CUSTOMER	**CHHATTISGARH STATE POWER GENERATION COMPANY LIMITED (CSPGCL)**
CONSULTANT	**NTPC LTD**
MAIN SUPPLIER	**BHARAT HEAVY ELECTRICALS LTD** BOILER AUXILIARIES PLANT, RANIPET- 632406
PROJECT:	**CSPGCL HTPS KORBA WEST STPP (2 X 660 MW) - EPC PACKAGE**
TITLE:	**PAINTING SCHEME FOR SG AREA FANS, ESP, G&D AND APH**

BHEL DOCUMENT NO: PS: KORBA: EPC: R6/1589; REV:03

CUSTOMER MDL NO: 1125-001-102-QVM-Q-218; REV:03

RECORD OF REVISIONS

REV	DATE	DESCRIPTION / NOTE	PRD	CHD	APD
00	01.08.2025	First release	RK	RK	TV
01	03.11.2025	Revised Based on Customer comments	RK	RK	TV
02	20.11.2025	Revised Based on Customer comments	RK	RK	TV
03	11.03.2026	Revised Based on Customer comments	RK	RK	TV

Prepared by	Renjith. K	STATUS: FOR APPROVAL
Checked by	Renjith. K	BHEL CUST NO: R6/1589 & R6/1590
Approved by	T. Venugopal	REV NO: 03

RANIPET	**Bharat Heavy Electricals Limited** **Boiler Auxiliaries Plant** **Ranipet – 632 406**	BHEL DOC NO.	PS:KORBA:EPC:R6/1589
		REVISION NO.	03
		DATE	11-03-2026

CSPGCL HTPS KORBA WEST STPP (2 X 660 MW) - EPC PACKAGE

PAINTING SCHEME FOR SG AREA FANS, ESP, G&D AND APH

CONTRACT NO: 03-05 / 2X660 MW SCTPP / NOA / FIRST CONTRACT / 10 DATED 03.04.2025

DRAWING NO: 1125-001-102-QVM-Q-218; REV:03

BHEL RANIPET Customer No(s).: R6/1589 & R6/1590

Prepared & Reviewed by	Approved by
	T.VENUGOPAL AGM / QUALITY BHEL BAP/RANIPET - 632 406.
Renjith K / Sr. Manager (QA)	T. Venugopal / AGM (Quality)

Sl No	SURFACE LOCATION	PGMA	SURFACE PREPARATION	PRIMER		FINISH		TOTAL DFT IN (µm min.)
				PAINT	DFT (µm min.)	PAINT	DFT (µm min.)	

RECORD OF REVISION

REV NO	EFFECTIVE DATE	DETAILS OF REVISION MADE
00	01-08-2025	Original issue – first submission
	03-11-2025	**Customer comments:** BHEL to confirm that all painting requirements are as per Sub Section A-12 Surface preparation & Painting of Part-B, Section VI. **BHEL Reply**: BHEL confirms that all painting requirements are as per sub section A-12 Surface preparation & Painting of Part-B, section VI and in line with previous projects approved documents. **Customer comments:** Consultant Name to be changed from National Thermal Power Corporation (NTPC) to NTPC Ltd in cover page. **BHEL Reply**: Noted and changed **Customer comments**: As per technical specification for All surfaces with temperature above 95°C and which are insulated to be painted with Heat resistant Aluminum paint to IS-13183 Gr.-I. **BHEL Reply**: As per technical specification (Section – VI, Part-B, Sub – section - A-12, Page 2 of 11, Clause no.1.06.05), three grades of Heat resistant Aluminum paint is mentioned as PS9* for temperature above 95°C. Heat resistant Aluminum paint to IS-13183 Gr-II is selected for insulated surface as the maximum temperature is up to 400°C. **Customer comments:** If BHEL is using any paint / primer materials other than that specified (for using the substitute material), same shall be brought out specifically in this document. (Refer cl. 1.01.00, A-12, Part-B) **BHEL Reply:** BHEL is using Epoxy Based Zinc Phosphate primer for rotating / machined parts and is better than specification requirement of red oxide zinc phosphate primer. **Customer comments:** 1. APH Sl. No. 01, 02, 07, 08, 13 & 15, 2. FANS Sl.no 04 (please ensure same in line with specification) **BHEL Reply:** The proposed painting scheme is inline with specification. The insulated surface Heat Resistant Aluminum paint is provided as per technical specification clause no.1.06.11, B) Steam Generator and Auxiliaries insulated surface painting details of Section – VI, Part-B, Sub – section - A-12, Page 6 of 11) and for flue gas swept surface temporary protection provided with red oxide zinc phosphate primer as per technical specification Clause no.1.06.11, B) Steam Generator and Auxiliaries, Note – 1 where in it is specified that flue gas swept surfaces shall be applied with appropriate coating for temporary protection till erection. This is inline with previous projects executed and under progress. **Customer comments:** 1.APH Sl. No. 09 & 10 (why no paint is applied on Axial seals & bypass seals?) **BHEL Reply**: Seals are machined components or strips and temporary rust preventive oil is provided for protection till erection. **Customer comments:** 2. FANS Sl. No. 02,10 (BHEL to update in line with 4. ESP Sl. No. 37, 38 & 39) **BHEL Reply:** Updated. **Customer comments:** 2. FANS Sl. No. 04 (Two coats of DFT 40 Micron to be provided) **BHEL Reply:** It is 2 coats of 20 Micron for each coat and total DFT is 40 microns only as per technical specification.

Sl No	SURFACE LOCATION	PGMA	SURFACE PREPARATION	PRIMER		FINISH		TOTAL DFT IN (µm min.)
				PAINT	DFT (µm min.)	PAINT	DFT (µm min.)	
			Customer comments: 2. FANS, Sl. No. 09, 3. Gates & Damper Sl. No. 03 are insulated or not. **BHEL Reply:** The items are not insulated but the items are equipment's with less thickness and hence the proposed painting scheme is sufficient and inline with previous approved painting schemes. **Customer comments**: 2. FANS, Sl. No. 09, 3.Gates & Damper Sl. No. 04, 4. Electrostatic Precipitator Sl. No. 34 (Hot Dip Galvanizing to 610 gm sq. Meter (minimum) and to a coating thickness of 87 µm (minimum)) **BHEL Reply**: Incorporated **Customer comments:** 2. FANS Sl. No. 10 (Commissioning & Mandatory Spares to be included in the list) **BHEL Reply**: Commissioning spares included in Sl. No. 09 Mandatory spares painting will be as per PGMA of the original supply and is the practice followed by BHEL. **Customer comments:** 2. FANS Sl. No. 10 (Scanner air fan to be included) **BHEL Reply:** Scanner Air fan is not in scope of BHEL Ranipet. **Customer comments:** 4. Electrostatic Precipitator Sl. No. 01, 23, 24, 25, 26, 28, 29 (In the technical specification for ESP Painting the minimum Total DFT should not be less than 55 for All surfaces with surface temperature 95°C or less (with or without insulation) and should not be less than 60 for All surfaces with surface temperature above 95°C (with or without insulation). BHEL to check & correct.) **BHEL Reply:** BHEL proposes heat resistant aluminium paint of 40 microns which is better than the specification requirement of red oxide primer of 60 microns and suited for high temperature insulation application. The same painting scheme is followed for other projects. Request to accept the same. **Customer comments:** 6. General Notes to include Sl. No. 13(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) **BHEL Reply:** This note is already mentioned in General Notes Sl. No. 10.				
02	20-11-2025		**Customer comments:** As per SS A-12, B) Note: 1 is for flue gas swept Pressure parts and the items not covered by B)1 & B)2 is to be done as per Note-2. **BHEL Reply:** SS A-12, B) Note: 2 is for civil structural items which are exposed to atmosphere and same is already identified in the submitted document as per requirement. Further as per B)2 red oxide zinc phosphate primer can be applied for items in flue gas path i.e temperature>95°C. The paint applied for the items in flue gas path will get removed during plant operation and is provided only as temporary protection. **Customer comments:** Specify document number in which it will be included. **BHEL Reply:** We are not having the details w.r.t how the painting requirements are addressed by other units of BHEL for the items in their scope. **Customer comments:** Please provide details of Module assembly with supporting drawing to decide the type of painting **BHEL Reply:** Module assembly is in flue gas path and painting provided accordingly. **Customer comments:** SS A-12, B)1 is applicable for insulated surfaces but these items are un-insulated so it should be painted as per Note-2 to B). **BHEL Reply:** Steel structures exposed to atmosphere are identified with painting as per NTPC technical specification which confirms to C3 environment. Galvanizing requirement is provided for handrails, platforms as per technical specification requirements. Flue gas swept surfaces / insulated surfaces are identified with painting for temporary protection. Machined items, collecting electrode, APH baskets etc provided with rust preventive oil application. 95% of the items in BAP scope of supply are covered in the above category.				

Sl No	SURFACE LOCATION	PGMA	SURFACE PREPARATION	PRIMER		FINISH		TOTAL DFT IN (µm min.)
				PAINT	DFT (µm min.)	PAINT	DFT (µm min.)	
			Small equipment's which is fabricated with plate thickness less than 6 mm, Minor items, equipment's which cannot be shot blasted due to product requirement, generally located in covered area are identified with two coats of primer and two coats of enamel paint with total DFT of 100 microns as applicable for Steam generator auxiliaries for items with temperature less than 95°C. **The proposed painting scheme is followed for all NTPC projects executed and under execution by BHEL Ranipet.** **Customer comments:** For outdoor location Handrails and ladder shall be galvanised as per clause 6.04.06, D-1-6 Part B of Technical Specification. **BHEL Reply:** Galvanizing requirement as per technical specification is already included in the submitted document. **Customer comments:** Provide reference document number only 1125-001-315-PVC-C-002 (GENERAL NOTES FOR STRUCTURAL STEEL WORKS) for Civil Structures **BHEL Reply:** The painting requirement provided for civil structure item exposed to atmosphere is in line with document No. 1125-001-315-PVC-C-002. **Customer comments:** Aluminium paint adhesion falls if applied on un-primed steel, so how this is taken care **BHEL Reply:** The two coat aluminium paint system is already in practice for all the projects and we have not observed any adhesion issues during application. **Customer comments:** Typical comment: BHEL to provide details how the offered painting scheme for ESP insulated surfaces with temp >95°C is superior than specification of 02 coats of Red Oxide Zinc Phosphate primer (Alkyd base) to IS 12744 **BHEL Reply:** Aluminium paint provided is heat resisitant paint and is considered superior for the identified application. Further based on previous project experience aluminium paint is having better durability compared to two coats of red oxide primer paint. **Customer comments:** Structures to be painted as per painting scheme specified in Civil for casing structure (PGMA No. 79948) **BHEL Reply:** Casing structures are in flue gas swept surface and temporary protection till erection is provided. Further three coat painting system for items in flue gas path will lead to issues during operation of equipment as the peeled off paints will affect the performance. **Customer comments:** Flue gas swept?? Splitter and guide vanes (PGMA No. 79957, 79989) **BHEL Reply:** The items are in flue gas path. **Customer comments:** Why the painting is not as per the original painting scheme. It is understood that with patching less than the original painting scheme will lead to different DFT. BHEL to please clarify. **BHEL Reply:** The painting of damaged areas is in line with technical specification Section- VI, Part-B, Sub section D-1-6, Civil works - Page 25 of 25, clause 6.04.03, Note 4. Epoxy based primer is provided to ensure better adhesion during application at site and the total DFT will be as per painting scheme. **Customer comments:** Add lines w.r.t final Coat as per 6.04.03, D-1-6, Part-B in Note – 12. **BHEL Reply:** Details w.r.t final coat added in Note - 12 **Customer comments:** Provide reference of document number 1125-001-315-PVC-C-002 (GENERAL NOTES FOR STRUCTURAL STEEL WORKS) only for Civil Structures **BHEL Reply:** Painting requirements as per reference document is already included in the submitted document for civil structural items exposed to atmosphere. **Customer comments:** Please refer our comments on the document and correct the above table **BHEL Reply:** Updated.				

Sl No	SURFACE LOCATION	PGMA	SURFACE PREPARATION	PRIMER		FINISH		TOTAL
				PAINT	DFT (µm min.)	PAINT	DFT (µm min.)	DFT IN (µm min.)

03	11.03.2026	**Customer comments:** As discussed in MS Teams meeting on 09.12.2025, BHEL to correct the document as per technical specification requirements. Further, to avoid increase in number of revisions, BHEL is requested to first discuss all the open points through TCM before resubmission of the document. **BHEL Reply:** Document corrected as per technical specification requirements and based on MS teams meeting discussion on 09.12.2025. Sl. No. 7 - LOS for ID, FD and PA Fans – 55910, 55920, 55930 (painting updated to shot blasting and three coat painting system). Request to review and provide final approval. **Comments received from NTPC after VC discussion on 15.12.2025** **Customer comments:** in line with Mouda-II & Technical specification requirement seal air piping & access door outside surface is to be painted. **BHEL Reply:** Air seal pipings are manufactured with tubes of thickness 3 to 4 mm and fittings. Access door or manhole door assy is small fabricated approx. weight of 100 kg and fabricated with plates 5 mm to 6 mm and wool is provided for insulation also. Hence blasting followed by three coat painting system is technically not feasible and required for the items. **Customer comments:** Air Receiver PGMA No. 52101 to be done as per technical specification and provide painting applicable to open to atmosphere structures. **BHEL Reply:** Incorporated. **Customer comments:** Guide bearing and support bearing assembly (PGMA No. 52261 & 52262) inside surface is machined. for outside surface BHEL to provide as per technical specification. **BHEL Reply:** Guide bearing and support bearing assembly are small size fabricated shop component which is further machined and shot blasting is not feasible. Further the items are in covered atmosphere and the proposed painting scheme is sufficient. **Customer comments:** PGMA No. 52301, 52302, 52339, 52340 in line with Mouda-II & Technical specification requirement these items to be painted. **BHEL Reply:** These items are BOI items and manufactured with less thickness plates and pipes. Hence the proposed painting scheme is sufficient. **Customer comments:** Other Structural Items – other than sl.no. 4 of above items for gates and damper, painting to be provided as per technical specification (i.e painting applicable for civil structural items). **BHEL Reply:** Incorporated. However, the painting for BOI items and manufactured with less thickness plates and pipes like blower with motor, mounting bracket etc separated and painting provided accordingly. **Comments received through email dated 07.03.2026** **Customer comments:** APH: Sl No:24,25,26- Pls provide the specific constraint due to which steel structure painting cannot be done and the provided painting is sufficient meeting the specification requirement. FAN-sl.no 06- Pls provide the specific constraint due to which steel structure painting cannot be done and the provided painting is sufficient meeting the specification requirement. **BHEL Reply:** These items are manufacturing / BOI items and consists of thin plates, small pipes and complex assemblies. Blasting along with steel structure painting is technically not feasible as it may cause distortion or damage to such components. The proposed painting scheme is used for other projects and we have not received any adverse feedback. Hence the proposed painting scheme is sufficient.

Sl No	SURFACE LOCATION		PGMA	SURFACE PREPARATION	PRIMER		FINISH		TOTAL DFT IN (µm min.)
					PAINT	DFT (µm min.)	PAINT	DFT (µm min.)	

1. AIR PRE-HEATER (APH)

01	Steam coil APH Temp > 95°C		50510	Power Tool cleaning to St3 (SSPC-SP3)	Heat Resistant Aluminum Paint Gr II to IS 13183 - One Coat of 20 µm	20	Heat Resistant Aluminum Paint Gr II to IS 13183 - One Coat of 20 µm	20	40
02	Module assembly – Temp > 95°C		52010	Power Tool cleaning to St3 (SSPC-SP3)	Two Coats Red Oxide Zinc phosphate prime to IS:12744	60	--	--	60
03	Heating Element with Baskets		52010	Power Tool cleaning to St3 (SSPC-SP3)	Temporary Rust Preventive Oil application (Wet) as per PRQA 522 **Note**: Heating elements are assembled in module assy after dipping in the rust preventive fluid				
04	Rotor post assembly – Temp > 95°C		52011	Power Tool cleaning to St3 (SSPC-SP3)	Two Coats Red Oxide Zinc phosphate prime to IS:12744	60	--	--	60
05	Pin rack assembly		52012	---	Temp rust preventive as per PRQA 523	20	--	--	20
06	Radial Seals –Temp > 95°C	T Bars	52013	Power Tool cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	--	--	60
		Seals			Temporary rust preventive Oil as per PRQA 523	20	--	--	20
07	Rotor Housing Assembly – Temp > 95°C	Insulated Side	52030	Power Tool cleaning to St3 (SSPC-SP3)	Heat Resistant Aluminum Paint Gr II to IS 13183 - One Coat of 20 µm	20	Heat Resistant Aluminum Paint Gr II to IS 13183 - One Coat of 20 µm	20	40
		Flue gas Swept Surface			Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	--	--	60

Sl No	SURFACE LOCATION		PGMA	SURFACE PREPARATION	PRIMER		FINISH		TOTAL DFT IN (µm min.)
					PAINT	DFT (µm min.)	PAINT	DFT (µm min.)	
08	Hot and Cold End Connecting Plate Assembly – Temp > 95°C	Insulated Side	52041 52042	Power Tool cleaning to St3 (SSPC-SP3)	Heat Resistant Aluminum Paint Gr II to IS 13183 - One Coat of 20 µm	20	Heat Resistant Aluminum Paint Gr II to IS 13183 - One Coat of 20 µm	20	40
		Flue gas Swept Surface			Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	--	--	60
09	Axial seals		52054	Power Tool cleaning to St3 (SSPC-SP3)	Temp. Rust Preventive Oil as per PRQA 523	20	--	--	20
10	Bypass seals		52055	Power Tool cleaning to St3 (SSPC-SP3)	Temp. Rust Preventive Oil as per PRQA 523	20	--	--	20
11	Rotor Drive assembly With bracket, Air Motor, Gear Box– Temp <95°C		52100	Power Tool cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	Synthetic Enamel to IS2932 Shade: Grey White RAL 9002 (Two coats)	40	100
12	Air seal piping Temp <95° C		52211	Power Tool cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	Synthetic Enamel to IS2932 Shade: Grey White RAL 9002 (Two coats)	40	100
13	Access door – Temp. > 95 ° C		52220	Power Tool cleaning to St3 (SSPC-SP3)	Heat Resistant Aluminum Paint Gr II to IS 13183 - One Coat of 20 µm	20	Heat Resistant Aluminum Paint Gr II to IS 13183 - One Coat of 20 µm	20	40
14	Observation port with light		52220	No painting, as the same is made of Glass					
	Other than glass part– Temp > 95°C		52220	Power Tool cleaning to St3 (SSPC-SP3)	Heat Resistant Aluminum Paint Gr II to IS 13183 - One Coat of 20 µm	20	Heat Resistant Aluminum Paint Gr II to IS 13183 - One Coat of 20 µm	20	40
15	Rotor Stoppage alarm		52220	Made of Aluminium (No painting is required)					
	Other than aluminum –– Temp > 95°C			Power Tool cleaning to St3 (SSPC-SP3)	Heat Resistant Aluminum Paint Gr II to IS 13183 - One Coat of 20 µm	20	Heat Resistant Aluminum Paint Gr II to IS 13183 - One Coat of 20 µm	20	40

Sl No	SURFACE LOCATION	PGMA	SURFACE PREPARATION	PRIMER		FINISH		TOTAL DFT IN (µm min.)
				PAINT	DFT (µm min.)	PAINT	DFT (µm min.)	
16	Air receiver– Temp < 95°C	52101	Blast Cleaning to Sa 2.5 Near White metal finish of ISO 8501-1 with surface roughness profile to 40-60 µm	**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) in dry film, **DFT = 70µm per coat (min)** Zinc dust composition quality shall be Type-II as per ASTM D520-00 **Intermediate Coat:** One coat of two component Polyamide cured Epoxy based MIO pigmented (containing lamellar MIO min 30% on pigment) Intermediate coat (solid by volume- 80% (min) **DFT = 100µm per coat (min)**	70 100	**Finish Coat:** Two coats of Two Pack Aliphatic isocyanate cured Acrylic Finish Paint to IS 13213 (solid by volume- 55% (min) **DFT = 35 µm per coat (min)**, with gloss retention (SSPC paint spec no.36, ASTM D4587, d2244, d523 of level 2 after min. 1000 hours exposure, gloss loss less than 30 and colour change less than 2.0ΔE **Total- 70 µm (min)** Shade **Light Blue RAL5012**	70	240
17	Lifting beams, special Tools & tackles – Temp < 95°C	52220 52000	Power Tool cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	Synthetic Enamel to IS2932 Shade: Grey White RAL 9002 (Two coats)	40	100
18	T C pipe Assy. (Stainless Steel part	52220	No Painting					
	T C pipe Assy. (Non Stainless Steel part)– Temp < 95°C	52220	Power Tool cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	Synthetic Enamel to IS2932 Shade: Grey White RAL 9002 (Two coats)	40	100
19	Guide Bearing Assembly– Temp < 95°C	52261	Power Tool cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	Synthetic Enamel to IS2932 Shade: Grey White RAL 9002 (Two coats)	40	100
20	Supporting Bearing Assembly– Temp < 95°C	52262	Power Tool cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	Synthetic Enamel to IS2932 Shade: Grey White RAL 9002 (Two coats)	40	100

Sl No	SURFACE LOCATION	PGMA	SURFACE PREPARATION	PRIMER		FINISH		TOTAL DFT IN (µm min.)
				PAINT	DFT (µm min.)	PAINT	DFT (µm min.)	
21	Oil piping Hot end– Temp < 95°C	52271	Power Tool cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	Synthetic Enamel to IS2932 Shade: Grey White RAL 9002 (Two coats)	40	100
22	Oil piping cold end– Temp < 95°C	52272	Power Tool cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	Synthetic Enamel to IS2932 Shade: Grey White RAL 9002 (Two coats)	40	100
23	Oil circulating units – Temp < 95°C	52274	Power Tool cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	Synthetic Enamel to IS2932 Shade: Grey White RAL 9002 (Two coats)	40	100
24	Washing manifold & deluge assy items– Temp < 95°C	52301 52302	Power Tool cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	Synthetic Enamel to IS2932 Shade: Grey White RAL 9002 (Two coats)	40	100
25	Cleaning Device assemblies Tube with Nozzle – Temp < 95°C	52339 52340	Power Tool cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	Synthetic Enamel to IS2932 Shade: Grey White RAL 9002 (Two coats)	40	100
26	Cleaning device drive– Temp < 95°C	52339	Power Tool cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	Synthetic Enamel to IS2932 Shade: Grey White RAL 9002 (Two coats)	40	100
27	Commissioning spares and Mandatory spares	52988	As per respective items as above					

Sl No	SURFACE LOCATION	PGMA	SURFACE PREPARATION	PRIMER		FINISH		TOTAL
				PAINT	DFT (µm min.)	PAINT	DFT (µm min.)	DFT IN (µm min.)

2. FANS

01	Foundation Material of FD, ID & PA Fans	55011 55021 55031	Temp. Rust Preventive Fluid as per PRQA 523		20	NIL	NIL	20
02	Foundation Matl of FD, ID & PA Fans – Packer Plates Seal Air Fan Motor Base Frame / Plate Base Frame for Actuators of FD, ID & PA Fans	55011 55021 55031 56670 55516 55628 55635	Blast Cleaning to Sa 2.5 Near White metal finish of ISO 8501-1 with surface roughness profile to 40-60 µm	**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) in dry film, **DFT = 70µm per coat (min)** Zinc dust composition quality shall be Type-II as per ASTM D520-00 **Intermediate Coat:** One coat of two component Polyamide cured Epoxy based MIO pigmented (containing lamellar MIO min 30% on pigment) Intermediate coat (solid by volume- 80% (min) **DFT = 100µm per coat (min)**	70 100	**Finish Coat:** Two coats of Two Pack Aliphatic isocyanate cured Acrylic Finish Paint to IS 13213 (solid by volume- 55% (min) **DFT = 35 µm per coat (min),** with gloss retention (SSPC paint spec no.36, ASTM D4587, d2244, d523 of level 2 after min. 1000 hours exposure, gloss loss less than 30 and colour change less than 2.0ΔE **Total- 70 µm (min)** Shade **Light Blue RAL5012**	70	240
03	**FD FAN <95° C Surface Temperature** **Static Parts** - Insulated Surface (Outside) & Ambient Air swept surface (Inside) setting & indication shaft assy, expansion joint parts	55516 55716 55816 55410 55510	Power tool cleaning to St3(SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	Synthetic Enamel to IS2932 Shade: Grey White RAL 9002 (Two coats)	40	100

Sl No	SURFACE LOCATION	PGMA	SURFACE PREPARATION	PRIMER		FINISH		TOTAL DFT IN (µm min.)
				PAINT	DFT (µm min.)	PAINT	DFT (µm min.)	
	Rotating Parts (Inside the Insulated static parts – protection up to erection)	55216	Power tool cleaning to St3 (SSPC-SP3)	Epoxy based Zinc Phosphate Primer (Two Pack system) as per IS:13238 (Two coats) per coat= 30µm & Total DFT = 60 µm min.	60	NIL	NIL	60
04	**ID FAN >95° C Surface Temperature** **Static Parts** - Insulated Surface (Outside), expansion joint parts	55627 55727 55827 55420 55520	Power tool cleaning to St3(SSPC-SP3)	Heat Resistant Aluminum Paint Gr II to IS 13183 - One Coat of 20 µm	20	Heat Resistant Aluminum Paint Gr II to IS 13183 - One Coat of 20 µm	20	40
	Static Parts – Flue gas swept surface (Inside), setting & indication shaft assy		Power tool cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	NIL	NIL	60
	Rotating Parts - (Inside the insulated Static Parts – protection up to erection)	55327	Power tool cleaning to St3(SSPC-SP3)	Epoxy based Zinc Phosphate Primer (Two Pack system) as per IS:13238 (Two coats) per coat= 30µm & Total DFT = 60 µm min.	60	NIL	NIL	60
05	**PA FAN <95º C surface Temperature** **Static parts –** Insulated Surface (Outside) & Ambient Air swept surface (Inside) setting & indication shaft assembly, expansion joint parts	55635 55735 55835 55430 55530	Power tool cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	Synthetic Enamel to IS2932 Shade: Grey White RAL 9002 (Two coats)	40	100
	Rotating Parts (Inside the insulated static parts- protection up to erection)	55335	Power tool cleaning to St3 (SSPC-SP3)	Epoxy based Zinc Phosphate Primer (Two Pack system) as per IS:13238 (Two coats) per coat= 30µm & Total DFT = 60 µm min.	60	NIL	NIL	60
06	**Coupling and coupling Guard** – for FD, ID & PA FAN & Seal Air FAN, SA Fan motor canopy, FD, ID, PA Fan motor canopy, FD, ID, PA Fan LOS canopy, Fan Tools and fixture – temp < 95°C	55000, 55015 55025, 55035 56075, 56079 55810, 55820 55830, 56870 55019, 55029 55039, 55210 55220, 55230	Power tool cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	Synthetic Enamel to IS2932 Shade: Grey White RAL 9002 (Two coats)	40	100

Sl No	SURFACE LOCATION	PGMA	SURFACE PREPARATION	PRIMER		FINISH		TOTAL DFT IN (µm min.)
				PAINT	DFT (µm min.)	PAINT	DFT (µm min.)	
07	**Lub oil System –** For FD, ID & PA FAN	55910 55920 55930	Blast Cleaning to Sa 2.5 Near White metal finish of ISO 8501-1 with surface roughness profile to 40-60 µm	**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) in dry film, **DFT = 70µm per coat (min)** Zinc dust composition quality shall be Type-II as per ASTM D520-00 **Intermediate Coat:** One coat of two component Polyamide cured Epoxy based MIO pigmented (containing lamellar MIO min 30% on pigment) Intermediate coat (solid by volume- 80% (min) **DFT = 100µm per coat (min)**	70 100	**Finish Coat:** Two coats of Two Pack Aliphatic isocyanate cured Acrylic Finish Paint to IS 13213 (solid by volume- 55% (min) **DFT = 35 µm per coat (min)**, with gloss retention (SSPC paint spec no.36, ASTM D4587, d2244, d523 of level 2 after min. 1000 hours exposure, gloss loss less than 30 and colour change less than 2.0ΔE **Total- 70 µm (min)** Shade **Light Blue RAL5012**	70	240
08	**Silencer for FD & PA FAN** <95º C Surface Temperature Insulated Surface	55911 55931	Power tool cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	Synthetic Enamel to IS2932 Shade: Grey White RAL 9002 (Two coats)	40	100
09	Radial pent house ventilation fan /ID sealing /cooling fans/ Radial Seal Air Fan, Radial seal air fan stator, Commissioning Spares <95º C Surface Temperature	55024 56161 56173 56373 56473	Power tool cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	Synthetic Enamel to IS2932 Shade: Grey White RAL 9002 (Two coats)	40	100

Sl No	SURFACE LOCATION	PGMA	SURFACE PREPARATION	PRIMER		FINISH		TOTAL
				PAINT	DFT (µm min.)	PAINT	DFT (µm min.)	DFT IN (µm min.)
	FD, ID, PA & SA Fan Stair & Handrail - Galvanizing items (as per BHEL Engineering document)		Gratings- Blast cleaning to Sa 2½ Other Items- Power tool cleaning to St3 (SSPC-SP3) and acid cleaning	Hot Dip Galvanizing to 610 gm sq. Meter (minimum) and to a coating thickness of 87 µm (minimum)				
10	FD, ID, PA & SA Fan Stair & Handrail – Other than galvanized structural items	55012 55022 55032 56072	Blast Cleaning to Sa 2.5 Near White metal finish of ISO 8501-1 with surface roughness profile to 40-60 µm	**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) in dry film, **DFT = 70µm per coat (min)** Zinc dust composition quality shall be Type-II as per ASTM D520-00 **Intermediate Coat:** One coat of two component Polyamide cured Epoxy based MIO pigmented (containing lamellar MIO min 30% on pigment) Intermediate coat (solid by volume- 80% (min) **DFT = 100µm per coat (min)**	70 100	**Finish Coat:** Two coats of Two Pack Aliphatic isocyanate cured Acrylic Finish Paint to IS 13213 (solid by volume- 55% (min) **DFT = 35 µm per coat (min)**, with gloss retention (SSPC paint spec no.36, ASTM D4587, d2244, d523 of level 2 after min. 1000 hours exposure, gloss loss less than 30 and colour change less than 2.0ΔE **Total- 70 µm (min)** Shade **Light Blue RAL5012**	70	240

Sl No	SURFACE LOCATION	PGMA	SURFACE PREPARATION	PRIMER		FINISH		TOTAL
				PAINT	DFT (µm min.)	PAINT	DFT (µm min.)	DFT IN (µm min.)

3. GATES & DAMPER

01	Gates & Dampers (200 ° C to 400 ° C) Insulated Surfaces	57203, 57223, 57270, 57273, 57620	Power tool cleaning to St3 (SSPC-SP3)	Heat Resistant Aluminum Paint Gr II (200°C to 400°C) to IS 13183 - One Coat of 20 µm	20	Heat Resistant Aluminum Paint Gr II (200°C to 400°C) to IS 13183 - One Coat of 20 µm	20	40
02	Gates & Dampers > 95°C up to 200 °C Insulated Surfaces	57430, 57460, 57470, 57480, 57490	Power tool cleaning to St3 (SSPC-SP3)	Heat Resistant Aluminum Paint Gr II (200°C to 400°C) to IS 13183 - One Coat of 20 µm	20	Heat Resistant Aluminum Paint Gr II (200°C to 400°C) to IS 13183 - One Coat of 20 µm	20	40
03	Gates & Dampers, Seal Air piping < 95 ° C	57010, 57033, 57063, 57083, 57110, 57113, 57141, 57S41, 57143, 57160, 57173	Power tool cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two Coats)	60	Synthetic Enamel to IS2932 Shade: Grey White RAL 9002 (Two coats)	40	100
04	Ladder, Cage for Ladder, Toe Guard Plate Floor Grill, Hand Rails, Hand Rail Post,	57466 57666	Gratings- Blast cleaning to Sa 2½ Other Items- Power tool cleaning to St3 (SSPC-SP3) & Acid cleaning	Hot Dip Galvanizing to 610 gm per Sq. Meter (minimum) and to a coating thickness of 87 µm (minimum)				

Sl No	SURFACE LOCATION	PGMA	SURFACE PREPARATION	PRIMER		FINISH		TOTAL DFT IN (µm min.)
				PAINT	DFT (µm min.)	PAINT	DFT (µm min.)	
05	Other Structural Items – other than sl.no. 4 of above.	57466, 57666	Blast Cleaning to Sa 2.5 Near White metal finish of ISO 8501-1 with surface roughness profile to 40-60 µm	**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) in dry film, **DFT = 70µm per coat (min)** Zinc dust composition quality shall be Type-II as per ASTM D520-00 **Intermediate Coat:** One coat of two component Polyamide cured Epoxy based MIO pigmented (containing lamellar MIO min 30% on pigment) Intermediate coat (solid by volume- 80% (min) **DFT = 100µm per coat (min)**	70 100	**Finish Coat:** Two coats of Two Pack Aliphatic isocyanate cured Acrylic Finish Paint to IS 13213 (solid by volume- 55% (min) **DFT = 35 µm per coat (min)**, with gloss retention (SSPC paint spec no.36, ASTM D4587, d2244, d523 of level 2 after min. 1000 hours exposure, gloss loss less than 30 and colour change less than 2.0ΔE **Total- 70 µm (min)** Shade **Light Blue RAL5012**	70	240
06	Blower with motor, valves, Mounting bracket	57209, 57491, 57S91, 57497, 57S97	Power tool cleaning to St3(SSPC-SP3	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two Coats)	60	Synthetic Enamel to IS2932 Shade: Grey White RAL 9002 (Two coats)	40	100
07	Ducts Commissioning Spares	57988	As per respective items mentioned in this Painting Scheme					

Sl No	SURFACE LOCATION	PGMA	SURFACE PREPARATION	PRIMER		FINISH		TOTAL DFT IN (µm min.)
				PAINT	DFT (µm min.)	PAINT	DFT (µm min.)	

4. ELECTROSTATIC PRECIPITATOR (ESP OR EP)

1	Insulator Housing Assembly– Temp > 95°C	79906	Power Tool Cleaning to st3 (sspc-sp3)	Heat Resistant Aluminum Paint Gr II (200°C to 400°C) to IS 13183 - One Coat of 20 µm	20	Heat Resistant Aluminum Paint Gr II (200°C to 400°C) to IS 13183 - One Coat of 20 µm	20	40
2	Gas Distribution Assembly– Temp > 95°C	79908	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	NIL	--	60
3	GD Rapping Mechanism– Temp > 95°C	79909	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	NIL	--	60
4	GD Drive Arrangements– Temp< 95°C	79910	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	Synthetic Enamel to IS2932 Shade: Grey White RAL 9002 (Two coats))	40	100
5	Gas Screening– Temp > 95°C	79911	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	NIL	--	60
6	Emitting System suspension– Temp > 95°C	79913	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	NIL	--	60
7	Emitting Electrode –Hook Part	79915	Rust preventive application on Hook part only (Electrode Wire is Stainless Steel)					
8	Emitting Electrode Rapping Mechanism– Temp > 95°C	79916	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	NIL	--	60
9	Drive Arrangement for Emitting System– Temp < 95°C	79917	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	Synthetic Enamel to IS2932 Shade: Grey White RAL 9002 (Two coats)	40	100
10	Suspension Arrangement for Collecting Electrode– Temp > 95°C	79919	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	NIL	--	60
11	Collecting Electrode	79920	Rust Preventive Fluid as per TEP AQCS RP					

Sl No	SURFACE LOCATION	PGMA	SURFACE PREPARATION	PRIMER		FINISH		TOTAL DFT IN (µm min.)
				PAINT	DFT (µm min.)	PAINT	DFT (µm min.)	
12	Lifting Beam for Collecting Electrode	79920	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	Synthetic Enamel to IS2932 Shade: Grey White RAL 9002 (Two coats)	40	100
13	Frame Of Emitting System-Top– Temp > 95°C	79921	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	NIL	--	60
14	Frame Of Emitting System - Bottom– Temp > 95°C	79922	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	NIL	--	60
15	Inspection /Access Door	79923	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	Synthetic Enamel to IS2932 Shade: Grey White RAL 9002 (Two coats)	40	100
16	Shock Bars - – Temp > 95°C	79924	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	NIL	--	60
17	Collecting Electrode (CE) Rapping Mechanism – Temp > 95°C	79925	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	NIL	--	60
18	Drive Arrangements for CE Rapping – Temp < 95°C	79926	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	Synthetic Enamel to IS2932 Shade: Grey White RAL 9002 (Two coats)	40	100
19	ESP Roof Beams – Temp > 95°C	79928	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	NIL	--	60
20	Frame of Emitting System – Middle– Temp > 95°C	79932	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	NIL	--	60
21	Outer Roof –EP - – Temp < 95°C	79942	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	Synthetic Enamel to IS2932 Shade: Grey White RAL 9002 (Two coats)	40	100
22	Hopper Ridges– Temp > 95°C	79943	Power Tool Cleaning to St3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	NIL	--	60

Sl No	SURFACE LOCATION		PGMA	SURFACE PREPARATION	PRIMER		FINISH		TOTAL DFT IN (µm min.)
					PAINT	DFT (µm min.)	PAINT	DFT (µm min.)	
23	Hopper Upper part – Temp> 95°C	Insulated side	79944	Power Tool Cleaning to st3 (SSPC-SP3)	Heat Resistant Aluminum Paint Gr II (200°C to 400°C) to IS 13183 - One Coat of 20 µm	20	Heat Resistant Aluminum Paint Gr II (200°C to 400°C) to IS 13183 - One Coat of 20 µm	20	40
		Flue Gas Swept Surface			Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	NIL	--	60
24	Hopper Middle & Lower part– Temp > 95°C	Insulated side	79945	Power Tool Cleaning to st3 (SSPC-SP3)	Heat Resistant Aluminum Paint Gr II (200°C to 400°C) to IS 13183 - One Coat of 20 µm	20	Heat Resistant Aluminum Paint Gr II (200°C to 400°C) to IS 13183 - One Coat of 20 µm	20	40
		Flue Gas Swept Surface			Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	NIL	--	60
25	Insulator Support Pane l– Temp > 95°C	Insulated Side	79946	Power Tool Cleaning to st3 (SSPC-SP3)	Heat Resistant Aluminum Paint Gr II (200°C to 400°C) to IS 13183 - One Coat of 20 µm	20	Heat Resistant Aluminum Paint Gr II (200°C to 400°C) to IS 13183 - One Coat of 20 µm	20	40
		Flue Gas Swept Surface			Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	NIL	--	60
26	Roof Panel Assy – Temp > 95°C	Insulated Side	79947	Power Tool Cleaning to st3 (SSPC-SP3)	Heat Resistant Aluminum Paint Gr II (200°C to 400°C) to IS 13183 - One Coat of 20 µm	20	Heat Resistant Aluminum Paint Gr II (200°C to 400°C) to IS 13183 - One Coat of 20 µm	20	40
		Flue Gas Swept Surface			Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	NIL	--	60
27	Casing Structure – Temp > 95°C		79948	Power Tool Cleaning to st3 (SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	NIL	--	60

Sl No	SURFACE LOCATION		PGMA	SURFACE PREPARATION	PRIMER		FINISH		TOTAL DFT IN (µm min.)
					PAINT	DFT (µm min.)	PAINT	DFT (µm min.)	
28	Casing (Shell, Side Panels, Gables & GD Housing) – Temp > 95°C	Insulated Side	79949	Power Tool Cleaning to st3 (SSPC-SP3	Heat Resistant Aluminum Paint Gr II (200°C to 400°C) to IS 13183 - One Coat of 20 µm	20	Heat Resistant Aluminum Paint Gr II (200°C to 400°C) to IS 13183 - One Coat of 20 µm	20	40
		Flue Gas Swept Surface			Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	NIL	--	60
29	ESP Funnel Assembly – Temp > 95°C	Insulated Side	79950	Power Tool Cleaning to st3 (SSPC-SP3	Heat Resistant Aluminum Paint Gr II (200°C to 400°C) to IS 13183 - One Coat of 20 µm	20	Heat Resistant Aluminum Paint Gr II (200°C to 400°C) to IS 13183 - One Coat of 20 µm	20	40
		Flue Gas Swept Surface			Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	NIL	--	60
30	ESP Pent House – Temp <95°C (Other than columns) **Columns- Refer to Sl no: 38**		79955	Power tool cleaning to St3(SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	Synthetic Enamel to IS2932 Shade: Grey White RAL 9002 (Two coats	40	100
31	Splitters & Guide Vanes – Temp > 95°C		79957 79989	Power tool cleaning to St3(SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	NIL	--	60
32	ESP Performance Test Equipment – Temp < 95°C		79961	Power tool cleaning to St3(SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	Synthetic Enamel to IS2932 Shade: Grey White RAL 9002 (Two coats)	40	100
33	Water Washing System – Temp < 95°C		79966	Power tool cleaning to St3(SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	Synthetic Enamel to IS2932 Shade: Grey White RAL 9002 (Two coats)	40	100
34	Hand Rail Post, Bend, ERW Tubes, Floor Grill and Step Tread		79965 89610 89611 89612 89613	Gratings- Blast cleaning to Sa 2½ Other Items - Power tool cleaning to St3(SSPC-SP3) and acid cleaning	Hot Dip Galvanizing to 610 gm sq. Meter (minimum) and to a coating thickness of 87 µm (minimum)				
35	Commissioning Spares		79988	As per respective item, as listed in the painting schedule					
36	Tools & Tackles – Temp < 95°C		79996	Power tool cleaning to St3(SSPC-SP3)	Red Oxide Zinc Phosphate Primer to IS: 12744 (Two coats)	60	Synthetic Enamel to IS2932 Shade: Grey White RAL 9002 (Two coats)	40	100

Sl No	SURFACE LOCATION	PGMA	SURFACE PREPARATION	PRIMER		FINISH		TOTAL DFT IN (µm min.)
				PAINT	DFT (µm min.)	PAINT	DFT (µm min.)	
37	Approach Platform for Hopper	79965	Blast Cleaning to Sa 2.5 Near White metal finish of ISO 8501-1 with surface roughness profile to 40-60 µm	**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) in dry film, **DFT = 70µm per coat (min)** Zinc dust composition quality shall be Type-II as per ASTM D520-00 **Intermediate Coat:** One coat of two component Polyamide cured Epoxy based MIO pigmented (containing lamellar MIO min 30% on pigment) Intermediate coat (solid by volume- 80% (min) **DFT = 100µm per coat (min)** **Finish Coat:** Two coats of Two Pack Aliphatic isocyanate cured Acrylic Finish Paint to IS 13213 (solid by volume- 55% (min) **DFT = 35 µm per coat (min)**, with gloss retention (SSPC paint spec no.36, ASTM D4587, d2244, d523 of level 2 after min. 1000 hours exposure, gloss loss less than 30 and colour change less than 2.0ΔE **Total- 70 µm (min)** Shade **Light Blue RAL5012** **Note:** **1.** The total paint thickness (Primer (70 µm) + Intermediate (100 µm) + Finish coat (70 µm) shall be minimum **240 µm**. **2.** DFT of individual paint coat shall be ensured separately and the same shall meet the specified minimum DFT of each coat as given above. **3.** Bottom of base plate including below zero level portion marked in EP Supporting Columns which will be embedded in concrete, those surfaces shall be prepared by manual cleaning to ST3 and provided with primer coat of chlorinated rubber based zinc phosphate primer of min. 50 µm DFT.			
38	Supporting Structure for ESP, Penthouse columns (Refer note 5 for surface embedded in concrete)	79955 79981						
39	Other than galvanized items vide sl. No. 34, like Stair stringer Channels, Bracket, Support Bracket, Frames Loose Channels, Toe Plates, Stiffener Plates and Angles for EP Galleries, Stair and Walk Way	79965 89610 89611						

Sl No	SURFACE LOCATION	PGMA	SURFACE PREPARATION	PRIMER		FINISH		TOTAL DFT IN (µm min.)
				PAINT	DFT (µm min.)	PAINT	DFT (µm min.)	

5. PAINTING OF DAMAGED AREAS

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. 16 of APH, sl.no. 02, 07, 10 of FAN, sl. No. 5 of G&D and sl.no. 37, 38, 39 of ESP	Surface preparation by manual cleaning. Minimum 6" of surrounding areas with existing coat to be roughened by wire brush & emery paper for best adhesion by patch primer	1. Primer: One coat of Self priming Epoxy Zinc rich primer to IS:14589 Gr. II to DFT of 70 µm (min.) 2. Intermediate and Finish: As given in respective scheme as above 3. If primer is intact, intermediate and finish to be done as per the respective scheme.
2	Paint damaged components falling under other sl. Nos. of APH, FAN, GATE & DAMPER and ESP		Primer and Finish: As given in respective scheme

6. 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., support bearing / slide bearing and other sub-delivery components of ESP 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. For all site erection shop materials Red Oxide Zinc Phosphate Primer shall be applied to meet the temporary protection.
4. In sub-assembly, wherever plates / sheets of thickness less than or equal to 5mm and rods are used, very minor items like clamps, small items etc. tiny items of weight less than 25 Kg - Power Tool or Hand Tool Cleaning to SSPC - SP 3 / SP 2 and painting as per FAN, sl. No. 6 shall be followed.
5. Ground shade / colour of finish paints and identification tag/band for equipment's, fans, piping, pipe services, supporting structures and other components followed as per NTPC doc ref no: QS-01-DIV-W-4, Rev.00.
6. DFT shall meet the specified value. In case of non-meeting of DFT in number of coats specified, subsequent coats shall be applied to meet specified DFT.
7. All components covered under different PGMAs are to painted. In case any component is left out, the same shall deemed to be included under the relevant section.
8. All threaded and other surfaces of foundation bolts and its materials, insulation pins, Anchor channels, Sleeves, HSFG bolts 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.
9. Weld edges made for site welding shall be manual cleaned by wire brush and shall be applied with weldable primer.
10. 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.
11. Heat resistant aluminum paint – the usage of Gr – I or Gr – II in place of Gr – III or Gr – I in place of Gr-II is technically acceptable.
12. The primer coat shall be applied in shop immediately after blast cleaning by airless spray technique. Intermediate coat shall be applied in shop after an interval of minimum 24 hours (from the application of primer coat) by airless spray technique. Intermediate coat shall be followed with the application of finish coat after an interval of minimum 10 hours and within 6 months (from the completion of intermediate coat) by airless spray technique.

Sl No	SURFACE LOCATION	PGMA	SURFACE PREPARATION	PRIMER		FINISH		TOTAL DFT IN (µm min.)
				PAINT	DFT (µm min.)	PAINT	DFT (µm min.)	

7. PAINTING SCHEME - DETAILS OF PROCUREMENT & APPLICATION PROCESSES

SL NO	TYPE OF PAINT	SPECIFICATION OF PAINT	NO OF PACK	VOLUME OF SOLIDS (% MIN)	MODE OF APPLICATION	OVER COATING INTERVAL (IN 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	24	Grey
03	Epoxy High solid-Polyamide cured Epoxy based MIO pigmented intermediate coat	--	2	80	Airless Spray	16	Brown
04	Aliphatic acrylic polyurethane paint	IS 13213	2	55	Airless Spray	16	Light blue RAL 5012
05	Heat resistant aluminum paint	IS 13183	1	--	Brush/ Spray	24	--
06	Chlorinated rubber based zinc phosphate primer	--	1	40	Brush/ Spray	12	Grey
07	Long oil alkyd Synthetic enamel finish paint	IS 2932	1	35	Brush/ Spray	12	Corresponding shade no
08	Red oxide Zinc phosphate primer	IS 12744	1	--	Brush/ spray	12	--

Note: Application of paint as per paint/ primer manufacturer's instruction

Sl No	SURFACE LOCATION	PGMA	SURFACE PREPARATION	PRIMER		FINISH		TOTAL
				PAINT	DFT (µm min.)	PAINT	DFT (µm min.)	DFT IN (µm min.)

8. PAINTING REQUIREMENTS AS STIPULATED IN TENDER DOCUMENT

SL NO	AREAS	TENDER DOCUMENT REFERENCE
01	ESP and Auxiliaries like ESP, APH, Fans, GAD	Technical specification Section - VI, Part-B, Sub section A-12 Page 6 of 11 to 8 of 11, B) SG & Auxiliaries, E) ESP and Note 1.
02	Structures of ESP, Packer plates, Base frames of motor and actuators	Technical specification Section- VI, Part-B, Sub section D-1-6, Civil works Design Criteria page 23 of 25 clause 6.04.03 and Section- VI, Part-A, Sub section IID, Civil works Page 8 of 11, clause 1.00.02
03	Touch up painting on damaged areas	Technical specification Section- VI, Part-B, Sub section D-1-6, Civil works - Page 25 of 25, clause 6.04.03, Note 4.
04	Galvanizing of gratings, hand railings and ladders	Technical specification Section- VI, Part-B, Sub section D-1-6, Civil works - Page 25 of 25, page 25 of 25, clause 6.04.05 & 6.04.06