

Technical Specification for Feeder Pillar Panel

(Distribution panel without ACB)

Specification no - GN101-03-SP-18-01

Prepared / Reviewed by	Approved by:	Rev	Date
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Page 1 of 25



Index

1.	Scope of supply	3
2.	Codes & Standards	3
3.	Service Conditions	3
4.	Feeder Pillar Configuration	4
5.	Panel Construction	4
6.	Fuse Base	7
7.	Operational requirements	7
8.	Name Pate and Finish	7
9.	Compacted feeder pillars	8
10.	Testing and Inspection	8
11.	Packing and Delivery	9
12.	Deviation	9
List	of Annexure	10



1. Scope of supply

This shall include Design, manufacture, testing at manufacturers works before dispatch, packing, delivery of material to BSES Stores and submission of documents to purchaser.

2. Codes & Standards

The equipment shall confirm to this specification and latest revision of following codes with all amendments:-

	Title	Indian Standard	
2.1	IS 5039	Specification for distribution pillars below 1000v AC	
2.2	IS 13947 part 2	Low Voltage switchgear	
2.3	IS 8623	Specification for low voltage switchgear	
2.4	IS 12063	Classification of degrees of protection provided by	
		enclosures of electrical equipment	
2.5	IS 13703	Low voltage HRC fuses	
2.6	IS 5	Color of ready mixed paints	
2.7	IS 191	Specification for copper	
2.8	IS 5082	Wrought Aluminum & Al alloy plates & sheets for electrical	
		applications	

3. Service Conditions

The feeder pillar panel shall be designed to work satisfactorily under following service conditions:-

	Title	Indian Standard
3.1	Supply Voltage	3 phase neutral, AC 433Volt +/-10%
3.2	Supply Frequency	50 Hz +/- 5%
3.3	Location of panel	Outdoor, on foot path or roadside
3.4	Pollution	Heavily Polluted and Dry
3.5	Humidity	90% maximum
3.6	Ambient Temperature	Average 40 Deg C, Maximum 50 Deg C
3.7	Incoming supply to feeder pillar panel	From distribution transformer or Main feeder pillar panel
3.8	Seismic Zone	4



4. Feeder Pillar Configuration

The feeder pillar panel shall have following configuration:-

4.0	Feeder Pillar Type	Incoming feeder (Circuit ways) & Cable size	Outgoing feeder (Circuit ways) & Cable size
4.1	A-1 , 8-Way	2 X 400A TP fuse / cable size 4CX300Sqmm	6 X 250A TP fuse / cable size 4CX150Sqmm
4.2	B-1, 5-Way	1 X 400A TP fuse / cable size 4CX300Sqmm	4 X 250A TP fuse / cable size 4CX150Sqmm
4.3	C-1, 7-Way	1 X 250A TP fuse / cable size 4CX150Sqmm	5 X 100A TP fuse 1 X 250A TP fuse / cable size 4CX95Sqmm

5. Panel Construction

The feeder pillar panel construction shall confirm to following features:-

5.0	Panel Construction	Free Standing floor mounted with steel frame,	
	Welded Construction	Continuous welding from inside, Spot welding not acceptable.	
5.1	Ingress Protection class for enclosure	IP 55 as per IS 12063	
5.2	Material	Galvanized sheet Steel CRCA	
5.3	Sheet Steel Thickness	3mm - Support frames 2mm Galv Covers, Doors & Canopy	
5.4	Base frame for 8 Way & 7 way panel	3mm MS Channel 50mm height painted in Black Color	
5.5	Bottom holes on four Sides	Oval Shape, for grouting bolts	
5.6	Pedestal for 5 way	Of height 400mm with side covers of FRP or Galvanized MS painted in black	
5.7	Cable entry	From Bottom only	
5.8	Lifting Lug	2 nos lug welded on top	
5.9	Canopy on top	With minimum 10 Deg C slope extended 50mm outside panel front and rear	



5.10	Door type for front & rear access	Centre Opening double leaf with insulating rubber grip handle
5.11	Double leaf doors	Right hand side leaf can be opened only after left hand side leaf
5.12	Door Hinges	Minimum three anti theft type hinges
		MS screw -3mm dia & 8mm length
		Tight fit brass tube – 100mm ID, 12.7mm OD & 20mm length
5.13	Door Opening angle	Min 120 Deg
5.14	Padlocking facility	For Front and Rear door by total 4 nos L- drop arrangement. 2 nos front door and 2 nos rear door.
5.15	Locking facility on door	By L- drop type arrangement
5.16	Tower bolts at top and bottom of door	On left hand side door
5.17	External hardware	Galvanized steel nut and bolts
5.18	Phase & Neutral bus as per IS 5082	Aluminum grade 19501 (H2)
5.19	Bus bar color coding for R, Y , B and Neutral	Heat shrinkable tape of color Red , Yellow , Blue & Black respectively.
5.20	Bus Bar size in mm	Phase Neutral
5.20.1	8 - Way	50X10 mm 50X10 mm
5.20.2	5 - Way	50X6 mm 50X6 mm
5.20.3	7 - Way	50X6mm 50X6 mm
5.21	Bus for 8 – Way	Bolted type removable link to be provided at middle of all the phases and neutral bus bar to adapt two incomers from separate source.
5.22	Earth Bus at panel bottom	25X6mm Aluminum
5.23	Bus bar arrangement	Horizontal, with R phase bus at top
5.24	Neutral bus bar	With holes for connection incoming and outgoing cables up to 300Sqmm
5.25	Bus Bar support insulators	SMC / DMC, 1100v Grade
5.26	Bus Bar phase barriers	FRP / Acrylic insulating sheet



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F 07	Oabla dia		
5.27	Cable size	4CV200Samm apple	
	Incoming for 8 way	4CX300Sqmm cable	
	panel		
5.28	Incoming for 5 & 7-	4CX300Sqmm cable for 5 Way & 4CX150Sqmm	
	Way panel	cable for 7 Way panel	
5.29	Outgoing for 8 way	4CX150Sqmm cable	
	panel		
5.30	Outgoing for 5 & 7-	4CX150Sqmm cable for 5 Way & 4CX95Sqmm cable	
5.04	Way panel	for 7 Way panel	
5.31	Terminals for cables	Al grade 19501 (H2) as per IS 5082, with galvanized	
		steel nut bolts size M10 & two plane washers + spring washers & spacers	
		M16 size nut bolt for incomer of 8 way panel	
		into electrication intermediate that painer	
5.32	Terminal shape	'z 'Strips, 2nos per terminal	
5.33	Z Strip dimensions	8 way panel incomer 50 X 10 mm	
	supported on	5 & 7 way panel incomer 50X6 mm	
	insulators	a six and parties into the	
		All outgoing feeders 40X6mm	
		All outgoing leeders 40/Aomin	
5.34	Ease of taking current	Possible with Z Strip terminal	
	reading with open	·	
	clamp type ammeter		
5.05	Olare Landata and according		
5.35	Gland plate at panel bottom	Galvanized MS, 3mm thick for multi core cable	
	DOLLOTT		
5.36	Cable supports	Non ferrous clamps at bottom	
0.00	Cable capporte	Tron forfede diampe at bottom	
5.37	Cable termination	300mm minimum	
	clearance from gland		
	plate		
5.38	Earth studs on both	With M10 galvanized steel nut bolts	
F 00	side of panel bottom	Flexible DVC Curving 2.50 man and a selection	
5.39	Flexible earth connection to doors	Flexible PVC Cu wire 2.5Sqmm green color	
5.40	Panel maximum	Width Depth Height	
0.40	dimensions in mm	Dopui Hoight	
	8 - Way	1225 650 1650	
	5 - Way	900 550 1850	
	7- Way	1050 650 1650	
5.41	Holder for lamp for 8	230v Incandescent lamp controlled through 2amp	
	way panel	SPMCB	
5.42	Small power socket	5/15 amp 3pin socket controlled through 16amp	
	for 8 way panel	SPMCB	



6. Fuse Base

The equipment shall have all the following features -

6.1	Fuse base connection to main bus bar	By bus bar and not by flexible jumpers
6.2	Size	2as per IS 13703 for 400A
6.3	Current rating of fuse base at maximum ambient temperature	
0.4	50Deg C	Di i i i i i i i i i i i i i i i i i i
6.4	Fuse base current carrying part	Plated copper as per IS191
6.5	Fuse base insulating material	DMC / Porcelain
6.6	Make	For DMC - GE, Siemens, L& T, ABB For porcelain – Sample to be approved by BSES.
6.7	Fuse base mounting screws	With insulating caps
6.8	FRP Barriers for open live parts	1.6mm thick white colored sheet
6.9	HRC fuse pullers – 1 no / Type of fuse	Suitable for 400A, 250A & 100A HRC fuse

7. Operational requirements

7.1	Clearance between phase to	Minimum 25mm
	phase and phase to earth	
7.2	Continuous rated operating voltage	433 volt +/- 10 %
7.3	Power frequency high voltage withstand capacity for one minute	2000Volt
7.4	Insulation resistance value for phase and neutral bus bar	Minimum 100MOhm with 500V Megger
7.5	Temperature rise above ambient 45 Deg C	As per IS 13947_1

8. Name Pate and Finish

8.1	Name plate	On front door top left side showing
		1) Purchase name and PO number
		2) Manufacturer name
		3) Month & year of manufacturing
		4) No of ways
		5) Property of BSES
8.2	Labels for incoming and outgoing	Sticker type labels inside panel door
	feeders	
8.3	SLD	SLD to be screen printed inside the
		front door.



8.4	Marking for panel earth stud	Green letter 'E', on riveted AL label
8.5	Danger board in English and local language, riveted on doors	Red color background with black lettering on 1.6mm thick Al plate
8.6	Surface preparation for painting	Sand blasting or 7 tank process
8.7	Painting	Powder coated grade A polyester paint with min thickness 60 microns
8.8	Paint shade	Shade – 538 as per IS:5 – Post office red
8.9	Fluorescent strip painting on panel	50mm wide horizontal strip of fluorescent paint around panel in the middle of panel

9. Compacted feeder pillars.

9.1	Door type for front access	Centre Opening double leaf with insulating rubber grip handle only front side.	
9.2	Rear side	No door at read side. Panel to be access only from front.	
9.3	All other constructions shall be as per above mentioned construction		
9.4	Use of compacted feeder pillars	Where sufficient space at rear side is not available due to space constraints at site.	

10. Testing and Inspection

The equipment shall have all the following features -

10.1	Type test	Only type tested components – fuse base, insulators and aluminum bus bar shall be accepted Test reports as per relevant IS to be submitted by vendor	
10.2	Test report validity	Valid for last 5 years	
10.3	Acceptance and routine test (Inspection test witness by purchaser)	 Visual inspection, dimension checks and paint thickness check. Bill of material check Wiring checks. Insulation resistance test for main and auxiliary circuit High voltage test on main and auxiliary circuit Operational check 	
10.4	Tolerances on panel dimensions	Maximum +/- 5mm	



10.2.9	No negative tolerance on bus bar dimensions and bus bar clearances
10.2.10	Prototype panel to be approved by BSES

11. Packing and Delivery

11.1	Packing protection	Against Shocks, vibration and
		corrosion
11.2	Packing identification labels	To show purchaser name, PO number, Manufacturer serial number
11. 3	Handling instruction	To be marked on packing boxes

12. Deviation

Deviation to specification to be submitted in writing by vendor. Bidder to submit copy of specification and GTP along with company seal and signature on each page.



List of Annexure

Annexure A – Guaranteed Technical Particular

Annexure B – General arrangement drawing for 8 Way Panel

Annexure C – General arrangement drawing for 5 Way Panel

Annexure D – General arrangement drawing for 7 Way Panel

Annexure E - General arrangement drawing for compacted type 8 Way Panel



ANNEXURE A Guaranteed Technical Particulars

Bidder to submit hard copy duly filled and signed along with techno commercial offer. Bidder to submit separate GTP for each type of feeder pillar panel

S. No	Particulars	BRPL / BYPL Requirement	Vendor Data
1	Manufacturer	Name	
		Address	
		Contact no.	
2	Type of Panel Offered	8-way , 5-Way & 7-Way	
3	Main bus bar rating	As per clause 4.1 to 4.3	
	No. of Incoming feeders	Quantity	
4		Rating in amp	
4		HRC fuse type / make	
5	No. of Outgoing feeders	Quantity	
		Rating in amp	
		HRC fuse type / make	
6	Panel construction	Galvanized CRCA sheet steel	
7	Panel enclosure class	MinIP55- ingress protection	
8	Galvanized sheet steel thickness	2MM min. for cover, doors & canopy	
9	Base frame for 8 way & 7 way only	3mm MS channel 50mm height painted in black color	



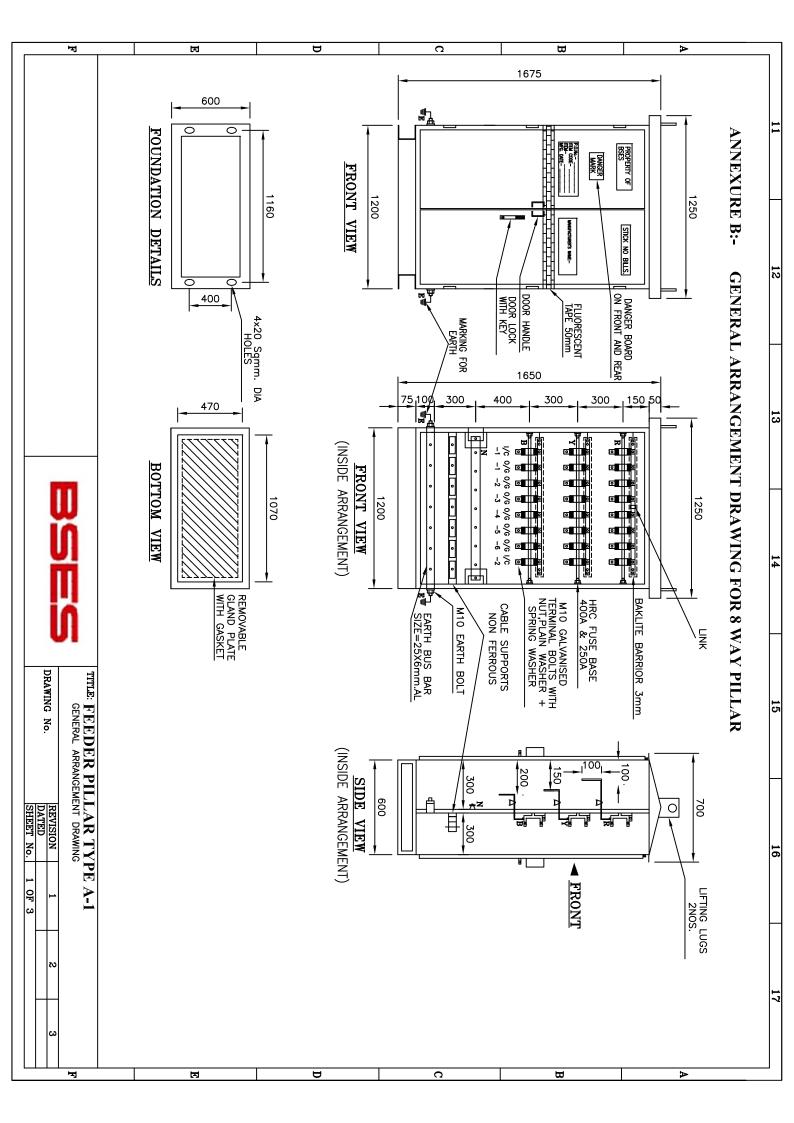
10	Pedestal for 5 Way	Of height 400mm with side covers of FRP or Galv. MS painted in black.	
11	Door type for front & rear access	Centre opening double leaf with insulating rubber grip handle	
12	Door Hinges	Minimum three anti theft type hinges	
13	Padlocking facility	Provided	
14	L- drop type locking arrangement at door	2 nos of each front and rear door	
15	External steel hardware	Galvanized nut & bolts	
16	Phase & neutral bus bar	Aluminum grade 19501 (H2) as per IS5082	
17	Bus bar color coding for R, Y, B & neural.	Heat shrinkable tape of Red, Yellow, Blue & Black color	
18	Bus bar size in mm		
	8 Way	Phase= 50X10MM Neutral= 50X10MM	
	7 Way	Phase= 50X6MM Neutral= 50X6MM	
	5 Way	Phase= 50X6MM Neutral= 50X6MM	
18	Earth bus size	25x6mm Aluminum	
19	Main bus bar short circuit withstand capacity	In KA for 1sec	
20	Main bus bar maximum temperature rise	above ambient of 45 deg C	
21	Bus bar support insulators	SMC / DMC, 1100V grade	
22	Terminals suitable for cables size	Al grade 19501 (H2) as per IS 5082, with galvanized steel nut bolts size M16 & two plane washers + spring washers & spacers	

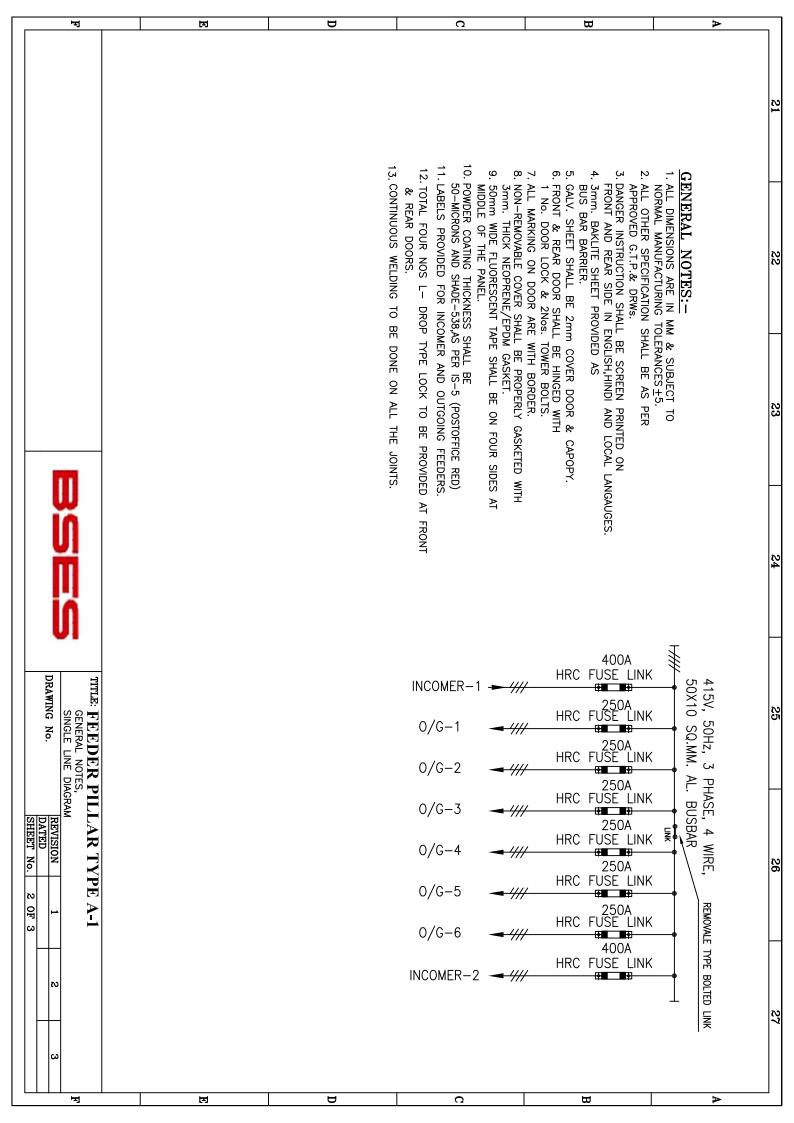


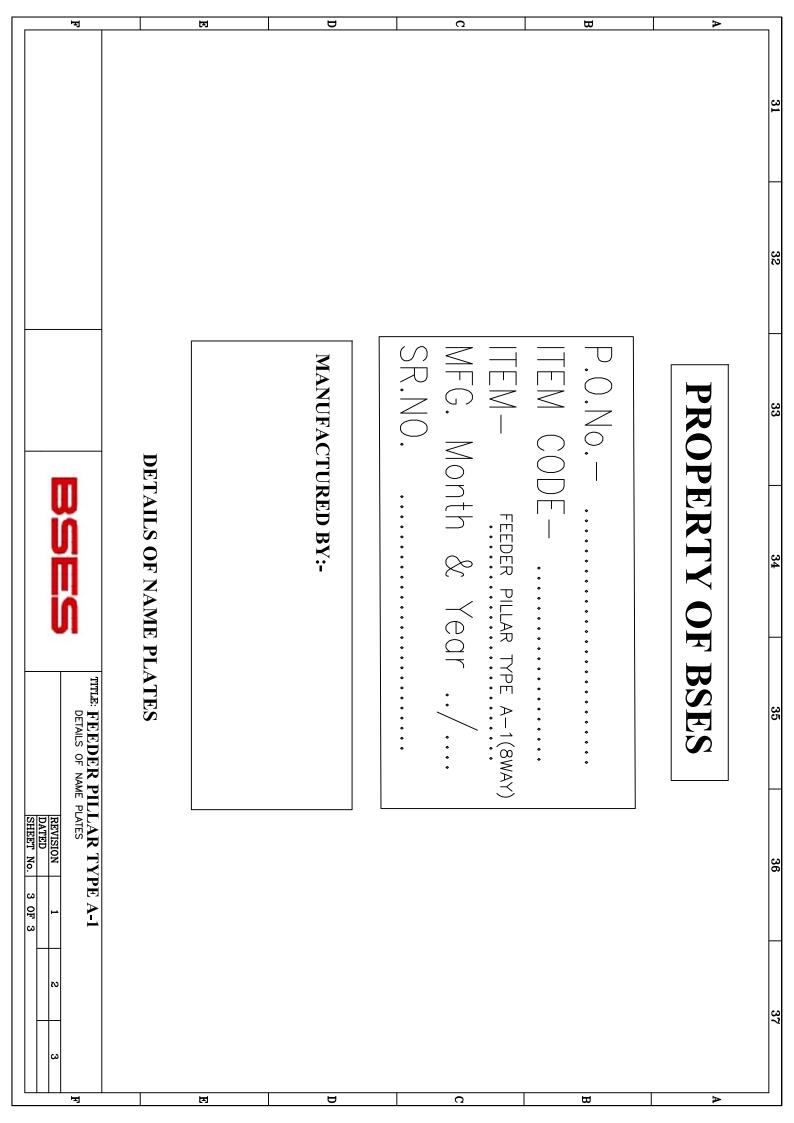
	Incoming cable for 0 ° E		
23	Incoming cable for 8 & 5 way panel	4CX300Sqmm	
24	Incoming cable for 7 way panel	4CX150Sqmm	
25	Outgoing cable for 8 & 5 way panel	4CX150Sqmm	
24	Outgoing cable for for 7 way panel	4CX95Sqmm	
25	Terminal shape	Z' strips supported on insulator, 2per terminal	
26	Z Strips dimensions	8 way panel 50x10mm	
20		7 & 5 way panel 40x6mm	
27	Gland plate at panel bottom	Galv. MS 3mm thick for multi core cable	
28	Cable termination clearance	300mm minimum from gland plate	
29	Earth studs on both side of panel bottom	With M10 galvanized steel nut bolts	
30	Panel maximum dimensions in mm		
	8 - Way	Width - 1225, Depth - 650, Height - 1650	
	7- Way	Width - 1050, Depth - 650, Height - 1650	
	5- Way	Width - 900, Depth - 550, Height - 1850	
31	Holder for 230V Incandescent Lamp	Controlled through 2amp SPMCB	
32	5/15 amp 3pin socket power socket	Controlled through 16amp SPMCB	
22	Fuse base size as per	Size 1 for 250A	
33	IS13703	Size 2 for 400A	
34	Current rating of fuse base at max. ambient temperature 48deg C Fuse base current carrying part	8 & 5 -WAY - 400A 7- way - 250A	
35	Fuse base current carrying part	Plated copper as per IS 191	

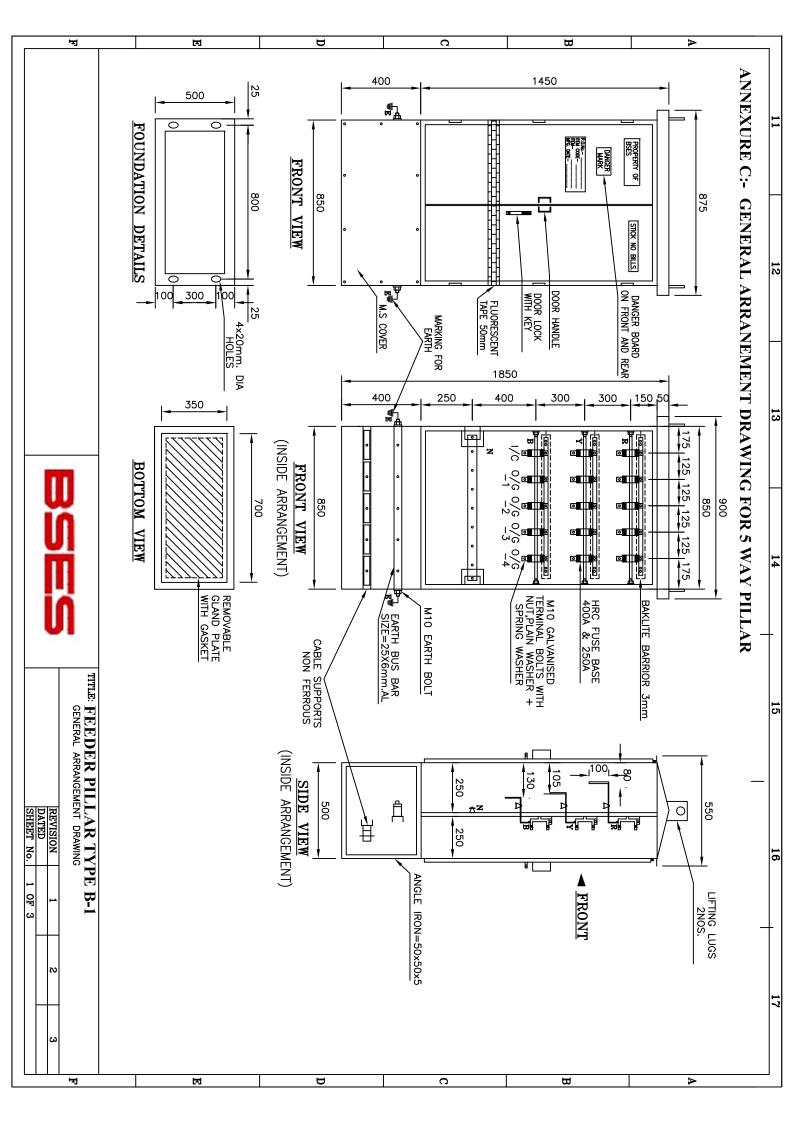


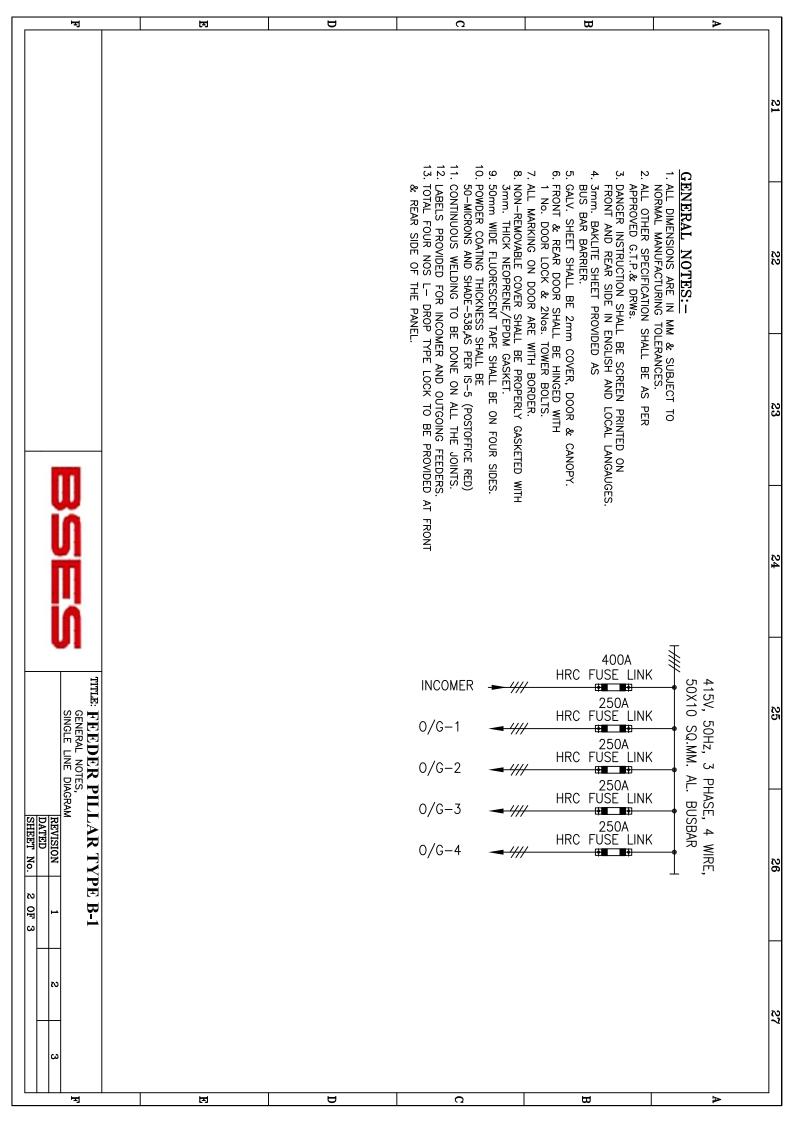
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36	Fuse base material	DMC/ Porcelain	
37	Make	For DMC - GE, Siemens, L&T or ABB For Porcelain	
38	HRC fuse pullers - 1no/ Type of HRC Fuse	Suitable for 400A, 250A and 100A HRC fuse & link	
	Clearance between live parts minimum 25mm	Phase- phase &	
39		Phase -earth	
40	Continuous rated operating voltage	433volt +/- 10%	
41	High voltage withstand capacity	2000V at 50Hz for 1 min.	
42	Insulation resistance Ph- Ph & Ph-earth	Minimum 100Mohm with 500v Meggar	
43	Labels & name plates	As per specification	
44	Surface preparation for painting	Sand blasting or 7 tank process	
45	Painting	Power coated grade A polyester paint min. thickness 50 microns	
46	Shade - Post office red	Shade - 538 as per IS:5	
47	Fluorescent paint strip on panel	50mm wide painted in the middle of panel	
48	Foundation Bolts	Required	

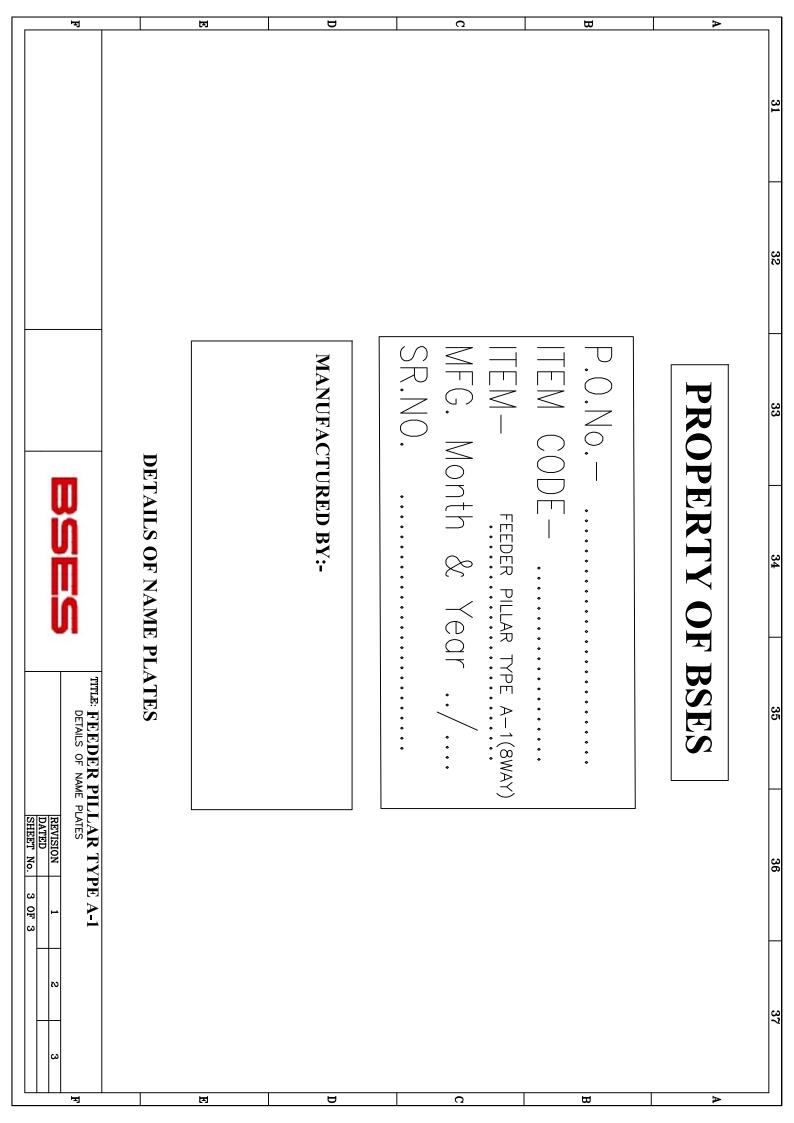


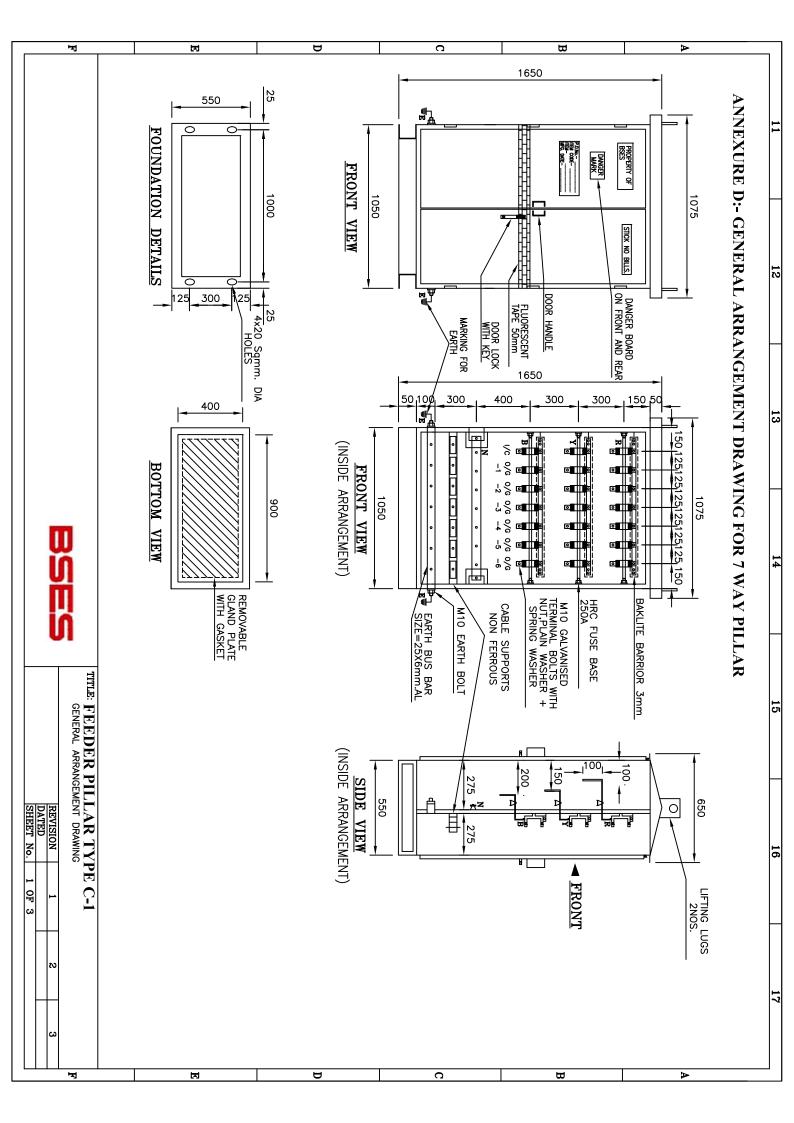


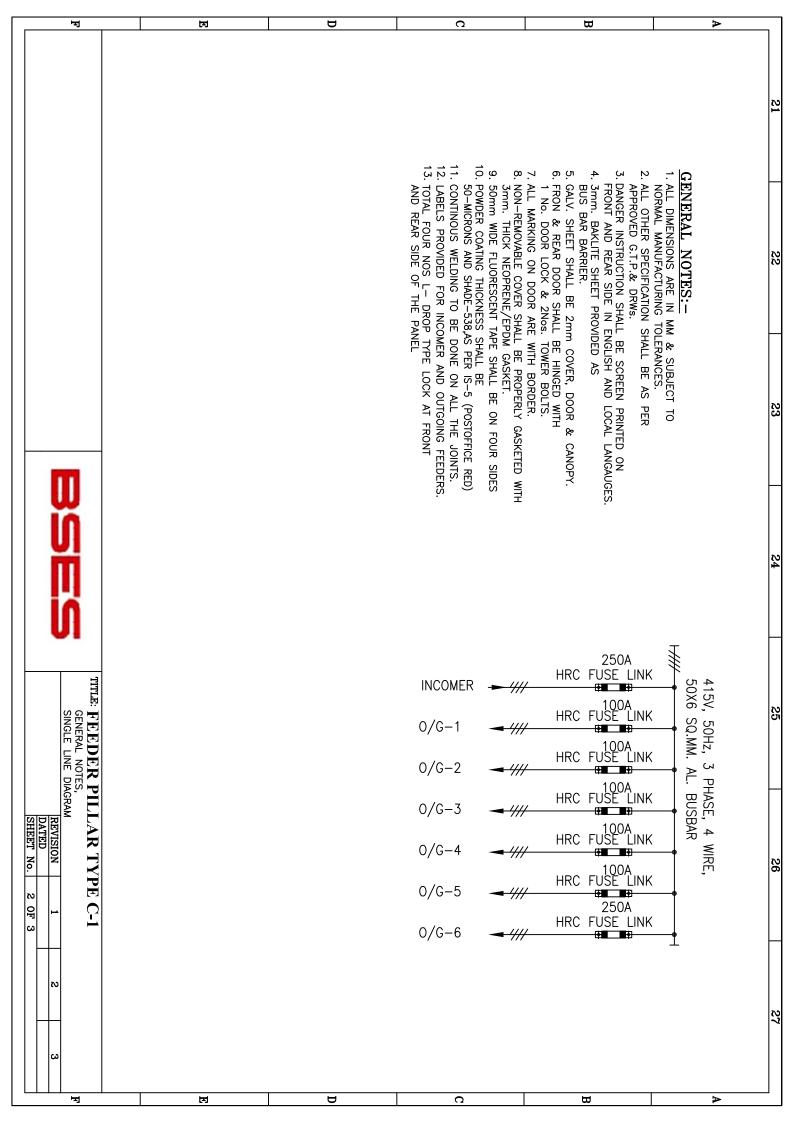


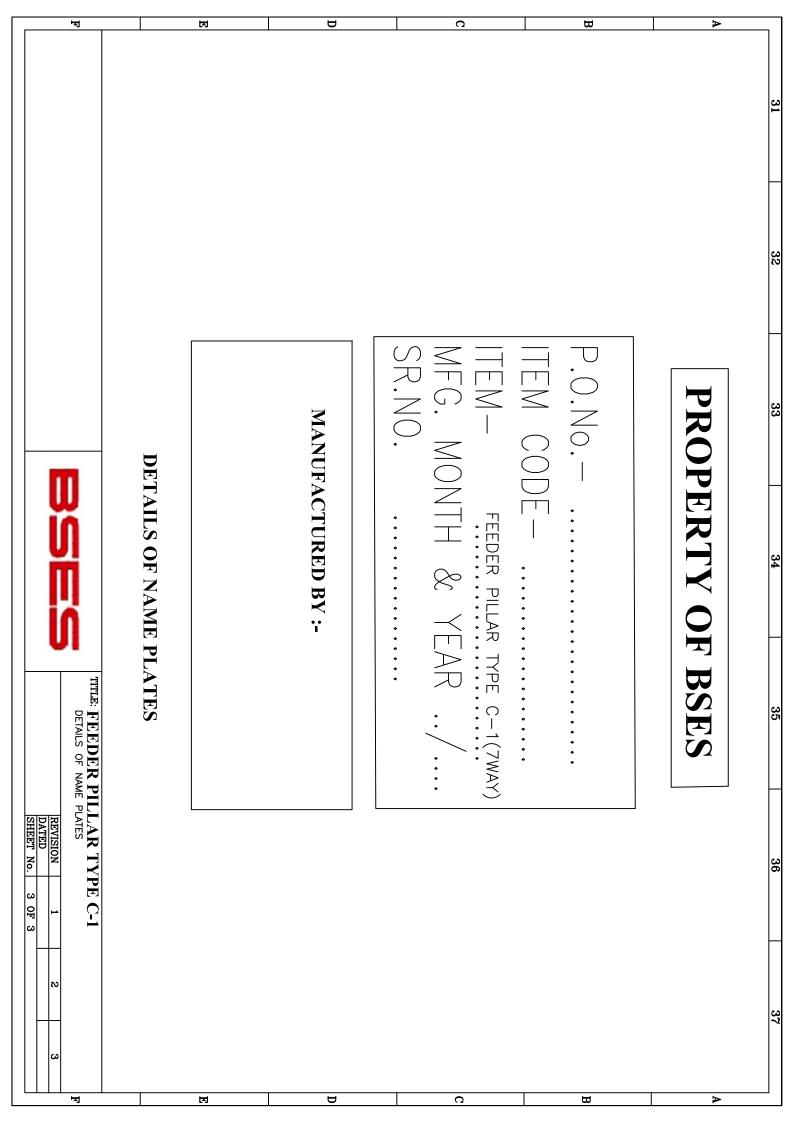






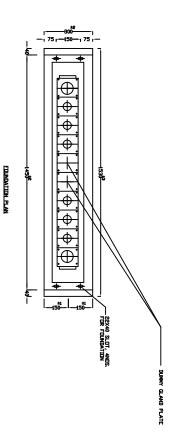






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ANNEXURE E: DRAWING OF COMPACTED TYPE 8 WAY PANEL



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BYPL-WDC-LAYOUT-8

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ELEVATION VITH CLOSED DOOR

