Sl No	Surface Location	PGMA	Surface Preparation	Primer & Intermediate Coats		Finish Coat		Total DFT (µm min)
				Paint	DFT (µm min)	Paint	DFT(µm min)	

FGD Package of Ramagundam STPS Stage – I & II (3x200 MW + 3x500 MW)

Painting Scheme for FGD System, Booster Fans, Gates & Dampers

Prepared By	Reviewed By	Approved By
14/9/2020	14/9/2020	14/9/2020
Abdul Ghani, Senior Engineer / QA	Arunachalam R, DGM / QA	Saketharaman K , AGM / Quality

Sl No	Surface Location	PGMA	Surface Preparation	Primer & Intermediate Coats		Finish Coat		Total DFT (µm min)
				Paint	DFT (µm min)	Paint	DFT(µm min)	

Record of Revisions

Rev No	Date	Details of Revision	
00	21/05 /2020	First Submission	
01	26/06 /2020	**NTPC Comments:**	**BHEL Replies:**
		Furnish Painting scheme for complete Limestone and Gypsum Handling Plant.	Limestone and Gypsum Handling Plants are not in BHEL-Ranipet scope of supply. Painting requirements for these will be submitted by BHEL-ISG during detailed designing.
		BHEL to mention specification clause in every sl no. wherever it is not mentioned.	Mentioned wherever not available.
		Mention the IS clause for handrails as per specification wherever necessary in this document.	IS:4736, referred in NTPC Technical Specification, has been mentioned for hot dip galvanizing of handrails.
		Sl No: 5 of Fans: a) Delete MIO everywhere in this document Titanium dioxide is only option as per spec. b) Please mention With glossy finish as mentioned in spec.	a) MIO deleted wherever Titanium dioxide (Tio2) is specified in the technical specification. b) Glossy finish included.
		Sl Nos: 1, 28 of FGD: For Slurry recirculation pump System, slurry pump and accessories, water pumps, follow clause no 1.04.00 Paints/ Painting, Sub-section -III, Part-A, to provide 300 microns DFT.	Since these products are coming inside building and able to withstand the designed environment with the paint applicable for ECWS, paint specified under Cl 7.05.00 of Sub-Section: I- M5 Section-VI, Part-B has been used.
		Sl Nos: 4-7 of FGD: For Absorber system base, structures, duct supports, supports for RC pump house, casing bottom, casing top: painting shall be as per clause no 1.04.00 Paints/Painting, Sub-section -III, Part-A.	Since these products are structurals, painting requirements of structural steels specified under Cl 31.03.00 of Sec.VI, Part-B, Subsection- IV-D are more appropriate and used accordingly.

Sl No	Surface Location	PGMA	Surface Preparation	Primer & Intermediate Coats		Finish Coat		Total DFT (µm min)
				Paint	DFT (µm min)	Paint	DFT(µm min)	

Rev No	Date	NTPC Comments:	BHEL Replies:
01	26/06 /2020	Sl Nos: 8, 11 & 12: Absorber system accessories, Emergency quench system, Handling Equipment RC pump, Air oxidation system, Viewing ports (Without glass). 1. why different clause is being referred for absorber internal structure and rest of absorber? It is clearly written in specification for components where no specific requirement is stipulated, the painting conforming to the requirements stipulated below shall be provided. (Clause 1.04.00 of Part- A Section VI) to be followed for complete absorber. 2. BHEL to note SL no. 11 and 12 are mechanical system not structures so following clause of specification need to be followed. (Clause 1.04.00 of Part- A Section VI)	These products are very small items like nozzles, flanges & inspection doors, viewing ports, etc., and surfaces are exposed to temperature around 80 – 95^0 Celsius. Hence, this painting (Clause 20.03.00 of Part- C Section VI) is meant for protection until erection.
		Sl No: 13 – 18 of FGD: What about painting scheme of Duct supports? 1.Bypass duct, Booster fan, Scrubber, Stack Paint to be changed as "Primer shall be of ethyl silicate zinc primer as per specification requirement".	Duct supports are covered under Sl No: 5, 19, 20, 21 & 22. Since these are ducts insulated post erection, the already given paint will ensure protection until erection.
		Sl No 24 of FGD: Elevators & Accessories -Follow (Clause 31.03.00 of Sec.VI, Part-B, Subsection- IV-D)	Since it is an equipment which involves thin items like body, doors and electric items, shot blasting cannot be done. Hence, the already provided paint would suffice.
		Sl No 28 of FGD: As per clause no 1.04.00 Paints/Painting, Sub-section -III, Part-A, Vendor to provide 300 microns DFT. Follow above clause for slurry pump and accessories, water pumps.	Since these products are coming inside building and able to withstand the designed environment with the paint applicable for ECWS, paint specified under Cl 7.05.00 of Sub-Section: I- M5 Section-VI, Part-B has been used.
		Sl No 30 of FGD: Follow (Clause 31.03.00 of Sec.VI, Part-B, Subsection- IV-D) for SL no.30	Since it is an equipment which involves various electric items and small items like manhole doors, shot blasting cannot be done. Hence, the already provided paint would suffice.

Sl No	Surface Location	PGMA	Surface Preparation	Primer & Intermediate Coats		Finish Coat		Total DFT (µm min)
				Paint	DFT (µm min)	Paint	DFT(µm min)	

Rev No	Date	NTPC Comments:	BHEL Replies:
01	26/06/2020	Sl No 35 & 36 of FGD: BHEL to note SL no. 35 and 36 are mechanical system not structures so following clause of specification need to be followed. (Clause 1.04.00 of Part- A Section VI)	Sl No 35: Silo is a tank made of many structural segments. Since, inside SS lining is provided at Site, as a temporary protection until erection, the existing paint has been given. Sl No 36: These are special equipment and shot blasting would affect the performance. Hence, the already provided paint would suffice.
		Sl No 40 of FGD: (Limestone Mill – Inside surface): Which clause has been followed here?	For inside surfaces of mill, since protection is required until erection, the existing paint has been given.
		Sl No 42 of FGD: BHEL to note SL no.42 are mechanical system not structures so following clause of specification need to be followed. (Clause 1.04.00 of Part- A Section VI)	Since these tanks are structural i.e., made-up of several tiers and each tier with many structural segments, painting requirements of structural steels specified under Cl 31.03.00 of Sec.VI, Part-B, Subsection- IV-D are more appropriate and used accordingly.
		Sl No 48 of FGD: All valves (Temp <95 deg C) (Clause 20.03.00 of Part- C Section VI)	These products are exposed to temperature around 80 – 95^0 C. Hence, painting in Cl 20.03.00 of Part- C Section VI is provided.
		Sl No 50 of FGD: Supports for cable trays, Air receivers, commissioning& Mandatory spares, Tools & tackles: Follow Clause 31.03.00 of Sec.VI, Part-B, Subsection- IV-D)	These are flimsy/thin structures and shot blasting would affect the performance. Hence, the already provided paint would suffice.
		Sl No 2 of Gates & Dampers: Seal air piping, knife gate valve, mounting bracket and mandatory spares. BHEL to follow piping clause for seal air piping. (cl. 7.05.00 of Section-VI, Part-B, Sub section-I-M5)	This piping does not come under ECWS. However, the already provided paint would suffice.
		Sl No 3 of Gates & Dampers: Knife Gate valve, Mounting bracket, Mandatory spares: As these are mechanical systems follow (Clause 1.04.00 of Part- A Section VI)	Since these are small equipment, the already provided paint would suffice.
		Painting of damaged areas: Change primer to "Zinc rich epoxy or suitable primer with existing paint scheme".	Included.
		Shade number for Aliphatic isocyanate acrylic polyurethane paint to be specified.	Included.
		Painting schedule for ECW system not mentioned.	ECWS is not in BHEL-Ranipet scope of supply.

Sl No	Surface Location	PGMA	Surface Preparation	Primer & Intermediate Coats		Finish Coat		Total DFT (µm min)
				Paint	DFT (µm min)	Paint	DFT(µm min)	

Rev No	Date	NTPC Comments:	BHEL Replies:
02	19/08 /2020	Nowhere in this document revision has been marked. BHEL to mark revision everywhere applicable in this document and resubmit the document	Rev: 01 indicated by triangle. △ Rev: 02 indicated by circle. ○
		Sl Nos 1, 28 of FGD: Painting approval On hold for these equipment, please follow clause no 1.04.00 Part- A Section VI) for mechanical equipment	Incorporated requirements of Cl 1.04.00 Part-A Section VI for Sl Nos: 1 & 29.
		Sl Nos 11, 12 of FGD: Painting approval On hold for these equipment, please follow clause no 1.04.00 Part- A Section VI) for mechanical equipment	Included for major items (Sl Nos: 11 & 13). For minor items (Sl Nos: 12 & 14) like nozzle, flanges, etc., existing painting retained.
		Sl Nos: 13-18 of FGD: Please follow specification: Primer shall be of ethyl silicate zinc primer as per specification requirement.	Incorporated as per specification for the flue gas swept side of absorber inlet ducts in Sl No: 19.
		Sl Nos: 35, 36 of FGD: Painting approval On hold for these equipment, please follow clause no 1.04.00 Part- A Section VI) for mechanical equipment	For Sl no 37 Lime Stone Silo - Inside: The painting envisaged is until erection only. Once the system is commissioned, paint will peel off completely and application of intermediate and finish paints will become redundant. Therefore, primer is proposed. Also, primer given is of Inorganic Zinc silicate which offers superior protection against corrosion, abrasion and chemical resistance. Hence, we request you to kindly consider and approve the painting envisaged. For Sl No 38: These are small & special equipment and shot blasting would negatively affect the performance. Hence, the already provided paint would suffice.
		Sl Nos: 42 of FGD: Painting approval On hold for these equipment, please follow clause no 1.04.00 Part- A Section VI) for mechanical equipment	Included for Sl No:44.
		For Sl N 50 of FGD: Finish coat DFT to be 60 microns and total DFT to be 120 microns.	Included for Sl No: 52.

Sl No	Surface Location	PGMA	Surface Preparation	Primer & Intermediate Coats		Finish Coat		Total DFT (µm min)
				Paint	DFT (µm min)	Paint	DFT(µm min)	

		Sl Nos: 3 of Gates & Dampers: Painting approval On hold for these equipme please follow clause no 1.04.00 Part- A Section VI) for mechanical equipme	
03	14/08 /2020	Page 9 of 33(Rev 2 document).C&I related LIE, LIR, Panels and JBs to be included here as well.	for which PGMAs are released by Ranipet Engg. Paint thickness and paint color for items like C&I related LIE,LIR , panels and JBs will be ensured in respective Drawing / Data sheet released by BHEL Ranipet.Therefore, the painting of electrical items is not covered under this painting scheme. This is the practice which is being followed for Auxiliaries as well.
		Sl no 16 of FGD, NTPC asked to change paint and DFT.	Incorporated
		Sl no 17 of FGD, NTPC asked to delete the painting scheme stating non metallic expansion joint.	Incorporated
		Sl no 18 of FGD, NTPC asked to change paint and DFT.	Incorporated
		Page 32 of 33, marked sl no 21 to 26 and 28.	Deleted those sl no as those PGMAs not available for this project.
		Page 32 of 33, BHEL is requested again to mark every revision.	Rev: 01 indicated by triangle. △ Rev: 02 indicated by circle. ◯ Rev: 03 indicated by square.

BHEL to ensure painting of C&I related items in line with technical specification requirement. Title of this document may also be modified suitably.

Sl No	Surface Location	PGMA	Surface Preparation	Primer & Intermediate Coats		Finish Coat		Total DFT (µm min)
				Paint	DFT (µm min)	Paint	DFT(µm min)	

1. Fans

1	Axial Fan tool & fixtures **(Clause 20.03.00 of Part- C Section VI)**	55 000	Power Tool Cleaning to st3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	Synthetic Enamel to IS 2932 Shade: Grey white RAL 9002 (Two coats)	40	100
2	Booster Fan foundation material **(Clause 20.04.00 of Part- C Section VI)** △	55 081	Temporary rust preventive fluid application as per PRQA 523 DFT- 20µ; All Threaded and other surfaces of foundation bolt and its materials shall be coated with temporary rust preventive fluid. During execution of civil works the dried film of coating will be removed using Organic Solvents.					
3	Booster Fan Handrails & Insert **(Clause 31.06.00 of Sec.VI, Part-B, Subsection- IV-D)**	55 082	Blast cleaning to Sa 2½/ Acid pickling	Hand rails, Gratings- Hot dip galvanizing to 610gms/sq.m (minimum) as per IS: 4736 and to a coating thickness of 87µm (min). △				
4	Booster Fan Handrails & Insert- Structural items other than the above **(Clause 31.03.00 of Sec.VI, Part-B, Subsection- IV-D)**	55 082	Blast cleaning to Sa 2½ (Near white metal) with surface profile 40-60µm conforming to ISO 8501-1	**Primer:** One coat of Two component moisture curing zinc (ethyl) silicate primer coat (Min 80% metallic zinc content in dry film, solid by volume minimum 60% ±2). Zinc dust composition and properties shall be as per Type II as per ASTM D520-00 DFT- 70µ **Intermediate:** One coat of Two component polyamide cured epoxy with MIO content (containing lamellar MIO Min 30% on pigment, solid by volume min. 80%±2) DFT- 100µ	70 100	**Finish:** Two coats of two pack aliphatic isocyanate cured acrylic polyurethane paint to IS 13213 solid by volume min.55%±2) DFT- 35µ/ coat **Shade:** Grey white, RAL 9002 With gloss retention (SSPC paint spec no.36, ASTM D4587, D2244, D523 of level 2 after min. 1000 hrs exposure, gloss less than 30 and colour change less than 2.0Δ E)	70	240

Sl No	Surface Location	PGMA	Surface Preparation	Primer & Intermediate Coats		Finish Coat		Total DFT (µm min)
				Paint	DFT (µm min)	Paint	DFT(µm min)	
5	Axial booster cooling/ seal fan **(Clause 1.04.00 of Part- A Section VI)**	55 084	Blast cleaning to Sa 2½	**Primer:** Two coats of Epoxy resin based Epoxy Zinc phosphate primer to IS 13238 DFT- 50µ/coat **Intermediate:** One coat of Two component epoxy based intermediate paint pigmented with Tio2 △ DFT- 100µ	100 100	**Finish:** One coat of Epoxy based finish paint with glossy finish to IS 14209; DFT- 75µ △ **Finish:** One coat of acrylic aliphatic polyurethane paint to IS 13213 DFT-25µ Shade: Grey White, RAL9002	75 25	300
6	Booster fan canopy for motor **(Clause 1.04.00 of Part- A Section VI)**	55 089	Blast cleaning to Sa 2½	**Primer:** Two coats of Epoxy resin based Epoxy Zinc phosphate primer to IS 13238 DFT- 50µ/coat **Intermediate:** One coat of Two component epoxy based intermediate paint pigmented with Tio2 △ DFT- 100µ	100 100	**Finish:** One coat of Epoxy based finish paint with glossy finish to IS 14209; DFT- 75µ △ **Finish:** One coat of acrylic aliphatic polyurethane paint to IS 13213 DFT-25µ Shade: Grey White, RAL9002	75 25	300
7	Axial booster fan rotor **(Clause 20.03.00 of Part- C Section VI)**	55 287	Power Tool Cleaning to St3 (SSPC-SP3)	Two coats of Epoxy based Zinc phosphate primer (Two pack system) to IS 13238; DFT- 30µ/coat	60	NIL	--	60
8	Axial booster fan stator **(Clause 20.03.00 of Part- C Section VI)**	55 587	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	Synthetic Enamel to IS 2932 Shade: Grey white RAL 9002 (Two coats)	40	100
9	Axial booster fan coupling **(Clause 1.04.00 of Part- A Section VI)**	55 880	Blast cleaning to Sa 2½	**Primer:** Two coats of Epoxy resin based Epoxy Zinc phosphate primer to IS 13238 DFT- 50µ/coat	100	**Finish:** One coat of Epoxy based finish paint with glossy finish to IS 14209; DFT- 75µ △	75	

Sl No	Surface Location	PGMA	Surface Preparation	Primer & Intermediate Coats		Finish Coat		Total DFT (µm min)
				Paint	DFT (µm min)	Paint	DFT(µm min)	
				Intermediate: One coat of Two component epoxy based intermediate paint pigmented with Tio2 △ DFT- 100µ	100	**Finish:** One coat of acrylic aliphatic polyurethane paint to IS 13213 DFT-25µ **Shade:** Grey White, RAL9002	25	300
10	Booster fan LOS with lubricant **(Clause 1.04.00 of Part- A Section VI)**	55 980	Blast cleaning to Sa 2½	**Primer:** Two coats of Epoxy resin based Epoxy Zinc phosphate primer to IS 13238 DFT- 50µ/coat **Intermediate:** One coat of Two component epoxy based intermediate paint pigmented with Tio2 △ DFT- 100µ	100 100	**Finish:** One coat of Epoxy based finish paint with glossy △ finish to IS 14209; DFT- 75µ **Finish:** One coat of acrylic aliphatic polyurethane paint to IS 13213 DFT-25µ **Shade:** Grey White, RAL9002	75 25	300
11	Booster fan actuator **(Clause 1.04.00 of Part- A Section VI)**	55 983	Blast cleaning to Sa 2½	**Primer:** Two coats of Epoxy resin based Epoxy Zinc phosphate primer to IS 13238 DFT- 50µ/coat **Intermediate:** One coat of Two component epoxy based intermediate paint pigmented with Tio2 △ DFT- 100µ	100 100	**Finish:** One coat of Epoxy based finish paint with glossy △ finish to IS 14209; DFT- 75µ **Finish:** One coat of acrylic aliphatic polyurethane paint to IS 13213 DFT-25µ **Shade:** Grey White, RAL9002	75 25	300

2. FGD System

Sl No	Surface Location	PGMA	Surface Preparation	Primer & Intermediate Coats		Finish Coat		Total DFT (µm min)
				Paint	DFT (µm min)	Paint	DFT(µm min)	
1	Slurry recirculation pump System **(Clause 1.04.00 of Part- A Section VI)** ○	FW 212	Blast cleaning to Sa 2½ ○	**Primer:** Two coats of Epoxy resin based Epoxy Zinc phosphate primer to IS 13238 DFT- 50µ/coat ○ **Intermediate:** One coat of Two component epoxy based intermediate paint pigmented with Tio2, DFT- 100µ ○	100 ○ 100 ○	**Finish:** One coat of Epoxy based finish paint with glossy finish to IS 14209; DFT- 75µ ○ **Finish:** One coat of acrylic aliphatic polyurethane paint to IS 13213, DFT-25µ **Shade:** Grey White, RAL9002 ○	75 ○ 25 ○	300 ○
2	Absorber System Internals – Structural items **(Clause 1.04.00 of Part- A Section VI)**	FW 213	Blast cleaning to Sa 2½	**Primer:** Two coats of Epoxy resin based Epoxy Zinc phosphate primer to IS 13238 DFT- 50µ/coat **Intermediate:** One coat of Two component epoxy based intermediate paint pigmented with Tio2, DFT- 100µ	100 100	**Finish:** One coat of Epoxy based finish paint with glossy finish to IS 14209; DFT- 75µ **Finish:** One coat of acrylic aliphatic polyurethane paint to IS 13213, DFT-25µ **Shade:** Grey White, RAL9002	75 25	300
3	Mist eliminator and accessories, Absorber baffle grating support, Mist eliminator support& Absorber Spray pipe support - Structural items **(Clause 1.04.00 of Part- A Section VI)**	FW 215 FW 216 FW 217 FW 218	Blast cleaning to Sa 2½	**Primer:** Two coats of Epoxy resin based Epoxy Zinc phosphate primer to IS 13238 DFT- 50µ/coat **Intermediate:** One coat of Two component epoxy based intermediate paint pigmented with Tio2 DFT- 100µ	100 100	**Finish:** One coat of Epoxy based finish paint with glossy finish to IS 14209; DFT- 75µ **Finish:** One coat of acrylic aliphatic polyurethane paint to IS 13213 DFT-25µ Shade: Grey White, RAL9002	75 25	300

Sl No	Surface Location	PGMA	Surface Preparation	Primer & Intermediate Coats		Finish Coat		Total DFT (µm min)
				Paint	DFT (µm min)	Paint	DFT(µm min)	
4	Absorber System- Base **(Clause 31.03.00 of Sec.VI, Part-B, Subsection- IV-D)**	FW 219	Blast cleaning to Sa 2½ (Near white metal) with surface profile 40-60µm conforming to ISO 8501-1	**Primer:** One coat of Two component moisture curing zinc (ethyl) silicate primer coat (Min 80% metallic zinc content in dry film, solid by volume minimum 60% ±2). Zinc dust composition and properties shall be as per Type II as per ASTM D520-00 DFT- 70µ **Intermediate:** One coat of Two component polyamide cured epoxy with MIO content (containing lamellar MIO Min 30% on pigment, solid by volume min. 80%±2) DFT- 100µ	70 100	**Finish:** Two coats of two pack aliphatic isocyanate cured acrylic polyurethane paint to IS 13213 solid by volume min.55%±2) DFT- 35µ/ coat Shade: Grey white, RAL 9002 With gloss retention (SSPC paint spec no.36, ASTM D4587, D2244, D523 of level 2 after min. 1000 hrs exposure, gloss less than 30 and colour change less than 2.0Δ E)	70	240
5	Absorber system structures, Absorber shear plate, Duct supports, Structures for RC pump house& Hook up duct structure **(Clause 31.03.00 of Sec.VI, Part-B, Subsection- IV-D)**	FW 220 FW 231 FW 232 FW 233 FW 234 FW 236 FW 238	Blast cleaning to Sa 2½ (Near white metal) with surface profile 40-60µm conforming to ISO 8501-1	**Primer:** One coat of Two component moisture curing zinc (ethyl) silicate primer coat (Min 80% metallic zinc content in dry film, solid by volume minimum 60% ±2). Zinc dust composition and properties shall be as per Type II as per ASTM D520-00 DFT- 70µ; **Intermediate:** One coat of Two component polyamide cured epoxy with MIO content (containing lamellar MIO Min 30% on pigment, solid by volume min. 80%±2) DFT- 100µ	70 100	**Finish:** Two coats of two pack aliphatic isocyanate cured acrylic polyurethane paint to IS 13213 solid by volume min.55%±2) DFT- 35µ/ coat **Shade:** Grey white, RAL 9002 With gloss retention (SSPC paint spec no.36, ASTM D4587, D2244, D523 of level 2 after min. 1000 hrs exposure, gloss less than 30 and colour change less than 2.0Δ E)	70	240

Sl No	Surface Location	PGMA	Surface Preparation	Primer & Intermediate Coats		Finish Coat		Total DFT (µm min)
				Paint	DFT (µm min)	Paint	DFT(µm min)	
6	Absorber system casing bottom- Outside surfaces **(Clause 31.03.00 of Sec.VI, Part-B, Subsection- IV-D)** Inside surfaces are of C276 cladded sheets. Hence, no paint is envisaged.	FW 221	Blast cleaning to Sa 2½ (Near white metal) with surface profile 40-60µm conforming to ISO 8501-1	**Primer:** One coat of Two component moisture curing zinc (ethyl) silicate primer coat (Min 80% metallic zinc content in dry film, solid by volume minimum 60% ±2). Zinc dust composition and properties shall be as per Type II as per ASTM D520-00 DFT- 70µ **Intermediate:** One coat of Two component polyamide cured epoxy with MIO content (containing lamellar MIO Min 30% on pigment, solid by volume min. 80%±2) DFT- 100µ	70 100	**Finish:** Two coats of two pack aliphatic isocyanate cured acrylic polyurethane paint to IS 13213 solid by volume min.55%±2) DFT- 35µ/ coat **Shade:** Grey white, RAL 9002 With gloss retention (SSPC paint spec no.36, ASTM D4587, D2244, D523 of level 2 after min. 1000 hrs exposure, gloss less than 30 and colour change less than 2.0Δ E)	70	240
7	Absorber system casing top- Outside surfaces; Absorber system casing intermediate – Outside ○ surfaces **(Clause 31.03.00 of Sec.VI, Part-B, Subsection- IV-D)** Inside surfaces are of C276 cladded sheets. Hence, no paint is envisaged.	FW 222; FW 322 ○	Blast cleaning to Sa 2½ (Near white metal) with surface profile 40-60µm conforming to ISO 8501-1	**Primer:** One coat of Two component moisture curing zinc (ethyl) silicate primer coat (Min 80% metallic zinc content in dry film, solid by volume minimum 60% ±2). Zinc dust composition and properties shall be as per Type II as per ASTM D520-00 DFT- 70µ **Intermediate:** One coat of Two component polyamide cured epoxy with MIO content (containing lamellar MIO Min 30% on pigment, solid by volume min. 80%±2) DFT- 100µ	70 100	**Finish:** Two coats of two pack aliphatic isocyanate cured acrylic polyurethane paint to IS 13213 solid by volume min.55%±2) DFT- 35µ/ coat **Shade:** Grey white, RAL 9002 With gloss retention (SSPC paint spec no.36, ASTM D4587, D2244, D523 of level 2 after min. 1000 hrs exposure, gloss less than 30 and colour change less than 2.0Δ E)	70	240

Sl No	Surface Location	PGMA	Surface Preparation	Primer & Intermediate Coats		Finish Coat		Total DFT (µm min)
				Paint	DFT (µm min)	Paint	DFT(µm min)	
8	Absorber system accessories **(Clause 20.03.00 of Part- C Section VI)**	FW 223	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	Synthetic Enamel to IS 2932 Shade: Grey white RAL 9002 (Two coats)	40	100
9	Emergency Quench water tank- Outside surfaces **(Clause 31.03.00 of Sec.VI, Part-B, Subsection- IV-D)**	FW 226	Blast cleaning to Sa 2½ (Near white metal) with surface profile 40-60µm conforming to ISO 8501-1	**Primer:** One coat of Two component moisture curing zinc (ethyl) silicate primer coat (Min 80% metallic zinc content in dry film, solid by volume minimum 60% ±2). Zinc dust composition and properties shall be as per Type II as per ASTM D520-00 DFT- 70µ **Intermediate:** One coat of Two component polyamide cured epoxy with MIO content (containing lamellar MIO Min 30% on pigment, solid by volume min. 80%±2) DFT- 100µ	70 100	**Finish:** Two coats of two pack aliphatic isocyanate cured acrylic polyurethane paint to IS 13213 solid by volume min.55%±2) DFT- 35µ/ coat **Shade:** Grey white, RAL 9002 With gloss retention (SSPC paint spec no.36, ASTM D4587, D2244, D523 of level 2 after min. 1000 hrs exposure, gloss less than 30 and colour change less than 2.0Δ E)	70	240
10	Emergency Quench water tank- Inside surfaces (For temporary protection, until erection only)	FW 226	Blast cleaning to Sa 2½ (Near white metal) with surface profile 35-50µm	**Primer:** Two coats of Red Oxide Zinc phosphate primer, DFT-30µ/coat; Total-60µ (Primer is only envisaged as lining is given in inside surfaces of the tank)				
11 ○	Emergency quench system, Handling Equipment RC pump – major items **(Clause 1.04.00 of Part- A Section VI)** ○	FW 227 FW 249 ○	Blast cleaning to Sa 2½ ○	**Primer:** Two coats of Epoxy resin based Epoxy Zinc phosphate primer to IS 13238 DFT- 50µ/coat ○ **Intermediate:** One coat of Two component epoxy based	100 ○ 100 ○	**Finish:** One coat of Epoxy based finish paint with glossy finish to IS 14209; DFT- 75µ ○ **Finish:** One coat of acrylic aliphatic polyurethane paint to IS 13213	75 ○	300 ○

Sl No	Surface Location	PGMA	Surface Preparation	Primer & Intermediate Coats		Finish Coat		Total DFT (µm min)
				Paint	DFT (µm min)	Paint	DFT(µm min)	
				intermediate paint pigmented with Tio2 DFT- 100µ ○		DFT-25µ ○ Shade: Grey White, RAL9002	25 ○	
12 ○	Emergency quench system, Handling Equipment RC pump – Minor items like ○ nozzles, flanges, pipes & inspection doors, viewing ports **(Clause 20.03.00 of Part- C Section VI)**	FW 227 FW 249	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	Synthetic Enamel to IS 2932 Shade: Grey white RAL 9002 (Two coats)	60	120
13 ○	Air oxidation system, Viewing ports (Without glass) – Major Items ○ **(Clause 20.03.00 of Part- C Section VI)**	FW 230 FW 239 ○	Blast cleaning to Sa 2½ ○	**Primer:** Two coats of Epoxy resin based Epoxy Zinc phosphate primer to IS 13238 DFT- 50µ/coat ○ **Intermediate:** One coat of Two component epoxy based intermediate paint pigmented with Tio2 ○ DFT- 100µ	100 ○ 100 ○	**Finish:** One coat of Epoxy based finish paint with glossy finish to IS 14209; DFT- 75µ ○ **Finish:** One coat of acrylic aliphatic polyurethane paint to IS 13213 DFT-25µ ○ Shade: Grey White, RAL9002	75 ○ 25 ○	300 ○
14 ○	Air oxidation system, Viewing ports (Without glass) - – ○ Minor items like nozzles, flanges, pipes & inspection doors, viewing ports **(Clause 20.03.00 of Part- C Section VI)**	FW 230 FW 239	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	Synthetic Enamel to IS 2932 Shade: Grey white RAL 9002 (Two coats)	40	100

Sl No	Surface Location		PGMA	Surface Preparation	Primer & Intermediate Coats		Finish Coat		Total DFT (µm min)
					Paint	DFT (µm min)	Paint	DFT(µm min)	
15 ○	Absorber W/D interface, W/D wash system, Slurry distribution system, Oxidation Air distribution system **(Clause 1.04.00 of Part- A Section VI)**		FW 228 FW 229 FW 243 FW 244	Blast cleaning to Sa 2½	**Primer:** Two coats of Epoxy resin based Epoxy Zinc phosphate primer to IS 13238 DFT- 50µ/coat **Intermediate:** One coat of Two component epoxy based intermediate paint pigmented with Tio2 DFT- 100µ	100 100	**Finish:** One coat of Epoxy based finish paint with glossy finish to IS 14209; DFT- 75µ **Finish:** One coat of acrylic aliphatic polyurethane paint to IS 13213 DFT-25µ Shade: Grey White, RAL9002	75 25	300
16 ○	Expansion joint between bypass **(Clause 20.03.00 of Part- C Section VI)**	Flue gas swept surface	FW 251	Power Tool Cleaning to St3 (SSPC-SP3)	Ethyl silicate zinc primer (suitable upto minimum 400 Deg Celsius)	50	--	--	50
		Insulated surfaces		Power Tool Cleaning to St3 (SSPC-SP3)	HR Aluminum paint to IS 13183 Gr.II (upto 400 deg C)	40	NIL	--	40
17 ○	Expansion joint **(Clause 20.03.00 of Part- C Section VI)**	Flue gas swept surface	FW 252	Non Metallic Expansion Joint					
		Insulated surfaces							
18 ○	○Hookup Ducts, Ducts between bypass duct inlet & booster fan **(Clause 20.03.00 of Part- C Section VI)**	Flue gas swept surface	FW 238, FW 255 ○	Power Tool Cleaning to St3 (SSPC-SP3)	Ethyl silicate zinc primer (suitable upto minimum 400 Deg Celsius)	50	NIL	--	50
		Insulated surfaces		Power Tool Cleaning to St3 (SSPC-SP3)	HR Aluminum paint to IS 13183 Gr.II (upto 400 deg C)	40	NIL	--	40

Sl No	Surface Location		PGMA	Surface Preparation	Primer & Intermediate Coats		Finish Coat		Total DFT (µm min)
					Paint	DFT (µm min)	Paint	DFT(µm min)	
19 ○	Ducts between Booster fan & Absorber **(Clause 1.04.02 of Part- A Section VI, Sub-section- III)** ○	Flue gas swept surface	FW 256	Blast cleaning to Sa 2½ ○	Ethyl silicate zinc primer (suitable upto minimum 400 Deg Celsius) ○	50 ○	NIL		50 ○
		Insulated surfaces		Power Tool Cleaning to St3 (SSPC-SP3)	HR Aluminum paint to IS 13183 Gr.II (upto 400 deg C)	40	NIL	--	40
20 ○	Ducts between Absorber & Stack **(Clause 20.03.00 of Part- C Section VI)**	Flue gas swept surface	FW 257	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	NIL	--	60
		Insulated surfaces		Power Tool Cleaning to St3 (SSPC-SP3)	HR Aluminium paint to IS 13183 Gr.II (upto 400 deg C)	40	NIL	--	40
21 ○	Duct structure between bypass duct& Booster fan **(Clause 31.03.00 of Sec.VI, Part-B, Subsection- IV-D)**		FW 260	Blast cleaning to Sa 2½ (Near white metal) with surface profile 40-60µm conforming to ISO 8501-1	**Primer:** One coat of Two component moisture curing zinc (ethyl) silicate primer coat (Min 80% metallic zinc content in dry film, solid by volume minimum 60% ±2). Zinc dust composition and properties shall be as per Type II as per ASTM D520-00 DFT- 70µ **Intermediate:** One coat of Two component polyamide cured epoxy with MIO content (containing lamellar MIO Min 30% on pigment, solid by volume min. 80%±2) DFT- 100µ	70 100	**Finish:** Two coats of two pack aliphatic isocyanate cured acrylic polyurethane paint to IS 13213 solid by volume min.55%±2) DFT- 35µ/ coat **Shade:** Grey white, RAL 9002 With gloss retention (SSPC paint spec no.36, ASTM D4587, D2244, D523 of level 2 after min. 1000 hrs exposure, gloss less than 30 and colour change less than 2.0Δ E)	70	240

Sl No	Surface Location	PGMA	Surface Preparation	Primer & Intermediate Coats		Finish Coat		Total DFT (µm min)
				Paint	DFT (µm min)	Paint	DFT(µm min)	
22 ○	Duct structure between Booster fan& Absorber **(Clause 31.03.00 of Sec.VI, Part-B, Subsection- IV-D)**	FW 261	Blast cleaning to Sa 2½ (Near white metal) with surface profile 40-60µm conforming to ISO 8501-1	**Primer:** One coat of Two component moisture curing zinc (ethyl) silicate primer coat (Min 80% metallic zinc content in dry film, solid by volume minimum 60% ±2). Zinc dust composition and properties shall be as per Type II as per ASTM D520-00 DFT- 70µ; **Intermediate:** One coat of Two component polyamide cured epoxy with MIO content (containing lamellar MIO Min 30% on pigment, solid by volume min. 80%±2) DFT- 100µ	70 100	**Finish:** Two coats of two pack aliphatic isocyanate cured acrylic polyurethane paint to IS 13213 solid by volume min.55%±2) DFT- 35µ/ coat **Shade:** Grey white, RAL 9002 With gloss retention (SSPC paint spec no.36, ASTM D4587, D2244, D523 of level 2 after min. 1000 hrs exposure, gloss less than 30 and colour change less than 2.0Δ E)	70	240
23 ○	Duct structure between Absorber & Stack **(Clause 31.03.00 of Sec.VI, Part-B, Subsection- IV-D)**	FW 262	Blast cleaning to Sa 2½ (Near white metal) with surface profile 40-60µm conforming to ISO 8501-1	**Primer:** One coat of Two component moisture curing zinc (ethyl) silicate primer coat (Min 80% metallic zinc content in dry film, solid by volume minimum 60% ±2). Zinc dust composition and properties shall be as per Type II as per ASTM D520-00 DFT- 70µ **Intermediate:** One coat of Two component polyamide cured epoxy with MIO content (containing lamellar MIO Min 30% on pigment, solid by volume min. 80%±2) DFT- 100µ	70 100	**Finish:** Two coats of two pack aliphatic isocyanate cured acrylic polyurethane paint to IS 13213 solid by volume min.55%±2) DFT- 35µ/ coat **Shade:** Grey white, RAL 9002 With gloss retention (SSPC paint spec no.36, ASTM D4587, D2244, D523 of level 2 after min. 1000 hrs exposure, gloss less than 30 and colour change less than 2.0Δ E)	70	240

Sl No	Surface Location	PGMA	Surface Preparation	Primer & Intermediate Coats		Finish Coat		Total DFT (µm min)
				Paint	DFT (µm min)	Paint	DFT(µm min)	
24 ○	Foundation material for duct structures, Absorber, Elevator, RC pump shed, tanks, Silo Structure, pipe racks **(Clause 20.04.00 of Part-C Section VI)**	FW 280 FW 281 FW 282 FW 283 FW 740 FW 760 FW 762 FW 763	Temporary rust preventive fluid application as per PRQA 523 DFT- 20µ All Threaded and other surfaces of foundation bolt and its materials shall be coated with temporary rust preventive fluid. During execution of civil works the dried film of coating will be removed using Organic Solvents.					
25 ○	Structures for Emergency Quench water tank Structures for Elevator **(Clause 31.03.00 of Sec.VI, Part-B, Subsection- IV-D)**	FW 285 FW 292	Blast cleaning to Sa 2½ (Near white metal) with surface profile 40-60µm conforming to ISO 8501-1	**Primer:** One coat of Two component moisture curing zinc (ethyl) silicate primer coat (Min 80% metallic zinc content in dry film, solid by volume minimum 60% ±2). Zinc dust composition and properties shall be as per Type II as per ASTM D520-00 DFT- 70µ; **Intermediate:** One coat of Two component polyamide cured epoxy with MIO content (containing lamellar MIO Min 30% on pigment, solid by volume min. 80%±2); DFT- 100µ	70 100	**Finish:** Two coats of two pack aliphatic isocyanate cured acrylic polyurethane paint to IS 13213 solid by volume min.55%±2) DFT- 35µ/ coat **Shade:** Grey white, RAL 9002 With gloss retention (SSPC paint spec no.36, ASTM D4587, D2244, D523 of level 2 after min. 1000 hrs exposure, gloss less than 30 and colour change less than 2.0Δ E)	70	240
26 ○	Elevator and accessories **(Clause 20.03.00 of Part- C Section VI)**	FW 293 FW 716	Power Tool Cleaning to st3 (SSPC-SP3	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	Synthetic Enamel to IS 2932 **Shade:** Grey white RAL 9002 (Two coats)	60	120

Sl No	Surface Location	PGMA	Surface Preparation	Primer & Intermediate Coats		Finish Coat		Total DFT (µm min)
				Paint	DFT (µm min)	Paint	DFT(µm min)	
27 ○	Structures for booster fan handling; Absorber Beams & Bracings; Absorber Lower Floors; Absorber Upper Floors ○ **(Clause 31.03.00 of Sec.VI, Part-B, Subsection- IV-D)**	FW 310; FW 301; FW 302; FW 303 ○	Blast cleaning to Sa 2½ (Near white metal) with surface profile 40-60µm conforming to ISO 8501-1	**Primer:** One coat of Two component moisture curing zinc (ethyl) silicate primer coat (Min 80% metallic zinc content in dry film, solid by volume minimum 60% ±2). Zinc dust composition and properties shall be as per Type II as per ASTM D520-00 DFT- 70µ **Intermediate:** One coat of Two component polyamide cured epoxy with MIO content (containing lamellar MIO Min 30% on pigment, solid by volume min. 80%±2) DFT- 100µ	70 100	**Finish:** Two coats of two pack aliphatic isocyanate cured acrylic polyurethane paint to IS 13213 solid by volume min.55%±2) DFT- 35µ/ coat **Shade:** Grey white, RAL 9002 With gloss retention (SSPC paint spec no.36, ASTM D4587, D2244, D523 of level 2 after min. 1000 hrs exposure, gloss less than 30 and colour change less than 2.0Δ E)	70	240
28 ○	Galleries and railings for Stairs, Absorber, Dampers, Ducts, Tanks; ○ Absorber Floor Grills; Absorber Stairs & Handrails **(Clause 31.06.00 of Sec.VI, Part-B, Subsection- IV-D)**	FW 214 FW 237 FW 250 FW 610 FW 612 FW 613 FW 712 FW 722 FW 304 FW 305 ○	Blast cleaning to Sa 2½/ Acid pickling	Hand rails, Gratings- Hot dip galvanizing to 610gms/sq.m (minimum) as per IS: 4736 and to a coating thickness of 87µm (min). Δ				

Sl No	Surface Location	PGMA	Surface Preparation	Primer & Intermediate Coats		Finish Coat		Total DFT (µm min)
				Paint	DFT (µm min)	Paint	DFT(µm min)	
29 ○	Galleries and railings for Stairs, Absorber, Dampers, Ducts, Tanks – Structures other than the above **(Clause 31.03.00 of Sec.VI, Part-B, Subsection- IV-D)**	FW 237 FW 610 FW 612 FW 613 FW 722	Blast cleaning to Sa 2½ (Near white metal) with surface profile 40-60µm conforming to ISO 8501-1	**Primer:** One coat of Two component moisture curing zinc (ethyl) silicate primer coat (Min 80% metallic zinc content in dry film, solid by volume minimum 60% ±2). Zinc dust composition and properties shall be as per Type II as per ASTM D520-00 DFT- 70µ **Intermediate:** One coat of Two component polyamide cured epoxy with MIO content (containing lamellar MIO Min 30% on pigment, solid by volume min. 80%±2) DFT- 100µ	70 100	**Finish:** Two coats of two pack aliphatic isocyanate cured acrylic polyurethane paint to IS 13213 solid by volume min.55%±2) DFT- 35µ/ coat **Shade:** Grey white, RAL 9002 With gloss retention (SSPC paint spec no.36, ASTM D4587, D2244, D523 of level 2 after min. 1000 hrs exposure, gloss less than 30 and colour change less than 2.0Δ E)	70	240
30 ○	Slurry pumps & accessories, Water pumps **(Clause 1.04.00 of Part- A Section VI)** ○	FW 701 FW 702	Blast cleaning to Sa 2½ ○	**Primer:** Two coats of Epoxy resin based Epoxy Zinc phosphate primer to IS 13238 DFT- 50µ/coat ○ **Intermediate:** One coat of Two component epoxy based intermediate paint pigmented with Tio2, DFT- 100µ ○	100 ○ 100 ○	**Finish:** One coat of Epoxy based finish paint with glossy finish to IS 14209; DFT- 75µ ○**Finish:** One coat of acrylic aliphatic polyurethane paint to IS 13213, DFT-25µ ○ **Shade:** Grey White, RAL9002	75 ○ 25 ○	300 ○
31 ○	Monorail for hoist & cranes **(Clause 31.03.00 of Sec.VI, Part-B, Subsection- IV-D)**	FW 710	Blast cleaning to Sa 2½ (Near white metal) with surface profile 40-60µm conforming to ISO 8501-1	**Primer:** One coat of Two component moisture curing zinc (ethyl) silicate primer coat (Min 80% metallic zinc content in dry film, solid by volume minimum 60% ±2). Zinc dust composition	70	**Finish:** Two coats of two pack aliphatic isocyanate cured acrylic polyurethane paint to IS 13213 solid by volume min.55%±2) DFT- 35µ/ coat	70	240

Sl No	Surface Location	PGMA	Surface Preparation	Primer & Intermediate Coats		Finish Coat		Total DFT (µm min)
				Paint	DFT (µm min)	Paint	DFT(µm min)	
				and properties shall be as per Type II as per ASTM D520-00 DFT- 70µ **Intermediate:** One coat of Two component polyamide cured epoxy with MIO content (containing lamellar MIO Min 30% on pigment, solid by volume min. 80%±2) DFT- 100µ	100	**Shade:** Grey white, RAL 9002 With gloss retention (SSPC paint spec no.36, ASTM D4587, D2244, D523 of level 2 after min. 1000 hrs exposure, gloss less than 30 and colour change less than 2.0Δ E)		
32 ○	Handling Equipment- Hoists& Man hole door **(Clause 20.03.00 of Part- C Section VI)**	FW 713 FW 714 FW 717	Power Tool Cleaning to st3 (SSPC-SP3	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats) Idler roller shall be applied with two coats of 70 microns at shop	70	Synthetic Enamel to IS 2932 Shade: Grey white RAL 9002 (Two coats)	60	130
33 ○	Agitator support **Clause 31.03.00 of Sec.VI, Part-B, Subsection- IV-D)**	FW 721	Blast cleaning to Sa 2½ (Near white metal) with surface profile 40-60µm conforming to ISO 8501-1	**Primer:** One coat of Two component moisture curing zinc (ethyl) silicate primer coat (Min 80% metallic zinc content in dry film, solid by volume minimum 60% ±2). Zinc dust composition and properties shall be as per Type II as per ASTM D520-00 DFT- 70µ **Intermediate:** One coat of Two component polyamide cured epoxy with MIO content (containing lamellar MIO Min 30% on pigment, solid by volume min. 80%±2) DFT- 100µ	70 100	**Finish:** Two coats of two pack aliphatic isocyanate cured acrylic polyurethane paint to IS 13213 solid by volume min.55%±2) DFT- 35µ/ coat **Shade:** Grey white, RAL 9002 With gloss retention (SSPC paint spec no.36, ASTM D4587, D2244, D523 of level 2 after min. 1000 hrs exposure, gloss less than 30 and colour change less than 2.0Δ E)	70	240

Sl No	Surface Location	PGMA	Surface Preparation	Primer & Intermediate Coats		Finish Coat		Total DFT (µm min)
				Paint	DFT (µm min)	Paint	DFT(µm min)	
34 ○	Limestone silo structures **Clause 31.03.00 of Sec.VI, Part-B, Subsection- IV-D)**	FW 730	Blast cleaning to Sa 2½ (Near white metal) with surface profile 40-60µm conforming to ISO 8501-1	**Primer:** One coat of Two component moisture curing zinc (ethyl) silicate primer coat (Min 80% metallic zinc content in dry film, solid by volume minimum 60% ±2). Zinc dust composition and properties shall be as per Type II as per ASTM D520-00 DFT- 70µ **Intermediate:** One coat of Two component polyamide cured epoxy with MIO content (containing lamellar MIO Min 30% on pigment, solid by volume min. 80%±2) DFT- 100µ	70 100	**Finish:** Two coats of two pack aliphatic isocyanate cured acrylic polyurethane paint to IS 13213 solid by volume min.55%±2) DFT- 35µ/ coat **Shade:** Grey white, RAL 9002 With gloss retention (SSPC paint spec no.36, ASTM D4587, D2244, D523 of level 2 after min. 1000 hrs exposure, gloss less than 30 and colour change less than 2.0Δ E)	70	240
35 ○	Limestone Silo- Outside surfaces **Clause 31.03.00 of Sec.VI, Part-B, Subsection- IV-D)**	FW 731	Blast cleaning to Sa 2½ (Near white metal) with surface profile 40-60µm conforming to ISO 8501-1	**Primer:** One coat of Two component moisture curing zinc (ethyl) silicate primer coat (Min 80% metallic zinc content in dry film, solid by volume minimum 60% ±2). Zinc dust composition and properties shall be as per Type II as per ASTM D520-00 DFT- 70µ **Intermediate:** One coat of Two component polyamide cured epoxy with MIO content (containing lamellar MIO Min 30% on pigment, solid by volume min. 80%±2) DFT- 100µ	70 100	**Finish:** Two coats of two pack aliphatic isocyanate cured acrylic polyurethane paint to IS 13213 solid by volume min.55%±2) DFT- 35µ/ coat **Shade:** Grey white, RAL 9002 With gloss retention (SSPC paint spec no.36, ASTM D4587, D2244, D523 of level 2 after min. 1000 hrs exposure, gloss less than 30 and colour change less than 2.0Δ E)	70	240

Sl No	Surface Location	PGMA	Surface Preparation	Primer & Intermediate Coats		Finish Coat		Total DFT (µm min)
				Paint	DFT (µm min)	Paint	DFT(µm min)	
36 ○	Limestone Silo- Inside surfaces (Conical portion) (For temporary protection, until erection only) △	FW 731	Blast cleaning to Sa 2½ (Near white metal) with surface profile 35-50µm conforming to ISO 8501-1	**Primer:** Two coats of Red Oxide Zinc phosphate primer to IS: 12744 (SS lining is inside the Limestone silo conical portion, hence primer is only envisaged; SS lining will be done at Shop itself)	60	NIL	--	60
37 ○	Limestone Silo- Inside surfaces (Cylindrical portion) (For temporary protection, until erection only) △	FW 731	Blast cleaning to Sa 2½ (Near white metal) with surface profile 40-60µm conforming to ISO 8501-1	**Primer Coat:** One coat of two component moisture curing Inorganic Ethyl Zinc Silicate Primer to IS 14946, (Solid by volume- 60% (min)), (Metallic zinc content 80% (min)) DFT = 70 µm per coat (min.) Zinc dust composition shall be Type-II as per ASTM D520-00	70	--	--	70
38 ○	Air cannon silo, Bag filter & Fan assy, Nozzles& Flanges **(Clause 20.03.00 of Part- C Section VI)**	FW 723 FW 724 FW 725	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	Synthetic Enamel to IS 2932 Shade: Grey white RAL 9002 (Two coats)	40	100
39 ○	Limestone silo approach platform, Platform for Pipe racks & Sub pipe racks **(Clause 31.06.00 of Sec.VI, Part-B, Subsection- IV-D)**	FW 733 FW 766 FW 767	Blast cleaning to Sa 2½/ Acid pickling	Hand rails, Gratings- Hot dip galvanizing to 610gms/sq.m (minimum) as per IS: 4736 and to a coating thickness of 87µm (min). △				
40 ○	Limestone silo approach platform, Pipe racks, Sub pipe racks platform-	FW 733 FW 766 FW 767	Blast cleaning to Sa 2½ (Near white metal) with surface profile 40-	**Primer:** One coat of Two component moisture curing zinc (ethyl) silicate primer coat (Min 80% metallic zinc content in dry	70	**Finish:** Two coats of two pack aliphatic isocyanate cured acrylic polyurethane paint to	70	240

Sl No	Surface Location	PGMA	Surface Preparation	Primer & Intermediate Coats		Finish Coat		Total DFT (µm min)
				Paint	DFT (µm min)	Paint	DFT(µm min)	
	Structures other than the above **(Clause 31.03.00 of Sec.VI, Part-B, Subsection- IV-D)**		60µm conforming to ISO 8501-1	film, solid by volume minimum 60% ±2). Zinc dust composition and properties shall be as per Type II as per ASTM D520-00 DFT- 70µ **Intermediate:** One coat of Two component polyamide cured epoxy with MIO content (containing lamellar MIO Min 30% on pigment, solid by volume min. 80%±2) DFT- 100µ	100	IS 13213 solid by volume min.55%±2) DFT- 35µ/ coat **Shade:** Grey white, RAL 9002 With gloss retention (SSPC paint spec no.36, ASTM D4587, D2244, D523 of level 2 after min. 1000 hrs exposure, gloss less than 30 and colour change less than 2.0Δ E)		
41 ○	Limestone Mill – Outside surfaces **(Clause 1.04.00 of Part- A Section VI)**	FW 735	Blast cleaning to Sa 2½	**Primer:** Two coats of Epoxy resin based Epoxy Zinc phosphate primer to IS 13238 DFT- 50µ/coat **Intermediate:** One coat of Two component epoxy based intermediate paint pigmented with Tio2 DFT- 100µ	100 100	**Finish:** One coat of Epoxy based finish paint with glossy finish to IS 14209; DFT- 75µ **Finish:** One coat of acrylic aliphatic polyurethane paint to IS 13213 DFT-25µ Shade: Grey White, RAL9002	75 25	300
42 ○	Limestone mill- Inside surfaces (For temporary protection, until erection only) △	FW 735	Blast cleaning to Sa 2½ (Near white metal) with surface profile 40-60µm conforming to ISO 8501-1	**Primer Coat:** One coat of two component moisture curing Inorganic Ethyl Zinc Silicate Primer to IS 14946, (Solid by volume- 60% (min)), (Metallic zinc content 80% (min)) DFT = 70 µm per coat (min.) Zinc dust composition shall be Type-II as per ASTM D520-00	70	--	--	70

Sl No	Surface Location	PGMA	Surface Preparation	Primer & Intermediate Coats		Finish Coat		Total DFT (µm min)
				Paint	DFT (µm min)	Paint	DFT(µm min)	
43 ○	Gypsum belt filter and accessories Structural items **(Clause 1.04.00 of Part- A Section VI)**	FW 738	Blast cleaning to Sa 2½	**Primer:** Two coats of Epoxy resin based Epoxy Zinc phosphate primer to IS 13238 DFT- 50µ/coat **Intermediate:** One coat of Two component epoxy based intermediate paint pigmented with Tio2 DFT- 100µ	100 100	**Finish:** One coat of Epoxy based finish paint with glossy finish to IS 14209; DFT- 75µ **Finish:** One coat of acrylic aliphatic polyurethane paint to IS 13213 DFT-25µ Shade: Grey White, RAL9002	75 25	300
44 ○	Limestone slurry storage tank, Auxiliary absorber tank, Filtrate tank, Wastage water tank, Hydro cyclone waste water tank, Neutralization tank, Process Water tank, Belt filter washing tank, Primary hydro cyclone feed tank, Clarified water tank Outside surfaces **(Clause 1.04.00 of Part- A Section VI)** ○	FW 742 FW 743 FW 744 FW 745 FW 747 FW 748 FW 785 FW 786 FW 800 FW 802	Blast cleaning to Sa 2½ ○	**Primer:** Two coats of Epoxy resin based Epoxy Zinc phosphate primer to IS 13238 DFT- 50µ/coat ○ **Intermediate:** One coat of Two component epoxy based intermediate paint pigmented with Tio2 DFT- 100µ ○	100 ○ 100 ○	**Finish:** One coat of Epoxy based finish paint with glossy finish to IS 14209; DFT- 75µ ○ **Finish:** One coat of acrylic aliphatic polyurethane paint to IS 13213 DFT-25µ ○ Shade: Grey White, RAL9002	75 ○ 25 ○	300 ○
45 ○	Limestone slurry storage tank, Auxiliary absorber tank, Filtrate tank, Wastage water tank, Hydrocyclone waste water tank, Neutralization tank, Process Water tank, Belt filter washing tank,	FW 742 FW 743 FW 744 FW 745 FW 747 FW 748 FW 749	Blast cleaning to Sa 2½ (Near white metal) with surface profile 35-50µm	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats) (Liner is inside the tank, hence primer is only envisaged; Protection till erection only)	60	NIL	--	60

Sl No	Surface Location	PGMA	Surface Preparation	Primer & Intermediate Coats		Finish Coat		Total DFT (µm min)
				Paint	DFT (µm min)	Paint	DFT(µm min)	
	Primary Hydrocyclone feed tank, Clarified water tank, Tank internal structure Inside surfaces - (For temporary protection, until erection only)	FW 800 FW 802						
46 ○	Process water pipe accessories, Cooling pipe accessories **(Cl 10.00.00 of Section-VI, Part-B, Sub-section: I-M3)**	FW 751 FW 752	Power Tool Cleaning to St3 (SSPC-SP3)	**Primer:** Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats) DFT- 25µ / Coat; **Intermediate:** One coat of Synthetic Enamel intermediate coat to IS 2932; DFT- 50µ	50 50	**Finish:** Two coats of Synthetic Enamel to IS 2932, DFT- 50µ/ coat **Shade:** Grey white RAL 9002 Identification Tag: Sea Green Shade no: 217 as per IS 5	100	200
47 ○	Slurry pipe accessories **(Cl 10.00.00 of Section-VI, Part-B, Sub-section: I-M3)**	FW 753	Power Tool Cleaning to St3 (SSPC-SP3)	**Primer:** Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats) DFT- 25µ / Coat; **Intermediate:** One coat of Synthetic Enamel intermediate coat to IS 2932; DFT- 50µ	50 50	**Finish:** Two coats of Synthetic Enamel to IS 2932, DFT- 50µ/ coat **Shade:** Grey white RAL 9002 Identification Tag: Sea Green Shade no: 217 as per IS 5	100	200
48 ○	Service Air pipe accessories **(Cl 10.00.00 of Section-VI, Part-B, Sub-section: I-M3)**	FW 754	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coat)	60	Synthetic Enamel to IS 2932 Shade: Grey white RAL 9002 (Two coats)- 30µ/ coat Identification Tag: Sky Blue **Shade no:** 101 as per IS 5	60	120
49 ○	Instrument air pipe accessories; Absorber Miscellaneous ○	FW 755; FW 307 ○	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coat)	60	Synthetic Enamel to IS 2932 Shade: Grey white RAL 9002 (Two coats)- 30µ/ coat	60	120

Sl No	Surface Location	PGMA	Surface Preparation	Primer & Intermediate Coats		Finish Coat		Total DFT (µm min)
				Paint	DFT (µm min)	Paint	DFT(µm min)	
	(Cl 10.00.00 of Section-VI, Part-B, Sub-section: I-M3)					Identification Tag: Sky Blue **Shade no:** 101 as per IS 5		
50 ○	All valves (Temp <95 deg C) **(Clause 20.03.00 of Part- C Section VI)**	FW 815 to FW 851	Power Tool Cleaning to St3 (SSPC-SP3)	Primer: Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats): 30µ/ coat ○ Intermediate: One coat of Synthetic Enamel undercoat to IS:2932-30µ○	60 30 ○	Synthetic Enamel to IS 2932 Shade: Grey white RAL 9002 (Two coats)- 35µ/ coat. ○	70 ○	160 ○
51 ○	Structure for Pipe racks, Sub pipe racks Trestle for pipe racks, Structures inside Gypsum dewatering building & Ball mill building **(Clause 31.03.00 of Sec.VI, Part-B, Subsection- IV-D)**	FW 761 FW 765 FW 768 FW 769 FW 787	Blast cleaning to Sa 2½ (Near white metal) with surface profile 40-60µm conforming to ISO 8501-1	**Primer:** One coat of Two component moisture curing zinc (ethyl) silicate primer coat (Min 80% metallic zinc content in dry film, solid by volume minimum 60% ±2). Zinc dust composition and properties shall be as per Type II as per ASTM D520-00 DFT- 70µ **Intermediate:** One coat of Two component polyamide cured epoxy with MIO content (containing lamellar MIO Min 30% on pigment, solid by volume min. 80%±2) DFT- 100µ	70 100	**Finish:** Two coats of two pack aliphatic isocyanate cured acrylic polyurethane paint to IS 13213 solid by volume min.55%±2) DFT- 35µ/ coat **Shade:** Grey white, RAL 9002 With gloss retention (SSPC paint spec no.36, ASTM D4587, D2244, D523 of level 2 after min. 1000 hrs exposure, gloss less than 30 and colour change less than 2.0Δ E)	70	240
52 ○	Supports for cable trays, Air receivers, commissioning& Mandatory spares, Tools & tackles **(Clause 20.03.00 of Part- C Section VI)**	FW 779 FW 798 FW 988 FW 996	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	Synthetic Enamel to IS 2932 Shade: Grey white RAL 9002 (Two coats)- 30µ/ coat ○	60 ○	120 ○

Sl No	Surface Location	PGMA	Surface Preparation	Primer & Intermediate Coats		Finish Coat		Total DFT (µm min)
				Paint	DFT (µm min)	Paint	DFT(µm min)	
3. Gates & Dampers								
01	**Gates & Dampers** > 95^0 C Insulated Surfaces& Uninsulated surfaces **(Cl 1.04.03 of Part- A Section VI, Sub-section III)** ○	57 540 57 550 57 583	Power Tool Cleaning to St3 (SSPC-SP3)	HR Aluminium paint to IS 13183 Gr.II (upto 400 deg C): Two coats; 20 µ minimum per coat. ○	40	--	--	40
02	Seal air piping **(Cl 10.00.00 of Section-VI, Part-B, Sub-section: I-M3)** △	57 141	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coat)	60	Synthetic Enamel to IS 2932 **Shade:** Grey white RAL 9002 (Two coats)- 30µ/ coat Identification Tag: Sky Blue Shade no: 101 as per IS 5	60	120
03	Blower with Motor, Knife Gate valve, Mounting bracket, Mandatory spares **(Clause 1.04.00 of Part- A Section VI)** ○	57 491 57 497 57 209	Blast cleaning to Sa 2½ ○	**Primer:** Two coats of Epoxy resin based Epoxy Zinc phosphate primer to IS 13238 DFT- 50µ/coat ○ **Intermediate:** One coat of Two component epoxy based intermediate paint pigmented with Tio2 DFT- 100µ ○	100 ○ 100 ○	**Finish:** One coat of Epoxy based finish paint with glossy finish to IS 14209; DFT- 75µ ○ **Finish:** One coat of acrylic aliphatic polyurethane paint to IS 13213 DFT-25µ ○ Shade: Grey White, RAL9002	75 ○ 25 ○	300 ○
04	Ladder, Cage for Ladder Toe Guard, Plate Floor Grill, Hand Rails, Hand Rail Post **Clause 31.06.00 of Sec.VI, Part-B, Subsection- IV-D**	57 466 57 566	Blast cleaning to Sa 2½/ Acid Pickling	Hand rails, Gratings- Hot dip galvanizing to 610gms/sq.m (minimum) as per IS: 4736 and to a coating thickness of 87µm (min). △				

Sl No	Surface Location	PGMA	Surface Preparation	Primer & Intermediate Coats		Finish Coat		Total DFT (µm min)
				Paint	DFT (µm min)	Paint	DFT(µm min)	
05	Other Structural Items- Other than sl.no. 3 of above **(Clause 31.03.00 of Sec.VI, Part-B, Subsection- IV-D)**	57 466 57 566	Blast cleaning to Sa 2½ (Near white metal) with surface profile 40-60µm conforming to ISO 8501-1	**Primer:** One coat of Two component moisture curing zinc (ethyl) silicate primer coat (Min 80% metallic zinc content in dry film, solid by volume minimum 60% ±2). Zinc dust composition and properties shall be as per Type II as per ASTM D520-00 DFT- 70µ **Intermediate:** One coat of Two component polyamide cured epoxy with MIO content (containing lamellar MIO Min 30% on pigment, solid by volume min. 80%±2) DFT- 100µ	70 100	**Finish:** Two coats of two pack aliphatic isocyanate cured acrylic polyurethane paint to IS 13213 solid by volume min.55%±2) DFT- 35µ/ coat **Shade:** Grey white, RAL 9002 With gloss retention (SSPC paint spec no.36, ASTM D4587, D2244, D523 of level 2 after min. 1000 hrs exposure, gloss less than 30 and colour change less than 2.0Δ E)	70	240

4. Painting of Damaged Areas

For areas where paint has deteriorated badly by erosion and areas where the paint film has lost its adhesion property and where the steel has got rusted appreciably: These areas are to be repainted as per the following procedure:

Sl No	Surface Location	Surface Preparation	Primer, Intermediate & Finish
1	Paint damaged Components falling under Sl.no. 04,05,06,09,10,11 of Fans, Sl no.02,03,04, 05,06,07, 09, 13,19,20,21,23,25,27, 29, 31,32 33,38,39,41,42, 49 of FGD and Sl no. 5 of GAD.	Hand/ Power Tool cleaning to Bare metal to minimum 6 inches peripheral area adjoining to damaged area	**Primer:** Zinc rich epoxy to IS 14589 or suitable primer with existing paint scheme, DFT-70µ (If Metal surface exposed) followed by intermediate & finish coat as per respective schemes. If primer is intact- Intermediate & finish as per respective schemes.
2	Paint damaged components failing under other Sl Nos of Fans, FGD& GAD	Power Tool Cleaning to Bare metal	Primer and Finish: As given in respective scheme

Sl No	Surface Location	PGMA	Surface Preparation	Primer & Intermediate Coats		Finish Coat		Total DFT (µm min)
				Paint	DFT (µm min)	Paint	DFT(µm min)	

General Notes:

1. No painting is required for Galvanized, non-ferrous & stainless steel items, except as indicated above.
2. Machined items are to be applied with coat of temporary rust preventive oil.
3. PGMAs covered in sub-supplier (ie., Purchased) items viz., Agitator / slide bearing and other sub-delivery components etc., are not indicated in the above list. However, the Painting Schedule for all items supplied by all sub-suppliers and BOI under the scope of BHEL shall be same as for main equipment covered in this document.
4. In sub-assy, wherever plates / sheets of thickness less than or equal to 5mm and rods are used, very minor items like clamps, small items etc.- Power Tool or Hand Tool Cleaning to SSPC - SP 3 / SP 2 shall be followed and painting under Sl no:01 of Fans shall be followed.
5. Ground shade/colour of finish paints and identification tag/band for equipment, fans, piping, pipe services, supporting structures and other components is followed as per NTPC doc no: QS-01-DIV-W-4 at site.
6. All components covered under different PGMAs are to be painted. In case any component is left out, the same shall deemed to be included under the relevant section.
7. All threaded and other surfaces of foundation bolts and its materials, insulation pins, Anchor channels, Sleeves shall be coated with temporary rust preventive fluid and during execution of civil works; the dried film of coating shall be removed using organic solvents.
8. Painting requirement for all electrical equipment shall be as per the details identified in specification for the respective equipment.
9. All steel structures shall be provided with painting as given in the specification. Further, painting system shall also meet the requirements of corrosivity category C3 (durability high) as per ISO 12944.
10. Finish coat to be applied after an interval of min 10 hrs and within 6 months (after completion of intermediate coat).
11. Primer coat on steel shall be applied in shop immediately after blast cleaning by airless spray technique.
12. For the portion of steel surfaces embedded in concrete, the surface shall be prepared by Manual cleaning and provided with Primer coat of Chlorinated Rubber based Zinc Phosphate Primer of Minimum 50 Micron DFT.

Sl No	Surface Location	PGMA	Surface Preparation	Primer & Intermediate Coats		Finish Coat		Total DFT (µm min)
				Paint	DFT (µm min)	Paint	DFT(µm min)	

Painting Scheme - Details of Procurement & Application Processes

Sl No	Type of Paint	Specification of Paint	No of Packs	Volume of Solids (% Min)	Mode of Application	Min. Over Coating Interval (Hours)	Shade
01	Epoxy Zinc phosphate primer	IS 13238	2	40	Spray	24	Grey
02	Zinc Ethyl silicate primer (% Zn on dry film= 80 (min))	IS 14946	2	60	Airless Spray only At Shop	24	Grey
03	Epoxy High solid-Polyamide cured Epoxy based MIO pigmented intermediate coat	--	2	80	Airless Spray only At Shop	16	Brown
04	Aliphatic isocyanate acrylic polyurethane paint	IS 13213	2	55	Spray At Shop	16	Windows Grey RAL 7040
05	Heat resistant aluminum paint	IS 13183 Grade II	1	--	Brush/ Spray	24	--
06	Long oil alkyd Synthetic enamel finish paint	IS 2932	1	35	Brush/ Spray	12	Corresponding shade no
07	Synthetic Enamel Intermediate coat	IS 2932	1	40	Brush/ Spray	12	--
08	Red oxide Zinc phosphate primer	IS 12744	1	--	Brush/ spray	12	--

Sl No	Surface Location	PGMA	Surface Preparation	Primer & Intermediate Coats		Finish Coat		Total DFT (µm min)
				Paint	DFT (µm min)	Paint	DFT(µm min)	

PGMA Description & Product Details

Sl No	PGMA	PGMA Description	Product /Items Details
01	FW 212	Slurry recirculation pump system	RC Pumps incl Shaft seal, Common Base Plate, Coupling and Guard, Gear Box, Expansion Bellow, Anchor Bolts & Fasteners, Special Tools
02	FW 219	Absorber system base	Absorber tank bottom plate
03	FW 220	Absorber system structures	Absorber tank structure, Absorber tower structure, Spray headers structure
04	FW 221	Absorber system casing bottom	Absorber tank wall casing- bottom
05	FW 222	Absorber system casing top	Absorber Tank wall casing –Top, Mist Eliminator supports, Spray pipe supports, Internal Beam, Shim plates in Absorber area, Internal Struts
06	FW 223	Absorber system accessories	Nozzles and flanges, Inspection doors & Man holes, Viewing ports, Antifoam dosing equipment, Suction strainers- FRP
07	FW 226	Emergency Quench water tank	Base Plate & its supports, Roof, Shell
08	FW 227	Emergency Quench System	Emergency Quenching Spray Pipe, Nozzle for Emergency Pipe, Fasteners, Gaskets
09	FW 230	Air oxidation System	Oxidation Blowers, Common Base Plate, Coupling and Guard, Anchor Bolts & Fasteners, Expansion Bellow, Special Tools, Suction & Discharge Silencers, Acoustic Enclosure, Water Injection cooling system, Pipe, Valves & Instruments
10	FW 239	Viewing Ports	Viewing Ports
11	FW 244	Oxidation air distribution System	Pipe & Fittings, Flanges, Pipe Hanger, Bottom Elbow, Bottom sliding supports
12	FW 251	Expansion joint between bypass	Expansion joints, Seal Plates & Fasteners
13	FW 252	Expansion joint between scrubbers	Fabric & its fixing fasteners, Sleeves & Flanges, Gaskets
14	FW 255	Ducts between bypass duct inlet & booster fan	Plates & Stiffeners, Guide Vanes
15	FW 256	Ducts between Booster fan & Absorber	Plates & Stiffeners, Guide Vanes
16	FW 257	Ducts between Absorber & stack	Plates & Stiffeners, Guide Vanes
17	FW 260	Duct structure between bypass duct& Booster fan	Duct Supports, Gusset Plate, Divider plate, Internal Struts, Support bearings
18	FW 261 FW 262	Duct structure between booster fan& absorber & Absorber and Stack	Duct Supports, Gusset Plate, Divider plate, Internal Struts, Support bearings
19	FW 292	Structures for Elevator	Columns, Seal Plate, Bracings, Enclosure (Purlin& sheeting)

Sl No	Surface Location	PGMA	Surface Preparation	Primer & Intermediate Coats		Finish Coat		Total DFT (µm min)
				Paint	DFT (µm min)	Paint	DFT(µm min)	

Sl No	PGMA	PGMA Description	Product /Items Details
20	FW 293	Elevator and accessories	Base Frame, Buffer Spring, Mast Section, Cage, Control Panel & AC, Mandatory Spares
21	FW 310	Structures for booster fan handling	Columns, Beams, Bracings, Seal plate
22	FW 610 FW 722	Galleries & railings for Scrubbers, Tank	Stairs, Handrail, Step treads, Floor grills, Ladders, Foundation bolts, Fasteners
23	FW 701	Slurry pumps & accessories	Slurry Pumps incl Shaft seal, Common Base Plate, Coupling and Guard, Belt & Pulley, Expansion Bellow, Anchor Bolts & Fasteners, Motor & accessories, Sump Pumps incl Shaft seal, Common Base Plate, Coupling and Guard, Belt & Pulley, Anchor Bolts & Fasteners, Motor & accessories
24	FW 710	Monorail for hoist& cranes	Insert Plate, Stiffener plate, Monorail beam
25	FW 721	Agitator support	Channels & Beams
26	FW 730	Limestone silo structures	Columns, Beams, Bracings, Seal plate, Angles, channels
27	FW 731	Limestone silo	Base plate & its supports, Shell, Roof
28	FW 723 FW 724 FW 725	Air cannon Bag filter Nozzles & flanges	Bag filter, Air cannon bin activator, Nozzles & Flanges
29	FW 733	Limestone silo approach platforms	Stairs, Handrail, Step treads, Floor grills, Ladders, Foundation bolts, Fasteners
30	FW 734	Limestone mill	Wet ball mill, Hydro cyclone- Mill area, Mill circuit pump, Mill separator tank with Agitator
31	FW 742	Lime stone slurry storage tank	Base plate & its supports, Shell, Roof
32	FW 743	Auxiliary Absorber tank	Base plate & its supports, Shell, Roof
33	FW 744	Filtrate tank	Base plate & its supports, Shell, Roof
34	FW 745	Wastage water tank	Base plate & its supports, Shell, Roof
35	FW 747	Hydro cyclone waste water tank	Base plate & its supports, Shell, Roof
36	FW 748 FW 785 FW 786	Process Water tank Belt filter washing tank Primary Hydro cyclone feed tank	Base plate & its supports, Shell, Roof

Sl No	Surface Location	PGMA	Surface Preparation	Primer & Intermediate Coats		Finish Coat		Total DFT (µm min)
				Paint	DFT (µm min)	Paint	DFT(µm min)	

Sl No	PGMA	PGMA Description	Product /Items Details
37	FW 751 FW 752	Process water pipe accessories Cooling water pipe accessories	CS/FRP Pipes & Fittings, Sight Glass, R Orifice, Gaskets & Fasteners
38	FW 753	Slurry pipe accessories	CSRL/FRP Pipes & Fittings, Strainer (Cone), Expansion Joint-Rubber, R Orifice, Gaskets & Fasteners
39	FW 754	Service air pipe accessories	GI Pipes & Fittings, Flexible Hose, Expansion Joint (Metallic), Hose connector, R Orifice, Gaskets & Fasteners
40	FW 755	Instrument air pipe accessories	SS Pipes & Fittings, Strainer(Y Type), Gaskets & Fasteners
41	FW 815 to FW 851	Valves and fittings	Globe valves, Ball Valves, Butterfly Valves, Diaphragm Valves, Gate Valves, Check Valves, Pinch Valves, Knife Gate Valves, Control Valves, Relief Valves
42	FW 761 FW 765	Structures for Pipe racks Structures for Sub pipe racks	Bracings Columns
43	FW 280 FW 281 FW 282 FW 283 FW 740 FW 760 FW 763	Foundation material for duct structure Foundation material for absorber Foundation material for Tanks Foundation material for Pipe racks Foundation material for Elevator Foundation material for RC pump shed	Foundation bolts Template
44	FW 766	Platforms for Pipe rack	Stairs, Handrail, Step treads, Floor grills, Ladders, Foundation bolts, Fasteners
45	FW 768; FW 769	Trestle for Main & sub Pipe racks	Truss, Beams, Supports for all Pipes
46	FW 779	Supports for cable tray	Double Sup Channel & Base plates, Single Sup Channel & Base plates, Cantilever Arm, Fasteners & clamps, Brackets
47	FW 996	Tools	Erection , commissioning, special tools
48	FW 798	Air receivers	Instrument Air receivers, Any Instruments/Valves
49	FW 800	Clarified water tank	Base plate & its supports, Shell, Roof
50	FW 802	Neutralization tank & accessories	Base plate & its supports, Shell, Roof
51	FW 988; FW 997 FW 999	Commissioning spares & Mandatory spares	Startup & commissioning spares, Mandatory spares