
Written and Performance Exam General Overview

- The intent of this exam is to assess your ability to teach the skills found in the Massachusetts Technical Education Framework.
- This exam is aligned to the frameworks which can be accessed [here](#).
- Many questions and tasks require a synthesis of knowledge based on experience in the field and may not be found in any book.
- Candidates are encouraged to prepare for their exam by reviewing textbooks and reference material which has been listed as part of this exam outline. These resources can be found using online search tools, online vendors, and websites.
- Contact the Technical Teacher Testing Office if you need further assistance in locating resources listed in the exam outline.
- Use this exam outline and the Massachusetts Technical Education Framework to focus your preparation for the exam.

Written Exam

- Number of Questions: 100
- Administration Time: 3 hours
- Administration Method: Remote Proctoring Online Session

Written Exam Content Coverage

10% Health and Safety

5% Technical Drawings and Blueprints

15% Water Supplies and State Code

25% Venting and Drain Systems

10% Installation and Service Plumbing Components and Joining Techniques

15% Installing Fuel Gas

20% Related Mathematics

Written Exam Reference Materials (Reference Current Edition)

- **Commonwealth of Massachusetts Fuel, Gas and Plumbing Code** (Published by The Office of the Massachusetts Secretary of State)
- **Building Trades Print Reading-Part 3** by Elmer W. Sundberg (American Technical Society)
- **OSHA Regulations (Safety)**
- **Modern Plumbing** by E. Keith Blankenbaker (Goodheart-Willcox)
- **Mathematics For Plumbers and Pipefitters** by Lee Smith, J. Russell Gues, Benedict D'arcangelo, and Bartholomew D'arcangelo (Delmar-Cengage Learning)

Materials Needed for the Written Exam

- A four-function calculator is included in the online testing system. No other calculators are permitted.
- Scrap paper and pencil/pen are permitted.

Written Exam Sample Items

Each question on the exam consists of one incomplete sentence or question followed by four choices. Some items reference an image or diagram. A few sample items are included below; the correct answer is designated with an asterisk (*).

When is a fire watch needed?

What is the total pressure on a 4" diameter test plug in a stack with a head of 20 feet?

- a. 58 lbs.
- b. 75 lbs.
- c. 97 lbs.
- *d. 109 lbs.

When working in a trench which is four or more feet in depth, a ladder or steps shall be provided and located so as to require no more than _____ fee of lateral travel.

- a. 5
- *b. 25
- c. 50
- d. 75

Performance Exam

- Administration Time: 4 hours
- Administration Method: Onsite at an approved Teacher Testing Location

Performance Exam Content Coverage

30% PVC Project

- Construct a basic plumbing installation project using 1 ½" PVC pipe and fittings to industry standards.

30% No-Hub Cast Iron Project

- Construct a basic piping installation project using 2" pipe and fittings with Tyler No Hub couplings according to industry standards.

30% Copper Tubing Project

- Construct a ½" copper tubing project using ½" copper tubing and 95/5 solder according to industry standards.

10% Safety

- Demonstrate safety procedures according to industry and OSHA safety standards.

Note: Knowledge of plumbing industry-recognized math formulas and calculations to determine fitting allowances is essential to successfully complete the subtest tasks and will be evaluated.

Grading criteria for projects includes:

- | | | |
|------------------------|----------------------------|--------------|
| • Measurement Accuracy | • Mathematical Computation | • Safety |
| • Alignment | • Test | • Stock List |
| • Neatness | • Time | |

Materials Required for the Performance Exam (Candidate Must Supply)

- | | |
|---|---|
| • Face mask (cotton face covering or respirator which fully cover the nose and mouth) | • Industry-Approved Work Boots/Safety Shoes |
| • Eye Protection | • Six-foot Rule or Taper Measure |
| • Disposable Gloves | • Pocket Knife or Reamer for 1-1/2" PVC |
| • Industry-Approved Work Clothes | • Pencil |
| | • Calculator (optional) |

Note: Additional materials, equipment, and supplies will be provided. No books or notes will be allowed. Cell phones are prohibited during the exam administration.

Onsite Performance Exam Requirements

- Candidate must practice social distancing and wear the appropriate face covering that covers the nose and mouth while at the exam site.
- Testing sites may have individual requirements based on location and the current guidance from the Center for Disease Control and Prevention (CDC).

Performance Exam Reference Materials (Reference Current Edition)

- **Safety Orientation** by NCCER (Pearson Prentice Hall) www.crafttraining.com
- **OSHA Regulations** www.osha.gov
 - [1910.1200 - Hazard Communication](#)
 - [1910 Subpart I - Personal Protective Equipment](#)