

# TRENCH RESCUE TECHNICIAN SKILLS

## LEVEL II



Reference Source: 2013 NFPA 1006, Technical Rescuer Professional Qualifications

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# CERTIFICATION REQUIREMENTS

## Trench Rescue Level II

### Requirements

In order to certify as a Technical Trench Rescue Level II (NFPA 1006, Chapter 8) program, a firefighter must fulfill the following requirements:

1. Complete fire department (AHJ) entrance requirements.
2. Maintain records of training.
3. Train on the required written and practical objectives.
4. Meet any other training requirements/prerequisites as defined by the Fargo Fire Department Certification Committee.
5. Pass both written and practical skills examinations administered by the Fargo Fire Department Certified Testers. Initial testing is to be completed with Pro Board Credentialed Testers.

The Fargo Fire Department acknowledges the importance of and the need for entrance requirements as listed in the NFPA 1001, *Standard on Fire Fighter Professional Qualifications*.

### Physical Fitness Requirements:

The requirements listed in NFPA 1001, Chapter 4 are:

1. Meet the minimum educational requirements established by the Fargo Fire Department or the AHJ.
2. Meet the medical requirements of NFPA 1582, *Standard on Comprehensive Occupational Medical Program for Fire Departments*.
3. Physical fitness requirements for entry-level personnel shall be developed and validated by the Fargo Fire Department or the AHJ. Physical fitness requirements shall be in compliance with applicable Equal Employment Opportunity regulations and other legal requirements.

## **Emergency Medical Care Requirements**

The following additional training requirements **must** be met before certification at the Tech Trench Rescue Level II will be issued by the Fargo Fire Department Certification Committee.

Emergency Medical Care – Candidates for certification at the Tech Trench Rescue Level II must hold a current CPR certification and have received medical training. Medical training should include infection control, bleeding control and shock management.

### **DEPARTMENT TRAINING**

Tech Trench Rescue Level II requires a high level of skill and knowledge. The training given to and received by firefighter candidates should be of the highest quality and degree. All training received must meet the requirements of NFPA 1006, Chapter 8, 2013 Edition and the skills as approved by the Fargo Fire Department Certification Committee contained within the Fargo Standard. All training received must be documented and recorded on the training record. All testing for will be conducted following the policies and procedures of the Fargo Fire Department Certification Committee.

Training for Trench Rescue is conducted at the department level or could be received through a joint training agreement between departments on a regional level. Regardless of where the training is received, it must prepare the candidate to be a competent and effective Trench Rescue Technician Level II.

The course material should be referenced to the following textbooks to prepare the candidate to successfully pass the Tech Trench Rescue Level II certification examination.

#### **Written Objectives**

The written objectives for Tech Trench Rescue Level II (Chapter 8) are covered in the following textbooks:

1. NFPA 1006, Rescue Technician Professional Qualifications, 2008 Edition Chapter 8
2. Jones and Bartlett, Trench Rescue Awareness, Operations, Technician 2<sup>nd</sup> Edition
3. OSHA 29 CFR 1926

#### **Manipulative Objectives**

Each candidate must be trained and evaluated in the performance of all manipulative skills as outlined by the Fargo Fire Department in the Tech Trench Rescue Level I objectives. Each of the manipulative skills shall be completed safely and with competence as defined below:

- **Safely** – Each manipulative skill objective must be completed safely. Actions that could injure an individual or damage equipment are unacceptable. Equipment should be checked prior to skill testing or training to see that it is safe and functional.
- **Competence** – Each manipulative skill objective is performed in accordance with the Fargo Fire Department Standard. This includes performing the proper steps in sequence. Competence will be measured in accordance with the Fargo Fire Department manipulative skill objectives.

### **Department Training Records**

Each candidate shall have a training record on file with the department which indicates whether he/she has trained on all manipulative skill objectives. This record shall be signed off or initialed by a department training officer. Training records must indicate the date, instructor, and total number of hours trained for each manipulative skill objective. The training record check-off for Tech Trench Rescue Level II is provided in Appendix A of this document.

### **CERTIFICATION EXAMINATIONS**

After completion of the training process the candidate may test for certification.

#### **Written Examinations**

The written examination is a randomly generated **75-question** test covering the written objectives Chapter 8, Level II of the NFPA 1006 standard. A minimum score of 70% is required to pass the certification examination. Firefighters failing the first attempt of the written exam will be permitted to retest the next time test is administered. A candidate who passes the written test will have up to two years or a minimum of two offerings, to complete the manipulative skills portion of the testing.

#### **SAMPLE WRITTEN EXAMINATION QUESTIONS:**

*The transfer of heat by the movement of air or liquid would be considered?*

- |               |                         |
|---------------|-------------------------|
| a. Conduction | c. Convection           |
| b. Radiation  | d. Direct-flame contact |

*The technical rescuer's common goal is to?*

- |  |                                |
|--|--------------------------------|
| a. Problem solve                         | c. Cut corners                 |
| b. Research and buy the safest equipment | d. Perform rescue at all costs |

## **Manipulative Skills Examination**

This is a two-step examination. The first step is a department records check and the second step is a manipulative skills examination. Certification testers certified to Tester II or Tester III by the Fargo Fire Department conduct the examination. Initial testing will be conducted by outside Pro Board certified testers

Training records are checked. If records are inadequate, corrective action must be taken before proceeding to the next step. The records must meet minimum requirements and are checked for the following:

1. Candidate has completed all training requirements for Technical Rescuer Trench Rescue Level II (Chapter 8) from the NFPA 1006 standard, 2013 Edition.
2. The training officer has signed off each manipulative skill.
3. The total number of hours trained on each manipulative skill.

The manipulative skills examination is graded on a 100% pass/fail basis. The test is graded in the following areas:

- **Safely** – Each manipulative skill objective must be completed safely. Actions that could injure an individual or damage equipment are unacceptable. Equipment should be checked prior to skill testing or training to see that it is safe and functional.
- **Competence** – Each manipulative skill objective is performed in accordance with the Fargo Standard. This includes performing the proper steps in sequence when required. Competence will be measured in accordance with the Fargo Fire Department manipulative skill objectives.

Candidates are tested on **three (3) manipulative skills**. No prior notification of the skills being tested will be given.

**No training, teaching, or coaching is allowed during the test.**

This is a 100% pass/fail test. Candidates are allowed to fail a skill one time and have an opportunity to retest a second time to pass the skills test. If they fail a second time, this will be a failure for the entire skills testing portion of the examination.

Candidates who fail the manipulative examination will be required to complete further training on those areas that they were not successful in the testing. They would be eligible to test the next time it is offered at no extra charge. Candidates returning for testing will be tested on a new set of skills for the new testing period, that may or may not include the skill missed in the previous testing.

### **Prerequisites for Tech Trench Rescue Level II (Chapter 8)**

Prior to certification at the level, firefighters must be Pro Board certified at the Hazardous Materials First Responder- **Awareness** level and Hazardous Materials First Responder- **Operations** level.

Firefighters must be **Pro Board Certified -Technical Rescue Job Performance Requirements (JPR's)/Rope Rescue Level I** through the Fargo Fire Department Certification system. This is a single certification.

Firefighters must be Pro Board Certified as a **Technical Trench Rescuer Level I**.

**CERTIFICATION CHECKLIST**

**TECH TRENCH RESCUE LEVEL II**

**ENTRANCE REQUIREMENTS:**

- Each candidate has met requirements listed in NFPA 1001, Chapter 4 or those established by the authority having jurisdiction.
- Each candidate has met the additional requirements of CPR and medical training.
- Each candidate provides an application/affidavit for testing signed by the candidate and Chief/Head of the Department verifying that all pre-requisites have been completed.
- Each candidate provides a record showing that they are certified through the Fargo Fire Department system that they are **Pro Board Certified as a Technical Rescuer in Job Performance Requirements/Rope Rescue Level I**. This is a single certification.
- Each candidate provides a record showing that they are Pro Board Certified as a **Technical Trench Rescuer Level I**

**DEPARTMENT TRAINING RECORDS:**

- Each participant has a training record for review that shows:
  1. A learning experience in each manipulative skill objective.
  2. Dates of training.
  3. Initials of instructors.
  4. Total number of hours trained in each manipulative skill objective.

**ADDITIONAL TRAINING/PREREQUISITE REQUIREMENTS:**

- Each participant is certified at the Hazardous Materials Awareness and Operations level.
- Complete IS-700: Introduction to ICS.
- Complete IS-100: Introduction to ICS.
- Complete IS 200; Basic ICS

**CERTIFICATION EXAMINATIONS:**

- Each participant has passed the Fargo Fire Department Pro Board written examination.
- Each participant has passed the Fargo Fire Department manipulative skills testing administered by an approved Certification Tester.

**CERTIFICATION:**

- Certification Coordinator has reviewed records for completeness

**NFPA 1006, 8.2.1 b**

**Skill 1: Support an Intersecting Trench**

**Instructions to Tester- Safety is Paramount!**

1. The candidate shall 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 soil pile are monitored continuously, rescue entry team(s) in the trench remain 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 rapid intervention team is staged.
2. The candidate will not be allowed to review the performance steps at the time of testing.
3. Prevent or prohibit any unsafe acts.
4. Remember that you are an evaluator, not an instructor.

**Instructions to Candidate**

1. The candidate as a member of a team shall support an intersecting trench, given size-up information and an action plan, a trench tool kit, and an assignment, so that the listed performance steps are completed.
2. The skill will end when you state or indicate to the tester that you have completed all the identified steps.
3. Contact the tester at any time with any questions you may have.

**Preparation and Equipment**

- |                    |                |
|--------------------|----------------|
| 1. Proper PPE      | 5. Air shores  |
| 2. Trench tool kit | 6. Air bag kit |
| 3. Timber shores   | 7. Cribbing    |
| 4. Strong backs    |                |

**NFPA 1006, 8.2.1 b**

**Skill 1: Support an Intersecting Trench**

Skill	1 <sup>st</sup> Att	2 <sup>nd</sup> Att
1. Demonstrate the ability to interpret tabulated data information and tables		
2.Places shoring and shielding devices		
3. Identifies type of intersecting trench		
4. Uses trench rescue protocols		
5. Selects type of collapse and methods to stabilize		
6. Identifies hazards		
7. Selects and uses PPE		
8. Anticipates extrication logistics		

**PERFORMANCE RATING ON THIS SKILL** **PASS** **FAIL**

First Attempt    \_\_\_\_\_    \_\_\_\_\_

Second Attempt    \_\_\_\_\_    \_\_\_\_\_

Candidate Signature \_\_\_\_\_

Tester Signature 1<sup>st</sup> Attempt \_\_\_\_\_

Tester Signature 2<sup>nd</sup> Attempt \_\_\_\_\_

Date \_\_\_\_\_

**NFPA 1006, 8.2.2 b**

**Skill 2: Install Supplemental Sheeting and Shoring**

**Instructions to Tester- Safety is Paramount!**

1. The candidate shall install supplemental sheeting and shoring for each 2 feet 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.
2. The candidate will not be allowed to review the performance steps at the time of testing.
3. Prevent or prohibit any unsafe acts.
4. Remember that you are an evaluator, not an instructor.

**Instructions to Candidate**

1. The candidate shall install supplemental sheeting and shoring for each 2 feet of depth dug below an existing approved shoring system, given size-up information, an action plan and a trench tool kit so that the listed performance steps are completed.
2. The skill will end when you state or indicate to the tester that you have completed all the identified steps.
3. Contact the tester at any time with any questions you may have.

**Preparation and Equipment**

1. Proper PPE
2. Trench tool kit
3. Timber shores
4. Strong backs, sheeting, shoring
5. Air shores
6. Air bag kit
7. Cribbing

**NFPA 1006, 8.2.2 b**

**Skill 2: Install Supplemental Sheeting and Shoring**

Skill	1 <sup>st</sup> Att	2 <sup>nd</sup> Att
1. Demonstrate the ability to interpret tabulated data information and tables		
2. Places shoring and shielding devices		
3. Identifies supplemental sheeting and shoring needs		
4. Uses trench rescue protocols		
5. Selects type of collapse and methods to stabilize		
6. Identifies exposure to hazards within the trench relative to existing safe zones		
7. Selects and uses PPE		
8. Anticipates extrication logistics		

**PERFORMANCE RATING ON THIS SKILL**

**PASS**

**FAIL**

First Attempt

\_\_\_\_\_

\_\_\_\_\_

Second Attempt

\_\_\_\_\_

\_\_\_\_\_

Candidate Signature \_\_\_\_\_

Tester Signature 1<sup>st</sup> Attempt \_\_\_\_\_

Tester Signature 2<sup>nd</sup> Attempt \_\_\_\_\_

Date \_\_\_\_\_

**NFPA 1006, 8.2.3 b**

**Skill 3: Construct a Load Stabilization System**

**Instructions to Tester- Safety is Paramount!**

1. The candidate shall 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.
2. The candidate will not be allowed to review the performance steps at the time of testing.
3. Prevent or prohibit any unsafe acts.
4. Remember that you are an evaluator, not an instructor.

**Instructions to Candidate**

1. The candidate shall construct load stabilization systems, given an assignment; personal protective equipment and a trench tool kit, so that the listed performance steps are completed.
2. The skill will end when you state or indicate to the tester that you have completed all the identified steps.
3. Contact the tester at any time with any questions you may have.

**Preparation and Equipment**

1. Proper PPE
2. Trench tool kit
3. Object for load
4. Cribbing

**NFPA 1006, 8.2.3 b**

**Skill 3: Construct a Load Stabilization System**

Skill	1 <sup>st</sup> Att	2 <sup>nd</sup> Att
1. Demonstrate the ability to select and construct stabilization systems		
2. Evaluates structural integrity of the system		
3. Determines stability		
4. Calculates load		

**PERFORMANCE RATING ON THIS SKILL** **PASS** **FAIL**

First Attempt    \_\_\_\_\_    \_\_\_\_\_

Second Attempt    \_\_\_\_\_    \_\_\_\_\_

Candidate Signature \_\_\_\_\_

Tester Signature 1<sup>st</sup> Attempt \_\_\_\_\_

Tester Signature 2<sup>nd</sup> Attempt \_\_\_\_\_

Date \_\_\_\_\_

**NFPA 1006, 8.2.4 b**

**Skill 4: Lift a Load**

**Instructions to Tester- Safety is Paramount!**

1. The candidate shall 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.
2. The candidate will not be allowed to review the performance steps at the time of testing.
3. Prevent or prohibit any unsafe acts.
4. Remember that you are an evaluator, not an instructor.

**Instructions to Candidate**

1. The candidate shall lift a load given a trench tool kit, so that the load is lifted the required distance to gain access, settling or dropping of a load is prevented, control and stabilization are maintained before, during and after the lift and operational objectives are attained.
2. The skill will end when you state or indicate to the tester that you have completed all the identified steps.
3. Contact the tester at any time with any questions you may have.

**Preparation and Equipment**

1. Proper PPE
2. Trench tool kit
3. Object for load
4. Cribbing
5. A-frame construction (4 pickets, 1 12 pound sledge hammer, 2 200' kernmantle rope, block and tackle, 4:1 airbag kit, 2-2216 pound air bottles and webbing (rated for load) for chockers

**NFPA 1006, 8.2.4 b**

**Skill 4: Lift a Load**

Skill	1 <sup>st</sup> Att	2 <sup>nd</sup> Att
1. Demonstrate the ability to evaluate and estimate the weight of the load		
2. Demonstrates the proper operations of tools and/or operation of a lever		
3. Demonstrates the application of load stabilization systems		

**PERFORMANCE RATING ON THIS SKILL**

**PASS      FAIL**

First Attempt    \_\_\_\_\_    \_\_\_\_\_

Second Attempt    \_\_\_\_\_    \_\_\_\_\_

Candidate Signature \_\_\_\_\_

Tester Signature 1<sup>st</sup> Attempt \_\_\_\_\_

Tester Signature 2<sup>nd</sup> Attempt \_\_\_\_\_

Date \_\_\_\_\_

**NFPA 1006, 8.2.5 b**

**Skill 5: Coordinate the Use of Heavy Equipment**

**Instructions to Tester- Safety is Paramount!**

1. The candidate shall coordinate the use of heavy equipment, given personal protective equipment, means of communication, equipment and 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.
2. The candidate will not be allowed to review the performance steps at the time of testing.
3. Prevent or prohibit any unsafe acts.
4. Remember that you are an evaluator, not an instructor.

**Instructions to Candidate**

1. The candidate shall coordinate the use of heavy equipment, given personal protective equipment, means of communication, equipment and operator, and an assignment so that the listed performance steps are completed.
2. The skill will end when you state or indicate to the tester that you have completed all the identified steps.
3. Contact the tester at any time with any questions you may have.

**Preparation and Equipment**

1. Proper PPE
2. Radio equipment and communication devices (Ex: bullhorn)

**NFPA 1006, 8.2.5 b**

**Skill 5: Coordinate the Use of Heavy Equipment**

Skill	1 <sup>st</sup> Att	2 <sup>nd</sup> Att
1. Demonstrate the ability to use hand signals		
2. Demonstrates the ability to use radio equipment		
3. Demonstrates the ability to recognize hazards		
4. Assess operator for skill and demeanor		
5. Assess heavy equipment for precision of movement and maintenance		
6. Monitor rescuer and victim safety		
7. Uses proper PPE		

**PERFORMANCE RATING ON THIS SKILL** **PASS** **FAIL**

First Attempt \_\_\_\_\_ \_\_\_\_\_

Second Attempt \_\_\_\_\_ \_\_\_\_\_

Candidate Signature \_\_\_\_\_

Tester Signature 1<sup>st</sup> Attempt \_\_\_\_\_

Tester Signature 2<sup>nd</sup> Attempt \_\_\_\_\_

Date \_\_\_\_\_

**NFPA 1006, 8.2.6 b**

**Skill 6 Release a Victim from Entrapment**

**Instructions to Tester- Safety is Paramount!**

1. The candidate shall 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 crush syndrome and other injuries, techniques are used to enhance patient viability, tasks are accomplished within projected time frames and techniques do not compromise the integrity of the existing shoring system.
2. The candidate will not be allowed to review the performance steps at the time of testing.
3. Prevent or prohibit any unsafe acts.
4. Remember that you are an evaluator, not an instructor.

**Instructions to Candidate**

1. The candidate shall 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 the listed performance steps are completed.
2. The skill will end when you state or indicate to the tester that you have completed all the identified steps.
3. Contact the tester at any time with any questions you may have.

**Preparation and Equipment**

- |                    |                |
|--------------------|----------------|
| 1. Proper PPE      | 5. Air shores  |
| 2. Trench tool kit | 6. Air bag kit |
| 3. Timber shores   | 7. Cribbing    |
| 4. Strong backs    |                |

**NFPA 1006, 8.2.6 b**

**Skill 6: Release a Victim from Entrapment**

Skill	1 <sup>st</sup> Att	2 <sup>nd</sup> Att
1. Demonstrate ability to select, use and care for personal protective equipment		
2. Properly operates rescue tools and stabilization systems		
3. Identifies crush syndrome and other injury possibilities		
4. Completes risk benefit assessments for selected methods for rescue and time constraints		

**PERFORMANCE RATING ON THIS SKILL**

**PASS**

**FAIL**

First Attempt

\_\_\_\_\_

\_\_\_\_\_

Second Attempt

\_\_\_\_\_

\_\_\_\_\_

Candidate Signature \_\_\_\_\_

Tester Signature 1<sup>st</sup> Attempt \_\_\_\_\_

Tester Signature 2<sup>nd</sup> Attempt \_\_\_\_\_

Date \_\_\_\_\_

## Appendix A

<b>Trench Rescue Technician Training Record</b>						
<b>Level II</b>						
<b>Training Record</b>			<b>In House Exam</b>			<b>Manipulative Skill Demonstrated</b>
Date	Inst	Hours	Date	Inst	P/F	
						1. Support an intersecting trench
						2. Install supplemental sheeting and shoring
						30. Construct a load stabilization system
						4. Lift a load using a trench tool kit
						5. Coordinate the use of heavy equipment
						6. Release a victim from entrapment

## Trench Rescue Tool Kit

4' x 8' sheets of plywood, ground pads
2"x 12" x 12' lumber walk boards
14' or longer ground ladders
Trench panels / strong backs
2" x 4" x 6" scabs / cleats
Long handle flat shovels
Short D handle shovels
Wheelbarrow
3# short sledge hammer
2" x 4"Wedges / shims
4" x 4" wedges
5 gallon buckets
Electric circular saws
Carpenter aprons
Tape measures, pencils, levels
Speed square
Tubular webbing or utility rope
Portable generator
Claw hammers
Duplex nails
Extension cords with ground faults
Chainsaws
Four gas monitor
Ventilation fan with extension tube
Reciprocating saw with metal or wood blades
Gas shut of wrenches
Patient immobilization devices (Stokes, Sked etc)
4" x 4" x8' timber shoring



