BUILDING/PROPERTY MAINTENANCE

Test Code: 5923
Version: 01

Specific competencies and skills tested in this assessment:

Safety and Knowledge of Building and Property Maintenance
Wear appropriate personal protective clothing
Wear eye protection, hearing protection, and respiratory protection each time it is required in the lab
Demonstrate knowledge of the Occupational Safety and Health Act (OSHA) and state its purposes
Demonstrate how to lift and carry heavy objects safely
Demonstrate knowledge of Material Safety Data Sheets (MSDS) and where to find them in the Building and Property Maintenance (BPM) lab
Demonstrate knowledge of building and property maintenance lab rules for behavior
Follow safety rules for tools, machines, and processes
Identify BPM lab tools and equipment
Demonstrate problem-solving skills in completing shop projects
Accurately demonstrate the ability to use measuring devices
Demonstrate how to estimate quantities of materials needed for a job

Portable and Stationary Power Tools
State and follow all safety rules and precautions for using portable power tools
Operate portable electric and battery operated drills
Operate a portable jigsaw and reciprocating saw
Operate a router
Operate disc grinders
State and follow all safety rules and precautions for using a table saw
State and follow all safety rules and precautions for using a drill press
State and follow all safety rules and precautions for using a compound miter saw
Cut stock to length on a miter saw
Cut angles on a miter saw
State and follow all safety rules and precautions for using a bench grinder
Sharpen cutting tools on a bench grinder
State and follow all safety rules and precautions for using a portable circular saw
Rip stock with a portable circular saw
Cut wood stock across its grain using a portable circular saw
Cut miters with a portable circular saw
Building/Property Maintenance (continued)

Basic Carpentry
Identify common building materials
Read and interpret building plans
Lay out stock
Lay out angles
Use a sliding T-bevel to transfer an angle
Transfer a cut line using a marking gauge
Test a level for accuracy in the vertical and horizontal positions
Test a horizontal surface using a level
Test a vertical surface using a level
Snap a chalk line
Bore a hole with an auger bit
Bore holes with a portable electric drill
Identify and select various nails for a specific job
Drive and remove nails using a claw hammer
Set finish nails with a nail set
Assemble miter joints by nailing
Select and drive screw-type fasteners by hand
Identify bolts, nuts, and washers for a specific repair job
Identify anchors for masonry repair jobs
Identify screws for specific repair jobs
Drive/remove screws with a portable electric drill
Cut a gain for butt hinges and install butt hinges

Regular Tool and Machine Maintenance
Identify broken tools and replace or repair immediately
Examine power tool and extension cords for damage; replace or repair
Lubricate moving parts of power tools as recommended by the manufacturer
Replace saw blades and other cutting tool accessories when they become dull
Sharpen hand tools, chisels, and drilling or boring bits when they become dull
Practice safety while working on/with machines
Clean mechanical devices
Make machine adjustments for jobs
Define and discuss friction and lubrication
Troubleshoot machine problems
**Building/Property Maintenance (continued)**

**Structural Carpentry**
- Identify floor members
- Install joist hangers
- Install or replace bridging between joists
- Repair plywood sub-flooring on joists
- Identify roof members
- Identify roof types
- Remove and replace a damaged shingle
- Demonstrate proper application of sealing compounds and caulking
- Repair stair risers and treads
- Install or repair a stair railing

**Masonry Skills**
- Practice safety while performing masonry work
- Identify common masonry tools
- Identify masonry supplies
- Identify safety hazards to masonry workers
- Mix mortar for block work
- Identify and describe uses of block types
- Check work for straightness
- Strike off a block wall
- Clean mortar from block and brick work
- Mix mortar for brick work
- Identify standard brick bonds
- Identify and describe types of brick and their uses
- Cut brick and block with a brickset
- Build forms for a concrete slab
- Mix concrete to a 1-2-3 proportion
- Cast a concrete slab
- Float concrete
- Finish concrete
- Patch steps and walkways
**Building/Property Maintenance (continued)**

**Interior and Exterior Building Components**
- Cut drywall with a utility knife
- Install metal corners prior to finishing drywall
- Tape and smooth drywall
- Cope an inside corner
- Miter an outside corner
- Repair suspended ceiling grids and tiles
- Estimate the quantity of tile needed for a repair
- Discuss tile terminology and applications
- Identify adhesives and mortars
- List, identify, and explain tile tools and equipment
- Install a new exterior lock set
- Hang an interior door
- Cut and install molding
- Trim a door jamb and/or a window unit
- Trim a window, stool, apron, casing, and extension jambs
- Identify, repair, or replace siding components
- Identify, repair, and clean gutter spouting components
Building/Property Maintenance (continued)

**Electrical Circuits**
- Identify and use electrical tools
- Identify wire sizes and ampacities
- Identify wire types
- Use connectors/wire nuts to connect or splice wire
- Discuss proper disposal of fluorescent bulbs
- Replace extension cord ends – male/female
- Install a ground fault circuit interrupting outlet
- Install a junction box
- Install adjustable bar hanger
- Install a light fixture
- Install a duplex receptacle
- Install a single pole switch
- Install a split wire duplex receptacle
- Install a 220-volt circuit
- Install a recessed light
- Bore holes for wire run
- Install Romex® to boxes
- Staple Romex® (non-metallic cable) according to code
- Install a three-way switch
- Install BX cable to boxes
- Install conduit to boxes
- Install rework boxes
- Check and replace a 24-volt transformer
- Install a GFCI circuit breaker
- Demonstrate proper grounding techniques
- Replace a faulty circuit breaker
- Install low-voltage wiring
- Install coaxial cable for television reception
- Install cabling for computer workstations
- Replace or install a ceiling fan
Building/Property Maintenance (continued)

**Plumbing Systems**
Demonstrate knowledge of basic code regulations for water supply systems  
Demonstrate knowledge of basic plumbing code regulations for waste systems  
Identify plumbing symbols  
Interpret plumbing drawings  
Identify types of pipes  
Identify plumbing pipe fittings  
Measure and cut steel pipe  
Thread steel pipe  
Install a supply line with steel pipe and fittings  
Sweat solder copper pipe and fitting using propane, MAPP™, or Prestolite gas  
Install and replace copper pipe and fittings  
Solvent weld PVC (polyvinyl chloride) plastic pipe  
Install and repair PVC plastic pipe and fittings  
Repair waste water drains  
Install, replace, and repair commodes  
Install lavatories and sinks  
Hook up water supply lines and waste water lines to a bathtub  
Install or replace a garbage disposal unit  
Clean and/or replace waste water traps and pipes  
Replace and repair a faucet set  
Identify and replace valves

**Finishing Materials**
Demonstrate methods for protecting furniture, materials, and surrounding surfaces from overspray and paint spatter  
Demonstrate procedures for taping door and window trim to protect them from finishing materials being applied  
Demonstrate how to prepare a surface prior to applying a finish  
Stain wood surfaces with wiping oil stains  
Apply a finish material with a brush and a roller  
Apply a finishing material with a suction-type spray gun  
Apply oil-based paints  
Apply acrylic-based paints  
Apply a spray finish  
Demonstrate proper procedures for cleaning paint brushes and rollers

**Environmental Control Systems**
Identify the scales on a thermometer  
Describe atmospheric pressure and how it is measured  
Define BTU (British Thermal Unit)  
Describe types of heat transfer  
Identify the components of a gas fuel heating system  
Identify the components of an oil fuel heating system
Written Assessment:

Administration Time: 3 hours
Number of Questions: 196

Areas Covered:

7% Safety and Knowledge of Building and Property Maintenance
8% Portable and Stationary Power Tools
15% Basic Carpentry
5% Regular Tool and Machine Maintenance
5% Structural Carpentry
10% Masonry Skills
10% Interior and Exterior Building Components
15% Electrical Circuits
15% Plumbing Systems
5% Finishing Materials
5% Environmental Control Systems

Sample Questions:

Which of the following statements is true when operating a compound miter saw?
A. Allow motor to reach full speed before cutting.
B. Start saw with the blade on the stock.
C. Remove scrap while blade is moving.
D. Lift guard to adjust angle.

What type of bolt has a round, smooth head?
A. stove bolt
B. carriage bolt
C. flathead bolt
D. hex bolt

What type of nail is used to build concrete formwork?
A. common
B. duplex
C. masonry
D. cut

Which tab is removed when installing a split-wire duplex receptacle?
A. hot
B. neutral
C. top
D. bottom
Building/Property Maintenance (continued)

What type of trap is prohibited for use in a plumbing system?
A. grease trap
B. p-trap
C. hair trap
D. s-trap

Performance Assessment:
Administration Time: 3 hours and 30 minutes
Number of Jobs: 6

Areas Covered:

27%  Carpentry: Construct Frame
Selection and use of tools, cutting, techniques for assembly, accuracy of board measurements, and accuracy of frame measurements.

18%  Plumbing: Sweat Piping
Use of tools, joining and soldering techniques, accuracy of measurements, piping support, and leak testing.

14%  Electricity: Rough Wiring
Mount electrical boxes, install nonmetallic cable, and preparation of wires in box.

18%  Drywall
Accuracy of measurements and cuts, installation of drywall, and finishing techniques.

14%  Electricity: Finish Wiring
Installation of switching device, installation of light fixture, and testing of installation.

9%  Carpentry: Mortise Hinge
Selection and use of tools, and fit and appearance of installed hinge.

Sample Job:  Carpentry: Construct Frame

Maximum Job Time: 45 minutes

Participant Activity: Two pieces of 2-inch by 4-inch by 8-foot lumber are provided. Using the diagram provided, cut materials to length, construct miter joint as shown, construct butt joints as shown, cut and install center stud, and secure frame to workbench/table with clamps.