



# Pennsylvania State Fire Academy

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## Minimum Standard for Accreditation (MSA)

February 1993  
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**Course Title:** Confined Space Rescue

**SFA Course Code:** CSR

**Length of Course:** 16 Hours

**Lecture/Lab Breakdown:** 8/8

**Prerequisites:** Persons attending this program should have experience, expertise, or training in subjects such as respiratory protection equipment including SCBA and/or rope rescue or rigging techniques. REPA and RORA are preferred prerequisites.

**Referenced Texts:** O.S.H.A. Regulation 29 CFR 1910.146; N.I.O.S.H. - A guide to safety in confined spaces; Commonwealth of Virginia - Confined Space Rescue Module of the Heavy and Tactical Rescue Program; Essentials of Fire Fighting, 3rd edition, I.F.S.T.A.; Fire Protection Handbook NFPA; NFPA 1001; Fundamentals of Physiology, Elbert Tokay PhD.

**Course Goal:** Students will be able to identify a confined space and be familiar with various regulations, safety procedures, equipment, techniques and personnel necessary to operate at a confined space emergency.

**Description of Course:** This 16 hour program deals primarily with rescues involving confined spaces. Subjects include definition, regulations, identification, needs, psychology, and techniques. Practical application of rescue techniques are practiced in real confined spaces.

**Description of Methodology to be used: (Brief)** Combination of lecture, discussion, audiovisual presentation, demonstration, and practical exercises.

**Student Equipment/Supply Needs:** Note taking materials; hard hat or helmet with chin strap; work shoes or boots, steel toe preferred; eye protection; positive pressure SCBA; knee pads if possible; work clothes including coveralls or items that will become muddy or soiled; a 15-20 foot piece of rope for knot tying exercise; 2 pair of gloves, 1 clean pair for knot tying and 1 pair that may become heavily soiled.

**Equipment/Audiovisual/Supply requirements:** Classroom, chalkboard, screen; audiovisual equipment including overhead projector, VCR with monitor and slide projector. Handouts and audiovisuals per instructor discretion. Various confined spaces including draft pit, confined space rescue mock-up on lower drill grounds and railroad tank car. One fire engine, various lengths of ladders, rescue truck with rope for lifelines,  
(continued)

**Equipment/Audiovisual/Supply requirements (continued)**

utility use and hauling; rope related equipment for rigging and hauling; patient immobilization and transport devices; cascade system for SCBA refilling. Number tags for accountability system, and air monitoring equipment including combustible gas indicator and oxygen detector.

**Special Conditions:** A minimum of one additional CSR- accredited instructor required during all practical exercises (second 8 hours).

**COURSE OUTLINE**

<b>Time</b>	<b>Content</b>	<b>Notes</b>
:30	Registration, Introduction & Course Description	
1:30	Respiratory Protection Anatomy & Physiology	
2:30	Confined Space Emergencies	
1:30	Toxic Atmosphere Monitoring Equipment	
1:30	Breathing Apparatus for Confined Spaces	
1:00	Review of Knots and Hitches	
2:00	Commercial & Improvised Lifting Systems	
4:30	Extrication from Confined Spaces - Exercises:	
:45	Testing and Cleanup	
:15	Summary and Evaluation	

**Competency Evaluation Mechanism:** Direct questioning by instructor during class; instructor-generated written test (optional); student evaluation by instructors during all. Practical exercises

**Learning Outcomes (Course Objectives):** Upon completion of this course, the student will, to the instructor's satisfaction:

1. Explain and/or demonstrate course expectations and safety requirements
2. Relate the physiology of the human respiratory system as it applies to confined space entry.
3. Name and describe the physiological effects of various contaminants found in confined spaces.
4. correctly identify a confined space emergency and identify possible locations.
5. list hazards and identify correct pre-plan procedures for confined space emergencies.
7. Given a confined space scenario, demonstrate knowledge of the strategic aspects of confined space rescue including logistics, personnel, psychology, recovery, EMS, and resources.
8. Given a combustible gas indicator, oxygen level monitor, and an atmosphere sampling indicator using colorimetric indicator, demonstrate each device's proper use

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**Learning Outcomes (Course Objectives)(continued):**

9. correctly identify the major components of a S.C.B.A.
10. Given an example of dual-purpose and airline work unit respiratory protection equipment, explain the purpose and operation of each.
11. Given an actual or simulated confined space, complete an obstacle course wearing S.C.B.A. to determine physical/mental stress, and time vs. volume of air consumed.
12. Given a rescue rope, demonstrate the ability to tie a half hitch, clove hitch, bowline, bowline on a bight and body hitch, chimney hitch and a figure knot.
13. Given the necessary equipment, an actual / simulated confined space, a simulated patient(s), and a confined space emergency scenario, and acting as a member of a team:
  - a. Establish command and control activities including:
    - i. A personnel accountability system;
    - ii. A rapid-intervention capability
  - b. successfully rig and position a:
    - i. commercial manhole tripod,
    - ii. an improvised "A-frame" using ladders,
    - iii. an improvised gin pole using ladders,
    - iv. a lift using block and tackle,
    - v. and a lift using a "Z" rig.
  - c. effect a medically-appropriate extraction of the patient(s) by:
    - i. providing patient access by a properly protected rescuer(s);
    - ii. conducting a patient assessment within the scope of practice of the rescuer's medical training;
    - iii. securing patient(s)safely in proper devices;
    - iv. extraction by safe methods utilizing available equipment.
  - c. demonstrating appropriate post-rescue termination procedures.

CSR602

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