

Confined Space and its Safety

S. Sugeth¹, R. Shiyam Prasanna²

¹PG Student, Dept. of Mechatronics Engineering, K. S. Rangasamy College of Technology, Tirucengode, India

²Assistant Professor, Dept. of Mechatronics Engineering, K. S. Rangasamy College of Tech., Tirucengode, India

Abstract: Confined space can be found below or above the ground level. Confined space can be found in almost any work place. Confined Space refers to any place, including any vessel tank, drainages and industry workplaces. Because of confined spaces many fatal and injuries were occurred in workplaces, the person who has to work in a confined space he must be technically trained and he should have been proper certification to work in a confined space. Rescuers who rescue entrapped person in the confined space are also properly trained. One who is trained to handle the situation can enter into a confined space with proper personal protective equipment's. Some confined spaces pose entrapment hazards for entrants. Confinement can cause increase the risk of injury or death by making employees work closer to hazards. Safety and health professionals have long recognized and directed contact with employer and get attention to the significant about the problems faced of confined spaces.

Keywords: Confined space, safety, Injuries.

1. Introduction

Confined space and its safety measures have been discussed in this heading about confined space, atmospheric hazards in the confined space, Entry certification for confined space and injury and fatal that occurs in confined space and rescue procedure risk assessment and problem identification confined space can be found in any work place. How to work in a confined space what are all the procedures to be followed to work in a confined space. Most of the accidents and fatal that occurs in industry in confined space to avoid accidents in confined space prominent person and certified person has to enter in a confined space. Major problem that faced in the confined space is oxygen deficiency. A person who is entering into a confined space has to followed proper procedure to avoid accidents by using proper safety equipment's. One should have an eye on him to avoid unwanted accidents. Many injuries can have happened in working area but injuries that occurs in a confined space is quite different. In some extreme conditions unconsciousness and death can occurs in confined working area.

2. Confined Space

A confined space is a limited entry space it is not suitable for human inhabitants. An example is the interior of a storage tank, person entered by maintenance workers but not intended for human occupancy. Hazards in a confined space include harmful dust or gases, asphyxiation, submersion in liquids or free-

flowing granular solids (for example, grain bins). Confined space accidents are of particular concern in occupational safety and health due to the hazards that causes some sort of emergency situation to a rescue team. Confined space training skills and procedure for safe entry to confined spaces, and includes precautions such as locking and tagging out system, testing of breathable quality of air, forced ventilation system, observation of workers who works in a confined space and a predetermined rescue plan with appropriate safety awareness and other rescue equipment.

3. Atmospheric hazards

The common hazard seen in confined spaces is that of atmospheric hazards. This affect air quality and causes hazards to health. Acceptable atmospheric conditions must be verified before entry into a confined space and must be monitored continuously while the space is occupied. The oxygen concentration, the presence of toxic gases in the air contains in the atmosphere, and flammable material are the three conditions that must be monitored.

Oxygen level in considered safe if it is between 19.5% and 23.5% of the total atmosphere. To control against toxic gases, contaminants have permissible exposure limits (PELs), which are set by OSHA. Work also cannot continue if the concentration of a material reaches or exceeds 10% of its lower explosive limit. Even if a similar vessel is tested and found to contain breathable air, a hazard can develop during operations inside the tank toxic gas or vapor can be released inside the tank when it is accidentally ignited. when the interior rust in Steel water tanks may have causes dangerously low oxygen concentration level.

4. Entry certification

Certification of non-hazardous atmosphere by a trained or competent person is required before personnel may not enter into a confined space without the use of a respirator. a person with proper certification and trained person has to enter in a confined space, unauthorized person should not enter into a confined it will causes into fatal/accidents. in case of any emergency situation prominent person knows how to react and what to do on that time, untrained person enters into a confined space he didn't not know how to escape or overcome with the situation. It is required to perform testing is required in all confined spaces that have contained a flammable, combustible

or toxic substance. Certification in civilian settings can be performed by an Entry Supervisor who, under OSHA regulations, is designated by the employer and ensures that the space is safe to enter and all hazards are controlled.

5. Injuries and fatal

Injuries and fatalities can be occurs in confined spaces are frequent and often involved successive fatalities. When the same problem succumbs to the rescuers as the initial victim. most of the 60% of fatalities involve would-be rescuers and more than 30% of fatalities occur in a space that has been tested and found to be safe to enter. in some extreme conditions rescuers will died. Many injuries can be occurring for the both victim and rescuers.

6. Rescue in confined space

Where a system of entry permits is in place, a rescue plan is required. If a person is get entrapped in confined area safety equipment required in a worksite before entry is allowed. Special equipment such as tripod hoists, harnesses, and many other equipments may be required to a worker works in a toxic environment a toxic e, without unduly endangering rescue personnel. In some industrial plants, working at Height and Confined Space rescue services are combined and delivered together. Rescue team must be prepared in any cause. in case of any emergency situation rescuers will handle the situation. They are properly trained they will immediately respond and act according to the situation.

7. Problem in confined space

The hazards associated confined spaces include: Toxic Atmosphere. A toxic atmosphere may cause various effects, including impairment of judgment, unconsciousness and death.

- Low Oxygen Deficiency.
- Low Oxygen Enrichment.
- Flammable or Explosive Atmospheres.
- Flowing Liquid or Free Flowing Solids.

8. Risk assessment in confined space

Where entry to a confined space cannot be avoidable in some conditions, a thorough risk assessment should be carried out to devise a safe system of work. Time duration performed task requirements for training required physical effort suitability and health of those carrying out the task in confined space. Number of peoples who involved, inside and outside the confined space, and rescue teams we should also considered a working environment Access to conditions Lighting level lack of oxygen in atmospheric by-products of the task being undertaken, for example welding fumes, dusts in the air Communication methods for raising an alarm and any evacuation methods.

A. Working materials also need to be considered. This includes

- Fire or spark risk in working area.
- Removal of waste.
- Fume ventilation process.
- Tools needed and their access in the working area.

9. Conclusion

The confined space and its safety measures is about, confined space accidents and fatal. How people easily get entrapped in the confined space. Proper authorized person should enter into a confined space to do work in a confined area. He should have proper training and valid certification to work in a confined zone. in case of any emergency situation he will respond immediately He knows how to handle the situation in proper manner to avoid accidents or fatal. For the rescuers proper instruction will be given to them how to save the people entrapped in a confined space. The main causes of accidents occur in a confined space is oxygen deficiency.

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