NOCTI®

Pennsylvania Customized Assessment Blueprint

Building/Property Maintenance PA

Test Code: 8118 / Version 1

General Assessment Information

Blueprint Contents

Test Type: The Building/Property Maintenance PA assessment was developed based on a Pennsylvania statewide competency task list and contains a multiple-choice and performance component. This assessment is meant to measure technical skills at the occupational level and includes items which gauge factual and theoretical knowledge.

Revision Team: The assessment content is based on input from Pennsylvania educators who teach in approved career and technical education programs.

CIP Code

46.0401- Building/Property Maintenance

Learning that works for America CTE™

2- Architecture & Construction

NATIONAL COLLEGE CREDIT RECOMMENDATION SERVICE
University of the State of New York - Regents Research Fund

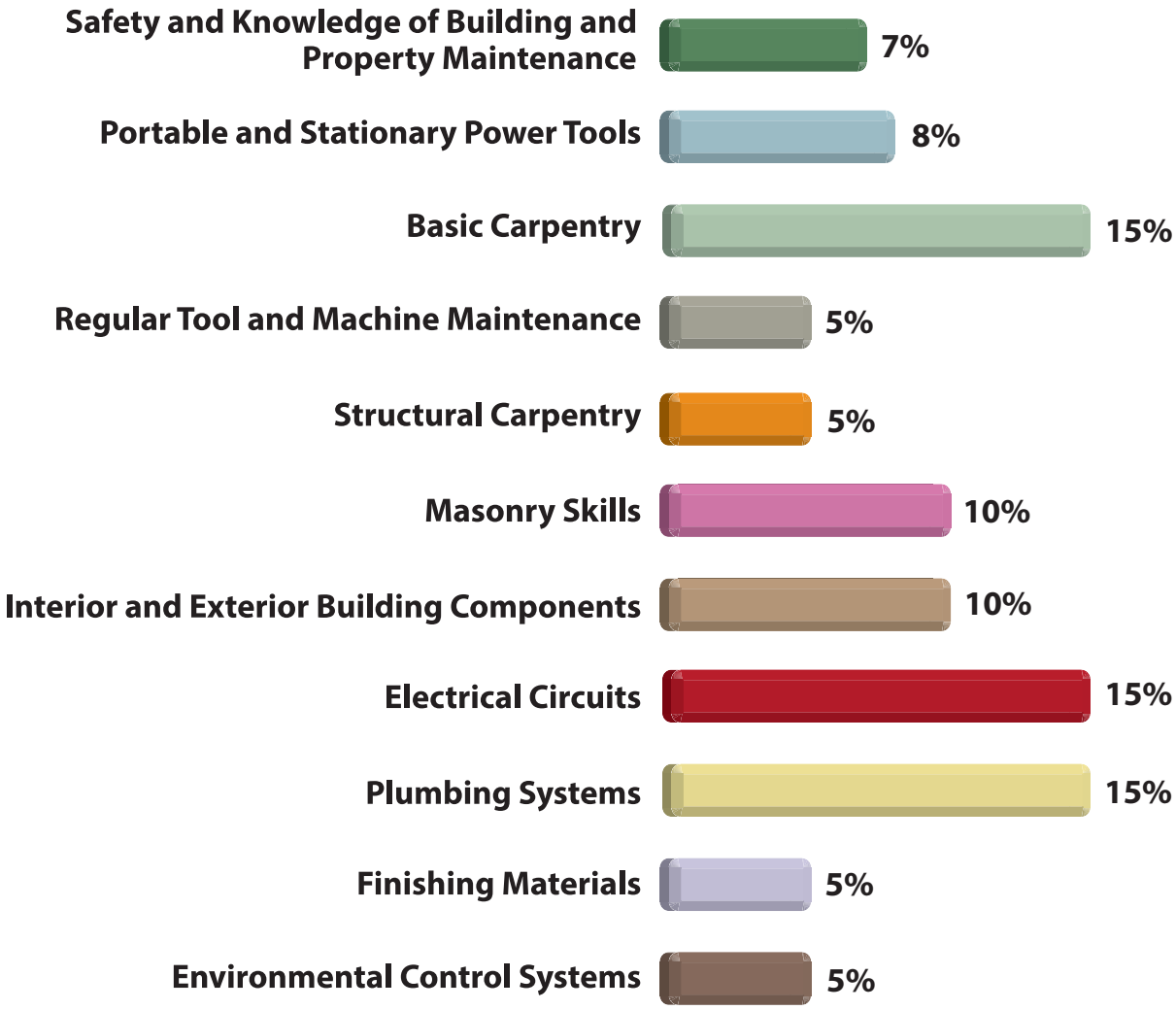
In the lower division baccalaureate/associate degree category, 3 semester hours in Building or Property Maintenance (11/13). NOTE: An additional 1-2 credits may be awarded based on successful completion of the Performance Component when given in conjunction with the written proficiency examination.

Written Assessment

NOCTI written assessments consist of questions to measure an individual's factual theoretical knowledge.

Administration Time: 3 hours
Number of Questions: 200
Number of Sessions: This assessment may be administered in one, two, or three sessions.

Areas Covered



Specific Standards and Competencies Included 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 (BMP) 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

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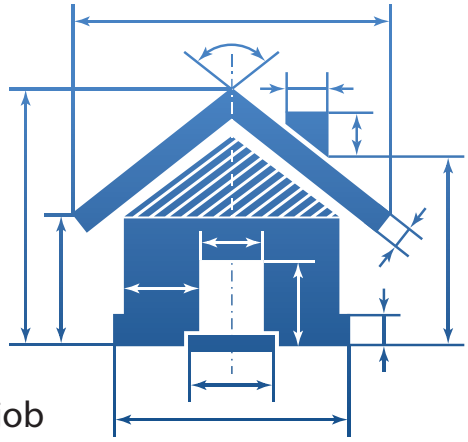
Specific Standards and Competencies (continued)

Portable and Stationary Power Tools (continued)

- 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

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



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Specific Standards and Competencies (continued)

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

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

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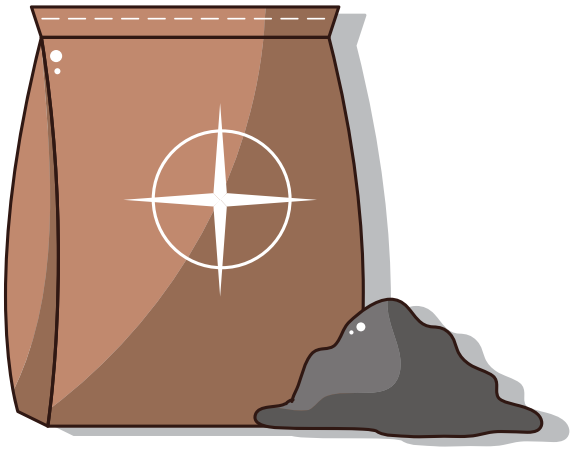
Specific Standards and Competencies (continued)

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



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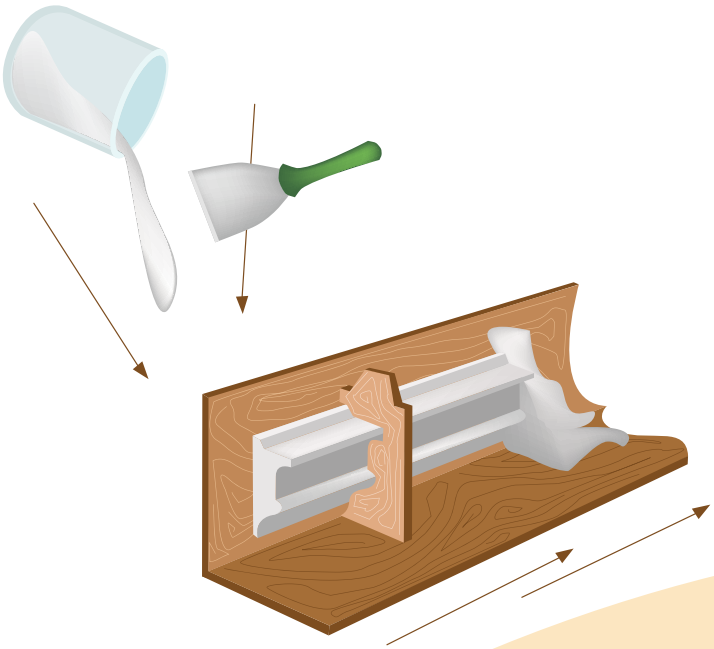
Specific Standards and Competencies (continued)

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



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Specific Standards and Competencies (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 work stations
- Replace or install a ceiling fan

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Specific Standards and Competencies (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

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Specific Standards and Competencies (continued)

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

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

What type of trap is prohibited for use in a plumbing system?

A. grease trap
B. p-trap
C. hair trap
D. s-trap

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Sample Questions (continued)

When working around chemicals, _____ should always be worn.

A. suitable eye protection
B. a hard hat
C. coveralls
D. heavy jeans

A screwdriver in good condition should have a blade with a bottom edge that is

A. rounded
B. flat
C. chisel-shaped
D. knife-sharp

The main supporting member in floor framing is the

A. header
B. joist
C. studs
D. lintel

The tool most commonly used to cut drywall is a _____ knife.

A. utility
B. pocket
C. spackle
D. putty

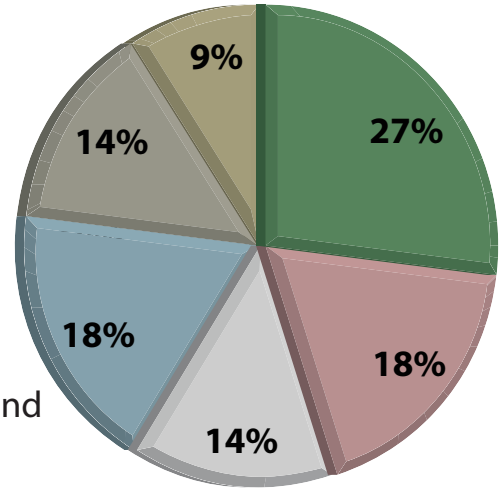
What should be used to protect furniture from paint spatter?

A. plywood
B. cardboard
C. newspaper
D. dropcloth

Performance Assessment

NOCTI performance assessments allow individuals to demonstrate their acquired skills by completing actual jobs using the tools, materials, machines, and equipment related to the technical area.

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



Areas Covered:

27% Carpentry: Construct Frame
Participants will select and use tools to cut joints, assemble the frame, and accurately measure the board and frame.

18% Plumbing: Sweat Piping
Participants will use tools properly, solder joints, create correct measurements, install the pipe, and test for leaks.

14% Electricity: Rough Wiring
Participants will mount electrical boxes, install nonmetallic cable, and prepare the wires in the box.

18% Drywall
Participants will accurately measure and cut drywall, install the drywall, and use correct finishing techniques.

14% Electricity: Finish Wiring
Participants will install a switching device and light fixture, and test the installation.

9% Carpentry: Mortise Hinge
Participants will select and use tools for a good fit and appearance of the installed hinge.

Sample Job

Carpentry: Construct Frame

Maximum 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.