

Surface Preparation and Painting Procedure

P.O. Number: 30-DD-90-ME-POR-0017

Document Code: VP-90-QC-9013-0016

Rev: 02

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1. Scope

The following procedure covers the minimum requirements for surface preparation and paint application procedure that is based on **30-BD-11-PI-SPC-0023** (Specification for Painting) and will be applied to “**SRP/SSU Plant/ILAM Petrochemical Complex**”, with the following content.

2. Reference

30-BD-11-PI-SPC-0023	Specification for Painting.
SSPC-Vol. 1&2	Steel structures painting manual.
ASTM D4414	Standard practice for measurement of wet film thickness by notch gauges.
ASTM D3359	Standard methods for measuring adhesion by tape test.
ASTM D522	Standard test methods for mandrel bend test of attached organic coating.
ASTM D562	Standard test method for consistency of paints.
ASTM A1640	Standard test methods for drying, curing or film formation of organic coating at room temperature.
ASTM D3951	Practice for commercial packaging.
ASTM D4366	Standard test method for hardness of organic coating.
ANSI Z129.1	Hazardous industrial chemicals precautionary labeling.
AWWA C-210	Liquid epoxy coating systems for the interior and exterior of steel water pipe lines.
BS 1710	Specification for identification of pipe lines and service.
BS 4800	Paint colors for building purposes.
BS 5493	Code of practice for protective coating on iron and steel structures corrosion against
BS 7079	Part A Preparation of steel substrates before application of paints and related product
ISO 8501-1	Group A. visual assessment of surface cleanliness Part A1: Specification for rust grades and preparation grades of uncoated steel substrates and of steel substrates after overall removal of previous coatings.

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BS 7079

PartC2 Blast-cleaned Method for the grading of the surface profile of abrasively steel substrates using a comparator.

SIS 05 5900

Preparation of steel substrates before application of paints.

3. Definitions & Abbreviations

PROJECT: Sulphur Recovery Package and Sulphur Solidification Unit

CONTRACT: It means the Agreement under No.: ILPC-98-217-282-4-0518 concluded between the ILAM Petrochemical Company (ILPC) as OWNER and NORAHAN SANAYE CO. (as project CONTRACTOR) for NORAHAN SANAYE CO.'s services to perform such engineering, procurement, construction, commissioning and other services required for and in connection with the establishment of the Sulphur Recovery Package and Sulphur Solidification Unit in ILAM.

OWNER: ILAM Petrochemical Company (ILPC)

MC: Petrochemical Industries Development Management Company (PIDMCO)

CONTRACTOR: NORAHAN SANAYE CO.

Supplier /Vendor: Aban Air Cooler

4. General

- 4.1. Where relevant, the Painting Subcontractor shall provide all blasting abrasives necessary to carry out the work.
- 4.2. The Painting Subcontractor shall provide skilled and experienced personnel to carry out the work together with competent and qualified supervision. The size of the workforce shall be regulated to the requirements and scheduling of the work.
- 4.3. The Painting Subcontractor shall comply fully with this specification unless otherwise approved by the Contractor. Additionally, the work will be subject to continuous inspection by the Contractor's inspector who will have liberty to check at every stage that the work is being carried out in accordance with this specification when specified the Contractor will require the provision of material samples and test panels of prepared and painted surfaces.
- 4.4. No substitution or modification to materials and methods of application detailed in this specification is permissible unless prior approval of Contractor has been obtained.
- 4.5. Prior to the commencement of work, the Painting Subcontractor shall submit for the approval

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of Contractor, fully detailed procedure as to how he intends to carry out the work within the frame work of this specification. The Painting Subcontractor shall provide full details regarding the use of a lower tier subcontractor, location of work, choice of materials and any such further information.

- 4.6. Application of coatings other than inorganic zinc primer shall be delayed until completion of all required shop pressure testing. Application of inorganic zinc silicate primer prior to pressure testing with consequent covering up of welds shall only be permitted in specific cases agreed with Contractor. In such cases application of the subsequent tie coat shall be delayed until completion of pressure testing.
- 4.7. The following surfaces and materials shall require painting:
 - a) All un-insulated and insulated carbon and low alloy piping, fittings and valves including painting of identification marks.
 - b) The primer layer shall apply on pipe, fitting and flanges at field shop and intermediate and finish coat shall be applied at field.
 - c) Valve primer (all with P1) shall be applied at vendor shop, intermediate and finish coat shall be applied at field.
- 4.8. The following surfaces and materials shall not require painting:
 - a) Copper, brass, aluminum or glass surfaces, plastic or plastic coated materials, insulated surface pipes except color coding wherever required.
 - b) Galvanized surfaces are not to be painted except in acid areas and for the purpose of safety.
 - c) Finished machine parts of machinery and gasket surfaces, d) Concrete, cast iron, PVC and vitrified clay underground piping.
 - e) Stainless steel surface
 - f) Valve stem

The equipment listed below shall be shielded to prevent damage during surface preparation and painting operations, all openings, including those which are flanged or threaded, shall be sealed to prevent entry of sand, dust, or coating materials used for shielding and sealing shall be removed.

Nameplates and notices:

- ❖ Packing glands.
- ❖ Packing Seals.
- ❖ Bearings.
- ❖ Rotating equipment couplings.

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- ❖ Rotating equipment shafts.
- ❖ Lubrication fittings.
- ❖ Pressure gauges.
- ❖ Gauge glasses.
- ❖ Motor starters.
- ❖ Instruments dial.
- ❖ Vents.
- ❖ Exposed linkages.
- ❖ Valve stems.
- ❖ Light bulbs.

4.9. The primer to finishing coat paint shall be from the same manufacturer, for each system to ensure compatibility.

5. Surface Preparation

- 5.1. Surface preparation should remove foreign bodies to allow the type of priming paint used to wet the surface thoroughly and develop adequate adhesion.
- 5.2. Selection of abrasives for blast cleaning shall be in accordance with the recommendations give in SSPC-SP COM and the recommendations agreed with the individual paint manufacturer for each type of paint used. Generally, this shall give a surface profile or anchor pattern within the range 50-75 microns. Spent abrasives shall be completely removed from the prepared surface by either vacuum cleaning or stiff brushing. For inorganic zinc primed surfaces, the abrasive shall be hard sharp and angular, for which reason shot shall not be acceptable. The surface profile shall be checked in conjunction with and approved roughness comparator.
- 5.3. Surface preparation shall not take place in the following conditions:
 - a. At temperatures below 5°C (41°F)
 - b. When the surface temperature is higher than 35°C; as recommended by manufacturer.
 - c. When the relative humidity is greater than 85%
 - d. When the metal surface temperature is less than 3°C (5°F) above the ambient dew point
 - e. When windy or rainy weather condition and wetly surface
- 5.4. All abrasives shall be free of all dust, dirt and other foreign matter. They shall be kept dry all the times and shall not be recycled.

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- 5.5. The compressed air supply used for blasting shall be free from water and oil. Adequate separators and traps shall be provided and these shall be kept emptied of water and oil. Accumulations of water and oil shall be removed from the air receiver by regular purging. This clause shall also apply to air used for the dusting of cleaned surfaces. The pressure and the volume of compressed air supply for blast cleaning shall meet the work requirements.
- 5.6. No acid washes or other cleaning solutions or solvents shall be used on metal surfaces after they have been blasted. This includes inhibitive washes intended to prevent rusting.
- 5.7. Surface preparation shall result clean surface compatible to Sa 2 1/2 as per Swedish standard 055900.
- 5.8. Chipping, scraping and steel wire brushing using manual or power-driven tools cannot remove firmly adherent mill scale and shall only be used where blast cleaning is impractical, with the approval of Contractor inspector such preparation shall be in accordance with photographic illustrations in SIS 055900 grade C st 3 as specified.
- 5.9. Surface preparation operations shall be terminated early enough during the day to permit application of the adopted primer on the prepared surface before the sunsets and rust sets in. If, exceptionally, surface preparation is authorized at night, the prepared surface shall be wiped the next morning. They shall be freshened with light sand blasting before the primer is applied A 50 mm wide strip along the perimeter of the sand blasted surface shall be left unprimed unless adjacent surfaces have already been coated or if it is the last part of the surface to be prepared. Surface preparation, shall be extended at least 25 mm to the interior of coated adjacent surfaces. During surface preparation, care shall be taken not to damage or alter identification plates, machined surfaces and parts coated in the factory. These parts shall be properly protected
- 5.10. Any oil, grease dust or foreign body present on the surface after surface preparation operations shall be removed before painting. If rust reappears on the surface, shall be reblasted.
- 5.11. Remove slag, flux and spatter adhered to weld area and steel surfaces before surface preparation.

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6. Priming

- 6.1. Prepared surfaces should be primed generally within four hours or before visible reusing occurs. Cleaned surfaces shall never be left overnight prior to coating, in such case re-blasting or recleaning is necessary. In order to minimize contamination between successive coats of paint, over coating of the preceding coat shall be done as soon as it is permitted by the particular specification or paint manufacturer's procedure, and not delayed beyond the period specified. When delays are unavoidable, the painted surface shall be thoroughly cleaned and dried to the satisfaction of Contractor before over coating may take place.
- 6.2. Any primed surface which has been exposed for more than a few days will have become contaminated and should be cleaned down with fresh water and allowed to dry before over coating.
- 6.3. Primed and painted surfaces which have been exposed to marine conditions, including shipment overseas, will be contaminated with salt and should be lightly wire brushed, then washed with fresh water, before over coating.
- 6.4. Although zinc rich primers are very effective in preventing rusting, extended exposure develops a surface contaminated of zinc corrosion products which rich impair the adhesion of subsequent coats. Zinc rich primers, both organic and inorganic which have been exposed long enough to develop white surface staining, should be prepared for over coating by one of the following methods:
 - a) Light blast cleaning and dust removal.
 - b) Wire brushing, followed by water washing.
 - c) Scrubbing with fresh water, using bristle brushes

Note: To apply the Zinc Rich, paint manufacturer's comment should be considered

7. Painting

- 7.1. Hand mixing of paints shall only be permitted for containers up to 5 liters. All larger containers shall be mixed by mechanical agitators and brought to a uniform consistency. Where pigment separation readily occurs, provision shall be made for continuous mixing during application.
- 7.2. Two-pack paints shall be mixed in strict accordance with manufacturer's instructions. The pot life of such paints shall be specifically noted and any mixed paint, which has exceeded its pot life, shall be discarded irrespective of its apparent condition.

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- 7.3. Painting Subcontractor shall avoid contamination of any adjacent items of plant and equipment by paint over spray, drips or spillage, providing appropriate protection, where necessary. Stainless steel and high nickel- chromium alloy surfaces shall be protected against over spray or paint drips, particularly those containing metallic pigments. If any such contamination does occur, the paint shall be immediately and thoroughly removed by Painting Subcontractor.
- 7.4. Painting shall not take place under adverse weather conditions, in particular rain, fog, snow or when such conditions are likely to occur before the paint has become dry. Painting shall not take place in the following conditions:
- At temperatures below 5°C (41°F).
 - When the relative humidity is greater than 85%.
 - When the metal surface temperature is less than 3°C (5°F) above the ambient dew point.
 - If the light is less than 500 lux, coloring is stopped
- 7.5. The method of application shall be selected to ensure that the paint is applied in a uniform manner to the prescribed film thickness without any runs, sags or other blemishes. The pressure and volume of the compressed air used for spray application shall meet the work requirements and be free from oil and water contamination. Traps, separators and filters shall be emptied and cleaned regularly. Application of primers on wire brushed surfaces shall be by brush.
- 7.6. To ensure that the minimum thickness is achieved on all angles, corners, bulkheads, welds, etc., such edges shall be stripe painted separately before applying the main system. Holding primers shall only be permitted where they are obtained from the same manufacturing source as the main priming coats, and where the manufacturer is able to provide a full guarantee that satisfactory inter coat adhesion will occur.
- 7.7. Where further painting is to be carried out, zinc silicate primers shall be sealed with a tie coat as soon as practical after complete curing has taken place, to avoid salt or chemical contamination and to seal the porous nature of the primer. The tie coat shall be selected to ensure sound adhesion to the zinc silicate primer and be compatible with the finishing coat process. When over coating with aluminum silicone paint is designated, a tie coat is not necessary. Overspray and dry spray of inorganic zinc silicate primers shall be removed prior to application of subsequent tie coats or top coats.
- 7.8. In all instances where two or more coats of the same paint are specified, such coatings shall be of contrasting colors so that each stage of the work can be readily identified and

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film thickness determined accordingly. This also applies to the surface prepared and the color of the first primer coat.

- 7.9. Intervals between coats shall comply with manufacturer's recommendations and should generally be kept to the absolute minimum in order to prevent contamination between coats. Where contamination occurs between coats, this shall be completely removed (generally by washing with suitable detergent solution and rinsing with clean fresh water).
- 7.10. All points of damage to paint work incurred at any stage of the work, including shop welding operations, shall be re-prepared by blast cleaning to the original standard and recoating with the specified priming coat to restore the film thickness. In all such instances preparation shall extend 25 mm into the sound paint work and a further 25 mm of sound paint work shall be lightly blasted to etch the surface. Repainting shall then cover the prepared surface and the etched paint work. Where blast cleaning cannot be carried out surface preparation of points of damage by scraping and power wire brushing is acceptable provided specific approval is given by Contractor. In such instances, modification of the originally specified primer may be necessary to suit the changed method of surface protection.
- 7.11. Preparation of weld margins shall be preceded by the removal of masking tape where, fitted and shall involve the removal of all flux, welding spatter and other foreign matter as described in section 4 of SSPC-SP-COM. Where blast cleaning is used this may be by means of portable vacuum blast apparatus. Where power wire brushing is used excessive cleaning to the extent (this is liable to produce a polished surface) shall be avoided.
- 7.12. Where touching up prior to top coating of zinc-based primers involved, this shall be preceded by thorough cleaning with solvent or an emulsion type cleaner to remove all oil and grease. This shall be followed by thoroughly hosing down with clean potable water which in the case of surfaces that have not been tie coated shall be carried out in conjunction with manual scrubbing with stiff brushes in order to remove all surface dirt and other contaminants, zinc corrosion products (white rust), etc.
- 7.13. Where touch up of a shop applied inorganic zinc silicate primer is involved the type of paint employed for touch up shall be two pack zinc rich polyamide cured epoxy primer for temperatures up to 120°C and ethyl silicate based inorganic zinc primer for temperatures in excess of 120°C.

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- 7.14. Particular attention shall be paid to the manufacturer's instructions on storage, mixing thinning and pot life, the paint shall only be applied in the manner detailed by the manufacturer, e.g. brush, roller, conventional or airless spray and shall be applied under the manufacturer's followed.

8. Inspection

- 8.1. Painting Subcontractor shall advise the Contractor before commencing specific paint applications.
- 8.2. Contractor shall have the right to inspect the paint work at all stages and to reject any and all tools, instruments, materials, staging or equipment or work, which do not conform to the specification.
- 8.3. In addition, the paint manufacturer shall be permitted all reasonable access to monitor surface preparation and application at his discretion.
- 8.4. Inspection by the paint manufacturer or an independent inspection service shall not relieve the Contractor of responsibility for ensuring that the work is carried out in accordance with the specification.
- 8.5. Before commencement of shop preparation and painting, a meeting between the coating manufacturer, Painting Subcontractor and Contractor's representative shall be convened, to establish and agree, when necessary, visible blast standards, blast profile, satisfactory application of the coatings and agreement and calibration of inspection equipment.
- 8.6. The acceptance or rejection of preparatory work and application is the sole right of Contractor or his authorized representative.
- 8.7. Each coat shall be inspected prior to application of the next coat. Areas found to contain runs, overspray, roughness, Cracks or other signs of improper application, shall be repaired or recoated.
- 8.8. Each paint coat shall be free from defects and damage. Finished paint shall have the correct shade, degree of gloss and evenness and be free from tackiness after drying/ curing and from cracks, holidays, runs, sags, wrinkles, patchiness, brush or roller marks or other defects that may be deleterious to the quality of the coating.
- 8.9. Painting material shall be spot witnessed by TPI and Owner/MC and relevant certificates shall be reviewed by TPI and Owner/MC.

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- 8.10. Sample of paint inspection forms is attached to this specification. Equivalent forms may be used.

9. Quality Control and Testing

- 9.1. Painting Subcontractor shall submit his proposed quality control and testing procedures to Contractor for approval covering all phases of surface preparation and paint application, as may be carried out in workshop and/or field respectively and associated procedures which define how controls are published and maintained. The procedures shall form part of the "Quality Assurance Manual".
- 9.2. The quality control procedures shall be in the form of an inspection and test plan which references all test procedures, witness points, acceptance and rejection criteria, and frequency of testing and how control of quality is measured and maintained.
- 9.3. Where appropriate, results shall be plotted on statistical control charts showing upper and lower limits of acceptance.
- 9.4. Manufacturers of all materials shall supply test certificates of all tests performed and a certificate of compliance stating that the material meets the requirements of the applicable specifications.
- 9.5. Tests shall ensure that the quality of the surface coating is in accordance with that specified and shall include, but shall not be limited to thickness testing, adhesion testing holiday testing, abrasion testing, solvent testing, etc.
- 9.6. Requested tests should be carried out in accordance with ASTM standards as specified in SSPC (good painting practice) volume 1, Fourth edition (2011).

9.7. Humidity Check

The air's relative humidity shall be measured with a psychrometer. Surface preparation and/or paint application operations shall not commence until relative humidity is less than the limits set in paragraphs 13.3. Relative humidity shall be measured and recorded before commencement of work. Moisture on the surface being prepared or painted shall be measured every day with a surface moisture indicator before beginning surface preparation operations or applying a coat of paint.

9.8. Roughness Check

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The surface roughness of steel work shall be in the range of 50 to 75 micron for painting and coating. Total angular roughness Rt of the surface shall be measured after preparation and recorded or an impression made with:

Rugotest LCA-CEA N° 3-Ba 11 degree or equivalent. Tested "Press-O-Film" pads or equivalent.

Electronic roughness tester (Perthometer type or equivalent).

A minimum of one measurement or impression shall be made per square meter or prepared surface.

9.9. Thickness Check

Dry paint thickness shall be measured with a magnetic probe, such as Micro test or Elcometer or equivalent. It is imperative that the magnetic probe be calibrated for each thickness of coating steel support with a non-magnetic block whose thickness is as close as possible to the coating being checked.

Each coat's thickness and total thickness shall be checked. Make five (5) separate spot measurements spaced evenly over each section of the structure 10 square meters in area (divide the entire surface in 10 square meter areas).

On each spot, make 3 readings by moving the probe a short distance for each new gage reading.

Discard any unusually high or low gage reading that cannot be repeated consistently. Take the average of the three (3) gage readings as the spot measurement.

For the total system, the minimal allowable thickness shall be at least 80% of the specified thickness, the maximum thickness shall not exceed 150% of the specified thickness unless the paint remained soft or shows mud crack or orange skin or wrinkling pinhole and inter coat delamination which cause rejection of the paint.

Surfaces with coat thickness out of tolerance shall:

- ❖ Be sand blasted if too thick and repainted.
- ❖ Receive an additional paint coat to obtain specified thickness.

In order to achieve the specified dry film thickness, frequent checks of wet film thickness shall be carried out during the paint application with film thickness gauges such as the elcometer wheel or comb type.

In the event of the film thickness not meeting the specified requirements, additional coat(s) of the paint concerned shall be applied in compliance with the specified requirements.

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The degree of curing of epoxy resin-based paint systems shall be checked by the determination of the resistance of the coating to methyl ethyl ketone (MEK). After rubbing the coating for one minute with a rag soaked in MEK, the coating shall not be softened and shall resist scraping with a fingernail.

9.10. Inorganic Zinc Silicate

Before over coating it shall be checked, with the solvent recommended by the paint manufacturer, that the hydrolysis is complete by soaking the surface with a rag impregnated with the recommended solvent.

Thickness checking shall be made after the application of the zinc silicate coat Thickness shall be in the range 50 to 90 microns.

For each successive coat, the minimal allowable thickness shall be at least 80% of the specified thickness; the maximum thickness shall not exceed 120% of the specified thickness.

9.11. Adherence Check

Paint adherence shall be checked as per ASTM method D 3359. Method A{Xcut} shall be used for paint film thicker than 125 microns, method 8 (lattice pattern) shall be used for paint films up to 125 microns.

Test method A: An X-cut is made in the film to the substrate; pressure-sensitive tape is applied over the cut and then removed. Acceptable rating is 5A (No peeling or removal) or 4A (Trace peeling or removal along incisions or at their intersections).

Test method B: A lattice pattern with either six or eleven cuts in each direction (cross is made in the film to the substrate, pressure-sensitive tape is applied over the lattice and then removed, and adhesion is evaluated by comparison with descriptions and illustrations. Spacing between the cut lines shall be 1mm for film thickness up to 50 microns and 2mm for film thickness from 50 to 125 microns. Acceptable results are rate 5B (the edges of the cuts are completely smooth none of the squares of the lattice is detached) or 4B (Small flakes of the coating are detached at intersections, less than 5% of the area is affected).

If the test is unsatisfactory, the entire surface shall be blast cleaned and repainted. Recoating after this destructive test is at the Applicator's expense.

9.12. Extended Inspection

Any extension of inspection time due to the above cited reasons and repairs shall not be billed as additional costs.

9.13. Inspection Results

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All quality control results shall be written up into reports. All reports shall be submitted to the Contractor during provisional acceptance of the paint.

10. Repair of Defects or Damage

- 10.1. Any defect or damage that may occur shall be repaired before the application of further coats and where necessary the particular surface(s) made paint free. Remedial work shall be carried out prior to packing for shipment.
- 10.2. Areas where due to inadequately prepared surfaces, solvent entrapment, excessive application of prime and/or finish coats, etc., the tested paint system consistently fails to meet the required test standards for adhesion/ cohesion, the contractor shall remove the affected area by blast cleaning and shall reapply the full paint system to meet the required standard. Areas which are to be over coated shall be thoroughly cleaned free from grease oil and, other foreign matter and shall be dry. The surfaces shall then be prepared to the standard as originally specified (for large damaged areas), or prepared to the highest possible standard using mechanically operated tools (for small local damaged spots up to 1 m²).
- 10.3. Subsequently additional compatible coats shall be applied, until they meet the specification. These additional coats shall blend in with the final coating on adjoining areas.
- 10.4. During the agreed maintenance period, any observed defective coatings, rusted areas or failures developing in the paint systems, shall be repaired to the satisfaction of the EPC contractor inspector.
- 10.5. When factory painted or painted surfaces have been marked in handling, the damaged paint and non-adherent paint shall be removed and the surface thoroughly cleaned. The edges on the damaged area shall be smoothed. Surface preparation shall extend approximately 5 cm into the sound coat. The primer and finishing coats shall be applied in accordance with paragraph 6 & 7.

Note:

If sand blasting is not applicable for any reason to be agreed upon by Contractor, zinc silicate primer shall not be used for touch up repairs, Zinc rich 2 components epoxy primer or an approved epoxy primer formulated for application on hand or mechanically brushed surfaces should be used instead. The touch up primer shall be compatible with the paint system.

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11. Painting Report

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Paint System Determination

Item No.	Material	Insulation	Fireproofed	Operating Temperature (°C)	Paint System
30-AE-9001	Carbon Steel	No	No	119.2	B
30-AE-9002	Stainless Steel	No	No	72.23	-
<u>30-AE-9002 (Steam Coil)</u>	<u>Carbon Steel</u>	<u>No</u>	<u>No</u>	<u>230</u>	<u>B</u>
30-AE-9003	Stainless Steel	No	No	74.26	-
<u>30-AE-9003 (Steam Coil)</u>	<u>Carbon Steel</u>	<u>No</u>	<u>No</u>	<u>230</u>	B
30-AE-9004	Stainless Steel	No	No	116.9	-
Steel Structures (non-fireproofed)	Carbon Steel	No	No	Ambient	C
Steel Structures (fireproofed)	Carbon Steel	No	Yes	Ambient	D

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* Plenum, Fan ring, fan guard and grating shall be Hot - dip galvanized.

* Side frame shall be Hot - dip galvanized.

[Deleted]

Paint system B:

Item: 30-AE-9001 Header Boxes, <u>30-AE-9002 (Steam Coil)</u> , <u>30-AE-9003 (Steam Coil)</u>			Operating Temperature: <u>Over to 90 °C</u>
Minimum surface preparation			Sa 2 1/2
Paint and DFT (microns)	Primer	Inorganic zinc silicate (IPS-M-TP-210) / ZINC DUST min. 74% IN DRY FILM PAINT	75
	Intermediate	Silicone and acrylic resin (IPS-M-TP-168)	25
	Finishing	Silicone and acrylic resin (IPS-M-TP-168)	25
Total DFT (microns)			
Finishing RAL	Header Boxes and <u>Steam Coils</u>		Aluminum-RAL 9006

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Paint system C:

Steel Structure (walkways, ladders, horizontal poles top rails, mid rails, safety gages)		Operating Temperature:	Up to 120 °C
Minimum surface preparation			Sa 2 1/2
Paint and DFT (microns)	Primer	Zinc Rich Epoxy (IPS-M-TP-205)/ ZINC DUST min. 77% IN DRY FILM PAINT	75
	Intermediate	High build epoxy polyamide	120
	Finishing	Aliphatic polyurethane resin (IPS-M-TP-235)	40
Total DFT (microns)			240
Finishing RAL	Main steel structures and pipe racks		Yellow RAL 1007
	Handrail (excluding toe plate and midrail), Stairway (excluding toe plate and midrail), Upper ladders and round platforms		Black RAL 9005
	Handrail (toe plate and midrail), Stairway (toe plate and midrail), Safety gates, Platforms lower edges and toe plates, midrails and safety platforms		White RAL 9010
	Shelter's Roof		Traffic orange 2009
	Shelter's Wall		Cream 9001

Paint system D:

Item: Fire proofed steel structures		Operating Temperature:	AMB
Minimum surface preparation			Sa2
Paint and DFT (microns)	Primer	H.B Epoxy phenolic	125
	Intermediate		
	Finishing		
Total DFT (microns)			125
Finishing RAL			

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	Quality Control					Report No.:
	Painting Report					Date Of Exam.:
<p>PROCEDURE No. : DOCUMENT NO. : SAND BLAST : PRIMER : INTERMEDIATE : FINISHING : FINISH COLOR : Temperature :</p>						
<p>THK : THK : THK : Humidity : Dew point temp :</p>						
TOTAL						
ITEM NO:						
SR. No.	Description	THK(mic)	Result	Date	TIME	Curing & adhesion
1	Sand Blast					
2	Primer					
3	Intermediate					
4	Finish					
Note:						
Inspector	A.A.C Inspector	CLIENT		NARGAN		
NAME & SIGNATURE						
Qualification						
DATE						