DYNACOM
Designing Clean Air Solutions

Application Review: Ambient Air Filtration

What is ambient air filtration?

Ambient or unducted air filtration systems clean the air in a general space rather than at a specific source. For these types of systems, the objective is to circulate the air throughout the space to achieve a predictable overall air particulate reduction.

Source capture systems are typically the recommended method if possible because they capture the smoke, mist or dust at the source prior to it passing through the operators breathing zone. However, when this is not possible or feasible, ambient systems can be an effective approach to filter the air.

An ambient system can be the best approach in applications where:

1. Work is done on large parts and the worker has no fixed operating position, making source capture difficult to impossible.
2. Workers are unable or not likely to use hooded systems that may be cumbersome or get in the way of them performing their job.
3. There are a large number of confined sources in a small area making an ambient system more economical.
4. Overhead cranes and other obstructions make a source capture system with duct work impractical.
5. Floor layouts change regularly making an ambient system more flexible.

Design Considerations:

1. Space size and shape (total volume of the space).
2. Contaminant generation rate and desired steady-state contaminant levels.
3. Required number of air changes per hour.
4. Existing ventilation and HVAC system air volumes and airflow patterns.
5. Airflow pattern continuity (seasonal variations).
6. Appropriate filtration technology to match room layout and type of contaminant.

16711 Hilltop Park Place
Chagrin Falls, OH 44023
(P) 440.543.1900 (F) 440.543.9390
www.dynacomonline.com

DYNACOM

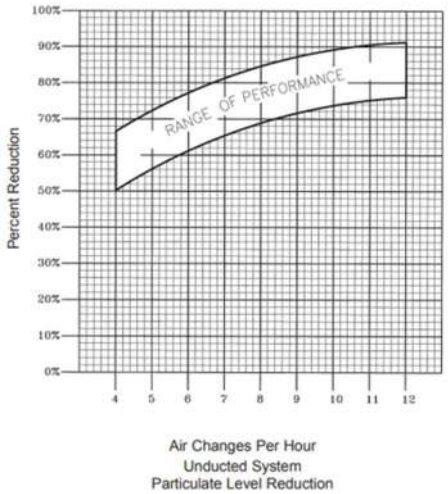
Designing Clean Air Solutions

Air Change Guidelines:

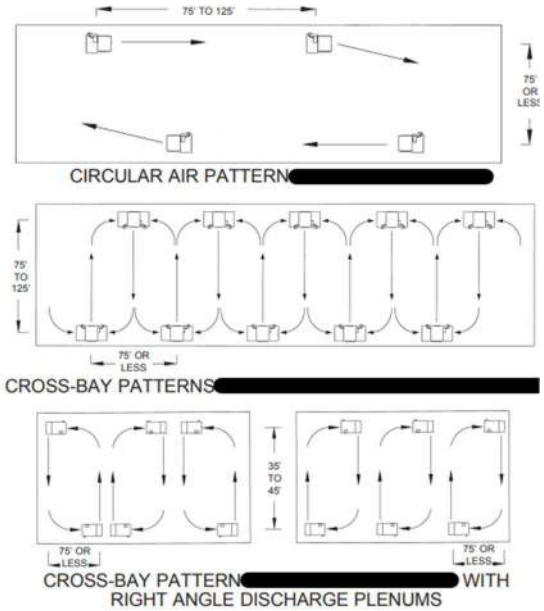
1. Determine the air changes per hour requirement from the following table and chart.
2. Determine the total air volume (CFM) = L x W x H x AC (air changes)/60 minutes.

AIR CHANGE GUIDELINES

Air Changes Per Hour	Contaminant Generation
4 - 6	Light
6 - 8	Medium
8 - 12	Heavy



TYPICAL UNIT PLACEMENT CONFIGURATIONS FOLLOW:



Summary:

Ambient or unducted systems are widely applied within industry. They are utilized as an economical way to improve the overall air quality in an area and/or to supplement existing source capture systems.

16711 Hilltop Park Place
Chagrin Falls, OH 44023
(P) 440.543.1900 (F) 440.543.9390
www.dynacomonline.com