

Module Learner Expectation

The student will:

- identify and describe typical building site layout and excavation processes

Standard

Performance rating of 2 for each applicable task

Rating Scale

The student:

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. *Quality, particularly details and finishes, and productivity are consistent and exceed standards. Leads others to contribute team goals.*
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively. *Quality and productivity are consistent. Works cooperatively and contributes ideas and suggestions that enhance team effort.*
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately. *Quality and productivity are reasonably consistent. Works cooperatively to achieve team goals.*
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately. *Quality and productivity are reasonably consistent. Works cooperatively.*
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

TASK PERFORMANCE CRITERIA

The student:

Preparation and Planning

- sets goals and establishes steps to achieve them
- creates and adheres to useful timelines
- uses personal initiative to formulate questions and find answers
- plans and uses time effectively

Information Gathering and Processing

- accesses a range of relevant school/community information resources
- uses a range of information-gathering techniques
- interprets, organizes and combines information into a logical sequence
- determines accuracy/currency/reliability of information sources

Content

- determines parameters for selecting a building site including local codes, relation to other buildings, solar orientation and other local conditions
- describes typical methods to establish grade levels, lot and building lines

Content (continued)

- identifies and describes typical tools used in site work
- describes how batterboards and building lines are located
- discusses methods of excavating
- determines soil conditions
- describes hazards related to excavation and the need to locate all utility services
- assesses need for backsloping or shoring unstable soil

Collaboration and Teamwork

- cooperates with group members
- shares work appropriately among group members
- negotiates solutions to problems

Information Sharing

- demonstrates effective use of two or more communication media:
e.g., written, oral, audio-visual
- communicates ideas in a logical sequence with sufficient supporting detail
- maintains acceptable grammatical and technical standards
- cites two or more basic information sources

PERFORMANCE ASSESSMENT

CRITERIA	STUDENT RATING	STANDARD	COMMENTS
Preparation and Planning	4 3 2 1 0	2	
Information Gathering and Processing	4 3 2 1 0	2	
Content	4 3 2 1 0	2	
Collaboration and Teamwork	4 3 2 1 0	2	
Information Sharing	4 3 2 1 0	2	

Module Learner Expectation

The student will:

- apply site preparation skills to assist in the location of building site lines and features

Standard

Performance rating of 2 or as stated for each applicable task

Rating Scale

The student:

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. *Quality, particularly details and finishes, and productivity are consistent and exceed standards. Leads others to contribute team goals.*
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- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately. *Quality and productivity are reasonably consistent. Works cooperatively.*
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

TASK PERFORMANCE CRITERIA

The student:

Planning and Management

- prepares self for task
- organizes and works in an orderly manner
- interprets and carries out instructions accurately
- plans and uses time effectively
- adheres to routine procedures

Construction Techniques

- uses plot plan to determine property lines, setback and finish grade
- lays out building features using a builders transit or level
- locates building lines using batterboards and plumb bob
- checks for square using 3, 4, 5 method

Use of Equipment and Materials

- selects and uses appropriate equipment/materials safely
- uses proper personal protective equipment
- follows proper lifting and handling procedures
- calculates and measures accurately
- minimizes waste of materials
- recognizes and controls potential health and safety hazards

Teamwork

- cooperates with group members
- shares work appropriately among group members
- negotiates solutions to problems

PERFORMANCE ASSESSMENT

CRITERIA	STUDENT RATING					STANDARD	COMMENTS
Planning and Management	4	3	2	1	0	2	
Construction Techniques	4	3	2	1	0	1	
Use of Equipment and Materials	4	3	2	1	0	2	
Teamwork	4	3	2	1	0	2	

Module Learner Expectations

The student:

- list and describe factors that affect footing and wall design
- identify and describe common forming materials and processes

Standard

Response rating of 2

Rating Scale

The student:

- 4 independently makes explanations and critical judgements based on a superior knowledge base and understanding of content and related issues.
- 3 makes explanations and comparisons of content using precise terminology. Requires little or no prompting.
- 2 applies knowledge of content to different situations using accurate terminology. May require some prompting.
- 1 uses simple recall to demonstrate basic knowledge and understanding of content. May require frequent prompting.
- 0 is unable to provide a suitable response at this time.

Sample Item(s)	Sample Response(s)
<ol style="list-style-type: none"> List the factors that affect footing and wall design. Describe the important features of a concrete form. Identify and describe two forming systems used in residential construction. Give two reasons for applying a release agent to a set of wall forms. 	<p>Factors that affect footing and wall design include:</p> <ul style="list-style-type: none"> • soil, water and frost conditions • site and building features. <p>Formwork for a concrete structure must be tight enough to prevent leaking, well braced and tied together to withstand the pressure of the concrete before it hardens. In addition, the forms should be easy to handle and strip.</p> <p><u>Prefabricated panels</u></p> <p>This system commonly uses predrilled plywood panels, snap ties and walers to create a form. The panels are reusable and adaptable to a wide variety of foundation shapes.</p> <p><u>Polystyrene Block</u></p> <p>This system uses interlocking hollow polystyrene foam blocks that remain in place after they are filled with concrete. Besides using less concrete the system does not require additional insulation.</p> <p>A release agent is applied to a form to:</p> <ul style="list-style-type: none"> • prevent the forms from sticking to the concrete • protect the form from peeling.

For additional items and responses, refer to:

- *Modern Carpentry*. Willis H. Wagner et. al., 1992 and 1996 editions. Text and Workbook.

Module Learner Expectation

The student will:

- apply concrete forming skills to assist in forming and placing a concrete foundation

Standard

Performance rating of 2 for each applicable task

Rating Scale

The student:

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. *Quality, particularly details and finishes, and productivity are consistent and exceed standards. Leads others to contribute team goals.*
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- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

TASK PERFORMANCE CRITERIA

The student:

Planning and Management

- prepares self for task
- organizes and works in an orderly manner
- interprets and carries out instructions accurately
- plans and uses time effectively

Construction Techniques

- uses foundation plan to locate and size all openings
- adjusts forms to accommodate box sill or cast in place construction
- assembles components to meet stated dimension tolerances
- reinforces forms to maintain their position
- consolidates concrete to prevent honeycombing
- levels and finishes concrete appropriately
- allows concrete to cure properly before stripping

Use of Equipment and Materials

- selects and uses appropriate equipment/materials safely
- uses proper personal protective equipment
- follows proper lifting and handling procedures
- calculates and measures accurately
- minimizes waste of materials
- recognizes and controls potential health & safety hazards

Teamwork

- cooperates with group members
- shares work appropriately among group members
- negotiates solutions to problems

PERFORMANCE ASSESSMENT

CRITERIA	STUDENT RATING					STANDARD	COMMENTS
Planning and Management	4	3	2	1	0	2	
Construction Techniques	4	3	2	1	0	2	
Use of Equipment and Materials	4	3	2	1	0	2	
Teamwork	4	3	2	1	0	2	

Module Learner Expectations

The student will:

- identify and describe the components of an alternative foundation system
- identify the health hazards and precautions related to the use of engineered materials

Standard

Performance rating of 2 or as stated for each applicable task

Rating Scale

The student:

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. *Quality, particularly details and finishes, and productivity are consistent and exceed standards. Leads others to contribute team goals.*
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- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

TASK PERFORMANCE CRITERIA

The student:

Preparation and Planning

- sets goals and describes steps to achieve them
- uses personal initiative to formulate questions and find answers
- accesses a range of relevant in-school/community information sources
- interprets, organizes and combines information into logical sequence
- records information accurately with appropriate supporting detail and uses correct technical terms
- plans and uses time effectively

Content

- identifies factors that affect the design of a wood foundation, such as:
 - number of floors
 - live loads
 - lateral stress
- describes the design features of a preserved wood foundations, including:
 - gravel base and drainage system
 - framing features complete with window opening
 - sheathing and caulking procedures
 - protective covering
 - finishing techniques

Content (continued)

- explains the health hazards and safety precautions that are required when using treated materials and wood preservatives such as:
 - wearing a dust mask
 - washing exposed areas of skin before eating
 - laundering clothes separate from other clothes
 - not burning treated wood

Presenting/Reporting

- demonstrates effective use of one or more communication media
 - e.g., Written: spelling, punctuation, grammar basic format*
 - Oral: voice projection, body language*
 - Audio-visual: techniques, tools*
- maintains acceptable grammatical and technical standards through proofreading and editing
- provides an introduction that describes the purpose and scope of the project
- communicates ideas into a logical sequence with sufficient supporting detail
- provides a reference list that includes two or more relevant information sources

PERFORMANCE ASSESSMENT

CRITERIA	STUDENT RATING					STANDARD	COMMENTS
Preparation and Planning	4	3	2	1	0	2	
Content	4	3	2	1	0	1	
Presenting/ Reporting	4	3	2	1	0	2	

Module Learner Expectation

The student will:

- apply construction skills to assist in the design/ construction of an alternative foundation system

Standard

Performance rating of 2 for each applicable task

Rating Scale

The student:

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. *Quality, particularly details and finishes, and productivity are consistent and exceed standards. Leads others to contribute team goals.*
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively. *Quality and productivity are consistent. Works cooperatively and contributes ideas and suggestions that enhance team effort.*
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- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

TASK PERFORMANCE CRITERIA

The student:

Planning and Management

- prepares self for task
- organizes and works in an orderly manner
- interprets and carries out instructions accurately
- plans and uses time effectively

Construction Techniques

- follows design specification for order and/or selecting materials
- creates appropriate gravel base
- frames and sheaths walls according to the engineering drawings
- seals and protects exterior surfaces
- back fills and finishes according to plan

Use of Equipment and Materials

- selects and uses appropriate equipment/materials safely
- uses proper personal protective equipment
- follows proper lifting and handling procedures
- calculates and measures accurately
- minimizes waste of materials
- recognizes and controls potential health and safety hazards

Teamwork

- cooperates with group members
- shares work appropriately among group members
- negotiates solutions to problems

PERFORMANCE ASSESSMENT

CRITERIA	STUDENT RATING					STANDARD	COMMENTS
Planning and Management	4	3	2	1	0	2	
Construction Techniques	4	3	2	1	0	2	
Use of Equipment and Materials	4	3	2	1	0	2	
Teamwork	4	3	2	1	0	2	

Module Learner Expectation

The student will:

- identify and describe the parts of a floor and wall framing system

Standard

Response rating of 2

Rating Scale

The student:

- 4 independently makes explanations and critical judgements based on a superior knowledge base and understanding of content and related issues.
- 3 makes explanation and comparisons of content using precise terminology. Requires little or no prompting.
- 2 applies knowledge of content to different situations using accurate terminology. May require some prompting.
- 1 uses simple recall to demonstrate basic knowledge and understanding of content. May require frequent prompting.
- 0 is unable to provide a suitable response at this time.

Sample Item(s)	Sample Response(s)
<ol style="list-style-type: none"> 1. Identify and describe two systems used to frame residential structures. 2. From a floor frame mock-up or diagram, identify the following parts: <ul style="list-style-type: none"> • single and double header • regular joist • tail joist • cantilever joist • double trimmer • bridging. 3. From a floor frame mock-up or diagram, identify the following parts: <ul style="list-style-type: none"> • sole plate • regular stud • top and cap plates • rough sill • lintel header • trimmer • upper and lower crippler. 4. From a current National Building Code of Canada table, determine the maximum span of a 38 x 235 #1 Douglas Fir joist with diagonal bridging only on 400 mm spacing for living quarters. 	<p><u>Platform Framing.</u> In platform construction the floor is constructed first followed by the walls that can be constructed ahead of time off site or assembled on site after the sub-floor is applied.</p> <p><u>Balloon Framing</u> Balloon framing is used in two story structures. The studs extend from the sill plate to the top plate of the second floor. This system eliminates the need for an joint to allow for shrinkage between floors.</p> <p>According to the 1990 edition of the National Building Code, the maximum span is 4.38 m.</p>

For additional items and responses, refer to:

- *Modern Carpentry.* Willis H. Wagner et. al., 1996. Text and Instructor’s Manual.

Module Learner Expectations

The student will:

- read and interpret the appropriate drawings and specifications to create a floor and wall framing and sheathing estimate
- apply framing skills to assist in the layout and construction of floor and wall components

Standard

Performance rating of 2 for each applicable task

Rating Scale

The student:

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. *Quality, particularly details and finishes, and productivity are consistent and exceed standards. Leads others to contribute team goals.*
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- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

TASK PERFORMANCE CRITERIA

The student:

Planning and Management

- prepares self for task
- organizes and works in an orderly manner
- interprets and carries out instructions accurately
- plans and uses time effectively
- prepares a list of materials, cost estimate and cutting lists from a set of working drawings
- calculates waste and over-run requirements

Use of Equipment and Materials

- selects and uses appropriate equipment/materials safely
- uses proper personal protective equipment
- follows proper lifting and handling procedures
- calculates and measures accurately
- minimizes waste of materials
- recognizes and controls potential health and safety hazards

Construction Techniques

- follows floor and wall plan to lay out components
- cuts and assembles framing components according to plan
- squares floor and wall components prior to installing sub-floor and wall sheathing
- erects, plumbs and braces wall sections

Teamwork

- cooperates with group members
- shares work appropriately among group members
- negotiates solutions to problems

PERFORMANCE ASSESSMENT

CRITERIA	STUDENT RATING					STANDARD	COMMENTS
Planning and Management	4	3	2	1	0	2	
Construction Techniques	4	3	2	1	0	2	
Use of Equipment and Materials	4	3	2	1	0	2	
Teamwork	4	3	2	1	0	2	

Module Learner Expectation

The student will:

- identify and describe the different styles and parts of a roof system

Standard

Response rating of 2

Rating Scale

The student:

- 4 independently makes explanations and critical judgements based on a superior knowledge base and understanding of content and related issues.
- 3 makes explanation and comparisons of content using precise terminology. Requires little or no prompting.
- 2 applies knowledge of content to different situations using accurate terminology. May require some prompting.
- 1 uses simple recall to demonstrate basic knowledge and understanding of content. May require frequent prompting.
- 0 is unable to provide a suitable response at this time.

Sample Item(s)	Sample Response(s)
<ol style="list-style-type: none"> From pictures or diagrams, identify the following styles and parts of roof systems: <ul style="list-style-type: none"> • gable • hip • shed • gambrel. Identify and describe two common methods of framing a roof. From a mock-up or drawing, identify the parts of rafter systems: <ul style="list-style-type: none"> • common rafter • ridge board • collar tie • ceiling joist. From a standard W or Fink truss, identify the following members: <ul style="list-style-type: none"> • top chord • bottom cord • tension web • compression web. 	<p><u>Rafter System</u> Traditional rafter systems are still used for unusual roof designs, for open ceilings or attic space requirements.</p> <p><u>Truss System</u> Roof trusses are prefabricated components that are designed and built in a factory to meet most roof shapes and loading specifications. Trusses can be erected quickly and easily.</p>

For additional items and responses, refer to:

- *Modern Carpentry*. William H. Wagner et. al., 1996. Text and Instructor’s Manual.

Module Learner Expectations

The student will:

- read and interpret the appropriate drawings and specifications to create a roof framing and finishing estimate
- apply roofing skills to assist in the framing and finishing of a roof structure

Standard

Performance rating of 2 for each applicable task

Rating Scale

The student:

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. *Quality, particularly details and finishes, and productivity are consistent and exceed standards. Leads others to contribute team goals.*
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- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

TASK PERFORMANCE CRITERIA

The student:

Planning and Management

- prepares self for task
- organizes and works in an orderly manner
- interprets and carries out instructions accurately
- plans and uses time effectively
- prepares a material list from a roof plan
- creates a cutting list
- calculates waste and over run requirements
- estimates material costs

Use of Equipment and Materials

- selects and uses appropriate equipment/materials safely
- uses proper personal protective equipment
- follows proper lifting and handling procedures
- calculates and measures accurately
- minimizes waste of materials
- recognizes and controls potential health and safety hazards

Construction Techniques

- cuts and/or assembles rafters/trusses according to plan
- plumbs and braces roof components
- install look-outs, fascia and braces
- applies sheathing and shingles according to manufacturers recommendations

Teamwork

- cooperates with group members
- shares work appropriately among group members
- negotiates solutions to problems

PERFORMANCE ASSESSMENT

CRITERIA	STUDENT RATING					STANDARD	COMMENTS
Planning and Management	4	3	2	1	0	2	
Construction Techniques	4	3	2	1	0	2	
Use of Equipment and Materials	4	3	2	1	0	2	
Teamwork	4	3	2	1	0	2	

Module Learner Expectation

The student will:

- identify and describe common types of exterior doors, windows and siding materials

Standard

Performance rating of 2 or as stated for each applicable task

Rating Scale

The student:

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. *Quality, particularly details and finishes, and productivity are consistent and exceed standards. Leads others to contribute team goals.*
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- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

TASK PERFORMANCE CRITERIA

<p><i>The student</i></p> <p>Preparation and Planning</p> <ul style="list-style-type: none"> <input type="checkbox"/> sets goals and describes steps to achieve them <input type="checkbox"/> uses personal initiative to formulate questions and find answers <input type="checkbox"/> accesses a range of relevant in-school/community information sources <input type="checkbox"/> interprets, organizes and combines information into logical sequence <input type="checkbox"/> records information accurately with appropriate supporting detail and uses correct technical terms <input type="checkbox"/> plans and uses time effectively <p>Content</p> <ul style="list-style-type: none"> <input type="checkbox"/> lists and describes three basic window designs, e.g.: <ul style="list-style-type: none"> - sliding - swing - fixed 	<p>Content (continued)</p> <ul style="list-style-type: none"> <input type="checkbox"/> lists and describes two door types, e.g.: <ul style="list-style-type: none"> - wood - metal - fibreglass <input type="checkbox"/> lists and describes wood, vinyl and aluminium siding materials and installation techniques <p>Presenting/Reporting</p> <ul style="list-style-type: none"> <input type="checkbox"/> demonstrates effective use of one or more communication media <p><i>e.g., <u>Written</u>: spelling, punctuation, grammar basic format</i></p> <p><i><u>Oral</u>: voice projection, body language</i></p> <p><i><u>Audio-visual</u>: techniques, tools</i></p> <input type="checkbox"/> maintains acceptable grammatical and technical standards through proofreading and editing <input type="checkbox"/> provides an introduction that describes the purpose and scope of the project <input type="checkbox"/> communicates ideas into a logical sequence with sufficient supporting detail <input type="checkbox"/> provides a reference list that includes two or more relevant information sources
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PERFORMANCE ASSESSMENT

CRITERIA	STUDENT RATING					STANDARD	COMMENTS
Preparation and Planning	4	3	2	1	0	2	
Content	4	3	2	1	0	1	
Presenting/ Reporting	4	3	2	1	0	2	

ACTIVITY ASSESSMENT: INSTALLING DOORS, WINDOWS AND SIDING Exterior Finishing (Door, Window & Siding): CON2060-2

Module Learner Expectations

The student will:

- read and interpret the appropriate drawings and specifications to create a door and window schedule and siding estimate
- apply finishing skills to install a prehung door, a window unit and siding materials

Standard

Performance rating of 2 for each applicable task

Rating Scale

The student:

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. *Quality, particularly details and finishes, and productivity are consistent and exceed standards. Leads others to contribute team goals.*
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TASK PERFORMANCE CRITERIA

The student:

Planning and Management

- prepares self for task
- organizes and works in an orderly manner
- interprets and carries out instructions accurately
- plans and uses time effectively
- uses elevation drawings and notes to develop a door and window schedule
- reads elevation drawing to determine siding type and quantities
- calculates allowances for wall openings and waste requirements

Construction Techniques

- prepares and installs window and doors according to manufacturer's recommendations
- installs siding according to standard practice and manufacturer's recommendations

Use of Equipment and Materials

- selects and uses appropriate equipment/materials safely
- uses proper personal protective equipment
- follows proper lifting and handling procedures
- calculates and measures accurately
- minimizes waste of materials
- recognizes and controls potential hazards

Teamwork

- cooperates with group members
- shares work appropriately among group members
- negotiates solutions to problems

PERFORMANCE ASSESSMENT

CRITERIA	STUDENT RATING					STANDARD	COMMENTS
Planning and Management	4	3	2	1	0	2	
Construction Techniques	4	3	2	1	0	2	
Use of Equipment and Materials	4	3	2	1	0	2	
Teamwork	4	3	2	1	0	2	

Module Learner Expectation

The student will:

- list and describe the electrical systems and components associated with residential wiring

Standard

Performance rating of 2 or as stated for each applicable task

Rating Scale

The student:

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. *Quality, particularly details and finishes, and productivity are consistent and exceed standards. Leads others to contribute team goals.*
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TASK PERFORMANCE CRITERIA

The student

Preparation and Planning

- sets goals and describes steps to achieve them
- uses personal initiative to formulate questions and find answers
- accesses a range of relevant in-school/community information sources
- interprets, organizes and combines information into logical sequence
- records information accurately with appropriate supporting detail and uses correct technical terms
- plans and uses time effectively

Content

- identifies common types of electrical systems found in a modern residence, such as:
 - lighting
 - utility
 - heating
 - communication
 - alarm system

Content (continued)

- identifies the different voltage levels commonly found in each system
- lists four appliances and power requirements found in a home

Presenting/Reporting

- demonstrates effective use of one or more communication media
e.g., Written: spelling, punctuation, grammar basic format
- Oral: voice projection, body language*
- Audio-visual: techniques, tools*
- maintains acceptable grammatical and technical standards through proofreading and editing
- provides an introduction that describes the purpose and scope of the project
- communicates ideas into a logical sequence with sufficient supporting detail
- provides a reference list that includes two or more relevant information sources

PERFORMANCE ASSESSMENT

CRITERIA	STUDENT RATING					STANDARD	COMMENTS
Preparation and Planning	4	3	2	1	0	2	
Content	4	3	2	1	0	1	
Presenting/Reporting	4	3	2	1	0	2	

Module Learner Expectations

The student will:

- apply wiring principles and code requirements to create a wiring diagram
- apply wiring skills to assist in the installation of a residential wiring system

Standard

Performance rating of 2 for each applicable task

Rating Scale

The student:

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. *Quality, particularly details and finishes, and productivity are consistent and exceed standards. Leads others to contribute team goals.*
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively. *Quality and productivity are consistent. Works cooperatively and contributes ideas and suggestions that enhance team effort.*
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately. *Quality and productivity are reasonably consistent. Works cooperatively to achieve team goals.*
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately. *Quality and productivity are reasonably consistent. Works cooperatively.*
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

TASK PERFORMANCE CRITERIA

The student:

Planning and Management

- prepares self for task
- organizes and works in an orderly manner
- interprets and carries out instructions accurately
- plans and uses time effectively
- uses standard drawing symbols
- clearly identifies connections and components
- follows code requirements

Use of Equipment and Materials

- selects and uses appropriate equipment/materials safely
- uses proper personal protective equipment
- follows proper lifting and handling procedures
- calculates and measures accurately
- minimizes waste of materials
- recognizes and controls potential health and safety hazards

Construction Techniques

- installs a branch circuit to include three or more of the following:
 - general purpose receptacle
 - light fixture
 - single and three-way switch
 - split receptacle
- follows drawing and code requirements
- tests circuits for continuity and correct grounding

Teamwork

- cooperates with group members
- shares work appropriately among group members
- negotiates solutions to problems

PERFORMANCE ASSESSMENT

CRITERIA	STUDENT RATING					STANDARD	COMMENTS
Planning and Management	4	3	2	1	0	2	
Construction Techniques	4	3	2	1	0	2	
Use of Equipment and Materials	4	3	2	1	0	2	
Teamwork	4	3	2	1	0	2	

Module Learner Expectation

The student will:

- profile a trade or occupation within the electrical field

Standard

Performance rating of 2 for each applicable task

Rating Scale

The student:

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. *Quality, particularly details and finishes, and productivity are consistent and exceed standards. Leads others to contribute team goals.*
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively. *Quality and productivity are consistent. Works cooperatively and contributes ideas and suggestions that enhance team effort.*
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately. *Quality and productivity are reasonably consistent. Works cooperatively to achieve team goals.*
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately. *Quality and productivity are reasonably consistent. Works cooperatively.*
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

TASK PERFORMANCE CRITERIA

<p>The student:</p> <p>Preparation and Planning</p> <ul style="list-style-type: none"> <input type="checkbox"/> sets goals and establishes steps to achieve them <input type="checkbox"/> creates and adheres to timelines <input type="checkbox"/> uses personal initiative to formulate questions and find answers <input type="checkbox"/> plans and uses time effectively <p>Information Gathering and Processing</p> <ul style="list-style-type: none"> <input type="checkbox"/> accesses a range of relevant school/community information resources <input type="checkbox"/> uses a range of information-gathering techniques <input type="checkbox"/> interprets, organizes and combines information into a logical sequence <input type="checkbox"/> determines accuracy/currency/reliability of information sources 	<p>Content</p> <ul style="list-style-type: none"> <input type="checkbox"/> identifies one or more occupation or trade related to electrical work <input type="checkbox"/> lists day-to-day duties of a worker or trades person <input type="checkbox"/> describes overall working conditions <input type="checkbox"/> assesses local employment opportunities <input type="checkbox"/> identifies training programs and entry requirements <p>Information Sharing</p> <ul style="list-style-type: none"> <input type="checkbox"/> demonstrates effective use of two or more communication media: <i>e.g., written, oral, audio-visual</i> <input type="checkbox"/> communicates ideas in a logical sequence with sufficient supporting detail <input type="checkbox"/> maintains acceptable grammatical and technical standards <input type="checkbox"/> cites one or more basic information sources
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PERFORMANCE ASSESSMENT

CRITERIA	STUDENT RATING					STANDARD	COMMENTS
Preparation and Planning	4	3	2	1	0	2	
Information Gathering and Processing	4	3	2	1	0	2	
Content	4	3	2	1	0	2	
Information Sharing	4	3	2	1	0	2	

Module Learner Expectation

The student will:

- identify and describe the parts of a residential plumbing system

Standard

Performance rating of 2 or as stated for each applicable task

Rating Scale

The student:

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. *Quality, particularly details and finishes, and productivity are consistent and exceed standards. Leads others to contribute team goals.*
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively. *Quality and productivity are consistent. Works cooperatively and contributes ideas and suggestions that enhance team effort.*
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately. *Quality and productivity are reasonably consistent. Works cooperatively to achieve team goals.*
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately. *Quality and productivity are reasonably consistent. Works cooperatively.*
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

TASK PERFORMANCE CRITERIA

The student

Preparation and Planning

- sets goals and describes steps to achieve them
- uses personal initiative to formulate questions and find answers
- accesses a range of relevant in-school/community information sources
- interprets, organizes and combines information into logical sequence
- records information accurately with appropriate supporting detail and uses correct technical terms
- plans and uses time effectively

Content

- identifies the parts of a residential plumbing system:
 - water supply
 - drainage
 - waste
 - venting systems

Content (continued)

- describes the types of pipes, tubes and fittings commonly found in a plumbing system
- provide examples of how common pipes, tubes and fittings are joined together

Presenting/Reporting

- demonstrates effective use of one or more communication media:
 - e.g., Written: spelling, punctuation, grammar basic format*
 - Oral: voice projection, body language*
 - Audio-visual: techniques, tools*
- maintains acceptable grammatical and technical standards through proofreading and editing
- provides an introduction that describes the purpose and scope of the project
- communicates ideas into a logical sequence with sufficient supporting detail
- provides a reference list that includes two or more relevant information sources

PERFORMANCE ASSESSMENT

CRITERIA	STUDENT RATING					STANDARD	COMMENTS
Preparation and Planning	4	3	2	1	0	2	
Content	4	3	2	1	0	1	
Presenting/ Reporting	4	3	2	1	0	2	

Module Learner Expectations

The student will:

- create a drawing of a water supply, drainage, waste and vent system for a typical plumbing fixture
- apply plumbing skills to assist in the installation of a water supply, waste and vent system

Standard

Performance rating of 2 for each applicable task

Rating Scale

The student:

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. *Quality, particularly details and finishes, and productivity are consistent and exceed standards. Leads others to contribute team goals.*
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively. *Quality and productivity are consistent. Works cooperatively and contributes ideas and suggestions that enhance team effort.*
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately. *Quality and productivity are reasonably consistent. Works cooperatively to achieve team goals.*
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately. *Quality and productivity are reasonably consistent. Works cooperatively.*
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

TASK PERFORMANCE CRITERIA

The student:

Planning and Management

- prepares self for task
- organizes and works in an orderly manner
- interprets and carries out instructions accurately
- plans and uses time effectively
- uses standard symbols and drawing techniques
- clearly identifies components and piping materials

Construction Techniques

- roughs in plumbing according to plan
- tests system for leaks
- installs fixtures according to manufacturer’s recommendations

Use of Equipment and Materials

- selects and uses appropriate equipment/materials safely
- uses proper personal protective equipment
- follows proper lifting and handling procedures
- calculates and measures accurately
- minimizes waste of materials
- recognizes and controls potential health and safety hazards

Teamwork

- cooperates with group members
- shares work appropriately among group members
- negotiates solutions to problems

PERFORMANCE ASSESSMENT

CRITERIA	STUDENT RATING					STANDARD	COMMENTS
Planning and Management	4	3	2	1	0	2	
Construction Techniques	4	3	2	1	0	2	
Use of Equipment and Materials	4	3	2	1	0	2	
Teamwork	4	3	2	1	0	2	

Module Learner Expectation

The student will:

- profile a trade or occupation within the plumbing field

Standard

Performance rating of 2 for each applicable task

Rating Scale

The student:

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. *Quality, particularly details and finishes, and productivity are consistent and exceed standards. Leads others to contribute team goals.*
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively. *Quality and productivity are consistent. Works cooperatively and contributes ideas and suggestions that enhance team effort.*
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately. *Quality and productivity are reasonably consistent. Works cooperatively to achieve team goals.*
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately. *Quality and productivity are reasonably consistent. Works cooperatively.*
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

TASK PERFORMANCE CRITERIA

The student:

Preparation and Planning

- sets goals and establishes steps to achieve them
- creates and adheres to timelines
- uses personal initiative to formulate questions and find answers
- plans and uses time effectively

Information Gathering and Processing

- accesses a range of relevant school/community information resources
- uses a range of information-gathering techniques
- interprets, organizes and combines information into a logical sequence
- determines accuracy/currency/reliability of information sources

Content

- identifies one or more occupation or trade related to plumbing
- lists day-to-day duties of a worker or trades person
- describes overall working conditions
- assesses local employment opportunities
- identifies training programs and entry requirements

Information Sharing

- demonstrates effective use of two or more communication media:
e.g., written, oral, audio-visual
- communicates ideas in a logical sequence with sufficient supporting detail
- maintains acceptable grammatical and technical standards
- cites one or more basic information sources

PERFORMANCE ASSESSMENT

CRITERIA	STUDENT RATING					STANDARD	COMMENTS
Preparation and Planning	4	3	2	1	0	2	
Information Gathering and Processing	4	3	2	1	0	2	
Content	4	3	2	1	0	2	
Information Sharing	4	3	2	1	0	2	

Module Learner Expectation

The student will:

- list and describe the major components of a typical heating, ventilating and air conditioning system

Standard

Response rating of 2

Rating Scale

The student:

- 4 independently makes explanations and critical judgements based on a superior knowledge base and understanding of content and related issues.
- 3 makes explanation and comparisons of content using precise terminology. Requires little or no prompting.
- 2 applies knowledge of content to different situations using accurate terminology. May require some prompting.
- 1 uses simple recall to demonstrate basic knowledge and understanding of content. May require frequent prompting.
- 0 is unable to provide a suitable response at this time.

Sample Item(s)	Sample Response(s)
<p>1. Given a drawing or picture of a HVAC system, identify and describe the purpose of each of the following components:</p> <ul style="list-style-type: none"> - furnace / boiler / heat pump - humidifier - air conditioner - kitchen or bathroom vent. <p>2. Explain the difference between a radial and trunk branch heating or air conditioning system.</p>	<ul style="list-style-type: none"> - a <u>furnace</u> provides heat by burning gas, liquid or solid fuel such as a natural gas, oil or coal. - to maintain the same level of relative humidity in a home, moisture is added to the heated air in a <u>humidifier</u>. - an <u>air conditioner</u> cools the air and reduces the humidity. - a <u>bathroom</u> or <u>kitchen vent</u> exhausts air directly outside using a fan. <p>A radial system radiates out from a central point, whereas a trunk branch system branches off where needed from a horizontal air duct.</p>

For additional items and responses refer to:

- *Construction Technology*. Mark W. Huth, 1966. Text and Instructor’s Manual
- *Illustrated Residential and Commercial Construction*. Peter A. Mann, 1989.

Module Learner Expectations

The student will:

- prepare a preventive maintenance schedule for a heating, ventilating and/or air conditioning system
- service or install a heating, ventilating and/or air conditioning system

Standard

Performance rating of 2 for each applicable task

Rating Scale

The student:

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. *Quality, particularly details and finishes, and productivity are consistent and exceed standards. Leads others to contribute team goals.*
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively. *Quality and productivity are consistent. Works cooperatively and contributes ideas and suggestions that enhance team effort.*
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately. *Quality and productivity are reasonably consistent. Works cooperatively to achieve team goals.*
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately. *Quality and productivity are reasonably consistent. Works cooperatively.*
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

TASK PERFORMANCE CRITERIA

The student:

Planning and Management

- prepares self for task
- organizes and works in an orderly manner
- interprets and carries out instructions accurately
- plans and uses time effectively

Construction Techniques

- lists components/parts to be serviced according to manufacturer’s recommendations
- identifies frequency of service and procedures
- services a system component according to the prescribed schedule and procedure

Use of Equipment and Materials

- selects and uses appropriate equipment/materials safely
- uses proper personal protective equipment
- follows proper lifting and handling procedures
- calculates and measures accurately
- minimizes waste of materials
- recognizes and controls potential health and safety hazards

Teamwork

- cooperates with group members
- shares work appropriately among group members
- negotiates solutions to problems

PERFORMANCE ASSESSMENT

CRITERIA	STUDENT RATING					STANDARD	COMMENTS
Planning and Management	4	3	2	1	0	2	
Construction Techniques	4	3	2	1	0	2	
Use of Equipment and Materials	4	3	2	1	0	2	
Teamwork	4	3	2	1	0	2	

Module Learner Expectation

The student will:

- profile a trade or occupation within the heating and air conditioning fields

Standard

Performance rating of 2 for each applicable task

Rating Scale

The student:

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. *Quality, particularly details and finishes, and productivity are consistent and exceed standards. Leads others to contribute team goals.*
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- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

TASK PERFORMANCE CRITERIA

<p>The student:</p> <p>Preparation and Planning</p> <ul style="list-style-type: none"> <input type="checkbox"/> sets goals and establishes steps to achieve them <input type="checkbox"/> creates and adheres to timelines <input type="checkbox"/> uses personal initiative to formulate questions and find answers <input type="checkbox"/> plans and uses time effectively <p>Information Gathering and Processing</p> <ul style="list-style-type: none"> <input type="checkbox"/> accesses a range of relevant school/community information resources <input type="checkbox"/> uses a range of information-gathering techniques <input type="checkbox"/> interprets, organizes and combines information into a logical sequence <input type="checkbox"/> determines accuracy/currency/reliability of information sources 	<p>Content</p> <ul style="list-style-type: none"> <input type="checkbox"/> identifies one or more occupation or trade related to heating and air conditioning <input type="checkbox"/> lists day-to-day duties of a worker or trades person <input type="checkbox"/> describes overall working conditions <input type="checkbox"/> assesses local employment opportunities <input type="checkbox"/> identifies training programs and entry requirements <p>Information Sharing</p> <ul style="list-style-type: none"> <input type="checkbox"/> demonstrates effective use of two or more communication media: <i>e.g., written, oral, audio-visual</i> <input type="checkbox"/> communicates ideas in a logical sequence with sufficient supporting detail <input type="checkbox"/> maintains acceptable grammatical and technical standards <input type="checkbox"/> cites one or more basic information sources
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PERFORMANCE ASSESSMENT

CRITERIA	STUDENT RATING					STANDARD	COMMENTS
Preparation and Planning	4	3	2	1	0	2	
Information Gathering and Processing	4	3	2	1	0	2	
Content	4	3	2	1	0	2	
Information Sharing	4	3	2	1	0	2	

Module Learner Expectations

The student will:

- identify the major issues that must be addressed when designing an agri-structure
- read and interpret the appropriate drawings and specifications to create a material and cost estimate
- construct a structure for use in agriculture

Standard

Performance rating of 2 for each applicable task

Rating Scale

The student:

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. *Quality, particularly details and finishes, and productivity are consistent and exceed standards. Leads others to contribute team goals.*
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively. *Quality and productivity are consistent. Works cooperatively and contributes ideas and suggestions that enhance team effort.*
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- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately. *Quality and productivity are reasonably consistent. Works cooperatively.*
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

TASK PERFORMANCE CRITERIA

The student:

Planning and Management

- defines needs considering:
 - human and environmental safety
 - animal comfort and safety and/or crop protection
 - capacity and ease of use
 - construction costs
- conducts research to determine potential design
- produces a drawing of a suitable design

Construction Techniques

- selects and safely uses appropriate tools, materials and processes
- calculates and measures accurately
- constructs the product according to the design specifications
- meets stated standards for:
 - dimensioning
 - squaring
 - assembling
 - finishing

Work Skills

- follows instructions with limited direction
- organizes work in an orderly manner
- works cooperatively with others in both structured and non-structured settings
- uses correct personal protective equipment
- follows proper lifting and handling procedures
- fulfills expected clean-up responsibilities
- stores and disposes materials according to recommended procedures

Project Presentation

- describes the purpose of the project
- summarizes and reports on major events
- assesses design processes and production techniques
- suggests possible improvements to the design and construction processes

PERFORMANCE ASSESSMENT

CRITERIA	STUDENT RATING					STANDARD	COMMENTS
Planning and Management	4	3	2	1	0	2	
Construction Techniques	4	3	2	1	0	2	
Work Skills	4	3	2	1	0	2	
Project Presentation	4	3	2	1	0	2	

Module Learner Expectations

The student will:

- identify advantages of using different material in a product.
- apply knowledge of structural materials, planning and construction techniques to produce a product from different materials.

Standard

Performance rating of 2 for each applicable task

Rating Scale

The student:

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. *Quality, particularly details and finishes, and productivity are consistent and exceed standards. Leads others to contribute team goals.*
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively. *Quality and productivity are consistent. Works cooperatively and contributes ideas and suggestions that enhance team effort.*
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately. *Quality and productivity are reasonably consistent. Works cooperatively to achieve team goals.*
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately. *Quality and productivity are reasonably consistent. Works cooperatively.*
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

TASK PERFORMANCE CRITERIA

The student:

Planning and Management

- defines material requirements in terms of:
 - major properties
 - serviceability
 - ease of construction
 - cost of materials
 - appearance
- conducts research to determine potential design
- produces a drawing or sketch of a suitable design

Construction Process

- constructs the product according to the design specifications
- meets stated standards for:
 - dimensioning
 - squaring
 - assembling
 - finishing

Work Skills

- follows instructions with limited direction
- organizes work in an orderly manner
- selects and safely uses appropriate tools, materials and processes
- calculates and measures accurately
- works cooperatively with others in both structured and non-structured settings
- uses correct personal protective equipment
- follows proper lifting and handling procedures
- fulfills expected clean-up responsibilities
- stores and disposes materials according to recommended procedures

Project Presentation

- describes the purpose of the project
- summarizes and reports on major events
- assesses design processes and production techniques
- suggests possible improvements to the design and construction processes

PERFORMANCE ASSESSMENT

CRITERIA	STUDENT RATING					STANDARD	COMMENTS
Planning and Management	4	3	2	1	0	2	
Construction Techniques	4	3	2	1	0	2	
Work Skills	4	3	2	1	0	2	
Project Presentation	4	3	2	1	0	2	

Module Learner Expectations

The student will:

- identify advantages of using different materials in a product
- apply knowledge of structural materials, planning, and construction techniques to produce a product from different materials

Standard

Performance rating of 2 for each applicable task

Rating Scale

The student:

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. *Quality, particularly details and finishes, and productivity are consistent and exceed standards. Leads others to contribute team goals. Analyzes and provides effective client/customer services beyond expectations.*
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively. *Quality and productivity are consistent. Works cooperatively and contributes ideas and suggestions that enhance team effort. Analyzes and provides effective client/customer services.*
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately. *Quality and productivity are reasonably consistent. Works cooperatively to achieve team goals. Identifies and provides customer/client services.*
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately. *Quality and productivity are reasonably consistent. Works cooperatively. Provides a limited range of customer/client services.*
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

TASK PERFORMANCE CRITERIA

The student:

Planning and Management

- analyzes an existing piece of furniture or drawing to:
 - identify materials used in structural components
 - identify structural features, such as joints and fasteners
 - examine points of weakness
- produces or modifies the appropriate drawings

Construction Techniques

- selects and safely uses appropriate tools, materials and processes
- calculates and measures accurately
- constructs the product according to the design specifications
- meets stated standards for:
 - dimensioning
 - squaring
 - assembling
 - finishing

Work Skills

- follows instructions with limited direction
- organizes work in an orderly manner
- works cooperatively with others in both structured and non-structured settings
- uses correct personal protective equipment
- follows proper lifting and handling procedures
- fulfills expected clean-up responsibilities
- stores and disposes materials according to recommended procedures

Project Presentation

- describes the purpose of the project
- summarizes and reports on major events
- assesses design processes and production techniques
- suggests possible improvements to the design and construction processes

PERFORMANCE ASSESSMENT

CRITERIA	STUDENT RATING					STANDARD	COMMENTS
Planning and Management	4	3	2	1	0	2	
Construction Techniques	4	3	2	1	0	2	
Work Skills	4	3	2	1	0	2	
Project Presentation	4	3	2	1	0	2	

Module Learner Expectations

The student will:

- identify and describe the design features and processes used to construct a box-type furniture product
- apply basic furniture-making skills to plan and construct a component or piece of furniture based on frame and panel construction techniques

Standard

Performance rating of 2 for each applicable task

Rating Scale

The student:

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. *Quality, particularly details and finishes, and productivity are consistent and exceed standards. Leads others to contribute team goals.*
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively. *Quality and productivity are consistent. Works cooperatively and contributes ideas and suggestions that enhance team effort.*
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately. *Quality and productivity are reasonably consistent. Works cooperatively to achieve team goals.*
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately. *Quality and productivity are reasonably consistent. Works cooperatively.*
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

TASK PERFORMANCE CRITERIA

The student:

Planning and Management

- analyzes an existing piece of furniture or drawing to:
 - identify materials used in structural components
 - identify structural features, such as joints and fasteners
 - examine points of weakness
- produces or modifies the appropriate drawings

Construction Techniques

- constructs the product according to the design specifications
- meets stated standards for:
 - dimensioning
 - squaring
 - assembling
 - finishing

Work Skills

- follows directions with limited direction
- organizes work in an orderly manner
- selects and safely uses appropriate tools, materials and processes
- calculates and measures accurately
- works cooperatively with others in both structured and non-structured settings
- uses correct personal protective equipment
- follows proper lifting and handling procedures
- fulfills expected clean-up responsibilities
- stores and disposes of materials according to recommended procedures

Project Presentation

- describes the purpose of the project
- summarizes and reports on major events
- assesses design processes and production techniques
- suggests possible improvements to the design and construction processes
- identifies skills required of a competent furniture maker

PERFORMANCE ASSESSMENT

CRITERIA	STUDENT RATING					STANDARD	COMMENTS
Planning and Management	4	3	2	1	0	2	
Construction Techniques	4	3	2	1	0	2	
Work Skills	4	3	2	1	0	2	
Project Presentation	4	3	2	1	0	2	

Module Learner Expectation

The student will:

- identify common finishes and finishing/refinishing techniques

Standard

Response rating of 2

Rating Scale

The student:

- 4 independently makes explanations and critical judgements based on a superior knowledge base and understanding of content and related issues.
- 3 makes explanation and comparisons of content using precise terminology. Requires little or no prompting.
- 2 applies knowledge of content to different situations using accurate terminology. May require some prompting.
- 1 uses simple recall to demonstrate basic knowledge and understanding of content. May require frequent prompting.
- 0 is unable to provide a suitable response at this time.

Sample Item(s)	Sample Response(s)
1. List the steps in preparing a surface for finishing.	<p><u>Surface Preparation:</u></p> <ul style="list-style-type: none"> - remove old finish if necessary - remove mill and glue marks - repair dents and wood defects - bleach if necessary - final sand - prime if necessary.
2. What are the steps in applying a finish?	<p><u>Applying a Finish</u></p> <ul style="list-style-type: none"> - select the final finish considering: <ul style="list-style-type: none"> • planned use of the product • available finishes and equipment - determine if a stain or filler is necessary - clean the surface - follow the prescribed procedure for staining, filling, sealing and final finishing.
3. What types of finishes are commonly used to finish wood products?	<p><u>Common wood finishes include:</u></p> <ul style="list-style-type: none"> - varnish - lacquer - polyurethane - paint - oil.
4. For a controlled product used in finishing, consult the appropriate MSDS to determine the hazards and recommended procedures for using the product.	
5. Explain the reason for disposing used finishing cloths in a covered metal container.	<p>Spontaneous combustion may occur in rags that are stored together in open containers.</p>

For additional items and responses refer to:

- *Exploring Woodworking: Fundamentals of Technology.* Fred W. Zimmerman et. al., 1993. Text and Workbook.

Module Learner Expectation

The student will:

- demonstrate appropriate refinishing/finishing techniques.

Standard

Performance rating of 2 for each applicable task

Rating Scale

The student:

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. *Quality, particularly details and finishes, and productivity are consistent and exceed standards. Leads others to contribute team goals.*
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively. *Quality and productivity are consistent. Works cooperatively and contributes ideas and suggestions that enhance team effort.*
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately. *Quality and productivity are reasonably consistent. Works cooperatively to achieve team goals.*
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately. *Quality and productivity are reasonably consistent. Works cooperatively.*
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

TASK PERFORMANCE CRITERIA

The student:

Planning and Management

- prepares self for task
- organizes and works in an orderly manner
- interprets and carries out instructions accurately
- plans and uses time effectively

Construction Techniques

- prepares surfaces for finish/refinishing as instructed
- selects the appropriate stain, filler, sealer and final finish
- follows prescribed procedures for finishing
- applies finish that is smooth, free of runs and dust particles

Use of Equipment and Materials

- selects and uses appropriate equipment/materials safely
- uses proper personal protective equipment
- follows proper lifting and handling procedures
- calculates and measures accurately
- minimizes waste of materials
- recognizes and controls potential health and safety hazards

PERFORMANCE ASSESSMENT

CRITERIA	STUDENT RATING					STANDARD	COMMENTS
Planning and Management	4	3	2	1	0	2	
Construction Techniques	4	3	2	1	0	2	
Use of Equipment and Materials	4	3	2	1	0	2	

Module Learner Expectations

The student will:

- identify and describe the design features and processes used to construct a web and face frame product
- prepare a detailed material list and event sequence
- build a cabinet, using web and face frame construction techniques

Standard

Performance rating of 2 for each applicable task

Rating Scale

The student:

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. *Quality, particularly details and finishes, and productivity are consistent and exceed standards. Leads others to contribute team goals.*
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively. *Quality and productivity are consistent. Works cooperatively and contributes ideas and suggestions that enhance team effort.*
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- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately. *Quality and productivity are reasonably consistent. Works cooperatively.*
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

TASK PERFORMANCE CRITERIA

The student:

Planning and Management

- analyzes an existing web and face frame product or drawing to:
 - identify materials used in structural components
 - identify structural features, such as joints and fasteners
 - examine points of weakness
 - suggest possible design improvement
- produces or modifies the appropriate drawings
- prepares a detailed material list
- determines an appropriate sequence of events to construct the product in a safe manner

Construction Techniques

- constructs the product according to the design specifications
- meets stated standards for:
 - dimensioning
 - squaring
 - assembling
 - finishing

Work Skills

- follows instructions with limited direction
- organizes work in an orderly manner
- selects and safely uses appropriate tools, materials and processes
- calculates and measures accurately
- works cooperatively with others in both structured and non-structured settings
- uses correct personal protective equipment
- follows proper lifting and handling procedures
- fulfills expected clean-up responsibilities
- stores and disposes materials according to recommended procedures

Project Presentation

- describes the purpose of the project
- summarizes and reports on major events
- assesses design processes and production techniques
- suggests possible improvements to the design and construction processes

PERFORMANCE ASSESSMENT

CRITERIA	STUDENT RATING					STANDARD	COMMENTS
Planning and Management	4	3	2	1	0	2	
Construction Techniques	4	3	2	1	0	2	
Work Skills	4	3	2	1	0	2	
Project Presentation	4	3	2	1	0	2	

Module Learner Expectations

The student will:

- identify and describe common methods of designing and constructing cabinet doors and drawers
- apply cabinetmaking skills to plan and construct door/drawer components

Standard

Performance rating of 2 for each applicable task

Rating Scale

The student:

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. *Quality, particularly details and finishes, and productivity are consistent and exceed standards. Leads others to contribute team goals.*
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively. *Quality and productivity are consistent. Works cooperatively and contributes ideas and suggestions that enhance team effort.*
- 2 meets defined outcomes. Plans and solves problems with limited assistance. Tools, materials and/or processes are selected and used appropriately. *Quality and productivity are reasonably consistent. Works cooperatively to achieve team goals.*
- 1 meets defined outcomes. Follows a guided plan of action. A limited range of tools, materials and/or processes are used appropriately. *Quality and productivity are reasonably consistent. Works cooperatively.*
- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

TASK PERFORMANCE CRITERIA

The student:

Planning and Management

- analyzes existing door and drawer products or drawings to:
 - determine materials used in structural components
 - identify structural features/
 - examine points of weakness
 - describe type of hardware
 - suggest possible design improvements
- produces or modifies an appropriate drawing for a drawer/door
- prepares a detailed material list
- determines an appropriate sequence of events to construct the product in a safe manner

Construction Techniques

- constructs the product according to the design specifications

Construction Techniques (continued)

- meets stated standards for:
 - dimensioning
 - squaring
 - assembling
 - finishing

Work Skills

- follows instructions with limited direction
- organizes work in an orderly manner
- selects and safely uses appropriate tools, materials and processes
- calculates and measures accurately
- works cooperatively with others in both structured and non-structured settings
- uses correct personal protective equipment
- follows proper lifting and handling procedures
- fulfills expected clean-up responsibilities
- stores and disposes materials according to recommended procedures

PERFORMANCE ASSESSMENT

CRITERIA	STUDENT RATING					STANDARD	COMMENTS
Planning and Management	4	3	2	1	0	2	
Construction Techniques	4	3	2	1	0	2	
Work Skills	4	3	2	1	0	2	

Module Learner Expectation

The student will:

- profile a trade or occupation within the cabinetmaking field

Standard

Performance rating of 2 for each applicable task

Rating Scale

The student:

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. *Quality, particularly details and finishes, and productivity are consistent and exceed standards. Leads others to contribute team goals.*
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- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

TASK PERFORMANCE CRITERIA

The student:

Preparation and Planning

- sets goals and establishes steps to achieve them
- creates and adheres to useful timelines
- uses personal initiative to formulate questions and find answers
- plans and uses time effectively

Information Gathering and Processing

- accesses a range of relevant school/community information resources
- uses a range of information-gathering techniques
- interprets, organizes and combines information into a logical sequence
- determines accuracy/currency/reliability of information sources

Content

- identifies two or more occupations or trades related to cabinetry
- lists day-to-day duties of a worker or trades person
- describes overall working conditions
- assesses local employment opportunities
- identifies training programs and entry requirements

Information Sharing

- demonstrates effective use of two or more communication media:
e.g., written, oral, audio-visual
- communicates ideas in a logical sequence with sufficient supporting detail
- maintains acceptable grammatical and technical standards
- cites one or more basic information sources

PERFORMANCE ASSESSMENT

CRITERIA	STUDENT RATING					STANDARD	COMMENTS
Preparation and Planning	4	3	2	1	0	2	
Information Gathering and Processing	4	3	2	1	0	2	
Content	4	3	2	1	0	2	
Information Sharing	4	3	2	1	0	2	

Module Learner Expectation

The student will:

- describe common wood forming techniques

Standard

Response rating of 2

Rating Scale

The student:

- 4 independently makes explanations and critical judgements based on a superior knowledge base and understanding of content and related issues.
- 3 makes explanation and comparisons of content using precise terminology. Requires little or no prompting.
- 2 applies knowledge of content to different situations using accurate terminology. May require some prompting.
- 1 uses simple recall to demonstrate basic knowledge and understanding of content. May require frequent prompting.
- 0 is unable to provide a suitable response at this time.

Sample Item(s)	Sample Response(s)
<p>1. List and describe two processes used to condition wood for forming.</p> <p>2. Explain how a curved laminate is produced.</p>	<p><u>Water Soaking:</u> The wood is soaked in water until it reaches a 12–20% water content level. The wood can then be slowly bent and held in shape over a form.</p> <p><u>Steaming:</u> Wood can also be steamed to cause it to soften (plasticize).</p> <p>Curved laminated parts can be made by gluing several pieces of veneer together. The veneer strips are then clamped in a mold and held in place until the glue sets.</p>

For additional sample items and responses refer to:

- Cabinetmaking and Millwork.* John L. Feirer, 1988.

Module Learner Expectations

The student will:

- build or obtain the necessary molds and clamping devices to bend a piece of solid stock or wood laminate
- apply wood forming skills and techniques to make a product or component

Standard

Performance rating of 2 for each applicable task

Rating Scale

The student:

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. *Quality, particularly details and finishes, and productivity are consistent and exceed standards. Leads others to contribute team goals.*
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively. *Quality and productivity are consistent. Works cooperatively and contributes ideas and suggestions that enhance team effort.*
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- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

TASK PERFORMANCE CRITERIA

The student:

Planning and Management

- defines project and material need
- conducts research to determine suitable forming process
- produces drawing of formed product and mold

Construction Techniques

- prepares the materials for bending following a prescribed set of procedures
- builds/selects the appropriate mold
- forms product and allows sufficient time for the adhesive to set
- trims and finishes the part

Work Skills

- follows instructions with limited direction
- organizes work in an orderly manner
- works cooperatively with others in both structured and non-structured settings
- uses tools and materials as directed
- minimizes waste of materials uses correct personal protective equipment
- follows proper lifting and handling procedures
- fulfills expected clean-up responsibilities
- stores and disposes materials according to recommended procedures

Project Presentation

- describes the purpose of the project
- summarizes and reports on major events
- assesses design processes and production techniques
- suggests possible improvements to the design and production processes

PERFORMANCE ASSESSMENT

CRITERIA	STUDENT RATING					STANDARD	COMMENTS
Planning and Management	4	3	2	1	0	2	
Construction Techniques	4	3	2	1	0	2	
Work Skills	4	3	2	1	0	2	
Project Presentation	4	3	2	1	0	2	

Module Learner Expectations

The student will:

- list and describe the steps involved in developing a product for manufacturing
- apply designing and planning skills to assist in the development of a prototype

Standard

Performance rating of 2 for each applicable task

Rating Scale

The student:

- 4 exceeds defined outcomes. Plans and solves problems effectively and creatively in a self-directed manner. Tools, materials and/or processes are selected and used efficiently, effectively and with confidence. *Quality, particularly details and finishes, and productivity are consistent and exceed standards. Leads others to contribute team goals.*
- 3 meets defined outcomes. Plans and solves problems in a self-directed manner. Tools, materials and/or processes are selected and used efficiently and effectively. *Quality and productivity are consistent. Works cooperatively and contributes ideas and suggestions that enhance team effort.*
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- 0 has not completed defined outcomes. Tools, materials and/or processes are used inappropriately.

TASK PERFORMANCE CRITERIA

The student:

Planning and Management

- defines project outcomes
- conducts research pertaining to the selection of ideas from a variety of sources
- generates and considers the suitability of a number of solutions to the problem
- selects an appropriate solution that meets project requirements
- identifies pictorial and multiviewed drawing requirements
- produces and accurately dimensions simple pictorial and multiviewed drawings where necessary
- uses appropriate drawing tools and/or software

Construction Techniques

- uses appropriate tools, materials and processes
- measures and fabricates accurately
- constructs the prototype according to the design specifications
- alters design according to market feedback
- alters production methods to maximize efficiency

Work Skills

- follows instructions with limited direction
- organizes work in an orderly manner
- works cooperatively with others in both structured and non-structured settings
- uses correct personal protective equipment
- follows proper lifting and handling procedures
- fulfills expected clean-up responsibilities
- stores and disposes materials according to recommended procedures

Project Presentation

- describes the purpose of the project
- summarizes and reports on major events
- assesses design processes and production techniques
- suggests possible improvements to the design and construction processes

PERFORMANCE ASSESSMENT

CRITERIA	STUDENT RATING					STANDARD	COMMENTS
Planning and Management	4	3	2	1	0	2	
Construction Techniques	4	3	2	1	0	2	
Work Skills	4	3	2	1	0	2	
Project Presentation	4	3	2	1	0	2	

ASSESSMENT CRITERIA	RATING			
	Very Good 3	Good 2	Fair 1	Poor 0
<p>Design Criteria:</p> <ul style="list-style-type: none"> – meets the design specifications – is convenient to use/clean/service – is safe to use and be disposed of – can be recycled. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>Production Criteria:</p> <ul style="list-style-type: none"> – uses appropriate materials – components can be easily fabricated – can be easily assembled and finished – meets high standards of quality. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>Marketing Criteria</p> <ul style="list-style-type: none"> – appeals to potential customers – meets customer demand – is profitable – can be serviced within and existing network. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
REFLECTIONS/COMMENTS	<p>Product has high potential for success 30–36</p> <p>Product has good potential for success 24–29</p> <p>Product has low potential for success 12–23</p>			