

QA QC TESTING MATRIX FOR PEB WORKS										
Sl.No	Description of material /Item	Characteristics check	Tests to be conducted and Frequency	Inspection Details			Type of record	Acceptable criteria/ IS Code		
				Inspecting Agency	Approving Agency	Extent of Inspection				
1	Raw Material									
1.1	Steel Plates and structural sections	Identification and correlation with Mill test certificate from the suppliers as per approved vendors	All as per IS, Mill test certificates and required test from Govt /NABL approved labs	Contractor/external lab as per the requirement	BEML / PMC*	100%	PHYSICAL / MTC	IS 2062		
		Grade of material:								
		Rolled section:								
		Physical condition : Pitting, rusting, rolling, straightness, defect, size& thickness etc.,	All visual Inspection on every purchase	Contractor/external lab as per the requirement	BEML / PMC*	100%	PHYSICAL/ MTC			
		Mechanical Test as per IS	Govt /NABL approved lab tests Any one thickness of sample plate / cast/heat for UP TO 1000 MT / per lot	Contractor/external lab as per the requirement	BEML / PMC*	As per IS Recommendations	PHYSICAL/ MTC			
		UTS								
		Yield strength								
		EI								
Bend test	Govt /NABL approved lab tests Any one thickness of sample plate / cast/heat for UP TO 1000 MT / per lot	Contractor/external lab as per the requirement	BEML / PMC*	As per IS Recommendations	PHYSICAL/ MTC					
1.2	Steel plates	Ultra sonic test for 12mm thick and above	All verification UT Results	Contractor/external lab as per the requirement	BEML / PMC*	100%	PHYSICAL/ MTC			
Dimensions	All measurements	BEML / PMC*								
1.3	Bolts Washers & Nuts	Dimensions	MTC &Test reports from NABL Lab minimum of one sample from each size	Contractor/external lab as per the requirement	BEML / PMC*			100%	PHYSICAL/ MTC	
	Studs	As per specifications Chemical and mechanical				Govt /NABL approved lab tests	BEML / PMC*			
1.4		Paints	Verification of material's Test certificate Inspection certificate and invoices	Visual /Review of BTC & Batch Nos	Contractor/external lab as per the requirement	BEML / PMC*	Each batch			PHYSICAL/ MTC
1.5	Welding consumables as per IS	As per the specification and approved by consultants	MTC &Test reports from NABL Lab	Contractor/external lab as per the requirement	BEML / PMC*	Each batch	PHYSICAL/ MTC			
2	Manufacturing Process									
2.1	Layout components and joints	Dimensions	All measurements	Contractor	BEML / PMC*	100%	PHYSICAL	IS 2062		
	Normal									
2.2	jigs and templates	Dimensions, intersction lines, pitch, guage, Hole dia & No of Holes			Contractor				BEML / PMC*	Random
2.3	Cutting straightening, edge preparation	Dimensions, free from defect	Visual / all measurements	Contractor	BEML / PMC*	Random	PHYSICAL			
	Drilling									
3	Welding									
3.1	WPSS	Review of WPSS	Verification of apporved welding specifications	Contractor	BEML / PMC*	100%	PHYSICAL	IS : 800		
3.2	WPQR	Witness of established WPSS and welder qualifications tests	Visual / DP Test at NABL Test Lab	Contractor/external lab as per the requirement	BEML / PMC*					
3.3	Preheating	Measurement of temperature	Visual with thermal chalk	Contractor	BEML / PMC*					
3.4	Baking of electrodes, flux	To have moisture free electrode and flux	Visual check of electrodes & beating		BEML / PMC*					
3.5	Selection of correct electrodes and flux	Reference to WPSS	Visual		BEML / PMC*					
3.5	Current condition	Measurement of Amps and voltage	Visual with ammeter & voltmeter		BEML / PMC*				Random	PHYSICAL
3.7	Sequence of welding	To control distortion	Visual		BEML / PMC*				Random	PHYSICAL
3.8	Provision of run on and run off plates	To avoid crater defects							PHYSICAL	
4	Inspection of welding									
4.1	Inspection of welding	Fillet welds : Visual	Visual, Weld guages	Contractor	BEML / PMC*	100%	PHYSICAL	IS : 800		
		Dye penetration								
		Fillet size								
		Lap length								
		Throat thickness								
		Butt welds : UT tests								
5	Trail Assembly									
5.1	Trail Assembly	Camber	Visual & Dimensions	Contractor	BEML / PMC*	One complete span of each type	PHYSICAL	IS : 800		
		Dimensions								
		Fairness of holes								
		Temporary fasteners								
		Infringment								
		Buttling of compression Edges								
6	Final clearance									
6.1	Final clearance	Components completeness	Visual, Dimensions & structural	Contractor	BEML / PMC*	100%	PHYSICAL	IS : 800		
7	Surface preperations									
7.1	Sand Blasting	surface conditions after blasting	Visual checking	Contractor	BEML / PMC*	100%	PHYSICAL	IS 2062		
7.2	Metalizing	surface finish after metalizing				Minimum one reading per sqm	PHYSICAL			
		DFT checking	Mesurements	Contractor/external lab as per the requirement	BEML / PMC*					
8	Cleaning and painting									
8.1	Cleaning and painting	Surface condition before painting	Visual checking	Contractor	BEML / PMC*	100%	PHYSICAL			
		Surface finish afterpainting								
9	Painting Details as per specifications									
	Type of coat	code details	external surface			Internal surface				
9.1	Surface treatment	IS : 1477	Abrasive blast cleaning to minimum			Abrasive blast cleaning to minimum				
9.2	Epoxy primer	IS : 14209	1 coat (50 microns)			1 coat (50 microns)				
9.3	Paints 1st coat	IS : 14209	1 coat (50 microns)			1 coat (50 microns)				
9.4	Paints 2nd coat	IS : 14209	1 coat (30 microns)			1 coat (30 microns)				
MTC:Manufacturer Test Certificate										
* PMC -PROJECT MANAGEMENT CONSULTANCY APPOINTED BY BEML										