

SOURCE CAPTURE

National Air Filtration Association.

Spring Technical Training.

Dallas TX.

April 22/2005.

• Why ?

• How ?

• Where ?

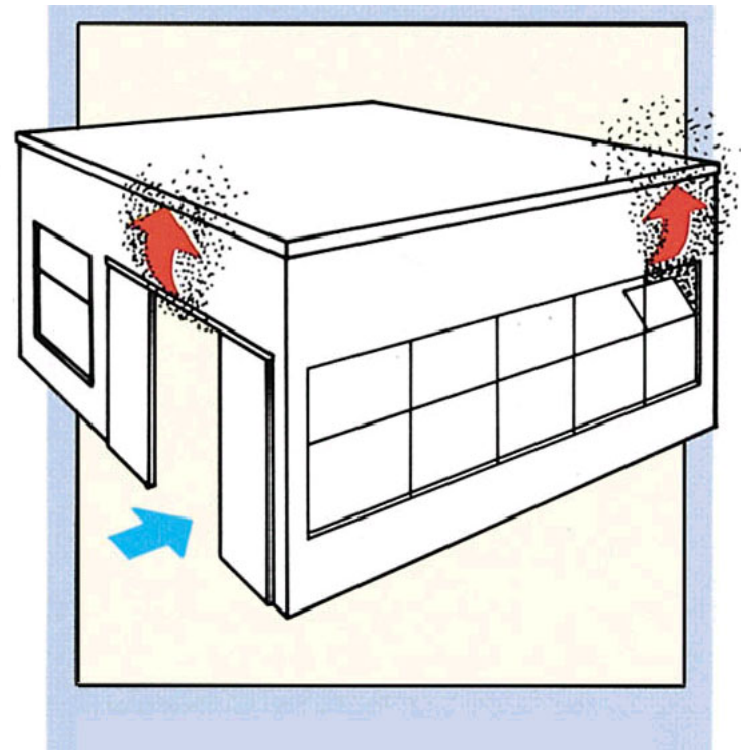
Why Source Capture

- NIOSH:
- OSHA:
- AMERICAN STANDARDS INSTITUTE
- AWS F3.2M/F3.2.2001 June 15, 2001.
- CANADIAN STANDARDS INSTITUTE
- W117.2.01

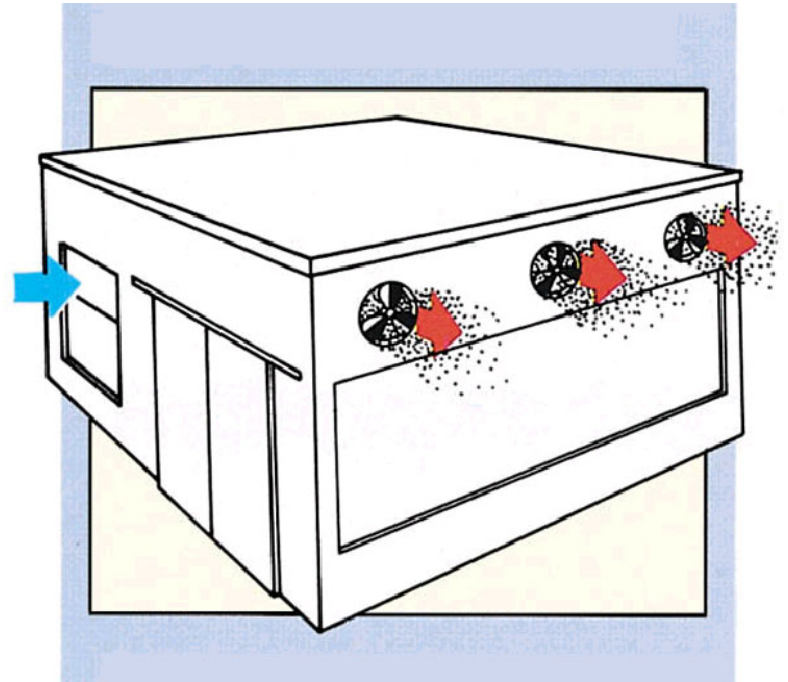
- Source Capture:
- Localized
- Most Efficient
- Economical
- Removes the contaminant from the BREATHING ZONE.

TRADITIONAL VENTILATION

- Most economical ventilation method



- An improvement with the aid of installing local exhaust fans and using natural cross flow ventilation.

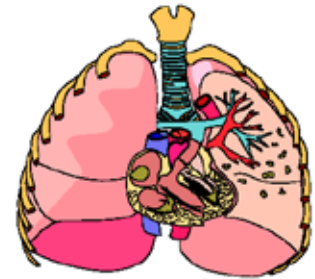


How Can we Improve?

- Point of Use Capture
- Localized Exhaust
- Remove the contaminant

- Remove the contaminant from the Breathing Zone.

Are those that penetrate in to and are deposited in the non-ciliated portion of the lung. Particles larger than 10 microns aerodynamically are not respirable.



0.2 to 5 micron

Point of Use Capture

- Point of use capture relies on the use of a capture :
- Hood
- Nozzle
- Encapsulation.

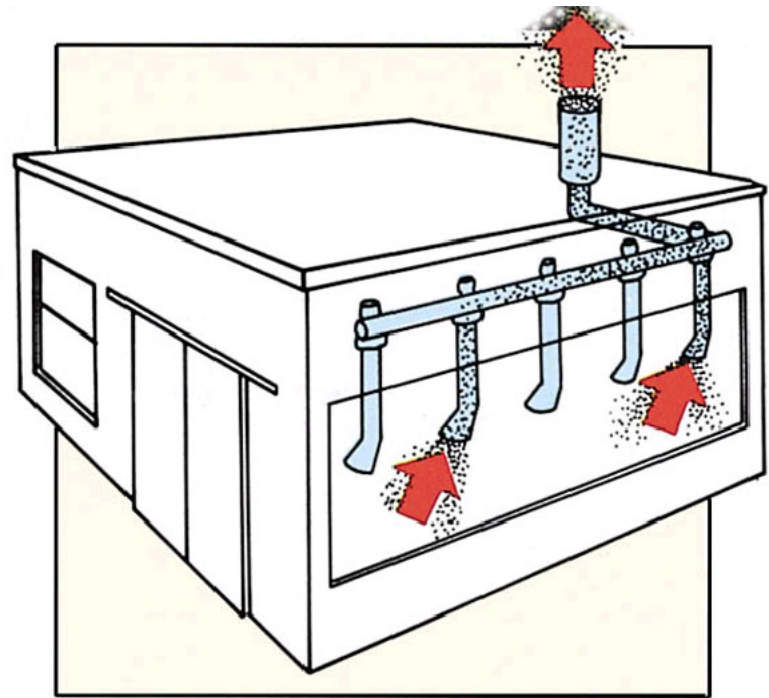
Use of the products will clean the air from any airborne gases and particles like...

- ***Soldering fumes***
- ***Grinding dust***
- ***Chemical dust and fumes***
- ***Welding fumes***
- ***Oil mist***
- ***Metal cutting dust & fumes***
- ***Rescue vehicle exhaust gases***
- ***Workshop vehicle exhaust gases***



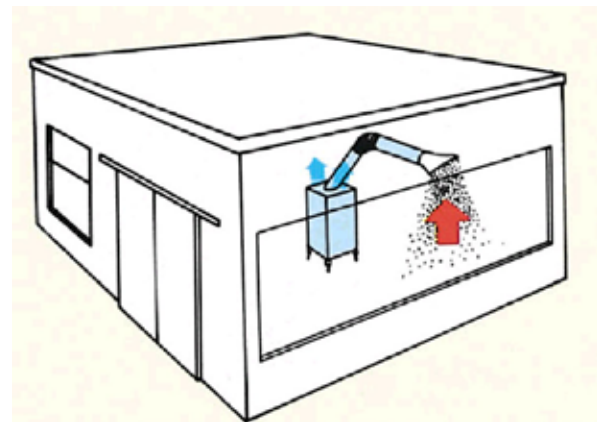
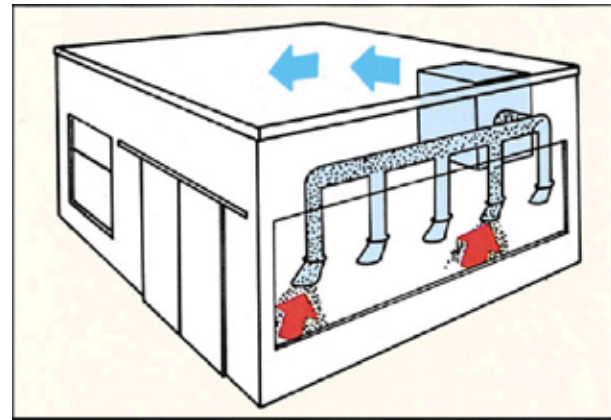
Typical Exhaust to Atmosphere

- Localized source capture hood.

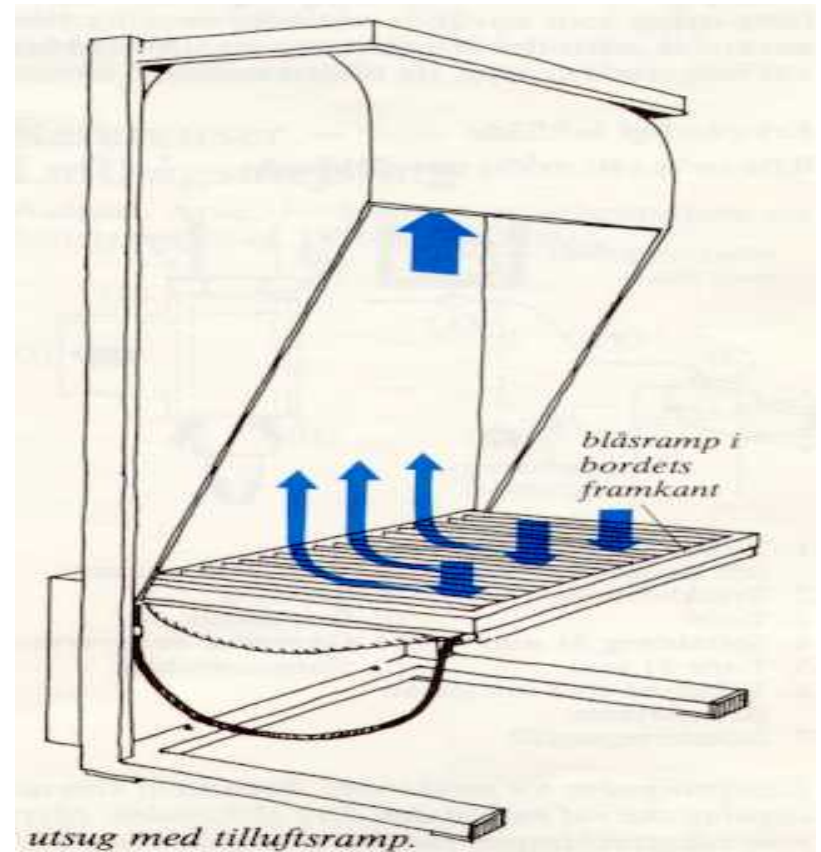


Return Clean Air to Environment

- Various methods can be used either
- STATIONARY
- MOBILE.



- Fume hoods may be used for small batch type application



Downdraft Table

- Sometimes it is more practical to draw the contaminant down and away .

Capturing

Down Draft Suction Tables

Used for cutting tables, plasma, laser or arc cutting.



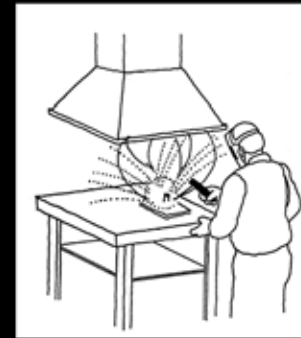
Capture Hoods

- Typically used in many applications.
- Not efficient.
- Does not remove contaminant from breathing zone.

Capturing

Suction Hoods

Used for manual or robot welding, large series production.



APPLICATIONS

- Welding Fumes
- Grinding Dust
- Oil Mist Removal
- Dry Dust Removal
- Gaseous Contaminant
- Other ?

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Health
Compliance
Efficiency
Economy

Filtration Efficiency

- “Capture efficiency” generally has greater influence on air quality than filter efficiency.
- Filter efficiency required must be sufficient to meet all national and local codes and standards.
- Toxic Materials : 99.97% (HEPA)
- Most Applications 99.9%. On 0.5 microns.

Confined Spaces.

- Adequate ventilation to reduce levels of air contaminants.
- Gases.
- Vapours.
- Dusts.
- Fumes.

Ventilation Guides.

- Local Exhaust . Provided by fans and exhaust hoods that capture airborne contaminants at the source.
- Local exhaust is preferred over dilution general ventilation.
- Local exhaust usually comprised of Hood, Fan, Duct and Air Cleaner.

P.R.P

- Personal Respiratory Protection.
- Only Approved Equipment.
- Used in absence of adequate Local Exhaust
- Confined Spaces which cannot be adequately ventilated.
- Exhaust hood cannot be located close enough to ensure capture.
- Exhaust hood not practical.

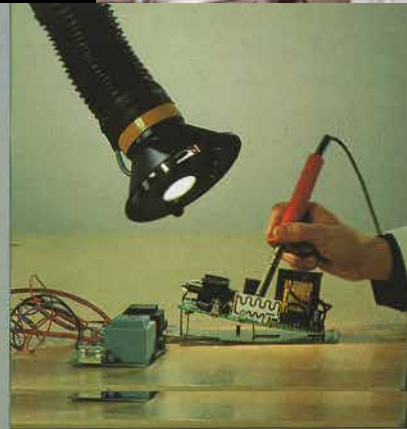
Exposure Limits

- Ministry of Labour
- Authority Having Jurisdiction
- OEL. Expressed : PPM- Mg/m³

Examples

- “Stainless Steel”
- Chromium = 0.01Mg/m³
- Nickel = 0.2 Mg/m³
- “Aluminum”
- Manganese = 0.2 Mg/m³
- Ozone = 0.05ppm- Heavy
- 0.08ppm- Moderate
- 0.10ppm- Light
- 0.20ppm- Less than 2hrs.

Solutions for Dust, Fume and Odor control in Hi-Tech manufacturing, medical and laboratory applications



Solutions for Automotive service and repair

**Spring Exhaust
Hose Reel for
controlling
toxic vehicle
exhaust fumes
at Ferrari
Service Center
in Malmö,
Sweden**



Solutions for Vehicle Exhaust emissions testing



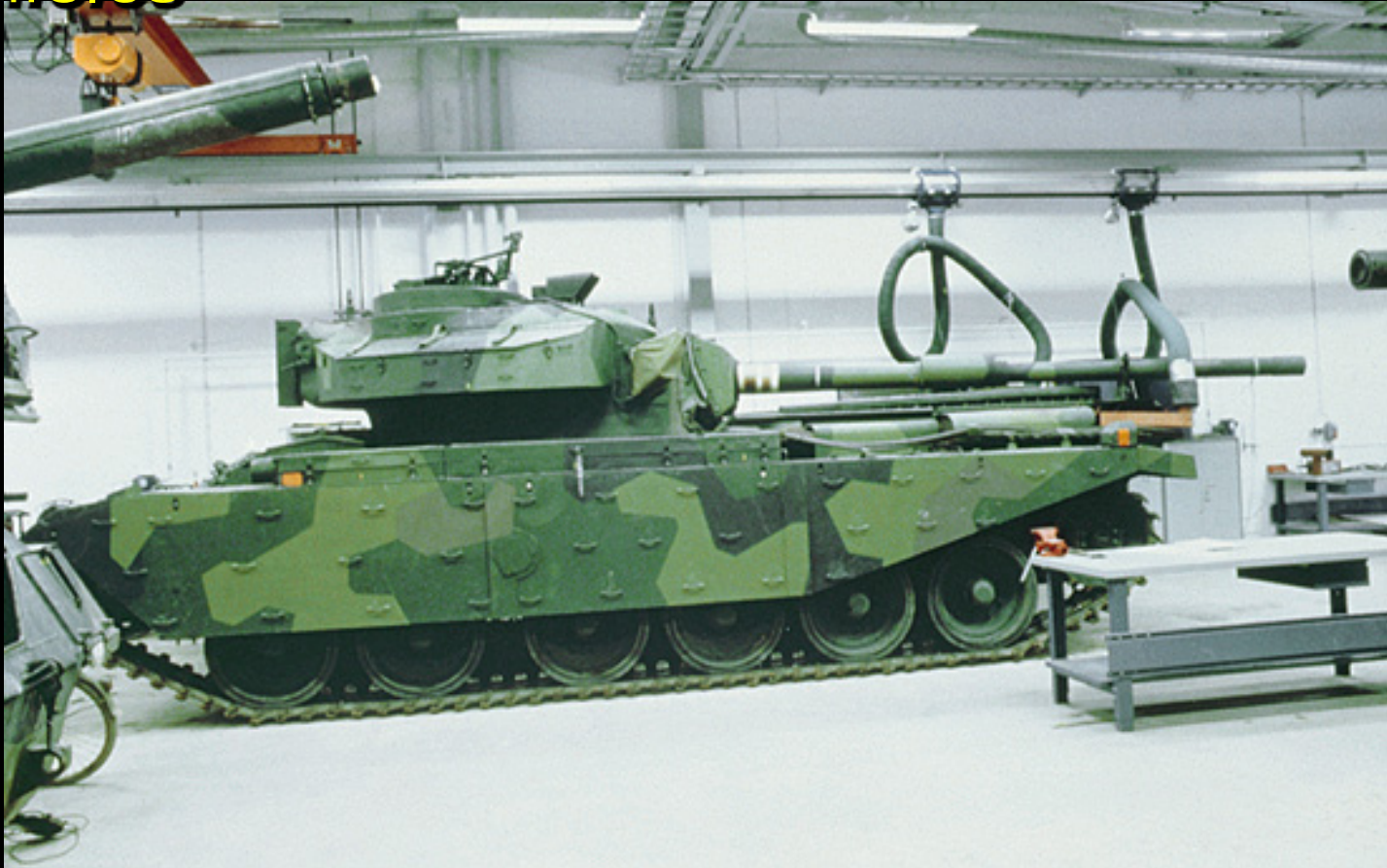
Looped Rail Exhaust system serving 70,000 NYC Taxi's each year at the NYC Taxi & Limosine vehicle inspection facility

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Solution for Military and Off Road Vehicles



**Straight Rail System for controlling
diesel exhaust fumes at US Army Tank
Maintenance facility**

Solutions for portable fume and dust control



Multi Fume Caddy and Carry for Maintenance and Service applications

