

## **ANNEXURE: C**

### **SPECIFICATION FOR “SPRAY PAINT FUME EXTRACTION SYSTEM”:**

**PAINT BOOTH TYPE:** DRY TYPE SIDE DRAUGHT SPRAY PAINT BOOTH.

### **APPLICATION:**

Paint Fume extraction system for spray painting of Boiler Auxiliary Components of different sizes.

### **JOB SIZE & PRODUCTIVITY:**

Overall Dimension of Booth	: 23.0 M (L) x 11.0 M (W) x 8.5 M (H).
Working Dimension of Booth	: 21.0 M (L) x 7.5 M (W) x 7.0 M (H)
Max weight of component	: 80 MT
No of Working hr's / day	: 16 Hrs
Type of Paint	: Red Oxide and emulsion.
No. of Coat	: 1 Coat of Primer & 1 Coat of Finish

### **SPRAY PAINT BOOTH SPECIFICATION:**

Type of Paint Booth	: DRY TYPE SIDE DRAUGHT Paint Booth.
Paint Booth fabricated by	: 18/20G Galvanized Sheet with M.S. Support.
Working Dimension of Booth	: 8.4 M (L) x 7.0 M (W) x 7.0 M (H)
Overall Dimension of Booth	: 9.5 M (L) x 11.0 M (W) x 7.5 M (H).
Size of (Component) Entry/Exit Door	: 6.0 M (H) x 5.5 M (W).

### **SPRAY PAINT FUME EXTRACTION SYSTEM SPECIFICATION:**

Painting will be done manually using Airless Guns/ Air mix Guns.

The 20m job will be moved inside the booth and painted.

After painting fully the job will exit through the entry door of the booth using Trolley / Skid.

### **DESIGN CRITERIA:**

Design to take care of the general technical requirements, operator's comfort and statutory requirements.

Volumetric airflow rate to keep the concentration of vapours and mists in the exhaust to be ensured.

Stream of the ventilation system below the 25 percent of the LEL (Lower Explosive Limit) to be ensured.

There should not be re-circulation of exhaust air while painting.

The following standards and also statutorily required standards to be followed for design and installation of paint booth.

- **ASHRAE** for Air Circulation.
- **OSHA** for occupational Safety & Health Administration.
- **NFPA33** National Fire Protection Association.
- **NFPA70** or **NEC** National Electrical Code.

## **EXHAUST FAN TECHNICAL DATA:**

Drive	: V-Belt Driven
Static Pressure	: 5" Water Gauge
Recommended Motor HP	: 15 HP x 4No's (minimum)

## **DUCTING:**

Should be fabricated from (minimum) 1.2 mm GI.

## **CHIMNEY:**

Up to 1 meter above the room with flange and bolted construction with required supports.

## **ELECTRICAL:**

The following TEFC squirrel cage induction motors with controls suitable to operate on 415 + 6 % volts, 3 phases, 50 + 3 % HZ to be provided.

### **Electrical control panel:**

(Relay logic/ PLC type combine control panel - non draw out & non compartmental with IP-42 protection)

Control panel cum operating desk should be in the form of common enclosed, fabricated from mild steel sheet, consisting all starters including all protecting devices, pushbuttons indicating lamps etc. to be provided with moisture and vermin proof non-draw out type panel with hinged doors with gasket.

Suitable interlocks for the various motors taking into consideration the functional aspects of each motor to be provided.

The wiring inside the control panel should form part of the supply for the basic machine.

The wiring from the control panel to the machine to be included in the scope of supply. Control panel should be suitably sealed to ensure trouble free operations in dusty atmosphere.

## **DRAWINGS:**

Following drawings to be submitted and vetted from BHEL:

1. The Spray Paint Booth Fume extraction system general arrangement drawing
2. Electrical arrangement drawing and
3. Foundation drawing.

## **BHEL TO FURNISH:**

1. Civil work for foundations.
2. Electrical wiring from main electrical source of supply at site to the control panel.
3. Total Electrical Earthing & Earthing Material.
4. Fabrication tools, like welding m/c Gas cutting set, Grinder etc. at site during erection.
5. Field touch-up painting as required.
6. Erecting Manpower for Insulation work at site i.e. Glass wool filling at joint of panel.
7. For material unloading & loading for erection, crane facility to be provided at site.

## **SCOPE OF SUPPLY:**

A) One: - **DRY TYPE SIDE DRAUGHT (Pit Less ) SPRAY PAINT BOOTH** generally conforming to technical specifications as per standard.

- Room Fabricated with GI18/20 Sheet with M.S. Support Structure.(By BHEL)
  - Glass fiber Paint arrester filter at one side .
  - Exhaust chamber Fabricated with GI 18/20 Sheet with M.S. Support Structure.
  - 15HP x 4No's Exhaust Blower & support structure.
  - Exhaust Duct up to 1m above the Room.
- Relay logic operated combine control panel (non compartmental & non draw out type with IP-42 protections) .

B) Supply of Exhaust Chamber fabricated by GI 18/20 with M.S. Support structure for Paint Booth

D) Supply of Paint Arrest Filters & its casing & Support .

E) Exhaust System (Exhaust Blower, Exhaust Duct and chimney ).

F) Eliminator plate Row : 3 in each chamber

G) Washing chamber : Vendor to specify

### **ERECTION & COMMISSIONING:**

By the supplier.

### **Training:**

Supplier to give training to BHEL personals for Operation & maintenance of the system.