

ITEM: PPGI. PLAIN SHEET: 0.60X1000X3000

"HEAVY DUTY CLASS" SPECIFICATION CONTINUOUSLY PREPAINTED GALVANISED STEEL SHEETS TO SPECIFICATION I.S: 14246 AS PER FOLLOWING REQUIREMENTS.

BASE METAL : Mild steel as per I.S:513
NOMINAL THICKNESS : 0.6mm (Without negative tolerance) (i.e excluding the thickness of galvanizing and painting).
GALVANISING : The base metal shall be galvanised with minimum Grade of Zinc coating 275gms/sq.m as per I.S:277
TOP SIDE PAINT : Top side coating shall be 20 microns minimum of Silicon Modified Polyester (SMP) painting. The Top colour of sheets shall be BLUE (RAL 5012)
BOTTOM SIDE PAINT : Bottom side coating shall be 7 microns minimum of Silicon Modified Polyester (SMP) painting. Bottom side colour of sheets shall be Grey (RAL 9002)
DURABILITY OF PAINT: As per Class - 3 of I.S:14246

Note:

- Packing, Handling and storage of the sheets shall be as per the enclosed Packing, handling and storage instructions.
- BHEL Standard Quality Plan SQPSD02_01 enclosed to be followed

Bhusawal Contract, Vendor approval is applicable, the supplier shall submit all the credentials as per Annexure A.

Handling and storage of coated steel products

Must be pasted on all packets clearly visible from outside

For longer life/durability after application, no wastage/damage of coated steel products below handling and storage guidelines are very important.

Handling

- 1) Use nylon/fiber felts for Handling. Do not use steel Wire rope/chains lifting /downloading / Moving
- 2) Use cushioning (wood /rubber) at bottom of & secure lashing & dunnaging **while** transportation.
- 3) Do not transport materials with water/chemicals/vegetables / animals/cement....
- 4) Unload carefully; avoid any packing damages due to unloading/handling.
- 5) If received wet & with damaged packing, Unpack, dry & repack.

Storage

- 1) Store materials on wooden support well over the flat & clean dry floor & temperature below 50°C.
- 2) Do not store materials on wet, damp, muddy floors /lands **directly**. If no option, use about 2 feet steel/ wooden platforms over such places for storing for only for few days.
- 3) Store in well ventilated, dry & protected from rain godowns/shades.
- 4) After Unpacking use materials within couple of days & balance materials remains if any, repack and store for further use.
- 5) Store away from chemicals / cement & any wet materials.

PACKING METHOD

PACKING DETAILS FOR PRE COATED GALVANIZED ROOF SHEET, PRECOATED GALVALUME ROOF SHEET, RIDGE PIECE, CORNER BARGE BOARD AND PLAIN SHEETS

Packing material for Pre Coated Products:

Sl No	Packing Materials(Layers)	Nos
1	LDPE	1
2	HDPE	1
3	Metal Box	1
4	Wooden pallet/Wooden Skid at bottom	Top metal box over bottom box as shown in figure-1
5	High tensile packing straps & tags	Along length 2, Along width every 1 m length + 2 tags.

SHEET PACKING:

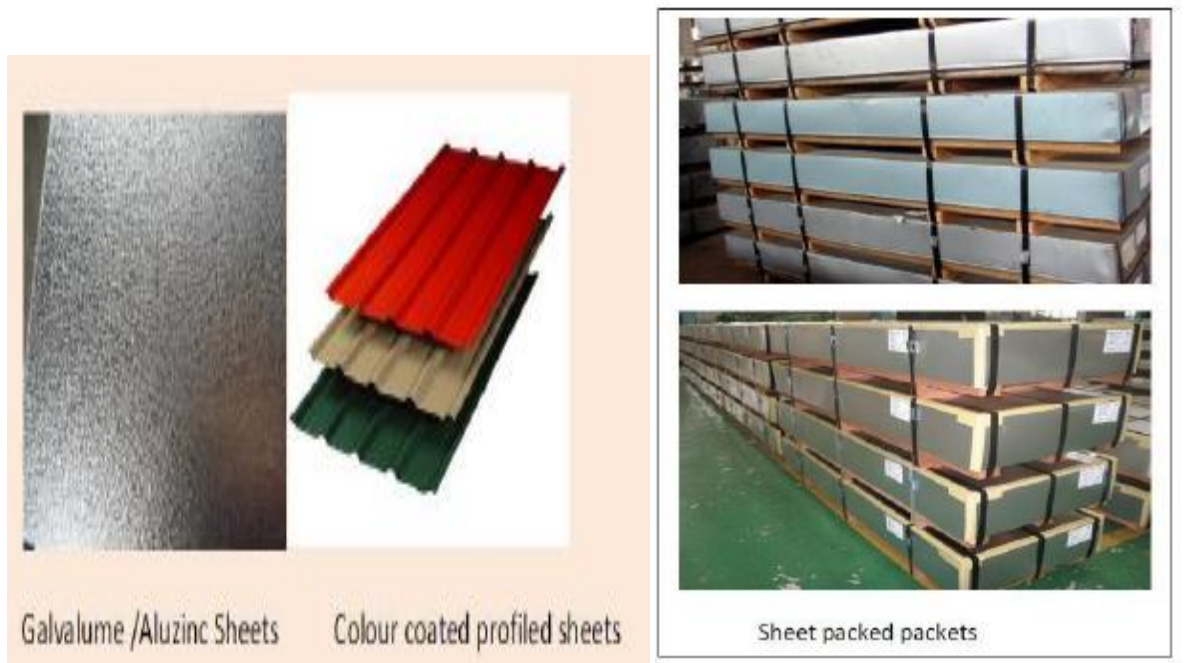


Figure-1

BHEL/TRICHY
MM/BOI/PURCHASE

REF:MM:PUR:BOI:ROOFSHEET

Pre-Qualification requirements (PQR) for the procurement of Roof sheets as per specification through Open Tender

Date :
Tender No & Date :
Supplier Name :
Supplier registered Address :
Supplier Plant Address :

A: Organizational Capability & Technical Competence:

Sl. No.	Pre –Qualification Criteria	Bidder acceptance / Bidder remarks
1.	Offers from bidders having basic in house manufacturing facilities for the enquired items are only eligible to participate. Offer from Traders, Distributors are not acceptable and will not be considered for evaluation. Vendor to indicate the nature of the Firm. (Trader/Distributor/Manufacturer). Product catalogue shall be submitted.	
2.	Compliance to Tendered Specification is mandatory for consideration of offer.	
3.	Compliance to Technical requirements & Quality Plan (if applicable) as per tendered specification against each item of enquiry.	
4.	Manufacturing plant address & available equipment's for manufacturing the tendered items shall be provided along with offer.	
5.	Suppliers shall submit Quality Management System certificate or Written down procedure.	
6.	Supplier shall have capacity to meet tender requirement.	
7.	Supplier offer will be considered subject to Customer Approval for Sagardighi and Bhuswal Contract.	
8.	BHEL reserve the right to inspect the item ordered at any stage at vendor's works and if found not meeting the stipulated conditions, material is liable for rejection.	

B: Past Experience/ Performance:

Sl. No.	Pre –Qualification Criteria	Bidder acceptance / Bidder remarks
1.	Suppliers shall indicate their annual installed capacity for the tendered specification & it shall be more than the tendered quantity.	
2.	Suppliers shall have supplied similar items to the tendered Scope/Specification.	
3.	Suppliers shall submit Supply credentials for last 3 years successful supply of Roof Sheets (i.e. PPGI or PPGL) like unpriced PO copies with corresponding proof of supply (such as invoice/bill of lading copies and test certificates covering shall be submitted.)	
4.	Supplier shall have to submit contact details of the customers to whom successful supply completed.	

BHEL/TRICHY
MM/BOI/PURCHASE

REF:MM:PUR:BOI:ROOFSHEET

Pre-Qualification requirements (PQR) for the procurement of Roof sheets as per specification through Open Tender

C. Financial Soundness:

Sl. No.	Pre –Qualification Criteria	Bidder acceptance / Bidder remarks
1.	Indigenous suppliers shall submit copies of annual reports (balance sheets), profit & Loss Statement for the last three years (or from date of incorporation whichever is less) and GST Certificate.	

Necessary supporting documents shall be submitted for meeting each of the above Pre-Qualification Criteria for technical evaluation of the offers.

BHEL reserves the right to consider/Not-consider the offers based on the evaluation of documents submitted for the above Pre-Qualification Criteria. If required, BHEL also reserves the right to verify information submitted by vendor. In case the information is found false/incorrect, the offer shall be rejected. BHEL also reserves the right to carry out audit checks for confirming the material properties on the supplied material during material receipt at BHEL. Supplies found defective during check or subsequent processing at BHEL will be rejected.



BHARAT HEAVY ELECTRICALS LIMITED
TIRUCHIRAPPALLI - 620 014, INDIA.
QUALITY ASSURANCE DEPARTMENT

STANDARD QUALITY PLAN FOR PRE-PAINTED GALVANIZED STEEL SHEETS

SQP:SD:02 Rev No: 01

Page: 1 of 3

Prepared By
Quality Assurance

ABDUR RAHMAN SULTAN

Abdur 16.08.2017

Reviewed by	Signature
Quality Assurance (G. PANNESSELVAN)	<i>[Signature]</i>
Engineering (M - SHANMUGAM)	<i>[Signature]</i>
Materials Management (M. RADHAKRISHNAN)	<i>[Signature]</i>
Quality Control R. DHARMAR	<i>[Signature]</i>

Rev No	Date	Approved by	Signature
01	16/08/2017	AGM / QA & BE	<i>[Signature]</i> 16/08/17

Record of Revisions

Rev No	Details of Revision	Remarks
00	Fresh Issue	
01	Cl. 1.0 , 3.1 to 3.5 revised, 3.6 to 3.8 removed based on feedback from MM	Raw material sources removed, Quantum of testing revised.

Proprietary Data - For Internal Use Only



MANUFACTURER'S
NAME & ADDRESS:
BHEL TIRUCHIRAPPALLI
APPROVED SUPPLIERS

STANDARD QUALITY PLAN

PRODUCT: PRE-PAINTED GALVANIZED STEEL SHEETS

SUB-SYSTEM :Steam Generator and Auxiliaries

QWI NO:SQP:SD:02

REV NO: 01 DATE: 16/08/2017

PAGE: 2 OF 3

SL. NO	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
					M	C				N	M	C	
1	2	3	4	5	M	C/N	7	8	9	D*	**	10	11

1.0 RAW MATERIALS

1.0	Steel Sheets/Coils	Chemical & Mechanical Properties (YS, TS, %Elong), Hardness, Cupping & bend tests	A	TC Verification	IS 513	IS 513	IS 513 & BHEL PO	IS 513 – Design CR1 Gr 390 & BHEL PO	MTC	√	P	V	V	
		Surface Finish	B	Visual	IS 513	IS 513	IS 513	Cl 8 of IS 513	MTC	√	P	V	-	
		Freedom from defects	B	Visual	IS 513	IS 513	IS 513	Cl 9 of IS 513	MTC	√	P	V	-	
		Dimensions	B	Measurement	IS 513	IS 513	IS 513	BHEL PO	MTC	√	P	V	-	

2.0 INPROCESS CONTROLS

GALVANIZING

2.1	Steel Sheets/Coils	Cleaning & Degreasing	A	Visual	100%	100%	IS 277 & BHEL PO	IS 277 & BHEL PO	Log	√	P	V	-	
2.2	Zinc Ingots*	Chemical properties	B	TC Verification	100%	100%	IS 209/ IS 13229	IS 209/ IS 13229	MTC	√	P	V	-	*Grade G250
2.3	Galvanization	Galvanizing	A	Visual	100%	100%	IS 277 & BHEL PO	IS 277 & BHEL PO	MTC	√	P	V	-	
2.4	Bend Test for zinc coating	Peeling of, flaking, cracking	B	Visual	Cl 8 of IS 277	Cl 8 of IS 277	Cl 8 of IS 277 & BHEL PO	Cl 8 of IS 277 & BHEL PO	IR	√	P	V	-	
2.5	Zinc Coating Test	Weight of coating of galvanizing*	B	Measurements	Cl 9 of IS 277	Cl 9 of IS 277	IS 277 & BHEL PO	IS 277 & BHEL PO	IR	√	P	V	-	*both sides inclusive: 275 gsm
2.6	Galvanized sheets/coils	Surface Finish	B	Visual	100%	100%	Cl 11 of IS 277	Cl 11 of IS 277	IR	√	P	V	-	

PAINTING & CORRUGATION

2.7	Paint Coating Selection	Paint Class, viscosity, etc.	B	Visual	100%	100%	BHEL PO	BHEL PO	MTC	√	P	V	-	
2.8	Alkali Cleaning; Rinsing with Hot & cold water*;	Cleanliness of galvanized Sheets before painting	A	Visual	100%	100%	Manufacturer's std	Freedom from oil, grease, dirt.	Log	√	P	V	-	* followed by Chromate soln treatment at room temperature
2.9	Painting: Primer on both sides; Top & bottom coats	Surface Preparation, Color Shade & DFT	B	Visual & Measurement	100%	100%	BHEL PO	BHEL PO	IR	√	P	V	-	
2.10	Corrugation of sheets *	Shape, Surface finish, peeling of paint on both sides	A	Visual	100%	100%	IS 277 & BHEL PO	IS 277 & BHEL PO	IR	√	P	V	-	*if applicable

LEGEND: * RECORDS IDENTIFIED WITH "TICK" (√) SHALL BE ESSENTIALLY INCLUDED BY THE SUPPLIER IN QA DOCUMENTATION;

** M: MANUFACTURER (COIL/PROFILER), C: BHEL QC/BHEL AIA, N: CUSTOMER; P: PERFORM. W: WITNESS, V: VERIFICATION; CLASS : A - CRITICAL ; B - MAJOR ; C - MINOR;

MTC- Mill /Manufacturer's Test Certificate; IR- Inspection/Test Report; (R): Routine test; (I)/(Ts): Type test.



MANUFACTURER'S
NAME & ADDRESS:
BHEL TIRUCHIRAPPALLI
APPROVED SUPPLIERS

STANDARD QUALITY PLAN

PRODUCT: PRE-PAINTED GALVANIZED STEEL SHEETS

SUB-SYSTEM :Steam Generator and Auxiliaries

QWI NO:SQP:SD:02

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PAGE: 3 OF 3

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					M	C				N	M	C	
1	2	3	4	5	M	C/N	7	8	9	D*	**	10	11

2.11	Sheets	Dimensions of Corrugated/plane sheets	B	Measurements	100%	100%	BHEL PO & BHEL approved drawing	BHEL PO & BHEL approved drawing	IR	√	P	V	-	
3	TESTING ON PAINTED COILS/SHEETS – Tests shall be done at manufacturer's lab or NABL accredited labs.													
3.1	Bend Test	Peeling or crack of Paint	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.2 of IS 14246	Cl 6.2 of IS 14246*	IR	√	P	V	V	*No peeling or cracking of paint.
3.2	Pencil Hardness Test (2H)	Scratch proof	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.3 of IS 14246	Cl 6.3 of IS 14246#	IR	√	P	V	V	#No scratch
3.3	Impact Resistance Test	Impact resistance	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.4 of IS 14246	Cl 6.4 of IS 14246*	IR	√	P	V	V	*No peeling or cracking of paint.
3.4	Cross Hatch Test	No lifting of paint	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.5 of IS 14246	Cl 6.5 of IS 14246#	IR	√	P	V	V	#No lifting of paint.
3.5	Salt Spray Test	Corrosion Resistance/ Durability of paint	B	Visual & Measurement	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.6 & 5.4 of IS 14246 & BHEL Specn.	Cl 6.6 & 5.4 of IS 14246 & BHEL Specn.	MTC /IR	√	P	V	V	
4.0	FINAL INSPECTION													
4.1	Dimensional Inspection	Dimensions & Shapes	B	Visual & Measurement	100%	Min 1, max 10 *	BHEL PO & BHEL approved drawing		IR	√	P	W	V	*at random for each PO item. @shall be available on each pack of sheets.
4.2	Paint Inspection	Color, Shade & DFT	C		100%		BHEL PO	BHEL PO	IR	√	P	W	V	
4.3	Marking & Identification	PO no, Item, Material No, Project Name	B	Visual	100%		BHEL PO	BHEL PO	IR	√	P	W	V	
4.4	Packing along with Handling & Storage instructions to Sites@	Water-proof packing & Stability	B	Visual	100%		BHEL PO	BHEL PO	IR	√	P	W	-	

Notes:

- For Customer inspection, if applicable, the stages indicated under Column N shall be followed with specific approval of BHEL/Customer for Witness/Verification by Customer.
- The latest editions/revisions of the above mentioned/referred standards/procedures shall be used.

LEGEND: * RECORDS IDENTIFIED WITH "TICK" (√) SHALL BE ESSENTIALLY INCLUDED BY THE SUPPLIER IN QA DOCUMENTATION;
**** M:** MANUFACTURER (COIL/PROFILER), **C:** BHEL QC/BHEL AIA, **N:** CUSTOMER; **P:** PERFORM. **W:** WITNESS, **V:** VERIFICATION; **CLASS:** A - CRITICAL ; B - MAJOR ; C - MINOR;
MTC- Mill /Manufacturer's Test Certificate; IR- Inspection/Test Report; (R): Routine test; (I)/(Ts): Type test.

Revised ANNEXURE A

Maharashtra State Power Generation Company Limited			
Bhusawal Project (1x660MW)			
Proforma of Vendor Approval			
Sr. No.	Information/ Particulars required	Details furnished along with documents thereof	Remarks if any
1	Name of System /Package/Item:		
2	Name of agency on whom order for the main work is placed		
3	Approval for (Name of construction material)		
4	Name of the vendors specified in contract document for this material		
5	Name of the proposed Sub Contractor(Vendor)		
6	Reasons for asking new vendor		
7	Details of supporting documents in lieu of above reasons		
8	Specific requirement of material in terms of dia, size, quantity etc.		
9	When the material is required & for which structure		
10	Whether vendor is Partnership/ Pvt./Public Ltd. Company		
11	Particular of registration with Government		
	i) GST registration No.		
	ii) Company registration No. & Incorporation Certificate		
	iii) PF & ESIC Certificate.		
	iv) Pan No.		
12	Address of vendor's factory		
13	Contact No. of vendor's representative for additional information		
14	Production Business Area		
16	Average annual turnover for last three years as per CA's Certificate		
17	Name of Companies where the vendor is registered		
18	Details of orders completed last 3 years (Quantity & amount)		
19	Details of orders in hand (Quantity & amount)		
20	Maximum value & quantity of work executed during last 3 years		
21	Name of the reputed, well known clients to whom the vendor has supplied the material		
22	End users Performance Certificate (Name & documents) along with the relevant PO.		
23	Any additional information		
24	Recommendation		

Minutes of Meeting held on 13.02.2020 regarding Proforma and process of vendor approval between representatives of M/s BHEL and MSPGCL.

1. Revised Annexure A to be filled, signed, stamped and submitted by Sub-contractor and M/s BHEL.
2. All credential/documents shall be scrutinized by M/s BHEL.
3. M/s BHEL shall submit the related documents mentioned in revised Annexure A after the scrutiny at their end with recommendation.
4. At least one number of Purchase Order along with recent performance certificate of same P.O. is to be submitted as per bid specification. The performance certificate should have reference of purchase order and on End user letterhead.

M/s BHEL

MSPGCL

ITEM: PPGI. TRAPEZOIDAL PROFILE ROOF SHEET: 0.60X1060X4350

"HEAVY DUTY CLASS" SPECIFICATION CONTINUOUSLY PREPAINTED GALVANISED STEEL SHEETS TO SPECIFICATION I.S: 14246 AS PER FOLLOWING REQUIREMENTS.

BASE METAL : Mild steel as per I.S:513
NOMINAL THICKNESS : 0.6mm (Without negative tolerance) (i.e excluding the thickness of galvanizing and painting).
GALVANISING : The base metal shall be galvanised with minimum Grade of Zinc coating 275gms/sq.m as per I.S:277
TOP SIDE PAINT : Top side coating shall be 20 microns minimum of Silicon Modified Polyester (SMP) painting. The Top colour of sheets shall be BLUE (RAL 5012)
BOTTOM SIDE PAINT : Bottom side coating shall be 7 microns minimum of Silicon Modified Polyester (SMP) painting. Bottom side colour of sheets shall be Grey (RAL 9002)
DURABILITY OF PAINT: As per Class - 3 of I.S:14246

CORRUGATION PROFILE: As per BHEL drawing no 3-35-611-80440 Rev 01 or suppliers own profile

satisfying following requirements of BHEL, (supplier to submit design calculations)

The corrugated sheet should be capable of resisting within the safe limit,

a. Maximum purlin spacing – 1300 mm

b. Deflection criteria -- $L/250$

c. Live load -- 1.50 KN /Sq.m (roof slope <10 degree)

d. Wind load -- 2.25 KN/Sq.m

e. Load Combination for Trapezoidal / corrugated Sheet is:

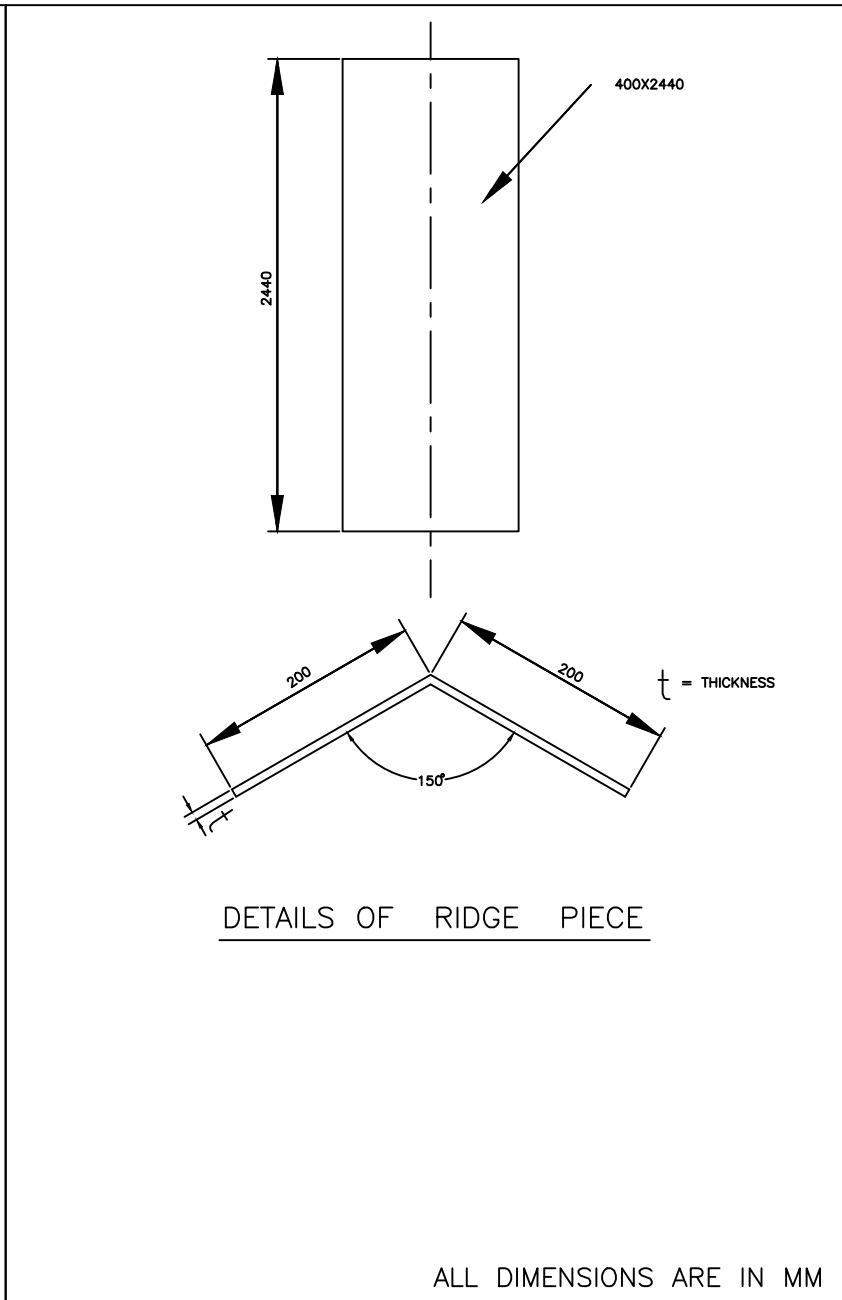
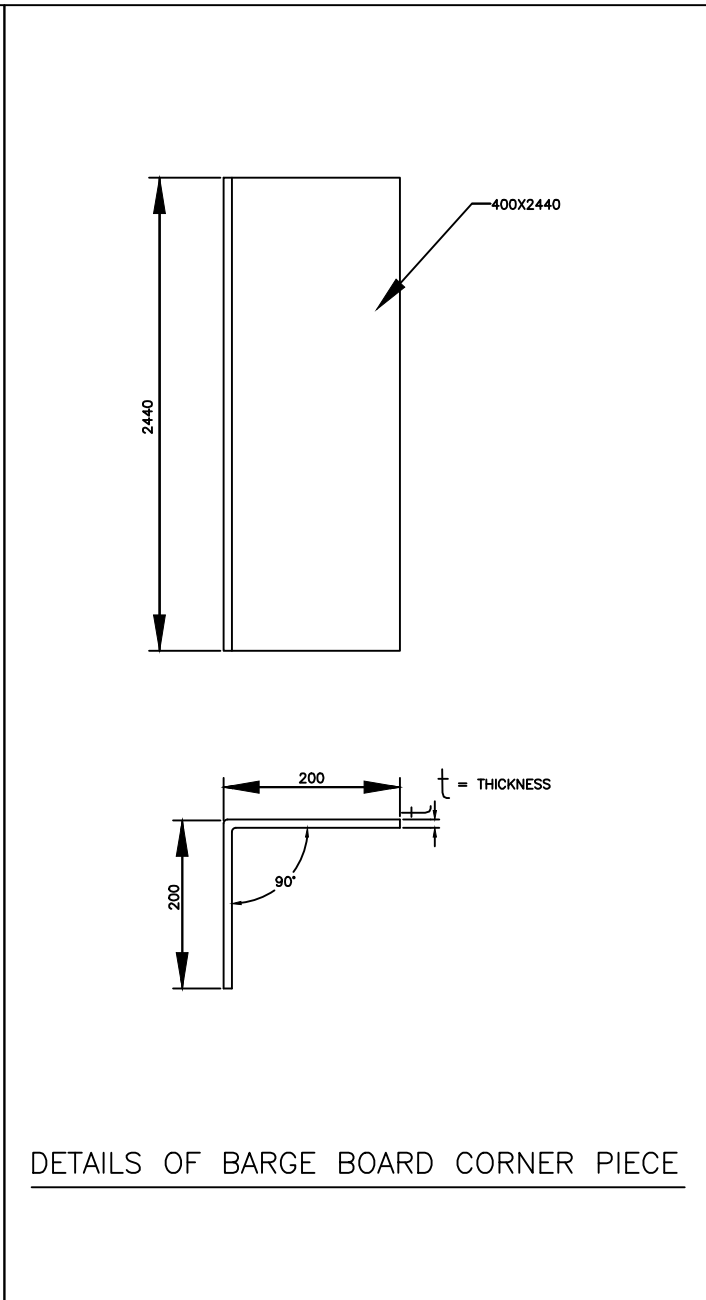
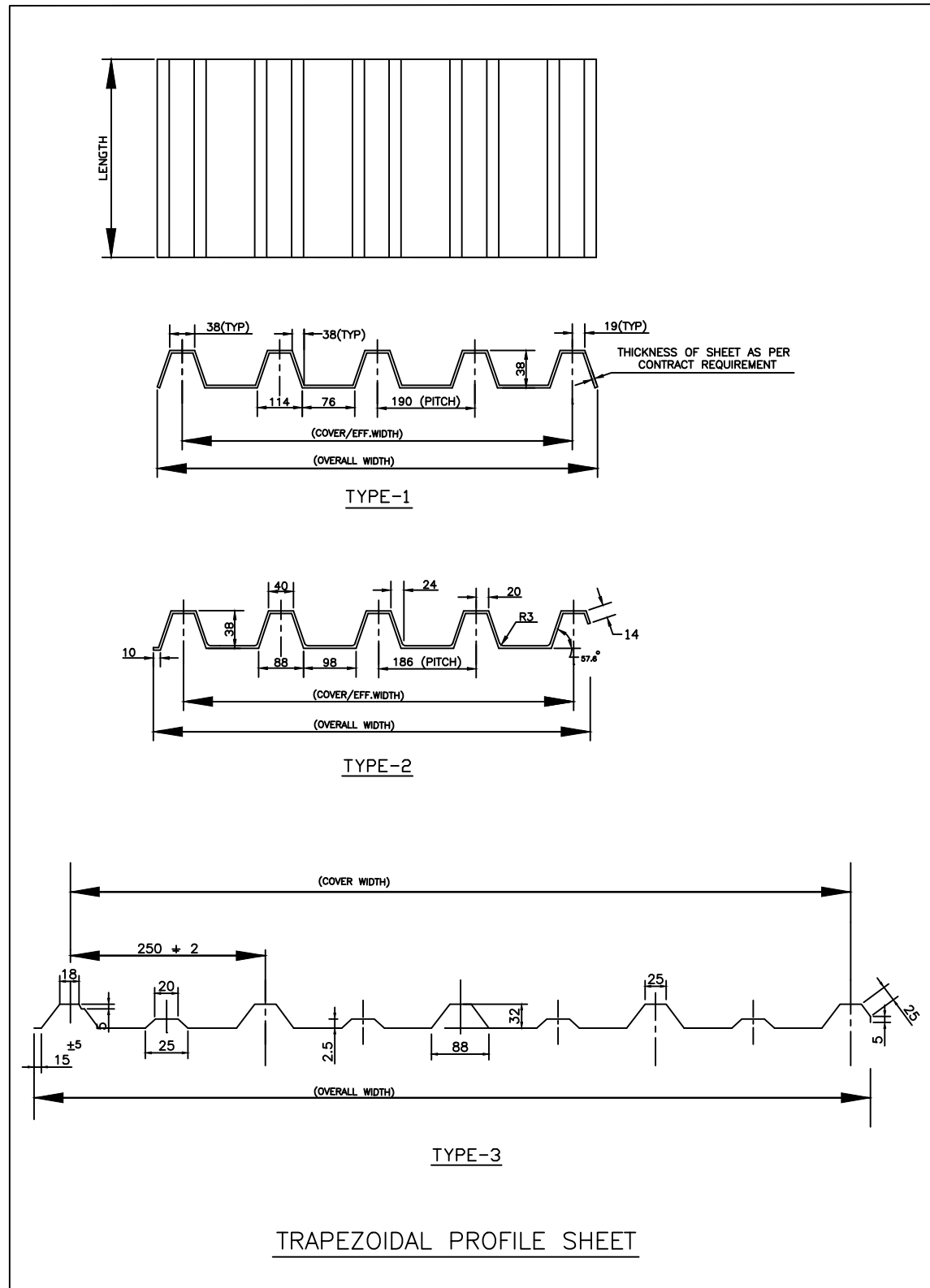
1) 100%(Self Weight / Dead load + Live Load (1.5 KN /SQM) + Wind load (2.25 KN/SQM)), without any reduction factor.

2) 100%(Self Weight / Dead load +/- Wind load (2.25 KN/SQM)), without any reduction factor.

NOTE:

- Packing, Handling and storage of the sheets shall be as per the enclosed Packing, handling and storage instructions.
- BHEL Standard Quality Plan SQPSD02_01 enclosed to be followed.

Bhusawal Contract, Vendor approval is applicable, the supplier shall submit all the credentials as per Annexure A.



DETAILS OF BARGE BOARD CORNER PIECE

DETAILS OF RIDGE PIECE

ALL DIMENSIONS ARE IN MM

TRAPEZOIDAL PROFILE SHEET

DETAILS OF BARGE BOARD CORNER PIECE

CAUTION: 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.

TYPE OF PRODUCT
OR NAME OF
CUSTOMER/PROJECT



Bharat Heavy Electricals Ltd
UNIT: HIGH PRESSURE BOILER PLANT
TIRUCHIRAPALLI - 620014

DEPT FBC & HRSG	ALL DIMENSIONS ARE IN MM	PROJECTION 	SCALE N.T.S	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE 1322					
TITLE DETAILS OF TRAPEZOIDAL PROFILE SHEET, BARGE BOARD & RIDGE PIECE					REV 01
DRAWING NO : 3-35-611-80440					

REV 01	DATE 28/09/10	ALTERED CHKD & APPD S.MURALISANKAR	S.SIVA
ZONE	NOTES AND DIMENSIONS REMOVED		

Handling and storage of coated steel products

Must be pasted on all packets clearly visible from outside

For longer life/durability after application, no wastage/damage of coated steel products below handling and storage guidelines are very important.

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SHEET PACKING:

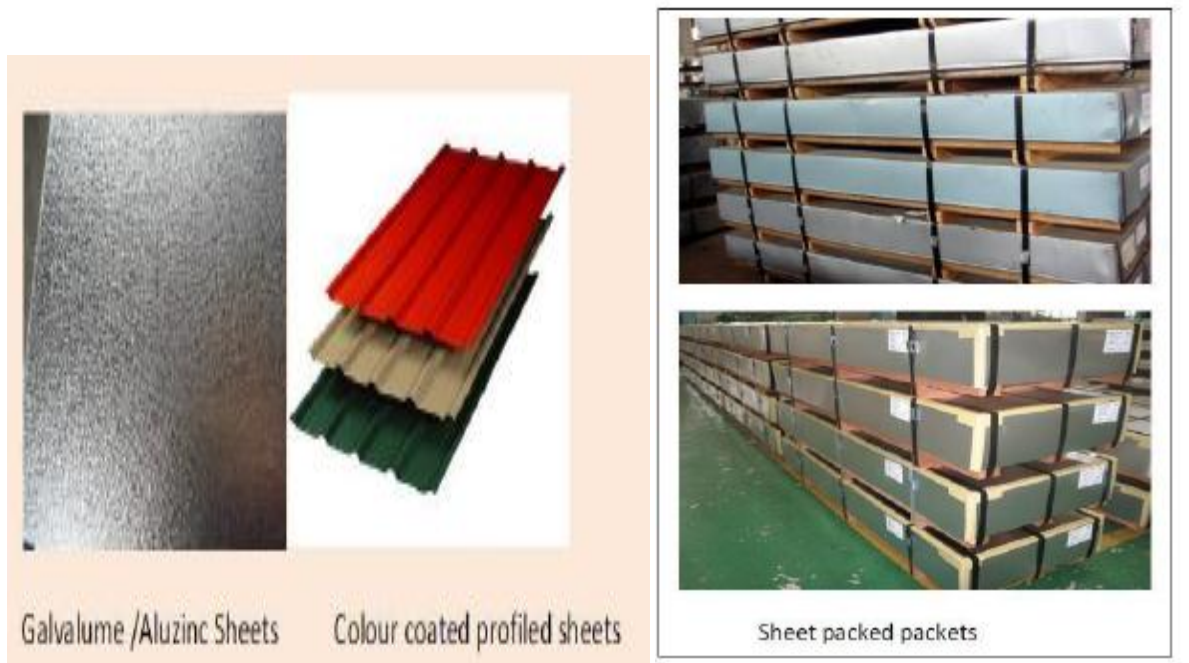


Figure-1



BHARAT HEAVY ELECTRICALS LIMITED
TIRUCHIRAPPALLI - 620 014, INDIA.
QUALITY ASSURANCE DEPARTMENT

STANDARD QUALITY PLAN FOR PRE-PAINTED GALVANIZED STEEL SHEETS

SQP:SD:02 Rev No: 01

Page: 1 of 3

Prepared By
Quality Assurance

ABDUR RAHMAN SULTAN

Abdur Rahman Sultan 16.08.2017

Reviewed by	Signature
Quality Assurance (G. PANNESSELVAN)	<i>[Signature]</i>
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SUB-SYSTEM :Steam Generator and Auxiliaries

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1.0 RAW MATERIALS

1.0	Steel Sheets/Coils	Chemical & Mechanical Properties (YS, TS, %Elong), Hardness, Cupping & bend tests	A	TC Verification	IS 513	IS 513	IS 513 & BHEL PO	IS 513 – Design CR1 Gr 390 & BHEL PO	MTC	√	P	V	V	
		Surface Finish	B	Visual	IS 513	IS 513	IS 513	Cl 8 of IS 513	MTC	√	P	V	-	
		Freedom from defects	B	Visual	IS 513	IS 513	IS 513	Cl 9 of IS 513	MTC	√	P	V	-	
		Dimensions	B	Measurement	IS 513	IS 513	IS 513	BHEL PO	MTC	√	P	V	-	

2.0 INPROCESS CONTROLS

GALVANIZING

2.1	Steel Sheets/Coils	Cleaning & Degreasing	A	Visual	100%	100%	IS 277 & BHEL PO	IS 277 & BHEL PO	Log	√	P	V	-	
2.2	Zinc Ingots*	Chemical properties	B	TC Verification	100%	100%	IS 209/ IS 13229	IS 209/ IS 13229	MTC	√	P	V	-	*Grade G250
2.3	Galvanization	Galvanizing	A	Visual	100%	100%	IS 277 & BHEL PO	IS 277 & BHEL PO	MTC	√	P	V	-	
2.4	Bend Test for zinc coating	Peeling of, flaking, cracking	B	Visual	Cl 8 of IS 277	Cl 8 of IS 277	Cl 8 of IS 277 & BHEL PO	Cl 8 of IS 277 & BHEL PO	IR	√	P	V	-	
2.5	Zinc Coating Test	Weight of coating of galvanizing*	B	Measurements	Cl 9 of IS 277	Cl 9 of IS 277	IS 277 & BHEL PO	IS 277 & BHEL PO	IR	√	P	V	-	*both sides inclusive: 275 gsm
2.6	Galvanized sheets/coils	Surface Finish	B	Visual	100%	100%	Cl 11 of IS 277	Cl 11 of IS 277	IR	√	P	V	-	

PAINTING & CORRUGATION

2.7	Paint Coating Selection	Paint Class, viscosity, etc.	B	Visual	100%	100%	BHEL PO	BHEL PO	MTC	√	P	V	-	
2.8	Alkali Cleaning; Rinsing with Hot & cold water*;	Cleanliness of galvanized Sheets before painting	A	Visual	100%	100%	Manufacturer's std	Freedom from oil, grease, dirt.	Log	√	P	V	-	* followed by Chromate soln treatment at room temperature
2.9	Painting: Primer on both sides; Top & bottom coats	Surface Preparation, Color Shade & DFT	B	Visual & Measurement	100%	100%	BHEL PO	BHEL PO	IR	√	P	V	-	
2.10	Corrugation of sheets *	Shape, Surface finish, peeling of paint on both sides	A	Visual	100%	100%	IS 277 & BHEL PO	IS 277 & BHEL PO	IR	√	P	V	-	*if applicable

LEGEND: * RECORDS IDENTIFIED WITH "TICK" (√) SHALL BE ESSENTIALLY INCLUDED BY THE SUPPLIER IN QA DOCUMENTATION;
**** M:** MANUFACTURER (COIL/PROFILER), **C:** BHEL QC/BHEL AIA, **N:** CUSTOMER; **P:** PERFORM. **W:** WITNESS, **V:** VERIFICATION; **CLASS:** A - CRITICAL ; B - MAJOR ; C - MINOR;
MTC- Mill /Manufacturer's Test Certificate; IR- Inspection/Test Report; (R): Routine test; (I)/(Ts): Type test.



MANUFACTURER'S
NAME & ADDRESS:
BHEL TIRUCHIRAPPALLI
APPROVED SUPPLIERS

STANDARD QUALITY PLAN

PRODUCT: PRE-PAINTED GALVANIZED STEEL SHEETS

SUB-SYSTEM :Steam Generator and Auxiliaries

QWI NO:SQP:SD:02

REV NO: 01 DATE: 16/08/2017

PAGE: 3 OF 3

SL. NO	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
					M	C				N	M	C	
1	2	3	4	5	M	C/N	7	8	9	D*	**	10	11

2.11	Sheets	Dimensions of Corrugated/plane sheets	B	Measurements	100%	100%	BHEL PO & BHEL approved drawing	BHEL PO & BHEL approved drawing	IR	√	P	V	-	
3	TESTING ON PAINTED COILS/SHEETS – Tests shall be done at manufacturer's lab or NABL accredited labs.													
3.1	Bend Test	Peeling or crack of Paint	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.2 of IS 14246	Cl 6.2 of IS 14246*	IR	√	P	V	V	*No peeling or cracking of paint.
3.2	Pencil Hardness Test (2H)	Scratch proof	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.3 of IS 14246	Cl 6.3 of IS 14246#	IR	√	P	V	V	#No scratch
3.3	Impact Resistance Test	Impact resistance	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.4 of IS 14246	Cl 6.4 of IS 14246*	IR	√	P	V	V	*No peeling or cracking of paint.
3.4	Cross Hatch Test	No lifting of paint	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.5 of IS 14246	Cl 6.5 of IS 14246#	IR	√	P	V	V	#No lifting of paint.
3.5	Salt Spray Test	Corrosion Resistance/ Durability of paint	B	Visual & Measurement	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.6 & 5.4 of IS 14246 & BHEL Specn.	Cl 6.6 & 5.4 of IS 14246 & BHEL Specn.	MTC /IR	√	P	V	V	
4.0	FINAL INSPECTION													
4.1	Dimensional Inspection	Dimensions & Shapes	B	Visual & Measurement	100%	Min 1, max 10 *	BHEL PO & BHEL approved drawing		IR	√	P	W	V	*at random for each PO item. @shall be available on each pack of sheets.
4.2	Paint Inspection	Color, Shade & DFT	C		100%		BHEL PO	BHEL PO	IR	√	P	W	V	
4.3	Marking & Identification	PO no, Item, Material No, Project Name	B	100%	BHEL PO		BHEL PO	IR	√	P	W	V		
4.4	Packing along with Handling & Storage instructions to Sites@	Water-proof packing & Stability	B	100%	BHEL PO		BHEL PO	IR	√	P	W	-		

Notes:

- For Customer inspection, if applicable, the stages indicated under Column N shall be followed with specific approval of BHEL/Customer for Witness/Verification by Customer.
- The latest editions/revisions of the above mentioned/referred standards/procedures shall be used.

LEGEND: * RECORDS IDENTIFIED WITH "TICK" (√) SHALL BE ESSENTIALLY INCLUDED BY THE SUPPLIER IN QA DOCUMENTATION;
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MTC- Mill /Manufacturer's Test Certificate; IR- Inspection/Test Report; (R): Routine test; (I)/(Ts): Type test.

BHEL/TRICHY
MM/BOI/PURCHASE

REF:MM:PUR:BOI:ROOFSHEET

Pre-Qualification requirements (PQR) for the procurement of Roof sheets as per specification through Open Tender

Date :
Tender No & Date :
Supplier Name :
Supplier registered Address :
Supplier Plant Address :

A: Organizational Capability & Technical Competence:

Sl. No.	Pre –Qualification Criteria	Bidder acceptance / Bidder remarks
1.	Offers from bidders having basic in house manufacturing facilities for the enquired items are only eligible to participate. Offer from Traders, Distributors are not acceptable and will not be considered for evaluation. Vendor to indicate the nature of the Firm. (Trader/Distributor/Manufacturer). Product catalogue shall be submitted.	
2.	Compliance to Tendered Specification is mandatory for consideration of offer.	
3.	Compliance to Technical requirements & Quality Plan (if applicable) as per tendered specification against each item of enquiry.	
4.	Manufacturing plant address & available equipment's for manufacturing the tendered items shall be provided along with offer.	
5.	Suppliers shall submit Quality Management System certificate or Written down procedure.	
6.	Supplier shall have capacity to meet tender requirement.	
7.	Supplier offer will be considered subject to Customer Approval for Sagardighi and Bhuswal Contract.	
8.	BHEL reserve the right to inspect the item ordered at any stage at vendor's works and if found not meeting the stipulated conditions, material is liable for rejection.	

B: Past Experience/ Performance:

Sl. No.	Pre –Qualification Criteria	Bidder acceptance / Bidder remarks
1.	Suppliers shall indicate their annual installed capacity for the tendered specification & it shall be more than the tendered quantity.	
2.	Suppliers shall have supplied similar items to the tendered Scope/Specification.	
3.	Suppliers shall submit Supply credentials for last 3 years successful supply of Roof Sheets (i.e. PPGI or PPGL) like unpriced PO copies with corresponding proof of supply (such as invoice/bill of lading copies and test certificates covering shall be submitted.)	
4.	Supplier shall have to submit contact details of the customers to whom successful supply completed.	

BHEL/TRICHY
MM/BOI/PURCHASE

REF:MM:PUR:BOI:ROOFSHEET

Pre-Qualification requirements (PQR) for the procurement of Roof sheets as per specification through Open Tender

C. Financial Soundness:

Sl. No.	Pre –Qualification Criteria	Bidder acceptance / Bidder remarks
1.	Indigenous suppliers shall submit copies of annual reports (balance sheets), profit & Loss Statement for the last three years (or from date of incorporation whichever is less) and GST Certificate.	

Necessary supporting documents shall be submitted for meeting each of the above Pre-Qualification Criteria for technical evaluation of the offers.

BHEL reserves the right to consider/Not-consider the offers based on the evaluation of documents submitted for the above Pre-Qualification Criteria. If required, BHEL also reserves the right to verify information submitted by vendor. In case the information is found false/incorrect, the offer shall be rejected. BHEL also reserves the right to carry out audit checks for confirming the material properties on the supplied material during material receipt at BHEL. Supplies found defective during check or subsequent processing at BHEL will be rejected.

Revised ANNEXURE A

Maharashtra State Power Generation Company Limited			
Bhusawal Project (1x660MW)			
Proforma of Vendor Approval			
Sr. No.	Information/ Particulars required	Details furnished along with documents thereof	Remarks if any
1	Name of System /Package/Item:		
2	Name of agency on whom order for the main work is placed		
3	Approval for (Name of construction material)		
4	Name of the vendors specified in contract document for this material		
5	Name of the proposed Sub Contractor(Vendor)		
6	Reasons for asking new vendor		
7	Details of supporting documents in lieu of above reasons		
8	Specific requirement of material in terms of dia, size, quantity etc.		
9	When the material is required & for which structure		
10	Whether vendor is Partnership/ Pvt./Public Ltd. Company		
11	Particular of registration with Government		
	i) GST registration No.		
	ii) Company registration No. & Incorporation Certificate		
	iii) PF & ESIC Certificate.		
	iv) Pan No.		
12	Address of vendor's factory		
13	Contact No. of vendor's representative for additional information		
14	Production Business Area		
16	Average annual turnover for last three years as per CA's Certificate		
17	Name of Companies where the vendor is registered		
18	Details of orders completed last 3 years (Quantity & amount)		
19	Details of orders in hand (Quantity & amount)		
20	Maximum value & quantity of work executed during last 3 years		
21	Name of the reputed, well known clients to whom the vendor has supplied the material		
22	End users Performance Certificate (Name & documents) along with the relevant PO.		
23	Any additional information		
24	Recommendation		

Minutes of Meeting held on 13.02.2020 regarding Proforma and process of vendor approval between representatives of M/s BHEL and MSPGCL.

1. Revised Annexure A to be filled, signed, stamped and submitted by Sub-contractor and M/s BHEL.
2. All credential/documents shall be scrutinized by M/s BHEL.
3. M/s BHEL shall submit the related documents mentioned in revised Annexure A after the scrutiny at their end with recommendation.
4. At least one number of Purchase Order along with recent performance certificate of same P.O. is to be submitted as per bid specification. The performance certificate should have reference of purchase order and on End user letterhead.

M/s BHEL

MSPGCL

ITEM: PPGI. CORNER BARGE: 0.60X400X2440

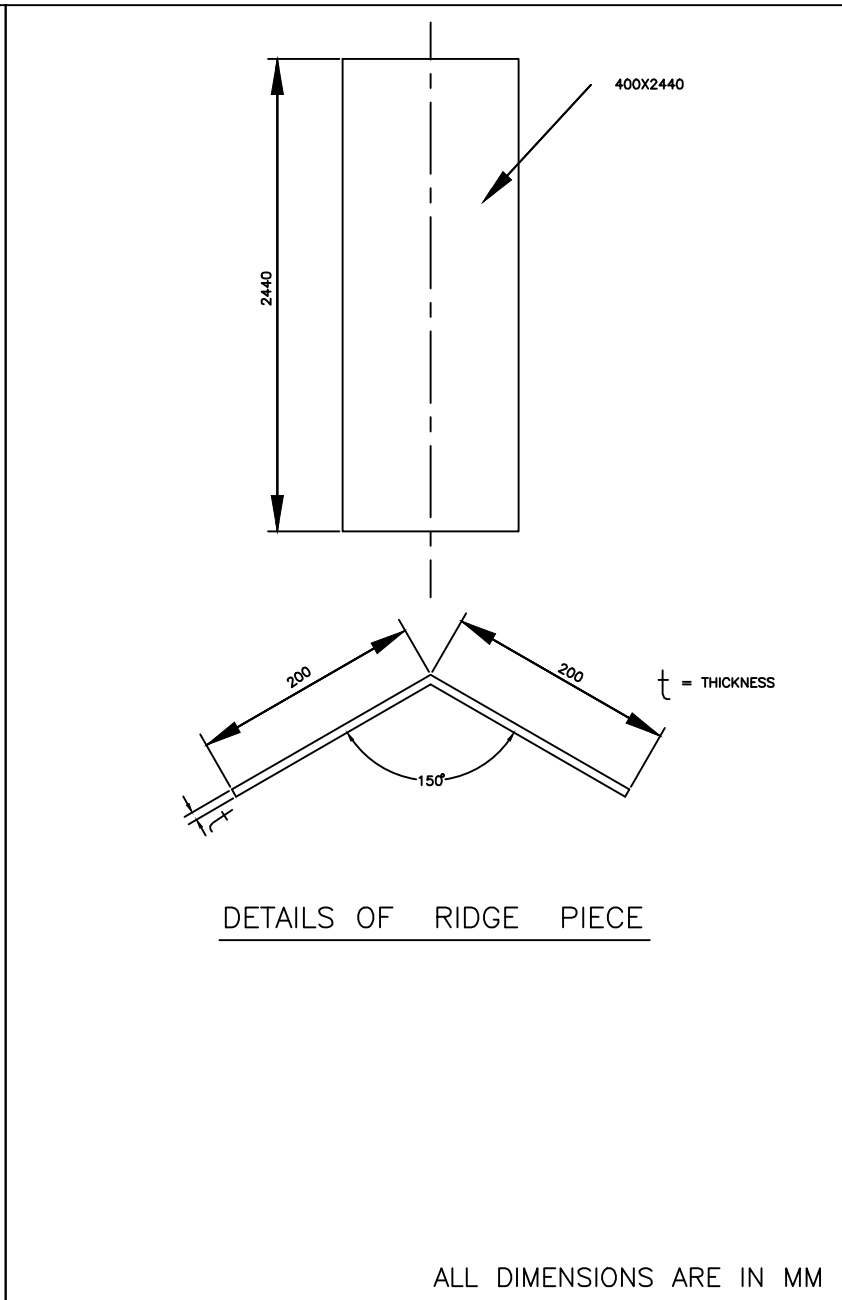
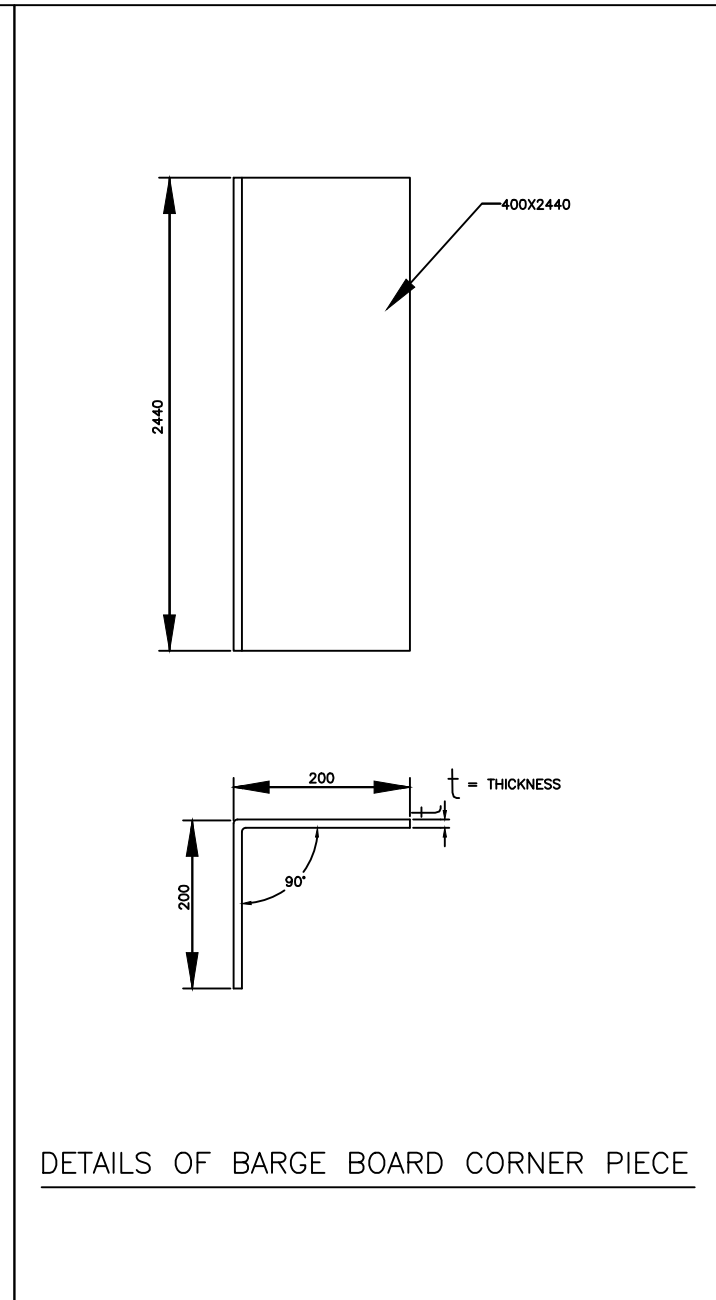
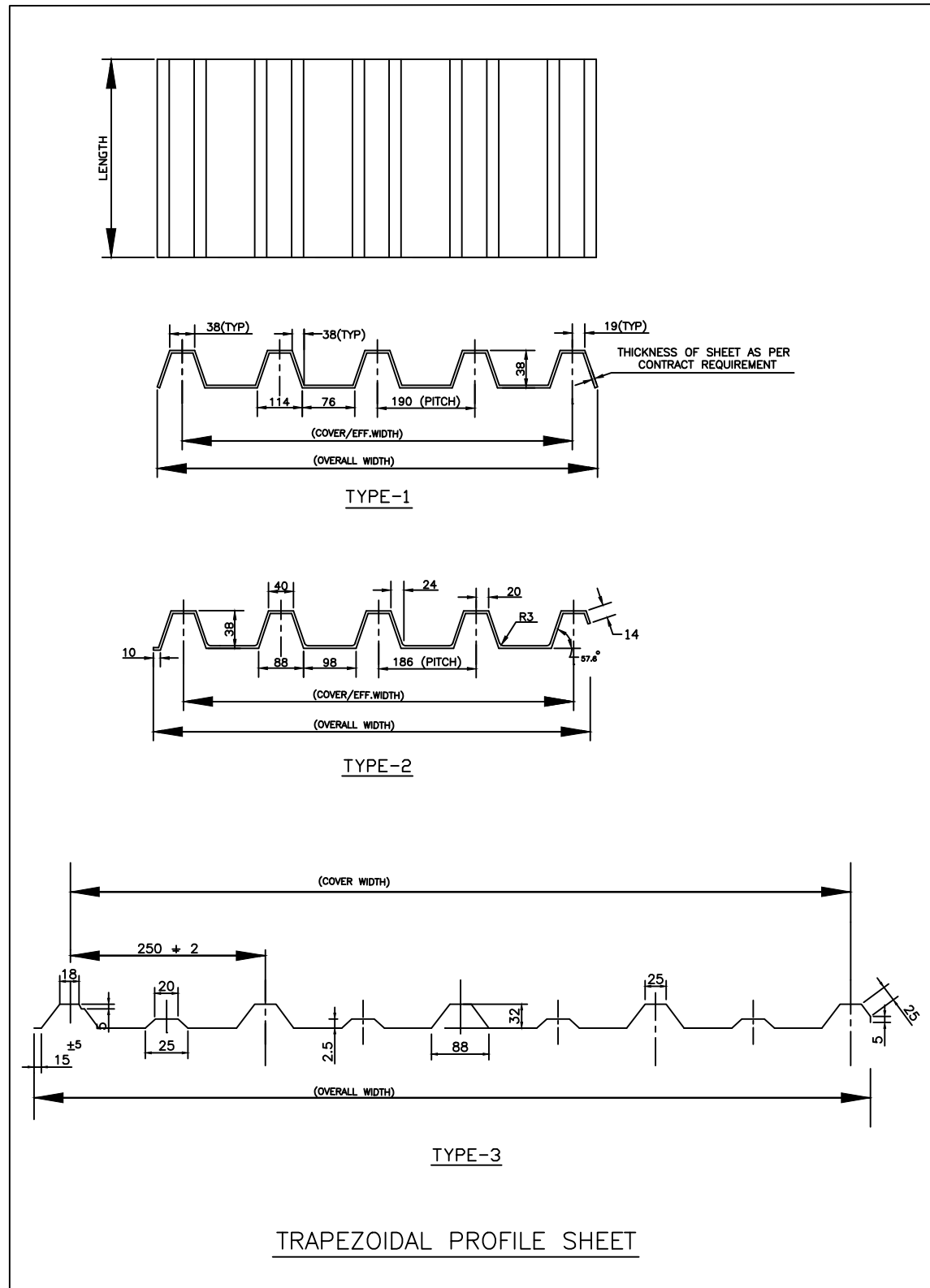
"HEAVY DUTY CLASS" SPECIFICATION CONTINUOUSLY PREPAINTED GALVANISED STEEL SHEETS TO SPECIFICATION I.S: 14246 AS PER FOLLOWING REQUIREMENTS.

BASE METAL : Mild steel as per I.S:513
NOMINAL THICKNESS : 0.6mm (Without negative tolerance) (i.e excluding the thickness of galvanizing and painting).
GALVANISING : The base metal shall be galvanised with minimum Grade of Zinc coating 275gms/sq.m as per I.S:277
TOP SIDE PAINT : Top side coating shall be 20 microns minimum of Silicon Modified Polyester (SMP) painting. The Top colour of sheets shall be BLUE (RAL 5012).
BOTTOM SIDE PAINT : Bottom side coating shall be 7 microns minimum of Silicon Modified Polyester (SMP) painting. Bottom side colour of sheets shall be Grey (RAL 9002).
DURABILITY OF PAINT: As per Class - 3 of I.S:14246

Note:

- Corner Barge shall be as per BHEL Drawing: 3-35-611-80440.
- Packing, Handling and storage of the sheets shall be as per the enclosed Packing, handling and storage instructions.
- BHEL Standard Quality Plan SQPSD02_01 enclosed to be followed.

Bhusawal Contract, Vendor approval is applicable, the supplier shall submit all the credentials as per Annexure A.



DETAILS OF BARGE BOARD CORNER PIECE

DETAILS OF RIDGE PIECE

ALL DIMENSIONS ARE IN MM

TRAPEZOIDAL PROFILE SHEET

DETAILS OF BARGE BOARD CORNER PIECE

ALL DIMENSIONS ARE IN MM

REV	DATE	ALTERED	S.SIVA
01	28/09/10	CHKD & APPD	S.MURALISANKAR
ZONE	NOTES AND DIMENSIONS REMOVED		

CAUTION: 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.

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT				Bharat Heavy Electricals Ltd UNIT: HIGH PRESSURE BOILER PLANT TIRUCHIRAPALLI - 620014	
DEPT FBC & HRSG	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE 1322			N.T.S		
TITLE				DRAWING NO :	REV
DETAILS OF TRAPEZOIDAL PROFILE SHEET, BARGE BOARD & RIDGE PIECE				3-35-611-80440	01

Handling and storage of coated steel products

Must be pasted on all packets clearly visible from outside

For longer life/durability after application, no wastage/damage of coated steel products below handling and storage guidelines are very important.

Handling

- 1) Use nylon/fiber felts for Handling. Do not use steel Wire rope/chains lifting /downloading / Moving
- 2) Use cushioning (wood /rubber) at bottom of & secure lashing & dunnaging **while** transportation.
- 3) Do not transport materials with water/chemicals/vegetables / animals/cement....
- 4) Unload carefully; avoid any packing damages due to unloading/handling.
- 5) If received wet & with damaged packing, Unpack, dry & repack.

Storage

- 1) Store materials on wooden support well over the flat & clean dry floor & temperature below 50°C.
- 2) Do not store materials on wet, damp, muddy floors /lands **directly**. If no option, use about 2 feet steel/ wooden platforms over such places for storing for only for few days.
- 3) Store in well ventilated, dry & protected from rain godowns/shades.
- 4) After Unpacking use materials within couple of days & balance materials remains if any, repack and store for further use.
- 5) Store away from chemicals / cement & any wet materials.

PACKING METHOD

PACKING DETAILS FOR PRE COATED GALVANIZED ROOF SHEET, PRECOATED GALVALUME ROOF SHEET, RIDGE PIECE, CORNER BARGE BOARD AND PLAIN SHEETS

Packing material for Pre Coated Products:

Sl No	Packing Materials(Layers)	Nos
1	LDPE	1
2	HDPE	1
3	Metal Box	1
4	Wooden pallet/Wooden Skid at bottom	Top metal box over bottom box as shown in figure-1
5	High tensile packing straps & tags	Along length 2, Along width every 1 m length + 2 tags.

SHEET PACKING:

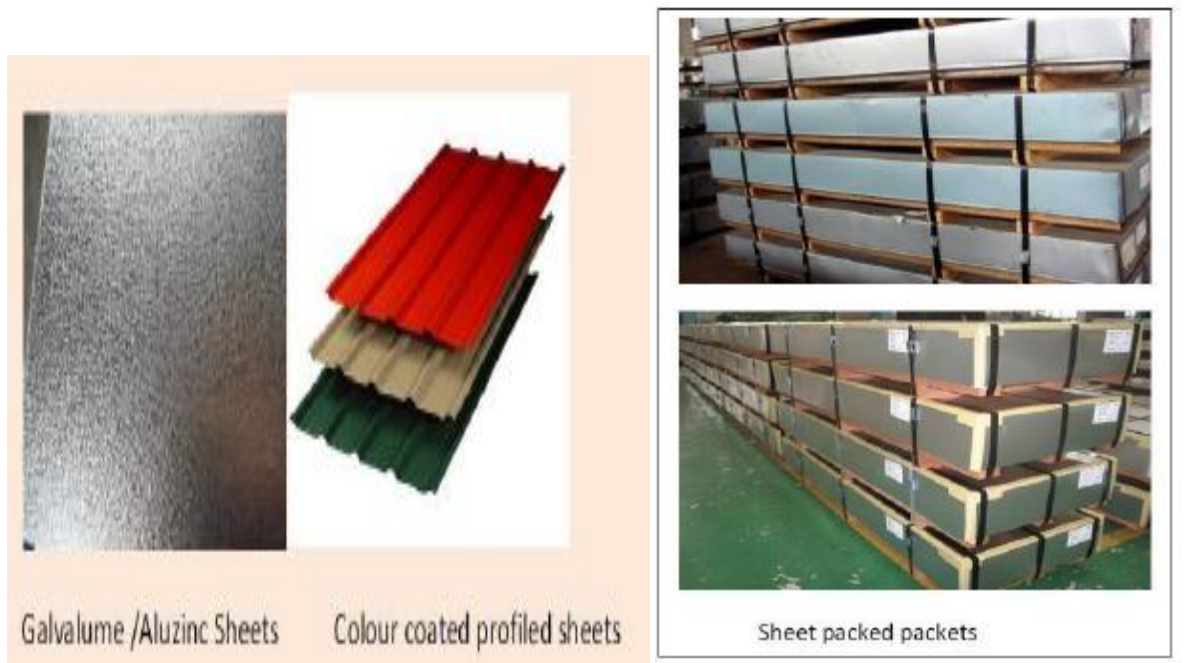


Figure-1

BHEL/TRICHY
MM/BOI/PURCHASE

REF:MM:PUR:BOI:ROOFSHEET

Pre-Qualification requirements (PQR) for the procurement of Roof sheets as per specification through Open Tender

Date :
Tender No & Date :
Supplier Name :
Supplier registered Address :
Supplier Plant Address :

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BHEL/TRICHY
MM/BOI/PURCHASE

REF:MM:PUR:BOI:ROOFSHEET

Pre-Qualification requirements (PQR) for the procurement of Roof sheets as per specification through Open Tender

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BHARAT HEAVY ELECTRICALS LIMITED
TIRUCHIRAPPALLI - 620 014, INDIA.
QUALITY ASSURANCE DEPARTMENT

STANDARD QUALITY PLAN FOR PRE-PAINTED GALVANIZED STEEL SHEETS

SQP:SD:02 Rev No: 01

Page: 1 of 3

Prepared By
Quality Assurance

ABDUR RAHMAN SULTAN

Abdur 16.08.2017

Reviewed by	Signature
Quality Assurance (G. PANNESSELVAN)	<i>[Signature]</i>
Engineering (M - SHANMUGAM)	<i>[Signature]</i>
Materials Management (M. RADHAKRISHNAN)	<i>[Signature]</i>
Quality Control R. DHARMAR	<i>[Signature]</i>

Rev No	Date	Approved by	Signature
01	16/08/2017	AGM / QA & BE	<i>Revised</i> 16/08/17

Record of Revisions

Rev No	Details of Revision	Remarks
00	Fresh Issue	
01	Cl. 1.0 , 3.1 to 3.5 revised, 3.6 to 3.8 removed based on feedback from MM	Raw material sources removed, Quantum of testing revised.

Proprietary Data - For Internal Use Only



MANUFACTURER'S
NAME & ADDRESS:
BHEL TIRUCHIRAPPALLI
APPROVED SUPPLIERS

STANDARD QUALITY PLAN

PRODUCT: PRE-PAINTED GALVANIZED STEEL SHEETS

SUB-SYSTEM : Steam Generator and Auxiliaries

QWI NO:SQP:SD:02

REV NO: 01 DATE: 16/08/2017

PAGE: 2 OF 3

SL. NO	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
					M	C				N	M	C	
1	2	3	4	5	M	C/N	7	8	9	D*	**	10	11

1.0 RAW MATERIALS

1.0	Steel Sheets/Coils	Chemical & Mechanical Properties (YS, TS, %Elong), Hardness, Cupping & bend tests	A	TC Verification	IS 513	IS 513	IS 513 & BHEL PO	IS 513 – Design CR1 Gr 390 & BHEL PO	MTC	√	P	V	V	
		Surface Finish	B	Visual	IS 513	IS 513	IS 513	Cl 8 of IS 513	MTC	√	P	V	-	
		Freedom from defects	B	Visual	IS 513	IS 513	IS 513	Cl 9 of IS 513	MTC	√	P	V	-	
		Dimensions	B	Measurement	IS 513	IS 513	IS 513	BHEL PO	MTC	√	P	V	-	

2.0 INPROCESS CONTROLS

GALVANIZING

2.1	Steel Sheets/Coils	Cleaning & Degreasing	A	Visual	100%	100%	IS 277 & BHEL PO	IS 277 & BHEL PO	Log	√	P	V	-	
2.2	Zinc Ingots*	Chemical properties	B	TC Verification	100%	100%	IS 209/ IS 13229	IS 209/ IS 13229	MTC	√	P	V	-	*Grade G250
2.3	Galvanization	Galvanizing	A	Visual	100%	100%	IS 277 & BHEL PO	IS 277 & BHEL PO	MTC	√	P	V	-	
2.4	Bend Test for zinc coating	Peeling of, flaking, cracking	B	Visual	Cl 8 of IS 277	Cl 8 of IS 277	Cl 8 of IS 277 & BHEL PO	Cl 8 of IS 277 & BHEL PO	IR	√	P	V	-	
2.5	Zinc Coating Test	Weight of coating of galvanizing*	B	Measurements	Cl 9 of IS 277	Cl 9 of IS 277	IS 277 & BHEL PO	IS 277 & BHEL PO	IR	√	P	V	-	*both sides inclusive: 275 gsm
2.6	Galvanized sheets/coils	Surface Finish	B	Visual	100%	100%	Cl 11 of IS 277	Cl 11 of IS 277	IR	√	P	V	-	

PAINTING & CORRUGATION

2.7	Paint Coating Selection	Paint Class, viscosity, etc.	B	Visual	100%	100%	BHEL PO	BHEL PO	MTC	√	P	V	-	
2.8	Alkali Cleaning; Rinsing with Hot & cold water*;	Cleanliness of galvanized Sheets before painting	A	Visual	100%	100%	Manufacturer's std	Freedom from oil, grease, dirt.	Log	√	P	V	-	* followed by Chromate soln treatment at room temperature
2.9	Painting: Primer on both sides; Top & bottom coats	Surface Preparation, Color Shade & DFT	B	Visual & Measurement	100%	100%	BHEL PO	BHEL PO	IR	√	P	V	-	
2.10	Corrugation of sheets *	Shape, Surface finish, peeling of paint on both sides	A	Visual	100%	100%	IS 277 & BHEL PO	IS 277 & BHEL PO	IR	√	P	V	-	*if applicable

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MANUFACTURER'S
NAME & ADDRESS:
BHEL TIRUCHIRAPPALLI
APPROVED SUPPLIERS

STANDARD QUALITY PLAN

PRODUCT: PRE-PAINTED GALVANIZED STEEL SHEETS

SUB-SYSTEM :Steam Generator and Auxiliaries

QWI NO:SQP:SD:02

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2.11	Sheets	Dimensions of Corrugated/plane sheets	B	Measurements	100%	100%	BHEL PO & BHEL approved drawing	BHEL PO & BHEL approved drawing	IR	√	P	V	-	
3	TESTING ON PAINTED COILS/SHEETS – Tests shall be done at manufacturer's lab or NABL accredited labs.													
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4.2	Paint Inspection	Color, Shade & DFT	C		100%		BHEL PO	BHEL PO	IR	√	P	W	V	
4.3	Marking & Identification	PO no, Item, Material No, Project Name	B	100%	BHEL PO		BHEL PO	IR	√	P	W	V		
4.4	Packing along with Handling & Storage instructions to Sites@	Water-proof packing & Stability	B	100%	BHEL PO		BHEL PO	IR	√	P	W	-		

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Revised ANNEXURE A

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Bhusawal Project (1x660MW)			
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2	Name of agency on whom order for the main work is placed		
3	Approval for (Name of construction material)		
4	Name of the vendors specified in contract document for this material		
5	Name of the proposed Sub Contractor(Vendor)		
6	Reasons for asking new vendor		
7	Details of supporting documents in lieu of above reasons		
8	Specific requirement of material in terms of dia, size, quantity etc.		
9	When the material is required & for which structure		
10	Whether vendor is Partnership/ Pvt./Public Ltd. Company		
11	Particular of registration with Government		
	i) GST registration No.		
	ii) Company registration No. & Incorporation Certificate		
	iii) PF & ESIC Certificate.		
	iv) Pan No.		
12	Address of vendor's factory		
13	Contact No. of vendor's representative for additional information		
14	Production Business Area		
16	Average annual turnover for last three years as per CA's Certificate		
17	Name of Companies where the vendor is registered		
18	Details of orders completed last 3 years (Quantity & amount)		
19	Details of orders in hand (Quantity & amount)		
20	Maximum value & quantity of work executed during last 3 years		
21	Name of the reputed, well known clients to whom the vendor has supplied the material		
22	End users Performance Certificate (Name & documents) along with the relevant PO.		
23	Any additional information		
24	Recommendation		

Minutes of Meeting held on 13.02.2020 regarding Proforma and process of vendor approval between representatives of M/s BHEL and MSPGCL.

1. Revised Annexure A to be filled, signed, stamped and submitted by Sub-contractor and M/s BHEL.
2. All credential/documents shall be scrutinized by M/s BHEL.
3. M/s BHEL shall submit the related documents mentioned in revised Annexure A after the scrutiny at their end with recommendation.
4. At least one number of Purchase Order along with recent performance certificate of same P.O. is to be submitted as per bid specification. The performance certificate should have reference of purchase order and on End user letterhead.

M/s BHEL

MSPGCL

ITEM: PPGI. PLAIN SHEET: 0.60X1000X3000

PREPAINTED GALVANISED STEEL SHEETS TO SPECIFICATION AS PER FOLLOWING REQUIREMENTS.

BASE METAL: Base metal of grade G250 as per AS1397 / grade SS255 as per ASTM A653M / grade S250GD as per EN 10326.

NOMINAL THICKNESS: 0.60 MM base metal thickness (i.e excluding the thickness of galvanizing and painting).

GALVANIZING: The base metal shall be galvanized with minimum grade of zinc coating to class Z275.

TOP SIDE PAINT: Top side coating shall be 20 microns minimum of Silicon Modified Polyester (SMP with silicon content 30% to 50%) over primer (minimum 5 microns). The Top colour of sheets shall be BLUE (RAL 5012)

BOTTOM SIDE PAINTING: Bottom side coating shall be 10 microns minimum of Silicon Modified Polyester (SMP with silicon content 30% to 50%) over primer (minimum 5 microns). Bottom side colour of sheets shall be Grey (RAL 9002)

DURABILITY OF PAINT: Industrial finish of product type 4 as per AS/NZ2728.

Note:

- Packing, Handling and storage of the sheets shall be as per the enclosed Packing, handling and storage instructions.
- BHEL Standard Quality Plan SQPSD02_01 enclosed to be followed

Handling and storage of coated steel products

Must be pasted on all packets clearly visible from outside

For longer life/durability after application, no wastage/damage of coated steel products below handling and storage guidelines are very important.

Handling

- 1) Use nylon/fiber felts for Handling. Do not use steel Wire rope/chains lifting /downloading / Moving
- 2) Use cushioning (wood /rubber) at bottom of & secure lashing & dunnaging **while** transportation.
- 3) Do not transport materials with water/chemicals/vegetables / animals/cement....
- 4) Unload carefully; avoid any packing damages due to unloading/handling.
- 5) If received wet & with damaged packing, Unpack, dry & repack.

Storage

- 1) Store materials on wooden support well over the flat & clean dry floor & temperature below 50°C.
- 2) Do not store materials on wet, damp, muddy floors /lands **directly**. If no option, use about 2 feet steel/ wooden platforms over such places for storing for only for few days.
- 3) Store in well ventilated, dry & protected from rain godowns/shades.
- 4) After Unpacking use materials within couple of days & balance materials remains if any, repack and store for further use.
- 5) Store away from chemicals / cement & any wet materials.

PACKING METHOD

PACKING DETAILS FOR PRE COATED GALVANIZED ROOF SHEET, PRECOATED GALVALUME ROOF SHEET, RIDGE PIECE, CORNER BARGE BOARD AND PLAIN SHEETS

Packing material for Pre Coated Products:

Sl No	Packing Materials(Layers)	Nos
1	LDPE	1
2	HDPE	1
3	Metal Box	1
4	Wooden pallet/Wooden Skid at bottom	Top metal box over bottom box as shown in figure-1
5	High tensile packing straps & tags	Along length 2, Along width every 1 m length + 2 tags.

SHEET PACKING:

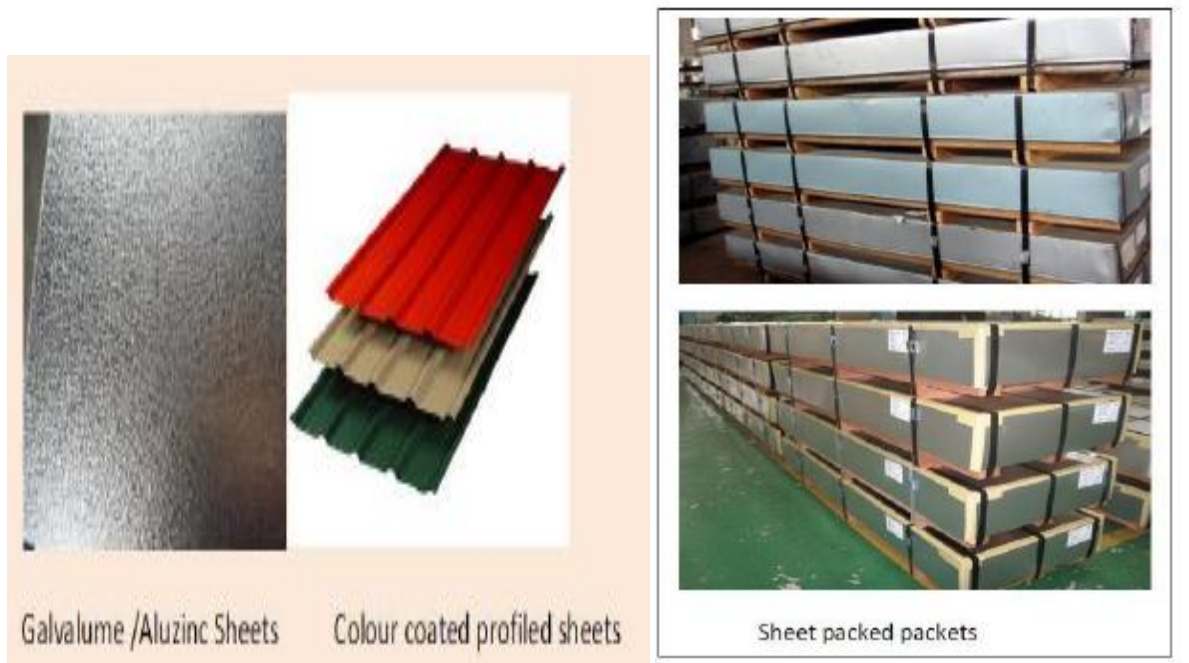


Figure-1



BHARAT HEAVY ELECTRICALS LIMITED
TIRUCHIRAPPALLI - 620 014, INDIA.
QUALITY ASSURANCE DEPARTMENT

STANDARD QUALITY PLAN FOR PRE-PAINTED GALVANIZED STEEL SHEETS

SQP:SD:02 Rev No: 01

Page: 1 of 3

Prepared By
Quality Assurance

ABDUR RAHMAN SULTAN

Abdur 16.08.2017

Reviewed by	Signature
Quality Assurance (G. PANNERSELVAN)	<i>[Signature]</i>
Engineering (M - SHANMUGAM)	<i>[Signature]</i>
Materials Management (M. RADHAKRISHNAN)	<i>[Signature]</i>
Quality Control R. DHARMAR	<i>[Signature]</i>

Rev No	Date	Approved by	Signature
01	16/08/2017	AGM / QA & BE	<i>Revised</i> 16/08/17

Record of Revisions

Rev No	Details of Revision	Remarks
00	Fresh Issue	
01	Cl. 1.0, 3.1 to 3.5 revised, 3.6 to 3.8 removed based on feedback from MM	Raw material sources removed, Quantum of testing revised.

Proprietary Data - For Internal Use Only



MANUFACTURER'S
NAME & ADDRESS:
BHEL TIRUCHIRAPPALLI
APPROVED SUPPLIERS

STANDARD QUALITY PLAN

PRODUCT: PRE-PAINTED GALVANIZED STEEL SHEETS

SUB-SYSTEM :Steam Generator and Auxiliaries

QWI NO:SQP:SD:02

REV NO: 01 DATE: 16/08/2017

PAGE: 2 OF 3

SL. NO	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
					M	C				N	M	C	
1	2	3	4	5	M	C/N	7	8	9	D*	**	10	11

1.0 RAW MATERIALS

1.0	Steel Sheets/Coils	Chemical & Mechanical Properties (YS, TS, %Elong), Hardness, Cupping & bend tests	A	TC Verification	IS 513	IS 513	IS 513 & BHEL PO	IS 513 – Design CR1 Gr 390 & BHEL PO	MTC	√	P	V	V	
		Surface Finish	B	Visual	IS 513	IS 513	IS 513	Cl 8 of IS 513	MTC	√	P	V	-	
		Freedom from defects	B	Visual	IS 513	IS 513	IS 513	Cl 9 of IS 513	MTC	√	P	V	-	
		Dimensions	B	Measurement	IS 513	IS 513	IS 513	BHEL PO	MTC	√	P	V	-	

2.0 INPROCESS CONTROLS

GALVANIZING

2.1	Steel Sheets/Coils	Cleaning & Degreasing	A	Visual	100%	100%	IS 277 & BHEL PO	IS 277 & BHEL PO	Log	√	P	V	-	
2.2	Zinc Ingots*	Chemical properties	B	TC Verification	100%	100%	IS 209/ IS 13229	IS 209/ IS 13229	MTC	√	P	V	-	*Grade G250
2.3	Galvanization	Galvanizing	A	Visual	100%	100%	IS 277 & BHEL PO	IS 277 & BHEL PO	MTC	√	P	V	-	
2.4	Bend Test for zinc coating	Peeling of, flaking, cracking	B	Visual	Cl 8 of IS 277	Cl 8 of IS 277	Cl 8 of IS 277 & BHEL PO	Cl 8 of IS 277 & BHEL PO	IR	√	P	V	-	
2.5	Zinc Coating Test	Weight of coating of galvanizing*	B	Measurements	Cl 9 of IS 277	Cl 9 of IS 277	IS 277 & BHEL PO	IS 277 & BHEL PO	IR	√	P	V	-	*both sides inclusive: 275 gsm
2.6	Galvanized sheets/coils	Surface Finish	B	Visual	100%	100%	Cl 11 of IS 277	Cl 11 of IS 277	IR	√	P	V	-	

PAINTING & CORRUGATION

2.7	Paint Coating Selection	Paint Class, viscosity, etc.	B	Visual	100%	100%	BHEL PO	BHEL PO	MTC	√	P	V	-	
2.8	Alkali Cleaning; Rinsing with Hot & cold water*;	Cleanliness of galvanized Sheets before painting	A	Visual	100%	100%	Manufacturer's std	Freedom from oil, grease, dirt.	Log	√	P	V	-	* followed by Chromate soln treatment at room temperature
2.9	Painting: Primer on both sides; Top & bottom coats	Surface Preparation, Color Shade & DFT	B	Visual & Measurement	100%	100%	BHEL PO	BHEL PO	IR	√	P	V	-	
2.10	Corrugation of sheets *	Shape, Surface finish, peeling of paint on both sides	A	Visual	100%	100%	IS 277 & BHEL PO	IS 277 & BHEL PO	IR	√	P	V	-	*if applicable

LEGEND: * RECORDS IDENTIFIED WITH "TICK" (√) SHALL BE ESSENTIALLY INCLUDED BY THE SUPPLIER IN QA DOCUMENTATION;
**** M:** MANUFACTURER (COIL/PROFILER), **C:** BHEL QC/BHEL AIA, **N:** CUSTOMER; **P:** PERFORM. **W:** WITNESS, **V:** VERIFICATION; **CLASS:** A - CRITICAL ; B - MAJOR ; C - MINOR;
MTC- Mill /Manufacturer's Test Certificate; IR- Inspection/Test Report; (R): Routine test; (I)/(Ts): Type test.



MANUFACTURER'S
NAME & ADDRESS:
BHEL TIRUCHIRAPPALLI
APPROVED SUPPLIERS

STANDARD QUALITY PLAN

PRODUCT: PRE-PAINTED GALVANIZED STEEL SHEETS

SUB-SYSTEM :Steam Generator and Auxiliaries

QWI NO:SQP:SD:02

REV NO: 01 DATE: 16/08/2017

PAGE: 3 OF 3

SL. NO	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
					M	C				N	M	C	
1	2	3	4	5	M	C/N	7	8	9	D*	**	10	11

2.11	Sheets	Dimensions of Corrugated/plane sheets	B	Measurements	100%	100%	BHEL PO & BHEL approved drawing	BHEL PO & BHEL approved drawing	IR	√	P	V	-	
3	TESTING ON PAINTED COILS/SHEETS – Tests shall be done at manufacturer's lab or NABL accredited labs.													
3.1	Bend Test	Peeling or crack of Paint	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.2 of IS 14246	Cl 6.2 of IS 14246*	IR	√	P	V	V	*No peeling or cracking of paint.
3.2	Pencil Hardness Test (2H)	Scratch proof	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.3 of IS 14246	Cl 6.3 of IS 14246#	IR	√	P	V	V	#No scratch
3.3	Impact Resistance Test	Impact resistance	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.4 of IS 14246	Cl 6.4 of IS 14246*	IR	√	P	V	V	*No peeling or cracking of paint.
3.4	Cross Hatch Test	No lifting of paint	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.5 of IS 14246	Cl 6.5 of IS 14246#	IR	√	P	V	V	#No lifting of paint.
3.5	Salt Spray Test	Corrosion Resistance/ Durability of paint	B	Visual & Measurement	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.6 & 5.4 of IS 14246 & BHEL Specn.	Cl 6.6 & 5.4 of IS 14246 & BHEL Specn.	MTC /IR	√	P	V	V	
4.0	FINAL INSPECTION													
4.1	Dimensional Inspection	Dimensions & Shapes	B	Visual & Measurement	100%	Min 1, max 10 *	BHEL PO & BHEL approved drawing		IR	√	P	W	V	*at random for each PO item. @shall be available on each pack of sheets.
4.2	Paint Inspection	Color, Shade & DFT	C		100%		BHEL PO	BHEL PO	IR	√	P	W	V	
4.3	Marking & Identification	PO no, Item, Material No, Project Name	B	Visual	100%		BHEL PO	BHEL PO	IR	√	P	W	V	
4.4	Packing along with Handling & Storage instructions to Sites@	Water-proof packing & Stability	B	Visual	100%		BHEL PO	BHEL PO	IR	√	P	W	-	

Notes:

- For Customer inspection, if applicable, the stages indicated under Column N shall be followed with specific approval of BHEL/Customer for Witness/Verification by Customer.
- The latest editions/revisions of the above mentioned/referred standards/procedures shall be used.

LEGEND: * RECORDS IDENTIFIED WITH "TICK" (√) SHALL BE ESSENTIALLY INCLUDED BY THE SUPPLIER IN QA DOCUMENTATION;
**** M:** MANUFACTURER (COIL/PROFILER), **C:** BHEL QC/BHEL AIA, **N:** CUSTOMER; **P:** PERFORM. **W:** WITNESS, **V:** VERIFICATION; **CLASS:** A - CRITICAL ; B - MAJOR ; C - MINOR;
MTC- Mill /Manufacturer's Test Certificate; IR- Inspection/Test Report; (R): Routine test; (I)/(Ts): Type test.

BHEL/TRICHY
MM/BOI/PURCHASE

REF:MM:PUR:BOI:ROOFSHEET

Pre-Qualification requirements (PQR) for the procurement of Roof sheets as per specification through Open Tender

Date :
Tender No & Date :
Supplier Name :
Supplier registered Address :
Supplier Plant Address :

A: Organizational Capability & Technical Competence:

Sl. No.	Pre –Qualification Criteria	Bidder acceptance / Bidder remarks
1.	Offers from bidders having basic in house manufacturing facilities for the enquired items are only eligible to participate. Offer from Traders, Distributors are not acceptable and will not be considered for evaluation. Vendor to indicate the nature of the Firm. (Trader/Distributor/Manufacturer). Product catalogue shall be submitted.	
2.	Compliance to Tendered Specification is mandatory for consideration of offer.	
3.	Compliance to Technical requirements & Quality Plan (if applicable) as per tendered specification against each item of enquiry.	
4.	Manufacturing plant address & available equipment's for manufacturing the tendered items shall be provided along with offer.	
5.	Suppliers shall submit Quality Management System certificate or Written down procedure.	
6.	Supplier shall have capacity to meet tender requirement.	
7.	Supplier offer will be considered subject to Customer Approval for Sagardighi and Bhuswal Contract.	
8.	BHEL reserve the right to inspect the item ordered at any stage at vendor's works and if found not meeting the stipulated conditions, material is liable for rejection.	

B: Past Experience/ Performance:

Sl. No.	Pre –Qualification Criteria	Bidder acceptance / Bidder remarks
1.	Suppliers shall indicate their annual installed capacity for the tendered specification & it shall be more than the tendered quantity.	
2.	Suppliers shall have supplied similar items to the tendered Scope/Specification.	
3.	Suppliers shall submit Supply credentials for last 3 years successful supply of Roof Sheets (i.e. PPGI or PPGL) like unpriced PO copies with corresponding proof of supply (such as invoice/bill of lading copies and test certificates covering shall be submitted.)	
4.	Supplier shall have to submit contact details of the customers to whom successful supply completed.	

BHEL/TRICHY
MM/BOI/PURCHASE

REF:MM:PUR:BOI:ROOFSHEET

Pre-Qualification requirements (PQR) for the procurement of Roof sheets as per specification through Open Tender

C. Financial Soundness:

Sl. No.	Pre –Qualification Criteria	Bidder acceptance / Bidder remarks
1.	Indigenous suppliers shall submit copies of annual reports (balance sheets), profit & Loss Statement for the last three years (or from date of incorporation whichever is less) and GST Certificate.	

Necessary supporting documents shall be submitted for meeting each of the above Pre-Qualification Criteria for technical evaluation of the offers.

BHEL reserves the right to consider/Not-consider the offers based on the evaluation of documents submitted for the above Pre-Qualification Criteria. If required, BHEL also reserves the right to verify information submitted by vendor. In case the information is found false/incorrect, the offer shall be rejected. BHEL also reserves the right to carry out audit checks for confirming the material properties on the supplied material during material receipt at BHEL. Supplies found defective during check or subsequent processing at BHEL will be rejected.

ITEM: PPGI. RIDGE PIECE: 0.60X400X2440

PREPAINTED GALVANISED STEEL SHEETS TO SPECIFICATION AS PER FOLLOWING REQUIREMENTS.

BASE METAL: Base metal of grade G250 as per AS1397 / grade SS255 as per ASTM A653M / grade S250GD as per EN 10326.

NOMINAL THICKNESS: 0.60 MM base metal thickness (i.e excluding the thickness of galvanizing and painting).

GALVANIZING: The base metal shall be galvanized with minimum grade of zinc coating to class Z275.

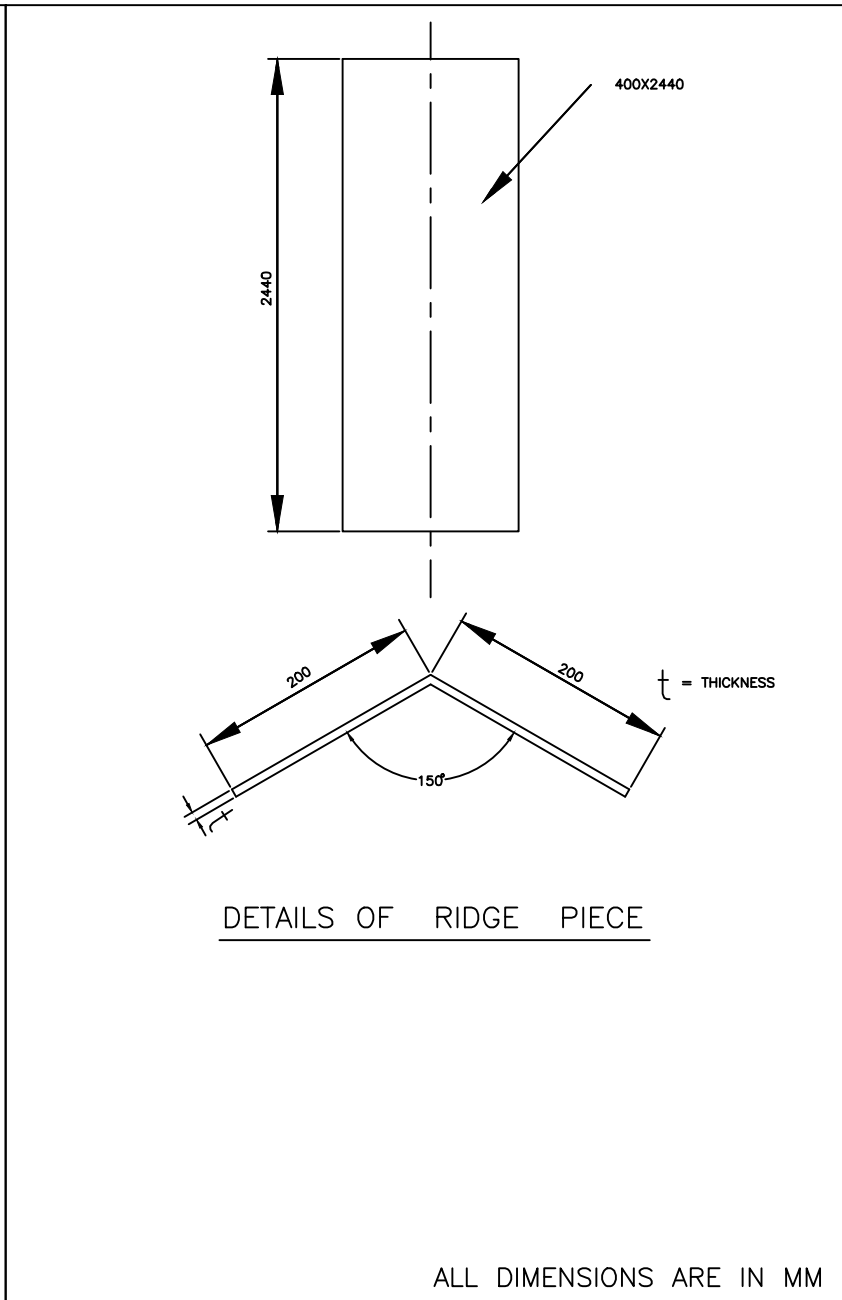
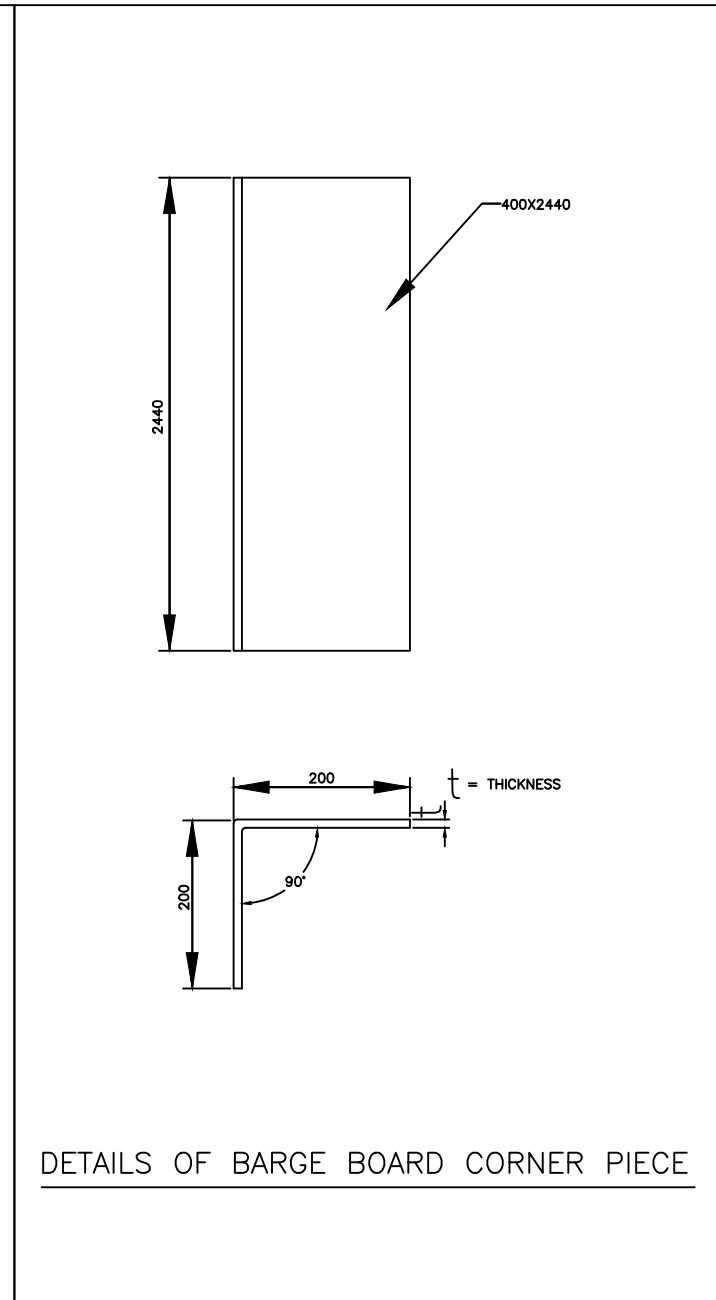
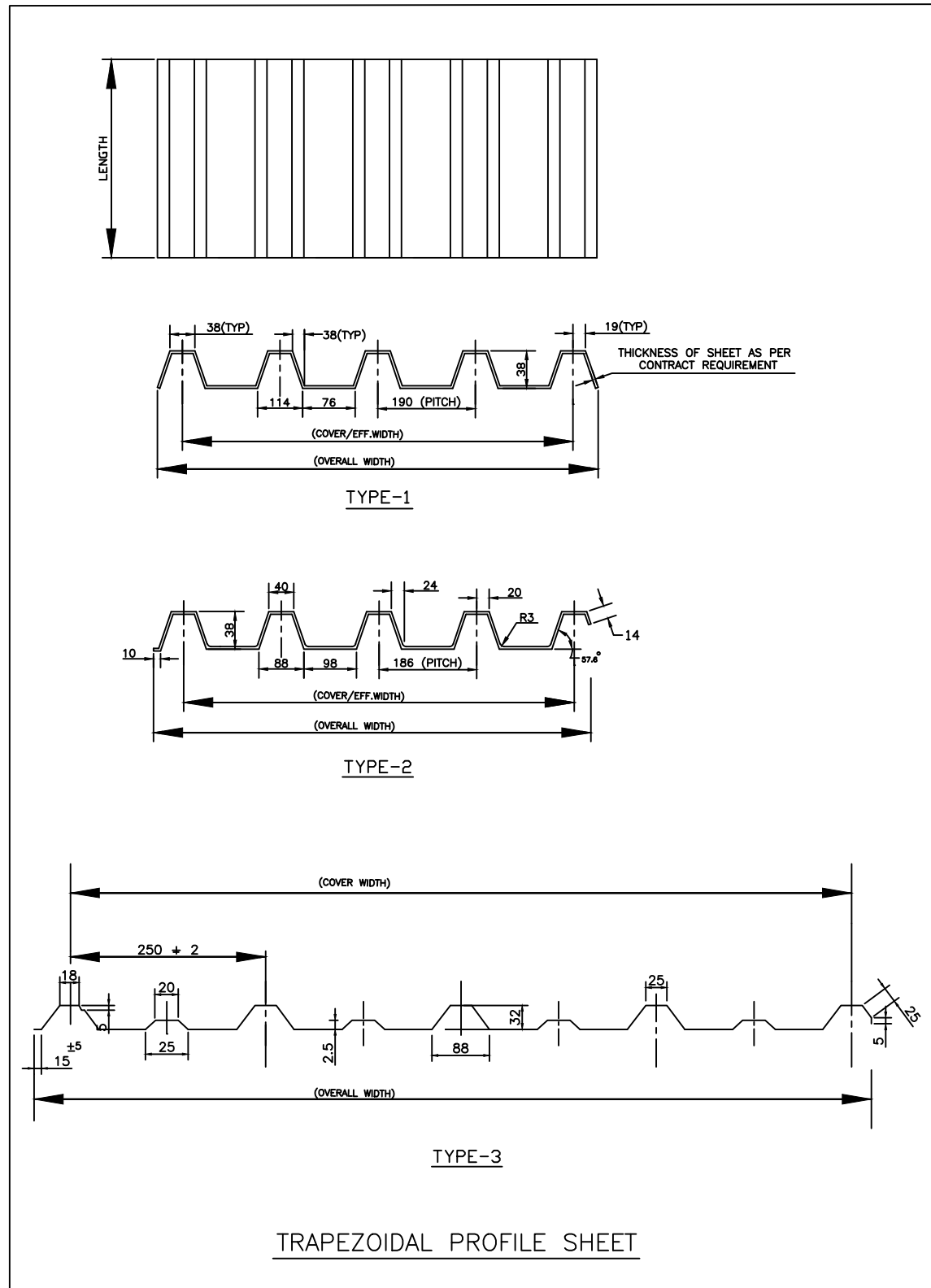
TOP SIDE PAINT: Top side coating shall be 20 microns minimum of Silicon Modified Polyester (SMP with silicon content 30% to 50%) over primer (minimum 5 microns). The Top colour of sheets shall be BLUE (RAL 5012)

BOTTOM SIDE PAINTING: Bottom side coating shall be 10 microns minimum of Silicon Modified Polyester (SMP with silicon content 30% to 50%) over primer (minimum 5 microns). Bottom side colour of sheets shall be Grey (RAL 9002)

DURABILITY OF PAINT: Industrial finish of product type 4 as per AS/NZ2728.

Note:

- Ridge Piece shall be as per BHEL Drawing: 3-35-611-80440.
- Packing, Handling and storage of the sheets shall be as per the enclosed Packing, handling and storage instructions.
- BHEL Standard Quality Plan SQPSD02_01 enclosed to be followed



ALL DIMENSIONS ARE IN MM

REV	DATE	ALTERED	S.SIVA
01	28/09/10	CHKD & APPD	S.MURALISANKAR
ZONE	NOTES AND DIMENSIONS REMOVED		

CAUTION: 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.

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT				Bharat Heavy Electricals Ltd UNIT: HIGH PRESSURE BOILER PLANT TIRUCHIRAPALLI - 620014	
DEPT FBC & HRSG	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE 1322			N.T.S		
TITLE				DRAWING NO :	REV
DETAILS OF TRAPEZOIDAL PROFILE SHEET, BARGE BOARD & RIDGE PIECE				3-35-611-80440	01

Handling and storage of coated steel products

Must be pasted on all packets clearly visible from outside

For longer life/durability after application, no wastage/damage of coated steel products below handling and storage guidelines are very important.

Handling

- 1) Use nylon/fiber felts for Handling. Do not use steel Wire rope/chains lifting /downloading / Moving
- 2) Use cushioning (wood /rubber) at bottom of & secure lashing & dunnaging **while** transportation.
- 3) Do not transport materials with water/chemicals/vegetables / animals/cement....
- 4) Unload carefully; avoid any packing damages due to unloading/handling.
- 5) If received wet & with damaged packing, Unpack, dry & repack.

Storage

- 1) Store materials on wooden support well over the flat & clean dry floor & temperature below 50°C.
- 2) Do not store materials on wet, damp, muddy floors /lands **directly**. If no option, use about 2 feet steel/ wooden platforms over such places for storing for only for few days.
- 3) Store in well ventilated, dry & protected from rain godowns/shades.
- 4) After Unpacking use materials within couple of days & balance materials remains if any, repack and store for further use.
- 5) Store away from chemicals / cement & any wet materials.

PACKING METHOD

PACKING DETAILS FOR PRE COATED GALVANIZED ROOF SHEET, PRECOATED GALVALUME ROOF SHEET, RIDGE PIECE, CORNER BARGE BOARD AND PLAIN SHEETS

Packing material for Pre Coated Products:

Sl No	Packing Materials(Layers)	Nos
1	LDPE	1
2	HDPE	1
3	Metal Box	1
4	Wooden pallet/Wooden Skid at bottom	Top metal box over bottom box as shown in figure-1
5	High tensile packing straps & tags	Along length 2, Along width every 1 m length + 2 tags.

SHEET PACKING:

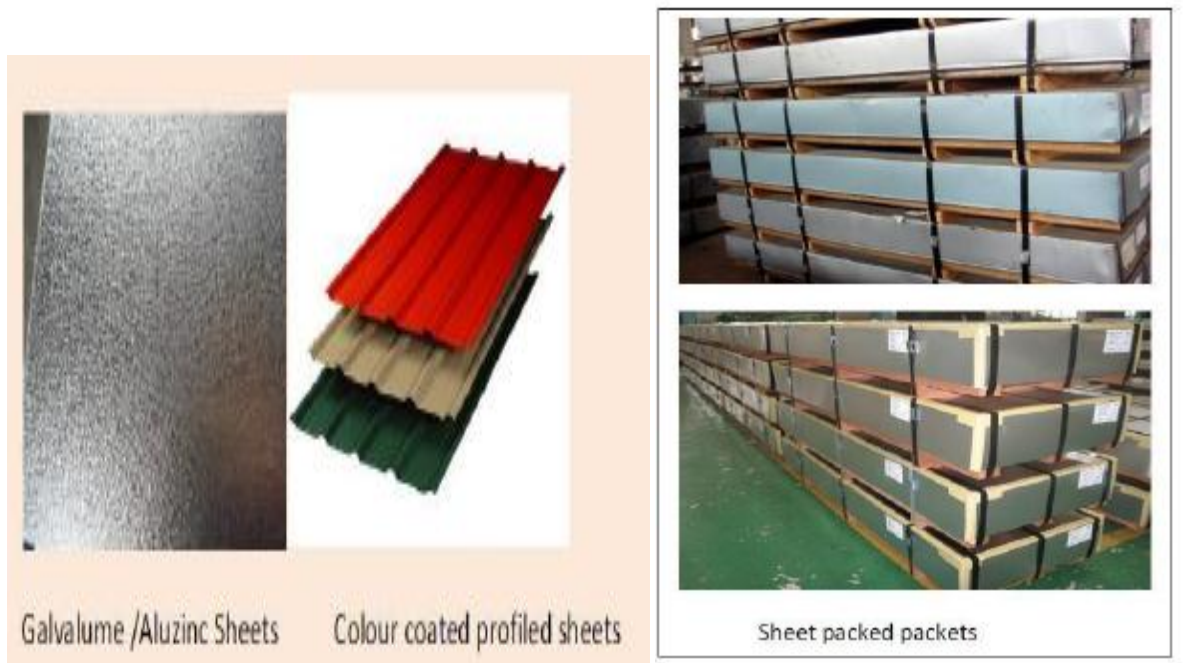


Figure-1



BHARAT HEAVY ELECTRICALS LIMITED
TIRUCHIRAPPALLI - 620 014, INDIA.
QUALITY ASSURANCE DEPARTMENT

STANDARD QUALITY PLAN FOR PRE-PAINTED GALVANIZED STEEL SHEETS

SQP:SD:02 Rev No: 01

Page: 1 of 3

Prepared By
Quality Assurance

ABDUR RAHMAN SULTAN

Abdur 16.08.2017

Reviewed by	Signature
Quality Assurance (G. PANNERSELVAN)	<i>[Signature]</i>
Engineering (M - SHANMUGAM)	<i>[Signature]</i>
Materials Management (M. RADHAKRISHNAN)	<i>[Signature]</i>
Quality Control R. DHARMAR	<i>[Signature]</i>

Rev No	Date	Approved by	Signature
01	16/08/2017	AGM / QA & BE	<i>Revised</i> 16/08/17

Record of Revisions

Rev No	Details of Revision	Remarks
00	Fresh Issue	
01	Cl. 1.0 , 3.1 to 3.5 revised, 3.6 to 3.8 removed based on feedback from MM	Raw material sources removed, Quantum of testing revised.

Proprietary Data - For Internal Use Only



MANUFACTURER'S
NAME & ADDRESS:
BHEL TIRUCHIRAPPALLI
APPROVED SUPPLIERS

STANDARD QUALITY PLAN

PRODUCT: PRE-PAINTED GALVANIZED STEEL SHEETS

SUB-SYSTEM :Steam Generator and Auxiliaries

QWI NO:SQP:SD:02

REV NO: 01 DATE: 16/08/2017

PAGE: 2 OF 3

SL. NO	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
					M	C				N	M	C	
1	2	3	4	5	M	C/N	7	8	9	D*	**	10	11

1.0 RAW MATERIALS

1.0	Steel Sheets/Coils	Chemical & Mechanical Properties (YS, TS, %Elong), Hardness, Cupping & bend tests	A	TC Verification	IS 513	IS 513	IS 513 & BHEL PO	IS 513 – Design CR1 Gr 390 & BHEL PO	MTC	√	P	V	V	
		Surface Finish	B	Visual	IS 513	IS 513	IS 513	Cl 8 of IS 513	MTC	√	P	V	-	
		Freedom from defects	B	Visual	IS 513	IS 513	IS 513	Cl 9 of IS 513	MTC	√	P	V	-	
		Dimensions	B	Measurement	IS 513	IS 513	IS 513	BHEL PO	MTC	√	P	V	-	

2.0 INPROCESS CONTROLS

GALVANIZING

2.1	Steel Sheets/Coils	Cleaning & Degreasing	A	Visual	100%	100%	IS 277 & BHEL PO	IS 277 & BHEL PO	Log	√	P	V	-	
2.2	Zinc Ingots*	Chemical properties	B	TC Verification	100%	100%	IS 209/ IS 13229	IS 209/ IS 13229	MTC	√	P	V	-	*Grade G250
2.3	Galvanization	Galvanizing	A	Visual	100%	100%	IS 277 & BHEL PO	IS 277 & BHEL PO	MTC	√	P	V	-	
2.4	Bend Test for zinc coating	Peeling of, flaking, cracking	B	Visual	Cl 8 of IS 277	Cl 8 of IS 277	Cl 8 of IS 277 & BHEL PO	Cl 8 of IS 277 & BHEL PO	IR	√	P	V	-	
2.5	Zinc Coating Test	Weight of coating of galvanizing*	B	Measurements	Cl 9 of IS 277	Cl 9 of IS 277	IS 277 & BHEL PO	IS 277 & BHEL PO	IR	√	P	V	-	*both sides inclusive: 275 gsm
2.6	Galvanized sheets/coils	Surface Finish	B	Visual	100%	100%	Cl 11 of IS 277	Cl 11 of IS 277	IR	√	P	V	-	

PAINTING & CORRUGATION

2.7	Paint Coating Selection	Paint Class, viscosity, etc.	B	Visual	100%	100%	BHEL PO	BHEL PO	MTC	√	P	V	-	
2.8	Alkali Cleaning; Rinsing with Hot & cold water*;	Cleanliness of galvanized Sheets before painting	A	Visual	100%	100%	Manufacturer's std	Freedom from oil, grease, dirt.	Log	√	P	V	-	* followed by Chromate soln treatment at room temperature
2.9	Painting: Primer on both sides; Top & bottom coats	Surface Preparation, Color Shade & DFT	B	Visual & Measurement	100%	100%	BHEL PO	BHEL PO	IR	√	P	V	-	
2.10	Corrugation of sheets *	Shape, Surface finish, peeling of paint on both sides	A	Visual	100%	100%	IS 277 & BHEL PO	IS 277 & BHEL PO	IR	√	P	V	-	*if applicable

LEGEND: * RECORDS IDENTIFIED WITH "TICK" (√) SHALL BE ESSENTIALLY INCLUDED BY THE SUPPLIER IN QA DOCUMENTATION;

** M: MANUFACTURER (COIL/PROFILER), C: BHEL QC/BHEL AIA, N: CUSTOMER; P: PERFORM. W: WITNESS, V: VERIFICATION; CLASS : A - CRITICAL ; B - MAJOR ; C - MINOR;

MTC- Mill /Manufacturer's Test Certificate; IR- Inspection/Test Report; (R): Routine test; (I)/(Ts): Type test.



MANUFACTURER'S
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BHEL TIRUCHIRAPPALLI
APPROVED SUPPLIERS

STANDARD QUALITY PLAN

PRODUCT: PRE-PAINTED GALVANIZED STEEL SHEETS

SUB-SYSTEM :Steam Generator and Auxiliaries

QWI NO:SQP:SD:02

REV NO: 01 DATE: 16/08/2017

PAGE: 3 OF 3

SL. NO	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
					M	C				N			
1	2	3	4	5	M	C/N	7	8	9	D*	**	10	11

2.11	Sheets	Dimensions of Corrugated/plane sheets	B	Measurements	100%	100%	BHEL PO & BHEL approved drawing	BHEL PO & BHEL approved drawing	IR	√	P	V	-	
3	TESTING ON PAINTED COILS/SHEETS – Tests shall be done at manufacturer's lab or NABL accredited labs.													
3.1	Bend Test	Peeling or crack of Paint	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.2 of IS 14246	Cl 6.2 of IS 14246*	IR	√	P	V	V	*No peeling or cracking of paint.
3.2	Pencil Hardness Test (2H)	Scratch proof	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.3 of IS 14246	Cl 6.3 of IS 14246#	IR	√	P	V	V	#No scratch
3.3	Impact Resistance Test	Impact resistance	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.4 of IS 14246	Cl 6.4 of IS 14246*	IR	√	P	V	V	*No peeling or cracking of paint.
3.4	Cross Hatch Test	No lifting of paint	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.5 of IS 14246	Cl 6.5 of IS 14246#	IR	√	P	V	V	#No lifting of paint.
3.5	Salt Spray Test	Corrosion Resistance/ Durability of paint	B	Visual & Measurement	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.6 & 5.4 of IS 14246 & BHEL Specn.	Cl 6.6 & 5.4 of IS 14246 & BHEL Specn.	MTC /IR	√	P	V	V	
4.0	FINAL INSPECTION													
4.1	Dimensional Inspection	Dimensions & Shapes	B	Visual & Measurement	100%	Min 1, max 10 *	BHEL PO & BHEL approved drawing		IR	√	P	W	V	*at random for each PO item. @shall be available on each pack of sheets.
4.2	Paint Inspection	Color, Shade & DFT	C		100%		BHEL PO	BHEL PO	IR	√	P	W	V	
4.3	Marking & Identification	PO no, Item, Material No, Project Name	B	100%	BHEL PO		BHEL PO	IR	√	P	W	V		
4.4	Packing along with Handling & Storage instructions to Sites@	Water-proof packing & Stability	B	100%	BHEL PO		BHEL PO	IR	√	P	W	-		

Notes:

- For Customer inspection, if applicable, the stages indicated under Column N shall be followed with specific approval of BHEL/Customer for Witness/Verification by Customer.
- The latest editions/revisions of the above mentioned/referred standards/procedures shall be used.

LEGEND: * RECORDS IDENTIFIED WITH "TICK" (√) SHALL BE ESSENTIALLY INCLUDED BY THE SUPPLIER IN QA DOCUMENTATION;
**** M:** MANUFACTURER (COIL/PROFILER), **C:** BHEL QC/BHEL AIA, **N:** CUSTOMER; **P:** PERFORM. **W:** WITNESS, **V:** VERIFICATION; **CLASS:** A - CRITICAL ; B - MAJOR ; C - MINOR;
MTC- Mill /Manufacturer's Test Certificate; IR- Inspection/Test Report; (R): Routine test; (I)/(Ts): Type test.

BHEL/TRICHY
MM/BOI/PURCHASE

REF:MM:PUR:BOI:ROOFSHEET

Pre-Qualification requirements (PQR) for the procurement of Roof sheets as per specification through Open Tender

Date :
Tender No & Date :
Supplier Name :
Supplier registered Address :
Supplier Plant Address :

A: Organizational Capability & Technical Competence:

Sl. No.	Pre –Qualification Criteria	Bidder acceptance / Bidder remarks
1.	Offers from bidders having basic in house manufacturing facilities for the enquired items are only eligible to participate. Offer from Traders, Distributors are not acceptable and will not be considered for evaluation. Vendor to indicate the nature of the Firm. (Trader/Distributor/Manufacturer). Product catalogue shall be submitted.	
2.	Compliance to Tendered Specification is mandatory for consideration of offer.	
3.	Compliance to Technical requirements & Quality Plan (if applicable) as per tendered specification against each item of enquiry.	
4.	Manufacturing plant address & available equipment's for manufacturing the tendered items shall be provided along with offer.	
5.	Suppliers shall submit Quality Management System certificate or Written down procedure.	
6.	Supplier shall have capacity to meet tender requirement.	
7.	Supplier offer will be considered subject to Customer Approval for Sagardighi and Bhuswal Contract.	
8.	BHEL reserve the right to inspect the item ordered at any stage at vendor's works and if found not meeting the stipulated conditions, material is liable for rejection.	

B: Past Experience/ Performance:

Sl. No.	Pre –Qualification Criteria	Bidder acceptance / Bidder remarks
1.	Suppliers shall indicate their annual installed capacity for the tendered specification & it shall be more than the tendered quantity.	
2.	Suppliers shall have supplied similar items to the tendered Scope/Specification.	
3.	Suppliers shall submit Supply credentials for last 3 years successful supply of Roof Sheets (i.e. PPGI or PPGL) like unpriced PO copies with corresponding proof of supply (such as invoice/bill of lading copies and test certificates covering shall be submitted.)	
4.	Supplier shall have to submit contact details of the customers to whom successful supply completed.	

BHEL/TRICHY
MM/BOI/PURCHASE

REF:MM:PUR:BOI:ROOFSHEET

Pre-Qualification requirements (PQR) for the procurement of Roof sheets as per specification through Open Tender

C. Financial Soundness:

Sl. No.	Pre –Qualification Criteria	Bidder acceptance / Bidder remarks
1.	Indigenous suppliers shall submit copies of annual reports (balance sheets), profit & Loss Statement for the last three years (or from date of incorporation whichever is less) and GST Certificate.	

Necessary supporting documents shall be submitted for meeting each of the above Pre-Qualification Criteria for technical evaluation of the offers.

BHEL reserves the right to consider/Not-consider the offers based on the evaluation of documents submitted for the above Pre-Qualification Criteria. If required, BHEL also reserves the right to verify information submitted by vendor. In case the information is found false/incorrect, the offer shall be rejected. BHEL also reserves the right to carry out audit checks for confirming the material properties on the supplied material during material receipt at BHEL. Supplies found defective during check or subsequent processing at BHEL will be rejected.

**ITEM: PPGI. TRAPEZOIDAL PROFILE ROOF SHEET:
0.60X1060X4350**

**"PPGI.TRAP PROFILE.ROOF SH 0.60X1060X4350 CONTINUOUSLY
PREPAINTED GALVANISED STEEL SHEETS TO SPECIFICATION
AS PER FOLLOWING REQUIREMENTS.**

BASE METAL: Base metal of grade G250 as per AS1397 / grade SS255 as per ASTM A653M / grade S250GD as per EN 10326.

NOMINAL THICKNESS: 0.60 MM base metal thickness (i.e excluding the thickness of galvanizing and painting).

GALVANIZING: The base metal shall be galvanized with minimum grade of zinc coating to class Z275.

TOP SIDE PAINT: Top side coating shall be 20 microns minimum of Silicon Modified Polyester (SMP with silicon content 30% to 50%) over primer (minimum 5 microns). The Top colour of sheets shall be BLUE (RAL 5012)

BOTTOM SIDE PAINTING: Bottom side coating shall be 10 microns minimum of Silicon Modified Polyester (SMP with silicon content 30% to 50%) over primer (minimum 5 microns). Bottom side colour of sheets shall be Grey (RAL 9002)

DURABILITY OF PAINT: Industrial finish of product type 4 as per AS/NZ2728.

CORRUGATION PROFILE: As per BHEL drawing no 3-35-611-80440 Rev 01 or suppliers own profile

satisfying following requirements of BHEL, (supplier to submit design calculations)

The corrugated sheet should be capable of resisting within the safe limit,

a. Maximum purlin spacing – 1300 mm

b. Deflection criteria -- L/250

c. Live load -- 1.50 KN /Sq.m (roof slope <10 degree)

d. Wind load -- 2.25 KN/Sq.m

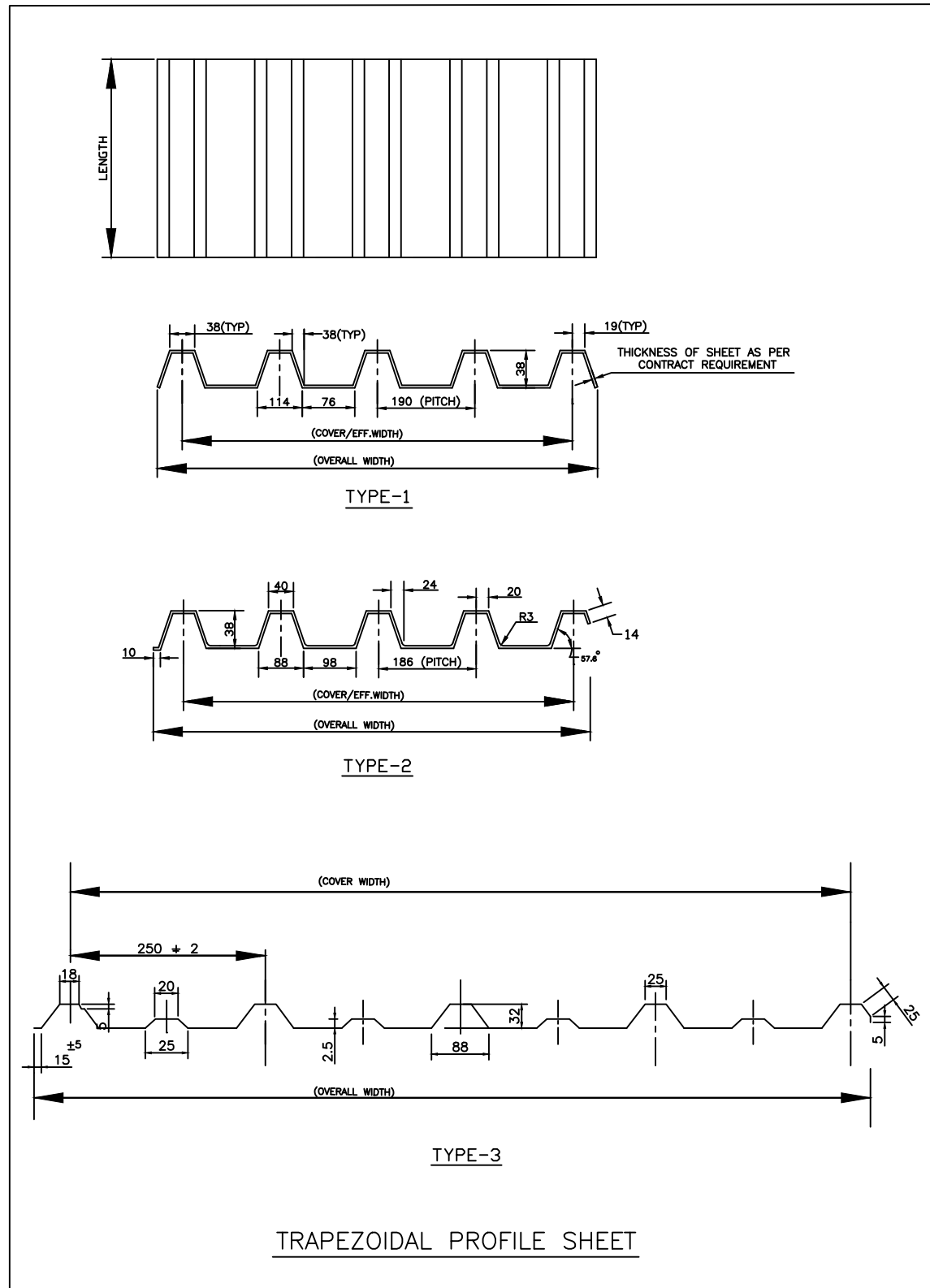
e. Load Combination for Trapezoidal / corrugated Sheet is:

1) 100%(Self Weight / Dead load + Live Load (1.5 KN /SQM) + Wind load (2.25 KN/SQM)), without any reduction factor.

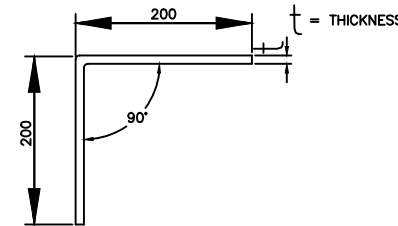
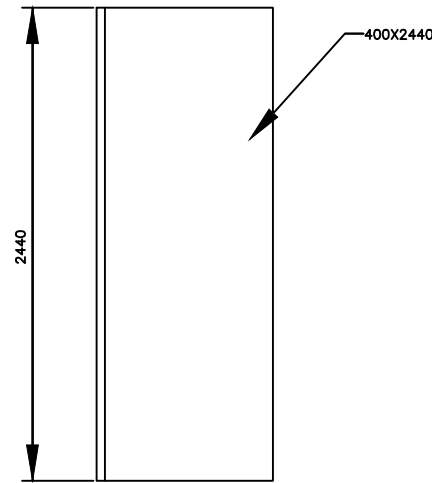
2) 100%(Self Weight / Dead load +/- Wind load (2.25 KN/SQM)), without any reduction factor.

NOTE:

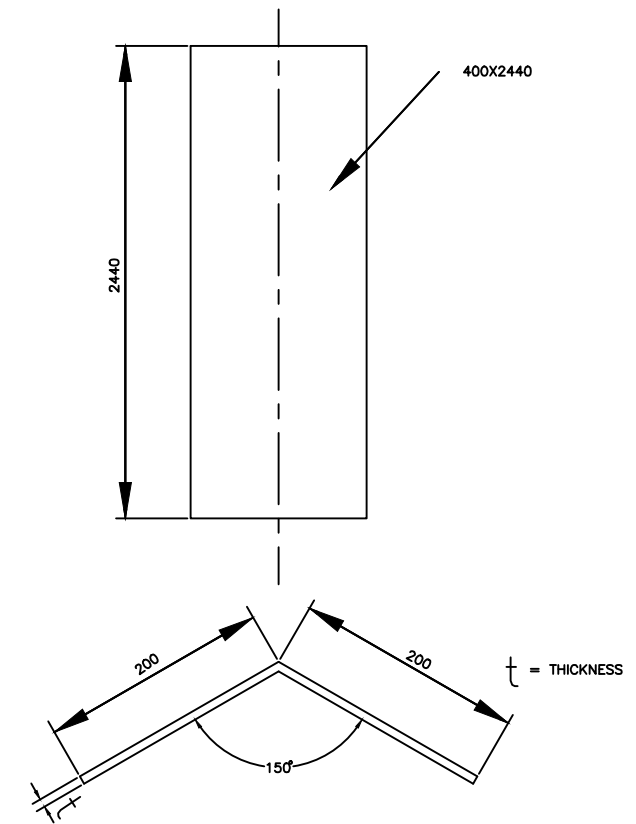
- Packing, Handling and storage of the sheets shall be as per the enclosed Packing, handling and storage instructions.
- BHEL Standard Quality Plan SQPSD02_01 enclosed to be followed.



TRAPEZOIDAL PROFILE SHEET



DETAILS OF BARGE BOARD CORNER PIECE



DETAILS OF RIDGE PIECE

ALL DIMENSIONS ARE IN MM

REV	DATE	ALTERED	S.SIVA
01	28/09/10	CHKD & APPD	S.MURALISANKAR
ZONE	NOTES AND DIMENSIONS REMOVED		

CAUTION: 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.

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT				Bharat Heavy Electricals Ltd UNIT: HIGH PRESSURE BOILER PLANT TIRUCHIRAPALLI - 620014	
DEPT FBC & HRSG	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE 1322			N.T.S		
TITLE				DRAWING NO :	REV
DETAILS OF TRAPEZOIDAL PROFILE SHEET, BARGE BOARD & RIDGE PIECE				3-35-611-80440	01

PACKING METHOD

PACKING DETAILS FOR PRE COATED GALVANIZED ROOF SHEET, PRECOATED GALVALUME ROOF SHEET, RIDGE PIECE, CORNER BARGE BOARD AND PLAIN SHEETS

Packing material for Pre Coated Products:

Sl No	Packing Materials(Layers)	Nos
1	LDPE	1
2	HDPE	1
3	Metal Box	1
4	Wooden pallet/Wooden Skid at bottom	Top metal box over bottom box as shown in figure-1
5	High tensile packing straps & tags	Along length 2, Along width every 1 m length + 2 tags.

SHEET PACKING:

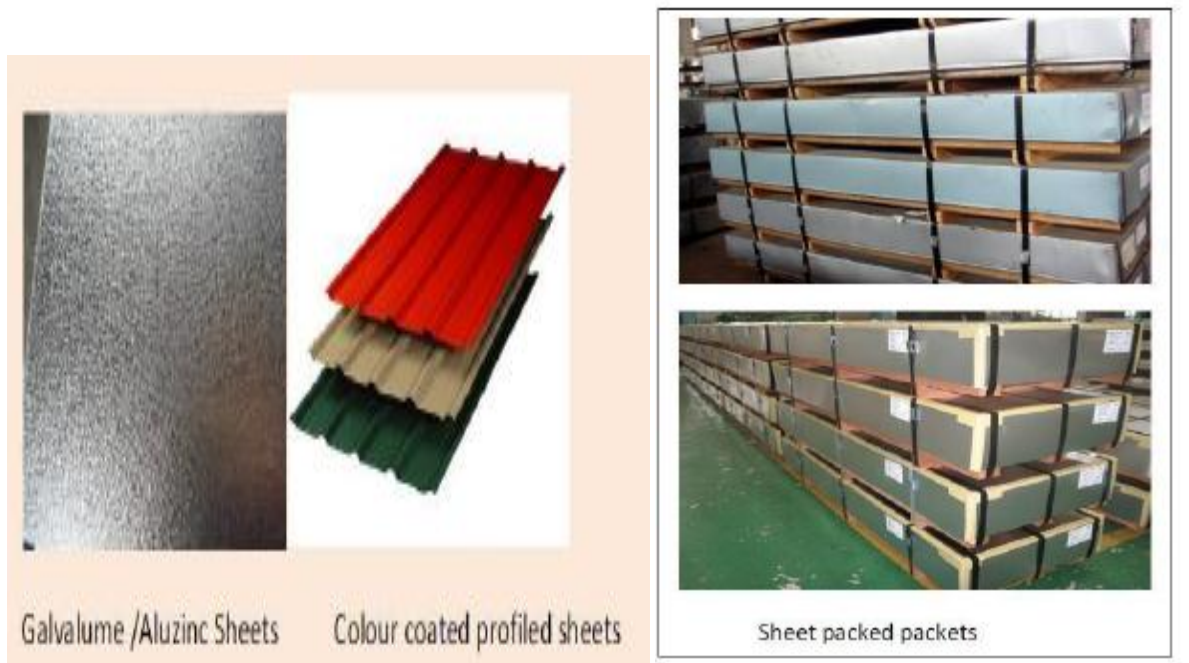


Figure-1

Handling and storage of coated steel products

Must be pasted on all packets clearly visible from outside

For longer life/durability after application, no wastage/damage of coated steel products below handling and storage guidelines are very important.

Handling

- 1) Use nylon/fiber felts for Handling. Do not use steel Wire rope/chains lifting /downloading / Moving
- 2) Use cushioning (wood /rubber) at bottom of & secure lashing & dunnaging **while** transportation.
- 3) Do not transport materials with water/chemicals/vegetables / animals/cement....
- 4) Unload carefully; avoid any packing damages due to unloading/handling.
- 5) If received wet & with damaged packing, Unpack, dry & repack.

Storage

- 1) Store materials on wooden support well over the flat & clean dry floor & temperature below 50°C.
- 2) Do not store materials on wet, damp, muddy floors /lands **directly**. If no option, use about 2 feet steel/ wooden platforms over such places for storing for only for few days.
- 3) Store in well ventilated, dry & protected from rain godowns/shades.
- 4) After Unpacking use materials within couple of days & balance materials remains if any, repack and store for further use.
- 5) Store away from chemicals / cement & any wet materials.



BHARAT HEAVY ELECTRICALS LIMITED
TIRUCHIRAPPALLI - 620 014, INDIA.
QUALITY ASSURANCE DEPARTMENT

STANDARD QUALITY PLAN FOR PRE-PAINTED GALVANIZED STEEL SHEETS

SQP:SD:02 Rev No: 01

Page: 1 of 3

Prepared By
Quality Assurance

ABDUR RAHMAN SULTAN

Abdur 16.08.2017

Reviewed by	Signature
Quality Assurance (G. PANNERSELVAN)	<i>[Signature]</i>
Engineering (M - SHANMUGAM)	<i>[Signature]</i>
Materials Management (M. RADHAKRISHNAN)	<i>[Signature]</i>
Quality Control R. DHARMAR	<i>[Signature]</i>

Rev No	Date	Approved by	Signature
01	16/08/2017	AGM / QA & BE	<i>[Signature]</i> 16/08/17

Record of Revisions

Rev No	Details of Revision	Remarks
00	Fresh Issue	
01	Cl. 1.0 , 3.1 to 3.5 revised, 3.6 to 3.8 removed based on feedback from MM	Raw material sources removed, Quantum of testing revised.

Proprietary Data - For Internal Use Only



MANUFACTURER'S
NAME & ADDRESS:
BHEL TIRUCHIRAPPALLI
APPROVED SUPPLIERS

STANDARD QUALITY PLAN

PRODUCT: PRE-PAINTED GALVANIZED STEEL SHEETS

SUB-SYSTEM :Steam Generator and Auxiliaries

QWI NO:SQP:SD:02

REV NO: 01 DATE: 16/08/2017

PAGE: 2 OF 3

SL. NO	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
					M	C				N	M	C	
1	2	3	4	5	M	C/N	7	8	9	D*	**	10	11

1.0 RAW MATERIALS

1.0	Steel Sheets/Coils	Chemical & Mechanical Properties (YS, TS, %Elong), Hardness, Cupping & bend tests	A	TC Verification	IS 513	IS 513	IS 513 & BHEL PO	IS 513 – Design CR1 Gr 390 & BHEL PO	MTC	√	P	V	V	
		Surface Finish	B	Visual	IS 513	IS 513	IS 513	Cl 8 of IS 513	MTC	√	P	V	-	
		Freedom from defects	B	Visual	IS 513	IS 513	IS 513	Cl 9 of IS 513	MTC	√	P	V	-	
		Dimensions	B	Measurement	IS 513	IS 513	IS 513	BHEL PO	MTC	√	P	V	-	

2.0 INPROCESS CONTROLS

GALVANIZING

2.1	Steel Sheets/Coils	Cleaning & Degreasing	A	Visual	100%	100%	IS 277 & BHEL PO	IS 277 & BHEL PO	Log	√	P	V	-	
2.2	Zinc Ingots*	Chemical properties	B	TC Verification	100%	100%	IS 209/ IS 13229	IS 209/ IS 13229	MTC	√	P	V	-	*Grade G250
2.3	Galvanization	Galvanizing	A	Visual	100%	100%	IS 277 & BHEL PO	IS 277 & BHEL PO	MTC	√	P	V	-	
2.4	Bend Test for zinc coating	Peeling of, flaking, cracking	B	Visual	Cl 8 of IS 277	Cl 8 of IS 277	Cl 8 of IS 277 & BHEL PO	Cl 8 of IS 277 & BHEL PO	IR	√	P	V	-	
2.5	Zinc Coating Test	Weight of coating of galvanizing*	B	Measurements	Cl 9 of IS 277	Cl 9 of IS 277	IS 277 & BHEL PO	IS 277 & BHEL PO	IR	√	P	V	-	*both sides inclusive: 275 gsm
2.6	Galvanized sheets/coils	Surface Finish	B	Visual	100%	100%	Cl 11 of IS 277	Cl 11 of IS 277	IR	√	P	V	-	

PAINTING & CORRUGATION

2.7	Paint Coating Selection	Paint Class, viscosity, etc.	B	Visual	100%	100%	BHEL PO	BHEL PO	MTC	√	P	V	-	
2.8	Alkali Cleaning; Rinsing with Hot & cold water*;	Cleanliness of galvanized Sheets before painting	A	Visual	100%	100%	Manufacturer's std	Freedom from oil, grease, dirt.	Log	√	P	V	-	* followed by Chromate soln treatment at room temperature
2.9	Painting: Primer on both sides; Top & bottom coats	Surface Preparation, Color Shade & DFT	B	Visual & Measurement	100%	100%	BHEL PO	BHEL PO	IR	√	P	V	-	
2.10	Corrugation of sheets *	Shape, Surface finish, peeling of paint on both sides	A	Visual	100%	100%	IS 277 & BHEL PO	IS 277 & BHEL PO	IR	√	P	V	-	*if applicable

LEGEND: * RECORDS IDENTIFIED WITH "TICK" (√) SHALL BE ESSENTIALLY INCLUDED BY THE SUPPLIER IN QA DOCUMENTATION;

** M: MANUFACTURER (COIL/PROFILER), C: BHEL QC/BHEL AIA, N: CUSTOMER; P: PERFORM. W: WITNESS, V: VERIFICATION; CLASS : A - CRITICAL ; B - MAJOR ; C - MINOR;

MTC- Mill /Manufacturer's Test Certificate; IR- Inspection/Test Report; (R): Routine test; (I)/(Ts): Type test.



MANUFACTURER'S
NAME & ADDRESS:
BHEL TIRUCHIRAPPALLI
APPROVED SUPPLIERS

STANDARD QUALITY PLAN

PRODUCT: PRE-PAINTED GALVANIZED STEEL SHEETS

SUB-SYSTEM :Steam Generator and Auxiliaries

QWI NO:SQP:SD:02

REV NO: 01 DATE: 16/08/2017

PAGE: 3 OF 3

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					M	C				N	M	C	
1	2	3	4	5	M	C/N	7	8	9	D*	**	10	11

2.11	Sheets	Dimensions of Corrugated/plane sheets	B	Measurements	100%	100%	BHEL PO & BHEL approved drawing	BHEL PO & BHEL approved drawing	IR	√	P	V	-	
3	TESTING ON PAINTED COILS/SHEETS – Tests shall be done at manufacturer's lab or NABL accredited labs.													
3.1	Bend Test	Peeling or crack of Paint	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.2 of IS 14246	Cl 6.2 of IS 14246*	IR	√	P	V	V	*No peeling or cracking of paint.
3.2	Pencil Hardness Test (2H)	Scratch proof	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.3 of IS 14246	Cl 6.3 of IS 14246#	IR	√	P	V	V	#No scratch
3.3	Impact Resistance Test	Impact resistance	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.4 of IS 14246	Cl 6.4 of IS 14246*	IR	√	P	V	V	*No peeling or cracking of paint.
3.4	Cross Hatch Test	No lifting of paint	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.5 of IS 14246	Cl 6.5 of IS 14246#	IR	√	P	V	V	#No lifting of paint.
3.5	Salt Spray Test	Corrosion Resistance/ Durability of paint	B	Visual & Measurement	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.6 & 5.4 of IS 14246 & BHEL Specn.	Cl 6.6 & 5.4 of IS 14246 & BHEL Specn.	MTC /IR	√	P	V	V	
4.0	FINAL INSPECTION													
4.1	Dimensional Inspection	Dimensions & Shapes	B	Visual & Measurement	100%	Min 1, max 10 *	BHEL PO & BHEL approved drawing		IR	√	P	W	V	*at random for each PO item. @shall be available on each pack of sheets.
4.2	Paint Inspection	Color, Shade & DFT	C		100%		BHEL PO	BHEL PO	IR	√	P	W	V	
4.3	Marking & Identification	PO no, Item, Material No, Project Name	B	Visual	100%		BHEL PO	BHEL PO	IR	√	P	W	V	
4.4	Packing along with Handling & Storage instructions to Sites@	Water-proof packing & Stability	B	Visual	100%		BHEL PO	BHEL PO	IR	√	P	W	-	

Notes:

- For Customer inspection, if applicable, the stages indicated under Column N shall be followed with specific approval of BHEL/Customer for Witness/Verification by Customer.
- The latest editions/revisions of the above mentioned/referred standards/procedures shall be used.

LEGEND: * RECORDS IDENTIFIED WITH "TICK" (√) SHALL BE ESSENTIALLY INCLUDED BY THE SUPPLIER IN QA DOCUMENTATION;
**** M:** MANUFACTURER (COIL/PROFILER), **C:** BHEL QC/BHEL AIA, **N:** CUSTOMER; **P:** PERFORM. **W:** WITNESS, **V:** VERIFICATION; **CLASS:** A - CRITICAL ; B - MAJOR ; C - MINOR;
MTC- Mill /Manufacturer's Test Certificate; IR- Inspection/Test Report; (R): Routine test; (I)/(Ts): Type test.

BHEL/TRICHY
MM/BOI/PURCHASE

REF:MM:PUR:BOI:ROOFSHEET

Pre-Qualification requirements (PQR) for the procurement of Roof sheets as per specification through Open Tender

Date :
Tender No & Date :
Supplier Name :
Supplier registered Address :
Supplier Plant Address :

A: Organizational Capability & Technical Competence:

Sl. No.	Pre –Qualification Criteria	Bidder acceptance / Bidder remarks
1.	Offers from bidders having basic in house manufacturing facilities for the enquired items are only eligible to participate. Offer from Traders, Distributors are not acceptable and will not be considered for evaluation. Vendor to indicate the nature of the Firm. (Trader/Distributor/Manufacturer). Product catalogue shall be submitted.	
2.	Compliance to Tendered Specification is mandatory for consideration of offer.	
3.	Compliance to Technical requirements & Quality Plan (if applicable) as per tendered specification against each item of enquiry.	
4.	Manufacturing plant address & available equipment's for manufacturing the tendered items shall be provided along with offer.	
5.	Suppliers shall submit Quality Management System certificate or Written down procedure.	
6.	Supplier shall have capacity to meet tender requirement.	
7.	Supplier offer will be considered subject to Customer Approval for Sagardighi and Bhuswal Contract.	
8.	BHEL reserve the right to inspect the item ordered at any stage at vendor's works and if found not meeting the stipulated conditions, material is liable for rejection.	

B: Past Experience/ Performance:

Sl. No.	Pre –Qualification Criteria	Bidder acceptance / Bidder remarks
1.	Suppliers shall indicate their annual installed capacity for the tendered specification & it shall be more than the tendered quantity.	
2.	Suppliers shall have supplied similar items to the tendered Scope/Specification.	
3.	Suppliers shall submit Supply credentials for last 3 years successful supply of Roof Sheets (i.e. PPGI or PPGL) like unpriced PO copies with corresponding proof of supply (such as invoice/bill of lading copies and test certificates covering shall be submitted.)	
4.	Supplier shall have to submit contact details of the customers to whom successful supply completed.	

BHEL/TRICHY
MM/BOI/PURCHASE

REF:MM:PUR:BOI:ROOFSHEET

Pre-Qualification requirements (PQR) for the procurement of Roof sheets as per specification through Open Tender

C. Financial Soundness:

Sl. No.	Pre –Qualification Criteria	Bidder acceptance / Bidder remarks
1.	Indigenous suppliers shall submit copies of annual reports (balance sheets), profit & Loss Statement for the last three years (or from date of incorporation whichever is less) and GST Certificate.	

Necessary supporting documents shall be submitted for meeting each of the above Pre-Qualification Criteria for technical evaluation of the offers.

BHEL reserves the right to consider/Not-consider the offers based on the evaluation of documents submitted for the above Pre-Qualification Criteria. If required, BHEL also reserves the right to verify information submitted by vendor. In case the information is found false/incorrect, the offer shall be rejected. BHEL also reserves the right to carry out audit checks for confirming the material properties on the supplied material during material receipt at BHEL. Supplies found defective during check or subsequent processing at BHEL will be rejected.

ITEM: PPGI. CORNER BARGE: 0.60X400X2440

PREPAINTED GALVANISED STEEL SHEETS TO SPECIFICATION AS PER FOLLOWING REQUIREMENTS.

BASE METAL: Base metal of grade G250 as per AS1397 / grade SS255 as per ASTM A653M / grade S250GD as per EN 10326.

NOMINAL THICKNESS: 0.60 MM base metal thickness (i.e excluding the thickness of galvanizing and painting).

GALVANIZING: The base metal shall be galvanized with minimum grade of zinc coating to class Z275.

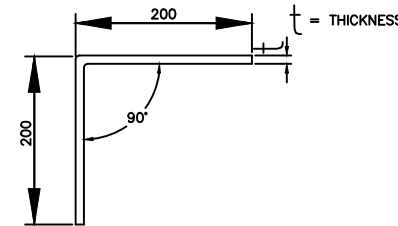
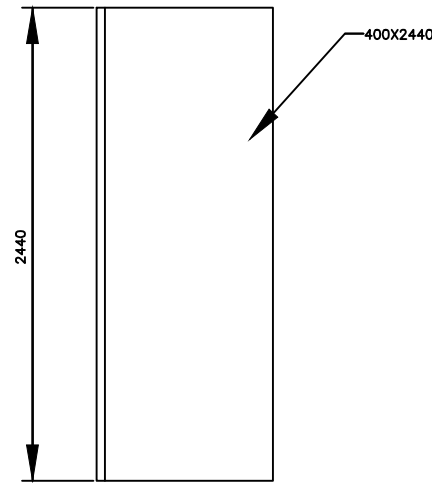
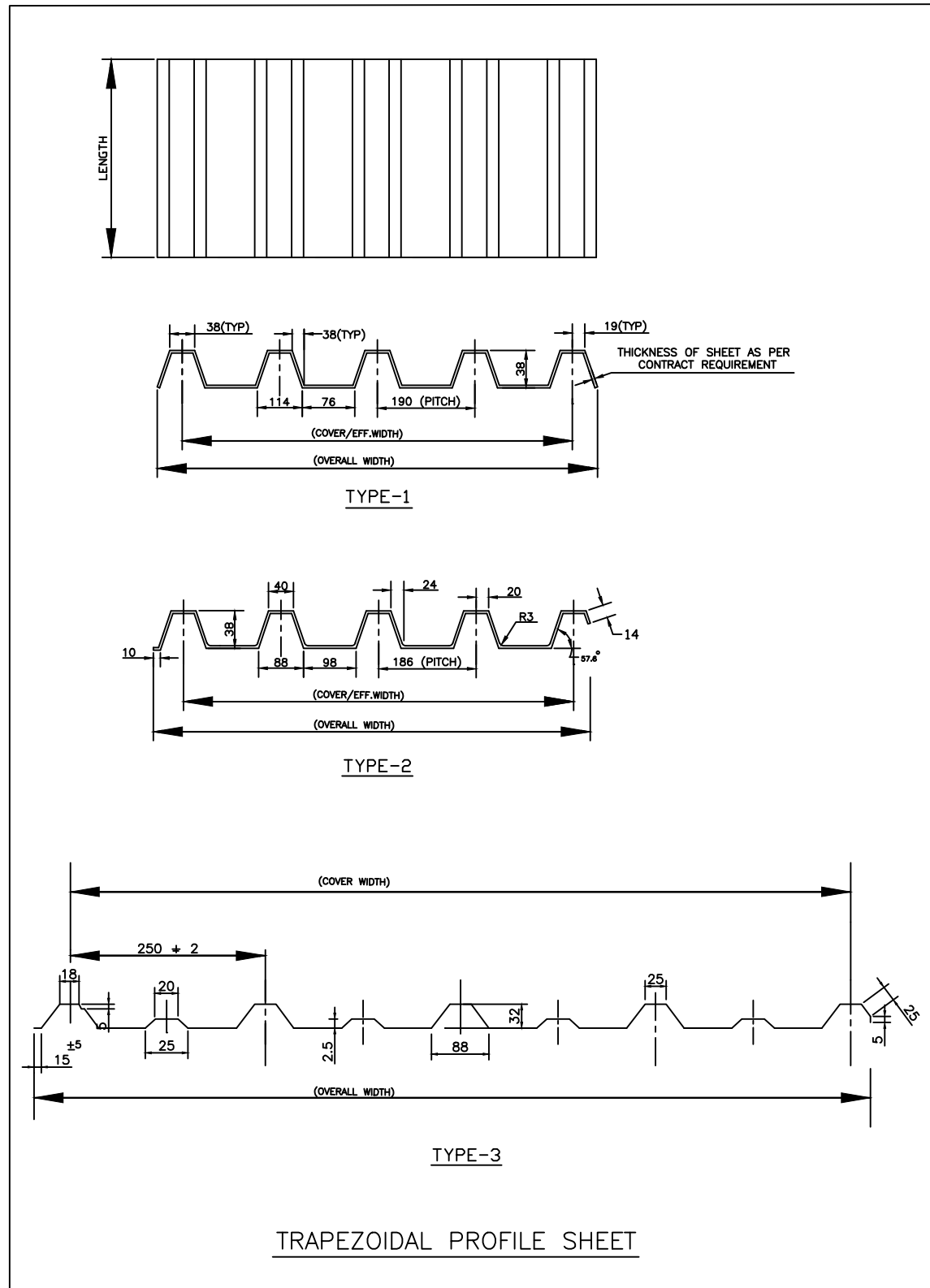
TOP SIDE PAINT: Top side coating shall be 20 microns minimum of Silicon Modified Polyester (SMP with silicon content 30% to 50%) over primer (minimum 5 microns). The Top colour of sheets shall be BLUE (RAL 5012)

BOTTOM SIDE PAINTING: Bottom side coating shall be 10 microns minimum of Silicon Modified Polyester (SMP with silicon content 30% to 50%) over primer (minimum 5 microns). Bottom side colour of sheets shall be Grey (RAL 9002)

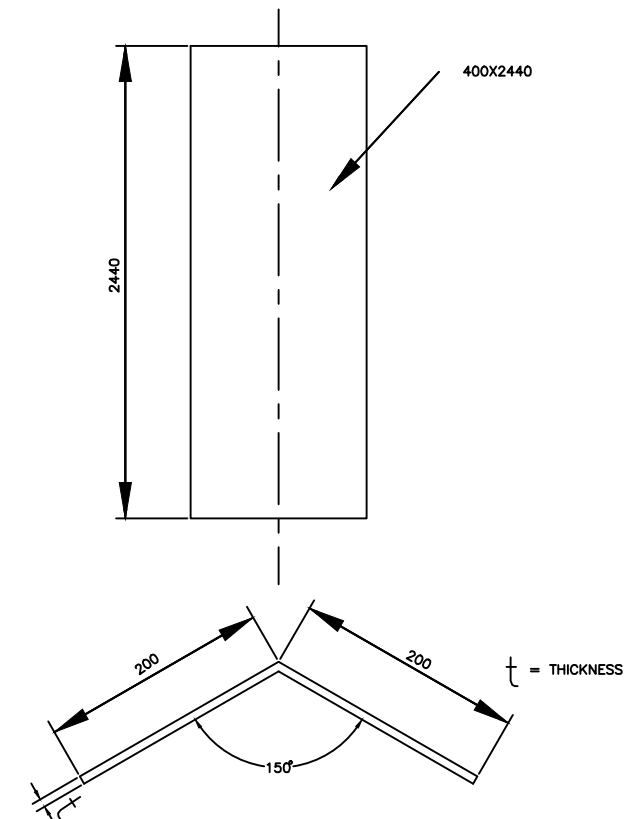
DURABILITY OF PAINT: Industrial finish of product type 4 as per AS/NZ2728.

Note:

- Corner Barge shall be as per BHEL Drawing: 3-35-611-80440.
- Packing, Handling and storage of the sheets shall be as per the enclosed Packing, handling and storage instructions.
- BHEL Standard Quality Plan SQPSD02_01 enclosed to be followed.



DETAILS OF BARGE BOARD CORNER PIECE



DETAILS OF RIDGE PIECE

ALL DIMENSIONS ARE IN MM

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TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT



Bharat Heavy Electricals Ltd
UNIT: HIGH PRESSURE BOILER PLANT
TIRUCHIRAPALLI - 620014

DEPT FBC & HRSG	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE 1322			N.T.S		

DRN	NAME	SIGNATURE	DATE
	V.MUTHUMANI		10.06.10
CHD	S.MURALI SANKAR		10.06.10
APPD	V.RAMACHANDRAN		10.06.10

REV 01	DATE 28/09/10	ALTERED S.SIVA
ZONE	NOTES AND DIMENSIONS REMOVED	

TITLE	DRAWING NO :	REV
DETAILS OF TRAPEZOIDAL PROFILE SHEET, BARGE BOARD & RIDGE PIECE	3-35-611-80440	01

Handling and storage of coated steel products

Must be pasted on all packets clearly visible from outside

For longer life/durability after application, no wastage/damage of coated steel products below handling and storage guidelines are very important.

Handling

- 1) Use nylon/fiber felts for Handling. Do not use steel Wire rope/chains lifting /downloading / Moving
- 2) Use cushioning (wood /rubber) at bottom of & secure lashing & dunnaging **while** transportation.
- 3) Do not transport materials with water/chemicals/vegetables / animals/cement....
- 4) Unload carefully; avoid any packing damages due to unloading/handling.
- 5) If received wet & with damaged packing, Unpack, dry & repack.

Storage

- 1) Store materials on wooden support well over the flat & clean dry floor & temperature below 50°C.
- 2) Do not store materials on wet, damp, muddy floors /lands **directly**. If no option, use about 2 feet steel/ wooden platforms over such places for storing for only for few days.
- 3) Store in well ventilated, dry & protected from rain godowns/shades.
- 4) After Unpacking use materials within couple of days & balance materials remains if any, repack and store for further use.
- 5) Store away from chemicals / cement & any wet materials.

PACKING METHOD

PACKING DETAILS FOR PRE COATED GALVANIZED ROOF SHEET, PRECOATED GALVALUME ROOF SHEET, RIDGE PIECE, CORNER BARGE BOARD AND PLAIN SHEETS

Packing material for Pre Coated Products:

Sl No	Packing Materials(Layers)	Nos
1	LDPE	1
2	HDPE	1
3	Metal Box	1
4	Wooden pallet/Wooden Skid at bottom	Top metal box over bottom box as shown in figure-1
5	High tensile packing straps & tags	Along length 2, Along width every 1 m length + 2 tags.

SHEET PACKING:

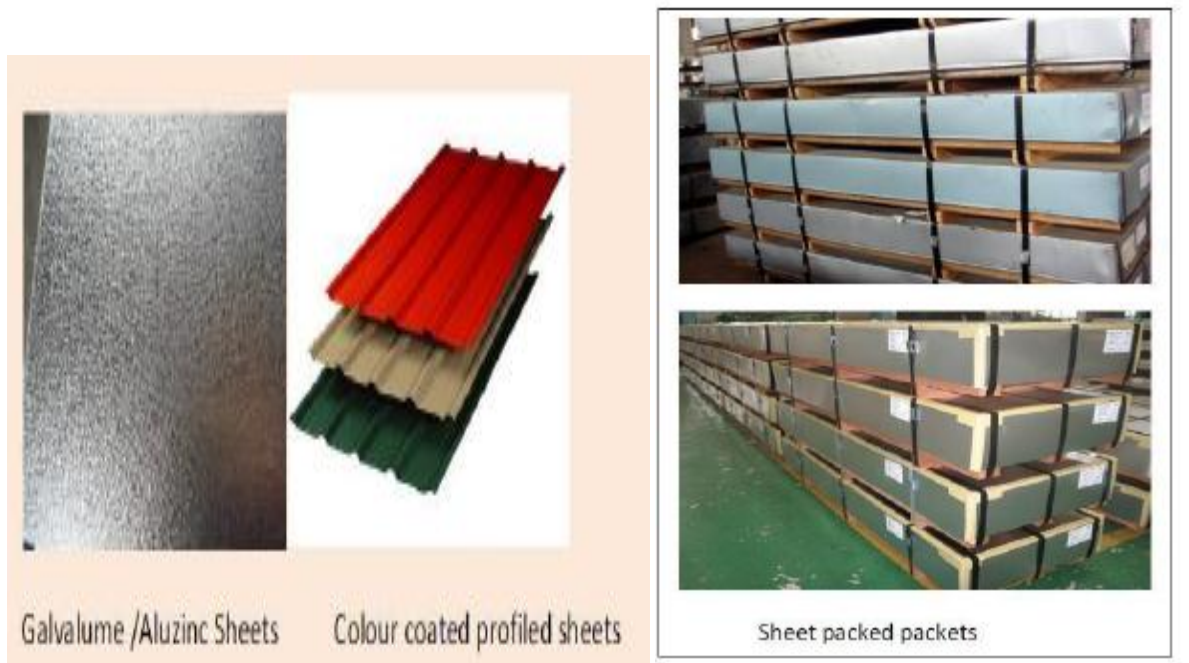


Figure-1



BHARAT HEAVY ELECTRICALS LIMITED
TIRUCHIRAPPALLI - 620 014, INDIA.
QUALITY ASSURANCE DEPARTMENT

STANDARD QUALITY PLAN FOR PRE-PAINTED GALVANIZED STEEL SHEETS

SQP:SD:02 Rev No: 01

Page: 1 of 3

Prepared By
Quality Assurance

ABDUR RAHMAN SULTAN

Abdur 16.08.2017

Reviewed by	Signature
Quality Assurance (G. PANNESSELVAN)	<i>[Signature]</i>
Engineering (M - SHANMUGAM)	<i>[Signature]</i>
Materials Management (M. RADHAKRISHNAN)	<i>[Signature]</i>
Quality Control R. DHARMAR	<i>[Signature]</i>

Rev No	Date	Approved by	Signature
01	16/08/2017	AGM / QA & BE	<i>[Signature]</i> 16/08/17

Record of Revisions

Rev No	Details of Revision	Remarks
00	Fresh Issue	
01	Cl. 1.0 , 3.1 to 3.5 revised, 3.6 to 3.8 removed based on feedback from MM	Raw material sources removed, Quantum of testing revised.

Proprietary Data - For Internal Use Only



MANUFACTURER'S
NAME & ADDRESS:
BHEL TIRUCHIRAPPALLI
APPROVED SUPPLIERS

STANDARD QUALITY PLAN

PRODUCT: PRE-PAINTED GALVANIZED STEEL SHEETS

SUB-SYSTEM : Steam Generator and Auxiliaries

QWI NO:SQP:SD:02

REV NO: 01 DATE: 16/08/2017

PAGE: 2 OF 3

SL. NO	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
					M	C				N	M	C	
1	2	3	4	5	M	C/N	7	8	9	D*	**	10	11

1.0 RAW MATERIALS

1.0	Steel Sheets/Coils	Chemical & Mechanical Properties (YS, TS, %Elong), Hardness, Cupping & bend tests	A	TC Verification	IS 513	IS 513	IS 513 & BHEL PO	IS 513 – Design CR1 Gr 390 & BHEL PO	MTC	√	P	V	V	
		Surface Finish	B	Visual	IS 513	IS 513	IS 513	Cl 8 of IS 513	MTC	√	P	V	-	
		Freedom from defects	B	Visual	IS 513	IS 513	IS 513	Cl 9 of IS 513	MTC	√	P	V	-	
		Dimensions	B	Measurement	IS 513	IS 513	IS 513	BHEL PO	MTC	√	P	V	-	

2.0 INPROCESS CONTROLS

GALVANIZING

2.1	Steel Sheets/Coils	Cleaning & Degreasing	A	Visual	100%	100%	IS 277 & BHEL PO	IS 277 & BHEL PO	Log	√	P	V	-	
2.2	Zinc Ingots*	Chemical properties	B	TC Verification	100%	100%	IS 209/ IS 13229	IS 209/ IS 13229	MTC	√	P	V	-	*Grade G250
2.3	Galvanization	Galvanizing	A	Visual	100%	100%	IS 277 & BHEL PO	IS 277 & BHEL PO	MTC	√	P	V	-	
2.4	Bend Test for zinc coating	Peeling of, flaking, cracking	B	Visual	Cl 8 of IS 277	Cl 8 of IS 277	Cl 8 of IS 277 & BHEL PO	Cl 8 of IS 277 & BHEL PO	IR	√	P	V	-	
2.5	Zinc Coating Test	Weight of coating of galvanizing*	B	Measurements	Cl 9 of IS 277	Cl 9 of IS 277	IS 277 & BHEL PO	IS 277 & BHEL PO	IR	√	P	V	-	*both sides inclusive: 275 gsm
2.6	Galvanized sheets/coils	Surface Finish	B	Visual	100%	100%	Cl 11 of IS 277	Cl 11 of IS 277	IR	√	P	V	-	

PAINTING & CORRUGATION

2.7	Paint Coating Selection	Paint Class, viscosity, etc.	B	Visual	100%	100%	BHEL PO	BHEL PO	MTC	√	P	V	-	
2.8	Alkali Cleaning; Rinsing with Hot & cold water*;	Cleanliness of galvanized Sheets before painting	A	Visual	100%	100%	Manufacturer's std	Freedom from oil, grease, dirt.	Log	√	P	V	-	* followed by Chromate soln treatment at room temperature
2.9	Painting: Primer on both sides; Top & bottom coats	Surface Preparation, Color Shade & DFT	B	Visual & Measurement	100%	100%	BHEL PO	BHEL PO	IR	√	P	V	-	
2.10	Corrugation of sheets *	Shape, Surface finish, peeling of paint on both sides	A	Visual	100%	100%	IS 277 & BHEL PO	IS 277 & BHEL PO	IR	√	P	V	-	*if applicable

LEGEND: * RECORDS IDENTIFIED WITH "TICK" (√) SHALL BE ESSENTIALLY INCLUDED BY THE SUPPLIER IN QA DOCUMENTATION;
**** M:** MANUFACTURER (COIL/PROFILER), **C:** BHEL QC/BHEL AIA, **N:** CUSTOMER; **P:** PERFORM. **W:** WITNESS, **V:** VERIFICATION; **CLASS:** A - CRITICAL ; B - MAJOR ; C - MINOR;
 MTC- Mill /Manufacturer's Test Certificate; IR- Inspection/Test Report; (R): Routine test; (I)/(Ts): Type test.



MANUFACTURER'S
NAME & ADDRESS:
BHEL TIRUCHIRAPPALLI
APPROVED SUPPLIERS

STANDARD QUALITY PLAN

PRODUCT: PRE-PAINTED GALVANIZED STEEL SHEETS

SUB-SYSTEM :Steam Generator and Auxiliaries

QWI NO:SQP:SD:02

REV NO: 01 DATE: 16/08/2017

PAGE: 3 OF 3

SL. NO	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
					M	C				N	M	C	
1	2	3	4	5	M	C/N	7	8	9	D*	**	10	11

2.11	Sheets	Dimensions of Corrugated/plane sheets	B	Measurements	100%	100%	BHEL PO & BHEL approved drawing	BHEL PO & BHEL approved drawing	IR	√	P	V	-	
3	TESTING ON PAINTED COILS/SHEETS – Tests shall be done at manufacturer's lab or NABL accredited labs.													
3.1	Bend Test	Peeling or crack of Paint	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.2 of IS 14246	Cl 6.2 of IS 14246*	IR	√	P	V	V	*No peeling or cracking of paint.
3.2	Pencil Hardness Test (2H)	Scratch proof	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.3 of IS 14246	Cl 6.3 of IS 14246#	IR	√	P	V	V	#No scratch
3.3	Impact Resistance Test	Impact resistance	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.4 of IS 14246	Cl 6.4 of IS 14246*	IR	√	P	V	V	*No peeling or cracking of paint.
3.4	Cross Hatch Test	No lifting of paint	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.5 of IS 14246	Cl 6.5 of IS 14246#	IR	√	P	V	V	#No lifting of paint.
3.5	Salt Spray Test	Corrosion Resistance/ Durability of paint	B	Visual & Measurement	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.6 & 5.4 of IS 14246 & BHEL Specn.	Cl 6.6 & 5.4 of IS 14246 & BHEL Specn.	MTC /IR	√	P	V	V	
4.0	FINAL INSPECTION													
4.1	Dimensional Inspection	Dimensions & Shapes	B	Visual & Measurement	100%	Min 1, max 10 *	BHEL PO & BHEL approved drawing		IR	√	P	W	V	*at random for each PO item. @shall be available on each pack of sheets.
4.2	Paint Inspection	Color, Shade & DFT	C		100%		BHEL PO	BHEL PO	IR	√	P	W	V	
4.3	Marking & Identification	PO no, Item, Material No, Project Name	B	Visual	100%		BHEL PO	BHEL PO	IR	√	P	W	V	
4.4	Packing along with Handling & Storage instructions to Sites@	Water-proof packing & Stability	B	Visual	100%		BHEL PO	BHEL PO	IR	√	P	W	-	

Notes:

- For Customer inspection, if applicable, the stages indicated under Column N shall be followed with specific approval of BHEL/Customer for Witness/Verification by Customer.
- The latest editions/revisions of the above mentioned/referred standards/procedures shall be used.

LEGEND: * RECORDS IDENTIFIED WITH "TICK" (√) SHALL BE ESSENTIALLY INCLUDED BY THE SUPPLIER IN QA DOCUMENTATION;
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MTC- Mill /Manufacturer's Test Certificate; IR- Inspection/Test Report; (R): Routine test; (I)/(Ts): Type test.

BHEL/TRICHY
MM/BOI/PURCHASE

REF:MM:PUR:BOI:ROOFSHEET

Pre-Qualification requirements (PQR) for the procurement of Roof sheets as per specification through Open Tender

Date :
Tender No & Date :
Supplier Name :
Supplier registered Address :
Supplier Plant Address :

A: Organizational Capability & Technical Competence:

Sl. No.	Pre –Qualification Criteria	Bidder acceptance / Bidder remarks
1.	Offers from bidders having basic in house manufacturing facilities for the enquired items are only eligible to participate. Offer from Traders, Distributors are not acceptable and will not be considered for evaluation. Vendor to indicate the nature of the Firm. (Trader/Distributor/Manufacturer). Product catalogue shall be submitted.	
2.	Compliance to Tendered Specification is mandatory for consideration of offer.	
3.	Compliance to Technical requirements & Quality Plan (if applicable) as per tendered specification against each item of enquiry.	
4.	Manufacturing plant address & available equipment's for manufacturing the tendered items shall be provided along with offer.	
5.	Suppliers shall submit Quality Management System certificate or Written down procedure.	
6.	Supplier shall have capacity to meet tender requirement.	
7.	Supplier offer will be considered subject to Customer Approval for Sagardighi and Bhuswal Contract.	
8.	BHEL reserve the right to inspect the item ordered at any stage at vendor's works and if found not meeting the stipulated conditions, material is liable for rejection.	

B: Past Experience/ Performance:

Sl. No.	Pre –Qualification Criteria	Bidder acceptance / Bidder remarks
1.	Suppliers shall indicate their annual installed capacity for the tendered specification & it shall be more than the tendered quantity.	
2.	Suppliers shall have supplied similar items to the tendered Scope/Specification.	
3.	Suppliers shall submit Supply credentials for last 3 years successful supply of Roof Sheets (i.e. PPGI or PPGL) like unpriced PO copies with corresponding proof of supply (such as invoice/bill of lading copies and test certificates covering shall be submitted.)	
4.	Supplier shall have to submit contact details of the customers to whom successful supply completed.	

BHEL/TRICHY
MM/BOI/PURCHASE

REF:MM:PUR:BOI:ROOFSHEET

Pre-Qualification requirements (PQR) for the procurement of Roof sheets as per specification through Open Tender

C. Financial Soundness:

Sl. No.	Pre –Qualification Criteria	Bidder acceptance / Bidder remarks
1.	Indigenous suppliers shall submit copies of annual reports (balance sheets), profit & Loss Statement for the last three years (or from date of incorporation whichever is less) and GST Certificate.	

Necessary supporting documents shall be submitted for meeting each of the above Pre-Qualification Criteria for technical evaluation of the offers.

BHEL reserves the right to consider/Not-consider the offers based on the evaluation of documents submitted for the above Pre-Qualification Criteria. If required, BHEL also reserves the right to verify information submitted by vendor. In case the information is found false/incorrect, the offer shall be rejected. BHEL also reserves the right to carry out audit checks for confirming the material properties on the supplied material during material receipt at BHEL. Supplies found defective during check or subsequent processing at BHEL will be rejected.

ITEM: PPGI. PLAIN SHEET: 0.63X1000X3000

"HEAVY DUTY CLASS" CONTINUOUSLY PREPAINTED GALVANISED STEEL SHEETS TO SPECIFICATION IS:14246 AS PER FOLLOWING REQUIREMENTS.

BASE METAL : Mild steel as per IS:513

NOMINAL THICKNESS : 0.63mm (Without negative tolerance) (i.e excluding the thickness of galvanizing and painting).

GALVANISING : The base metal shall be Zinc Coating (Aluminium to be added during galvanization process as per IS 2629 Clause 5.2) at the rate of 275gms/sq.m as per IS:277

TOP SIDE PAINT : Top side coating shall be 20 microns minimum of SMP (Silicone Modified Polyester) painting with DFT over primer. The Top colour of sheets shall be BLUE (RAL 5012).

BOTTOM SIDE PAINT : Bottom side coating shall be 7 microns minimum of SMP (Silicone Modified Polyester) painting with DFT over primer. Bottom side colour of sheets shall be Grey (RAL 9002)

DURABILITY OF PAINT: As per Class – 3 of IS:14246

Note:

- Packing, Handling and storage of the sheets shall be as per the enclosed Packing, handling and storage instructions.
- BHEL Standard Quality Plan SQPSD02_01 enclosed to be followed

Sagardidhi Contract, Vendor approval is applicable, the supplier shall submit all the credentials as per Annexure A.

Handling and storage of coated steel products

Must be pasted on all packets clearly visible from outside

For longer life/durability after application, no wastage/damage of coated steel products below handling and storage guidelines are very important.

Handling

- 1) Use nylon/fiber felts for Handling. Do not use steel Wire rope/chains lifting /downloading / Moving
- 2) Use cushioning (wood /rubber) at bottom of & secure lashing & dunnaging **while** transportation.
- 3) Do not transport materials with water/chemicals/vegetables / animals/cement....
- 4) Unload carefully; avoid any packing damages due to unloading/handling.
- 5) If received wet & with damaged packing, Unpack, dry & repack.

Storage

- 1) Store materials on wooden support well over the flat & clean dry floor & temperature below 50°C.
- 2) Do not store materials on wet, damp, muddy floors /lands **directly**. If no option, use about 2 feet steel/ wooden platforms over such places for storing for only for few days.
- 3) Store in well ventilated, dry & protected from rain godowns/shades.
- 4) After Unpacking use materials within couple of days & balance materials remains if any, repack and store for further use.
- 5) Store away from chemicals / cement & any wet materials.

PACKING METHOD

PACKING DETAILS FOR PRE COATED GALVANIZED ROOF SHEET, PRECOATED GALVALUME ROOF SHEET, RIDGE PIECE, CORNER BARGE BOARD AND PLAIN SHEETS

Packing material for Pre Coated Products:

Sl No	Packing Materials(Layers)	Nos
1	LDPE	1
2	HDPE	1
3	Metal Box	1
4	Wooden pallet/Wooden Skid at bottom	Top metal box over bottom box as shown in figure-1
5	High tensile packing straps & tags	Along length 2, Along width every 1 m length + 2 tags.

SHEET PACKING:

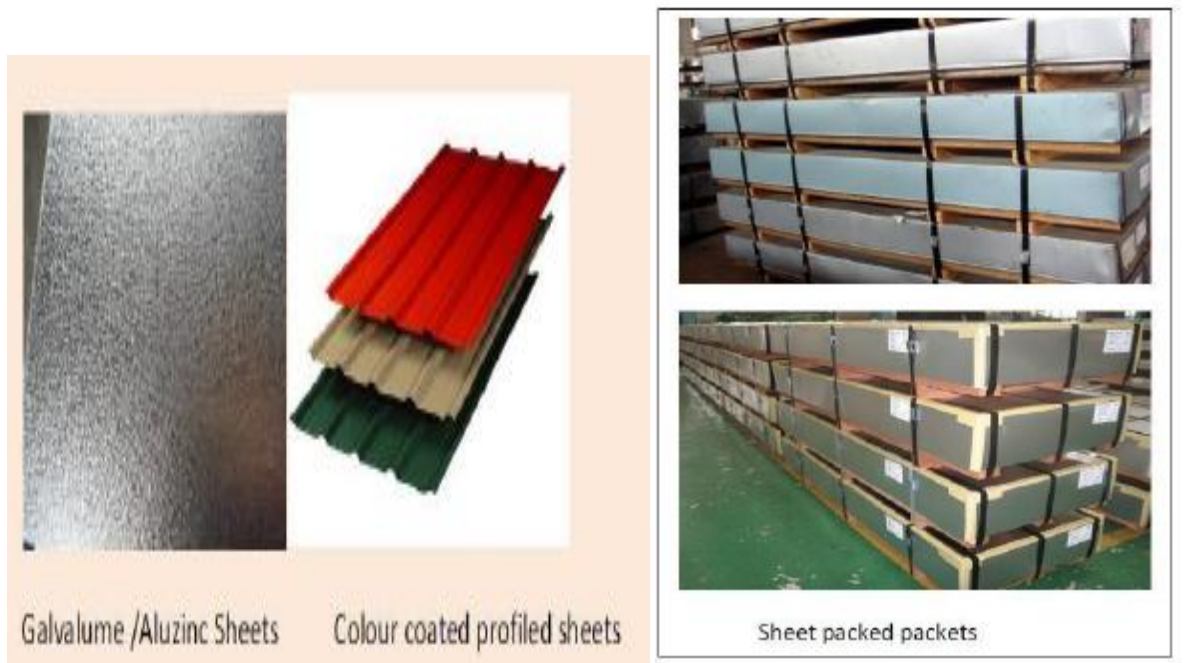


Figure-1



BHARAT HEAVY ELECTRICALS LIMITED
TIRUCHIRAPPALLI - 620 014, INDIA.
QUALITY ASSURANCE DEPARTMENT

STANDARD QUALITY PLAN FOR PRE-PAINTED GALVANIZED STEEL SHEETS

SQP:SD:02 Rev No: 01

Page: 1 of 3

Prepared By
Quality Assurance

ABDUR RAHMAN SULTAN

Abdur 16.08.2017

Reviewed by	Signature
Quality Assurance (G. PANNERSELVAN)	<i>[Signature]</i>
Engineering (M - SHANMUGAM)	<i>[Signature]</i>
Materials Management (M. RADHAKRISHNAN)	<i>[Signature]</i>
Quality Control R. DHARMAR	<i>[Signature]</i>

Rev No	Date	Approved by	Signature
01	16/08/2017	AGM / QA & BE	<i>Revised</i> 16/08/17

Record of Revisions

Rev No	Details of Revision	Remarks
00	Fresh Issue	
01	Cl. 1.0, 3.1 to 3.5 revised, 3.6 to 3.8 removed based on feedback from MM	Raw material sources removed, Quantum of testing revised.

Proprietary Data - For Internal Use Only



MANUFACTURER'S
NAME & ADDRESS:
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STANDARD QUALITY PLAN

PRODUCT: PRE-PAINTED GALVANIZED STEEL SHEETS

SUB-SYSTEM :Steam Generator and Auxiliaries

QWI NO:SQP:SD:02

REV NO: 01 DATE: 16/08/2017

PAGE: 2 OF 3

SL. NO	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
					M	C				N	M	C	
1	2	3	4	5	M	C/N	7	8	9	D*	**	10	11

1.0 RAW MATERIALS

1.0	Steel Sheets/Coils	Chemical & Mechanical Properties (YS, TS, %Elong), Hardness, Cupping & bend tests	A	TC Verification	IS 513	IS 513	IS 513 & BHEL PO	IS 513 – Design CR1 Gr 390 & BHEL PO	MTC	√	P	V	V	
		Surface Finish	B	Visual	IS 513	IS 513	IS 513	Cl 8 of IS 513	MTC	√	P	V	-	
		Freedom from defects	B	Visual	IS 513	IS 513	IS 513	Cl 9 of IS 513	MTC	√	P	V	-	
		Dimensions	B	Measurement	IS 513	IS 513	IS 513	BHEL PO	MTC	√	P	V	-	

2.0 INPROCESS CONTROLS

GALVANIZING

2.1	Steel Sheets/Coils	Cleaning & Degreasing	A	Visual	100%	100%	IS 277 & BHEL PO	IS 277 & BHEL PO	Log	√	P	V	-	
2.2	Zinc Ingots*	Chemical properties	B	TC Verification	100%	100%	IS 209/ IS 13229	IS 209/ IS 13229	MTC	√	P	V	-	*Grade G250
2.3	Galvanization	Galvanizing	A	Visual	100%	100%	IS 277 & BHEL PO	IS 277 & BHEL PO	MTC	√	P	V	-	
2.4	Bend Test for zinc coating	Peeling of, flaking, cracking	B	Visual	Cl 8 of IS 277	Cl 8 of IS 277	Cl 8 of IS 277 & BHEL PO	Cl 8 of IS 277 & BHEL PO	IR	√	P	V	-	
2.5	Zinc Coating Test	Weight of coating of galvanizing*	B	Measurements	Cl 9 of IS 277	Cl 9 of IS 277	IS 277 & BHEL PO	IS 277 & BHEL PO	IR	√	P	V	-	*both sides inclusive: 275 gsm
2.6	Galvanized sheets/coils	Surface Finish	B	Visual	100%	100%	Cl 11 of IS 277	Cl 11 of IS 277	IR	√	P	V	-	

PAINTING & CORRUGATION

2.7	Paint Coating Selection	Paint Class, viscosity, etc.	B	Visual	100%	100%	BHEL PO	BHEL PO	MTC	√	P	V	-	
2.8	Alkali Cleaning; Rinsing with Hot & cold water*;	Cleanliness of galvanized Sheets before painting	A	Visual	100%	100%	Manufacturer's std	Freedom from oil, grease, dirt.	Log	√	P	V	-	* followed by Chromate soln treatment at room temperature
2.9	Painting: Primer on both sides; Top & bottom coats	Surface Preparation, Color Shade & DFT	B	Visual & Measurement	100%	100%	BHEL PO	BHEL PO	IR	√	P	V	-	
2.10	Corrugation of sheets *	Shape, Surface finish, peeling of paint on both sides	A	Visual	100%	100%	IS 277 & BHEL PO	IS 277 & BHEL PO	IR	√	P	V	-	*if applicable

LEGEND: * RECORDS IDENTIFIED WITH "TICK" (√) SHALL BE ESSENTIALLY INCLUDED BY THE SUPPLIER IN QA DOCUMENTATION;

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BHEL TIRUCHIRAPPALLI
APPROVED SUPPLIERS

STANDARD QUALITY PLAN

PRODUCT: PRE-PAINTED GALVANIZED STEEL SHEETS

SUB-SYSTEM :Steam Generator and Auxiliaries

QWI NO:SQP:SD:02

REV NO: 01 DATE: 16/08/2017

PAGE: 3 OF 3

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					M	C				N	M	C	
1	2	3	4	5	M	C/N	7	8	9	D*	**	10	11

2.11	Sheets	Dimensions of Corrugated/plane sheets	B	Measurements	100%	100%	BHEL PO & BHEL approved drawing	BHEL PO & BHEL approved drawing	IR	√	P	V	-	
3	TESTING ON PAINTED COILS/SHEETS – Tests shall be done at manufacturer's lab or NABL accredited labs.													
3.1	Bend Test	Peeling or crack of Paint	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.2 of IS 14246	Cl 6.2 of IS 14246*	IR	√	P	V	V	*No peeling or cracking of paint.
3.2	Pencil Hardness Test (2H)	Scratch proof	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.3 of IS 14246	Cl 6.3 of IS 14246#	IR	√	P	V	V	#No scratch
3.3	Impact Resistance Test	Impact resistance	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.4 of IS 14246	Cl 6.4 of IS 14246*	IR	√	P	V	V	*No peeling or cracking of paint.
3.4	Cross Hatch Test	No lifting of paint	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.5 of IS 14246	Cl 6.5 of IS 14246#	IR	√	P	V	V	#No lifting of paint.
3.5	Salt Spray Test	Corrosion Resistance/ Durability of paint	B	Visual & Measurement	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.6 & 5.4 of IS 14246 & BHEL Specn.	Cl 6.6 & 5.4 of IS 14246 & BHEL Specn.	MTC /IR	√	P	V	V	
4.0	FINAL INSPECTION													
4.1	Dimensional Inspection	Dimensions & Shapes	B	Visual & Measurement	100%	Min 1, max 10 *	BHEL PO & BHEL approved drawing		IR	√	P	W	V	*at random for each PO item. @shall be available on each pack of sheets.
4.2	Paint Inspection	Color, Shade & DFT	C		100%		BHEL PO	BHEL PO	IR	√	P	W	V	
4.3	Marking & Identification	PO no, Item, Material No, Project Name	B	Visual	100%		BHEL PO	BHEL PO	IR	√	P	W	V	
4.4	Packing along with Handling & Storage instructions to Sites@	Water-proof packing & Stability	B	Visual	100%		BHEL PO	BHEL PO	IR	√	P	W	-	

Notes:

- For Customer inspection, if applicable, the stages indicated under Column N shall be followed with specific approval of BHEL/Customer for Witness/Verification by Customer.
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BHEL/TRICHY
MM/BOI/PURCHASE

REF:MM:PUR:BOI:ROOFSHEET

Pre-Qualification requirements (PQR) for the procurement of Roof sheets as per specification through Open Tender

Date :
Tender No & Date :
Supplier Name :
Supplier registered Address :
Supplier Plant Address :

A: Organizational Capability & Technical Competence:

Sl. No.	Pre –Qualification Criteria	Bidder acceptance / Bidder remarks
1.	Offers from bidders having basic in house manufacturing facilities for the enquired items are only eligible to participate. Offer from Traders, Distributors are not acceptable and will not be considered for evaluation. Vendor to indicate the nature of the Firm. (Trader/Distributor/Manufacturer). Product catalogue shall be submitted.	
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3.	Compliance to Technical requirements & Quality Plan (if applicable) as per tendered specification against each item of enquiry.	
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6.	Supplier shall have capacity to meet tender requirement.	
7.	Supplier offer will be considered subject to Customer Approval for Sagardighi and Bhuswal Contract.	
8.	BHEL reserve the right to inspect the item ordered at any stage at vendor's works and if found not meeting the stipulated conditions, material is liable for rejection.	

B: Past Experience/ Performance:

Sl. No.	Pre –Qualification Criteria	Bidder acceptance / Bidder remarks
1.	Suppliers shall indicate their annual installed capacity for the tendered specification & it shall be more than the tendered quantity.	
2.	Suppliers shall have supplied similar items to the tendered Scope/Specification.	
3.	Suppliers shall submit Supply credentials for last 3 years successful supply of Roof Sheets (i.e. PPGI or PPGL) like unpriced PO copies with corresponding proof of supply (such as invoice/bill of lading copies and test certificates covering shall be submitted.)	
4.	Supplier shall have to submit contact details of the customers to whom successful supply completed.	

BHEL/TRICHY
MM/BOI/PURCHASE

REF:MM:PUR:BOI:ROOFSHEET

Pre-Qualification requirements (PQR) for the procurement of Roof sheets as per specification through Open Tender

C. Financial Soundness:

Sl. No.	Pre –Qualification Criteria	Bidder acceptance / Bidder remarks
1.	Indigenous suppliers shall submit copies of annual reports (balance sheets), profit & Loss Statement for the last three years (or from date of incorporation whichever is less) and GST Certificate.	

Necessary supporting documents shall be submitted for meeting each of the above Pre-Qualification Criteria for technical evaluation of the offers.

BHEL reserves the right to consider/Not-consider the offers based on the evaluation of documents submitted for the above Pre-Qualification Criteria. If required, BHEL also reserves the right to verify information submitted by vendor. In case the information is found false/incorrect, the offer shall be rejected. BHEL also reserves the right to carry out audit checks for confirming the material properties on the supplied material during material receipt at BHEL. Supplies found defective during check or subsequent processing at BHEL will be rejected.

ANNEXURE A					
Previous Experience Details					
SL NO	Project Name	Rating (MW)	Customer Name	Year of supply	WBPDCL Remarks
1					
2					
3					
4					
Credentials to be provided					

ITEM: PPGI. RIDGE PIECE: 0.63X400X2440

"HEAVY DUTY CLASS" CONTINUOUSLY PREPAINTED GALVANISED STEEL SHEETS TO SPECIFICATION IS:14246 AS PER FOLLOWING REQUIREMENTS.

BASE METAL : Mild steel as per IS:513

NOMINAL THICKNESS : 0.63mm (Without negative tolerance) (i.e excluding the thickness of galvanizing and painting).

GALVANISING : The base metal shall be Zinc Coating (Aluminium to be added during galvanization process as per IS 2629 Clause 5.2) at the rate of 275gms/sq.m as per IS:277

TOP SIDE PAINT : Top side coating shall be 20 microns minimum of SMP (Silicone Modified Polyester) painting with DFT over primer. The Top colour of sheets shall be BLUE (RAL 5012).

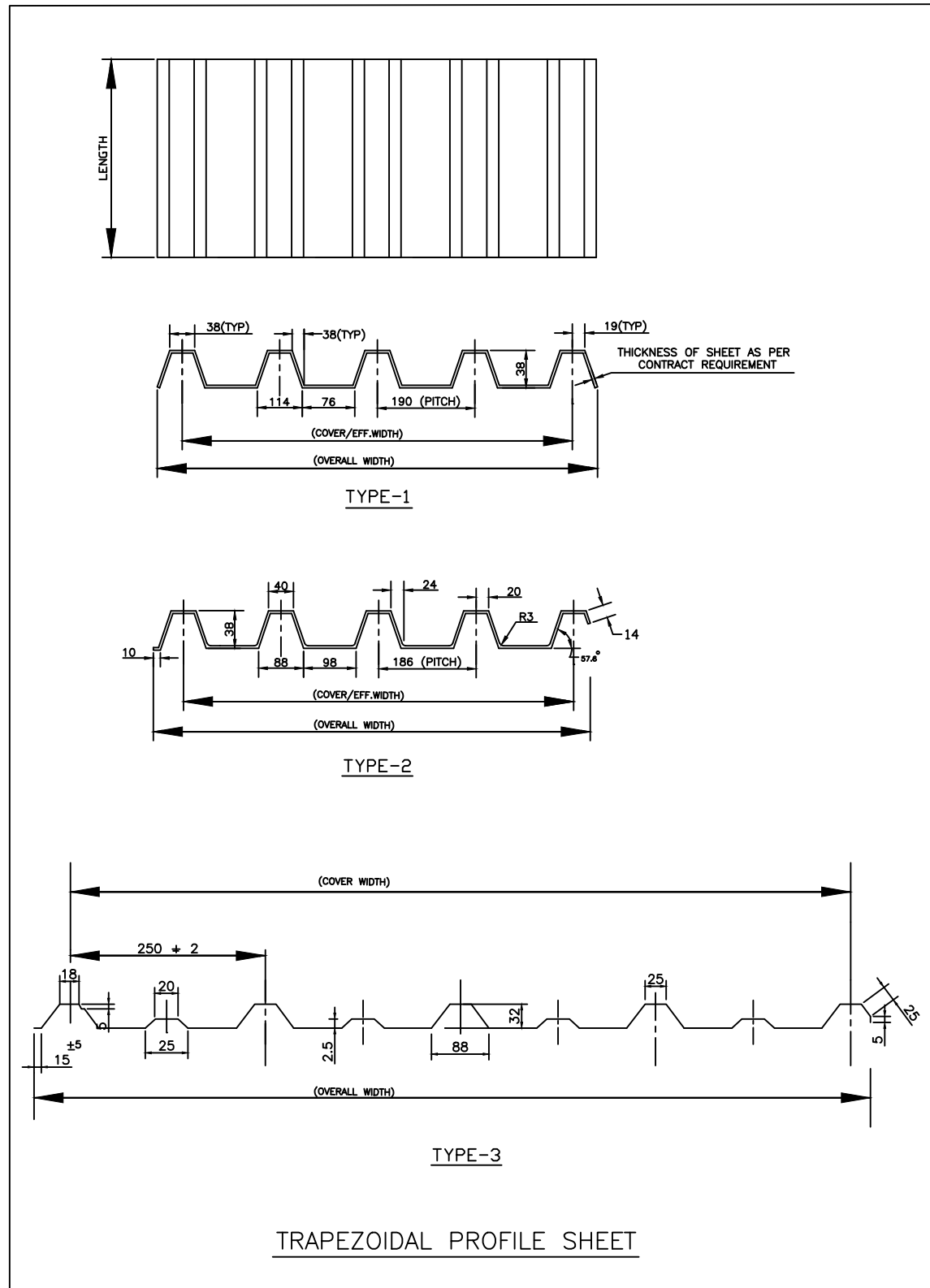
BOTTOM SIDE PAINT : Bottom side coating shall be 7 microns minimum of SMP (Silicone Modified Polyester) painting with DFT over primer. Bottom side colour of sheets shall be Grey (RAL 9002)

DURABILITY OF PAINT: As per Class – 3 of IS:14246

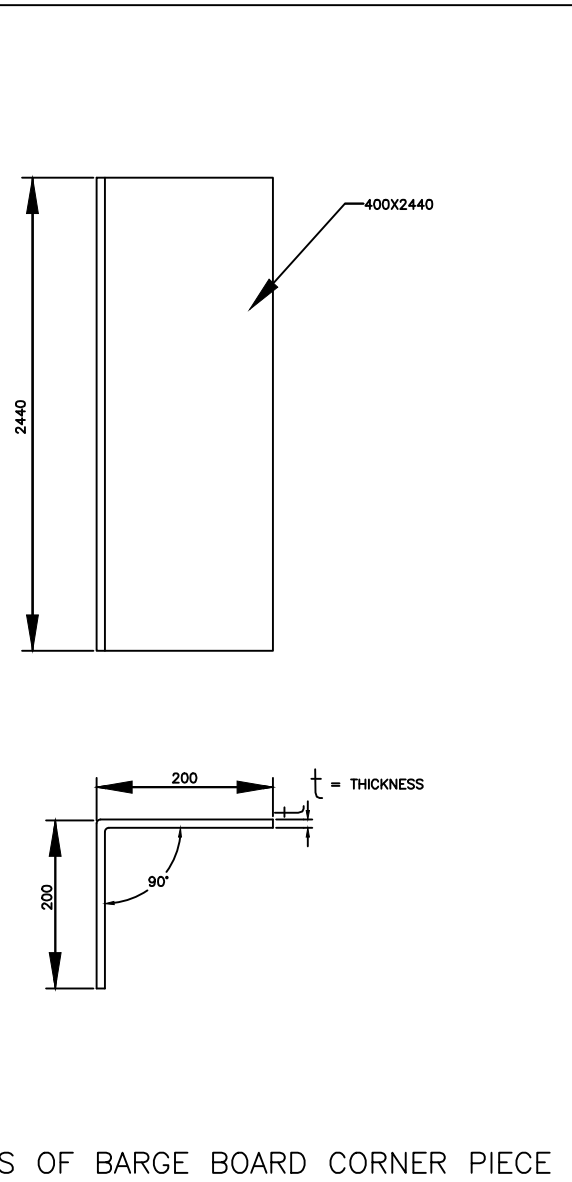
Note:

- Ridge Piece shall be as per BHEL Drawing: 3-35-611-80440.
- Packing, Handling and storage of the sheets shall be as per the enclosed Packing, handling and storage instructions.
- BHEL Standard Quality Plan SQPSD02_01 enclosed to be followed

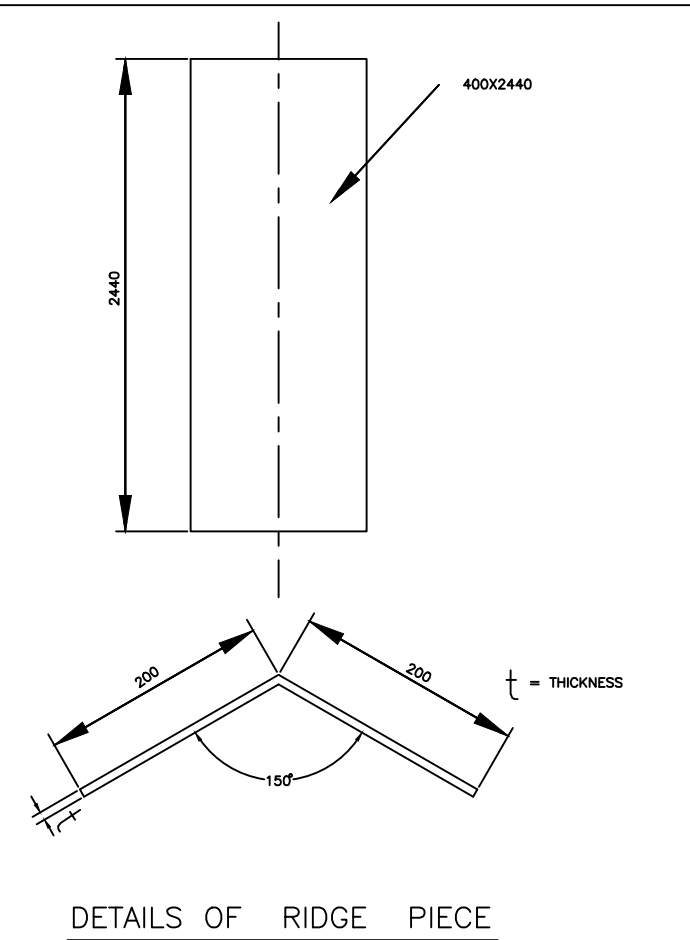
Sagardidhi Contract, Vendor approval is applicable, the supplier shall submit all the credentials as per Annexure A.



TRAPEZOIDAL PROFILE SHEET



DETAILS OF BARGE BOARD CORNER PIECE



DETAILS OF RIDGE PIECE

ALL DIMENSIONS ARE IN MM

REV	DATE	ALTERED	S.SIVA
01	28/09/10	CHKD & APPD	S.MURALISANKAR
ZONE	NOTES AND DIMENSIONS REMOVED		

CAUTION: 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.

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT				Bharat Heavy Electricals Ltd UNIT: HIGH PRESSURE BOILER PLANT TIRUCHIRAPALLI - 620014	
DEPT FBC & HRSG	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE 1322			N.T.S		
TITLE				DRAWING NO :	REV
DETAILS OF TRAPEZOIDAL PROFILE SHEET, BARGE BOARD & RIDGE PIECE				3-35-611-80440	01

Handling and storage of coated steel products

Must be pasted on all packets clearly visible from outside

For longer life/durability after application, no wastage/damage of coated steel products below handling and storage guidelines are very important.

Handling

- 1) Use nylon/fiber felts for Handling. Do not use steel Wire rope/chains lifting /downloading / Moving
- 2) Use cushioning (wood /rubber) at bottom of & secure lashing & dunnaging **while** transportation.
- 3) Do not transport materials with water/chemicals/vegetables / animals/cement....
- 4) Unload carefully; avoid any packing damages due to unloading/handling.
- 5) If received wet & with damaged packing, Unpack, dry & repack.

Storage

- 1) Store materials on wooden support well over the flat & clean dry floor & temperature below 50°C.
- 2) Do not store materials on wet, damp, muddy floors /lands **directly**. If no option, use about 2 feet steel/ wooden platforms over such places for storing for only for few days.
- 3) Store in well ventilated, dry & protected from rain godowns/shades.
- 4) After Unpacking use materials within couple of days & balance materials remains if any, repack and store for further use.
- 5) Store away from chemicals / cement & any wet materials.

PACKING METHOD

PACKING DETAILS FOR PRE COATED GALVANIZED ROOF SHEET, PRECOATED GALVALUME ROOF SHEET, RIDGE PIECE, CORNER BARGE BOARD AND PLAIN SHEETS

Packing material for Pre Coated Products:

Sl No	Packing Materials(Layers)	Nos
1	LDPE	1
2	HDPE	1
3	Metal Box	1
4	Wooden pallet/Wooden Skid at bottom	Top metal box over bottom box as shown in figure-1
5	High tensile packing straps & tags	Along length 2, Along width every 1 m length + 2 tags.

SHEET PACKING:

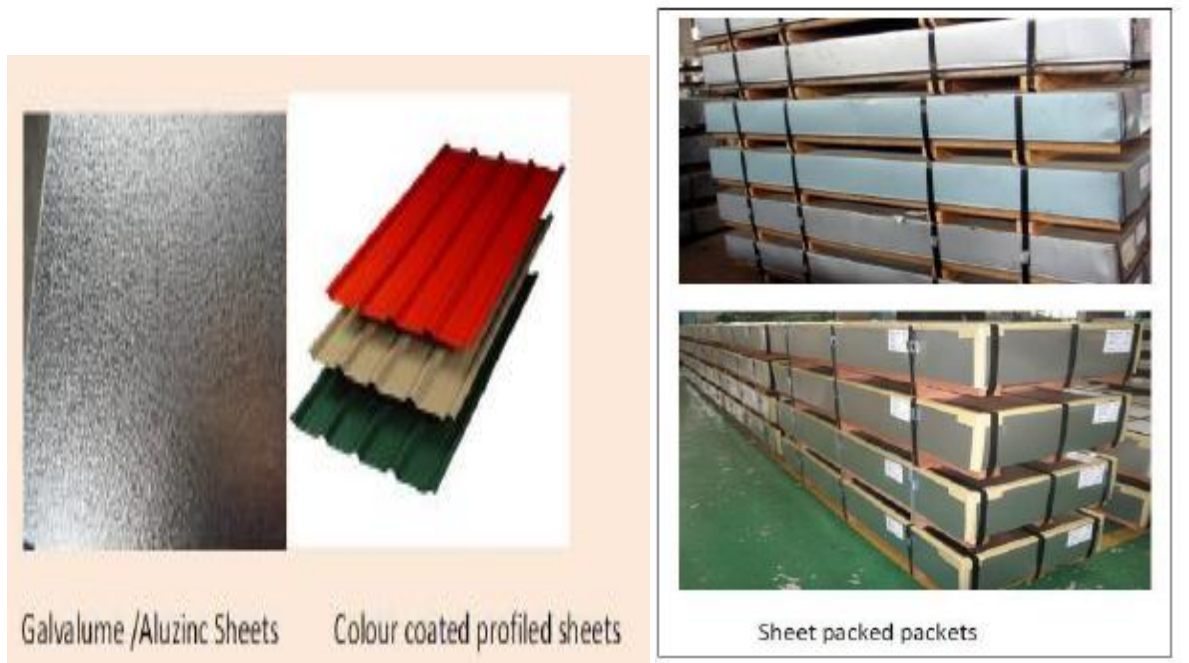


Figure-1



BHARAT HEAVY ELECTRICALS LIMITED
TIRUCHIRAPPALLI - 620 014, INDIA.
QUALITY ASSURANCE DEPARTMENT

STANDARD QUALITY PLAN FOR PRE-PAINTED GALVANIZED STEEL SHEETS

SQP:SD:02 Rev No: 01

Page: 1 of 3

Prepared By
Quality Assurance

ABDUR RAHMAN SULTAN

Abdur 16.08.2017

Reviewed by	Signature
Quality Assurance (G. PANNESSELVAM)	<i>[Signature]</i>
Engineering (M - SHANMUGAM)	<i>[Signature]</i>
Materials Management (M. RADHAKRISHNAN)	<i>[Signature]</i>
Quality Control R. DHARMAR	<i>[Signature]</i>

Rev No	Date	Approved by	Signature
01	16/08/2017	AGM / QA & BE	<i>[Signature]</i> 16/08/17

Record of Revisions

Rev No	Details of Revision	Remarks
00	Fresh Issue	
01	Cl. 1.0 , 3.1 to 3.5 revised, 3.6 to 3.8 removed based on feedback from MM	Raw material sources removed, Quantum of testing revised.

Proprietary Data - For Internal Use Only



MANUFACTURER'S
NAME & ADDRESS:
BHEL TIRUCHIRAPPALLI
APPROVED SUPPLIERS

STANDARD QUALITY PLAN

PRODUCT: PRE-PAINTED GALVANIZED STEEL SHEETS

SUB-SYSTEM : Steam Generator and Auxiliaries

QWI NO:SQP:SD:02

REV NO: 01 DATE: 16/08/2017

PAGE: 2 OF 3

SL. NO	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
					M	C				N	M	C	
1	2	3	4	5	M	C/N	7	8	9	D*	**	10	11

1.0 RAW MATERIALS

1.0	Steel Sheets/Coils	Chemical & Mechanical Properties (YS, TS, %Elong), Hardness, Cupping & bend tests	A	TC Verification	IS 513	IS 513	IS 513 & BHEL PO	IS 513 – Design CR1 Gr 390 & BHEL PO	MTC	√	P	V	V	
		Surface Finish	B	Visual	IS 513	IS 513	IS 513	Cl 8 of IS 513	MTC	√	P	V	-	
		Freedom from defects	B	Visual	IS 513	IS 513	IS 513	Cl 9 of IS 513	MTC	√	P	V	-	
		Dimensions	B	Measurement	IS 513	IS 513	IS 513	BHEL PO	MTC	√	P	V	-	

2.0 INPROCESS CONTROLS

GALVANIZING

2.1	Steel Sheets/Coils	Cleaning & Degreasing	A	Visual	100%	100%	IS 277 & BHEL PO	IS 277 & BHEL PO	Log	√	P	V	-	
2.2	Zinc Ingots*	Chemical properties	B	TC Verification	100%	100%	IS 209/ IS 13229	IS 209/ IS 13229	MTC	√	P	V	-	*Grade G250
2.3	Galvanization	Galvanizing	A	Visual	100%	100%	IS 277 & BHEL PO	IS 277 & BHEL PO	MTC	√	P	V	-	
2.4	Bend Test for zinc coating	Peeling of, flaking, cracking	B	Visual	Cl 8 of IS 277	Cl 8 of IS 277	Cl 8 of IS 277 & BHEL PO	Cl 8 of IS 277 & BHEL PO	IR	√	P	V	-	
2.5	Zinc Coating Test	Weight of coating of galvanizing*	B	Measurements	Cl 9 of IS 277	Cl 9 of IS 277	IS 277 & BHEL PO	IS 277 & BHEL PO	IR	√	P	V	-	*both sides inclusive: 275 gsm
2.6	Galvanized sheets/coils	Surface Finish	B	Visual	100%	100%	Cl 11 of IS 277	Cl 11 of IS 277	IR	√	P	V	-	

PAINTING & CORRUGATION

2.7	Paint Coating Selection	Paint Class, viscosity, etc.	B	Visual	100%	100%	BHEL PO	BHEL PO	MTC	√	P	V	-	
2.8	Alkali Cleaning; Rinsing with Hot & cold water*;	Cleanliness of galvanized Sheets before painting	A	Visual	100%	100%	Manufacturer's std	Freedom from oil, grease, dirt.	Log	√	P	V	-	* followed by Chromate soln treatment at room temperature
2.9	Painting: Primer on both sides; Top & bottom coats	Surface Preparation, Color Shade & DFT	B	Visual & Measurement	100%	100%	BHEL PO	BHEL PO	IR	√	P	V	-	
2.10	Corrugation of sheets *	Shape, Surface finish, peeling of paint on both sides	A	Visual	100%	100%	IS 277 & BHEL PO	IS 277 & BHEL PO	IR	√	P	V	-	*if applicable

LEGEND: * RECORDS IDENTIFIED WITH "TICK" (√) SHALL BE ESSENTIALLY INCLUDED BY THE SUPPLIER IN QA DOCUMENTATION;
**** M:** MANUFACTURER (COIL/PROFILER), **C:** BHEL QC/BHEL AIA, **N:** CUSTOMER; **P:** PERFORM. **W:** WITNESS, **V:** VERIFICATION; **CLASS:** A - CRITICAL ; B - MAJOR ; C - MINOR;
MTC- Mill /Manufacturer's Test Certificate; IR- Inspection/Test Report; (R): Routine test; (I)/(Ts): Type test.



MANUFACTURER'S
NAME & ADDRESS:
BHEL TIRUCHIRAPPALLI
APPROVED SUPPLIERS

STANDARD QUALITY PLAN

PRODUCT: PRE-PAINTED GALVANIZED STEEL SHEETS

SUB-SYSTEM :Steam Generator and Auxiliaries

QWI NO:SQP:SD:02

REV NO: 01 DATE: 16/08/2017

PAGE: 3 OF 3

SL. NO	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
					M	C				N	M	C	
1	2	3	4	5	M	C/N	7	8	9	D*	**	10	11

2.11	Sheets	Dimensions of Corrugated/plane sheets	B	Measurements	100%	100%	BHEL PO & BHEL approved drawing	BHEL PO & BHEL approved drawing	IR	√	P	V	-	
3	TESTING ON PAINTED COILS/SHEETS – Tests shall be done at manufacturer's lab or NABL accredited labs.													
3.1	Bend Test	Peeling or crack of Paint	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.2 of IS 14246	Cl 6.2 of IS 14246*	IR	√	P	V	V	*No peeling or cracking of paint.
3.2	Pencil Hardness Test (2H)	Scratch proof	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.3 of IS 14246	Cl 6.3 of IS 14246#	IR	√	P	V	V	#No scratch
3.3	Impact Resistance Test	Impact resistance	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.4 of IS 14246	Cl 6.4 of IS 14246*	IR	√	P	V	V	*No peeling or cracking of paint.
3.4	Cross Hatch Test	No lifting of paint	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.5 of IS 14246	Cl 6.5 of IS 14246#	IR	√	P	V	V	#No lifting of paint.
3.5	Salt Spray Test	Corrosion Resistance/ Durability of paint	B	Visual & Measurement	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.6 & 5.4 of IS 14246 & BHEL Specn.	Cl 6.6 & 5.4 of IS 14246 & BHEL Specn.	MTC /IR	√	P	V	V	
4.0	FINAL INSPECTION													
4.1	Dimensional Inspection	Dimensions & Shapes	B	Visual & Measurement	100%	Min 1, max 10 *	BHEL PO & BHEL approved drawing		IR	√	P	W	V	*at random for each PO item. @shall be available on each pack of sheets.
4.2	Paint Inspection	Color, Shade & DFT	C		100%		BHEL PO	BHEL PO	IR	√	P	W	V	
4.3	Marking & Identification	PO no, Item, Material No, Project Name	B	Visual	100%		BHEL PO	BHEL PO	IR	√	P	W	V	
4.4	Packing along with Handling & Storage instructions to Sites@	Water-proof packing & Stability	B	Visual	100%		BHEL PO	BHEL PO	IR	√	P	W	-	

Notes:

- For Customer inspection, if applicable, the stages indicated under Column N shall be followed with specific approval of BHEL/Customer for Witness/Verification by Customer.
- The latest editions/revisions of the above mentioned/referred standards/procedures shall be used.

LEGEND: * RECORDS IDENTIFIED WITH "TICK" (√) SHALL BE ESSENTIALLY INCLUDED BY THE SUPPLIER IN QA DOCUMENTATION;
**** M:** MANUFACTURER (COIL/PROFILER), **C:** BHEL QC/BHEL AIA, **N:** CUSTOMER; **P:** PERFORM. **W:** WITNESS, **V:** VERIFICATION; **CLASS:** A - CRITICAL ; B - MAJOR ; C - MINOR;
MTC- Mill /Manufacturer's Test Certificate; IR- Inspection/Test Report; (R): Routine test; (I)/(Ts): Type test.

BHEL/TRICHY
MM/BOI/PURCHASE

REF:MM:PUR:BOI:ROOFSHEET

Pre-Qualification requirements (PQR) for the procurement of Roof sheets as per specification through Open Tender

Date :
Tender No & Date :
Supplier Name :
Supplier registered Address :
Supplier Plant Address :

A: Organizational Capability & Technical Competence:

Sl. No.	Pre –Qualification Criteria	Bidder acceptance / Bidder remarks
1.	Offers from bidders having basic in house manufacturing facilities for the enquired items are only eligible to participate. Offer from Traders, Distributors are not acceptable and will not be considered for evaluation. Vendor to indicate the nature of the Firm. (Trader/Distributor/Manufacturer). Product catalogue shall be submitted.	
2.	Compliance to Tendered Specification is mandatory for consideration of offer.	
3.	Compliance to Technical requirements & Quality Plan (if applicable) as per tendered specification against each item of enquiry.	
4.	Manufacturing plant address & available equipment's for manufacturing the tendered items shall be provided along with offer.	
5.	Suppliers shall submit Quality Management System certificate or Written down procedure.	
6.	Supplier shall have capacity to meet tender requirement.	
7.	Supplier offer will be considered subject to Customer Approval for Sagardighi and Bhuswal Contract.	
8.	BHEL reserve the right to inspect the item ordered at any stage at vendor's works and if found not meeting the stipulated conditions, material is liable for rejection.	

B: Past Experience/ Performance:

Sl. No.	Pre –Qualification Criteria	Bidder acceptance / Bidder remarks
1.	Suppliers shall indicate their annual installed capacity for the tendered specification & it shall be more than the tendered quantity.	
2.	Suppliers shall have supplied similar items to the tendered Scope/Specification.	
3.	Suppliers shall submit Supply credentials for last 3 years successful supply of Roof Sheets (i.e. PPGI or PPGL) like unpriced PO copies with corresponding proof of supply (such as invoice/bill of lading copies and test certificates covering shall be submitted.)	
4.	Supplier shall have to submit contact details of the customers to whom successful supply completed.	

BHEL/TRICHY
MM/BOI/PURCHASE

REF:MM:PUR:BOI:ROOFSHEET

Pre-Qualification requirements (PQR) for the procurement of Roof sheets as per specification through Open Tender

C. Financial Soundness:

Sl. No.	Pre –Qualification Criteria	Bidder acceptance / Bidder remarks
1.	Indigenous suppliers shall submit copies of annual reports (balance sheets), profit & Loss Statement for the last three years (or from date of incorporation whichever is less) and GST Certificate.	

Necessary supporting documents shall be submitted for meeting each of the above Pre-Qualification Criteria for technical evaluation of the offers.

BHEL reserves the right to consider/Not-consider the offers based on the evaluation of documents submitted for the above Pre-Qualification Criteria. If required, BHEL also reserves the right to verify information submitted by vendor. In case the information is found false/incorrect, the offer shall be rejected. BHEL also reserves the right to carry out audit checks for confirming the material properties on the supplied material during material receipt at BHEL. Supplies found defective during check or subsequent processing at BHEL will be rejected.

ANNEXURE A					
Previous Experience Details					
SL NO	Project Name	Rating (MW)	Customer Name	Year of supply	WBPDCL Remarks
1					
2					
3					
4					
Credentials to be provided					

**ITEM: PPGI. TRAPEZOIDAL PROFILE ROOF SHEET:
0.63X1060X4350**

**"HEAVY DUTY CLASS" CONTINUOUSLY PREPAINTED
GALVANISED STEEL SHEETS TO SPECIFICATION IS:14246 AS PER
FOLLOWING REQUIREMENTS.**

BASE METAL : Mild steel as per IS:513

NOMINAL THICKNESS : 0.63mm (Without negative tolerance) (i.e excluding the thickness of galvanizing and painting).

GALVANISING : The base metal shall be Zinc Coating (Aluminium to be added during galvanization process as per IS 2629 Clause 5.2) at the rate of 275gms/sq.m as per IS:277

TOP SIDE PAINT : Top side coating shall be 20 microns minimum of SMP (Silicone Modified Polyester) painting with DFT over primer. The Top colour of sheets shall be BLUE (RAL 5012).

BOTTOM SIDE PAINT : Bottom side coating shall be 7 microns minimum of SMP (Silicone Modified Polyester) painting with DFT over primer. Bottom side colour of sheets shall be Grey (RAL 9002)

DURABILITY OF PAINT: As per Class – 3 of IS:14246

CORRUGATION PROFILE: As per BHEL drawing no 3-35-611-80440 Rev 01 or suppliers own profile

satisfying following requirements of BHEL, (supplier to submit design calculations)

The corrugated sheet should be capable of resisting within the safe limit,

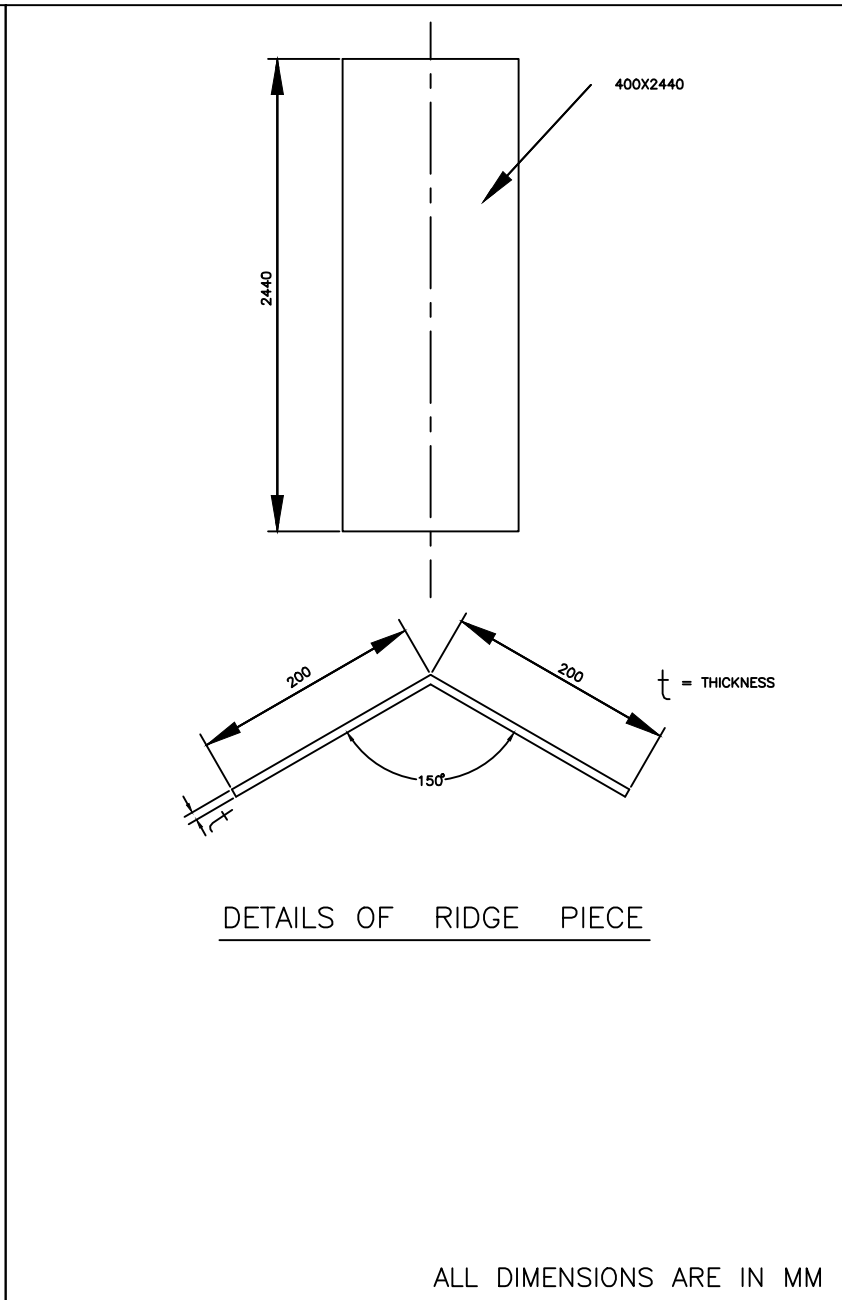
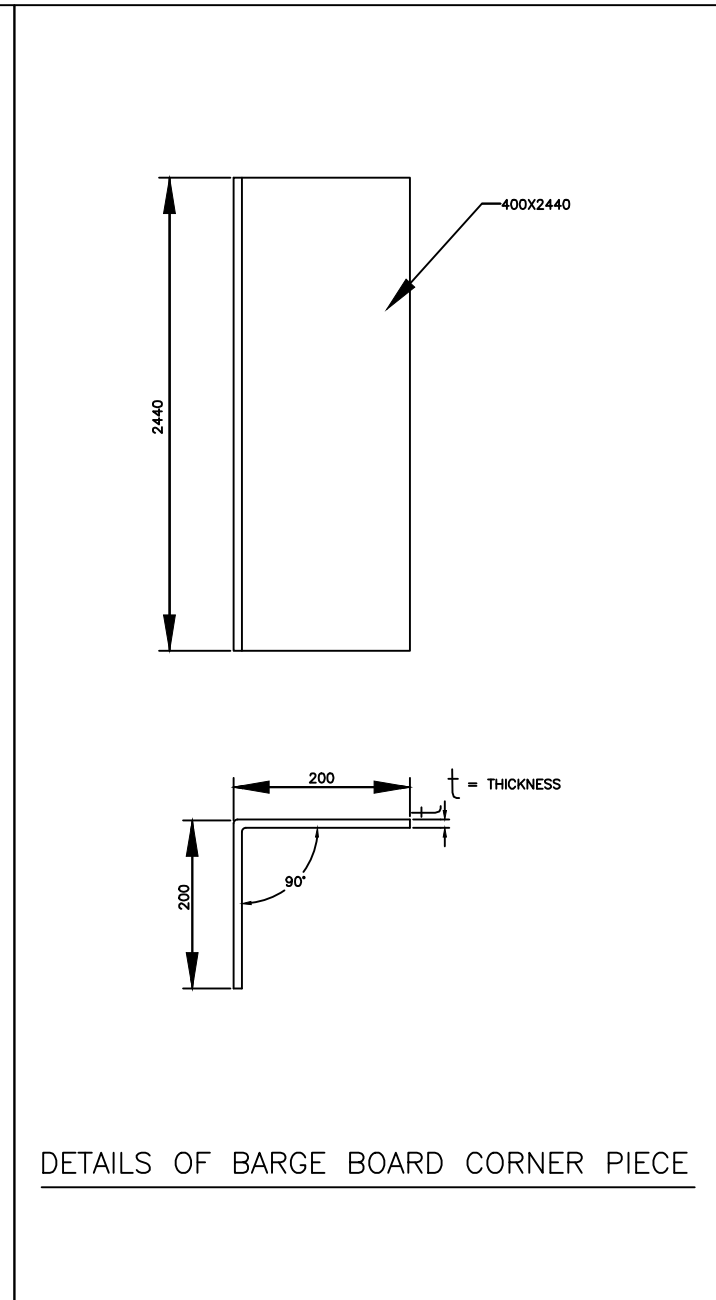
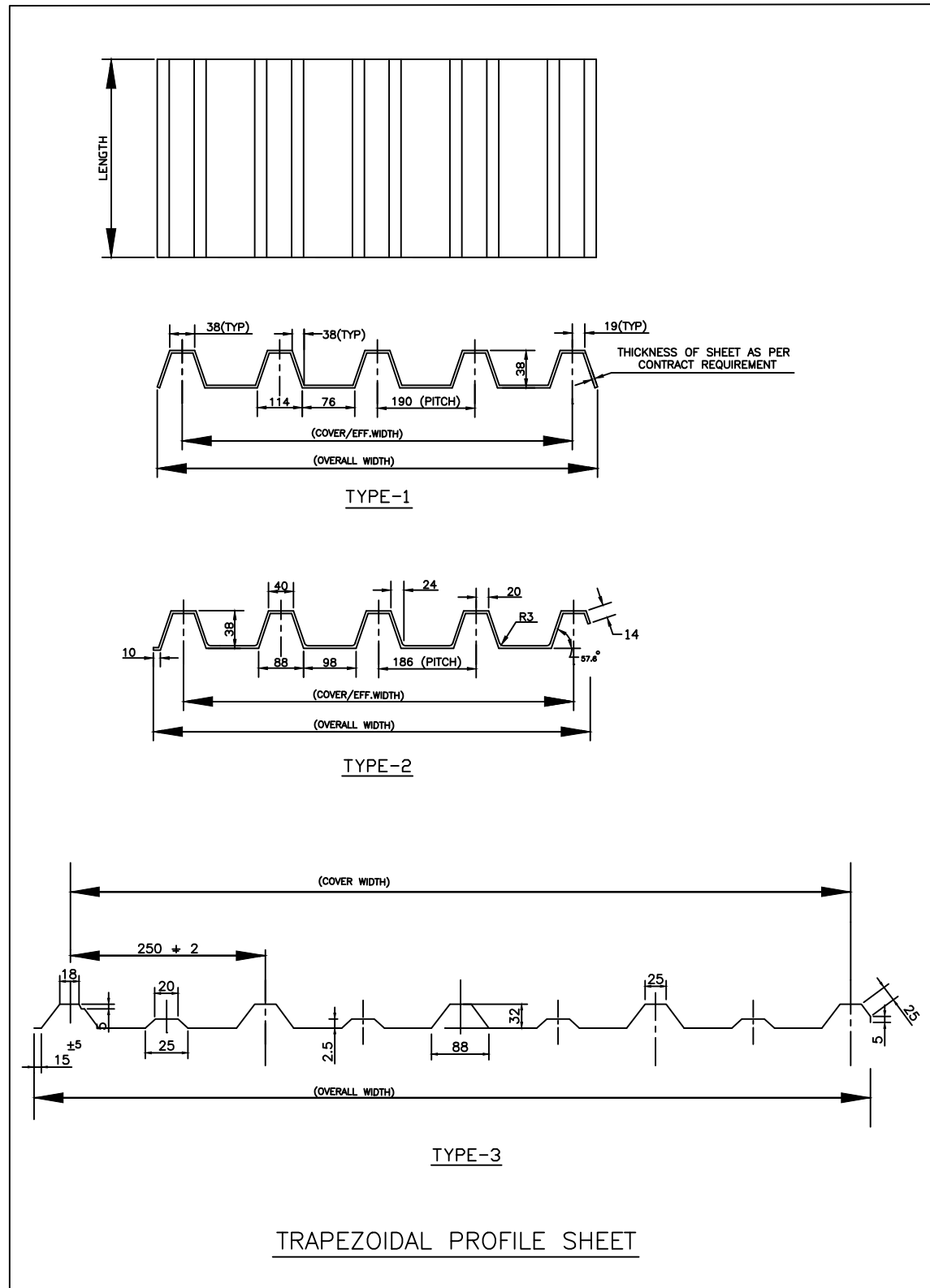
- a. Maximum purlin spacing – 1400 mm
- b. Deflection criteria -- L/250
- c. Live load 1.5 Kn/Sq.m roof slope 10 degree
- d. Wind load 2.80 Kn/Sq.m

Vendors have to submit their profile drawings along with design calculation fulfilling above parameter. Drawing must clearly mention Drg No, revision number and date.

NOTE:

- Packing, Handling and storage of the sheets shall be as per the enclosed Packing, handling and storage instructions.
- BHEL Standard Quality Plan SQPSD02_01 enclosed to be followed.

Sagardidhi Contract, Vendor approval is applicable, the supplier shall submit all the credentials as per Annexure A.



ALL DIMENSIONS ARE IN MM

TRAPEZOIDAL PROFILE SHEET

DETAILS OF BARGE BOARD CORNER PIECE

DETAILS OF RIDGE PIECE

REV	DATE	ALTERED	S.SIVA
01	28/09/10	CHKD & APPD	S.MURALISANKAR
ZONE	NOTES AND DIMENSIONS REMOVED		

CAUTION: 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.

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT				Bharat Heavy Electricals Ltd UNIT: HIGH PRESSURE BOILER PLANT TIRUCHIRAPALLI - 620014	
DEPT FBC & HRSG	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE 1322			N.T.S		
TITLE				DRAWING NO :	REV
DETAILS OF TRAPEZOIDAL PROFILE SHEET, BARGE BOARD & RIDGE PIECE				3-35-611-80440	01

Handling and storage of coated steel products

Must be pasted on all packets clearly visible from outside

For longer life/durability after application, no wastage/damage of coated steel products below handling and storage guidelines are very important.

Handling

- 1) Use nylon/fiber felts for Handling. Do not use steel Wire rope/chains lifting /downloading / Moving
- 2) Use cushioning (wood /rubber) at bottom of & secure lashing & dunnaging **while** transportation.
- 3) Do not transport materials with water/chemicals/vegetables / animals/cement....
- 4) Unload carefully; avoid any packing damages due to unloading/handling.
- 5) If received wet & with damaged packing, Unpack, dry & repack.

Storage

- 1) Store materials on wooden support well over the flat & clean dry floor & temperature below 50°C.
- 2) Do not store materials on wet, damp, muddy floors /lands **directly**. If no option, use about 2 feet steel/ wooden platforms over such places for storing for only for few days.
- 3) Store in well ventilated, dry & protected from rain godowns/shades.
- 4) After Unpacking use materials within couple of days & balance materials remains if any, repack and store for further use.
- 5) Store away from chemicals / cement & any wet materials.

PACKING METHOD

PACKING DETAILS FOR PRE COATED GALVANIZED ROOF SHEET, PRECOATED GALVALUME ROOF SHEET, RIDGE PIECE, CORNER BARGE BOARD AND PLAIN SHEETS

Packing material for Pre Coated Products:

Sl No	Packing Materials(Layers)	Nos
1	LDPE	1
2	HDPE	1
3	Metal Box	1
4	Wooden pallet/Wooden Skid at bottom	Top metal box over bottom box as shown in figure-1
5	High tensile packing straps & tags	Along length 2, Along width every 1 m length + 2 tags.

SHEET PACKING:

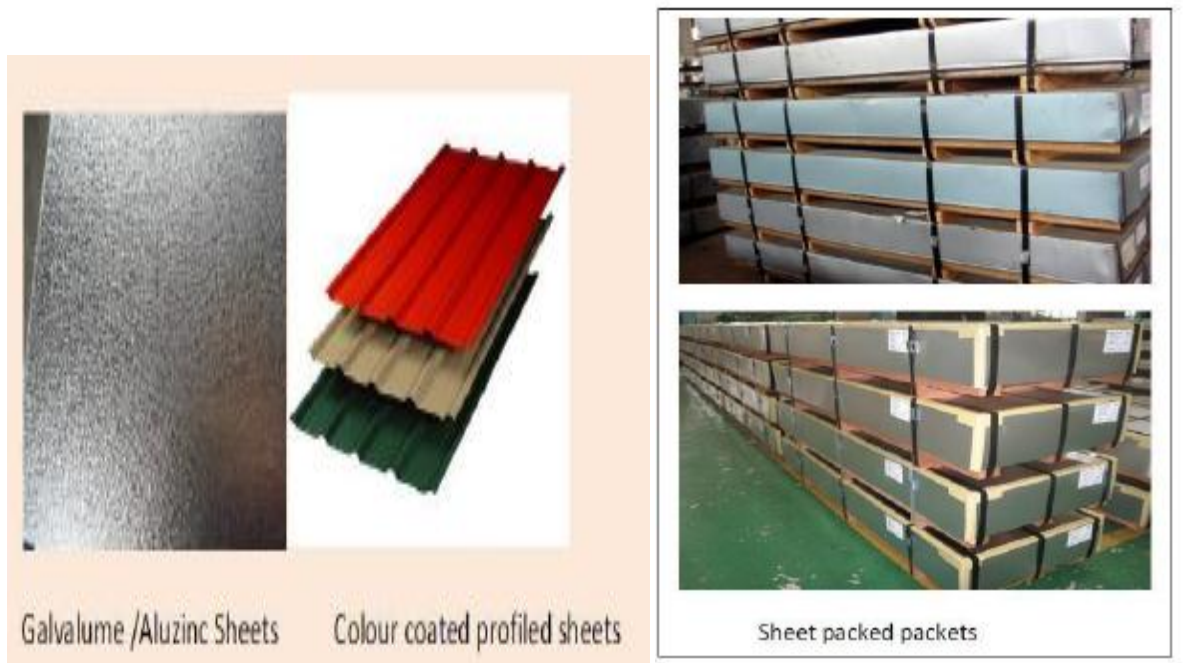


Figure-1



BHARAT HEAVY ELECTRICALS LIMITED
TIRUCHIRAPPALLI - 620 014, INDIA.
QUALITY ASSURANCE DEPARTMENT

STANDARD QUALITY PLAN FOR PRE-PAINTED GALVANIZED STEEL SHEETS

SQP:SD:02 Rev No: 01

Page: 1 of 3

Prepared By
Quality Assurance

ABDUR RAHMAN SULTAN

Abdur 16.08.2017

Reviewed by	Signature
Quality Assurance (G. PANNESSELVAN)	<i>[Signature]</i>
Engineering (M - SHANMUGAM)	<i>[Signature]</i>
Materials Management (M. RADHAKRISHNAN)	<i>[Signature]</i>
Quality Control R. DHARMAR	<i>[Signature]</i>

Rev No	Date	Approved by	Signature
01	16/08/2017	AGM / QA & BE	<i>Revised</i> 16/08/17

Record of Revisions

Rev No	Details of Revision	Remarks
00	Fresh Issue	
01	Cl. 1.0 , 3.1 to 3.5 revised, 3.6 to 3.8 removed based on feedback from MM	Raw material sources removed, Quantum of testing revised.

Proprietary Data - For Internal Use Only



MANUFACTURER'S
NAME & ADDRESS:
BHEL TIRUCHIRAPPALLI
APPROVED SUPPLIERS

STANDARD QUALITY PLAN

PRODUCT: PRE-PAINTED GALVANIZED STEEL SHEETS

SUB-SYSTEM :Steam Generator and Auxiliaries

QWI NO:SQP:SD:02

REV NO: 01 DATE: 16/08/2017

PAGE: 2 OF 3

SL. NO	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
					M	C				N	M	C	
1	2	3	4	5	M	C/N	7	8	9	D*	**	10	11

1.0 RAW MATERIALS

1.0	Steel Sheets/Coils	Chemical & Mechanical Properties (YS, TS, %Elong), Hardness, Cupping & bend tests	A	TC Verification	IS 513	IS 513	IS 513 & BHEL PO	IS 513 – Design CR1 Gr 390 & BHEL PO	MTC	√	P	V	V	
		Surface Finish	B	Visual	IS 513	IS 513	IS 513	Cl 8 of IS 513	MTC	√	P	V	-	
		Freedom from defects	B	Visual	IS 513	IS 513	IS 513	Cl 9 of IS 513	MTC	√	P	V	-	
		Dimensions	B	Measurement	IS 513	IS 513	IS 513	BHEL PO	MTC	√	P	V	-	

2.0 INPROCESS CONTROLS

GALVANIZING

2.1	Steel Sheets/Coils	Cleaning & Degreasing	A	Visual	100%	100%	IS 277 & BHEL PO	IS 277 & BHEL PO	Log	√	P	V	-	
2.2	Zinc Ingots*	Chemical properties	B	TC Verification	100%	100%	IS 209/ IS 13229	IS 209/ IS 13229	MTC	√	P	V	-	*Grade G250
2.3	Galvanization	Galvanizing	A	Visual	100%	100%	IS 277 & BHEL PO	IS 277 & BHEL PO	MTC	√	P	V	-	
2.4	Bend Test for zinc coating	Peeling of, flaking, cracking	B	Visual	Cl 8 of IS 277	Cl 8 of IS 277	Cl 8 of IS 277 & BHEL PO	Cl 8 of IS 277 & BHEL PO	IR	√	P	V	-	
2.5	Zinc Coating Test	Weight of coating of galvanizing*	B	Measurements	Cl 9 of IS 277	Cl 9 of IS 277	IS 277 & BHEL PO	IS 277 & BHEL PO	IR	√	P	V	-	*both sides inclusive: 275 gsm
2.6	Galvanized sheets/coils	Surface Finish	B	Visual	100%	100%	Cl 11 of IS 277	Cl 11 of IS 277	IR	√	P	V	-	

PAINTING & CORRUGATION

2.7	Paint Coating Selection	Paint Class, viscosity, etc.	B	Visual	100%	100%	BHEL PO	BHEL PO	MTC	√	P	V	-	
2.8	Alkali Cleaning; Rinsing with Hot & cold water*;	Cleanliness of galvanized Sheets before painting	A	Visual	100%	100%	Manufacturer's std	Freedom from oil, grease, dirt.	Log	√	P	V	-	* followed by Chromate soln treatment at room temperature
2.9	Painting: Primer on both sides; Top & bottom coats	Surface Preparation, Color Shade & DFT	B	Visual & Measurement	100%	100%	BHEL PO	BHEL PO	IR	√	P	V	-	
2.10	Corrugation of sheets *	Shape, Surface finish, peeling of paint on both sides	A	Visual	100%	100%	IS 277 & BHEL PO	IS 277 & BHEL PO	IR	√	P	V	-	*if applicable

LEGEND: * RECORDS IDENTIFIED WITH "TICK" (√) SHALL BE ESSENTIALLY INCLUDED BY THE SUPPLIER IN QA DOCUMENTATION;
**** M:** MANUFACTURER (COIL/PROFILER), **C:** BHEL QC/BHEL AIA, **N:** CUSTOMER; **P:** PERFORM. **W:** WITNESS, **V:** VERIFICATION; **CLASS:** A - CRITICAL ; B - MAJOR ; C - MINOR;
MTC- Mill /Manufacturer's Test Certificate; IR- Inspection/Test Report; (R): Routine test; (I)/(Ts): Type test.



MANUFACTURER'S
NAME & ADDRESS:
BHEL TIRUCHIRAPPALLI
APPROVED SUPPLIERS

STANDARD QUALITY PLAN

PRODUCT: PRE-PAINTED GALVANIZED STEEL SHEETS

SUB-SYSTEM :Steam Generator and Auxiliaries

QWI NO:SQP:SD:02

REV NO: 01 DATE: 16/08/2017

PAGE: 3 OF 3

SL. NO	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
					M	C				N			
1	2	3	4	5	M	C/N	7	8	9	D*	**	10	11

2.11	Sheets	Dimensions of Corrugated/plane sheets	B	Measurements	100%	100%	BHEL PO & BHEL approved drawing	BHEL PO & BHEL approved drawing	IR	√	P	V	-	
3	TESTING ON PAINTED COILS/SHEETS – Tests shall be done at manufacturer's lab or NABL accredited labs.													
3.1	Bend Test	Peeling or crack of Paint	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.2 of IS 14246	Cl 6.2 of IS 14246*	IR	√	P	V	V	*No peeling or cracking of paint.
3.2	Pencil Hardness Test (2H)	Scratch proof	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.3 of IS 14246	Cl 6.3 of IS 14246#	IR	√	P	V	V	#No scratch
3.3	Impact Resistance Test	Impact resistance	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.4 of IS 14246	Cl 6.4 of IS 14246*	IR	√	P	V	V	*No peeling or cracking of paint.
3.4	Cross Hatch Test	No lifting of paint	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.5 of IS 14246	Cl 6.5 of IS 14246#	IR	√	P	V	V	#No lifting of paint.
3.5	Salt Spray Test	Corrosion Resistance/ Durability of paint	B	Visual & Measurement	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.6 & 5.4 of IS 14246 & BHEL Specn.	Cl 6.6 & 5.4 of IS 14246 & BHEL Specn.	MTC /IR	√	P	V	V	
4.0	FINAL INSPECTION													
4.1	Dimensional Inspection	Dimensions & Shapes	B	Visual & Measurement	100%	Min 1, max 10 *	BHEL PO & BHEL approved drawing		IR	√	P	W	V	*at random for each PO item. @shall be available on each pack of sheets.
4.2	Paint Inspection	Color, Shade & DFT	C		100%		BHEL PO	BHEL PO	IR	√	P	W	V	
4.3	Marking & Identification	PO no, Item, Material No, Project Name	B	100%	BHEL PO		BHEL PO	IR	√	P	W	V		
4.4	Packing along with Handling & Storage instructions to Sites@	Water-proof packing & Stability	B	100%	BHEL PO		BHEL PO	IR	√	P	W	-		

Notes:

- For Customer inspection, if applicable, the stages indicated under Column N shall be followed with specific approval of BHEL/Customer for Witness/Verification by Customer.
- The latest editions/revisions of the above mentioned/referred standards/procedures shall be used.

LEGEND: * RECORDS IDENTIFIED WITH "TICK" (√) SHALL BE ESSENTIALLY INCLUDED BY THE SUPPLIER IN QA DOCUMENTATION;
**** M:** MANUFACTURER (COIL/PROFILER), **C:** BHEL QC/BHEL AIA, **N:** CUSTOMER; **P:** PERFORM. **W:** WITNESS, **V:** VERIFICATION; **CLASS:** A - CRITICAL ; B - MAJOR ; C - MINOR;
MTC- Mill /Manufacturer's Test Certificate; IR- Inspection/Test Report; (R): Routine test; (I)/(Ts): Type test.

BHEL/TRICHY
MM/BOI/PURCHASE

REF:MM:PUR:BOI:ROOFSHEET

Pre-Qualification requirements (PQR) for the procurement of Roof sheets as per specification through Open Tender

Date :
Tender No & Date :
Supplier Name :
Supplier registered Address :
Supplier Plant Address :

A: Organizational Capability & Technical Competence:

Sl. No.	Pre –Qualification Criteria	Bidder acceptance / Bidder remarks
1.	Offers from bidders having basic in house manufacturing facilities for the enquired items are only eligible to participate. Offer from Traders, Distributors are not acceptable and will not be considered for evaluation. Vendor to indicate the nature of the Firm. (Trader/Distributor/Manufacturer). Product catalogue shall be submitted.	
2.	Compliance to Tendered Specification is mandatory for consideration of offer.	
3.	Compliance to Technical requirements & Quality Plan (if applicable) as per tendered specification against each item of enquiry.	
4.	Manufacturing plant address & available equipment's for manufacturing the tendered items shall be provided along with offer.	
5.	Suppliers shall submit Quality Management System certificate or Written down procedure.	
6.	Supplier shall have capacity to meet tender requirement.	
7.	Supplier offer will be considered subject to Customer Approval for Sagardighi and Bhuswal Contract.	
8.	BHEL reserve the right to inspect the item ordered at any stage at vendor's works and if found not meeting the stipulated conditions, material is liable for rejection.	

B: Past Experience/ Performance:

Sl. No.	Pre –Qualification Criteria	Bidder acceptance / Bidder remarks
1.	Suppliers shall indicate their annual installed capacity for the tendered specification & it shall be more than the tendered quantity.	
2.	Suppliers shall have supplied similar items to the tendered Scope/Specification.	
3.	Suppliers shall submit Supply credentials for last 3 years successful supply of Roof Sheets (i.e. PPGI or PPGL) like unpriced PO copies with corresponding proof of supply (such as invoice/bill of lading copies and test certificates covering shall be submitted.)	
4.	Supplier shall have to submit contact details of the customers to whom successful supply completed.	

BHEL/TRICHY
MM/BOI/PURCHASE

REF:MM:PUR:BOI:ROOFSHEET

Pre-Qualification requirements (PQR) for the procurement of Roof sheets as per specification through Open Tender

C. Financial Soundness:

Sl. No.	Pre –Qualification Criteria	Bidder acceptance / Bidder remarks
1.	Indigenous suppliers shall submit copies of annual reports (balance sheets), profit & Loss Statement for the last three years (or from date of incorporation whichever is less) and GST Certificate.	

Necessary supporting documents shall be submitted for meeting each of the above Pre-Qualification Criteria for technical evaluation of the offers.

BHEL reserves the right to consider/Not-consider the offers based on the evaluation of documents submitted for the above Pre-Qualification Criteria. If required, BHEL also reserves the right to verify information submitted by vendor. In case the information is found false/incorrect, the offer shall be rejected. BHEL also reserves the right to carry out audit checks for confirming the material properties on the supplied material during material receipt at BHEL. Supplies found defective during check or subsequent processing at BHEL will be rejected.

ANNEXURE A					
Previous Experience Details					
SL NO	Project Name	Rating (MW)	Customer Name	Year of supply	WBPDCL Remarks
1					
2					
3					
4					
Credentials to be provided					

ITEM: PPGI. CORNER BARGE: 0.63X400X2440

"HEAVY DUTY CLASS" CONTINUOUSLY PREPAINTED GALVANISED STEEL SHEETS TO SPECIFICATION IS:14246 AS PER FOLLOWING REQUIREMENTS.

BASE METAL : Mild steel as per IS:513

NOMINAL THICKNESS : 0.63mm (Without negative tolerance) (i.e excluding the thickness of galvanizing and painting).

GALVANISING : The base metal shall be Zinc Coating (Aluminium to be added during galvanization process as per IS 2629 Clause 5.2) at the rate of 275gms/sq.m as per IS:277

TOP SIDE PAINT : Top side coating shall be 20 microns minimum of SMP (Silicone Modified Polyester) painting with DFT over primer. The Top colour of sheets shall be BLUE (RAL 5012).

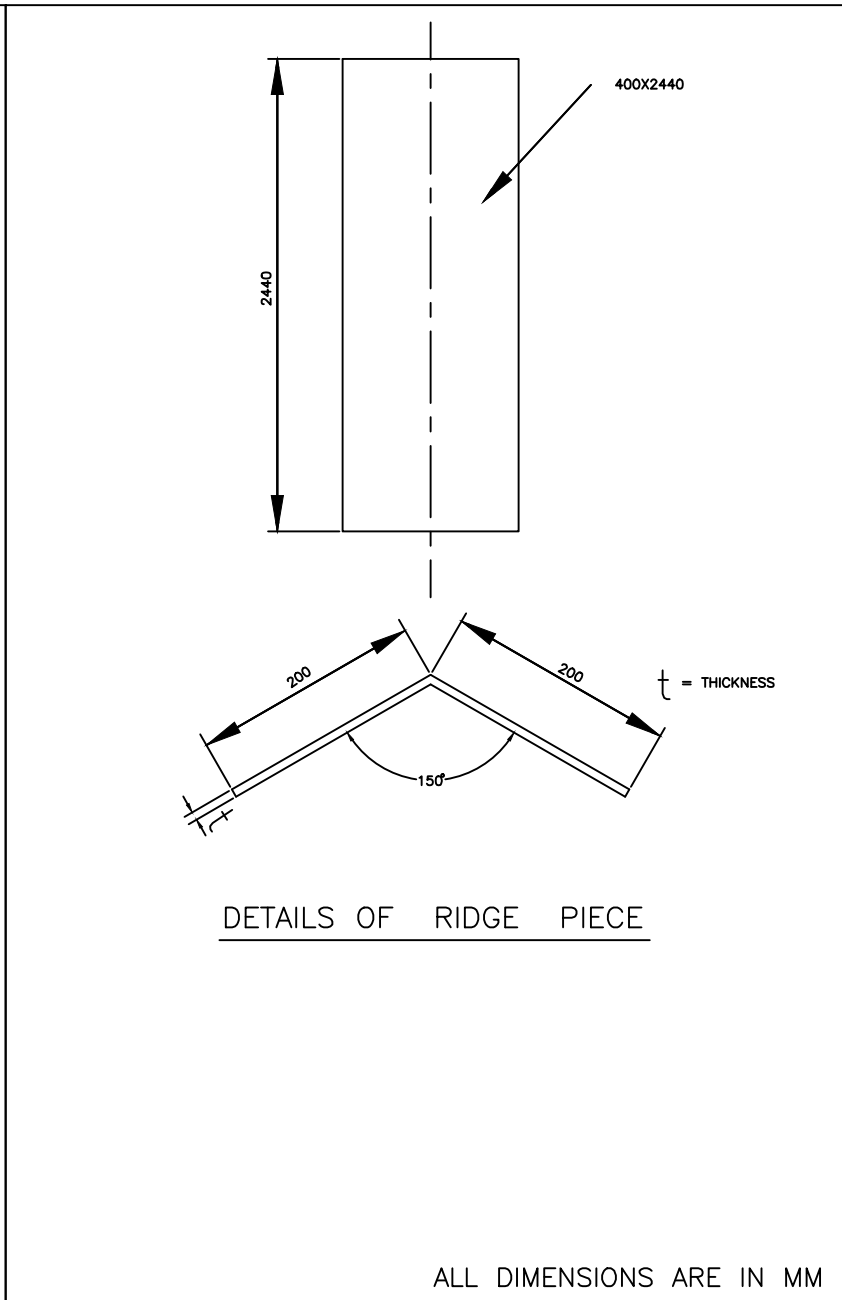
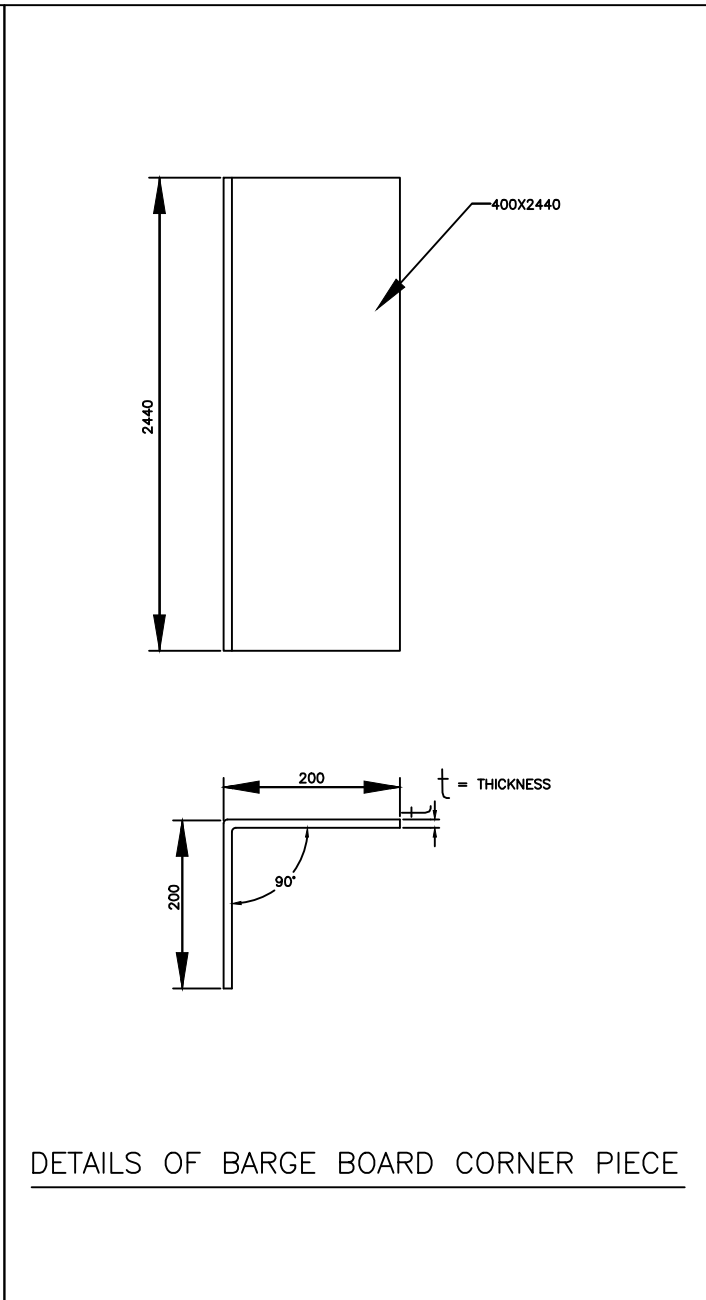
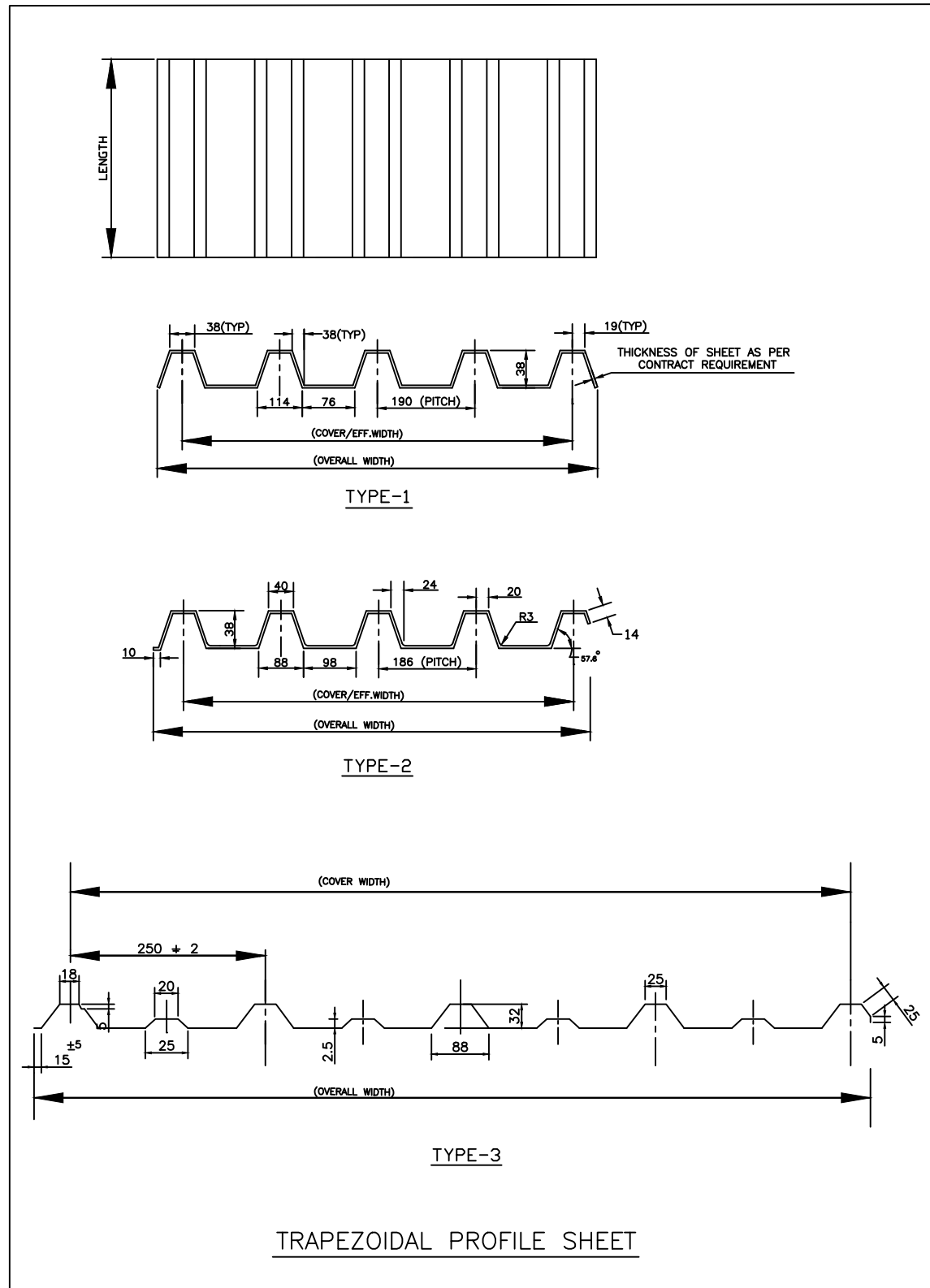
BOTTOM SIDE PAINT : Bottom side coating shall be 7 microns minimum of SMP (Silicone Modified Polyester) painting with DFT over primer. Bottom side colour of sheets shall be Grey (RAL 9002)

DURABILITY OF PAINT: As per Class – 3 of IS:14246

Note:

- Corner Barge shall be as per BHEL Drawing: 3-35-611-80440.
- Packing, Handling and storage of the sheets shall be as per the enclosed Packing, handling and storage instructions.
- BHEL Standard Quality Plan SQPSD02_01 enclosed to be followed.

Sagardidhi Contract, Vendor approval is applicable, the supplier shall submit all the credentials as per Annexure A.



ALL DIMENSIONS ARE IN MM

REV	DATE	ALTERED	S.SIVA
01	28/09/10	CHKD & APPD	S.MURALISANKAR
ZONE	NOTES AND DIMENSIONS REMOVED		

CAUTION: 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.

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT				Bharat Heavy Electricals Ltd UNIT: HIGH PRESSURE BOILER PLANT TIRUCHIRAPALLI - 620014	
DEPT FBC & HRSG	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE 1322			N.T.S		
TITLE				DRAWING NO :	REV
DETAILS OF TRAPEZOIDAL PROFILE SHEET, BARGE BOARD & RIDGE PIECE				3-35-611-80440	01

Handling and storage of coated steel products

Must be pasted on all packets clearly visible from outside

For longer life/durability after application, no wastage/damage of coated steel products below handling and storage guidelines are very important.

Handling

- 1) Use nylon/fiber felts for Handling. Do not use steel Wire rope/chains lifting /downloading / Moving
- 2) Use cushioning (wood /rubber) at bottom of & secure lashing & dunnaging **while** transportation.
- 3) Do not transport materials with water/chemicals/vegetables / animals/cement....
- 4) Unload carefully; avoid any packing damages due to unloading/handling.
- 5) If received wet & with damaged packing, Unpack, dry & repack.

Storage

- 1) Store materials on wooden support well over the flat & clean dry floor & temperature below 50°C.
- 2) Do not store materials on wet, damp, muddy floors /lands **directly**. If no option, use about 2 feet steel/ wooden platforms over such places for storing for only for few days.
- 3) Store in well ventilated, dry & protected from rain godowns/shades.
- 4) After Unpacking use materials within couple of days & balance materials remains if any, repack and store for further use.
- 5) Store away from chemicals / cement & any wet materials.

PACKING METHOD

PACKING DETAILS FOR PRE COATED GALVANIZED ROOF SHEET, PRECOATED GALVALUME ROOF SHEET, RIDGE PIECE, CORNER BARGE BOARD AND PLAIN SHEETS

Packing material for Pre Coated Products:

Sl No	Packing Materials(Layers)	Nos
1	LDPE	1
2	HDPE	1
3	Metal Box	1
4	Wooden pallet/Wooden Skid at bottom	Top metal box over bottom box as shown in figure-1
5	High tensile packing straps & tags	Along length 2, Along width every 1 m length + 2 tags.

SHEET PACKING:

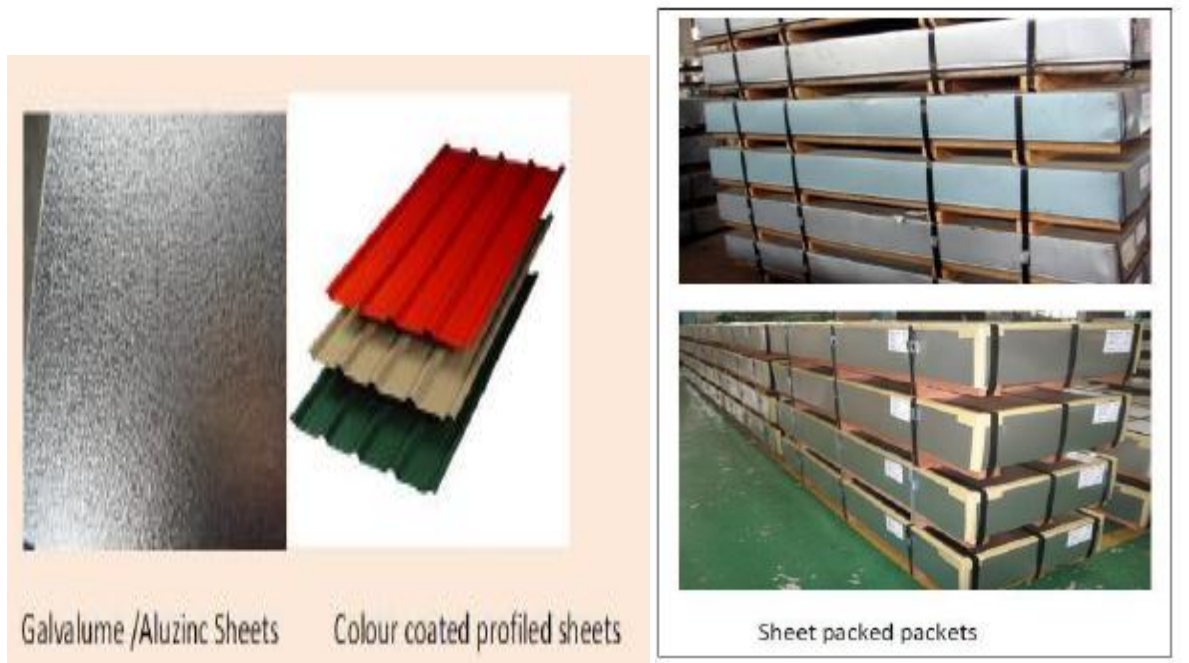


Figure-1



BHARAT HEAVY ELECTRICALS LIMITED
TIRUCHIRAPPALLI - 620 014, INDIA.
QUALITY ASSURANCE DEPARTMENT

STANDARD QUALITY PLAN FOR PRE-PAINTED GALVANIZED STEEL SHEETS

SQP:SD:02 Rev No: 01

Page: 1 of 3

Prepared By
Quality Assurance

ABDUR RAHMAN SULTAN

Abdur 16.08.2017

Reviewed by	Signature
Quality Assurance (G. PANNESSELVAN)	<i>[Signature]</i>
Engineering (M - SHANMUGAM)	<i>[Signature]</i>
Materials Management (M. RADHAKRISHNAN)	<i>[Signature]</i>
Quality Control R. DHARMAR	<i>[Signature]</i>

Rev No	Date	Approved by	Signature
01	16/08/2017	AGM / QA & BE	<i>Revised</i> 16/08/17

Record of Revisions

Rev No	Details of Revision	Remarks
00	Fresh Issue	
01	Cl. 1.0 , 3.1 to 3.5 revised, 3.6 to 3.8 removed based on feedback from MM	Raw material sources removed, Quantum of testing revised.

Proprietary Data - For Internal Use Only



MANUFACTURER'S
NAME & ADDRESS:
BHEL TIRUCHIRAPPALLI
APPROVED SUPPLIERS

STANDARD QUALITY PLAN

PRODUCT: PRE-PAINTED GALVANIZED STEEL SHEETS

SUB-SYSTEM : Steam Generator and Auxiliaries

QWI NO:SQP:SD:02

REV NO: 01 DATE: 16/08/2017

PAGE: 2 OF 3

SL. NO	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
					M	C				N	M	C	
1	2	3	4	5	M	C/N	7	8	9	D*	**	10	11

1.0 RAW MATERIALS

1.0	Steel Sheets/Coils	Chemical & Mechanical Properties (YS, TS, %Elong), Hardness, Cupping & bend tests	A	TC Verification	IS 513	IS 513	IS 513 & BHEL PO	IS 513 – Design CR1 Gr 390 & BHEL PO	MTC	√	P	V	V	
		Surface Finish	B	Visual	IS 513	IS 513	IS 513	Cl 8 of IS 513	MTC	√	P	V	-	
		Freedom from defects	B	Visual	IS 513	IS 513	IS 513	Cl 9 of IS 513	MTC	√	P	V	-	
		Dimensions	B	Measurement	IS 513	IS 513	IS 513	BHEL PO	MTC	√	P	V	-	

2.0 INPROCESS CONTROLS

GALVANIZING

2.1	Steel Sheets/Coils	Cleaning & Degreasing	A	Visual	100%	100%	IS 277 & BHEL PO	IS 277 & BHEL PO	Log	√	P	V	-	
2.2	Zinc Ingots*	Chemical properties	B	TC Verification	100%	100%	IS 209/ IS 13229	IS 209/ IS 13229	MTC	√	P	V	-	*Grade G250
2.3	Galvanization	Galvanizing	A	Visual	100%	100%	IS 277 & BHEL PO	IS 277 & BHEL PO	MTC	√	P	V	-	
2.4	Bend Test for zinc coating	Peeling of, flaking, cracking	B	Visual	Cl 8 of IS 277	Cl 8 of IS 277	Cl 8 of IS 277 & BHEL PO	Cl 8 of IS 277 & BHEL PO	IR	√	P	V	-	
2.5	Zinc Coating Test	Weight of coating of galvanizing*	B	Measurements	Cl 9 of IS 277	Cl 9 of IS 277	IS 277 & BHEL PO	IS 277 & BHEL PO	IR	√	P	V	-	*both sides inclusive: 275 gsm
2.6	Galvanized sheets/coils	Surface Finish	B	Visual	100%	100%	Cl 11 of IS 277	Cl 11 of IS 277	IR	√	P	V	-	

PAINTING & CORRUGATION

2.7	Paint Coating Selection	Paint Class, viscosity, etc.	B	Visual	100%	100%	BHEL PO	BHEL PO	MTC	√	P	V	-	
2.8	Alkali Cleaning; Rinsing with Hot & cold water*;	Cleanliness of galvanized Sheets before painting	A	Visual	100%	100%	Manufacturer's std	Freedom from oil, grease, dirt.	Log	√	P	V	-	* followed by Chromate soln treatment at room temperature
2.9	Painting: Primer on both sides; Top & bottom coats	Surface Preparation, Color Shade & DFT	B	Visual & Measurement	100%	100%	BHEL PO	BHEL PO	IR	√	P	V	-	
2.10	Corrugation of sheets *	Shape, Surface finish, peeling of paint on both sides	A	Visual	100%	100%	IS 277 & BHEL PO	IS 277 & BHEL PO	IR	√	P	V	-	*if applicable

LEGEND: * RECORDS IDENTIFIED WITH "TICK" (√) SHALL BE ESSENTIALLY INCLUDED BY THE SUPPLIER IN QA DOCUMENTATION;
**** M:** MANUFACTURER (COIL/PROFILER), **C:** BHEL QC/BHEL AIA, **N:** CUSTOMER; **P:** PERFORM. **W:** WITNESS, **V:** VERIFICATION; **CLASS:** A - CRITICAL ; B - MAJOR ; C - MINOR;
 MTC- Mill /Manufacturer's Test Certificate; IR- Inspection/Test Report; (R): Routine test; (I)/(Ts): Type test.



MANUFACTURER'S
NAME & ADDRESS:
BHEL TIRUCHIRAPPALLI
APPROVED SUPPLIERS

STANDARD QUALITY PLAN

PRODUCT: PRE-PAINTED GALVANIZED STEEL SHEETS

SUB-SYSTEM :Steam Generator and Auxiliaries

QWI NO:SQP:SD:02

REV NO: 01 DATE: 16/08/2017

PAGE: 3 OF 3

SL. NO	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
					M	C				N	M	C	
1	2	3	4	5	M	C/N	7	8	9	D*	**	10	11

2.11	Sheets	Dimensions of Corrugated/plane sheets	B	Measurements	100%	100%	BHEL PO & BHEL approved drawing	BHEL PO & BHEL approved drawing	IR	√	P	V	-	
3	TESTING ON PAINTED COILS/SHEETS – Tests shall be done at manufacturer's lab or NABL accredited labs.													
3.1	Bend Test	Peeling or crack of Paint	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.2 of IS 14246	Cl 6.2 of IS 14246*	IR	√	P	V	V	*No peeling or cracking of paint.
3.2	Pencil Hardness Test (2H)	Scratch proof	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.3 of IS 14246	Cl 6.3 of IS 14246#	IR	√	P	V	V	#No scratch
3.3	Impact Resistance Test	Impact resistance	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.4 of IS 14246	Cl 6.4 of IS 14246*	IR	√	P	V	V	*No peeling or cracking of paint.
3.4	Cross Hatch Test	No lifting of paint	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.5 of IS 14246	Cl 6.5 of IS 14246#	IR	√	P	V	V	#No lifting of paint.
3.5	Salt Spray Test	Corrosion Resistance/ Durability of paint	B	Visual & Measurement	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.6 & 5.4 of IS 14246 & BHEL Specn.	Cl 6.6 & 5.4 of IS 14246 & BHEL Specn.	MTC /IR	√	P	V	V	
4.0	FINAL INSPECTION													
4.1	Dimensional Inspection	Dimensions & Shapes	B	Visual & Measurement	100%	Min 1, max 10 *	BHEL PO & BHEL approved drawing		IR	√	P	W	V	*at random for each PO item. @shall be available on each pack of sheets.
4.2	Paint Inspection	Color, Shade & DFT	C		100%		BHEL PO	BHEL PO	IR	√	P	W	V	
4.3	Marking & Identification	PO no, Item, Material No, Project Name	B	100%	BHEL PO		BHEL PO	IR	√	P	W	V		
4.4	Packing along with Handling & Storage instructions to Sites@	Water-proof packing & Stability	B	100%	BHEL PO		BHEL PO	IR	√	P	W	-		

Notes:

- For Customer inspection, if applicable, the stages indicated under Column N shall be followed with specific approval of BHEL/Customer for Witness/Verification by Customer.
- The latest editions/revisions of the above mentioned/referred standards/procedures shall be used.

LEGEND: * RECORDS IDENTIFIED WITH "TICK" (√) SHALL BE ESSENTIALLY INCLUDED BY THE SUPPLIER IN QA DOCUMENTATION;
**** M:** MANUFACTURER (COIL/PROFILER), **C:** BHEL QC/BHEL AIA, **N:** CUSTOMER; **P:** PERFORM. **W:** WITNESS, **V:** VERIFICATION; **CLASS:** A - CRITICAL ; B - MAJOR ; C - MINOR;
MTC- Mill /Manufacturer's Test Certificate; IR- Inspection/Test Report; (R): Routine test; (I)/(Ts): Type test.

BHEL/TRICHY
MM/BOI/PURCHASE

REF:MM:PUR:BOI:ROOFSHEET

Pre-Qualification requirements (PQR) for the procurement of Roof sheets as per specification through Open Tender

Date :
Tender No & Date :
Supplier Name :
Supplier registered Address :
Supplier Plant Address :

A: Organizational Capability & Technical Competence:

Sl. No.	Pre –Qualification Criteria	Bidder acceptance / Bidder remarks
1.	Offers from bidders having basic in house manufacturing facilities for the enquired items are only eligible to participate. Offer from Traders, Distributors are not acceptable and will not be considered for evaluation. Vendor to indicate the nature of the Firm. (Trader/Distributor/Manufacturer). Product catalogue shall be submitted.	
2.	Compliance to Tendered Specification is mandatory for consideration of offer.	
3.	Compliance to Technical requirements & Quality Plan (if applicable) as per tendered specification against each item of enquiry.	
4.	Manufacturing plant address & available equipment's for manufacturing the tendered items shall be provided along with offer.	
5.	Suppliers shall submit Quality Management System certificate or Written down procedure.	
6.	Supplier shall have capacity to meet tender requirement.	
7.	Supplier offer will be considered subject to Customer Approval for Sagardighi and Bhuswal Contract.	
8.	BHEL reserve the right to inspect the item ordered at any stage at vendor's works and if found not meeting the stipulated conditions, material is liable for rejection.	

B: Past Experience/ Performance:

Sl. No.	Pre –Qualification Criteria	Bidder acceptance / Bidder remarks
1.	Suppliers shall indicate their annual installed capacity for the tendered specification & it shall be more than the tendered quantity.	
2.	Suppliers shall have supplied similar items to the tendered Scope/Specification.	
3.	Suppliers shall submit Supply credentials for last 3 years successful supply of Roof Sheets (i.e. PPGI or PPGL) like unpriced PO copies with corresponding proof of supply (such as invoice/bill of lading copies and test certificates covering shall be submitted.)	
4.	Supplier shall have to submit contact details of the customers to whom successful supply completed.	

BHEL/TRICHY
MM/BOI/PURCHASE

REF:MM:PUR:BOI:ROOFSHEET

Pre-Qualification requirements (PQR) for the procurement of Roof sheets as per specification through Open Tender

C. Financial Soundness:

Sl. No.	Pre –Qualification Criteria	Bidder acceptance / Bidder remarks
1.	Indigenous suppliers shall submit copies of annual reports (balance sheets), profit & Loss Statement for the last three years (or from date of incorporation whichever is less) and GST Certificate.	

Necessary supporting documents shall be submitted for meeting each of the above Pre-Qualification Criteria for technical evaluation of the offers.

BHEL reserves the right to consider/Not-consider the offers based on the evaluation of documents submitted for the above Pre-Qualification Criteria. If required, BHEL also reserves the right to verify information submitted by vendor. In case the information is found false/incorrect, the offer shall be rejected. BHEL also reserves the right to carry out audit checks for confirming the material properties on the supplied material during material receipt at BHEL. Supplies found defective during check or subsequent processing at BHEL will be rejected.

ANNEXURE A					
Previous Experience Details					
SL NO	Project Name	Rating (MW)	Customer Name	Year of supply	WBPDCL Remarks
1					
2					
3					
4					
Credentials to be provided					

ITEM: PPGI. PLAIN SHEET: 0.60X1000X3000

"HEAVY DUTY CLASS" SPECIFICATION CONTINUOUSLY PREPAINTED GALVANISED STEEL SHEETS TO SPECIFICATION I.S: 14246 AS PER FOLLOWING REQUIREMENTS.

BASE METAL : Mild steel as per I.S:513

NOMINAL THICKNESS : 0.60mm (Without negative tolerance) (i.e excluding the thickness of galvanizing and painting).

GALVANISING : The base metal shall be Zinc Coating (Aluminium to be added during galvanization process as per IS 2629 Clause 5.2) at the rate of 150gms/sq.m as per I.S:277

TOP SIDE PAINT : Top side coating shall be 20 microns minimum of PVF2 painting with DFT over primer. The Top colour of sheets shall be BLUE (RAL 5012).

BOTTOM SIDE PAINT : Bottom side coating shall be 12 microns minimum of PVF2 painting with DFT over primer. Bottom side colour of sheets shall be Grey (RAL 9002)

DURABILITY OF PAINT: As per Class – 3 of I.S:14246

Note:

- Packing, Handling and storage of the sheets shall be as per the enclosed Packing, handling and storage instructions.
- BHEL Standard Quality Plan SQPSD02_01 enclosed to be followed

Handling and storage of coated steel products

Must be pasted on all packets clearly visible from outside

For longer life/durability after application, no wastage/damage of coated steel products below handling and storage guidelines are very important.

Handling

- 1) Use nylon/fiber felts for Handling. Do not use steel Wire rope/chains lifting /downloading / Moving
- 2) Use cushioning (wood /rubber) at bottom of & secure lashing & dunnaging **while** transportation.
- 3) Do not transport materials with water/chemicals/vegetables / animals/cement....
- 4) Unload carefully; avoid any packing damages due to unloading/handling.
- 5) If received wet & with damaged packing, Unpack, dry & repack.

Storage

- 1) Store materials on wooden support well over the flat & clean dry floor & temperature below 50°C.
- 2) Do not store materials on wet, damp, muddy floors /lands **directly**. If no option, use about 2 feet steel/ wooden platforms over such places for storing for only for few days.
- 3) Store in well ventilated, dry & protected from rain godowns/shades.
- 4) After Unpacking use materials within couple of days & balance materials remains if any, repack and store for further use.
- 5) Store away from chemicals / cement & any wet materials.

PACKING METHOD

PACKING DETAILS FOR PRE COATED GALVANIZED ROOF SHEET, PRECOATED GALVALUME ROOF SHEET, RIDGE PIECE, CORNER BARGE BOARD AND PLAIN SHEETS

Packing material for Pre Coated Products:

Sl No	Packing Materials(Layers)	Nos
1	LDPE	1
2	HDPE	1
3	Metal Box	1
4	Wooden pallet/Wooden Skid at bottom	Top metal box over bottom box as shown in figure-1
5	High tensile packing straps & tags	Along length 2, Along width every 1 m length + 2 tags.

SHEET PACKING:

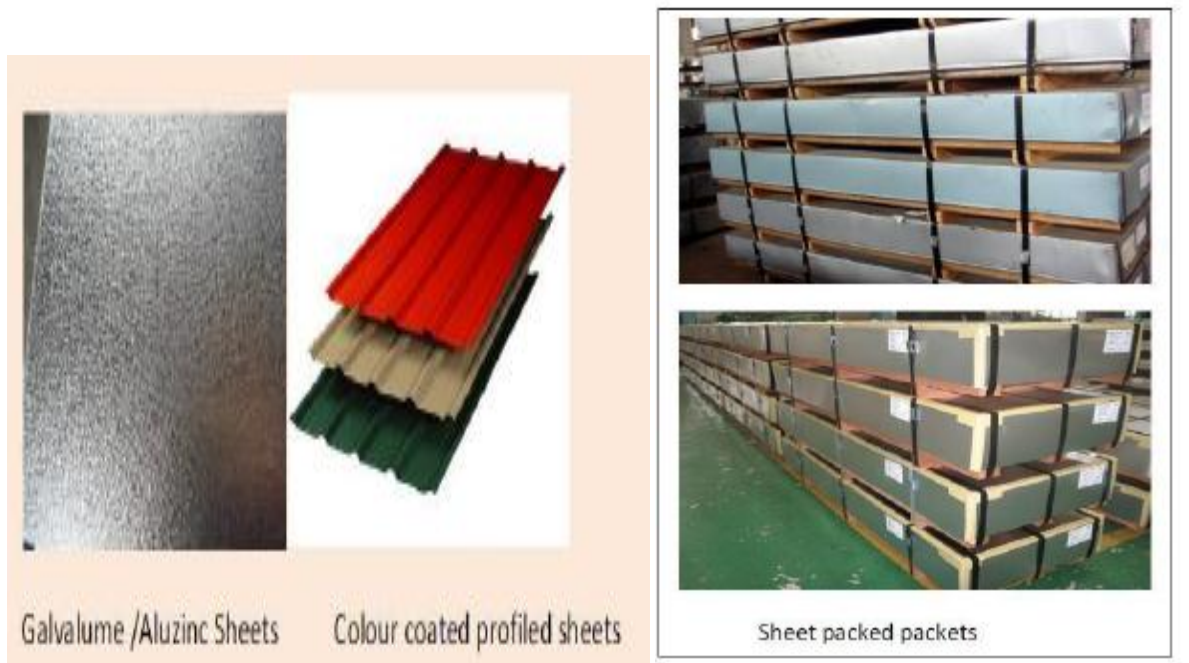


Figure-1



BHARAT HEAVY ELECTRICALS LIMITED
TIRUCHIRAPPALLI - 620 014, INDIA.
QUALITY ASSURANCE DEPARTMENT

STANDARD QUALITY PLAN FOR PRE-PAINTED GALVANIZED STEEL SHEETS

SQP:SD:02 Rev No: 01

Page: 1 of 3

Prepared By
Quality Assurance

ABDUR RAHMAN SULTAN

Abdur 16.08.2017

Reviewed by	Signature
Quality Assurance (G. PANNERSELVAN)	<i>[Signature]</i>
Engineering (M - SHANMUGAM)	<i>[Signature]</i>
Materials Management (M. RADHAKRISHNAN)	<i>[Signature]</i>
Quality Control R. DHARMAR	<i>[Signature]</i>

Rev No	Date	Approved by	Signature
01	16/08/2017	AGM / QA & BE	<i>Revised</i> 16/08/17

Record of Revisions

Rev No	Details of Revision	Remarks
00	Fresh Issue	
01	Cl. 1.0 , 3.1 to 3.5 revised, 3.6 to 3.8 removed based on feedback from MM	Raw material sources removed, Quantum of testing revised.

Proprietary Data - For Internal Use Only



MANUFACTURER'S
NAME & ADDRESS:
BHEL TIRUCHIRAPPALLI
APPROVED SUPPLIERS

STANDARD QUALITY PLAN

PRODUCT: PRE-PAINTED GALVANIZED STEEL SHEETS

SUB-SYSTEM :Steam Generator and Auxiliaries

QWI NO:SQP:SD:02

REV NO: 01 DATE: 16/08/2017

PAGE: 2 OF 3

SL. NO	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
					M	C				N	M	C	
1	2	3	4	5	M	C/N	7	8	9	D*	**	10	11

1.0 RAW MATERIALS

1.0	Steel Sheets/Coils	Chemical & Mechanical Properties (YS, TS, %Elong), Hardness, Cupping & bend tests	A	TC Verification	IS 513	IS 513	IS 513 & BHEL PO	IS 513 – Design CR1 Gr 390 & BHEL PO	MTC	√	P	V	V	
		Surface Finish	B	Visual	IS 513	IS 513	IS 513	Cl 8 of IS 513	MTC	√	P	V	-	
		Freedom from defects	B	Visual	IS 513	IS 513	IS 513	Cl 9 of IS 513	MTC	√	P	V	-	
		Dimensions	B	Measurement	IS 513	IS 513	IS 513	BHEL PO	MTC	√	P	V	-	

2.0 INPROCESS CONTROLS

GALVANIZING

2.1	Steel Sheets/Coils	Cleaning & Degreasing	A	Visual	100%	100%	IS 277 & BHEL PO	IS 277 & BHEL PO	Log	√	P	V	-	
2.2	Zinc Ingots*	Chemical properties	B	TC Verification	100%	100%	IS 209/ IS 13229	IS 209/ IS 13229	MTC	√	P	V	-	*Grade G250
2.3	Galvanization	Galvanizing	A	Visual	100%	100%	IS 277 & BHEL PO	IS 277 & BHEL PO	MTC	√	P	V	-	
2.4	Bend Test for zinc coating	Peeling of, flaking, cracking	B	Visual	Cl 8 of IS 277	Cl 8 of IS 277	Cl 8 of IS 277 & BHEL PO	Cl 8 of IS 277 & BHEL PO	IR	√	P	V	-	
2.5	Zinc Coating Test	Weight of coating of galvanizing*	B	Measurements	Cl 9 of IS 277	Cl 9 of IS 277	IS 277 & BHEL PO	IS 277 & BHEL PO	IR	√	P	V	-	*both sides inclusive: 275 gsm
2.6	Galvanized sheets/coils	Surface Finish	B	Visual	100%	100%	Cl 11 of IS 277	Cl 11 of IS 277	IR	√	P	V	-	

PAINTING & CORRUGATION

2.7	Paint Coating Selection	Paint Class, viscosity, etc.	B	Visual	100%	100%	BHEL PO	BHEL PO	MTC	√	P	V	-	
2.8	Alkali Cleaning; Rinsing with Hot & cold water*;	Cleanliness of galvanized Sheets before painting	A	Visual	100%	100%	Manufacturer's std	Freedom from oil, grease, dirt.	Log	√	P	V	-	* followed by Chromate soln treatment at room temperature
2.9	Painting: Primer on both sides; Top & bottom coats	Surface Preparation, Color Shade & DFT	B	Visual & Measurement	100%	100%	BHEL PO	BHEL PO	IR	√	P	V	-	
2.10	Corrugation of sheets *	Shape, Surface finish, peeling of paint on both sides	A	Visual	100%	100%	IS 277 & BHEL PO	IS 277 & BHEL PO	IR	√	P	V	-	*if applicable

LEGEND: * RECORDS IDENTIFIED WITH "TICK" (√) SHALL BE ESSENTIALLY INCLUDED BY THE SUPPLIER IN QA DOCUMENTATION;
**** M:** MANUFACTURER (COIL/PROFILER), **C:** BHEL QC/BHEL AIA, **N:** CUSTOMER; **P:** PERFORM. **W:** WITNESS, **V:** VERIFICATION; **CLASS:** A - CRITICAL ; B - MAJOR ; C - MINOR;
MTC- Mill /Manufacturer's Test Certificate; IR- Inspection/Test Report; (R): Routine test; (I)/(Ts): Type test.



MANUFACTURER'S
NAME & ADDRESS:
BHEL TIRUCHIRAPPALLI
APPROVED SUPPLIERS

STANDARD QUALITY PLAN

PRODUCT: PRE-PAINTED GALVANIZED STEEL SHEETS

SUB-SYSTEM :Steam Generator and Auxiliaries

QWI NO:SQP:SD:02

REV NO: 01 DATE: 16/08/2017

PAGE: 3 OF 3

SL. NO	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
					M	C				N	M	C	
1	2	3	4	5	M	C/N	7	8	9	D*	**	10	11

2.11	Sheets	Dimensions of Corrugated/plane sheets	B	Measurements	100%	100%	BHEL PO & BHEL approved drawing	BHEL PO & BHEL approved drawing	IR	√	P	V	-	
3	TESTING ON PAINTED COILS/SHEETS – Tests shall be done at manufacturer's lab or NABL accredited labs.													
3.1	Bend Test	Peeling or crack of Paint	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.2 of IS 14246	Cl 6.2 of IS 14246*	IR	√	P	V	V	*No peeling or cracking of paint.
3.2	Pencil Hardness Test (2H)	Scratch proof	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.3 of IS 14246	Cl 6.3 of IS 14246#	IR	√	P	V	V	#No scratch
3.3	Impact Resistance Test	Impact resistance	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.4 of IS 14246	Cl 6.4 of IS 14246*	IR	√	P	V	V	*No peeling or cracking of paint.
3.4	Cross Hatch Test	No lifting of paint	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.5 of IS 14246	Cl 6.5 of IS 14246#	IR	√	P	V	V	#No lifting of paint.
3.5	Salt Spray Test	Corrosion Resistance/ Durability of paint	B	Visual & Measurement	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.6 & 5.4 of IS 14246 & BHEL Specn.	Cl 6.6 & 5.4 of IS 14246 & BHEL Specn.	MTC /IR	√	P	V	V	
4.0	FINAL INSPECTION													
4.1	Dimensional Inspection	Dimensions & Shapes	B	Visual & Measurement	100%	Min 1, max 10 *	BHEL PO & BHEL approved drawing		IR	√	P	W	V	*at random for each PO item. @shall be available on each pack of sheets.
4.2	Paint Inspection	Color, Shade & DFT	C		100%		BHEL PO	BHEL PO	IR	√	P	W	V	
4.3	Marking & Identification	PO no, Item, Material No, Project Name	B	100%	BHEL PO		BHEL PO	IR	√	P	W	V		
4.4	Packing along with Handling & Storage instructions to Sites@	Water-proof packing & Stability	B	100%	BHEL PO		BHEL PO	IR	√	P	W	-		

Notes:

- For Customer inspection, if applicable, the stages indicated under Column N shall be followed with specific approval of BHEL/Customer for Witness/Verification by Customer.
- The latest editions/revisions of the above mentioned/referred standards/procedures shall be used.

LEGEND: * RECORDS IDENTIFIED WITH "TICK" (√) SHALL BE ESSENTIALLY INCLUDED BY THE SUPPLIER IN QA DOCUMENTATION;
**** M:** MANUFACTURER (COIL/PROFILER), **C:** BHEL QC/BHEL AIA, **N:** CUSTOMER; **P:** PERFORM. **W:** WITNESS, **V:** VERIFICATION; **CLASS:** A - CRITICAL ; B - MAJOR ; C - MINOR;
MTC- Mill /Manufacturer's Test Certificate; IR- Inspection/Test Report; (R): Routine test; (I)/(Ts): Type test.

BHEL/TRICHY
MM/BOI/PURCHASE

REF:MM:PUR:BOI:ROOFSHEET

Pre-Qualification requirements (PQR) for the procurement of Roof sheets as per specification through Open Tender

Date :
Tender No & Date :
Supplier Name :
Supplier registered Address :
Supplier Plant Address :

A: Organizational Capability & Technical Competence:

Sl. No.	Pre –Qualification Criteria	Bidder acceptance / Bidder remarks
1.	Offers from bidders having basic in house manufacturing facilities for the enquired items are only eligible to participate. Offer from Traders, Distributors are not acceptable and will not be considered for evaluation. Vendor to indicate the nature of the Firm. (Trader/Distributor/Manufacturer). Product catalogue shall be submitted.	
2.	Compliance to Tendered Specification is mandatory for consideration of offer.	
3.	Compliance to Technical requirements & Quality Plan (if applicable) as per tendered specification against each item of enquiry.	
4.	Manufacturing plant address & available equipment's for manufacturing the tendered items shall be provided along with offer.	
5.	Suppliers shall submit Quality Management System certificate or Written down procedure.	
6.	Supplier shall have capacity to meet tender requirement.	
7.	Supplier offer will be considered subject to Customer Approval for Sagardighi and Bhuswal Contract.	
8.	BHEL reserve the right to inspect the item ordered at any stage at vendor's works and if found not meeting the stipulated conditions, material is liable for rejection.	

B: Past Experience/ Performance:

Sl. No.	Pre –Qualification Criteria	Bidder acceptance / Bidder remarks
1.	Suppliers shall indicate their annual installed capacity for the tendered specification & it shall be more than the tendered quantity.	
2.	Suppliers shall have supplied similar items to the tendered Scope/Specification.	
3.	Suppliers shall submit Supply credentials for last 3 years successful supply of Roof Sheets (i.e. PPGI or PPGL) like unpriced PO copies with corresponding proof of supply (such as invoice/bill of lading copies and test certificates covering shall be submitted.)	
4.	Supplier shall have to submit contact details of the customers to whom successful supply completed.	

BHEL/TRICHY
MM/BOI/PURCHASE

REF:MM:PUR:BOI:ROOFSHEET

Pre-Qualification requirements (PQR) for the procurement of Roof sheets as per specification through Open Tender

C. Financial Soundness:

Sl. No.	Pre –Qualification Criteria	Bidder acceptance / Bidder remarks
1.	Indigenous suppliers shall submit copies of annual reports (balance sheets), profit & Loss Statement for the last three years (or from date of incorporation whichever is less) and GST Certificate.	

Necessary supporting documents shall be submitted for meeting each of the above Pre-Qualification Criteria for technical evaluation of the offers.

BHEL reserves the right to consider/Not-consider the offers based on the evaluation of documents submitted for the above Pre-Qualification Criteria. If required, BHEL also reserves the right to verify information submitted by vendor. In case the information is found false/incorrect, the offer shall be rejected. BHEL also reserves the right to carry out audit checks for confirming the material properties on the supplied material during material receipt at BHEL. Supplies found defective during check or subsequent processing at BHEL will be rejected.

**ITEM: PPGI. TRAPEZOIDAL PROFILE ROOF SHEET:
0.60X1060X4350**

**"HEAVY DUTY CLASS" SPECIFICATION
CONTINUOUSLY PREPAINTED GALVANISED STEEL SHEETS
TO SPECIFICATION I.S: 14246 AS PER FOLLOWING
REQUIREMENTS.**

BASE METAL : Mild steel as per I.S:513

NOMINAL THICKNESS : 0.60mm (Without negative tolerance) (i.e excluding the thickness of galvanizing and painting).

GALVANISING : The base metal shall be Zinc Coating (Aluminium to be added during galvanization process as per IS 2629 Clause 5.2) at the rate of 150gms/sq.m as per I.S:277.

TOP SIDE PAINT : Top side coating shall be 20 microns minimum of PVF2 painting with DFT over primer. The Top colour of sheets shall be BLUE (RAL 5012).

BOTTOM SIDE PAINT : Bottom side coating shall be 12 microns minimum of PVF2 painting with DFT over primer. Bottom side colour of sheets shall be Grey (RAL 9002)

DURABILITY OF PAINT: As per Class - 3 of I.S:14246

CORRUGATION PROFILE: As per BHEL drawing no 3-35-611-80440 Rev 01 or suppliers own profile

satisfying following requirements of BHEL, (supplier to submit design calculations)

The corrugated sheet should be capable of resisting within the safe limit,

a. Maximum purlin spacing – 1300 mm

b. Deflection criteria -- L/250

c. Live load -- 1.50 KN /Sq.m (roof slope <10 degree)

d. Wind load -- 2.25 KN/Sq.m

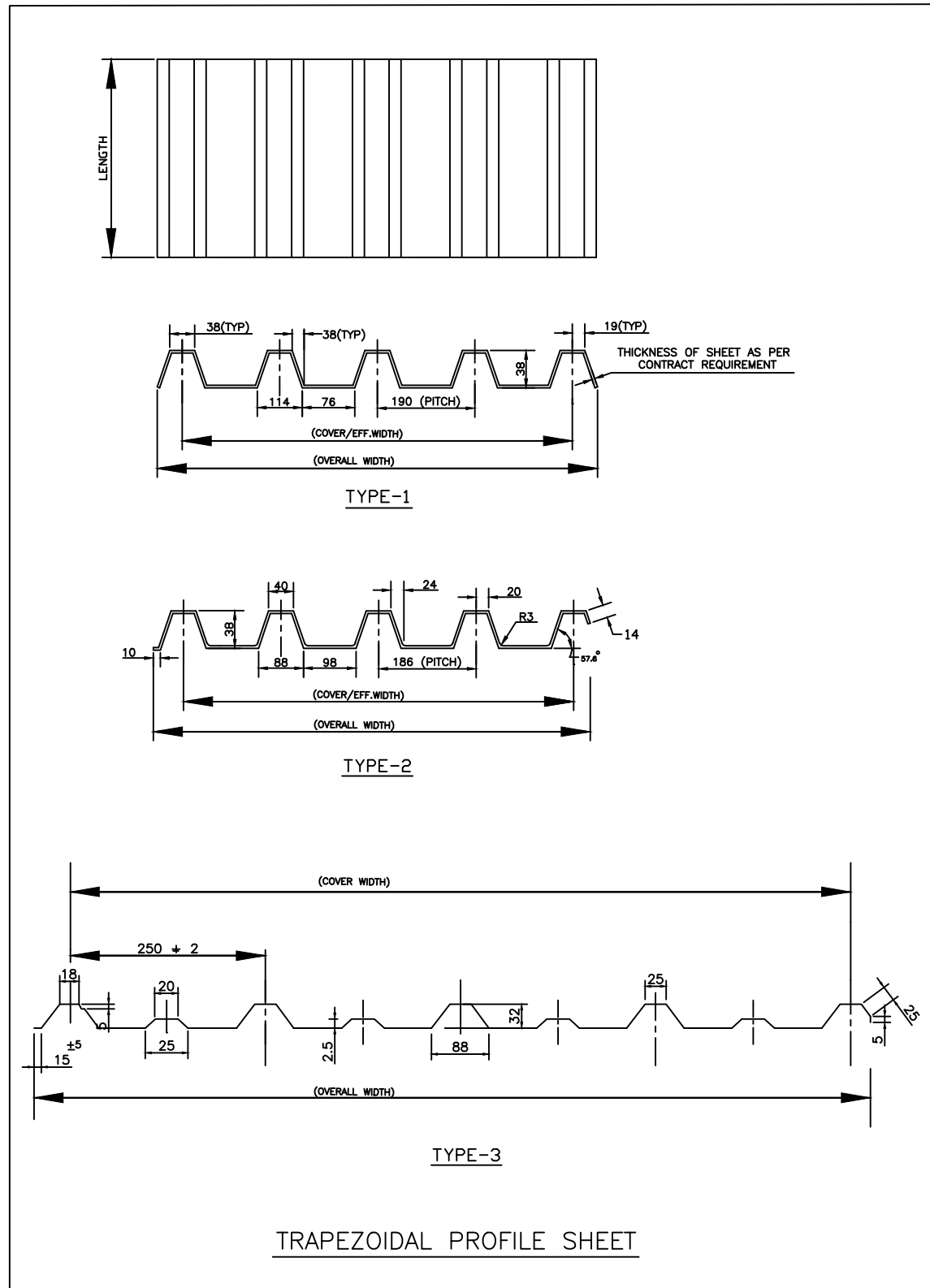
e. Load Combination for Trapezoidal / corrugated Sheet is:

1) 100%(Self Weight / Dead load + Live Load (1.5 KN /SQM) + Wind load (2.25 KN/SQM)), without any reduction factor.

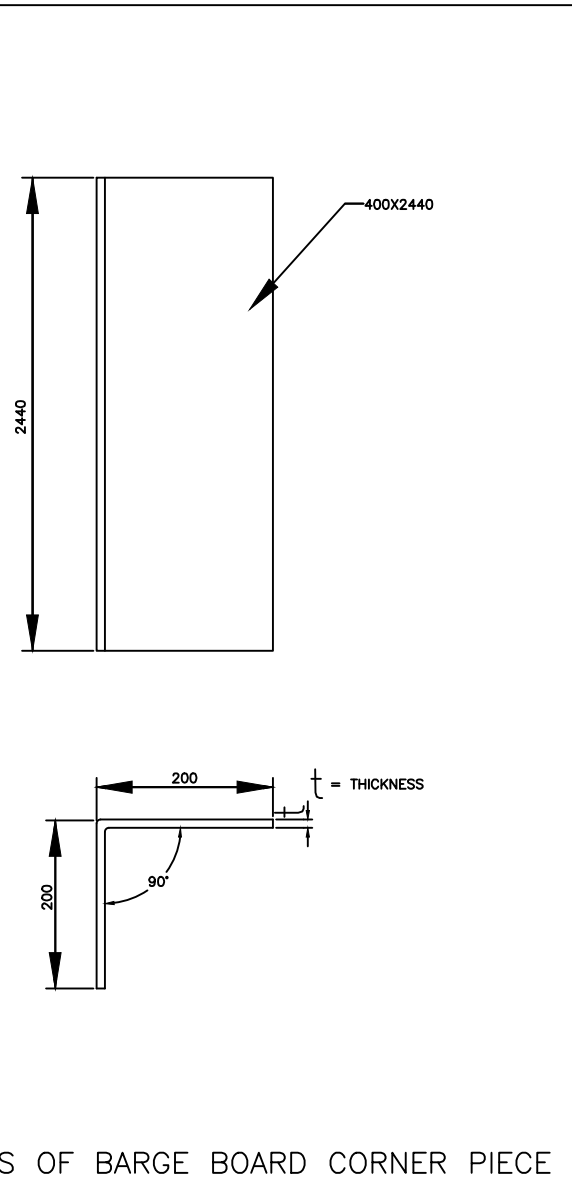
2) 100%(Self Weight / Dead load +/- Wind load (2.25 KN/SQM)), without any reduction factor.

NOTE:

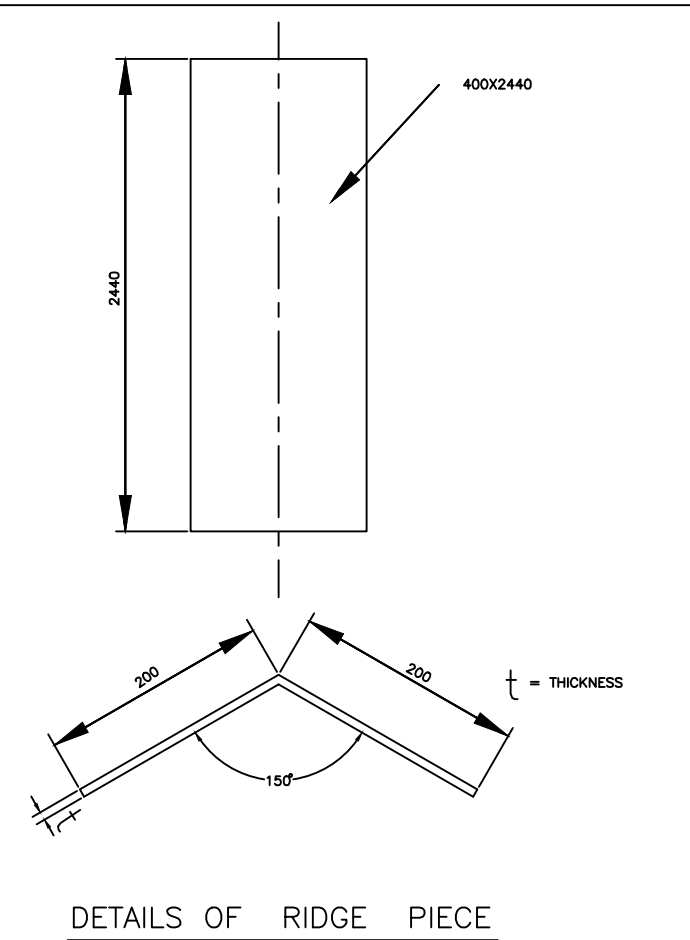
- Packing, Handling and storage of the sheets shall be as per the enclosed Packing, handling and storage instructions.
- BHEL Standard Quality Plan SQPSD02_01 enclosed to be followed.



TRAPEZOIDAL PROFILE SHEET



DETAILS OF BARGE BOARD CORNER PIECE



DETAILS OF RIDGE PIECE

ALL DIMENSIONS ARE IN MM

REV	DATE	ALTERED	S.SIVA
01	28/09/10	CHKD & APPD	S.MURALISANKAR
ZONE	NOTES AND DIMENSIONS REMOVED		

CAUTION: 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.

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT				Bharat Heavy Electricals Ltd UNIT: HIGH PRESSURE BOILER PLANT TIRUCHIRAPALLI - 620014	
DEPT FBC & HRSG	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE 1322			N.T.S		
TITLE				DRAWING NO :	REV
DETAILS OF TRAPEZOIDAL PROFILE SHEET, BARGE BOARD & RIDGE PIECE				3-35-611-80440	01

Handling and storage of coated steel products

Must be pasted on all packets clearly visible from outside

For longer life/durability after application, no wastage/damage of coated steel products below handling and storage guidelines are very important.

Handling

- 1) Use nylon/fiber felts for Handling. Do not use steel Wire rope/chains lifting /downloading / Moving
- 2) Use cushioning (wood /rubber) at bottom of & secure lashing & dunnaging **while** transportation.
- 3) Do not transport materials with water/chemicals/vegetables / animals/cement....
- 4) Unload carefully; avoid any packing damages due to unloading/handling.
- 5) If received wet & with damaged packing, Unpack, dry & repack.

Storage

- 1) Store materials on wooden support well over the flat & clean dry floor & temperature below 50°C.
- 2) Do not store materials on wet, damp, muddy floors /lands **directly**. If no option, use about 2 feet steel/ wooden platforms over such places for storing for only for few days.
- 3) Store in well ventilated, dry & protected from rain godowns/shades.
- 4) After Unpacking use materials within couple of days & balance materials remains if any, repack and store for further use.
- 5) Store away from chemicals / cement & any wet materials.

PACKING METHOD

PACKING DETAILS FOR PRE COATED GALVANIZED ROOF SHEET, PRECOATED GALVALUME ROOF SHEET, RIDGE PIECE, CORNER BARGE BOARD AND PLAIN SHEETS

Packing material for Pre Coated Products:

Sl No	Packing Materials(Layers)	Nos
1	LDPE	1
2	HDPE	1
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4	Wooden pallet/Wooden Skid at bottom	Top metal box over bottom box as shown in figure-1
5	High tensile packing straps & tags	Along length 2, Along width every 1 m length + 2 tags.

SHEET PACKING:

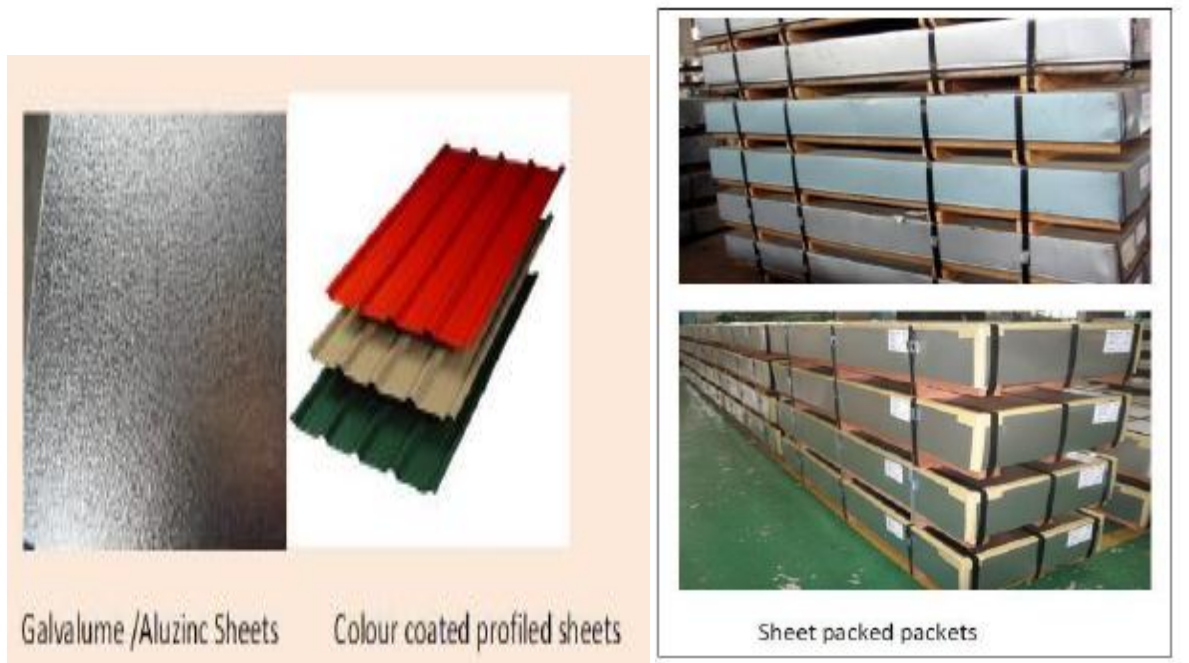


Figure-1



BHARAT HEAVY ELECTRICALS LIMITED
TIRUCHIRAPPALLI - 620 014, INDIA.
QUALITY ASSURANCE DEPARTMENT

STANDARD QUALITY PLAN FOR PRE-PAINTED GALVANIZED STEEL SHEETS

SQP:SD:02 Rev No: 01

Page: 1 of 3

Prepared By
Quality Assurance

ABDUR RAHMAN SULTAN

Abdur 16.08.2017

Reviewed by	Signature
Quality Assurance (G. PANNERSELVAN)	<i>[Signature]</i>
Engineering (M - SHANMUGAM)	<i>[Signature]</i>
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Record of Revisions

Rev No	Details of Revision	Remarks
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01	Cl. 1.0, 3.1 to 3.5 revised, 3.6 to 3.8 removed based on feedback from MM	Raw material sources removed, Quantum of testing revised.

Proprietary Data - For Internal Use Only



MANUFACTURER'S
NAME & ADDRESS:
BHEL TIRUCHIRAPPALLI
APPROVED SUPPLIERS

STANDARD QUALITY PLAN

PRODUCT: PRE-PAINTED GALVANIZED STEEL SHEETS

SUB-SYSTEM :Steam Generator and Auxiliaries

QWI NO:SQP:SD:02

REV NO: 01 DATE: 16/08/2017

PAGE: 2 OF 3

SL. NO	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
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1	2	3	4	5	M	C/N	7	8	9	D*	**	10	11

1.0 RAW MATERIALS

1.0	Steel Sheets/Coils	Chemical & Mechanical Properties (YS, TS, %Elong), Hardness, Cupping & bend tests	A	TC Verification	IS 513	IS 513	IS 513 & BHEL PO	IS 513 – Design CR1 Gr 390 & BHEL PO	MTC	√	P	V	V	
		Surface Finish	B	Visual	IS 513	IS 513	IS 513	Cl 8 of IS 513	MTC	√	P	V	-	
		Freedom from defects	B	Visual	IS 513	IS 513	IS 513	Cl 9 of IS 513	MTC	√	P	V	-	
		Dimensions	B	Measurement	IS 513	IS 513	IS 513	BHEL PO	MTC	√	P	V	-	

2.0 INPROCESS CONTROLS

GALVANIZING

2.1	Steel Sheets/Coils	Cleaning & Degreasing	A	Visual	100%	100%	IS 277 & BHEL PO	IS 277 & BHEL PO	Log	√	P	V	-	
2.2	Zinc Ingots*	Chemical properties	B	TC Verification	100%	100%	IS 209/ IS 13229	IS 209/ IS 13229	MTC	√	P	V	-	*Grade G250
2.3	Galvanization	Galvanizing	A	Visual	100%	100%	IS 277 & BHEL PO	IS 277 & BHEL PO	MTC	√	P	V	-	
2.4	Bend Test for zinc coating	Peeling of, flaking, cracking	B	Visual	Cl 8 of IS 277	Cl 8 of IS 277	Cl 8 of IS 277 & BHEL PO	Cl 8 of IS 277 & BHEL PO	IR	√	P	V	-	
2.5	Zinc Coating Test	Weight of coating of galvanizing*	B	Measurements	Cl 9 of IS 277	Cl 9 of IS 277	IS 277 & BHEL PO	IS 277 & BHEL PO	IR	√	P	V	-	*both sides inclusive: 275 gsm
2.6	Galvanized sheets/coils	Surface Finish	B	Visual	100%	100%	Cl 11 of IS 277	Cl 11 of IS 277	IR	√	P	V	-	

PAINTING & CORRUGATION

2.7	Paint Coating Selection	Paint Class, viscosity, etc.	B	Visual	100%	100%	BHEL PO	BHEL PO	MTC	√	P	V	-	
2.8	Alkali Cleaning; Rinsing with Hot & cold water*;	Cleanliness of galvanized Sheets before painting	A	Visual	100%	100%	Manufacturer's std	Freedom from oil, grease, dirt.	Log	√	P	V	-	* followed by Chromate soln treatment at room temperature
2.9	Painting: Primer on both sides; Top & bottom coats	Surface Preparation, Color Shade & DFT	B	Visual & Measurement	100%	100%	BHEL PO	BHEL PO	IR	√	P	V	-	
2.10	Corrugation of sheets *	Shape, Surface finish, peeling of paint on both sides	A	Visual	100%	100%	IS 277 & BHEL PO	IS 277 & BHEL PO	IR	√	P	V	-	*if applicable

LEGEND: * RECORDS IDENTIFIED WITH "TICK" (√) SHALL BE ESSENTIALLY INCLUDED BY THE SUPPLIER IN QA DOCUMENTATION;

** M: MANUFACTURER (COIL/PROFILER), C: BHEL QC/BHEL AIA, N: CUSTOMER; P: PERFORM. W: WITNESS, V: VERIFICATION; CLASS : A - CRITICAL ; B - MAJOR ; C - MINOR;

MTC- Mill /Manufacturer's Test Certificate; IR- Inspection/Test Report; (R): Routine test; (I)/(Ts): Type test.



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STANDARD QUALITY PLAN

PRODUCT: PRE-PAINTED GALVANIZED STEEL SHEETS

SUB-SYSTEM :Steam Generator and Auxiliaries

QWI NO:SQP:SD:02

REV NO: 01 DATE: 16/08/2017

PAGE: 3 OF 3

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					M	C				N	M	C	
1	2	3	4	5	M	C/N	7	8	9	D*	**	10	11

2.11	Sheets	Dimensions of Corrugated/plane sheets	B	Measurements	100%	100%	BHEL PO & BHEL approved drawing	BHEL PO & BHEL approved drawing	IR	√	P	V	-	
3	TESTING ON PAINTED COILS/SHEETS – Tests shall be done at manufacturer's lab or NABL accredited labs.													
3.1	Bend Test	Peeling or crack of Paint	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.2 of IS 14246	Cl 6.2 of IS 14246*	IR	√	P	V	V	*No peeling or cracking of paint.
3.2	Pencil Hardness Test (2H)	Scratch proof	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.3 of IS 14246	Cl 6.3 of IS 14246#	IR	√	P	V	V	#No scratch
3.3	Impact Resistance Test	Impact resistance	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.4 of IS 14246	Cl 6.4 of IS 14246*	IR	√	P	V	V	*No peeling or cracking of paint.
3.4	Cross Hatch Test	No lifting of paint	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.5 of IS 14246	Cl 6.5 of IS 14246#	IR	√	P	V	V	#No lifting of paint.
3.5	Salt Spray Test	Corrosion Resistance/ Durability of paint	B	Visual & Measurement	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.6 & 5.4 of IS 14246 & BHEL Specn.	Cl 6.6 & 5.4 of IS 14246 & BHEL Specn.	MTC /IR	√	P	V	V	
4.0	FINAL INSPECTION													
4.1	Dimensional Inspection	Dimensions & Shapes	B	Visual & Measurement	100%	Min 1, max 10 *	BHEL PO & BHEL approved drawing		IR	√	P	W	V	*at random for each PO item. @shall be available on each pack of sheets.
4.2	Paint Inspection	Color, Shade & DFT	C		100%		BHEL PO	BHEL PO	IR	√	P	W	V	
4.3	Marking & Identification	PO no, Item, Material No, Project Name	B	100%	BHEL PO		BHEL PO	IR	√	P	W	V		
4.4	Packing along with Handling & Storage instructions to Sites@	Water-proof packing & Stability	B	100%	BHEL PO		BHEL PO	IR	√	P	W	-		

Notes:

- For Customer inspection, if applicable, the stages indicated under Column N shall be followed with specific approval of BHEL/Customer for Witness/Verification by Customer.
- The latest editions/revisions of the above mentioned/referred standards/procedures shall be used.

LEGEND: * RECORDS IDENTIFIED WITH "TICK" (√) SHALL BE ESSENTIALLY INCLUDED BY THE SUPPLIER IN QA DOCUMENTATION;
**** M:** MANUFACTURER (COIL/PROFILER), **C:** BHEL QC/BHEL AIA, **N:** CUSTOMER; **P:** PERFORM. **W:** WITNESS, **V:** VERIFICATION; **CLASS:** A - CRITICAL ; B - MAJOR ; C - MINOR;
MTC- Mill /Manufacturer's Test Certificate; IR- Inspection/Test Report; (R): Routine test; (I)/(Ts): Type test.

BHEL/TRICHY
MM/BOI/PURCHASE

REF:MM:PUR:BOI:ROOFSHEET

Pre-Qualification requirements (PQR) for the procurement of Roof sheets as per specification through Open Tender

Date :
Tender No & Date :
Supplier Name :
Supplier registered Address :
Supplier Plant Address :

A: Organizational Capability & Technical Competence:

Sl. No.	Pre –Qualification Criteria	Bidder acceptance / Bidder remarks
1.	Offers from bidders having basic in house manufacturing facilities for the enquired items are only eligible to participate. Offer from Traders, Distributors are not acceptable and will not be considered for evaluation. Vendor to indicate the nature of the Firm. (Trader/Distributor/Manufacturer). Product catalogue shall be submitted.	
2.	Compliance to Tendered Specification is mandatory for consideration of offer.	
3.	Compliance to Technical requirements & Quality Plan (if applicable) as per tendered specification against each item of enquiry.	
4.	Manufacturing plant address & available equipment's for manufacturing the tendered items shall be provided along with offer.	
5.	Suppliers shall submit Quality Management System certificate or Written down procedure.	
6.	Supplier shall have capacity to meet tender requirement.	
7.	Supplier offer will be considered subject to Customer Approval for Sagardighi and Bhuswal Contract.	
8.	BHEL reserve the right to inspect the item ordered at any stage at vendor's works and if found not meeting the stipulated conditions, material is liable for rejection.	

B: Past Experience/ Performance:

Sl. No.	Pre –Qualification Criteria	Bidder acceptance / Bidder remarks
1.	Suppliers shall indicate their annual installed capacity for the tendered specification & it shall be more than the tendered quantity.	
2.	Suppliers shall have supplied similar items to the tendered Scope/Specification.	
3.	Suppliers shall submit Supply credentials for last 3 years successful supply of Roof Sheets (i.e. PPGI or PPGL) like unpriced PO copies with corresponding proof of supply (such as invoice/bill of lading copies and test certificates covering shall be submitted.)	
4.	Supplier shall have to submit contact details of the customers to whom successful supply completed.	

BHEL/TRICHY
MM/BOI/PURCHASE

REF:MM:PUR:BOI:ROOFSHEET

Pre-Qualification requirements (PQR) for the procurement of Roof sheets as per specification through Open Tender

C. Financial Soundness:

Sl. No.	Pre –Qualification Criteria	Bidder acceptance / Bidder remarks
1.	Indigenous suppliers shall submit copies of annual reports (balance sheets), profit & Loss Statement for the last three years (or from date of incorporation whichever is less) and GST Certificate.	

Necessary supporting documents shall be submitted for meeting each of the above Pre-Qualification Criteria for technical evaluation of the offers.

BHEL reserves the right to consider/Not-consider the offers based on the evaluation of documents submitted for the above Pre-Qualification Criteria. If required, BHEL also reserves the right to verify information submitted by vendor. In case the information is found false/incorrect, the offer shall be rejected. BHEL also reserves the right to carry out audit checks for confirming the material properties on the supplied material during material receipt at BHEL. Supplies found defective during check or subsequent processing at BHEL will be rejected.

ITEM: PPGI. CORNER BARGE: 0.60X400X2440

"HEAVY DUTY CLASS" SPECIFICATION CONTINUOUSLY PREPAINTED GALVANISED STEEL SHEETS TO SPECIFICATION I.S: 14246 AS PER FOLLOWING REQUIREMENTS.

BASE METAL : Mild steel as per I.S:513

NOMINAL THICKNESS : 0.60mm (Without negative tolerance) (i.e excluding the thickness of galvanizing and painting).

GALVANISING : The base metal shall be Zinc Coating (Aluminium to be added during galvanization process as per IS 2629 Clause 5.2) at the rate of 150gms/sq.m as per I.S:277

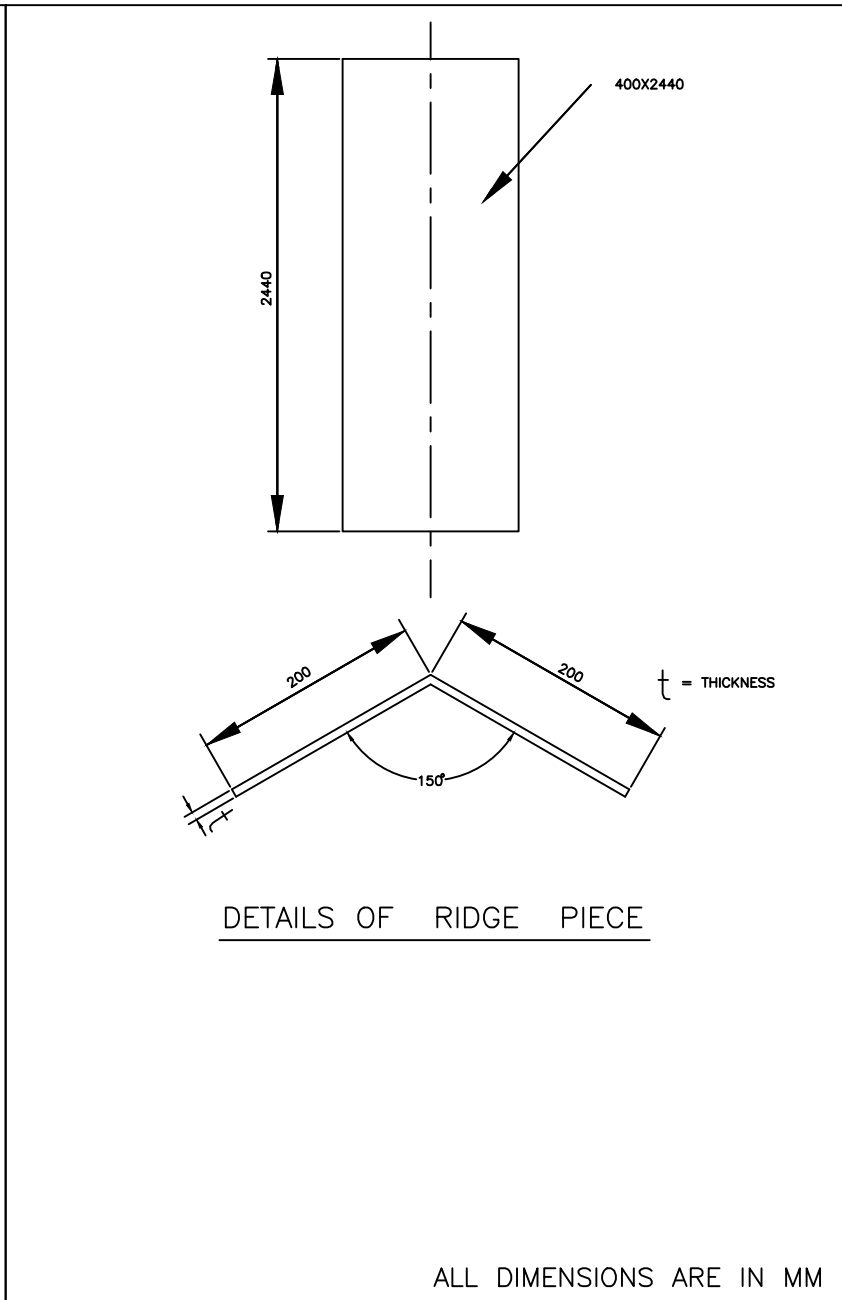
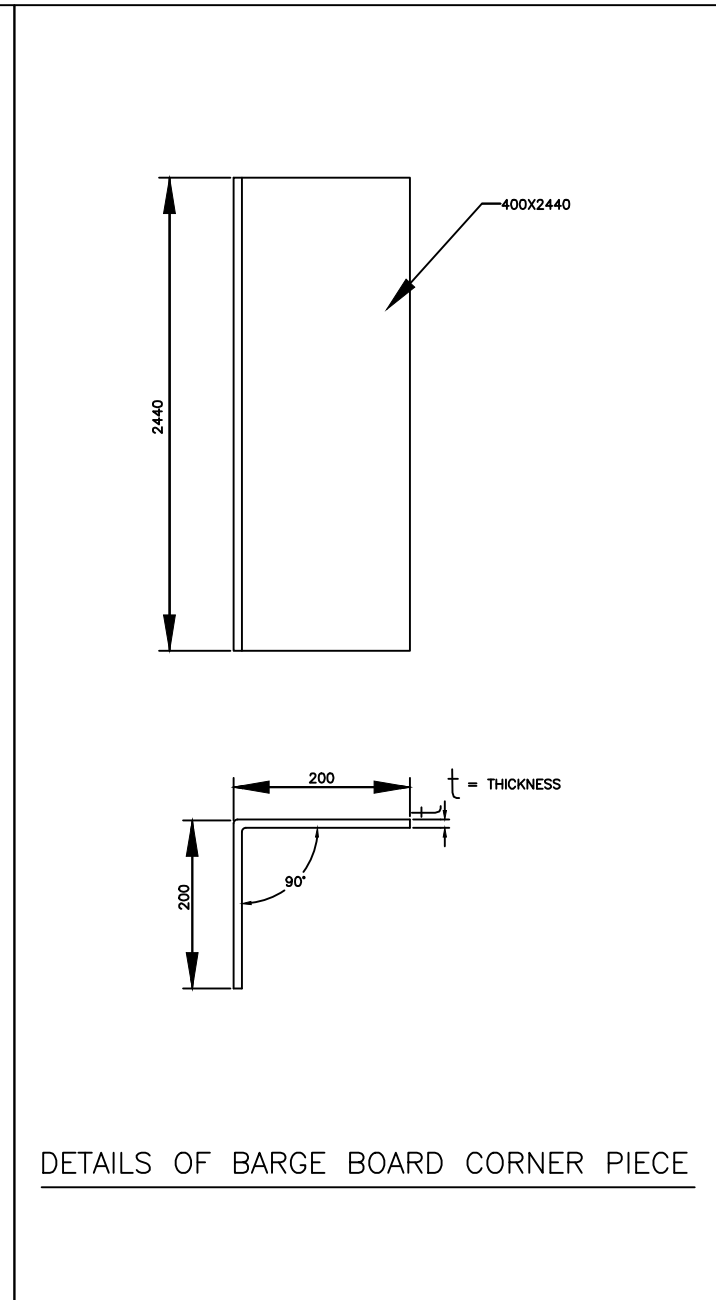
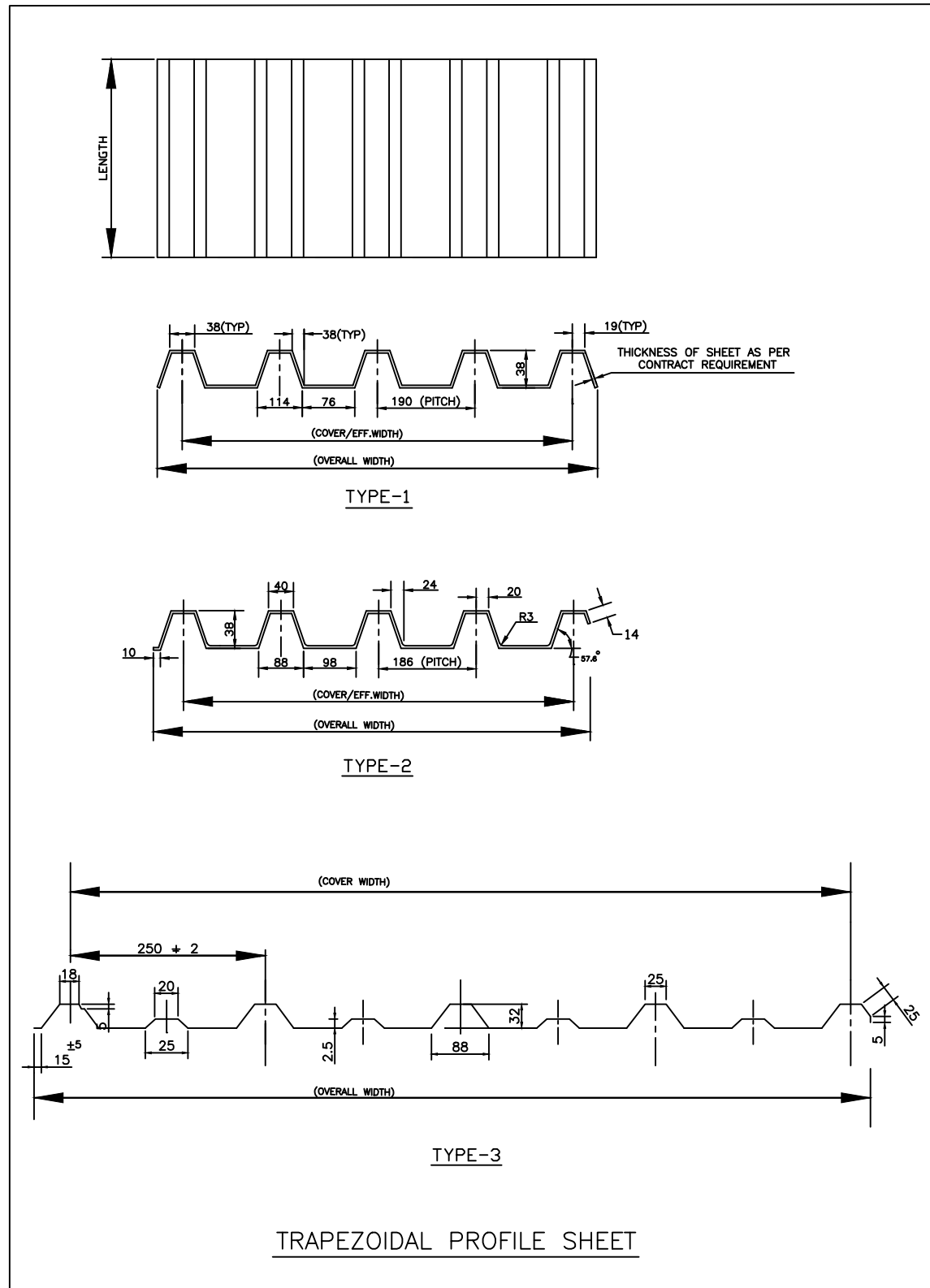
TOP SIDE PAINT : Top side coating shall be 20 microns minimum of PVF2 painting with DFT over primer. The Top colour of sheets shall be BLUE (RAL 5012).

BOTTOM SIDE PAINT : Bottom side coating shall be 12 microns minimum of PVF2 painting with DFT over primer. Bottom side colour of sheets shall be Grey (RAL 9002)

DURABILITY OF PAINT: As per Class – 3 of I.S:14246

Note:

- Corner Barge shall be as per BHEL Drawing: 3-35-611-80440.
- Packing, Handling and storage of the sheets shall be as per the enclosed Packing, handling and storage instructions.
- BHEL Standard Quality Plan SQPSD02_01 enclosed to be followed.



ALL DIMENSIONS ARE IN MM

REV	DATE	ALTERED	S.SIVA
01	28/09/10	CHKD & APPD	S.MURALISANKAR
ZONE	NOTES AND DIMENSIONS REMOVED		

CAUTION: 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.

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT				Bharat Heavy Electricals Ltd UNIT: HIGH PRESSURE BOILER PLANT TIRUCHIRAPALLI - 620014	
DEPT FBC & HRSG	ALL DIMENSIONS ARE IN MM	PROJECTION	SCALE	WEIGHT (Kg)	REF TO ASSY / OLD DWG
CODE 1322			N.T.S		
TITLE				DRAWING NO :	
DETAILS OF TRAPEZOIDAL PROFILE SHEET, BARGE BOARD & RIDGE PIECE				3-35-611-80440	
					REV
					01

Handling and storage of coated steel products

Must be pasted on all packets clearly visible from outside

For longer life/durability after application, no wastage/damage of coated steel products below handling and storage guidelines are very important.

Handling

- 1) Use nylon/fiber felts for Handling. Do not use steel Wire rope/chains lifting /downloading / Moving
- 2) Use cushioning (wood /rubber) at bottom of & secure lashing & dunnaging **while** transportation.
- 3) Do not transport materials with water/chemicals/vegetables / animals/cement....
- 4) Unload carefully; avoid any packing damages due to unloading/handling.
- 5) If received wet & with damaged packing, Unpack, dry & repack.

Storage

- 1) Store materials on wooden support well over the flat & clean dry floor & temperature below 50°C.
- 2) Do not store materials on wet, damp, muddy floors /lands **directly**. If no option, use about 2 feet steel/ wooden platforms over such places for storing for only for few days.
- 3) Store in well ventilated, dry & protected from rain godowns/shades.
- 4) After Unpacking use materials within couple of days & balance materials remains if any, repack and store for further use.
- 5) Store away from chemicals / cement & any wet materials.

PACKING METHOD

PACKING DETAILS FOR PRE COATED GALVANIZED ROOF SHEET, PRECOATED GALVALUME ROOF SHEET, RIDGE PIECE, CORNER BARGE BOARD AND PLAIN SHEETS

Packing material for Pre Coated Products:

Sl No	Packing Materials(Layers)	Nos
1	LDPE	1
2	HDPE	1
3	Metal Box	1
4	Wooden pallet/Wooden Skid at bottom	Top metal box over bottom box as shown in figure-1
5	High tensile packing straps & tags	Along length 2, Along width every 1 m length + 2 tags.

SHEET PACKING:

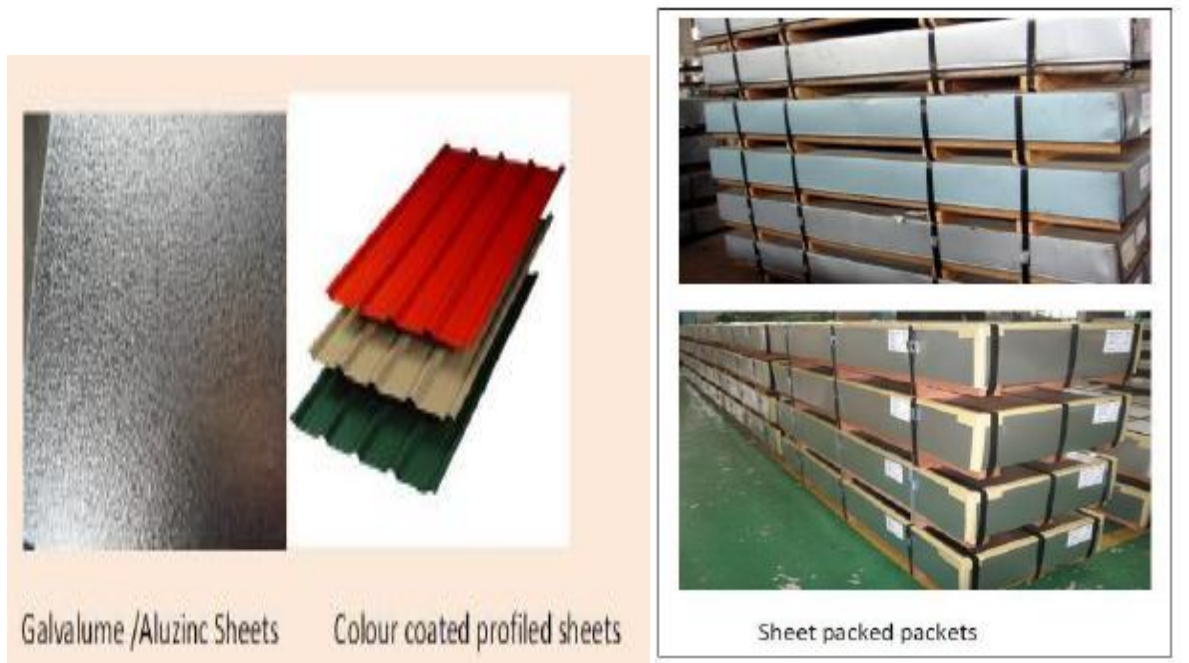


Figure-1



BHARAT HEAVY ELECTRICALS LIMITED
TIRUCHIRAPPALLI - 620 014, INDIA.
QUALITY ASSURANCE DEPARTMENT

STANDARD QUALITY PLAN FOR PRE-PAINTED GALVANIZED STEEL SHEETS

SQP:SD:02 Rev No: 01

Page: 1 of 3

Prepared By
Quality Assurance

ABDUR RAHMAN SULTAN

Abdur 16.08.2017

Reviewed by	Signature
Quality Assurance (G. PANNERSELVAN)	<i>[Signature]</i>
Engineering (M - SHANMUGAM)	<i>[Signature]</i>
Materials Management (M. RADHAKRISHNAN)	<i>[Signature]</i>
Quality Control R. DHARMAR	<i>[Signature]</i>

Rev No	Date	Approved by	Signature
01	16/08/2017	AGM / QA & BE	<i>Revised</i> 16/08/17

Record of Revisions

Rev No	Details of Revision	Remarks
00	Fresh Issue	
01	Cl. 1.0 , 3.1 to 3.5 revised, 3.6 to 3.8 removed based on feedback from MM	Raw material sources removed, Quantum of testing revised.

Proprietary Data - For Internal Use Only



MANUFACTURER'S
NAME & ADDRESS:
BHEL TIRUCHIRAPPALLI
APPROVED SUPPLIERS

STANDARD QUALITY PLAN

PRODUCT: PRE-PAINTED GALVANIZED STEEL SHEETS

SUB-SYSTEM :Steam Generator and Auxiliaries

QWI NO:SQP:SD:02

REV NO: 01 DATE: 16/08/2017

PAGE: 2 OF 3

SL. NO	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
					M	C				N	M	C	
1	2	3	4	5	M	C/N	7	8	9	D*	**	10	11

1.0 RAW MATERIALS

1.0	Steel Sheets/Coils	Chemical & Mechanical Properties (YS, TS, %Elong), Hardness, Cupping & bend tests	A	TC Verification	IS 513	IS 513	IS 513 & BHEL PO	IS 513 – Design CR1 Gr 390 & BHEL PO	MTC	√	P	V	V	
		Surface Finish	B	Visual	IS 513	IS 513	IS 513	Cl 8 of IS 513	MTC	√	P	V	-	
		Freedom from defects	B	Visual	IS 513	IS 513	IS 513	Cl 9 of IS 513	MTC	√	P	V	-	
		Dimensions	B	Measurement	IS 513	IS 513	IS 513	BHEL PO	MTC	√	P	V	-	

2.0 INPROCESS CONTROLS

GALVANIZING

2.1	Steel Sheets/Coils	Cleaning & Degreasing	A	Visual	100%	100%	IS 277 & BHEL PO	IS 277 & BHEL PO	Log	√	P	V	-	
2.2	Zinc Ingots*	Chemical properties	B	TC Verification	100%	100%	IS 209/ IS 13229	IS 209/ IS 13229	MTC	√	P	V	-	*Grade G250
2.3	Galvanization	Galvanizing	A	Visual	100%	100%	IS 277 & BHEL PO	IS 277 & BHEL PO	MTC	√	P	V	-	
2.4	Bend Test for zinc coating	Peeling of, flaking, cracking	B	Visual	Cl 8 of IS 277	Cl 8 of IS 277	Cl 8 of IS 277 & BHEL PO	Cl 8 of IS 277 & BHEL PO	IR	√	P	V	-	
2.5	Zinc Coating Test	Weight of coating of galvanizing*	B	Measurements	Cl 9 of IS 277	Cl 9 of IS 277	IS 277 & BHEL PO	IS 277 & BHEL PO	IR	√	P	V	-	*both sides inclusive: 275 gsm
2.6	Galvanized sheets/coils	Surface Finish	B	Visual	100%	100%	Cl 11 of IS 277	Cl 11 of IS 277	IR	√	P	V	-	

PAINTING & CORRUGATION

2.7	Paint Coating Selection	Paint Class, viscosity, etc.	B	Visual	100%	100%	BHEL PO	BHEL PO	MTC	√	P	V	-	
2.8	Alkali Cleaning; Rinsing with Hot & cold water*;	Cleanliness of galvanized Sheets before painting	A	Visual	100%	100%	Manufacturer's std	Freedom from oil, grease, dirt.	Log	√	P	V	-	* followed by Chromate soln treatment at room temperature
2.9	Painting: Primer on both sides; Top & bottom coats	Surface Preparation, Color Shade & DFT	B	Visual & Measurement	100%	100%	BHEL PO	BHEL PO	IR	√	P	V	-	
2.10	Corrugation of sheets *	Shape, Surface finish, peeling of paint on both sides	A	Visual	100%	100%	IS 277 & BHEL PO	IS 277 & BHEL PO	IR	√	P	V	-	*if applicable

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BHEL TIRUCHIRAPPALLI
APPROVED SUPPLIERS

STANDARD QUALITY PLAN

PRODUCT: PRE-PAINTED GALVANIZED STEEL SHEETS

SUB-SYSTEM :Steam Generator and Auxiliaries

QWI NO:SQP:SD:02

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PAGE: 3 OF 3

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					M	C				N	M	C	
1	2	3	4	5	M	C/N	7	8	9	D*	**	10	11

2.11	Sheets	Dimensions of Corrugated/plane sheets	B	Measurements	100%	100%	BHEL PO & BHEL approved drawing	BHEL PO & BHEL approved drawing	IR	√	P	V	-	
3	TESTING ON PAINTED COILS/SHEETS – Tests shall be done at manufacturer's lab or NABL accredited labs.													
3.1	Bend Test	Peeling or crack of Paint	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.2 of IS 14246	Cl 6.2 of IS 14246*	IR	√	P	V	V	*No peeling or cracking of paint.
3.2	Pencil Hardness Test (2H)	Scratch proof	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.3 of IS 14246	Cl 6.3 of IS 14246#	IR	√	P	V	V	#No scratch
3.3	Impact Resistance Test	Impact resistance	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.4 of IS 14246	Cl 6.4 of IS 14246*	IR	√	P	V	V	*No peeling or cracking of paint.
3.4	Cross Hatch Test	No lifting of paint	B	Visual	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.5 of IS 14246	Cl 6.5 of IS 14246#	IR	√	P	V	V	#No lifting of paint.
3.5	Salt Spray Test	Corrosion Resistance/ Durability of paint	B	Visual & Measurement	1 per 10 Tonnes	1 per 10 Tonnes	Cl 6.6 & 5.4 of IS 14246 & BHEL Specn.	Cl 6.6 & 5.4 of IS 14246 & BHEL Specn.	MTC /IR	√	P	V	V	
4.0	FINAL INSPECTION													
4.1	Dimensional Inspection	Dimensions & Shapes	B	Visual & Measurement	100%	Min 1, max 10 *	BHEL PO & BHEL approved drawing		IR	√	P	W	V	*at random for each PO item. @shall be available on each pack of sheets.
4.2	Paint Inspection	Color, Shade & DFT	C		100%		BHEL PO	BHEL PO	IR	√	P	W	V	
4.3	Marking & Identification	PO no, Item, Material No, Project Name	B	Visual	100%		BHEL PO	BHEL PO	IR	√	P	W	V	
4.4	Packing along with Handling & Storage instructions to Sites@	Water-proof packing & Stability	B	Visual	100%		BHEL PO	BHEL PO	IR	√	P	W	-	

Notes:

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BHEL/TRICHY
MM/BOI/PURCHASE

REF:MM:PUR:BOI:ROOFSHEET

Pre-Qualification requirements (PQR) for the procurement of Roof sheets as per specification through Open Tender

Date :
Tender No & Date :
Supplier Name :
Supplier registered Address :
Supplier Plant Address :

A: Organizational Capability & Technical Competence:

Sl. No.	Pre –Qualification Criteria	Bidder acceptance / Bidder remarks
1.	Offers from bidders having basic in house manufacturing facilities for the enquired items are only eligible to participate. Offer from Traders, Distributors are not acceptable and will not be considered for evaluation. Vendor to indicate the nature of the Firm. (Trader/Distributor/Manufacturer). Product catalogue shall be submitted.	
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6.	Supplier shall have capacity to meet tender requirement.	
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8.	BHEL reserve the right to inspect the item ordered at any stage at vendor's works and if found not meeting the stipulated conditions, material is liable for rejection.	

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3.	Suppliers shall submit Supply credentials for last 3 years successful supply of Roof Sheets (i.e. PPGI or PPGL) like unpriced PO copies with corresponding proof of supply (such as invoice/bill of lading copies and test certificates covering shall be submitted.)	
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BHEL/TRICHY
MM/BOI/PURCHASE

REF:MM:PUR:BOI:ROOFSHEET

Pre-Qualification requirements (PQR) for the procurement of Roof sheets as per specification through Open Tender

C. Financial Soundness:

Sl. No.	Pre –Qualification Criteria	Bidder acceptance / Bidder remarks
1.	Indigenous suppliers shall submit copies of annual reports (balance sheets), profit & Loss Statement for the last three years (or from date of incorporation whichever is less) and GST Certificate.	

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