



**BHARAT HEAVY ELECTRICALS LIMITED** PHONES:23774494 (EXCHANGE)

CORPORATE RESEARCH & DEVELOPMENT DIVISION  
VIKASNAGAR, HYDERABAD - 500 093, INDIA

FAX : 91 40 23770698

RD:DP:MPX:F-04

## ENQUIRY

To - Enquiry No: 571105671 Enq Date: 20-OCT-11 Due Date: 22-NOV-11 Delivery By:

PLEASE SUBMIT YOUR QUOTATION IN SEALED COVER SUPERSCRIBED WITH ENQUIRY NO, ENQUIRY DATE AND DUE DATE SUBJECT TO OUR TERMS AND CONDITIONS ENCLOSED, FOR THE FOLLOWING MATERIALS SO AS TO REACH US ON OR BEFORE THE DUE DATE BY 12 NOON. THE TENDERS WILL BE OPENED AT 2 PM ON THE SAME DAY

Pin

Email :

Attn. .

PLEASE GIVE REFERENCE OF ENQ NUMBER , ENQ .DATE AND DUE DATE IN ALL YOUR CORRESPONDENCE FOR PROMPT ACTION. IN CASE IF YOU ARE NOT MAKING THE OFFER PLEASE POST A REGRET LETTER AND RETURN THE DOCUMENTS.

SL NO	DESCRIPTION / SPECIFICATION	UNIT	QTY
1	SUPPLY, ASSEMBLY, ERECTION AND INSTALLATION OF MOUNTING STRUCTURES FOR 250 KWP SOLAR PHOTOVOLTAIC (SPV) POWER AT CORP. R&D, HYDERABAD AS PER SPECIFICATIONS ENCLOSED	LOT	1
1	<p>COMPLETELY FILLED UP AND SIGNED VENDOR COMPLIANCE STATEMENT IS REQUIRED ALONG WITH YOUR OFFER. OTHERWISE YOUR OFFER WILL NOT BE PROCESSED FURTHER.</p> <p>a) ALL OFFERS MUST INCLUDE NAME OF CONTACT PERSON, PH / MOBILE. NO., FAX NO.; EMAIL-ID. UNSIGNED OFFERS ARE LIABLE FOR REJECTION.</p> <p>b) BEING A RESEARCH INSTITUTION RECOGNISED BY DEPT OF SCIENCE AND TECHNOLOGY, BHEL R&amp;D CAN AVAIL CENTRAL EXCISE DUTY EXEMPTION IN TERMS OF GOVT NOTIFICATION 16/2007 - CENTRAL EXCISE DATED 1.3.2007. HENCE SUPPLIERS ARE REQUESTED TO SUBMIT THEIR BIDS WITH OUT EXCISE DUTY.</p> <p>c) TAXES &amp; DUTIES QUOTED WILL BE TAKEN FOR COST EVALUATION &amp; ORDER PLACEMENT AND NO CHANGE WILL BE ENTERTAINED LATER EXCEPT IN THE CASE OF CHANGES MADE BY THE GOVERNMENT. IN CASE ANY TAXES/DUTIES EXEMPTED, A SELF DECLARATION FOR THE SAME MAY BE ATTACHED TO THE OFFER. CHANGES IN TAXES AND DUTIES BECAUSE OF THE CHANGES IN TURNOVER ETC. WILL BE TO SUPPLIER'S ACCOUNT.</p> <p>d) WHEREVER VENDOR REGISTRATION FORM AND EFT DETAILS HAVE BEEN SUBMITTED EARLIER, THE SAME NEED NOT BE SUBMITTED AGAIN UNLESS THERE IS A CHANGE.</p>		
2	<p>PLEASE SUBMIT YOUR OFFER IN TWO PARTS AS PER ENCLOSED "GENERAL TERMS AND CONDITIONS OF ENQUIRY, LOADING FACTORS &amp; CONTRACT FOR THE PURCHASE OF GOODS/ SERVICES" IN SEPARATE SEALED COVERS AS DETAILED BELOW:</p> <p>1) FIRST COVER SHALL CONTAIN A) TECHNICAL &amp; COMMERCIAL BID, B) COMPLIANCE STATEMENT, DULY FILLED-IN, C) UN-PRICED PRICE-BID, I.E. A COPY OF PRICE-BID, WITH PRICE(S) CELLS LEFT BLANK;</p> <p>2) SECOND COVER SHALL CONTAIN PRICE BID. IF THE PRICE BID IS FOUND TO BE DIFFERENT FROM THE UN-PRICED PRICE BID IN ANY WAY, THE OFFER IS LIABLE FOR REJECTION.</p>		
3	SUPPLIERS ARE REQUESTED TO VISIT OUR WEB SITE WWW.BHEL.COM REGULARLY FOR ANY UPDATES AND ADDITIONAL INFORMATION.		
4	ORDER WILL BE PLACED ON OVERALL L1 BASIS. VENDORS SHALL QUOTE FOR ALL ITEMS. INCOMPLETE OR PARTIAL OFFERS SHALL NOT BE PROCESSED.		



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## ENQUIRY

5	BHEL RESERVES THE RIGHT TO PROCURE ABOVE ITEMS THROUGH REVERSE AUCTION AND SUBMISSION OF AN OFFER AGAINST THIS ENQUIRY IS AN IMPLICIT AGREEMENT FOR YOUR PARTICIPATION IN REVERSE AUCTION.
6	SCOPE OF SUPPLY INCLUDES, INSTALLATION / ERECTION AND COMMISSIONING.
7	GUARANTEE CERTIFICATE REQUIRED.
8	INDIAN VENDORS : DESTINATION SHALL BE BHEL R&D STORES HYDERABAD. FOREIGN VENDORS : BHEL R.O.D. OFFICE MUMBAI INDIA.
9	ALL OFFERS SHALL BE VALID FOR A PERIOD OF 90 DAYS FROM THE DAY OF OPENING TECHNICAL BIDS.
10	ALL INDIAN OFFERS SHALL BE QUOTED AS: FOR BHEL R&D STORES, HYDERABAD. ALL FOREIGN SUPPLIERS SHALL QUOTE FOR FCA NEAREST INTERNATIONAL AIRPORT/ SEA PORT ONLY.
11	a) FOR INDIAN OFFERS : OUR STANDARD PAYMENT TERMS AS "100% PAYMENT ALONG WITH TAXES BY EFT/RTGS WITHIN 30 DAYS OF RECEIPT AND ACCEPTANCE OF MATERIAL AT BHEL R&D STORES, HYDERABAD". FOR OTHER PAYMENT TERMS THERE WILL BE A LOADING ON YOUR OFFER AS MENTIONED IN OUR "LOADING FACTORS" SHEET WHICH IS ENCLOSED TO THIS ENQUIRY. b) FOR FOREIGN CURRENCY OFFERS : BHEL STANDARD PAYMENT TERMS ARE "100% INVOICE VALUE BY WIRE TRANSFER WITHIN 30 DAYS OF RECEIPT AND ACCEPTANCE OF CONSIGNMENT AT BHEL R&D STORES, HYDERABAD". FOR OTHER PAYMENT TERMS THERE WILL BE A LOADING ON YOUR OFFER AS MENTIONED IN OUR "LOADING FACTORS" SHEET WHICH IS ENCLOSED TO THIS ENQUIRY.
12	SUPPLIERS SHALL HONOR DELIVERY DATE SPECIFIED IN THEIR OFFER. IN CASE OF DELAY BEYOND SPECIFIED DELIVERY DATE A PENALTY OF 0.5% PER WEEK ON THE VALUE OF UNDELIVERED PORTION OF BASIC MATERIAL COST SUBJECT TO A MAXIMUM OF 10% OF ORDER VALUE, SHALL BE APPLIED AS PENALTY. IN CASE OF NON ACCEPTANCE TO THIS LD CLAUSE, 10% OF BASIC MATERIAL COST WILL BE LOADED ON THE QUOTED PRICES WHILE COST COMPARISON.
13	<p>GUIDELINES REGARDING DEALING WITH INDIAN AGENTS OF FOREIGN SUPPLIERS</p> <p>1. BHEL SHALL DEAL DIRECTLY WITH FOREIGN VENDORS, WHEREVER REQUIRED, FOR PROCUREMENT OF GOODS. HOWEVER, IF THE FOREIGN PRINCIPAL DESIRES TO AVAIL OF SERVICES OF AN INDIAN AGENT, THEN THE FOREIGN PRINCIPAL SHOULD ENSURE COMPLIANCE TO REGULATORY GUIDELINES WHICH REQUIRE MANDATORY SUBMISSION OF AN AGENCY AGREEMENT.</p> <p>2. IT SHALL BE INCUMBENT ON THE INDIAN AGENT AND THE FOREIGN PRINCIPAL TO ADHERE TO THE RELEVANT GUIDELINES OF GOVERNMENT OF INDIA, ISSUED FROM TIME TO TIME.</p> <p>3. THE AGENCY AGREEMENT SHOULD SPECIFY THE PRECISE RELATIONSHIP BETWEEN THE FOREIGN OEM / FOREIGN PRINCIPAL AND THEIR INDIAN AGENT AND THEIR MUTUAL INTEREST IN THE BUSINESS. ALL SERVICES TO BE RENDERED BY AGENT / ASSOCIATE, WHETHER GENERAL IN NATURE OR IN RELATION TO THE PARTICULAR CONTRACT, MUST CLEARLY STATED BY THE FOREIGN SUPPLIER / INDIAN AGENT. ANY PAYMENT, WHICH THE AGENT / ASSOCIATE RECEIVES IN INDIA OR ABROAD FROM THE OEM, WHETHER AS COMMISSION OR AS A GENERAL RETAINER FEE SHALL BE BROUGHT OUT IN RECORD IN THE AGREEMENT AND BE MADE EXPLICIT IN ORDER TO ENSURE COMPLIANCE TO THE LAWS OF THE COUNTRY.</p> <p>4. ANY AGENCY COMMISSION TO BE PAID BY BHEL TO THE INDIAN AGENT SHALL BE IN INDIAN CURRENCY ONLY.</p> <p>5. WHENEVER INDIAN AGENTS ARE REPRESENTING ON BEHALF OF THEIR PRINCIPALS THE RELEVANT AUTHORIZATION LETTER AND AGREEMENT COPY TO BE ENCLOSED ALONG WITH THE TECHNICAL BID TO CONSIDER THE OFFER.</p>

AS WE ARE ENGAGED IN R&D ACTIVITY "C" FORM WILL NOT BE ISSUED

Yours faithfully



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VIKASNAGAR, HYDERABAD - 500 093, INDIA

**FAX : 91 40 23770698**

RD:DP:MPX:F-04

**ENQUIRY**

PLEASE FILL UP THE ENCLOSED VENDOR REGISTRATION FORM AND  
SEND IT ALONG WITH YOUR QUOTATION. OTHERWISE YOUR  
QUOTATION WILL NOT BE CONSIDERED.

for

BHARAT HEAVY ELECTRICALS LTD

NALINI THILAK

Sr Dy Gen Manager

**Email: [nalini@bhelrnd.co.in](mailto:nalini@bhelrnd.co.in)**

**Direct Phone : 91-40-23882454**

**Mobile : 91-9849076669**

DRAWING NO. 3 679 05 00487

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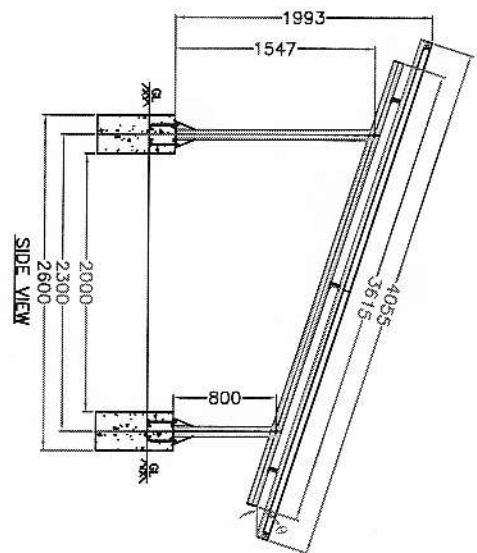
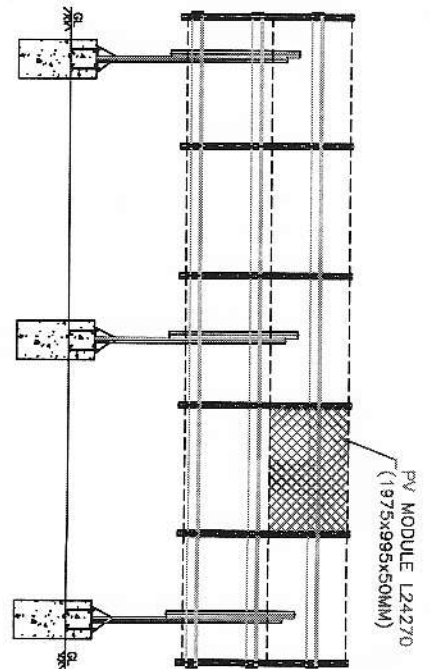
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$\theta = 18^\circ$ , FOR BHEL, CORP R&D, HYDERABAD  
2 ROWS x 5 COLUMNS = 10 PV MODULES PER STRUCTURE

## NOTE:

1. ALL JOINTS UNIFORMLY WELDED AND GROUND/EDGES, DRILLED HOLES BURR FREE.
2. DIMENSIONAL TOLERANCES AS PER IS:2102 (MEDIUM) UNLESS OTHERWISE SPECIFIED.

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT SPV POWER PLANTS - CORP R & D

**BHARAT HEAVY ELECTRICALS LIMITED.**  
ELECTRONICS DIVISION, BANGALORE

REV.	DATE	ALTERED	REV.	DATE	ALTERED	REV.	DATE	ALTERED	REV.	DATE	ALTERED
CHECKED			CHECKED			CHECKED			CHECKED		
APPROVED			APPROVED			APPROVED			APPROVED		

FIRST ISSUE

TITLE  
10x270W PV MODULE  
MOUNTING STRUCTURE FOR CORP R&D

DRAWING NO.  
3 679 05 00487

SHEET NO. 01 NO. OF SHEETS 07

REV. 00

INVENTORY NO.

SIGN &amp; DATE

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DEPT. SCpV  
CODE 439  
FOR UNSPECIFIED-  
TOLERANCES  
REFER ED 0230499

SCALE  
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DRN	NAME	SIGN.	DATE	No. OF
SK	SAN		SEPT '11	VAR
SK	NAR		SEPT '11	
SK	SK		SEPT '11	

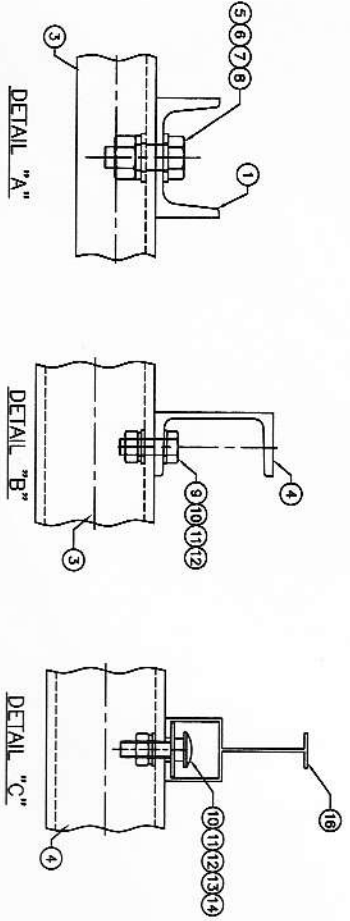
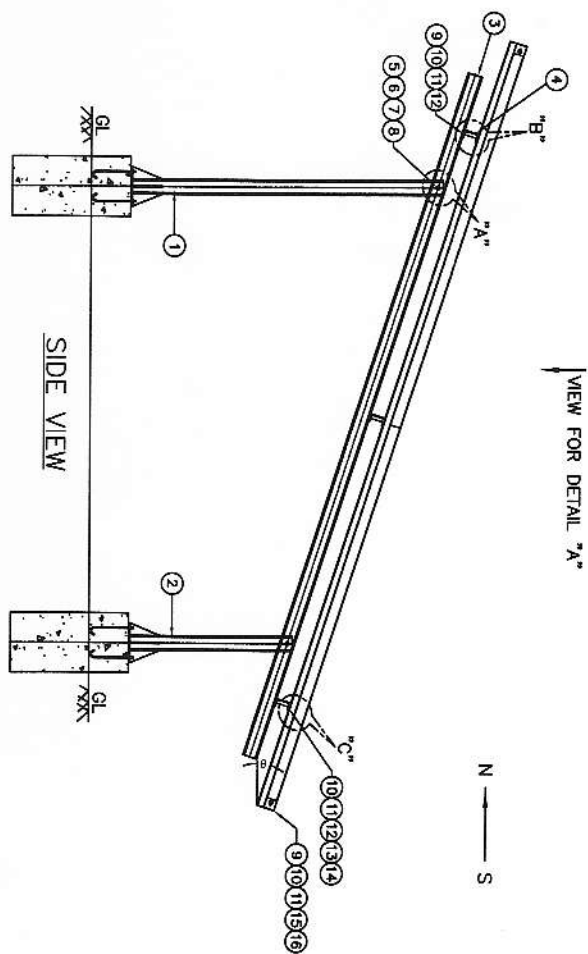
REV. 00

DRAWING NO. 3 679 05 00487

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INVENTORY NO. SIGN & DATE REF. DRG. NO.



BILL OF MATERIALS PER SET OF PV MODULE MOUNTING STRUCTURE

PART NO	UNIT WT. (KG)	QTY. PER SET (NOS.)	DESCRIPTION	REF. STD.
20		24	SPRING WASHER #12x#21.1x2.5 THK	IS 3063
19		24	FLAT WASHER #14x#24x2.5 THK	IS 2016
18		24	HEX. HEAD NUT M12	IS 1364
17		24	J BOLT AM12x200 (FOUNDATION BOLT)	IS 5624
16	4.95	8	RAFTER - ANODISED 4095 LONG	IS 63400 WP/HE9
15		20	AL ANGLE BRACKET	IS 63400 WP/HE9
14		18	COACH SCREW M10	IS 2809
13		18	CLAMPING STRIP SS 304	IS 3063
12		21	SPRING WASHER #11x#18.1x2.2 THK.	IS 2016
11		60	FLAT WASHER - #11x#21x2.0 THK.	IS 1364
10		39	HEX HEAD NUT-M10	IS 1364
9		21	HEX HEAD SCREW-M10x30MM	IS 3063
8		6	SPRING WASHER #16.2x#27.4x3.5 THK.	IS 2016
7		12	FLAT WASHER #18x#30x3.15 THK.	IS 1364
6		6	HEX HEAD NUT-M16	IS 1364
5	29	3	HEX HEAD SCREW-M16x40MM	IS 808 & IS 2062
4	20.60	3	RAFTER SUPPORT MEMBER - ISLC 75x5090 LONG	IS 808 & IS 2062
3	9.30	3	PURLIN SUPPORT MEMBER - ISLC 75x3615 LONG	IS 808 & IS 2062
2	14.95	3	PEDESTAL ASSEMBLY - SHORT ISMC 75	IS 808 & IS 2062
1			PEDESTAL ASSEMBLY - LONG ISMC 75	IS 808 & IS 2062

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: SPV POWER PLANT - CORP R&D

**BHARAT HEAVY ELECTRICALS LIMITED.**  
ELECTRONICS DIVISION, BANGALORE

DRN	NAME	SIGN.	DATE	No. OF VAR
CKD	SAN		SEPT '11	
NAR			SEPT '11	
APPD	SK		SEPT '11	

DEPT: SCVP  
CODE: 439  
FOR UNSPECIFIED-TOLERANCES  
REFER ED 0230499

SCALE: NTS

WEIGHT(KG)

REF. TO ASSY. DRG.

ITEM NO.

REV. 00

TITLE: 10X270W PV MODULES MOUNTING STRUCTURE FOR CORP R&D

DRAWING NO. 3 679 05 00487

SHEET NO. 02

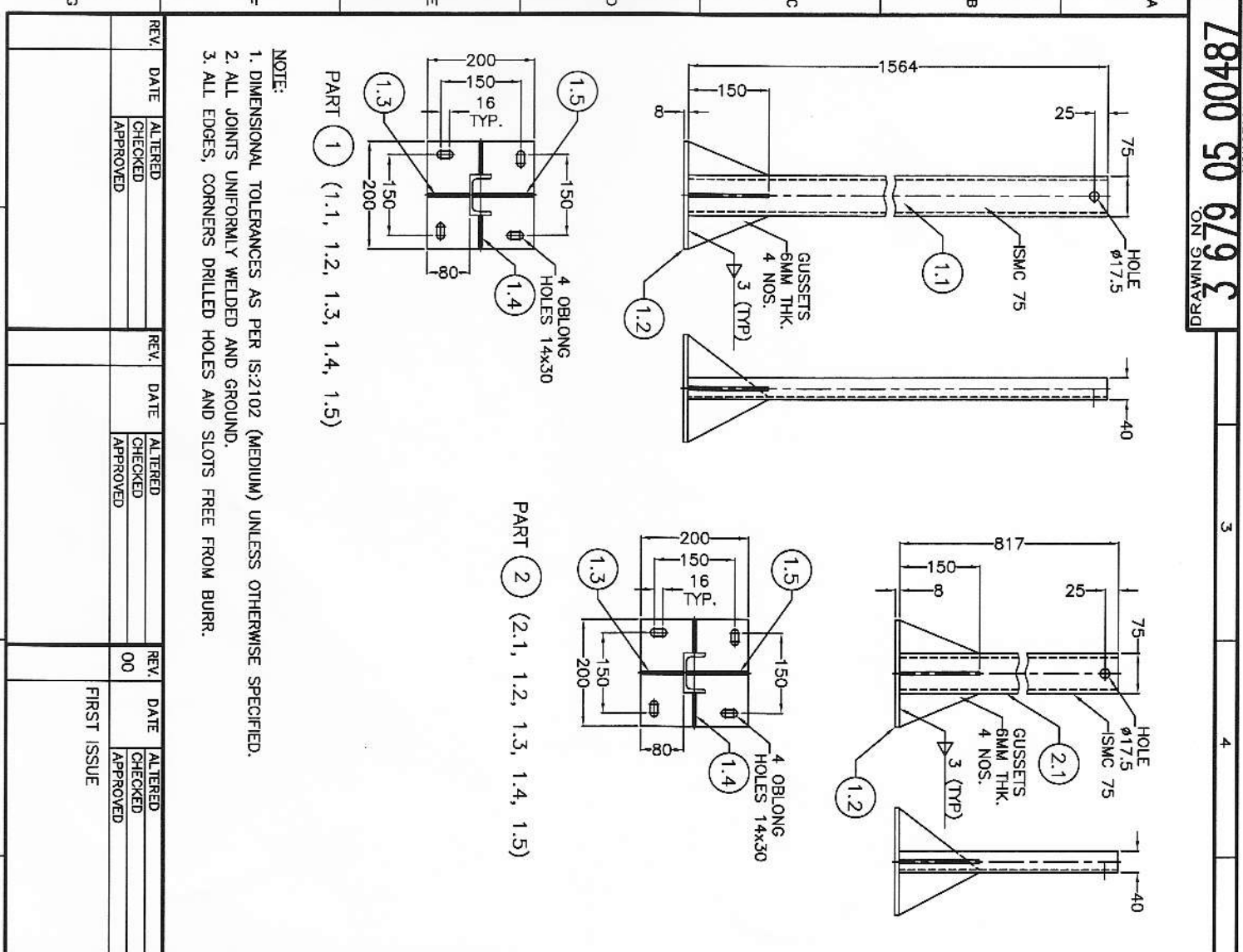
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INVENTORY NO. SIGN & DATE REF. DRG.NO.

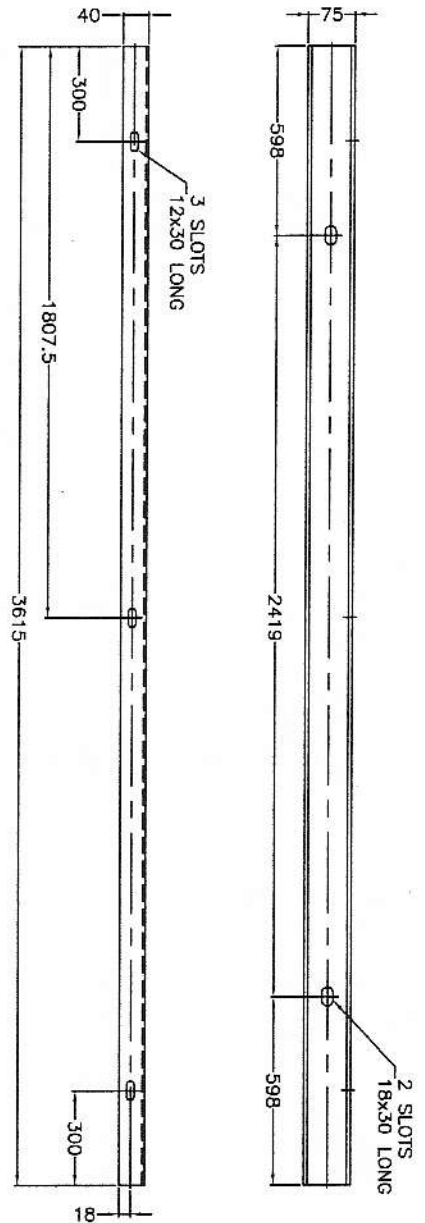


NOTE:  
1. DIMENSIONAL TOLERANCES AS PER IS:2102 (MEDIUM) UNLESS OTHERWISE SPECIFIED.  
2. ALL JOINTS UNIFORMLY WELDED AND GROUND.  
3. ALL EDGES, CORNERS DRILLED HOLES AND SLOTS FREE FROM BURR.

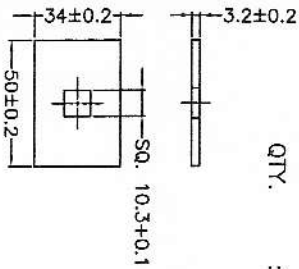
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A		B		C		D	
A. MATERIAL:		B. FINISH:		C. PRE-DESPATCH INSPECTION & BHEL APPROVAL:		E. PACKING:	
1. STRUCTURAL STEEL E250 (Fe 410W) GRADE "A" AS PER IS:2062.		1. HOT DIP GALVANISED MINIMUM 100 MICRONS THICK.		1. PARTS SHALL BE OFFERED FOR INSPECTION AT VENDOR'S WORKS. INSPECTION PLAN SHALL BE SUBMITTED TO BHEL.		1. ITEMS ARE REQUIRED TO BE TRANSPORTED BY LAND TO THE SOLAR PV SITE.	
		2. GALVANIZED COATING SHALL BE UNIFORM, ADHERENT, SMOOTH.		2. BULK PRODUCTION SHALL BE TAKEN UP ONLY AFTER BHEL APPROVAL.		ITEMS SHOULD BE SECURELY PACKED TO AVOID HANDLING AND TRANSIT DAMAGES.	
		3. GALVANIZED COATING SHALL BE FREE FROM BLACK SPOTS, PIMPLES, LUMPS, RUST STAINS ETC.					



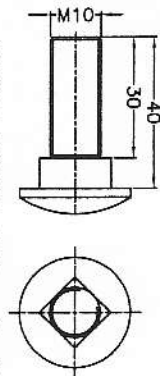
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PART 3 : PURLIN SUPPORT MEMBER - HOT ROLLED STEEL CHANNEL ISLC 75.  
: 3 NOS. PER SET.







CLAMPING STRIP - STEEL SS 304  
FINISH : NATURAL  
PART ⑬



COACH SCREW M10 x 40 AS PER IS:2609  
- STEEL SS304  
PART ⑭

NOTE:  
DIMENSIONAL TOLERANCES AS PER IS:2102 (MEDIUM) UNLESS OTHERWISE SPECIFIED.

REV.	DATE	REV.	DATE	REV.	DATE
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 <b>BHARAT HEAVY ELECTRICALS LIMITED, ELECTRONICS DIVISION, BANGALORE</b>		No. of VAR	
DRN SAN	NAME	SIGN.	DATE SEPT '11
CKD NAR			
AP/CD SK			
REF. TO ASSY. DRG.		ITEM NO.	
WEIGHT(KG)		No. of ITEM	
SCALE NTS		DEPT SC/PLV	
FOR UNSPECIFIED- TOLERANCES REFER ED 0230499		CODE 439	

**TITLE**

**10x270W PV MODULES**

## MOUNTING STRUCTURE FOR CORP RAID

DRAWING NO.  
3679

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REF. DRG.NO.



SIGN &amp; DATE

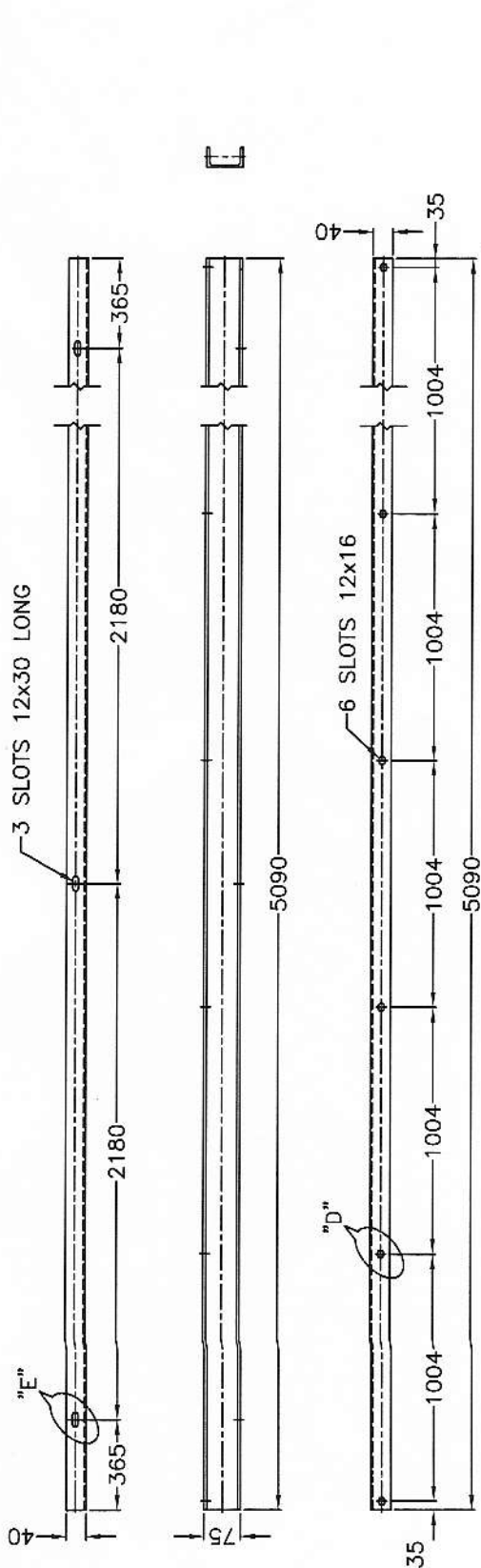
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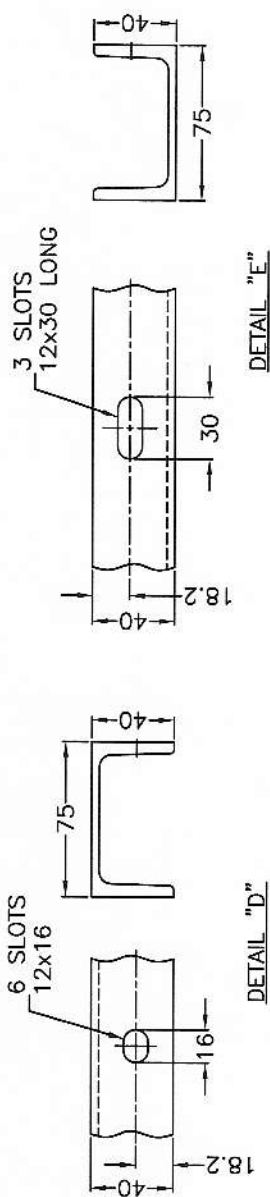
**NOTE:** DIMENSIONAL TOLERANCES AS PER IS:2102 (MEDIUM) UNLESS OTHERWISE SPECIFIED.

	TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT	SPV POWER PLANT - CORP R&D
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				<b>BHARAT HEAVY ELECTRICALS LIMITED, ELECTRONICS DIVISION, BANGALORE</b>				<b>10x270W PV MODULES</b>				<b>TITLE</b>			
<b>FOR UNSPECIFIED - TOLERANCES</b> REFER ED 0230499								<b>SCALE</b> NTS				<b>WEIGHT(Kg)</b>			
<b>EPT. SCP.V CODE</b> 4.39															



PART 4 : RAFTER SUPPORT MEMBER - HOT ROLLED STEEL CHANNEL ISLC 75.  
QTY. : 3 NOS. PER SET.



DETAIL "D"

DETAIL "E"



3 679 05 00487

DRAWING ON GNMVAV

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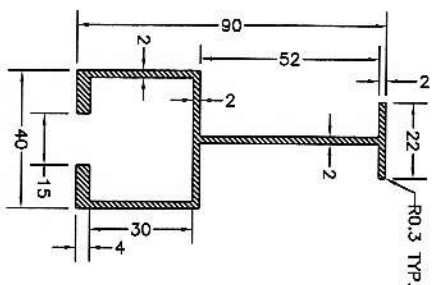
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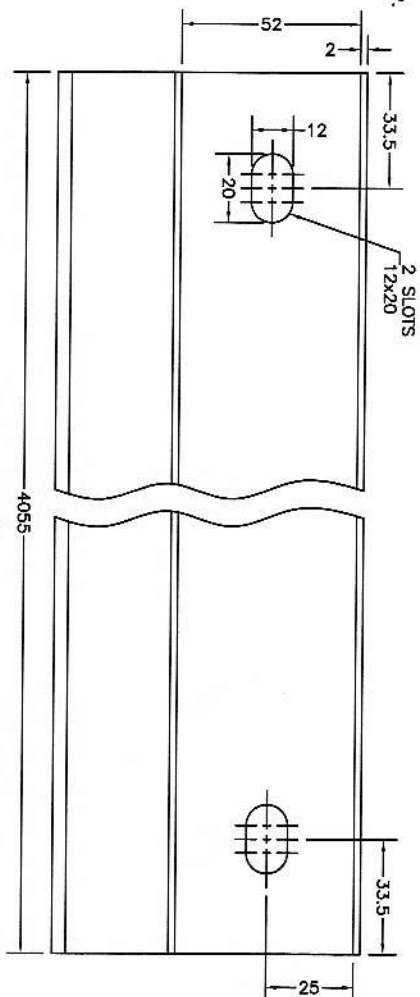
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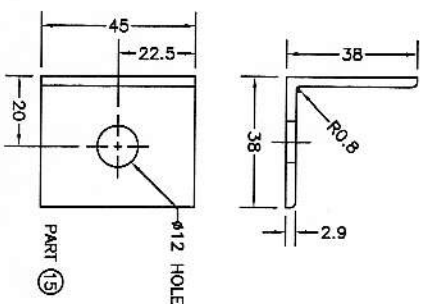
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**PART 16 : RAFTER**  
QTY. : 6 NOS./SET OF MODULE SUPPORT STRUCTURE



**PART 18**



**PART 15 : ANGLE 38x38x2.9 THK.**  
QTY. : 20 NOS./SET OF MODULE SUPPORT STRUCTURE

- 1) MATERIAL : EXTRUDED ALUMINIUM AS PER IS:63400 WP/HE9 (FOR BOTH PARTS 15 & 16)
- 2) NOTE : 1) DIMENSIONAL TOLERANCES FOR EXTRUDED ALUMINIUM AS PER IS:3965.  
2) DIMENSIONAL TOLERANCES FOR FABRICATION AS PER IS 2102 (MEDIUM)  
UNLESS OTHERWISE SPECIFIED.  
3) ROUND-OFF ALL SHARP CORNERS WITH R0.3 MM.  
4) ALL EDGES, CORNERS AND SLOTS SHALL BE BURR FREE.
- 3) FINISH : BOTH PARTS TO BE ANODISED TO 15 MICRONS (MINIMUM) AS PER IS:1868  
(AC 15 GRADE) AFTER ALL FABRICATION STEPS.

INVENTORY NO. SIGN & DATE REF. DRG.NO.

REV.	DATE	ALTERED	REV.	DATE	ALTERED	REV.	DATE	ALTERED
1		CHECKED			CHECKED			CHECKED
2		APPROVED			APPROVED			APPROVED

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT		SPV POWER PLANT - CORP R&D	
BHARAT HEAVY ELECTRICALS LIMITED, ELECTRONICS DIVISION, BANGALORE		DRN NAME SIGN. DATE No. OF VARI	
DEPT. SCPV FOR UNSPECIFIED-TOLERANCES REFER ED 0230499		SAN NAR	
CODE 439		APPD SK	
SCALE NTS		REF. TO ASSY. DRG.	
WEIGHT(KG)		ITEM NO.	
TITLE		DRAWING NO.	
10x270W PV MODULES MOUNTING STRUCTURE FOR CORP R&D		3 679 05 00487	
SHEET NO. 06		NO. OF SHEETS 07	
REV. 00		REV. 00	

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INVENTORY NO.						SIGN & DATE		REF. DRG.NO.	
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A. MATERIAL:									
1. STRUCTURAL STEEL E250 (Fe 410W) GRADE "A" AS PER IS:2062 FOR PART 3 & 4.									
2. HIGH TENSILE STEEL HARDWARE FOR PARTS 5, 6, 7, 9, 10, 11, 14, 17, 18, 19 & 20.									
B. FINISH:									
1. HOT DIP GALVANISED MINIMUM 100 MICRONS THICK FOR PARTS 3 & 4.									
2. GALVANIZED COATING SHALL BE UNIFORM, ADHERENT, SMOOTH.									
3. GALVANIZED COATING SHALL BE FREE FROM BLACK SPOTS, PIMPLES, LUMPS, RUST STAINS ETC.									
4. SPRING WASHER PARTS 8 & 12 TO BE PHOSPHATED.									
5. HARDWARE PART 5, 6, 7, 9, 10, 11, 14, 17, 18, 19 & 20 ZINC PLATED / YELLOW PASSIVATION.									
C. OFFER:									
1. OFFER SHALL BE SUBMITTED "PER SET" BASIS.									
2. ONE SET CONTAINS PARTS 1 TO 20 WITH QUANTITIES (INCLUDING SPARES) MENTIONED IN BILL OF MATERIALS ON SHEET NO. 02.									
D. PRE-DESPATCH INSPECTION & BHEL APPROVAL:									
1. PARTS SHALL BE OFFERED FOR INSPECTION AT VENDOR'S WORKS. INSPECTION PLAN SHALL BE SUBMITTED TO BHEL.									
2. BULK PRODUCTION SHALL BE TAKEN UP ONLY AFTER BHEL APPROVAL.									
E. TEST CERTIFICATES:									
1. MATERIAL CERTIFICATE SHALL BE SUBMITTED FOR STEEL COMPOSITION AND MECHANICAL PROPERTIES (VIZ., TENSILE STRENGTH, YIELD STRESS & % ELONGATION) FOR PARTS 1, 2, 3 & 4.									
2. TEST CERTIFICATE SHALL BE SUBMITTED FOR GALVANIZING THICKNESS FOR PARTS 1, 2, 3 & 4.									
3. DIMENSIONAL CHECK REPORT SHALL BE SUBMITTED FOR PARTS 1, 2, 3 & 4. THE REPORT SHALL INCLUDE SECTION DIMENSIONS, LENGTH, HOLE/SLOT DIMENSIONS AND PITCH DISTANCE OF HOLE/SLOT.									
4. MATERIAL CERTIFICATE FOR HARDWARE PARTS SHALL BE SUBMITTED.									
F. PACKING:									
1. PARTS 1 TO 20 TO BE PACKED INDIVIDUALLY IN SEPARATE MULTIPLE BAGS WITH PART NUMBER IDENTIFICATION.									
2. ITEMS ARE REQUIRED TO BE TRANSPORTED BY LAND TO THE SOLAR PV SITE.									
ITEMS SHOULD BE SECURELY PACKED TO AVOID HANDLING AND TRANSIT DAMAGES.									

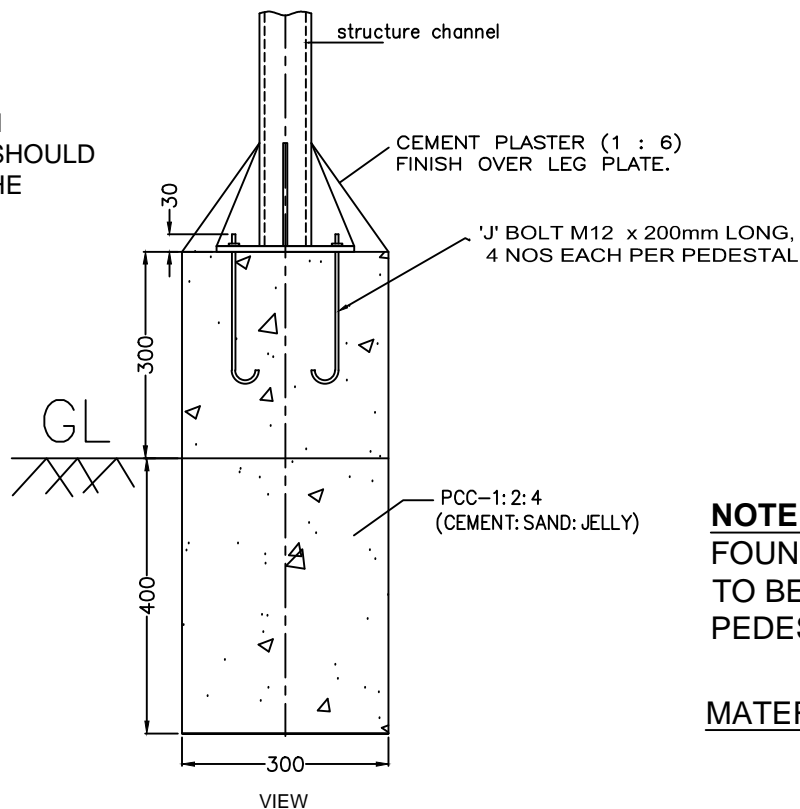
REV.	DATE	ALTERED CHECKED APPROVED	REV.	DATE	ALTERED CHECKED APPROVED	REV.	DATE	ALTERED CHECKED APPROVED	REV.	DATE	ALTERED CHECKED APPROVED
						00					
										FIRST ISSUE	

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT										SPV POWER PLANTS-CORP R & D									
BHARAT HEAVY ELECTRICALS LIMITED, ELECTRONICS DIVISION, BANGALORE																			
DEPT. SCPV CODE 439										FOR UNSPECIFIED-TOLERANCES REFER ED 0230499									
TITLE 10x270W PV MODULE MOUNTING STRUCTURE FOR CORP R&D										SCALE NTS									
DRAWING NO. 3 679 05 00487										DRN SAN CHK NAR APPD SK									
SHEET NO. 07										NO. OF SHEETS 07									

COPYRIGHT AND CONFIDENTIAL THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LTD. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.		FIRST ANGLE PROJECTION		(ALL DIMENSIONS ARE IN mm)									
		2	3	4	5	6	7	8					
A B C D E F G	REF. DRG. No.  SIGN. & DATE  INVENTORY No.	<p>The diagram shows a rectangular PV array layout with overall dimensions of 116.8m by 39.5m. It consists of two main sections of modules, each 51.9m wide and 29.5m high. The left section is labeled '1' and the right section is labeled '94'. A small detail of a '10x270W Structure' is shown with dimensions 5.1m by 3.9m. A north arrow is located in the top right corner.</p>											
		<p>PV ARRAY DETAILS : PV ARRAY : 250 KWp , PV MODULE : 24V, 270Wp (940 modules) PV MODULES/STRUCTURE : 10 NOS. PV MODULES IN SERIES : 20 NOS. TOTAL NO OF SERIES STRING : 47 NOS</p>											
		<p>NOTE : CONSIDERING SHADOW FREE ZONE AND PROVISION FOR PATHWAY ie 5m ALL AROUND ARRAY, OVER ALL DIMENSION WOULD BE APPROXIMATELY 117mX40m</p>											
		<p>ALL DIMENSIONS ARE IN METRES</p>											
		<p>PRODUCT : SPV POWER PLANT CUSTOMER: BHEL ,R&amp;D-HYD</p>											
		<p>BHARAT HEAVY ELECTRICALS LIMITED. ELECTRONICS DIVISION, BANGALORE</p>											
REV. DATE ALTERED CHECKED APPROVED		REV. DATE ALTERED CHECKED APPROVED		NAME		SIGN	DATE	DEPT. CODE SC&PV 439		TITLE:	No. OF SHEETS	01	
				DRAWN ASN			Oct'10			TYPICAL 250 KW PV ARRAY LAYOUT	SHEET No.	01	
				CHECKED MSN									
				APPROVED CVS									
1		2		3		4		WBS. No.		DRG. No.	3-SK-R&D-250K-01	REV	00

DRAWING NO.

NOTE :  
THREADED LENGTH  
OF 30mm OF BOLT SHOULD  
PROJECT ABOVE THE  
PEDESTAL



**NOTE :-** SLOPING FINISH TO COVER  
FOUNDATION BOLTS AND STRUCTURE MEMBER  
TO BE DONE AFTER FIXING STRUCTURE ON  
PEDESTALS.

**MATERIAL:-** PLAIN CEMENT CONCRETE (1:2:4)  
CEMENT PLASTER (1:6)

QTY/STRUCTURE : 6 NOS

TYPE OF PRODUCT OR  
NAME OF CUSTOMER/PROJECT SPV POWER PLANTS - CORP R&D



**BHARAT HEAVY ELECTRICALS LIMITED.**  
**ELECTRONICS DIVISION, BANGALORE**

DRN	NAME	SIGN.	DATE	No. OF VAR
ASN			Oct '11	
CKD	BNR			
APPD	SK			

REV.	DATE	ALTERED CHECKED	REV.	DATE	ALTERED CHECKED	REV.	DATE	ALTERED CHECKED
		APPROVED			APPROVED			APPROVED

DEPT. SC&PV	FOR UNSPECIFIED- TOLERANCES REFER ED 0230499	SCALE NTS	WEIGHT(Kg)	REF. TO ASSY. DRG.	ITEM NO.	No. OF ITEM
CODE 439						
TITLE TYPICAL CEMENT PEDESTAL DETAILS FOR 10x270W MODULE STRUCTURE (FOR GROUND MOUNTING)				DRAWING NO. 3-SK-R&D-250K-02		REV. 00
SHEET NO. 01				NO. OF SHEETS 01		

### **1.0 Scope :**

BHEL Corporate R&D is planning to set up a 250 kWp grid connected SPV power plant in their campus located at Vikasnagar, Hyderabad. Under the present tender, it is envisaged to procure and install mounting structures for SPV modules. The SPV modules will be supplied by BHEL. Number of SPV modules will be 940. Each SPV modules is of 270Wp rating. The SPV modules will be mounted on structures. The structures will be erected on pedestals. The scope of supply and detailed specs of mounting structures and pedestals are given at **Annexure – 1**.

### **2.0 Supplier / Bidder 's Compliance / Remarks for Annexure-I :**

Technical Offer should contain copy of this document. Supplier / Bidder to clearly give their compliance / remarks against each section.

## ANNEXURE – I

### 1.0 SCOPE OF SUPPLY FOR MOUNTING STRUCTURES:

S. No.	Item	Qty	Qty. Unit	Specification of the Item	Acceptance criteria
1	Mounting structures for SPV modules	94	Sets.	The structures shall be fabricated as per BHEL Drawing (Dwg.) No. 3-679-05-00487 Rev.0 (7 sheets).	(Pre-shipment inspection) Fabrication check as per BHEL Dwg. No. 3-679-05-00487 Rev.0 (7 sheets)

### 2.0 SCOPE OF INSTALLATION:

S. No.	Activity Description	Qty	Qty. Unit	Supplier's / Bidder's Scope	Acceptance criteria
1	Casting and erection of pedestals at site	564	Nos.	As per BHEL Dwg.. Construction material is in scope of Supplier.	Inspection shall be carried out as per BHEL Dwg.
2	Assembly and erection of mounting structures on pedestals	94	Nos.	The SPV module mounting structures are to be mounted on the pedestals (S. No. 1 of Section 2) as per BHEL Dwg. No. 3-679-05-00487 Rev.0 (7 sheets).	Inspection shall be carried out as per BHEL Dwg. No. 3-679-05-00487 Rev.0 (7 sheets)
3	Installation of SPV modules	940	Nos.	The SPV modules ( <b>supplied by BHEL</b> ) are to be fitted on the module mounting structures as per BHEL drawing(s) BHEL Dwg. No. 3-679-05-00487 Rev.0 (7 sheets).	Inspection shall be carried out as per BHEL Dwg. No. 3-679-05-00487 Rev.0 (7 sheets)



## **2.1 Notes :**

1. Site layout diagram to install structures shall be provided at time of job execution.

## **3.0 INSPECTION:**

1. Inspection shall be carried out BHEL representative for both Supply as well as Installation as per the Acceptance Criteria mentioned in the relevant sections.

## **4.0 TERMS AND CONDITIONS:**

1. **Arranging all necessary tools and tackles including tool consumables needed for the Assembly, Erection and Installation are in scope of Supplier.**
2. The installation is to be carried out in such a manner that will not cause any inconvenience to the other agencies working in the site.
3. After completion of the installation, the entire site / area will be cleaned of debris etc. prior to handing over of the site to BHEL.
4. **During inspection to comply with BHEL guidelines, if the Supplier carries out any changes then, such changes shall NOT be treated as EXTRA WORK.**