



SAFETY UNLIMITED, INC.

Weekly Safety Meeting

Ventilation in Confined Spaces

Confined spaces frequently contain atmospheres that are flammable, toxic, or whose oxygen level has been depleted or enriched.

Natural ventilation is generally insufficient to remove contaminated air from the inside space and to exchange it for fresh air from the outside.

The lack of air exchange occurs particularly in confined spaces that have few openings for access and due to the configuration of the confined space itself.

The spaces can be effectively ventilated with apparatuses that move the air and remove the contaminated air from the confined space introducing clean, breathable air, and controlling the level of danger created by the contaminants in the space or that arise from the operations carried out inside the space.

Ventilation is the number one way for workers to control and disperse hazardous atmospheres in a confined space. The prime objective in ventilating a confined or enclosed space is to render it safe for workers. To reach this level of safety three requirements must be met.

If your ventilation unit is too small to handle the job, a safe atmosphere can't be maintained, and workers should not be permitted to enter.

Atmospheric Checklist:

- First off, oxygen (O₂) content needs to be maintained between 19.5 and 22 percent.
- If flammable vapors or gases are present, they must be kept below 10% of their lower explosive level.
- Finally, potentially toxic materials must be kept below their personal exposure limit (PEL) or under the IDLH levels (immediate danger to life and health) if using anything less than supplied air respirator protection.

When any of these conditions are present, ventilation of the confined space is required.

In fact, OSHA states, "The forced air ventilation shall be so directed as to ventilate the immediate areas where an employee is or will be present within the space and shall continue until all employees have left the space."

Basic Requirements:

Although a single rule or group of rules is unlikely to cover all of the ventilation requirements applicable to confined spaces, the objectives of ventilation in confined spaces are the following:

- To remove contaminated air (flammable or toxic) from the space and maintain safe concentration levels in terms of permissible exposure level (PEL) or lower explosive limit (LEL), using the most convenient one;
- To provide fresh and breathable air inside the space; and
- To create a more comfortable environment inside the space.

These objectives can only be achieved after a thorough evaluation of the requirements, based on the confined space under discussion, its content, and the operations that will be performed in the space.

Ventilation requirements may be calculated based upon space and operational aspects. The evaluation of ventilation must be based on the measurements that are taken of the ventilation system or the atmosphere of the space to guarantee that safe conditions are achieved and that they can be maintained.

OSHA's confined space standard, CFR 1910.146, does not specify how many air exchanges must be circulated per hour. Some state laws require a minimum air exchange amount of 6 times per hour, but that number is by no means universal.

A common rule of thumb has always been 5 complete air exchanges. There are other experts who advocate 7 or 10 complete changes before work begins.

Remember:

While selecting a blower is not rocket science, it does require some careful consideration of the jobsite conditions and applicable safety regulations.

Do not take the ventilation process for granted. Get to know the regulations and how they can directly affect your project.

Becoming comfortable with the entire ventilation process will ultimately lead to finding the safest and most productive solution for the job.

DON'T BE HASTY WHEN IT COMES TO SAFETY!!

Safety Meeting Sign-In Sheet

Supervisor:	Subject:
Location:	Date:
Conducted By:	Trainer Signature:

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