

Northern Railway

Headquarters Office,
Baroda House,
New Delhi.

No. DOE/TP-01/2020

Date: 25/02/2021

C.A.O./Const.
Northern Railway,
Kashmere Gate, Delhi.

C.A.O./C/USBRL,
Northern Railway,
Jammu Tawi.

Divisional Railway Manager,
Northern Railway,
DLI, FZR, LKO, MB & UMB.

Sr. Divisional Engineer/Co-ord.,
Northern Railway,
DLI, FZR, LKO, MB & UMB.

Dy.CE/TMC/Line.,
State Entry Road,
New Delhi.

XEN/TPP,
Lucknow.

Dy. CE/Br. Line,
Northern Railway,
Tilak Bridge.

Dy.CE/Br.W/Shop.,
Northern Railway,
Lucknow.

Dy.CE/Br.W/Shop.,
Northern Railway,
Jalandhar Cantt.

Principal,
C.E.T.A.,
Kanpur.

XEN/FBWP,
Meerut,

AXEN/Track Depot.,
Ghaziabad.

Principal,
Bridge staff Trg. Centre,
Tugalakabad.

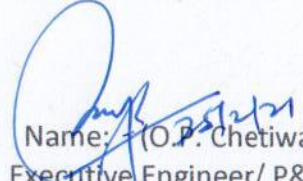
All Engineering Officers,
Baroda House,
New Delhi.

Type Plan No. O-99/2021

Sub: Standard Type Plan of "S&T Service Building"

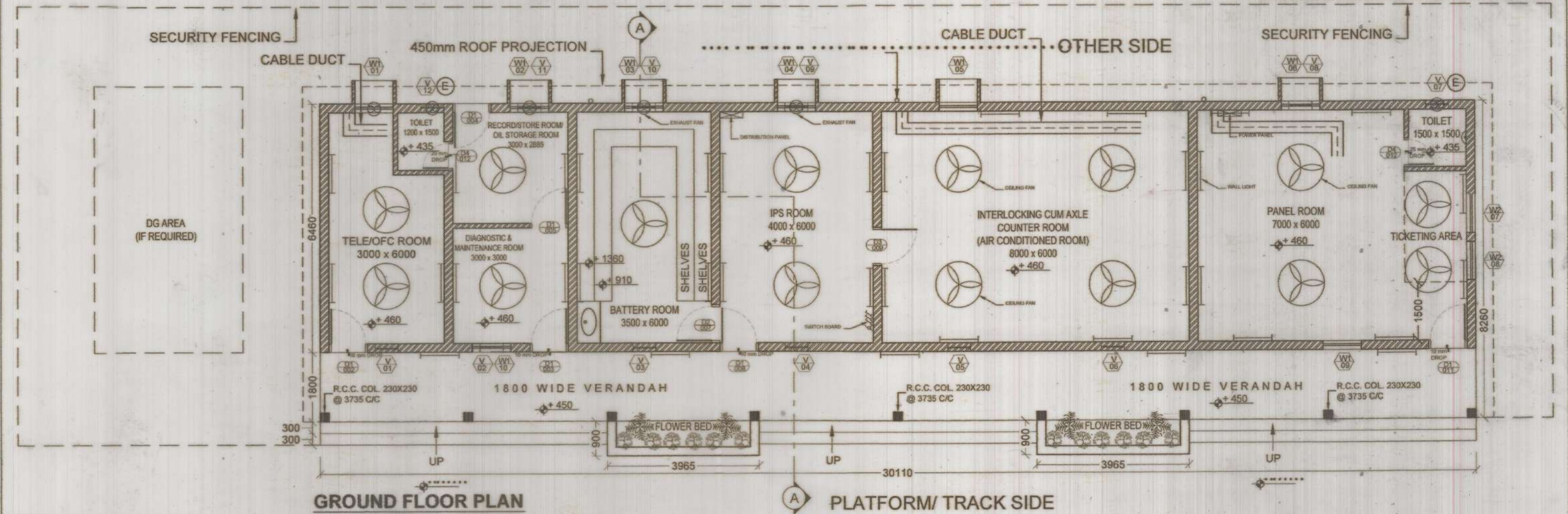
Please find enclosed here with Standard Type Plan No. O-99/2021 (NRHQE No. HQ/02/02-2021) regarding "**S & T Service Building**". This may be circulated to all concerned for implementation of instructions contained therein.
Receipt of this letter may be acknowledged.

Encl. - as above


Name: (O.P. Chetiwal)
Executive Engineer/ P&D
For General Manager/Engg.

- Copy to : (i) Secy. Pr.CE for kind information to Pr. CE.
(ii) All HODs/Dy. HODs, N. Rly., Baroda House, New Delhi for information.
(iii) Dy.CVO/Engg., N. Rly., Baroda House, New Delhi for information.

N.R.H.Q.E. PLAN NO. : HQ/02/02-2021
 TYPE PLAN NO. : O-99/2021
 CANCEL TYPE PLAN NO. : HQ/09/10-13



NOTES

- ALL DIMENSIONS ARE IN MILLIMETRES.
- THE PROPOSED BUILDING PLAN IS BASED ON RDSO DRAWING NO. "SDO/S&T Service building/001 amdt 1" AND IS FOR THE CENTRALIZED ELECTRONIC INTERLOCKING UP TO 100 ROUTES. FOR E I UP TO 50 ROUTES OR DISTRIBUTED E I, SIZE OF INTERLOCKING CUM AXLE COUNTER ROOM CAN BE REDUCED TO 7000X6000 SQ.MM. FOR OTHER STATIONS WITH ROUTES MORE THAN 100 ROUTES, THE BUILDING PLAN SHALL BE ISSUED AFTER APPROVAL OF PCSTE.
- THE LOCATION OF THE BUILDING SHALL BE AS CLOSE TO CENTRE OF YARD AS POSSIBLE. THE EXACT LOCATION OF THE BUILDING SHALL BE JOINTLY SIGNED BY DIVISIONAL OFFICERS OF CONCERNED DEPARTMENTS.
- THE FLOOR LEVEL SHALL BE AT LEAST 500 MM ABOVE THE LEVEL OF THE PLATFORM OF THE STATION.
- ONLY ONE WINDOW IS TO BE KEPT IN INTERLOCKING CUM AXLE COUNTER ROOM TO MINIMISE DUST INGRESS. THE WINDOW SHOULD NORMALLY BE ON THE OPPOSITE WALL FROM THE TRACK SIDE. THE WINDOWS SHALL BE PROTECTED BY IRON GRILL. THE WINDOW SHUTTERS SHALL BE PROVIDED TO OPEN ON OUT-SIDE. THE WINDOWS SHALL BE COVERED WITH DETACHABLE NETIAN MESH FROM INSIDE TO AVOID ENTRY OF INSECTS INTO THE EQUIPMENT ROOMS.
- ALL DOORS SHALL HAVE LOCKING FACILITY TO OPEN FROM INSIDE EVEN THOUGH THEY ARE LOCKED FROM OUT SIDE. 2 HOUR FIRE RATED DOORS AND WINDOWS ARE TO BE PROVIDED FOR INSTALLATION.
- ELECTRIC FITTINGS** : ONE CEILING FAN SHALL BE PROVIDED FOR EVERY 8 SQ. M. SUBJECT TO MINIMUM ONE IN EACH ROOM. THE LIGHTING SHALL BE PROVIDED TO ACHIEVE 150 LUMENS/ SQ.M. AIR CONDITIONING TO THE INTERLOCKING ROOMS SHALL BE PROVIDED SUCH THAT SPILL OF WATER SHALL NOT AFFECT THE FUNCTIONING OF SIGNALING SYSTEM. THE LOCATION OF ELECTRICAL FITTINGS SHALL CATER FOR INSTALLATION OF FIRE DETECTION SYSTEM. AT/ GENERATOR LIGHTING SHALL BE PROVIDED AS PER THE LATEST GUIDELINES ISSUED BY RAILWAY BOARD. THE ELECTRIC AND SIGNALING WIRING SHALL NOT BE ON THE SAME WALL.
- THE FLOOR SHALL BE PROVIDED WITH ANTI-SKID TILES IN ALL THE ROOMS AND VERANDAH.
- THE FLOOR, SHELF AND WALL (UP TO 1500 MM) SHALL BE PROVIDED WITH ACID PROOF TILES IN BATTERY ROOM. THE SHELVES IN THE BATTERY ROOM SHALL BE PROVIDED WITH TWO TIER STEPS OF 450 MM WIDTH AND 450 MM HEIGHT.
- THE INTERIOR WALLS AND CEILING SHALL BE COATED WITH PREMIUM ENAMEL PAINT WITH A GLOSSY, DURABLE AND WASHABLE FINISH OR THEY SHALL BE TILED.
- CABLE AND DUCT ENTRY** : CABLE DUCT OF 300 MM (WIDTH) X 300 MM (DEPTH) SHALL BE PROVIDED ALONG THE BACK WALL OF THE INTERLOCKING CUM AXLE COUNTER ROOM AND PANEL ROOM UP TO THE CENTRE OF PANEL. STANDARD OPENING AT THE BACK WALL (PREFERABLY 450X450 MM) TO BE PROVIDED AT TWO PLACES FOR CABLE ENTRY.
- INTER ROOM OPENING THROUGH LADDER** : THERE SHALL BE INTER ROOM OPENING OF 300X300 MM BELOW THE CEILING FOR RUNNING LADDER FROM TELE/OFC ROOM TO PANEL ROOM THROUGH DIAGNOSTICS AND MAINTENANCE ROOM.
- ROOF DESIGN** : THE HEIGHT OF THE ROOF SHALL BE KEPT MINIMUM 12 FEET (3660MM). THE ROOF SLOPE SHALL BE MINIMUM 1:40, WITH THE HIGH POINT BEING ON THE FRONT SIDE OF THE BUILDING. R.C.C. ROOF SHALL BE PROJECTED 450 MM OUT SIDE BUILDING ALL ROUND TO WORK AS SUN /RAIN GUARD & WALL PROTECTION. HEAT RETARDANT INCLINED ROOF SHEET SHALL BE PROVIDED OVER THE ROOF AT A HEIGHT OF MINIMUM 400 MM ABOVE THE ROOF. VERANDAH CAN BE DISPENSED WITH IN CASE OF SPACE CONSTRAINTS, UNDER EXCEPTIONAL CIRCUMSTANCES. THE ROOF OF RELAY ROOM AND PANEL ROOM SHALL HAVE SUITABLE PROVISIONS FOR FIXING 'A' TYPE PROTECTION AND VHF ANTENNA RESPECTIVELY.
-



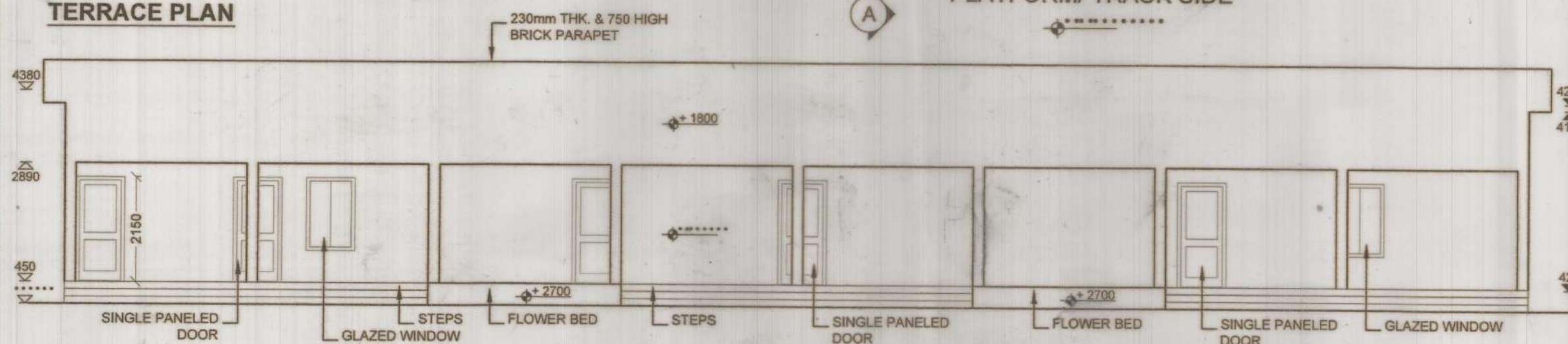
- RELAY HUTS MEANT FOR THE PURPOSE OF INTERMEDIATE RELAY HUTS/BLOCK HUTS OR CABINS OR AUTO SECTION SHALL BE DESIGNED BASED ON THE ABOVE GUIDELINES. PORTA CABINS SHALL NOT BE CONSIDERED FOR S&T SERVICE BUILDINGS.
- THE S&T SERVICE BUILDING AREA SHALL BE NOTIFIED AS RESTRICTED AREA.

continued...

ACHAL JAIN (CE/P&D)	
VIJAY KUMAR PANDEY (DY:CS&E/D&D)	Signed ON 19.02.2021
VAIBHAV PATHAK (DY:CE/P&D)	Signed ON 22.02.21
OM PRAKASH CHETIWAL (XEN/P&D)	Signed ON 12.02.2021
MOHD. SHARIF (PREPARED BY: SSE/ARCH.)	Signed ON 12.02.2021
NORTHERN RAILWAY	
Title S&T SERVICE BUILDING	
Drawing Description Ground Floor general arrangement plan	
SCALE 1:100	SHEET NO. 01 OF 05
N.R.H.Q.E. PLAN NO. HQ/02/02-2021	



TERRACE PLAN



ELEVATION (TRACK SIDE)

NOTES :- continued...

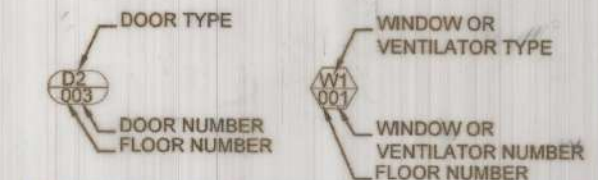
17. **SECURITY FENCING FOR EARTHING AND DIESEL GENERATORS** : THE FENCING ARRANGEMENT SHALL BE PROVIDED AROUND THE PERIMETER EARTHING AND DIESEL GENERATORS FOR CLEAR DEMARCATION. THE LEFT OVER LAND BETWEEN THE EARTH PITS SHALL BE FILLED WITH GRAVEL EQUIVALENT TO M 20. THE DIESEL GENERATORS SHALL BE LOCATED AFTER LEAVING SPACE FOR STAIRS AFTER THE TELE/OFC ROOM. DIESEL OIL STORAGE ROOM SHALL BE CONNECTED BY A PROPER ROAD FOR PROPER LOADING AND UNLOADING OF DIESEL DRUMS. IN 'RE' AREA, THE DIESEL OIL STORAGE ROOM IS TO BE CONVERTED TO RECORD /STORE ROOM AND SHALL BE CONNECTED TO DIAGNOSTICS AND MAINTENANCE ROOM AND THE OUTER DOOR SHALL BE CLOSED. ADEQUATE NUMBER OF SHELVES ARE TO BE PROVIDED IN THE RECORD /STORE ROOM FOR KEEPING SIGNALING MATERIALS.
18. MINIMUM SPACE BETWEEN RACK EDGE TO WALL SHALL BE KEPT AS 1300 MM IN INTERLOCKING CUM AXLE COUNTER AND IPS ROOMS. ELECTRIC SHOCK PROOF INSULATING 3 MM THICK LINOLEUM SHEET TO BE PROVIDED BETWEEN RELAY RACKS, AXLE COUNTERS AND IPS RACKS IN THESE ROOMS. THE BUILDING SHALL BE PILLARED STRUCTURE. FIRST FLOOR CAN BE CONSTRUCTED AS AND WHEN REQUIRED, FOR REPLACEMENT OF SIGNALING ASSETS AFTER EXPIRY OF THEIR CODAL LIFE.
19. FOUNDATIONS TO BE DESIGNED FOR G+1 FLOORS.
20. ASSUME BEARING CAPACITY OF SOIL: 10T/SQ. M.
21. R.C.C. PLINTH BAND & LINTEL BAND TO BE PROVIDED IN ALL WALLS.
22. FOR HILLY AREAS OWING TO SPACE CONSTRAINT, MULTI-LEVEL FACILITIES MAY PROVIDED KEEPING CARPET AREA SAME AS IN THIS PLAN ISSUED BY HQ.

FOR ELEVATION & SECTION SEE SHEET NO. 02 OF 05
FOR STRUCTURAL DETAILS REFER SHEET NO. 04 & 05 OF 05

N.R.H.Q.E. PLAN NO. : HQ/02/02-2021
TYPE PLAN NO. : O-99/2021
CANCEL TYPE PLAN NO. : HQ/09/10-13

Do not Scale this drawing.
This drawing is to be read with all related information.

LEGENDS:-



DOOR SCHEDULE		
D1	1000 x 2135	PANELED DOOR WITH MOSQUITO NET
D2	1000 x 2135	PANELED DOOR
D3	1000 x 2135	HALF GLASS SINGLE DOOR WITH DOUBLE LOCKING ARRANGEMENT
D4	750 x 2135	PANELED DOOR
WINDOW/ VENTILATOR SCHEDULE		
W1	1000 x 1500	GLAZED WITH MOSQUITO NET
W2	1000 x 1500	
V	600 x 500	

ACHAL JAIN (CE/P&D)	
VIJAY KUMAR PANDSE (DY.CSTE/D&D)	
VAIBHAV PATHAK (DY.CE/P&D)	
OM PRAKASH CHETIWAL (XEN/P&D)	
MOHD. SHARIF (PREPARED BY: SSE/ARCH)	
NORTHERN RAILWAY	
Title S&T SERVICE BUILDING	
Drawing Description Terrace Floor and Elevation	
track side elevation	
SCALE 1:50	SHEET NO. 02 OF 05
N.R.H.Q.E. PLAN NO. HQ/02/02-2021	

continued...

Do not Scale this drawing.
This drawing is to be read with all related
information.

Diagram illustrating the naming convention for various components in a building layout:

- DOOR TYPE**: D2
- DOOR NUMBER**: 003
- FLOOR NUMBER**: 003
- WINDOW OR VENTILATOR TYPE**: W1
- WINDOW OR VENTILATOR NUMBER**: 001
- FLOOR NUMBER**: 001

Legend for symbols:

-  **CEILING FAN**
-  **WALL LIGHT**
-  **POWER PANEL**
-  **SWITCH BOARD**

Architectural elevation drawing of a building facade. The drawing shows a long horizontal section with several vertical dividers. At the top, there are three labels: "GLAZED VENTILATOR WITH MOSQUITO NET" (pointing to a small square window), "230mm THK. & 750 HIGH BRICK PARAPET" (pointing to the top edge), and "GLAZED VENTILATOR WITH MOSQUITO NET" (pointing to another small square window). On the left, there are elevation markers: 4240, 4110, and 425. In the center, there are three labels: "GLAZED-WINDGW WITH MOSQUITO NET PANELS" (pointing to a double-hung window), "GLAZED WINDOW WITH MOSQUITO NET PANELS" (pointing to a single-hung window), and "GLAZED WINDOW WITH MOSQUITO NET PANELS" (pointing to another single-hung window). On the right, there are two labels: "GLAZED WINDOW WITH MOSQUITO NET PANELS" (pointing to a single-hung window) and "PANELED DOOR WITH MOSQUITO NET PANELS" (pointing to a door). A vertical dimension line on the right indicates a height of 2150. On the far right, there are elevation markers: 4380, 2750, 2675, and 450. The drawing includes various symbols for windows, doors, and structural elements.

Architectural section drawing of a building showing a Battery Room, IPS Room, and Verandah. The drawing includes structural details, dimensions, and elevations.

Structural Details and Materials:

- 750mm HIGH 230mm THK. PARAPET WALL
- CEMENT CONCRETE GOLA
- 40 THICK BRICK TILES OVER 100 THK. MUD PHUSKA OVER TWO COATS OF HOT BITUMEN ON R.C.C. SLAB
- RCC SLAB AS PER STR. DETAILS
- RCC PROJECTION AS PER STR. DETAILS
- RCC LINTEL AS PER STR. DETAILS
- VENTILATOR (V)
- 230 THK. BRICK WALL
- FLOORING OVER 75 THK. CEMENT CONCRETE
- 75 THK. BRICK BALLAST
- 150 THK. SAND FILLING
- RAMMED EARTH

Rooms and Features:

- BATTERY ROOM:** Includes a GLAZED WINDOW WITH MOSQUITO NET PANEL and a HALF GLASS SINGLE DOOR (D3) WITH DOUBLE LOCKING ARRANGEMENT.
- IPS ROOM:** Includes a door with a width of 1000mm.
- VERANDAH:** 1800 WIDE.

Dimensions and Elevations:

- Vertical Dimensions (Right Side):** 500, 225, 50, 175, 50.
- Horizontal Dimensions:** 450, 800, 1500, 2140, 1000, 2140, 3050, 450, 300, 150.
- Elevations (Right Side):** 4240, 4380, 4110, 2890, 425, 450.
- Other Dimensions:** 450, 910, 1360, 2140, 460, 2440.

Section Line: Indicated by a dashed line with arrows pointing to the left, labeled "SECTION LINE".

Slope: SLOPE = 1:40

Platform: Indicated by a dashed line with arrows pointing to the right, labeled "PLATFORM".

Technical drawing of a window unit showing dimensions and components. The drawing includes a top view and a side view. The top view shows a rectangular frame with a central glass pane and a side panel. The side view shows the frame and glass pane in profile. Dimensions are provided in millimeters (mm).

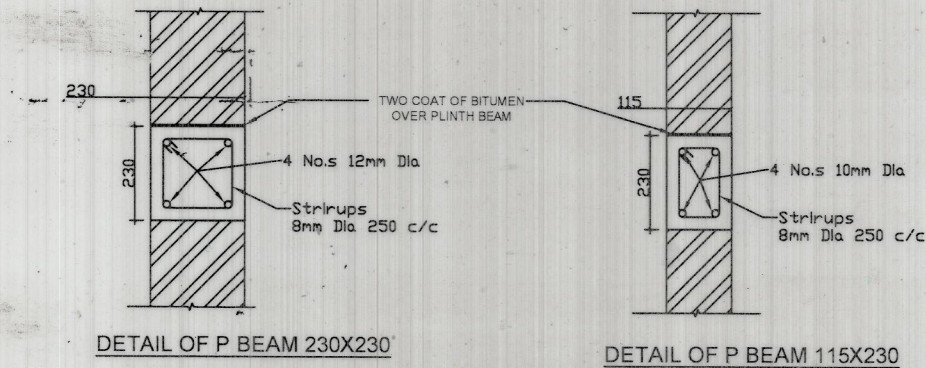
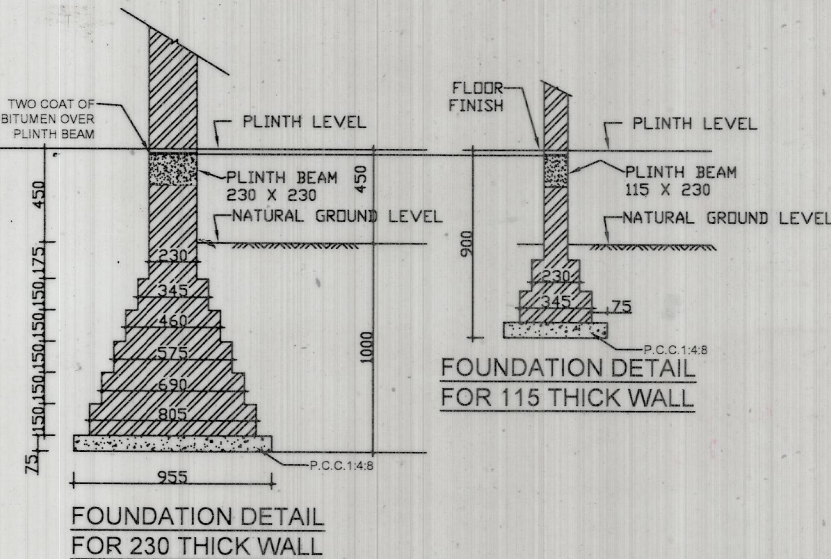
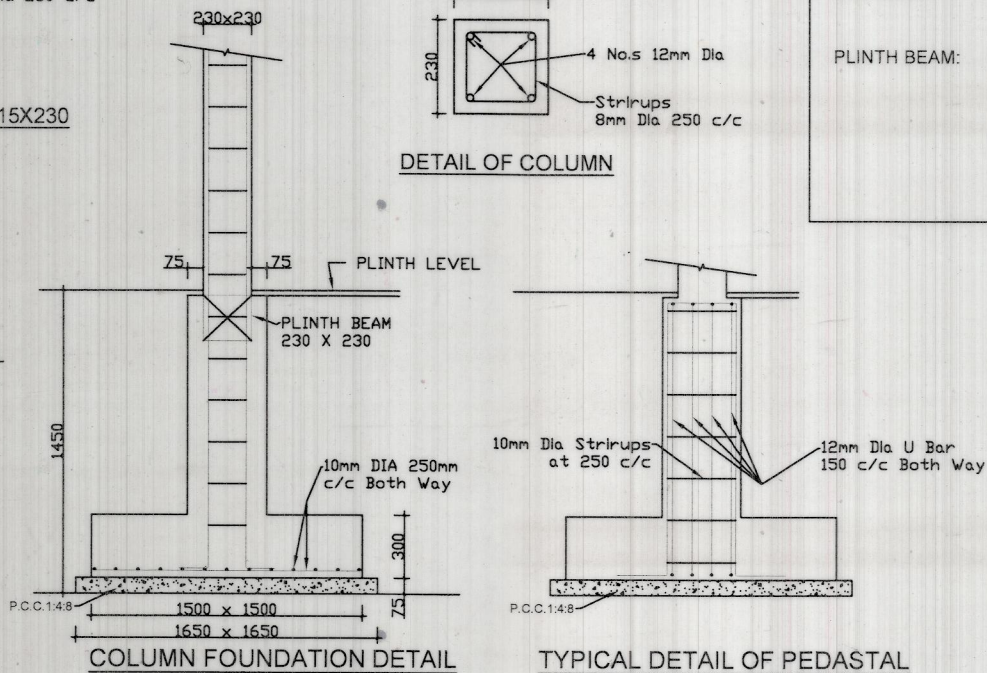
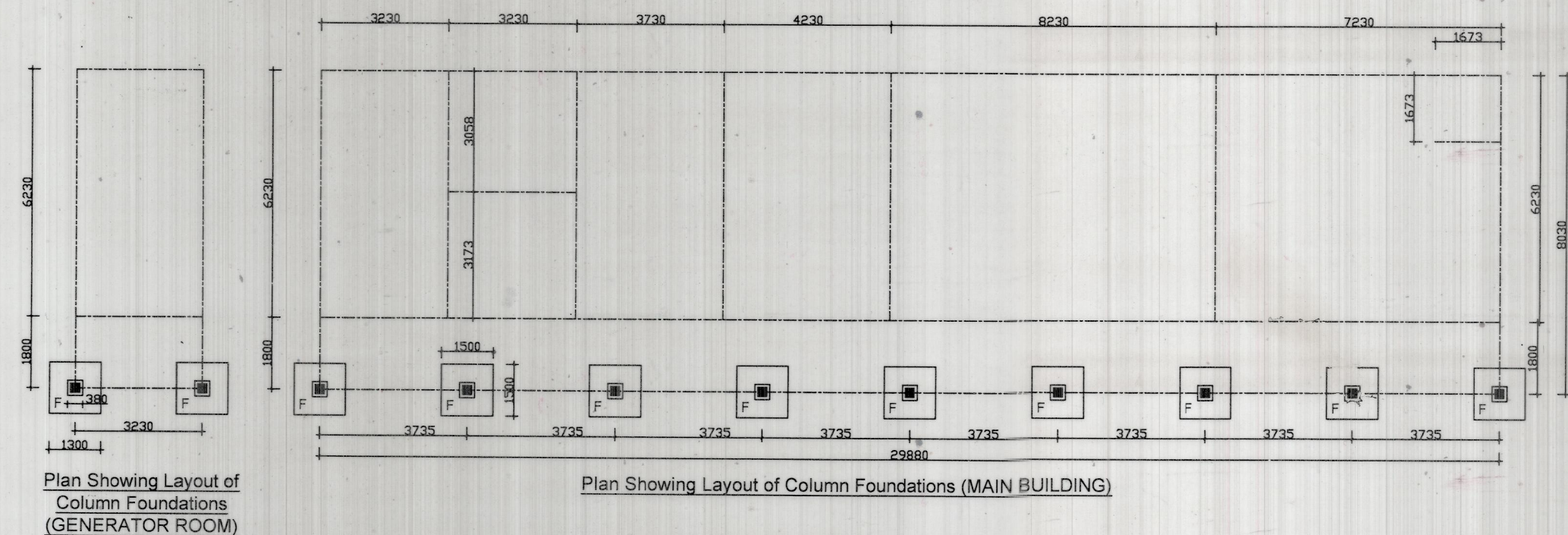
Dimensions (mm):

- Top view:
 - Overall width: 600
 - Frame width (left): 50
 - Frame width (right): 50
 - Central glass pane width: 225
 - Side panel width: 225
- Side view:
 - Overall height: 500
 - Frame height (top): 50
 - Frame height (bottom): 50
 - Central glass pane height: 225
 - Side panel height: 175

Components:

- OBSCURED GLASS
- T, W, FRAME (50x30)

ACHAL JAIN (CE/P&D)	22/2/21 CE/P&D
VIJAY KUMAR PANDHEY (DY.CSTE/D&D)	SIGNED ON 12.02.2021
VAIBHAV PATHAK (DY.CE/P&D)	12/02/21
OM PRAKASH CHETIWAL (XEN/P&D)	SIGNED ON 12.02.2021
MOHD. SHARIF (PREPARED BY: SSE/ARCH.)	SIGNED ON 12.02.2021
NORTHERN RAILWAY	
Title	
S&T SERVICE BUILDING	
Drawing Description	
Elevation & Notes	
outside elevation	
SCALE 1:100	SHEET NO. 03 OF 05
N.R.H.Q.E. PLAN NO. HQ/02/02-2021	



- NOTES
- FOUNDATIONS HAVE BEEN DESIGNED FOR G+1 STOREY.
 - FOR R.C.C. LINTEL AND LINTEL BAND SEE PLAN NO:- N.R.H.Q.E. PLAN NO. HQ/08/02-2002, Q-138.
 - FOR R.C.C. DETAILS OF ROOF SEE SHEET NO.5.

CLEAR COVER TO BE AS FOLLOWS:-

- FOUNDATIONS: 50 MINIMUM OR TWICE DIA OF BAR WHICHEVER IS MORE.
- COLUMNS: 40 MINIMUM OR TWICE DIA OF BAR WHICHEVER IS MORE.
- PLINTH BEAM: 25 MINIMUM OR TWICE DIA OF BAR WHICHEVER IS MORE.

N.R TYPE PLAN NO. O-99/2021

N.R.H.Q.E PLAN NO.: HQ/02/02-2021

- NOTES
- FOR GENERAL ARRANGEMENT SEE SHEET NO. 01 TO 03
 - ALL DIMENSIONS ARE IN MILLIMETRES.
 - MAXIMUM PRESSURE ON FOUNDATIONS = 10 TON/ SQ.M.
 - IN CASE SOIL AT SITE IS NOT SAFE FOR ASSUMED SOIL PRESSURE, THE FOUNDATIONS SHOULD BE ALTERED BY D.EN. UNDER ADVICE TO HEADQUARTER OFFICE.
 - 230 THICK BRICK WORK TO BE IN CEMENT MORTAR (1:6).
 - 115 THICK BRICK WORK TO BE IN CEMENT MORTAR (1:4).
 - PLINTH LEVEL IS TO BE KEPT 450 ABOVE THE PLATFORM LEVEL.
 - PLINTH BEAM AND LINTEL BAND TO BE PROVIDE TO ALL WALLS AS PER DETAILS:-
 - TOP OF PLINTH BEAM TO BE IN LINE WITH BOTTOM OF FLOOR FINISH.
 - BOTTOM OF LINTEL LEVEL SHALL BE AT 2135 FROM TOP OF FLOOR FINISH.
 - ALL R.C.C. WORK SHALL BE IN NOMINAL MIX CONCRETE M-20 AS PER IS:456-2000 CODE OF PRACTICE FOR PLAIN AND REINFORCED CONCRETE.
 - CONCRETING SHALL BE DONE IN ACCORDANCE WITH THE SPECIFICATIONS LAID DOWN IN IS:456-2000.
 - PROPER CURING OF CONCRETE TO ACQUIRE HARDNESS, STRENGTH AND OTHER PROPERTIES ESSENTIAL FOR SATISFACTORY SERVICE SHALL BE ENSURED.
 - ALL CONCRETE SHALL BE MECHANICALLY MIXED AND VIBRATED.
 - COVER TO REINFORCEMENT SHALL NOWHERE BE LESS THAN THAT SHOWN IN THIS DRAWING OR AS SPECIFIED IN IS:456-2000.
 - TMT BARS OF YIELD STRESS 500 N/mm² (TMT-500) WHICH SHALL CONFORM TO IS:1786-1985 SHALL BE USED AS REINFORCEMENT.
 - PARTICULAR CARE MUST BE TAKEN TO ENSURE THAT:
 - NO SAG OCCURS IN THE REINFORCING BARS DURING CONSTRUCTION.
 - STIRRUPS ARE EFFECTIVELY TIED WITH WIRE TO THE MAIN REINFORCING BARS.
 - DEVELOPMENT LENGTH (L_d) FOR DIFFERENT DIA. = 47 X DIA OF BAR
 - SPLICE SHALL NOT BE GIVEN AT SUPPORTS OR AT CENTRE OF SPAN (PREFERABLY BE LOCATED AT QUARTER SPAN.)
 - THE NUMBER OF BARS SHALL BE DECIDED FROM THE SPACING MENTIONED ON THE DRAWING AND NOT BY COUNTING OF BARS.
 - ALL R.C.C. WORK MUST BE CARRIED OUT UNDER THE PERSONAL SUPERVISION OF AN EXPERIENCED CIVIL ENGINEER.

VAIBHAV PATHAK (DY.CE/P&D)	<i>Pathak</i> 24/2/2021
OM PRAKASH CHETIWAL (XEN/P&D)	<i>Chetiwal</i>
JASWANT RAI (CHECKED BY: SSE/DOE)	<i>Rai</i>
BIBHA CHANDRA (DESIGNED BY: SSE/DOE)	<i>Bchandra</i>

NORTHERN RAILWAY

STANDARD PLAN

S&T SERVICE BUILDING

WITH CENTRALIZED INTERLOCKING

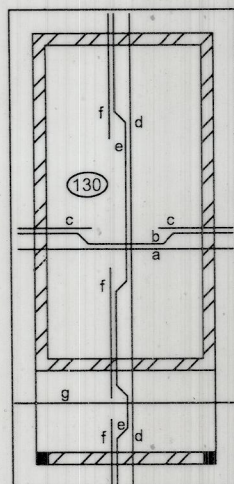
(UP TO 100 ROUTES WITH SINGLE IPS)

Foundations, Plinth Beam and Column Layout and Detail

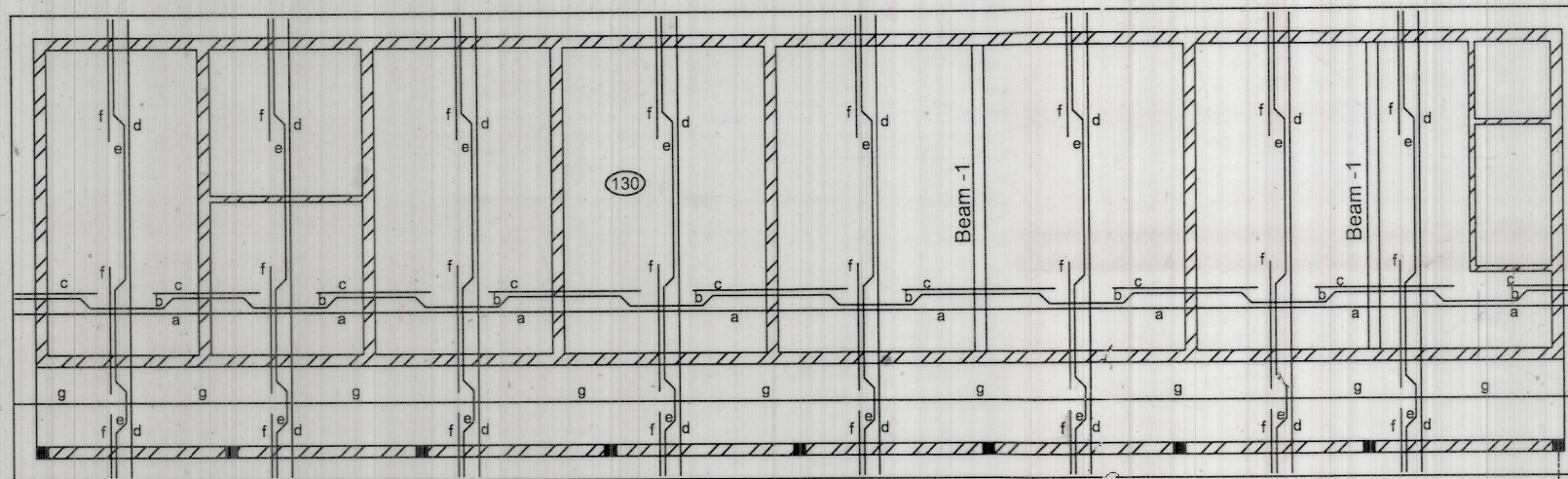
SCALE : NTS @ A3

SHEET NO : 04 OF 05

N.R.H.Q.E. PLAN NO: HQ/02/02-2021

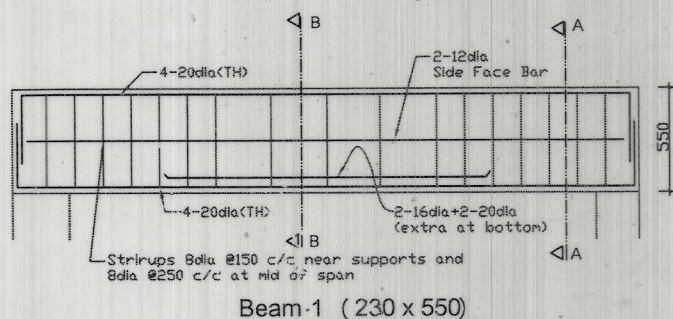


Reinforcement Detail For
Slab of Generator Room

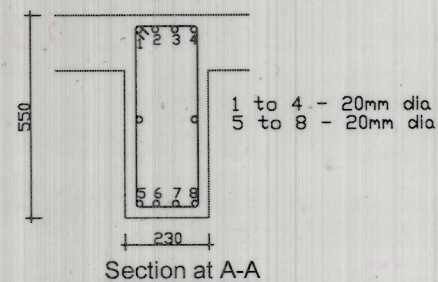


Reinforcement Detail For Slab of Main Building

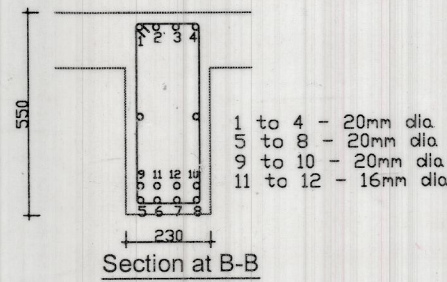
Reinforcement detail of Slab (130mm Thick)		
Bar Name	Dia and Spacing	Type of Bar
a	10 mm dia at 300 c/c	Straight Bar
b	10 mm dia at 300 c/c	Bent Up Bar
c	10 mm dia at 300 c/c	Extra bar at Top
d	8 mm dia at 400 c/c	Straight Bar
e	8 mm dia at 400 c/c	Bent Up Bar
f	8 mm dia at 400 c/c	Extra bar at Top
g	8 mm dia at 250 c/c	Straight Bar
distribution bars in projection area - 8mm dia 250 c/c		



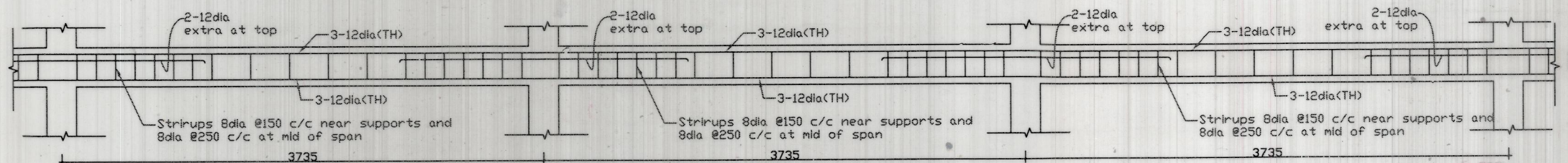
Beam-1 (230 x 550)



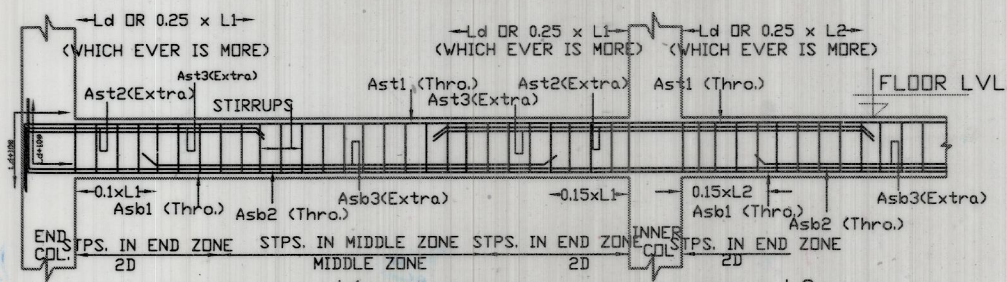
Section at A-A



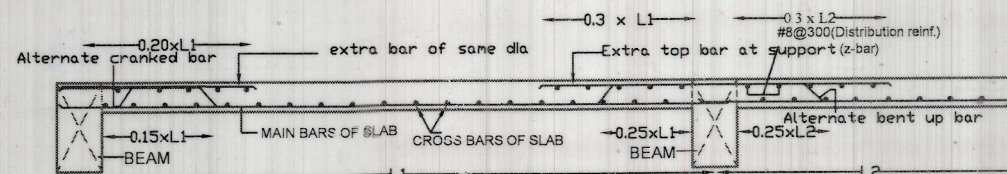
Section at B-B



RCC LINTEL BEAM (230 x 350) OF VERANDAH



TYP.REINF. DETAILS IN THE BEAMS SPANNING BETWEEN SUPPORT TO SUPPORT



TYPICAL SECTION OF SLAB ALONG SHORTER SPAN OF SLAB

VAIBHAV PATHAK
DY.CE/P&D)

OM PRAKASH CHETIWAR
(XEN/P&D)

JASWANT RAI
(CHECKED BY: SSE/DOE)

DIBHA CHANDRA
(DESIGNED BY SSE/DOE)

Naresh
24/2/21

Prakash
24/2/21

Ramand

Bhandra

NORTHERN RAILWAY

STANDARD PLAN
S&T SERVICE BUILDING
WITH CENTRALIZED INTERLOCKING
(UP TO 100 ROUTES WITH SINGLE IPS)

Reinforcement Detail of Lintel Beam, Roof Slab and Roof
Beams

SCALE : NTS@A3

SHEET NO : 05 OF 05

N.R.H.Q.E. PLAN NO:HQ/02/02-2021