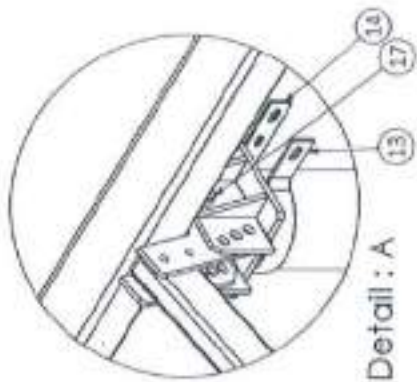
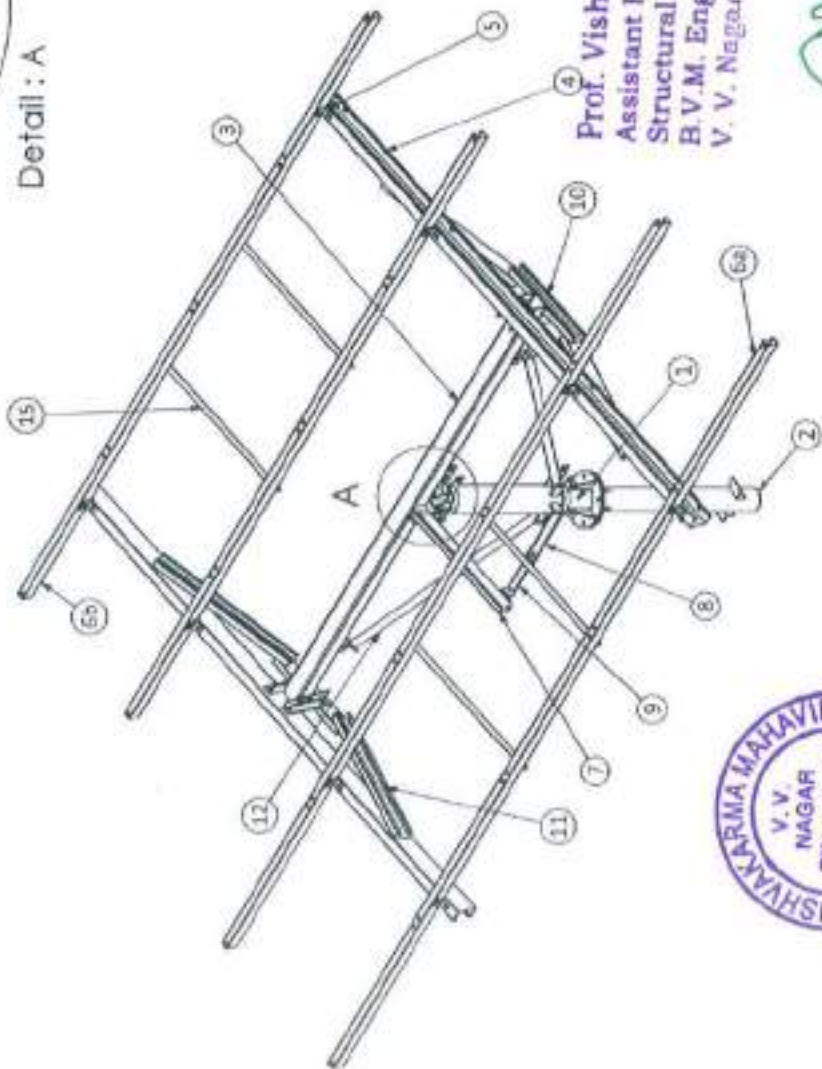


9MMS Structure



Detail : A



Sr. nos.	Descriptions	Qty.
1	Main column	1
2	Bottom column	1
3	Center beam assly.	1
4	Rafter	2
5	Purlin c/dt	8
6a	Purlin-front	2
6b	Purlin-rear	2
7	North south bracing	1
8	Front tilt support bottom	1
9	Front tilt support top	1
10	Rafter bracing holder	2
11	Rafter bracing	4
12	Bracing center beam	2
13	Controller clamp- rear	2
14	Controller clamp- front	2
15	Sag angle	4
16	Rubber pad	1
17	Center pin	1

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1) MS HD Galvanizing according to IS 4759 for all parts, wherever applicable.
 2) All dimensions are in mm.



[Signature]
 PART NO. -

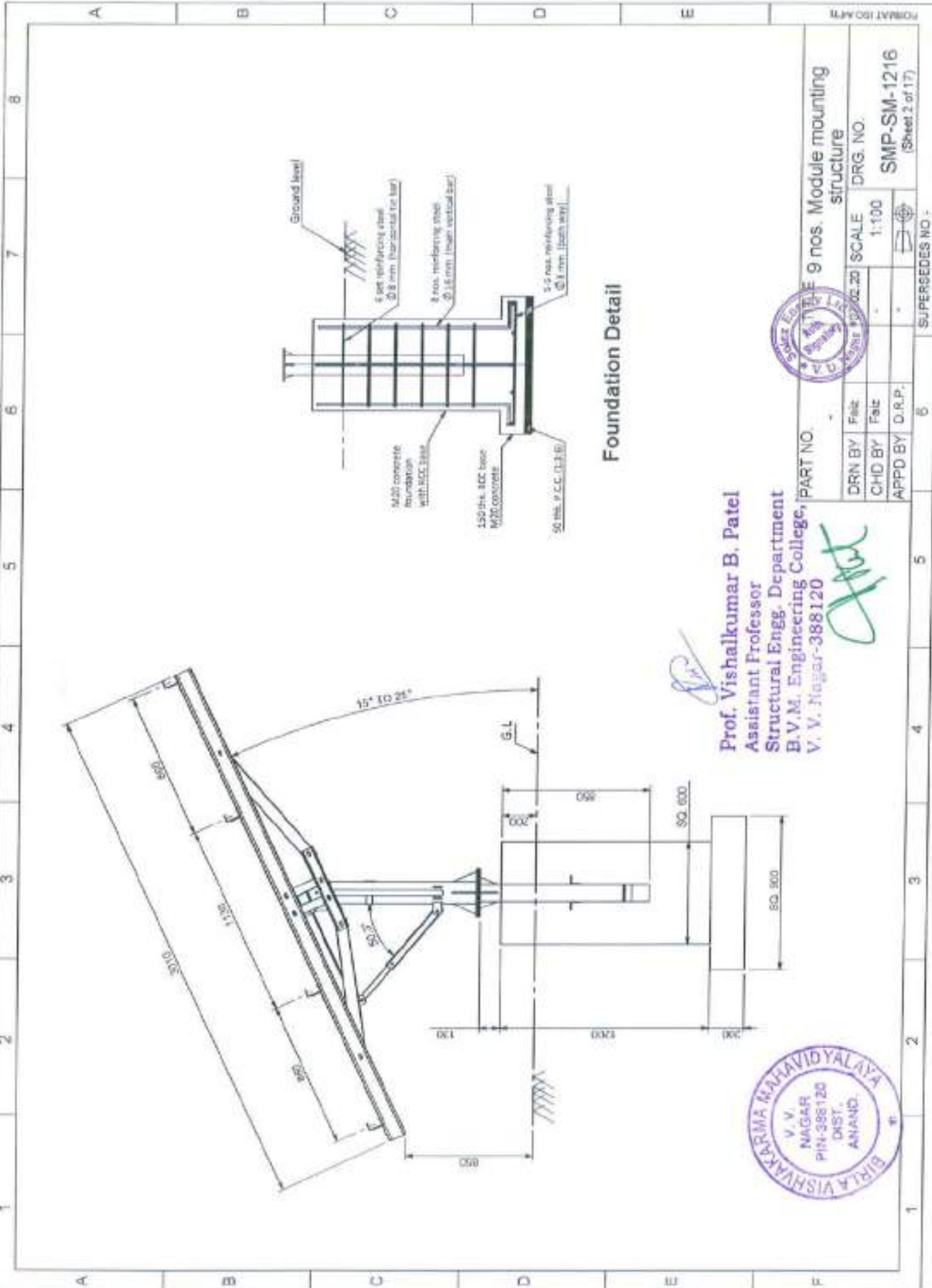
TITLE 9 nos. Modified mounting structure

DRN BY	Feb	07.02.20	SCALE	1:50
CHD BY	Feb	-		
APPD BY	D.R.P.	-		

DRG NO

SMP-SM-1216
 (Sheet 1 of 17)

SUPERSEDES NO. >



Foundation Detail

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DRN BY	Felt	PART NO	9 nos. Module mounting structure
CHD BY	Felt	SCALE	1:100
APPD BY	D.R.P.	DRG. NO.	SMP-SM-1216 (Sheet 2 of 17)

SUPERSEDES NO. :

6

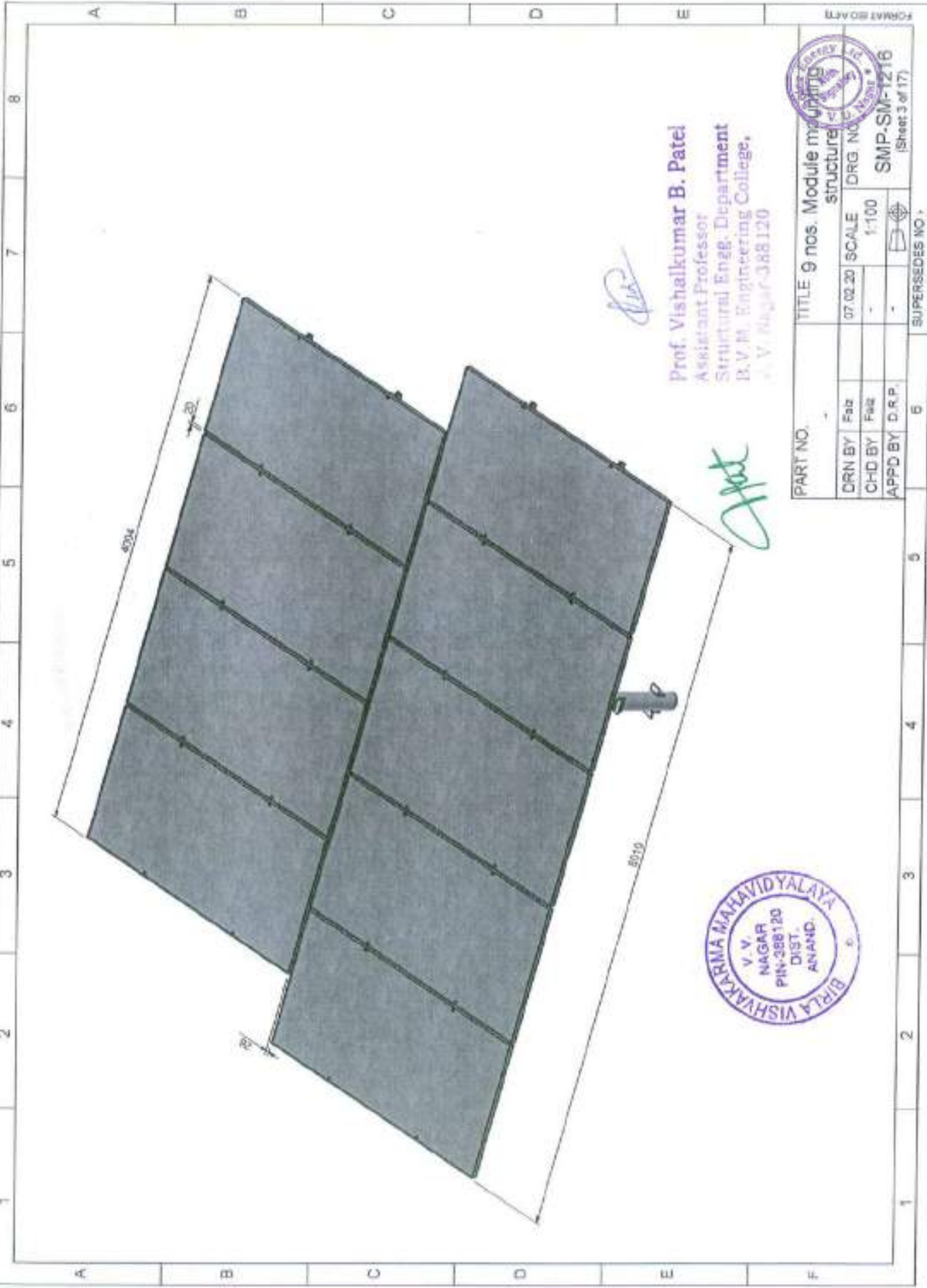
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PART NO.		TITLE		9 nos. Module mapping structure	
DRN BY	Feb	07.02.20	SCALE	1:100	DRG NO.
CHD BY	Feb	-	-	-	SMP-SM-1216
APPD BY	D.R.P.	-	-	-	(Sheet 3 of 17)
					SUPERSEDES NO.
					6



Sr. nos.	Descriptions	Qty.	Total weight (kgs.)	Material Grade	Reference standards
1	Main column	1	24.39		IS:1161 & IS 2062
2	Bottom column	1	17.36	E250	IS:1161, IS 2062 & IS:808
3	Center beam assly.	1	40.9		IS:4923, IS:2062 & IS:808
4	Rafter	2	37.5		IS:2062 & IS:811
5	Purlin clit	8	2.16	E350	IS:2062
6a	Purlin-front	2	25.65		IS:2062 & IS:811
6b	Purlin-rear	2	20.53		
7	North south bracing	1	3.52		
8	Front tilt support bottom	1	1.83	E250	IS:4923
9	Front tilt support top	1	1.31		
10	Rafter bracing holder	2	4.61		
11	Rafter bracing	4	15.55	E350	IS:2062 & IS:811
12	Bracing center beam	2	5.69		IS:1161
13	Controllor clamp- rear	2	1.00	E250	IS:2062
14	Controllor clamp- front	2	0.88		
15	Sag angle	4	5.76	---	---
16	Rubber pad	1	---	---	---
17	Center pin	1	---	---	---
Approx. total weight.			208.7		
Galvanizing - 7 %			14.61		IS 4759
1	M16x60 bolt with 1-nut & 2-palin washer	4			
2	M12x115 bolt with 1-nut & 2-palin washer	1			
3	M10x100 bolt with 1-nut & 2-palin washer	13			
4	M12x35 bolt with 1-nut & 2-palin washer	16			
5	M10x130 bolt with 1-nut & 2-palin washer	4	7.5		IS : 1364
6	M10x30 bolt with 1-nut & 2-palin washer	24		8.8 GI	
7	Center Pin (EN9)	1			
8	Cotter pin for ϕ 8mmx50 long	1			
9	M6X25 Anti theft nut bolt, SS-304 (HeadOD ϕ 15 mm)	36			
Approx. total weight of the structure			230.81	---	---



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[Signature]

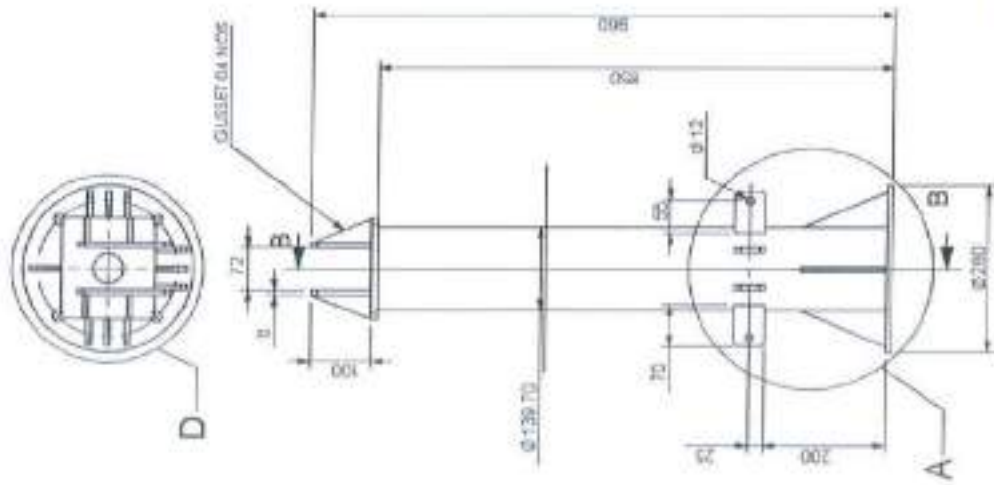


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CHD BY	Falz		1:100
APPD BY	D.R.P.		SMP-SM-1216 (Sheet 4 of 17)
			SUPERSEDES NO. 6

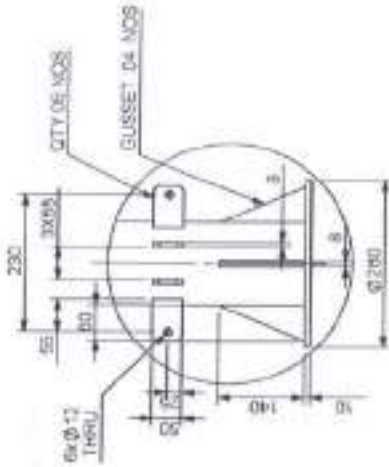
1 2 3 4 5 6 7 8

A B C D E F

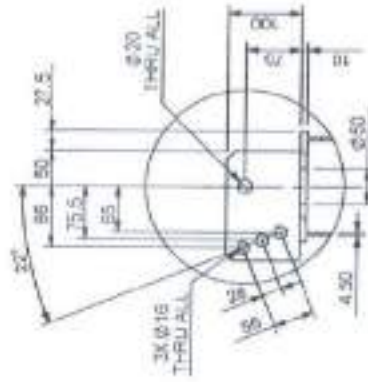
1) Main column



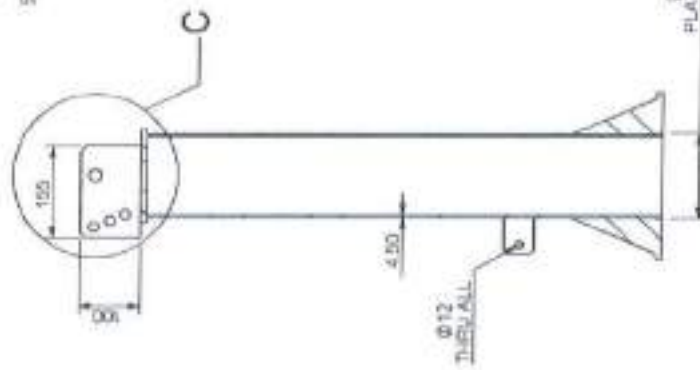
SECTION B-B
SCALE 1 : 12



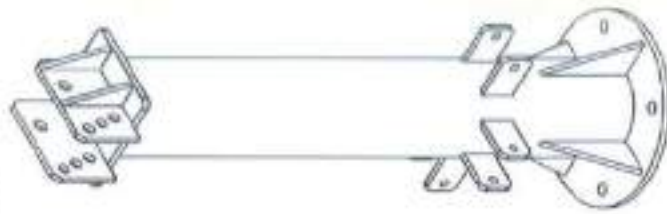
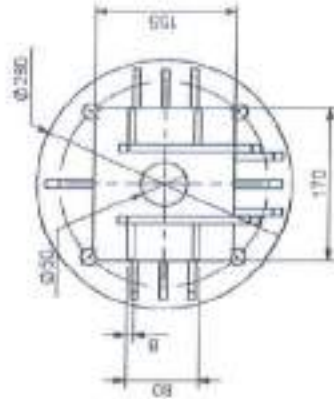
DETAIL A
SCALE 1 : 12



DETAIL C
SCALE 1 : 10



DETAIL D
SCALE 1 : 8



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DRG NO.	SMP-SM-1216
SCALE	1:100
DATE	12/02/20
DRG NO.	SMP-SM-1216
(Sheet 5 of 17)	

SUPERSEDES NO. -

6

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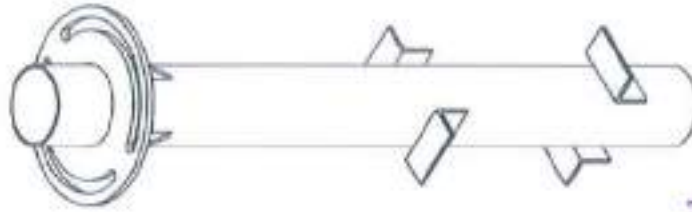
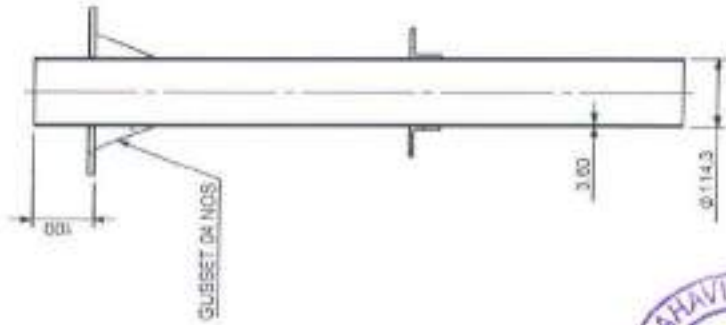
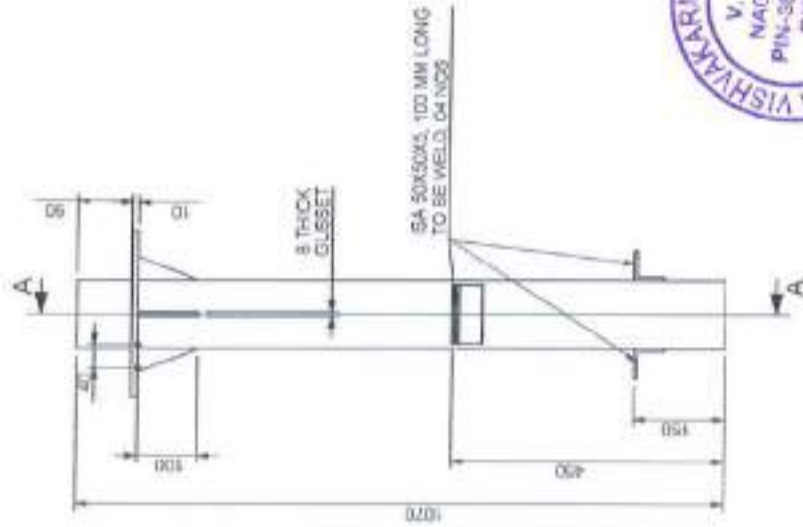
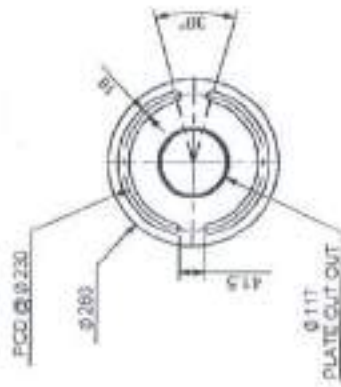
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3

2

1

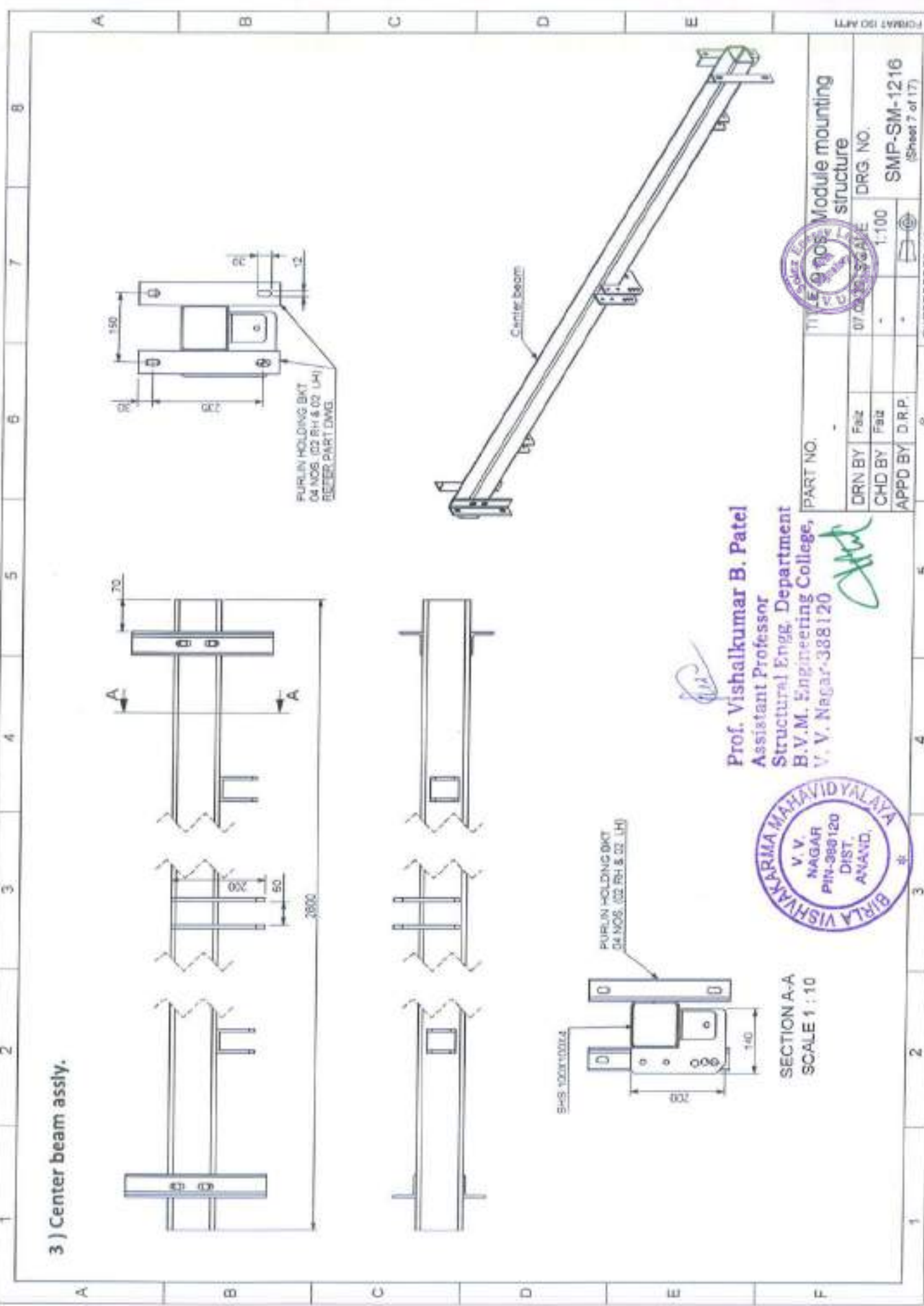
2) Bottom column



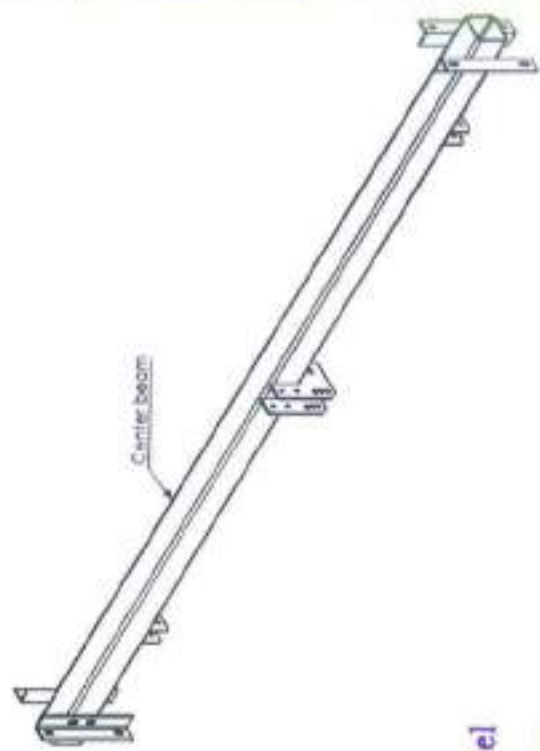
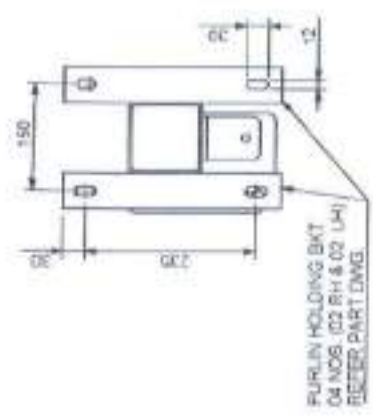
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PART NO. -		TITLE 9 nos. Module mounting structure	
DRN BY	Fab	07.02.20	SCALE 1:100
CHD BY	Fab	-	-
APPD BY	D.R.P.	-	-
SUPERSEDES NO. 6		SMP-SM-1216 (Sheet 6 of 17)	



3) Center beam assly.



SECTION A-A
SCALE 1 : 10

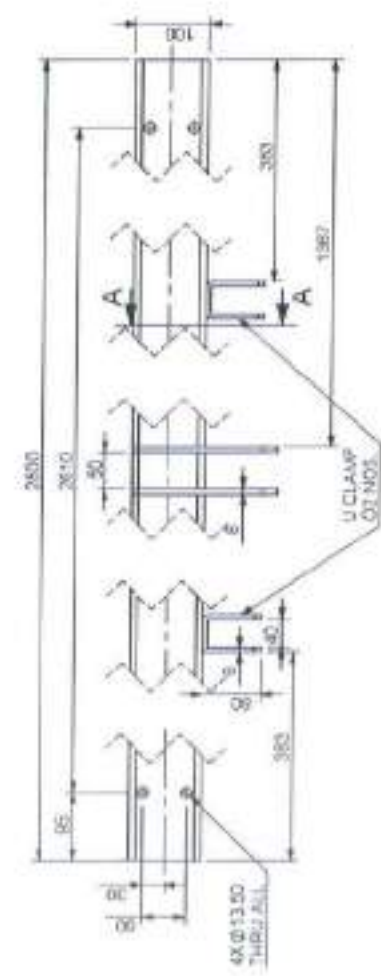
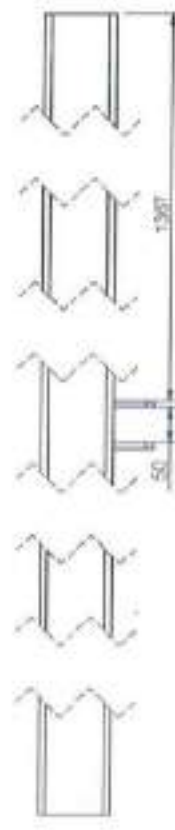

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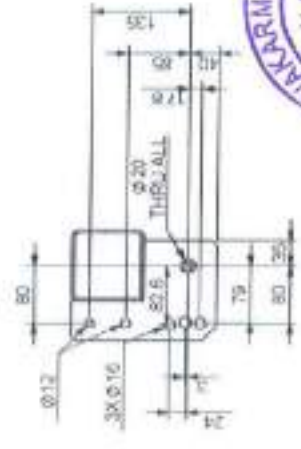
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CHD BY	Faz	SCALE	1:100
APPD BY	D.R.P.	DRG. NO.	SMP-SM-1216 (Sheet 7 of 17)
	6	SUPERSEDES NO.	

Module mounting
 structure
 DRG. NO. SMP-SM-1216
 (Sheet 7 of 17)

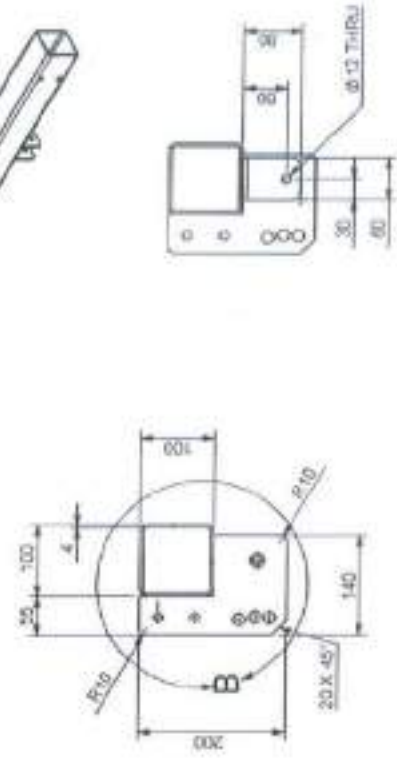
3) Center beam



SECTION A-A
SCALE 1 : 10



DETAIL B
SCALE 1 : 10



SECTION A-A
SCALE 1 : 10

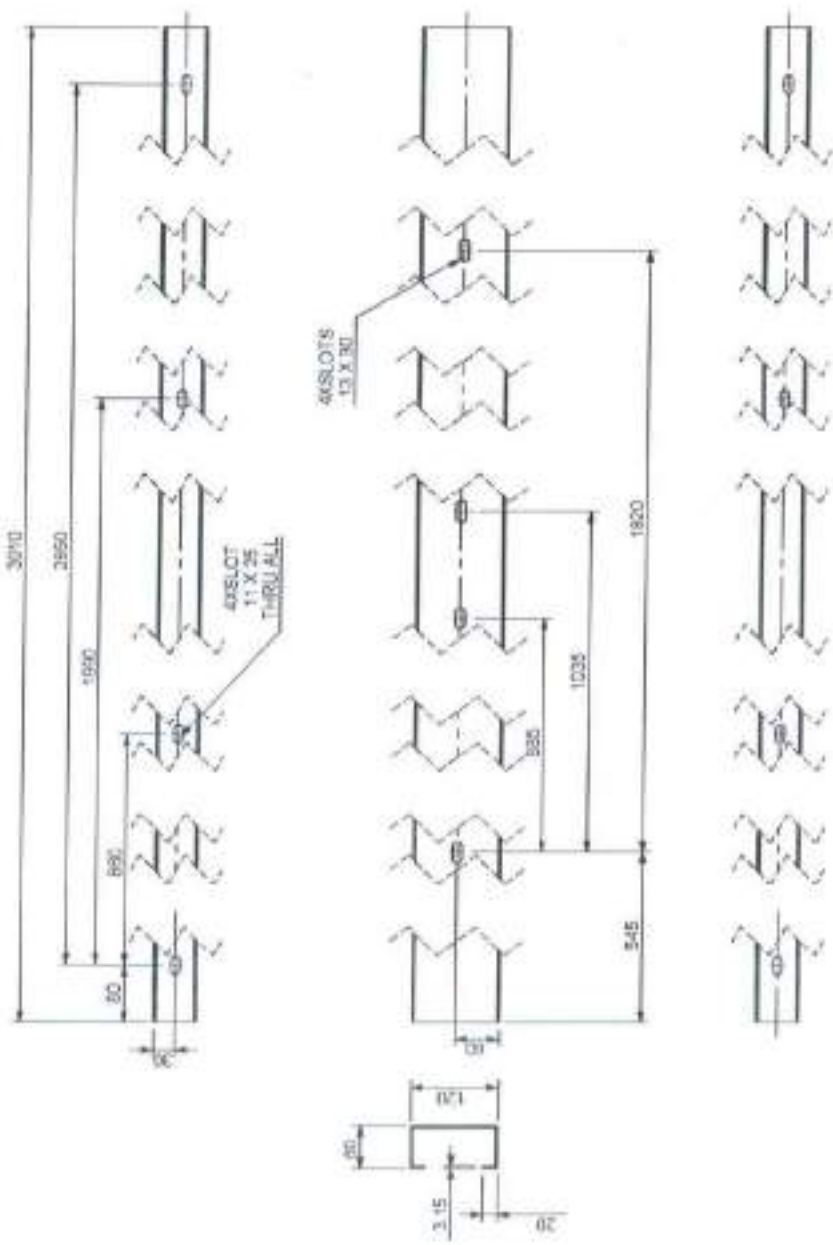


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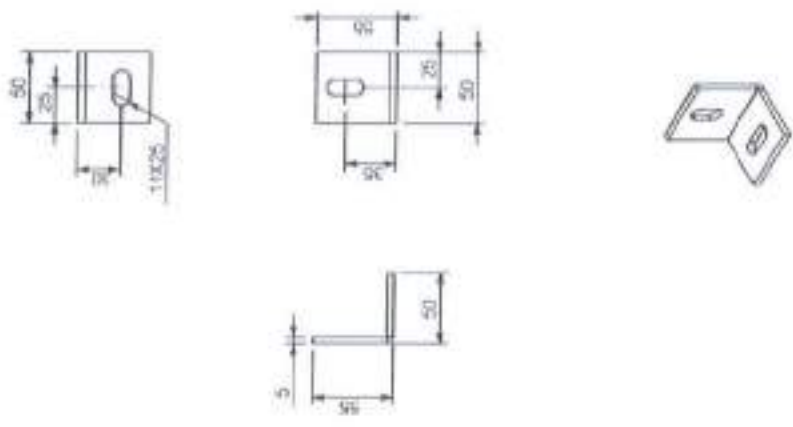


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							DRG. NO.	
							SCALE	1:100
							DRG. NO.	SMP-SM-1216
								(Sheet 8 of 17)
							SUPERSEDES NO.	

4) Rafter



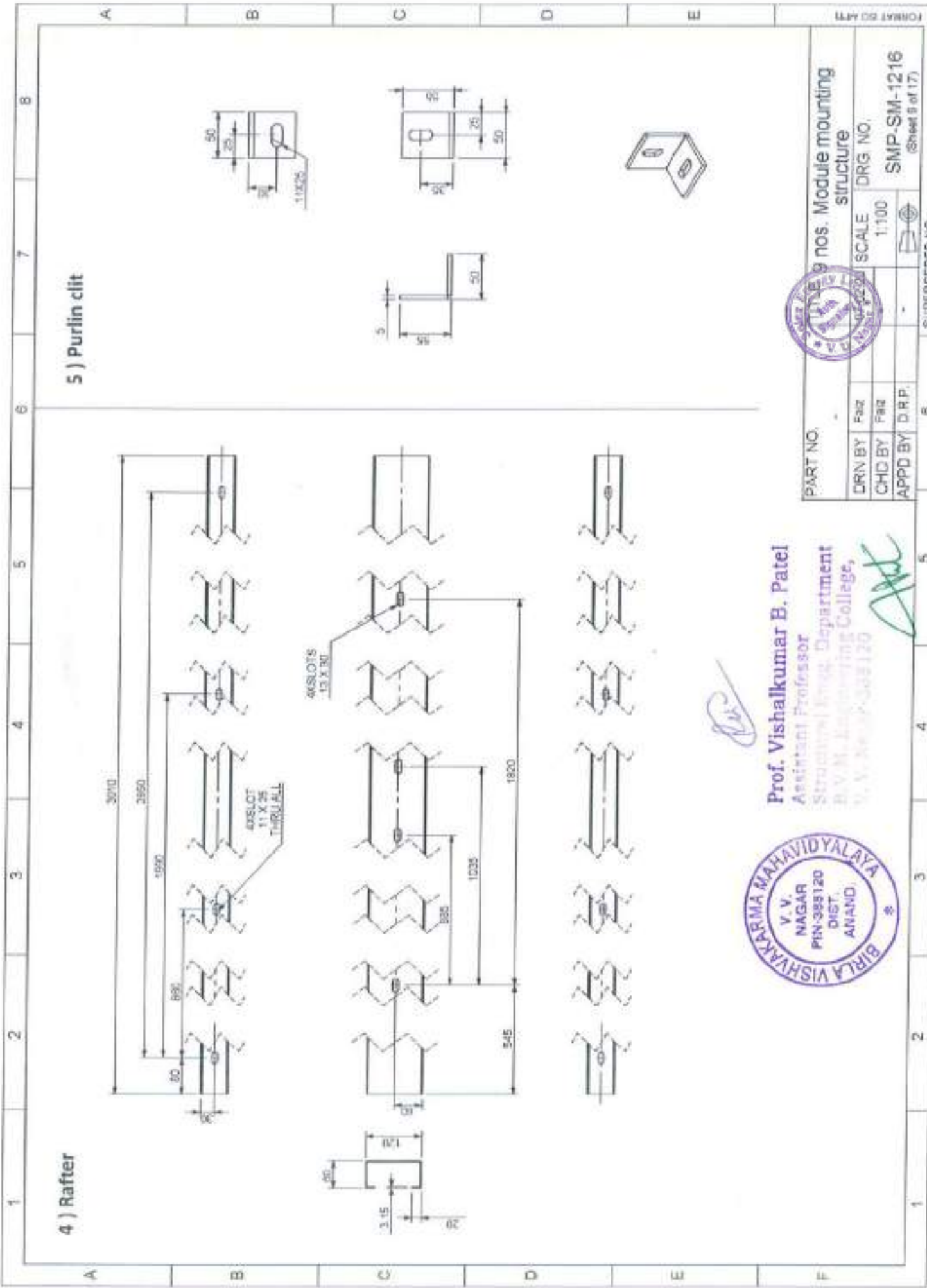
5) Purlin clit



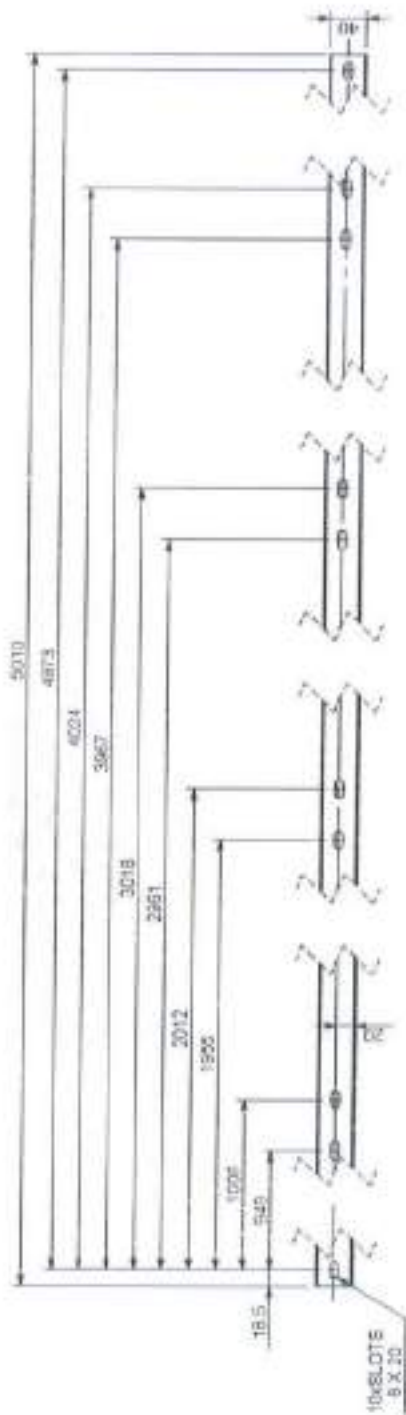
Prof. Vishalkumar B. Patel
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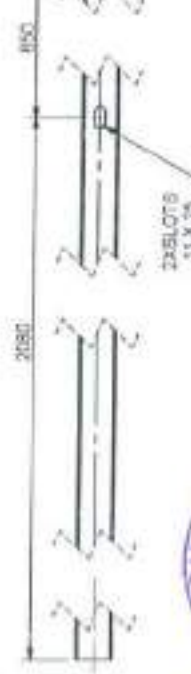
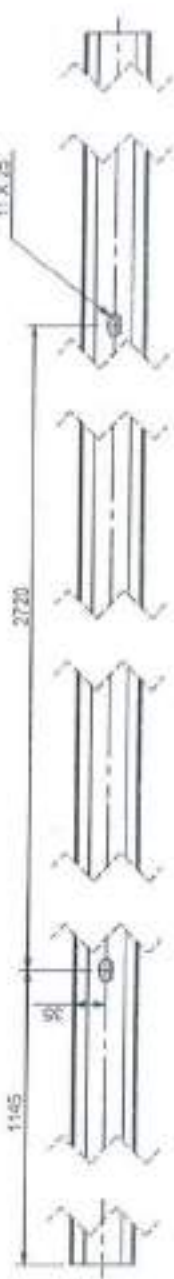
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CHD BY	Paiz	DRG NO.	SMP-SM-1216
APPD BY	D.R.P.	(Sheet 5 of 17)	
		SUPERSEDES NO. 1	



6a) Purlin-front



2xSLOTS
11 X 25

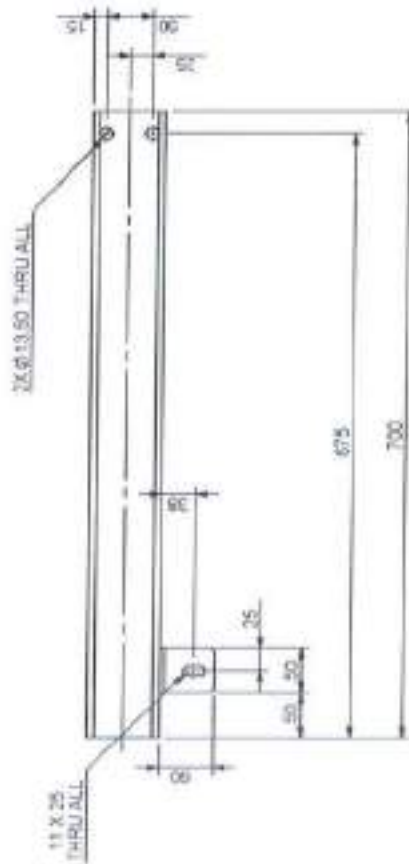


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PART NO.	E 9 nos. Module mounting structure		
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CHD BY	Faz	DRG NO.	SMP-SM-1216
APPD BY	D.R.P.		(Sheet 10 of 17)
		SUPERSEDES NO.	

7) North south branching



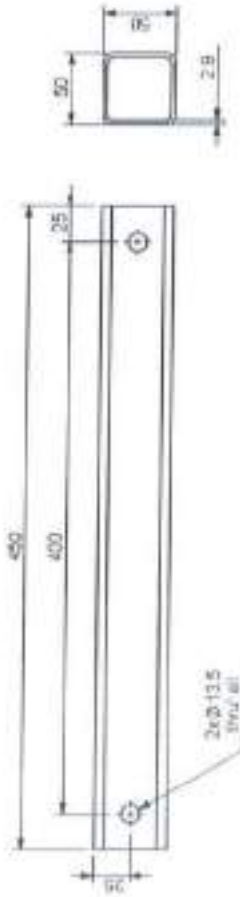

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 W. V. Nagar, Jalgaon - 385120



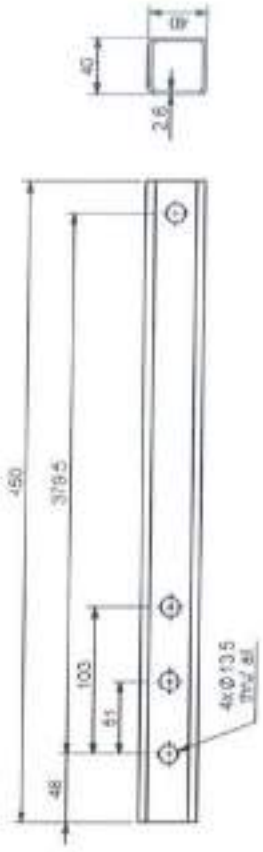
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DRN BY	Faz	SCALE	DRG NO.
CHD BY	Faz	1:100	SMP-SM-1216
APPD BY	D.R.P.		(Sheet 12 of 17)
		SUPERSEDES NO. 6	



8) Front tilt Support bottom



9) Front tilt Support top



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 Sirur
 R.V.V
 V.V

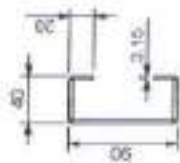
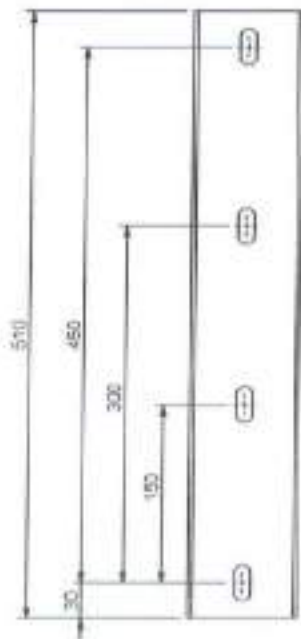


Department
 College
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PART NO.	-		
DRN BY	Falt	DATE	02/03/2015
CHD BY	Falt	DATE	02/03/2015
APPD BY	D.R.P.	DATE	-
6	SUPERSEDES NO.		

Module mounting structure
 DRG. NO. SMP-SM-1216
 (Sheet 13 of 17)

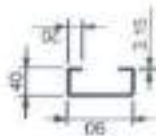
10) Rafter bracing holder



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11) Rafter bracing



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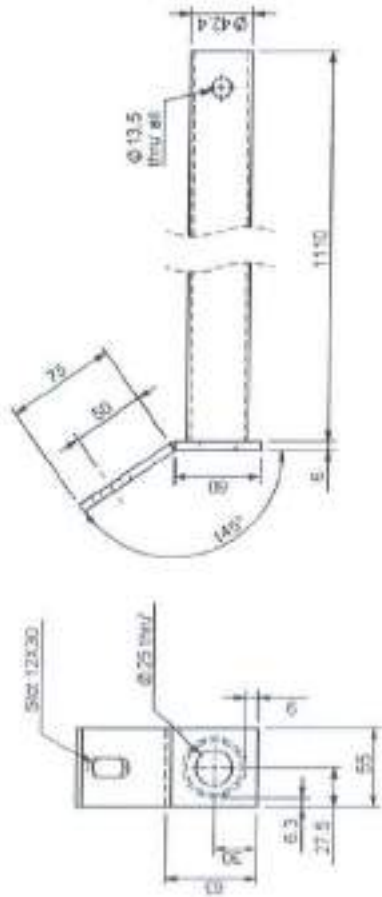
Part No. nos. Module mounting structure
 DRG NO. SMP-SM-1216
 (Sheet 14 of 17)

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CHD BY	Felix
APPD BY	D.R.P.

SCALE 1:10

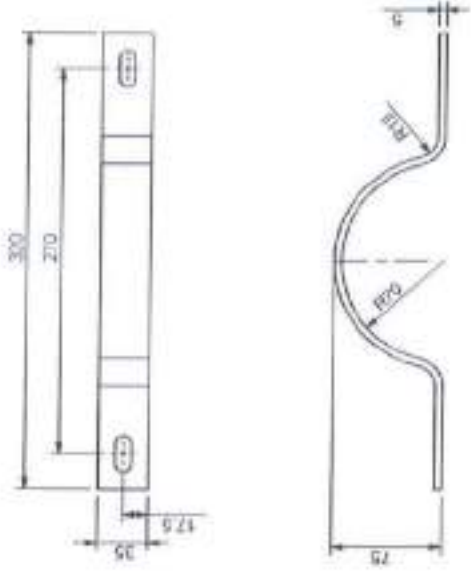
SUPERSEDES NO. 7

12) Bracing center beam



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13) Controller clamp - rear

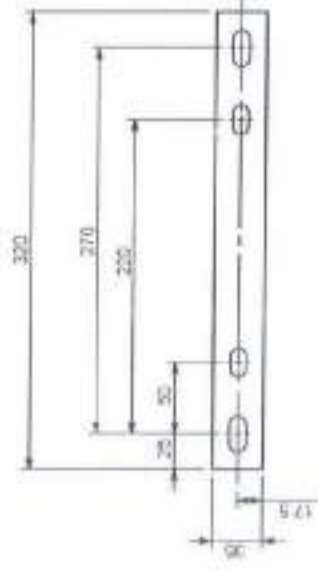


PART NO.	9 nos. Module mounting structure		
DRN BY	Falz	DRG NO.	SMP-SM-1216
CHD BY	Falz	SCALE	1:10
APPD BY	D.R.P.		(Sheet 15 of 17)



SUPERSEDES NO. 6

14) Controller clamp - Front



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15) Sag angle



PART NO.	TITLE 9 nos. Module mounting structure		
DRN BY	Faiz	DATE	02/05/20
CHD BY	Faiz	SCALE	1:2
APPD BY	D.R.P.	DRG NO.	SMP-SM-1216 (Sheet 16 of 17)

SUPERSEDES NO. :

6

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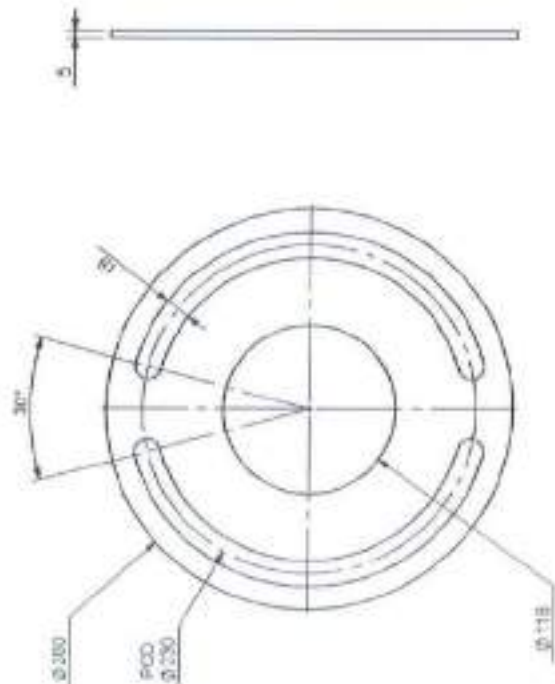
2

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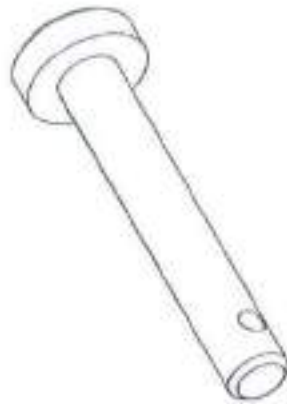
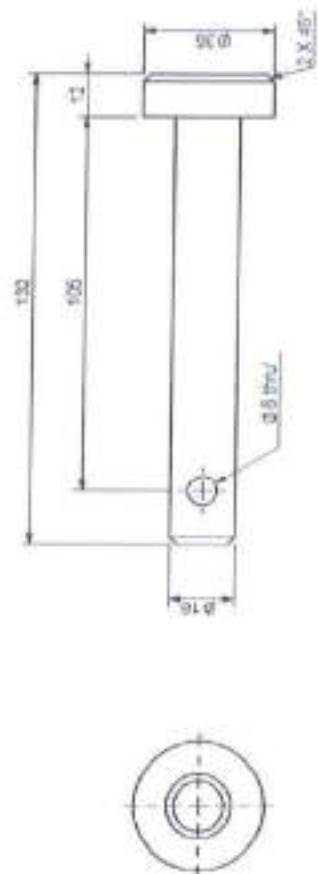
A B C D E

1 2 3 4 5 6 7 8

16) Rubber pad



17) Center pin



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PART NO.		nos. Module mounting structure	
DRN BY	Felz	SCALE	DRG. NO.
CHD BY	Felz	1:5	SMP-SM-1216
APPD BY	D.R.P.		(Sheet 17 of 17)

SUPERSEDES NO 6

9 MMS

PROJECT :-					
DOCUMENT TITLE :- SOLAR MODULE MOUNTING STRUCTURE INPUT DESIGN CALCULATIONS FOR STAAD (TILT ANGLE 25 DEGREE)					
CLIENT :-					
DOC NO :-	DESIGNED BY:-	CHECKED BY:-	APPROVED BY:-	DATE	REVISION
*****	HIMANSHU SINGH			26.03.2019	0
Dead Load Calculations:-					
Length of Module	Lm	1955	mm	1.955	m
Width of Module	Dm	990	mm	0.99	m
Thickness of Module	Tm	40	mm	0.04	m
Weight of each Module	Wm	22.5	Kg		
No. of Modules	-	5	No	5	No
Total Weight of Modules	-	112.5	Kg	90	Kg
No. of Purlins	-	2	No	2	No
Load on each Purlin	-	56.25	Kg	45	KG
Length of each Purlin	-	5.01	m	4.01	m
UDL Load per metre on Purlin	-	11.23	Kg/m	0.110	KN/m
Wind Load Calculations as per IS:875 Part-3 2015 :-					
Wind Speed (Kmph)	Vb	155	Kmph		
Basic Wind Speed	Vb	43.05	m/sec		
Risk Coefficient	K1	0.91			As per Table 11 (Clause 6.3.1(25) Years)
Terrain Roughness & Height Factor	K2	1			As per Table - 2, Terrain Category 2, class A, Height 10 m
Topography Factor	K3	1			As per Clause 6.3.3
Importance Factor	K4	1			As per Clause 6.3.4
Design Wind Speed	Vd	39.18	m/s		As per Clause 6.3
Wind Pressure	Pz	0.22	kN/m ²		As per Clause 7.2
Wind Directionality Factor	Kd	0.9			As per Clause 7.2.1
Area Averaging Factor	Ka	0.96			As per Table - 4, Clause 7.2.2
Combination Factor	Kc	1			As per Clause 7.3.3.1.3
Design Wind Pressure	Pd	0.83	kN/m ²		As per Clause 7.2
Tilt Angle	-	25	Degree		As per Table - 8
	Case 1				
Tilt Angle	25				
Pressure Coefficient Cf (m)	1				As per Table - 8
Pressure Coefficient Cf (r)	-1.6				As per Table - 8
Wind Pressure Downward	0.80				kN/m ²
Wind Suction Upward	-1.27				kN/m ²
Wind Suction Upward					
Area of Module	-	1.94	m ²		
Tilt Angle	-	Case 1			
Wind Pressure Upward	-	-1.27	kN/m ²		
Wind Load on each PV Module	-	-2.46	kN		
Total Wind Load on 5 Module	-	-12.30	kN		
Load on each Purlin	-	-6.16	kN		
UDL Load per metre on Purlin	-	-1.230	kN/m		
Wind Pressure Downward					
Wind Pressure Downward	-	0.80	kN/m ²		
Wind Load on each PV Module	-	1.54	kN		
Total Wind Load on 5 Module	-	7.70	kN		
Load on each Purlin	-	3.85	kN		
UDL Load per metre on Purlin	-	0.769	kN/m		
Wind Load on Solar Frame Structure					
Pressure Coefficient - Members	-	1.2			As per Table - 20 Part C-Section
Wind Pressure on Members	-	0.955	kN/m ²		
Assuming Column Member Size	-	FPB 130L			
Column Member Dia	-	130	mm		
Column Member Dia	-	130	mm		
Wind Load on Column	0.95	0.133	kN/m		
Wind Load on Column	0.95	0.133	kN/m		
Assuming Rafters Member Size	-	120C80C115			
Rafter Member Depth	-	120	mm		
Rafter Member Width	-	80	mm		
Wind Load on Rafters	0.95	0.115	kN/m		
Wind Load on Rafters	0.95	0.057	kN/m		
Assuming Bracket Member Size	-	FPB 62X25			
Bracing Member Depth	-	42	mm		
Bracing Member Width	-	42	mm		
Wind Load on bracing	0.95	0.040	kN/m		



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