



Introduction

A confined space is defined as:

An enclosed or partially enclosed space that is not primarily intended as a place of work.

A confined space is liable to have:

- A hazardous atmosphere
- It may function as a container for solids or liquids that could cause engulfment
- It may have a restricted means of entry and exit, eg. storage tanks, transport tanks, process vessels, boilers, silos, pits, pipes, sewers, shafts, ducts, shipboard spaces.

Confined spaces have been compared to a serial killer; for every person who dies in a confined space as a result of a work-place accident - often more fatalities occur in the rescue attempt.

It has been estimated that performing a task inside a confined space is 150 times more hazardous than doing the same job outside of a confined space.

Main points

- Ensure a confined space entry permit has been submitted and approved.
- Ensure competencies of all persons for confined space entry are verified.
- Have an effective means of communication in place.
- Make sure there is a competent safety observer in place.
- Ensure atmospheric testing is being performed before entry and during occupation.
- All workers must have suitable personal protective clothing and equipment available and in use.
- Evacuation/rescue procedures and equipment must be in place.

Discussion points

- Confined spaces may contain oxygen deficient or oxygen rich atmospheres. When levels are too low suffocation can occur; when levels are too high there is a risk of increased Flammability and/or (spontaneous combustion) explosion. Work activities may also affect oxygen levels during occupancy.
- There may be toxic atmospheres, containing gases, vapours, dusts or fumes which may cause immediate harm to workers or have delayed health effects.
- Flammable or explosive atmospheres may be present either due to the contents of the confined space or introduced through the work activities being performed.
- Use a suitable detector to determine safe oxygen levels. Test the atmosphere for toxic and combustible contaminants. Ensure atmospheric testing equipment is correctly calibrated at regular intervals.
- There is potential for dry bulk materials to invade the space and trap or bury workers. Also uncontrolled introduction of steams, water, or other vapours or liquids can also harm workers. Potential sources must be isolated using lockout/tagout & blinding procedures on all piping, ducts, and vents.

- The confined space should be cleaned or flushed to remove harmful solids, sludge's or liquid. And purged to remove harmful gases or vapours. Ventilation of the confined space may be necessary, or selection of appropriate breathing apparatus as a last resort.
- Confined spaces often contain machinery or moving parts that may be inadvertently or automatically started. De-energise, lockout/tagout machinery and electrical equipment such as augers and agitators.
- Dress in appropriate PPE for other hazards such as noise, extremes of temperature, manual handling and falls can also be present as other work is being done at the site
- Have a trained safety observer outside the confined space and ensure there is a reliable system of communication. The safety observer must never enter the confined space.
- If conditions change, evacuate the confined space. In the event that any worker becomes distressed in a confined space, procedures and equipment must be in place that allows for immediate extraction of all workers without endangering rescuers.

CONFINED SPACES – A SERIAL KILLER

Questions and Answers:

Name some hazards that might be encountered in a confined space?

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| - Atmospheric conditions – oxygen levels, toxic, flammable | - Accidental introduction of materials |
| | - Accidental start up of machinery |

What should be in place before a confined space entry is performed?

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| - A permit to work | - Cleaning and ventilation of confined space |
| - Atmospheric testing | - A safety observer out side the confined space |
| - Isolation (lockout/tagout) of machinery and inlets | - A rescue plan and equipment |

If conditions change in a confined space what must happen?

All workers must be evacuated, permit pulled, and complete hazard reassessment carried out prior to reissue of permit for re-entry.

Related Topics

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| Dust and Fumes | Lighting – (Intrinsically safe) |
| Emergency Procedures | Personal Protective Equipment |
| Excavations | Safe Access |
| Fire Safety | Lockout / Tagout procedures |
| Flammable Liquids | Gas Detection |
| Ventilation – (Intrinsically Safe) | |