

QUALITY ASSURANCE PLAN FOR Platform Girder & Roof

Sl. No.	Component / Operation	Characteristic Check	Type of Check	Ref. Document	Fabrications Quality Control	Inspection Detail		Format of Record	Acceptance Norm
						Inspection	Extent of		
Raw Material									
1		a) Identification and co-relation with mill test certificate from supplier	s	Challan, Mill test certificate	Verification of reference document	KMRC	100%	Fabrication records	IS 2062
1.1	Steel Plates Structural Section	b) Physical Conditions - Pitting, rusting, straightness, rolling defects etc.			Complete visual inspection	KMRC	100%	Inspection report of inspection officials and fabricators record	IS 1852
		c) Mechanical test - UTS, Yield stress, elongation, % reduction area impact and bend test.	Lab test at fabricator workshop & manufacturer Test certificate	Challan, Manufacturer's test certificate		KMRC	Random Per Lot*	Inspection report of inspection officials and fabricators record	IS: 2062, IS: 1599, IS: 1608, IS: 1757
		d) Chemical test-Max C, Mn, Si, S, P, Cr., Cu, Ce Equivalent	Independent Lab test & manufacturer Test certificate	Challan, Manufacturer's test certificate		KMRC	Random Per Lot*	Inspection report of inspection officials and fabricators record	IS:2062 IS: 228
		e) Ultrasonic Test - for plates	Lab test at fabricator workshop & manufacturer Test certificate	Challan, Manufacturer's test certificate		KMRC	10% for plates thickness above 12 mm & 5 % for equal or less than 12 mm	Inspection report of inspection officials and fabricators record	IS: 2062,
		F) Dimensional	Measurement	Challan	Measurement of Dimensions	KMRC	100%	Fabrication records	IS 1852

Sampling and testing and acceptance consideration will be made on a lot basis. A lot shall be defined as those material presented for inspection at a specified time and date. A lot shall be further defined as a smallest weight of plates as determined by the following criteria:-

Lot* -

1. A lot shall not exceed material cast with one heat.
2. A lot shall not exceed material of 100 t of a particular plate thickness.
3. Structural Plates of different thickness are regarded as separate lot.

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1.2	Bolts, nuts & washers	a) Dimension As per specification	Visual / Measurement Any test as required.	Challan, Manufacturer 's test certificate	Verification of reference document & Measurement	KMRC	As per requirement		IS 1363 IS 1364 IS 5369
		b) Mechanical test - Tensile strength, Hardness, Impact Test, Decarburization, Retempering & Surface Integrity Test	Lab test at Independent laboratory & manufacturer Test certificate	Challan, Manufacturer 's test certificate		KMRC	Random Per Lot*	Inspection report of inspection officials and fabricatros record.	IS 1367
		c) Chemical test - C Min & max, P,S	Independent Lab test & manufacturer Test certificate	Challan, Manufacturer 's test certificate		KMRC	Random Per Lot*	Inspection report of inspection officials and fabricatros record.	IS 1368

Lot* - Sampling and testing and acceptance consideration will be made on a lot basis. A lot shall be defined as those material presented for inspection at a specific time and date. A lot shall be further defiend as a smallest weight of plates as determined by the followign criteria:-

1 A lot shall be as per ASTM .\

1.3	Paint	a) Verification of manufacturer test certificate, inspectioncertificate challan	Visual	Challan, Manufacturer's test certificate	Verification of reference document	KMRC	Each Batch	Manufacturer's test certificate Challan	IS 101 IS - 102
		b) Supply viscosity, specific gravity Mixing ration, Surface Dry, Hard Dry, volume solid%	Independent Lab Test		Verification of reference document	KMRC	Sampling shall be done as defined in IS:101 (part-1/sec-1)	Inspection report of inspection officials	IS 101 IS - 102
1.4	Welding electrodes / wires, flux etc.	As per specifications	Any test as required	Challan, Manufacturer's test	Verification of reference document	KMRC	As per requirement	Fabrication records	Welding consumabl e should be KMRC approved.

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Manufacturing Process									
2.1 Layout of Components & Joints									
a	Nominal	Dimensions	Measurement with tested steel tape and gauges	Approved drawings	Measurement of dimensions	KMRC	100%	Inspection report of inspection officials	Relevant IRS/IS code and approved drawings
b	Camber	Dimensions	Measurement with tested steel tape and gauges	Approved drawings	Measurement of dimensions	KMRC	100%	Inspection report of inspection officials	Relevant IRS/IS code and approved drawings
c	Master (Replica of Jig)	Dimensions, intersection lines, pitch, gauge, dia of holes and no. of holes	Measurement with tested steel tape and gauges	Approved drawings	Measurement of dimensions	KMRC	100%	Inspection report of inspection officials	Relevant IRS/IS code and approved drawings
d	Jigs, Template and fixtures	Dimensions, intersection lines, pitch, gauge, dia of holes and no. of holes	Measurement with tested steel tape and gauges	Approved drawings	Measurement of dimensions	KMRC	100%	Records of jigs & fixtures as per proforma issued by RDSO	IRS :B1-2001
2.2	Cutting straightening edge preparation end milling	Dimension freedom from defects	Visual Measurement	Inspection report of inspecting officials fabricator's records.	Visual inspection and measurement of dimensions	KMRC	Random	Inspection report of inspecting officials fabricator's records	IRS:B1-2001
2.3 Welding									
a	Submission of WPSS	Review of WPSS	Visual	IRS: B1-2001 IS : 9595	Verification of reference documents	KMRC	100%	Fabricator's records	IRS:B1-2001 IS: 9595
b	WPQR	Witness of established WPS	Weldign and DT/NDT tests at approved lab	Approved WPSS	Verification of ref documents and test reports	KMRC	100%	WPQR record sheet to be recorded.	IS7310 Part1
c	DELETED								

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d	Preheating	Required Temperature measurement	Visual with Temp. measuring chalks	As per WPSS	Verification of ref documents and test reports	KMRC	Random	Inspection report of inspecting officials fabricator's records	IRS:B1-2001
e	Baking of Electrode and flux	To have moisture free flux & electrodes	Visual check of electrode heating ovens	as per manufacturer recommendation	Verification of ref. document	KMRC	Random	Inspection report of inspecting officials fabricator's records	IRS:B1-2002
f	Selection of correct electrode flux	Ref of WPSS /RDSO class etc	Visual						
g	Welding operation								
	(i) Current condition	Measurement of Amperage & Voltage	Visual with Ammeter & Voltmeter	As per WPQR	Verification of ref Document and Test Report	KMRC	Random	Inspection report of inspecting officials fabricator's records	
	(ii) Sequence of welding	To control Distortions	Visual	As per approved WPSS	Verification of ref Document and Test Report	KMRC	Random	Inspection report of inspecting officials fabricator's records	IRS:B1-2001
h	Provision of run in and run out plates	To avoid starting & crater defect	Visual	As per IRS:B1-2001	Verification of ref Document and Test Report	KMRC	Random	Inspection report of inspecting officials fabricator's records	IRS:B1-2001

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1	Inspection of Welding i.e. after welding	a) Visual , Fillet size, leg, length, throat Thickness	Visual DP Test Gauge Micro Etching	Approved drawing and WPSS	Visual inspection and verification of dimensions by gauge	KMRC	100%	Fabricator's records	Relevant IS/IRB codes and approved drawings
		b) NDT of all butt welds	Radiography	IIW Blue Standard	Verification of Film Review	KMRC	10% or the percentage of welds to be tested may be increased depending on the quality of welds. All expenses shall be borne by the contractor.	Exposed films to be kept in records & submitted to purchaser	IIW Blue Standard
		c) NDT of all fillet welds	USFD/MP Test	IS:9565	USFD Test Record sheets	KMRC	15%	UT / MP Test Report	IS : 9565
2.4	Drilling/ Punching Work For Bolting								
a)	Drilling/Punching Through Approved Jigs	Dimensions	Measurement	Approved drawings	Random checking of dimension by measurement	KMRC	Random	Fabricators Record	Relevant IRS/IS code and approved drawings
b)	Application of paint on hidden surfaces	Visual	Visual	IRS Code and contract agreement	100% of visual check on paint application	KMRC	Random	Fabricators Record	Relevant IRS/IS code and approved drawings
2.5	Painting Work								
a)	Surface Preparation, Dry Fill thickness		Measurement		Random checking of dimension by measurement	KMRC	Random	Fabricators Record	Relevant IS code
b)	Adhesion test					KMRC	Random	Fabricators Record	Relevant IS code
3	Shop Assembling Work								
a)	Shop Assembling	Fit up of members	Visual	Approved Drawings	Visual Check & Measurement	KMRC	Random	Inspection report of inspecting	IRS:B1-2001
		Dimensions	Measurement						