Saudi Electricity Company	الشركة السعودية للكهرباء

SEC DISTRIBUTION CONSTRUCTION STANDARD	SDCS-02
	DATE: November 2016

SDCS-02

CONSTRUCTION STANDARD

FOR

UNDERGROUND DISTRIBUTION NETWORK

This specification is property of SEC and subject to change or modification without any notice

PART 10

INSTALLATION

OF

13.8 & 33 KV

METERED RING MAIN UNIT

SF6 ROOM SUBSTATIONS

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1 Introduction

This construction standard specifies the construction design of 13.8 & 33 KV Metered Ring Main Unit SF6 Room Sub-station. This standard is intended to assist the field engineers and technicians to achieve unified standard in construction to ensure a satisfactory and economical level of service without operation restrictions so that the operational errors are minimized for safety and reliability of the system.

2 Service conditions and system parameters

For construction and installation of Drawings, the service conditions and system requirements shall be as given in the latest revision of SEC general requirements for all Equipment/Material specification No. 01-SDMS-01 (latest revision). This SDMS shall also be read in conjunction with SEC Purchase Order (PO) requirements.

3 Revision and additions.

This construction standard is subject to revision as new material and methods of construction are developed. The latest revision of existing Drawings shall be revised if feasible and new drawings needs to be developed involving work expansion / modification.

4 Design of Meter Room

4.1 The following points are required to be considered at site during the selection of Metered Ring Main Unit Room Design:

4.1.1 The minimum inner dimensions of the room shall be 5000mm x 4000mm to install Meter Ring Main Unit into on RMU's inside the room.

4.1.2 Room should be easily accessible without any obstruction.

4.1.3 Meter Room shall not be located on the top of sewerage system or water tanks. However, in case if it is not possible to avoid such service the standard height of the room and trench depth must be maintained (as shown in drawing).

4.2 Door and Cable entry pipes:

4.2.1 Access to the room shall be from the front by means of hinged metal doors, fitted with a heavy-duty locking device to secure them at closed position and one stainless steel hasp set for separate SEC standard pad locking.

4.2.2 Door shall be opened to outside the room either to the right or left hand side. It shall be provided with door stoppers and locking at open position to protect from swinging in order to protect the energy meter box to be fixed on the right side of the front wall as well as to avoid accidents.

4.2.3 All door hinges and its fixing bolts & nuts shall be concealed and made of rigid material.

4.2.4 Locking shall be as follows:

- ✓ Handle shall be high grade stainless steel.

- ✓ Shall be operated by Central handle lock by using SEC standard key or pad lock according to SEC specification SEC-02-02 latest revision.

4.2.5 The door shall be made of steel 2500mm wide and 3498mm high excluding the door frame.

4.2.6 Ventilation louvers shall be shall be provided as shown in figure 5.

4.2.7 Door shall be bonded to any metal framework by a bolted removable 35 mm^2 tinned copper braid.

4.3 For the entry & exit of SEC Cable in to and out of the meter room shall be 4 PVC pipes of 150mm diameter in compliance with latest revision of relevant SEC Specification shall be provided.

4.4 Reinforced Concrete Cable Trench:

4.4.1 Reinforced Concrete Cable Trench 15cm thick shall be provided in the room as shown in figure 1 & 2. The Trench shall be 600mm wide and 1300mm deep as covered by removable Checkered steel plate.

4.4.2 Steel reinforcement 10mm diameter 20cm C/C on both directions to be provided as reinforcement for concrete trench walls and bottom.

4.4.3 Steel angel LS to be fixed on the Concrete trench edge.

4.4.4 Lean Concrete 10cm thick to be placed under the trench.

4.4.5 The upper edge of the Cable trench shall be 50mm wider than the standard width of the trench to form a grove of 25x10mm all around the trench for fixing of the Trench Cover as shown in Fig.2.

4.4.6 Finishing Color

The interior of the meter room shall be adequately protected against weather changes and painted with pure white Color with a smooth surface finish as per SEC Specification 01-SDMS-01 latest revision as refer to (Civil Work Requirements).

4.4.7 The room shall have minimum 2 Lead lamp light as shown in Fig.4.

5 **Civil Construction Requirements**:

All Civil Work shall be done according to SEC Unified (Civil Work Requirement) latest revision.

6 Drawings

Fig.**1**	Meter Room	Fig.**2**	Cable trench & Cover
Fig.**3**	Front elevation	Fig.**4**	Lighting arrangement
Fig.**5**	Door Details.	Fig.**6**	Window Details
Fig.**7**	Foundation Plan	Fig.**8**	Roof Slab Plan
Fig.**9**	Tie Beam Detail	Fig.**10**	Roof Beams detail
Fig.**11**	Column and foundation detail.		

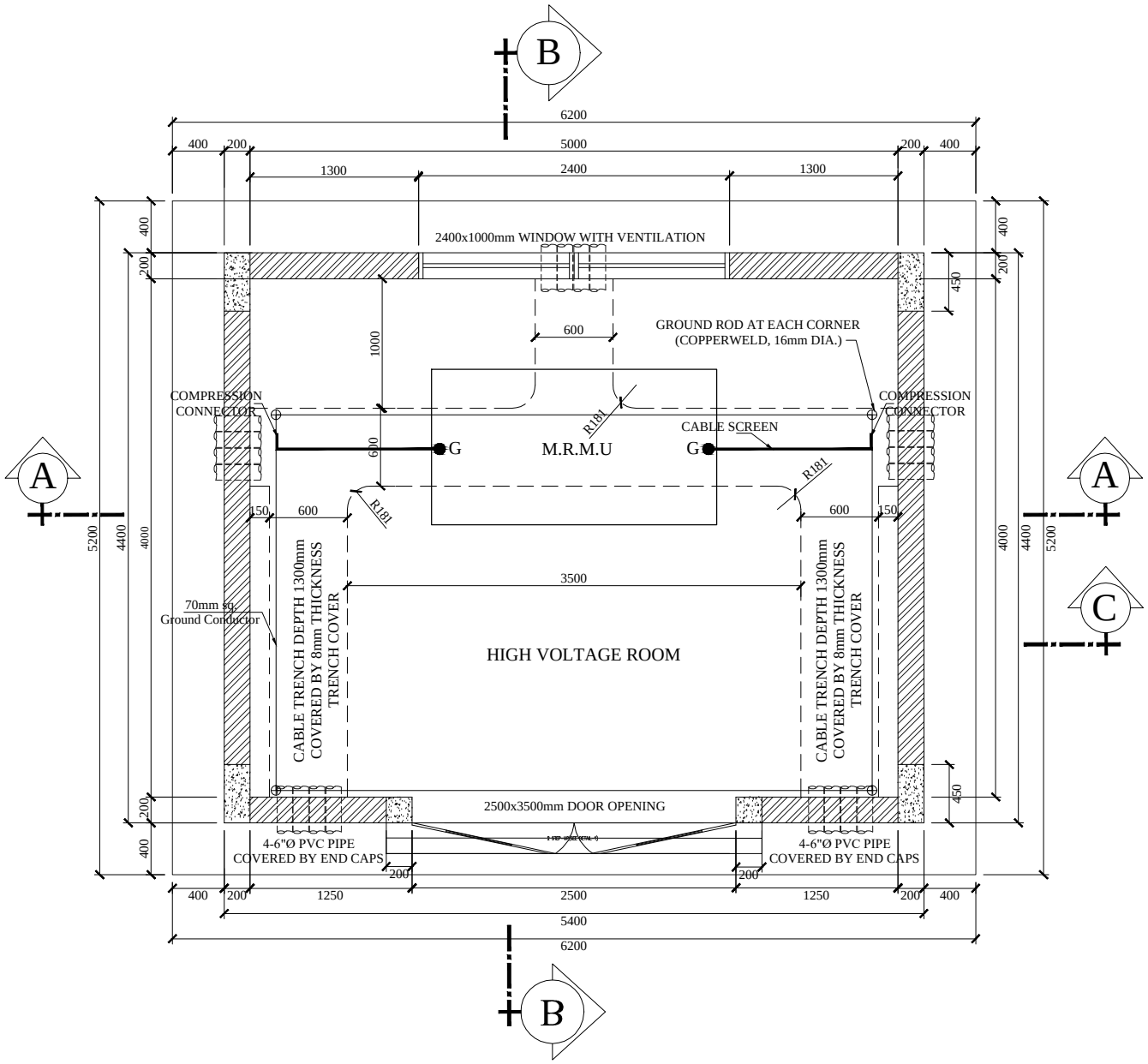
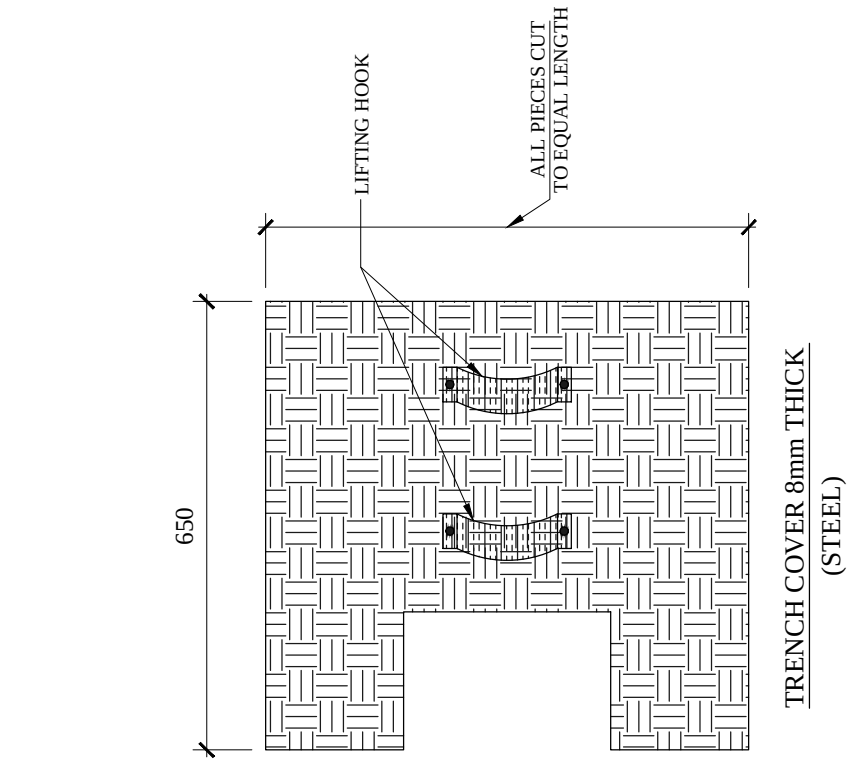


FIG: 1 - 13.8 / 33KV METERED RING MAIN UNIT (SF-6)
ROOM SIZE 5000mm x 4000mm

NOTE: ALL DIMENSION ARE IN MILLIMETERS



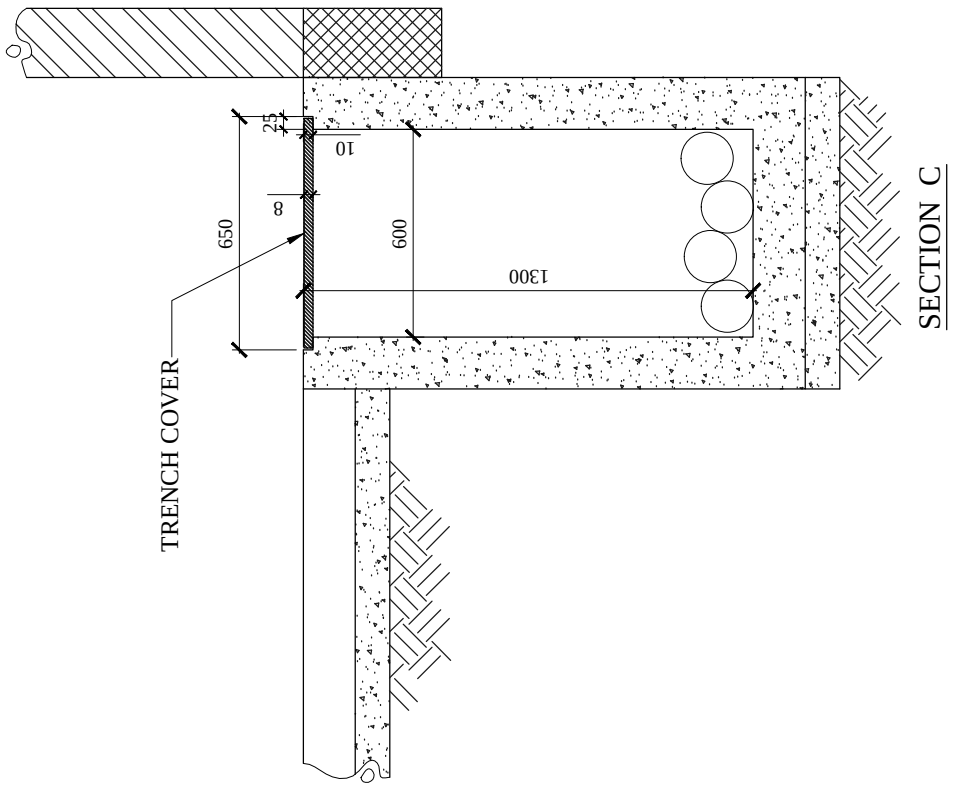
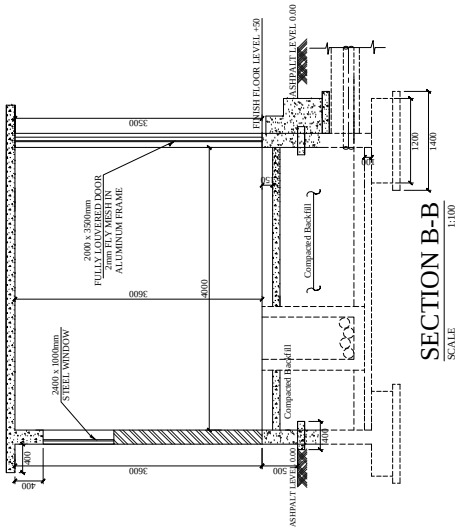


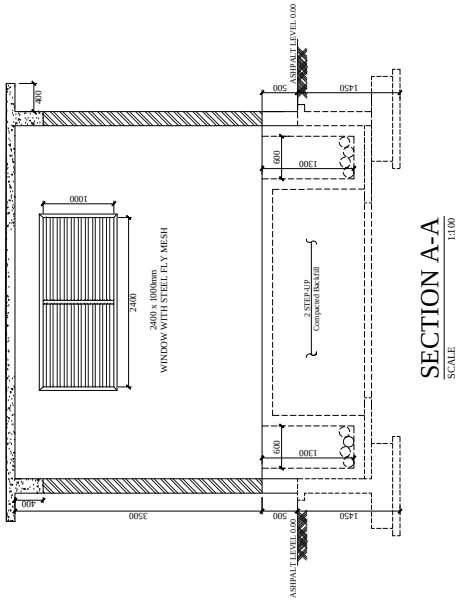
FIG 2: CABLE TRENCH & COVER

NOTE: ALL DIMENSION ARE IN MILLIMETERS



SECTION B-B

SCALE 1:100



SECTION A-A

SCALE 1:100

FIG: 3 ELEVATION & SECTION

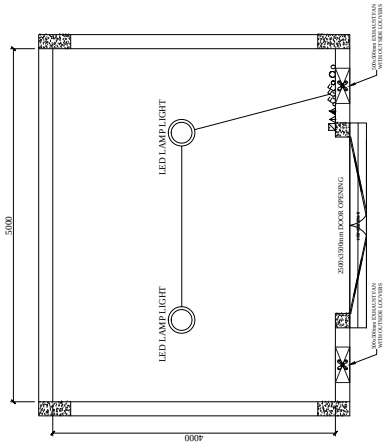


FIG: 4 LIGHTING ARRANGEMENT

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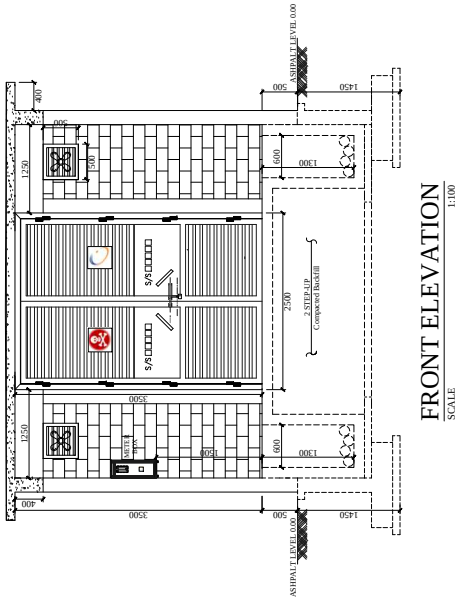
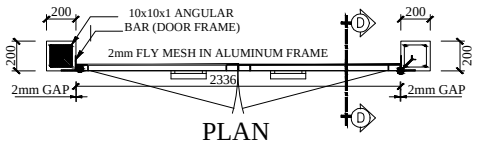


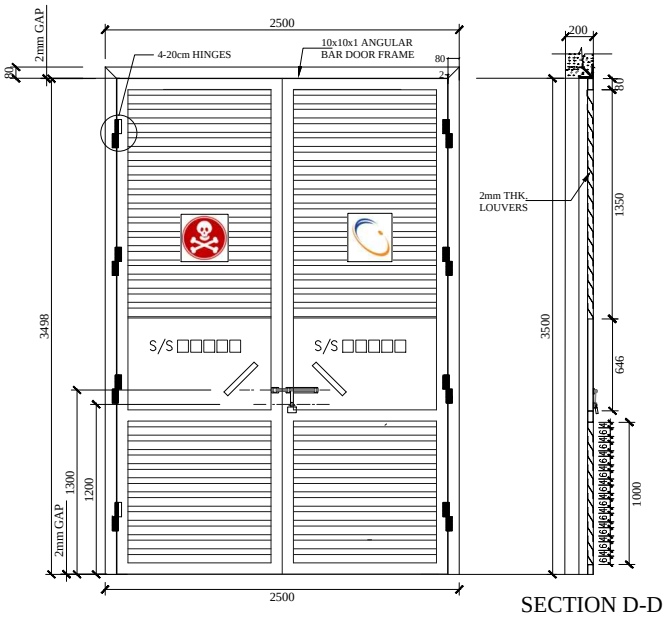
FRONT ELEVATION

SCALE 1:100

NOTE: ALL DIMENSION ARE IN MILLIMETERS



PLAN



FRONT VIEW

SECTION D-D

FIG: 5 DOOR DETAILS

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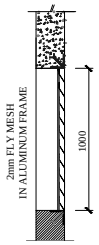
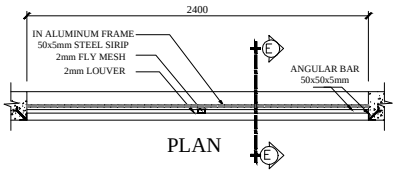
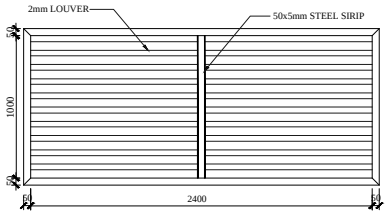


SECTION E-E



PLAN

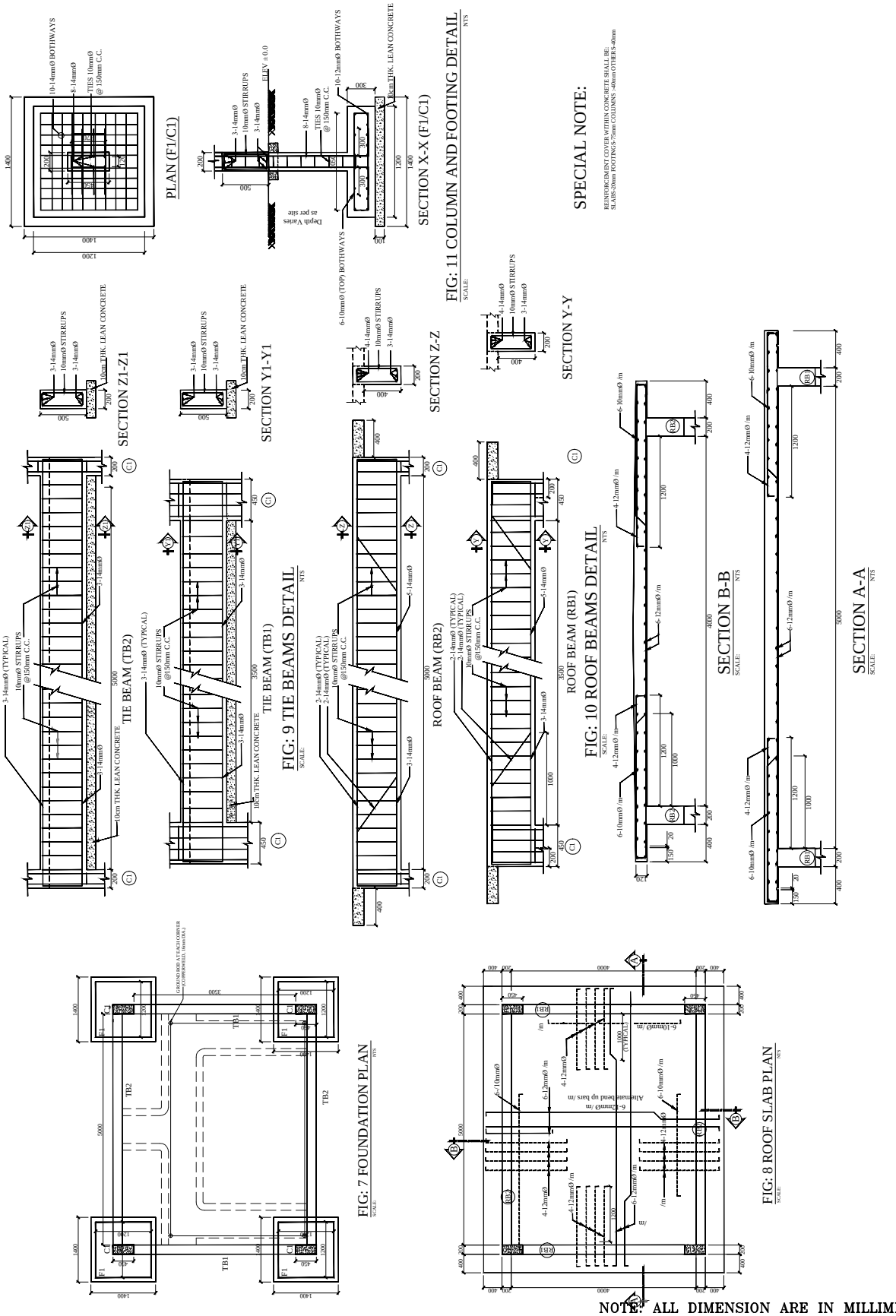


FRONT VIEW

FIG: 6 WINDOWS DETAILS

SCALE 1:50

NOTE: ALL DIMENSION ARE IN MILLIMETERS


PLAN (F1/C1)
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SECTION Y1-Y1
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TIE BEAM (TB1)
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ROOF BEAM (RB2)
ROOF BEAM (RB1)
FIG: 10 ROOF BEAMS DETAIL
SECTION B-B
SECTION A-A
FIG: 7 FOUNDATION PLAN
FIG: 8 ROOF SLAB PLAN
NOTE: ALL DIMENSION ARE IN MILLIMETERS