

MODULE CON3050: ROOF STRUCTURES 2 (FRAMING & COVERING)

Level: Advanced

Theme: Building Systems (Processes and Applications)

Prerequisite: CON2050 Roof Structures 1 (Framing & Finishing)

Module Description: Students develop basic competencies in laying out, cutting and assembling common and hip and valley rafters in relation to specialized structures and coverings.

Module Parameters: Access to a building site and/or construction facility and to instruction from an individual with formal, specialized training in carpentry.

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> identify and describe the design features of intersecting sloped roofs calculate the length of rafters, using ratio and proportion techniques 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> presentation of a written research project that identifies and graphically illustrates the design features and components of an intersecting roof accurate calculations related to the layout of common, hip, valley and jack rafters. <p><i>Assessment Tool</i> <i>Research Process: Rafter Construction, CON3050-1</i></p> <p><i>Standard</i> <i>Line length should be calculated to the nearest mm</i> <i>Performance rating of 3 for each applicable task</i></p>	<p>20</p> <p>20</p>
<ul style="list-style-type: none"> lay out, cut and assemble a set of rafters for a roof assembly 	<ul style="list-style-type: none"> application of layout, cutting and assembly skills to make at least one common, one hip or valley and two accompanying jack rafters. <p><i>Assessment Tool</i> <i>Activity Assessment: Rafter Cutting and Assembly, CON3050-2</i></p> <p><i>Standard</i> <i>Rafters are shortened appropriately and cut to ± 3 mm of the correct length. Angles are within $\pm 1^\circ$ and adjoining surfaces are tight fitting</i> <i>Performance rating of 3 for each applicable task</i></p>	<p>60</p>

MODULE CON3050: ROOF STRUCTURES 2 (FRAMING & COVERING) (continued)

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> demonstrate basic competencies. 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> observations of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tools</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	<p>Integrated throughout</p>

Concept	Specific Learner Expectations	Notes
<p>Orientation</p> <ul style="list-style-type: none"> Roof Types and Design Features Roofing Materials 	<p><i>The student should:</i></p> <ul style="list-style-type: none"> describe roof types and terminology explain how roof slopes are described and calculated explain the purpose of a roof overhang explain how roof dormers and Dutch gables are built describe three methods of determining the length of a common rafter describe the types of cuts and features of a: <ul style="list-style-type: none"> common rafter hip and valley rafter hip and valley jack rafter investigate and describe alternate roof coverings such as: <ul style="list-style-type: none"> wood shakes metal shingle clay tiles. 	<p>Students should note that flatter roofs require greater overhang to provide protection from the direct rays of the sun.</p> <p>Have students see how the Pythagorean Theorem can be applied to roof framing.</p>

MODULE CON3050: ROOF STRUCTURES 2 (FRAMING & COVERING) (continued)

Concept	Specific Learner Expectations	Notes
<p>Planning and Management</p> <ul style="list-style-type: none"> • Roof Calculations • Work Scheduling • Worker Safety 	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • from a set of drawings and specifications, calculate the: <ul style="list-style-type: none"> – roof slope – amount of overhang – length of hip, valley and related jack rafters • sketch a rafter plan for a hip and valley roof system • estimate the cost of at least one alternate roof covering • create a work schedule and materials list • lay out a rafter pattern for a given slope and type of rafter • prepare and check the condition of required ladders and scaffolding. 	<p>Demonstrate how a framing square can be used to determine lengths of rafters and rafter cuts.</p> <p>Students should develop and use the slope gain factor.</p>
<p>Implementation</p> <ul style="list-style-type: none"> • Material Processing 	<ul style="list-style-type: none"> • for a given roof section use the appropriate tools, materials and techniques to: <ul style="list-style-type: none"> – lay out the required patterns – cut the appropriate rafters to size – assemble and fasten – sheath and apply a sample of one or more alternate roof coverings. 	
<p>Assessment</p> <ul style="list-style-type: none"> • Career Information • Career Preparation 	<ul style="list-style-type: none"> • identify the skills required to be a successful roof framer and finisher • maintain a record of completed activities within a portfolio. 	

