

COURSE: TRAINING IN TECHNICAL RESCUE FOR EMERGENCY AND RESCUE TEAM IN CONFINED SPACES – COORDINATOR/OPERATIONAL LEVEL

SCOPE AND APPLICABILITY:

This training aims to establish the minimum conditions for the composition, formation, implantation, training and recycling of the emergency response team, to act in the rescue in confined spaces. Level of qualification in rescue for which the professional is qualified to participate in a variety of rescues at height and/or in confined spaces, at any height level, which require basic movement or displacement of victims with or without stretchers, with the use of assembled systems of mechanical advantage, pre-engineered or pre-assembled, manual or automatic rescue systems, and mechanical advantage systems, to perform autonomous access to the victim using a variety of different techniques, mechanical and electrical systems, specific for moving and rescuing people in all directions. It also includes all the minimum knowledge of the Industrial, Operational and Leader levels.

REGULATIONS & STANDARDS

- NR 01 - General Provisions
- NR 33 – Occupational Safety and Health at Work in Confined Spaces
- NR 35 - Work at height
- NBR15595 - Rope access - Procedure for Applying the Method
- NBR16577 - Confined Space - Accident Prevention, Procedures and Protection Measures
- NBR16710 - Industrial Technical Rescue at Heights and Confined Spaces
- ES Military Fire Brigade (CBMES) - Rescue at Height Handout
- Resolution A.1050 (27)
- MSC. 1 / Circ.1401
- Regulations (Standards - 29 CFR) - 1910.146
- EB70-MC-10.246 - Communications in Operations 1st Edition – Brazilian Army
- IRATA – International Code of Practices - 102BRA
- CBMGO - Height Rescue
- CBMMS - POP

COURSE CONTENT

- Official regulatory standards and applicable Brazilian standards;
- Safety principles of a rescue operation;
- Desirable requirements for rescuers
- Identification of risks associated with a rescue operation;
- Risk-benefit assessment in a rescue operation;
- Certification of rescue equipment and systems;
- Selection and correct use of the following personal rescue equipment:
 - parachute harness;
 - Suspensors;
 - Slings or lanyards;
 - Fall arrest;
 - Connectors;
 - Helmet;
 - Gloves;
 - Descenders;
 - Lifts
 - Overalls;
 - Boots;
- Vertical casualty movement techniques and installation and operation of pre-engineered or pre-assembled manual or automatic rescue and evacuation systems and simple mechanical advantage systems
- Selection and correct use of the following collective rescue equipment:
 - Gas detectors;
 - Ropes;
 - Slings, ring, straps or anchoring straps;

- Connectors;
- Pulleys;
- Blockers;
- Stretchers;
- Tripod;
- ventilation systems
- Lock systems
- Area isolation systems
- Assembly of basic stringing knots (blocking, finishing, splicing, anchoring and securing);
- Assembly of simple, semi-equalized anchorages, splits and deviations with stringing knots;
- Effect of angles formed by anchorages on load distribution;
- Assembly and operation of simple mechanical advantage systems (block);
- Performance limits of rope progression equipment used in victim rescues;
- Pre-use inspection of the individual and collective rescue equipment used;
- Identification of conditions of operational readiness or damage, defects and wear and tear for refusal of equipment that has been disapproved according to the manufacturers' instructions;
- Methods for cleaning, packing and transporting rescue equipment;
- Conceptualization of the shock force generated by arresting a fall from a height;
- Conceptualization of fall factor and free fall zone;
- Knowledge of how inert suspension trauma develops and its main therapeutic measures;
- Use of available means of communication, as well as use of terminology used as standard language for emergencies;
- Conceptualization of rope vertical progression techniques in rescues;
- Immobilization techniques for victims on stretchers, with or without the use of spine or limb immobilizers;
- Basic stretcher movement techniques (vertical, horizontal and terrestrial);
- Basic rope progression techniques: ascent and descent, passage of fractions, deviations and knots;
- Execution of descent techniques on tensioned ropes;
- Execution of progression techniques on horizontal and inclined ziplines;
- Use of means of fortune applied to rope rescue techniques;
- Technical factors that affect the efficiency of a rope and confined space rescue;
- Techniques for using respiratory protection equipment applied to rescue;
- Redemption procedures;
- Analysis of accident cases during rescues;
- Practice: simulation of possible accident scenarios, identified from risk analyses.
- Execution of rescue techniques with progression by rope for descent with victims with passage of fractions, deviations and knots;
- Execution of rescue techniques with rope progression to move the victim downwards or upwards;
- Execution of rescue techniques with rope progression to unblock victims suspended in descenders, lifts or personal fall protection systems;
- Different types of vertical transport stretchers, as well as their compatibility with the type of operation or the victim's injury;
- Immobilization techniques for victims on stretchers, with or without the use of spine or limb immobilizers;
- Techniques for vertical movement of victims at heights or in confined spaces using pre-engineered rescue and evacuation systems or simple mechanical advantage systems;
- Assembly and operation of vertical and horizontal movement systems for stretchers on tensioned ropes (tyrolin) horizontally and diagonally;
- Basic stretcher handling techniques (vertical, horizontal and land);
- Technical factors that affect the efficiency of a rope and/or confined space rescue (e.g. performance, speed, range, duration, weather conditions, confined space environment, rescuer, etc.);
- Techniques for the use of respiratory protection equipment applied in rescue.

COURSE DESIGN:

Theoretical – 16 hours

Practical – 16 hours

TOTAL: 32 hours

PREREQUISITE(S):

- Be legally responsible, that is, be over 18 years of age;
- Be literate, that is, have completed at least elementary school or 1st grade;
- Valid NR-33 training (authorized worker, watchman or supervisor);
- Valid NR-35 Work at Height training;
- Compliance with the previous items guarantees compliance with the requirement of having basic knowledge in first aid.
- Be in good physical condition and in good health (valid ASO that covers the tasks of a brigade member);
- It is desirable: To have previous experience as a rescuer and to have good knowledge of the facilities, preferably those with good physical and psychological shape should be chosen.

MINIMUM/MAXIMUM NUMBER OF DELEGATES

This course requires a minimum of 3, and a maximum number of 12 trainees.

MAIN SAFETY ISSUES:

- Claim recognition and signs of abandonment;
- Equipment previously available on site;
- Care in handling gas detectors, rescue equipment at height;
- Care in moving and conducting the personnel involved and the victims;
- Group deployments in firefighting.

REQUIRED EQUIPMENT:

- Space with structures compatible with carrying out simulated rescue exercises;
- Gas detectors;
- Parachute type harness;
- Lanyards;
- Fall arrest device;
- Tripod installed with rescue winch;
- Self-contained breathing apparatus (SCBA);
- Autonomous set for escape;
- Communicating radios;
- Connectors;
- Descender;
- Lifts;
- Ropes;

- Pulleys;
- Slings, anchor rings, tapes or straps;
- Ventilation systems;
- Locking systems;
- Area isolation systems;
- First aid materials: Splints, cervical collars, stretchers, Manual Respirators (AMBU), etc.

PROCEDURE FOR PRACTICAL EXERCISES

- Demonstration of the use of EX-certified Equipment and its importance for confined spaces;
- Use and demonstration of gas measuring equipment;
- Simulation of pre-entry practices: Risk analysis, ventilation equipment (if any), gas testing, etc.;
- Practical demonstration of confined space entry equipment: Mounting and handling tripods, guide wires, safety belts, fall arresters, etc.;
- Simulation of entry into confined spaces (in a situation and in a controlled environment, never in a confined space that has identified substantial risks);
- Simulation of the use of different communication methods between workers;
- Positioning and demonstration of rescue equipment;
- Clarifications on the use of the Entry and Work Permit;
- Descent and removal of the victim;
- In the first aid part, a demonstration will be done with a dummy or volunteer on how to perform immobilization, transport and positioning for CPR and ventilation, as well as demonstration of related equipment such as stretcher, respirator, splints, etc.

CERTIFICATION:

Training certificate signed by responsible Engineer accredited by Brazilian CREA.

CERTIFICATE VALIDITY PERIOD:

- 2 years, or eventually in the following situations:
 - a) When there is a change in work procedures, conditions or operations, which imply a change in occupational hazards;
 - b) In the event of a serious or fatal accident, which indicates the need for new training;
 - c) After returning from work leave for more than 180 (one hundred and eighty) days;
 - d) When deviations are identified in the rescue operation or in the simulations.