


# STRUCTURE DRAWING

FOR ZONE-1

## DRAWING LIST OF STRUCTURE

DWG No.	DRAWING NAME	SCALE
S-01	DRAWING LIST	NTS
S-02	BAR ARRANGEMENT STANDARD	NTS
S-03	FOUNDATION PLAN AND COLUMN PLAN	1 : 200
S-04	GROUND FLOOR GIRDER AND SLAB PLAN, ROOF FLOOR GIRDER PLAN	1 : 200
S-05	FRAMING ELEVATION LINE X1-19 AND LINE Y1	1 : 200
S-06	FRAMING ELEVATION LINE Y2 AND Y3	1 : 200
S-07	COLUMN LIST AND GIRDER LIST	1 : 25

**FOR ZONE-1**

PROJECT NAME		TITLE	SCALE	DATE	DESIGNED	CHECKED	APPROVED	DWG No.
PROTOTYPE ELEMENTARY SCHOOL BUILDINGS	MINISTRY OF NATIONAL EDUCATION	QUAKE-RESISTANCE SCHOOL BUILDING ONE-STOREY DRAWING LIST	NTS					S-01

1. Processing and Assembly
  - 1-1 Reinforcing bars with dangerous bends, cracks, splits or other defects may not be used under any circumstances.
  - 1-2 The diameter for deformed reinforcing bar shall be conform to Table-2
  - 1-3 Reinforcing splines shall be lap joint, and the lap length shall be conform to Table-3
  - 1-4 Reinforcing bars shall be cut by de-compression zone
  - 1-4 The place of the lap joint shall be in compression zone
  - 1-4 Reinforcing bars shall be cut by de-compression zone
  - 1-5 Gas cutting is permitted where unavoidable. If approved by the Engineer
  - 1-5 Spot welding and arc strike is not permitted for reinforcing bars.
  - 1-6 Install hooks at each end of reinforcing bars
    - (1) The main reinforcing bars located at the four corners of a column at lap joint, and at the top of column at the highest story
    - (2) Hoops, stirrup and yoke bar

2. Minimum thickness of cover concrete for reinforcing bars

Type of structural elements	Minimum thickness of cover concrete
Slab and walls	20mm
Elements not in contact with soil	30mm
Column	40mm
Beam	40mm
Foundation, retaining wall	50mm
Elements contact with soil	70mm

3. Minimum clearance between the reinforcing bars
 

Clearance shall be more than 25mm and 1.25 times the maximum size of coarse aggregate and 1.5 times of largest outside diameter of reinforcing bar



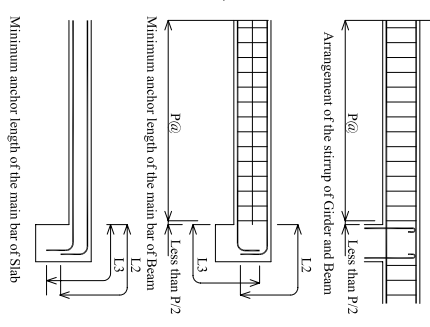
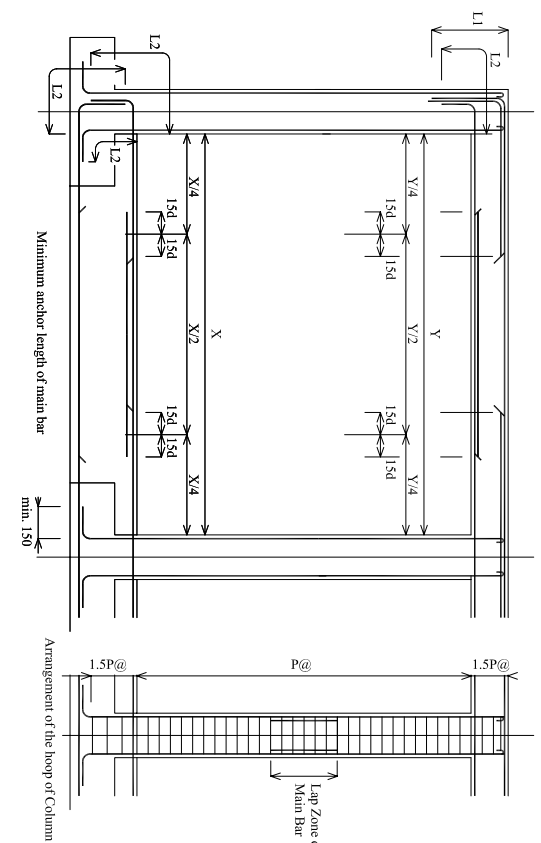
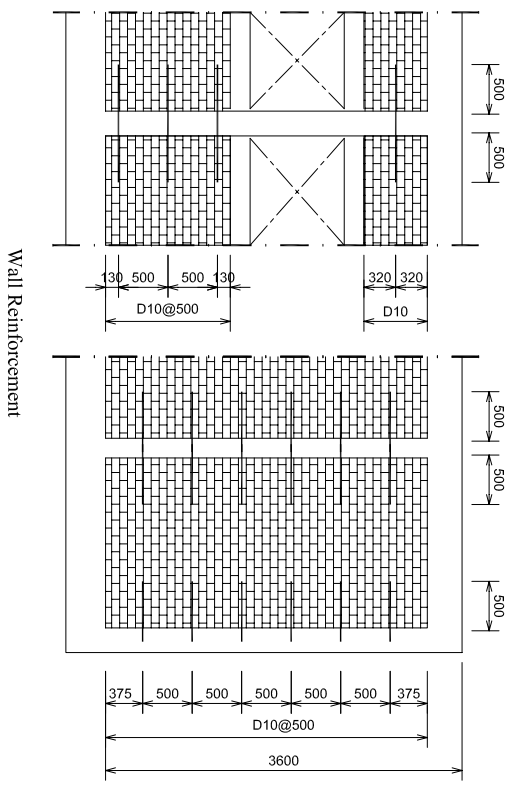
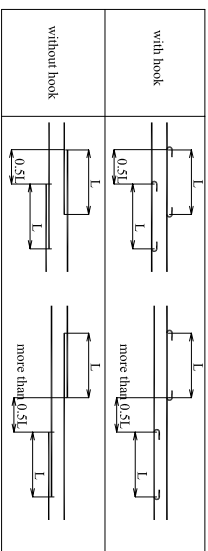
Table-2 Minimum diameter for bending of reinforcing bars

Bending Shape	Under femur Dia.	19 to 38mmDia.	Previous location
180° 	More than 3d	More than 4d	Main bars for column and beam etc.
135° 	More than 3d	More than 4d	Stirrup,loop,spiral bar
90° 	More than 3d	More than 4d	Stirrup,loop,spiral bar
Less than 90° 	More than 4d	More than 6d	Stirrup,loop,spiral bar

Table-3 Minimum lap length and Anchor length

Concrete Design strength	without hook			with hook		
	L1	L2	L3	L1	L2	L3
Over Fc28=21 N/mm2 but under Fc28=27 N/mm2	40d	35d	Small Beam 25d	Slab 10d and over 150mm 30d	25d	Small Beam 15d Slab 15d

Table-4 Location of neighboring joints



**FOR ZONE-1**

PROJECT NAME

PROTOTYPE ELEMENTARY SCHOOL BUILDINGS



MINISTRY OF NATIONAL EDUCATION

TITLE

QUAKE-RESISTANCE SCHOOL BUILDING ONE-STOREY BAR ARRANGEMENT STANDARD

SCALE

NTS

DATE

DESIGNED

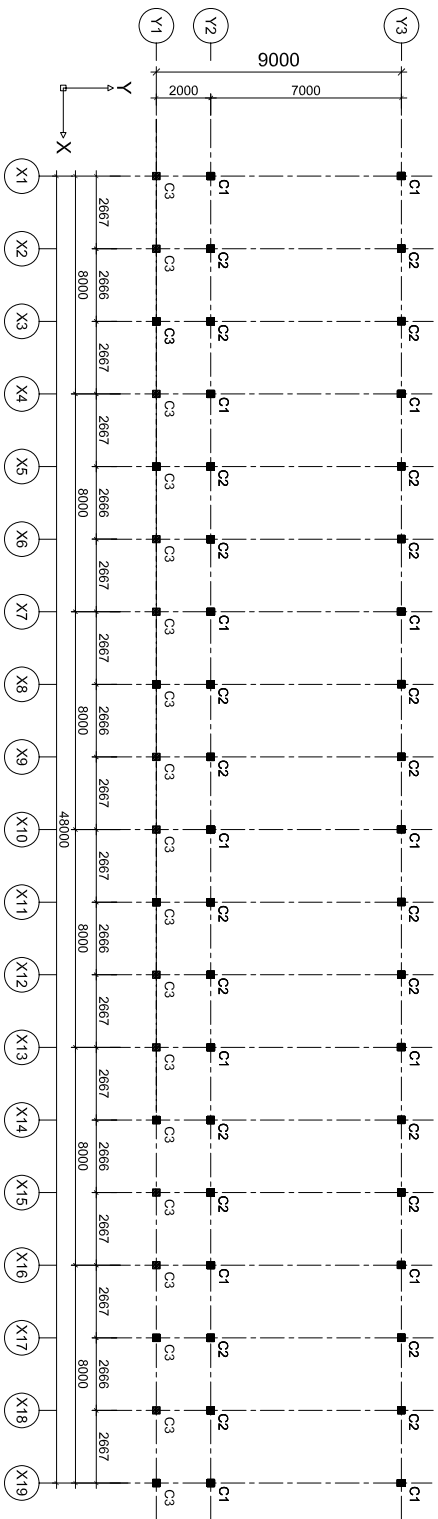
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DWG No.

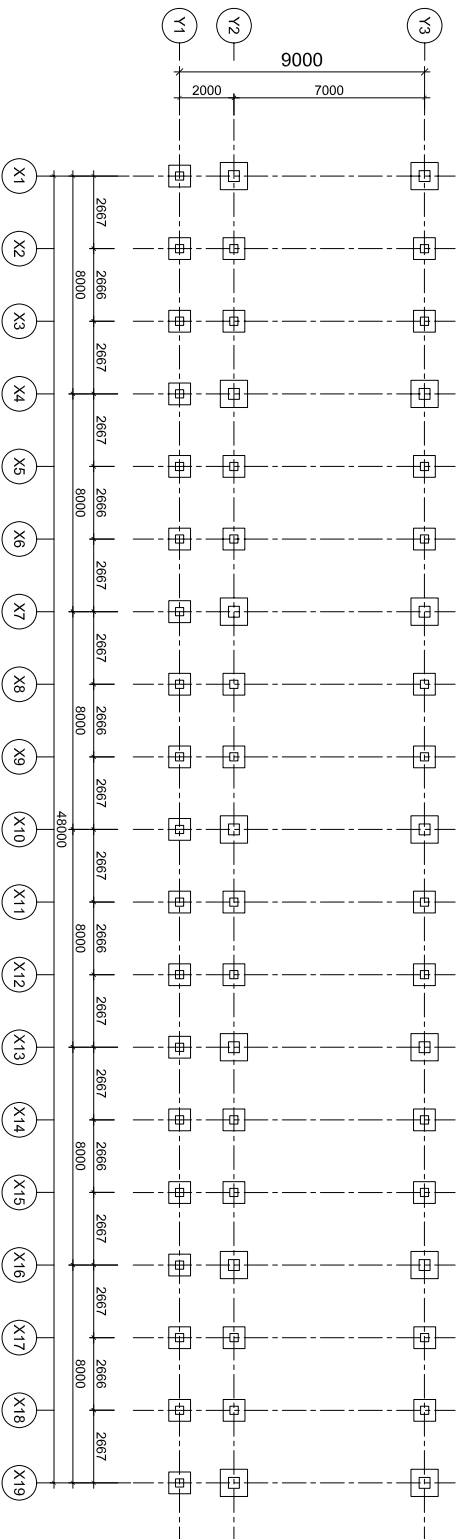
S-02

MEMBER LIST		
TYPE	DIMENTION	QUALITY
C1	270X300	K-250
C2	270X270	K-250
C3	270X270	K-250



○ COLUMN PLAN  
SCALE 1 : 200

FOUNDATION TYPE IS DETERMINED BY EACH SITE. FOUNDATION SHOULD BE BUILT ON REINFORCED CONCRETE



○ FOUNDATION PLAN  
SCALE 1:200

**FOR ZONE-1**

PROJECT NAME

PROTOTYPE ELEMENTARY SCHOOL BUILDINGS



MINISTRY OF NATIONAL EDUCATION

TITLE

QUAKE-RESISTANCE SCHOOL BUILDING ONE-STOREY FOUNDATION PLAN AND COLUMN PLAN

SCALE

1 : 200

DATE

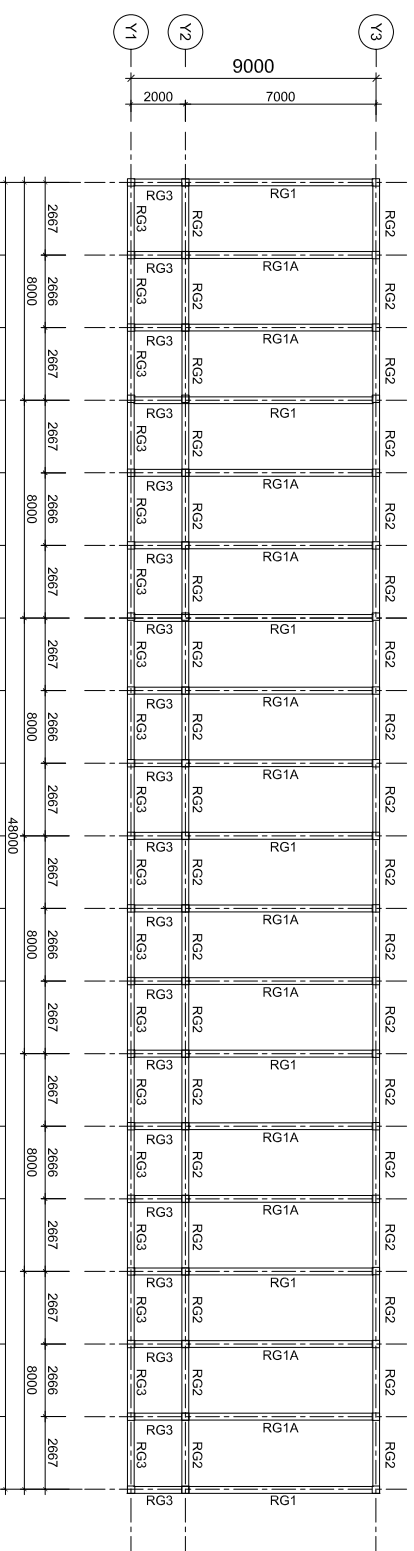
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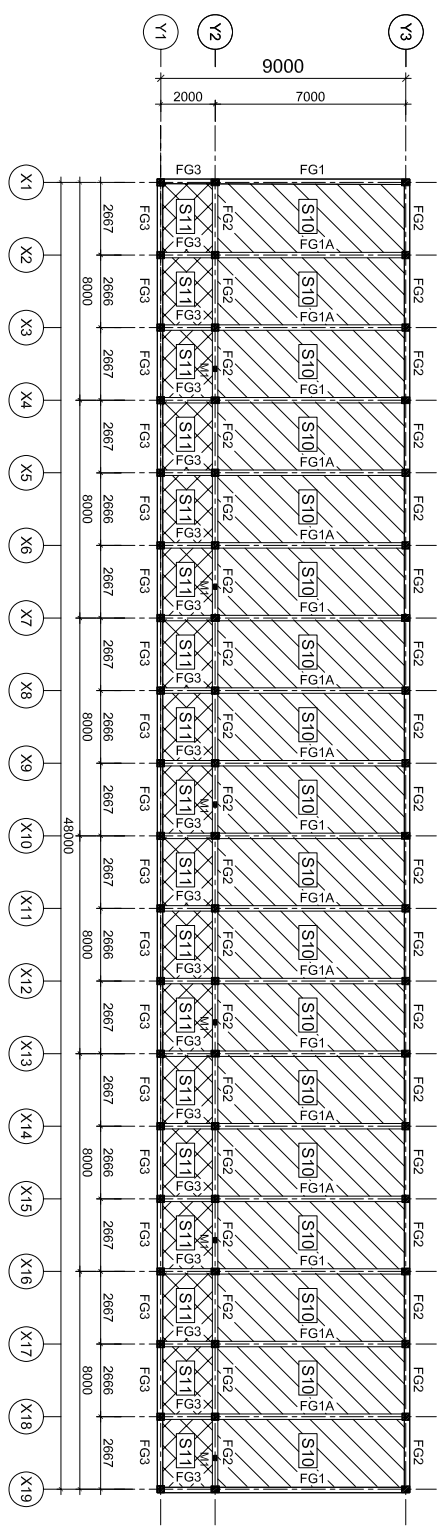
DWG No.

S-03



ROOF FLOOR GIRDER PLAN  
SCALE 1:200

MEMBER LIST		
TYPE	DIMENTION	QUALITY
RG1	200X350	K-250
RG1A	200X350	K-250
RG2	200X350	K-250
RG3	200X350	K-250



GROUND FLOOR GIRDER AND SLAB PLAN  
SCALE 1:200

MEMBER LIST		
TYPE	DIMENTION	QUALITY
FG1	250X450	K-250
FG1A	250X400	K-250
FG2	250X400	K-250
FG3	200X400	K-250
M1	200X110	K-250

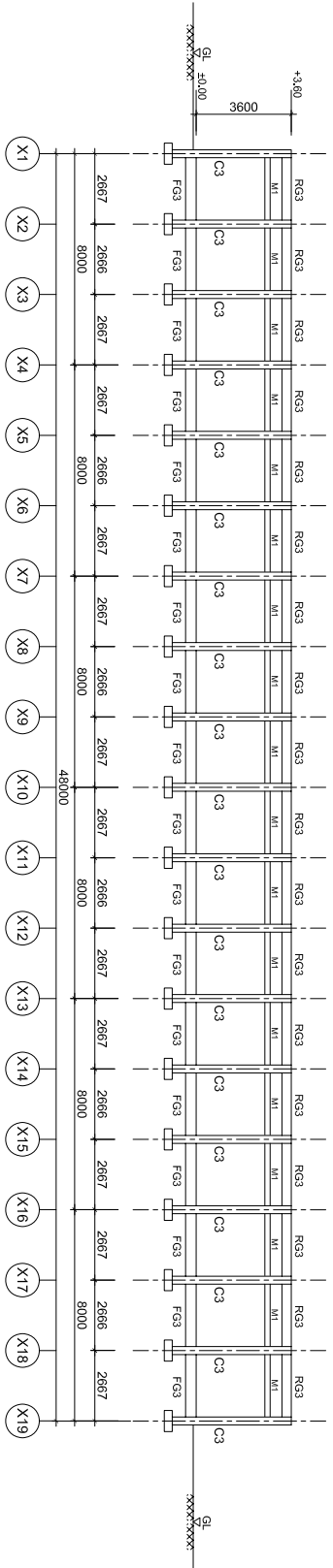
MEMBER LIST		
TYPE	DIMENTION	QUALITY
S10	100	K-175
S11	100	K-175

**FOR ZONE-1**

<b>PROJECT NAME</b>	<b>TITLE</b>	<b>SCALE</b>	<b>DATE</b>	<b>DESIGNED</b>	<b>CHECKED</b>	<b>APPROVED</b>	<b>DWG No.</b>
PROTOTYPE ELEMENTARY SCHOOL BUILDINGS	QUAKE-RESISTANCE SCHOOL BUILDING ONE-STOREY GROUND FLOOR GIRDER AND SLAB PLAN, ROOF FLOOR GIRDER PLAN	1:200					S-04



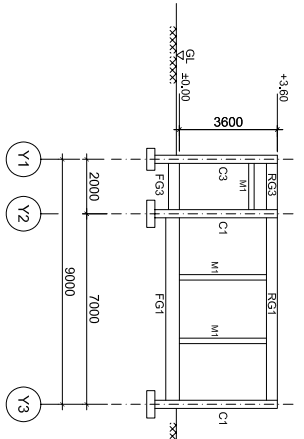
MINISTRY OF NATIONAL EDUCATION



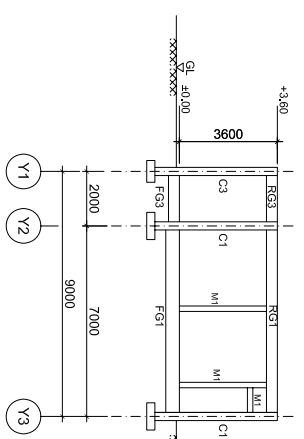
LINE Y1  
SCALE 1:200

TYPE	DIMENTION	QUALITY
RG1	200X350	K-250
RG1A	200X350	K-250
RG2	200X350	K-250
RG3	200X350	K-250

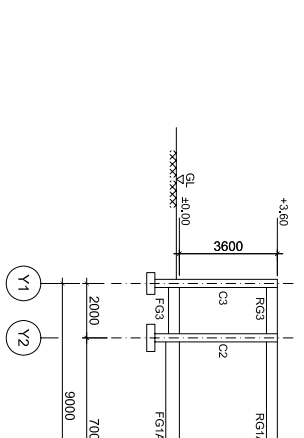
TYPE	DIMENTION	QUALITY
FG1	250X450	K-250
FG1A	250X400	K-250
FG2	250X400	K-250
FG3	200X400	K-250
M1	200X110	K-250



LINE X1 AND X19  
SCALE 1:200



LINE X4, X7, X10, X13 AND X16  
SCALE 1:200



LINE X2, X3, X5, X6, X8, X9, X11, X12, X14, X15, X17 AND X18  
SCALE 1:200

TYPE	DIMENTION	QUALITY
C1	270X300	K-250
C2	270X270	K-250
C3	270X270	K-250

**FOR ZONE-1**

PROJECT NAME

PROTOTYPE ELEMENTARY SCHOOL BUILDINGS



MINISTRY OF NATIONAL EDUCATION

TITLE

QUAKE-RESISTANCE SCHOOL BUILDING ONE-STOREY FRAMING ELEVATION LINE X1-X19 AND LINE Y1

SCALE

1:200

DATE

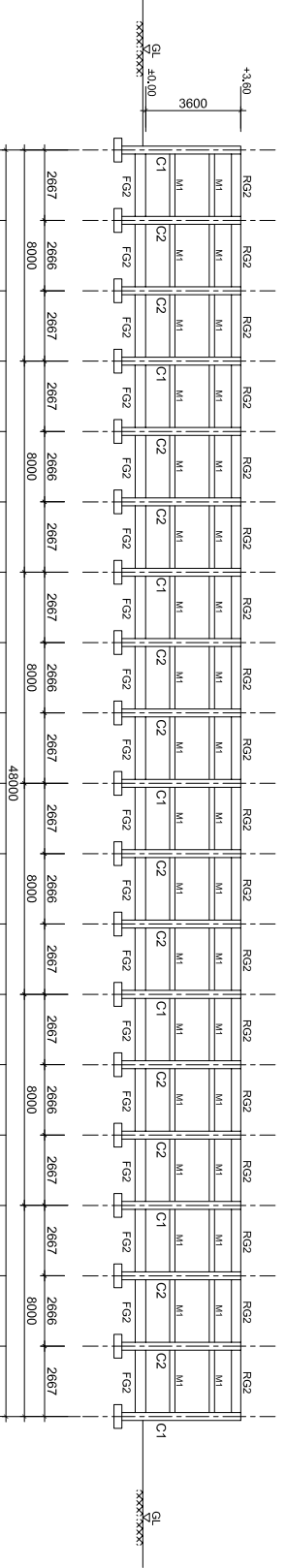
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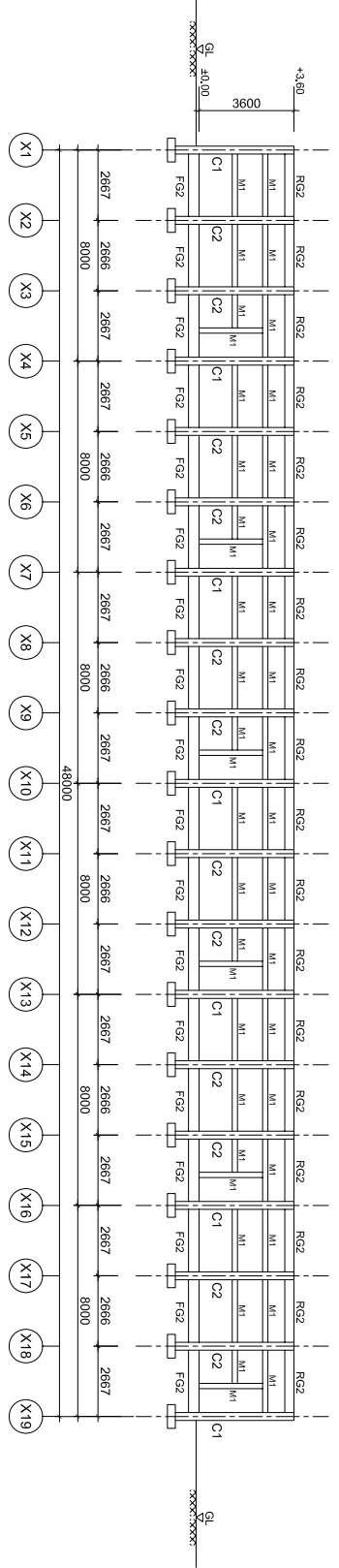
S-05



LINE Y3  
SCALE 1:200

MEMBER LIST		
TYPE	DIMENTION	QUALITY
RG1	200X350	K-250
RG1A	200X350	K-250
RG2	200X350	K-250
RG3	200X350	K-250

MEMBER LIST		
TYPE	DIMENTION	QUALITY
FG1	250X450	K-250
FG1A	250X400	K-250
FG2	250X400	K-250
FG3	200X400	K-250
M1	200X110	K-250



LINE Y2  
SCALE 1:200

MEMBER LIST		
TYPE	DIMENTION	QUALITY
C1	270X300	K-250
C2	270X270	K-250
C3	270X270	K-250

**FOR ZONE-1**

PROJECT NAME	TITLE	SCALE	DATE	DESIGNED	CHECKED	APPROVED	DWG No.
PROTOTYPE ELEMENTARY SCHOOL BUILDINGS	QUAKE-RESISTANCE SCHOOL BUILDING ONE-STOREY FRAMING ELEVATION LINE Y2 AND Y3	1:200					S-06

PROTOTYPE ELEMENTARY SCHOOL BUILDINGS



MINISTRY OF NATIONAL EDUCATION

QUAKE-RESISTANCE SCHOOL BUILDING ONE-STOREY FRAMING ELEVATION LINE Y2 AND Y3

1:200

S-06

**LIST OF THE ROOF FLOOR GIRDER**

MARK	END	CENTER	END	CENTER	END	CENTER	END	CENTER
	RG1		RG1A		RG2		RG3	
POSITION	END	CENTER	END	CENTER	END	CENTER	END	CENTER
SECTION								
TOP BAR	2-D16	2-D16	2-D16	2-D16	2-D16	2-D16	2-D16	2-D16
BOTTOM BAR	2-D16	2-D16	2-D16	2-D16	2-D16	2-D16	2-D16	2-D16
STRIRUP	□-D10 - 200	□-D10 - 200	□-D10 - 200	□-D10 - 200	□-D10 - 200	□-D10 - 200	□-D10 - 200	□-D10 - 200

**LIST OF THE GROUND FLOOR GIRDER**

MARK	END	CENTER	END	CENTER	END	CENTER	END	CENTER
	FG1		FG1A		FG2		FG3	
POSITION	END	CENTER	END	CENTER	END	CENTER	END	CENTER
SECTION								
TOP BAR	3-D16	2-D16	2-D16	2-D16	2-D16	2-D16	2-D16	2-D16
BOTTOM BAR	2-D16	3-D16	2-D16	2-D16	2-D16	2-D16	2-D16	2-D16
STRIRUP	□-D10 - 150	□-D10 - 200	□-D10 - 200	□-D10 - 200	□-D10 - 200	□-D10 - 200	□-D10 - 200	□-D10 - 200

**LIST OF THE COLUMN (GROUND-ROOF)**

MARK	C1	C2	C3
POSITION	ALL SECTION	ALL SECTION	ALL SECTION
SECTION			
DIMENSION	270X300	270X270	270X270
MAIN BAR	6-D16	4-D16	4-D16
HOOP	□-D10 - 100	□-D10 - 100	□-D10 - 100

**LIST OF THE HEADER**

MARK	M1
POSITION	ALL SECTION
SECTION	
DIMENSION	200X110
MAIN BAR	2-D10
HOOP	□-D10 - 200

Note : Material  
 Concrete K-250  
 Main Rebar fy : 400 MPa  
 Confinement Rebar fy : 300 MPa

**FOR ZONE-1**

PROJECT NAME	PROTOTYPE ELEMENTARY SCHOOL BUILDINGS	MINISTRY OF NATIONAL EDUCATION	QUAKE-RESISTANCE SCHOOL BUILDING ONE-STORY COLUMN LIST AND GIRDER LIST	SCALE	1 : 25	DATE	DESIGNED	CHECKED	APPROVED	DWG No.	S-07
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