REVISED NATIONAL TB CONTROL PROGRAMME

Standard Operating Procedures for Maintenance & Servicing of Air Handling Unit

CENTRAL TB DIVISION

MINISTRY OF HEALTH & FAMILY WELFARE, GOI

1. Introduction

Air handling system is part of TB containment facility and offers protection for personnel experiments (product) and environment by ensuring directional air flow and maintaining the laboratory under constant negative pressure. The flow directs clean air into the Processing Laboratory while displacing the contaminated room air through HEPA exhaust filters into the atmosphere to be discharged above height of the roof.

2. Purpose & Scope

This SOP describes the use and maintenance of the air handling system in TB C&DST Lab with TB Containment facility.

3. Procedures for Maintenance & Servicing

(i) Daily maintenance (by the laboratory)

(a.) Log book should be maintained for temperature humidity and smoke test.

(b.) Check the negative pressure of lab. Appropriate negative differential pressures (for e.g. the negative pressure room where bio safety cabinets are placed shall be -12.5 Pa (-0.05" WC) relative to the anteroom, anteroom shall be -12.5 Pa (-0.05" WC) relative to change room if planned, and the change room shall be -12.5Pa (-0.05" WC) relative to the outside atmospheric pressure. Record negative pressure daily, looking for deviations. It is recommended that deviations greater than 10% from the reading preceding it be considered an alert limit.

(c.) After completion of work in TB containment facility, switch off the AHU.

(ii) Fortnightly maintenance

(a.) Check pre-filters of AHU unit. Clean with water and dry it before placing back into the AHU.

(b.) Clean the AHU and remove if any dust is present.

(c.) Check out LED indicator status for AHU control panel.

(d.) Run stand by generator.

(e.) Check functioning of Emergency UPS for emergency exhaust motor.

(f.) Check the incoming supply voltage in the display of AHU.

(iii) Annual maintenance of the AHU:

Annual maintenance of AHU will be done by AMC agency. Annual validation will be done by third party (identified accredited agency).

(a.) Air inflow velocity and outflow velocity test across all inlets and outlets to measure/derive air change rate per hour (minimum 6-12 ACH)

(b.) Smoke pattern test for directional airflow should be performed during validation.

(c.) Temperature shall be maintained at 22°C±2 and humidity level should be maintained at 60±10%

(d.) Pressure monitoring device (Analog and Digital); differential pressure check (at least -0.05 in WG (-12.5 Pa) should be maintained from clean areas to more contaminated areas). In no case, should the differential be less than -0.03 in. WG (-7.6 Pa) when the door is closed between TB containment facility and Ante Room.

(e.) HEPA Filter (in BIBO) integrity test based on EN1822 at MPPS (Maximum Penetrating Particle Size) through particle count test and PAO test and manufacturer's certification

(f.) Electrical current readings, in amperes on full load work, average running, and on starting, Testing of power cable, earthing, AHU control panel, MCCB panel and LT panels.
(g.) Wet servicing of DX unit
(h.) Servicing of the motors (supply, exhaust, BSC exhaust duct) along with **belt tightening/ replacement,** if required**.**

Other associated system in TB containment facility which shall also be maintained by the AMC provider:

(a.) EPABX System
(b.) Access Control System
(c.) CCTV System
(d.) UPS Back up system
(e.) Emergency Shower and eye wash station
(f.) Emergency exit
(g.) Pass box system
(h.) Containment room -the walls, floors, ceilings, penetrations, and other containment barrier features have adequate integrity (using sealing agent, etc.).
(i.) Servicing of all existing doors and testing of alarm system for emergency door.
(j.) UV Lamp to be cleaned and replaced if required.

End user shall check once service and calibration/Validation activities are completed.

4. References

World Health Organization. Laboratory Biosafety manual. Third edition. 2004.

Annexure: AIR HANDLING UNIT MAINTENANCE LOG SHEET MONTH……

Date	Cooling system $25\pm1^{0}C$	Negative Pressure (Range 15-25 psi) ±1	Smoke Test	Signature	Remarks
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					