

STRUCTURAL DESIGN

of 12 -CLASSROOM

SCHOOL(2022)

school building
department in
kirkuk

0000

Project Name

primary school(12classroom)

Designed by

Sheet Name

COVER

Approved by

Scale:

Date: Feb. 2022

Checked by

General Notes :

- All dimensions are in meter unless otherwise stated.
- All levels are in meter.
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- All ext. and int. walls build with concrete block .
- Buildings consist of 2 floors and penthouse for block1&2 and 1floor for block 3&4 .



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<div>school building department in kirkuk</div>	0001	Project Name	primary school(12classroom)	Designed by		General Notes : <ul style="list-style-type: none"> All dimensions are in meter unless otherwise stated. All levels are in meter. All dimensions and levels to be verified on site & approved by site engineer.). All ext. and int. walls build with concrete block . Buildings consist of 2 floors and penthouse for block1&2 and 1floor for block 3&4 . 	
		Sheet Name	INDEX	Approved by			
		Scale:	Date: Feb. 2022	Checked by			

General Notes For Site Engineer (Supervisor Engineer) :

1-Concrete compressive strength (F_{cu}) for 28 days= 25 N/mm^2

2-Yield strength (F_y) for steel bars= 400 N/mm^2

3-Concrete cover for :-

a-Footing =75mm.

b- Wall & column =40mm.

c- Beam =40mm.

d-Slab =25mm.

4-Maximum aggregate size = 20mm .

5- Soil layer under footings should be Well compacted.

6- Sub-base layer type (B) should be used under foundation with $\geq 95\%$ compaction degree from its dry density (M.P).

7- Sulphate resisting cement must be used in all concrete works in touch with soil under finish floor level .

8- Allowable Bearing capacity of soil under footing assumed to be 8 Ton/m^2 .

9-All surfaces of footing should be coated with tar .

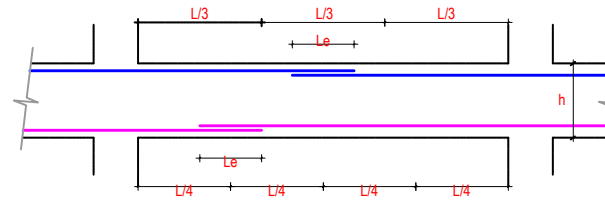
10-Fill materials should be clear from debris and un-wanted materials .

11-Clorideen for eradication for termite.

12-All materials must be tested before using and testing report should be kept in the project file for auditing .

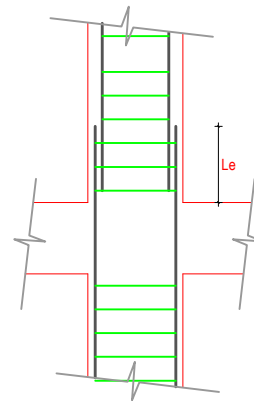
13-Footing Redesign Must be done if soil exploration show different bearing capacity.

Overlaps in Slab,Beams and Columns



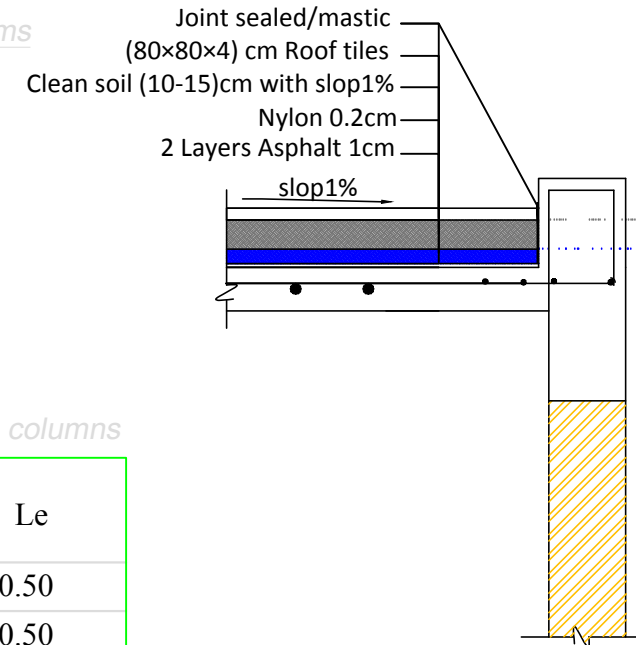
overlaps in Slab and beams

Ø	Le
10mm	40cm
12mm	50cm
16mm	65cm
20mm	80cm
25mm	100cm



Vertical overlaps in columns

Ø	Le
10mm	0.50
12mm	0.50
16mm	0.70
20mm	0.80
25mm	1.10



Typical Last Roof Details

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0002

Project Name primary school(12classroom)

Sheet Name **GENERAL NOTE**

Scale: Date: Feb. 2022

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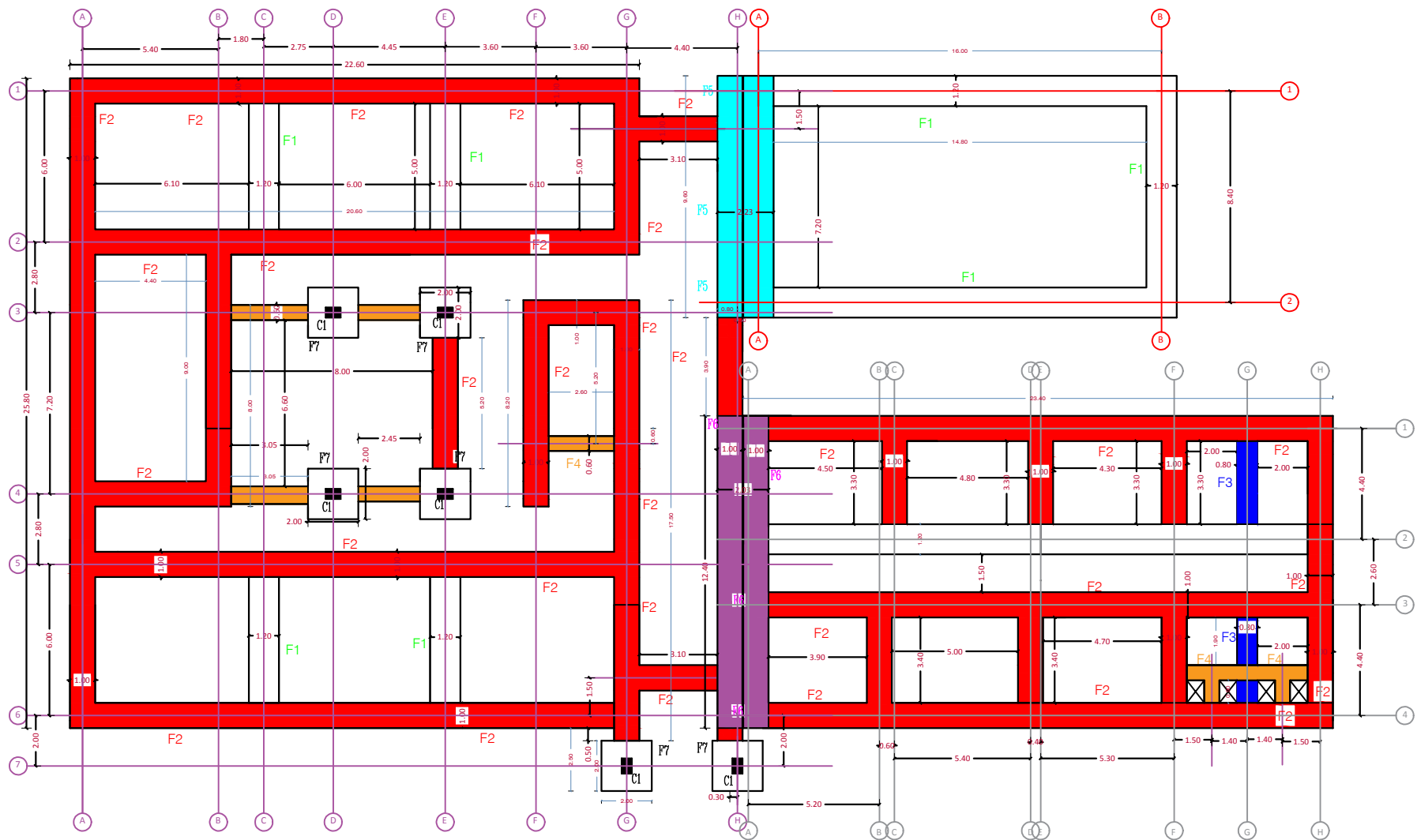
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0004

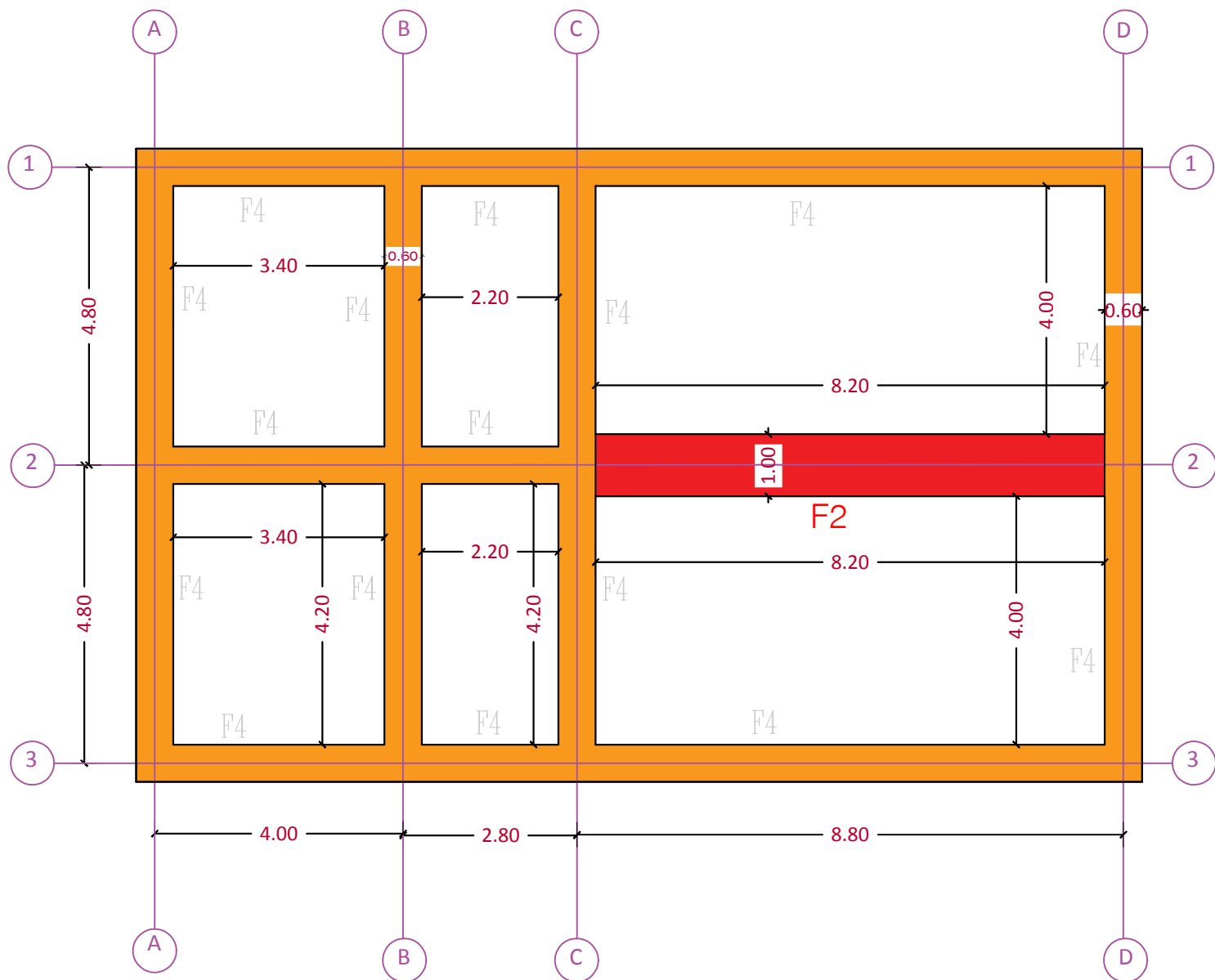
Project Name	primary school(12classroom)
Sheet Name	FOUNDATION PLAN (block1,2,3)
Scale:	Date: Feb. 2022

Designed by
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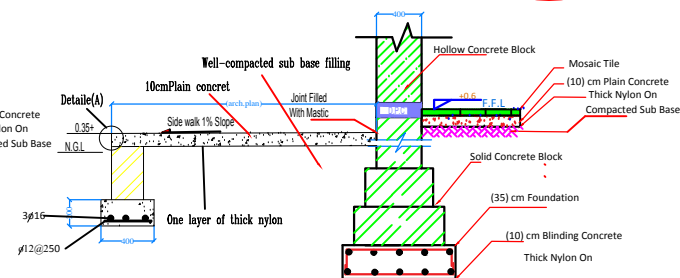
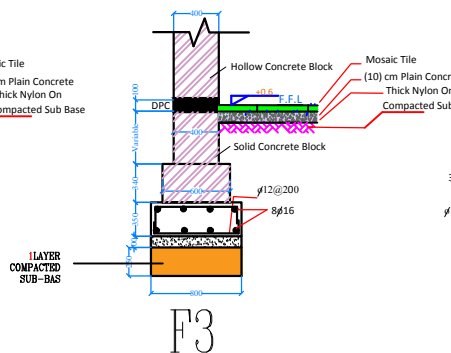
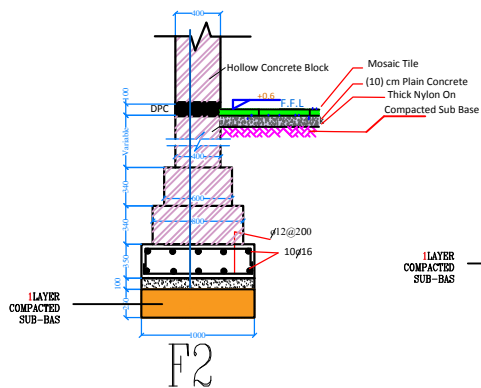
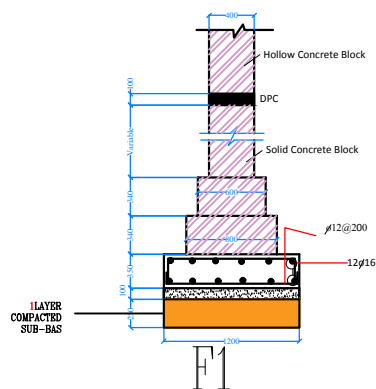
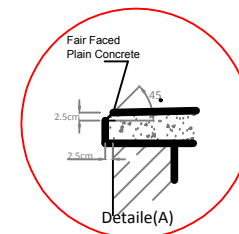
0005

Project Name	primary school(12classroom)	Designed by	
Sheet Name	FOUNDATION PLAN (block 04)	Approved by	
Scale:	Date: Feb. 2022	Checked by	

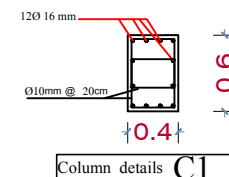
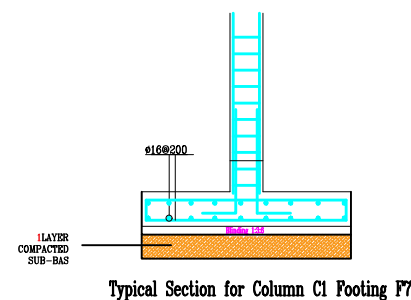
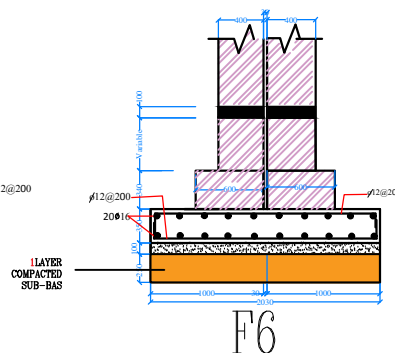
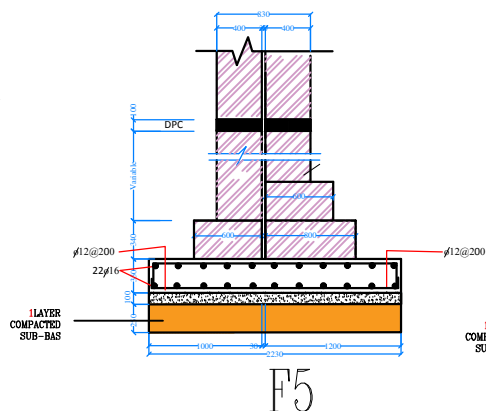
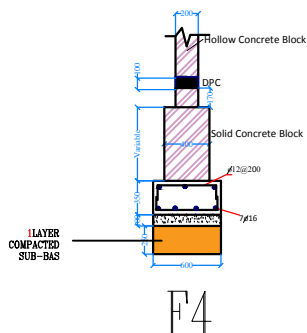
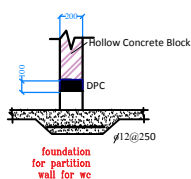
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Typical Detail for Side Walk



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0006

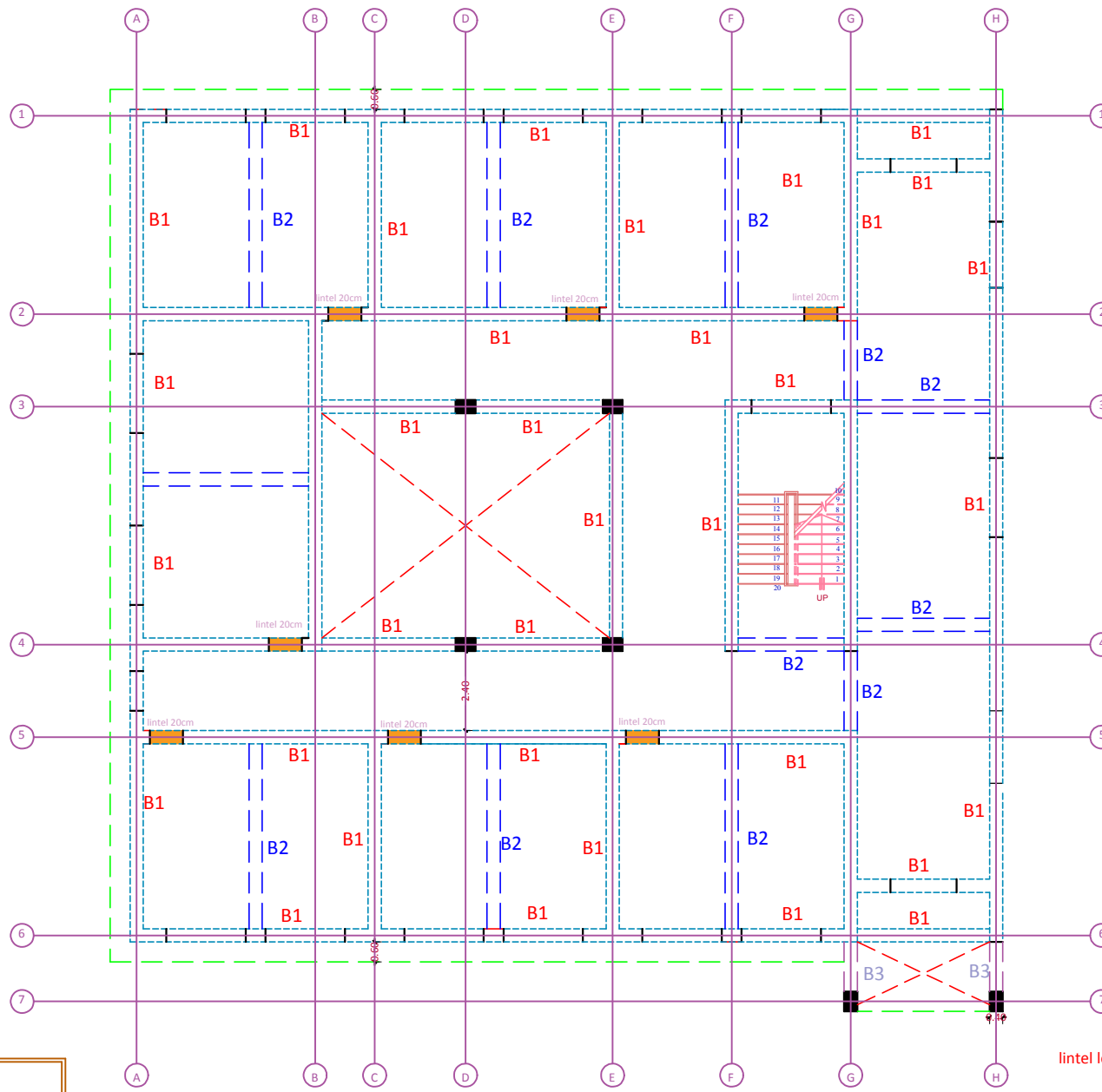
Project Name	primary school(12classroom)
Sheet Name	FOUNDATION DETAILS
Scale:	Date: Feb. 2022

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General Notes :

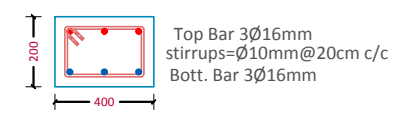
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BEAM SECTIONS			
B1(type01)		B1(type02)	
h=600mm	b=400mm	h=600mm	b=400mm
Top Bar 3Ø16mm	Bott. Bar 5Ø16mm	Top Bar 3Ø16mm	Bott. Bar 5Ø16mm
stirrups=Ø10mm@20cm c/c		stirrups=Ø10mm@20cm c/c	

BEAM SECTIONS			
B2		B3	
h=380mm	b=400mm	h=600mm	b=400mm
Top Bar 3Ø20mm	Bott. Bar 5Ø20mm	Top Bar 3Ø16mm	Bott. Bar 5Ø16mm
stirrups=Ø10mm@20cm c/c		stirrups=Ø10mm@20cm c/c	



lintel length=opening length+2(1.5*wall width)

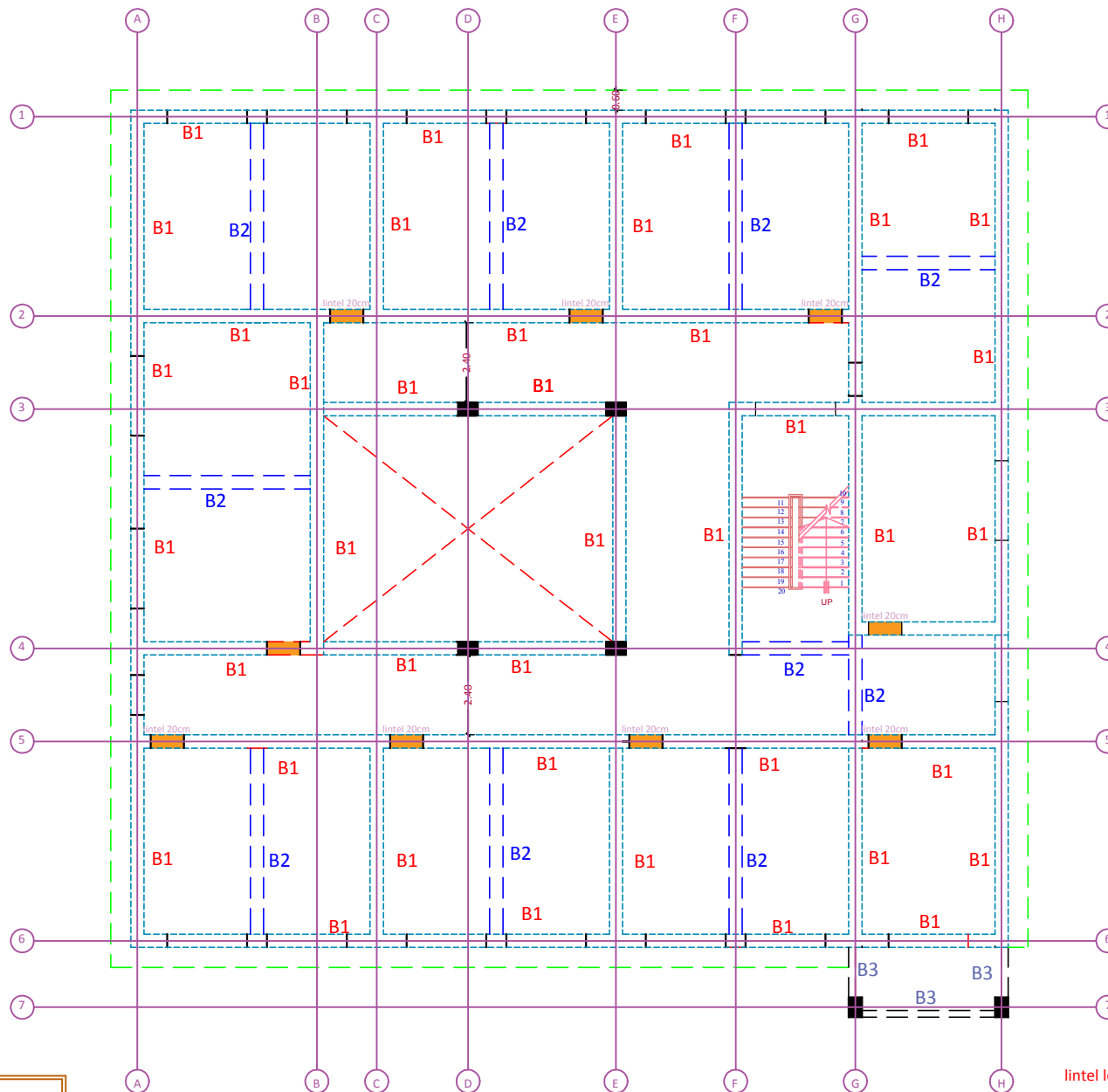
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0007

Project Name	primary school(12classroom)	Designed by	
Sheet Name	Ground floor beam&lintel (BLOCK01)	Approved by	
Scale:	Date: Feb. 2022	Checked by	

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--





BEAM SECTIONS			
B1(type01)		B1(type02)	
h=600mm	b=400mm	h=600mm	b=400mm
Top Bar 3Ø16mm	Bott. Bar 5Ø16mm	Top Bar 3Ø16mm	Bott. Bar 5Ø16mm
stirrups=Ø10mm@20cm c/c		stirrups=Ø10mm@20cm c/c	

BEAM SECTIONS			
B2		B3	
h=380mm	b=400mm	h=600mm	b=200mm
Top Bar 3Ø20mm	Bott. Bar 5Ø20mm	Top Bar 2Ø16mm	Bott. Bar 3Ø16mm
stirrups=Ø10mm@20cm c/c		stirrups=Ø10mm@20cm c/c	



lintel length=opening length+2(1.5*wall width) width)

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0008

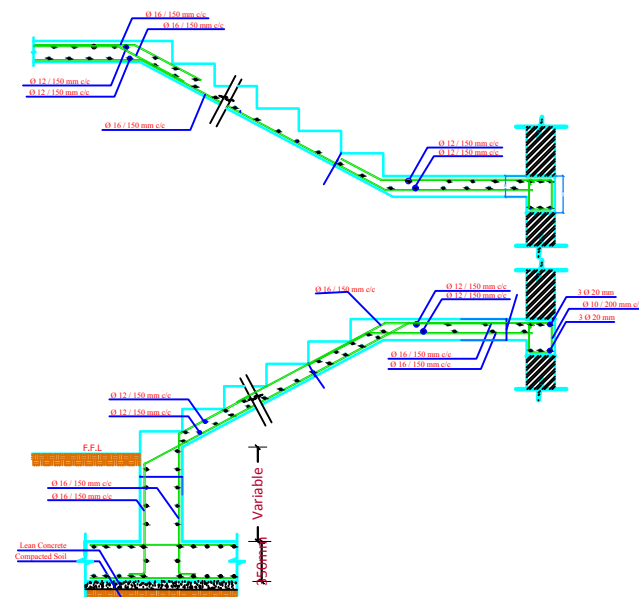
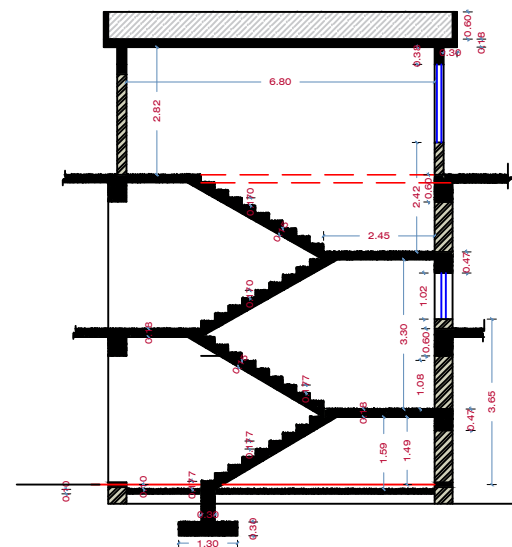
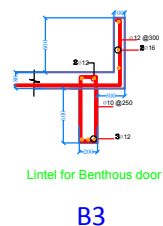
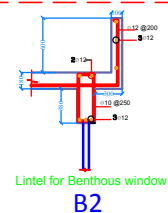
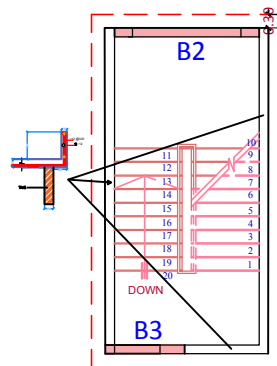
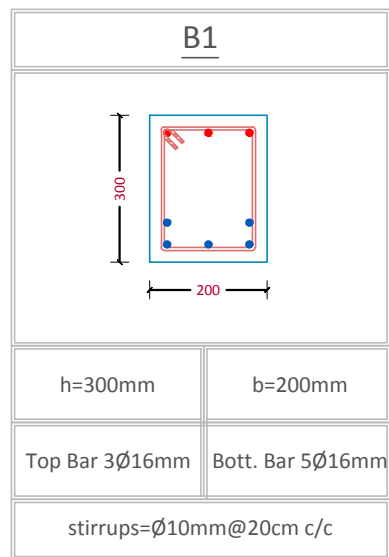
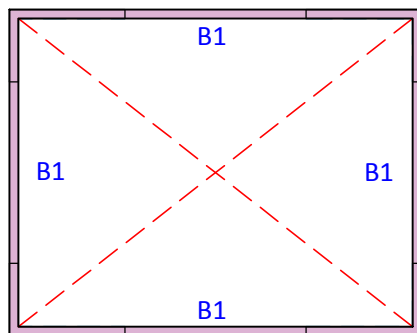
Project Name primary school(12classroom)
Sheet Name First floor beam&lintel (BLOCK01)
Scale: Date: Feb. 2022

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0009

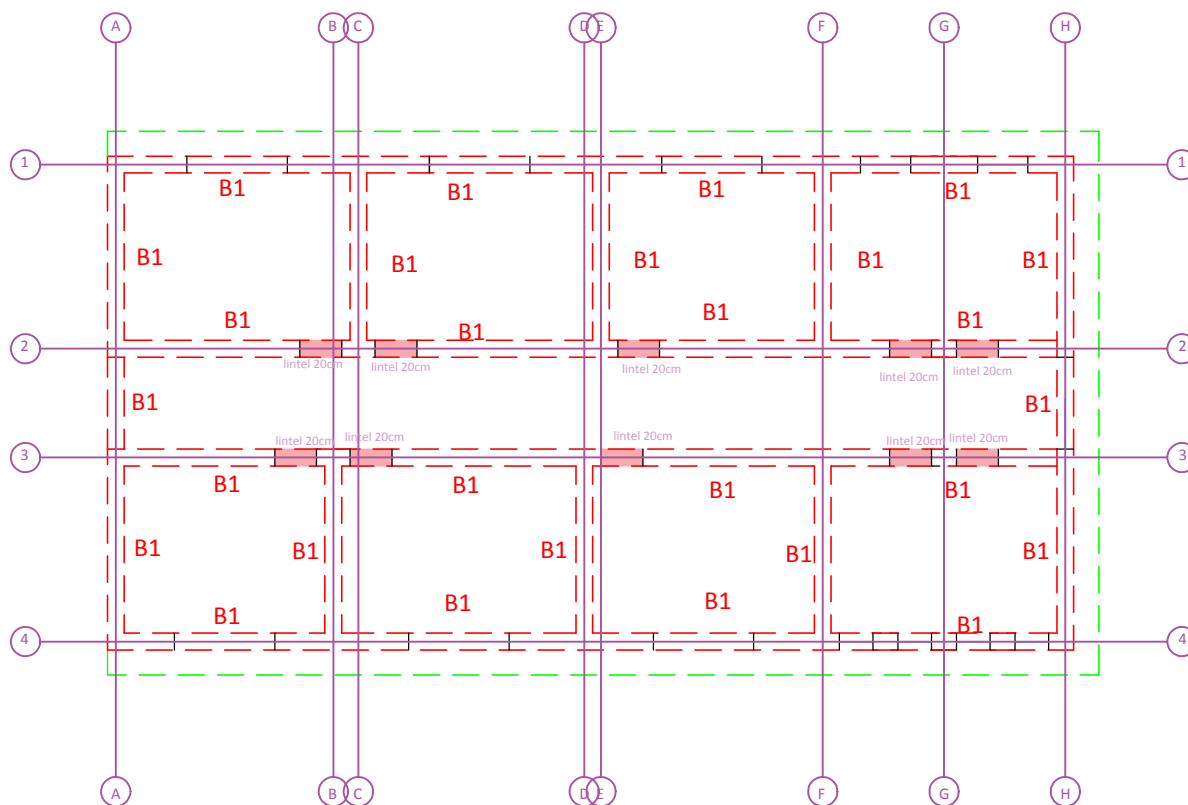
Project Name primary school(12classroom)
Sheet Name **Penthouse beam(block01)
&stair detail**
Scale: Date: Feb. 2022

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BEAM SECTIONS			
B1(type01)		B1(type02)	
h=600mm		h=600mm	
b=400mm		b=400mm	
Top Bar 3Ø16mm		Top Bar 3Ø16mm	
Bott. Bar 5Ø16mm		Bott. Bar 5Ø16mm	
stirrups=Ø10mm@20cm c/c		stirrups=Ø10mm@20cm c/c	



lintel length=opening length+2(1.5*wall

width)

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0010

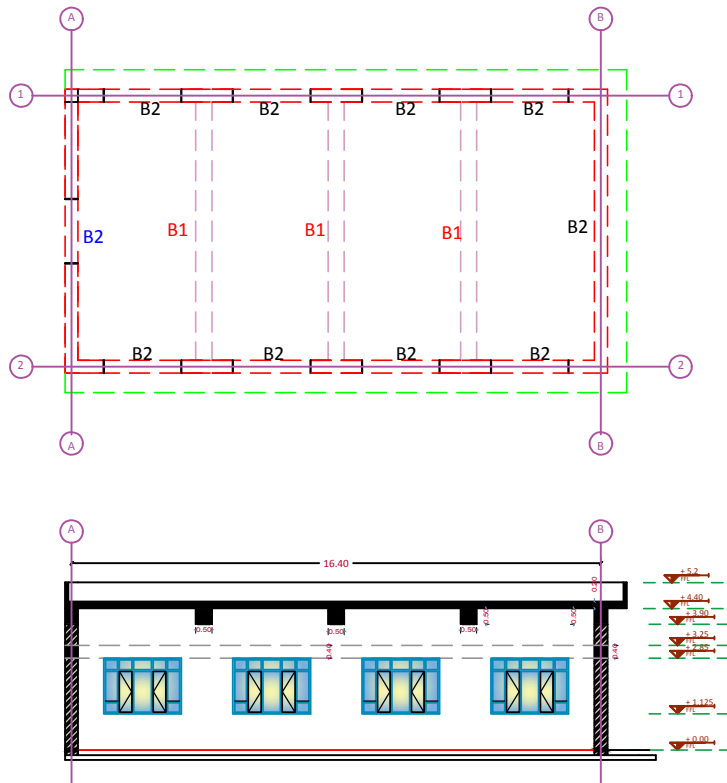
Project Name primary school(12classroom)
Sheet Name **Ground floor beam detail&lintel (BLOCK 02)**
Scale: Date: Feb. 2022

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Checked by

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SECTION(C-C) FOR BLOCK(3)

BEAM SECTIONS				BEAM SECTIONS			
B1		B2(type 01)		B2(type 02)		lintel length=(ABOVE ALL WALL)	
h=700mm	b=500mm	h=700mm	b=400mm	h=380mm	b=400mm	h=400mm	b=400mm
Top Bar 5Ø20mm	Bott. Bar 8Ø25mm	Top Bar 4Ø16mm	Bott. Bar 5Ø20mm	Top Bar 3Ø20mm	Bott. Bar 5Ø20mm	Top Bar 3Ø16mm	Bott. Bar 3Ø20mm
stirrups=Ø12mm@20cm c/c		stirrups=Ø10mm@20cm c/c		stirrups=Ø10mm@20cm c/c		stirrups=Ø10mm@20cm c/c	

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0012

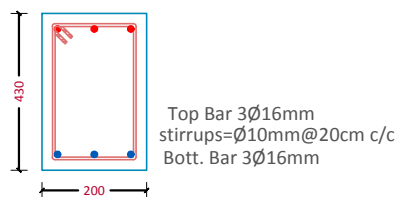
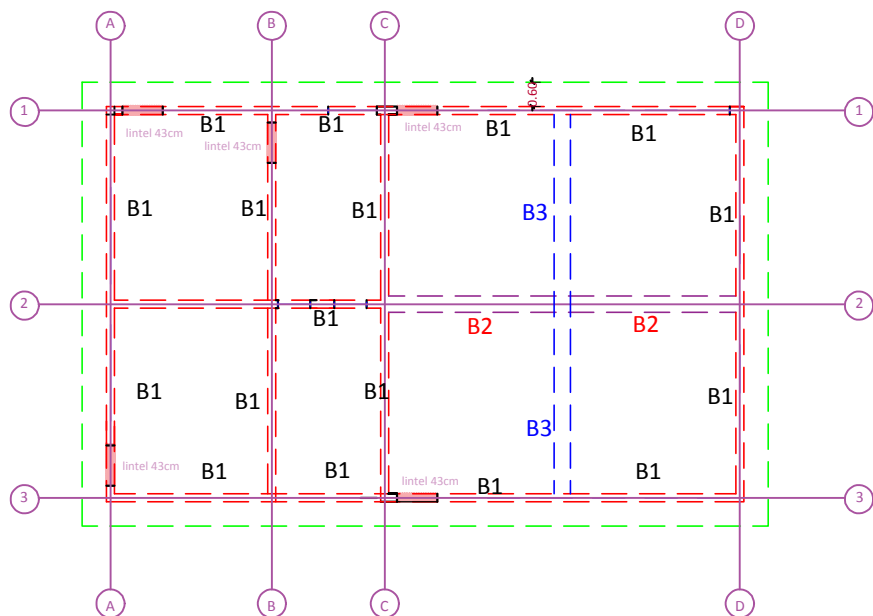
Project Name primary school(12classroom)
Sheet Name **Ground floor beam&lintel (BLOCK03)**
Scale: Date: Feb. 2022

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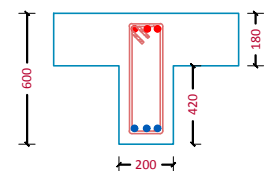




lintel length=opening length+2(1.5*wall width)

BEAM SECTIONS

B1(type 01)



h=600mm

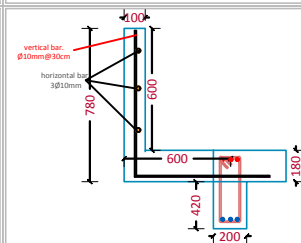
b=200mm

Top Bar 3Ø16mm

Bott. Bar 3Ø16mm

stirrups=Ø10mm@20cm c/c

B1(type 02)



h=600MM

b=200mm

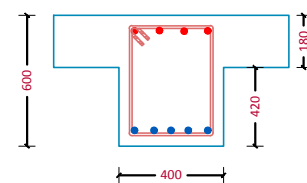
Top Bar 3Ø16mm

Bott. Bar 3Ø16mm

stirrups=Ø10mm@20cm c/c

BEAM SECTIONS

B2



h=600mm

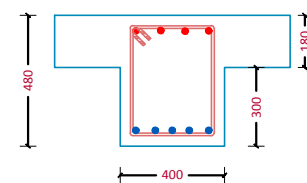
b=400mm

Top Bar 5Ø16mm

Bott. Bar 4Ø16mm

stirrups=Ø10mm@20cm c/c

B3



h=480mm

b=400mm

Top Bar 5Ø16mm

Bott. Bar 4Ø16mm

stirrups=Ø10mm@20cm c/c

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0013

Project Name

primary school(12classroom)

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Sheet Name

Ground floor beam detail&lintel
(BLOCK 04)

Approved by

Scale:

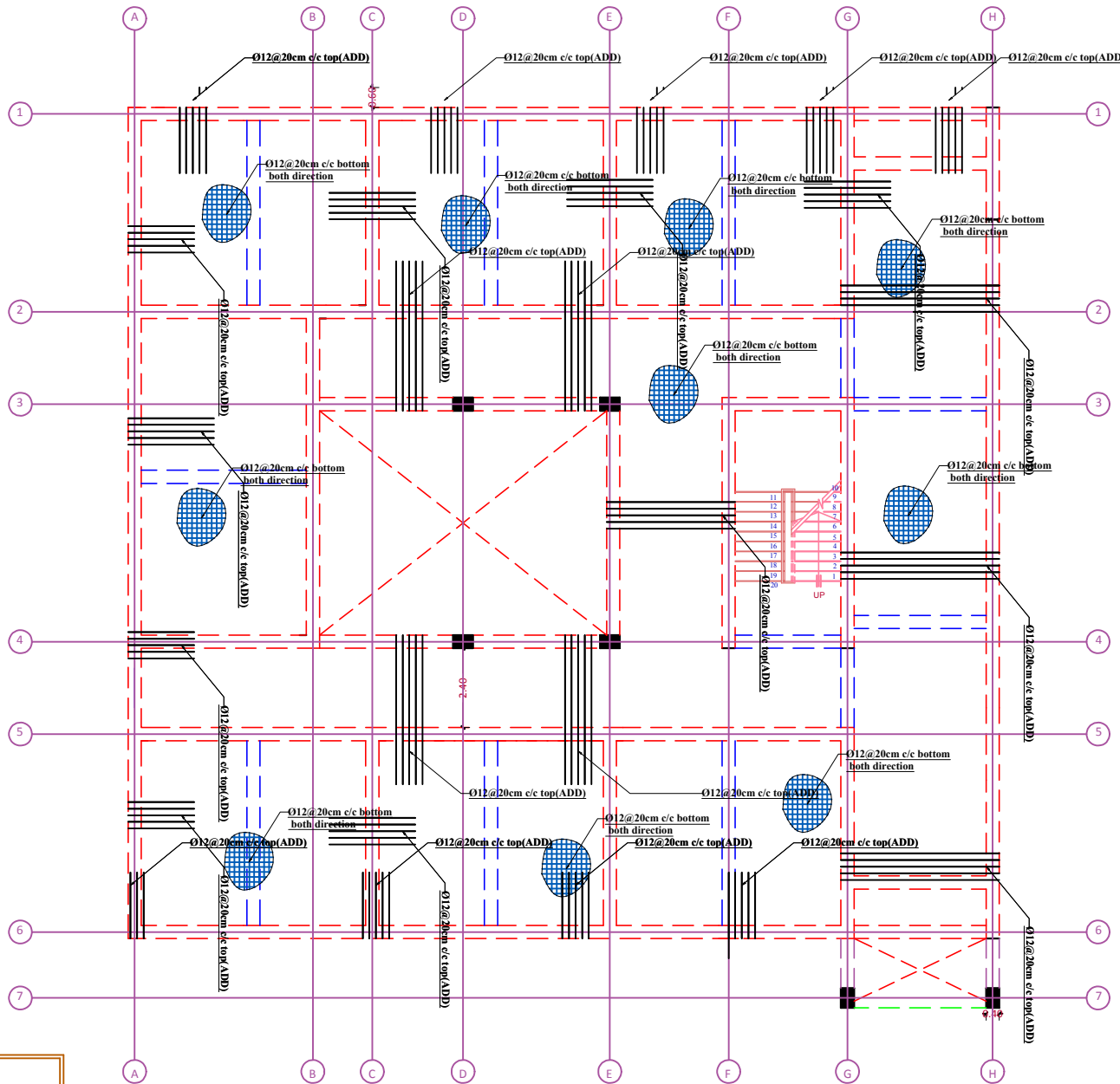
Date: Feb. 2022

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General Notes :

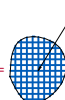
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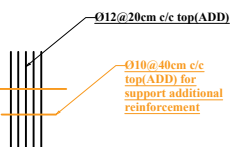




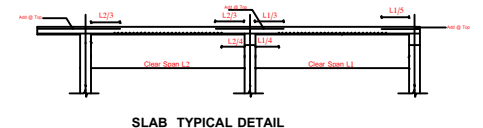
Notes

Concrete Compressive Strength $F'c=25\text{Mpa}$	Rebar Yield Strength $F_y=420\text{Mpa}$
Concrete Cover $\approx 25\text{mm}$	Slab Thickness $= 18\text{cm}$
Reinforcement Overlap $= 60\text{cm}$	Reinforcement End Hook Distance $= 150\text{mm}$

Bottom reinforcement for all area of slab = 

TOP reinforcement for all OVER Walls = 

Slab Details



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kirkuk

0014

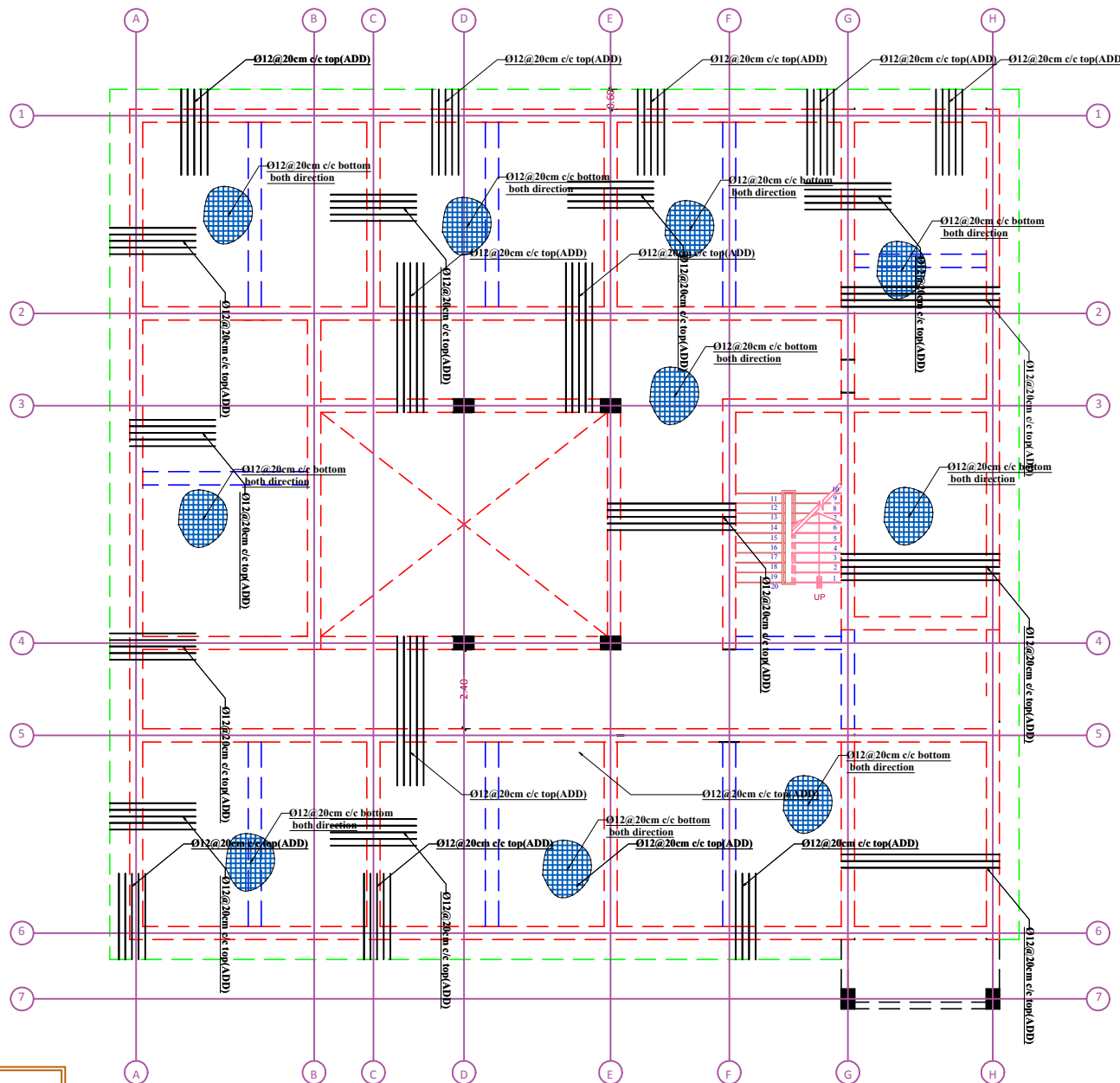
Project Name primary school(12classroom)
Sheet Name Ground floor slab reinforcement (BLOCK01)
Scale: Date: Feb. 2022

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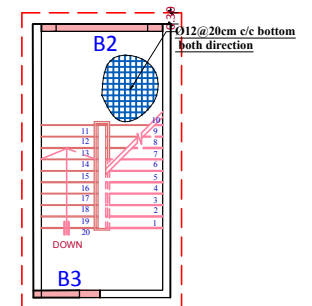


Notes

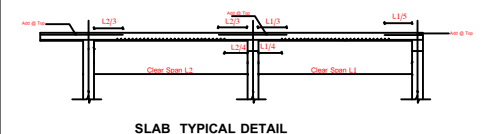
Concrete Compressive Strength $F'c=25\text{Mpa}$	Rebar Yield Strength $F_y=420\text{Mpa}$
Concrete Cover $\approx 25\text{mm}$	Slab Thickness $\approx 18\text{cm}$
Reinforcement Overlap $= 60\text{cm}$	Reinforcement End Hook Distance $= 150\text{mm}$

Bottom reinforcement for all area of slab =

TOP reinforcement for all OVER Walls =



Slab Details



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0015

Project Name primary school(12classroom)
Sheet Name First floor slab reinforcement (BLOCK01)
Scale: Date: Feb. 2022

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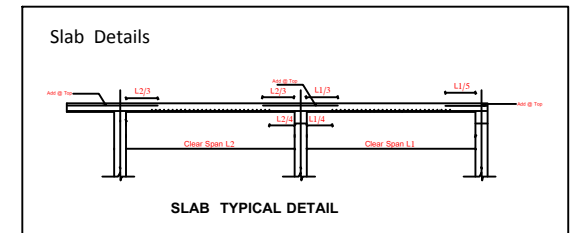
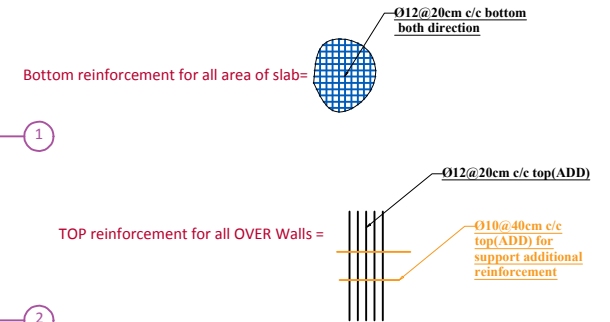
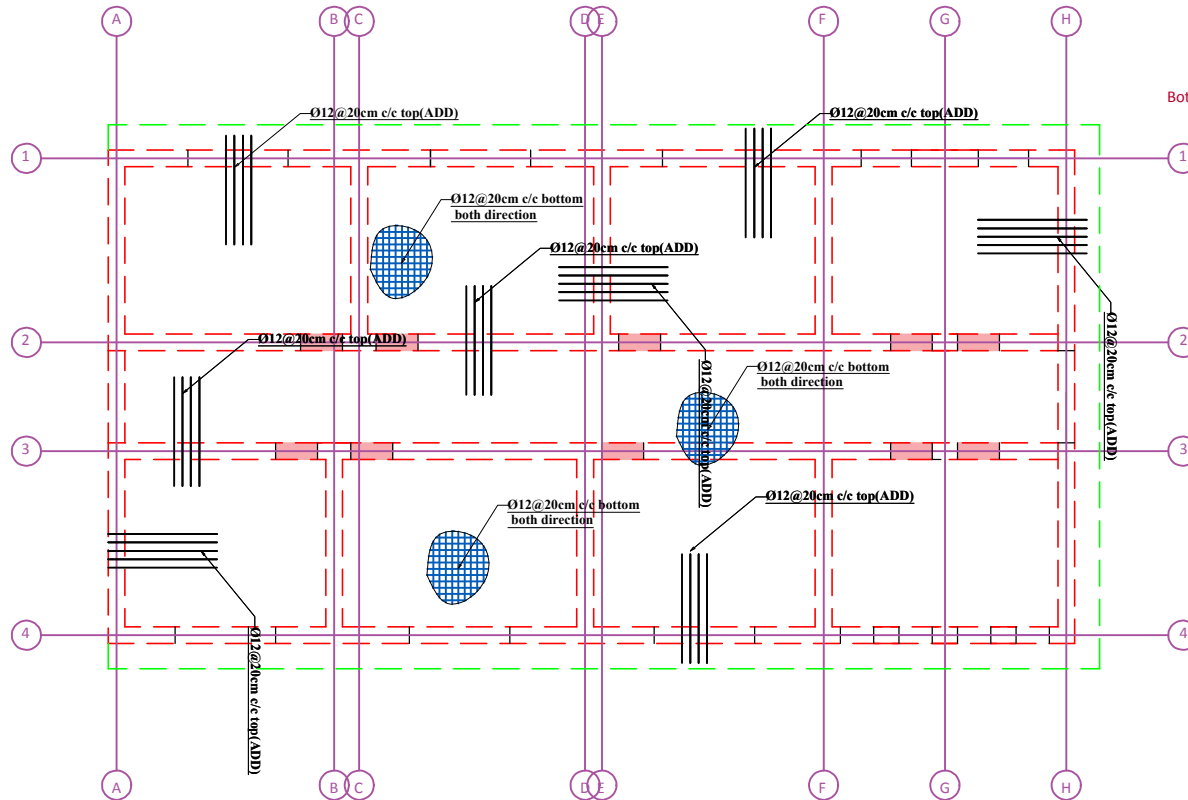
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Notes

Concrete Compressive Strength $F'c=25\text{Mpa}$	Rebar Yield Strength $F_y=420\text{Mpa}$
Concrete Cover =25mm	Slab Thickness=18cm
Reinforcement OverLap=60cm	Reinforcement End Hook Distance=150mm



Slab Details

SLAB TYPICAL DETAIL

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0016

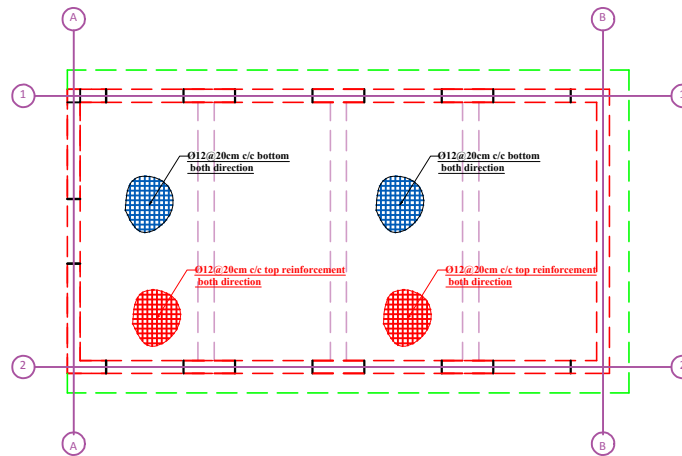
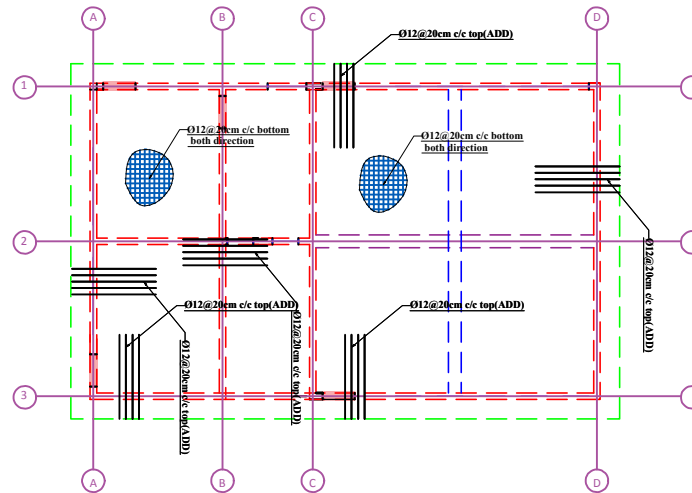
Project Name primary school(12classroom)
Sheet Name Ground floor slab reinforcement (BLOCK02)
Scale: Date: Feb. 2022

Designed by
Approved by
Checked by

General Notes :

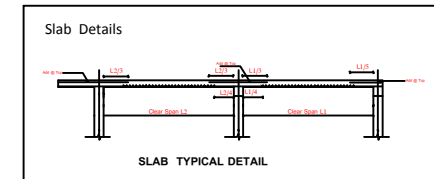
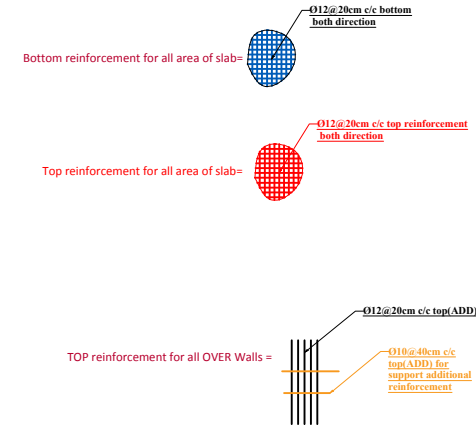
- All dimensions are in meter unless otherwise stated.
- All levels are in meter.
- All dimensions and levels to be verified on site & approved by site engineer.).
- All ext. and int. walls build with concrete block .
- Buildings consist of 2 floors and penthouse for block1&2 and 1floor for block 3&4 .





Notes

Concrete Compressive Strength $F'c=25\text{Mpa}$	Rebar Yield Strength $F_y=420\text{Mpa}$
Concrete Cover $\approx 25\text{mm}$	Slab Thickness $\approx 18\text{cm}$ for block3,20cm (block4)
Reinforcement Overlap $\approx 60\text{cm}$	Reinforcement End Hook Distance $\approx 150\text{mm}$



school building
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Project Name primary school(12classroom)
Sheet Name Ground floor slab reinforcement (BLOCK03&04)
Scale: Date: Feb. 2022

Designed by
Approved by
Checked by

General Notes :

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- All levels are in meter.
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- All ext. and int. walls build with concrete block .
- Buildings consist of 2 floors and penthouse for block1&2 and 1floor for block 3&4 .

