



PHARMA DEVILS

ENGINEERING DEPARTMENT

STANDARD OPERATING PROCEDURE

Department: Engineering	SOP No.:
Title: Calculation of Air changes	Effective Date:
Supersedes: Nil	Review Date:
Issue Date:	Page No.:

1.0 REVISION HISTORY:

Rev. No.	Details of changes	Reason for change
00	NIL	Nil

2.0 OBJECTIVE:

2.1 The Objective of this SOP is to describe the procedure for Calculation of air changes.

3.0 SCOPE:

3.1 This SOP is to describe the procedure for Calculation of air changes.

4.0 RESPONSIBILITY:

4.1 The Maintenance Engineer shall be:

4.1.1 Responsible for Calculation of number in air changes.

4.1.2 Responsible for corrective action in case of deviation.

5.0 ACCOUNTABILITY:

Head –Engineering Services

6.0 PROCEDURE:

6.1 Switch 'On' the AHU.

6.2 Measure the air velocity of at each grill provided in cubicle.

6.3 Calculate the grill area.

6.4 Calculate the actual discharge of airflow in cubicle.

6.4.1 Air flow discharge = Velocity of air at grill (fpm) × Grill area (ft²) × No. Of grilles.

6.5 Calculate the volume of the cubicle of which air changes to be calculated.

6.6 Calculate the no. of air changes per hour as follows.

6.6.1 No. of Air Changes Per Hour = $\frac{\text{Air flow discharge in cubicle} \times 60}{\text{cubicle volume}}$



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6.6 Switch 'Off' the AHU, if further operation is not required.

6.6.1 Switch of the anemometer and AHU if the operation of AHU is not required.

NOTE:

For Grade-D areas, no. Of air changes per hour should not be less than 30.

For Grade-C areas, no. Of air changes per hour should not be less than 40

For Grade-B areas, no. Of air changes per hour should not be less than 60.

If the air changes in the area are not within the limit, inform concerned department and Quality Assurance (QA) as per SOP No.

Engineering and QA staff should investigate the reason for the deviation, as follows.

- Check the belt condition visually for any damage. Replace it, if required.
- Check the alignment of blower and motor. Rectify it, if required.
- Check the pressure difference across filter bank.
- Check the setting of volume control damper. Rectify it, if required.

After rectification inform concerned department.

7.0 ANNEXURES:

NIL

8.0 References (S)

NIL

9.0 Glossary

SOP : Standard Operating procedure

No : Number