Title: Cleaning of Pre, Fine and Riser Filters of AHU/DHU/FCU/FDV/EXU/RLAF/LAF and Dynamic Pass Box Units

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1.0 OBJECTIVE:

To lay down a Procedure for Cleaning of Pre, Fine and Riser Filters of AHU/DHU/FCU/EXU and Dynamic Pass Box Units.

2.0 SCOPE:

This SOP is applicable for Cleaning of Pre, Fine, Fresh Air, Exhaust Air and Riser Filters of AHU/DHU/FCU/EXU and Dynamic Pass Box Units.

3.0 RESPONSIBILITY:

Officer / Executive – Engineering

4.0 ACCOUNTABILITY:

Head – Engineering

5.0 ABBREVIATIONS:

AHU	Air Handling Unit
DHU	Dehumidifier
ER	Engineering
EXU	Exhaust Unit
FCU	Fan Coil Unit
Ltd.	Limited
Pvt.	Private
QA	Quality Assurance

6.0 PROCEDURE:

6.1 All Pre, Fine & Riser Filters shall be cleaned.

6.2 All Pre, Fine, fresh air, exhaust air & Riser Filters of Shall be cleaned in designated Filter Cleaning Area.

6.3 Concern department shall raise the intimation as per annexure **Annexure-III** to Engineering department for riser filter cleaning after every product change over and to stop AHU/DHU for area cleaning purpose.

6.4 Concern department personnel shall inform verbally/IOM to engineering HVAC person to stop AHU/DHU.

6.5 HVAC person shall stop the respective AHU/DHU and record the observation in respective operation log.

6.6 Production/Engineering person open the return riser grill with the help of required tools and removed the dirty riser filters from the filter plenum.

6.7 Production/Engineering person put the dirty filters in poly bag with un-cleaned label and go to filter area for handover of un-cleaned filters to HVAC person or transferred to un-cleaned filter area for cleaning purpose.

6.8 Engineering person shall hand over clean return riser filters in double poly bag have in clean label to production/Engineering person.

6.9 After reaching in the change room one poly bag to be removed and filter will be in single poly bag.

6.10 After area cleaning production person fit the clean return riser filters in filter plenum and close the clean riser filter grills with the help of required tools and concerned department personnel shall inform telephonically/IOM to engineering HVAC person to start AHU/DHU after area cleaning.

6.11 Before start of cleaning of filters on the equipment, for the first time in the day make sure that equipment is clean and if required re-clean the same.

6.12 Remove the poly bag from un-cleaned filter and pass the filter through pass box/hatch window to filter cleaning area.

6.13 Inspect the filters for any physical damage and proper sealing. If found any damage, then affix the rejected Label and discard the filter and record the log in remark column.

6.14 Initially, clean the filter by raw water at a pressure 0.5-2.5 kg/cm^2.

6.15 Then clean the filter with compressed air at a pressure 0.5-2.5 kg/cm.

6.16 Finally Rinse the filter with Purified water.

6.17 Semi Dry the filter with compressed air pressure 0.5-2.5 kg/cm^2.

6.18 Again inspect the filter visually after cleaning for any deposited powder/dust. If found any then re-clean the filter.

6.19 After this place the filter in filter drying room through pass box/hatch window for drying.

6.20 Dry the filters for maximum 04 hrs. at 35°C- 60°C temperature in drying room.

6.21 Inspect the filter physically for properly drying.

6.22 Details of filter cleaning, Drying shall be recorded the in **"Filter Cleaning Record"** as shown in **Annexure-I.**

6.23 Detail of temperature monitoring of filter drying area shall be recorded as per **Annexure – IV**.

6.24 Keep the dried Filters in polythene bag, close the poly bag with Cable tie and affix the Status Label as cleaned filter as per **Annexure-II "Status Label".**

6.25 Take out dried Filters through the pass box/ hatch window to cleaned filter storage Area.

6.26 After completion of filter cleaning activity for the day shift clean the filter cleaning station as mention below:

6.26.1 Clean the filter cleaning station with high pressure water to remove any adhered particles form the surfaces.

6.26.2 Drain the water completely from the equipment / connected pipes, if required suitable mops may be used to remove the excess water.

6.26.3 Clean the drain point of the room thoroughly to remove accumulated dirt & dust if any.

6.26.4 The above procedure of filter cleaning and area cleaning shall be displayed in Hindi Local Language on a board for the clarity of operating team in the area as per **Annexure –VI "Instructions for Filters Cleaning and Filter Cleaning Station".**

NOTE: Only riser filter shall be cleaned during product batch changeover.

6.27 Frequency:

6.27.1 Every Product Changeover for Riser filter

6.27.2 After every ten batches (In case of continuous batches of same product) for Riser filter.

6.27.3 15 days ±3 days (In case of no Production Plan) for Riser filter.

6.27.4 Pre filter shall be cleaned with a frequency of 15 days ±3 days or whenever D.P Limit exceeds after getting consult from user department.

6.27.5 Fine Filter shall be cleaned monthly ± 3 days or whenever D.P Limit exceeds.

6.28 If Pre- filter DP limit exceed & fine filter DP limit found within limit then in that case only Pre filter is cleaned.

6.29 Filter cleaning station shall be cleaned daily after end of shift.

7.0 ANNEXURES:

ANNEXURE No.	TITLE OF ANNEXURE	FORMAT No.
Annexure-I	Filter Cleaning Record	
Annexure-II	Status Label	
Annexure-III	Riser Filter Cleaning Intimation Slip	
Annexure-IV	Log for temperature monitoring in filter drying room	
Annexure-V	Filter Cleaning Schedule	
Annexure- VI	Instruction for Filter Cleaning and Filter cleaning Station	
Annexure-VII	Cleaning Record of Filter Cleaning Station	

ENCLOSURES: SOP Training Record

8.0 DISTRIBUTION:

- Controlled Copy No. 01 — Quality Assurance
- Controlled Copy No. 02 — Engineering
- Master Copy — Quality Assurance

9.0 REFERENCES:

Not Applicable.

10.0 REVISION HISTORY:

CHANGE HISTORY LOG

Revision No.	Change Control No.	Details of Changes	Reason for Change	Effective Date	Updated By

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ANNEXURE – I
FILTER CLEANING RECORD

BLOCK:
Linked area: -
Equipment ID No.

Frequency: Every Product Change over & after every Ten batches **(**In case of continuous batches of same product)
15 ±3 days (In case of no Production Plan)

S.No	Date	Size of Filter in Micron (µ)	Cleaning Time		Drying Time		Filter Condition OK / NOT OK	Done By Sign. & Date	Reviewed By (Officer/Executive-Engg.) Sign. & Date	Remark
			From	To	From	To				

ANNEXURE – II

STATUS LABEL
FILTER ID:
SECTION :
STATUS OF FILTER:
REMARKS:
CHECKED BY : **(SIGN & DATE)**

ANNEXURE – III
RISER FILTER CLEANING INTIMATION SLIP

Intimation Date & Time			**Intimation Raised By :**		
Job description	**Return riser filter cleaning**		**Location /Room No.:**		
Filter removed by	**Sign**		**Date**	**Time**	
Clean filter fitted by	**Sign**		**Date**	**Time**	
Total no. of filters			**Activity Completion Status (Ok/Not ok)**		
Activity Review By		**Sign & Date**		**Time:**	

ANNEXURE – IV
LOG FOR TEMPERATURE MONOTORING OF FILTER DRYING ROOM

AREA: FILTER DRYING ROOM

FREQUENCY: EVERY TWO HOUR (After Achieving Temperature)

LOCATION: SERVICE FLOOR

MONTH:

S.No.	Date	Time	Temp. (35°C-60°C) during filter drying	Done By	Remarks

Review By (Engg)
Sign & Date

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ANNEXURE – V
FILTER CLEANING SCHDULE

Year:- Block:

Month:- ⇨			**January**				**February**				**March**				**April**				**May**				**June**			
S.No.	**Equip.ID**	**Catering Area**	**15th**	**Done Date**	**30th**	**Done Date**	**15th**	**Done Date**	**28th**	**Done Date**	**15th**	**Done Date**	**30th**	**Done Date**	**15th**	**Done Date**	**30th**	**Done Date**	**15th**	**Done Date**	**30th**	**Done Date**	**15th**	**Done Date**	**30th**	**Done Date**

Month:- ⇨			**July**				**August**				**September**				**October**				**November**				**December**			
S.No.	**Equip.ID**	**Catering Area**	**15th**	**Done Date**	**30th**	**Done Date**	**15th**	**Done Date**	**30th**	**Done Date**	**15th**	**Done Date**	**30th**	**Done Date**	**15th**	**Done Date**	**30th**	**Done Date**	**15th**	**Done Date**	**30th**	**Done Date**	**15th**	**Done Date**	**30th**	**Done Date**

Note: PF- Pre filter, FF- Fine Filter, RF- Raiser Filter, FA- Fresh Air Filter, EF – Exhaust Filter

	Prepared By **Officer / Executive Engineering**	**Checked By** **Head Engineering**	**Checked By** **Head Production**	**Authorized By** **Head QA**
Sign				
Date				
Name				

ANNEXURE – VI
INSTRUCTION FOR FILTERS CLEANING AND FILTER CLEANING STATION

FOR FILTER CLEANING:

1. Initially start the respective AHU of filter cleaning room and drying room and ensure that the desired temperature (35 to 60 °C) is maintained in filter drying room.
2. Check and ensure that filter cleaning station is properly cleaned.
3. Inspect the filter for any physical damage and proper sealing before cleaning.
4. Place the un- cleaned filter in reverse position to its operation and clean with raw water at a pressure 0.5 to 2.5 kg/cm^2.
5. After raw water cleaning, filter shall be cleaned with compressed air at a pressure of 0.5 to 2.5 kg/cm^2.
6. Finally rinse the filter with purified water and semi dry the filter with compressed air at pressure of 0.5 to 2.5 kg/cm^2.
7. After completion of filter cleaning activity or before sending to filter drying room, again inspect the filter visually for any deposited dirt/dust or any damage in filter media.
8. Transfer the filter's to filter drying room through pass box and dry the filter for maximum four hours at a temperature of 35 to 60° C.
9. Finally inspect the filter physically for proper drying and transfer the dried filter to dedicated cleaned filter storage area after packing the same in new poly bag with cleaned status label on it.

FOR FILTER CLEANING STATION:

1. After completion of filter cleaning activity clean the filter cleaning station with high pressure water to remove any adhered particles form the surfaces.
2. Drain the water completely from the equipment / connected pipes, if required suitable mops may be used to remove the excess water.
3. Clean the drain point of the room thoroughly to remove accumulated dirt & dust if any.

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ANNEXURE – VII
CLEANING RECORD OF FILTER CLEANING STATION

Frequency: Daily (End of Shift)

S.No	Date	Cleaning Start time	Cleaning Stop Time	Done By Sign & Date	Checked By Sign & Date	Remarks