

## MODULE CON3210: FRAMING SYSTEMS 2 (FLOOR, WALL & CEILING)

**Level:** Advanced

**Theme:** Building Systems (Processes and Applications)

**Prerequisite:** CON2040 Framing Systems 1 (Floor & Wall)

**Module Description:** Students develop appropriate layout and assembly skills to install conventional and/or engineered framing components associated with residential and/or light commercial construction.

**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"><li>compare conventional and engineered framing systems and components</li></ul>	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"><li>a written or oral response that describes and compares the components and procedures used to construct a floor, wall and ceiling frame and support system using conventional lumber and engineered components.</li></ul> <p><i>Assessment Tool</i> <i>Response Assessment: Framing Systems, CON3210-1</i></p> <p><i>Standard</i> <i>Response rating of 3</i></p>	20
<ul style="list-style-type: none"><li>apply print-reading and estimating principles to prepare a material list and cost estimate for a structure that incorporates conventional and/or engineered framing components</li></ul>	<ul style="list-style-type: none"><li>preparation of a framing plan, material list and cost estimate given a typical residential or light commercial drawing and span tables</li></ul>	15
<ul style="list-style-type: none"><li>demonstrate advanced framing, layout and assembly skills</li></ul>	<ul style="list-style-type: none"><li>observation of framing skills through on-site and/or in-shop work.</li></ul> <p><i>Assessment Tool</i> <i>Construction Activity: Framing, CON3210-2</i></p> <p><i>Standard</i> <i>Performance rating of 3 for each applicable task</i></p>	65

**MODULE CON3210: FRAMING SYSTEMS 2 (FLOOR, WALL & CEILING) (continued)**

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> <li>demonstrate basic competencies.</li> </ul>	<p><i>Assessment of student assessment should be based on:</i></p> <ul style="list-style-type: none"> <li>observations of individual effort and interpersonal interaction during the learning process.</li> </ul> <p><i>Assessment Tool</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"> <li>Floor Support Systems</li> <li>Framing Systems</li> </ul>	<p><i>The student should:</i></p> <ul style="list-style-type: none"> <li>describe the parts of a typical residential floor and wall frame and support system</li> <li>identify and describe two common types of posts used in floor framing support systems</li> <li>compare the advantages and disadvantages of:                             <ul style="list-style-type: none"> <li>built-up beams</li> <li>solid timber beams</li> <li>laminated beams</li> <li>steel beams</li> </ul> </li> <li>compare the advantages and disadvantages of using:                             <ul style="list-style-type: none"> <li>conventional framing materials</li> <li>truss joists</li> <li>wooden I-beams</li> <li>metal joists/studs</li> </ul> </li> <li>identify and describe typical procedures that are used to join floor joists to a foundation or wall section</li> </ul>	<p>Discuss the effects that live and dead loads, lateral pressure and intermittent loads have on the design of a structure.</p> <p>Explain how to construct a built-up beam to meet Alberta Building Code requirements.</p> <p>Explain how joists can be embedded, accommodate a brick finish or be attached to a sill plate.</p>

**MODULE CON3210: FRAMING SYSTEMS 2 (FLOOR, WALL & CEILING) (continued)**

Concept	Specific Learner Expectations	Notes
<p>Orientation</p> <ul style="list-style-type: none"> <li>• Framing Systems (continued)</li> <li>• Floor and Wall Restraining, Notching and Drilling</li> <li>• Floor and Wall Sheathing</li> <li>• Health and Safety Issues</li> </ul>	<p><i>The student should:</i></p> <ul style="list-style-type: none"> <li>• compare different methods used to attach floor joists to steel and built-up beams</li> <li>• identify typical framing procedures used in relation to:               <ul style="list-style-type: none"> <li>– load and non-load bearing partitions</li> <li>– stair, chimney and stack openings</li> <li>– parallel and 90° cantilevers</li> </ul> </li> <li>• identify and describe common methods of bridging floors and bracing walls:               <ul style="list-style-type: none"> <li>– cross-bridging</li> <li>– continuous wood strapping</li> <li>– solid blocking</li> <li>– continuous steel strapping</li> </ul> </li> <li>• identify code requirements related to notching and drilling floor joists and wall studs</li> <li>• identify common types of sub-flooring materials, underlayments and wall sheathing</li> <li>• identify the purpose and types of connectors/ties and adhesives that are used in conjunction with the application of flooring and sheathing components</li> <li>• identify appropriate methods to cover floor/wall openings and construct temporary railings to code</li> <li>• describe safe operation of portable electric and air activated hand tools</li> <li>• identify appropriate personal protective equipment used on the job site.</li> </ul>	<p>Discuss the use of joist hangers and ledger boards.</p> <p>Discuss code requirements for installing a sub-floor and wall covering.</p>

**MODULE CON3210: FRAMING SYSTEMS 2 (FLOOR, WALL & CEILING) (continued)**

Concept	Specific Learner Expectations	Notes
<p>Planning and Management</p> <ul style="list-style-type: none"> <li>• Estimating</li> </ul>	<p><i>The student should:</i></p> <ul style="list-style-type: none"> <li>• use the appropriate tables to determine the clear spans, actual lengths of joists/headers for a variety of framing materials and applications</li> <li>• estimate the size and quantities of materials required to construct a floor/wall/ceiling system.</li> </ul>	<p>Engineered components should be sized to eliminate waste.</p>
<p>Implementation</p> <ul style="list-style-type: none"> <li>• Construction Techniques</li> <li>• Health and Safety</li> </ul>	<ul style="list-style-type: none"> <li>• develop skills in relation to: <ul style="list-style-type: none"> <li>– built up beam and header construction and installation</li> <li>– cutting, layout and installation and sheathing of floor, wall and ceiling components</li> <li>– squaring and applying sub-floor materials</li> <li>– framing walls and ceiling</li> </ul> </li> <li>• demonstrate proper lifting techniques</li> <li>• use proper personal protective equipment</li> <li>• demonstrate appropriate temporary bracing techniques</li> <li>• demonstrate proper care and use of hand and power assisted tools</li> <li>• secure all floor, wall and ceiling openings.</li> </ul>	<p>Stress the importance of following appropriate squaring and plumbing techniques.</p> <p>Check condition of ladders and ensure safe angle ratios.</p>
<p>Assessment</p> <ul style="list-style-type: none"> <li>• Quality Control</li> <li>• Career Information</li> <li>• Career Preparation</li> </ul>	<ul style="list-style-type: none"> <li>• check alignment of crowns and bridging systems as well as the application of fasteners and adhesives</li> <li>• identify further training and career opportunities related to the manufacture and installation of conventional and engineered components</li> <li>• maintain a record of completed activities within a portfolio.</li> </ul>	