drawings.
3. Site Engineer to notify the consultant if any discrepancy in dimensions found in drawings as per the site condition.
4. Sill and Lintel dimensions are measured from the Slab Lvl.
5. Dimensions are excluding the plaster/POP thickness.

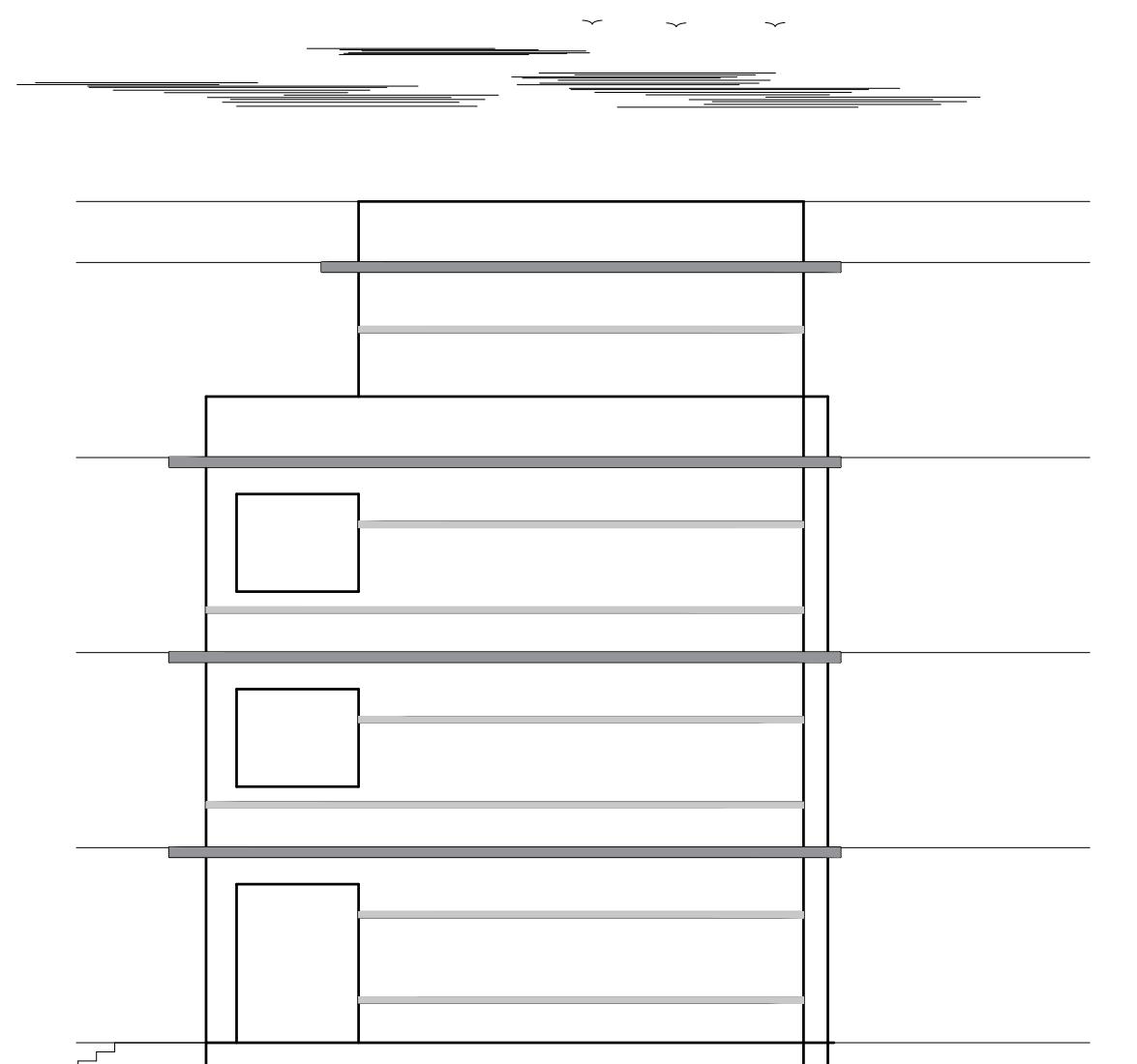


BACK ELEVATION

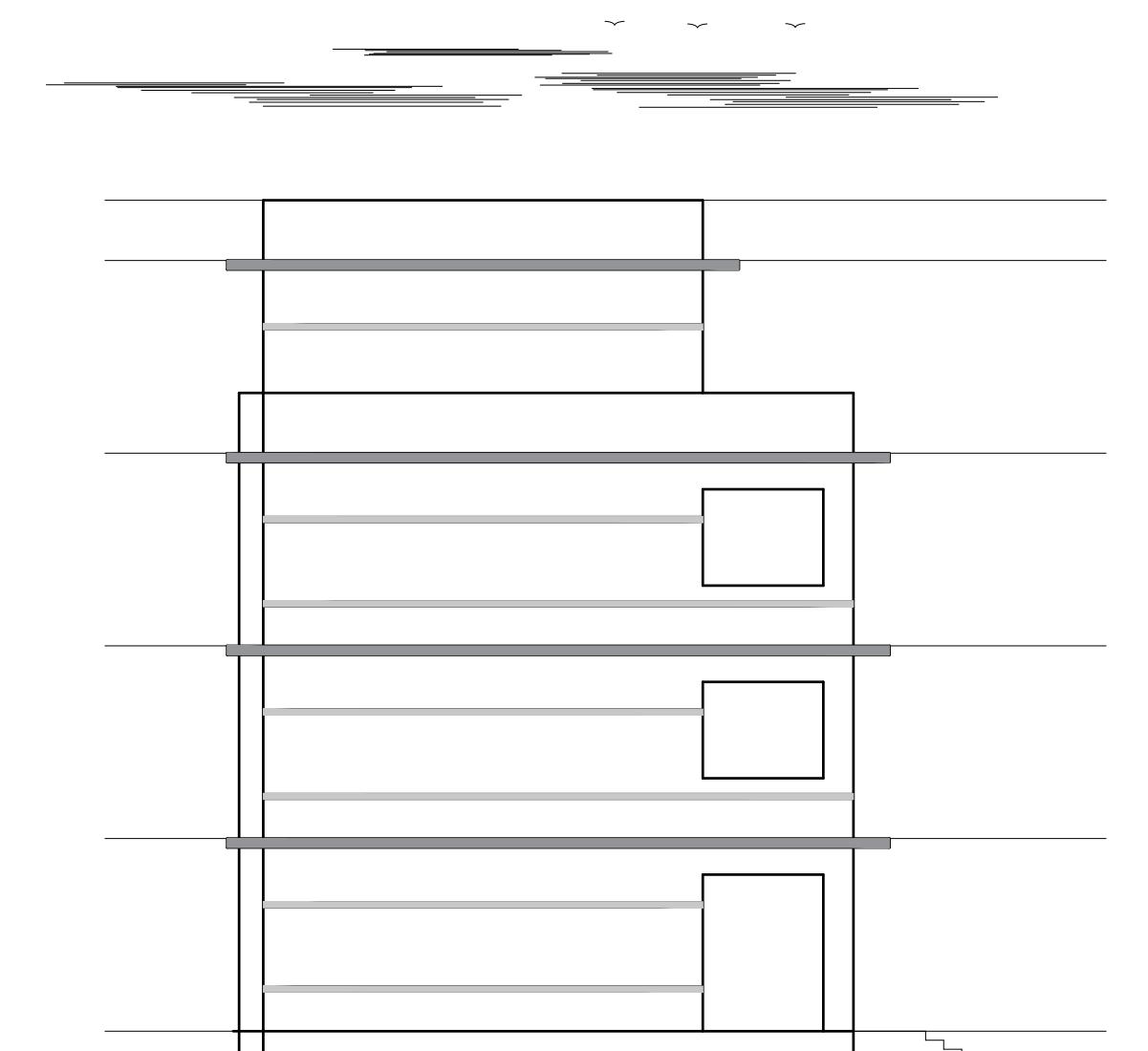
CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM		SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	ELEVATION	SAGE ENGINEERING CONSULT Nepal	ENGINEER: ARCHITECT: DRAWN: SCALE : 1:120	STRUCTURE ER. : CHECKED: APPROVED: PAPER SIZE : A3	AR-06	R-00

NOTES:

1. All measurements are in mm unless otherwise noted.
2. Architectural drawing should be read in conjunction with Structural, Sanitary and Electrical drawings.
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4. Sill and Lintel dimensions are measured from the Slab Lvl.
5. Dimensions are excluding the plaster/POP thickness.

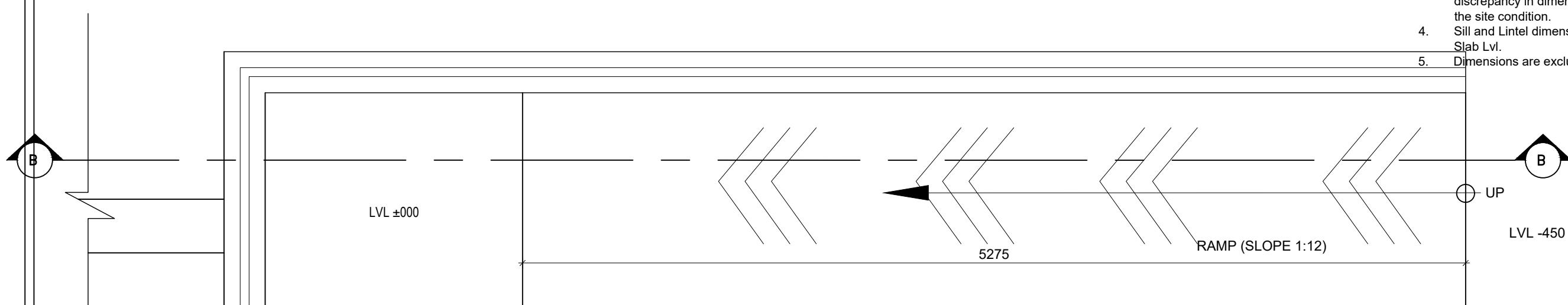


**SIDE-1 ELEVATION**

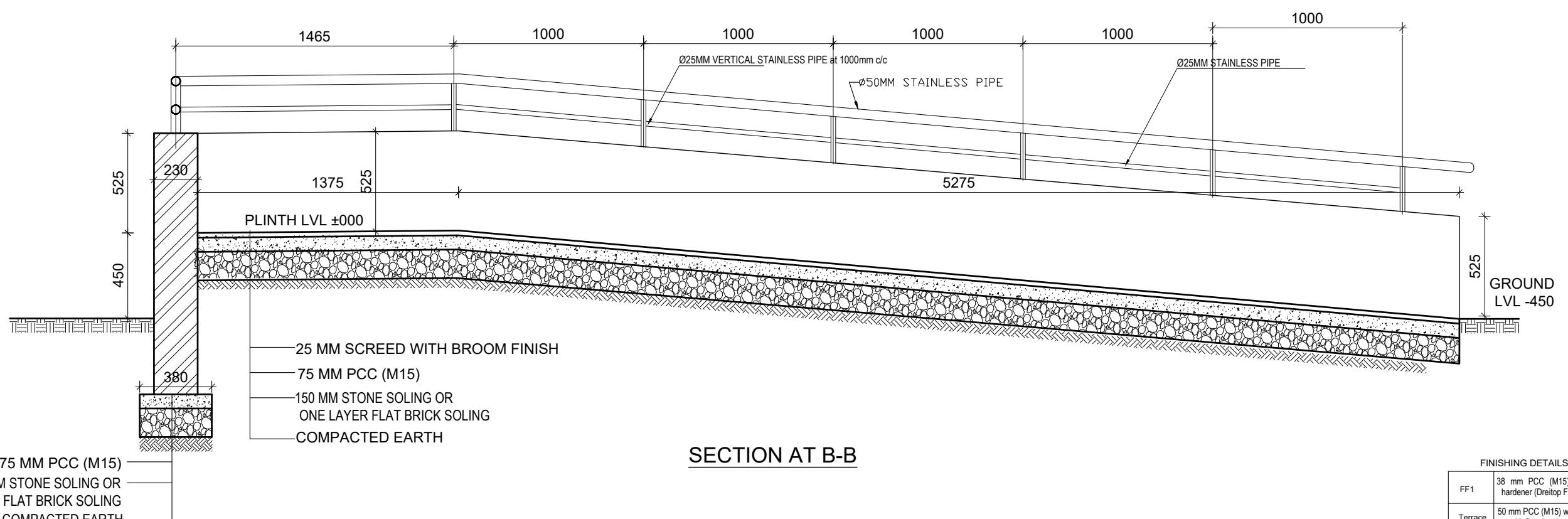


**SIDE-2 ELEVATION**

CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM		SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	EEVATIONS	SAGE ENGINEERING CONSULT Nepal	ENGINEER:	STRUCTURE ER. :		



## RAMP PLAN



## SECTION AT B-B

FINISHING DETAILS:	
FF1	38 mm PCC (M15) with 1:1 cement punning with floor hardener (Dreitop FH, mapetop, Sika Chapdur or equivalent)
Terrace	50 mm PCC (M15) with 1:1 cement punning in a 600*600 grid thread cut with floor hardener (Dreitop FH, mapetop, Sika Chapdur or equivalent) and water proofing (safe-crete or equivalent)

CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM		SHEET NO. AR-08	REVISION NO. R-00
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	<b>RAMP DETAILS</b>	SAGE ENGINEERING CONSULT Nepal	ENGINEER:	STRUCTURE ER. :		

# **STRUCTURE DRAWING**

SN.	DRAWING LIST
1.	GENERAL NOTES
3.	FOOTING DETAIL FOR 100kN/m <sup>2</sup>
4.	TYPICAL FLOORING DETAIL
5.	SITE SPECIFIC DRAWING
6.	TYPICAL DETAILS OF FOUNDATION WALL
7.	COLUMN DETAIL
8.	BEAM PLAN
9.	BEAM DETAIL
10.	SLAB DETAIL
11.	STAIRCASE DETAIL
12.	BAND DETAIL
13.	RAILING DETAIL

CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design Mountainous Region	TABLE OF CONTENTS	SAGE ENGINEERING CONSULT Nepal	ENGINEER: _____ ARCHITECT: _____ DRAWN : NEETA BHANDARI SCALE : 1: 120	STRUCTURE ER. : CHECKED: APPROVED: PAPER SIZE : A3	ST-00 R-00 DWG CODE: 3S12R-MOUNTAINOUS DATE: FEBRUARY, 2023

### GENERAL NOTES:

1. USE M25 GRADE CONCRETE FOR SLAB, BEAM, COLUMN, FOUNDATION, SILL & LINTEL BANDS (ALL RCC WORKS)
2. USE Fe500 GRADE STEEL ( $f_y=500\text{N/mm}^2$ )
3. CLEAR COVER TO BARS
  - a. FOR CONCRETE MEMBERS IN CONTACT WITH SOIL = MIN 50mm
  - b. FOR COLUMN (FROM FACE TO LATERAL TIES) = 40mm
  - c. FOR BEAMS (FROM FACE TO LATERAL STIRRUPS) = 25mm
  - d. FOR OUTER BARS IN SLAB = 15mm
  - e. FOR STAIRCASE = 20mm
4. BARS IN COLUMNS SHALL BE SPLICED ONLY AT MID HEIGHT OF COLUMN.

5. BARS SPLICING IN BEAM SHALL BE AVOIDED IN THE SPAN WHERE INTERMEDIATE BEAM IS CONNECTED AND SHALL BE ONLY AS SHOWN IN DWG.

6. DEVELOPMENT / LAP LENGTH ( $L_d$ ) FOR BARS.

BAR DIA-(mm)	8	10	12	16	20	25
FOR M25 $L_d$	400	490	590	790	980	1230

7. TEMP./DISTRIBUTION REINFORCEMENT FOR SLAB - TMT 80 @ 200 C/C

8. CLEAR VERTICAL DISTANCE BETWEEN TWO ROWS (LAYERS) OF BARS=25mm OR MAXIMUM SIZE OF REBAR

9. PROVIDE STIRRUPS OR TIES AT MIN 150 C/C AT LAP LOCATIONS IN BEAM AND AT MIN 100 C/C AT LAP LOCATION IN COLUMNS.

10. FOUNDATION

- 10.1 FOUNDATION DESIGN HAVE BEEN PROVIDED FOR SAFE BEARING CAPACITY OF 150KN/m<sup>2</sup>.

THIS S.E.C. SHALL BE CONFIRMED FROM GEO TECHNICAL INVESTIGATION AND CONSULTED TO DESIGNER.

- 10.2 IF SAFE BEARING CAPACITY OF SOIL IS FOUND LESS THAN 100KN/m<sup>2</sup>, SPECIAL STUDY FOR FOUNDATION DESIGN IS REQUIRED.

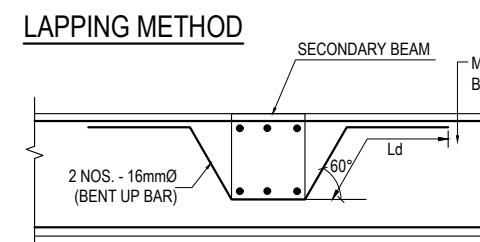
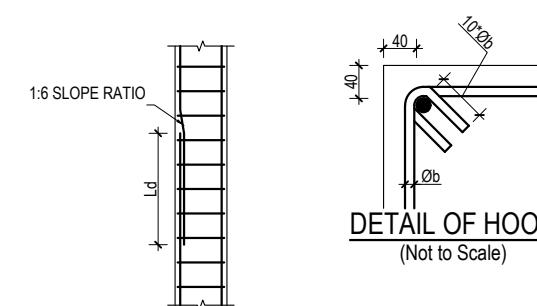
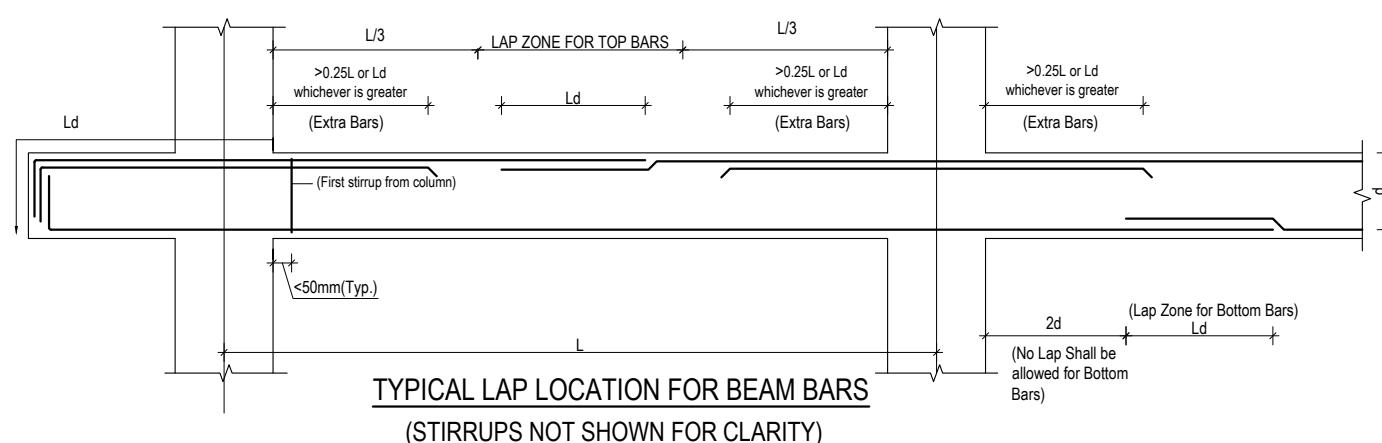
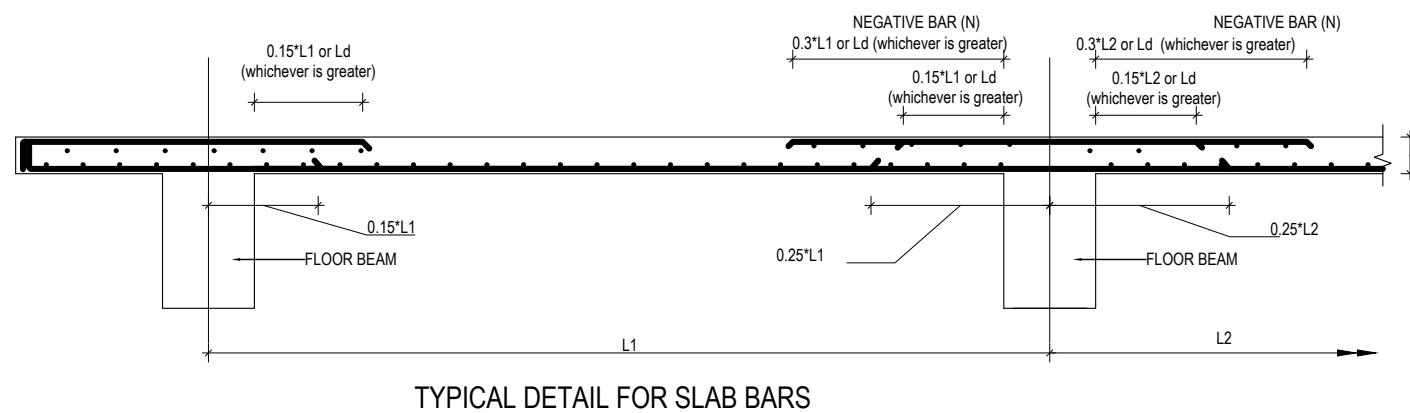
11. H = CLEAR SPAN OF FLOOR.

12. D=DEPTH OF BEAM

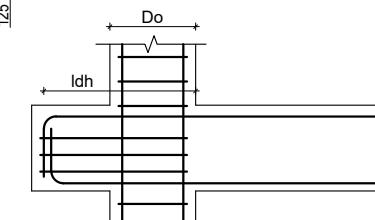
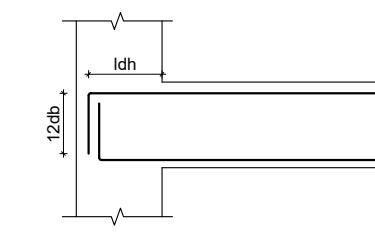
13. d=EFFECTIVE DEPTH OF BEAM

14.  $L_d$ =DEVELOPMENT LENGTH

15. The seismic gap shall be as per codal requirement.

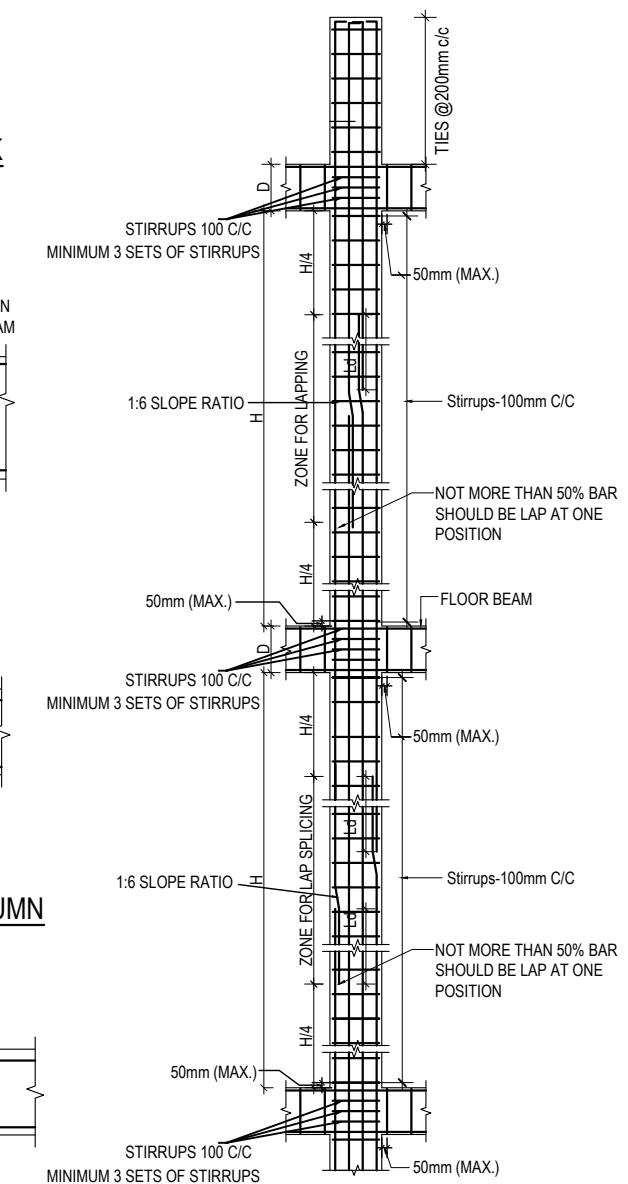


**CONNECTION DETAIL BETWEEN MAIN & SECONDARY BEAM**

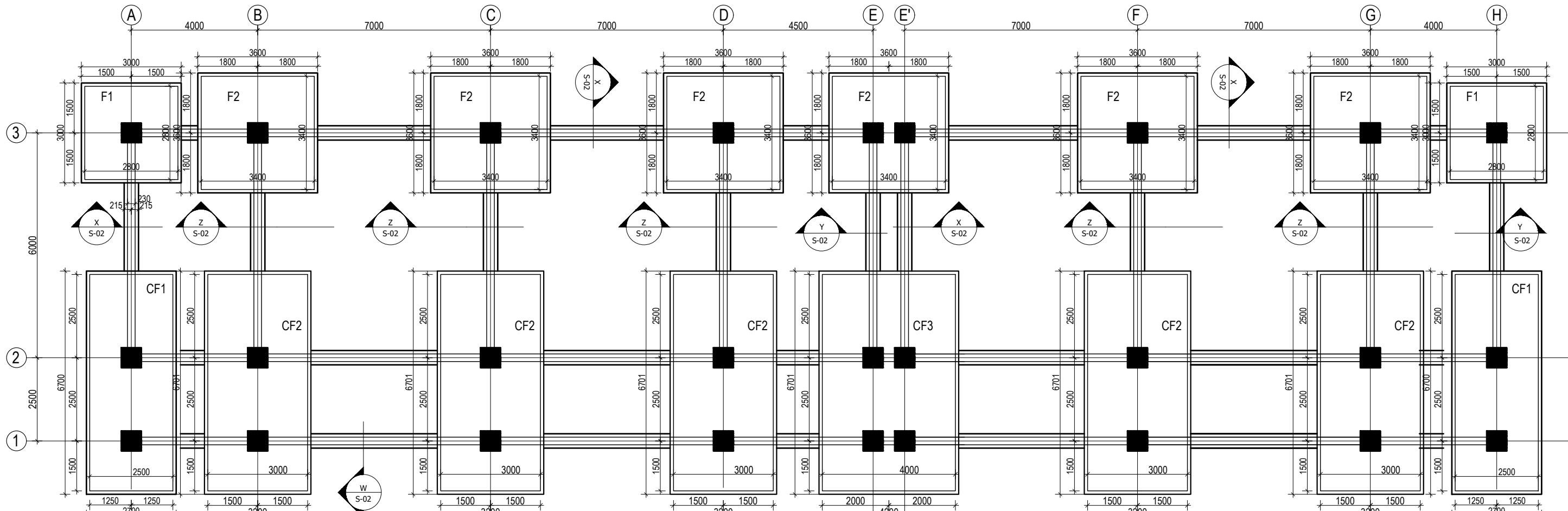


$f_y$ $\text{N/mm}^2$	$f_{ck}$ $\text{N/mm}^2$	$db$ mm	$L_{dh}$ mm	$12db$ mm
500	20	12	277	144
500	25	12	248	144
500	20	16	369	192
500	25	16	330	192
500	20	20	462	240
500	25	20	413	240
500	20	25	577	300
500	25	25	516	300

$f_y$ = yield strength of steel  
 $f_{ck}$ = Characteristic Compressive strength of concrete  
 $db$ = diameter of largest longitudinal bar in beam in mm



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 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design Mountainous Region	GENERAL NOTES	SAGE ENGINEERING CONSULT Nepal	ENGINEER: _____ ARCHITECT: _____ DRAWN : NEETA BHANDARI SCALE : 1: 120	STRUCTURE ER. : CHECKED: APPROVED: PAPER SIZE : A3	R-00 DWG CODE: 3S12R-MOUNTAINOUS DATE: FEBRUARY, 2023



**TRENCH PLAN**

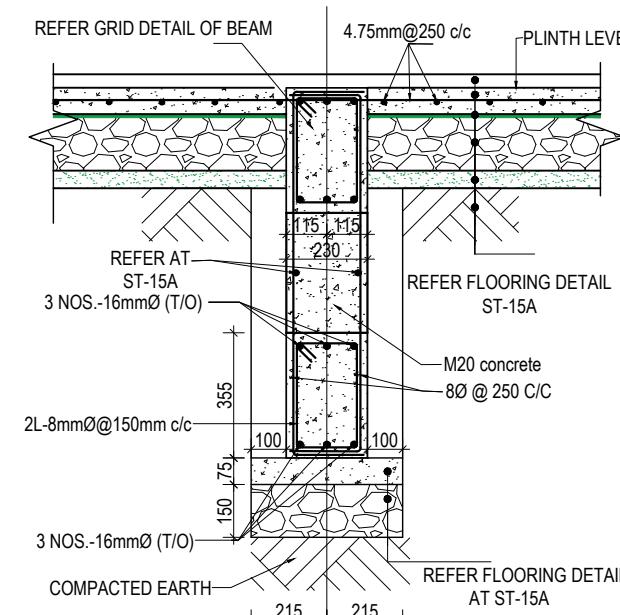
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[Note: Provide wall footing for book corner walls]

CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design Mountainous Region	TRENCH DETAIL FOR S.B.C 150kN/m <sup>2</sup>	SAGE ENGINEERING CONSULT Nepal	ENGINEER: _____ ARCHITECT: _____ DRAWN : NEETA BHANDARI SCALE : 1: 120	ST-01	R-00

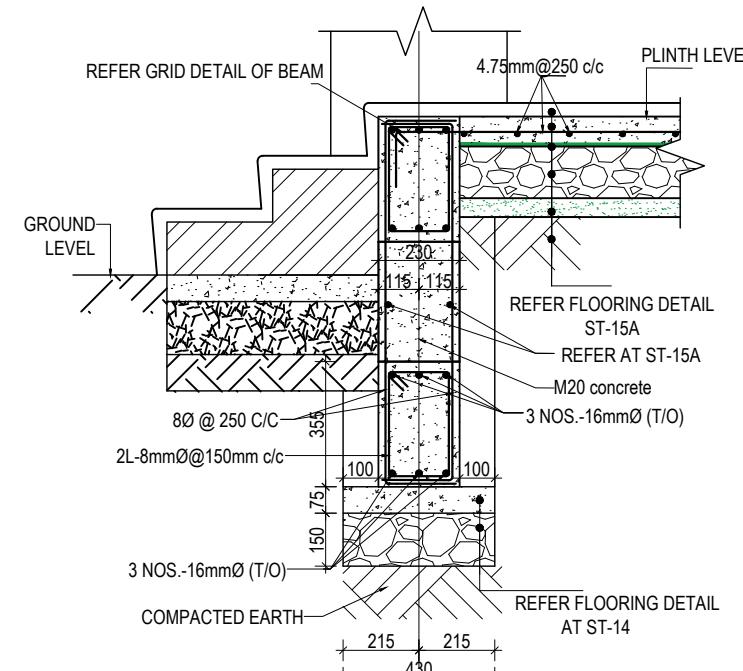
DWG CODE:  
3S12R-MOUNTAINOUS

PAPER SIZE : A3 DATE: FEBRUARY, 2023



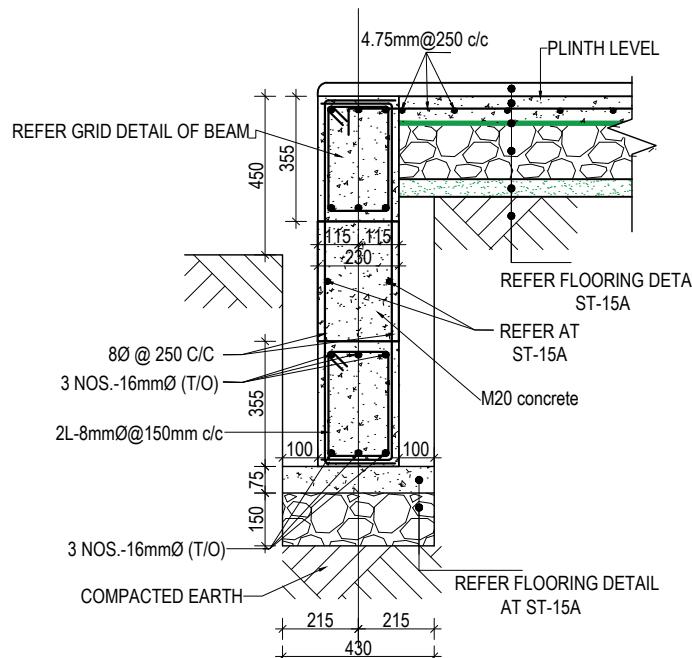
### SECTION AT Z-Z'

(Scale= 1:20)



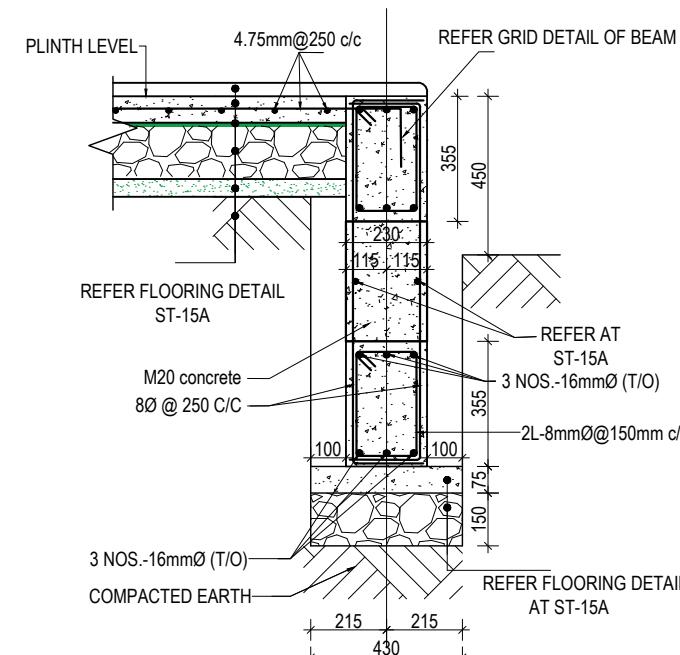
### SECTION AT W-W

(Scale= 1:20)



### SECTION AT X-X

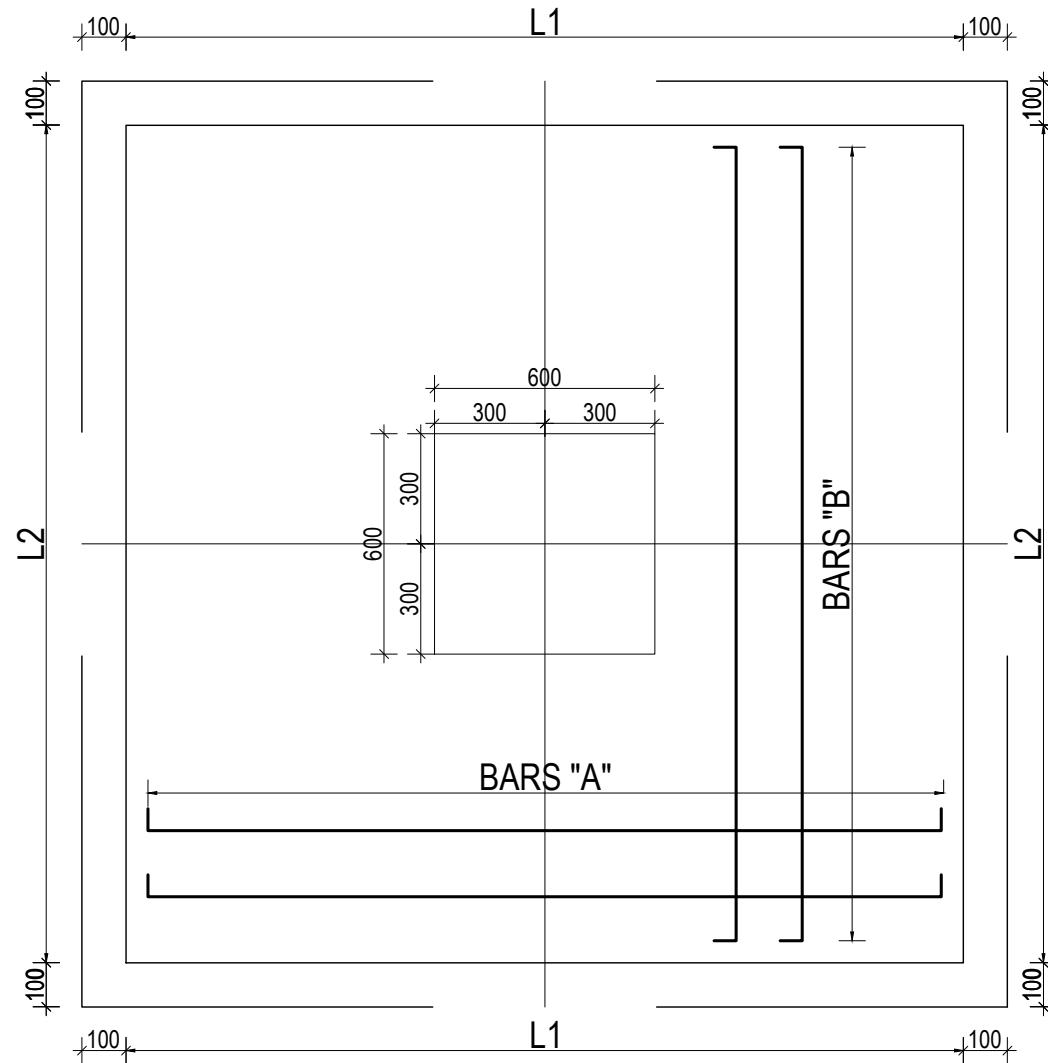
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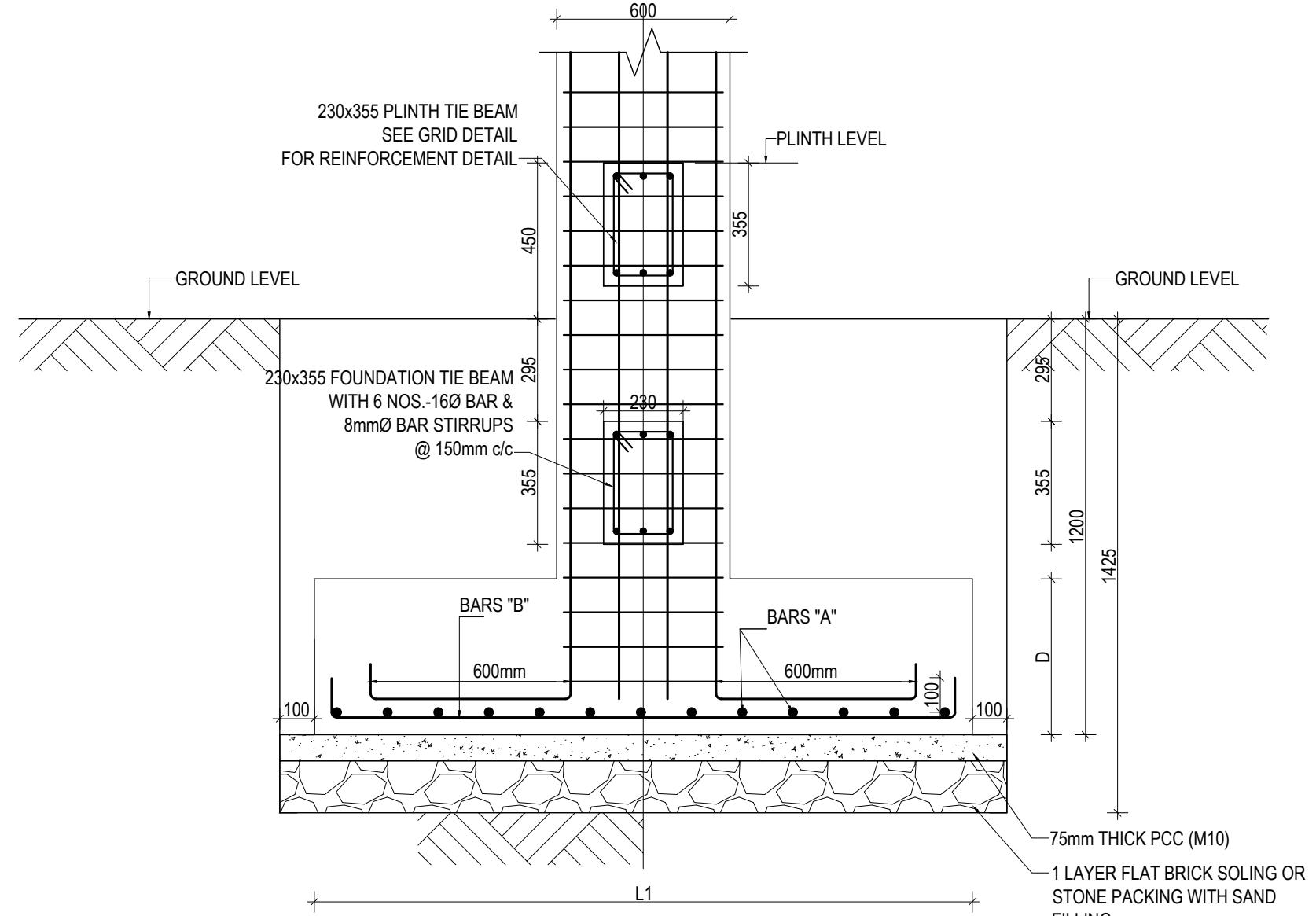
### SECTION AT Y-Y

(Scale= 1:20)

CLIENT		PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM		SHEET NO. ST-02	REVISION NO. R-00
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design Mountainous Region	TRENCH DETAIL FOR S.B.C 150kN/m2	SAGE ENGINEERING CONSULT Nepal	ENGINEER: ARCHITECT: DRAWN : NEETA BHANDARI	STRUCTURE ER. : CHECKED: APPROVED:	SCALE : 1: 120	PAPER SIZE : A3	DWG CODE. 3S12R-MOUNTAINOUS DATE: FEBRUARY, 2023



## TYPICAL ISOLATED FOOTING PLAN

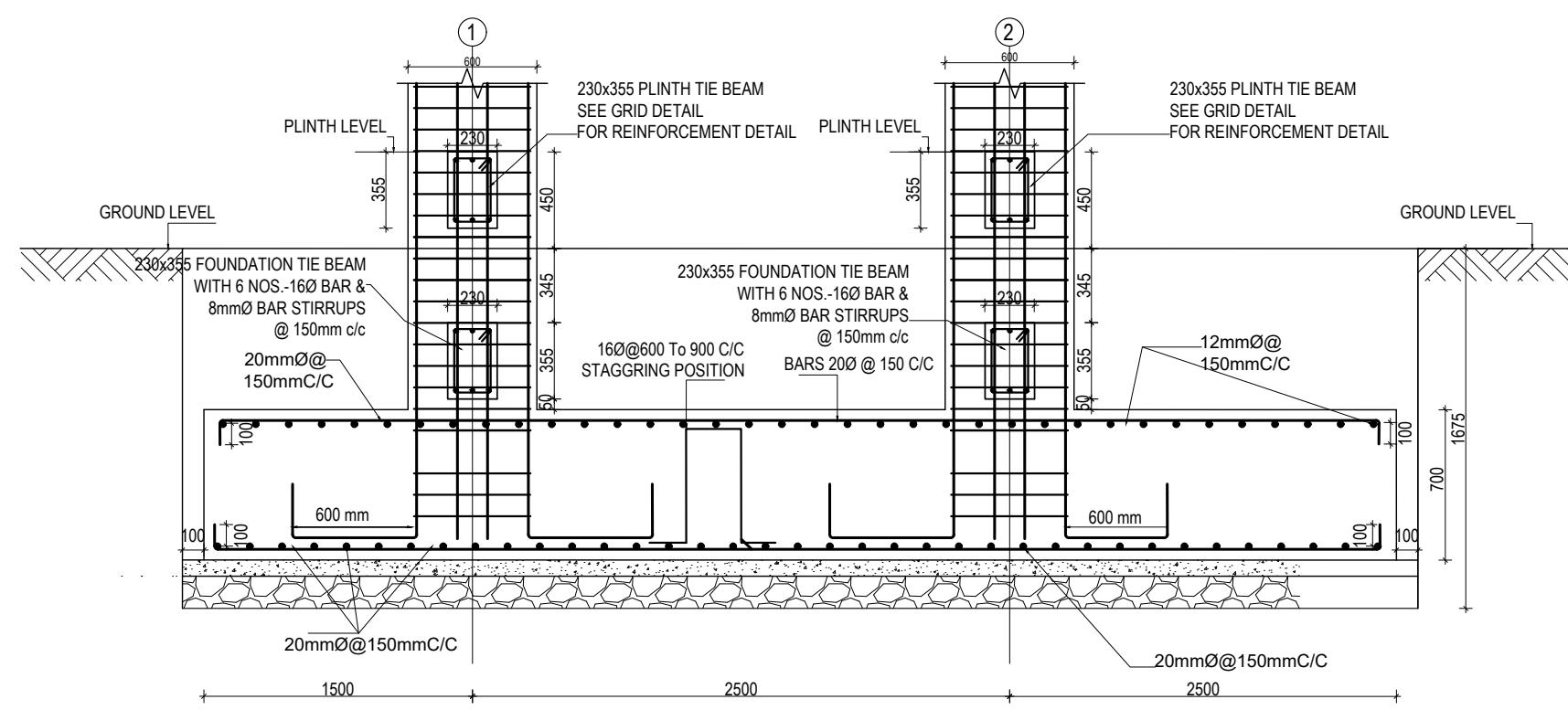
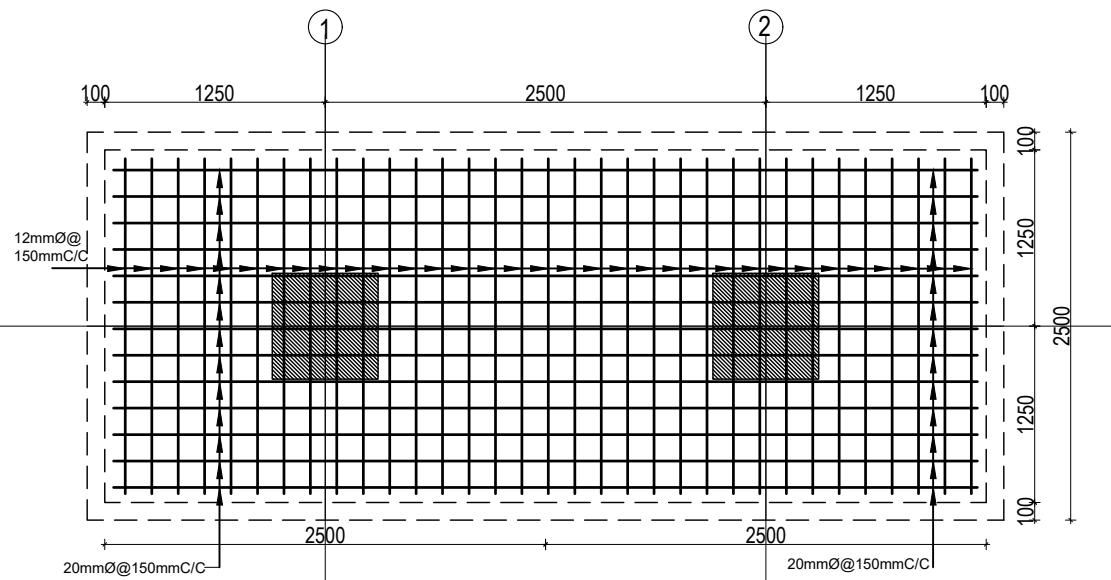
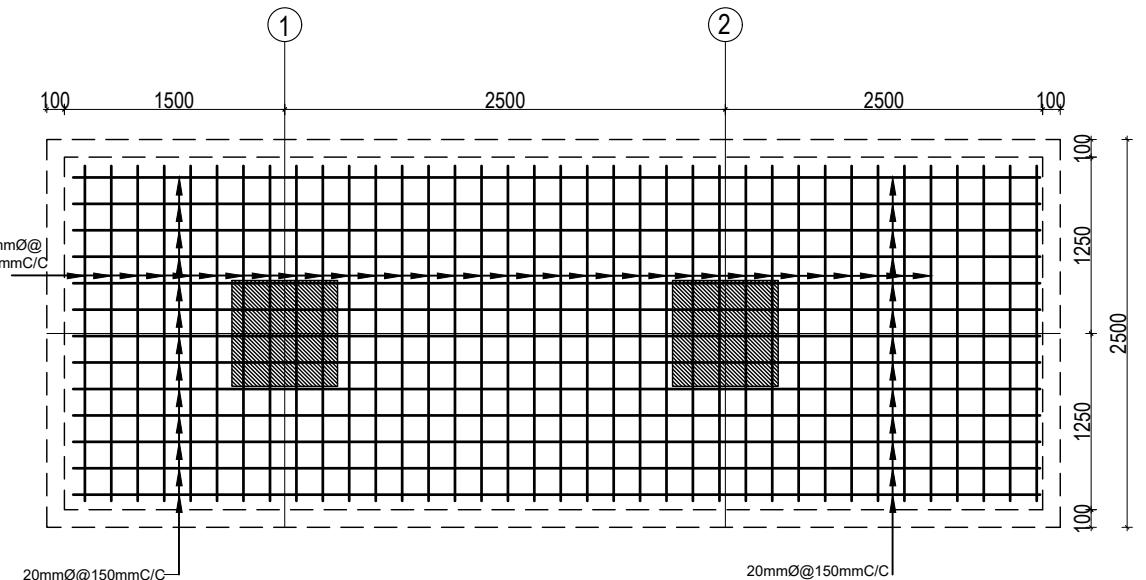


## TYPICAL ISOLATED FOOTING SECTION

## **ISOLATED FOOTING SCHEDULE FOR S.B.C 150 kN/m<sup>2</sup>**

FOOTING ID	L1	L2	DEPTH (D)	REINFORCEMENT DETAILS	
				BARS "A"	BARS "B"
F1	2800	2800	650	16Ø @ 150 C/C	16Ø @ 150 C/C
F2	3600	3600	750	16Ø @ 150 C/C	16Ø @ 150 C/C

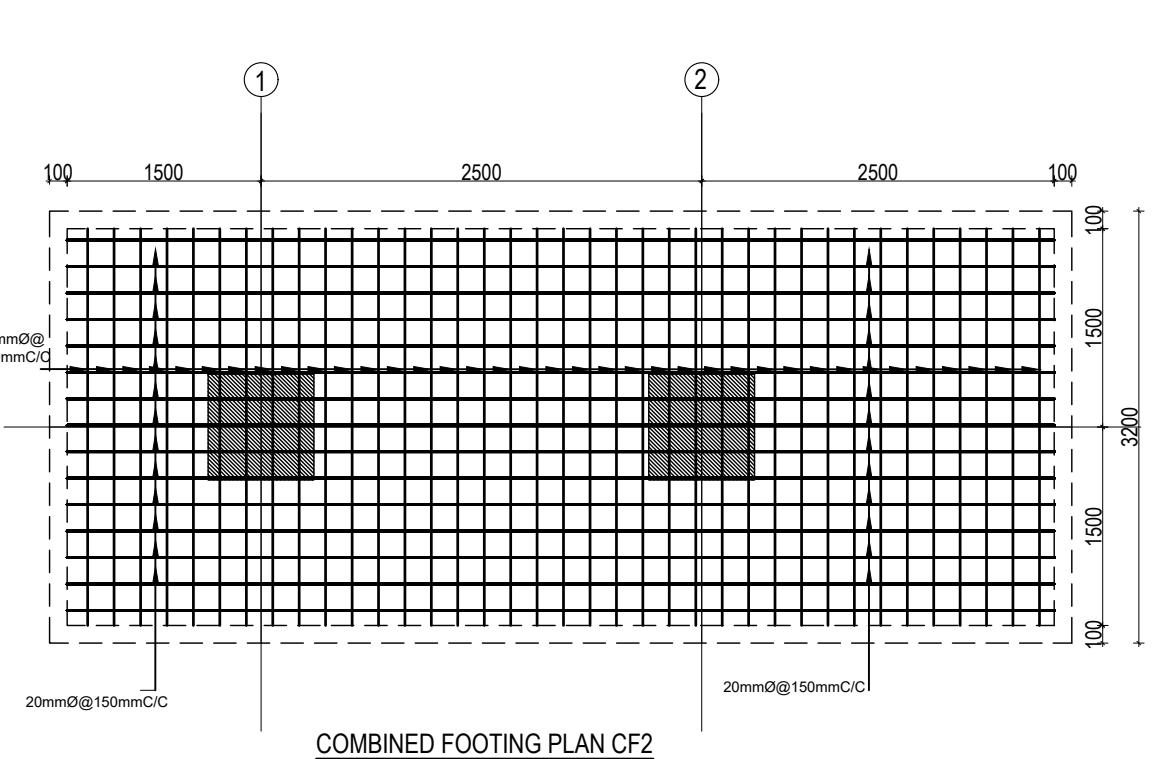
CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM		SHEET NO. ST-03	REVISION NO. R-00
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design Mountainous Region	FOOTING DETAIL FOR S.B.C 150kN/m2	SAGE ENGINEERING CONSULT Nepal	ENGINEER: ARCHITECT: DRAWN: NEETA BHANDARI SCALE : 1: 120	STRUCTURE ER.: CHECKED: APPROVED: PAPER SIZE : A3 DATE: FEBRUARY, 2023		DWG CODE. 3S12R-MOUNTAINOUS



COMBINED FOOTING SECTION CF1

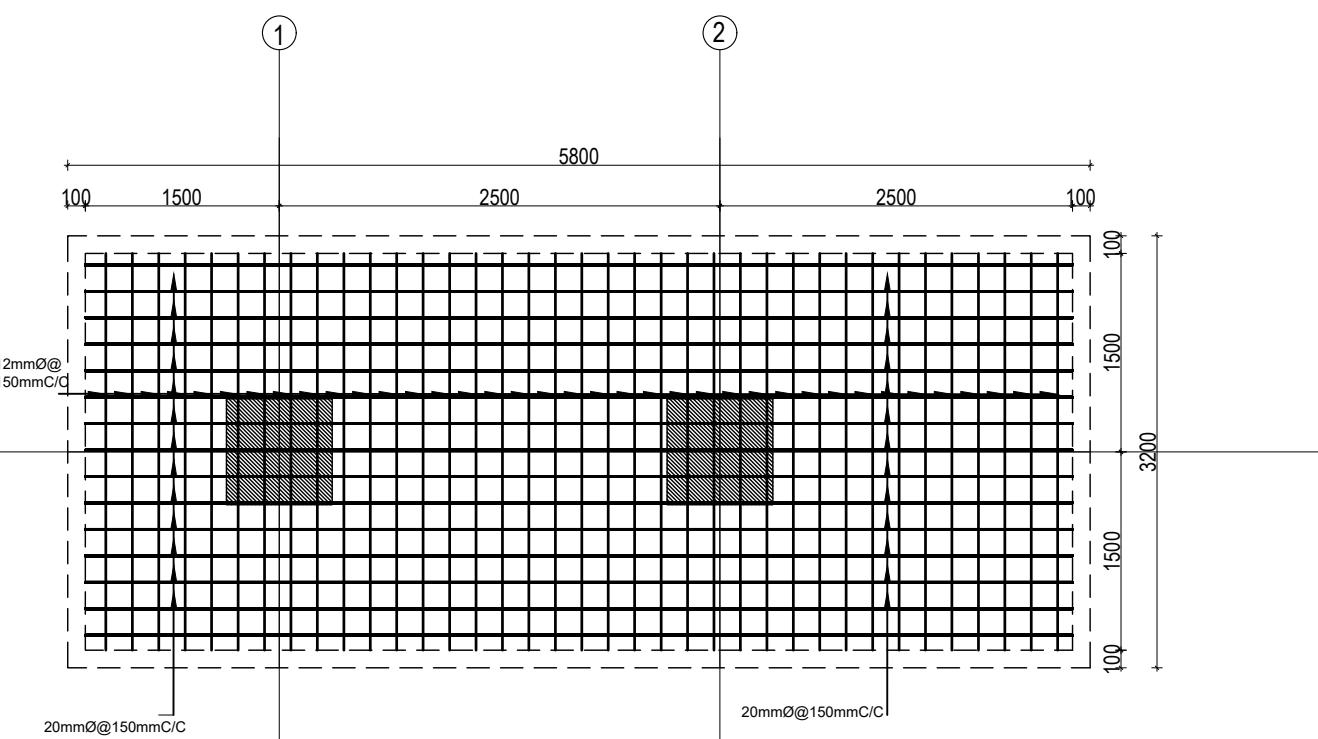
CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design Mountainous Region	FOOTING DETAIL FOR S.B.C 150kN/m <sup>2</sup>	SAGE ENGINEERING CONSULT Nepal	ENGINEER: _____ ARCHITECT: _____ DRAWN: NEETA BHANDARI SCALE : 1: 120	ST-04	STRUCTURE ER. : CHECKED: APPROVED: PAPER SIZE : A3 DATE: FEBRUARY, 2023

DWG CODE:  
 3S12R-MOUNTAINOUS

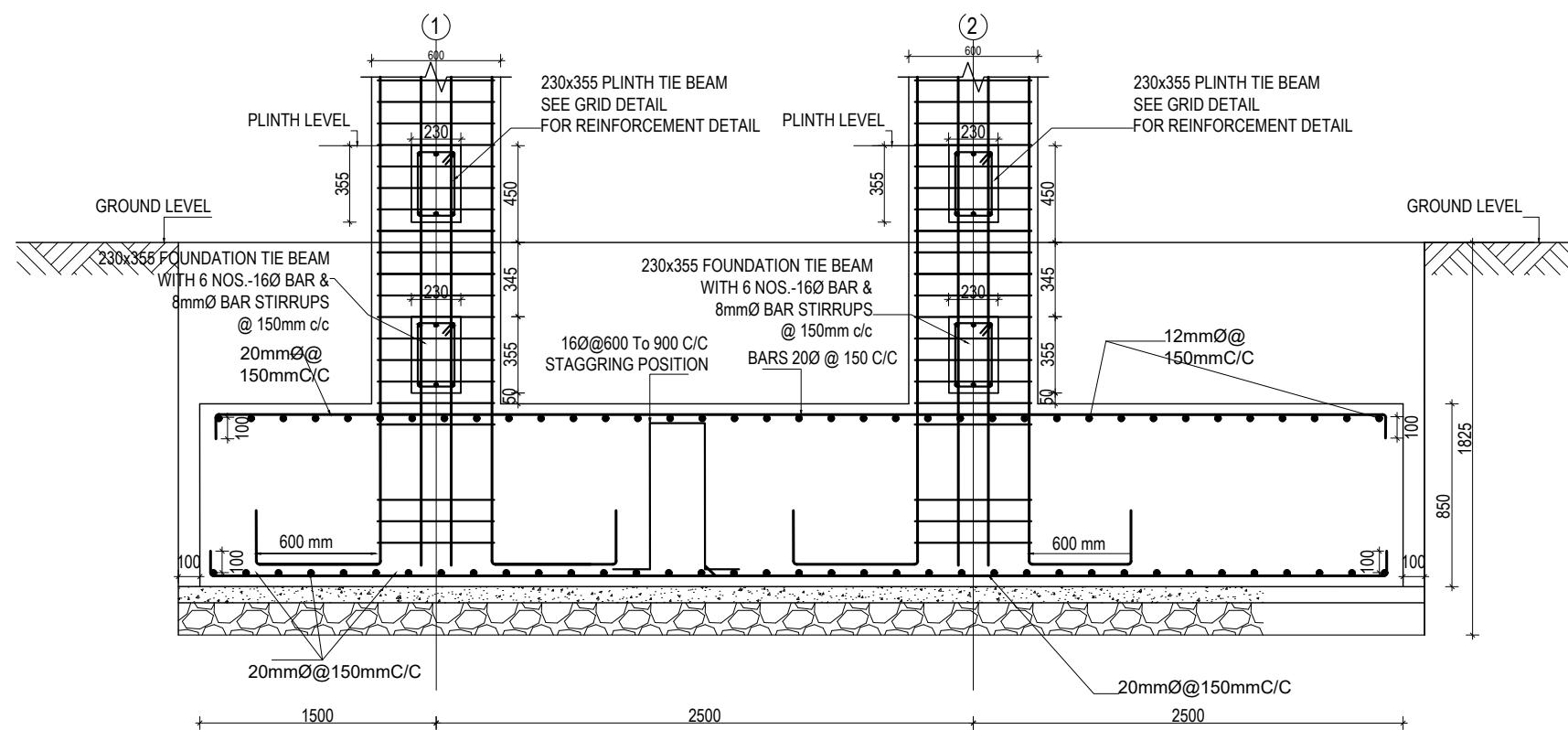


## COMBINED FOOTING PLAN CF2

### BOTTOM REINFORCEMENT

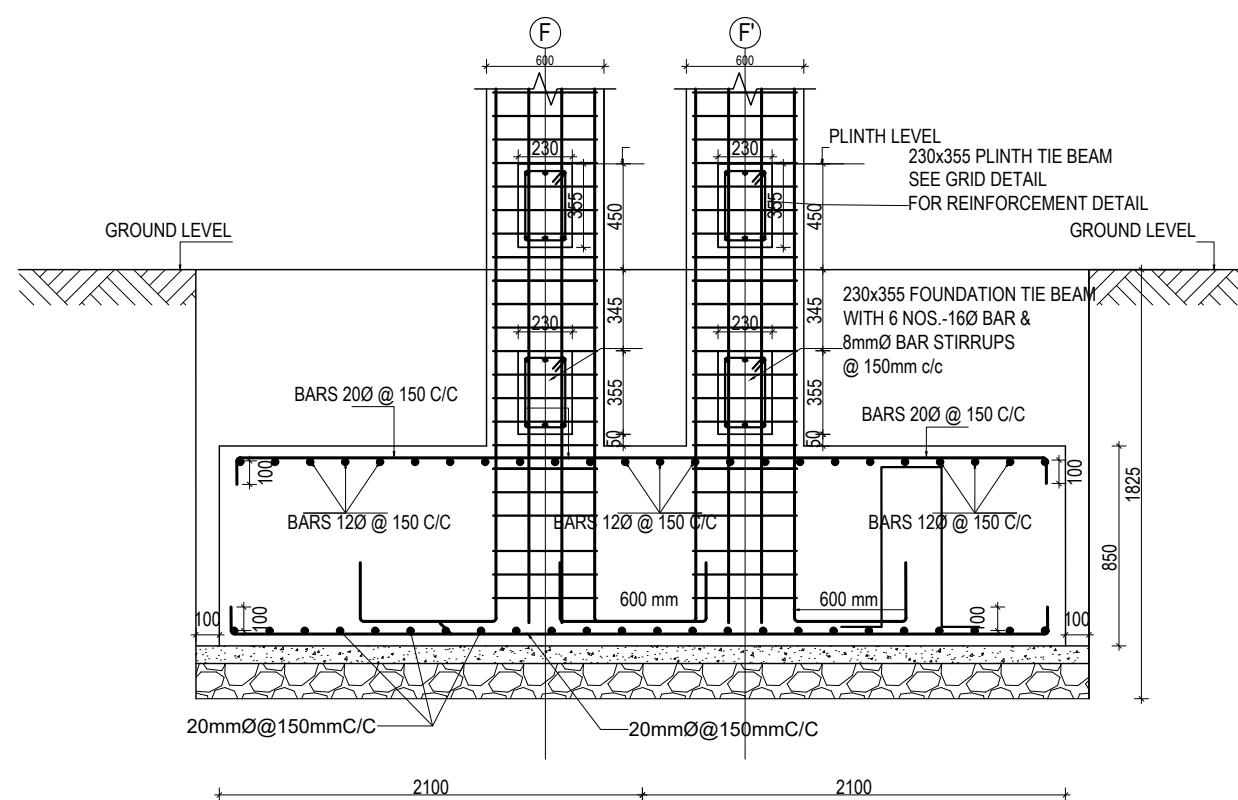
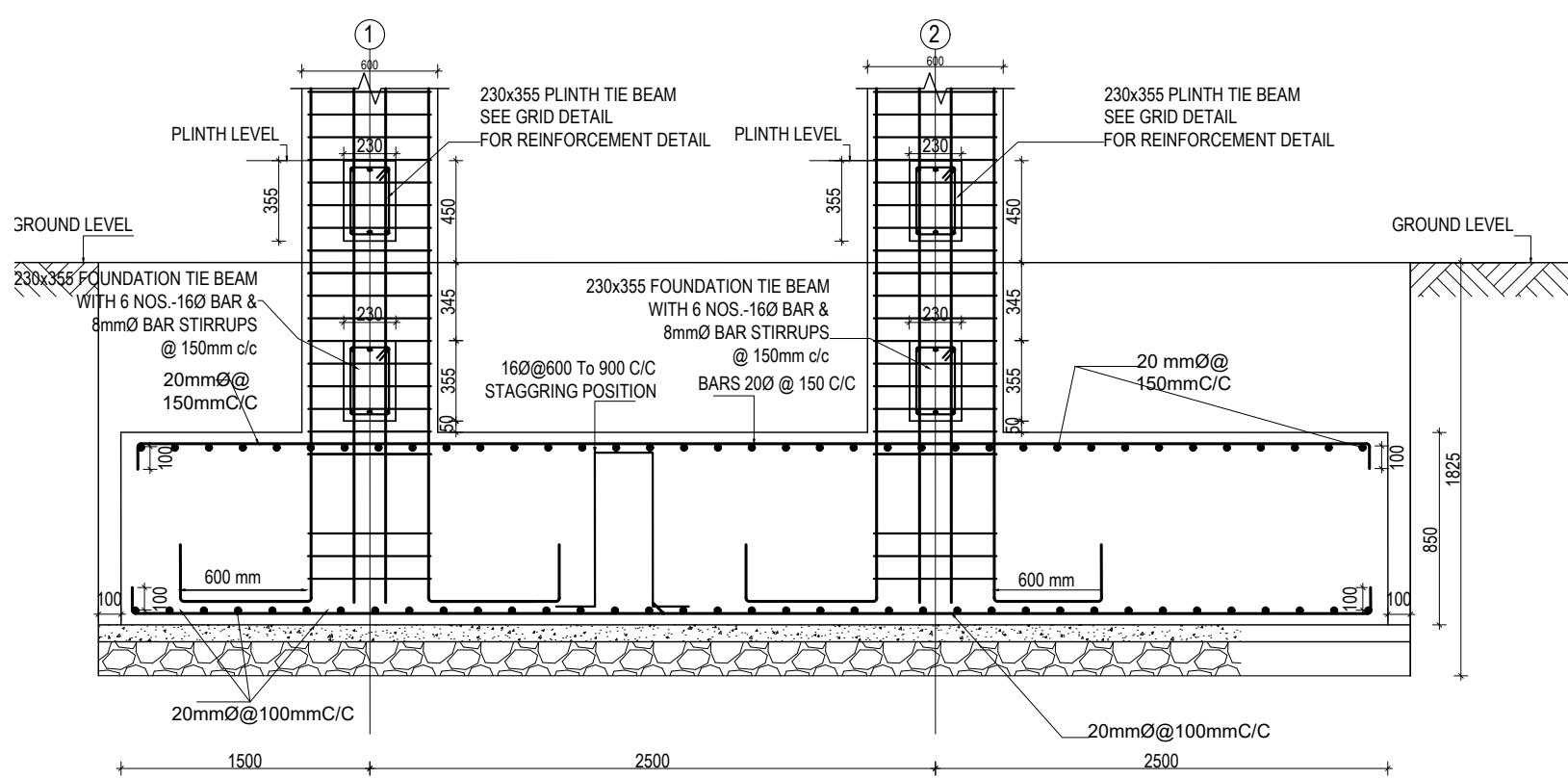
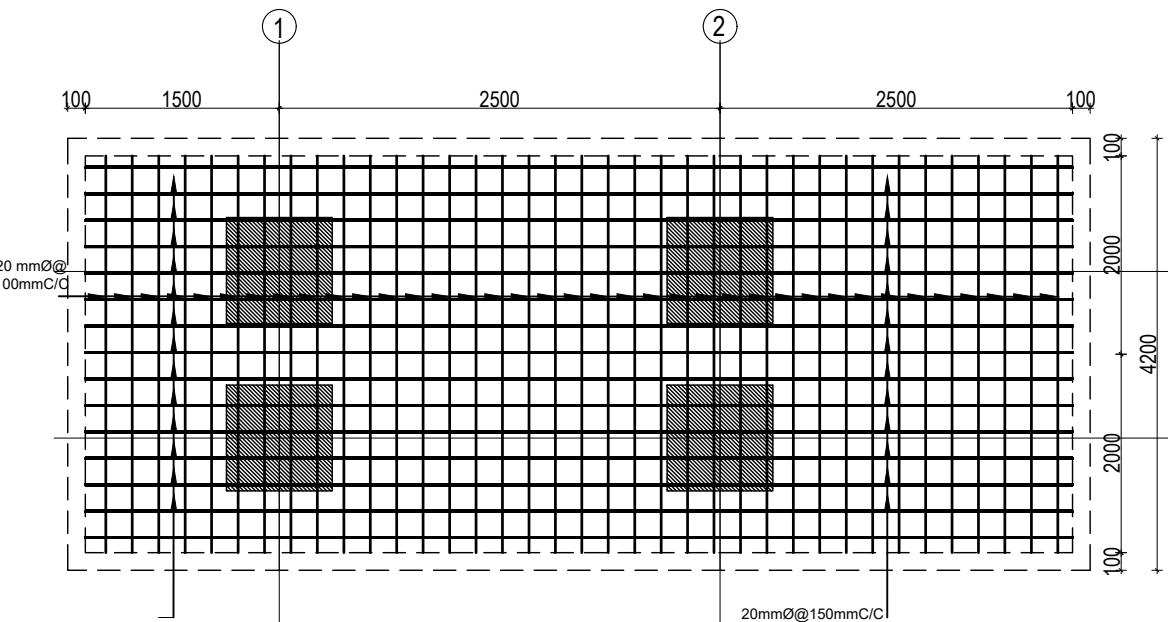
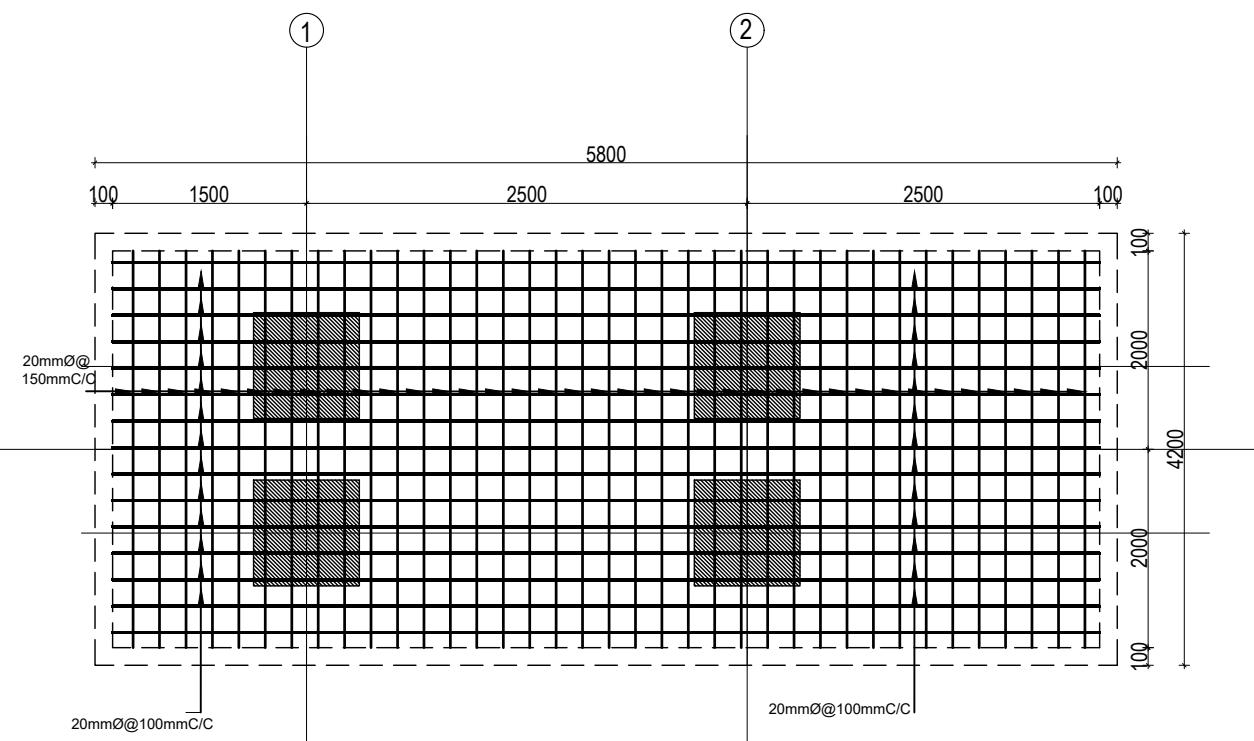


COMBINED FOOTING PLAN CF2  
TOP REINFORCEMENT

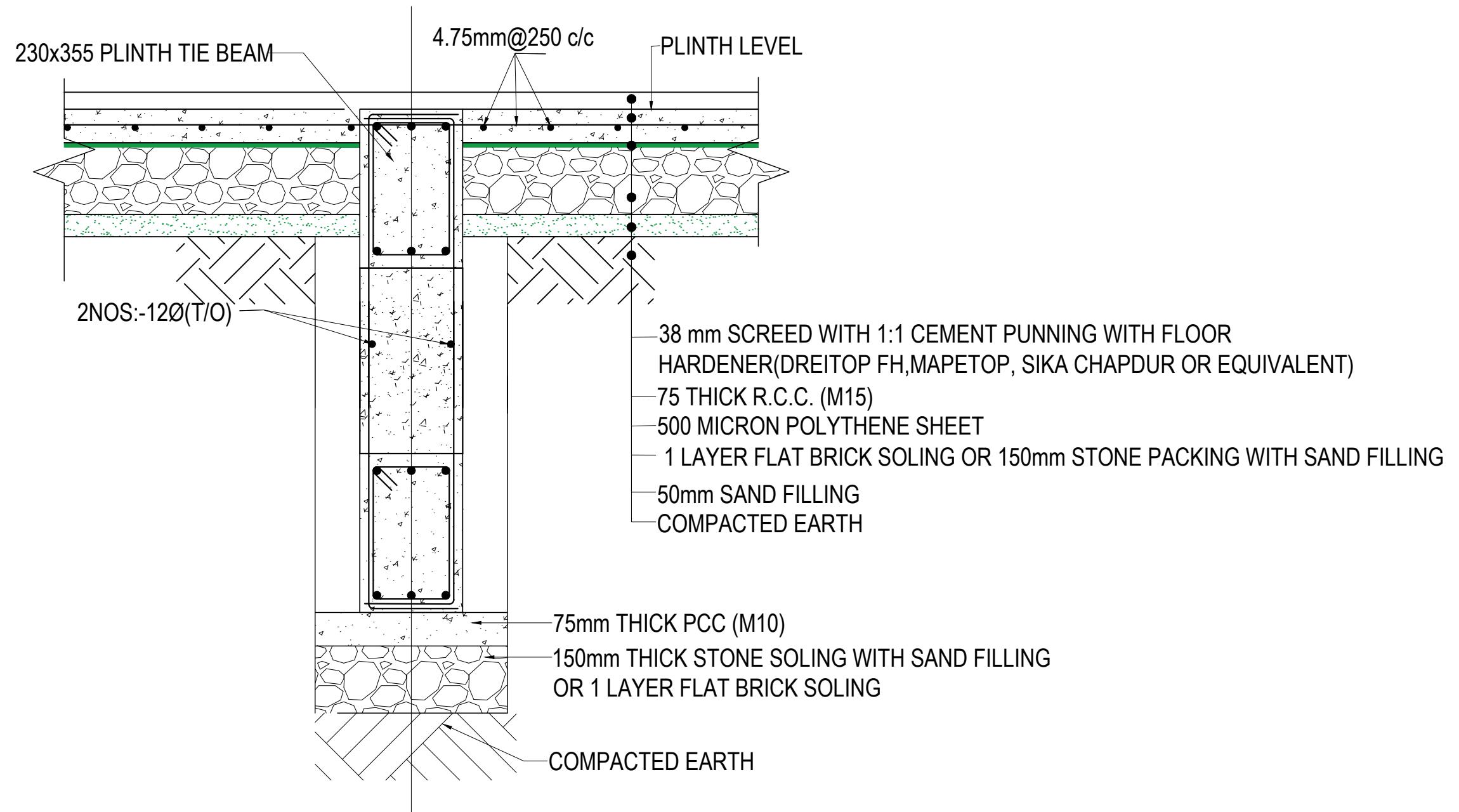


## COMBINED FOOTING SECTION CF2

CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM		SHEET NO. ST-05	REVISION NO. R-00
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design Mountainous Region	FOOTING DETAIL FOR S.B.C 150kN/m2	SAGE ENGINEERING CONSULT Nepal	ENGINEER: ARCHITECT: DRAWN : NEETA BHANDARI SCALE : 1: 120	STRUCTURE ER. : CHECKED: APPROVED: PAPER SIZE : A3 DATE: FEBRUARY, 2023		DWG CODE. 3S12R-MOUNTAINOUS



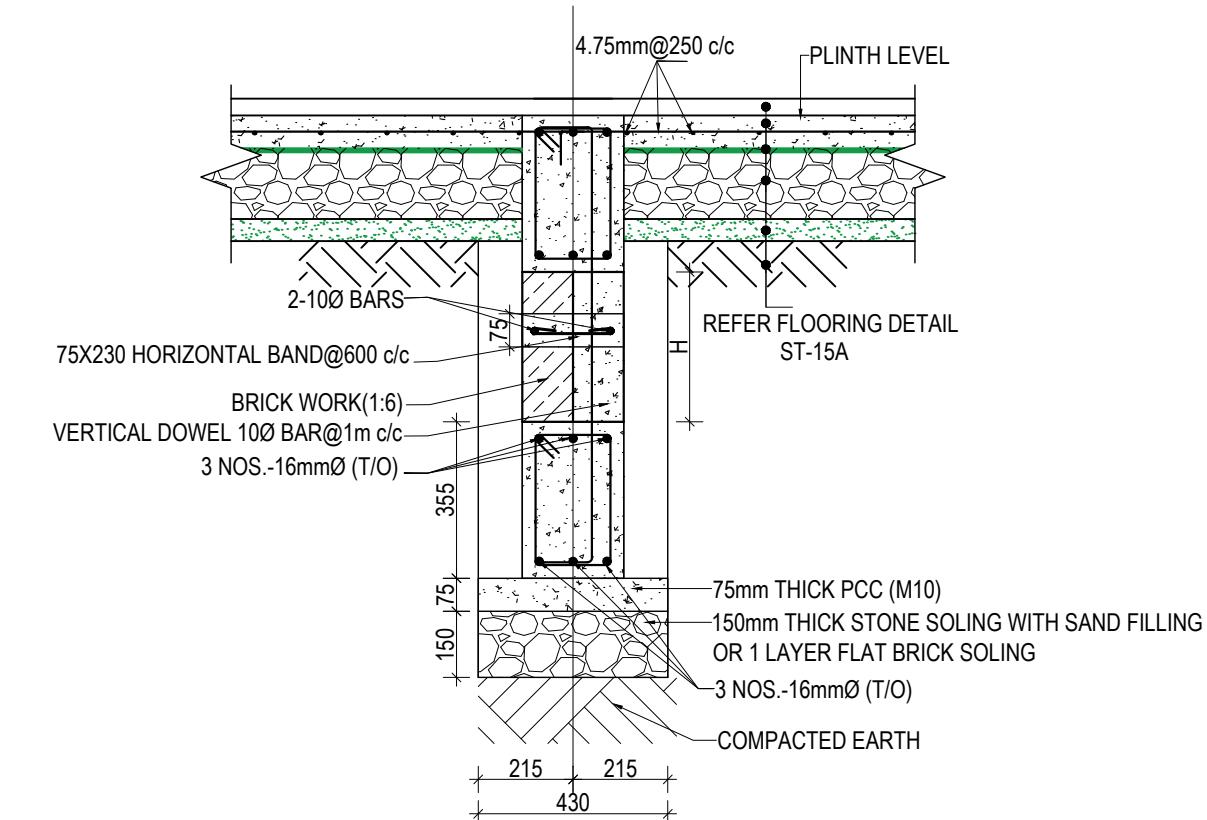
CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design Mountainous Region	FOOTING DETAIL FOR S.B.C 150kN/m <sup>2</sup>	SAGE ENGINEERING CONSULT Nepal	ENGINEER: _____ ARCHITECT: _____ DRAWN: NEETA BHANDARI SCALE : 1: 120	ST-06	R-00



### TYPICAL FLOORING DETAIL FF1

(Scale= 1:10)

CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design Mountainous Region	TYPICAL FLOORING DETAIL	SAGE ENGINEERING CONSULT Nepal	ENGINEER: _____ ARCHITECT: _____ DRAWN: NEETA BHANDARI SCALE : 1: 120	ST-07	R-00 DWG CODE. 3S12R-MOUNTAINOUS

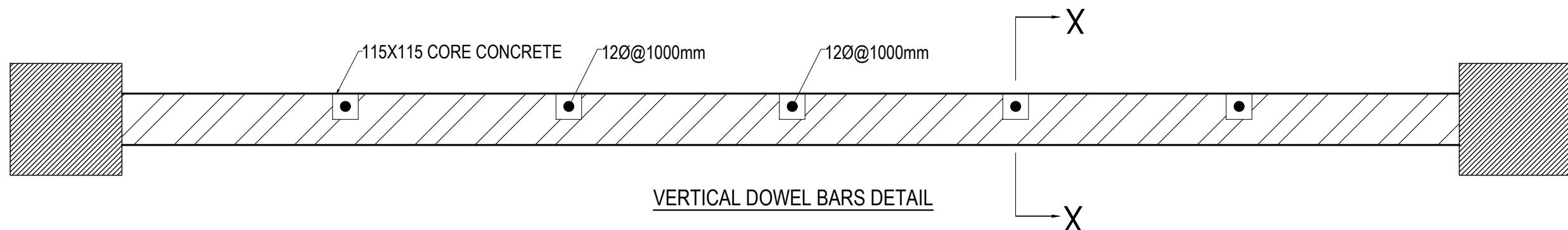


WALL DETAIL FOR DEPTH OF FOOTING MORE THAN 1500 mm

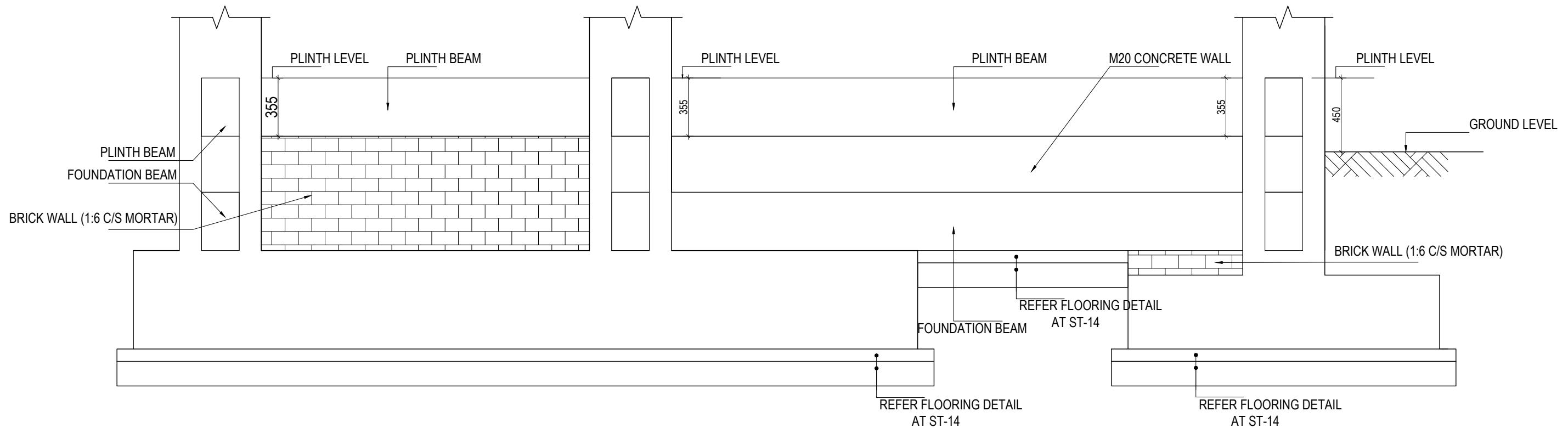
SECTION AT X-X

NOTES:-

- 1) BRICK WALL IS USED IF WALL IS CONFINED BY SOIL ON BOTH SIDES
- 2) IF THE HEIGHT OF THE BRICKWALL EXCEEDS 1800 mm ADDITIONAL BEAM SHALL BE PROVIDED OF SAME SIZE OF FOUNDATION BEAM(SAME REINFORCEMENT TO BE USED)

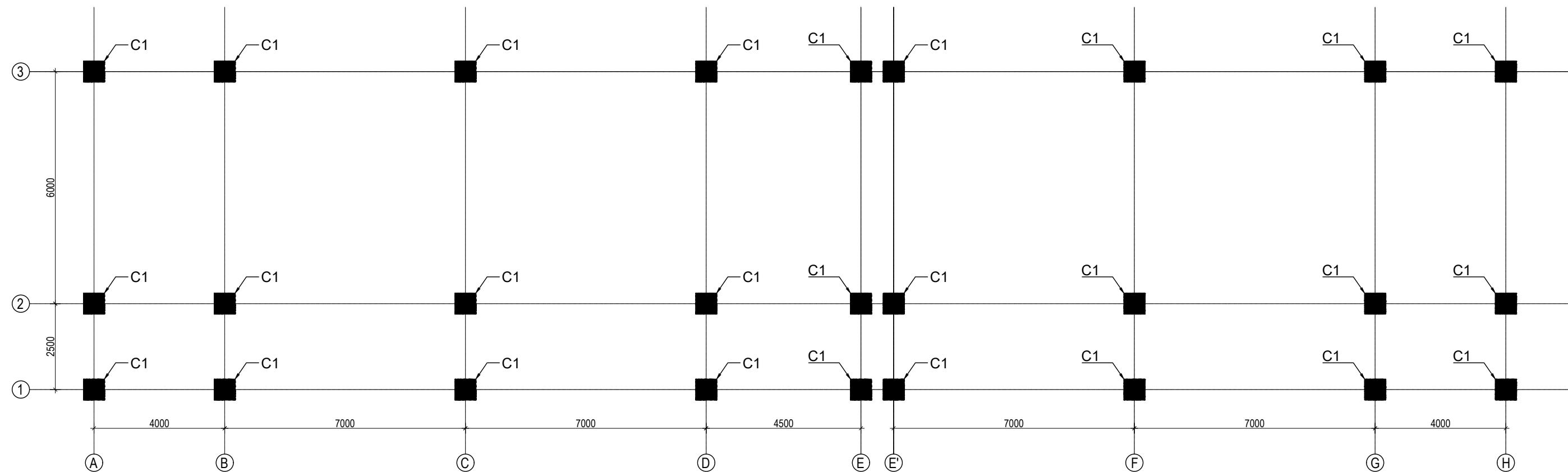


CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design Mountainous Region	SITE SPECIFIC DRAWING	SAGE ENGINEERING CONSULT Nepal	ENGINEER: _____ ARCHITECT: _____ DRAWN: NEETA BHANDARI SCALE : 1: 120	ST-08	R-00 DWG CODE: 3S12R-MOUNTAINOUS PAPER SIZE : A3 DATE: FEBRUARY, 2023



TYPICAL DETAIL OF FOUNDATION WALL

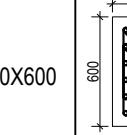
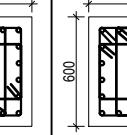
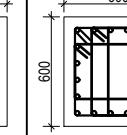
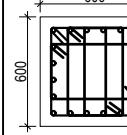
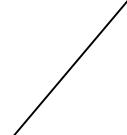
CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO. ST-09	REVISION NO. R-00
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design Mountainous Region	TYPICAL DETAIL OF FOUNDATION WALL	SAGE ENGINEERING CONSULT Nepal	ENGINEER: _____ ARCHITECT: _____ DRAWN: NEETA BHANDARI SCALE : 1: 120	STRUCTURE ER. : CHECKED: APPROVED: PAPER SIZE : A3	DWG CODE: 3S12R-MOUNTAINOUS DATE: FEBRUARY, 2023



**GROUND FLOOR COLUMN LAYOUT PLAN**

(SCALE 1:100)

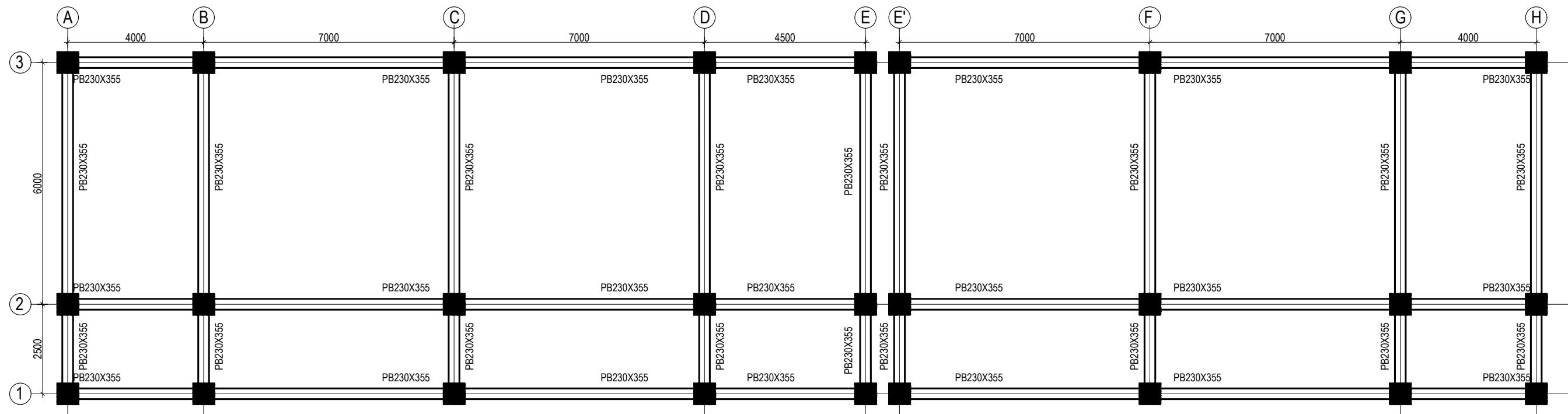
**COLUMN REINFORCEMENT DETAILS**

S. NO.	COLUMN	COLUMN SIZE	FLOOR					TIE BAR ORIENTATION
			GROUND FLOOR	FIRST FLOOR	SECOND FLOOR	THIRD FLOOR	TOP FLOOR	
1	C1	600X600	 600	 600	 600	 600	 600	  A: 10Ø100c/c & B: 8Ø100c/c

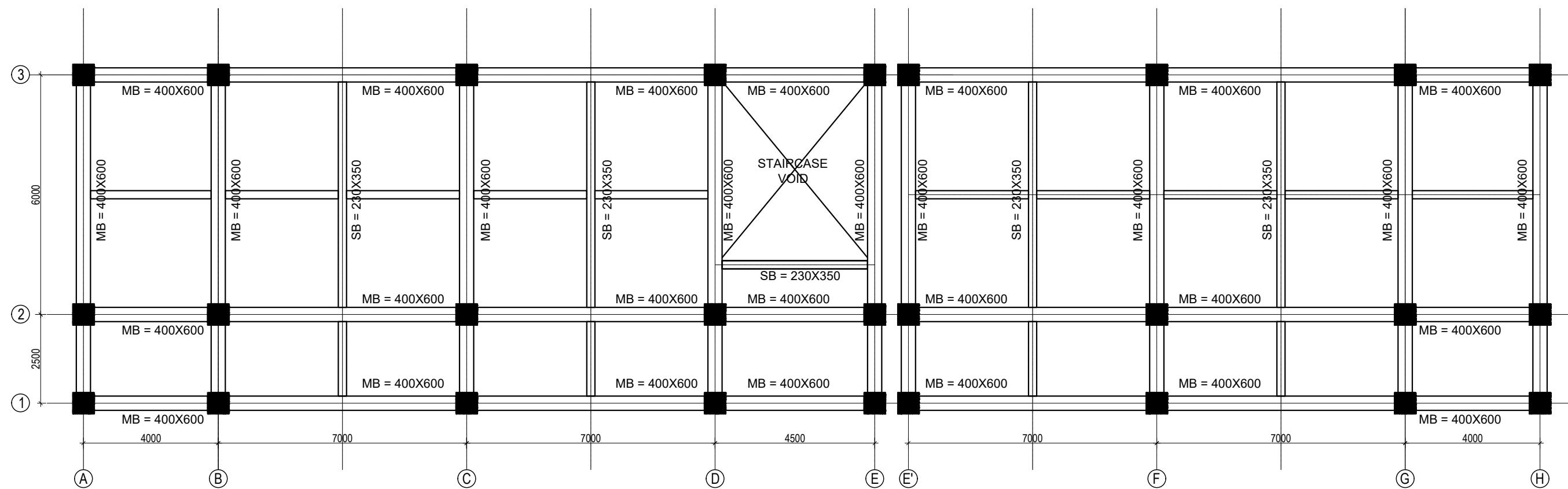
CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design Mountainous Region	COLUMN DETAIL	SAGE ENGINEERING CONSULT Nepal	ENGINEER: _____ ARCHITECT: _____ DRAWN : NEETA BHANDARI SCALE : 1: 120	STRUCTURE ER. : CHECKED: APPROVED: PAPER SIZE : A3	ST-10 R-00

DWG CODE:  
 3S12R-MOUNTAINOUS

DATE: FEBRUARY, 2023



CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design Mountainous Region	BEAM LAYOUT PLAN	SAGE ENGINEERING CONSULT Nepal	ENGINEER: _____ ARCHITECT: _____ DRAWN : NEETA BHANDARI SCALE : 1: 120	STRUCTURE ER. : CHECKED: APPROVED: PAPER SIZE : A3	ST-11 R-00

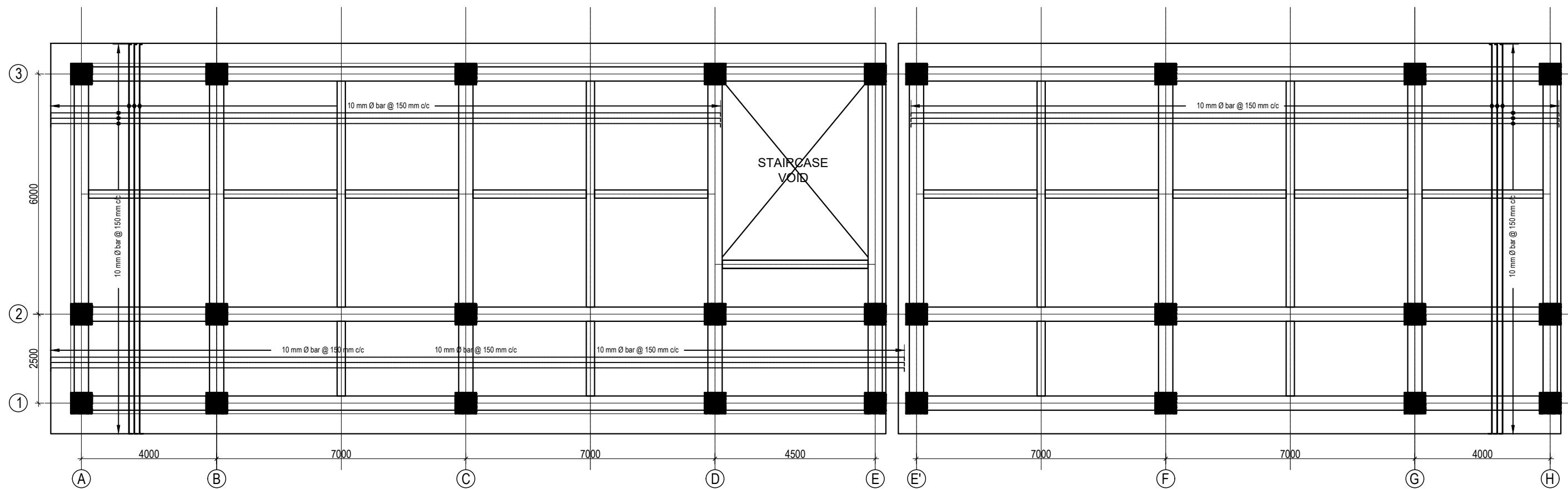


CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design Mountainous Region	BEAM LAYOUT PLAN	SAGE ENGINEERING CONSULT Nepal	ENGINEER: _____ ARCHITECT: _____ DRAWN : NEETA BHANDARI SCALE : 1: 120	ST-12	STRUCTURE ER. : CHECKED: APPROVED: PAPER SIZE : A3 DATE: FEBRUARY, 2023

**COLUMN REINFORCEMENT DETAILS**

S. NO.	GRID	BEAM SIZE	AT SUPPORT	AT MID	STIRRUPS BAR ORIENTATION	FLOOR LVL
1	1-1	400X600				FIRST FLOOR BEAMS SECOND FLOOR BEAMS
	A-A B-B C-C D-D E-E	400X600				REMAINING FLOOR BEAMS
3	Sec. beam	230X350				ALL FLOOR BEAMS

CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design Mountainous Region	BEAM DETAIL	SAGE ENGINEERING CONSULT Nepal	ENGINEER: _____ ARCHITECT: _____ DRAWN : NEETA BHANDARI SCALE : 1: 120	ST-13	STRUCTURE ER. : CHECKED: APPROVED: PAPER SIZE : A3 DATE: FEBRUARY, 2023



SLAB REINFORCEMENT DETAIL FOR TOP BARS

(GROUND, FIRST, SECOND AND THIRD FLOOR )

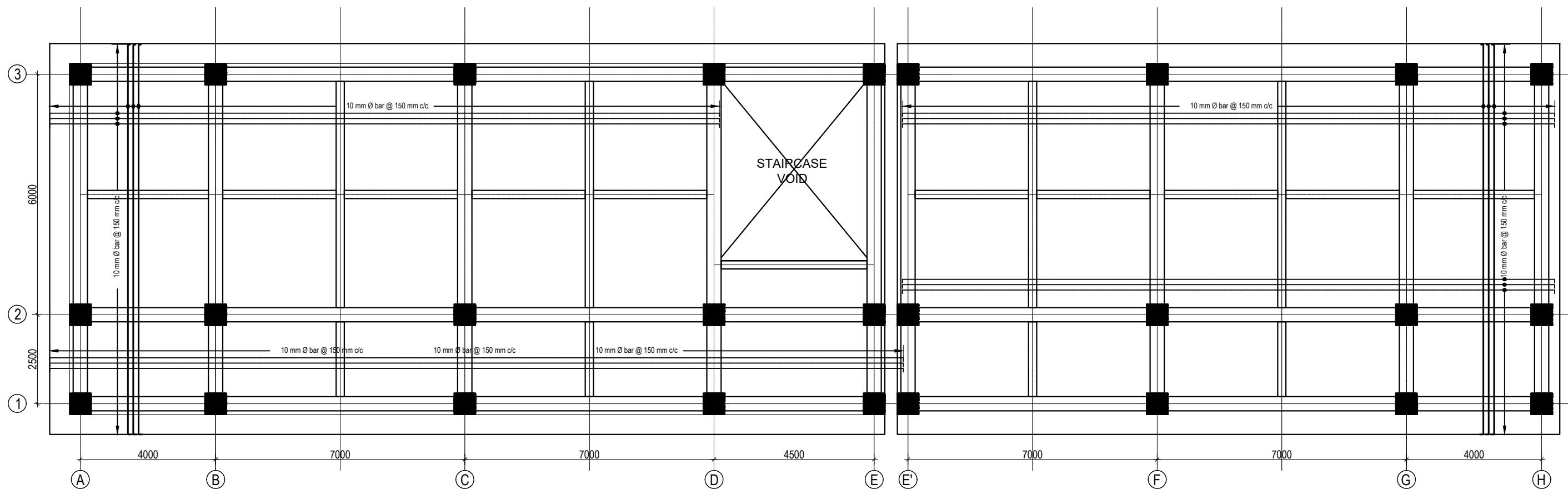
TOP REINFORCEMENT: a. FOR MAIN BEAM :10Ø@150 mm c/c  
 b. FOR SECONDARY BEAM :10Ø@200 mm c/c  
 (Scale= 1:120)

125 mm SLAB THICKNESS

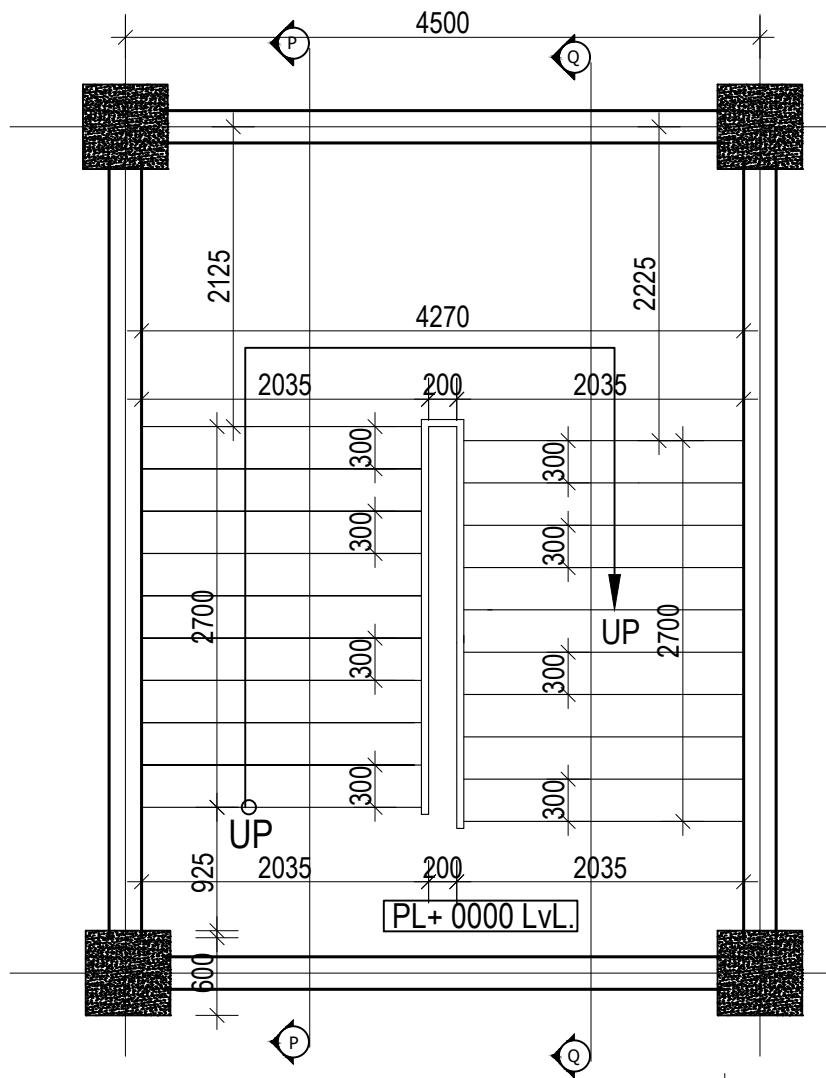
CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design Mountainous Region	SLAB REINFORCEMENT DETAIL	SAGE ENGINEERING CONSULT Nepal	ENGINEER: _____ ARCHITECT: _____ DRAWN : NEETA BHANDARI SCALE : 1: 120	ST-14	R-00

STRUCTURE ER. :  
 CHECKED:  
 APPROVED:  
 PAPER SIZE : A3  
 DATE: FEBRUARY, 2023

DWG CODE:  
 3S12R-MOUNTAINOUS

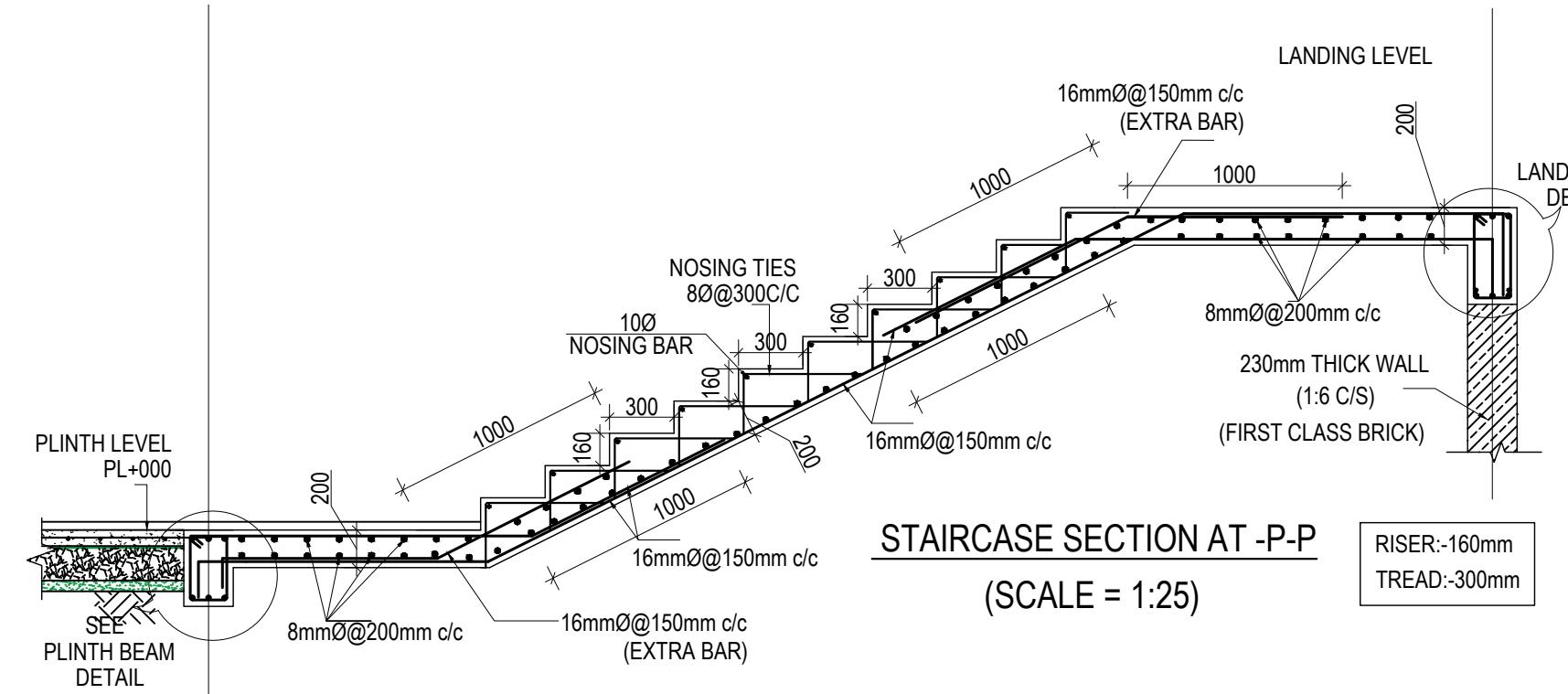


CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO. ST-15	REVISION NO. R-00
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design Mountainous Region	SLAB REINFORCEMENT DETAIL	SAGE ENGINEERING CONSULT Nepal	ENGINEER: _____ ARCHITECT: _____ DRAWN: NEETA BHANDARI SCALE : 1: 120	STRUCTURE ER.: CHECKED: APPROVED: PAPER SIZE : A3	DWG CODE: 3S12R-MOUNTAINOUS DATE: FEBRUARY, 2023



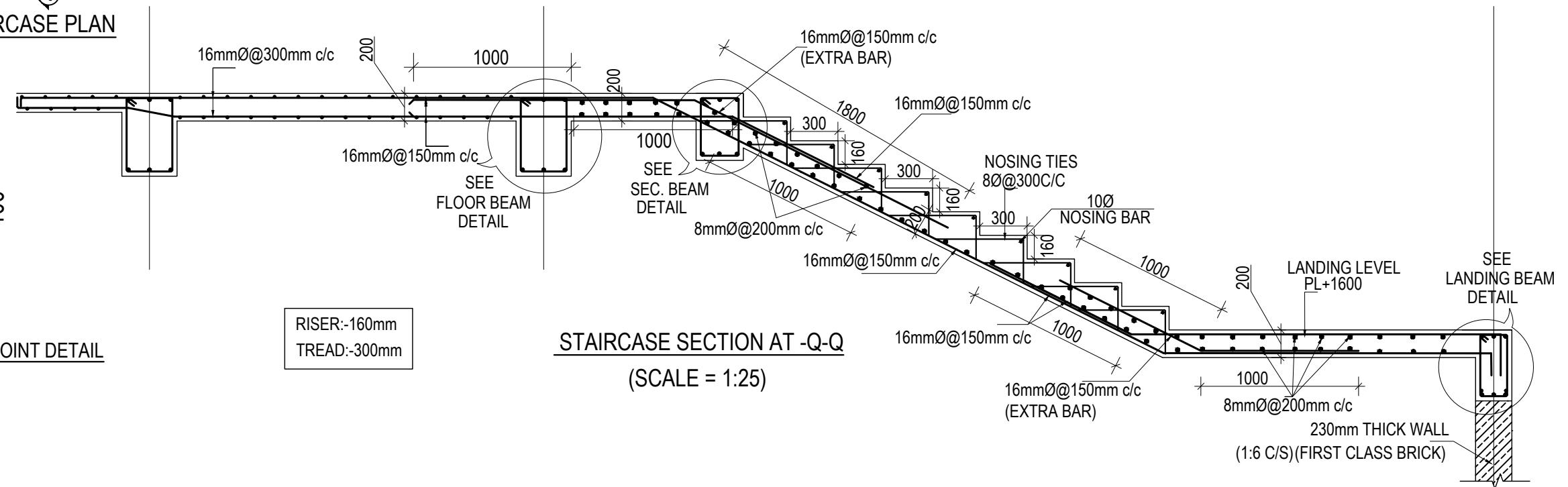
**GROUND FLOOR STAIRCASE PLAN**  
(Scale= 1:50)

## TYPICAL LANDING BEAM AND COLUMN JOINT DETAIL

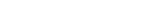


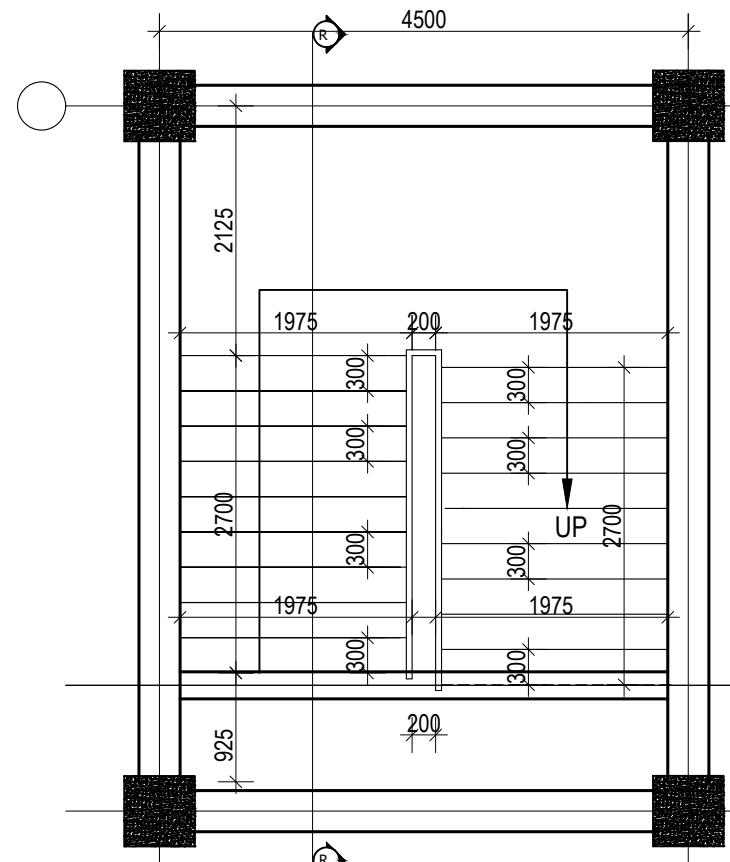
STAIRCASE SECTION AT -P-P  
(SCALE = 1:25)

RISER:-160mm  
TREAD:-300mm



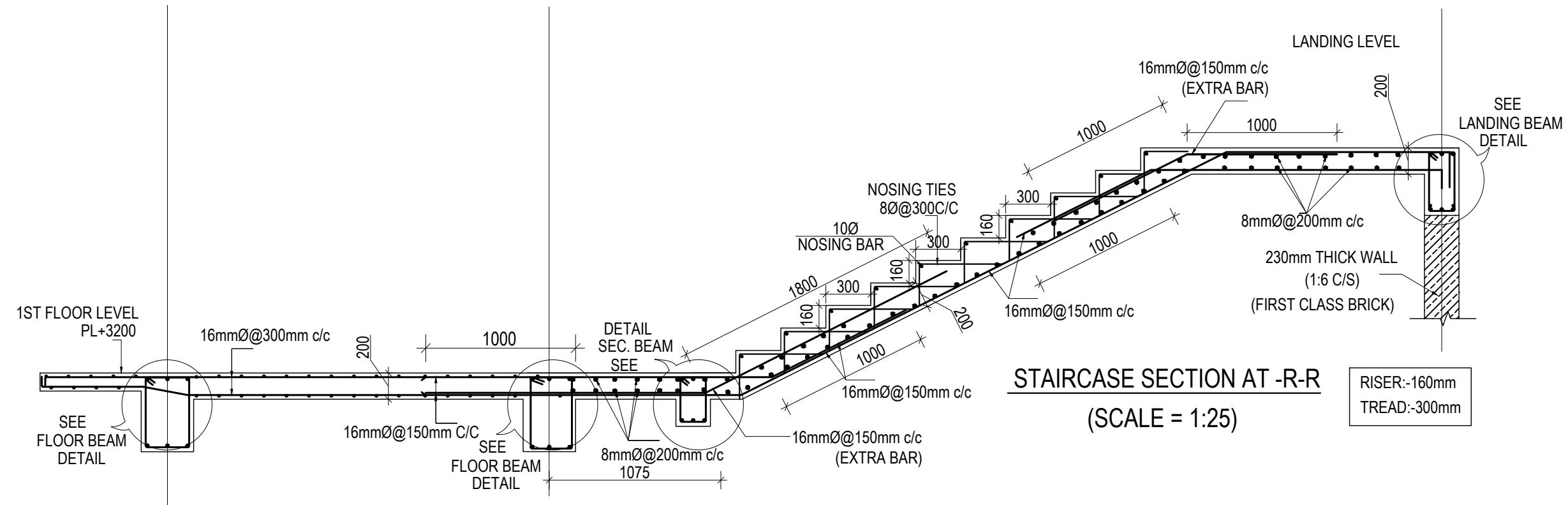
STAIRCASE SECTION AT -Q-Q  
(SCALE = 1:25)

CLIENT		PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM		SHEET NO. ST-16	REVISION NO. R-00
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design Mountainous Region	STAIRCASE DETAIL	SAGE ENGINEERING CONSULT Nepal	ENGINEER: ARCHITECT: DRAWN : NEETA BHANDARI SCALE : 1: 120	STRUCTURE ER. : CHECKED: APPROVED: PAPER SIZE : A3		DWG CODE. 3S12R-MOUNTAINOUS	



TYPICAL FLOOR STAIRCASE PLAN

(Scale= 1:50)

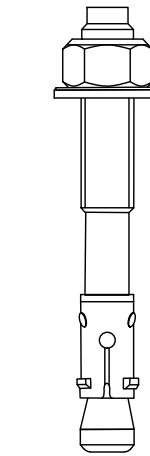
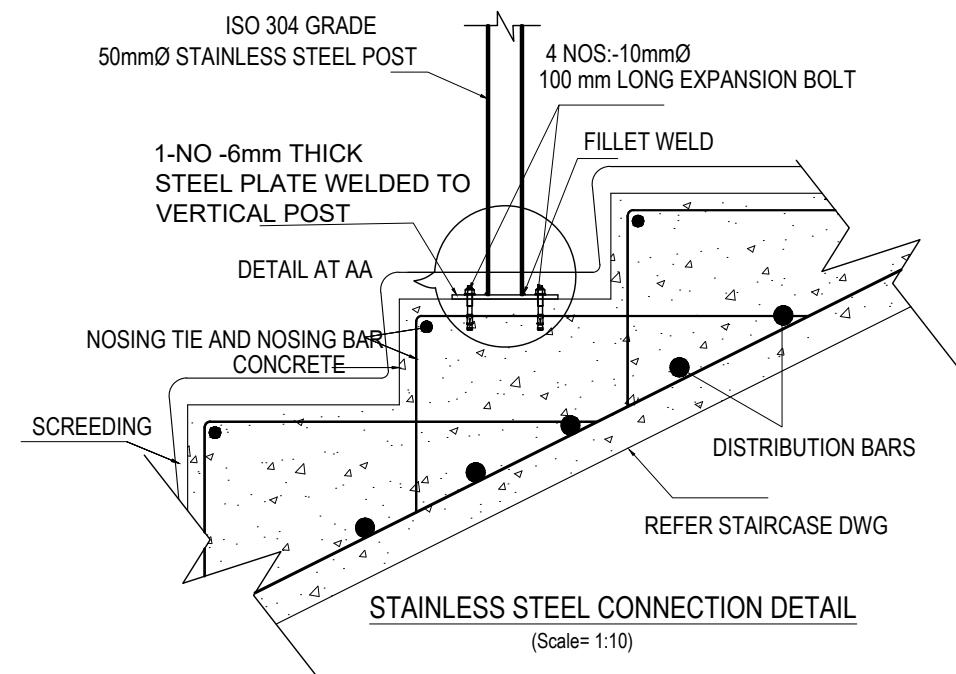


STAIRCASE SECTION AT -R-R  
(SCALE = 1:25)

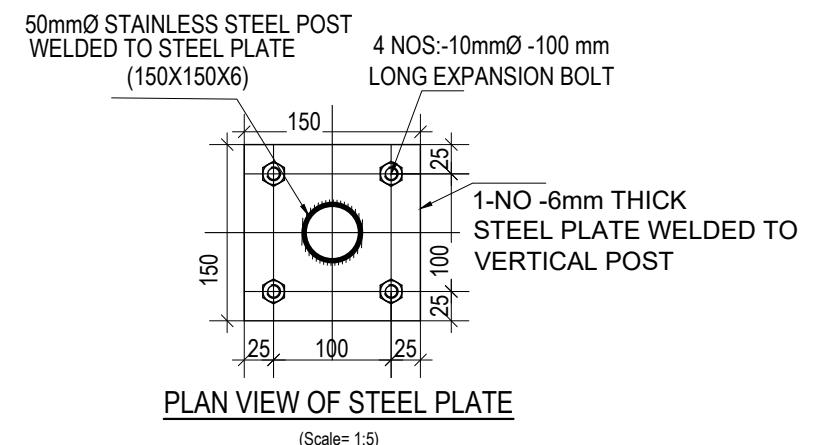
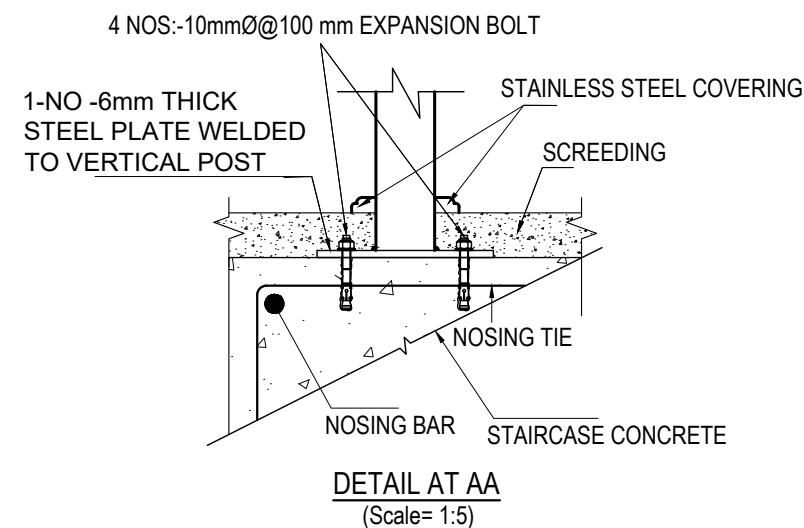
CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design Mountainous Region	STAIRCASE DETAIL	SAGE ENGINEERING CONSULT Nepal	ENGINEER: _____ ARCHITECT: _____ DRAWN : NEETA BHANDARI SCALE : 1: 120	ST-17	R-00

STRUCTURE ER. :  
CHECKED:  
APPROVED:  
PAPER SIZE : A3  
DATE: FEBRUARY, 2023

DWG CODE:  
3S12R-MOUNTAINOUS



**10mmØ-50 mm LONG EXPANSION BOLT**  
(Scale= 1:1)

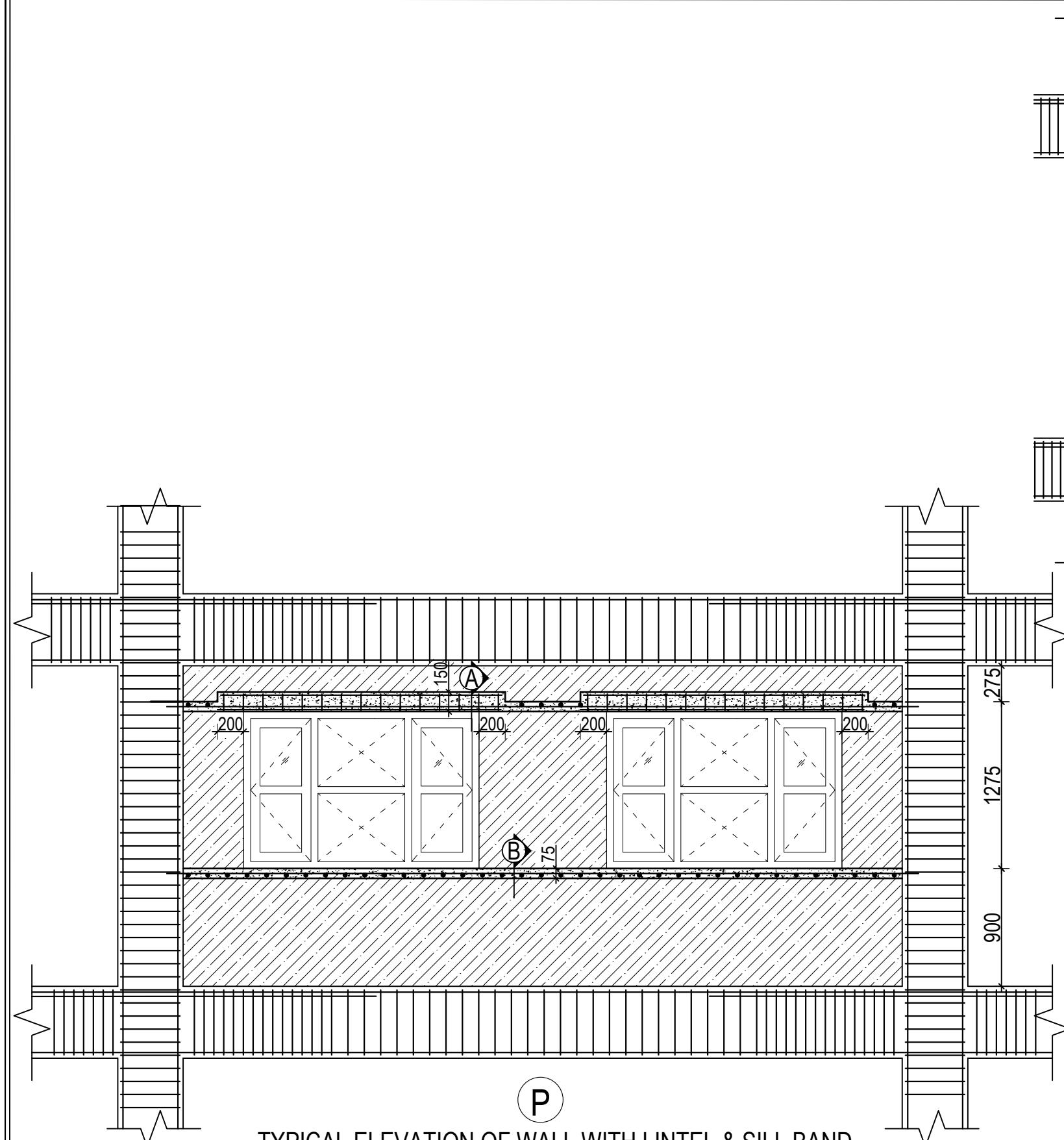


**NOTE:**

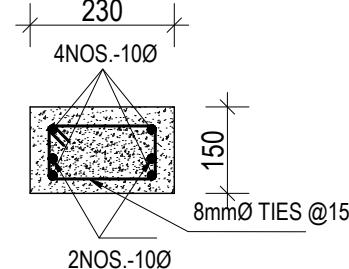
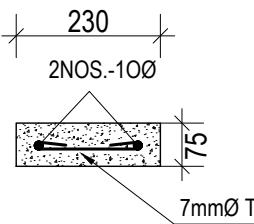
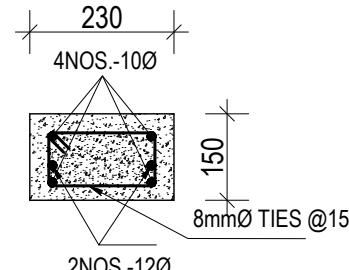
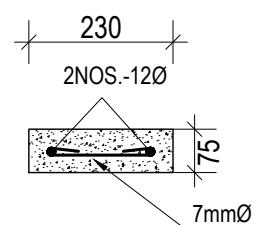
- 1) STAINLESS STEEL SHALL BE IN COMPLIANCE WITH ISO 304 GRADE
- 2) DRILLED HOLE SHALL BE PROPERLY CLEANED BEFORE EMBEDMENT OF BOLT

CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design Mountainous Region	STAIRCASE DETAIL	SAGE ENGINEERING CONSULT Nepal	ENGINEER: _____ ARCHITECT: _____ DRAWN : NEETA BHANDARI SCALE : 1: 120	ST-18	STRUCTURE ER. : CHECKED: APPROVED: PAPER SIZE : A3 DATE: FEBRUARY, 2023

**P**  
TYPICAL ELEVATION OF WALL WITH LINTEL & SILL BAND  
 WITH WINDOWS  
 (Scale= 1:35)



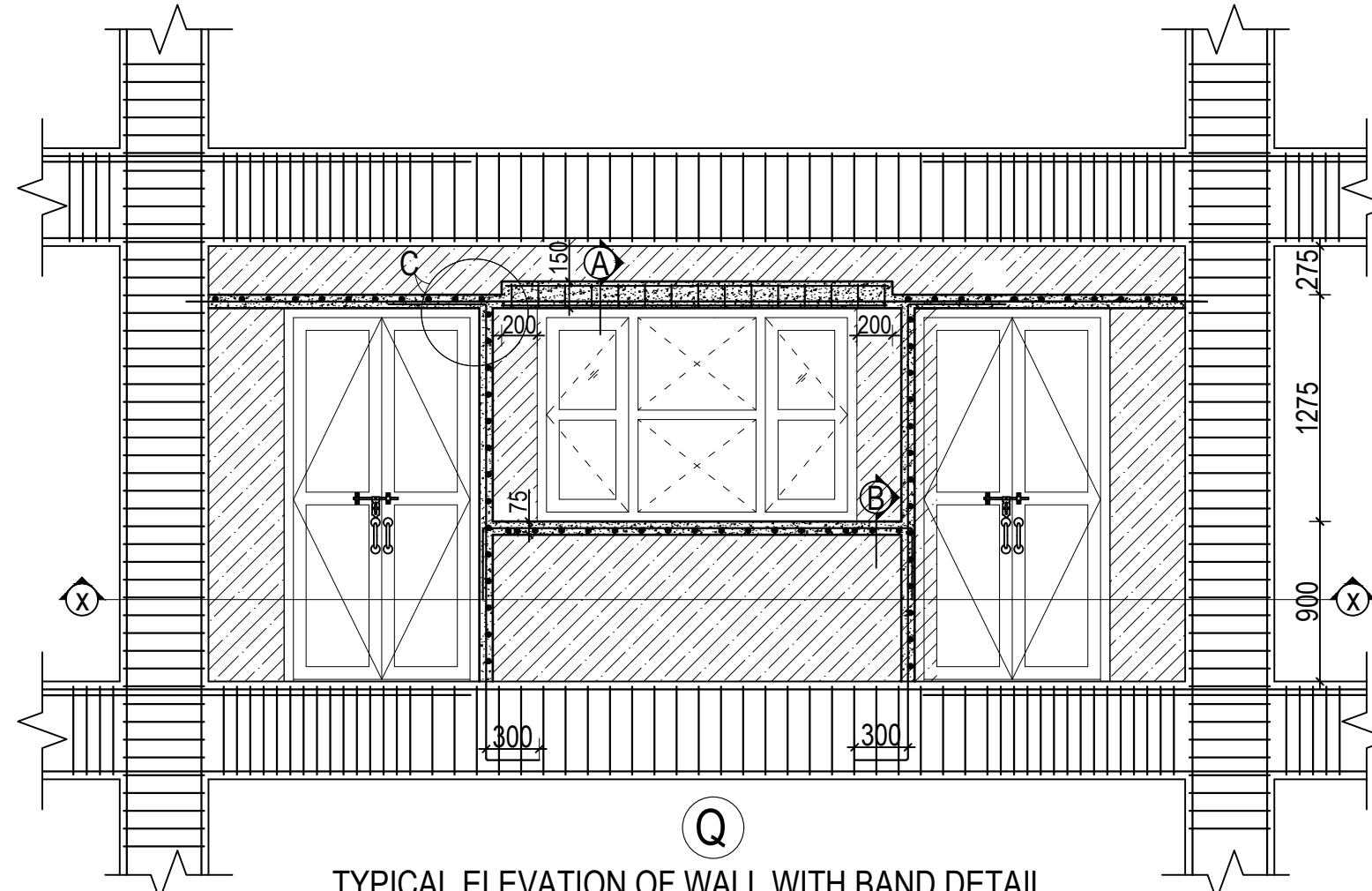
**R**  
TYPICAL ELEVATION OF WALL WITH BAND DETAIL  
 WITHOUT OPENINGS  
 (Scale= 1:40)

SN.	FLOOR	SECTION AT A-A	SECTION AT B-B
1.	GROUND,FIRST & SECOND FLOOR	 230 4NOS.-10Ø 8mmØ TIES @150mm c/c 2NOS.-10Ø	 230 2NOS.-10Ø 7mmØ TIES @150mm c/c
2.	THIRD FLOOR	 230 4NOS.-10Ø 8mmØ TIES @150mm c/c 2NOS.-12Ø	 230 2NOS.-12Ø 7mmØ TIES @150mm c/c

CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design Mountainous Region	TYPICAL WALL DETAIL UPTO SECOND FLOOR	SAGE ENGINEERING CONSULT Nepal	ENGINEER: _____ ARCHITECT: _____ DRAWN : NEETA BHANDARI SCALE : 1: 120	ST-19	R-00

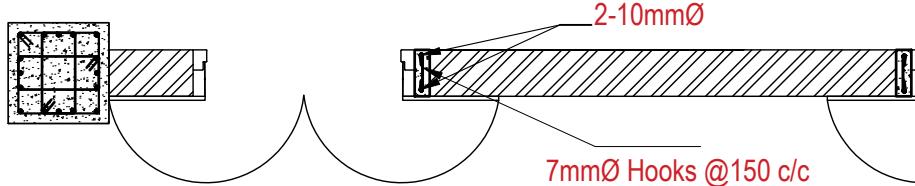
DWG CODE.  
 3S12R-MOUNTAINOUS

DATE: FEBRUARY, 2023

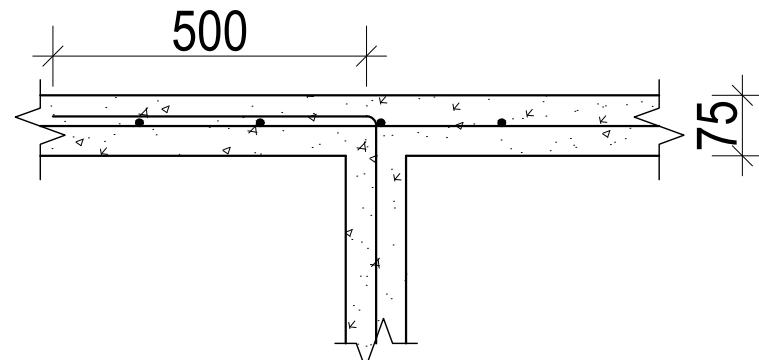


TYPICAL ELEVATION OF WALL WITH BAND DETAIL  
WITH DOORS AND WINDOWS

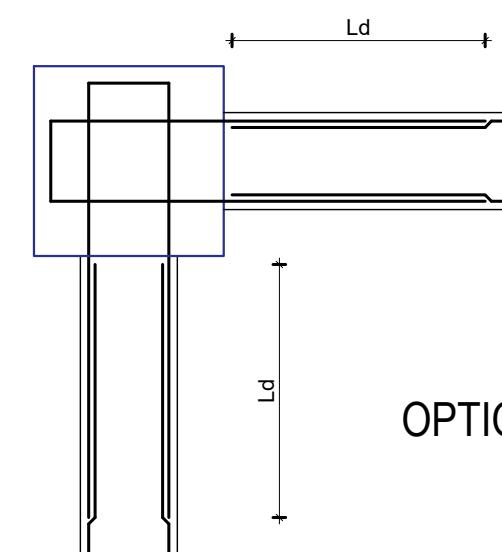
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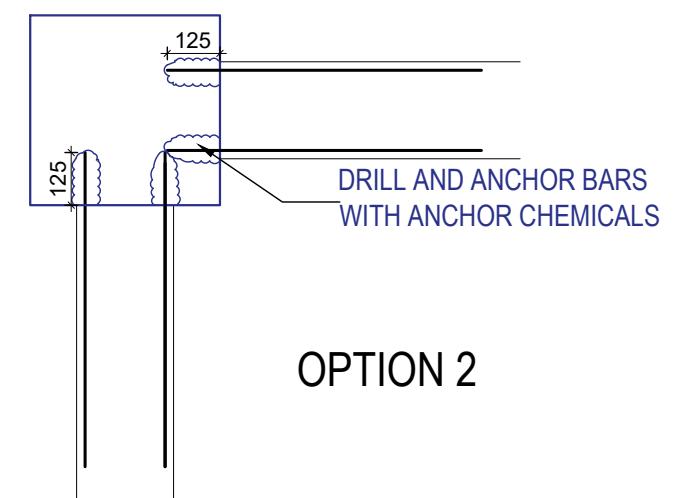
SECTION AT X-X



DETAIL AT C



OPTION 1

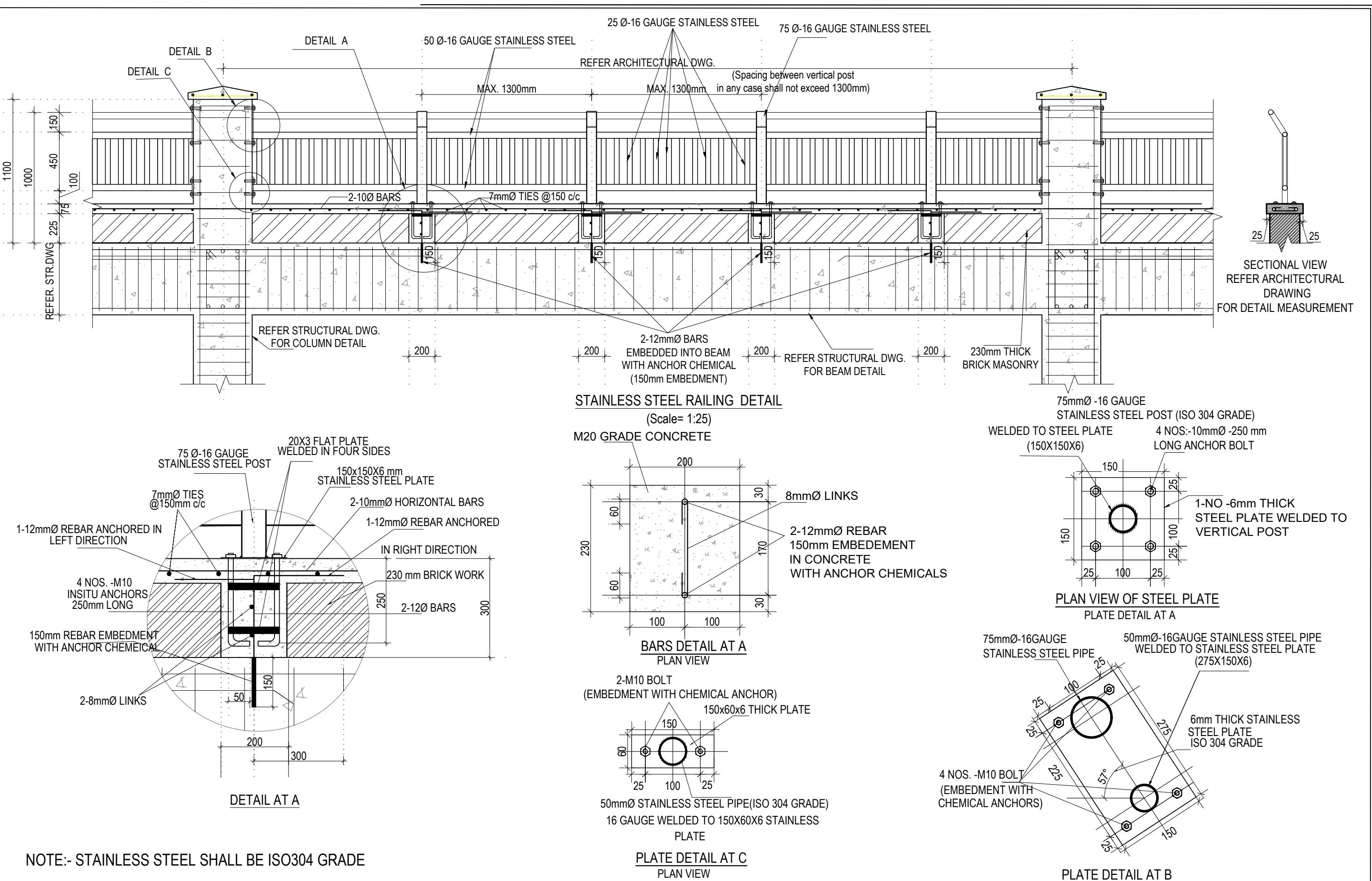


OPTION 2

CONNECTION OF BAND REBARS AND COLUMN

CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design Mountainous Region	TYPICAL WALL DETAIL UPTO SECOND FLOOR	SAGE ENGINEERING CONSULT Nepal	ENGINEER: _____ ARCHITECT: _____ DRAWN : NEETA BHANDARI SCALE : 1: 120	ST-20	R-00

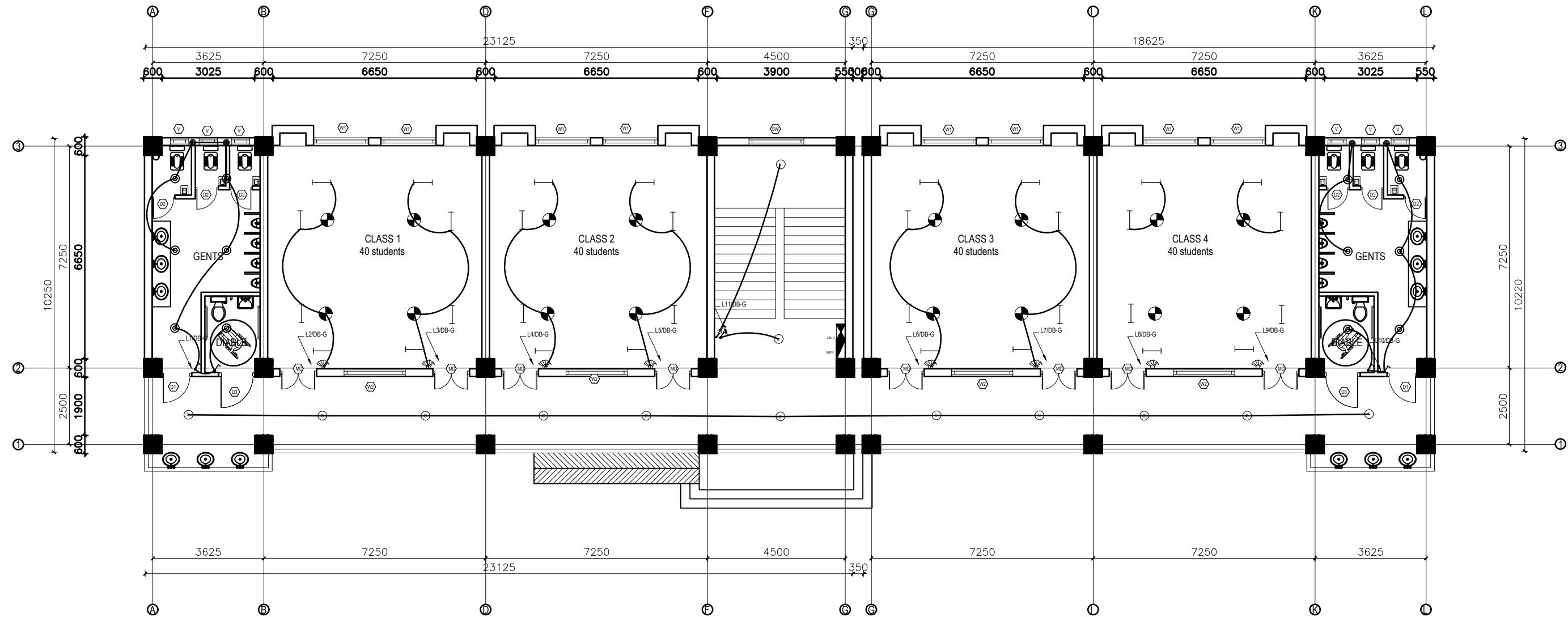
DWG CODE.  
 3S12R-MOUNTAINOUS  
 PAPER SIZE : A3  
 DATE: FEBRUARY, 2023



CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM		SHEET NO. ST-21	REVISION NO. R-00
				ENGINEER:	STRUCTURE ER.:		
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design Mountainous Region	TYPICAL RAILING DETAILS	SAGE ENGINEERING CONSULT Nepal	ARCHITECT:	CHECKED:		DWG CODE: 3S12R-MOUNTAINOUS
				DRAWN : NEETA BHANDARI	APPROVED:		
				SCALE : 1: 120	PAPER SIZE : A3	DATE: FEBRUARY, 2023	

# **ELECTRICAL**

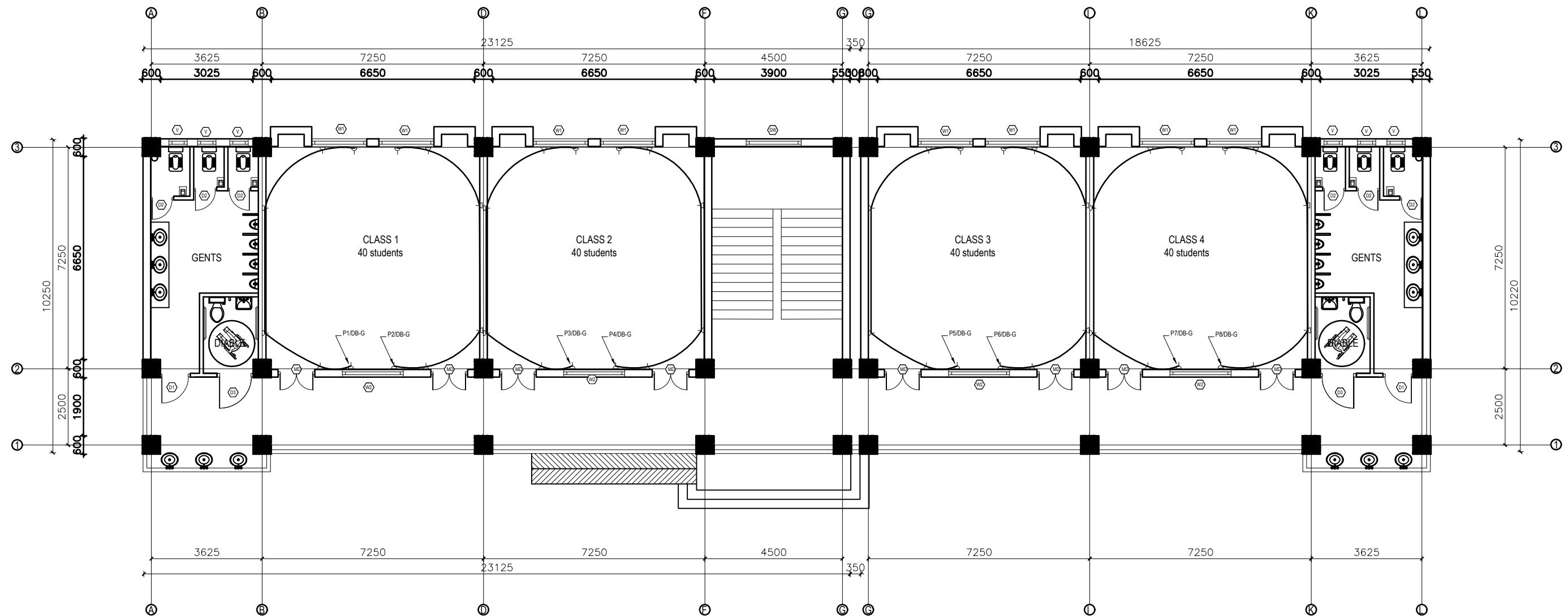
# **DRAWING**



LEGEND		
SYMBOL	DESCRIPTION	MOUNT HEIGHT
—	40 W Tubelight	Attached to wall
○	12WCFL Light Bulb	Attached to ceiling
●	42"Ceiling Fan	Attached to ceiling
□	Power Socket	300mm from finished floor level
○, △, □	1,2,3 gang Switch	1.25m above finished floor level
○, △, □	4,5,6 gang Switch	1.25m above finished floor level
○	Two way Switch	1.25m above finished floor level
■	Distribution Box	2.5m above finished floor level
■	MDB	1m above finished floor level
■	9"Exhaust Fan	24" BELOW SLAB

EARTHING & LIGHTNING PROTECTION SYSTEM		
SYMBOLS	DESCRIPTION	MOUNTING HEIGHT
—	VERTICAL AIR TERMINAL	--
—	CLIP TO HOLD DOWN CONDUCTOR	--
—	EARTH TEST LINK	--
—	EARTH PIT	--

CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM		SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Terai and Valley Region	ELECTRICAL DRAWING	IDEAL SOLUTION PVT.LTD.	ENGINEER:	STRUCTURE ER. :	01	R-00



LEGEND		
SYMBOL	DESCRIPTION	MOUNT HEIGHT
—	40 W Tubelight	Attached to wall
○	12W CFL Light Bulb	Attached to ceiling
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△	Power Socket	300mm from finished floor level
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4,5,6 gang Switch		1.25m above finished floor level
Two way Switch		1.25m above finished floor level
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EARTHING & LIGHTNING PROTECTION SYSTEM		
SYMBOLS	DESCRIPTION	MOUNTING HEIGHT
Y	VERTICAL AIR TERMINAL	—
—	CLIP TO HOLD DOWN CONDUCTOR	—
■	EARTH TEST LINK	—
⊕	EARTH PIT	—

CLIENT  
Government of Nepal  
Ministry of Education, Science & Technology  
Center for Education and Human Resource Development  
Sanothimi, Bhaktapur, Nepal

PROJECT TITLE  
Prepare School Building Type Design for  
Terai and Valley Region

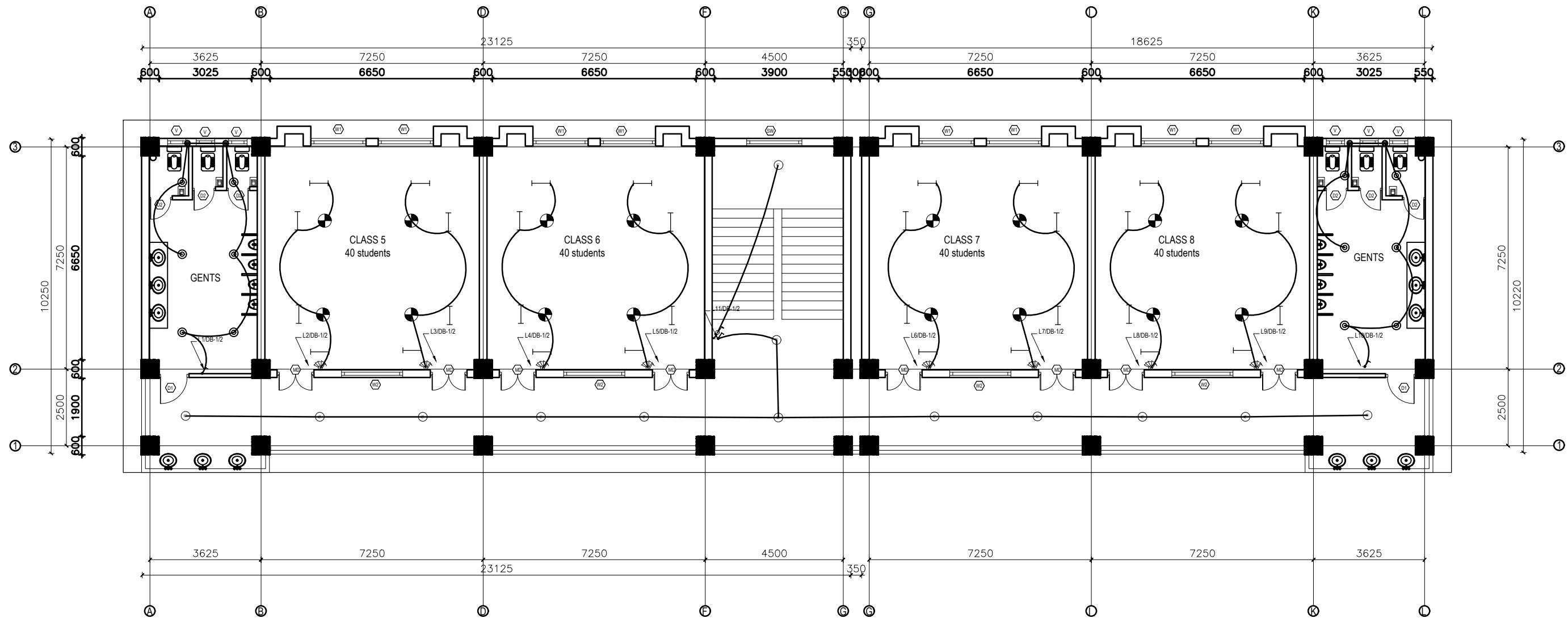
SHEET TITLE  
ELECTRICAL DRAWING

CONSULTANT  
IDEAL SOLUTION PVT.LTD.

PLANNING DESIGN TEAM  
ENGINEER: STRUCTURE ER.:  
ARCHITECT: CHECKED:  
DRAWN: APPROVED:  
SCALE : 1:20 PAPER SIZE : A3 DATE: FEBRUARY, 2023

SHEET NO. 02 REVISION NO. R-00

DWG CODE.  
3S12R



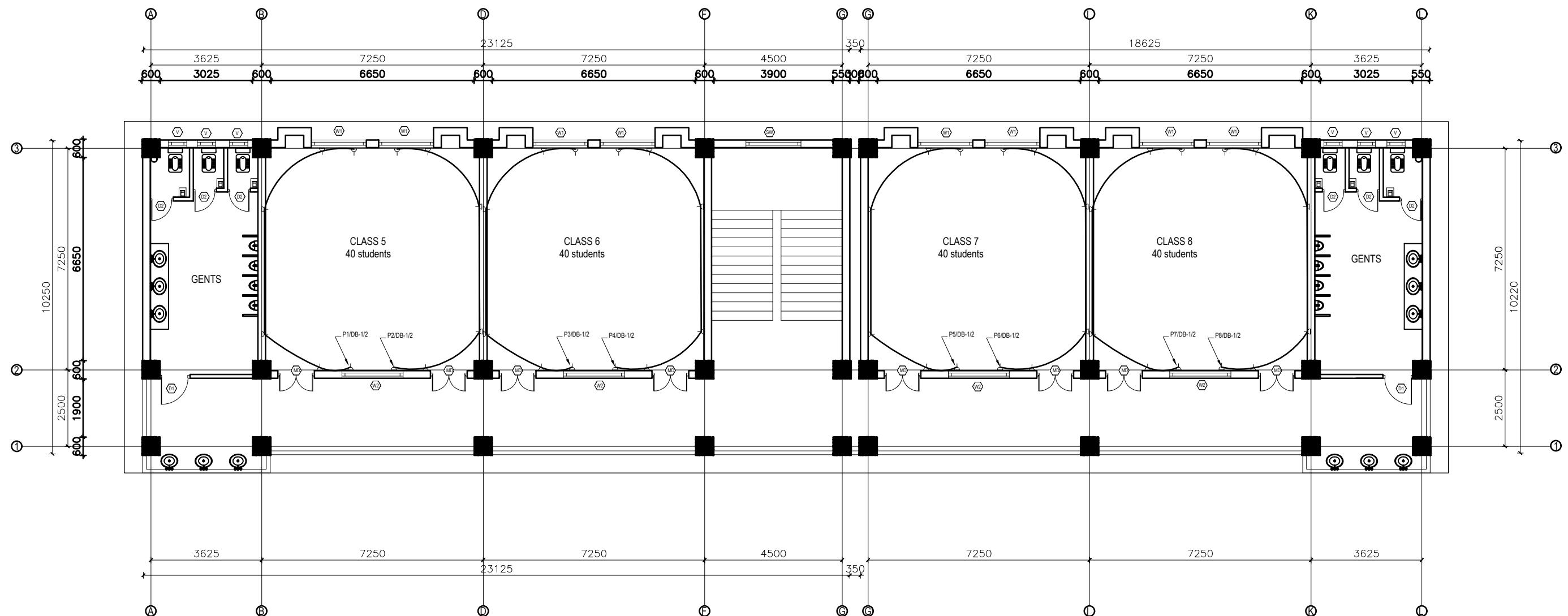
**FIRST & SECOND FLOOR PLAN**

FLOOR AREA: 437.662 sq.m

LEGEND		
SYMBOL	DESCRIPTION	MOUNT HEIGHT
—	40 W Tubelight	Attached to wall
○	12W CFL Light Bulb	Attached to ceiling
●	42" Ceiling Fan	Attached to ceiling
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■	EARTH TEST LINK	--
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CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM		SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Terai and Valley Region	ELECTRICAL DRAWING	IDEAL SOLUTION PVT.LTD.	ENGINEER:	STRUCTURE ER. :		



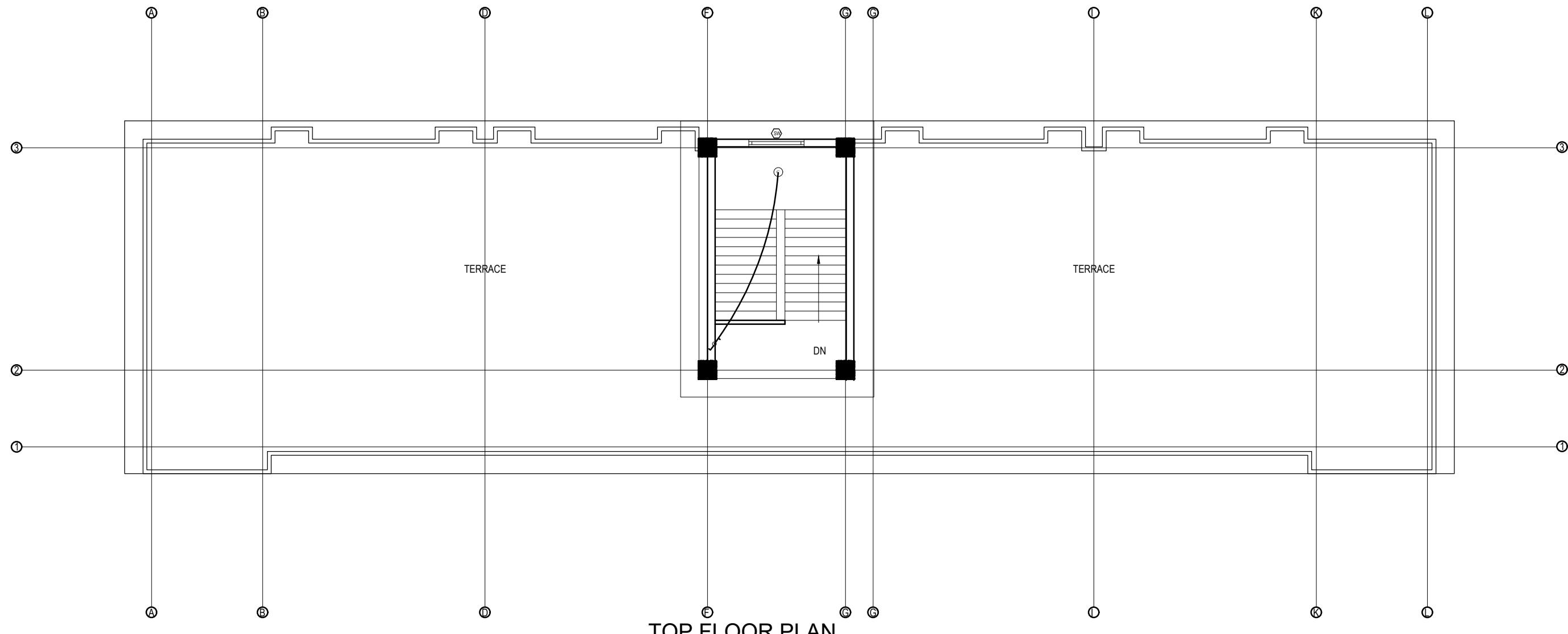
**FIRST&SECOND FLOOR PLAN**

FLOOR AREA: 437.662 sq.m

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9"Exhaust Fan	24" BELOW SLAB	

EARTHING & LIGHTNING PROTECTION SYSTEM		
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CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO.	REVISION NO.
Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Terai and Valley Region	ELECTRICAL DRAWING	IDEAL SOLUTION PVT.LTD.	ENGINEER: _____ ARCHITECT: _____ DRAWN : _____ SCALE : _____	STRUCTURE ER. : CHECKED: APPROVED: PAPER SIZE : A3	04 R-00
					DWG CODE. 3S12R	DATE: FEBRUARY, 2023



LEGEND		
SYMBOL	DESCRIPTION	MOUNT HEIGHT
—	40 W Tubelight	Attached to wall
○	12WCFL Light Bulb	Attached to ceiling
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EARTHING & LIGHTNING PROTECTION SYSTEM		
SYMBOLS	DESCRIPTION	MOUNTING HEIGHT
—	VERTICAL AIR TERMINAL	—
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—	EARTH TEST LINK	—
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CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM		SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Terai and Valley Region	ELECTRICAL DRAWING	IDEAL SOLUTION PVT.LTD.	ENGINEER:	STRUCTURE ER. :	05	R-00

INSTALLATION CONSIDERATION						
* The switch box should be at 200mm from the door and 1250mm above floor.						
* General room socket height should be at 150mm above skirting wall.						
* Kitchen socket height should be at 450mm above kitchen top.						
* Toilet socket/switch should be at 1250mm above floor level and mirror light at 50 mm above mirror as per mirror size.						
* Exhaust fan should be at 600mm below slab.						
* Wall Light should be at 2100mm from floor level.						

#### CONDUIT SCHEDULE

CABLE SIZES	NO OF MAXIMUM CABLE AND PVC FRLS CONDUIT SIZES					
	16 mm Dia.	20 mm Dia.	25 mm Dia.	32 mm Dia.	40 mm Dia.	50 mm Dia.
1.5 SQ. MM/Equivalent	5	7	10	14	--	--
2.5 SQ. MM/Equivalent	3	5	8	12	--	--
4.0 SQ. MM/Equivalent	--	3	6	10	12	--
6.0 SQ. MM/Equivalent	--	2	4	8	9	--
10 SQ. MM/Equivalent	--	--	3	6	8	--
16 SQ. MM/Equivalent	--	--	2	3	4	8

#### CONVERSION TABLE

INCHES	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2	3	3-1/2	4	5	6
mm	16	20	25	32	40	50	65	80	90	100	130	150

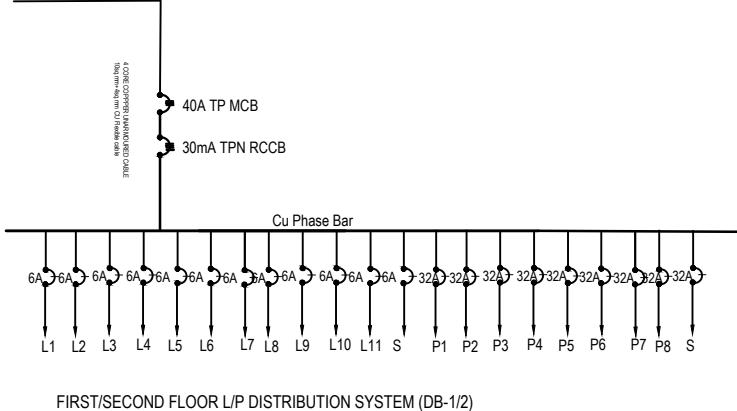
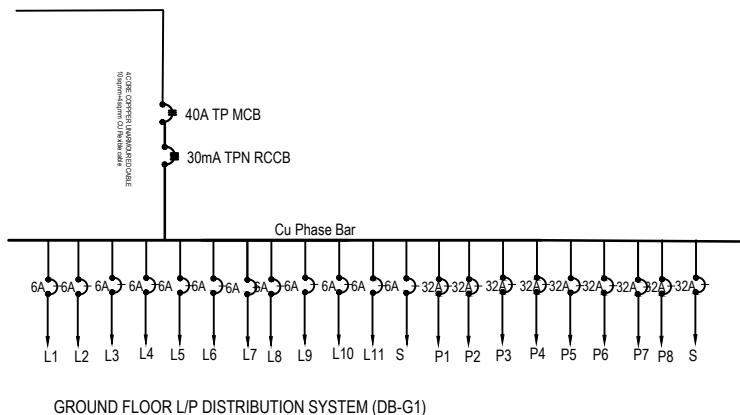
\* Unless and otherwise stated, all final circuits shall be wired with multistranded CU wires in PVC Conduit and shall confirm to the following schedule:

#### WIRING SYSTEM

Air Conditioner/Heater/Range/Appliances	2x4.0 + 1x2.5 sq. mm copper wire
RJ - 45 Data / TV Point	CAT 6 4 pairs Data cable
RJ - 11 Telecommunication point	CAT 6 4 pairs Data cable
Telephone Point	0.5mm dia PVC Insulated Tinned Cu Cable
Outdoor Gate/ Post Top/Street Lights/Flood Lights	3 x 2.5 sq. mm copper M/S wire
6 Amp switched outlet sockets	2x2.5 + 1x1.5 sq. mm copper M/S wire
16 Amp Power Sockets Points	2x4.0 + 1x2.5 sq. mm copper M/S wire
General Light Points (From DB to Switch Board)	2x2.5 + 1x1.5 sq. mm copper M/S wire
Looping of Light Points	2x1.5 + 1x1.0 sq. mm copper M/S wire

#### CABLE/CONDUCTOR SIZE

Neutral of AC 1/3 Phase	Black
Grounding/ Bounding/Earthing	Green
loop/common wire for 2 way switch	White
Live Phase A of 3 Phase	Red
Live Phase B of 3 Phase	Yellow
Live Phase C of 3 Phase	Blue

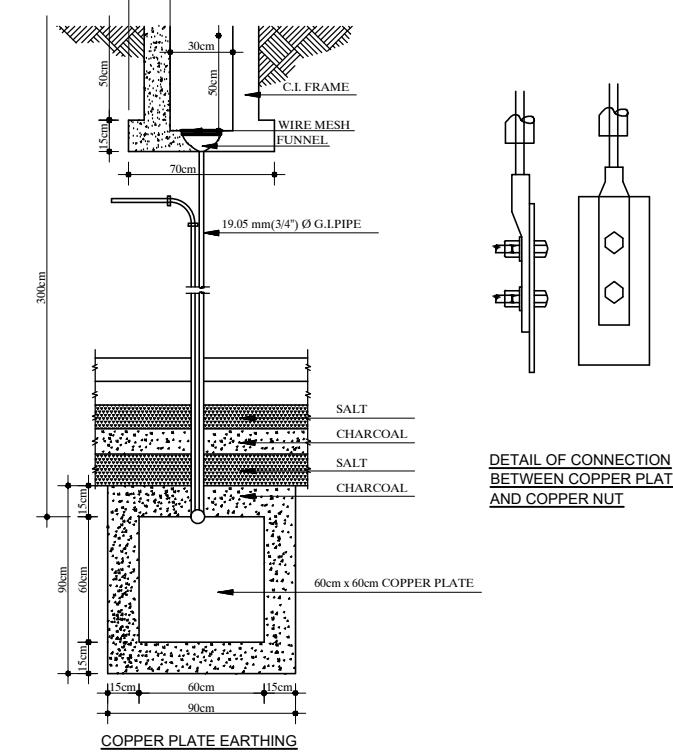


#### NOTE

- \* Conduit Colors for Light/Power Circuit shall be Black, Security Wiring shall be Blue, Fire Alarm Wiring shall be Red, Low Voltage Circuits shall be Brown and UPS Circuits shall be Green.
- \* L-N stands for Lighting Circuit, P-N for Power Circuit, AC-N for Air Condition, M/PC-N for Pump/Motor & Lp-N Light Outlet Circuit no.-N (Where N=1,2,3...)
- \* For Circuit no., see Distribution Details
- \* Unless and otherwise stated, all final circuits shall be wired up by PVC CU M/S Wire in PVC Conduit and shall confirm to the following schedule:

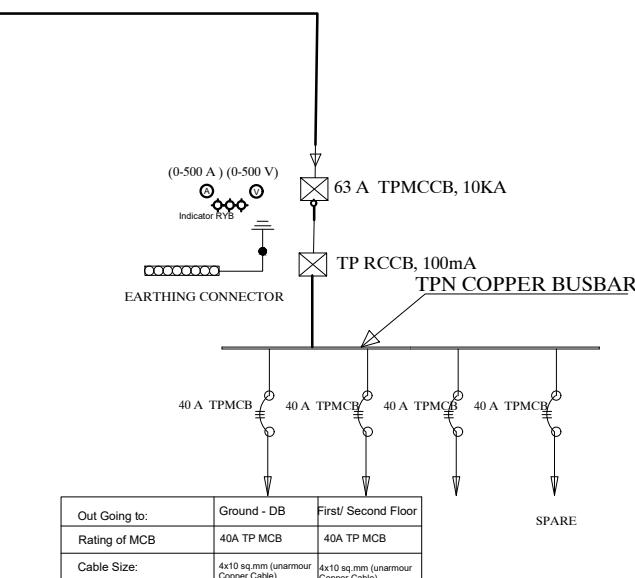
Rating (Amp)	6	10	20	32	40	63
Wire (sq. mm)	1.5	2.5	4.0	6.0	10	16

- \* Unless and otherwise stated, maximum of 8 light points shall be wired in a final single lighting circuit where as maximum of 3 power socket outlet shall be wired in single power circuit.
- \* Unless and otherwise stated, all 16 A outlets with the same circuit no. shall be wired in ring circuit.
- \* Electrical drawings are schematic only, scale: NTS, use as shown purpose, do not measure directly.
- \* Contractor should coordinate with interior for exact location of fixtures
- \* Run separate conduit for TV, TEL and PS wherever they are in matching places
- \* All the Kitchen/Bathroom Power Circuits should be feed by RCCB with 100 mA sensitivity – see schematic details
- \* All the cables and conductors shall be PVC insulated CU and shall confirm to the following color codes:



#### EARTHING DETAILS

4 CORE 16sq.mm. Copper armoured Cable



#### DETAILS OF Main -DB

CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO.	REVISION NO.
Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Terai and Valley Region	ELECTRICAL DRAWING	IDEAL SOLUTION PVT.LTD.	ENGINEER: ARCHITECT: DRAWN : SCALE : 1:20	STRUCTURE ER. : CHECKED: APPROVED: PAPER SIZE : A3	R-00
						DWG CODE. 3S12R



**Government of Nepal**  
**Ministry of Education, Science & Technology**  
**Center for Education and Human Resource Development**  
Sanothimi, Bhaktapur, Nepal

# **PREPARE SCHOOL BUILDING TYPE DESIGN FOR MOUNTAINOUS REGION**

**Contract ID: CEHRD/SESP/SQ/Consultancy/02/2079/080**

**DETAIL DESIGN AND DRAWING  
3 STORY@18 ROOM WITH  
(TOILET, WASH ROOM, CHANGING ROOM & BOOK CORNER)**

**SUBMITTED BY:  
SAGE ENGINEERING CONSULT**

**FEBRUARY, 2023**

# **ARCHITECTURE**

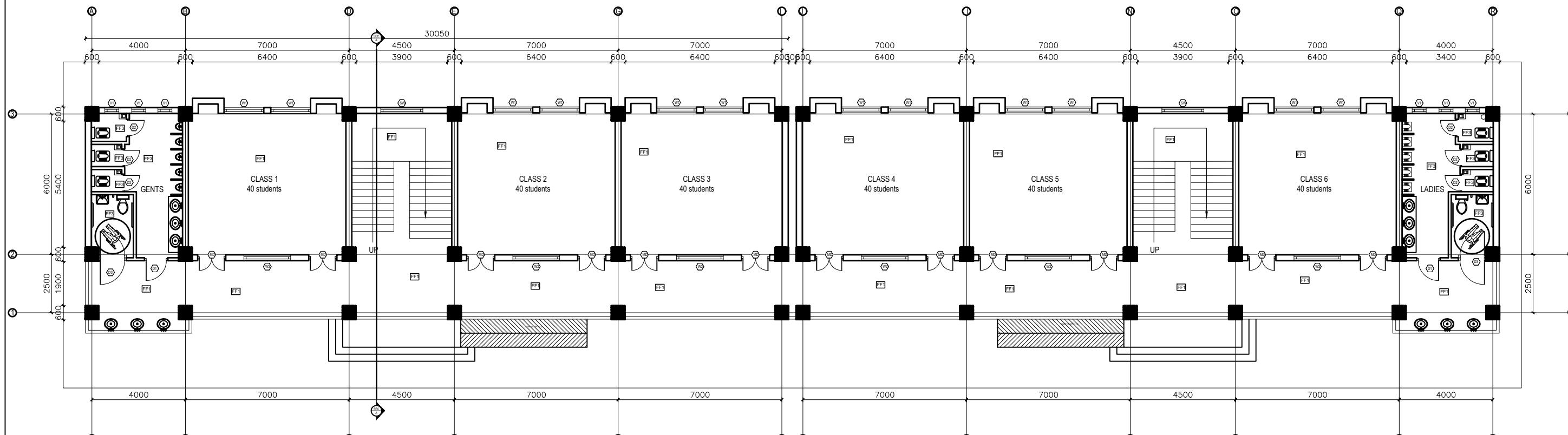
# **DRAWING**

FINISHING DETAILS:

FF1	38 mm PCC (M15) with 1:1 cement punning with floor hardener (Dreitop FH, mapetop, Sika Chapdur or equivalent)
FF2	50 mm PCC (M15) with 1:1 cement punning in a 600X600 thread cut grid with floor hardener (Dreitop FH, mapetop, Sika Chapdur or equivalent) and water proofing (safe-crete or equivalent)
FF3	6 mm thick porcelain non-glaze tile with 20 mm cement sand mortar (1:4)

NOTES:

1. All measurements are in mm unless otherwise noted.
2. Architectural drawing should be read in conjunction with Structural, Sanitary and Electrical drawings.
3. Site Engineer to notify the consultant if any discrepancy in dimensions found in drawings as per the site condition.
4. Sill and Lintel dimensions are measured from the Slab Lvl.
5. Dimensions are excluding the plaster/POP thickness.



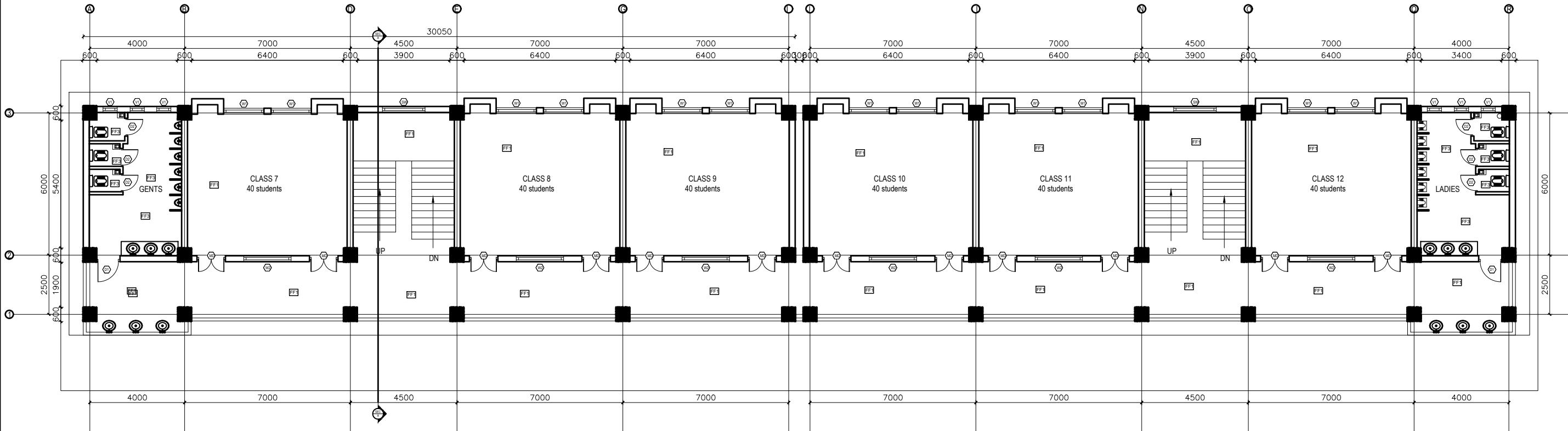
CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM		SHEET NO.	REVISION NO.
Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Santhimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	GROUND FLOOR PLAN	SAGE ENGINEERING CONSULT Nepal	ENGINEER:	STRUCTURE ER. :	AR-01	R-00

FINISHING DETAILS:

FF1	38 mm PCC (M15) with 1:1 cement punning with floor hardener (Dreitop FH, mapetop, Sika Chapdur or equivalent)
FF2	50 mm PCC (M15) with 1:1 cement punning in a 600X600 thread cut grid with floor hardener (Dreitop FH, mapetop, Sika Chapdur or equivalent) and water proofing (safe-crete or equivalent)
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NOTES:

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- Sill and Lintel dimensions are measured from the Slab Lvl.
- Dimensions are excluding the plaster/POP thickness.



FIRST&SECOND FLOOR PLAN

FLOOR AREA: 552.35 sq.m

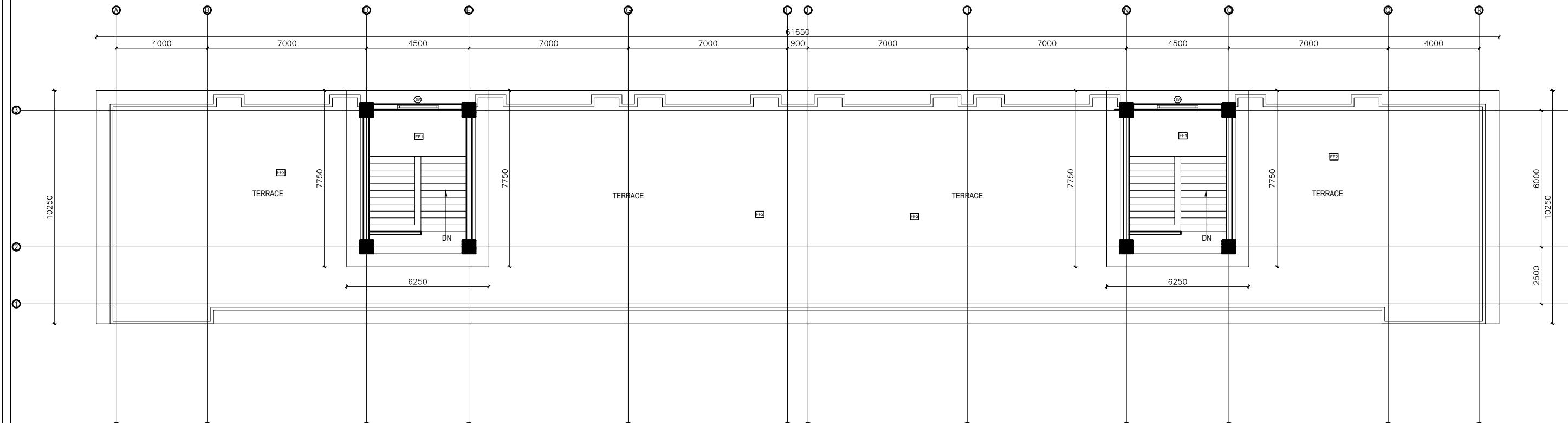
CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM		SHEET NO.	REVISION NO.
Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Santhimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	FIRST & SECOND FLOOR PLAN	SAGE ENGINEERING CONSULT Nepal	ENGINEER:	STRUCTURE ER. :	AR-02	R-00

NOTES:

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4. Sill and Lintel dimensions are measured from the Slab Lvl.
5. Dimensions are excluding the plaster/POP thickness.

FINISHING DETAILS:

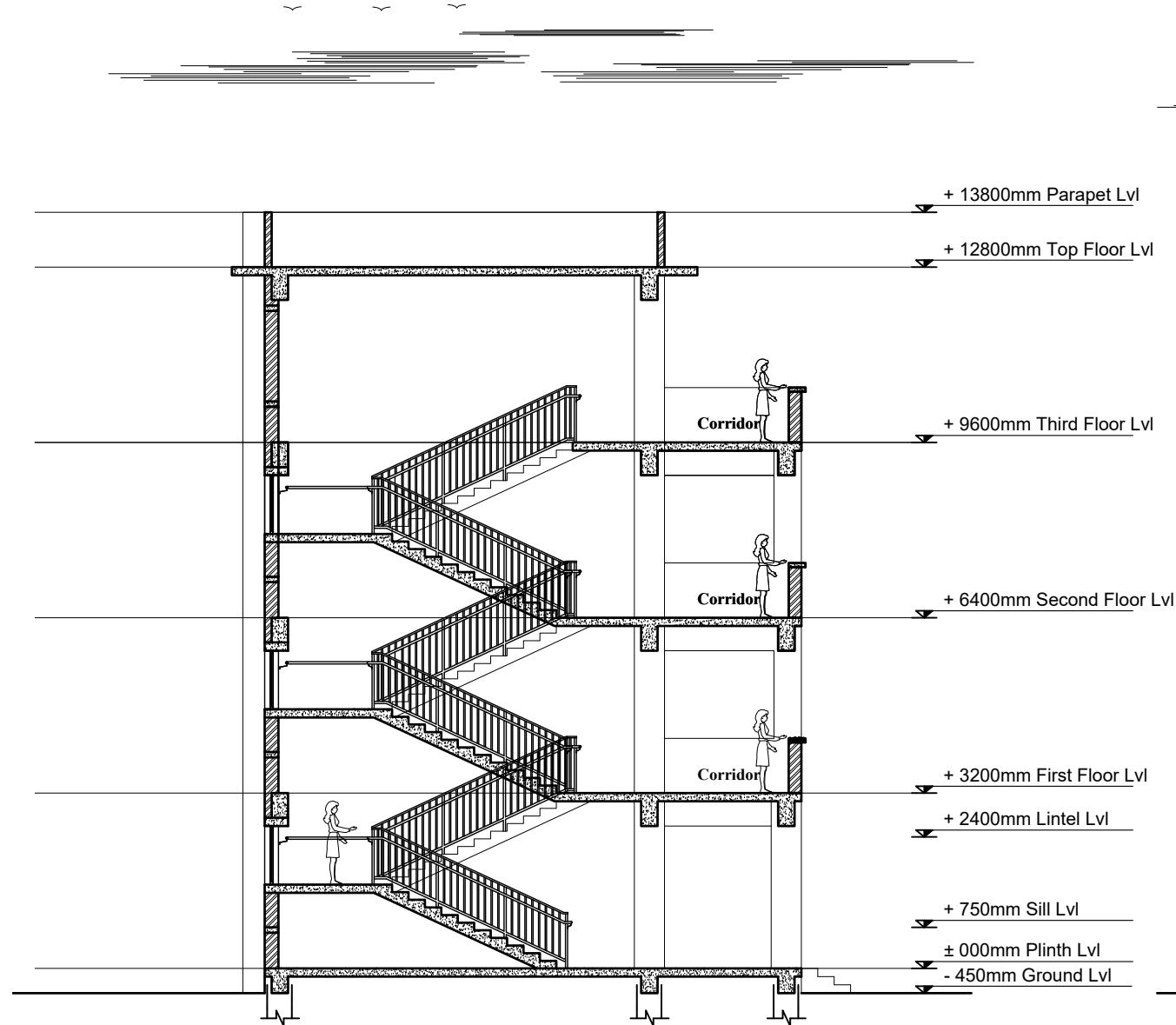
FF1	38 mm PCC (M15) with 1:1 cement punning with floor hardener (Dreitop FH, mapetop, Sika Chapdur or equivalent)
FF2	50 mm PCC (M15) with 1:1 cement punning in a 600X600 thread cut grid with floor hardener (Dreitop FH, mapetop, Sika Chapdur or equivalent) and water proofing (safe-crete or equivalent)
FF3	6 mm thick porcelain non-glaze tile with 20 mm cement sand mortar (1:4)



TOP FLOOR PLAN

FLOOR AREA: 66.14 sq.m

CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM		SHEET NO.	REVISION NO.
Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	TOP PLAN	SAGE ENGINEERING CONSULT Nepal	ENGINEER:	STRUCTURE ER. :	AR-03	R-00



SECTION AT A-A

NOTES:

1. All measurements are in mm unless otherwise noted.
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3. Site Engineer to notify the consultant if any discrepancy in dimensions found in drawings as per the site condition.
4. Sill and Lintel dimensions are measured from the Slab Lvl.
5. Dimensions are excluding the plaster/POP thickness.

OPENING SCHEDULE

S.N.	SYMBOL	SIZES	G.F.	F.F.	S.F.	TOTAL	SILL HT.	REMARKS
1.	MD	1200 x 2400	12	12	12	36	-	
2.	D1	1000 x 2400	2	2	2	6	-	
3.	D2	750 x 2100	6	6	6	18	-	
4.	D3	1200 x 2400	2			2	-	
5.	W1	1700 x 1650	12	12	12	36	750 MM	
6.	W2	2000 x 1650	6	6	6	18	750 MM	
7.	SW	1800 x 1070	1	1		2	1530 MM	
8.	V1	600 x 600	6	6	6	18	1800 MM	

CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM			SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	SECTION AND OPENING SCHEDULE	SAGE ENGINEERING CONSULT Nepal	ENGINEER: ARCHITECT: DRAWN : SCALE : 1:120	STRUCTURE ER. : CHECKED: APPROVED: PAPER SIZE : A3		AR-04	R-00

NOTES:

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FRONT ELEVATION

CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM		SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	<b>ELEVATIONS</b>	SAGE ENGINEERING CONSULT Nepal	ENGINEER: ARCHITECT: DRAWN : SCALE : 1:120	STRUCTURE ER. : CHECKED: APPROVED: PAPER SIZE : A3		DWG CODE 3S18R-MOUNTAINOUS DATE: FEBRUARY, 2023

NOTES:

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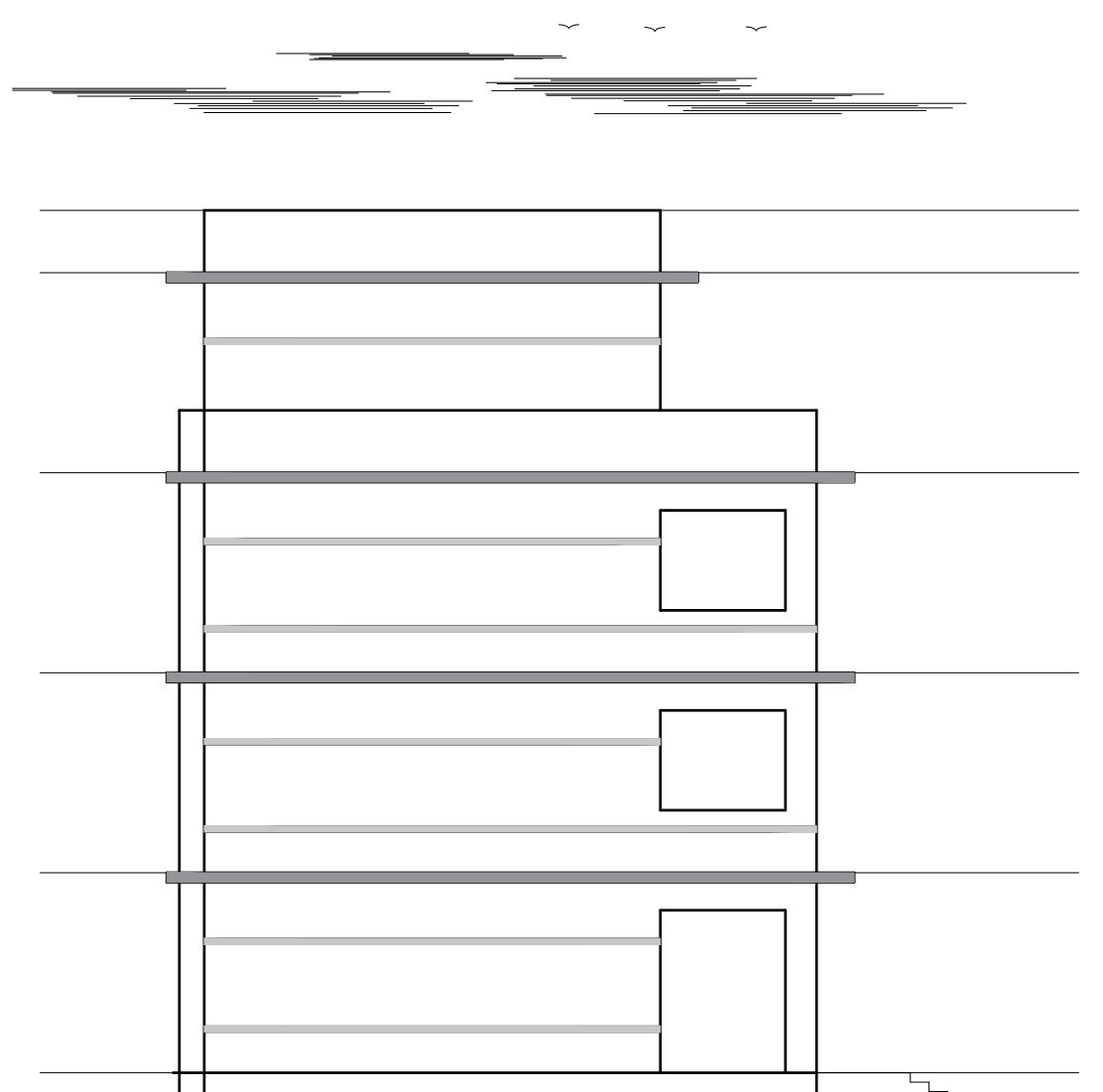


BACK ELEVATION

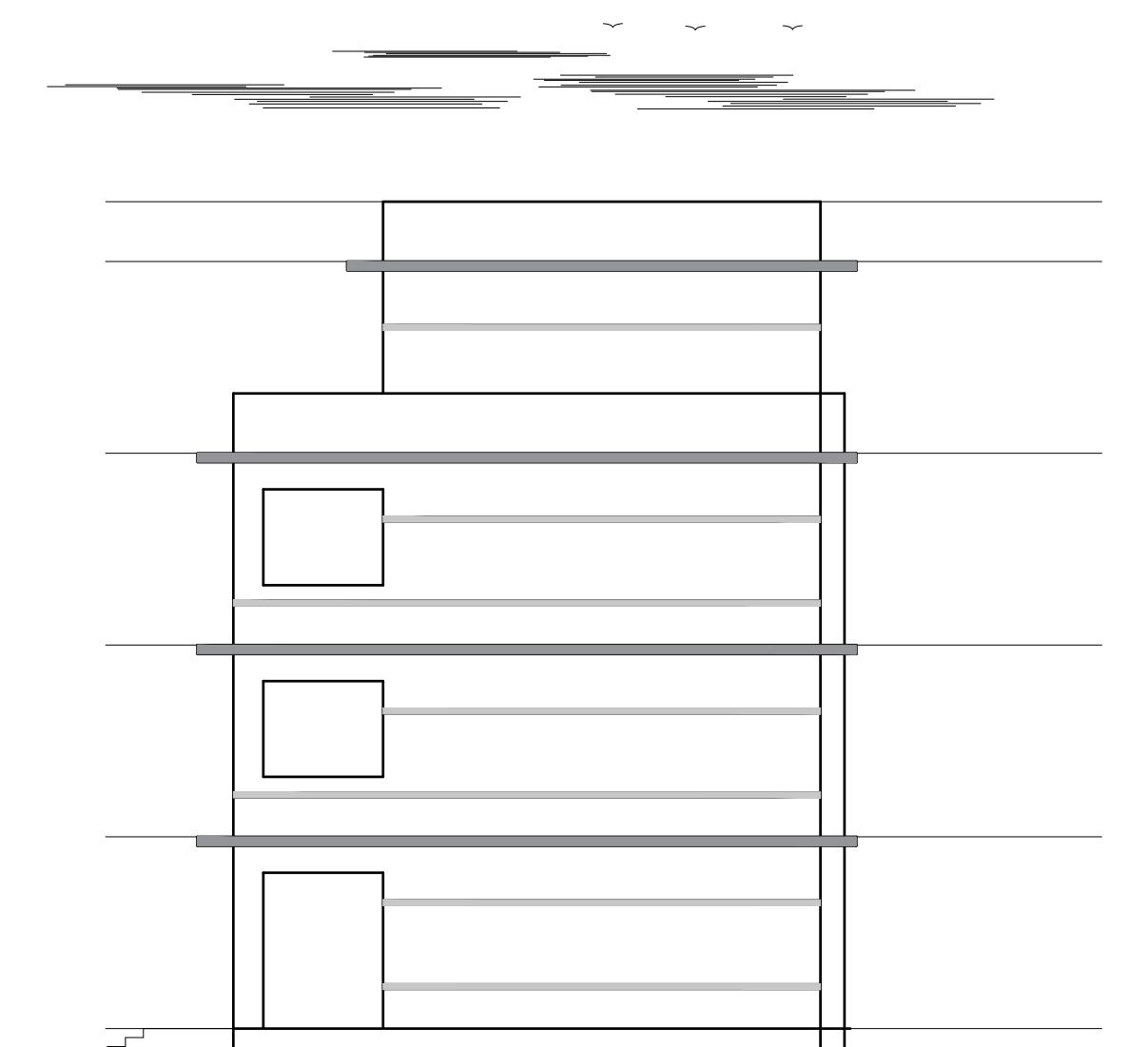
CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM		SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	<b>ELEVATIONS</b>	SAGE ENGINEERING CONSULT Nepal	ENGINEER: ARCHITECT: DRAWN : SCALE : 1:120	STRUCTURE ER. : CHECKED: APPROVED: PAPER SIZE : A3		DWG CODE 3S18R-MOUNTAINOUS DATE: FEBRUARY, 2023

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SIDE-2 ELEVATION

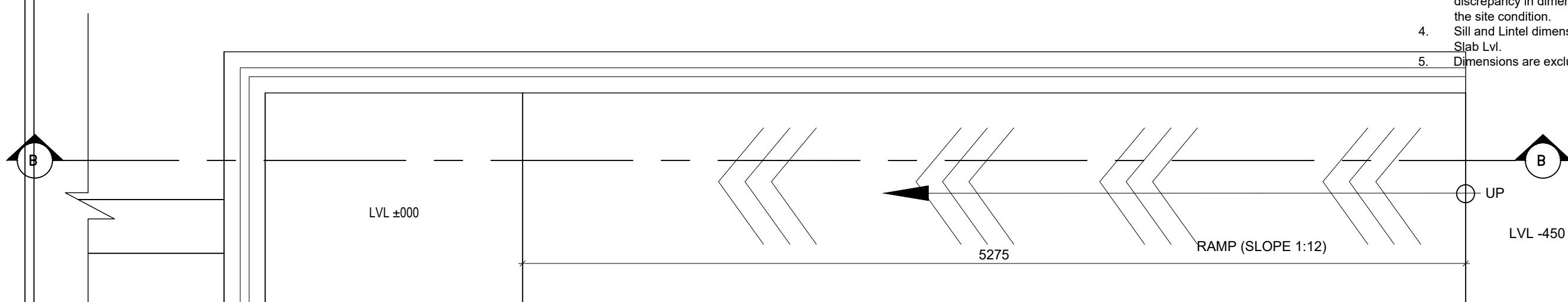


SIDE-1 ELEVATION

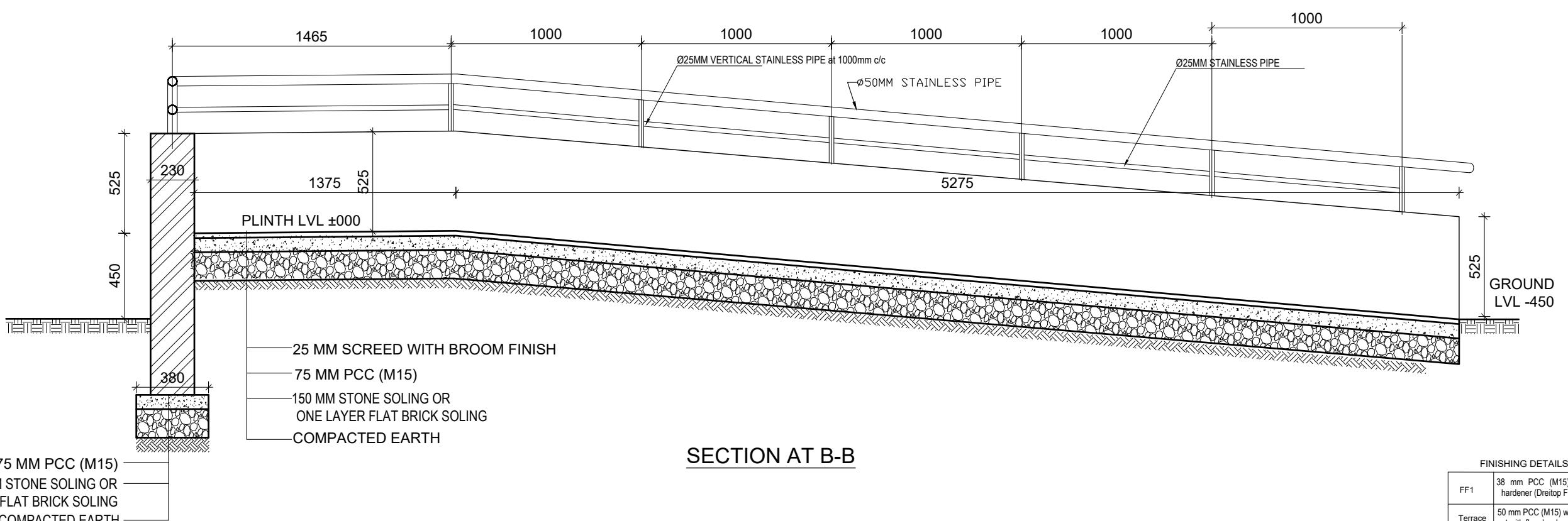
CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM		SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	<b>ELEVATIONS</b>	SAGE ENGINEERING CONSULT Nepal	ENGINEER: ARCHITECT: DRAWN : SCALE : 1:120	STRUCTURE ER. : CHECKED: APPROVED: PAPER SIZE : A3		DWG CODE 3S18R-MOUNTAINOUS DATE: FEBRUARY, 2023

NOTES:

1. All measurements are in mm unless otherwise noted.
2. Architectural drawing should be read in conjunction with Structural, Sanitary and Electrical drawings.
3. Site Engineer to notify the consultant if any discrepancy in dimensions found in drawings as per the site condition.
4. Sill and Lintel dimensions are measured from the Slab Lvl.
5. Dimensions are excluding the plaster/POP thickness.



RAMP PLAN



CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM		SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	RAMP DETAILS	SAGE ENGINEERING CONSULT Nepal	ENGINEER:	STRUCTURE ER. :		

# **STRUCTURE DRAWING**

SN.	DRAWING LIST
1.	GENERAL NOTES
3.	FOOTING DETAIL FOR 100kN/m <sup>2</sup>
4.	TYPICAL FLOORING DETAIL
5.	SITE SPECIFIC DRAWING
6.	TYPICAL DETAILS OF FOUNDATION WALL
7.	COLUMN DETAIL
8.	BEAM PLAN
9.	BEAM DETAIL
10.	SLAB DETAIL
11.	STAIRCASE DETAIL
12.	BAND DETAIL
13.	RAILING DETAIL

CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	TABLE OF CONTENTS	SAGE ENGINEERING CONSULT Bhaktapur, Nepal	ENGINEER: _____ ARCHITECT: _____ DRAWN: _____ SCALE : 1: 120	STRUCTURE ER. : CHECKED: _____ APPROVED: _____ PAPER SIZE : A3	R-00 DWG CODE: 3S18R-MOUNTAINOUS DATE: FEBRUARY, 2023

### GENERAL NOTES:

1. USE M25 GRADE CONCRETE FOR SLAB, BEAM, COLUMN, FOUNDATION, SILL & LINTEL BANDS (ALL RCC WORKS)
2. USE Fe500 GRADE STEEL ( $f_y=500\text{N/mm}^2$ )
3. CLEAR COVER TO BARS
  - a. FOR CONCRETE MEMBERS IN CONTACT WITH SOIL = MIN 50mm
  - b. FOR COLUMN (FROM FACE TO LATERAL TIES) = 40mm
  - c. FOR BEAMS (FROM FACE TO LATERAL STIRRUPS) = 25mm
  - d. FOR OUTER BARS IN SLAB = 15mm
  - e. FOR STAIRCASE = 20mm
4. BARS IN COLUMNS SHALL BE SPLICED ONLY AT MID HEIGHT OF COLUMN.

5. BARS SPLICING IN BEAM SHALL BE AVOIDED IN THE SPAN WHERE INTERMEDIATE BEAM IS CONNECTED AND SHALL BE ONLY AS SHOWN IN DWG.

6. DEVELOPMENT / LAP LENGTH ( $L_d$ ) FOR BARS.

BAR DIA-(mm)	8	10	12	16	20	25
FOR M25 $L_d$	400	490	590	790	980	1230

7. TEMP./DISTRIBUTION REINFORCEMENT FOR SLAB - TMT 80 @ 200 C/C

8. CLEAR VERTICAL DISTANCE BETWEEN TWO ROWS (LAYERS) OF BARS=25mm OR MAXIMUM SIZE OF REBAR

9. PROVIDE STIRRUPS OR TIES AT MIN 150 C/C AT LAP LOCATIONS IN BEAM AND AT MIN 100 C/C AT LAP LOCATION IN COLUMNS.

10. FOUNDATION

- 10.1 FOUNDATION DESIGN HAVE BEEN PROVIDED FOR SAFE BEARING CAPACITY OF 150KN/m<sup>2</sup>. THIS S.B.C. SHALL BE CONFIRMED FROM GEO TECHNICAL INVESTIGATION AND CONSULTED TO DESIGNER.

- 10.2 IF SAFE BEARING CAPACITY OF SOIL IS FOUND LESS THAN 100KN/m<sup>2</sup>, SPECIAL STUDY FOR FOUNDATION DESIGN IS REQUIRED.

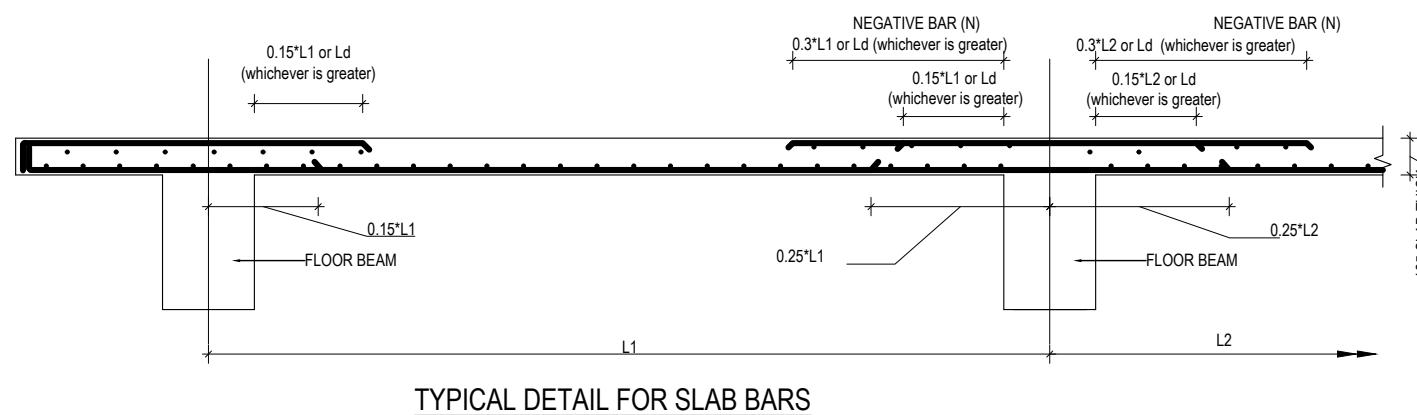
11.  $H$  = CLEAR SPAN OF FLOOR.

12.  $D$ =DEPTH OF BEAM

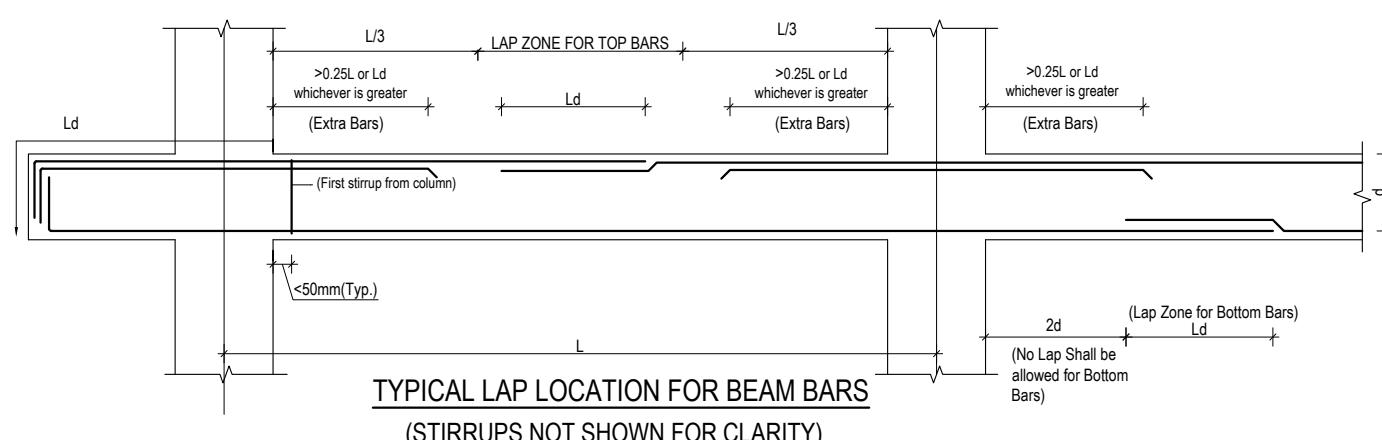
13.  $d$ =EFFECTIVE DEPTH OF BEAM

14.  $L_d$ =DEVELOPMENT LENGTH

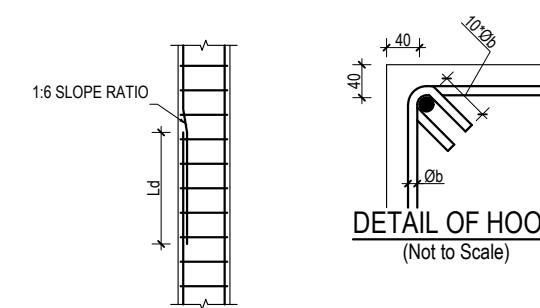
15. The seismic gap shall be as per codal requirement.



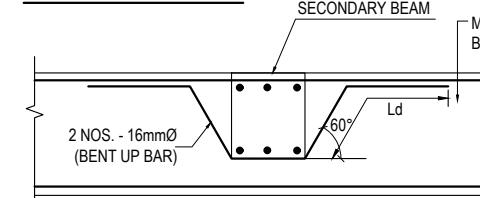
TYPICAL DETAIL FOR SLAB BARS



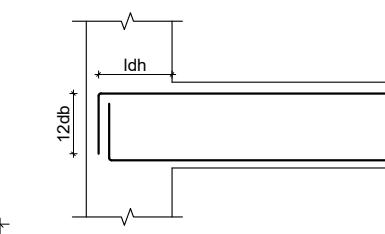
TYPICAL LAP LOCATION FOR BEAM BARS  
(STIRRUPS NOT SHOWN FOR CLARITY)



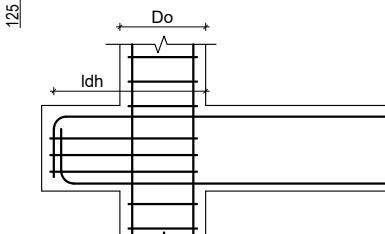
LAPPING METHOD



CONNECTION DETAIL BETWEEN  
MAIN & SECONDARY BEAM



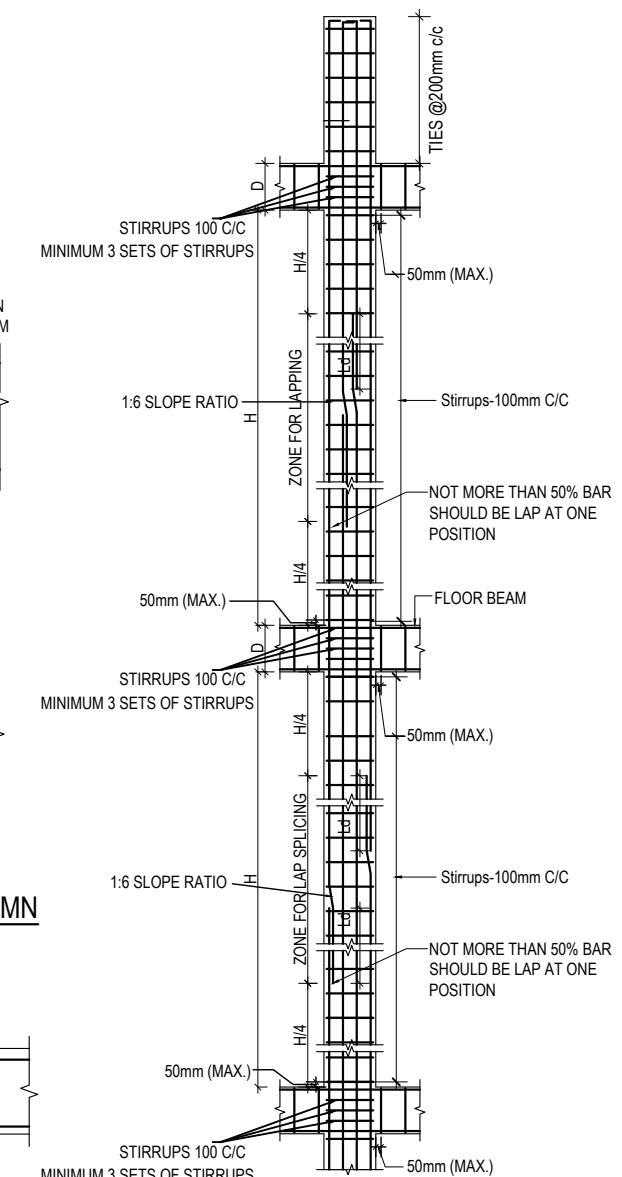
ANCHORAGE OF BEAM  
LONGITUDINAL BAR IN COLUMN



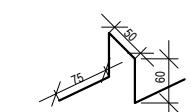
PPROVISION OF BEAM STUB

$f_y$ $\text{N/mm}^2$	$f_{ck}$ $\text{N/mm}^2$	$db$ mm	$L_{dh}$ mm	$12db$ mm
500	20	12	277	144
500	25	12	248	144
500	20	16	369	192
500	25	16	330	192
500	20	20	462	240
500	25	20	413	240
500	20	25	577	300
500	25	25	516	300

$f_y$ = yield strength of steel  
 $f_{ck}$ = Characteristic Compressive strength of concrete  
 $db$ = diameter of largest longitudinalbar in beam in mm

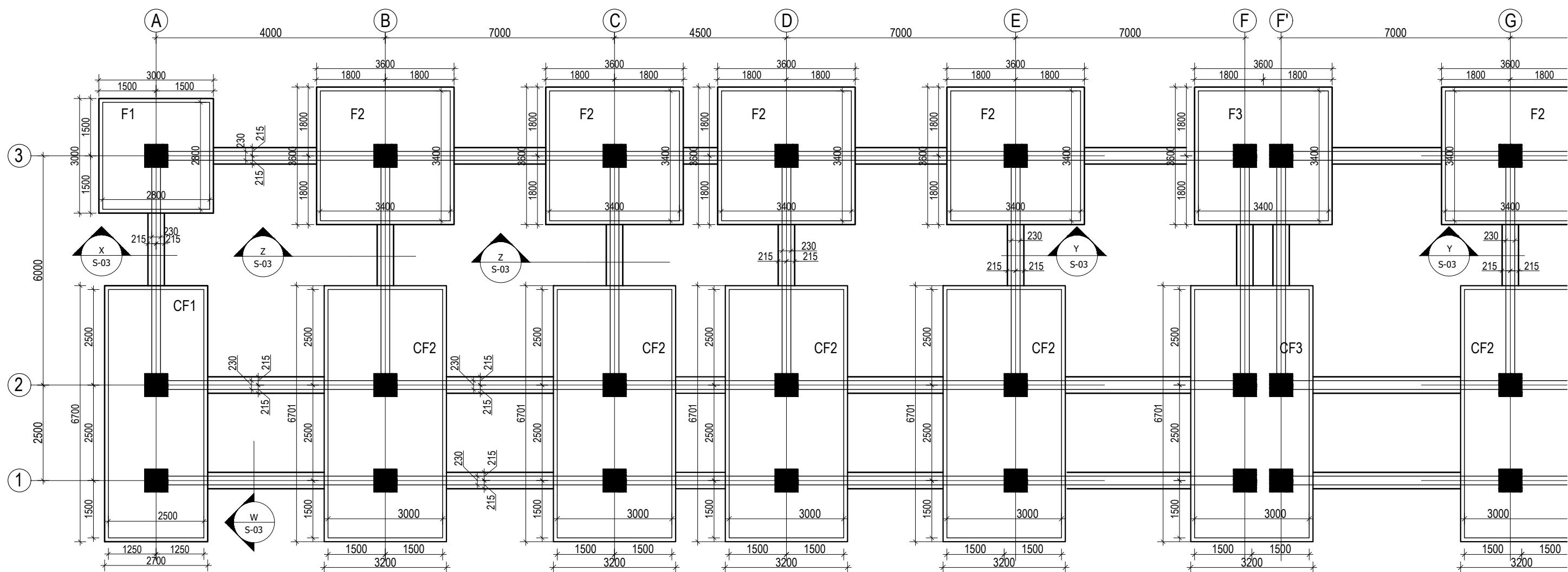


TYP. COLUMN SHEAR  
REINFORCEMENT DETAIL



CHAIR RESTING ON BOTTOM BARS  
@600 - 900 mm staggered position

CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	GENERAL NOTES	SAGE ENGINEERING CONSULT Bhaktapur, Nepal	ENGINEER: ARCHITECT: DRAWN: SCALE : 1: 120	STRUCTURE ER. : CHECKED: APPROVED: PAPER SIZE : A3	R-00 DWG CODE: 3S18R-MOUNTAINOUS

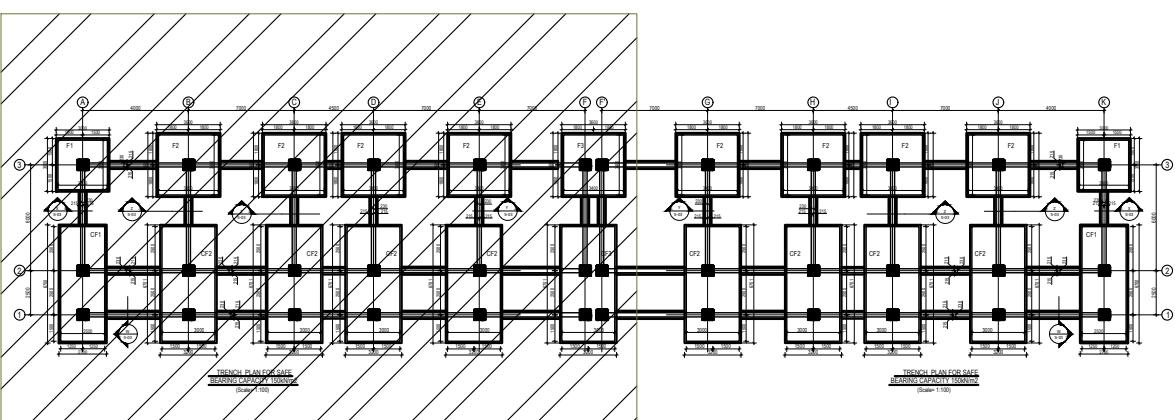


TRENCH PLAN FOR SAFE

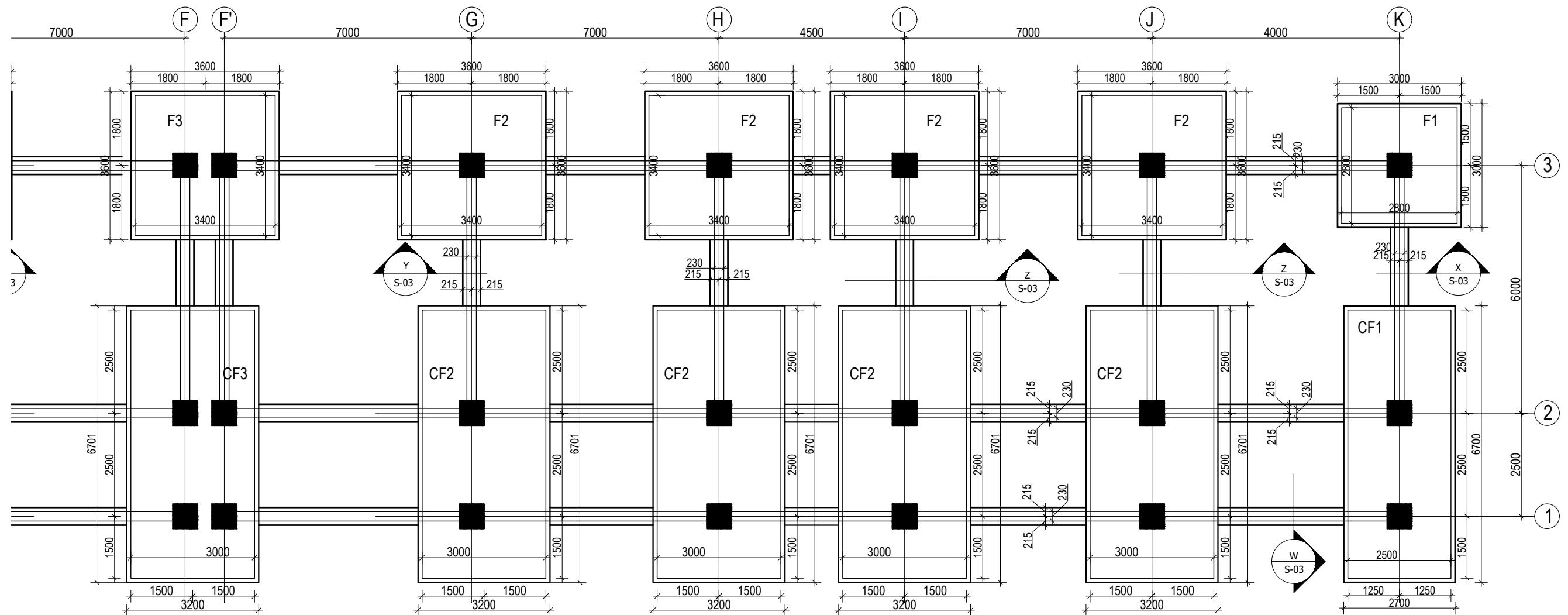
BEARING CAPACITY 150kN/m<sup>2</sup>

(Scale= 1:100)

KEY PLAN



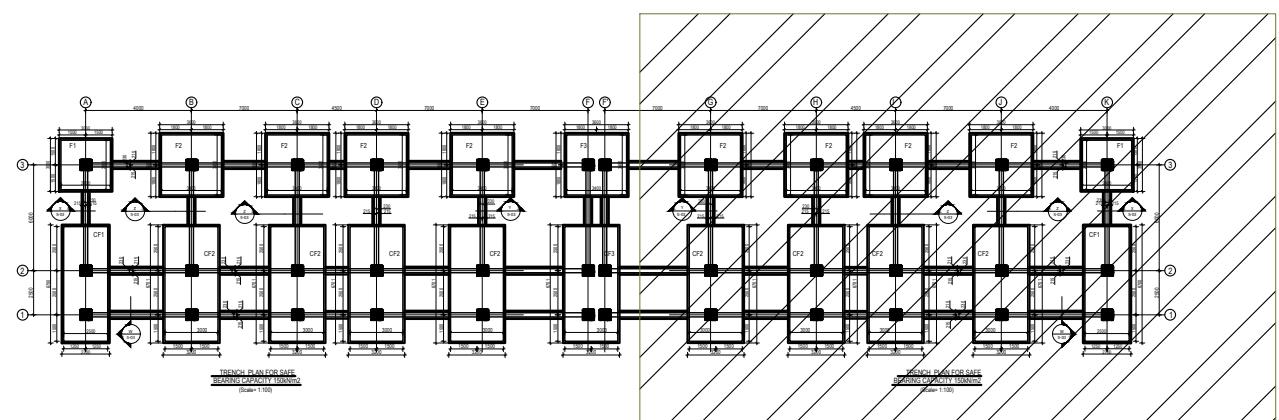
CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	TRENCH DETAIL FOR S.B.C 150kN/m <sup>2</sup>	SAGE ENGINEERING CONSULT Bhaktapur, Nepal	ENGINEER: _____ ARCHITECT: _____ DRAWN: _____ SCALE : 1: 120	ST-01	R-00



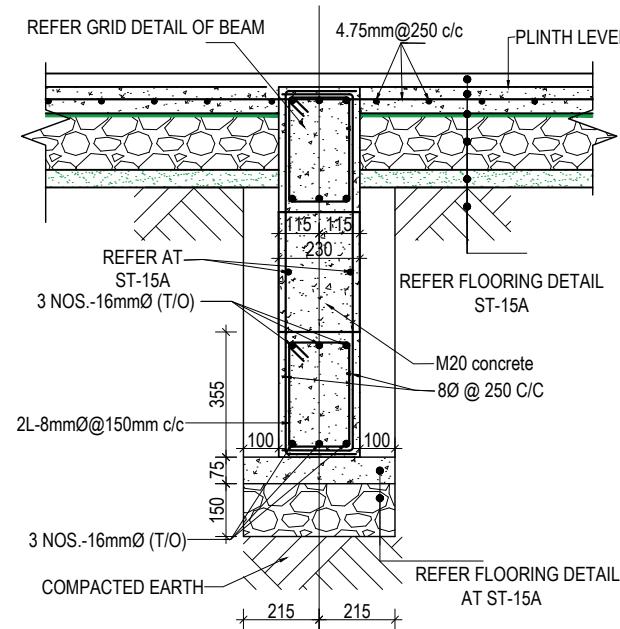
## TRENCH PLAN FOR SAFE BEARING CAPACITY 150kN/m<sup>2</sup>

(Scale= 1:100)

## KEY PLAN

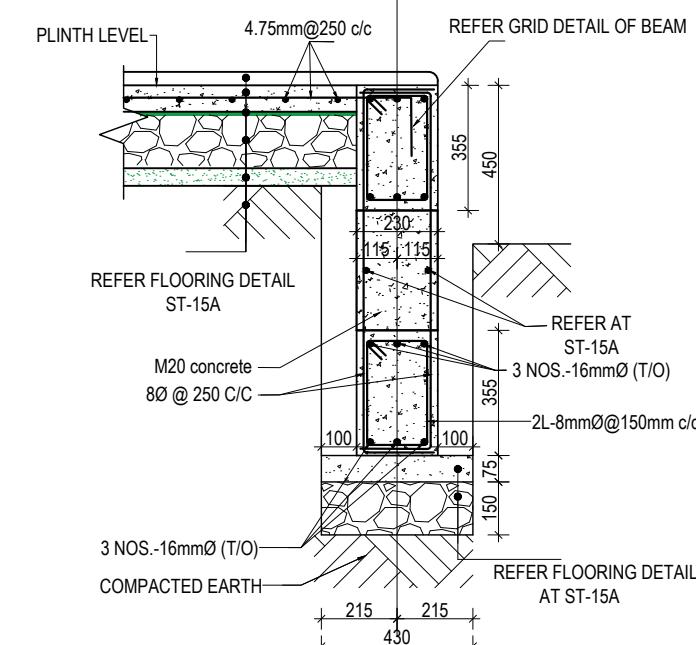


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 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	TRENCH DETAIL FOR S.B.C 150kN/m2	SAGE ENGINEERING CONSULT Bhaktapur, Nepal	ENGINEER:	STRUCTURE ER. :		
				ARCHITECT:	CHECKED:		
				DRAWN :	APPROVED:		
				SCALE : 1: 120	PAPER SIZE : A3		DATE: FEBRUARY, 2023
							DWG CODE: 3S18R-MOUNTAINOUS



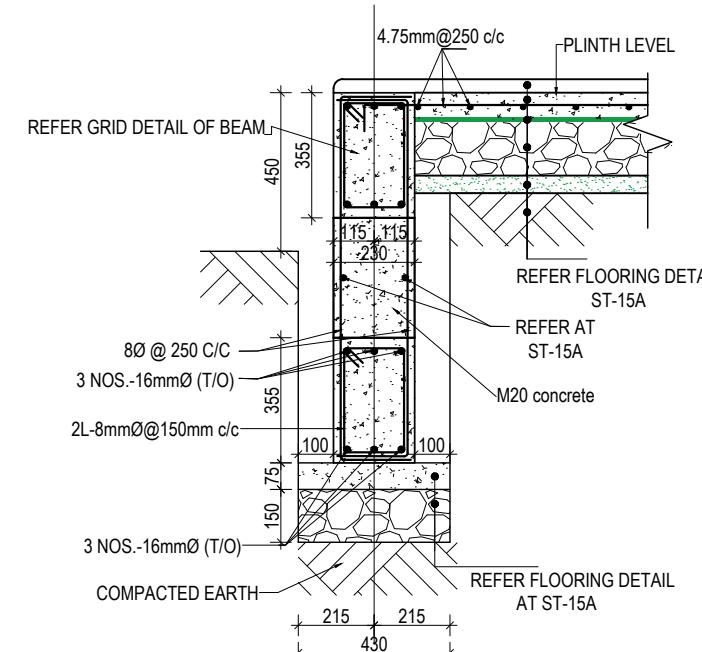
**SECTION AT Z-Z**

(Scale= 1:20)



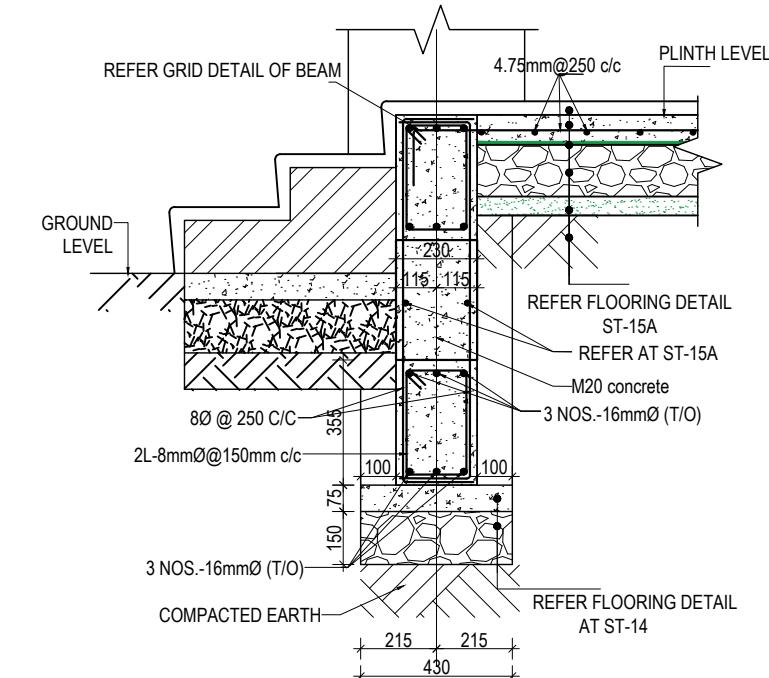
**SECTION AT Y-Y**

(Scale= 1:20)



**SECTION AT X-X**

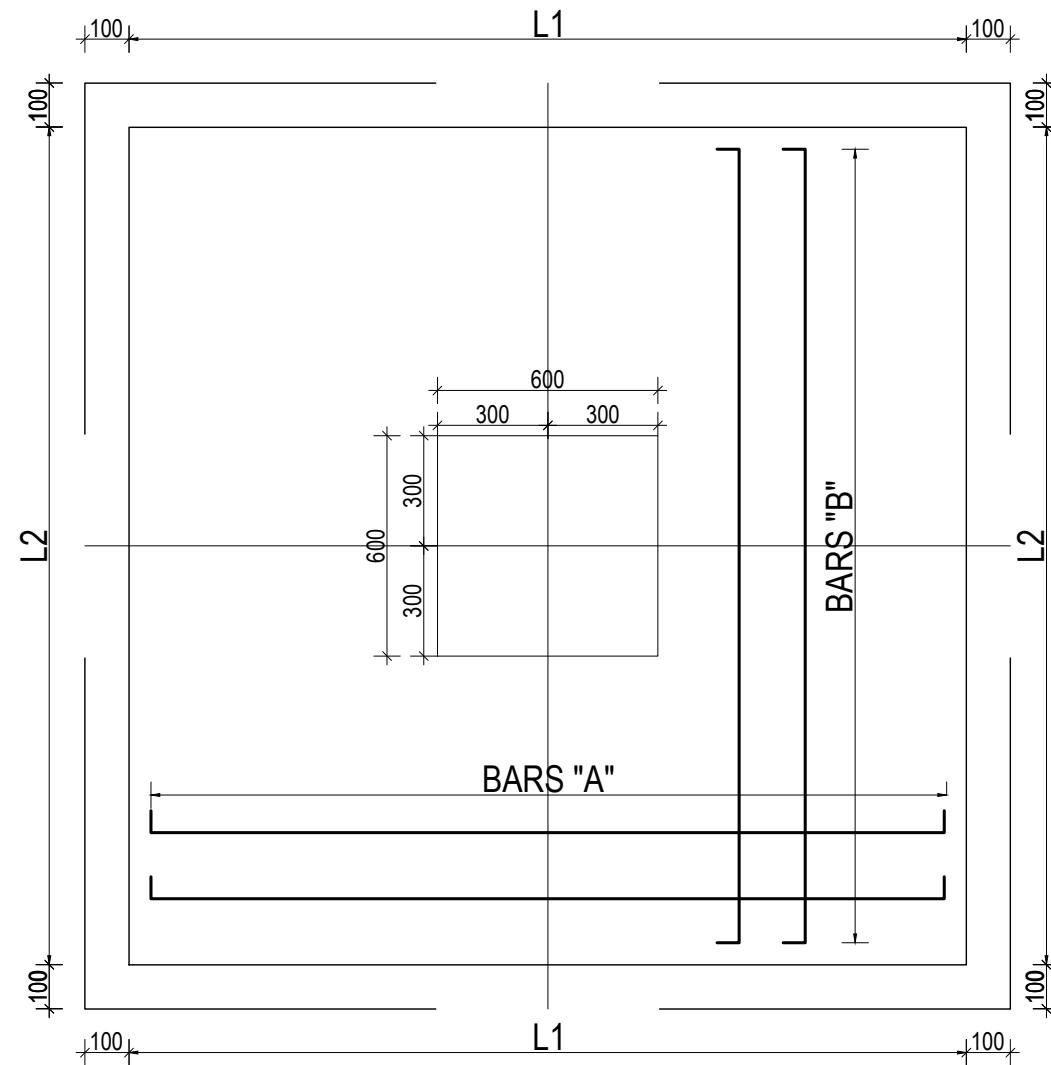
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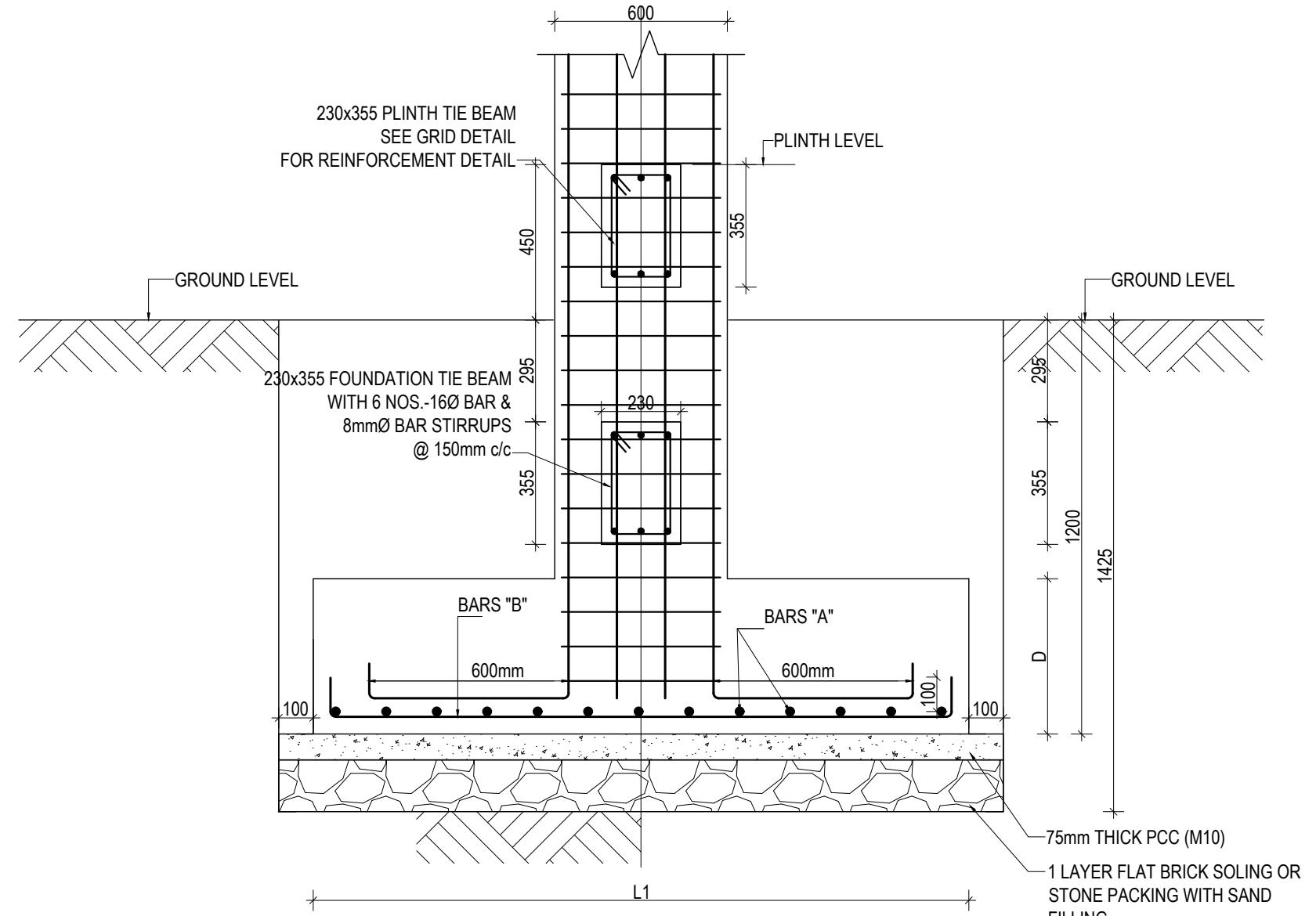
**SECTION AT W-W**

(Scale= 1:20)

CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	TRENCH DETAIL FOR S.B.C 150kN/m <sup>2</sup>	SAGE ENGINEERING CONSULT Bhaktapur, Nepal	ENGINEER: _____ ARCHITECT: _____ DRAWN : _____ SCALE : 1: 120	ST-03	R-00 DWG CODE: 3S18R-MOUNTAINOUS PAPER SIZE : A3 DATE: FEBRUARY, 2023



TYPICAL ISOLATED FOOTING PLAN



TYPICAL ISOLATED FOOTING SECTION

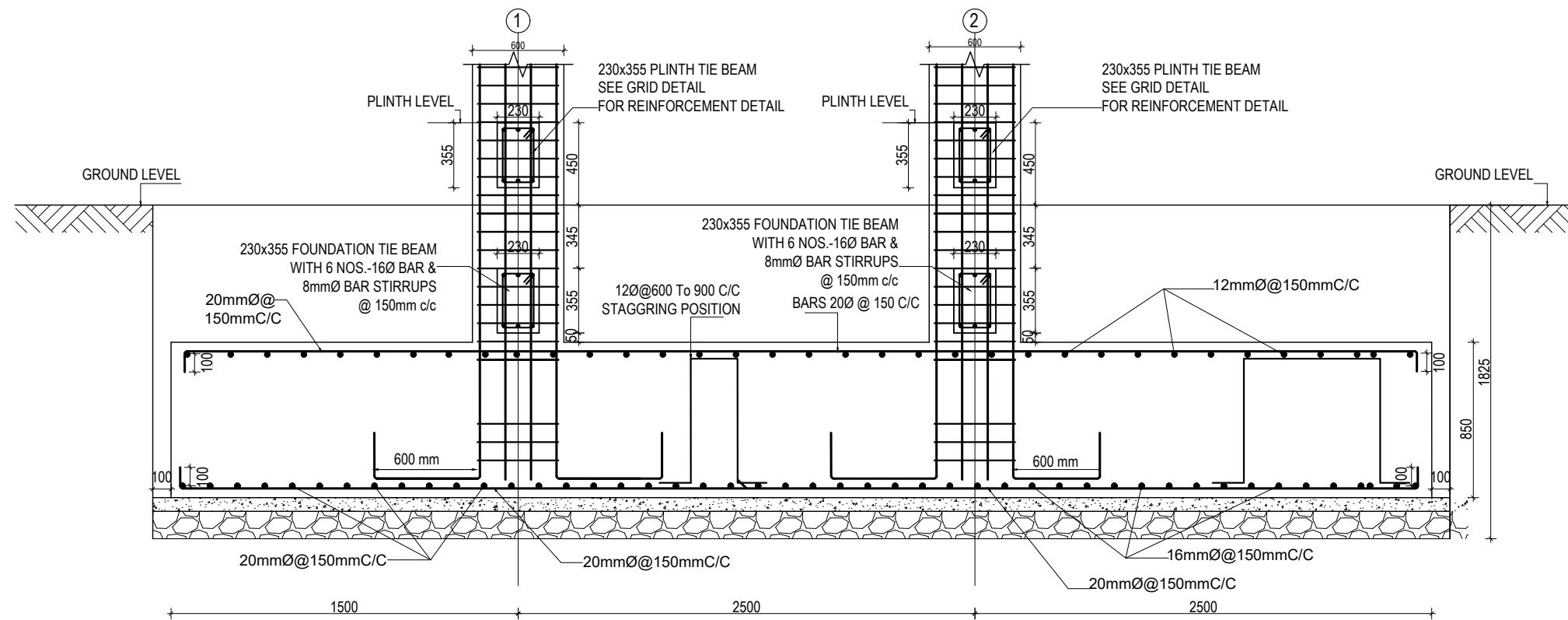
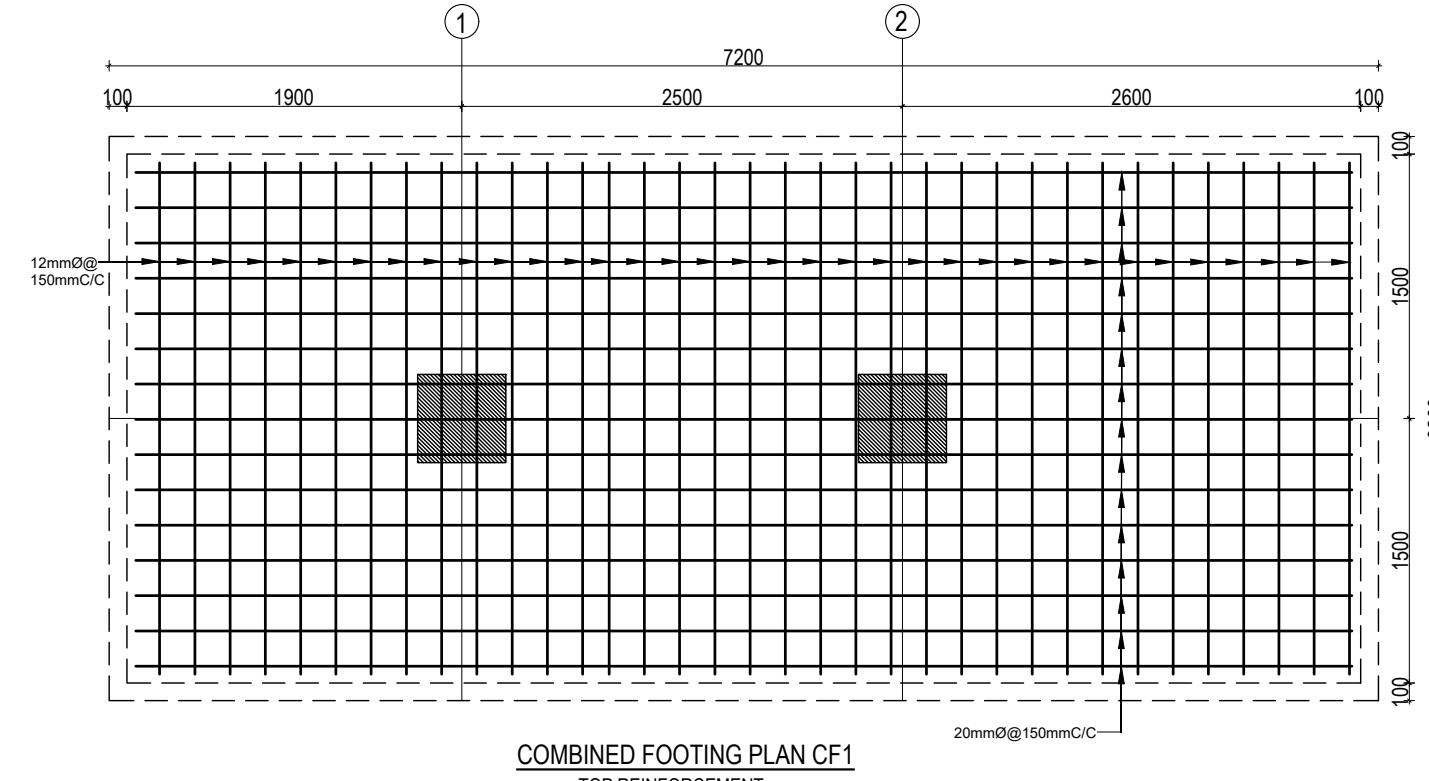
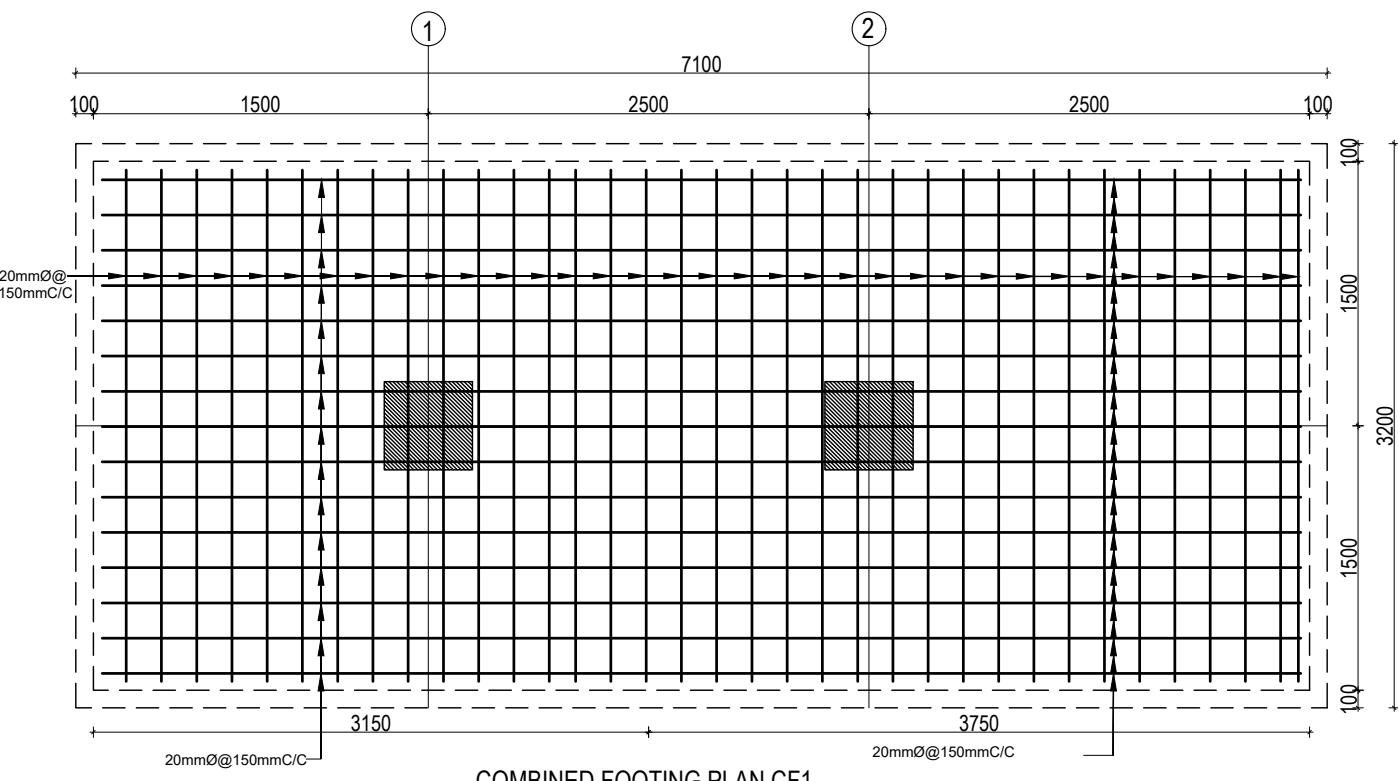
**ISOLATED FOOTING SCHEDULE FOR S.B.C 150 kN/m<sup>2</sup>**

FOOTING ID	L1	L2	DEPTH (D)	REINFORCEMENT DETAILS	
				BARS "A"	BARS "B"
F1	2800	2800	650	16Ø @ 150 C/C	16Ø @ 150 C/C
F2	3600	3600	750	16Ø @ 150 C/C	16Ø @ 150 C/C

CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	FOOTING DETAIL FOR S.B.C 150kN/m <sup>2</sup>	SAGE ENGINEERING CONSULT Bhaktapur, Nepal	ENGINEER: _____ ARCHITECT: _____ DRAWN: _____ SCALE : 1: 120	ST-04	R-00

DWG CODE:  
 3S18R-MOUNTAINOUS

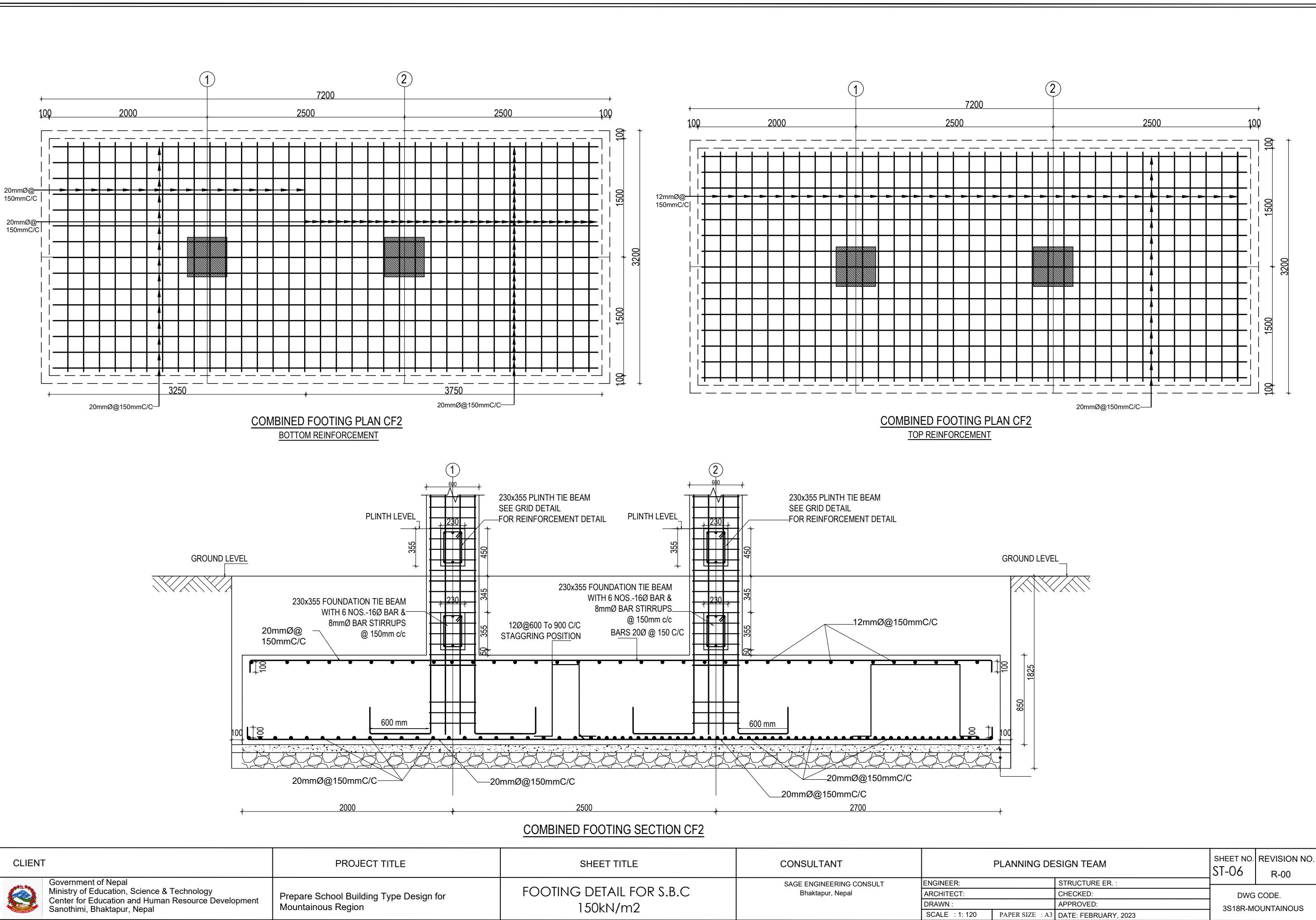
PAPER SIZE : A3 DATE: FEBRUARY, 2023

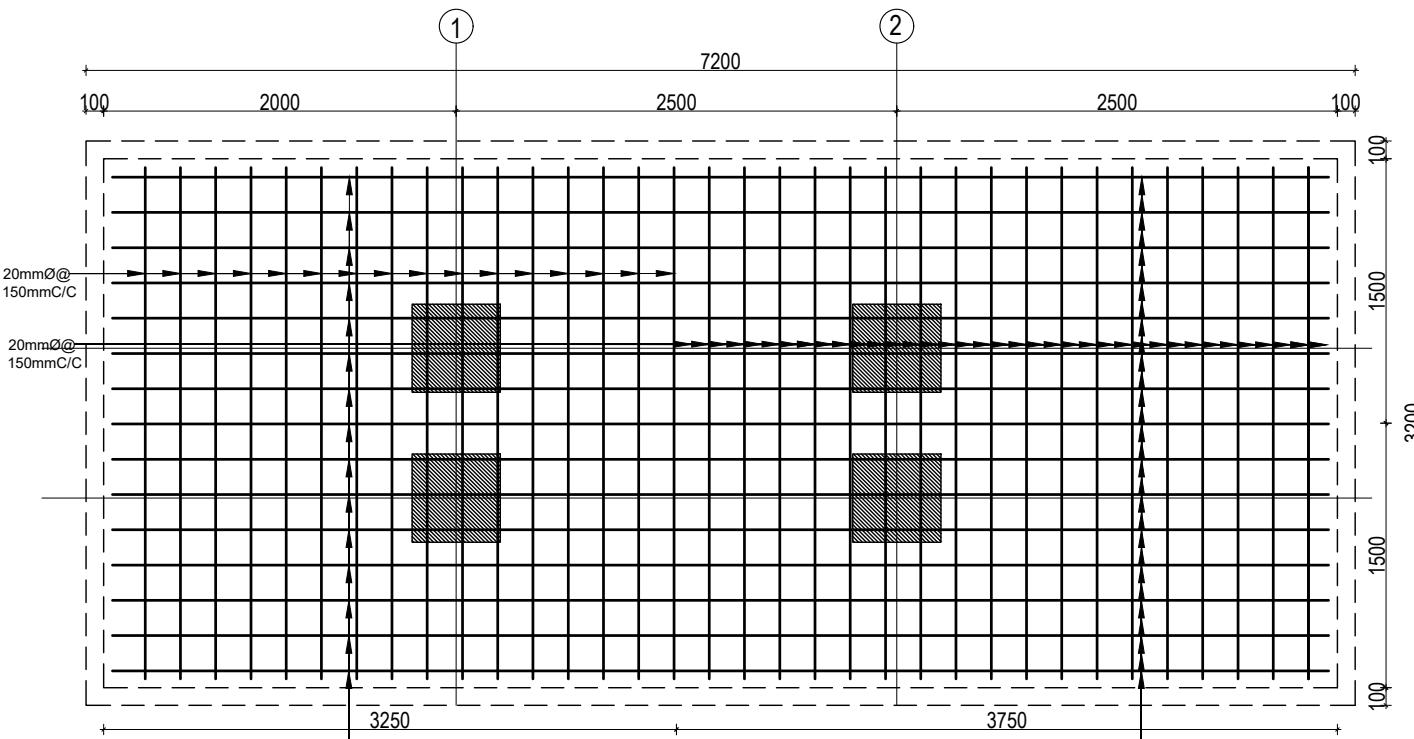


COMBINED FOOTING SECTION CF1

CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	FOOTING DETAIL FOR S.B.C 150kN/m <sup>2</sup>	SAGE ENGINEERING CONSULT Bhaktapur, Nepal	ENGINEER: _____ ARCHITECT: _____ DRAWN: _____ SCALE : 1: 120	ST-05	R-00

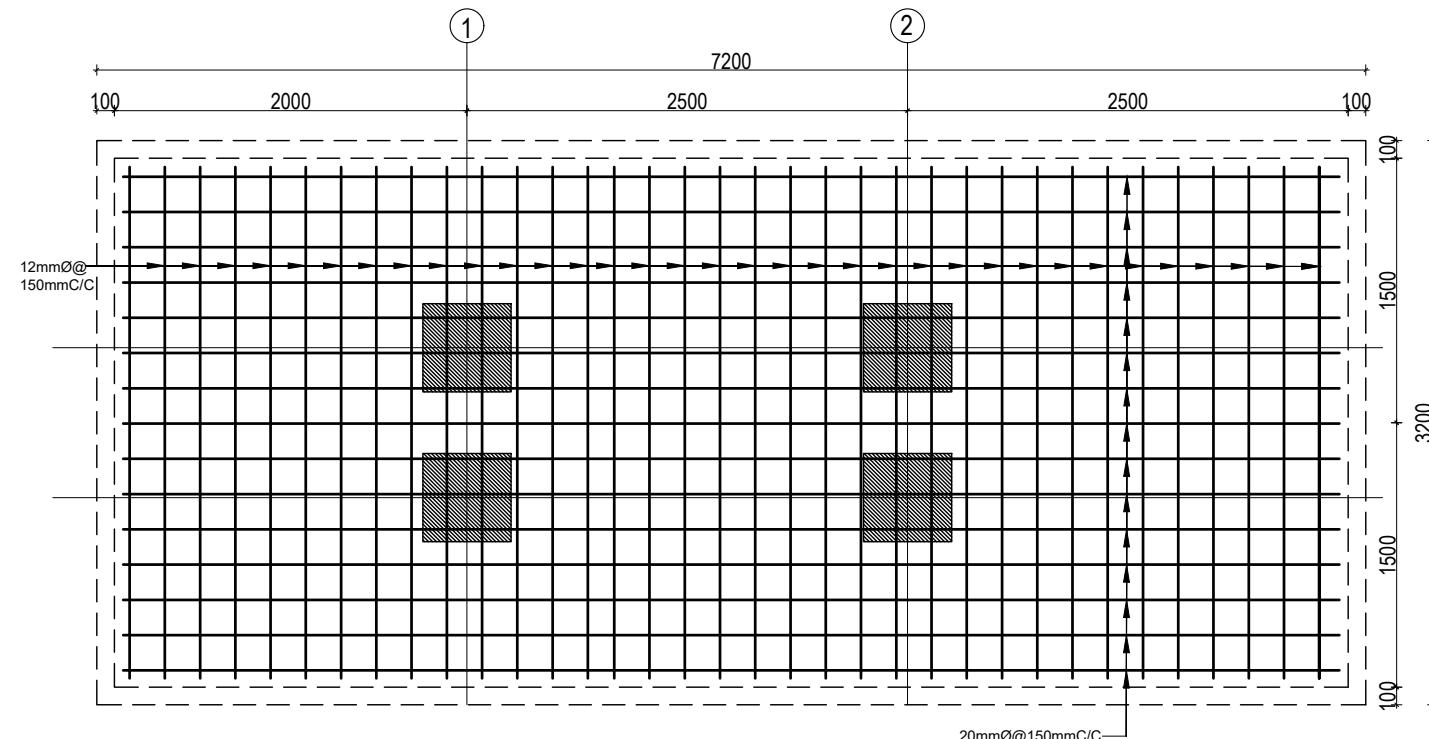
DWG CODE:  
 3S18R-MOUNTAINOUS  
 DATE: FEBRUARY, 2023



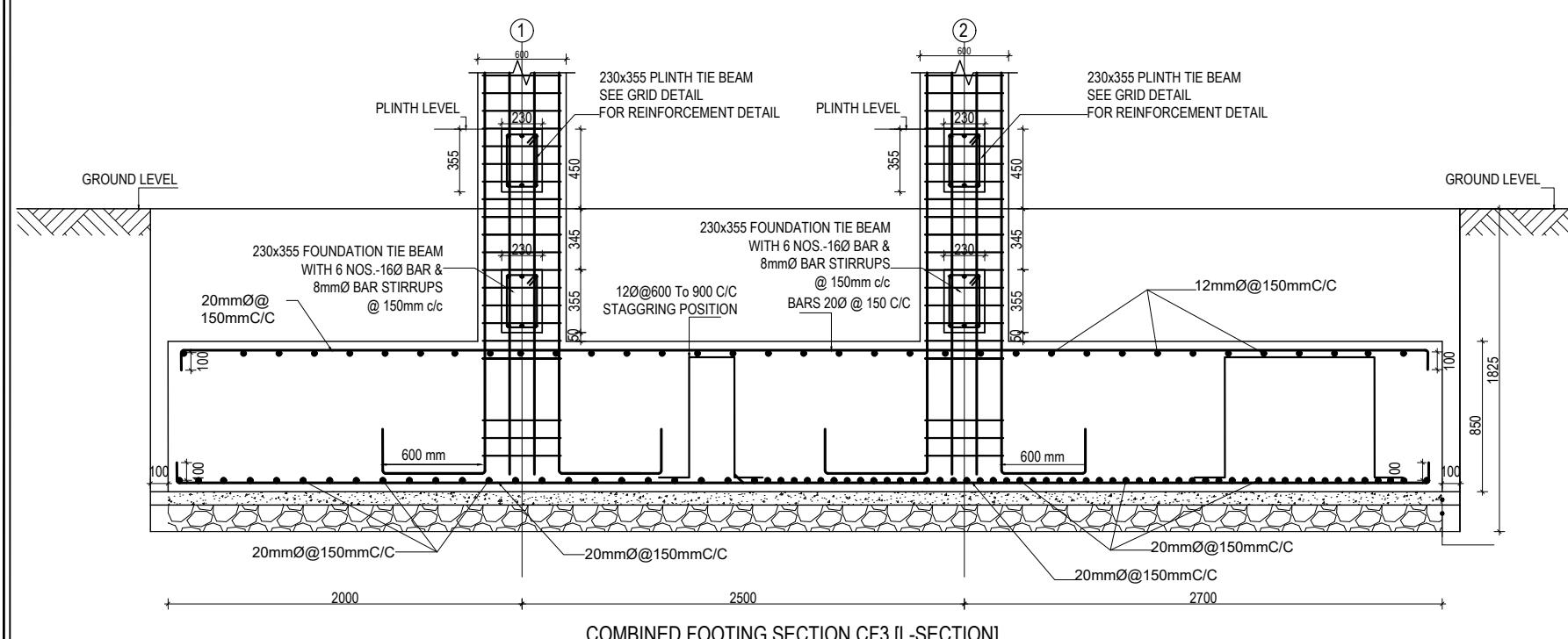


## COMBINED FOOTING PLAN CF3

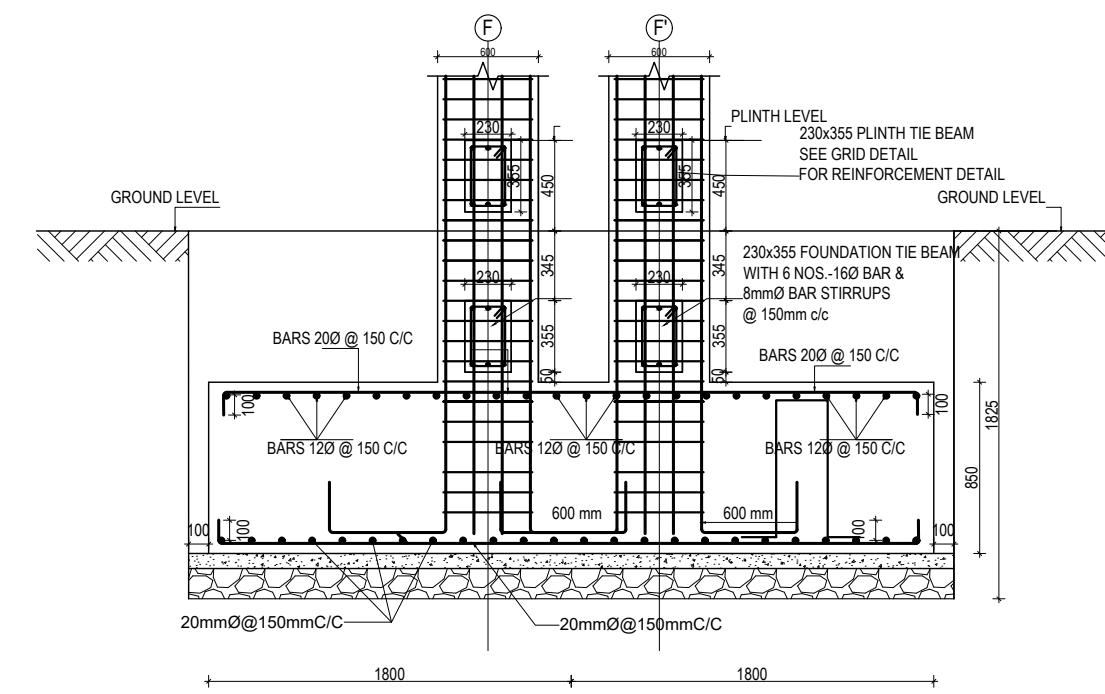
### BOTTOM REINFORCEMENT



COMBINED FOOTING PLAN CF3  
TOP REINFORCEMENT

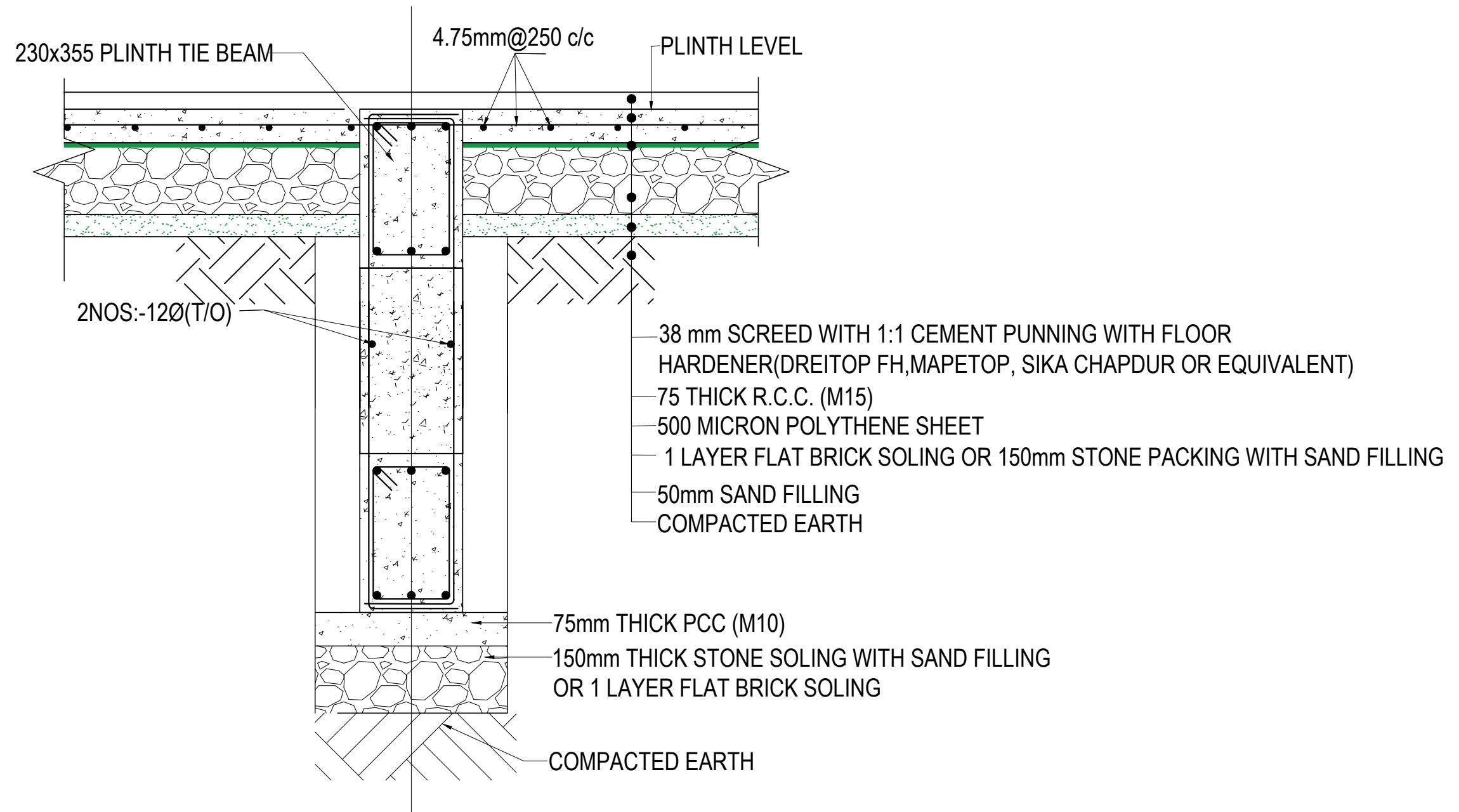


## COMBINED FOOTING SECTION CF3 [L-SECTION]



## COMBINED FOOTING SECTION CF3 [X-SECTION]

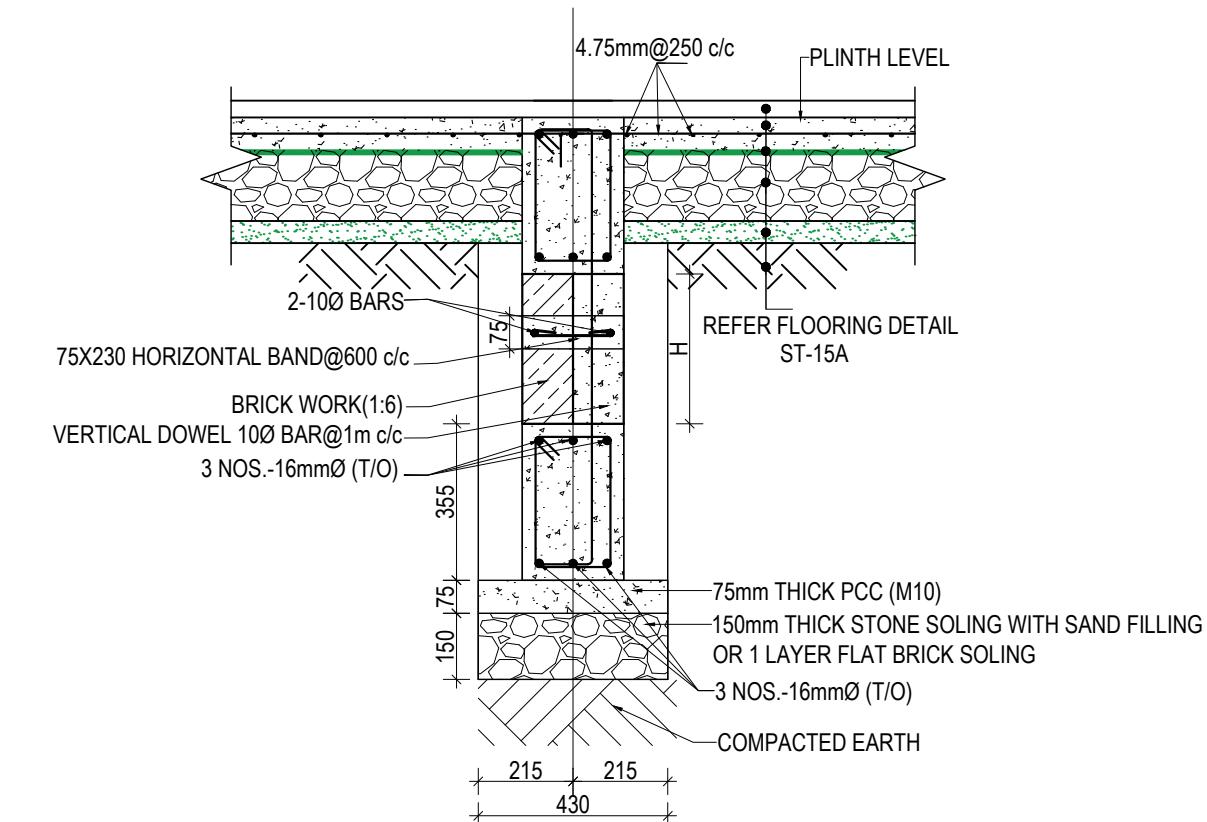
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 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	FOOTING DETAIL FOR S.B.C 150kN/m2	SAGE ENGINEERING CONSULT Bhaktapur, Nepal	ENGINEER:	STRUCTURE ER. :		



### TYPICAL FLOORING DETAIL FF1

(Scale= 1:10)

CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	TYPICAL FLOORING DETAIL	SAGE ENGINEERING CONSULT Bhaktapur, Nepal	ENGINEER: _____ ARCHITECT: _____ DRAWN: _____ SCALE : 1: 120	ST-08	R-00 DWG CODE: 3S18R-MOUNTAINOUS

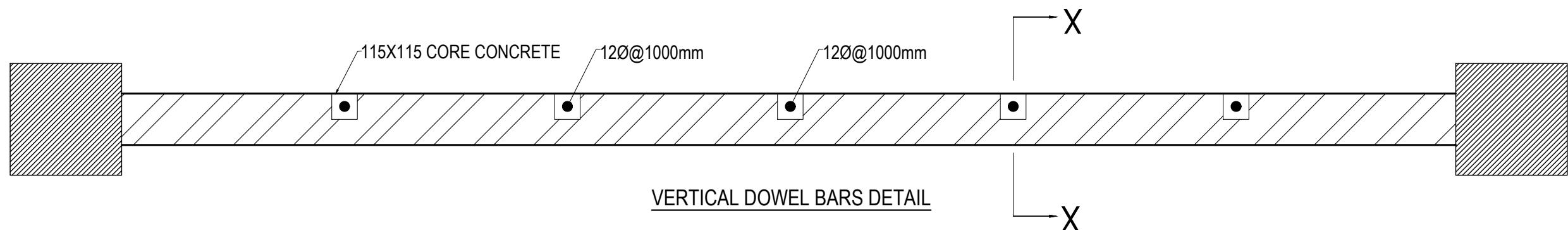


WALL DETAIL FOR DEPTH OF FOOTING MORE THAN 1500 mm

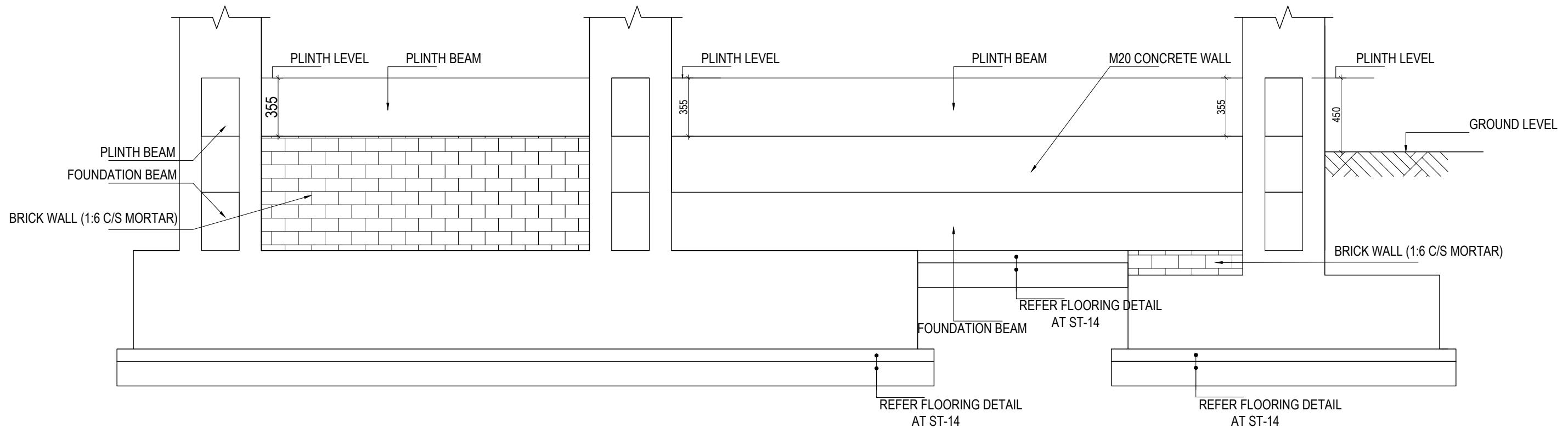
SECTION AT X-X

NOTES:-

- 1) BRICK WALL IS USED IF WALL IS CONFINED BY SOIL ON BOTH SIDES
- 2) IF THE HEIGHT OF THE BRICKWALL EXCEEDS 1800 mm ADDITIONAL BEAM SHALL BE PROVIDED OF SAME SIZE OF FOUNDATION BEAM(SAME REINFORCEMENT TO BE USED)

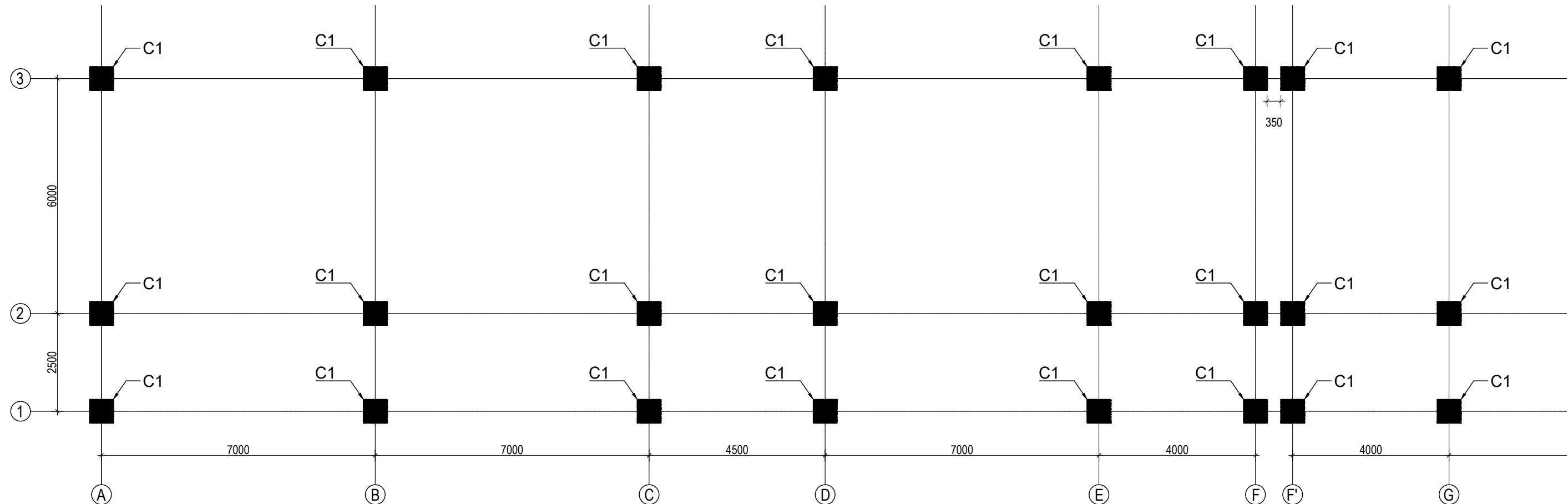


CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	SITE SPECIFIC DRAWING	SAGE ENGINEERING CONSULT Bhaktapur, Nepal	ENGINEER: _____ ARCHITECT: _____ DRAWN: _____ SCALE : 1: 120	ST-09	R-00



TYPICAL DETAIL OF FOUNDATION WALL

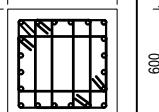
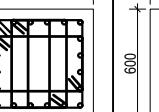
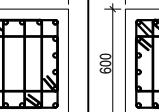
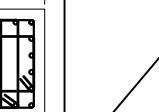
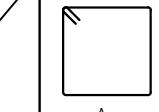
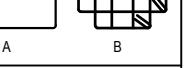
CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	TYPICAL DETAIL OF FOUNDATION WALL	SAGE ENGINEERING CONSULT Bhaktapur, Nepal	ENGINEER: _____ ARCHITECT: _____ DRAWN: _____ SCALE : 1: 120	ST-10	R-00 DWG CODE: 3S18R-MOUNTAINOUS

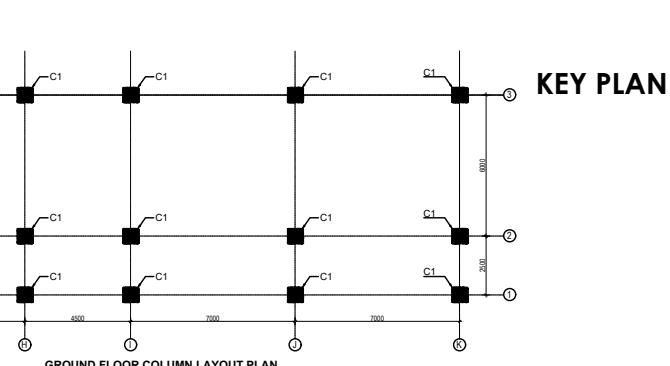
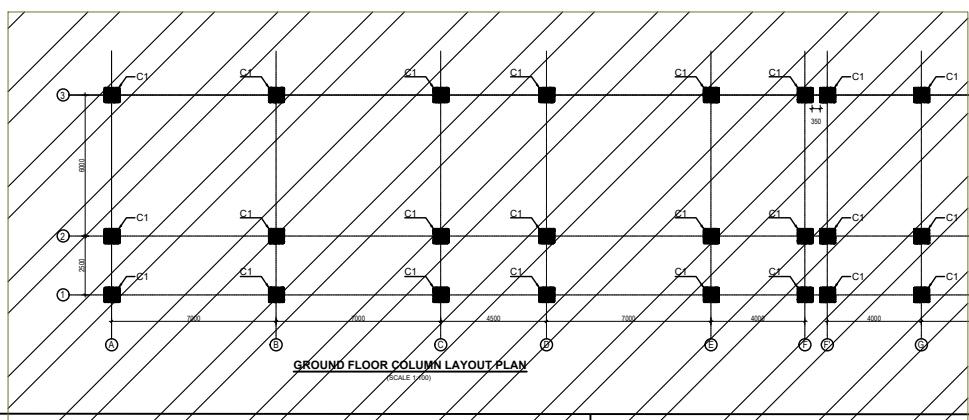


**GROUND FLOOR COLUMN LAYOUT PLAN**

(SCALE 1:100)

**COLUMN REINFORCEMENT DETAILS**

S. NO.	COLUMN	COLUMN SIZE	FLOOR					TIE BAR ORIENTATION
			GROUND FLOOR	FIRST FLOOR	SECOND FLOOR	THIRD FLOOR	TOP FLOOR	
1	C1	600X600	 • 16 NOS. -25mm $\varnothing$	 • 16 NOS. -25mm $\varnothing$	 • 16 NOS. -25mm $\varnothing$	 • 16 NOS. -25mm $\varnothing$	 • 16 NOS. -25mm $\varnothing$	  A: 10Ø100c/c & B:8Ø100c/c

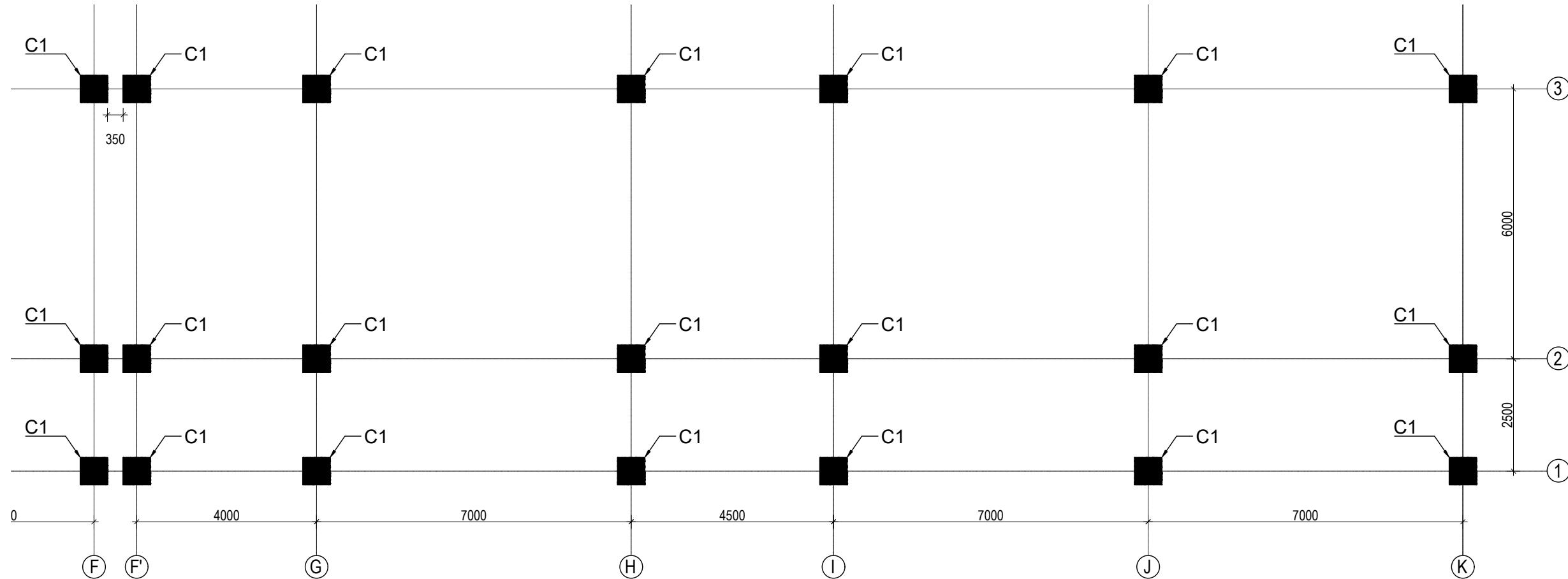


**KEY PLAN**

CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	HEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	COLUMN DETAIL	SAGE ENGINEERING CONSULT Bhaktapur, Nepal	ENGINEER: _____ ARCHITECT: _____ DRAWN: _____ SCALE : 1: 120	STRUCTURE ER. : CHECKED: _____ APPROVED: _____ PAPER SIZE : A3	ST-11 R-00

DWG CODE:  
3S18R-MOUNTAINOUS

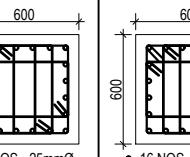
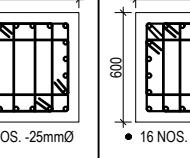
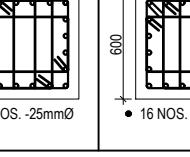
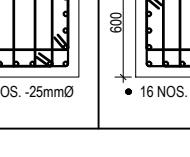
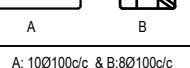
DATE: FEBRUARY, 2023



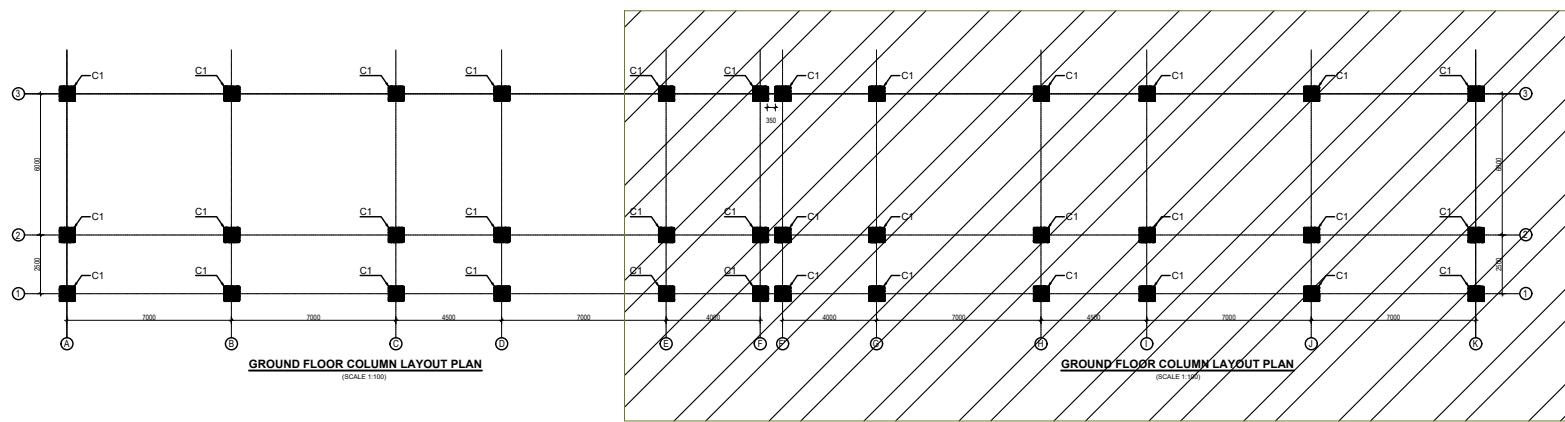
**GROUND FLOOR COLUMN LAYOUT PLAN**

(SCALE 1:100)

**COLUMN REINFORCEMENT DETAILS**

S. NO.	COLUMN	COLUMN SIZE	FLOOR				TIE BAR ORIENTATION
			GROUND FLOOR	FIRST FLOOR	SECOND FLOOR	THIRD FLOOR	
1	C1	600X600	 <ul style="list-style-type: none"> <li>• 16 NOS. -25mmØ</li> </ul>	 <ul style="list-style-type: none"> <li>• 16 NOS. -25mmØ</li> </ul>	 <ul style="list-style-type: none"> <li>• 16 NOS. -25mmØ</li> </ul>	 <ul style="list-style-type: none"> <li>• 16 NOS. -25mmØ</li> </ul>	  A: 100x100c/c & B: 80x100c/c

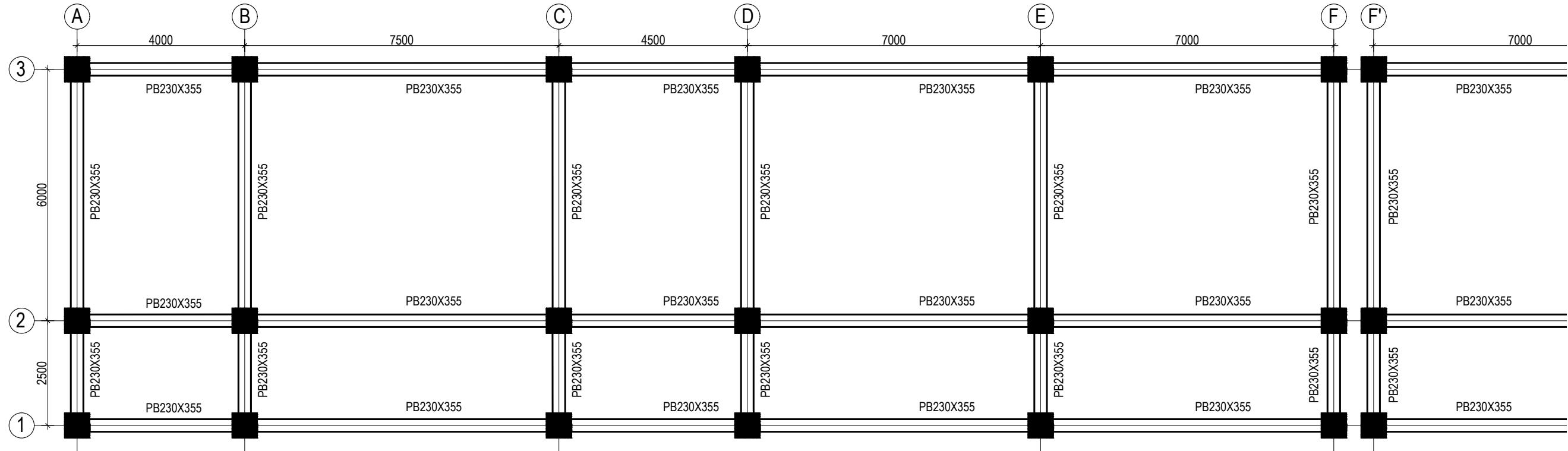
**KEY PLAN**



CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	COLUMN DETAIL	SAGE ENGINEERING CONSULT Bhaktapur, Nepal	ENGINEER: _____ ARCHITECT: _____ DRAWN: _____ SCALE : 1: 120	STRUCTURE ER. : CHECKED: _____ APPROVED: _____ PAPER SIZE : A3	ST-12 R-00

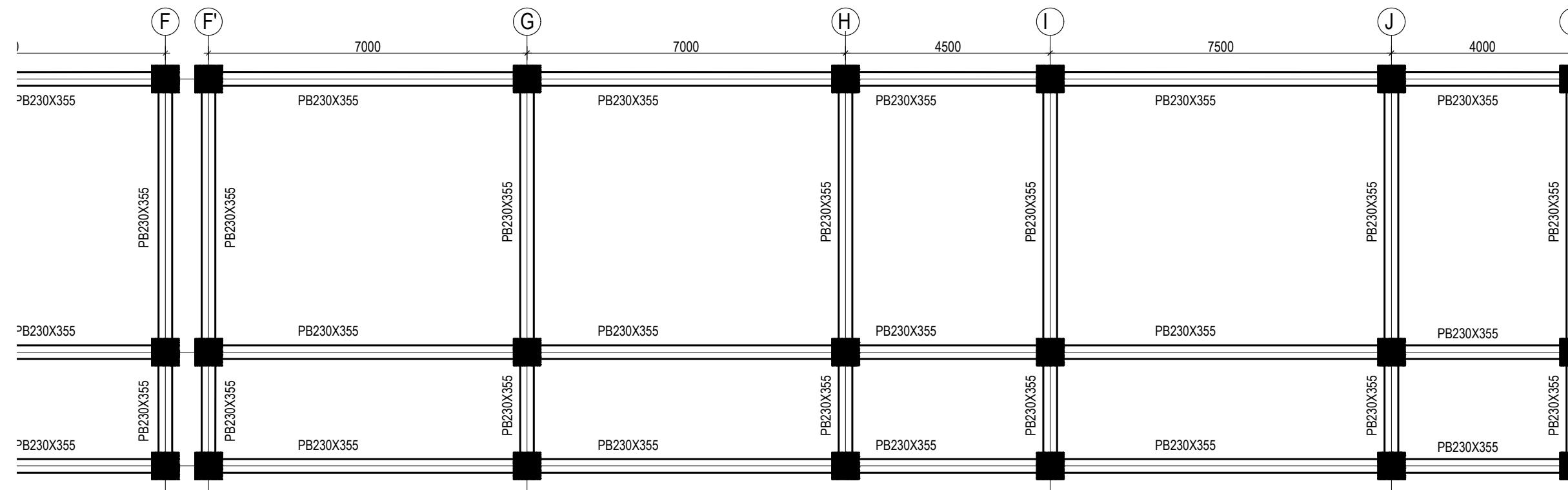
DWG CODE:  
3S18R-MOUNTAINOUS

DATE: FEBRUARY, 2023



PLINTH BEAM LAYOUT PLAN

(Scale= 1:100)  
LVL:- PL+0000



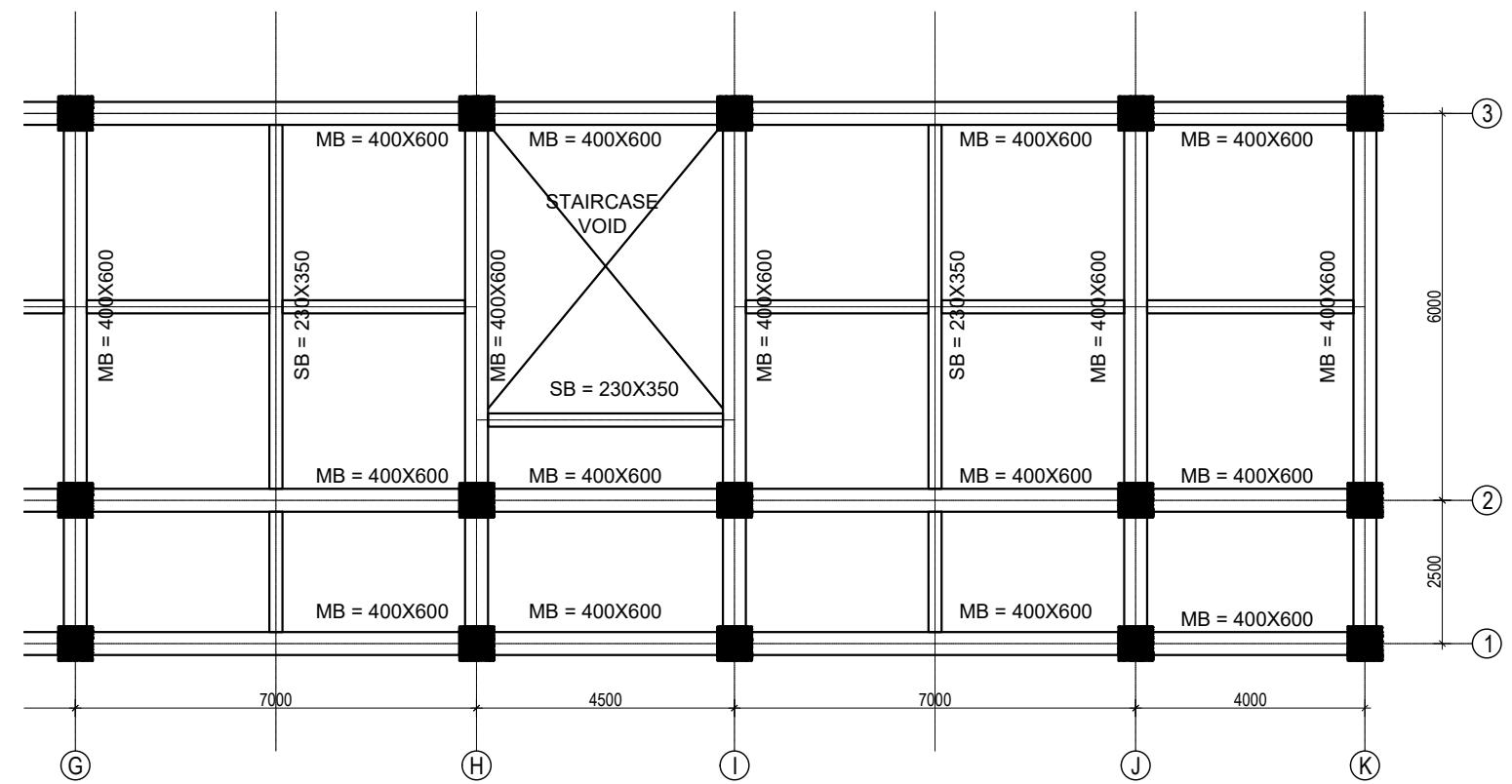
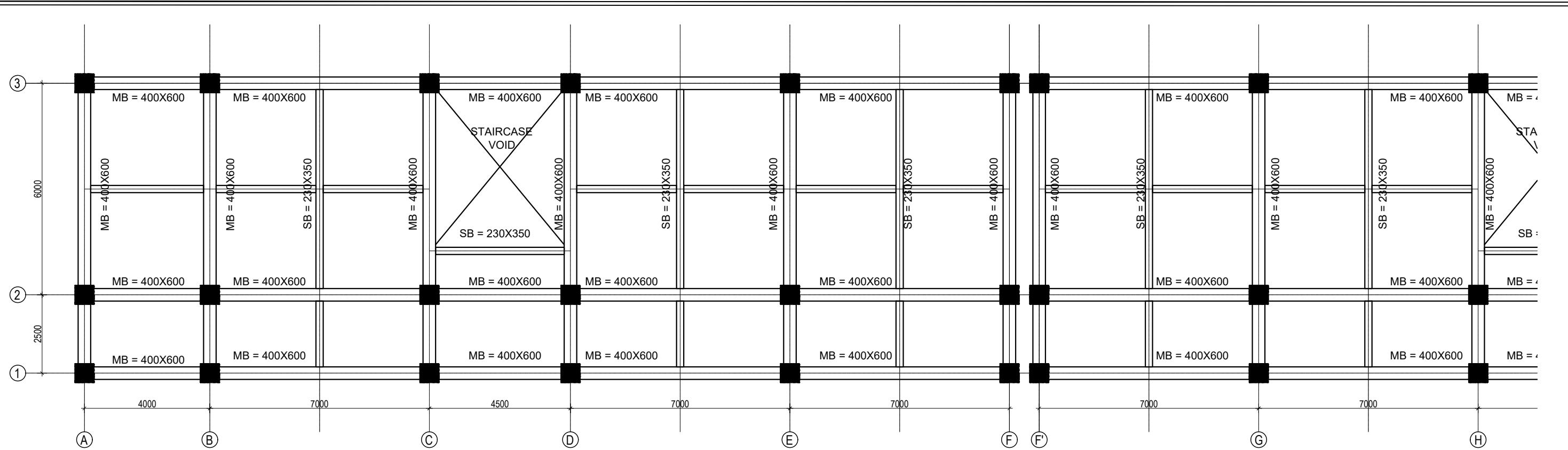
PLINTH BEAM LAYOUT PLAN

(Scale= 1:100)  
LVL:- PL+0000

CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	BEAM LAYOUT PLAN	SAGE ENGINEERING CONSULT Bhaktapur, Nepal	ENGINEER: _____ ARCHITECT: _____ DRAWN: _____ SCALE : 1: 120	ST-13	R-00

DWG CODE:  
 3S18R-MOUNTAINOUS

PAPER SIZE : A3 DATE: FEBRUARY, 2023



BEAM LAYOUT PLAN (FIRST, SECOND AND THIRD FLOOR)  
(Scale= 1:100)

CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	BEAM LAYOUT PLAN	SAGE ENGINEERING CONSULT Bhaktapur, Nepal	ENGINEER: _____ ARCHITECT: _____ DRAWN: _____ SCALE : 1: 120	ST-14	R-00

STRUCTURE ER. :  
CHECKED:  
APPROVED:  
PAPER SIZE : A3  
DATE: FEBRUARY, 2023

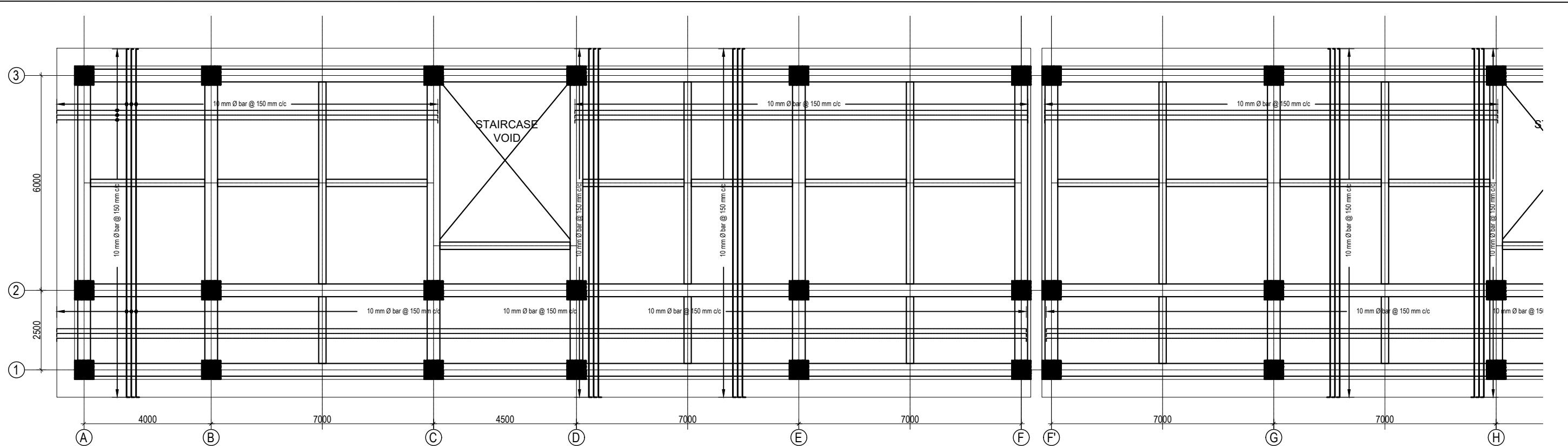
DWG CODE:  
3S18R-MOUNTAINOUS

**COLUMN REINFORCEMENT DETAILS**

S. NO.	GRID	BEAM SIZE	AT SUPPORT	AT MID	STIRRUPS BAR ORIENTATION	FLOOR LVL
1	1-1	400X600				FIRST FLOOR BEAMS
						SECOND FLOOR BEAMS
	A-A B-B C-C D-D E-E	400X600				REMAINING FLOOR BEAMS
3	Sec. beam	230X350				ALL FLOOR BEAMS

CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	BEAM DETAIL	SAGE ENGINEERING CONSULT Bhaktapur, Nepal	ENGINEER: _____ ARCHITECT: _____ DRAWN: _____ SCALE : 1: 120	STRUCTURE ER. : CHECKED: _____ APPROVED: _____ PAPER SIZE : A3	ST-15 R-00

 DWG CODE:  
 3S18R-MOUNTAINOUS



#### SLAB REINFORCEMENT DETAIL FOR TOP BARS

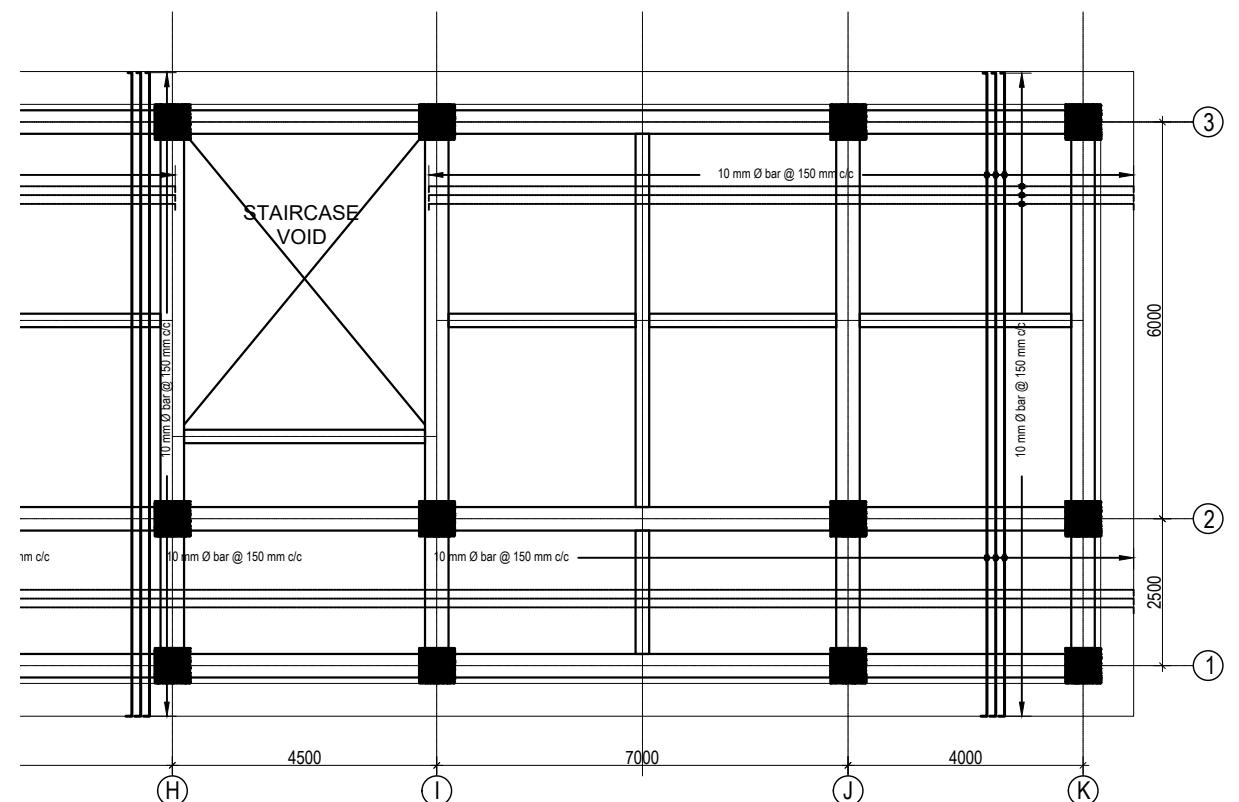
(GROUND, FIRST, SECOND AND THIRD FLOOR)

125 mm SLAB TH

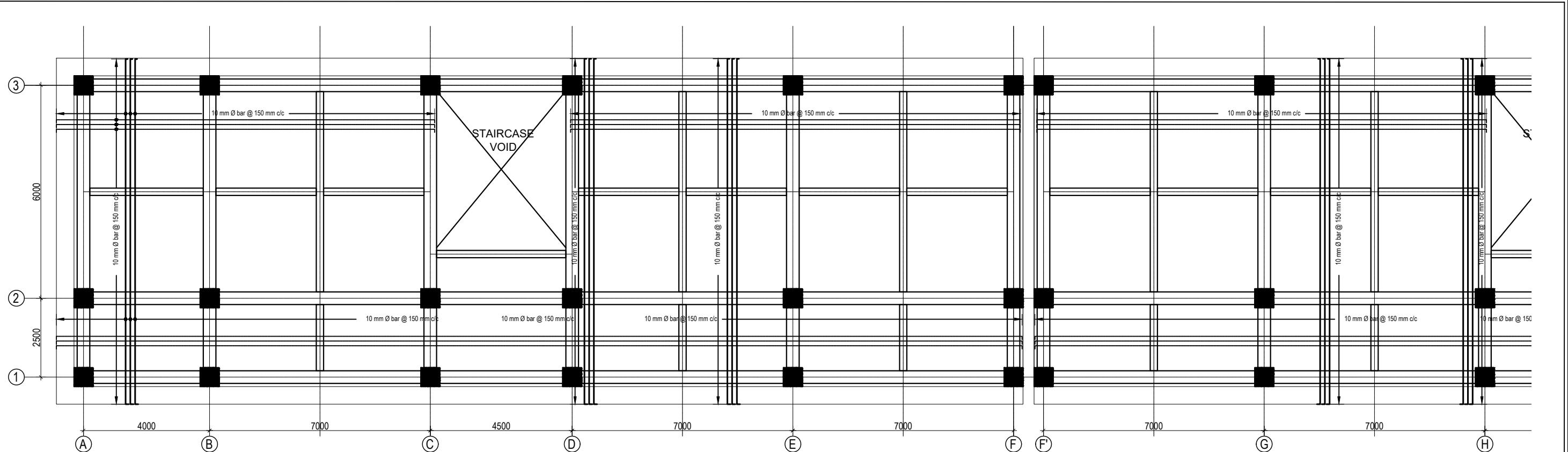
TOP REINFORCEMENT: a. FOR MAIN BEAM : 10Ø@150 mm c/c

b. FOR SECONDARY BEAM : 10Ø@200 mm c/c

(Scale= 1:120)



CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	SLAB REINFORCEMENT DETAIL	SAGE ENGINEERING CONSULT Bhaktapur, Nepal	ENGINEER: _____ ARCHITECT: _____ DRAWN: _____ SCALE : 1: 120	ST-16	R-00

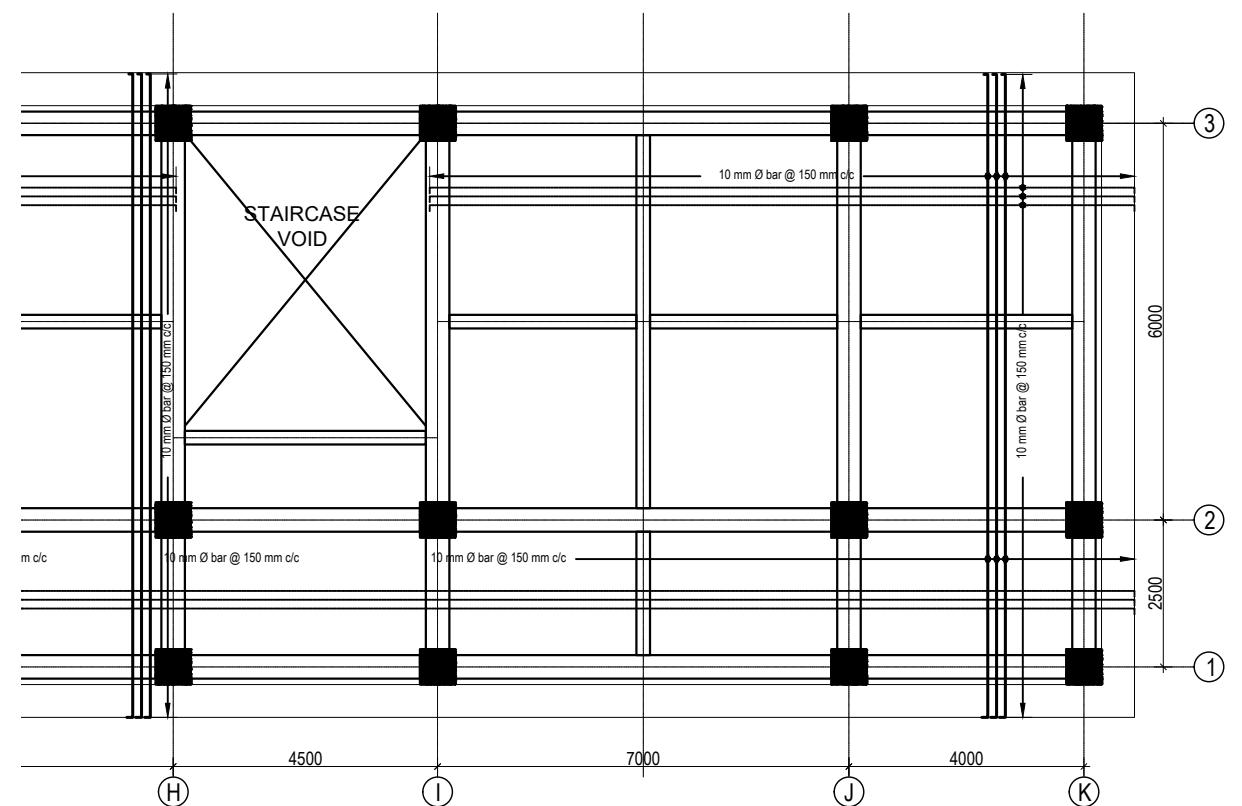


**SLAB REINFORCEMENT DETAIL FOR BOTTOM BARS**  
(GROUND, FIRST, SECOND AND THIRD FLOOR)

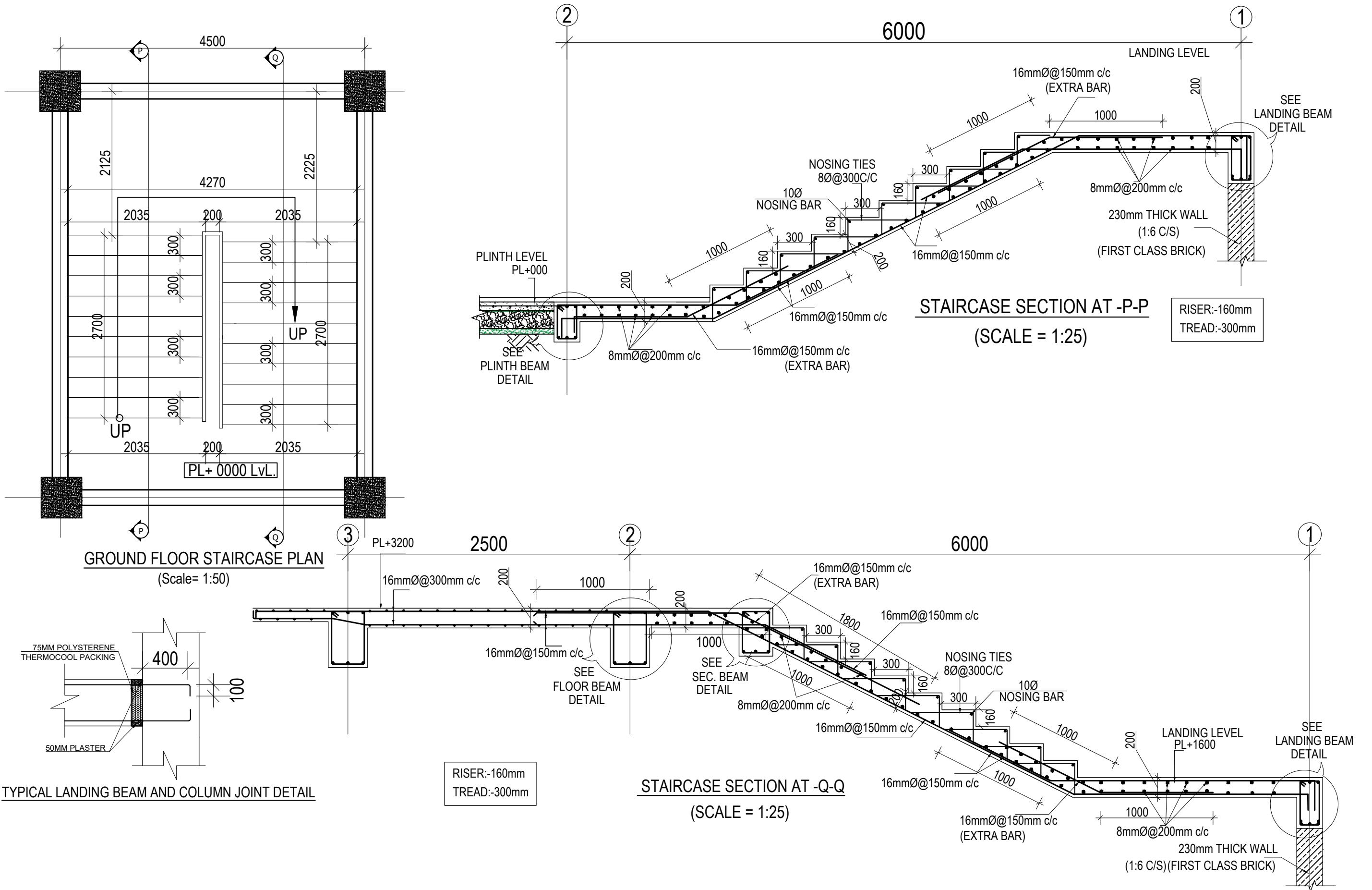
BOTTOM REINFORCEMENT: 80@150 mm c/c

(Scale= 1:120)

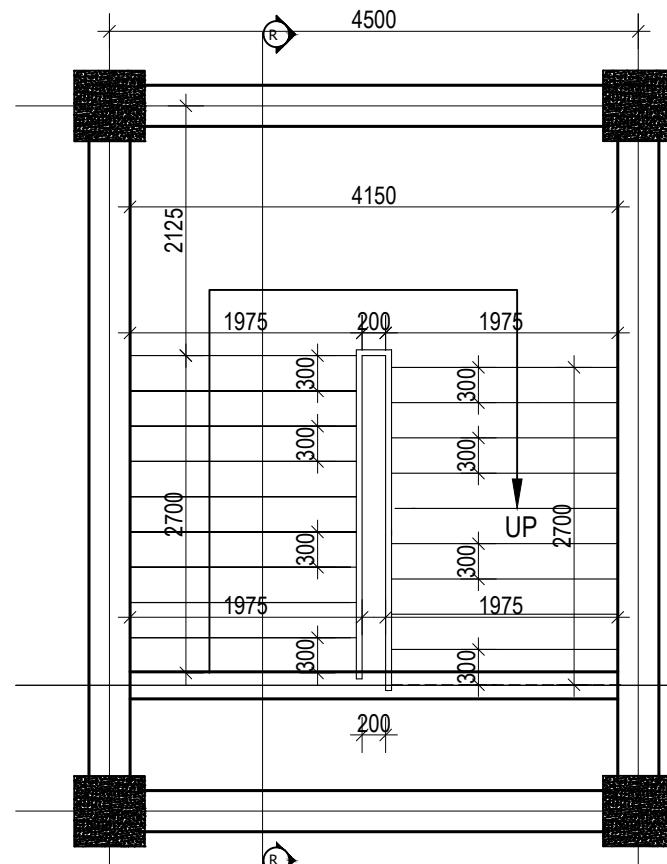
SLAB THICKNESS 125 mm



CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	SLAB REINFORCEMENT DETAIL	SAGE ENGINEERING CONSULT Bhaktapur, Nepal	ENGINEER: _____ ARCHITECT: _____ DRAWN: _____ SCALE : 1: 120	ST-17	R-00

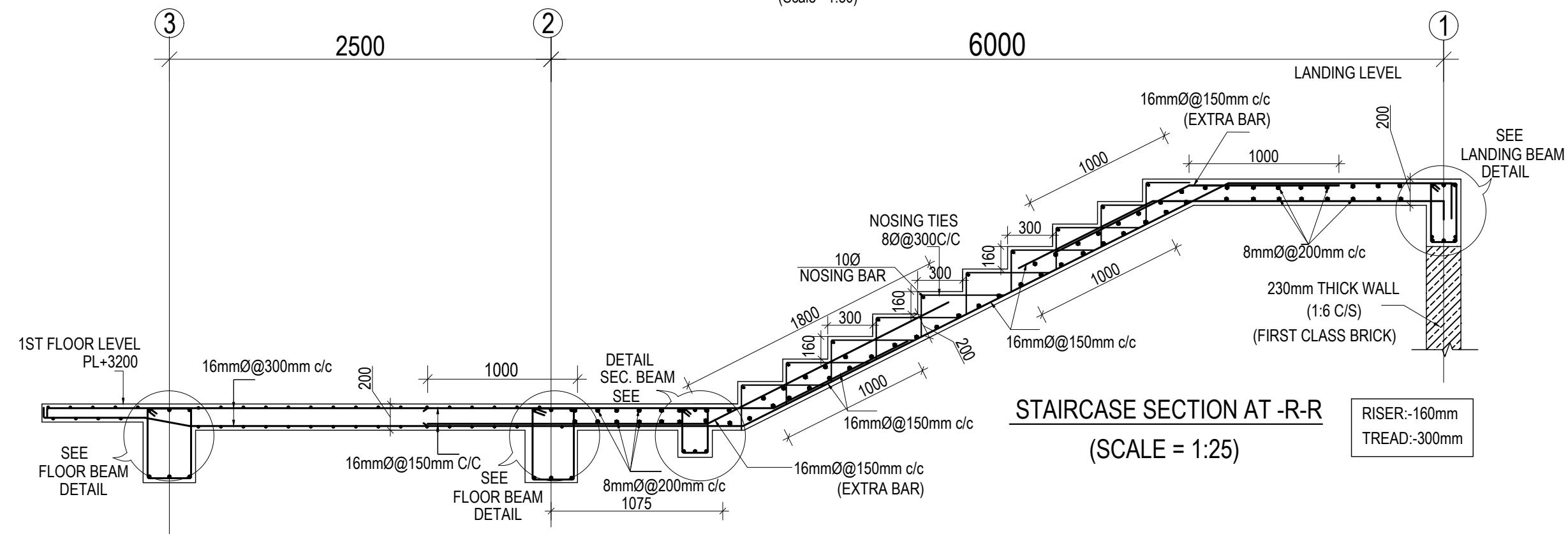


CLIENT		PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM		SHEET NO. ST-18	REVISION NO. R-00
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	STAIRCASE DETAIL	SAGE ENGINEERING CONSULT Bhaktapur, Nepal	ENGINEER: ARCHITECT: DRAWN: SCALE : 1: 120	STRUCTURE ER. : CHECKED: APPROVED: PAPER SIZE : A3	DATE: FEBRUARY, 2023	DWG CODE. 3S18R-MOUNTAINOUS	

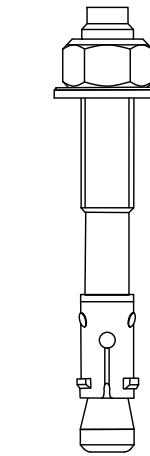
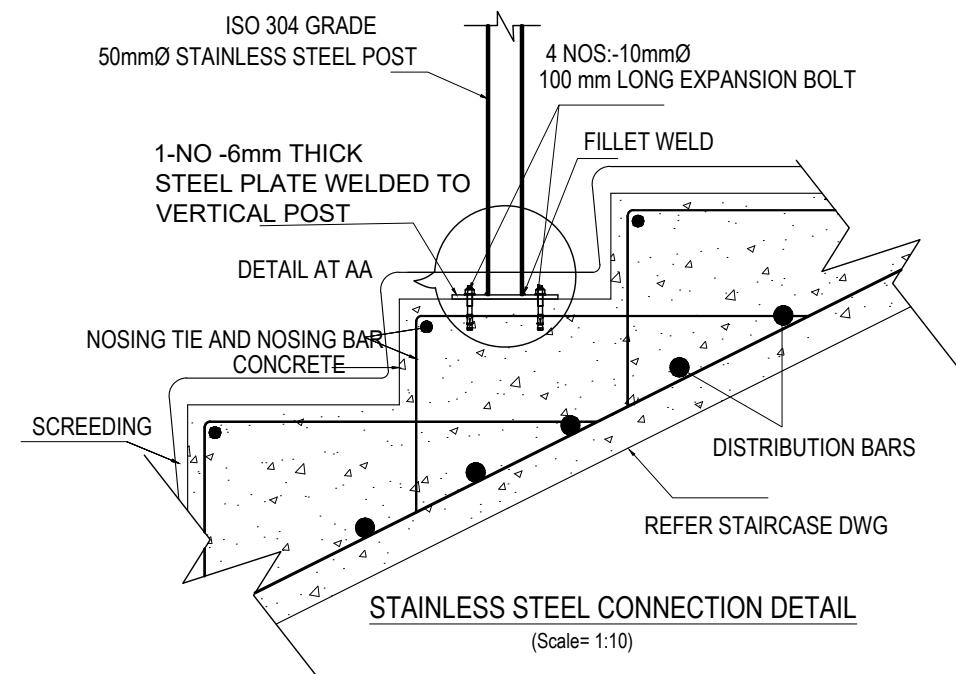


## TYPICAL FLOOR STAIRCASE PLAN

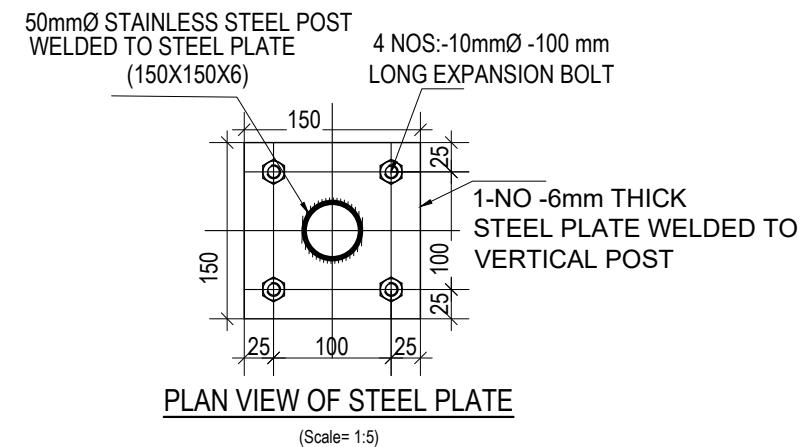
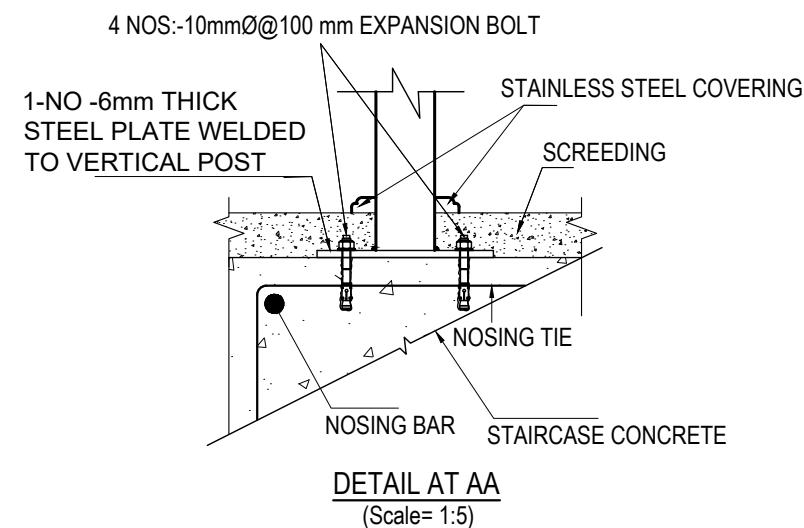
(Scale= 1:5)



CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM		SHEET NO. ST-19	REVISION NO. R-00
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	STAIRCASE DETAIL	SAGE ENGINEERING CONSULT Bhaktapur, Nepal	ENGINEER:	STRUCTURE ER. :		



**10mmØ-50 mm LONG EXPANSION BOLT**  
(Scale= 1:1)

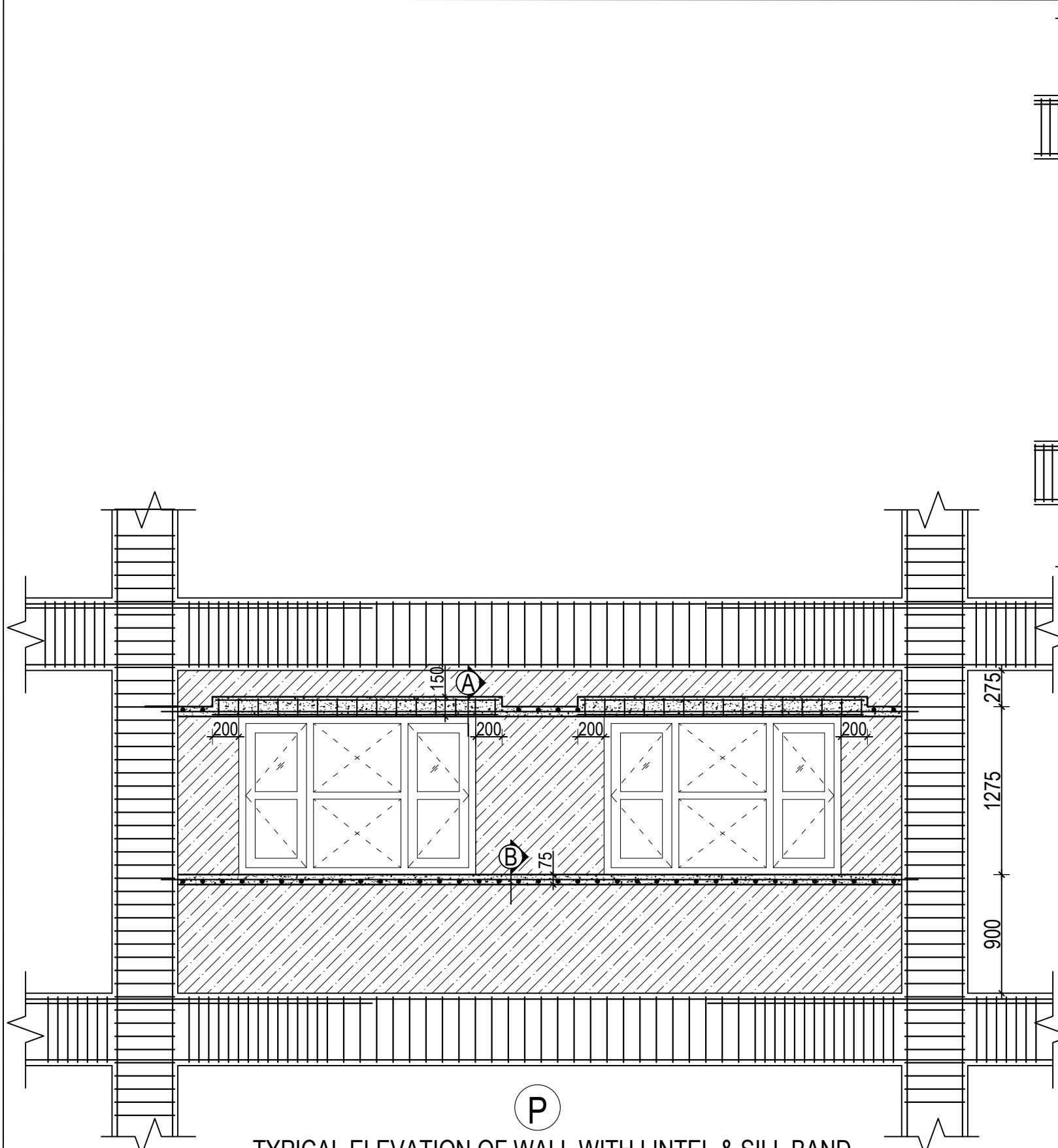


**NOTE:**

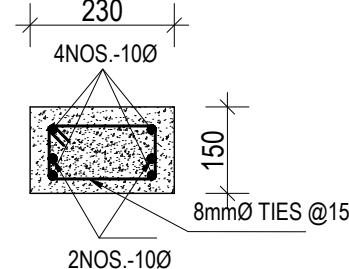
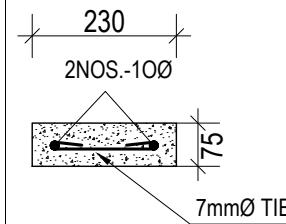
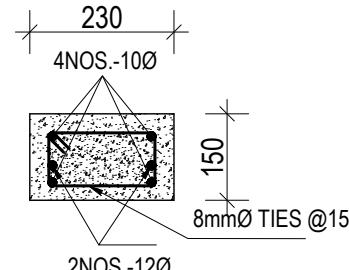
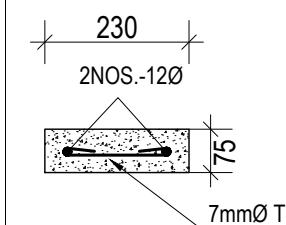
- 1) STAINLESS STEEL SHALL BE IN COMPLIANCE WITH ISO 304 GRADE
- 2) DRILLED HOLE SHALL BE PROPERLY CLEANED BEFORE EMBEDMENT OF BOLT

CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	STAIRCASE DETAIL	SAGE ENGINEERING CONSULT Bhaktapur, Nepal	ENGINEER: _____ ARCHITECT: _____ DRAWN : _____ SCALE : 1: 120	ST-20	STRUCTURE ER. : _____ CHECKED: _____ APPROVED: _____ PAPER SIZE : A3

**TYPICAL ELEVATION OF WALL WITH LINTEL & SILL BAND  
WITH WINDOWS**  
(Scale= 1:35)

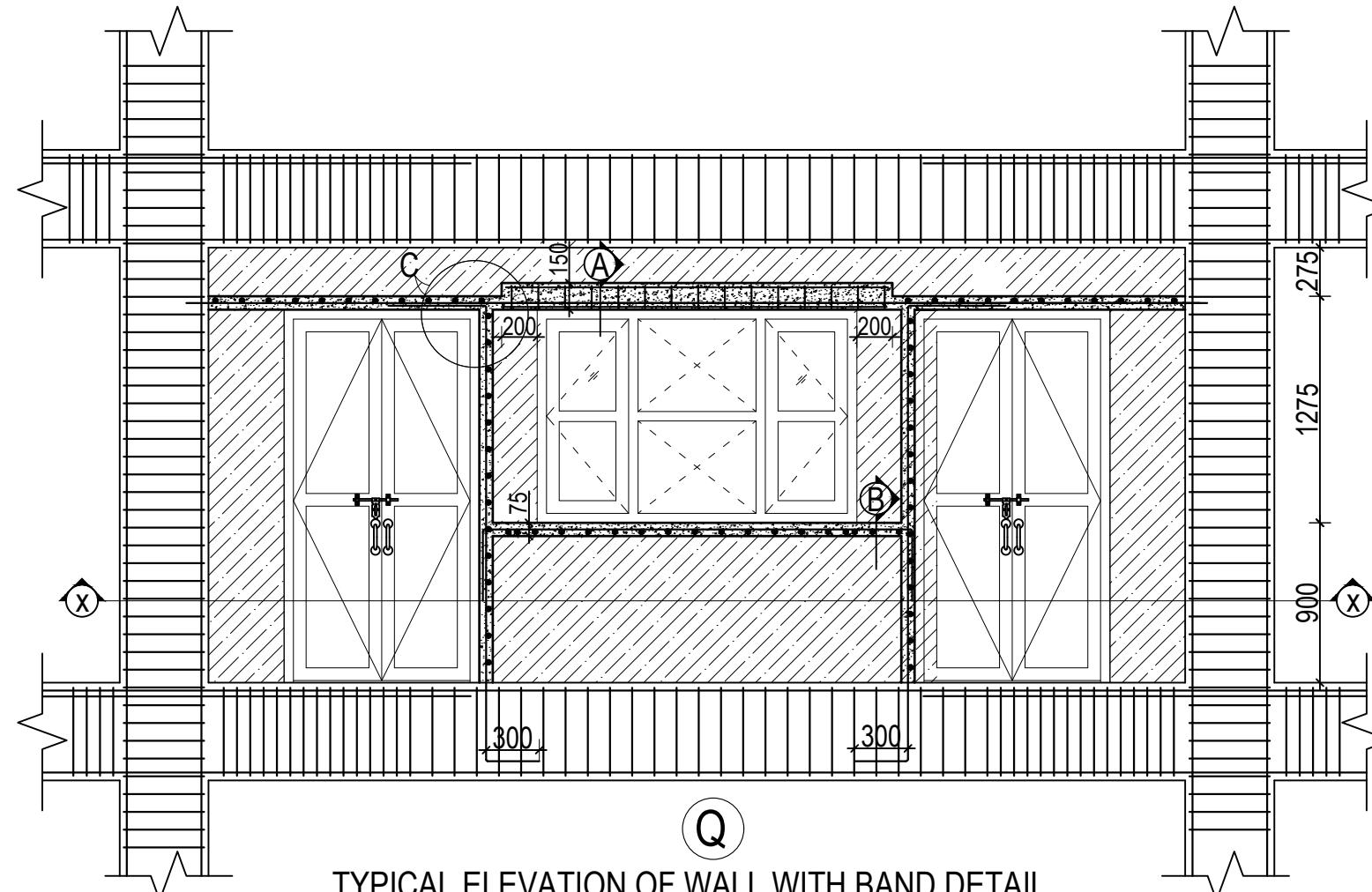


**TYPICAL ELEVATION OF WALL WITH BAND DETAIL  
WITHOUT OPENINGS**  
(Scale= 1:40)

SN.	FLOOR	SECTION AT A-A	SECTION AT B-B
1.	GROUND,FIRST & SECOND FLOOR	 <p>230 4NOS.-10Ø 8mmØ TIES @150mm c/c 2NOS.-10Ø</p>	 <p>230 2NOS.-10Ø 7mmØ TIES @150mm c/c</p>
2.	THIRD FLOOR	 <p>230 4NOS.-10Ø 8mmØ TIES @150mm c/c 2NOS.-12Ø</p>	 <p>230 2NOS.-12Ø 7mmØ TIES @150mm c/c</p>

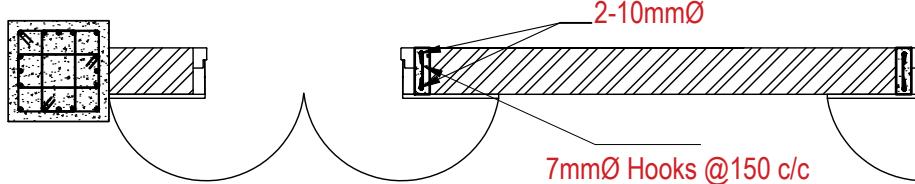
CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO.	REVISION NO.
 <p>Government of Nepal Ministry of Education, Science &amp; Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal</p>	<p>Prepare School Building Type Design for Mountainous Region</p>	<p>TYPICAL WALL DETAIL UPTO SECOND FLOOR</p>	<p>SAGE ENGINEERING CONSULT Bhaktapur, Nepal</p>	<p>ENGINEER: _____ ARCHITECT: _____ DRAWN: _____ SCALE : 1: 120</p>	<p>ST-21</p>	<p>R-00</p>

DWG CODE:  
3S18R-MOUNTAINOUS  
DATE: FEBRUARY, 2023

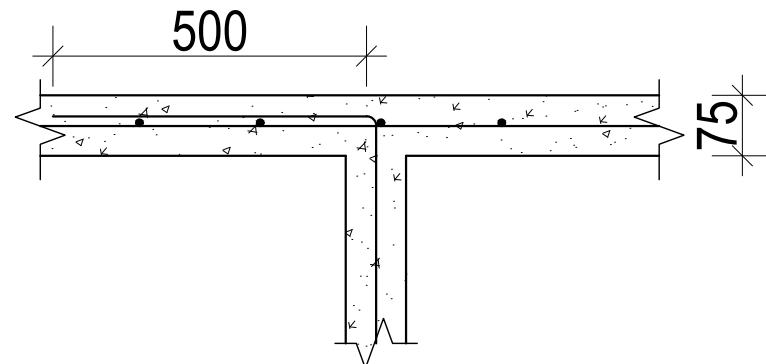


TYPICAL ELEVATION OF WALL WITH BAND DETAIL  
WITH DOORS AND WINDOWS

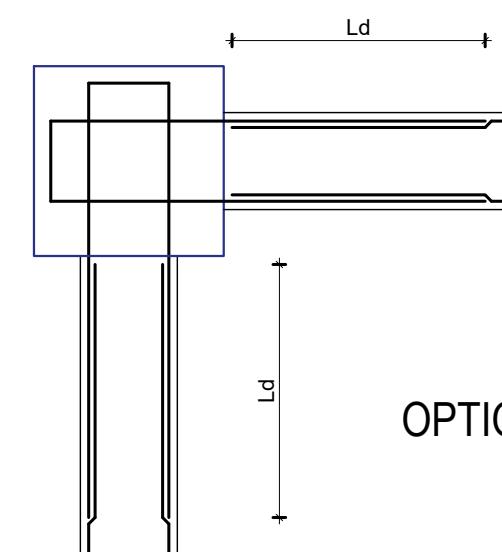
(Scale= 1:35)



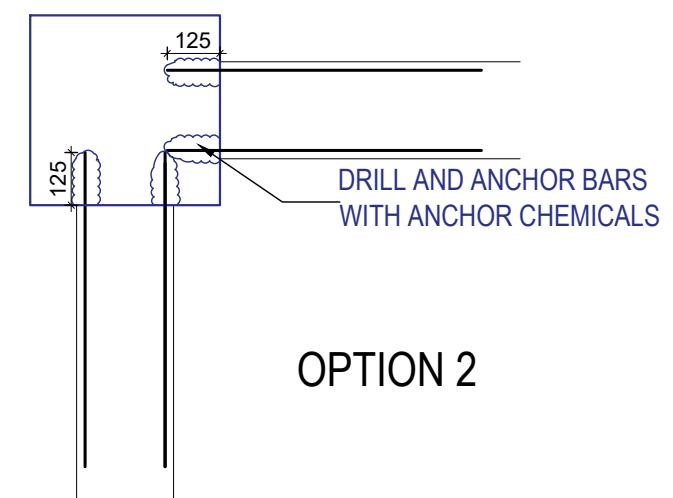
SECTION AT X-X



DETAIL AT C



OPTION 1



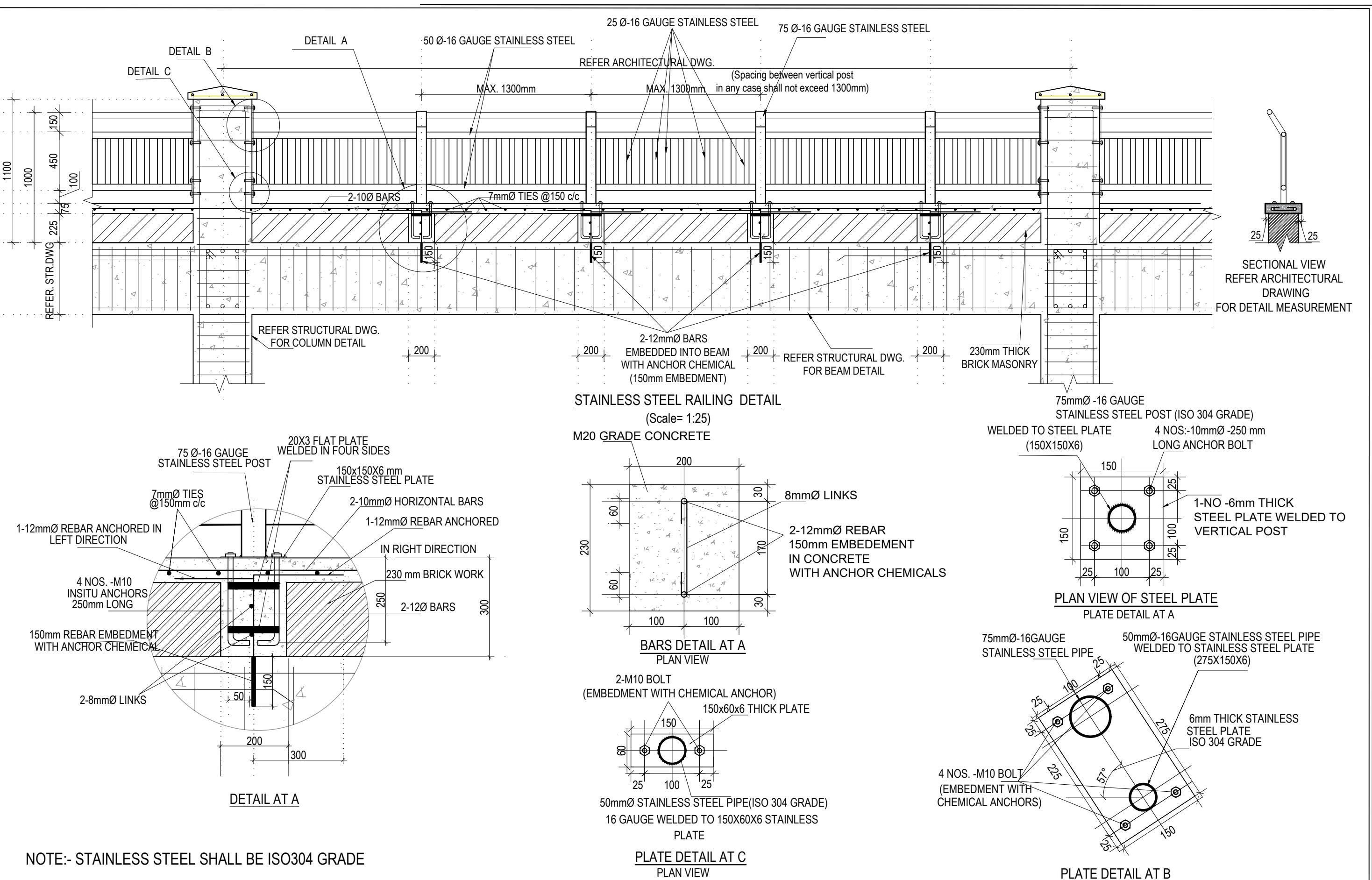
OPTION 2

CONNECTION OF BAND REBARS AND COLUMN

CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	TYPICAL WALL DETAIL UPTO SECOND FLOOR	SAGE ENGINEERING CONSULT Bhaktapur, Nepal	ENGINEER: _____ ARCHITECT: _____ DRAWN: _____ SCALE : 1: 120	ST-22	R-00

DWG CODE:  
3S18R-MOUNTAINOUS

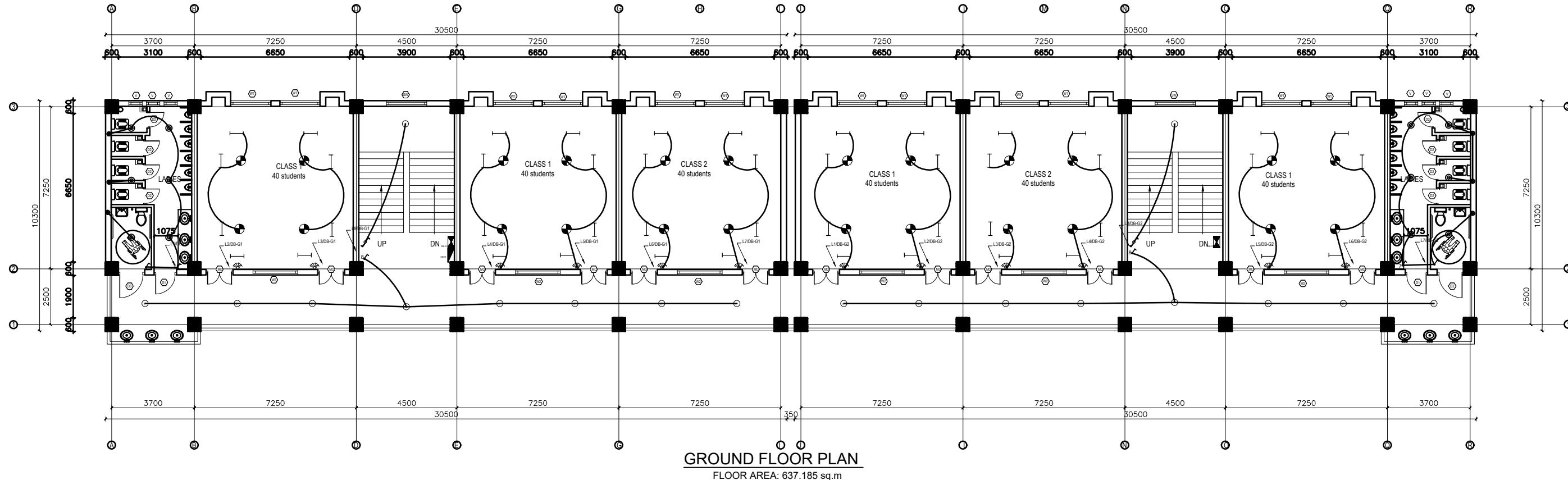
PAPER SIZE : A3 DATE: FEBRUARY, 2023



CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM		SHEET NO. ST-23	REVISION NO. R-00
				ENGINEER:	STRUCTURE ER.:		
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Mountainous Region	TYPICAL RAILING DETAILS	SAGE ENGINEERING CONSULT Bhaktapur, Nepal	ARCHITECT:	CHECKED:	DWG CODE. 3S18R-MOUNTAINOUS	
				DRAWN :	APPROVED:	SCALE : 1: 120	PAPER SIZE : A3
						DATE: FEBRUARY, 2023	

# **ELECTRICAL**

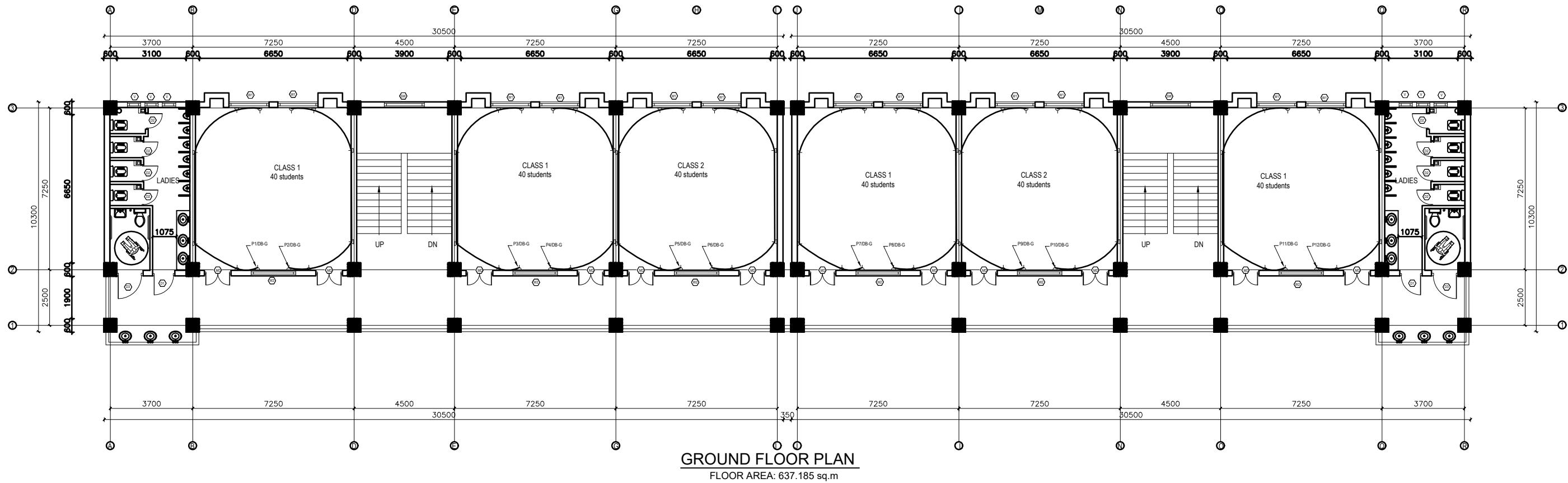
# **DRAWING**



LEGEND		
SYMBOL	DESCRIPTION	MOUNT HEIGHT
—	40 W Tubelight	Attached to wall
○	12W CFL Light Bulb	Attached to ceiling
●	42" Ceiling Fan	Attached to ceiling
△	Power Socket 300mm from finished floor level	
1,2,3 gang	1.25m above finished floor level	
4,5,6 gang	1.25m above finished floor level	
Two way	1.25m above finished floor level	
Distribution Box	2.5m above finished floor level	
MDB	1m above finished floor level	
9" Exhaust Fan	24" BELOW SLAB	

EARTHING & LIGHTNING PROTECTION SYSTEM		
SYMBOLS	DESCRIPTION	MOUNTING HEIGHT
Y	VERTICAL AIR TERMINAL	--
—	CLIP TO HOLD DOWN CONDUCTOR	--
■	EARTH TEST LINK	--
○	EARTH PIT	--

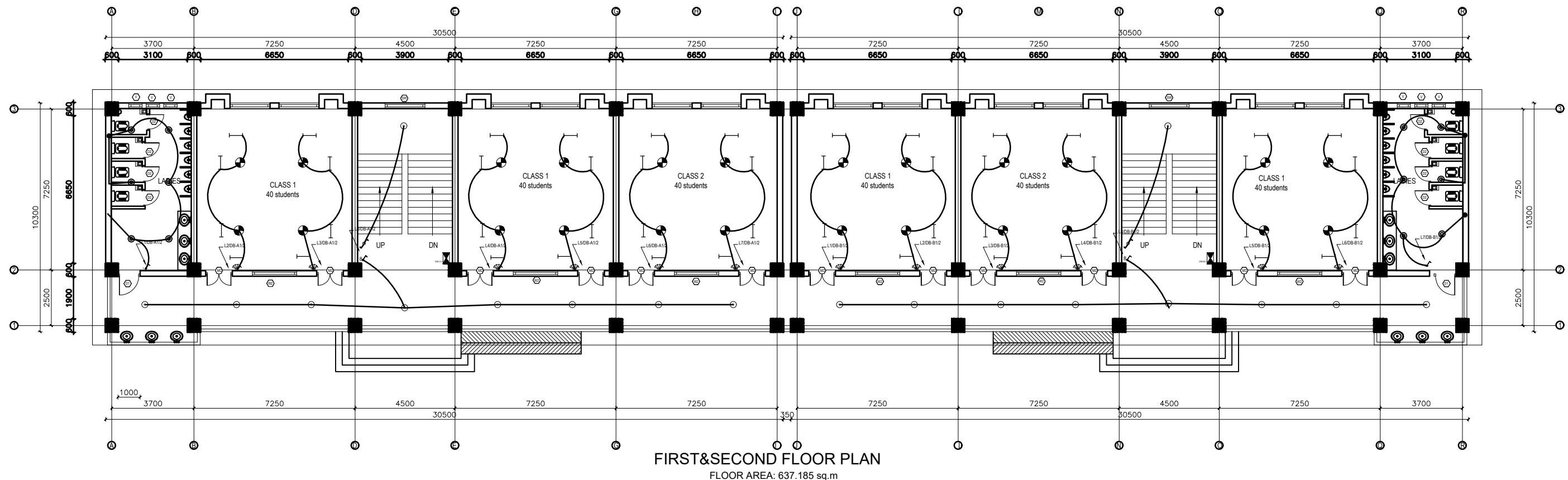
CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM		SHEET NO. 01	REVISION NO. R-00
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Terai and Valley Region	ELECTRICAL DRAWING	IDEAL SOLUTION PVT.LTD.	ENGINEER:	STRUCTURE ER. :		



LEGEND		
SYMBOL	DESCRIPTION	MOUNT HEIGHT
—	40 W Tubelight	Attached to wall
○	12W CFL Light Bulb	Attached to ceiling
●	42" Ceiling Fan	Attached to ceiling
△	Power Socket	300mm from finished floor level
1, 2, 3 gang Switch	1,2,3 gang Switch	1.25m above finished floor level
4, 5, 6 gang Switch	4,5,6 gang Switch	1.25m above finished floor level
Two way Switch	Two way Switch	1.25m above finished floor level
■	Distribution Box	2.5m above finished floor level
■	MDB	1m above finished floor level
■	9" Exhaust Fan	24" BELOW SLAB

EARTHING & LIGHTNING PROTECTION SYSTEM		
SYMBOLS	DESCRIPTION	MOUNTING HEIGHT
—	VERTICAL AIR TERMINAL	—
—	CLIP TO HOLD DOWN CONDUCTOR	—
—	EARTH TEST LINK	—
—	EARTH PIT	—

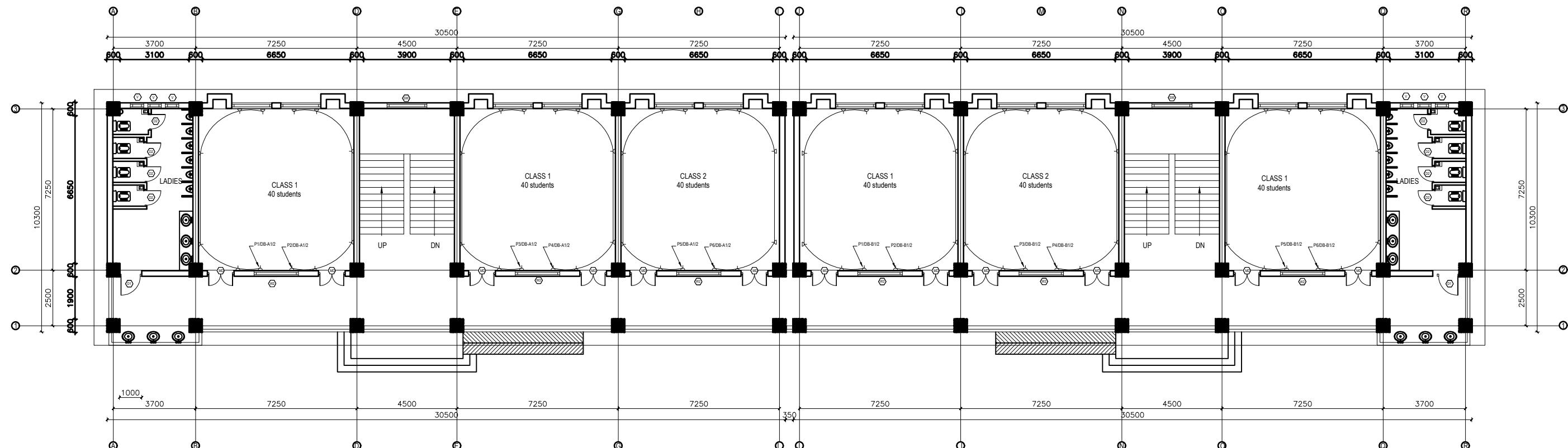
CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO.	REVISION NO.
Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Terai and Valley Region	ELECTRICAL DRAWING	IDEAL SOLUTION PVT.LTD.	ENGINEER: _____ ARCHITECT: _____ DRAWN: _____ SCALE : _____	STRUCTURE ER. : CHECKED: APPROVED: PAPER SIZE : A3	02 R-00
						DWG CODE. 3S12R



LEGEND		
SYMBOL	DESCRIPTION	MOUNT HEIGHT
—	40 W Tubelight	Attached to wall
○	12W CFL Light Bulb	Attached to ceiling
●	42" Ceiling Fan	Attached to ceiling
△	Power Socket	300mm from finished floor level
■	1,2,3 gang Switch	1.25m above finished floor level
■	4,5,6 gang Switch	1.25m above finished floor level
○	Two way Switch	1.25m above finished floor level
■	Distribution Box	2.5m above finished floor level
■	MDB	1m above finished floor level
■	9" Exhaust Fan	24" BELOW SLAB

EARTHING & LIGHTNING PROTECTION SYSTEM		
SYMBOLS	DESCRIPTION	MOUNTING HEIGHT
Y	VERTICAL AIR TERMINAL	--
—	CLIP TO HOLD DOWN CONDUCTOR	--
□	EARTH TEST LINK	--
⊕	EARTH PIT	--

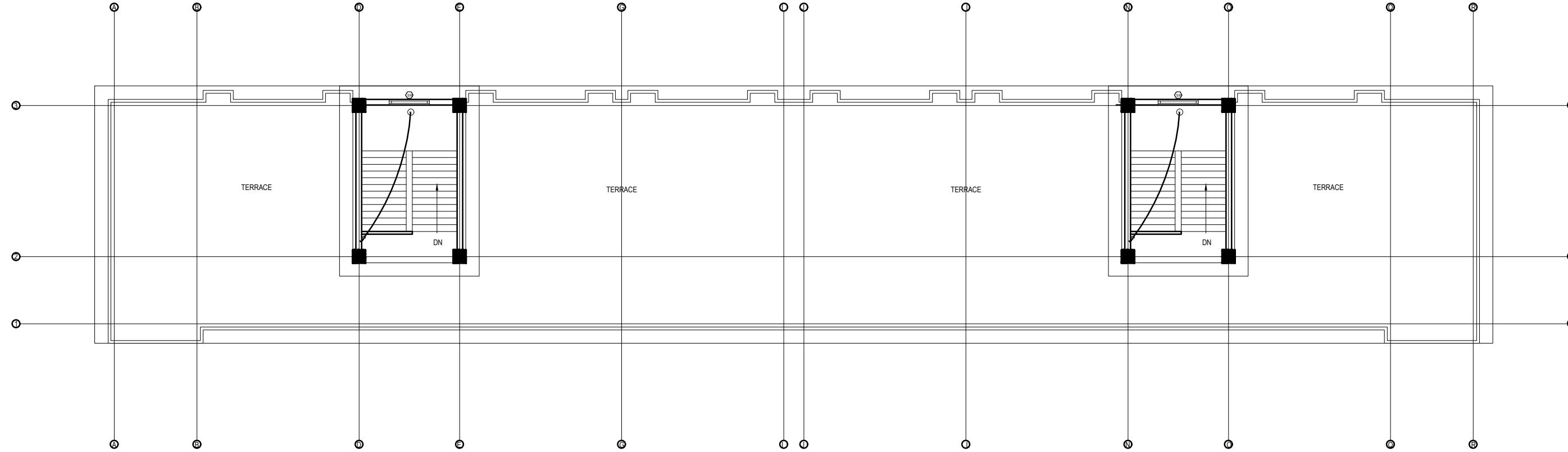
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 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Terai and Valley Region	ELECTRICAL DRAWING	IDEAL SOLUTION PVT.LTD.	ENGINEER:	STRUCTURE ER. :	03	R-00



LEGEND		
SYMBOL	DESCRIPTION	MOUNT HEIGHT
—	40 W Tubelight	Attached to wall
○	12WCFL Light Bulb	Attached to ceiling
●	42" Ceiling Fan	Attached to ceiling
□	Power Socket 300mm from finished floor level	
■	1,2,3 gang Switch 1.25m above finished floor level	
■	4,5,6 gang Switch 1.25m above finished floor level	
■	Two way Switch 1.25m above finished floor level	
■	Distribution Box 2.5m above finished floor level	
■	MDB 1m above finished floor level	
■	9"Exhaust Fan 24" BELOW SLAB	

EARTHING & LIGHTNING PROTECTION SYSTEM		
SYMBOLS	DESCRIPTION	MOUNTING HEIGHT
—	VERTICAL AIR TERMINAL	--
—	CLIP TO HOLD DOWN CONDUCTOR	--
—	EARTH TEST LINK	--
—	EARTH PIT	--

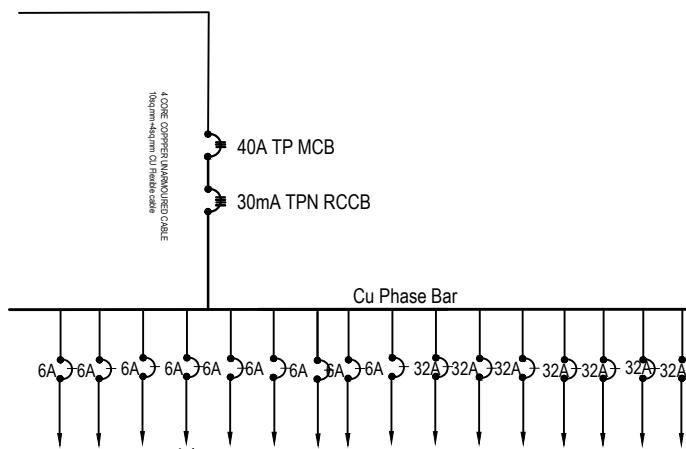
CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO.	REVISION NO.
Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Terai and Valley Region	ELECTRICAL DRAWING	IDEAL SOLUTION PVT.LTD.	ENGINEER: _____ ARCHITECT: _____ DRAWN : _____ SCALE : _____	STRUCTURE ER. : CHECKED: APPROVED: PAPER SIZE : A3	04 R-00
					DWG CODE. 3S12R	DATE: FEBRUARY, 2023



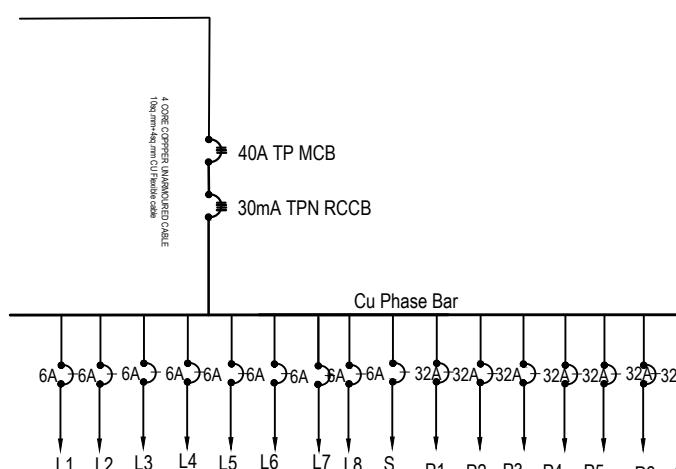
LEGEND		
SYMBOL	DESCRIPTION	MOUNT HEIGHT
—	40 W Tubelight	Attached to wall
○	12W CFL Light Bulb	Attached to ceiling
●	42" Ceiling Fan	Attached to ceiling
△	Power Socket	300mm from finished floor level
■	1,2,3 gang Switch	1.25m above finished floor level
■	4,5,6 gang Switch	1.25m above finished floor level
✓	Two way Switch	1.25m above finished floor level
■	Distribution Box	2.5m above finished floor level
■	MDB	1m above finished floor level
■	9" Exhaust Fan	24" BELOW SLAB

EARTHING & LIGHTNING PROTECTION SYSTEM		
SYMBOLS	DESCRIPTION	MOUNTING HEIGHT
---	VERTICAL AIR TERMINAL	--
■	CLIP TO HOLD DOWN CONDUCTOR	--
■	EARTH TEST LINK	--
⊕	EARTH PIT	--

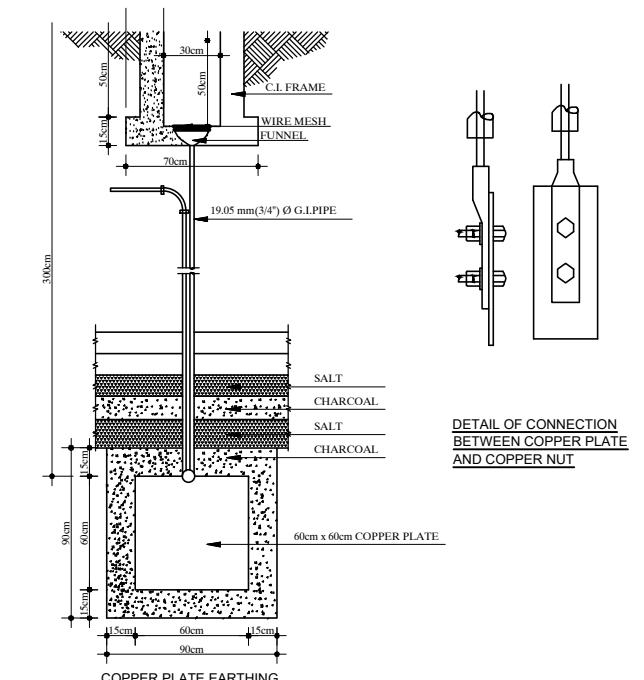
CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM		SHEET NO.	REVISION NO.
 Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Terai and Valley Region	ELECTRICAL DRAWING	IDEAL SOLUTION PVT.LTD.	ENGINEER:	STRUCTURE ER. :		



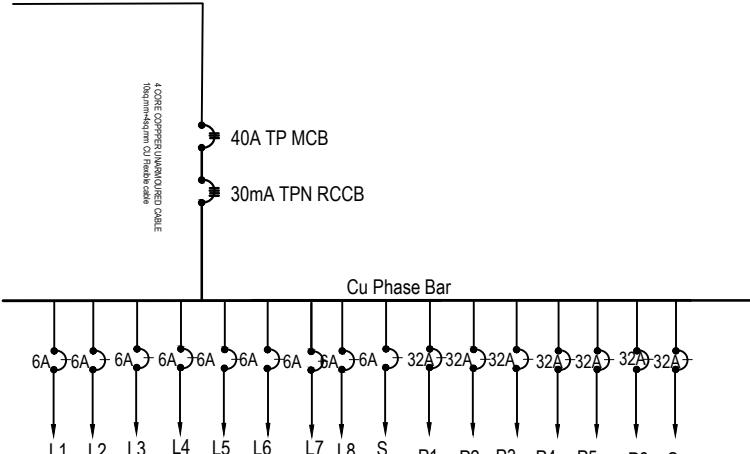
GROUND FLOOR L/P DISTRIBUTION SYSTEM (DB-G1)



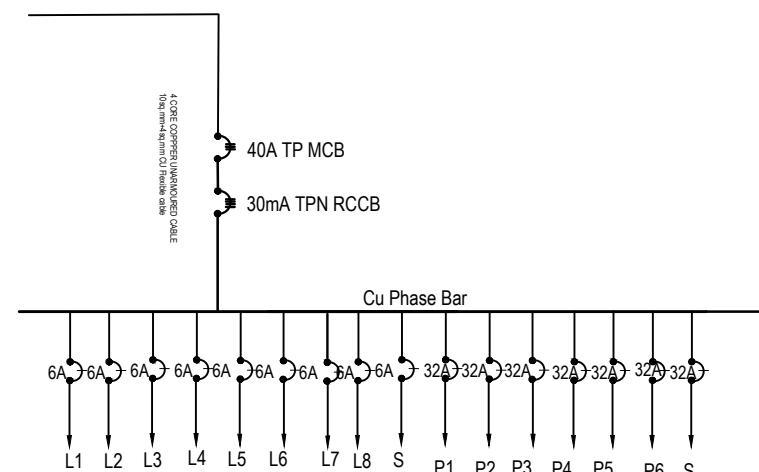
FIRST/SECOND FLOOR L/P DISTRIBUTION SYSTEM (DB-A1/2)



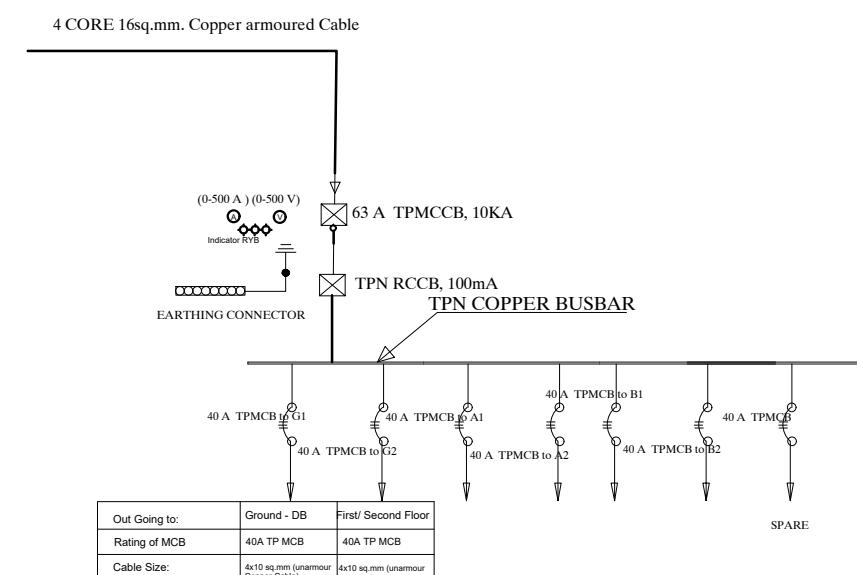
EARTHING DETAILS



GROUND FLOOR L/P DISTRIBUTION SYSTEM (DB-G2)



FIRST/SECOND FLOOR L/P DISTRIBUTION SYSTEM (DB-B1/2)



DETAILS OF Main -DB

CLIENT	PROJECT TITLE	SHEET TITLE	CONSULTANT	PLANNING DESIGN TEAM	SHEET NO.	REVISION NO.
Government of Nepal Ministry of Education, Science & Technology Center for Education and Human Resource Development Sanothimi, Bhaktapur, Nepal	Prepare School Building Type Design for Terai and Valley Region	ELECTRICAL DRAWING	IDEAL SOLUTION PVT.LTD.	ENGINEER: _____ ARCHITECT: _____ DRAWN : _____ SCALE : _____	STRUCTURE ER. : CHECKED: APPROVED: PAPER SIZE : A3	R-00

DWG CODE.  
**3S12R**

DATE: FEBRUARY, 2023

**INSTALLATION CONSIDERATION**

* The switch box should be at 200mm from the door and 1250mm above floor.
* General room socket height should be at 150mm above skirting wall.
* Kitchen socket height should be at 450mm above kitchen top.
* Toilet socket/switch should be at 1250mm above floor level and mirror light at 50 mm above mirror as per mirror size.
* Exhaust fan should be at 600mm below slab.
* Wall Light should be at 2100mm from floor level.

**CONDUIT SCHEDULE**

CABLE SIZES	NO OF MAXIMUM CABLE AND PVC FRLS CONDUIT SIZES					
	16 mm Dia.	20 mm Dia.	25 mm Dia.	32 mm Dia.	40 mm Dia.	50 mm Dia.
1.5 SQ. MM/Equivalent	5	7	10	14	---	---
2.5 SQ. MM/Equivalent	3	5	8	12	---	---
4.0 SQ. MM/Equivalent	--	3	6	10	12	--
6.0 SQ. MM/Equivalent	--	2	4	8	9	--
10 SQ. MM/Equivalent	--	--	3	6	8	--
16 SQ. MM/Equivalent	--	--	2	3	4	8

**CONVERSION TABLE**

INCHES	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2	3	3-1/2	4	5	6
mm	16	20	25	32	40	50	65	80	90	100	130	150

\* Unless and otherwise stated, all final circuits shall be wired with multistranded CU wires in PVC Conduit and shall confirm to the following schedule:

**WIRING SYSTEM**

Air Conditioner/Heater/Range/Appliances	CABLE/CONDUCTOR SIZE
RJ - 45 Data / TV Point	2x4.0 + 1x2.5 sq. mm copper wire
RJ -11 Telecommunication point	CAT 6 4 pairs Data cable
Telephone Point	CAT 6 4 pairs Data cable
Outdoor Gate/ Post Top/Street Lights/Flood Lights	0.5mm dia PVC Insulated Tinned Cu Cable
6 Amp switched outlet sockets	3 x 2.5 sq. mm copper M/S wire
16 Amp Power Sockets Points	2x2.5 + 1x1.5 sq. mm copper M/S wire
General Light Points (From DB to Switch Board)	2x4.0 + 1x2.5 sq. mm copper M/S wire
Looping of Light Points	2x2.5 + 1x1.5 sq. mm copper M/S wire
	2x1.5 + 1x1.0 sq. mm copper M/S wire

**NOTE**

\* Conduit Colors for Light/Power Circuit shall be Black, Security Wiring shall be Blue, Fire Alarm Wiring shall be Red, Low Voltage Circuits shall be Brown and UPS Circuits shall be Green.

\* L-N stands for Lighting Circuit, P-N for Power Circuit, AC-N for Air Condition, M/PC-N for Pump/Motor & Lp-N Light Outlet Circuit no.-N (Where N=1,2,3,...)

\* For Circuit no., see Distribution Details

\* Unless and otherwise stated, all final circuits shall be wired up by PVC CU M/S Wire in PVC Conduit and shall confirm to the following schedule:

Rating (Amp)	6	10	20	32	40	63
Wire (sq. mm)	1.5	2.5	4.0	6.0	10	16

\* Unless and otherwise stated, maximum of 8 light points shall be wired in a final single lighting circuit where a maximum of 3 power socket outlet shall be wired in single power circuit.

\* Unless and otherwise stated, all 16 A outlets with the same circuit no. shall be wired in ring circuit.

\* Electrical drawings are schematic only, scale: NTS, use as shown purpose, do not measure directly.

\* Contractor should coordinate with interior for exact location of fixtures

\* Run separate conduit for TV, TEL and PS wherever they are in matching places

\* All the Kitchen/Bathroom Power Circuits should be feed by RCCB with 100 mA sensitivity – see schematic details

\* All the cables and conductors shall be PVC insulated CU and shall confirm to the following color codes:

Neutral of AC 1/3 Phase	Black
Grounding/ Bounding/Earthing	Green
loop/common wire for 2 way switch	White
Live Phase A of 3 Phase	Red
Live Phase B of 3 Phase	Yellow
Live Phase C of 3 Phase	Blue

CLIENT

Government of Nepal  
Ministry of Education, Science & Technology  
Center for Education and Human Resource Development  
Sanothimi, Bhaktapur, Nepal

PROJECT TITLE

Prepare School Building Type Design for  
Terai and Valley Region

SHEET TITLE

ELECTRICAL DRAWING

CONSULTANT

IDEAL SOLUTION PVT.LTD.

PLANNING DESIGN TEAM

STRUCTURE ER. :  
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