

Ventilation

GENERAL DISCUSSION

Work activity or the presence of harmful substances in industrial environments frequently produces airborne contaminants. These contaminants can be controlled by isolating them from the breathing zone, substitution of a less hazardous substance or process, or by providing adequate ventilation. Ventilation is one of the most common engineering control methods, and can be defined as the movement of fresh air into a space in order to replace contaminated air and/or control the temperature in a space.

Natural ventilation usually does not provide a sufficient volume of airflow to ventilate enclosed spaces, or to promptly remove highly toxic airborne contaminants from breathing zones. Mechanically aided ventilation, measured in cubic feet per minute (CFM), is generally classified as either 'dilution' (consisting of a supply and exhaust system) or as 'local exhaust.' A properly designed local exhaust system located at the source of the contamination is extremely effective in removing contaminants.

The effectiveness and efficiency of supply and exhaust fans will depend upon the volume of air that is moved in conjunction with the proximity to the contamination source. The following principles and safety controls should be considered whenever ventilation systems are utilized:

1. A supply fan with a diameter of 1 will produce approximately 10% of its face velocity at a distance equal to 30 diameters from the face opening.
2. An exhaust fan with a diameter of 1 will lose approximately 90% of its face velocity at a distance of 1 diameter from the exhaust opening.
3. The use of ducting systems will improve circulation and minimize airflow losses.
4. Make-up air should be provided where exhaust systems are operating. The make-up air source point should be located so that only fresh, contaminant-free air is introduced into the working space.
5. Never use pure oxygen to ventilate a space. An oxygen-enriched atmosphere is extremely explosive.
6. Know whether the airborne vapor contaminants you are trying to remove are heavier or lighter than air (which has a vapor density of 1). This will assist you in properly locating exhaust fans at the most effective height.
7. All fan motors and control equipment utilized to move combustible or flammable vapors should be of the explosion-proof type. The metallic

parts of air-moving devices, including fans, blowers, and jet-type air movers, and ductwork should be electrically bonded to a grounded structure.

GENERAL SAFETY REVIEW

This is a time to review all safety concerns, not just today's topic. Keep your notes on this page before, during and after the safety meeting.

Are you aware of any safety hazards from any other crews? Point out any hazards other crews are creating that this crew should know about. Tell the crew what you intend to do about those hazards.

Do we have any other safety business? Discuss any past issues or problems. Report any progress of investigations and action taken.

Have there been any accidents, near misses or complaints? Discuss any accidents, near misses, and complaints that have happened since the last safety meeting. Also recognize the safety contributions made by members of the crew.

Please remember, we want to hear from you about any health and safety issues that come up. If we don't know about problems, we can't take action to fix them.

ENDING THE MEETING

Circulate Sign-Off Form.

Assign one or more crew member(s) to help with next safety meeting.

Refer action items for follow-up.

Do you have any Safety Recommendations?

Do you have any Job Specific Topics you would like us to discuss?

Comments
