

Project Name: 4x270 MW BHADRADRI TPS (MANUGURU)  
Package: Elevator

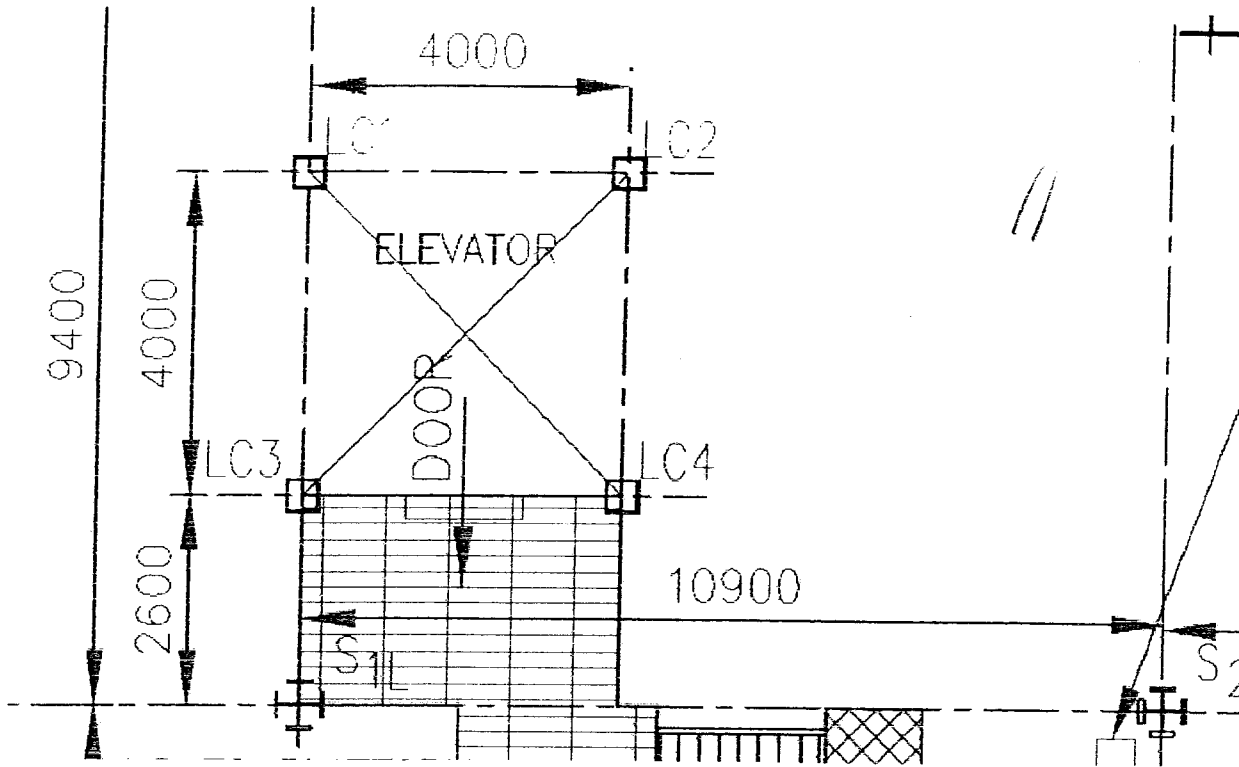
Annexure II

TECHNICAL DETAILS OF GOODS CUM PASSENGER ELEVATOR

Sl. No.	Description	GOODS CUM PASSENGER ELEVATOR
1	Entry to the Elevator	Towards Boiler Side
2	Number required	04
3	Load on the Elevator (Kg)	3000
4	Rated Speed (m/s)	0.55
5	Total Travel (mm)	58500
6	No. of floors to be served	10
7	Landing Levels	00MM,7000.0MM,11500MM, 15500MM 21500MM, 24600MM, 34550MM, 42050MM, 48200MM, 58500MM,
8	Finished floor level	-200 mm (As per drg. no. 0-38-610-02463 rev1)
9	Shaft size of Elevator	4000MM x 4000MM. (Typical Sketch & Structural Drgs. are Attached)



LIFT LOCATION DIAGRAM:



PROJECT: 4x 270 MW BHADRADRI TPS (MANUGURU)

REF. DRAWING: GENERAL ARRANGEMENT BOILER SECTIONAL PLAN DRG No: 0-00-022-76764 Rev 00.

- VENDOR TO NOTE:
- 1) LOCATION OF CAR ENTRANCE AND TRAP DOOR ARE ON THE BOILER SIDE.
  - 2) FINISHED FLOOR LEVEL (FFL) = (-) 200mm.

38-210	Lift Landing Platforms
1-38-210-02610	
38-510	Lift Beams Bracing
0-38-510-02435	
0-38-510-02436	
0-38-510-02437	
0-38-510-02438	
0-38-510-02439	
0-38-510-02440	
2-35-511-00775	Stitch Plate Fixing Arrgt.
38-610	Elevator Cladding Structure
0-38-610-02463	
0-38-610-02464	
1-38-610-01050	
38-710	M/C Room Structure
0-38-710-02585	
0-38-710-02586	
0-38-710-02994	Car Guide & Seperator Channels For Elevator
3-35-110-00995	Production Notes
35-160	
0-35-160-10453	Lift Column Assy.
0-35-160-10454	Assy. of horizontal lift beams

*Handwritten signature*

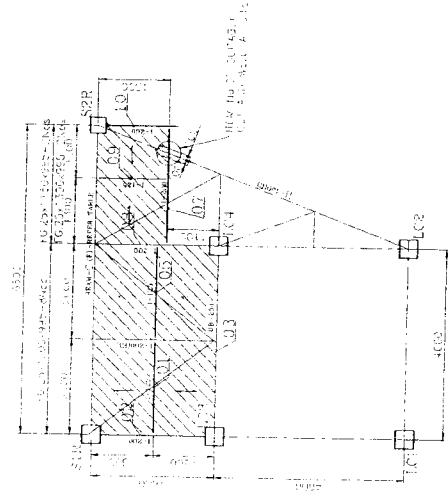
WELD TABLE

NO.	DESCRIPTION	WELD TYPE	WELD SIZE	WELD LENGTH
1	Column to Beam	CP	1/2"	4"
2	Beam to Beam	CP	1/2"	4"
3	Beam to Column	CP	1/2"	4"
4	Beam to Column	CP	1/2"	4"
5	Beam to Column	CP	1/2"	4"
6	Beam to Column	CP	1/2"	4"
7	Beam to Column	CP	1/2"	4"
8	Beam to Column	CP	1/2"	4"
9	Beam to Column	CP	1/2"	4"
10	Beam to Column	CP	1/2"	4"

Column	Beam
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10

REQUIREMENTS OF JOINT  
MEMBERS AND BEAMS

NO.	DESCRIPTION	WELD TYPE	WELD SIZE	WELD LENGTH
1	Column to Beam	CP	1/2"	4"
2	Beam to Beam	CP	1/2"	4"
3	Beam to Column	CP	1/2"	4"
4	Beam to Column	CP	1/2"	4"
5	Beam to Column	CP	1/2"	4"
6	Beam to Column	CP	1/2"	4"
7	Beam to Column	CP	1/2"	4"
8	Beam to Column	CP	1/2"	4"
9	Beam to Column	CP	1/2"	4"
10	Beam to Column	CP	1/2"	4"

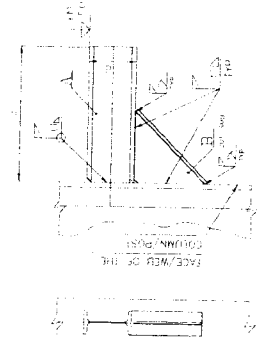
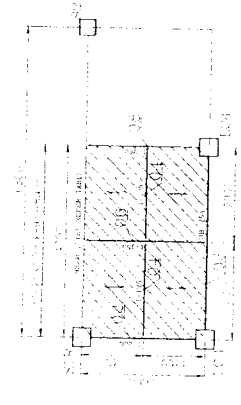


LEGEND

- 1/2" CP
- 1/2" CP

NOTES

1. MATERIALS SHALL BE AS SPECIFIED IN THE DRAWINGS AND SHALL BE OF THE BEST QUALITY AVAILABLE.
2. WORKMANSHIP SHALL BE AS SPECIFIED IN THE DRAWINGS AND SHALL BE OF THE BEST QUALITY AVAILABLE.
3. ALL DIMENSIONS SHALL BE IN FEET AND INCHES UNLESS OTHERWISE SPECIFIED.
4. ALL DIMENSIONS SHALL BE TO THE FACE UNLESS OTHERWISE SPECIFIED.
5. ALL DIMENSIONS SHALL BE TO THE CENTER UNLESS OTHERWISE SPECIFIED.
6. ALL DIMENSIONS SHALL BE TO THE OUTSIDE UNLESS OTHERWISE SPECIFIED.
7. ALL DIMENSIONS SHALL BE TO THE INSIDE UNLESS OTHERWISE SPECIFIED.
8. ALL DIMENSIONS SHALL BE TO THE CENTERLINE UNLESS OTHERWISE SPECIFIED.
9. ALL DIMENSIONS SHALL BE TO THE CENTERLINE UNLESS OTHERWISE SPECIFIED.
10. ALL DIMENSIONS SHALL BE TO THE CENTERLINE UNLESS OTHERWISE SPECIFIED.



NO.	DESCRIPTION	WELD TYPE	WELD SIZE	WELD LENGTH
1	Column to Beam	CP	1/2"	4"
2	Beam to Beam	CP	1/2"	4"
3	Beam to Column	CP	1/2"	4"
4	Beam to Column	CP	1/2"	4"
5	Beam to Column	CP	1/2"	4"
6	Beam to Column	CP	1/2"	4"
7	Beam to Column	CP	1/2"	4"
8	Beam to Column	CP	1/2"	4"
9	Beam to Column	CP	1/2"	4"
10	Beam to Column	CP	1/2"	4"



LET LANDING PLATFORM

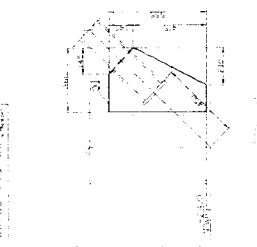




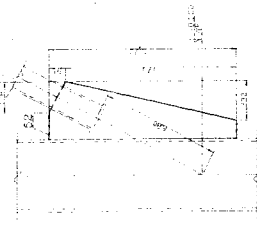




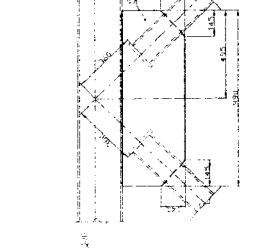
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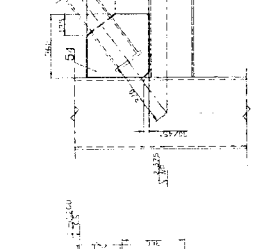
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WINDOW HEAD



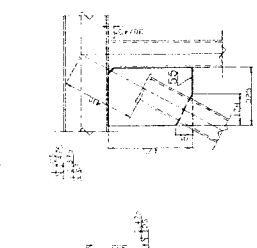
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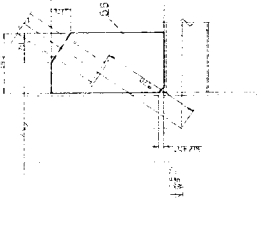
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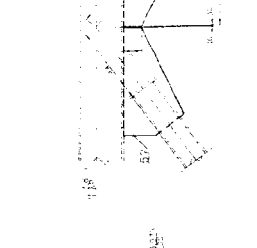
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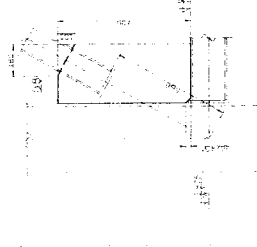
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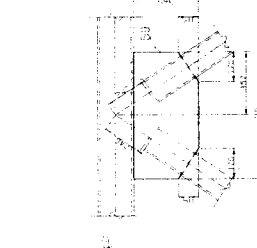
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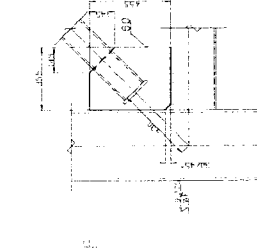
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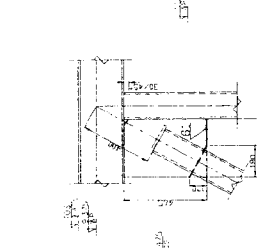
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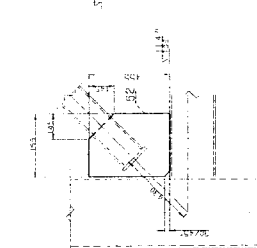
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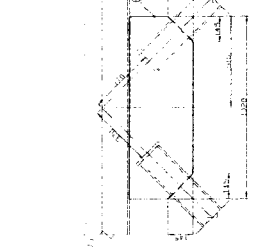
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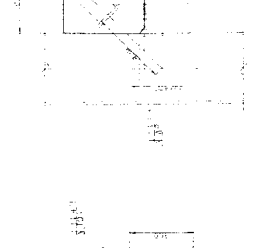
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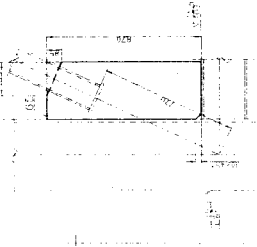
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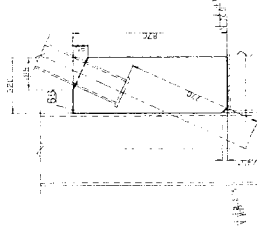
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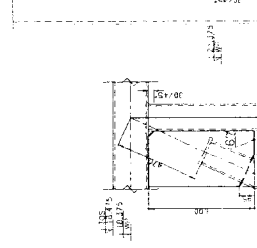
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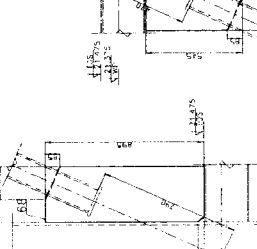
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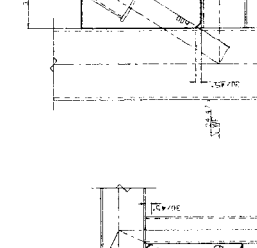
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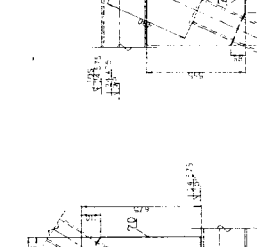
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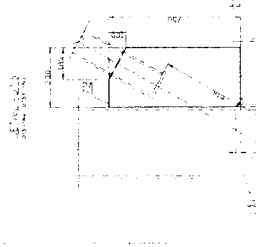
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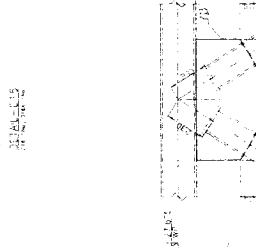
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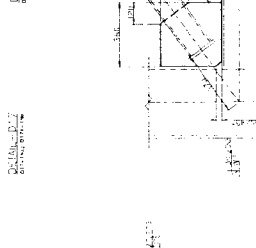
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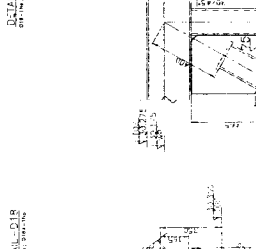
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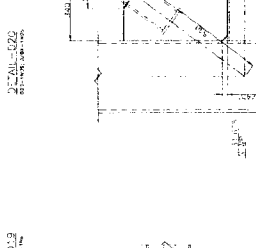
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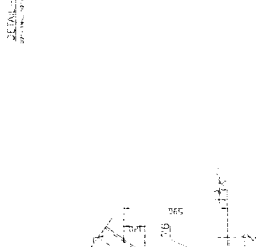
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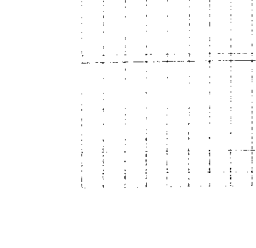
DETAIL-024  
WINDOW HEAD



DETAIL-025  
WINDOW HEAD



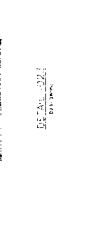
DETAIL-026  
WINDOW HEAD



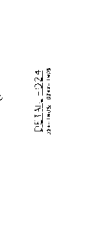
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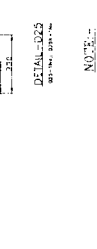
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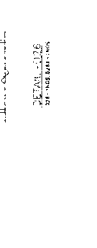
DETAIL-029  
WINDOW HEAD



DETAIL-030  
WINDOW HEAD



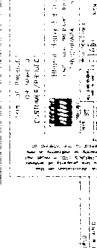
DETAIL-031  
WINDOW HEAD



DETAIL-032  
WINDOW HEAD



DETAIL-033  
WINDOW HEAD

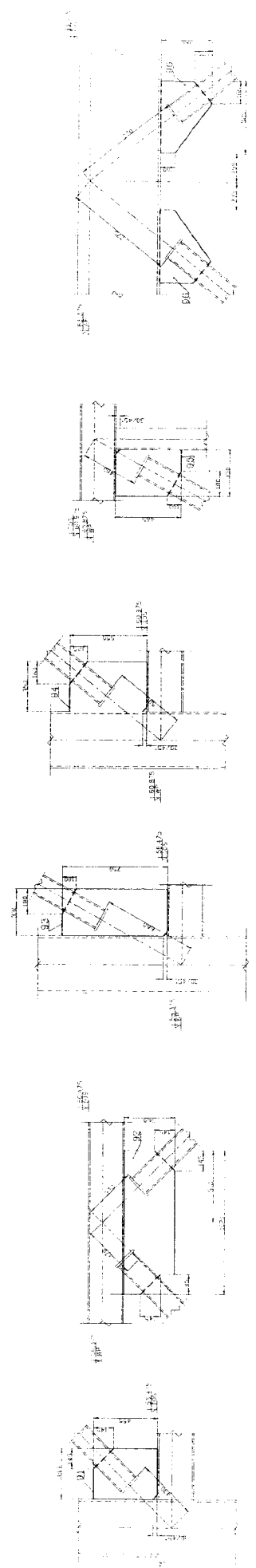
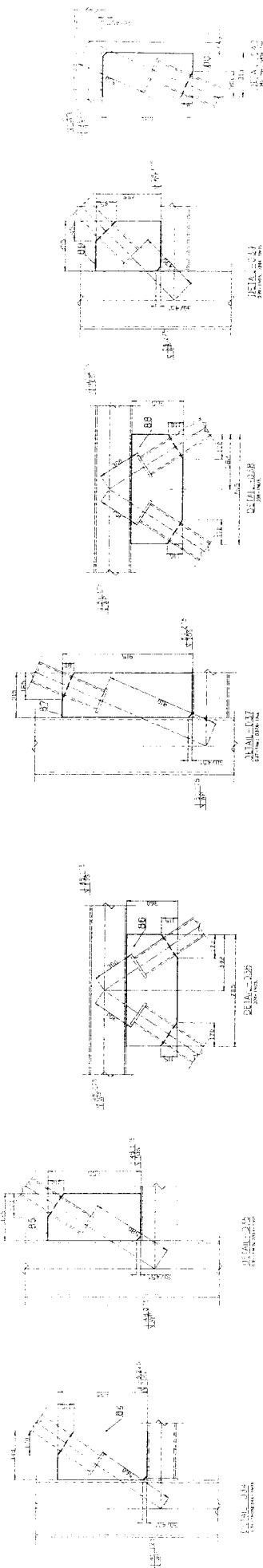
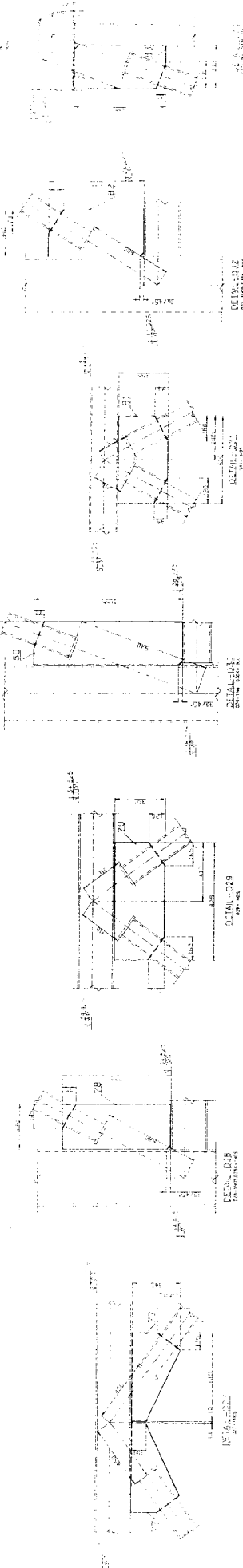


DETAIL-034  
WINDOW HEAD

NOTE:  
THIS DRAWING IS TO BE READ ALONG WITH DRG No. 61-500-105-105

CONTRACTOR: **BEAVER & BROWN**  
 ARCHITECT: **BEAVER & BROWN**  
 PROJECT: **...**  
 DATE: **...**  
 SHEET: **...**

974 (2) (1) 5/52











Welding Schedule

Welding	Quantity	Unit	Material
Welding	1000	sq ft	Welding
Welding	2000	sq ft	Welding
Welding	3000	sq ft	Welding
Welding	4000	sq ft	Welding
Welding	5000	sq ft	Welding
Welding	6000	sq ft	Welding
Welding	7000	sq ft	Welding
Welding	8000	sq ft	Welding
Welding	9000	sq ft	Welding
Welding	10000	sq ft	Welding

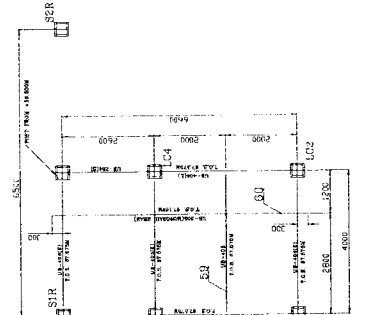
Column Schedule

Column	Quantity	Unit	Material
Column	100	sq ft	Column
Column	200	sq ft	Column
Column	300	sq ft	Column
Column	400	sq ft	Column
Column	500	sq ft	Column
Column	600	sq ft	Column
Column	700	sq ft	Column
Column	800	sq ft	Column
Column	900	sq ft	Column
Column	1000	sq ft	Column

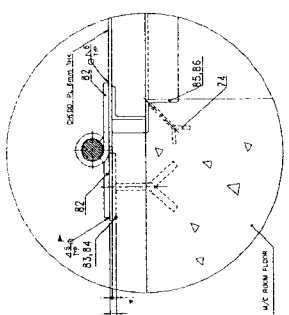
Item	Description	Quantity	Unit	Material
1	CONCRETE	1000	cu yd	CONCRETE
2	STEEL	2000	sq ft	STEEL
3	WELDING	3000	sq ft	WELDING
4	BRICK	4000	sq ft	BRICK
5	PLASTER	5000	sq ft	PLASTER
6	PAINT	6000	sq ft	PAINT
7	GLASS	7000	sq ft	GLASS
8	DOOR	8000	sq ft	DOOR
9	WINDOW	9000	sq ft	WINDOW
10	ROOF	10000	sq ft	ROOF
11	FLOOR	11000	sq ft	FLOOR
12	WALL	12000	sq ft	WALL
13	CEILING	13000	sq ft	CEILING
14	MECHANICAL	14000	sq ft	MECHANICAL
15	ELECTRICAL	15000	sq ft	ELECTRICAL
16	PLUMBING	16000	sq ft	PLUMBING
17	INSULATION	17000	sq ft	INSULATION
18	FINISH	18000	sq ft	FINISH
19	LANDSCAPE	19000	sq ft	LANDSCAPE
20	UTILITIES	20000	sq ft	UTILITIES

Material Schedule

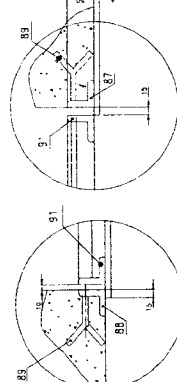
Material	Quantity	Unit	Material
Material	1000	sq ft	Material
Material	2000	sq ft	Material
Material	3000	sq ft	Material
Material	4000	sq ft	Material
Material	5000	sq ft	Material
Material	6000	sq ft	Material
Material	7000	sq ft	Material
Material	8000	sq ft	Material
Material	9000	sq ft	Material
Material	10000	sq ft	Material



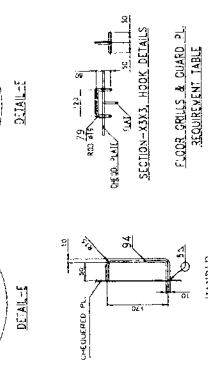
M/C ROOF AT 67.575M(TOS)



M/C ROOM FLOOR



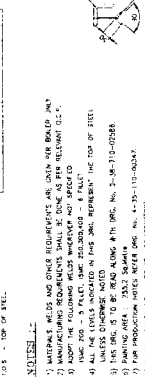
TRAP DOOR ASSEMBLY



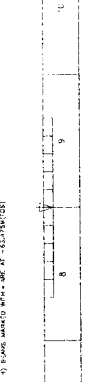
HINGE DETAILS



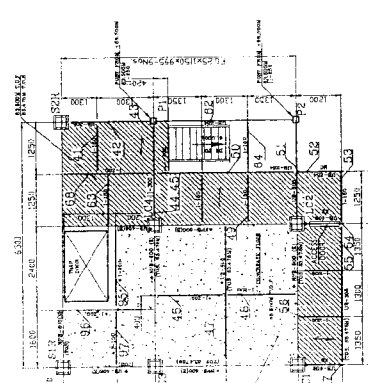
ANCHOR DETAIL - TYPE 1



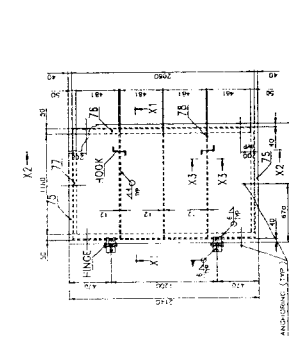
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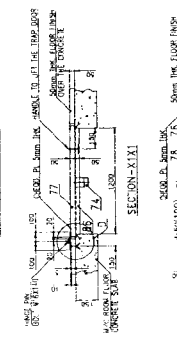
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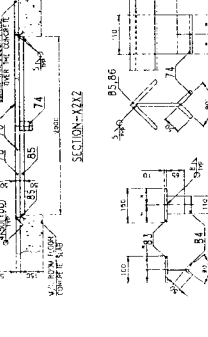
CON. PLATFORM TO M/C ROOM FLOOR AT 68.000M(TOP) LEVEL



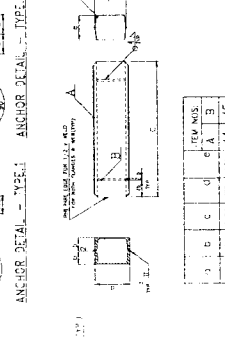
SUN. PLATFORM TO M/C ROOM FLOOR AT 68.000M(TOP) LEVEL



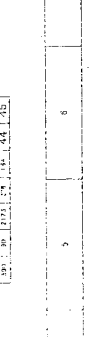
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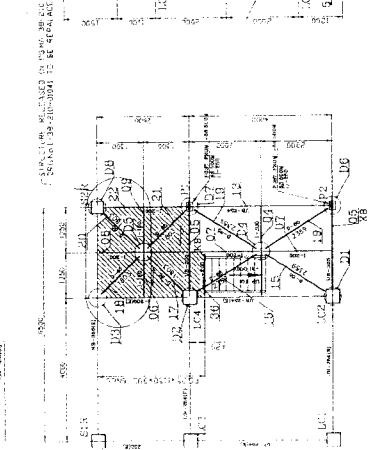
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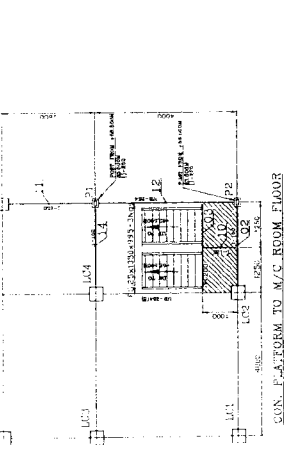
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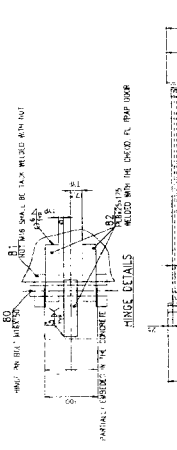
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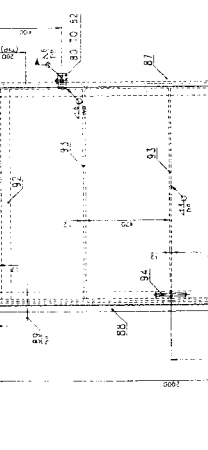
SUN. PLATFORM TO M/C ROOM FLOOR AT 68.000M(TOP) LEVEL



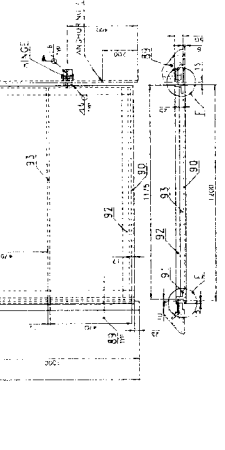
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SECTION - XXXIV



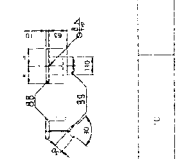
SECTION - XXXV



SECTION - XXXVI



SECTION - XXXVII



LEGEND -  
 1. 10% TOP OF STEEL  
 2. 10% TOP OF STEEL  
 3. 10% TOP OF STEEL  
 4. 10% TOP OF STEEL  
 5. 10% TOP OF STEEL  
 6. 10% TOP OF STEEL  
 7. 10% TOP OF STEEL  
 8. 10% TOP OF STEEL  
 9. 10% TOP OF STEEL  
 10. 10% TOP OF STEEL

REQUIREMENT TABLE

Item	Requirement
1	REQUIREMENT
2	REQUIREMENT
3	REQUIREMENT
4	REQUIREMENT
5	REQUIREMENT
6	REQUIREMENT
7	REQUIREMENT
8	REQUIREMENT
9	REQUIREMENT
10	REQUIREMENT

NOTES -  
 1. ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SPECIFIED.  
 2. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.  
 3. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.  
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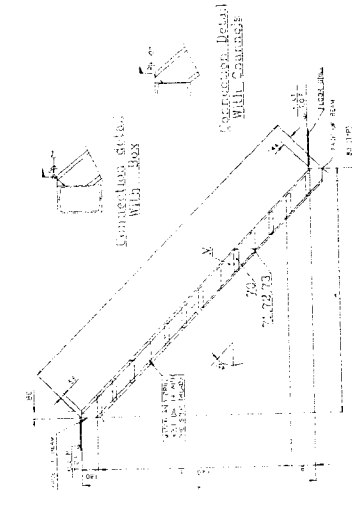
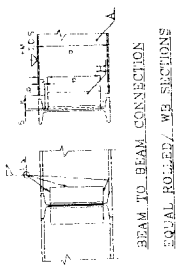
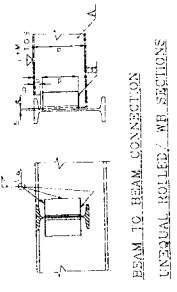


TABLE 1

SECTION	NO.	DESCRIPTION	AMOUNT	UNIT
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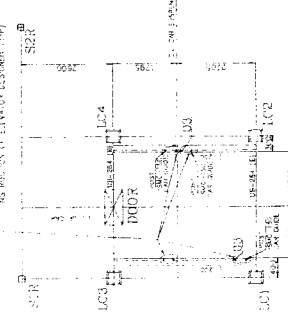


SECTION	NO.	DESCRIPTION	AMOUNT	UNIT
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SECTION	NO.	DESCRIPTION	AMOUNT	UNIT
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SECTION 204 CAR SEPARATION BARS  
 40% TO BE ASSILED AND CRESTED AS PER "C"  
 60% TO BE AT ELEVATION 2100 (1.74)



DRAWING NO: **3-35-110-00995**

**PRODUCTION NOTES APPLICABLE FOR PG 34,35,36,38 & 39 & PGMA:08-400**

**MATERIAL SUBSTITUTION**

- 01. S2062Fe40A GRADE IS ACCEPTABLE IN PLACE OF S2062Fe40A GRADE & VICE VERSA.
- 02. ASTM A36 MATERIAL SUBSTITUTION IS ACCEPTABLE IN PLACE OF S2062 MATERIAL.
- 03. ROUND SA105 IS ACCEPTABLE IN PLACE OF S2062.
- 04. SUBSTITUTION OF PARALLEL FLANGE (H) BEAMS ARE ACCEPTABLE IN PLACE OF ISMB SECTIONS & VICE VERSA. DETAILS AS FOLLOWS:  
 UB-203=ISMB200, UB-254=ISMB250, UB-305=ISMB300, UB-356=ISMB350,  
 UB-406=ISMB400, NPB-450=ISMB450, NPB-500=ISMB500 & NPB-600=ISMB600.
- 05. SUBSTITUTION OF WELDED JOINTS ARE ACCEPTABLE IN PLACE OF ROLLED SECTIONS.  
 WPB-700, WPB-700, WPB-800 AND WPB-900. DETAILS AS FOLLOWS:  
 a) WPLB-700=WB-670X300-20/16, b) WPHB-700=WB-690X300-32/16,  
 c) WPB-800=WB-800X300-36/20, d) WPB-900=WB-900X300-36/20.

**MONORAIL SECTION SUBSTITUTION**

01. FOR MONORAILS, SUBSTITUTION WITH ROLLED ISMB SECTIONS IN PLACE OF JINDAL SECTIONS AND VICE VERSA IS NOT ACCEPTABLE. DETAILS AS FOLLOWS:  
 ISMB-400 FOR UB-406, ISMB-500 FOR NPB-500 AND VICE VERSA

**OPTIONAL SHOP JOINTS (EXCEPT CEILING GIRDER JOINTS)**

- 01. OPTIONAL SHOP JOINTS TO SUIT MATERIAL LENGTH AVAILABILITY CAN BE PROVIDED SUBJECT TO THE CONDITIONS GIVEN BELOW:  
 a. FOR MEMBER OF LENGTH 8 MTR. AND LESS, ONE JOINT IN FLANGE AND ONE JOINT IN WEBS PERMITTED.  
 b. FOR MEMBER OF LENGTH MORE THAN 8 MTR. TWO JOINTS PER FLANGE AND ONE JOINT PER WEB IS PERMITTED.

**(A) COLUMNS**

- 01. OPTIONAL JOINT CAN BE PROVIDED IN THE SHOP FOR ANY PIECE OF COLUMN HOWEVER, IT MUST CLEAR 500 MM ABOVE AND 1000 MM BELOW THE FLOOR LEVELS MENTIONED IN THE COLUMN ASSY. DRAWING ISSUED FOR EACH PROJECT.  
 02. SHOP JOINTS FOR FLANGE AND WEB IN ANY PIECE OF THE COLUMN BE IT PLUS OR MINIMUM 300 MM IS TO BE MAINTAINED.  
 03. IN WEB PLATE OF PLUS-I COLUMN, SHOP JOINT IN BOTH THE WEBS AT SAME ELEVATION WILL NOT BE PERMITTED.  
 04. IN BUTT JOINT, THERE IS ANY ROOT GAP SHOWN IN THE DRAWING, IT IS A COMPLETE PENETRATION WELD AND IF THERE IS NO ROOT GAP SHOWN IN THE DRAWING, IT IS A PARTIAL JOINT PENETRATION WELD.

**(B) ROLLED BEAMS**

- 01. IN 35-4XX SERIES (HORIZONTAL BEAMS) NO JOINT IS PERMITTED BELOW 10 METERS.  
 02. SHOP JOINT FOR ROLLED SECTION CAN BE PROVIDED BETWEEN 1/3 TO 1/5 OF SPAN. SPLICE PLATE SIZE & WELD SIZE SHOULD BE MAINTAINED AS PER DRG.NO:3-35-110-00686.

**(C) WELDED BEAMS/WELDED BRACING**

- 01. IN WELDED BEAMS, SHOP JOINT IN THE FLANGE PLATE MUST BE PROVIDED BETWEEN 1/3 OF SPAN TO 1/5 OF SPAN OF THE BEAM.
- 02. IN THE WEB OF WELDED BEAM, JOINT MUST BE PROVIDED AT CENTRE OR AT ±500 FROM THE CENTRE OF THE BEAM.
- 03. IN CASE OF WBOX VERTICAL BRACINGS, JOINTS CAN BE PROVIDED WITH NO RESTRICTION OF LOCATION. HOWEVER, AN OFFSET OF 300MM IS TO BE MAINTAINED BETWEEN JOINTS IN ADJACENT SIDES.

**(D) STANDARD REFERENCE DRAWINGS FOR MANUFACTURING**

- 01. FOR VERTICAL BRACING WELDING DETAILS, REFER DRGS.0-35-511-07146 & 1-35-511-05699
- 02. FOR PRODUCTION NOTES OF WELDED BEAM & WELDED BOX, REFER DRGS. 1-35-441-04620, 3-35-440-00697 & 1-35-441-05644.
- 03. FOR MANUFACTURING DETAILS OF WELDED PLUS-I COLUMN, REFER DRGS. 0-35-110-05306 & 0-35-110-08605
- 04. FOR MANUFACTURING DETAILS OF WBOX COLUMN, REFER DRGS. 1-35-140-02933 & 1-35-140-06373
- 05. FOR STITCH PLATE FIXING DETAILS, REFER DRG. 2-35-511-00775/ATES" REV
- 06. FOR SHOP JOINTS IN ROLLED SECTIONS, REFER DRG. 3-35-110-00686.
- 07. FOR I.D SYSTEM FABRICATION DETAIL, REFER DRG.NO. 0-39-150-05223/ATEST REV.02.

**(E) FABRICATION TOLERANCE FOR MANUFACTURING**

- 01. REFER DRAWING NO: 3-35-110-02828 FOR FABRICATION TOLERANCE OF STRUCTURAL ITEMS.

REV	DATE	ALTERED BY	PREV. DATE	ALTERED DATE	DATE	ALTERED BY	DATE
09	23.04.2014	CHD&APPD	08	04.03.2014	CHD & APPD	07	25.11.2013
08							

NOTE NO.01 IN MATERIAL SUBSTITUTION

NOTE NO.01 IN MATERIAL SUBSTITUTION

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT

Bratic Heavy Electric's Ltd  
 UNIT: H.P. PRESSURE BOILER PLANT  
 TIRUCHIRAPALLI - 620014

DRN: P.SHAMARAJI  
 CHD: K.KESAVAN  
 APPD: R.BYAKUMAR

DATE: 22.02.10  
 DATE: 22.02.10  
 DATE: 23.02.10

WEIGHT (Kg): 4-35-110-00347

REF TO ASSY / O.D. DRG: 4-35-110-00347

DEPT: ST  
 CODE: 122

ALL DIMENSIONS ARE IN MM

PROJECTION SCALE

DRAWING NO: 3-35-110-00995

TITLE: PRODUCTION NOTES

REV: 09

REV	DATE	ALTERED BY	PREV. DATE	ALTERED DATE	DATE	ALTERED BY	DATE
06	17.09.13	CHD & APPD	05	21.09.2012	CHD & APPD	04	20.03.2012
05							

OPTIONAL SHOP JOINT NOTE REVISED FOR WPB-700 & WPB-800

MATERIAL SUBSTITUTION NOTE ADDED FOR WPB-700 & WPB-800

MATERIAL SUBSTITUTION NOTE ADDED AND MONORAIL SUBSTITUTION NOTE ADDED AND DRG. 30A.E2.

REV: 03

DATE: 25.09.2010

ALTERED BY: CHD & APPD

PREV. DATE: 02

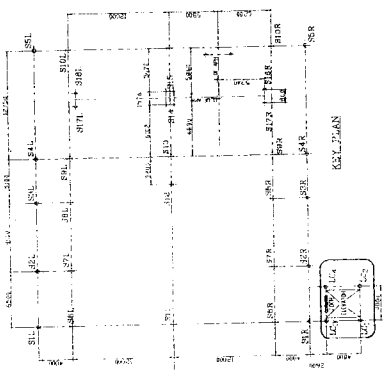
ALTERED DATE: 25.09.2010

DATE: 01

ALTERED BY: R.RAMASAMY

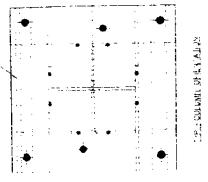
DATE: 01

CAUTION: The information in this document is the property of BRATIC HEAVY ELECTRIC'S LTD. It must not be used directly or indirectly to the interest of the company.



**FLOOR SLABS**

NO.	ELEVATION	THICKNESS
1	11.00	150
2	11.00	150
3	11.00	150
4	11.00	150
5	11.00	150
6	11.00	150
7	11.00	150
8	11.00	150
9	11.00	150
10	11.00	150
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95	11.00	150
96	11.00	150
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REQUIREMENT OF REINFORCEMENT IN BOX COLUMNS SECTION 0275

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**END COVERING SHEET DETAIL**

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REVISIONS

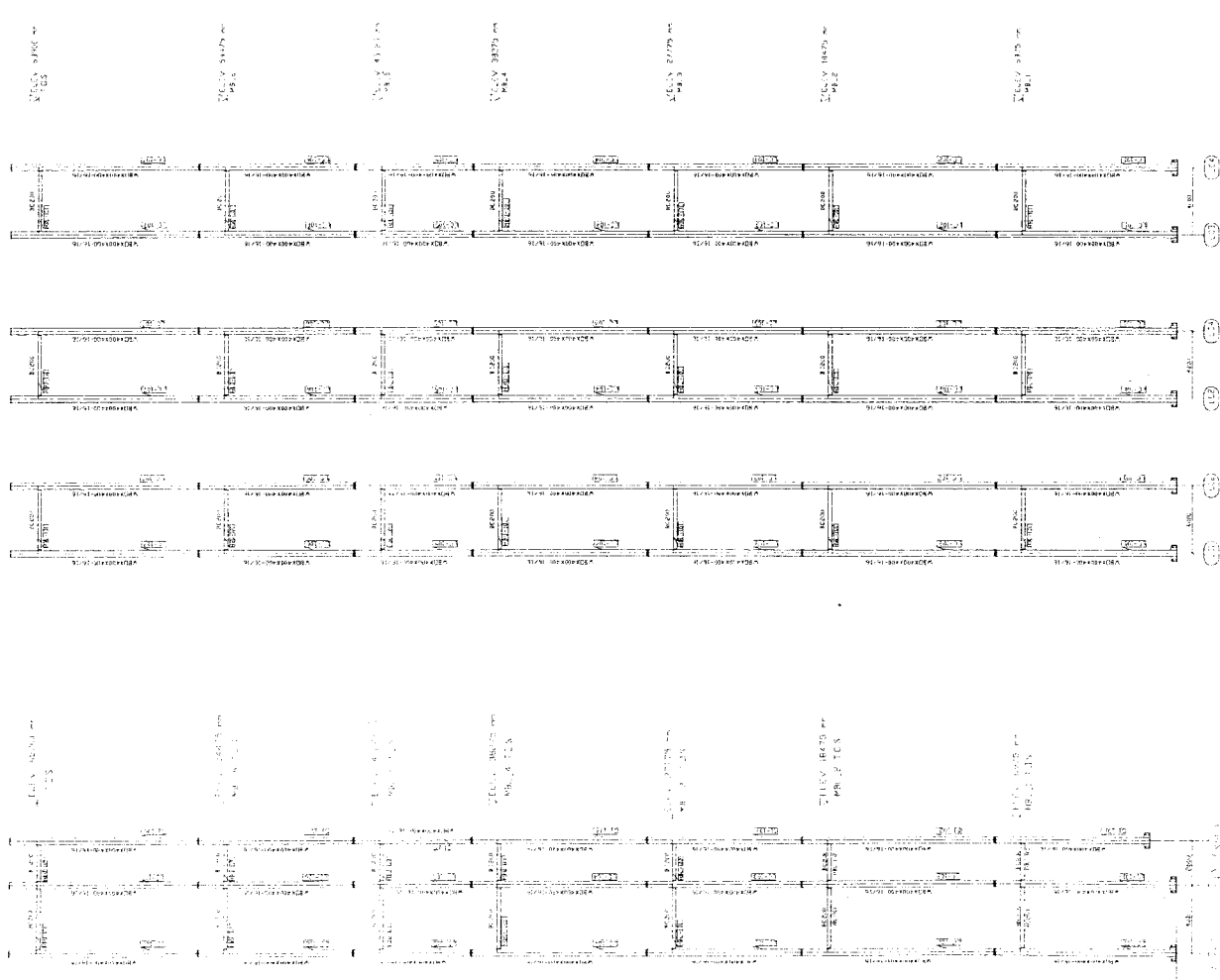
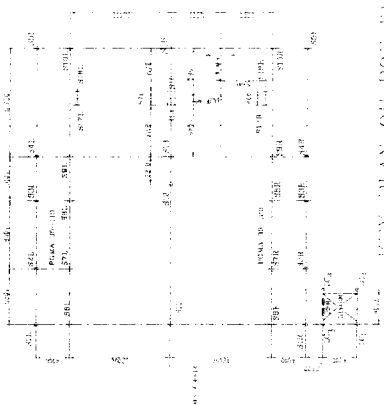
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NOTES

1. ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SPECIFIED.
2. ALL REINFORCEMENT SHALL BE AS PER IS: 456-1978 AND IS: 1786-1983.
3. ALL REINFORCEMENT SHALL BE PROVIDED AS PER THE DRAWINGS.
4. ALL REINFORCEMENT SHALL BE PROVIDED AS PER THE DRAWINGS.
5. ALL REINFORCEMENT SHALL BE PROVIDED AS PER THE DRAWINGS.

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  - 106 - 25/100/80
  - 107 - 125/100/80
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  - 114 - 75/100/80
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  - 116 - 25/100/80
- NOTAS**
1. BOILER - 150/100/80
  2. CONDENSER - 125/100/80
  3. WATER TANK - 100/100/80
  4. PUMPS - 75/100/80
  5. PIPING - 50/100/80
  6. VALVES - 25/100/80
  7. FITTINGS - 125/100/80
  8. ELECTRICAL - 100/100/80
  9. MECHANICAL - 75/100/80
  10. MATERIALS - 50/100/80
  11. LABOR - 25/100/80
  12. SUPPLIES - 125/100/80
  13. TOOLS - 100/100/80
  14. SAFETY - 75/100/80
  15. MAINTENANCE - 50/100/80
  16. REPAIRS - 25/100/80
  17. INSPECTION - 125/100/80
  18. TESTING - 100/100/80
  19. RECORDS - 75/100/80
  20. TRAINING - 50/100/80
  21. DOCUMENTATION - 25/100/80
  22. COMMUNICATION - 125/100/80
  23. PROBLEM SOLVING - 100/100/80
  24. PREVENTIVE MAINTENANCE - 75/100/80
  25. CORRECTIVE MAINTENANCE - 50/100/80
  26. EMERGENCY RESPONSE - 25/100/80
  27. QUALITY CONTROL - 125/100/80
  28. CUSTOMER SERVICE - 100/100/80
  29. SALES - 75/100/80
  30. MARKETING - 50/100/80
  31. FINANCE - 25/100/80
  32. HUMAN RESOURCES - 125/100/80
  33. LEGAL - 100/100/80
  34. COMPLIANCE - 75/100/80
  35. RISK MANAGEMENT - 50/100/80
  36. ENVIRONMENTAL - 25/100/80
  37. SOCIAL RESPONSIBILITY - 125/100/80
  38. GOVERNANCE - 100/100/80
  39. STRATEGY - 75/100/80
  40. INNOVATION - 50/100/80
  41. RESEARCH AND DEVELOPMENT - 25/100/80
  42. OPERATIONS - 125/100/80
  43. LOGISTICS - 100/100/80
  44. SUPPLY CHAIN - 75/100/80
  45. DISTRIBUTION - 50/100/80
  46. RETAIL - 25/100/80
  47. PARTNERSHIPS - 125/100/80
  48. ACQUISITIONS - 100/100/80
  49. MERGERS - 75/100/80
  50. DIVESTITURES - 50/100/80

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