

Massachusetts CTE Teacher Testing Program Plumbing Content Outline

Written and Performance Exam General Overview

- The intent of this exam is to assess the candidate's ability to teach the skills found in the Massachusetts Technical Education Framework.
- The written exam is a state-developed exam aligned to the frameworks which can be accessed [here](#). The performance exam is a NOCTI-developed teacher test and has been determined by DESE to align to the state frameworks.
- Many questions and tasks require a synthesis of knowledge based on experience in the field and may not be found in any book.
- Use this exam outline and the Massachusetts Technical Education Framework to focus your preparation for the exams.
- Candidates are encouraged to prepare for their written exam by reviewing textbooks and reference material which have been listed as part of this exam outline. These resources can be found using online search tools, online vendors, and websites.

Written Exam

- Number of Questions: 100
- Administration Time: 3 hours
- Passing Score: 70.0%
- Administration Method: Remote Proctored Online Testing Session

Written Exam Content Coverage

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|------------|---|
| 7% | <i>Health and Safety</i> |
| 2% | <i>Technical Drawings and Blueprints</i> |
| 15% | <i>Water Supplies and State Code</i> |
| 20% | <i>Venting and Drain Systems</i> |
| 17% | <i>Installation and Service Plumbing Components and Joining Techniques</i> |
| 17% | <i>Installing Fuel Gas</i> |
| 22% | <i>Related Mathematics</i> |

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 (*).

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 _____ feet of lateral travel.

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

NOCTI Performance Exam

- Administration Time: 3 hours
- NOCTI Criterion-Referenced Cut Score/Passing Score: 91.3%
- Administration Method: Onsite at a DESE approved Massachusetts Area Testing Center (MATC) location. Candidates must register and schedule their exam session through NOCTI.

Performance Exam Content Coverage

50% *Install and Prepare to Leak Test a DWV System*

Participants will select tools and materials and safely handle them to rough in lavatories 1 & 2, properly join pipe and fittings, install accurate fittings, leave workstation in good condition, adhere to the local plumbing code and perform a leak test.

50% *Install and Prepare to Leak Test a Water Supply System*

Participants will select tools and materials and safely handle them to rough in lavatories 1 & 2, properly join pipe and fittings, install accurate fittings, leave workstation in good condition, adhere to the local plumbing code and perform a leak test.

Performance Exam Requirements

Candidate Supplied

Candidates must bring all appropriate Personal Protective Equipment (PPE), attire/uniform, and any other safety items as is routinely expected to be used by an employee in the related industry. If the candidate does not bring what is needed to safely complete all jobs on the exam as required in the workplace, the testing session will need to be rescheduled at the candidate's expense.

Site Supplied

Additional equipment and supplies needed to complete the jobs on the performance test will be provided by the testing site.

Performance Exam Site Requirements

Testing sites may have individual requirements based on location and any relevant and current guidance from the Center for Disease Control and Prevention (CDC).