

BHEL JOB NUMBER : 44AC7500

CLIENT NAME : INDIAN OIL CORPORATION LIMITED

PROJECT NAME : EPCM SERVICES FOR PX-PT EXPANSION PROJECT

LOCATION : PANIPAT, HARYANA

NIT NUMBER / NAME : HOT OIL HEATER / 21-F-1251

COMMENT RESOLUTION SHEET ON HEATER PLANS

ITEM NO.	ITEM REFERENCE	COMMENT DATE	COMMENT ORIGINATOR	COMMENTS	BHEL REPLY Dt.04-10-21
1	44AC-7500-221-M-B01-0001-A1 (BHEL DRG.1-48-000-U6008)	26/8/2021	Customer / PMC	Vendor to indicate center post location in plan, foundation GA also	Updated in the present drawing and Foundation GA will be submitted separately.
2		26/8/2021	Customer / PMC	Piping Stress is in vendor scope. However kindly refer displacement coming at the B/L	The piping displacement will be taken care in Piping Drg. Separately.

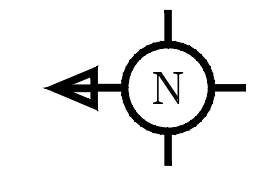
Worley Reply

Noted

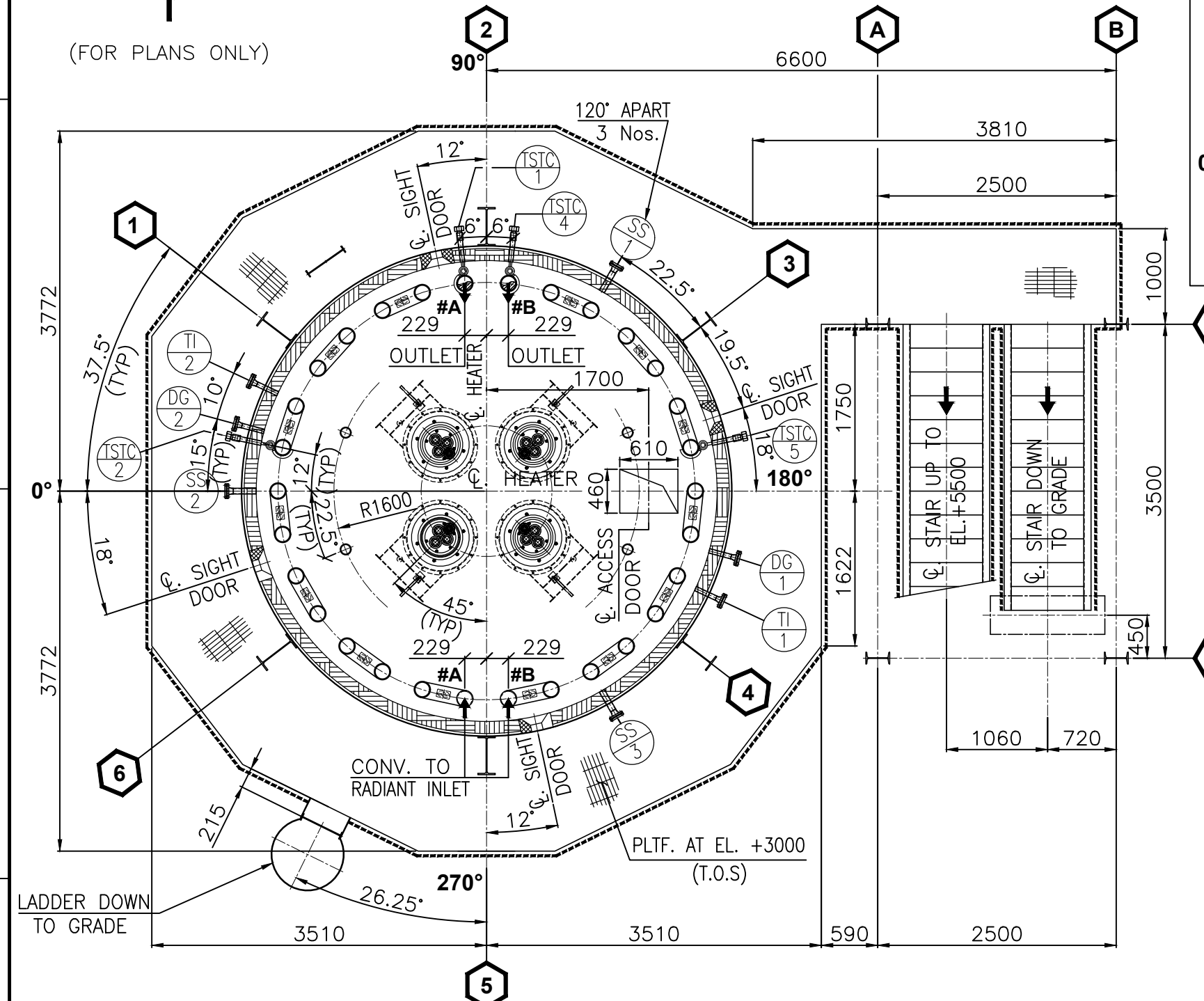
Noted

NOTE: BCD updated to 1620 mm as against 1372 mm based on Burner Vendor requirement.

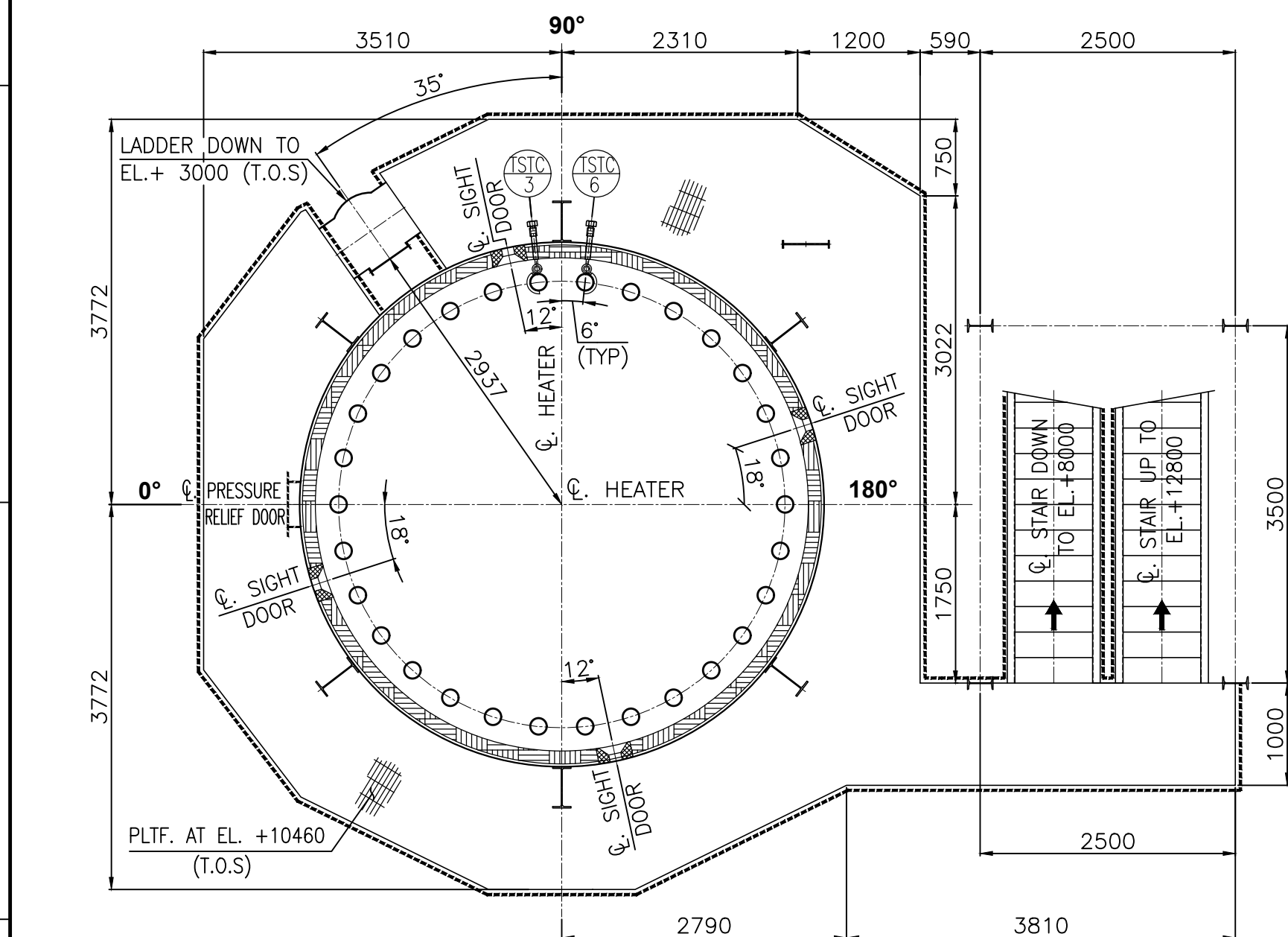
6009-U6009
DRAWING NO. 1-48-000-U6009



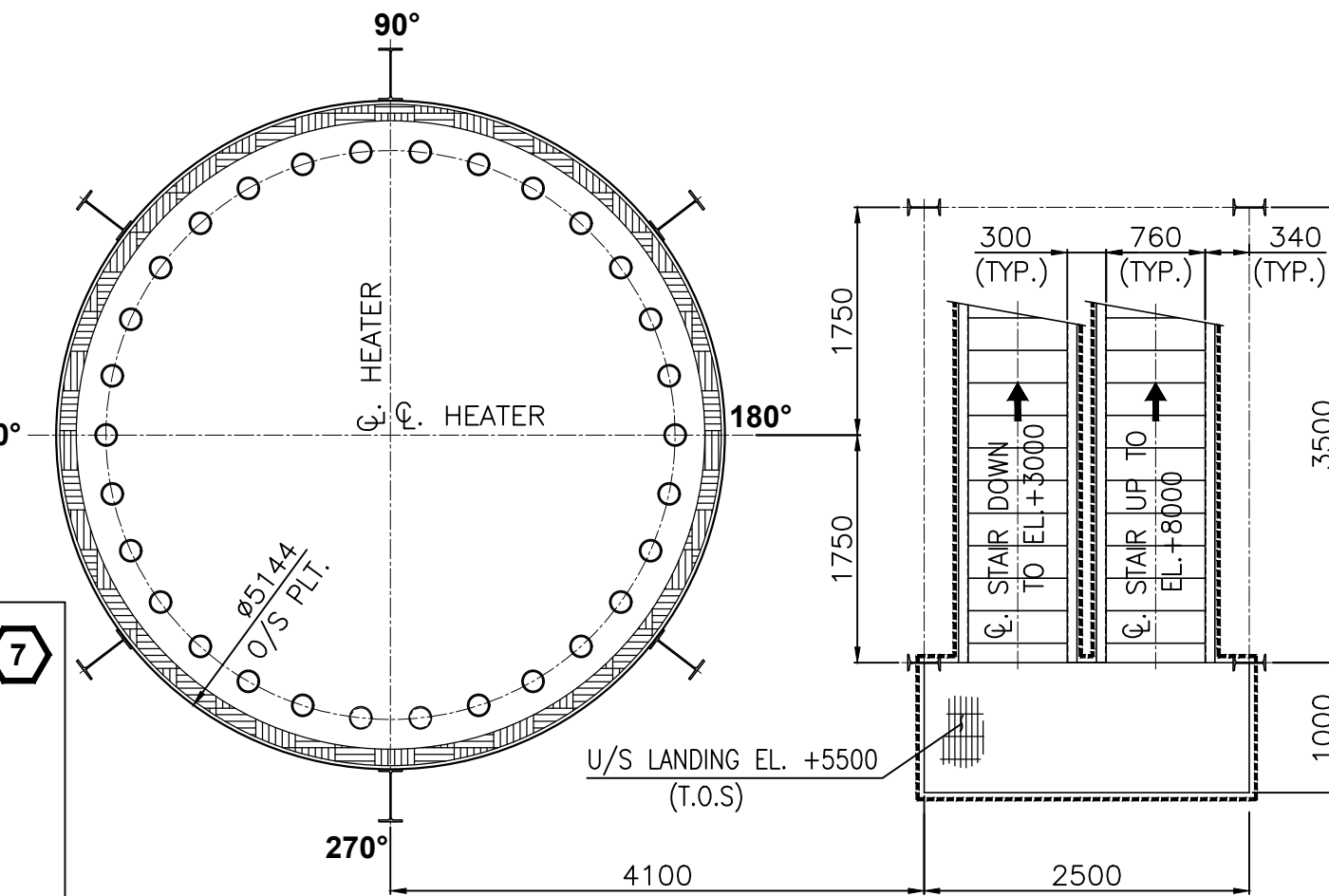
(FOR PLANS ONLY)



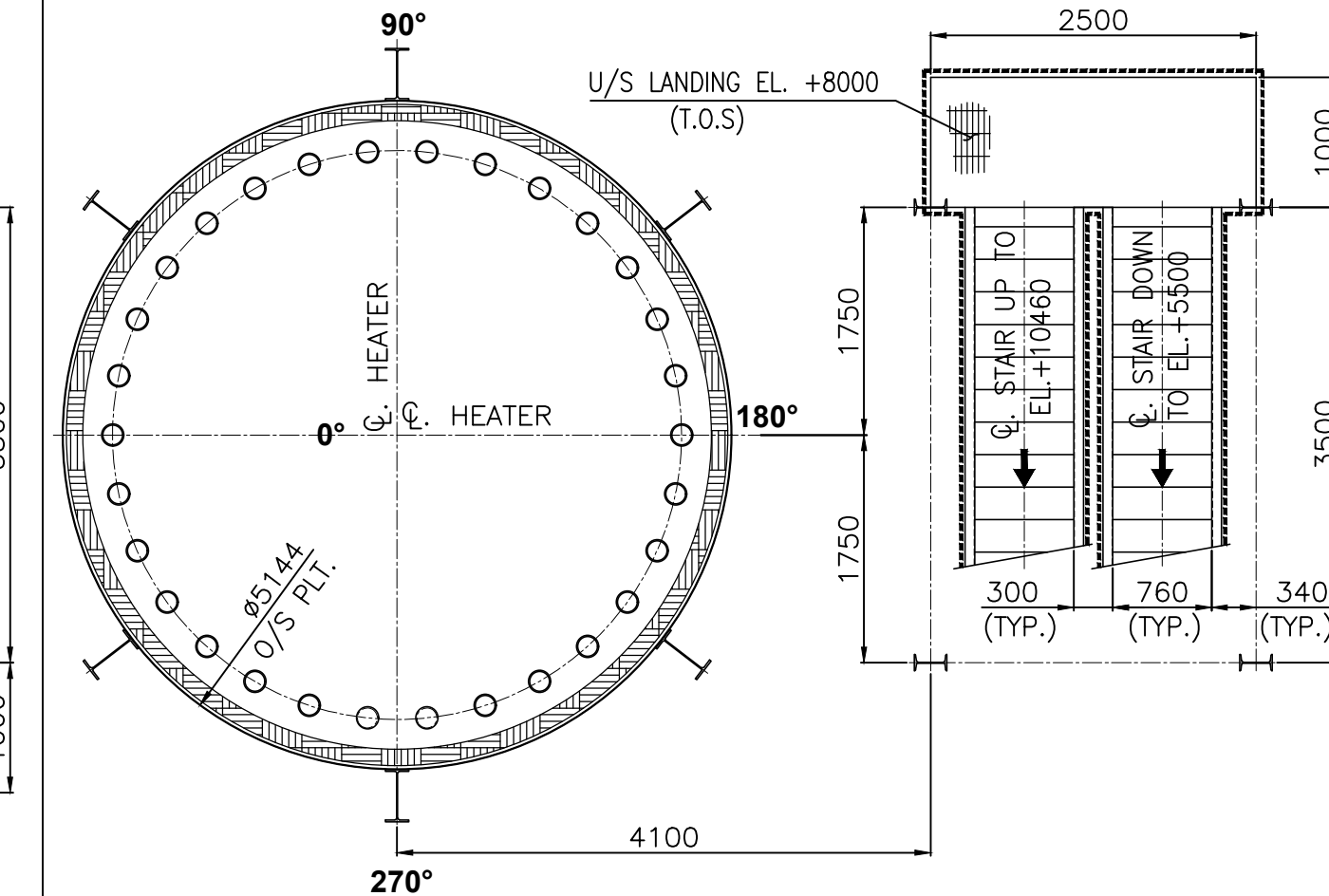
SECTION B-B
(REF. SHT 1)



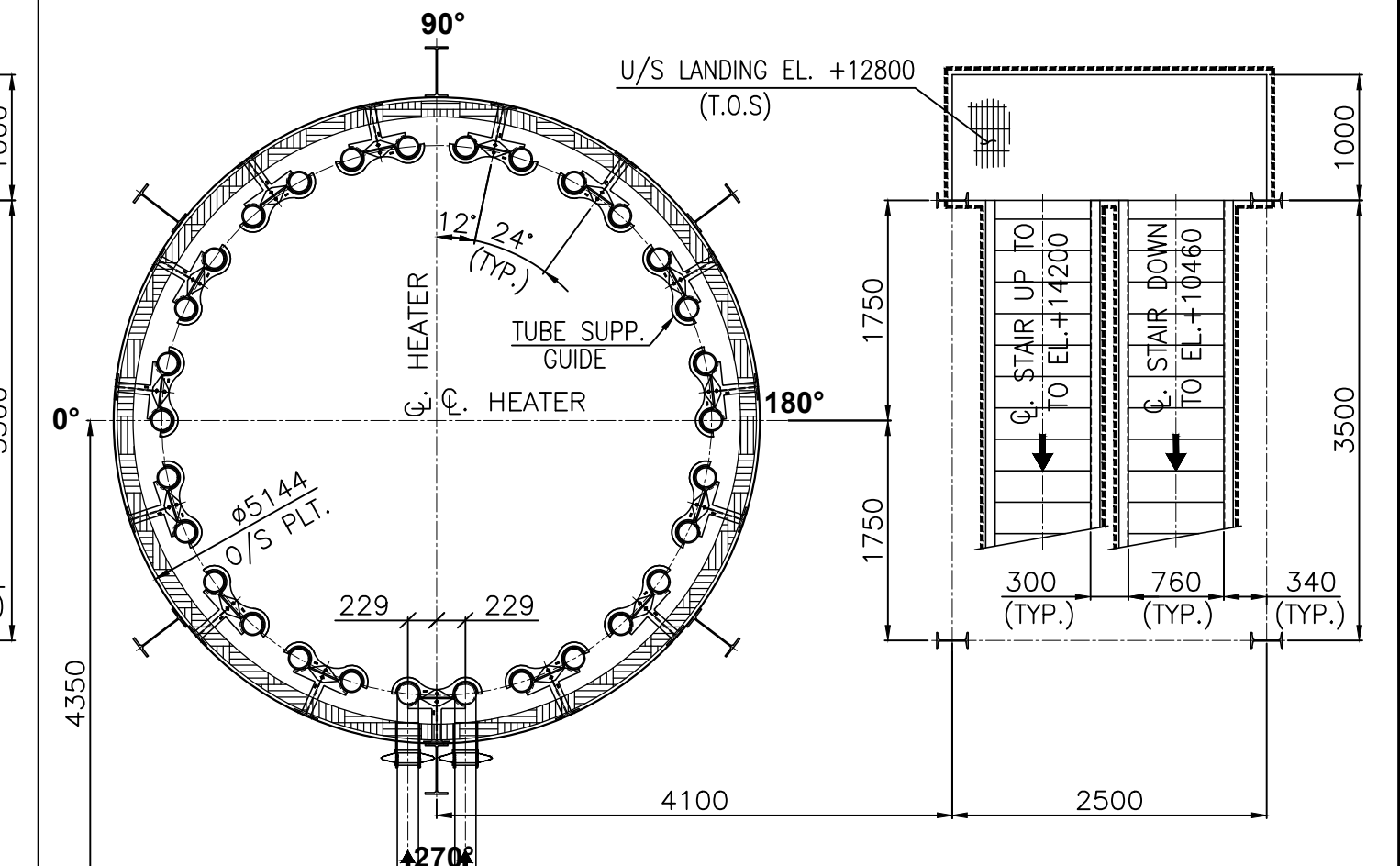
SECTION E-E
(REF. SHT 1)



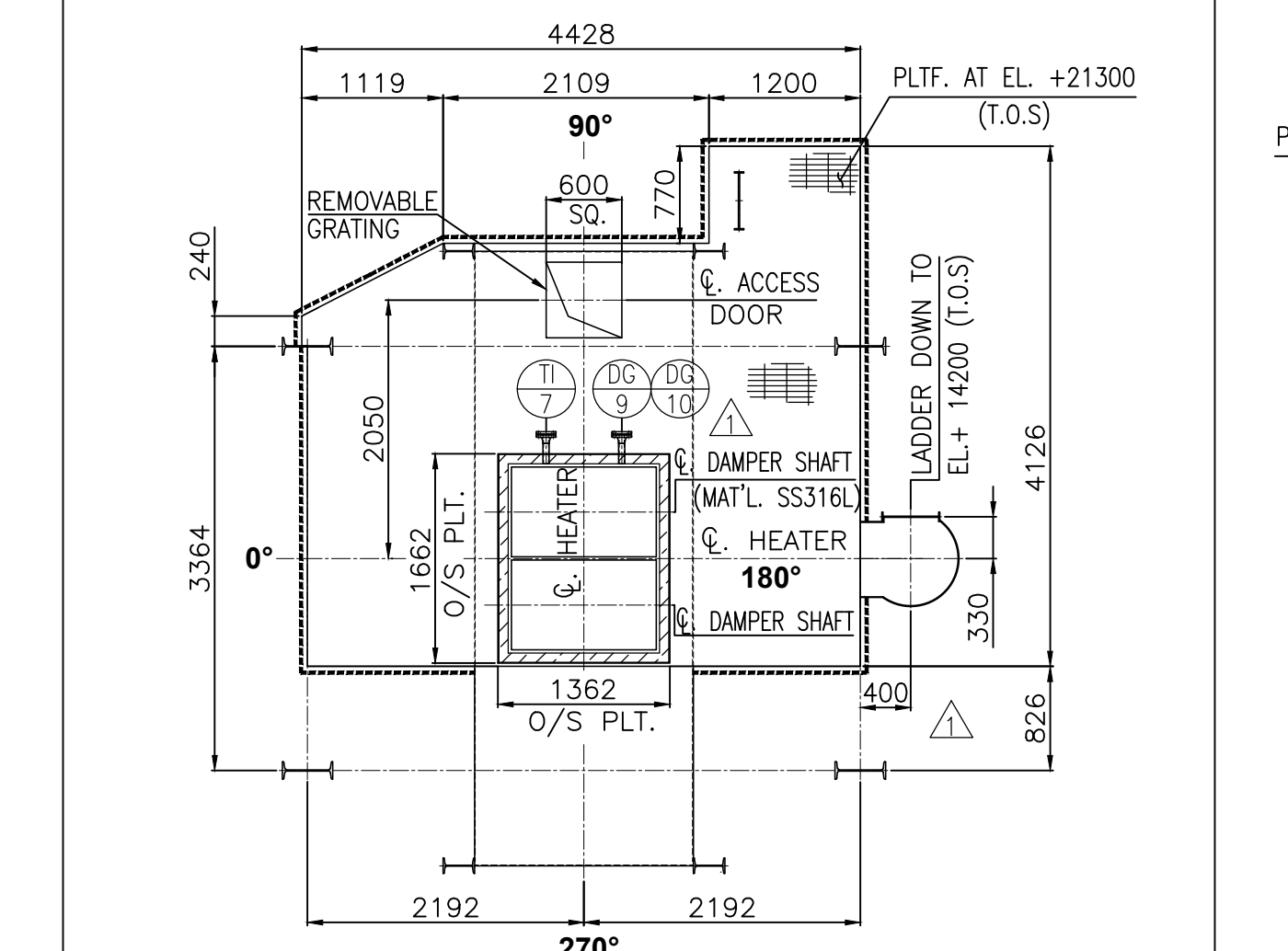
SECTION C-C
(REF. SHT 1)



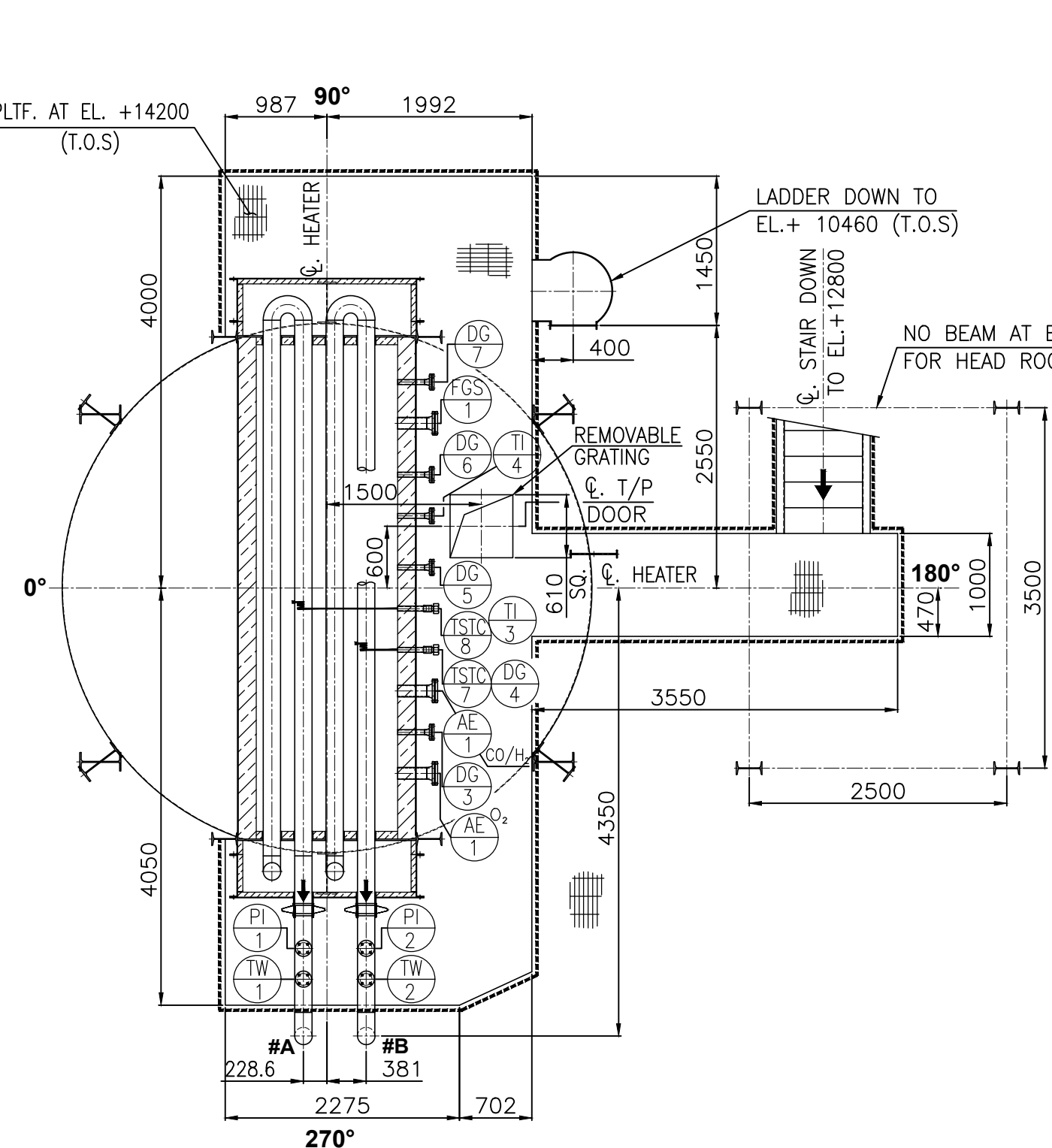
SECTION D-D
(REF. SHT 1)



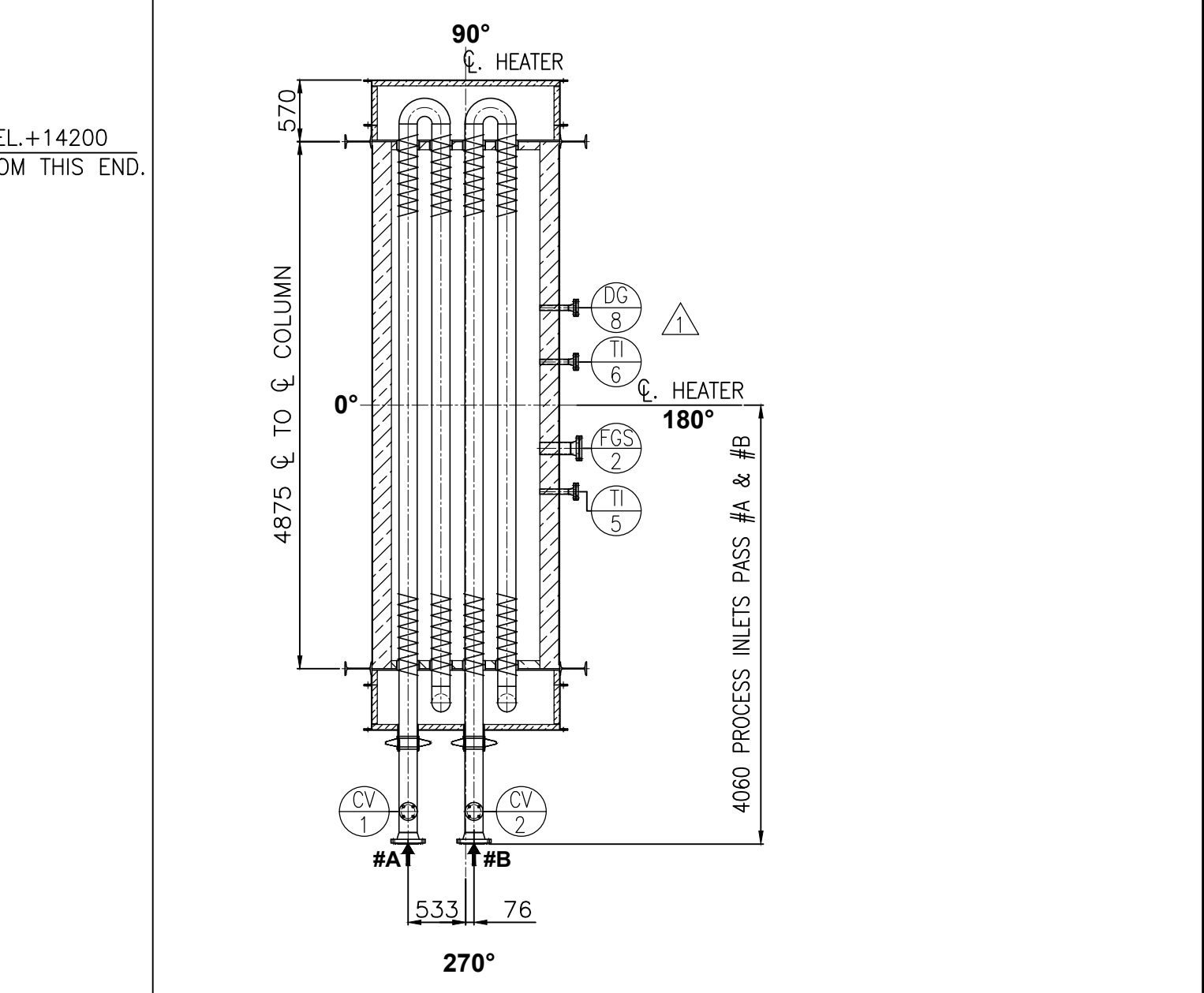
SECTION F-F
(REF. SHT 1)



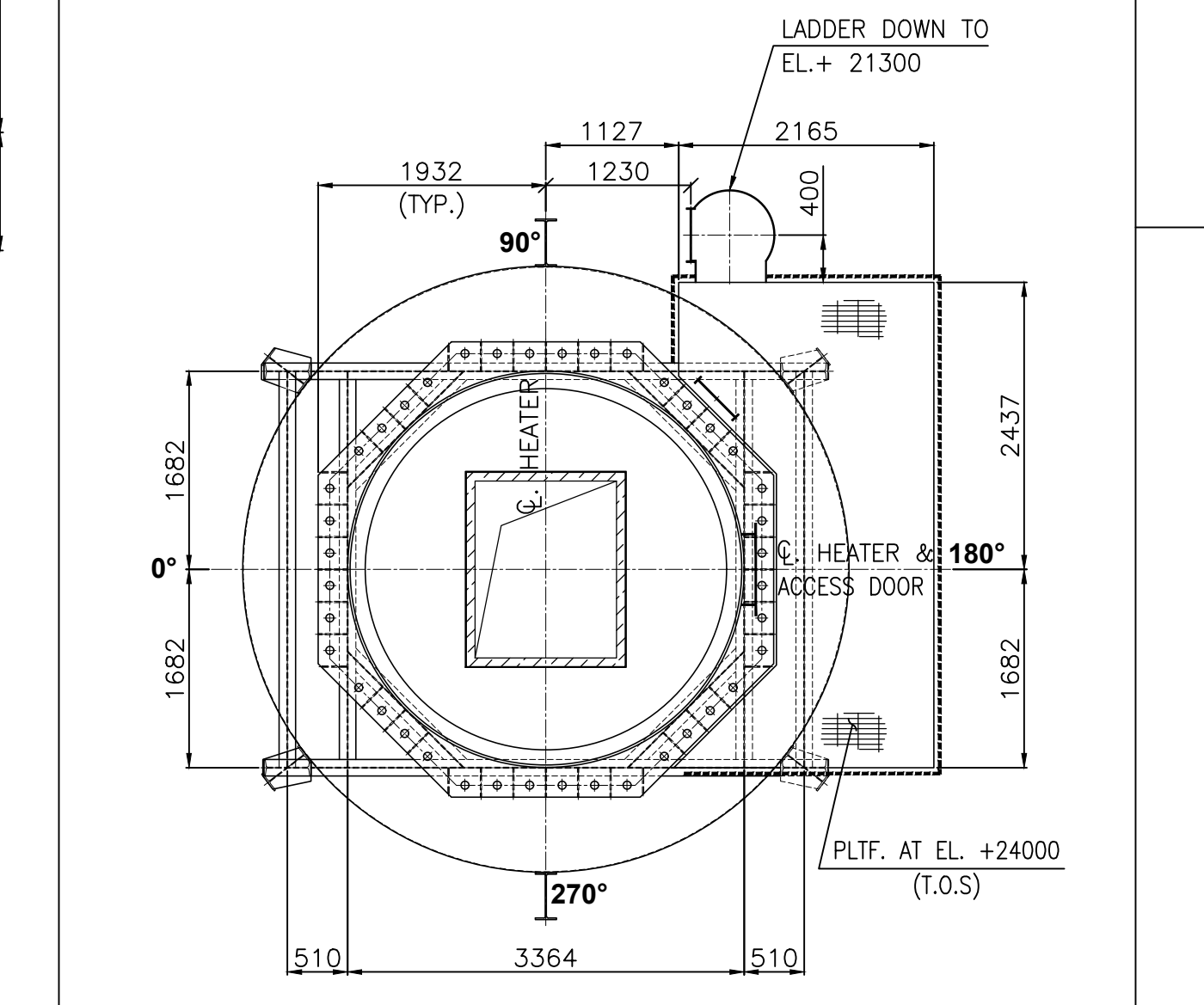
SECTION J-J
(REF. SHT 1)



SECTION G-G
(REF. SHT 1)



SECTION H-H
(REF. SHT 1)

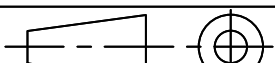


SECTION K-K
(REF. SHT 4)

Worley		Document Status Code	
Status	Review Code	Status Description	
☒	1	No Comments, Work may proceed.	
☐	2	The contractor shall proceed with the fabrication / manufacturing taking care of and incorporating Owner / PMC comments. Contractor shall submit the drawings / documents again duly incorporating Owner / PMC comments. Major non-conformance and deviation to contract specifications and the document is rejected. Contractor is to resubmit for review after incorporating comments.	
☐	3		
☐	4	Document / Drawing Retained for Information.	
Document status code assigned by:			
Name:		Date:	
Ajay Bhatia		25-Oct-2021	
Manufacturers and suppliers remain responsible under all circumstances for their drawings, whether accepted without comments or accepted after alteration in accordance with comments and they shall never be entitled to allege express or tacit approval thereof by Worley nor shall they be entitled to allege that Worley has by accepting the drawings taken over the responsibility for any defects in the drawings or the construction founded thereon.			

REV NO.	ZONE	BRIEF RECORD OF REVISIONS	PPD.	CHD.	APPD.
1		SUBMITTED FOR APPROVAL	SSR	SV	SV
0		SUBMITTED FOR APPROVAL	SSR	SV	LRS

CAUTION: THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.

PROJECT: EPCM SERVICES FOR PX-PTA EXPANSION PROJECT			
JOB NO. 44AC7500			
OWNER:  INDIAN OIL CORPORATION LIMITED-PANIPAT, HARYANA			
PMC:  NEW ENERGY HOUSE, RAMKRISHNA MANDIR ROAD, KONDIVITA, ANDHERI (EAST), MUMBAI-400059,INDIA TEL: +91 22 26812000, FAX: +91 22 28208295			
ITEM: HOT OIL HEATER FOR PTA UNIT (21-F1-1251)			
 BHARAT HEAVY ELECTRICALS LTD., HEAVY PLATES & VESSELS PLANT UNIT, VISAKHAPATNAM-530012			
DRAWN	S SANKARA RAO	TITLE GENERAL ARRANGEMENT OF HOT OIL HEATER PLANS	
CHECKED	S VIJAY		
APPROVED	L RAJA SEK HAR		
DATE	24-02-2021		
ALL DIMENSIONS ARE IN MILLIMETRES		C.DRG NO.44AC-7500-221-M-B01-0002-A1	REV.
 SCALE 1:55		BHEL DRG NO. 1-48-000-U6009	1

FORM NO. 0425/2

H

A1 SIZE

BHEL JOB NUMBER : 44AC7500

CLIENT NAME : INDIAN OIL CORPORATION LIMITED

PROJECT NAME : EPCM SERVICES FOR PX-PT EXPANSION PROJECT

LOCATION : PANIPAT, HARYANA

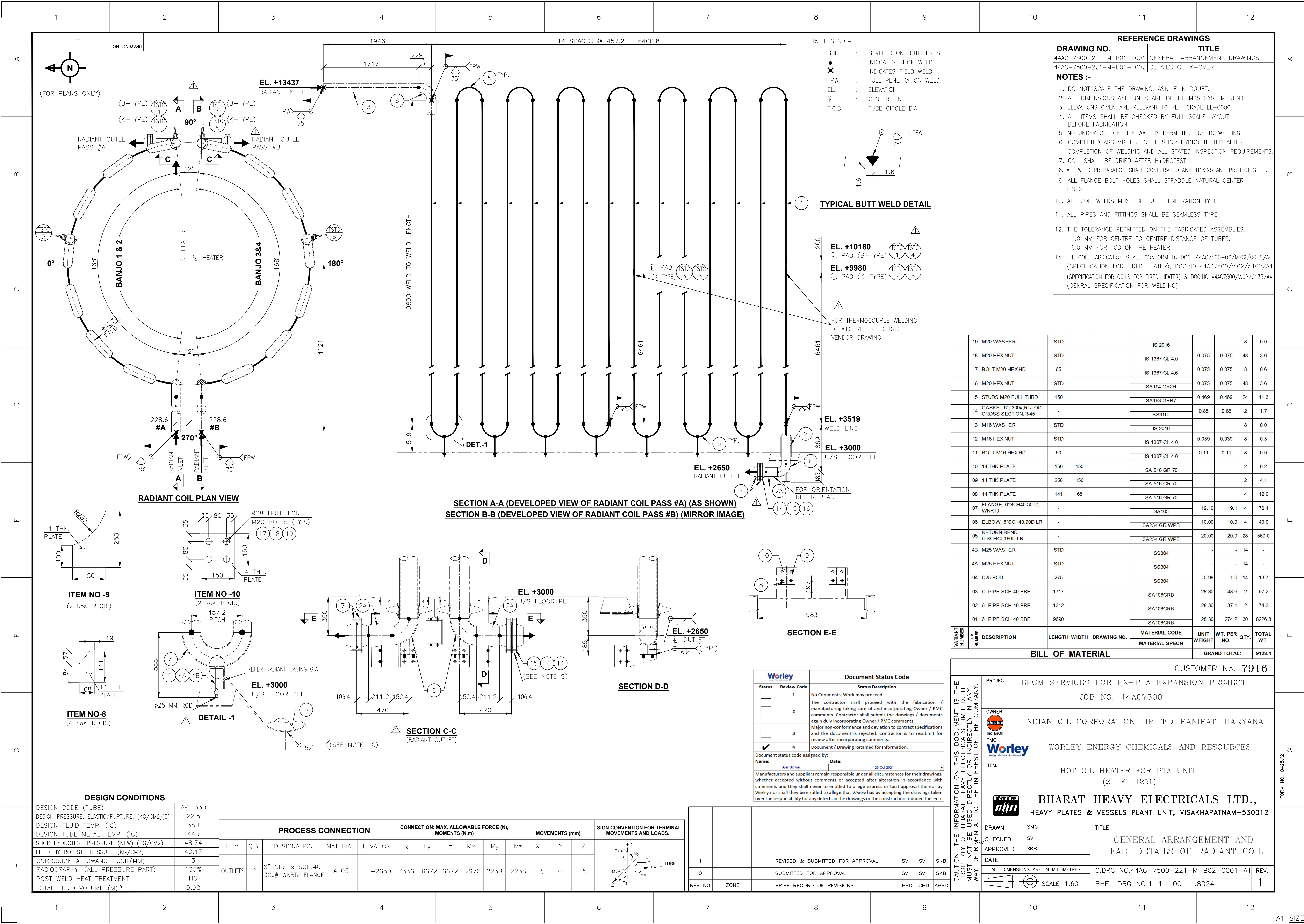
NIT NUMBER / NAME : HOT OIL HEATER / 21-F-1251

COMMENT RESOLUTION SHEET ON HEATER PLANS

ITEM NO.	ITEM REFERENCE	COMMENT DATE	COMMENT ORIGINATOR	COMMENTS	BHEL REPLY Dt.04-10-21
1	44AC-7500-221-M-B01-0002-A1 (BHEL DRG.1-48-000-U6009)	26/8/2021	Customer / PMC	We have noted that plan indicated for few elevations is not matching with the G.A of Radiant and Convection platform. So vendor to relook into the same & maintain consistency all related documents	We have noted the comment and will update in G.A of Radiant and Convection platform accordingly and will submit separately. Hence present drawing keeping previous revision uploaded for further approval

Worley Reply

Noted



BHEL JOB NUMBER : 44AC7500

CLIENT NAME : INDIAN OIL CORPORATION LIMITED

PROJECT NAME : EPCM SERVICES FOR PX-PT EXPANSION PROJEC

LOCATION : PANIPAT, HARYANA

UNIT NUMBER / NAME : HOT OIL HEATER / 21-F-1251

COMMENT RESOLUTION SHEET ON HEATER PLANS

ITEM NO.	ITEM REFERENCE	COMMENT DATE	COMMENT ORIGINATOR	COMMENTS	BHEL REPLY Dt.19-10-21	
1	44AC-7500-221-M-B02-0001-A1 (BHEL DRG.1-11-001-U8024)	26/7/2021	Customer / PMC	Vendor to check and confirm for Anchor support requirement at Radiant coil Inlet	There is only resting support at Radiant coil inlet, which will be taken care in Radiant casing Drg.(44AC-7500-221-B02-0001) No correction in coil Drg.	Worley Reply
2		26/7/2021	Customer / PMC	Tube support missing? If Yes indicate the same & also add the same in Bill of material	There is tube support casting at U-Bend provided and the same is covered in Radiant casing Drg. However we have indicated the item in hidden mode in coil Drg. for clarity.	Noted
3		26/7/2021	Customer / PMC	Indicate Thermocouple welding details.	The welding details will be indicated in Thermocouple Vendor Drg. which will be submitted separately.	Noted
4		26/7/2021	Customer / PMC	As per Heater P&I, Purchase requisition requirement vendor has provided "B" type Thermocouple also. Vendor to identify/indicate the same	Drawing updated as marked	Noted
5		26/7/2021	Customer / PMC	Check and Confirm Vent/Drain requirement	Drain will be taken care in piping. No vent required.	Noted
6		26/7/2021	Customer / PMC	Kindly refer the displacement coming at B/L for Hot Oil line	The same will be taken care in piping.	Noted

NOTE: COIL OUTLET MODIFIED AS PER LAYOUT REQUIREMENT



DRAWING NO.	TITLE
44AC-7500-221-M-B01-0001	GENERAL ARRANGEMENT DRAWINGS
44AC-7500-221-M-B01-0002	DETAILS OF X-OVER

NOTES :-

- DO NOT SCALE THE DRAWING, ASK IF IN DOUBT.
- ALL DIMENSIONS AND UNITS ARE IN THE MKS SYSTEM, U.N.O.
- ELEVATIONS GIVEN ARE RELEVANT TO REF. GRADE EL+0000.
- ALL ITEMS SHALL BE CHECKED BY FULL SCALE LAYOUT BEFORE FABRICATION
- NO UNDER CUT OF PIPE WALL IS PERMITTED DUE TO WELDING.
- COMPLETED ASSEMBLIES TO BE SHOP HYDRO TESTED AFTER COMPLETION OF WELDING AND ALL STATED INSPECTION REQUIREMENTS.
- COIL SHALL BE DRIED AFTER HYDROTEST.
- ALL WELD PREPARATION SHALL CONFORM TO ANSI B16.25 AND PROJECT SPEC.
- ALL FLANGE BOLT HOLES SHALL STRADDLE NATURAL CENTER LINES.
- ALL COIL WELDS MUST BE FULL PENETRATION TYPE.
- ALL PIPES AND FITTINGS SHALL BE SEAMLESS TYPE.
- THE COIL FABRICATION SHALL CONFORM TO DOC. 44AC7500-00/M.02/0018/A4 (SPECIFICATION FOR FIRED HEATER), DOC.NO 44AD7500/V.02/5102/A4 (SPECIFICATION FOR COILS FOR FIRED HEATER) & DOC.NO 44AC7500/V.02/0135/A4 (GENERAL SPECIFICATION FOR WELDING).
- FIELD WELDING ENDS OF ALL ELBOWS, WELDOLETS SHALL BE COVERED SUITABLY BY COIL FABRICATOR TO PROTECT ENDS DURING TRANSPORTATION AND HANDLING.
- LEGEND:-

BBE	: BEVELED ON BOTH ENDS
■	: INDICATES SHOP WELD
✕	: INDICATES FIELD WELD
FPW	: FULL PENETRATION WELD
EL	: ELEVATION
⌀	: CENTER LINE

we have noted, vendor has not provided clarification against on last revision documents

Approval provided subject to incorporation of comments

		Document Status Code
Status	Review Code	Status Description
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Document status code assigned by:

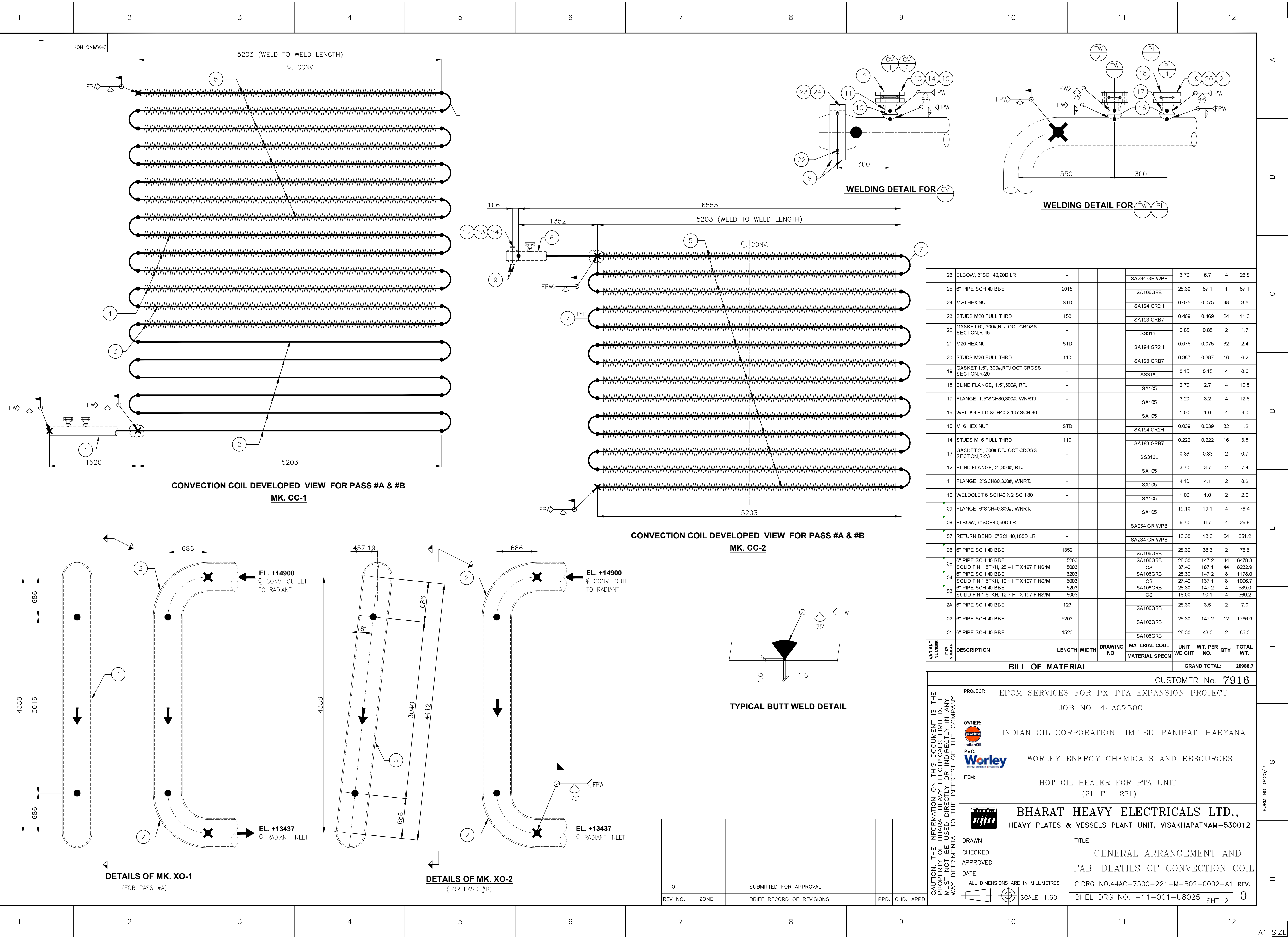
Name:	Date:
Ajay Bidwai	25-Oct-2021

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CUSTOMER NO. 7916

CAUTION: THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.	PROJECT: EPCM SERVICES FOR PX-PTA EXPANSION PROJECT JOB NO. 44AC7500 OWNER: INDIAN OIL CORPORATION LIMITED-PANIPAT, HARYANA PMC: WORLEY ENERGY CHEMICALS AND RESOURCES ITEM: HOT OIL HEATER FOR PTA UNIT (21-F1-1251)
	BHARAT HEAVY ELECTRICALS LTD., HEAVY PLATES & VESSELS PLANT UNIT, VISAKHAPATNAM-530012

<table style="width: 100%;"> <tr> <td style="width: 50%;">DRAWN</td> <td style="width: 50%;">TITLE</td> </tr> <tr> <td>CHECKED</td> <td rowspan="3" style="text-align: center; vertical-align: middle;"> GENERAL ARRANGEMENT AND FAB. DEATILS OF CONVECTION COIL </td> </tr> <tr> <td>APPROVED</td> </tr> <tr> <td>DATE</td> </tr> </table>	DRAWN	TITLE	CHECKED	GENERAL ARRANGEMENT AND FAB. DEATILS OF CONVECTION COIL	APPROVED	DATE	<table style="width: 100%;"> <tr> <td style="width: 50%;"> ALL DIMENSIONS ARE IN MILLIMETRES SCALE 1:60 </td> <td style="width: 50%;"> C.DRG NO.44AC-7500-221-M-B02-0002-A1 REV. 0 BHEL DRG NO.1-11-001-U8025 SHT-1 </td> </tr> </table>	ALL DIMENSIONS ARE IN MILLIMETRES SCALE 1:60	C.DRG NO.44AC-7500-221-M-B02-0002-A1 REV. 0 BHEL DRG NO.1-11-001-U8025 SHT-1
DRAWN	TITLE								
CHECKED	GENERAL ARRANGEMENT AND FAB. DEATILS OF CONVECTION COIL								
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Worley Reply

Noted

52	RET. PLT	3 THK	125	480	SS 304	23.55	1.41	16	22.56
51	RET. PLT	3 THK	129	386	SS 304	23.55	1.47	8	11.77
50	PLT	6 THK (PIPE SLEEVE)	608	210	IS2062 GR A	47.10	9.20	2	18.40
49	ROD (HINGE ROD)	DIA 16	587		IS2062 GR A	1.58	0.94	1	0.94
48	PIPE	O.D 26.7 x 3.91 THK	100		A 106 GR B	2.20	0.22	4	0.88
47	ROD	DIA 16	275		IS2062 GR A	1.58	0.43	1	0.43
46	PLATE (DOOR)	3 THK	646	634	IS 1079	23.55	10.13	1	10.13
45	ISA	50 X 6	722		IS2062 GR A	4.50	3.25	1	3.25
44	ISA	50 X 6	710		IS2062 GR A	4.50	3.20	2	6.39
43	GASKET	6 THK	2864	44	CF	0.00	0.75	1	0.75
42	PLATE	6 THK	75	42	IS2062 GR A	47.10	0.15	2	0.30
41	PLATE	6 THK	710	44	IS2062 GR A	47.10	1.47	2	2.94
40	PLATE	6 THK	722	50	IS2062 GR A	47.10	1.70	2	3.40
39	RET. PLT	3 THK	193	1060	SS 304	23.55	4.85	1	4.85
38	RET. PLT	3 THK	129	1060	SS 304	23.55	3.23	2	6.45
37	RET. PLT	6 THK	193	1066	SS 304	47.10	9.69	1	9.69
36	PLATE	6 THK	610	119	IS2062 GR A	47.10	3.42	1	3.42
35	PLATE	6 THK	610	244	IS2062 GR A	47.10	7.01	2	14.02
34	PLATE	6 THK	610	244	IS2062 GR A	47.10	7.01	1	7.01
33	GASKET	6 THK	2640	50	CF	0.00	0.70	1	0.70
32	ROD	DIA 16	275		IS2062 GR A	1.58	0.43	2	0.86
31	ISA	50 X 6	610		IS2062 GR A	4.50	2.75	2	5.50
30	ISA	50 X 6	710		IS2062 GR A	4.50	3.20	2	6.40
29	HEX HD BOLT WITH NUT	M16	50		IS1367 CL4.6/4.0	15.00	0.15	20	3.00
28	RET. PLT	3 THK	604	125	SS 304	23.55	1.78	4	7.12
27	RET. PLT	3 THK	592	184	SS 304	23.55	2.56	4	10.24
26	PLATE	6 THK	710	710	IS2062 GR A	47.10	23.70	1	23.70
25	GASKET	6 THK	2340	50	CF	0.00	0.65	1	0.65
24	ISA	50 X 6	610		IS2062 GR A	4.50	2.74	2	5.48
23	ISA	50 X 6	560		IS2062 GR A	4.50	2.52	2	5.04
22	HEX HD BOLT WITH NUT	M16	50		IS1367 CL4.6/4.0	15.00	0.15	20	3.00
21	ROD	DIA 16	275		IS2062 GR A	1.58	0.43	2	0.86
20	RET. PLT	3 THK	604	250	SS 304	23.55	3.55	2	7.10
19	RET. PLT	3 THK	454	250	SS 304	23.55	2.60	2	5.20
18	RET. PLT	3 THK	442	309	SS 304	23.55	3.20	2	6.40
17	RET. PLT	3 THK	592	309	SS 304	23.55	4.30	2	8.60
16	PLATE	6 THK	710	560	IS2062 GR A	47.10	18.70	1	18.70
15	NAME PLATE	BHEL			SS 304	15.70	0.60	1	0.60
14	NAME PLATE	WORLEY			SS 304	15.70	0.60	1	0.60
13	PLATE	12 THK	16200	150	IS2062 GR A	94.20	229.00	1	229.00
12	HALF COUPLING	1.5", 3000#			A 105	1.33	1.33	6	7.98
11	PIPE	O.D 33.4 x 4.55 THK	281		SS 304L	4.50	1.52	6	9.12
10	RF WN FLANGE	2", 300#, RF (B:49.22)			A 105	3.40	3.40	3	10.20
09	PIPE	O.D 60.3 x 5.54 THK	236		SS 304L	7.58	1.76	3	5.28
08	CF GASKET	6 THK (CUT TO SUIT TO FLG)			CF	0.00	0.07	4	0.28
07	STUD WITH TWO HEX NUTS	(M20) 3/4"	120		A193 GR B7/A194 GR 2H	0.41	0.41	16	6.56
06	BLIND FLANGE	1.5", 300#, RF			A 105	2.75	2.75	4	11.00
05	RF WN FLANGE	1.5", 300#, RF (B:38.14)			A 105	3.18	3.18	4	12.72
04	PIPE	O.D 48.3 x 5.08 THK	238		SS 304L	5.41	1.30	4	5.20
03	PLATE (ARCH)	6 THK - DIA	5194		IS2062 GR A	47.10	600.00	1	600.00
02	PLATE (FLOOR)	6 THK - DIA	5014		IS2062 GR A	47.10	930.00	1	930.00
01	PLATE (CASING)	6 THK	16142	10914	IS2062 GR A	47.10	8287.00	1	8287.00
VARIAN T NUMBER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52	DESCRIPTION	LENGTH	WIDTH	DRAWING NO.	MATERIAL CODE MATERIAL SPECN	UNIT WEIGHT	WT. PER NO.	QTY.	TOTAL WT.
BILL OF MATERIAL						GRAND TOTAL:		11365.65	

91	PLT	20 THK	272	50	IS2062 GR A	157.00	2.13	2	4.26
90	PLT	20 THK	272	150	IS2062 GR A	157.00	6.40	2	12.80
89	PLT	10 THK	200	100	IS2062 GR A	78.50	1.57	4	6.28
88	PLT	3 THK	1472	125	SS 310S	23.55	4.33	2	8.66
87	PLT	3 THK	4875	125	SS 310S	23.55	14.30	2	28.60
86	PLT	16 THK	300	50	IS2062 GR A	125.60	1.88	16	30.08
85	PLT	10 THK	300	50	IS2062 GR A	78.50	1.17	16	18.72
84	HEX HD BOLT WITH NUT	M18	70		A193 GR B7/A194 GR 7	40.00	0.43	32	13.76
83	PLT	6 THK (NAME PLT BKT)	410	450	IS2062 GR A	47.10	0.070	1	0.07
82	PLT	6 THK (STIFFENER)	125	150	SS 310S	47.10	0.33	6	1.98
81	PLT	6 THK (PIPE SLEEVE)	608	210	SS 310S	47.10	0.41	2	0.82
80	HEX HD BOLT WITH NUT	M16	50		IS1367 CL4.6/4.0	0.41	0.41	150	62.10
79	ANGLE	ISA 100 X 10	33000		IS 2998	14.90	491.70	1	491.70
78	BEAM	ISMB 150	4000		IS2062 GR A	15.00	60.000	1	60.00
77	HEX HD BOLT WITH NUT	M16	50		IS1367 CL4.6/4.0	0.20	0.10	26	2.60
76	CHANNEL	ISMC 150	10000		IS2062 GR A	16.80	168.00	1	168.00
75	WASHER (TO SUIT ISMB)	M16			IS2016	0.10	0.09	2	0.18
74	HEX HD BOLT WITH NUT	M16	70		A193 GR B7/A194 GR 7	2.50	0.33	30	9.90
73	PLT	50 THK	60	170	IS2062 GR A	392.50	4.00	8	32.00
72	PLT	6 THK	188	50	IS2062 GR A	47.10	0.44	4	1.77
71	NUT	M12			IS1367 CL4.0	0.02	0.017	4	0.07
70	HEX HD BOLT	M12	65		IS1367 CL4.6	0.07	0.07	4	0.29
69	PIPE	O.D 33.4 x 3.38 THK	13		A 106 GR B	2.50	0.33	8	2.64
68	PLT	6 THK	220	40	IS2062 GR A	47.10	0.41	4	1.66
67	ROD (RIVET)	DIA 16	39		IS 2998	0.07	0.07	4	0.27
66	PLT	6 THK (DIA)	30		IS2062 GR A	47.10	0.003	4	0.01
65	PLT	6 THK	25	25	IS2062 GR A	47.10	0.03	8	0.23
64	PLT	6 THK	164	50	IS2062 GR A	47.10	0.39	8	3.09
63	PLT	6 THK	345	25	IS2062 GR A	47.10	0.41	4	1.62
62	HEX HD BOLT	M12	20		IS1367 CL4.6	0.06	0.06	4	0.24
61	PLT	6 THK (DIA)	40		IS2062 GR A	47.10	0.06	4	0.24
60	ROD (HANDLE)	DIA 8	1300		IS2062 GR A	0.39	0.51	4	2.03
59	PLT	6 THK	85	25	IS2062 GR A	47.10	0.10	4	0.40
58	PLT (SEAL RING)	O.D 144 x 6 THK	5		A 106 GR B	47.10	0.10	4	0.41
57	GASKET	6 THK	OD144	ID132	CF	14.00	0.10	4	0.40
56	PLT	6 THK (DIA)	150		IS2062 GR A	47.10	0.83	4	3.32
55	PIPE	O.D 114.3 x 6.02 THK	75		A 106 GR B	16.07	1.21	4	4.82
54	PLT (SS)	6 THK	129	386	SS 304	4.50	3.20	8	25.56
53	PLT (SS)	6 THK	30	177	SS 304	14.00	0.15	16	2.40
VARIAN T NUMBER 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52	DESCRIPTION	LENGTH	WIDTH	DRAWING NO.	MATERIAL CODE MATERIAL SPECN	UNIT WEIGHT	WT. PER NO.	QTY.	TOTAL WT.
BILL OF MATERIAL						GRAND TOTAL:			

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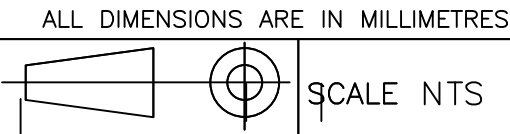


BHARAT HEAVY ELECTRICALS LTD.,

HEAVY PLATES & VESSELS PLANT UNIT, VISAKHAPATNAM-530012

DRAWN	SMG NAIDU
CHECKED	S VIJAY
APPROVED	S VIJAY
DATE	12-10-2021

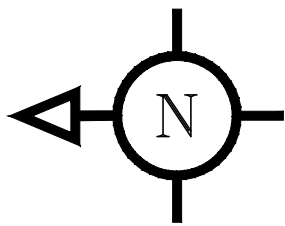
TITLE
BILL OF MATERIAL FOR RADIANT
WALL FLOOR AND ARCH



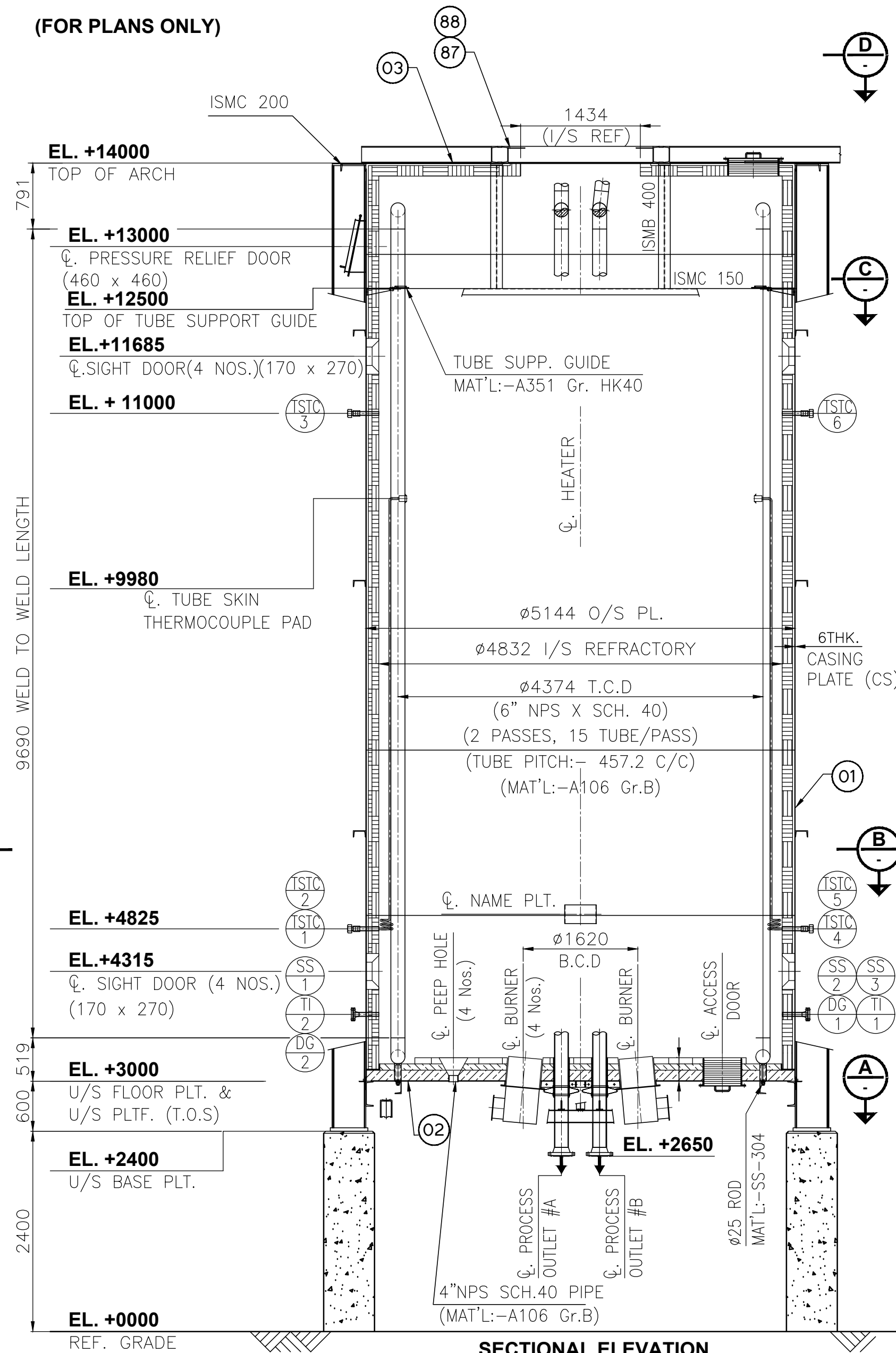
SCALE NTS

BHEL DRG NO. 3-48-800-U8001

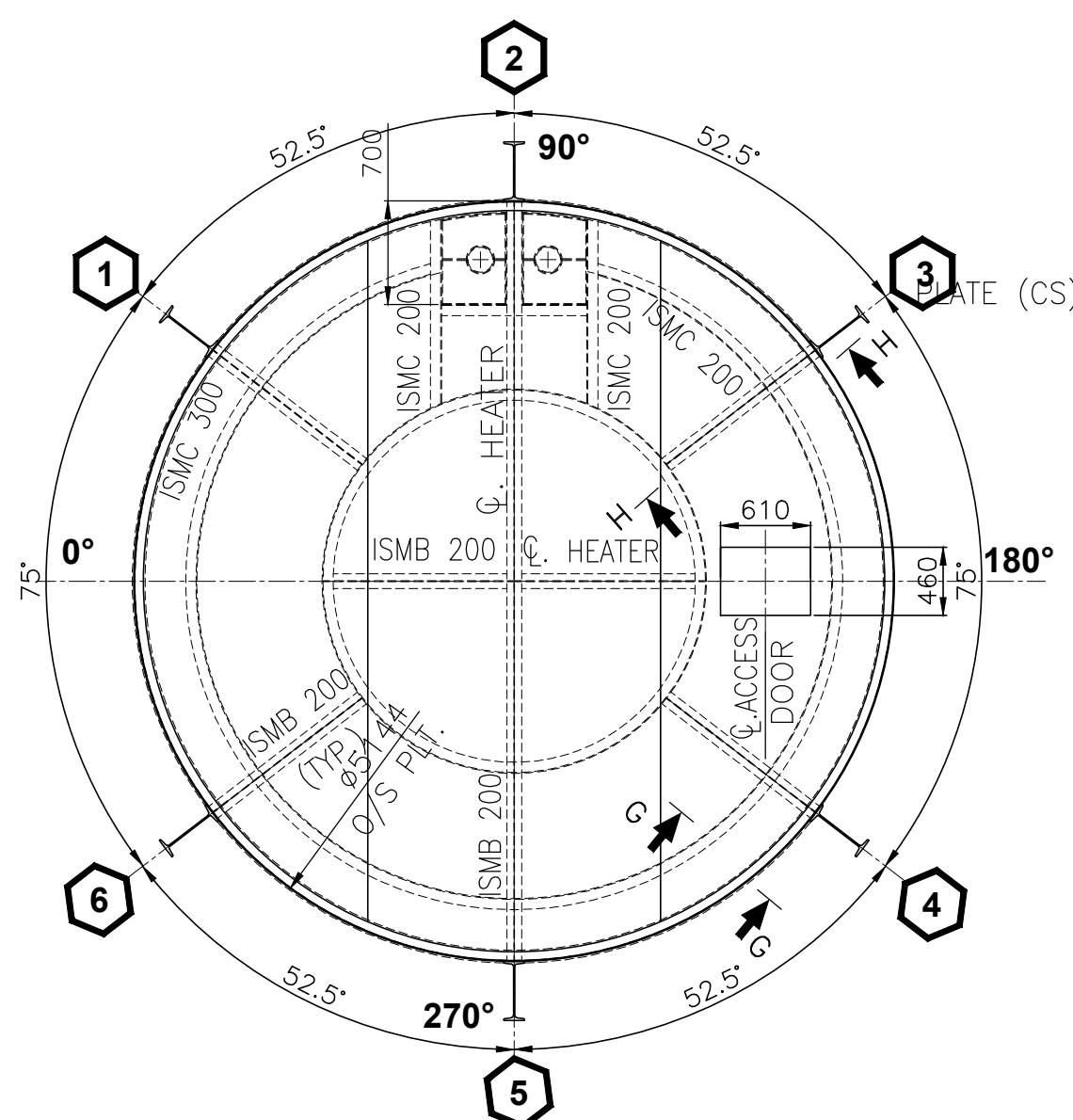
REV.
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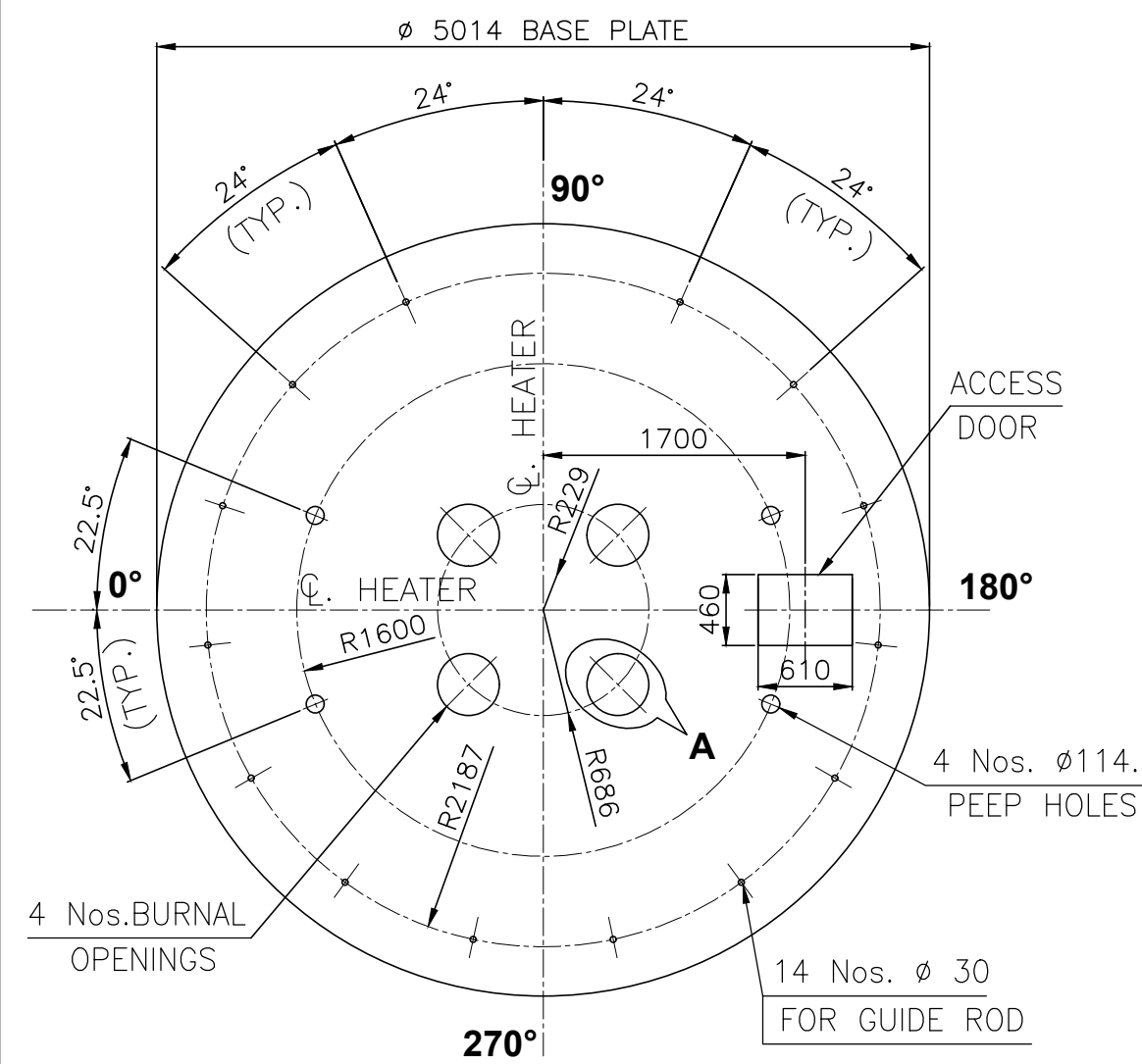
(FOR PLANS ONLY)



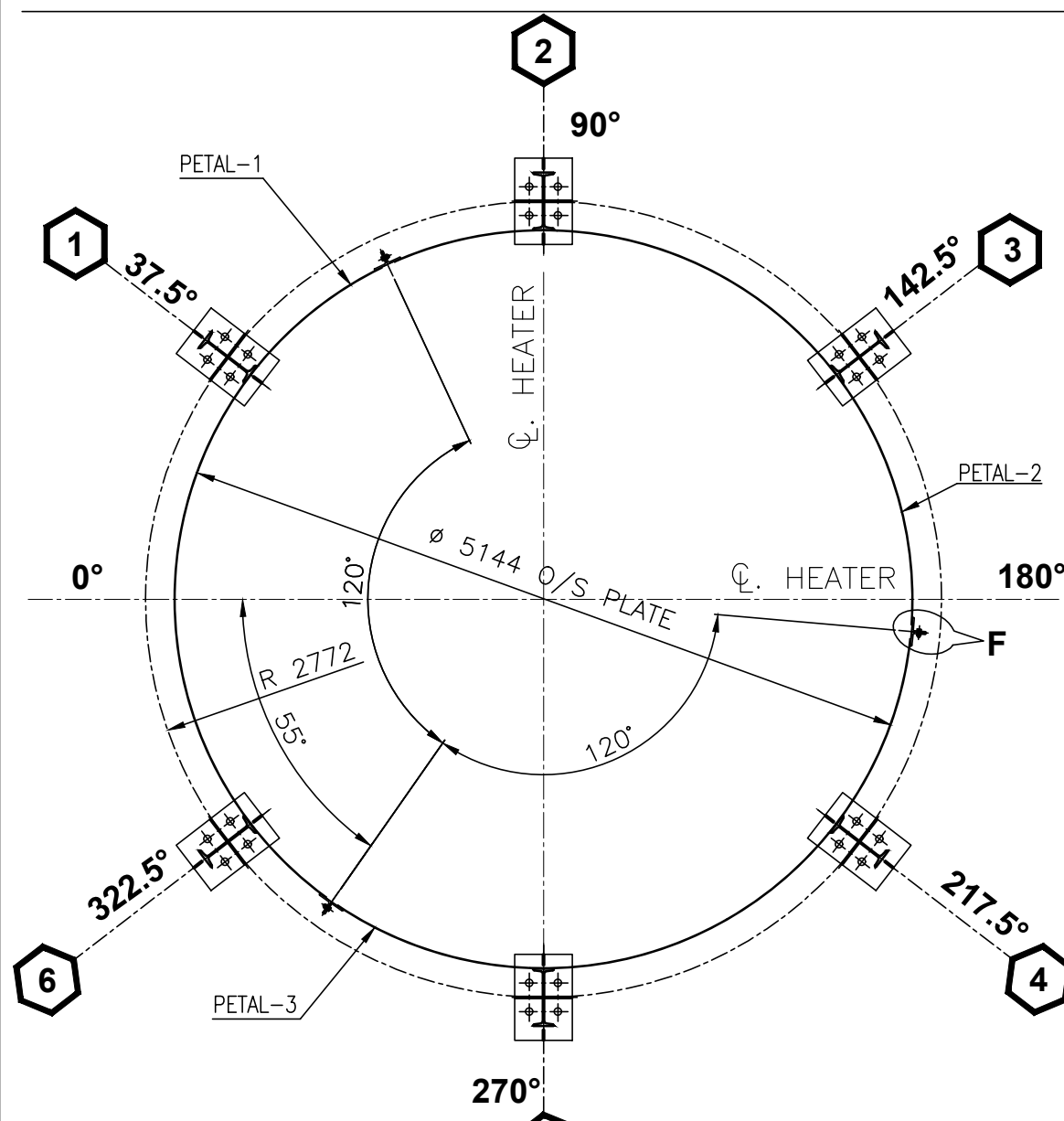
SECTIONAL ELEVATION
(FOR TRUE ORIENTATION REFER PLANS)
(VIEW FROM 270° END)



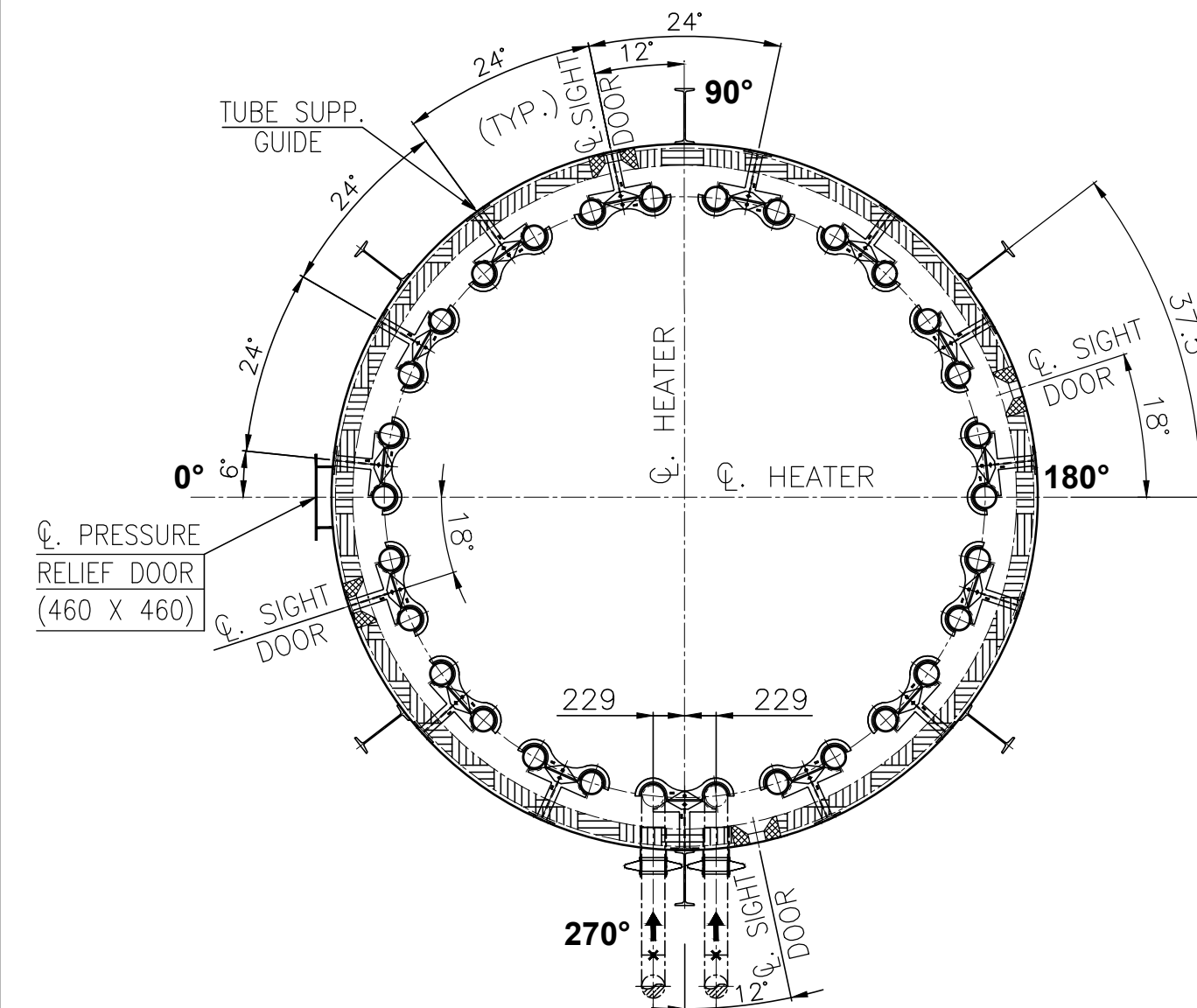
SECTION - AA



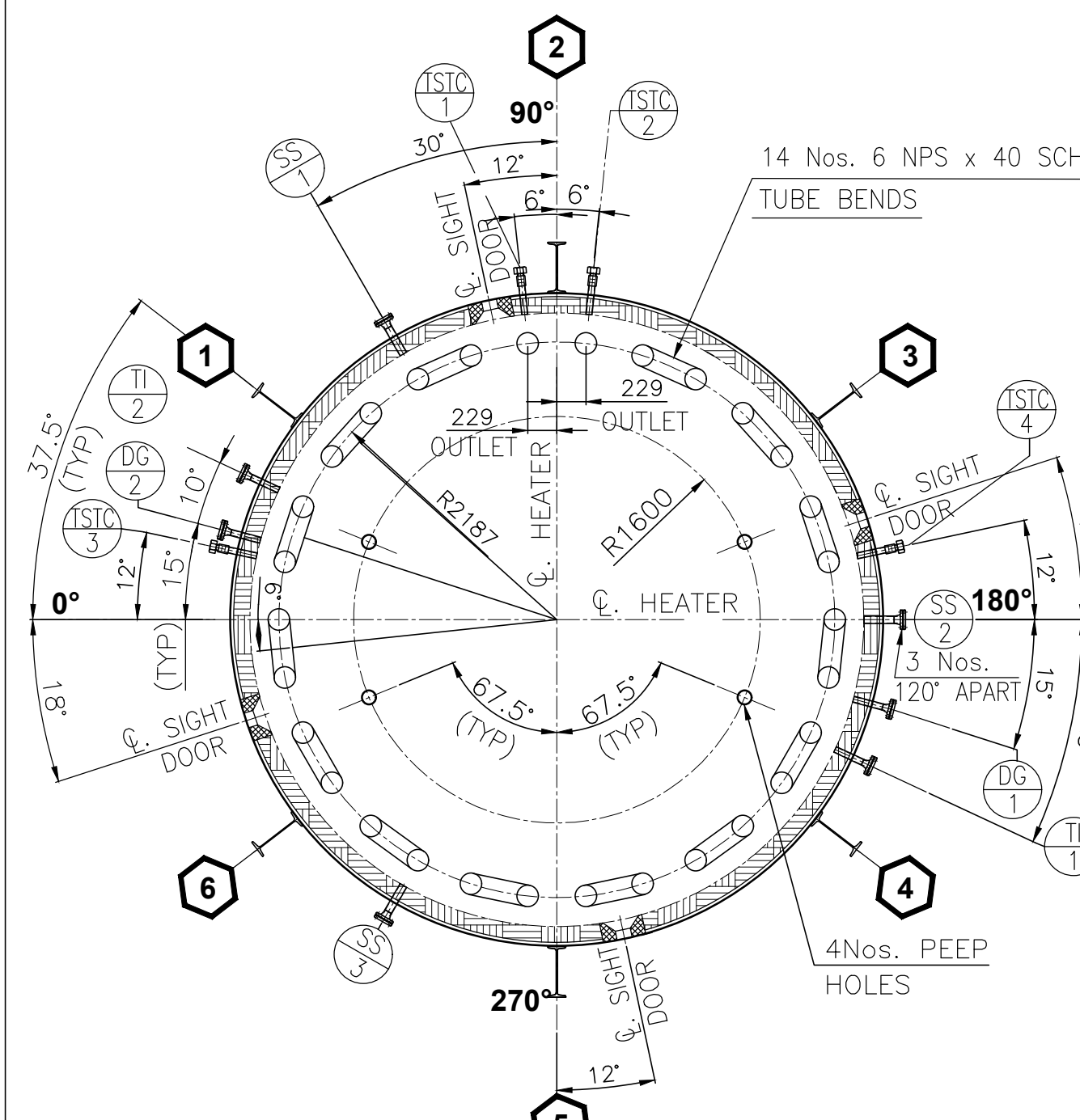
DETAIL OF FLOOR OPENINGS
(HOLD)



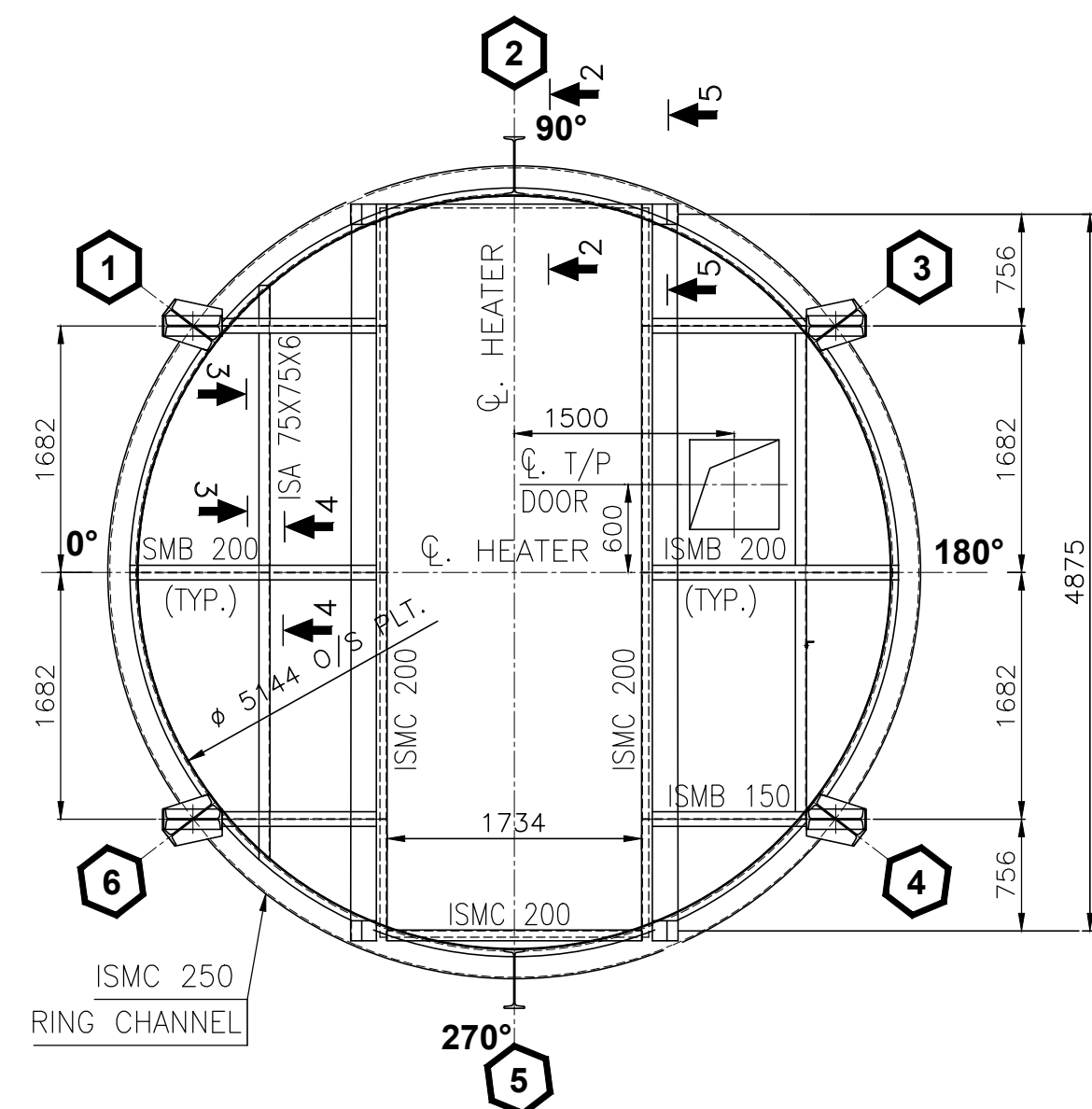
DETAIL OF MAIN COLUMN & ERECTION JOINTS FOR RADIANT SHELL



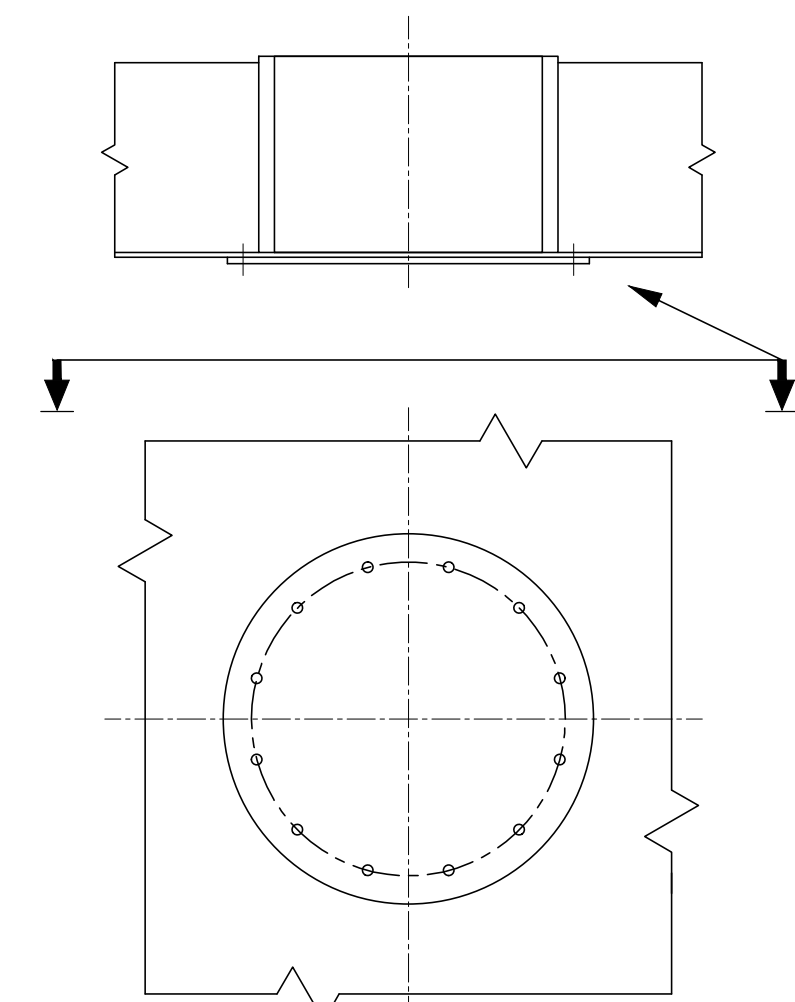
CONV. TO #A #B CONV. TO
RADIANT INLET RADIANT INLET



SECTION - BB



SECTION - DD



DETAIL - A
(BURNER OPENING)

GENERAL NOTES:-

1. ALL DIMENSIONS & ELEVATIONS ARE IN MM UNLESS OTHERWISE NOTED.
2. ELEVATIONS GIVEN ARE RELEVANT TO REFERENCE GRADE EL.+0000.
3. ALL MATERIALS SHALL BE CARBON STEEL IS-2062 Gr. "B" EXCEPT WHERE NOTED OTHERWISE.
4. ALL FLANGE HOLES SHALL STRADDLE VERTICAL & HORIZONTAL CENTER LINES.
5. ALL EXPANSION GAPS INCLUDING AROUND BURNERS TO BE "PACKED" WITH CERAMIC FIBRE BLANKET OF DENSITY 128 KG/M3 1260°C GRADE.
6. ALL CONNECTIONS SHALL BE WELDED TO DEVELOP FULL STRENGTH OF THE MEMBERS CONNECTED EXCEPT CONNECTIONS THAT ARE SPECIFICALLY GIVEN AS BOLTED.
7. DETAILS NOT ILLUSTRATED MAY BE SUITABLY DEVELOPED BY CONTRACTOR.
8. ALL STRUCTURAL MEMBERS SHALL BE COPED TO SUIT THE CONNECTING MEMBERS PROFILE.
9. ALL GAPS IN INSULATION MARKED "PACK" TO BE PACKED WITH CERAMIC FIBRE.
10. ALL EXTERNAL SURFACES SHALL BE BLAST CLEANED TO SA 2½.
11. PAINTING:-
 - a) COATING SYSTEM: CS-3, MINIMUM DFT IS 125 MICRONS.
 - EXTERNAL:
 - a) PRIMER COAT: 1x75 MICRONS DFT INORGANIC ZINC SILICATE PRIMER.
 - b) FINISH COAT: 1X50 MICRONS DFT HIGH TEMPERATURE SILICON ACRYLIC.
 - c) FINISH COLOR CODE: ALUMINIUM RAL 9006.
 - INTERNAL:
 - a) 2x(90-100 MICRONS EACH) EPIPLUS-56 OF SHALIMAR PAINTS OR EQ. SHALL BE APPLIED ON SHELL PLATE IN CONTACT WITH CERAMIC FIBER.
12. ALL WELDING ON HEATER CASING/DUCTING TO BE FULL WELDING 6 MM FILLET OUTSIDE & INTERMITTENT 50-100 ON INSIDE. WELD ON STIFFENER TO BE CONTINUOUS ON TOP SIDE & DISCONTINUOUS ON BOTTOM SIDE U.O.N.
13. ALL SKEW AND DIRECT WELDING SHALL BE DONE BY PREPARING THE CONNECTING MEMBER ENDS TO SUITABLE PROFILE (CUT TO SHAPE) AND THEN WELDED.
14. SEATING CLEATS AS REQUIRED SHALL BE PROVIDED BY FABRICATOR.
15. ALL ELEVATIONS REFERRED TO ARE TOP OF STEEL/UNDER SIDE OF GRATING.
16. SUITABLE EXTRA BRACING SHALL BE PROVIDED (AS REQUIRED) TO PREVENT DISTORTION/DAMAGE TO STRUCTURE DURING HANDLING, TRANSPORTATION AND ERECTION.
17. ALL LAPS ON PLATES TO BE 25 MM UNLESS OTHERWISE NOTED.
18. BOLT HOLES FOR MATCHING PARTS/MATCHING FLANGES SHALL BE MATCH MARKED AND HOLES DRILLED.
19. PROVIDE DRAIN HOLES IN HORIZONTAL PLATES WHEREVER REQUIRED.
20. READ THIS DRAWING IN CONJUNCTION WITH DRG. NO. 1-48-000-U6008
21. REFER DRG. NO. 1-35-110-U0368 FOR STRUCTURAL ELEMENTS OF RADIANC
21. REFER DRG. NO. 3-48-800-U8001 FOR BILL OF MATERIAL

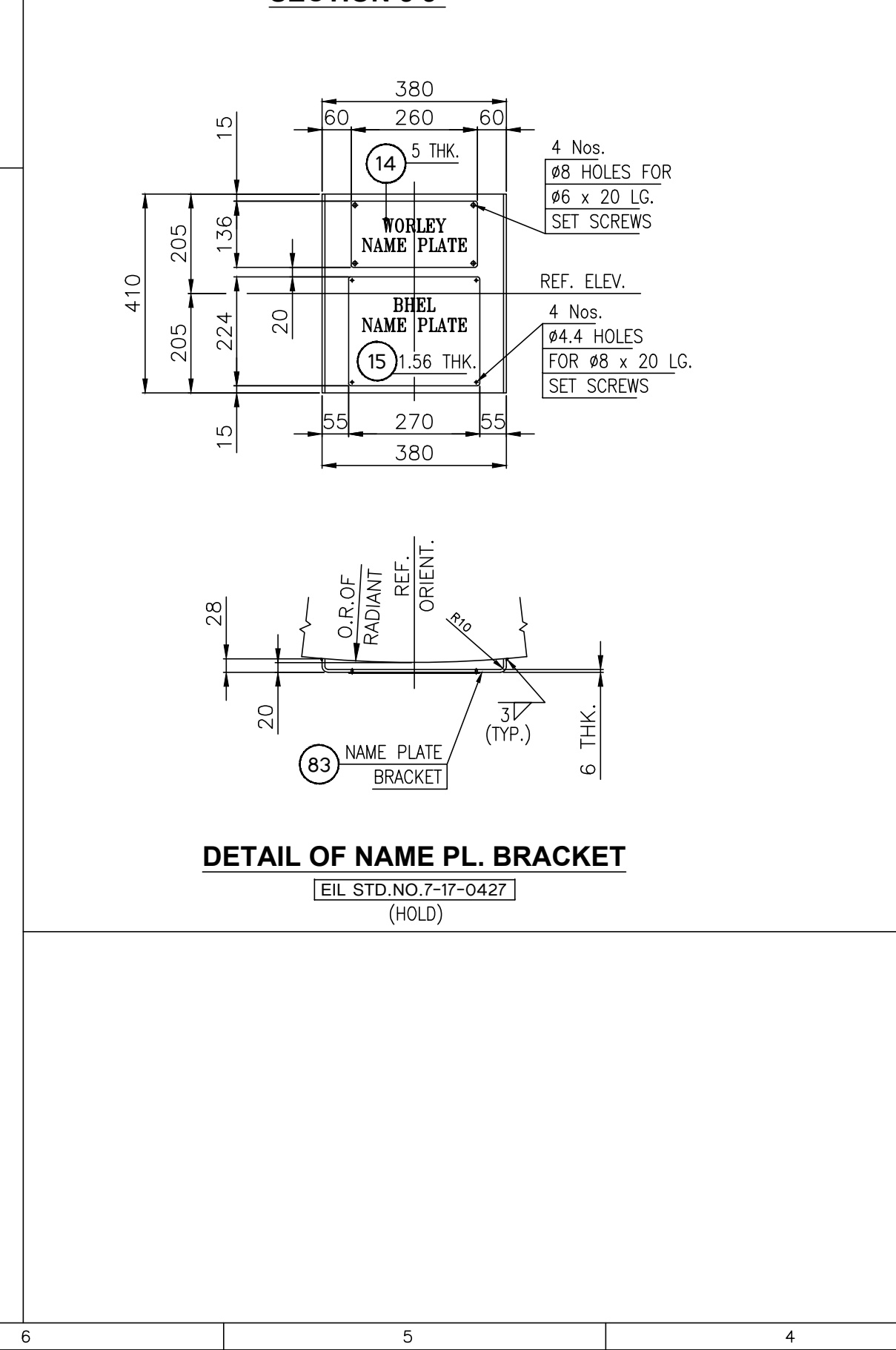
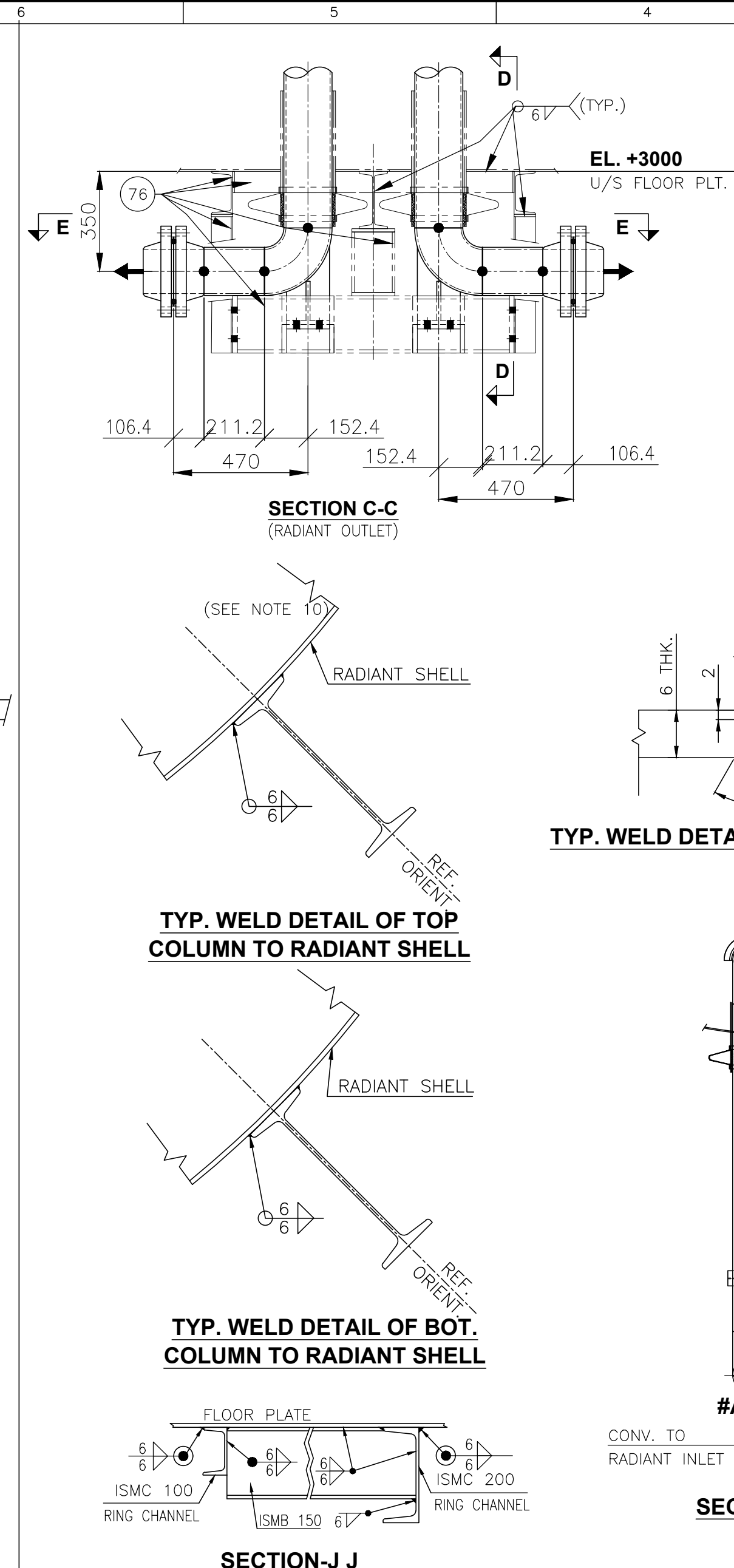
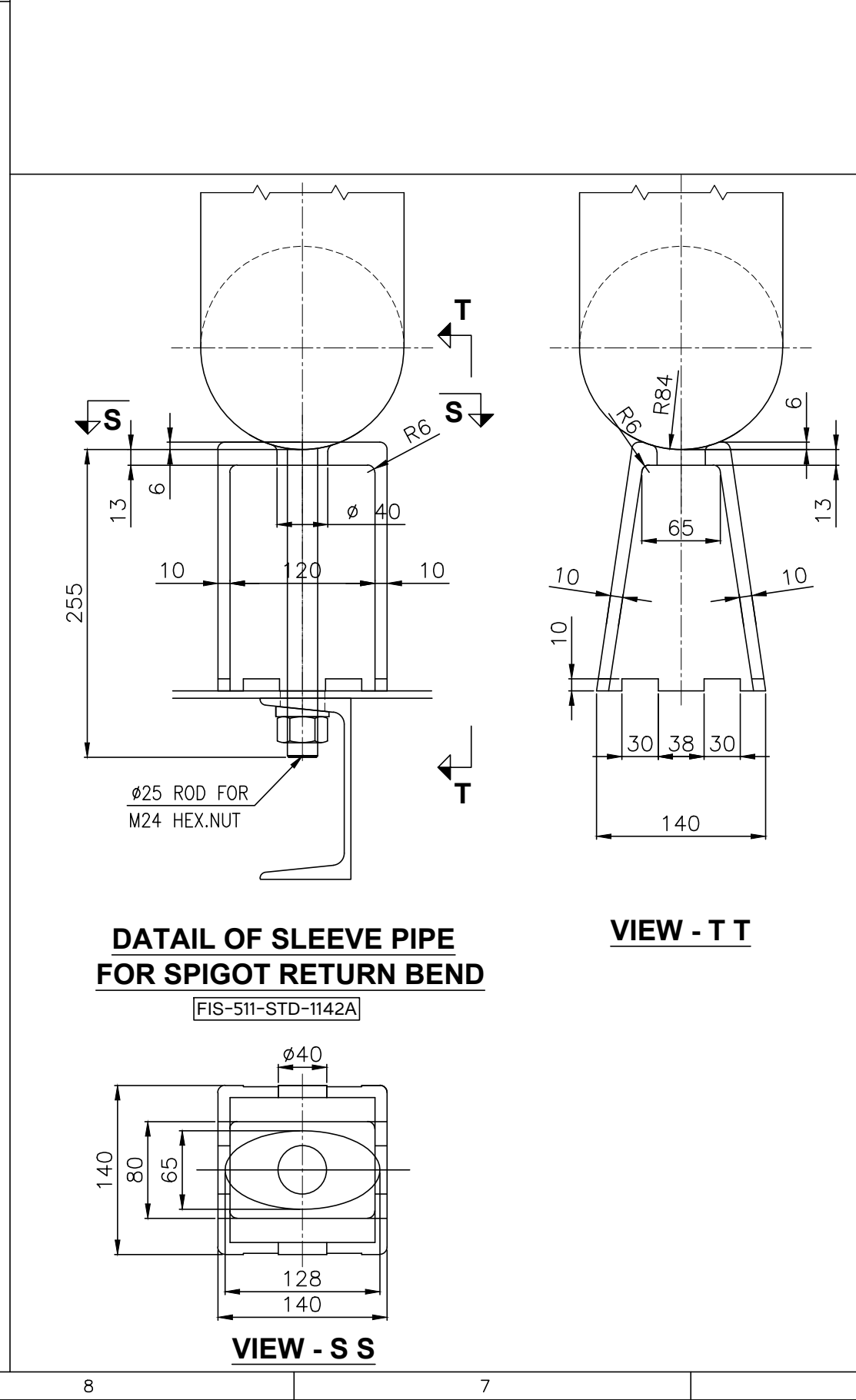
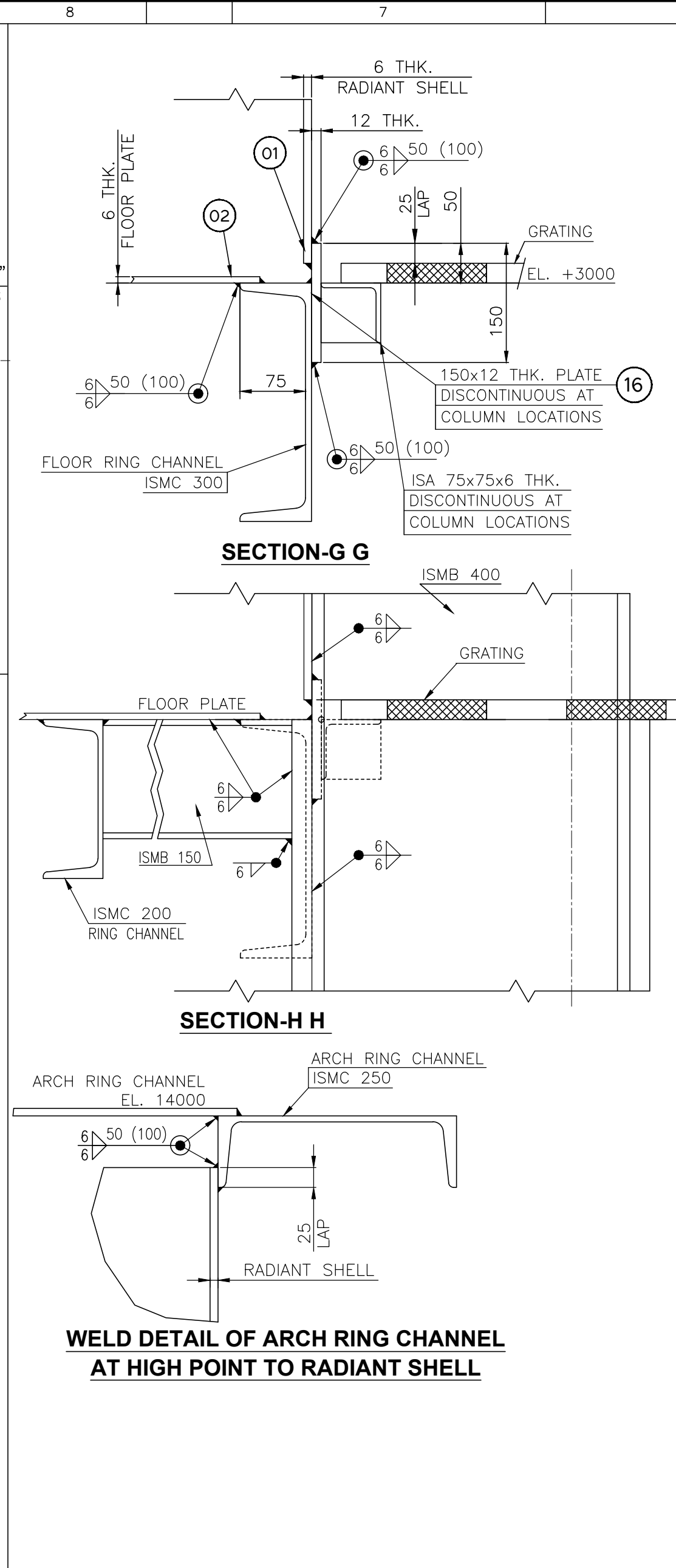
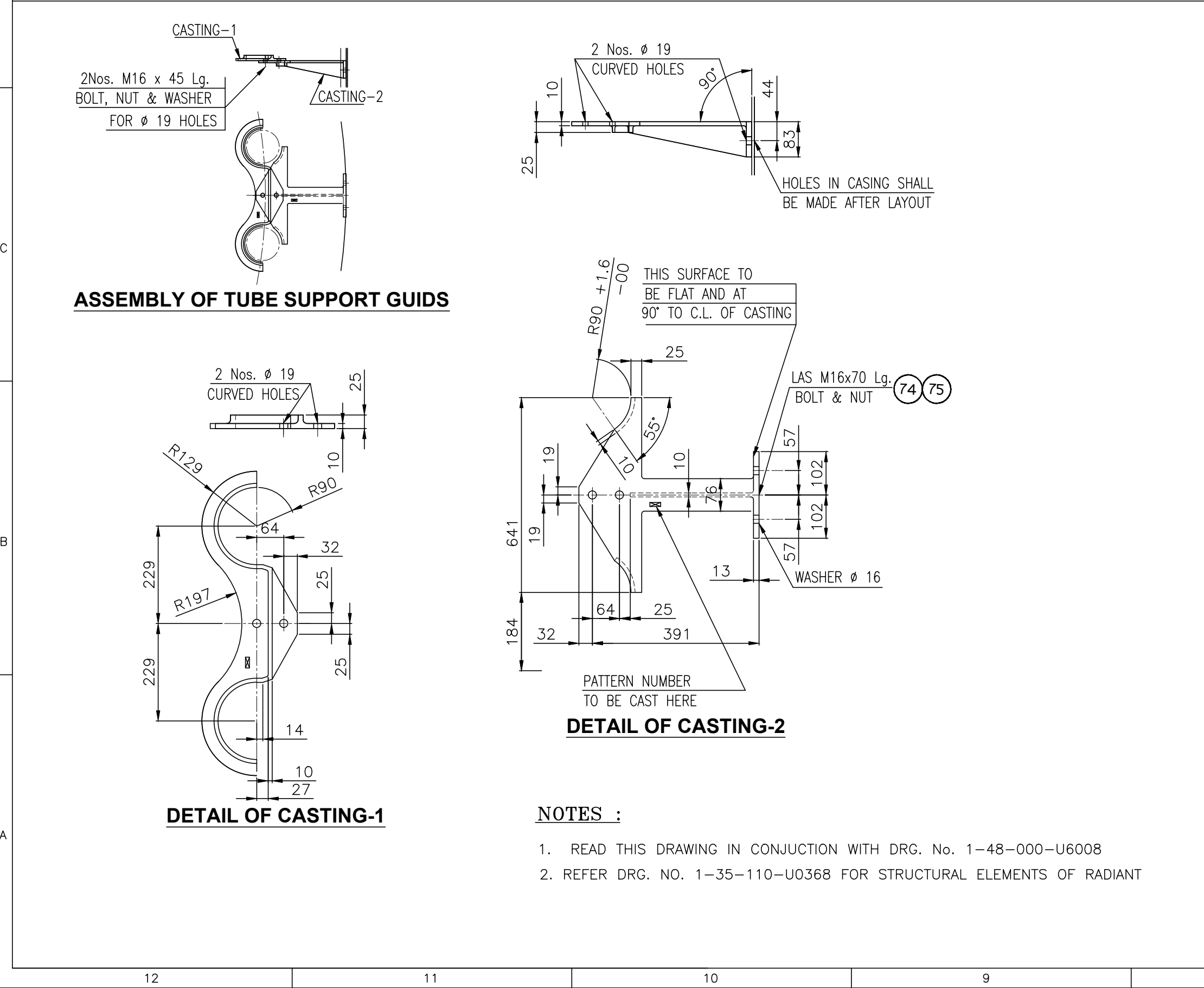
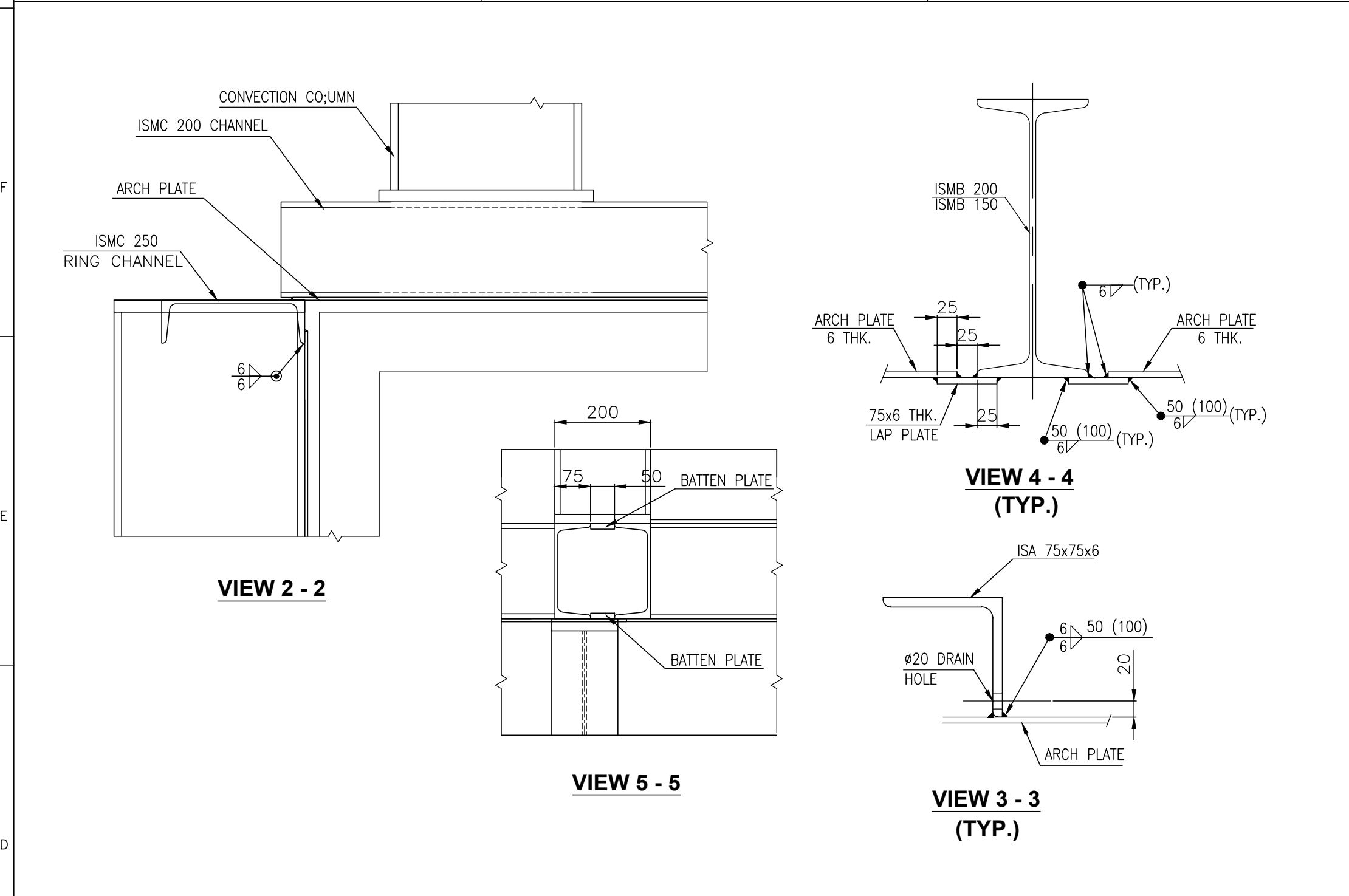
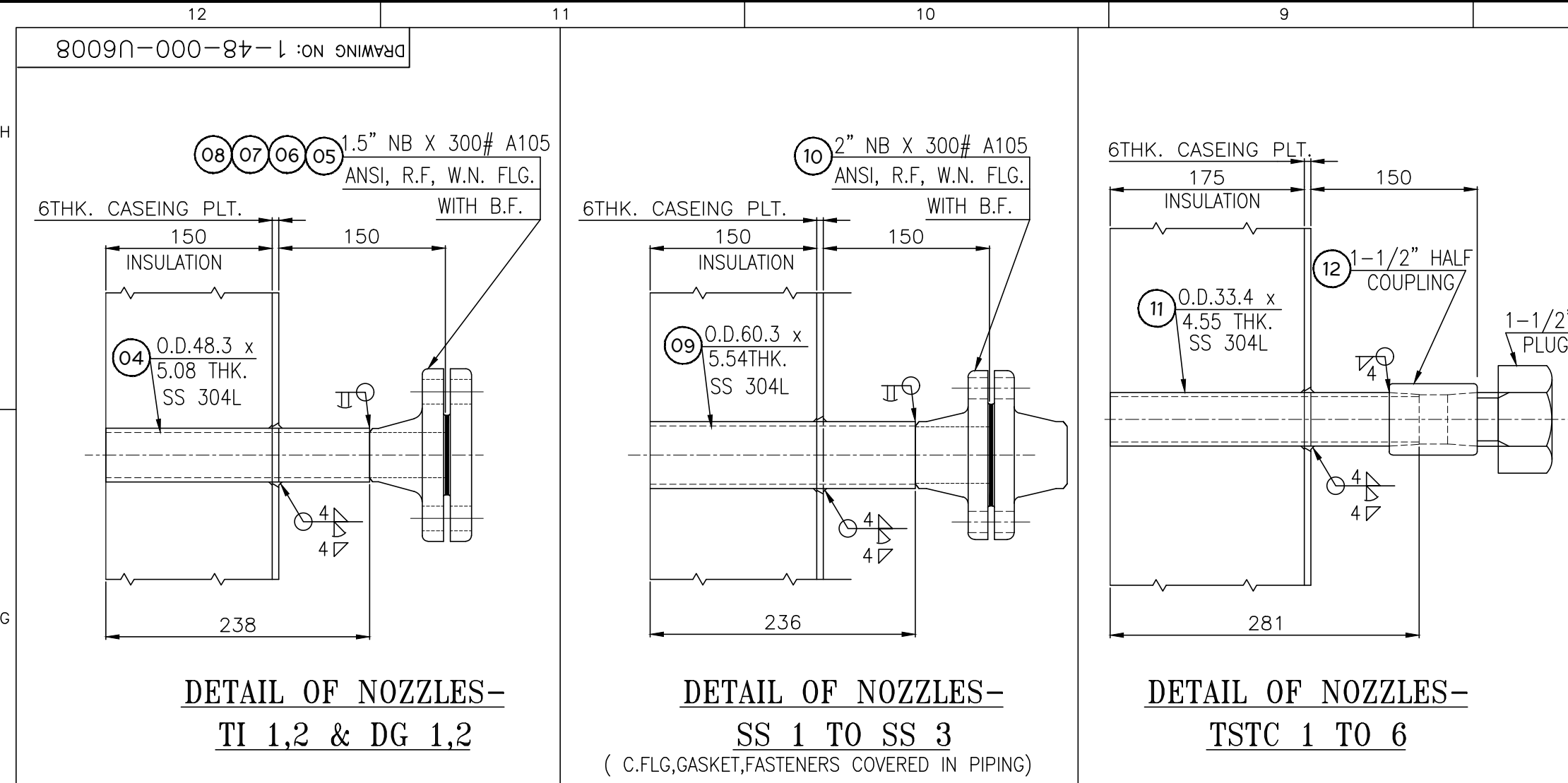
0		ISSUED FOR APPROVAL & SHOP RELEASE	SMG	SV	SV
REV NO.	DATE	BRIEF RECORD OF REVISIONS	PPD.	CHD.	APPD.

CUSTOMER No. 7916

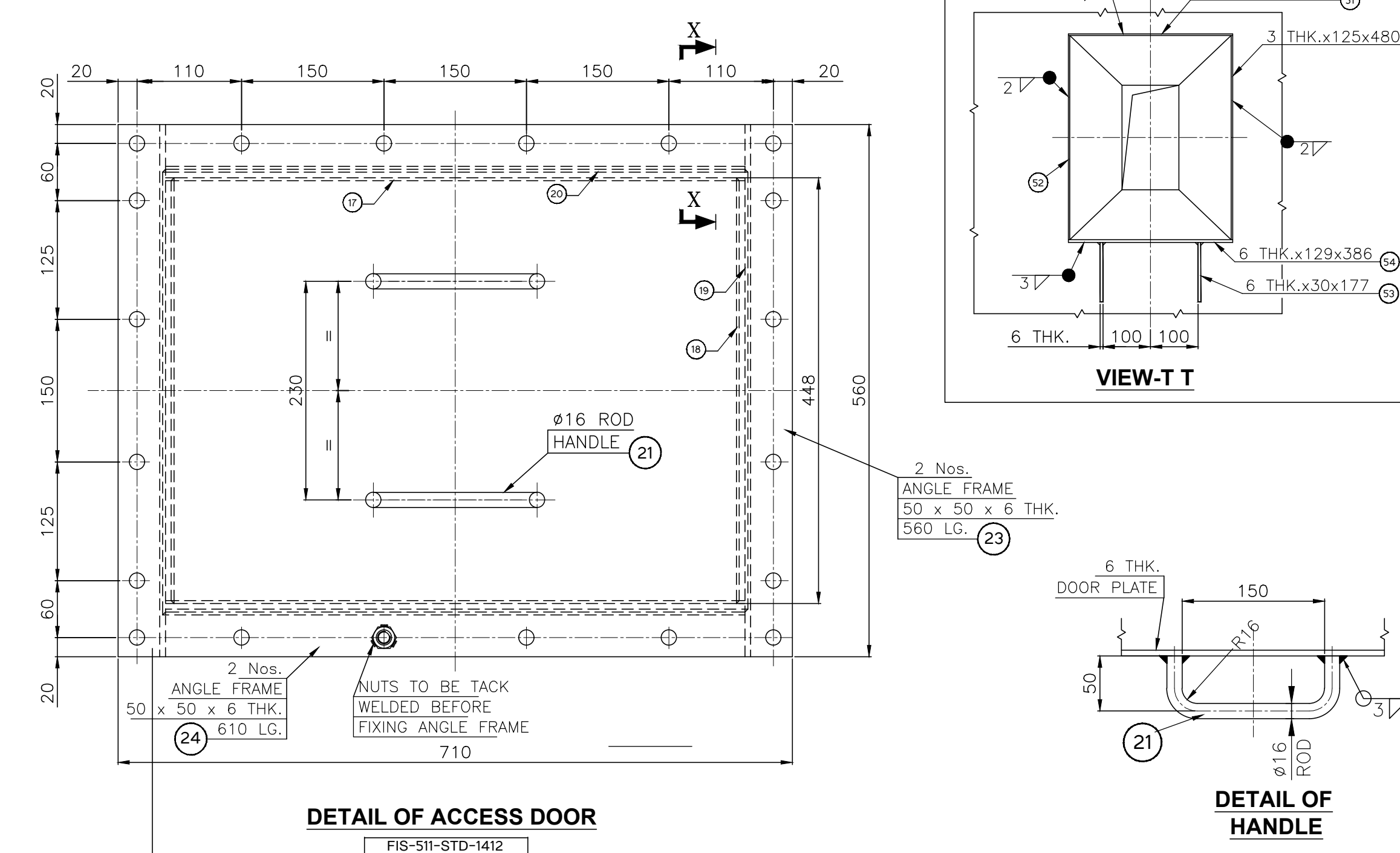
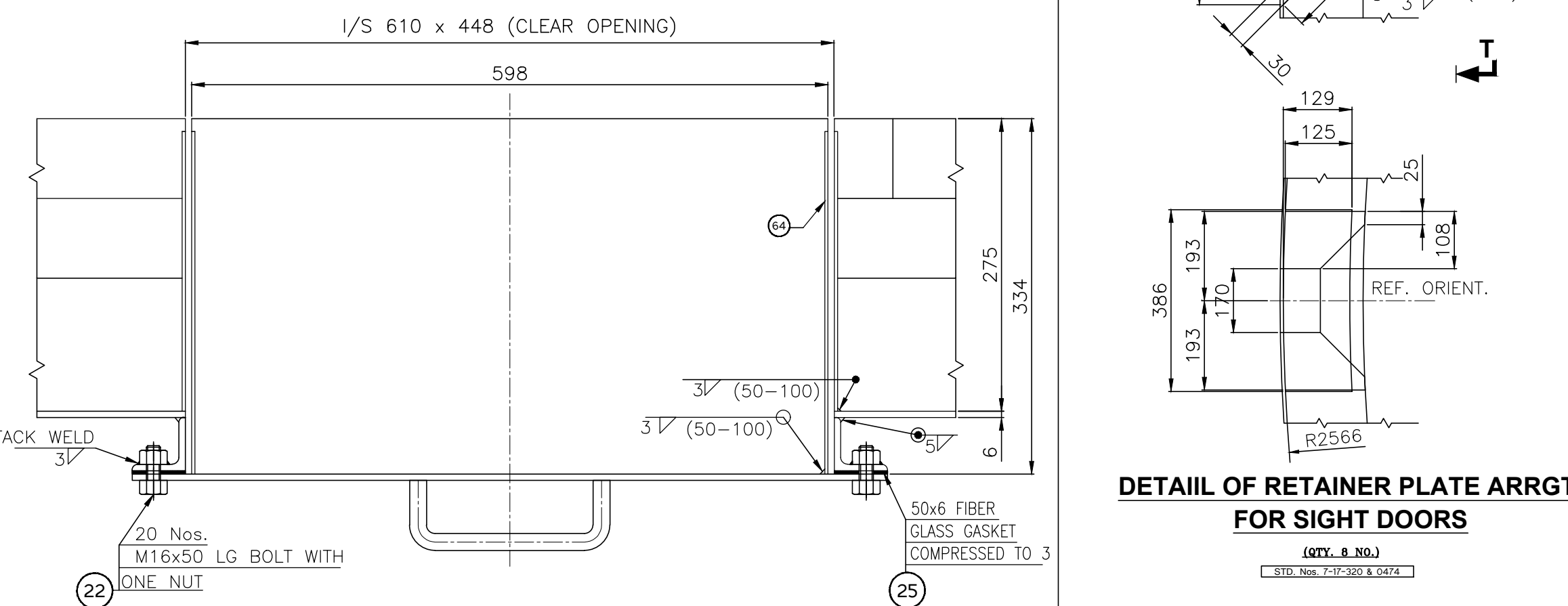
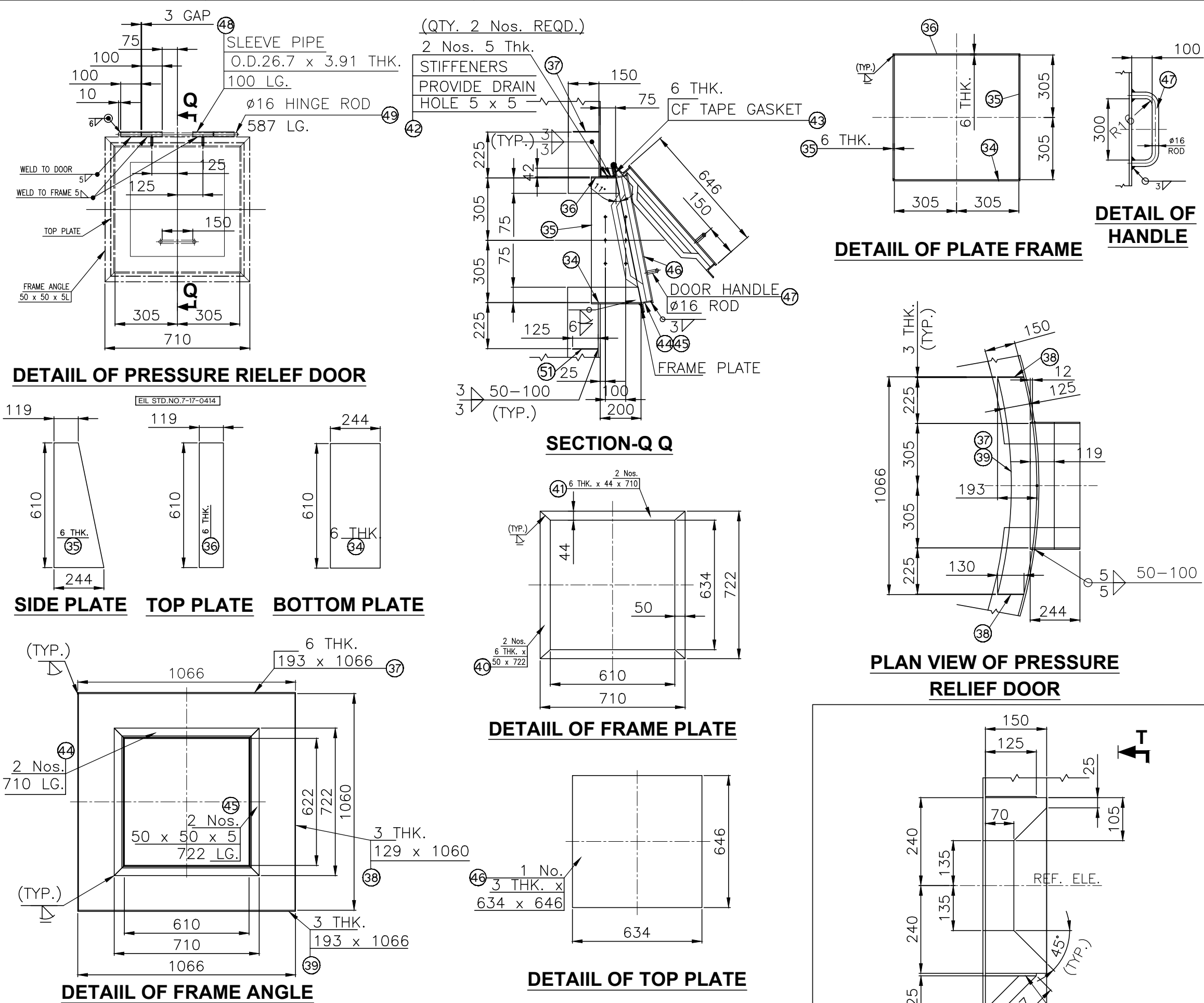
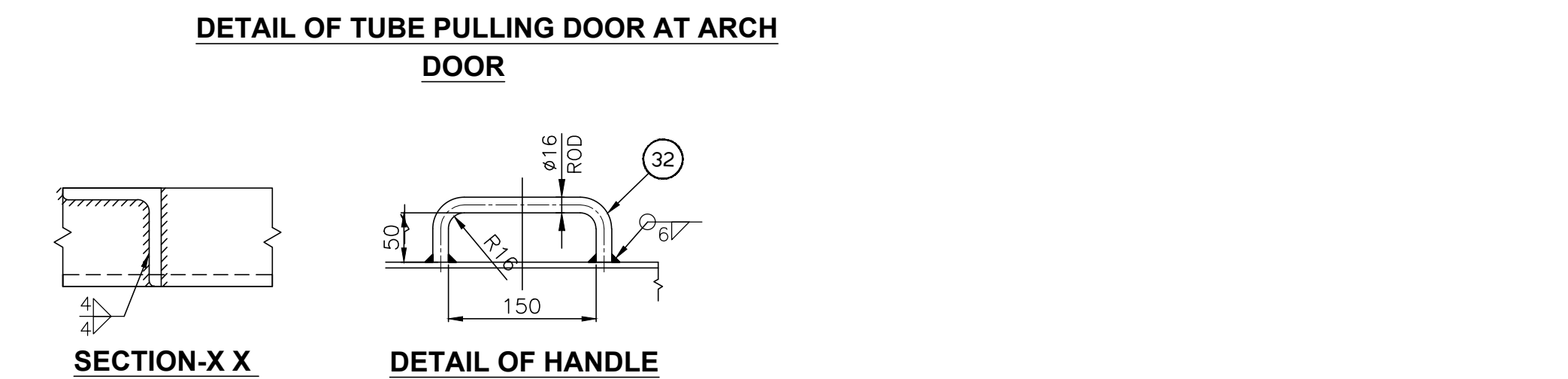
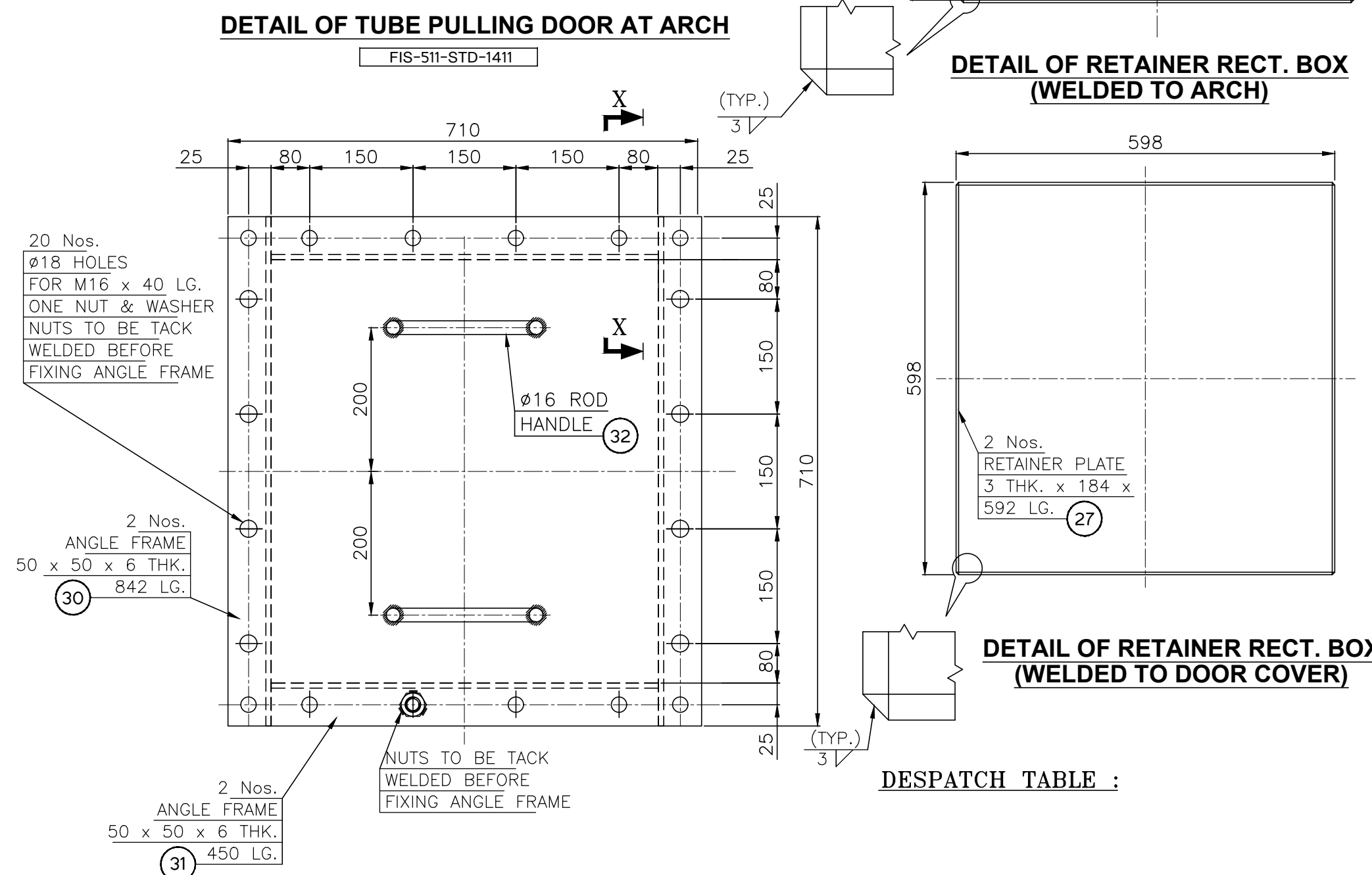
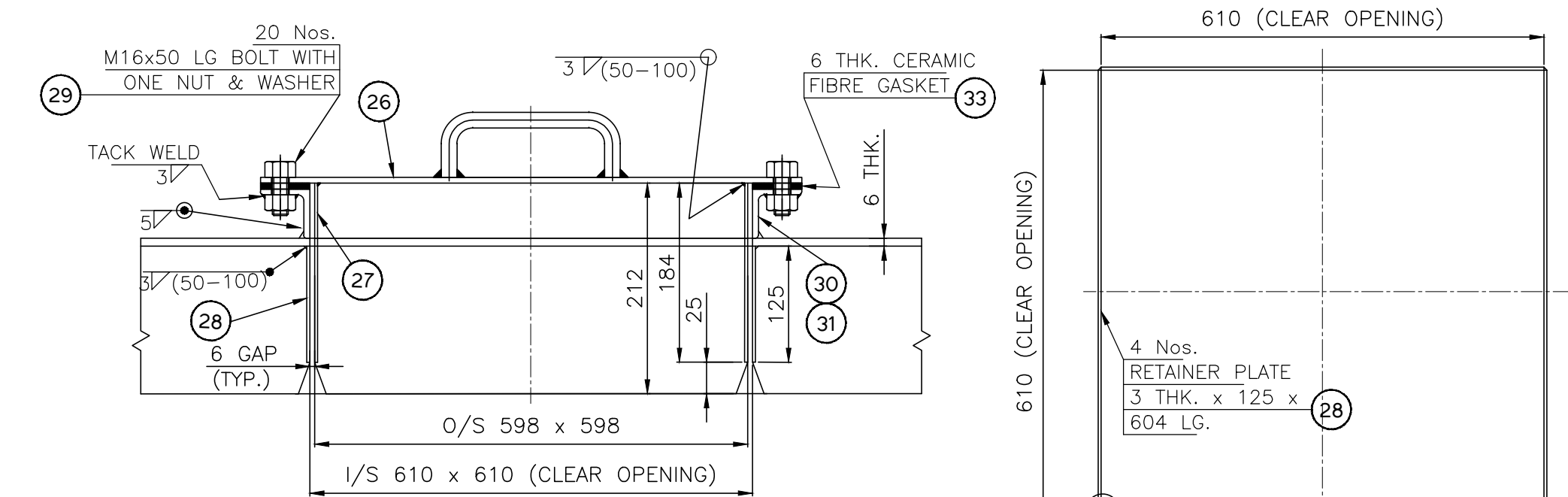
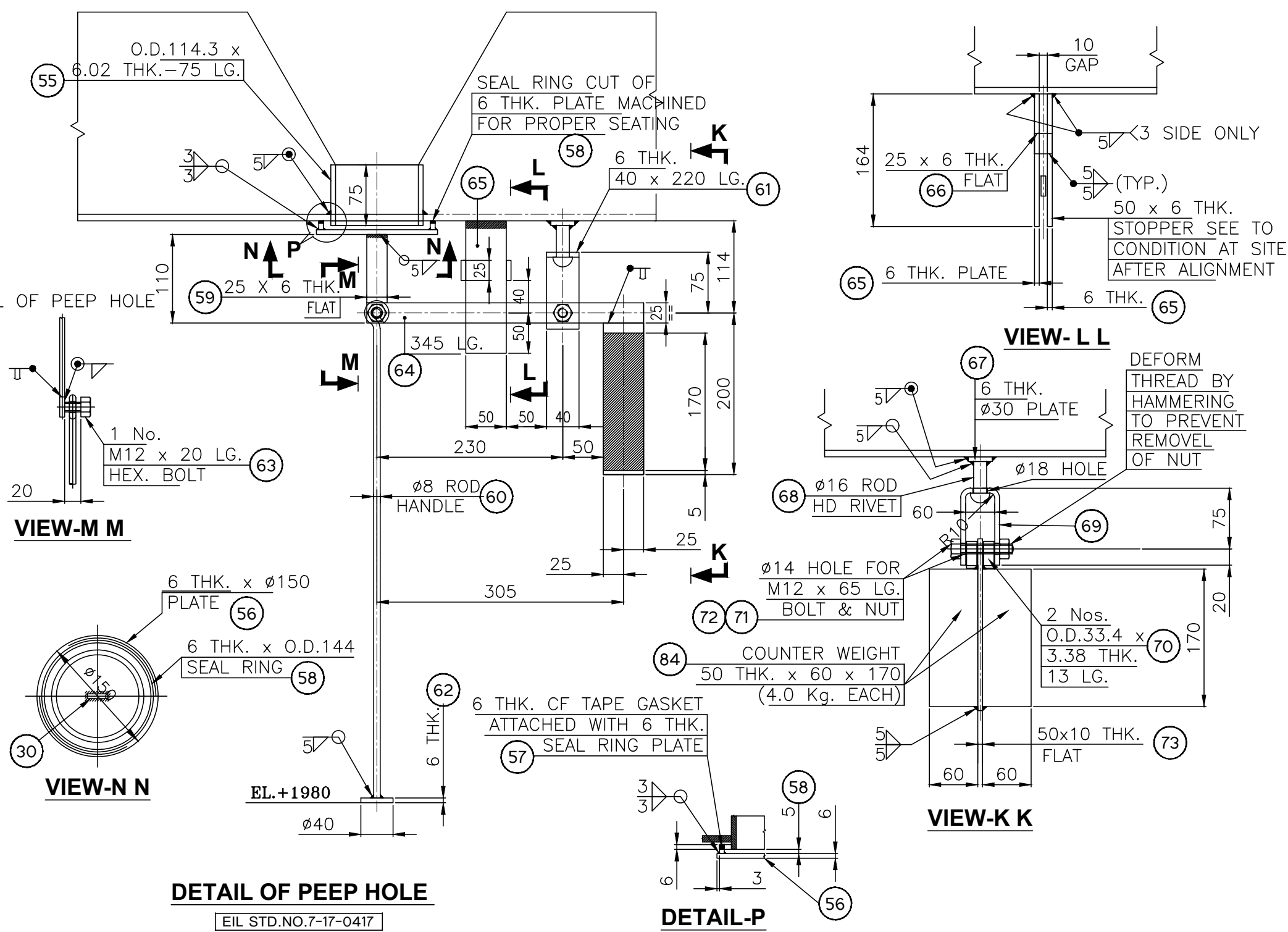
I ON THIS DOCUMENT IS THE ANY ELECTRICALS LIMITED, IT ACTUALLY OR INDIRECTLY IN ANY INTEREST OF THE COMPANY.	PROJECT:	EPCM SERVICES FOR PX-PTA EXPANSION PROJECT
		JOB NO. 44AC7500
	OWNER:	
	 INDIAN OIL CORPORATION LIMITED-PANIPAT, HARYANA	
	PMC:	
 NEW ENERGY HOUSE, RAMKRISHNA MANDIR ROAD, KONDIVITA, ANDHERI (EAST), MUMBAI-400059,INDIA TEL: +91 22 26812000, FAX: +91 22 28208295		
ITEM:	HOT OIL HEATER FOR PTA UNIT	
	(21-F1-1251)	

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	DRAWN	SMG NAIDU	TITLE G.A AND FAB. OF RADIANT CASING WALL FLOOR AND ARCH	
	CHECKED	S VIJAY		
	APPROVED	S VIJAY		
	DATE	02-08-2021		
	ALL DIMENSIONS ARE IN MILLIMETRES		C.DRG NO.44AC-7500-221-M-B02-0003-A1	REV.
		SCALE 1:55 BHEL DRG NO. 1-48-800-U8001	SHEET 1 0	

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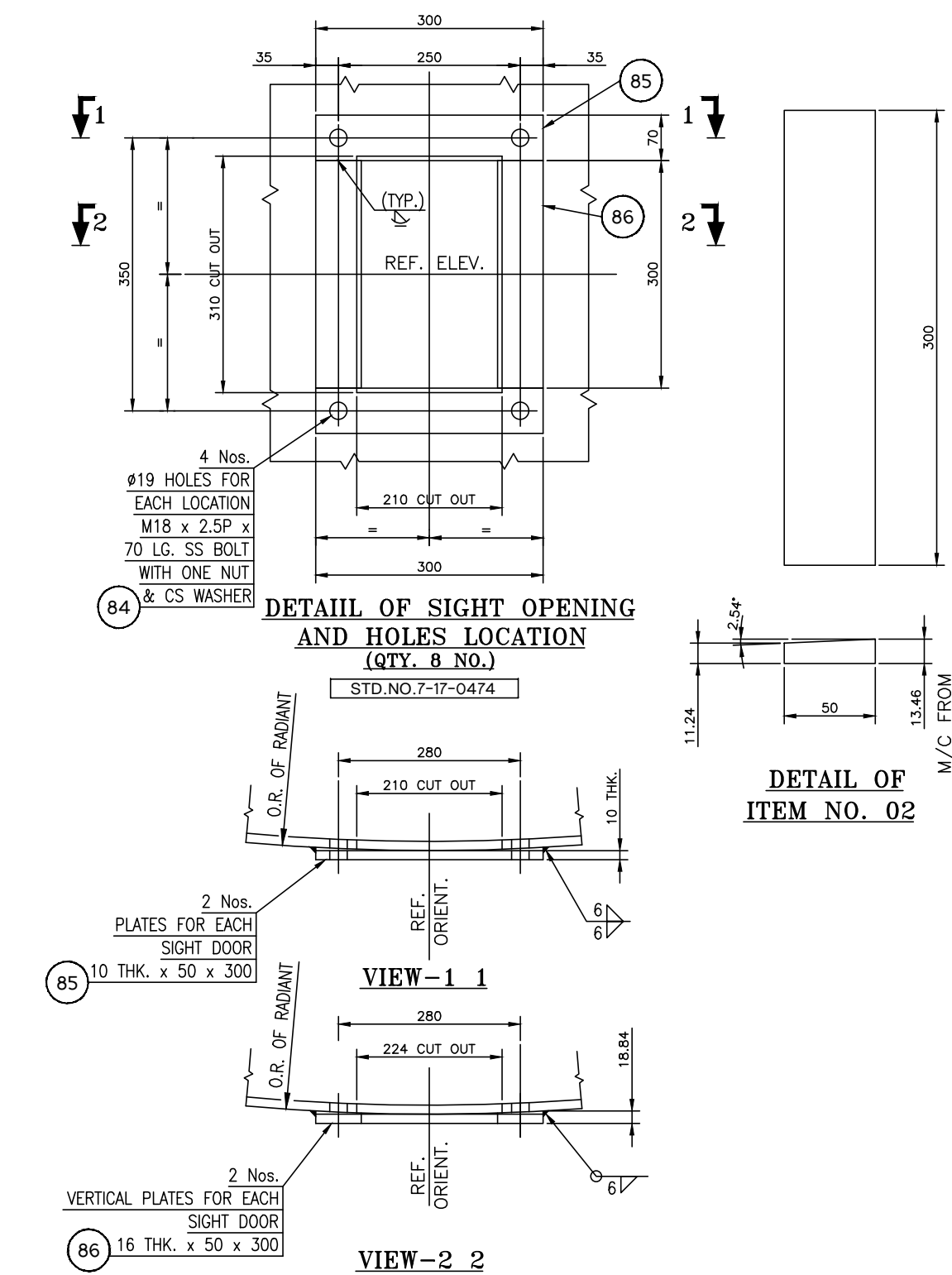


SECTION D-D		SECTION E-E	



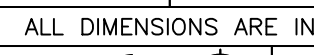
NOTES :

1. READ THIS DRAWING IN CONJUNCTION WITH DRG. No. 1-48-000-U6008
2. REFER DRG. NO. 1-35-110-U0368 FOR STRUCTURAL ELEMENTS OF RADIANT



REV NO.	DATE	BRIEF RECORD OF REVISIONS	PPD.	CHD.	APPD.
			CUSTOMER No. 7916		

I ON THIS DOCUMENT IS THE ANY ELECTRICALS LIMITED. IT TLY OR INDIRECTLY IN ANY INTEREST OF THE COMPANY.	PROJECT:	EPCM SERVICES FOR PX-PTA EXPANSION PROJECT	
		JOB NO. 44AC7500	
	OWNER:	INDIAN OIL CORPORATION LIMITED-PANIPAT, HARYANA	
	PMC:	NEW ENERGY HOUSE, RAMKRISHNA MANDIR ROAD, KONDIVITA, ANDHERI (EAST), MUMBAI-400059,INDIA TEL: +91 22 26812000, FAX: +91 22 28208295	
	ITEM:	HOT OIL HEATER FOR PTA UNIT (21-F1-1251)	

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	DRAWN	S SANKARA RAO	TITLE	
	CHECKED	S VIJAY	G.A AND FAB. OF RADIANT CASING WALL FLOOR AND ARCH	
	APPROVED	S VIJAY		
	DATE	02-08-2021		
	ALL DIMENSIONS ARE IN MILLIMETRES		C.DRG NO.44AC-7500-221-M-B02-0003-A1	REV.
 SCALE 1: 55		BHEL DRG NO. 1-48-800-U8001	SHEET 3	
			0	