

CONFINED SPACE RESCUE

Incidents which require Fire Department personnel to enter confined spaces to fight fires or to rescue and remove persons in need of assistance present very serious potential dangers. In order to operate safely in these situations, special precautions must be taken and rigidly enforced.

Confined spaces include caverns, tunnels, pipes, tanks, and any other locations where ventilation and access are restricted by the configuration of the space. These factors may also apply to basements or attics. Confined space incidents may involve injured persons, persons asphyxiated or overcome by toxic substances, cave-ins or fires occurring within the space. Pre-incident planning is an important factor in dealing with these situations.

DISPATCH

In order to provide this capability, Alarm shall dispatch a minimum of a 2-1 Medical assignment on any incident where confined space operations are indicated. The Hazardous Incident Response Team and Safety Officer shall also be dispatched except attics, where Haz Mat Team response is optional.

SITE OPERATIONS

Operations within confined spaces shall be approached with extreme caution. Direct supervision is required and all safety precautions and procedures shall be rigidly enforced. Operations shall be conducted in a manner which avoids premature commitment to unknown risks.

Command shall assure that personnel entering a confined space do not commit themselves to travel with the space beyond a point that provides sufficient air reserve to return and exit safely, with at least a 5 minute safety margin. The time available for operations inside shall be estimated based on air supply and monitored by personnel outside, as well as the entry team. Where feasible, lifelines shall be used by personnel entering the confined space.

In order to provide adequate support for confined space incidents, Command shall provide a minimum 2:1 ratio of personnel outside the confined space to support personnel working within. This shall include a stand-by rescue team with a 1:1 ratio to provide emergency assistance to the personnel in the confined space. This team shall be equipped with breathing apparatus and in a full standby mode and ready to enter if needed. A Treatment Sector with ALS capability shall also be provided near the entrance/exit point.

Before allowing personnel to enter a confined space, the officer in Command must attempt to gather any available information about the nature of the situation or hazard, particularly as it pertains to the atmosphere inside the space. **THIS IS CRITICAL WHEN THE SITUATION INVOLVES UNCONSCIOUS VICTIMS OR PERSONS WHO MAY HAVE BEEN OVERCOME BY THE ATMOSPHERE INSIDE THE SPACE.** Command must assume that an unsafe atmosphere exists within the confined space until/unless testing establishes it is safe. When test instruments are available, readings of oxygen concentration, explosive gas or vapor concentrations, carbon monoxide and hydrogen sulfide shall be taken before entering. If these instruments are not immediately available, the Hazardous Incident Response Team shall be requested to respond and evaluate the atmosphere as quickly as possible.

PROTECTIVE EQUIPMENT

ALL PERSONNEL entering confined spaces shall use breathing apparatus. Either self-contained or airline supplied breathing apparatus may be used, depending on the nature of the situation. Command must evaluate the need for extended duration breathing apparatus and provide for the response of this equipment when necessary.

Breathing apparatus shall be used without exception in confined spaces until or unless analysis of the atmosphere confirms that it is safe to breath. Personnel shall not remove face pieces or take any other action to compromise the effectiveness of their breathing apparatus while inside the confined space atmosphere.

Protective clothing shall be worn as required by the situation, depending on an evaluation of the hazards and the products which may be inside the confined space.

When working in confined spaces with very restricted access, personnel shall wear rescue harnesses or wrist straps to provide for extrication by rope.

SECTORS

The Fire Department Safety Officer will respond to all confined space incidents to consult with Command on the safety measures and precautions to be taken in each case. Command will assign Safety Sector responsibilities to a Company Officer, Chief Officer or a Staff Officer during the initial stages of the incident until the Safety Officer arrives on the scene.

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The Safety Sector Officer shall evaluate the risks and enforce all safety requirements associated with the particular situation. If the Safety Sector Officer judges that an operation is unsafe, the operation shall be suspended and Command notified immediately.

When feasible, Command should establish a Ventilation Sector to begin operations directed at providing fresh air and/or exhausting contaminated air from the confined space. Any electrical or mechanical equipment taken inside the confined space, including lighting equipment shall be an explosion-proof type, when any flammable hazard is suspected. When ventilating a confined space, containing flammable vapors or gases, ventilation must consider the concentration in relation to the flammable limits.

A "Lobby Sector" shall be established at the entrance/exit to control access to the confined space. Lobby Sector personnel shall collect accountability cards of all personnel entering a confined space, and note entry time and SCBA cylinder pressures of all personnel entering the confined space. The Lobby Sector will maintain a time awareness of the expected exit time for each individual based on air supply at the time of entry and provide a warning at the predetermined time to begin exit procedures. Warning will be provided by radio or other communications system.

A primary function of the Lobby Sector is to control the number of personnel entering the confined space and prevent crowding at the entrance to the confined space.

An Extrication Sector may be required. Such sector operations would occur within the confined space. Close coordination with the Lobby Sector will be required.

A Transportation Sector may be required if multiple patients are encountered.

A Rescue Sector may be established to provide backup rescue personnel and coordinate the Rapid Intervention Teams (R.I.T.).

A Resource Sector may be required to provide equipment and supplies and a reserve pool of personnel.

A Staging Sector may be established to stage equipment, and apparatus, particularly ambulances.

ACCOUNTABILITY

The departments Accountability system will be implemented for all confined space operations. A Lobby Sector will collect accountability of those personnel entering the confined space. The officer will note entry times and SCBA cylinder pressures. An Accountability Officer may be assigned to a Lobby Sector Officer to provide support and assistance.

ATTIC SPACE OPERATIONS

Operations that require personnel to enter attic spaces for victim extrication, electrical problems, etc., will require the following minimum precautions:

- ☀ Standby rescue team in place (R.I.T.)
- Positive pressure ventilation (if possible)
- ☀ Breathing apparatus (self-contained or airline supplied)
- During summer months, if the operation is extended, personnel
- ☀ Should be rotated every 10 minutes to a rehab sector.