

# NFPA 1006: 2021 Edition, Trench Rescue 12.1 Awareness Level

Below please find what has been previously approved by the Committee on Accreditation (COA) for this level of certification. This example does not take into consideration “Document Review”, “Portfolio”, or “Other testing methods.”

If your agency selects completing their online Assessment Methodology Matrix (AMM) utilizing these test methods, our Technical Analysts may place your application under a COA meeting consent agenda bypassing the usual COA review.

The spaces identified below with an “X” must be replaced with the appropriate cognitive test item numbers (e.g. Questions 1,4,6,7,9, etc.) or the score sheet numbers under Product, Psychomotor/Process methods as score sheet numbers (e.g.- SS 101, 202, and 304, etc.).

| Section   | Knowledge-Based Assessments<br>(graded after submission)                             |  | Performance-Based Assessments<br>(graded in real-time as they are performed) |   |
|---|--|--|--|---|
|   | Cognitive<br>(e.g. Multiple Choice, Short Answer, Discretionary Time with Resources) | Product<br>(e.g., document or develop a budget, proposal, lesson plan) | Psychomotor<br>(Primarily an observable physical task. e.g., don, doff)      | Process<br>(Primarily a mental or verbalized task. e.g., inspect) |
| 12.1.1 Interview any witness or "competent person," given a specific trench collapse incident, so that potential for rapid, nonentry rescue or victim self-rescue is recognized.  |  |  |  |   |
| <a href="#">12.1.1</a>  |  |  | <b>X</b>   |   |
| 12.1.1 (A) Requisite Knowledge. Need to secure “competent person” or witness; signs and evidence of victim involvement, number, and location.   |  |  |  |   |
| <a href="#">12.1.1(A)</a>   | <b>X</b>   |  |  |   |
| 12.1.1 (B) Requisite Skills. Determine severe environmental conditions with implications for secondary collapse and victim survivability; interview techniques.   |  |  |  |   |
| <a href="#">12.1.1(B)</a>   |  |  | <b>X</b>   |   |
| 12.1.2 Facilitate a nonentry rescue or victim self-rescue, given a trench collapse incident, tools used for self-rescue, and the rescue area and general area are made safe, so that the nonentry and self-rescue tactics can be initiated. |  |  |  |   |
| <a href="#">12.1.2</a>  |  |  | <b>X</b>   |   |
| 12.1.2 (A) Requisite Knowledge. Understand mechanics and extent of collapse effects; need to brief rescuers; criteria for rapid, nonentry rescues.  |  |  |  |   |
| <a href="#">12.1.2(A)</a>   | <b>X</b>   |  |  |   |

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| 12.1.2 (B) <b>Requisite Skills.</b> Ability to implement nonentry rescue and self-rescue tactics; select and deploy tools used to facilitate nonentry and self-rescue; reduce imposed loads at or near the lip of the trench.   |          |  |          |
| <a href="#">12.1.2(B)</a>   |          |  | <b>X</b> |
| 12.1.3 Identify hazardous areas specific to a trench environment, given a trench collapse incident, so that the scene is secured, hazards are managed, and an approach path to the trench is identified.  |          |  |          |
| <a href="#">12.1.3</a>  |          |  | <b>X</b> |
| 12.1.3 (A) <b>Requisite Knowledge.</b> Areas at risk for increased likelihood of collapse, general collapse patterns of trench's, methods of bridging and weight distribution, securing of scenes, and tactics for approaching the trench while minimizing the likelihood of collapse.  |          |  |          |
| <a href="#">12.1.3(A)</a>   | <b>X</b> |  |          |
| 12.1.3 (B) <b>Requisite Skills.</b> Ability to identify areas of high risk for additional collapse, select and deploy tools or materials for bridging or weight distribution, communicate high-risk areas to other responders.  |          |  |          |
| <a href="#">12.1.3(B)</a>   |          |  | <b>X</b> |
| 12.1.4 Size up a trench rescue incident, given background information and applicable reference materials, so that the scope of the rescue is determined, the number of victims is identified, the last reported location of all the victims is established, witnesses and reporting parties are identified and interviewed, resource needs are assessed, primary search parameters are identified, and information required to develop an initial incident action plan is obtained. |          |  |          |
| <a href="#">12.1.4</a>  |          |  | <b>X</b> |
| 12.1.4 (A) <b>Requisite Knowledge.</b> Types of reference materials and their uses, availability and capability of the resources, elements of an incident action plan and related information, relationship of the size-up to the incident management system, information gathering techniques and how that information is used in the size-up process, and basic search criteria for trench rescue incidents.  |          |  |          |
| <a href="#">12.1.4(A)</a>   | <b>X</b> |  |          |
| 12.1.4 (B) <b>Requisite Skills.</b> The ability to read technical rescue reference materials, gather information, use interview techniques, relay information, and use information-gathering sources.   |          |  |          |
| <a href="#">12.1.4(B)</a>   |          |  | <b>X</b> |
| 12.1.5 Recognize incident hazards and initiate isolation procedures, given scene control barriers, personal protective equipment (PPE), requisite equipment, and available specialized resources, so that all hazards are identified; resource application fits the operational requirements; hazard isolation is considered; risks to rescuers, bystanders, and victims are minimized; and rescue time constraints are taken into account.   |          |  |          |
| <a href="#">12.1.5</a>  |          |  | <b>X</b> |
| 12.1.5 (A) <b>Requisite Knowledge.</b> Resource capabilities and limitations; types and nature of incident hazards; equipment types and their use; isolation terminology, methods, equipment, and implementation; operational requirement concerns; common types of rescuer and victim risks;   |          |  |          |

risk/benefit analysis methods and practices; hazard recognition, isolation methods, and terminology; methods for controlling access to the scene; and types of technical references.

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| <a href="#">12.1.5(A)</a> | <b>X</b> |  |  |
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**12.1.5 (B) Requisite Skills.** The ability to identify resource capabilities and limitations, identify incident hazards, assess potential hazards to rescuers and bystanders, place scene control barriers, and operate control and mitigation equipment.

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| <a href="#">12.1.5(B)</a> |  |  | <b>X</b> |
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**12.1.6** Recognize the need for technical rescue resources at an operations- or technician-level incident, given AHJ guidelines, so that the need for additional resources is identified, the response system is initiated, the scene is secured and rendered safe until additional resources arrive, and awareness-level personnel are incorporated into the operational plan.

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| <a href="#">12.1.6</a> |  |  | <b>X</b> |
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**12.1.6 (A) Requisite Knowledge.** Operational protocols, specific planning forms, types of incidents common to the AHJ, hazards, incident support operations and resources, and safety measures.

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| <a href="#">12.1.6(A)</a> | <b>X</b> |  |  |
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**12.1.6 (B) Requisite Skills.** The ability to apply operational protocols, select specific planning forms based on the types of incidents, identify and evaluate various types of hazards within the AHJ, request support and resources, and determine the required safety measures.

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| <a href="#">12.1.6(B)</a> |  |  | <b>X</b> |
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**12.1.7** Support an operations- or technician-level incident, given an incident, an assignment, an incident action plan, and resources from the tool kit, so that the assignment is carried out, progress is reported to command, environmental concerns are managed, personnel rehabilitation is facilitated, and the incident action plan is supported.

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| <a href="#">12.1.7</a> |  |  | <b>X</b> |
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**12.1.7 (A) Requisite Knowledge.** AHJ operational protocols, hazard recognition, incident management, PPE selection, resource selection and use, and scene support requirements.

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| <a href="#">12.1.7(A)</a> | <b>X</b> |  |  |
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**12.1.7 (B) Requisite Skills.** The ability to apply operational protocols, function within an incident management system, follow and implement an incident action plan, and report the task progress status to a supervisor or incident command.

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| <a href="#">12.1.7(B)</a> |  |  | <b>X</b> |
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# NFPA 1006: 2021 Edition, Trench Rescue 12.2 Operations Level

| Section                   | Knowledge-Based Assessments<br>(graded after submission)   |  | Performance-Based Assessments<br>(graded in real-time as they are performed) |   |
|---------------------------|--|--|--|---|
|                           | Cognitive<br>(e.g. Multiple Choice, Short Answer, Discretionary Time with Resources)   | Product<br>(e.g., document or develop a budget, proposal, lesson plan) | Psychomotor<br>(Primarily an observable physical task. e.g., don, doff)      | Process<br>(Primarily a mental or verbalized task. e.g., inspect) |
| 12.2.1 *                  | Identify potential hazards to victims and rescuers in and around a trench excavation, given a trench collapse incident, a trench rescue toolkit so that potential areas of additional collapse in the trench are identified, utility lines are located, spoil piles are monitored, additional superimposed weight is identified, sources of atmospheric contamination are assessed, sources of water are identified, and environmental hazards are considered.                             |  |  |   |
| <a href="#">12.2.1</a>    |  |  |  | <b>X</b>  |
| 12.2.1 (A)                | 12.2.1 (A) <b>Requisite Knowledge.</b> Methods to distinguish soil types, collapse mechanics, and other contributing factors such as severe environmental conditions and other general hazards; effects and hazards of collapse and rescue efforts on utilities at the incident site; jurisdictional and community resource lists and agreements; atmospheric monitoring; effects of additional superimposed weight and vibrations on trench walls; effects of water in and around trench. |  |  |   |
| <a href="#">12.2.1(A)</a> | <b>X</b>   |  |  |   |
| 12.2.1 (B)                | 12.2.1 (B) <b>Requisite Skills.</b> The ability to interpret tabulated data information and tables; perform atmospheric monitoring; monitor spoil piles; assess and address the effects of water on trench stability.  |  |  |   |
| <a href="#">12.2.1(B)</a> |  |  |  | <b>X</b>  |
| 12.2.2                    | 12.2.2 Implement a hazard control plan given a trench collapse incident, hazard control plan and trench rescue tool kit so that provisions for ventilation, dewatering, energy control, air monitoring; and falls, and prevention of unplanned soil movement are accomplished.   |  |  |   |
| <a href="#">12.2.2</a>    |  |  |  | <b>X</b>  |
| 12.2.2 (A)                | 12.2.2 (A) <b>Requisite Knowledge.</b> Protocols on making the general area safe, criteria for a safe zone within the trench, atmospheric monitoring and ventilation, types of collapses and techniques to stabilize, emergency procedures, selection of PPE, and consideration of selected stabilization tactics on extrication and victim safety.  |  |  |   |
| <a href="#">12.2.2(A)</a> | <b>X</b>   |  |  |   |
| 12.2.2 (B)                | 12.2.2 (B) <b>Requisite Skills.</b> Employ hazard control plan to protect personnel inside and outside of trench, establish safe zones, perform atmospheric monitoring and initiate ventilation as needed, initiate dewatering, provide energy control, ability to select and use PPE, apply fall prevention, and implement strategies to minimize unplanned soil movement.  |  |  |   |
| <a href="#">12.2.2(B)</a> |  |  |  | <b>X</b>  |

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|---|----------|----------|----------|
| 12.2.3 Develop a shoring plan for a nonintersecting trench no more than 8 ft (2.4 m) deep, given a trench collapse incident and trench rescue tool kit, so that the methods of potential collapse are recognized, the mechanisms of entrapment are identified, areas of the trench that are blown out or undercut are addressed, related tabulated data is consulted, the weights and hazards associated with the soils are considered, and the location of the victim and projected path for removal are incorporated. |          |          |          |
| <a href="#">12.2.3</a>  |          | <b>X</b> | <b>X</b> |
| 12.2.3 (A) <b>Requisite Knowledge.</b> Shoring and shielding, tabulated data, strategies and tactics, protocols on making the general area safe, criteria for a safe zone within the trench, types of collapses and techniques to stabilize, emergency procedures, selection of personal protective equipment, and consideration of selected stabilization tactics on extrication and victim safety.  |          |          |          |
| <a href="#">12.2.3(A)</a>   | <b>X</b> |          |          |
| 12.2.3 (B) <b>Requisite Skills.</b> Determine shoring strategies, designate cut station location, and material and equipment needs; establish safe zones; ability to prebrief team on shoring strategies, victim release, and projected path for removal.   |          |          |          |
| <a href="#">12.2.3(B)</a>   |          |          | <b>X</b> |
| 12.2.4 Implement a trench shoring plan for a nonintersecting trench no more than 8 ft (2.4 m) deep, given a trench collapse incident, trench shoring plan, and a trench rescue tool kit, so that the victim is protected from additional collapse, the trench walls are supported, prior areas of collapse are addressed, shoring team members work from protected areas, and shoring systems are installed so they perform their intended function.  |          |          |          |
| <a href="#">12.2.4</a>  |          |          | <b>X</b> |
| 12.2.4 (A) <b>Requisite Knowledge.</b> Shoring and shielding, criteria for a safe zone within the trench, types of collapse and techniques to stabilize, emergency procedures, selection of personal protective equipment, and consideration of selected stabilization tactics for extrication and victim safety.   |          |          |          |
| <a href="#">12.2.4(A)</a>   | <b>X</b> |          |          |
| 12.2.4 (B) <b>Requisite Skills.</b> The ability to place shoring and shielding systems, install supplemental shoring, use protocols, choose methods to stabilize, establish a cut station, use personal protective equipment, anticipate extrication logistics, and create systems in trenches 8 ft (2.4 m) deep. (See <i>Annex I.</i> )  |          |          |          |
| <a href="#">12.2.4(B)</a>   |          |          | <b>X</b> |
| 12.2.5 Release a victim from soil entrapment in a nonintersecting trench of 8 ft (2.4 m) or less in depth, given a trench collapse incident and a trench rescue tool kit, so that hazards to rescue personnel and victims are minimized; considerations are given to the victim's injuries, crush injuries related to compartment syndrome, and other injuries; techniques are used to enhance patient survivability; and techniques do not compromise the integrity of the existing trench shoring system.             |          |          |          |
| <a href="#">12.2.5</a>  |          |          | <b>X</b> |
| 12.2.5 (A) <b>Requisite Knowledge.</b> Identification, utilization, and required care of personal equipment; general hazards associated with each type of trench collapse; methods of evaluating shoring systems and trench wall stability; compartment syndrome protocols; identification of collapse characteristics; causes and associated effects of trench collapse; potential signs of subsequent   |          |          |          |

collapse; selection and application of rescue tools and resources; risk/benefit assessment techniques for extrication methods; and time constraints.

[12.2.5\(A\)](#)

**X**

**12.2.5 (B) Requisite Skills.** The ability to select, use, and care for PPE; operate rescue tools and stabilization systems; identify crush injuries related to compartment syndrome; and complete risk/benefit assessments for selected methods of rescue and time constraints.

[12.2.5\(B\)](#)

**X**

**12.2.6** Remove a victim from a trench, given a disentangled victim, a basic first aid kit, and victim packaging resources, so that basic life functions are supported as required; the victim is evaluated for signs of compartment syndrome; methods and packaging devices selected are compatible with intended routes of transfer; universal precautions are employed to protect personnel from blood-borne pathogens; and extraction times meet time constraints for medical management.

[12.2.6](#)

**X**

**12.2.6 (A) Requisite Knowledge.** Medical protocols, available medical resources, transfer methods and time needed to execute, universal precautions protocol, rope rescue systems, high-point anchor options, and patient ladder raise removal techniques.

[12.2.6\(A\)](#)

**X**

**12.2.6 (B) Requisite Skills.** The ability to select and use personal protective equipment, provide basic medical care and immobilization techniques, identify the need for advanced life support and compartment syndrome management, and use a removal system that matches logistical and medical management time frame concerns.

[12.2.6\(B\)](#)

**X**

**12.2.7** Disassemble support systems at a trench emergency incident, given personal protective equipment, trench tool kit, and removal of victim(s), so that soil movement is minimized, all rescue equipment is removed from the trench, sheeting and shoring are removed in the reverse order of their placement, emergency protocols and safe zones in the trench are adhered to, rescue personnel are removed from the trench, the last supporting shores are pulled free with ropes, equipment is cleaned and serviced, reports are completed, and a post-briefing is performed.

[12.2.7](#)

**X**

**12.2.7 (A) Requisite Knowledge.** Selection of personal protective equipment, equipment used and its location, shoring and shielding tactics and order of placement, shoring removal protocols, criteria for a "safe zone" within the trench, personnel accountability, emergency procedures, manufacturer's recommended care and maintenance procedures, and briefing protocols.

[12.2.7\(A\)](#)

**X**

**12.2.7 (B) Requisite Skills.** The ability to use personal protective equipment, remove equipment and protective systems, use trench safety protocols, clean and service equipment, and perform an incident debriefing.

[12.2.7\(B\)](#)

**X**

**12.2.8 \*** Terminate a technical rescue operation, given an incident scenario, assigned resources, and site safety data, so that rescuer risk and site safety are managed; scene security is maintained and custody transferred to a responsible party; personnel and resources are returned to a state of readiness; record-keeping and documentation occur; and post-event analysis is conducted.

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| <a href="#">12.2.8</a> |  |  | <b>X</b> |
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**12.2.8 (A) Requisite Knowledge.** Incident command functions and resources, hazard identification and risk management strategies, logistics and resource management, personnel accountability systems, and AHJ-specific procedures or protocols related to personnel rehab.

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| <a href="#">12.2.8(A)</a> | <b>X</b> |  |  |
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**12.2.8 (B) Requisite Skills.** Hazard recognition, risk analysis, use of site control equipment and methods, use of data collection and management systems, and use of asset and personnel tracking systems.

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| <a href="#">12.2.8(B)</a> |  |  | <b>X</b> |
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# NFPA 1006: 2021 Edition, Trench Rescue 12.3 Technician Level

| Section  | Knowledge-Based Assessments<br>(graded after submission)                             |  | Performance-Based Assessments<br>(graded in real-time as they are performed) |   |
|--|--|--|--|---|
|  | Cognitive<br>(e.g. Multiple Choice, Short Answer, Discretionary Time with Resources) | Product<br>(e.g., document or develop a budget, proposal, lesson plan) | Psychomotor<br>(Primarily an observable physical task. e.g., don, doff)      | Process<br>(Primarily a mental or verbalized task. e.g., inspect) |
| 12.3.1 Develop a shoring plan for an intersecting trench, given a trench collapse incident and trench rescue tool kit, so that the methods of potential collapse are recognized, the mechanisms of entrapment are identified, areas of the trench that are blown out or undercut are addressed, related tabulated data is consulted, the weights and hazards associated with the soils are considered, and the location of the victim and projected path for removal are incorporated. |  |  |  |   |
| <a href="#">12.3.1</a>   |  | <b>X</b>   |  |   |
| 12.3.1 (A) <b>Requisite Knowledge.</b> Shoring and shielding, tabulated data, strategies and tactics, protocols on making the general area safe, criteria for a safe zone within the trench, types of collapses and techniques to stabilize, emergency procedures, selection of PPE, and consideration of selected stabilization tactics for extrication and victim safety.  |  |  |  |   |
| <a href="#">12.3.1(A)</a>  | <b>X</b>   |  |  |   |
| 12.3.1 (B) <b>Requisite Skills.</b> Determine shoring strategies; designate cut station location and material and equipment needs; establish safe zones; pre-brief team on shoring strategies, victim release, and projected path for removal.   |  |  |  |   |
| <a href="#">12.3.1(B)</a>  |  |  | <b>X</b>   |   |
| 12.3.2 Implement a trench shoring plan for intersecting trench, given a trench collapse incident, trench shoring plan, and a trench rescue tool kit, so that the victim is protected from additional collapse, the trench walls are supported, prior areas of collapse are addressed, shoring team members work from protected areas, and shoring systems are installed so they perform their intended function.   |  |  |  |   |
| <a href="#">12.3.2</a>   |  |  | <b>X</b>   |   |
| 12.3.2 (A) <b>Requisite Knowledge.</b> Shoring and shielding, criteria for a safe zone within the trench, types of collapses and techniques to stabilize, emergency procedures, selection of PPE, and consideration of selected stabilization tactics on extrication and victim safety.  |  |  |  |   |
| <a href="#">12.3.2(A)</a>  | <b>X</b>   |  |  |   |
| 12.3.2 (B) <b>Requisite Skills.</b> Ability to place shoring and shielding systems, install supplemental shoring, use protocols, choose methods to stabilize, establish a cut station, use personal protective equipment, anticipate extrication logistics, and create shoring systems in trenches 8 ft (2.4 m) deep. (See Annex H.)   |  |  |  |   |
| <a href="#">12.3.2(B)</a>  |  |  | <b>X</b>   |   |

**12.3.3** Develop a shoring plan for a trench more than 8 ft (2.4 m) deep, given a trench collapse incident, and trench rescue tool kit, so that the methods of potential collapse are recognized, the mechanisms of entrapment are identified, areas of the trench that are blown out or undercut are addressed, related tabulated data is consulted, the weights and hazards associated with the soils are considered, the location of the victim and projected path for removal are incorporated.

[12.3.3](#)

**X**

**12.3.3 (A) Requisite Knowledge.** Shoring and shielding, tabulated data, strategies and tactics, protocols on making the general area safe, criteria for a safe zone within the trench, types of collapses and techniques to stabilize, emergency procedures, selection of PPE, and consideration of selected stabilization tactics on extrication and victim safety.

[12.3.3\(A\)](#)

**X**

**12.3.3 (B) Requisite Skills.** Ability to determine shoring strategies; designate cut station location and material and equipment needs; establish safe zones; pre-brief team on shoring strategies, victim release, and projected path for removal.

[12.3.3\(B\)](#)

**X**

**12.3.4** Implement a trench shoring plan for a trench more than 8 ft (2.4 m) deep, given a trench collapse incident, trench shoring plan, and a trench rescue tool kit, so that the victim is protected from additional collapse, the trench walls are supported, prior areas of collapse are addressed, shoring team members work from protected areas, and shoring systems are installed so they perform their intended function.

[12.3.4](#)

**X**

**12.3.4 (A) Requisite Knowledge.** Shoring and shielding, criteria for a safe zone within the trench, types of collapses and techniques to stabilize, emergency procedures, selection of personal protective equipment, and consideration of selected stabilization tactics on extrication and victim safety.

[12.3.4\(A\)](#)

**X**

**12.3.4 (B) Requisite Skills.** Ability to place shoring and shielding systems, install supplemental shoring, use protocols, choose methods to stabilize, establish a cut station, use personal protective equipment, anticipate extrication logistics, and create systems in trenches more than 8 ft (2.4 m) deep. (See Annex H.)

[12.3.4\(B\)](#)

**X**

**12.3.5** Support an intersecting trench as a member of a team, given size-up information and an action plan, a trench tool kit, and an assignment, so that strategies to minimize the further movement of soil are implemented effectively; trench walls, lip, and spoil pile are monitored continuously; rescue entry team(s) in the trench remains in a safe zone; any slough-in and wall shears are mitigated; emergency procedures and warning systems are established and understood by participating personnel; incident-specific personal protective equipment is utilized; physical hazards are identified and managed; victim protection is maximized; victim extrication methods are considered; and a rapid intervention team is staged.

[12.3.5](#)

**X**

**12.3.5 (A) Requisite Knowledge.** Shoring and shielding, tabulated data, strategies and tactics, types of intersecting trenches and techniques to stabilize, protocols on making the general area safe,

|                           |          |   |          |
|---------------------------|----------|---|----------|
|                           |          | criteria for safe zones in the trench, types of collapses and techniques to stabilize, emergency procedures, selection of personal protective equipment, and consideration of selected stabilization tactics on extrication and victim safety.  |          |
| <a href="#">12.3.5(A)</a> | <b>X</b> |   |          |
|                           |          | <b>12.3.5 (B) Requisite Skills.</b> The ability to interpret tabulated data information and tables, place shoring and shielding systems, identify type of intersecting trench, use trench rescue protocols, identify types of collapse and methods to stabilize, identify hazards in a trench, use personal protective equipment, and anticipate extrication logistics.   |          |
| <a href="#">12.3.5(B)</a> |          |   | <b>X</b> |
|                           |          | <b>12.3.6</b> Install supplemental sheeting and shoring for each 2 ft (0.61 m) of depth dug below an existing approved shoring system, given size-up information, an action plan, and a trench tool kit, so that the movement of soil is minimized effectively, initial trench support strategies are facilitated, rescue entry team safe zones are maintained, excavation of entrapping soil is continued, victim protection is maximized, victim extrication methods are considered, and a rapid intervention team is staged. |          |
| <a href="#">12.3.6</a>    |          |   | <b>X</b> |
|                           |          | <b>12.3.6 (A) Requisite Knowledge.</b> Shoring and shielding, tabulated data, strategies and tactics, methods and techniques to install supplemental sheeting and shoring, protocols on making the general area safe, criteria for safe zones in the trench, types of collapses and techniques to stabilize, emergency procedures, selection of personal protective equipment, and consideration of selected stabilization tactics on extrication and victim safety.  |          |
| <a href="#">12.3.6(A)</a> | <b>X</b> |   |          |
|                           |          | <b>12.3.6 (B) Requisite Skills.</b> The ability to interpret tabulated data information and tables, place shoring and shielding systems, identify supplemental sheeting and shoring, use all trench rescue protocols, identify types of collapse and methods to stabilize, identify exposure to hazards within the trench relative to existing safe zones, select and use personal protective equipment, and anticipate extrication logistics.  |          |
| <a href="#">12.3.6(B)</a> |          |   | <b>X</b> |
|                           |          | <b>12.3.7 *</b> Utilize spot shoring techniques to support soil without incorporating uprights or panels as part of the shoring plan, given a trench incident, trench rescue toolbox, tabulated data, and trench shoring plan, so that the soil is prevented from collapse.   |          |
| <a href="#">12.3.7</a>    |          |   | <b>X</b> |
|                           |          | <b>12.3.7 (A) Requisite Knowledge.</b> Shoring and shielding, tabulated data, strategies and tactics, methods and techniques to install supplemental sheeting and shoring, protocols on making the general area safe, criteria for safe zones in the trench, types of collapses and techniques to stabilize, emergency procedures, selection of personal protective equipment, and consideration of selected stabilization tactics on extrication and victim safety.  |          |
| <a href="#">12.3.7(A)</a> | <b>X</b> |   |          |
|                           |          | <b>12.3.7 (B) Requisite Skills.</b> The ability to interpret tabulated data information and tables, place shoring and shielding systems, identify supplemental sheeting and shoring, use all trench rescue protocols, identify types of collapse and methods to stabilize, identify exposure to hazards within the  |          |

|  |          |  |          |
|--|----------|--|----------|
| trench relative to existing safe zones, select and use personal protective equipment, and anticipate extrication logistics.  |          |  |          |
| <a href="#">12.3.7(B)</a>  |          |  | <b>X</b> |
| <b>12.3.8</b> Construct load stabilization systems, given an assignment, personal protective equipment, and a trench tool kit, so that the stabilization system will support the load safely, the system is stable, and the assignment is completed.   |          |  |          |
| <a href="#">12.3.8</a>   |          |  | <b>X</b> |
| <b>12.3.8 (A) Requisite Knowledge.</b> Different types of stabilization systems and their construction methods, limitations of the system, load calculations, principles of and applications for stabilization systems, and safety considerations.   |          |  |          |
| <a href="#">12.3.8(A)</a>  | <b>X</b> |  |          |
| <b>12.3.8 (B) Requisite Skills.</b> The ability to select and construct stabilization systems, evaluate structural integrity of the system, determine stability, and calculate loads.  |          |  |          |
| <a href="#">12.3.8(B)</a>  |          |  | <b>X</b> |
| <b>12.3.9</b> Lift a load, given a trench tool kit, so that the load is lifted the required distance to gain access; settling or dropping of the load is prevented; control and stabilization are maintained before, during, and after the lift; and operational objectives are attained.  |          |  |          |
| <a href="#">12.3.9</a>   |          |  | <b>X</b> |
| <b>12.3.9 (A) Requisite Knowledge.</b> Applications of levers; classes of levers; principles of leverage, gravity, and load balance; resistance force; mechanics and types of load stabilization; mechanics of load lifting; application of pneumatic, hydraulic, mechanical, and manual lifting tools; how to calculate the weight of the load; and safety protocols. |          |  |          |
| <a href="#">12.3.9(A)</a>  | <b>X</b> |  |          |
| <b>12.3.9 (B) Requisite Skills.</b> The ability to evaluate and estimate the weight of the load, operate the tools correctly, operate a lever, and apply load stabilization systems.   |          |  |          |
| <a href="#">12.3.9(B)</a>  |          |  | <b>X</b> |
| <b>12.3.10</b> Coordinate the use of heavy equipment, given personal protective equipment, means of communication, equipment, operator, and an assignment, so that operator capabilities and limitations for task are evaluated, common communications are maintained, equipment usage supports the operational objectives, and hazards are avoided.                   |          |  |          |
| <a href="#">12.3.10</a>  |          |  | <b>X</b> |
| <b>12.3.10 (A) Requisite Knowledge.</b> Types of heavy equipment; capabilities, application, and hazards of heavy equipment and rigging; operator training; types of communication; and methods to establish communications.   |          |  |          |
| <a href="#">12.3.10(A)</a>   | <b>X</b> |  |          |
| <b>12.3.10 (B) Requisite Skills.</b> The ability to use hand signals, use radio equipment, recognize hazards, assess operator for skill and calm demeanor, assess heavy equipment for precision of movement and maintenance, monitor rescuer and victim safety, and use personal protective equipment.   |          |  |          |

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| <a href="#">12.3.10(B)</a>  |          |  | <b>X</b> |
| <p>12.3.11 Release a victim from entrapment by components of a collapsed trench, given personal protective equipment, a trench rescue tool kit, and specialized equipment, so that hazards to rescue personnel and victims are minimized, considerations are given to compartment syndrome related to crush injuries and other injuries, techniques are used to enhance patient survivability, tasks are accomplished within projected time frames, and techniques do not compromise the integrity of the existing trench shoring system.</p>                       |          |  |          |
| <a href="#">12.3.11</a>   |          |  | <b>X</b> |
| <p>12.3.11 (A) <b>Requisite Knowledge.</b> Identification, utilization, and required care of personal equipment; general hazards associated with each type of trench collapse; methods of evaluating shoring systems and trench wall stability; compartment syndrome protocols; identification of collapse characteristics; causes and associated effects of trench collapse; potential signs of subsequent collapse; selection and application of rescue tools and resources; risk/benefit assessment techniques for extrication methods; and time restraints.</p> |          |  |          |
| <a href="#">12.3.11(A)</a>  | <b>X</b> |  |          |
| <p>12.3.11 (B) <b>Requisite Skills.</b> The ability to select, use, and care for personal protective equipment; operate rescue tools and stabilization systems; identify crush syndrome clinical settings; and complete risk/benefit assessments for selected methods of rescue and time constraints.</p>   |          |  |          |
| <a href="#">12.3.11(B)</a>  |          |  | <b>X</b> |