



CONFINED SPACE SAFETY AND RESCUE TRAINING COURSES



**INDUSTRIAL WORKING IN
CONFINED SPACE**

About Rescue 3 Europe

Rescue 3 Europe develops state of the art technical rescue courses, providing internationally recognised accreditation for organisations and individuals operating in high risk environments.

As an international accrediting body, Rescue 3 provide up to date best practice guidance that is constantly evolving in line with new research and testing. All changes and developments of Rescue 3 courses go through a process of peer review and oversight by a steering committee made up of industry experts from all over the world.

Rescue 3 training providers deliver courses worldwide, in multiple disciplines, including: rope, water, boat, ice and confined space rescue. Our large suite of courses have been adopted by mountain rescue teams, wind turbine operators, fire and rescue services, ambulance teams, utilities providers, and military personnel.

Within each discipline, Rescue 3 accredited courses cover every level of operations, whether this is at an awareness level, avoiding risks and applying simple safe systems of work; or at more advanced levels where practitioners must acquire high levels of personal skills and understanding to access and navigate difficult environments.

For over four decades Rescue 3 has provided the standard for technical rescue training, offering guidance and support for maintaining best practice.





The course learning outcomes are provided as pre- and post-course reference for people involved in the delivery of Rescue 3 courses (eg Rescue 3 training providers, instructors and students). They are not to be used for any other purpose without the express written permission of Rescue 3 Europe.

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Confined Space Awareness (CSA)

Course overview and target audience

Confined Space Awareness (CSA) is a course that looks at hazards and risks associated with confined spaces. It provides first attendance crews with the knowledge to assess the scene, recognise when to wait for specialist crews, and/or make the scene safe and set up appropriate command and control. People only trained to Awareness level shouldn't enter confined spaces.

Contact hours 3.5 hours (0.5 days)	Prerequisites None
Qualification valid for 3 years	Accredited by Rescue 3 Europe

Taught by

- Confined Space Awareness Instructor (CSAI)
- Safe Working In Confined Spaces Instructor (SWCSI)
- Confined Space Entry and Rescue Instructor (CSERI)

Assessment

The assessed elements of this course are:

- Foundation knowledge



Confined Space Awareness (CSA) skill sheet contents

Theory
Rescue 3 introduction
Confined space definitions, hazards and categories
Legislation and standards
Personal safety
Safe systems of work
Introduction to air monitoring
Introduction to 4-gas diffuse meters
Introduction to personal and team equipment
Entry procedure considerations
Introduction to confined space ventilation
Introduction to emergency procedures



Confined Space Awareness (CSA) learning outcomes and key teaching points

	Skill sheet element		Learning outcome	Key teaching points
1	Rescue 3 introduction	1.1	Be aware of Rescue 3 as the accrediting body for this course	Rescue 3 International, Rescue 3 Europe, Rescue 3 training providers
		1.2	Recognise the different training courses within the Rescue 3 scheme	Rescue 3 confined space courses (including low, low and medium, and high risk). Other Rescue 3 courses eg rope courses
		1.3	Recall the remit and role of an individual trained to Rescue 3 CSA	First attendance crews assessing the scene, recognising when to wait for specialist crews, and/or make the scene safe and set up appropriate command and control. Appropriate support role to specialist crews at an incident. People only trained to Awareness level shouldn't enter confined spaces.
2	Confined space definitions, hazards and categories	2.1	Recall the definition of a confined space	Common characteristics of a confined space. Definitions such as UK confined space regulations definition, NFPA definition
		2.2	Identify common hazards associated with confined spaces, and how confined spaces can be categorised according to risk	Risk of fire, explosion. Atmospheric hazards - low/high oxygen, toxic gases. Free-flowing solids, water and fluids etc. Fall from height/into depth. Classification as low, medium or high risk confined spaces
3	Legislation and standards	3.1	Be aware of applicable legislation and its requirements for working confined spaces, in the jurisdiction where training and/or work is taking place	National regulations, such as UK Confined Space Regulations 1997, Ireland The Safety, Health and Welfare at Work (Confined Spaces) Regulations 2001, Netherlands Arboret and Arbobesluit
		3.2	Be aware of the existence of sector-specific national and international standards for working in confined spaces	Eg NFPA 350 (2019), UK Water Industry
		3.3	Be aware that the Rescue 3 training scheme aligns with national and international standards and legislation	Course content written to reflect international best practice



	Skill sheet element		Learning outcome	Key teaching points
4	Personal safety	4.1	Be aware of personal safety considerations when working near confined spaces at all times	Safe person concept. Do not enter confined space if only trained to Awareness level. Risks of confined space specific hazards, and other generic workplace hazards, eg slips, trips and falls. Electricity, other workers and machinery. Number of confined space fatalities who were would-be rescuers



	Skill sheet element		Learning outcome	Key teaching points
5	Safe systems of work	5.1	Recall the common components of a safe system of work	Hazard assessment, risk assessment, method statement, rescue plan, dynamic risk assessment, site briefing, review
		5.2	Identify the elements of an effective generic and site-specific risk assessment	Identify the hazards, decide who might be harmed and how, evaluate the risks and decide on precaution, record your findings and implement them, review your assessment and update if necessary
		5.3	Identify hazards and control measures associated with confined spaces	Hazards include: risk of fire/explosion. Atmospheric hazards - low/high oxygen, toxic gases. Free flowing solids, water and fluids etc. Fall from height/into depth. Control measures include: air monitoring, safe work at height procedures, appropriate training, PPE, safe access/egress systems for suitably-trained staff.
		5.4	Understand the benefits of a method statement, its use, and common elements contained within it	Method statement describes in a logical sequence exactly how a job is to be carried out in a safe manner and without risks to health. It includes all the risks identified in the risk assessment and the measures needed to control those risks
		5.5	Understand the structure, use and potential benefits of a permit to work system	Permit to work is part of a safe system of work, and not a replacement for it. Common information needed on a permit to work. Role of person issuing and accepting the permit to work. Permit to work duration and closure
		5.6	Understand that a rescue plan is a vital part of a safe system of work	Rescue plan needs to be suitable for potential events. Rescue plan must be matched by capability to perform the rescue. Rescue plan should not be reliant on calling emergency services



	Skill sheet element		Learning outcome	Key teaching points
6	Introduction to air monitoring	6.1	Recall the constituent gas levels in a normal atmosphere	Oxygen 20.9%. Nitrogen 78%. Argon 0.9%. Other gases in very small quantities including carbon dioxide
		6.2	Understand risk and possible causations of low and high oxygen levels	Low O ₂ can cause asphyxiation. High O ₂ can increase risk of fire/explosion
		6.3	Understand the risks associated with flammable and explosive atmospheres	Flammable range. Lower explosive limit. Upper explosive limit. Tetrahedron of combustion
		6.4	Recall how potential flammable and explosive atmospheres can be measured, including the use of correction factors	LEL sensor calibrated to known gas. Reading is based on test gas used and needs to be corrected to actual gas if known. Reasons for alarms setting normally set to 10%/20% of LEL
		6.5	Have an awareness of both short- and long-term hazards associated with the presence of toxic gases and vapours, how these are measured and exposure controlled	Toxic gases generally measured in ppm. Conversion of ppm to % volume. Workplace exposure limits set by legislation (eg EH40). STEL and LTEL are both time-weighted averages (TWA)
		6.6	Have an understanding of high, low, STEL and WEL alarm levels on a gas meter	Workplace exposure limits set by legislation (eg EH40). STEL and LTEL are both time-weighted averages (TWA)
		6.7	Have an understanding of vapour density and how it affects air monitoring practice in confined spaces	Air = 1. <1 gas will rise. >1 gas will sink. Need to measure at multiple levels
7	Introduction to 4-gas diffuse meters	7.1	Recall how to turn on a 4 gas diffuse meter and perform a functional bump test	Fresh air startup. Check calibration dates. Use of appropriate gas for bump test to ensure all sensors alarm. Clear reading after bump start has been conducted
		7.2	Recall common meter functions that can be set up as required	Reading latching. Confidence beep. Alarm options (audio/visual/vibrate)
		7.3	Recall common methods of monitoring the air in a confined space with horizontal entry.	Reach pole options to measure without entering.



	Skill sheet element		Learning outcome	Key teaching points
8	Introduction to personal and team equipment	8.1	Have an awareness of personal protective equipment (PPE) used by suitably-trained staff for working in horizontal confined spaces	Harness (fall arrest/work positioning), helmet, work restraint lanyards and connectors, coveralls, gloves, eye and ear protection. Harness should be worn by all confined space entrants, including horizontal confined spaces
		8.2	Have an awareness of applicable national and international standards for PPE	EN standards, applicable national standards
		8.3	Have an awareness of team equipment used by suitably-trained staff for working in confined spaces	Gas meters, tripods, ladders, winches/pulley systems, fall arrest blocks, communication equipment, ventilation equipment, tools for work within confined space
		8.4	Have an awareness of pre-use and post-use care and inspection procedures for team equipment	Pre-use function checks. Post-use checks, cleaning, storage and care. Periodic equipment inspections
9	Entry procedure considerations	9.1	Have a working knowledge of the various team roles (and their responsibilities) to undertake a horizontal confined space entry into a low or medium risk confined space	Entry supervisor, entry assistants, entrant(s) (including intermediate entrant), air monitoring person
10	Introduction to confined space ventilation	10.1	Recall when and why a confined space would be ventilated	Before entry to achieve normal atmosphere. After air monitoring finds a non-standard atmosphere. To remove dust etc created by work in the confined space
		10.2	Recall the different types of ventilation systems and their advantages/disadvantages	Natural ventilation, forced air (overpressure), forced extraction (underpressure)
11	Introduction to emergency procedures	11.1	Have an awareness of the emergency procedures in case of an alarm during a confined space entry	Alarm signal Alarm causes Muster point Way of extraction Closing the confined space for unintended visitors Wind direction and emergency escape route Support role of Awareness-trained staff.





Safe Working in Confined Spaces (Low and Medium Risk. Horizontal) (SWCSH)

Course overview and target audience

The Safe Working In Confined Spaces (Low and Medium Risk. Horizontal) (SWCSH) course provides insight into the potential hazards and risks of entering confined spaces, and the applicable legislation in this area. The course covers safe systems of work for horizontal entry into low and medium risk confined spaces, and core skills such as air monitoring.

(Formerly known as Safe Working in Confined Spaces 1 – SWCS1).

Contact hours 3.5 hours (0.5 days)	Prerequisites Minimum age: 18
Qualification valid for 3 years	Accredited by Rescue 3 Europe

Taught by

- Safe Working in Confined Space Instructor (SWCSI)
- Confined Space Entry and Rescue Instructor (CSERI)
- Confined Space Rescue Operator Instructor (CSROI)
- Confined Space Rescue Technician Instructor (CSRTI)
- Confined Space Rescue Specialist Instructor (CSRSI)

Assessment

The assessed elements of this course are:

- Foundation knowledge
- Use of a 4 gas diffuse meter



Safe Working in Confined Spaces (Low and Medium Risk. Horizontal) (SWCSH) skill sheet contents

Theory
1. Rescue 3 introduction
2. Confined space definitions, hazards and categories
3. Legislation and standards
4. Personal safety
5. Safe systems of work for confined space entry
6. Isolation - lock-out, tag-out, try-out
7. Introduction to air monitoring
8. Personal and team equipment
9. Entry procedures
10. Communications and verbal commands
Practical
11. Respiratory protective equipment (RPE) - escape sets
12. Use of a 4-gas diffuse meter
13. Introduction to confined space ventilation
14. Connecting to a rope
15. Dynamic risk assessment
16. On-scene safety briefing and site control
17. Horizontal confined space entry and exit
18. Emergency procedures



Safe Working in Confined Spaces (Low and Medium Risk. Horizontal) (SWCSH) learning outcomes and key teaching points

	Skill sheet element		Learning outcome	Key teaching points
1	Rescue 3 introduction	1.1	Be aware of Rescue 3 as the accrediting body for this course	Rescue 3 International, Rescue 3 Europe, Rescue 3 training providers
		1.2	Recognise the different training courses within the Rescue 3 scheme	Rescue 3 confined space courses (including low, low and medium, and high risk). Other Rescue 3 courses eg rope courses
		1.3	Recall the remit and role of an individual trained to Rescue 3 SWCSH	Horizontal entry to low and medium risk confined spaces. Rescue capability limited to basic retrieval of entrant
2	Confined space definitions, hazards and categories	2.1	Recall the definition of a confined space	Common characteristics of a confined space. Definitions such as UK confined space regulations definition, NFPA definition
		2.2	Identify common hazards associated with confined spaces, and how confined spaces can be categorised according to risk	Risk of fire, explosion. Atmospheric hazards - low/high oxygen, toxic gases. Free-flowing solids, water and fluids etc. Fall from height/into depth. Classification as low, medium or high risk confined spaces
3	Legislation and standards	3.1	Be aware of applicable legislation and its requirements for working confined spaces, in the jurisdiction where training and/or work is taking place	National regulations, such as UK Confined Space Regulations 1997, Ireland The Safety, Health and Welfare at Work (Confined Spaces) Regulations 2001, Netherlands Arbowet and Arbobesluit
		3.2	Be aware of the existence of sector-specific national and international standards for working in confined spaces	Eg NFPA 350 (2019), UK Water Industry
		3.3	Be aware that the Rescue 3 training scheme aligns with national and international standards and legislation	Course content written to reflect international best practice

SWCSH



	Skill sheet element		Learning outcome	Key teaching points
4	Personal safety	4.1	Be aware of personal safety considerations when working near or in confined spaces at all times	Safe person concept. Do not enter confined space if work can be done without entry. Risks of confined space specific hazards, and other generic workplace hazards, eg slips, trips and falls. Electricity, other workers and machinery. Number of confined space fatalities who were would-be rescuers
5	Safe systems of work for confined space entry	5.1	Recall the common components of a safe system of work	Hazard assessment, risk assessment, method statement, rescue plan, dynamic risk assessment, site briefing, review
		5.2	Identify the elements of an effective generic and site-specific risk assessment	Identify the hazards, decide who might be harmed and how, evaluate the risks and decide on precaution, record your findings and implement them, review your assessment and update if necessary
		5.3	Identify hazards and control measures associated with confined spaces	Hazards include: risk of fire/explosion. Atmospheric hazards - low/high oxygen, toxic gases. Free flowing solids, water and fluids etc. Fall from height/into depth. Control measures include: air monitoring, safe access/egress systems, safe work at height procedures, appropriate training, PPE
		5.4	Understand the benefits of a method statement, its use, and common elements contained within it	Method statement describes in a logical sequence exactly how a job is to be carried out in a safe manner and without risks to health. It includes all the risks identified in the risk assessment and the measures needed to control those risks



	Skill sheet element		Learning outcome	Key teaching points
	Safe systems of work for confined space entry (continued)	5.5	Understand the structure, use and potential benefits of a permit to work system	Permit to work is part of a safe system of work, and not a replacement for it. Common information needed on a permit to work. Role of person issuing and accepting the permit to work. Permit to work duration and closure
		5.6	Understand that a rescue plan is a vital part of a safe system of work	Rescue plan needs to be suitable for potential events. Rescue plan must be matched by capability to perform the rescue. Rescue plan should not be reliant on calling emergency services
6	Isolation - lock-out, tag-out, try-out	6.1	Recall appropriate use of lock-out, tag-out, try-out procedures	Lock-out, tag-out, try-out (LOTOTO) procedures and installation. Specific plan per company. Why and how to do. Type of equipment
7	Introduction to air monitoring	7.1	Recall the constituent gas levels in a normal atmosphere	Oxygen 20.9%. Nitrogen 78%. Argon 0.9%. Other gases in very small quantities including carbon dioxide
		7.2	Understand risk and possible causations of low and high oxygen levels	Low O ₂ can cause asphyxiation. High O ₂ can increase risk of fire/explosion
		7.3	Understand the risks associated with flammable and explosive atmospheres	Flammable range. Lower explosive limit. Upper explosive limit. Tetrahedron of combustion
		7.4	Recall how potential flammable and explosive atmospheres can be measured, including the use of correction factors	LEL sensor calibrated to known gas. Reading is based on test gas used and needs to be corrected to actual gas if known. Reasons for alarms setting normally set to 10%/20% of LEL
		7.5	Have an awareness of both short- and long-term hazards associated with the presence of toxic gases and vapours, how these are measured and exposure controlled	Toxic gases generally measured in ppm. Conversion of ppm to % volume. Workplace exposure limits set by legislation (eg EH40). STEL and LTEL are both time-weighted averages (TWA)
		7.6	Have an understanding of high, low, STEL and WEL alarm levels on a gas meter	Workplace exposure limits set by legislation (eg EH40). STEL and LTEL are both time-weighted averages (TWA)
		7.7	Have an understanding of vapour density and how it affects air monitoring practice in confined spaces	Air = 1. <1 gas will rise. >1 gas will sink. Need to measure at multiple levels



	Skill sheet element		Learning outcome	Key teaching points
8	Personal and team equipment	8.1	Identify personal protective equipment (PPE) for working in horizontal confined spaces	Harness (fall arrest/work positioning), helmet, work restraint lanyards and connectors, coveralls, gloves, eye and ear protection. Harness should be worn by all confined space entrants, including horizontal confined spaces
		8.2	Have an awareness of applicable national and international standards for PPE	EN standards, applicable national standards
		8.3	Use appropriate PPE for working in confined spaces, perform pre-use checks, donning and buddy checks	Pre-use checks vs periodic examinations required by legislation. Correct equipment, compatible, condition, age, records and traceability, fastened correctly, PPE fit, anchors, ground clearance, site
		8.4	Identify team equipment used for working in confined spaces	Gas meters, tripods, ladders, winches/pulley systems, fall arrest blocks, communication equipment, ventilation equipment, tools for work within confined space
		8.5	Recall pre-use and post-use care and inspection procedures for team equipment	Pre-use function checks. Post-use checks, cleaning, storage and care. Periodic equipment inspections
9	Entry procedures	9.1	Have a working knowledge of the various team roles (and their responsibilities) to undertake a horizontal confined space entry into a low or medium risk confined space	Entry supervisor, entry assistants, entrant(s) (including intermediate entrant), air monitoring person
10	Communications and verbal commands	10.1	Use verbal commands in confined space operations	Speak slowly Short messages Repeat message Confirmation
		10.2	Identify correct use of mobile radios in confined space operations	Speak slowly Short messages Repeat message Confirmation
		10.3	Compare merits and limitations of communication methods in confined space operations	Radio interference Line of sight Darkness ATEX considerations



	Skill sheet element		Learning outcome	Key teaching points
11	Respiratory protective equipment (RPE) - escape sets	11.1	Identify when personal escape sets are used, types available and their benefits and limitations	Potential risk of atmospheric hazard. Time limitations. Mask leaking. Differences between demand valve masks and constant flow hoods. Only used to exit a confined space, not to supply breathing air for entry
		11.2	Perform a pre-use check of a personal escape set	Check gauge. Check service date. Check trigger clip is connected
		11.3	Use a personal escape set in a confined space	Perform an emergency exercise to don escape set and exit confined space
12	Use of a 4-gas diffuse meter	12.1	Turn on 4 gas diffuse meter and perform a functional bump test	Fresh air startup. Check calibration dates. Use of appropriate gas for bump test to ensure all sensors alarm. Clear reading after bump start has been conducted
		12.2	Recall common meter functions that can be set up as required	Reading latching. Confidence beep. Alarm options (audio/visual/vibrate)
		12.3	Use a 4 gas diffuse meter to monitor the air in a confined space with horizontal entry	Reach pole options to measure before entry
		12.4	Use a 4 gas diffuse meter as a personal meter when entering a confined space	Consideration where to attach the meter. Take meter readings and communicate these to entry supervisor
13	Introduction to confined space ventilation	13.1	Recall when and why a confined space would be ventilated	Before entry to achieve normal atmosphere. After air monitoring finds a non-standard atmosphere. To remove dust etc created by work in the confined space
		13.2	Recall the different types of ventilation systems and their advantages/disadvantages	Natural ventilation, forced air (overpressure), forced extraction (underpressure)
14	Connecting to a rope	14.1	Connect to a tether rope to enter a horizontal confined space	Required: use of sewn terminations. Additional content depending on agency use: overhand on a bight, figure of 8 on a bight



	Skill sheet element		Learning outcome	Key teaching points
15	Dynamic risk assessment	15.1	Identify the elements of an effective dynamic risk assessment (aka last minute risk analysis)	Is written risk assessment and method statement relevant to conditions/site/personnel? Are air monitor readings as expected? Weather considerations etc.
		15.2	Perform a pre-entry dynamic risk assessment	Is written risk assessment and method statement relevant to conditions/site/personnel? Are air monitor readings as expected? Weather considerations etc
16	On-scene safety briefing and site control	16.1	Based on hazard recognition, apply appropriate control measures to protect personnel and bystanders, for a confined space with horizontal entry	Site zoning and exclusion. Team roles
		16.2	Install and mark site zones	Methods of marking site zone
		16.3	Perform/observe a pre-entry briefing, for a confined space with horizontal entry	Information on site/confined space. Task to be performed and job roles. Pre-entry gas monitoring readings. Emergency procedures and rescue plan. Confirm all written documentation in place as required. Dynamic risk assessment/last minute risk analysis. Questions/team to confirm understanding
17	Horizontal confined space entry and exit	17.1	Enter and exit a horizontal confined space	All entrants to wear a harness. Use of tether rope
		17.2	Recover an entrant from a horizontal confined space	Use of tether rope to drag entrant. Considerations for entering to recover entrant
18	Emergency procedures	18.1	Identify and reproduce the emergency procedures in case of an alarm during a confined space entry	Alarm signal Alarm causes Muster point Way of extraction Closing the confined space for unintended visitors Wind direction and emergency escape route



Safe Working in Confined Spaces (Low and Medium Risk. Horizontal and Vertical) (SWCSHV)

Course overview and target audience

The Safe Working in Confined Spaces (Low and Medium Risk. Horizontal and Vertical) (SWCSHV) course provides insight into the dangers that workers face when working in confined spaces and the applicable legislation in this area. The course covers safe systems of work for entry into low and medium risk confined spaces, and core skills such as air monitoring, ventilation and horizontal and vertical access/egress into confined spaces.

(Formerly known as Safe Working in Confined Spaces 2 - SWCS2).

Contact hours 6 hours (1 day)	Prerequisites Minimum age: 18
Qualification valid for 3 years	Accredited by Rescue 3 Europe

Taught by

- Safe Working in Confined Space Instructor (SWCSI)
- Confined Space Entry and Rescue Instructor (CSERI)
- Confined Space Rescue Operator Instructor (CSROI)
- Confined Space Rescue Technician Instructor (CSRTI)
- Confined Space Rescue Specialist Instructor (CSRSI)

Assessment

The assessed elements of this course are:

- Foundation knowledge
- Use of a 4 gas diffuse meter
- Tripod and retrievable fall arrest block setup and operation



Safe Working in Confined Spaces (Low and Medium Risk. Horizontal and Vertical) (SWCSHV) skill sheet contents

Theory	
1.	Rescue 3 introduction
2.	Confined space definitions, hazards and categories
3.	Legislation and standards
4.	Personal safety
5.	Safe systems of work for confined space entry
6.	Isolation - lock-out, tag-out, try-out
7.	Introduction to air monitoring
8.	Personal and team equipment
9.	Entry procedures
10.	Communications and verbal commands
11.	Introduction to loads and forces
Practical	
12.	Respiratory protective equipment (RPE) - escape sets
13.	Use of a 4-gas diffuse meter
14.	Introduction to confined space ventilation
15.	Knots and terminations
16.	Anchor systems
17.	Dynamic risk assessment and safety checks
18.	On-scene safety briefing and site control
19.	Standard tripod configurations and mechanical hoisting
20.	Work restraint
21.	Vertical confined space entry and exit
22.	Emergency procedures



Safe Working in Confined Spaces (Low and Medium Risk. Horizontal and Vertical) (SWCSHV) learning outcomes and key teaching points

	Skill sheet element		Learning outcome	Key teaching points
1	Rescue 3 introduction	1.1	Be aware of Rescue 3 as the accrediting body for this course	Rescue 3 International, Rescue 3 Europe, Rescue 3 training providers
		1.2	Recognise the different training courses within the Rescue 3 scheme	Rescue 3 confined space courses (including low, low and medium, and high risk). Other Rescue 3 courses eg rope courses
		1.3	Recall the remit and role of an individual trained to Rescue 3 SWCSHV	Entry to low and medium risk confined spaces, with either horizontal or vertical access and egress. Rescue capability limited to basic retrieval of entrant without any rescuers entering confined space
2	Confined space definitions, hazards and categories	2.1	Recall the definition of a confined space	Common characteristics of a confined space. Definitions such as UK confined space regulations definition, NFPA definition
		2.2	Identify common hazards associated with confined spaces, and how confined spaces can be categorised according to risk	Risk of fire, explosion. Atmospheric hazards - low/high oxygen, toxic gases. Free-flowing solids, water and fluids etc. Fall from height/into depth. Classification as low, medium or high risk confined spaces
3	Legislation and standards	3.1	Be aware of applicable legislation and its requirements for working confined spaces, in the jurisdiction where training and/or work is taking place	National regulations, such as UK Confined Space Regulations 1997, Ireland The Safety, Health and Welfare at Work (Confined Spaces) Regulations 2001, Netherlands Arboret and Arbobesluit
		3.2	Be aware of the existence of sector-specific national and international standards for working in confined spaces	Eg NFPA 350 (2019), UK Water Industry
		3.3	Be aware that the Rescue 3 training scheme aligns with national and international standards and legislation	Course content written to reflect international best practice

SWCSHV



	Skill sheet element		Learning outcome	Key teaching points
4	Personal safety	4.1	Be aware of personal safety considerations when working near or in confined spaces at all times	Safe person concept. Do not enter confined space if work can be done without entry. Risks of confined space specific hazards, and other generic workplace hazards, eg slips, trips and falls. Electricity, other workers and machinery. Number of confined space fatalities who were would-be rescuers
5	Safe systems of work for confined space entry	5.1	Recall the common components of a safe system of work	Hazard assessment, risk assessment, method statement, rescue plan, dynamic risk assessment, site briefing, review
		5.2	Identify the elements of an effective generic and site-specific risk assessment	Identify the hazards, decide who might be harmed and how, evaluate the risks and decide on precaution, record your findings and implement them, review your assessment and update if necessary
		5.3	Identify hazards and control measures associated with confined spaces	Hazards include: risk of fire/explosion. Atmospheric hazards - low/high oxygen, toxic gases. Free flowing solids, water and fluids etc. Fall from height/into depth. Control measures include: air monitoring, safe access/egress systems, safe work at height procedures, appropriate training, PPE
		5.4	Understand the benefits of a method statement, its use, and common elements contained within it	Method statement describes in a logical sequence exactly how a job is to be carried out in a safe manner and without risks to health. It includes all the risks identified in the risk assessment and the measures needed to control those risks



	Skill sheet element		Learning outcome	Key teaching points
	Safe systems of work for confined space entry (continued)	5.5	Understand the structure, use and potential benefits of a permit to work system	Permit to work is part of a safe system of work, and not a replacement for it. Common information needed on a permit to work. Role of person issuing and accepting the permit to work. Permit to work duration and closure
		5.6	Understand that a rescue plan is a vital part of a safe system of work	Rescue plan needs to be suitable for potential events. Rescue plan must be matched by capability to perform the rescue. Rescue plan should not be reliant on calling emergency services
6	Isolation - lock-out, tag-out, try-out	6.1	Recall appropriate use of lock-out, tag-out, try-out procedures	Lock-out, tag-out, try-out (LOTOTO) procedures and installation. Specific plan per company. Why and how to do. Type of equipment
7	Introduction to air monitoring	7.1	Recall the constituent gas levels in a normal atmosphere	Oxygen 20.9%. Nitrogen 78%. Argon 0.9%. Other gases in very small quantities including carbon dioxide
		7.2	Understand risk and possible causations of low and high oxygen levels	Low O ₂ can cause asphyxiation. High O ₂ can increase risk of fire/explosion
		7.3	Understand the risks associated with flammable and explosive atmospheres	Flammable range. Lower explosive limit. Upper explosive limit. Tetrahedron of combustion
		7.4	Recall how potential flammable and explosive atmospheres can be measured, including the use of correction factors	LEL sensor calibrated to known gas. Reading is based on test gas used and needs to be corrected to actual gas if known. Reasons for alarms setting normally set to 10%/20% of LEL
		7.5	Have an awareness of both short- and long-term hazards associated with the presence of toxic gases and vapours, how these are measured and exposure controlled	Toxic gases generally measured in ppm. Conversion of ppm to % volume. Workplace exposure limits set by legislation (eg EH40). STEL and LTEL are both time-weighted averages (TWA)
		7.6	Have an understanding of high, low, STEL and WEL alarm levels on a gas meter	Workplace exposure limits set by legislation (eg EH40). STEL and LTEL are both time-weighted averages (TWA)
		7.7	Have an understanding of vapour density and how it affects air monitoring practice in confined spaces	Air = 1. <1 gas will rise. >1 gas will sink. Need to measure at multiple levels



	Skill sheet element		Learning outcome	Key teaching points
8	Personal and team equipment	8.1	Identify personal protective equipment (PPE) for working in confined spaces	Harness (fall arrest/work positioning), helmet, work restraint lanyards and connectors, coveralls, gloves, eye and ear protection. Harness should be worn by all confined space entrants, including horizontal confined spaces
		8.2	Have an awareness of applicable national and international standards for PPE	EN standards, applicable national standards
		8.3	Use appropriate PPE for working in confined spaces, perform pre-use checks, donning and buddy checks	Pre-use checks vs periodic examinations required by legislation. Correct equipment, compatible, condition, age, records and traceability, fastened correctly, PPE fit, anchors, ground clearance, site
		8.4	Identify team equipment used for working in confined spaces	Gas meters, tripods, ladders, winches/pulley systems, fall arrest blocks, communication equipment, ventilation equipment, tools for work within confined space
		8.5	Recall pre-use and post-use care and inspection procedures for team equipment	Pre-use function checks. Post-use checks, cleaning, storage and care. Periodic equipment inspections
9	Entry procedures	9.1	Have a working knowledge of the various team roles (and their responsibilities) to undertake a confined space entry into a low or medium risk confined space	Entry supervisor, entry assistants, entrant(s) (including intermediate entrant), air monitoring person
10	Communications and verbal commands	10.1	Use verbal commands in confined space operations	Speak slowly Short messages Repeat message Confirmation
		10.2	Identify correct use of mobile radios in confined space operations	Speak slowly Short messages Repeat message Confirmation
		10.3	Use rope pulling signals in confined space operations	1= stop/ok 2 = up 3= down Repeated signals = emergency
		10.4	Compare merits and limitations of communication methods in confined space operations	Radio interference Line of sight Darkness ATEX considerations



	Skill sheet element		Learning outcome	Key teaching points
11	Introduction to loads and forces	11.1	Differentiate between mass and force	Force = mass x acceleration
		11.2	Identify SI base units and derived units used in confined space rescue	Metre (length), second (time), kilogram (mass), Newton (force), metre per second per second (acceleration)
		11.3	Describe the differences between static and dynamic forces	Static = non-moving, eg being held in space. Dynamic = moving, eg in an uncontrolled event
		11.4	Recall the maximum arrest force applicable by legislation	Eg 6kN within the European Union and 8kN within North America
12	Respiratory protective equipment (RPE) - escape sets	12.1	Identify when personal escape sets are used, types available and their benefits and limitations	Potential risk of atmospheric hazard. Time limitations. Mask leaking. Differences between demand valve masks and constant flow hoods. Only used to exit a confined space, not to supply breathing air for entry
		12.2	Perform a pre-use check of a personal escape set	Check gauge. Check service date. Check trigger clip is connected
		12.3	Use a personal escape set in a confined space	Perform an emergency exercise to don escape set and exit confined space
13	Use of a 4-gas diffuse meter	13.1	Turn on 4 gas diffuse meter and perform a functional bump test	Fresh air startup. Check calibration dates. Use of appropriate gas for bump test to ensure all sensors alarm. Clear reading after bump start has been conducted
		13.2	Recall common meter functions that can be set up as required	Reading latching. Confidence beep. Alarm options (audio/visual/vibrate)
		13.3	Use a 4 gas diffuse meter to monitor the air in a confined space	Measuring at minimum three levels: top, middle, bottom, or every 5 metres. Minimum time of measuring per level. Actions if meter alarms. Use of a small rope for lowering. Considerations and benefits for using a pump meter and sampling hose
		13.4	Use a 4 gas diffuse meter as a personal meter when entering a confined space	Consideration where to attach the meter. Take meter readings and communicate these to entry supervisor



	Skill sheet element		Learning outcome	Key teaching points
14	Introduction to confined space ventilation	14.1	Recall when and why a confined space would be ventilated	Before entry to achieve normal atmosphere. After air monitoring finds a non-standard atmosphere. To remove dust etc created by work in the confined space
		14.2	Recall the different types of ventilation systems and their advantages/disadvantages	Natural ventilation, forced air (overpressure), forced extraction (underpressure)
15	Knots and terminations	15.1	Identify, tie and check appropriate knots for confined space entry, or connect to pre-sewn terminations	Required: use of sewn terminations. Additional content depending on agency use: overhand on a bight, figure of 8 on a bight, rethreaded figure of 8, clove hitch
		15.2	Recall factors affecting knot choice for working in confined space	Ability to release under load. Ease of tying. Appropriate for task
16	Anchor systems	16.1	Identify use of anchor systems when undertaking confined space entry/exit	Why we need anchors - work restraint, work positioning and fall arrest. Types of anchors - structural rated/tested, portable (tripod), improvised (railings, vehicles etc)
		16.2	Identify, install and check appropriate single point anchor attachments for working in confined spaces	Direct clip to rated anchor point with connector. Basket hitch with sling. Basket hitch with steel cable. Considerations: sharp edges, angles of slings, karabiner loading and alignment



	Skill sheet element		Learning outcome	Key teaching points
17	Dynamic risk assessment and safety checks	17.1	Identify the elements of an effective dynamic risk assessment (aka last minute risk analysis)	Is written risk assessment and method statement relevant to conditions/site/personnel? Are air monitor readings as expected? Weather considerations etc.
		17.2	Perform a pre-entry dynamic risk assessment	Is written risk assessment and method statement relevant to conditions/site/personnel? Are air monitor readings as expected? Weather considerations etc
		17.3	Identify the components of a safety check	Correct equipment, compatible, condition, age, records and traceability, fastened correctly, PPE fit, anchors, site
		17.4	Perform a pre-entry safety check	Correct equipment, compatible, condition, age, records and traceability, fastened correctly, PPE fit, suitable anchors. Required pre-use checks on equipment, eg retrievable fall arrest block
18	On-scene safety briefing and site control	18.1	Based on hazard recognition, apply appropriate control measures to protect personnel and bystanders	Site zoning and exclusion. Team roles. Fall restraint, fall arrest. Safe access and entry systems
		18.2	Perform/observe a pre-entry briefing	Information on site/confined space. Task to be performed and job roles. Pre-entry gas monitoring readings. Confirm access/egress equipment has been set up and checked. Emergency procedures and rescue plan. Confirm all written documentation in place as required. Dynamic risk assessment/last minute risk analysis. Questions/team to confirm understanding



	Skill sheet element		Learning outcome	Key teaching points
19	Standard tripod configurations and mechanical hoisting	19.1	Recall the appropriate direction of loading a conventional tripod	Loading in the centre of the tripod. Awareness of resultant forces - when anchored anywhere on the tripod, the loaded rope/cable is the resultant force. If the resultant force is outside the footprint of the tripod, it will cause the tripod to fall over
		19.2	Recall the advantages of mechanical hoisting from the tripod	Retrieval function necessary for emergency recovery. Retrieval function installed on the legs works best
		19.3	Set up, check and use a standard tripod for undertaking a confined space entry	Pre-use inspection. Requirements for whether the tripod requires hobbling. Considerations for setting working height of tripod. Attachment of access/recovery system (retrievable fall arrest block, pre-rigged MA system, man-riding winch etc)
20	Work restraint	20.1	Identify when work restraint equipment is used, its merits and limitations	Prevents an operative from reaching an edge
		20.2	Select, install and check appropriate work restraint equipment	Consider issues around open access hatches. Anchor/edge alignment. Suitability of anchor. Attaching to restraint system in safe area and then approach edge
21	Vertical confined space entry and exit	21.1	Enter and exit a vertical confined space with a ladder and a tripod mounted retrievable fall arrest block (self-retracting lifeline)	Pre-use checks on tripod and retrievable fall arrest block. Considerations for cable attachment to sternal or dorsal fall arrest points on harness
		21.2	Convert the fall arrest block from fall arrest to emergency retrievable function and back to fall arrest	Recovery from confined space on single wire/rope only to be used in emergency situation
		21.3	Recover an entrant from a confined space using a retrievable fall arrest block	Backup safety system needs to be in place to raise a live load
		21.4	Enter and exit a vertical confined space using a tripod-mounted winch/pre-rigged mechanical advantage system and retrievable fall arrest block (self-retracting lifeline) (if used by agency)	Winch/pre-rigged mechanical advantage system as the primary system to raise/lower and retrievable fall arrest block as backup system



	Skill sheet element		Learning outcome	Key teaching points
22	Emergency procedures	22.1	Identify and reproduce the emergency procedures in case of an alarm during a confined space entry	Alarm signal Alarm causes Muster point Way of extraction Closing the confined space for unintended visitors Wind direction and emergency escape route





Confined Space Entry and Rescue (Low and Medium Risk) (CSERLM)

Course overview and target audience

The Confined Space Entry and Rescue (Low and Medium Risk) (CSERLM) course builds on the foundation content of the Safe Working in Confined Spaces (Low and Medium Risk. Horizontal and Vertical) (SWCSHV) course. In addition, this course introduces the skills required to undertake co-worker rescues from low and medium risk confined spaces, including the use of a vertical lift of a casualty in a rescue stretcher.

(Formerly known as Confined Space Entry and Rescue 1 - CSER1).

Contact hours 12 hours (2 days) or 6 hours (1 day) add-on to in-date SWCSHV qualification	Prerequisites Minimum age: 18
Qualification valid for 3 years	Accredited by Rescue 3 Europe

Taught by

- Confined Space Entry and Rescue Instructor (CSERI)
- Confined Space Rescue Operator Instructor (CSROI)
- Confined Space Rescue Technician Instructor (CSRTI)
- Confined Space Rescue Specialist Instructor (CSRSI)

Assessment

The assessed elements of this course are:

- Foundation knowledge
- Use of 4-gas diffuse meter
- Tripod setup and operation for access and rescue
- Casualty packaging and stretcher rigging



Confined Space Entry and Rescue (Low and Medium Risk) (CSERLM) skill sheet contents

Theory	
1. Rescue 3 introduction and philosophy	
2. Confined space definitions, hazards and categories	
3. Legislation and standards	
4. Personal safety	
5. Safe systems of work for confined space entry	
6. Isolation - lock-out, tag-out, try-out	
7. Introduction to air monitoring	
8. Rescue plans, incident size-up and incident management	
9. Personal and team equipment	
10. Entry procedures	
11. Communications and verbal commands	
12. Loads and forces	
13. Medical considerations	
Practical	
14. Respiratory protective equipment (RPE) - escape sets	
15. Use of a 4-gas diffuse meter	
16. Confined space ventilation	
17. Knots and terminations	
18. Anchor systems	
19. Dynamic risk assessment and safety checks	
20. On-scene safety briefing and site control	
21. Standard tripod configuration and mechanical hoisting	
22. Work restraint	
23. Vertical confined space entry and exit	
24. Emergency procedures	
25. Reach type rescue with a telescopic pole	
26. Raising/lowering systems and mechanical advantage	
27. Confined space rescue harnesses and stretchers	
28. Casualty care and packing	
29. Rescue of a casualty from a low/medium risk confined space	



Confined Space Entry and Rescue (Low and Medium Risk) (CSERLM) learning outcomes and key teaching points

	Skill sheet element		Learning outcome	Key teaching points
1	Rescue 3 introduction and philosophy	1.1	Be aware of Rescue 3 as the accrediting body for this course	Rescue 3 International, Rescue 3 Europe, Rescue 3 training providers
		1.2	Recognise the different training courses within the Rescue 3 scheme	Rescue 3 confined space courses (including low, low and medium, and high risk). Other Rescue 3 courses eg rope courses
		1.3	Recall the remit and role of an individual trained to Rescue 3 CSERLM	Entry to and co-worker rescue from low and medium risk confined spaces, with either horizontal or vertical access and egress
		1.4	Recall the steps required in order to develop judgement	Training. Practice. Experience. Judgement
		1.5	Explain the order of priorities when undertaking rescues from confined spaces	Self > team > victim
2	Confined space definitions, hazards and categories	2.1	Recall the definition of a confined space	Common characteristics of a confined space. Definitions such as UK confined space regulations definition, NFPA definition
		2.2	Identify common hazards associated with confined spaces, and how confined spaces can be categorised according to risk	Risk of fire, explosion. Atmospheric hazards - low/high oxygen, toxic gases. Free-flowing solids, water and fluids etc. Fall from height/into depth. Classification as low, medium or high risk confined spaces
3	Legislation and standards	3.1	Be aware of applicable legislation and its requirements for working confined spaces, in the jurisdiction where training and/or work is taking place	National regulations, such as UK Confined Space Regulations 1997, Ireland The Safety, Health and Welfare at Work (Confined Spaces) Regulations 2001, Netherlands Arboret and Arbobesluit
		3.2	Be aware of the existence of sector-specific national and international standards for working in confined spaces	Eg NFPA 350 (2019), UK Water Industry
		3.3	Be aware that the Rescue 3 training scheme aligns with national and international standards and legislation	Course content written to reflect international best practice



	Skill sheet element		Learning outcome	Key teaching points
4	Personal safety	4.1	Be aware of personal safety considerations when working near or in confined spaces at all times	Safe person concept. Do not enter confined space if work can be done without entry. Risks of confined space specific hazards, and other generic workplace hazards, eg slips, trips and falls. Electricity, other workers and machinery. Number of confined space fatalities who were would-be rescuers



	Skill sheet element		Learning outcome	Key teaching points
5	Safe systems of work for confined space entry	5.1	Recall the common components of a safe system of work	Hazard assessment, risk assessment, method statement, rescue plan, dynamic risk assessment, site briefing, review
		5.2	Identify the elements of an effective generic and site-specific risk assessment	Identify the hazards, decide who might be harmed and how, evaluate the risks and decide on precaution, record your findings and implement them, review your assessment and update if necessary
		5.3	Identify hazards and control measures associated with confined spaces	Hazards include: risk of fire/explosion. Atmospheric hazards - low/high oxygen, toxic gases. Free flowing solids, water and fluids etc. Fall from height/into depth. Control measures include: air monitoring, safe access/egress systems, safe work at height procedures, appropriate training, PPE
		5.4	Understand the benefits of a method statement, its use, and common elements contained within it	Method statement describes in a logical sequence exactly how a job is to be carried out in a safe manner and without risks to health. It includes all the risks identified in the risk assessment and the measures needed to control those risks
		5.5	Understand the structure, use and potential benefits of a permit to work system	Permit to work is part of a safe system of work, and not a replacement for it. Common information needed on a permit to work. Role of person issuing and accepting the permit to work. Permit to work duration and closure
		5.6	Understand that a rescue plan is a vital part of a safe system of work	Rescue plan needs to be suitable for potential events. Rescue plan must be matched by capability to perform the rescue. Rescue plan should not be reliant on calling emergency services
6	Isolation - lock-out, tag-out, try-out	6.1	Recall appropriate use of lock-out, tag-out, try-out procedures	Lock-out, tag-out, try-out (LOTOTO) procedures and installation. Specific plan per company. Why and how to do. Type of equipment



	Skill sheet element		Learning outcome	Key teaching points
7	Introduction to air monitoring	7.1	Recall the constituent gas levels in a normal atmosphere	Oxygen 20.9%. Nitrogen 78%. Argon 0.9%. Other gases in very small quantities including carbon dioxide
		7.2	Understand risk and possible causations of low and high oxygen levels	Low O ₂ can cause asphyxiation. High O ₂ can increase risk of fire/explosion
		7.3	Understand the risks associated with flammable and explosive atmospheres	Flammable range. Lower explosive limit. Upper explosive limit. Tetrahedron of combustion
		7.4	Recall how potential flammable and explosive atmospheres can be measured, including the use of correction factors	LEL sensor calibrated to known gas. Reading is based on test gas used and needs to be corrected to actual gas if known. Reasons for alarms setting normally set to 10%/20% of LEL
		7.5	Have an awareness of both short- and long-term hazards associated with the presence of toxic gases and vapours, how these are measured and exposure controlled	Toxic gases generally measured in ppm. Conversion of ppm to % volume. Workplace exposure limits set by legislation (eg EH40). STEL and LTEL are both time-weighted averages (TWA)
		7.6	Have an understanding of high, low, STEL and WEL alarm levels on a gas meter	Workplace exposure limits set by legislation (eg EH40). STEL and LTEL are both time-weighted averages (TWA)
		7.7	Have an understanding of vapour density and how it affects air monitoring practice in confined spaces	Air = 1. <1 gas will rise. >1 gas will sink. Need to measure at multiple levels
8	Rescue plans, incident size-up and incident management	8.1	Explain the importance of rescue plans	Need to provide a suitable rescue solution. Requirements for rescue are determined by confined space risk and complexity, and work being undertaken. Co-worker rescue/standby rescue team considerations
		8.2	Explain the phases of a successful rescue	Locate. Access. Stabilise. Transport
		8.3	Identify possible rescue options	Non-entry and entry required. Casualty raise in harness or stretcher. Best locations for casualty packaging and stretcher orientation
		8.4	Select and implement an appropriate plan of action for a given incident	Casualty care considerations. Team roles and actions



	Skill sheet element		Learning outcome	Key teaching points
9	Personal and team equipment	9.1	Identify personal protective equipment (PPE) for working in confined spaces	Harness (fall arrest/work positioning), helmet, work restraint lanyards and connectors, coveralls, gloves, eye and ear protection. Harness should be worn by all confined space entrants, including horizontal confined spaces
		9.2	Have an awareness of applicable national and international standards for PPE	EN standards, applicable national standards
		9.3	Use appropriate PPE for working in confined spaces, perform pre-use checks, donning and buddy checks	Pre-use checks vs periodic examinations required by legislation. Correct equipment, compatible, condition, age, records and traceability, fastened correctly, PPE fit, anchors, ground clearance, site
		9.4	Identify team equipment used for working in confined spaces	Gas meters, tripods, ladders, winches/pulley systems, fall arrest blocks, communication equipment, ventilation equipment, tools for work within confined space
		9.5	Recall pre-use and post-use care and inspection procedures for team equipment	Pre-use function checks. Post-use checks, cleaning, storage and care. Periodic equipment inspections
10	Entry procedures	10.1	Have a working knowledge of the various team roles (and their responsibilities) to undertake a confined space entry into a low or medium risk confined space	Entry supervisor, entry assistants, entrant(s) (including intermediate entrant), air monitoring person
11	Communications and verbal commands	11.1	Use verbal commands in confined space operations	Speak slowly Short messages Repeat message Confirmation
		11.2	Identify correct use of mobile radios in confined space operations	Speak slowly Short messages Repeat message Confirmation
		11.3	Use rope pulling signals in confined space operations	1= stop/ok 2 = up 3= down Repeated signals = emergency
		11.4	Compare merits and limitations of communication methods in confined space operations	Radio interference Line of sight Darkness ATEX considerations



	Skill sheet element		Learning outcome	Key teaching points
12	Loads and forces	12.1	Differentiate between mass and force	Force = mass x acceleration
		12.2	Identify SI base units and derived units used in confined space rescue	Metre (length), second (time), kilogram (mass), Newton (force), metre per second per second (acceleration)
		12.3	Describe the differences between static and dynamic forces	Static = non-moving, eg being held in space. Dynamic = moving, eg in an uncontrolled event
		12.4	Recall the maximum arrest force applicable by legislation	Eg 6kN within the European Union and 8kN within North America
		12.5	Describe the potential consequences of a rescue load becoming stuck during a raise	Once load is stuck, we are tensioning the rope/wire and additional input on the haul can cause failure
13	Medical considerations	13.1	Identify signs/symptoms and treatment for common medical issues found in confined spaces	Electrocution, amputation, overheating, hypothermia, bleeding, bumps and bruises, spinal injuries, intoxication. DR CABC - danger, response, catastrophic haemorrhage, airway, breathing, circulation
		13.2	Identify individuals at risk for common medical issues found in confined spaces and control measures to minimise these	Individuals at risk: workers, entrants, casualty, rescuers, bystanders. Control measures: safe systems of work and rescue, PPE, training, site zoning and exclusions
14	Respiratory protective equipment (RPE) - escape sets	14.1	Identify when personal escape sets are used, types available and their benefits and limitations	Potential risk of atmospheric hazard. Time limitations. Mask leaking. Differences between demand valve masks and constant flow hoods. Only used to exit a confined space, not to supply breathing air for entry
		14.2	Perform a pre-use check of a personal escape set	Check gauge. Check service date. Check trigger clip is connected
		14.3	Use a personal escape set in a confined space	Perform an emergency exercise to don escape set and exit confined space



	Skill sheet element		Learning outcome	Key teaching points
15	Use of a 4-gas diffuse meter	15.1	Turn on 4 gas diffuse meter and perform a functional bump test	Fresh air startup. Check calibration dates. Use of appropriate gas for bump test to ensure all sensors alarm. Clear reading after bump start has been conducted
		15.2	Recall common meter functions that can be set up as required	Reading latching. Confidence beep. Alarm options (audio/visual/vibrate)
		15.3	Use a 4 gas diffuse meter to monitor the air in a confined space	Measuring at minimum three levels: top, middle, bottom, or every 5 metres. Minimum time of measuring per level. Actions if meter alarms. Use of a small rope for lowering. Considerations and benefits for using a pump meter and sampling hose
		15.4	Use a 4 gas diffuse meter as a personal meter when entering a confined space	Consideration where to attach the meter. Take meter readings and communicate these to entry supervisor
16	Confined space ventilation	16.1	Recall when and why a confined space would be ventilated	Before entry to achieve normal atmosphere. After air monitoring finds a non-standard atmosphere. To remove dust etc created by work in the confined space
		16.2	Recall the different types of ventilation systems and their advantages/disadvantages	Natural ventilation, forced air (overpressure), forced extraction (underpressure)
		16.3	Use appropriate ventilation equipment to ventilate a confined space	Fan and ducting. Manhole entry device. ATEX and power supply options
17	Knots and terminations	17.1	Identify, tie and check appropriate knots for confined space entry and rescue, or connect to pre-sewn terminations	Required: use of sewn terminations. Additional content depending on agency use: overhand on a bight, figure of 8 on a bight, rethreaded figure of 8, clove hitch, reef knot, alpine butterfly
		17.2	Recall factors affecting knot choice for working in confined space	Ability to release under load. Ease of tying. Appropriate for task



	Skill sheet element		Learning outcome	Key teaching points
18	Anchor systems	18.1	Identify use of anchor systems when undertaking confined space entry/exit	Why we need anchors - work restraint, work positioning and fall arrest. Types of anchors - structural rated/tested, portable (tripod), improvised (railings, vehicles etc)
		18.2	Identify, install and check appropriate single point anchor attachments for working in confined spaces	Direct clip to rated anchor point with connector. Basket hitch with sling. Basket hitch with steel cable. Considerations: sharp edges, angles of slings, karabiner loading and alignment
19	Dynamic risk assessment and safety checks	19.1	Identify the elements of an effective dynamic risk assessment (aka last minute risk analysis)	Is written risk assessment and method statement relevant to conditions/site/personnel? Are air monitor readings as expected? Weather considerations etc
		19.2	Perform a pre-entry dynamic risk assessment	Is written risk assessment and method statement relevant to conditions/site/personnel? Are air monitor readings as expected? Weather considerations etc
		19.3	Identify the components of a safety check	Correct equipment, compatible, condition, age, records and traceability, fastened correctly, PPE fit, anchors, site
		19.4	Perform a pre-entry safety check	Correct equipment, compatible, condition, age, records and traceability, fastened correctly, PPE fit, suitable anchors. Required pre-use checks on equipment, eg retrievable fall arrest block



	Skill sheet element		Learning outcome	Key teaching points
20	On-scene safety briefing and site control	20.1	Based on hazard recognition, apply appropriate control measures to protect personnel and bystanders	Site zoning and exclusion. Team roles. Fall restraint, fall arrest. Safe access and entry systems
		20.2	Perform/observe a pre-entry briefing	Information on site/confined space. Task to be performed and job roles. Pre-entry gas monitoring readings. Confirm access/egress equipment has been set up and checked. Emergency procedures and rescue plan. Confirm all written documentation in place as required. Dynamic risk assessment/last minute risk analysis. Questions/team to confirm understanding
21	Standard tripod configurations and mechanical hoisting	21.1	Recall the appropriate direction of loading a conventional tripod	Loading in the centre of the tripod. Awareness of resultant forces - when anchored anywhere on the tripod, the loaded rope/cable is the resultant force. If the resultant force is outside the footprint of the tripod, it will cause the tripod to fall over
		21.2	Recall the advantages of mechanical hoisting from the tripod	Retrieval function necessary for emergency recovery. Retrieval function installed on the legs works best
		21.3	Set up, check and use a standard tripod for undertaking a confined space entry	Pre-use inspection. Requirements for whether the tripod requires hobbling. Considerations for setting working height of tripod. Attachment of access/recovery system (retrievable fall arrest block, pre-rigged MA system, man-riding winch etc)
22	Work restraint	22.1	Identify when work restraint equipment is used, its merits and limitations	Prevents an operative from reaching an edge
		22.2	Select, install and check appropriate work restraint equipment	Consider issues around open access hatches. Anchor/edge alignment. Suitability of anchor. Attaching to restraint system in safe area and then approach edge



	Skill sheet element		Learning outcome	Key teaching points
23	Vertical confined space entry and exit	23.1	Enter and exit a vertical confined space with a ladder and a tripod mounted retrievable fall arrest block (self-retracting lifeline)	Pre-use checks on tripod and retrievable fall arrest block. Considerations for cable attachment to sternal or dorsal fall arrest points on harness
		23.2	Convert the fall arrest block from fall arrest to emergency retrievable function and back to fall arrest	Recovery from confined space on single wire/rope only to be used in emergency situation
		23.3	Recover an entrant from a confined space using a retrievable fall arrest block	Backup safety system needs to be in place to raise a live load
		23.4	Enter and exit a vertical confined space using a tripod-mounted winch/pre-rigged mechanical advantage system and retrievable fall arrest block (self-retracting lifeline)	Winch/pre-rigged mechanical advantage system as the primary system to raise/lower and retrievable fall arrest block as backup system
24	Emergency procedures	24.1	Identify and reproduce the emergency procedures in case of an alarm during a confined space entry	Alarm signal Alarm causes Muster point Way of extraction Closing the confined space for unintended visitors Wind direction and emergency escape route
25	Reach type rescue with a telescopic pole	25.1	Identify when a casualty would be connected to a line using a telescopic pole, its merits and limitations	Casualties not able to assist within reach of a telescopic pole. Advantages: safety for rescuers as no entry required. Limitations: limited reach of the pole. Connection can be very difficult. Emergency procedure - may be no backup system
		25.2	Connect a casualty to a line, using a telescopic pole	Lanyard on pole stops risk of it being dropped. Prevention of dropping objects onto casualty (connectors etc)



	Skill sheet element		Learning outcome	Key teaching points
26	Raising/lowering systems and mechanical advantage	26.1	Demonstrate use of winch or pre-rigged mechanical advantage system to raise/lower	Tripod-mounted man-riding winch. Pre-rigged MA systems. Pre-use checks
		26.2	Demonstrate lowering of rescuers into a confined space and raising of casualty/rescuers from a confined space	Requirements for backup system. Rope/wire protection from edges. Attachments for working rope/wire and backup to harness/stretchers
		26.3	Demonstrate rigging and operation of component-based rope-based raising/lowering system (if used by agency)	Twin rope system. Rigging and operation of rope control devices attached to tripod. Creation of mechanical systems using rope grabs, pulleys, karabiners (simple 3:1, simple 5:1, compound 6:1)
27	Confined space rescue harnesses and stretchers	27.1	Identify various confined space rescue stretchers	Cocoon type stretchers vs basket stretchers
		27.2	Demonstrate rigging of a rescue stretcher for a vertical raise	Rigging of vertical lift bridle. Considerations for secondary attachment point for casualty. Considerations for secondary attachment points for dealing with low anchor points
28	Casualty care and packing	28.1	Identify personnel at risk to suspension-induced syncope, and control measures to minimise this	Casualties tied in harnesses and stretchers in a vertical position, not able to move
		28.2	Demonstrate appropriate casualty care for suspected suspension-induced syncope	Moving legs. Fast rescue. Tell casualty to keep moving if possible. Use of relief straps
		28.3	Demonstrate appropriate casualty packing for a vertical raise in a cocoon-type stretcher	Key areas of support/padding: under heels, behind knees, between legs. Foot orientation. Helmet considerations. Safety glasses
29	Rescue of casualty from a low/medium risk confined space	29.1	Act as part of a team undertaking casualty rescues from a simulated low/medium risk confined space	Team roles. Use of training mannikins, but ideally progressing to live loads by end of course





Confined Space Entry and Rescue (Low, Medium and High Risk) (CSERLMH)

Course overview and target audience

The Confined Space Entry and Rescue (Low, Medium and High Risk) (CSERLMH) course builds on the Confined Space Entry and Rescue (Low and Medium Risk) (CSERLM) course. In addition, this course introduces the skills required to enter and undertake co-worker rescues from a high risk confined space, wearing self-contained breathing apparatus.

(Formerly known as Confined Space Entry and Rescue 2 – CSER2).

Contact hours 18 hours (3 days)	Prerequisites Minimum age: 18
Qualification valid for 3 years	Accredited by Rescue 3 Europe

Taught by

- Confined Space Entry and Rescue Instructor (CSERI)
- Confined Space Rescue Operator Instructor (CSROI)
- Confined Space Rescue Technician Instructor (CSRTI)
- Confined Space Rescue Specialist Instructor (CSRSI)

Assessment

The assessed elements of this course are:

- Foundation knowledge
- Use of 4-gas diffuse meter
- Tripod setup and operation for access and rescue
- Casualty packaging and stretcher rigging
- SCBA pre-use checks
- Entry to confined space wearing SCBA



Confined Space Entry and Rescue (Low, Medium and High Risk) (CSERLMH) skill sheet contents

Theory	
1. Rescue 3 introduction and philosophy	
2. Confined space definitions, hazards and categories	
3. Legislation and standards	
4. Personal safety	
5. Safe systems of work for confined space entry	
6. Isolation - lock-out, tag-out, try-out	
7. Introduction to air monitoring	
8. Rescue plans, incident size-up and incident management	
9. Personal and team equipment	
10. Entry procedures	
11. Communications and verbal commands	
12. Loads and forces	
13. Medical considerations	
Practical	
14. Respiratory protective equipment (RPE) - escape sets and SCBA	
15. Use of a 4-gas diffuse meter	
16. Confined space ventilation	
17. Knots and terminations	
18. Anchor systems	
19. Dynamic risk assessment and safety checks	
20. On-scene safety briefing and site control	
21. Standard tripod configuration and mechanical hoisting	
22. Work restraint	
23. Vertical confined space entry and exit	
24. Emergency procedures	
25. Reach type rescue with a telescopic pole	
26. Raising/lowering systems and mechanical advantage	
27. Confined space rescue harnesses and stretchers	
28. Casualty care and packing	
29. Rescue of a casualty from a low/medium risk confined space	
Self-contained breathing apparatus	
30. SCBA periodic, pre-use and post-use set checks and care	
31. SCBA entry control	
32. Entry to confined space wearing SCBA	
33. Rescue from a high risk confined space wearing SCBA	



Confined Space Entry and Rescue (Low, Medium and High Risk) (CSERLMH) learning outcomes and key teaching points

	Skill sheet element		Learning outcome	Key teaching points
1	Rescue 3 introduction and philosophy	1.1	Be aware of Rescue 3 as the accrediting body for this course	Rescue 3 International, Rescue 3 Europe, Rescue 3 training providers
		1.2	Recognise the different training courses within the Rescue 3 scheme	Rescue 3 confined space courses (including low, low and medium, and high risk). Other Rescue 3 courses eg rope courses
		1.3	Recall the remit and role of an individual trained to Rescue 3 CSERLMH	Entry to and co-worker rescue from high risk confined spaces, with either horizontal or vertical access and egress, including use of SCBA for entry and rescue
		1.4	Recall the steps required in order to develop judgement	Training. Practice. Experience. Judgement
		1.5	Explain the order of priorities when undertaking rescues from confined spaces	Self > team > victim
2	Confined space definitions, hazards and categories	2.1	Recall the definition of a confined space	Common characteristics of a confined space. Definitions such as UK confined space regulations definition, NFPA definition
		2.2	Identify common hazards associated with confined spaces, and how confined spaces can be categorised according to risk	Risk of fire, explosion. Atmospheric hazards - low/high oxygen, toxic gases. Free-flowing solids, water and fluids etc. Fall from height/into depth. Classification as low, medium or high risk confined spaces
3	Legislation and standards	3.1	Be aware of applicable legislation and its requirements for working confined spaces, in the jurisdiction where training and/or work is taking place	National regulations, such as UK Confined Space Regulations 1997, Ireland The Safety, Health and Welfare at Work (Confined Spaces) Regulations 2001, Netherlands Arboret and Arbobesluit
		3.2	Be aware of the existence of sector-specific national and international standards for working in confined spaces	Eg NFPA 350 (2019), UK Water Industry
		3.3	Be aware that the Rescue 3 training scheme aligns with national and international standards and legislation	Course content written to reflect international best practice



	Skill sheet element		Learning outcome	Key teaching points
4	Personal safety	4.1	Be aware of personal safety considerations when working near or in confined spaces at all times	Safe person concept. Do not enter confined space if work can be done without entry. Risks of confined space specific hazards, and other generic workplace hazards, eg slips, trips and falls. Electricity, other workers and machinery. Number of confined space fatalities who were would-be rescuers
5	Safe systems of work for confined space entry	5.1	Recall the common components of a safe system of work	Hazard assessment, risk assessment, method statement, rescue plan, dynamic risk assessment, site briefing, review
		5.2	Identify the elements of an effective generic and site-specific risk assessment	Identify the hazards, decide who might be harmed and how, evaluate the risks and decide on precaution, record your findings and implement them, review your assessment and update if necessary
		5.3	Identify hazards and control measures associated with confined spaces	Hazards include: risk of fire/explosion. Atmospheric hazards - low/high oxygen, toxic gases. Free flowing solids, water and fluids etc. Fall from height/into depth. Control measures include: air monitoring, safe access/egress systems, safe work at height procedures, appropriate training, PPE
		5.4	Understand the benefits of a method statement, its use, and common elements contained within it	Method statement describes in a logical sequence exactly how a job is to be carried out in a safe manner and without risks to health. It includes all the risks identified in the risk assessment and the measures needed to control those risks



	Skill sheet element		Learning outcome	Key teaching points
	Safe systems of work for confined space entry (continued)	5.5	Understand the structure, use and potential benefits of a permit to work system	Permit to work is part of a safe system of work, and not a replacement for it. Common information needed on a permit to work. Role of person issuing and accepting the permit to work. Permit to work duration and closure
		5.6	Understand that a rescue plan is a vital part of a safe system of work	Rescue plan needs to be suitable for potential events. Rescue plan must be matched by capability to perform the rescue. Rescue plan should not be reliant on calling emergency services
6	Isolation - lock-out, tag-out, try-out	6.1	Recall appropriate use of lock-out, tag-out, try-out procedures	Lock-out, tag-out, try-out (LOTOTO) procedures and installation. Specific plan per company. Why and how to do. Type of equipment
7	Introduction to air monitoring	7.1	Recall the constituent gas levels in a normal atmosphere	Oxygen 20.9%. Nitrogen 78%. Argon 0.9%. Other gases in very small quantities including carbon dioxide
		7.2	Understand risk and possible causations of low and high oxygen levels	Low O ₂ can cause asphyxiation. High O ₂ can increase risk of fire/explosion
		7.3	Understand the risks associated with flammable and explosive atmospheres	Flammable range. Lower explosive limit. Upper explosive limit. Tetrahedron of combustion
		7.4	Recall how potential flammable and explosive atmospheres can be measured, including the use of correction factors	LEL sensor calibrated to known gas. Reading is based on test gas used and needs to be corrected to actual gas if known. Reasons for alarms setting normally set to 10%/20% of LEL
		7.5	Have an awareness of both short- and long-term hazards associated with the presence of toxic gases and vapours, how these are measured and exposure controlled	Toxic gases generally measured in ppm. Conversion of ppm to % volume. Workplace exposure limits set by legislation (eg EH40). STEL and LTEL are both time-weighted averages (TWA)
		7.6	Have an understanding of high, low, STEL and WEL alarm levels on a gas meter	Workplace exposure limits set by legislation (eg EH40). STEL and LTEL are both time-weighted averages (TWA)
		7.7	Have an understanding of vapour density and how it affects air monitoring practice in confined spaces	Air = 1. <1 gas will rise. >1 gas will sink. Need to measure at multiple levels



	Skill sheet element		Learning outcome	Key teaching points
8	Rescue plans, incident size-up and incident management	8.1	Explain the importance of rescue plans	Need to provide a suitable rescue solution. Requirements for rescue are determined by confined space risk and complexity, and work being undertaken. Co-worker rescue/standby rescue team considerations
		8.2	Explain the phases of a successful rescue	Locate. Access. Stabilise. Transport
		8.3	Identify possible rescue options	Non-entry and entry required. Casualty raise in harness or stretcher. Best locations for casualty packaging and stretcher orientation
		8.4	Select and implement an appropriate plan of action for a given incident	Casualty care considerations. Team roles and actions
9	Personal and team equipment	9.1	Identify personal protective equipment (PPE) for working in confined spaces	Harness (fall arrest/work positioning), helmet, work restraint lanyards and connectors, coveralls, gloves, eye and ear protection. Harness should be worn by all confined space entrants, including horizontal confined spaces
		9.2	Have an awareness of applicable national and international standards for PPE	EN standards, applicable national standards
		9.3	Use appropriate PPE for working in confined spaces, perform pre-use checks, donning and buddy checks	Pre-use checks vs periodic examinations required by legislation. Correct equipment, compatible, condition, age, records and traceability, fastened correctly, PPE fit, anchors, ground clearance, site
		9.4	Identify team equipment used for working in confined spaces	Gas meters, tripods, ladders, winches/pulley systems, fall arrest blocks, communication equipment, ventilation equipment, tools for work within confined space
		9.5	Recall pre-use and post-use care and inspection procedures for team equipment	Pre-use function checks. Post-use checks, cleaning, storage and care. Periodic equipment inspections



	Skill sheet element		Learning outcome	Key teaching points
10	Entry procedures	10.1	Have a working knowledge of the various team roles (and their responsibilities) to undertake a confined space entry into a low, medium or high risk confined space	Entry supervisor, entry assistants, entrant(s) (including intermediate entrant), air monitoring person
11	Communications and verbal commands	11.1	Use verbal commands in confined space operations	Speak slowly Short messages Repeat message Confirmation
		11.2	Identify correct use of mobile radios in confined space operations	Speak slowly Short messages Repeat message Confirmation
		11.3	Use rope pulling signals in confined space operations	1= stop/ok 2 = up 3= down Repeated signals = emergency
		11.4	Compare merits and limitations of communication methods in confined space operations	Radio interference Line of sight Darkness ATEX considerations
12	Loads and forces	12.1	Differentiate between mass and force	Force = mass x acceleration
		12.2	Identify SI base units and derived units used in confined space rescue	Metre (length), second (time), kilogram (mass), Newton (force), metre per second per second (acceleration)
		12.3	Describe the differences between static and dynamic forces	Static = non-moving, eg being held in space. Dynamic = moving, eg in an uncontrolled event
		12.4	Recall the maximum arrest force applicable by legislation	Eg 6kN within the European Union and 8kN within North America
		12.5	Describe the potential consequences of a rescue load becoming stuck during a raise	Once load is stuck, we are tensioning the rope/wire and additional input on the haul can cause failure
13	Medical considerations	13.1	Identify signs/symptoms and treatment for common medical issues found in confined spaces	Electrocution, amputation, overheating, hypothermia, bleeding, bumps and bruises, spinal injuries, intoxication. DR CABC - danger, response, catastrophic haemorrhage, airway, breathing, circulation
		13.2	Identify individuals at risk for common medical issues found in confined spaces and control measures to minimise these	Individuals at risk: workers, entrants, casualty, rescuers, bystanders. Control measures: safe systems of work and rescue, PPE, training, site zoning and exclusions



	Skill sheet element		Learning outcome	Key teaching points
14	Respiratory protective equipment (RPE) - escape sets and SCBA	14.1	Identify when personal escape sets and self-contained breathing apparatus (SCBA) are used, types available and their benefits and limitations	Potential risk of atmospheric hazard. Time limitations. Of both escape sets and SCBA. Differences between demand valve masks and constant flow hoods on escape sets. Escape sets to provide air to allow entrants to escape from confined space, but may be taken in by rescuers to provide air for casualties. Size limitations of wearing SCBA. No reserve on SCBA - whistle. Basic duration calculations for SCBA use. Medical considerations and screening for SCBA users
		14.2	Perform a pre-use check of a personal escape set	Check gauge. Check service date. Check trigger clip is connected
		14.3	Use a personal escape set in a confined space	Perform an emergency exercise to don escape set and exit confined space
15	Use of a 4-gas diffuse meter	15.1	Turn on 4 gas diffuse meter and perform a functional bump test	Fresh air startup. Check calibration dates. Use of appropriate gas for bump test to ensure all sensors alarm. Clear reading after bump start has been conducted
		15.2	Recall common meter functions that can be set up as required	Reading latching. Confidence beep. Alarm options (audio/visual/vibrate)
		15.3	Use a 4 gas diffuse meter to monitor the air in a confined space	Measuring at minimum three levels: top, middle, bottom, or every 5 metres. Minimum time of measuring per level. Actions if meter alarms. Use of a small rope for lowering. Considerations and benefits for using a pump meter and sampling hose
		15.4	Use a 4 gas diffuse meter as a personal meter when entering a confined space	Consideration where to attach the meter. Take meter readings and communicate these to entry supervisor



	Skill sheet element		Learning outcome	Key teaching points
16	Confined space ventilation	16.1	Recall when and why a confined space would be ventilated	Before entry to achieve normal atmosphere. After air monitoring finds a non-standard atmosphere. To remove dust etc created by work in the confined space
		16.2	Recall the different types of ventilation systems and their advantages/disadvantages	Natural ventilation, forced air (overpressure), forced extraction (underpressure)
		16.3	Use appropriate ventilation equipment to ventilate a confined space	Fan and ducting. Manhole entry device. ATEX and power supply options
17	Knots and terminations	17.1	Identify, tie and check appropriate knots for confined space entry and rescue, or connect to pre-sewn terminations	Required: use of sewn terminations. Additional content depending on agency use: overhand on a bight, figure of 8 on a bight, rethreaded figure of 8, clove hitch, reef knot, alpine butterfly
		17.2	Recall factors affecting knot choice for working in confined space	Ability to release under load. Ease of tying. Appropriate for task
18	Anchor systems	18.1	Identify use of anchor systems when undertaking confined space entry/exit	Why we need anchors - work restraint, work positioning and fall arrest. Types of anchors - structural rated/tested, portable (tripod), improvised (railings, vehicles etc)
		18.2	Identify, install and check appropriate single point anchor attachments for working in confined spaces	Direct clip to rated anchor point with connector. Basket hitch with sling. Basket hitch with steel cable. Considerations: sharp edges, angles of slings, karabiner loading and alignment



	Skill sheet element		Learning outcome	Key teaching points
19	Dynamic risk assessment and safety checks	19.1	Identify the elements of an effective dynamic risk assessment (aka last minute risk analysis)	Is written risk assessment and method statement relevant to conditions/site/personnel? Are air monitor readings as expected? Weather considerations etc
		19.2	Perform a pre-entry dynamic risk assessment	Is written risk assessment and method statement relevant to conditions/site/personnel? Are air monitor readings as expected? Weather considerations etc
		19.3	Identify the components of a safety check	Correct equipment, compatible, condition, age, records and traceability, fastened correctly, PPE fit, anchors, site
		19.4	Perform a pre-entry safety check	Correct equipment, compatible, condition, age, records and traceability, fastened correctly, PPE fit, suitable anchors. Required pre-use checks on equipment, eg retrievable fall arrest block
20	On-scene safety briefing and site control	20.1	Based on hazard recognition, apply appropriate control measures to protect personnel and bystanders	Site zoning and exclusion. Team roles. Fall restraint, fall arrest. Safe access and entry systems
		20.2	Perform/observe a pre-entry briefing	Information on site/confined space. Task to be performed and job roles. Pre-entry gas monitoring readings. Confirm access/egress equipment has been set up and checked. Emergency procedures and rescue plan. Confirm all written documentation in place as required. Dynamic risk assessment/last minute risk analysis. Questions/team to confirm understanding



	Skill sheet element		Learning outcome	Key teaching points
21	Standard tripod configurations and mechanical hoisting	21.1	Recall the appropriate direction of loading a conventional tripod	Loading in the centre of the tripod. Awareness of resultant forces - when anchored anywhere on the tripod, the loaded rope/cable is the resultant force. If the resultant force is outside the footprint of the tripod, it will cause the tripod to fall over
		21.2	Recall the advantages of mechanical hoisting from the tripod	Retrieval function necessary for emergency recovery. Retrieval function installed on the legs works best
		21.3	Set up, check and use a standard tripod for undertaking a confined space entry	Pre-use inspection. Requirements for whether the tripod requires hobbling. Considerations for setting working height of tripod. Attachment of access/recovery system (retrievable fall arrest block, pre-rigged MA system, man-riding winch etc)
22	Work restraint	22.1	Identify when work restraint equipment is used, its merits and limitations	Prevents an operative from reaching an edge
		22.2	Select, install and check appropriate work restraint equipment	Consider issues around open access hatches. Anchor/edge alignment. Suitability of anchor. Attaching to restraint system in safe area and then approach edge
23	Vertical confined space entry and exit	23.1	Enter and exit a vertical confined space with a ladder and a tripod mounted retrievable fall arrest block (self-retracting lifeline)	Pre-use checks on tripod and retrievable fall arrest block. Considerations for cable attachment to sternal or dorsal fall arrest points on harness
		23.2	Convert the fall arrest block from fall arrest to emergency retrievable function and back to fall arrest	Recovery from confined space on single wire/rope only to be used in emergency situation
		23.3	Recover an entrant from a confined space using a retrievable fall arrest block	Backup safety system needs to be in place to raise a live load
		23.4	Enter and exit a vertical confined space using a tripod-mounted winch/pre-rigged mechanical advantage system and retrievable fall arrest block (self-retracting lifeline)	Winch/pre-rigged mechanical advantage system as the primary system to raise/lower and retrievable fall arrest block as backup system



	Skill sheet element		Learning outcome	Key teaching points
24	Emergency procedures	24.1	Identify and reproduce the emergency procedures in case of an alarm during a confined space entry	Alarm signal Alarm causes Muster point Way of extraction Closing the confined space for unintended visitors Wind direction and emergency escape route
25	Reach type rescue with a telescopic pole	25.1	Identify when a casualty would be connected to a line using a telescopic pole, its merits and limitations	Casualties not able to assist within reach of a telescopic pole. Advantages: safety for rescuers as no entry required. Limitations: limited reach of the pole. Connection can be very difficult. Emergency procedure - may be no backup system
		25.2	Connect a casualty to a line, using a telescopic pole	Lanyard on pole stops risk of it being dropped. Prevention of dropping objects onto casualty (connectors etc)
26	Raising/lowering systems and mechanical advantage	26.1	Demonstrate use of winch or pre-rigged mechanical advantage system to raise/lower	Tripod-mounted man-riding winch. Pre-rigged MA systems. Pre-use checks
		26.2	Demonstrate lowering of rescuers into a confined space and raising of casualty/rescuers from a confined space	Requirements for backup system. Rope/wire protection from edges. Attachments for working rope/wire and backup to harness/stretcher
		26.3	Demonstrate rigging and operation of component-based rope-based raising/lowering system (if used by agency)	Twin rope system. Rigging and operation of rope control devices attached to tripod. Creation of mechanical systems using rope grabs, pulleys, karabiners (simple 3:1, simple 5:1, compound 6:1)
27	Confined space rescue harnesses and stretchers	27.1	Identify various confined space rescue stretchers	Cocoon type stretchers vs basket stretchers
		27.2	Demonstrate rigging of a rescue stretcher for a vertical raise	Rigging of vertical lift bridle. Considerations for secondary attachment point for casualty. Considerations for secondary attachment points for dealing with low anchor points



	Skill sheet element		Learning outcome	Key teaching points
28	Casualty care and packing	28.1	Identify personnel at risk to suspension-induced syncope, and control measures to minimise this	Casualties tied in harnesses and stretchers in a vertical position, not able to move
		28.2	Demonstrate appropriate casualty care for suspected suspension-induced syncope	Moving legs. Fast rescue. Tell casualty to keep moving if possible. Use of relief straps
		28.3	Demonstrate appropriate casualty packing for a vertical raise in a cocoon-type stretcher	Key areas of support/padding: under heels, behind knees, between legs. Foot orientation. Helmet considerations. Safety glasses
29	Rescue of casualty from a low/medium risk confined space	29.1	Act as part of a team undertaking casualty rescues from a simulated low/medium risk confined space	Team roles. Use of training mannikins, but ideally progressing to live loads by end of course
30	SCBA periodic pre-use and post-use set checks and care	30.1	Recall when SCBA sets need to be checked	Periodic inspections (monthly, annual service, 5 year cylinder test). Daily checks before use. Pre-entry checks
		30.2	Perform daily and pre-entry set checks on SCBA set	Cylinder, harness and set visual inspection and date check. Cylinder pressure check (>80% full). Leak check - close cylinder and listen, <10 bar pressure drop in 1 minute. Fit mask and breathe using set - check for leaks with head movement, check over pressure at mask. Close cylinder and breathe down set to check whistle sounds at correct pressure. Follow manufacturer's specific guidance for set being used
		30.3	Perform post-use set check and cleaning	Check set for any damage. Detach cylinder for re-fill. Follow manufacturer's guidance on cleaning
31	SCBA entry control	31.1	Perform time and pressure calculations	Calculating time to whistle and duration calculation. Calculate turn around pressure. GUN - got/used/need
		31.2	Use a BA board to monitor entrants into a confined space wearing SCBA	Use of tallies. Overwriting on board. Communication with entrants to get pressure readings



	Skill sheet element		Learning outcome	Key teaching points
32	Entry to confined space wearing SCBA	32.1	Perform a confined space entry using SCBA	Pre-use set checks. Entry and exit from a vertical confined space wearing SCBA. Movement through a confined space wearing SCBA. Communication to entry control to inform of pressure and gas monitor readings. Personal pressure gauge monitoring and turn around pressure calculations
33	Rescue from a high risk confined space wearing SCBA	33.1	Act as part of a team undertaking casualty rescues from a simulated high risk confined space	Team roles. Use of training mannikins, but ideally progressing to live loads by end of course. All delegates must undertake entry wearing BA to perform a rescue





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