MASSACHUSETTS VOCATIONAL TECHNICAL TEACHER TESTING PROGRAM

SCOPE OF TEST CODE #24 - METAL FABRICATION AND JOINING

TECHNOLOGIES

WRITTEN EXAM - 100 QUESTIONS

TIME ALLOWED: 3 HOURS

PERCENT OF TEST:

10% Health & Safety
   - Regulations and Practices

10% Fundamentals of Metal Fabrication and Joining Process
   - Terminology
   - Measurement
   - Hand Tools

20% Blueprint Reading
   - Print Terminology
   - Views
   - Material Layout

5% Hand and Power Tools

15% Metal Fabrication
   - Mechanical Cutting

Processes Metal Forming
   - Cutting and Gouging

25% Welding and Joining Processes
   - Oxy-Acetylene
   - SMAW
   - GMAW
   - Flux Core
   - Gas Tungsten Arc Spot Welding

15% Metal Fabrication & Joining Technologies Related Mathematics

THE INTENT OF THIS EXAM IS TO ASSESS YOUR ABILITY TO TEACH THE SKILLS FOUND IN THE MASSACHUSETTS VOCATIONAL TECHNICAL EDUCATION METAL FABRICATION & JOINING TECHNOLOGIES FRAMEWORK. ALL EXAMS ARE ALIGNED WITH THE MATCHING FRAMEWORK.

SOME QUESTIONS REQUIRE A SYNTHESIS OF KNOWLEDGE BASED ON EXPERIENCE IN THE FIELD AND MAY NOT BE FOUND IN ANY BOOK. HOWEVER, CANDIDATES ARE ENCOURAGED TO STUDY FOR THEIR EXAMS BY REVIEWING CURRENT TEXTBOOKS AND REFERENCE MATERIAL WHICH CAN USUALLY BE FOUND IN THE LIBRARIES OF MOST VOCATIONAL TECHNICAL SCHOOLS AND SCHOOLS WHICH OFFER CHAPTER 74 PROGRAMS. YOU MAY ALSO BE ABLE TO OBTAIN LISTED REFERENCE MATERIALS ONLINE.

You may refer to http://www.doe.mass.edu/cte/frameworks for the Massachusetts Vocational Technical Educator Frameworks.
THE FOLLOWING LIST OF REFERENCE MATERIALS WAS DEVELOPED AS A GUIDE FOR WRITTEN EXAM CANDIDATES:

METALLURGY by Johnson
METAL TECHNOLOGY by Miller
TRIANGULATION SHORT-CUT LAYOUTS by Kaberlein
MATH FOR SHEET METAL FABRICATION METALWORK TECHNOLOGY AND PRACTICE by V. Repp BLUE PRINT
READING FOR INDUSTRY by Walter Brown WELDING
PRINCIPLES & APPLICATIONS by Larry Jeffus MATH
FOR WELDERS by Nino Marion

The written exam consists of 100 multiple choice questions. Each question consists of one incomplete sentence or a questions followed by four choices. Listed below are several sample items:

When is a fire watch needed?

a. When welding and cutting around combustible materials.

* b. When welding within 35’ of combustible materials, or when sparks can reach materials further than 35’ away.

c. When only welding or cutting in a confined space.

d. When welding above other work areas.

What is meant by a welding machine Duty Cycle?

a. The amount of time the machine switches to high frequency mode.

b. The Duty Cycle controls the polarity of the welding machine.

* c. It is the percentage of time a welding machine can be used continuously.

d. A welding machine does not have a Duty Cycle of operation.

* indicates correct answer

THE TEACHER TESTING PROGRAM WILL PROVIDE NON-PROGRAMMABLE CALCULATORS FOR USE IN COMPLETING THE WRITTEN EXAM. DOCUMENTATION REGARDING THESE CALCULATORS WILL BE INCLUDED IN YOUR ADMISSION PACKAGE.

UPDATED: 1-2015 lmb
MASSACHUSETTS VOCATIONAL TECHNICAL TEACHER TESTING PROGRAM

SCOPE OF TEST CODE #24 - METAL FABRICATION AND JOINING TECHNOLOGIES

PERFORMANCE EXAM

TIME ALLOWED: 4.5 HOURS

PERCENT OF TEST:

31% Flange with Round Cylinder Ring
Candidate will demonstrate safety layout techniques, power stationary equipment, incorporate oxygen-acetylene to cut, fabricate and weld product according to specifications and OSHA Safety and Industry Standards.

31% Fabricate and Weld Aluminum or Steel Cover
Candidate will layout and operate power or manual stationary equipment, to fabricate and a metal box cover g.t.a.w. to specifications and OSHA Safety and Industry Standards.

38% Fabricate and Weld a H.R.S. Steel Box with Handles
Candidate will demonstrate layout technique, power stationary equipment, fabricate and weld steel box to specifications and OSHA Safety and Industry Standards.

THE INTENT OF THIS EXAM IS TO ASSESS YOUR ABILITY TO TEACH THE SKILLS FOUND IN THE MASSACHUSETTS VOCATIONAL TECHNICAL EDUCATION METAL FABRICATION & JOINING TECHNOLOGIES FRAMEWORK. ALL EXAMS ARE ALIGNED WITH THE MATCHING FRAMEWORK.

PERFORMANCE EXAM CANDIDATES WILL BE ASSESSED ON THEIR COMPLETION OF THE EXAM TASKS AND THEIR DEMONSTRATION OF INDUSTRY AND OSHA RECOMMENDED SAFETY PROCEDURES.

Most exam tasks require a synthesis of knowledge based on vocational technical work experience. As a result we highly recommend that Performance Exam Candidates possess the required years of related work experience as well as the appropriate industry recognized credentials as outlined as requirements for preliminary vocational technical educator licensure. Candidates are also encouraged to prepare for their exams by reviewing current textbooks and reference material which can usually be found in the libraries of most Vocational Technical Schools and Schools which offer Chapter 74 Programs. You may also be able to obtain listed reference materials online.
CANDIDATE MUST SUPPLY THE FOLLOWING:

<table>
<thead>
<tr>
<th>Lineman’s Plier/Cutter</th>
<th>Safety Glasses</th>
<th>Welding Helmet</th>
<th>Gloves</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel Tape</td>
<td>Hammer</td>
<td>Chipping Hammer</td>
<td>Protractor</td>
</tr>
<tr>
<td>Square</td>
<td>Center Punch</td>
<td>Wire Brush</td>
<td>Calculator</td>
</tr>
<tr>
<td>Scratch Awl</td>
<td>Dividers</td>
<td>Welding Goggles</td>
<td>Dial Caliper</td>
</tr>
</tbody>
</table>

THE FOLLOWING LIST OF REFERENCE MATERIALS WAS DEVELOPED AS A GUIDE FOR PERFORMANCE EXAM CANDIDATES:

Safety Orientation NCCER, Person Prentice Hall
www.crafttraining.com

www.osha.gov Go to Regulations, select sections:
1910.1200 - Hazard Communication
1910 Subpart I - Personal Protective Equipment

You may refer to http://www.doe.mass.edu/cte/frameworks for the Massachusetts Vocational Technical Educator Frameworks.

CANDIDATES ARE REMINDED THAT THE USE OF A NON-PROGRAMMABLE CALCULATOR IS ALLOWED FOR THE PERFORMANCE EXAM PROVIDING YOU BRING YOUR OWN. THESE CALCULATORS WILL BE INSPECTED PRIOR TO YOUR EXAM.