

Vocational Training Program

5819

# Carpentry

Training Sector

7

Buildings  
and Public Works

Québec 



Vocational Training Program

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# Carpentry

Training Sector

7

Buildings  
and Public Works

Formation professionnelle et technique  
et formation continue

Direction générale de la formation  
professionnelle et technique

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# Introduction to the Program

In vocational training, a program of study presents the competencies required to practise a given trade or occupation at entry level on the job market. The training provided allows students to acquire a degree of versatility that will be useful in their career and personal development.

A program is a coherent set of competencies to be developed. It outlines the knowledge and broad orientations to be favoured during training. The competencies correspond to the tasks of the trade or occupation or to activities related to work, vocational or personal life, depending on the case. Learning is acquired in a specific achievement context and targets the ability to act, succeed and evolve.

According to the Education Act<sup>1</sup>, "every program shall include compulsory objectives and contents and may include optional objectives and contents that shall be enriched or adapted according to the needs of students who receive the services." For behavioural competencies, the compulsory components include the statement of the competency, the elements of the competency, the achievement context and the performance criteria; for situational competencies, they include the corresponding components.

For information purposes, programs also provide a grid of competencies, educational aims, a summary of competency-related knowledge and know-how, and guidelines. They also specify the suggested duration of each competency. All optional components of a program may be enriched or adapted according to the needs of the students, the environment and the workplace.

## Program Components

### Program Goals

Program goals consist of the expected outcome at the end of training as well as a general description of a given trade or occupation. They also include the four general goals of vocational training.

### Educational Aims

Educational aims are broad orientations to be favoured during training in order to help students acquire intellectual or motor skills, work habits or attitudes. Educational aims usually address important aspects of career and personal vocational development that have not been explicitly included in the program goals or competencies. They serve to orient appropriate teaching strategies to contextualize students' learning, in keeping with the dimensions underlying the practice of a trade or occupation. They help guide educational institutions in implementing the program.

### Competency

A competency is the ability to act, succeed and evolve in order to adequately perform tasks or activities related to one's working or personal life, based on an organized body of knowledge and skills from a variety of fields, perceptions, attitudes, etc.

A competency in vocational training can be defined in terms of a behaviour or a situation, and includes specific practical guidelines and requirements for learning.

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<sup>1</sup> Education Act, R.S.Q., c. I-13.3, ss 461

## 1. Behavioural Competency

A behavioural competency describes the actions and the results expected of the student. It consists of the following features:

- The *statement of the competency* is the result of the job analysis, the orientations and general goals of vocational training and other determinants.
- The *elements of the competency* correspond to essential details that are necessary in order to understand the competency and are expressed in terms of specific behaviours. They refer to the major steps involved in performing a task or to the main components of the competency.
- The *achievement context* corresponds to the situation in which the competency is exercised at entry-level on the job market. The achievement context attempts to recreate an actual work situation but does not describe a learning or evaluation situation.
- The *performance criteria* define the requirements to be respected. They may refer to elements of the competency or to the competency as a whole. When associated with a specific element, performance criteria are used to judge whether a competency has been acquired. When associated with the competency as a whole, the criteria describe the requirements for performing a task or activity and provide information on the expected level of performance or the overall quality of a product or service.

## 2. Situational Competency

A situational competency describes the situation in which students are placed to acquire learning, and allows for actions and results to vary from one student to another. It consists of the following features:

- The *statement of the competency* is the result of the job analysis, the orientations and general goals of vocational training and other determinants.
- The *elements of the competency* outline the essential aspects of the competency and ensure a better understanding of the competency with respect to the expected outcome. The elements of the competency are fundamental to the implementation of the learning situation.
- The *learning context* provides a broad outline of the learning situation designed to help the students develop the required competency. It is normally divided into three key phases of learning: information, participation and synthesis.
- The *instructional guidelines* provide reference points and means for teachers to ensure that learning takes place and that the context in which it occurs is always the same. These guidelines may include general principles or specific procedures.
- The *participation criteria* describe requirements that the students must meet when participating in learning activities. They focus on how the students take part in the activities rather than on the results obtained. Participation criteria are normally provided for each phase of the learning situation.

### Competency-Related Knowledge and Know-How

Competency-related knowledge and know-how together with related guidelines, are provided for information purposes. Competency-related knowledge and know-how define the essential and meaningful learning that students must acquire in order to apply and continue to develop the competency. They are in keeping with the job market and are accompanied by guidelines that provide information about the field of application, level of complexity and learning content. They generally encompass learning associated with knowledge, skills, strategies, attitudes, perceptions, etc.

## **Duration**

The total duration of the program is compulsory and must be observed. It consists of teaching time, which includes time for the evaluation of learning and for enrichment or remedial activities, depending on the students' needs. The duration indicated for a given competency refers to the amount of time needed to develop the competency.

The amount of teaching time corresponds to the amount of time allotted to training, which is established during program development as the average amount of time needed to acquire a competency and evaluate learning. This duration is helpful in organizing training.

## **Credit**

A credit is a unit used for expressing the quantitative value of each competency. One credit corresponds to 15 hours of training.

# **Aspects of Program Implementation**

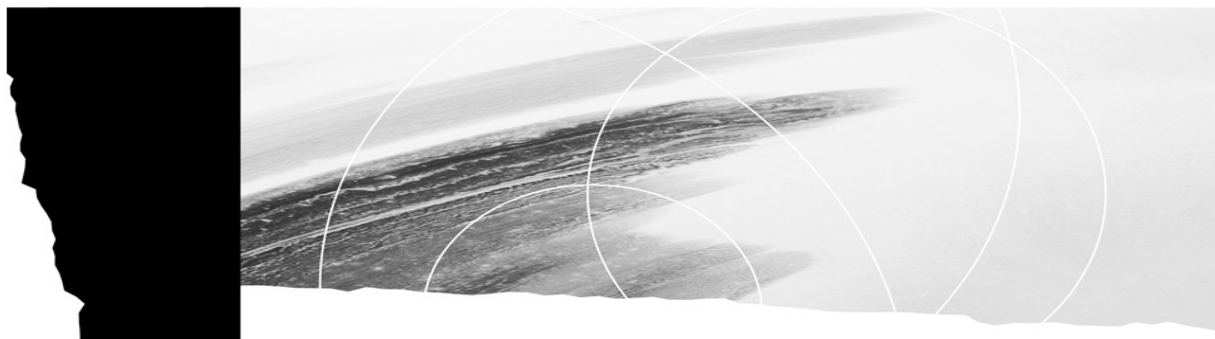
## **Program-Based Approach**

The program-based approach is founded on a comprehensive view of a program of study and its components (e.g. goals, educational aims, competencies). It requires concerted action among all players involved, from the initial stages of program design and development, to program implementation and evaluation. It consists in ensuring that all of the actions and activities proposed are based on the same aims and take into account the same orientations. For students, the program-based approach makes training more meaningful as it presents learning as a coherent whole.

## **Competency-Based Approach**

In vocational training, the competency-based approach is based on a teaching philosophy that is designed to help students mobilize their own individual sets of resources in order to act, succeed and evolve in different contexts, according to established performance levels with all the required knowledge and know-how (e.g. skills, strategies, attitudes, perceptions). The competency-based approach is carried out in situations that are relevant to the students' working life and personal life.





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## Carpentry

Year of approval: 2008

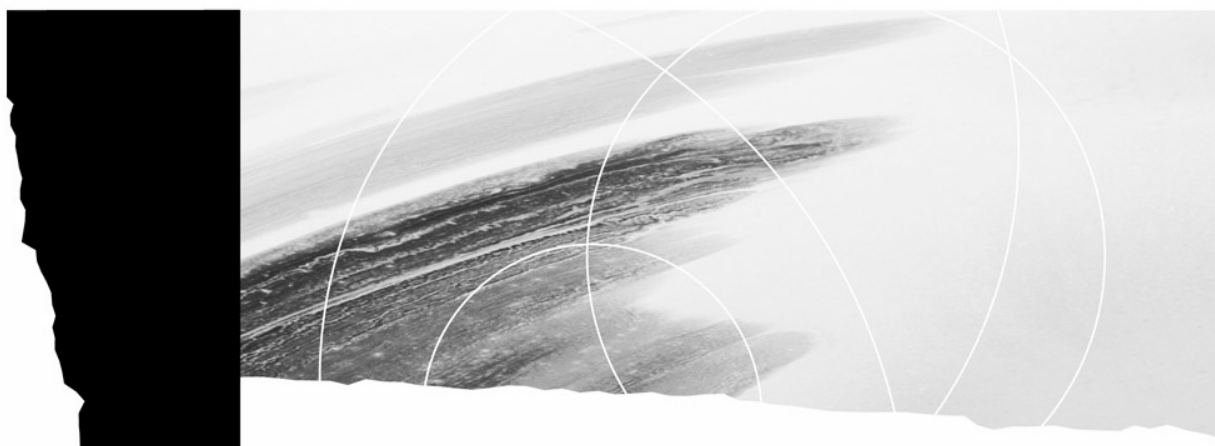
<b>Certification:</b>	Diploma of Vocational Studies
<b>Number of credits:</b>	90 credits
<b>Number of competencies:</b>	19 competencies
<b>Total duration:</b>	1 350 hours

To be eligible for admission to the *Carpentry* program, candidates must meet one of the following requirements:

- Persons holding a Secondary School Diploma or its recognized equivalent.
- OR
- Persons who are at least 16 years of age on September 30 of the school year in which their training is to begin and have earned the Secondary IV credits in language of instruction, second language and mathematics in the programs of study established by the Minister, or have been granted recognition of equivalent learning.
- OR
- Persons who are at least 18 years of age upon entry into the program and have the following functional prerequisites: the successful completion of the general development test and SPR3, 4, 5 and 6, or recognition of equivalent learning.
- OR
- Persons having earned Secondary III credits in language of instruction, second language and mathematics in the programs of study established by the Minister and who will continue their general education courses concurrently with their vocational training in order to obtain the credits they are missing among the following: Secondary IV language of instruction, second language and mathematics in the programs of study established by the Minister.

The duration of the program is 1 350 hours, which includes 1 035 hours spent on the specific competencies required to practise the trade or occupation and 315 hours on general, work-related competencies. The program of study is divided into 19 competencies which vary in length from 15 to 120 hours. The total hours allocated to the program include time devoted to teaching, evaluation of learning and enrichment or remedial activities.

<b>Competency</b>	<b>Code</b>	<b>Number</b>	<b>Hours</b>	<b>Credits</b>
The Trade and the Training Process	761651	1	15	1
Health and Safety on Construction Sites	754992	2	30	2
Hand & portable electric tools	761665	3	75	5
Drawings, Specifications and Sketches	761676	4	90	6
Planning Calculations	761683	5	45	3
Alignment and Levelling	761694	6	60	4
Scaffolding, Lifting and Handling	761703	7	45	3
Furniture and Accessories	761716	8	90	6
Footing and Wall Forms	761727	9	105	7
Deep Foundations	761732	10	30	2
Columns, Beams and Slabs	761747	11	105	7
Floor Framing	761754	12	60	4
Wall Framing	761766	13	90	6
Roofs	761777	14	105	7
Insulation, Soundproofing and Ventilation	761783	15	45	3
Exterior Finishing	761797	16	105	7
Interior Finishing	761808	17	120	8
Stairs	761818	18	120	8
Entering the Workforce	761821	19	15	1



## **Part I**

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**Program Goals**

**Educational Aims**

**Statements of the Competencies**

**Grid of Competencies**

**Harmonization**





## Program Goals

The *Carpentry* program prepares students to practise the trade of carpenter in different sectors, mostly in residential, institutional and commercial construction and in civil engineering and road works.

All of these sectors are governed by the *Act respecting labour relations, vocational training and workforce management in the construction industry* and are managed by the Commission de la construction du Québec.

Carpenters carry out a variety of tasks, such as laying out projects and buildings; pouring concrete footings, foundations and walls; making concrete columns, slabs, beams and stairs; building wood or metal floors and walls; building roofs; setting up scaffolding and temporary structures; installing doors and windows; insulating building envelopes and various other building elements; building permanent and temporary divisions; finishing the interior and exterior of a building; building wood stairs; installing modular furniture; and coordinating, analyzing, collecting, calculating and comparing data, particularly when establishing an estimate for repairs or remodelling. They are also required to develop skills in communication, teamwork and interpersonal relationships with people outside the company. Finally they must adjust, control, handle and operate machinery and materials with precision.

At work, carpenters use different tools and equipment such as levels, pneumatic tools, saws, planes, joining tools and power tools.

The program goals of the *Carpentry* program are based on the general goals of vocational training. These goals are as follows:

- To help students develop effectiveness in the practice of a trade or occupation, that is:
  - to teach students to perform roles, functions, tasks and activities associated with the trade or occupation upon entry into the job market
  - to prepare students to progress satisfactorily on the job (which implies having the technical and technological knowledge and skills in such areas as communication, problem solving, decision making, ethics, health and safety)
- To help students integrate into the work force, that is:
  - to familiarize students with the job market in general, and with the specific context of their chosen trade or occupation
  - to familiarize students with their rights and responsibilities as workers
- To foster students' personal development and acquisition of occupational knowledge, skills, perceptions and attitudes, that is:
  - to help students develop their autonomy and ability to learn, and acquire effective work methods
  - to help students understand the principles underlying the techniques and the technology used in the trade or occupation
  - to help students develop self-expression, creativity, initiative and entrepreneurial spirit
  - to help students adopt the attitudes required to successfully practise the trade or occupation, and instill in them a sense of responsibility and a concern for excellence
- To promote job mobility, that is:
  - to help students develop positive attitudes toward change
  - to help students develop the means to manage their careers by familiarizing them with entrepreneurship

## Educational Aims

The aim of the *Carpentry* program is to help students develop attitudes and behaviours that representatives from education and the field deem essential to the practice of the trade or occupation:

- to develop the skills that will enable them to choose the appropriate construction materials and techniques
- to show constant concern for the strict application of current occupational health and safety rules and standards
- to acquire the habit of being precise in their work
- to improve their ability to react quickly in unforeseen situations
- to develop the skills they need to work in a team
- to show concern for clients' needs

# Statements of the Competencies

## List of Competencies

- To determine their suitability for the trade and the training process.
- To ensure health, safety and physical well-being on construction sites.
- To use hand tools and portable electric tools to join materials.
- To process information contained in drawings, specifications and sketches.
- To do planning calculations.
- To perform alignment and levelling operations.
- To perform scaffolding, lifting and handling operations.
- To build and install furniture and finishing accessories.
- To construct forms for footings, foundation walls and concrete walls.
- To perform operations related to the construction of deep foundations.
- To construct forms for concrete columns, beams, slabs and stairs.
- To frame floors.
- To frame walls.
- To build roofs.
- To perform insulating, soundproofing and ventilation operations.
- To do exterior finishing work.
- To do interior finishing work.
- To build wood stairs.
- To prepare to enter the work force.

## Grid of Competencies

The grid of competencies shows the relationship between general competencies, which correspond to work-related activities, and specific competencies, which are required to practise the particular trade or occupation, as well as the major steps in the work process.

The general competencies appear on the horizontal axis and the specific competencies, on the vertical axis. The symbol (○) indicates a correlation between a general and a specific competency. The symbol (△) indicates a correlation between a specific competency and a step in the work process. Shaded symbols indicate that these relationships have been taken into account in the acquisition of specific competencies. The logic used in constructing the grid influences the course sequence. Generally speaking, this sequence follows a logical progression in terms of the complexity of the learning involved and the development of the students' autonomy. The vertical axis presents the specific competencies in the order in which they should be acquired and serves as a point of departure for determining how all of the competencies will be taught.

## GRID OF COMPETENCIES

CARPENTRY	Competency number	Type of competency	Duration (in hours)	GENERAL COMPETENCIES							WORK PROCESS				
				To determine their suitability for the trade and the training process	To ensure health, safety and physical well-being on construction sites	To use hand tools and portable electric tools to join materials	To process information contained in drawings, specifications and sketches	To do planning calculations	To perform scaffolding, lifting and handling operations	To prepare to enter the work force	To plan and organize the work	To mark and cut materials	To assemble materials	To check the work	To tidy up the work area
SPECIFIC COMPETENCIES	Competency number	Type of competency	Duration (in hours)	1	2	3	4	5	7	19					
				S	B	B	B	B	B	S					
				15	30	75	90	45	45	15					
To perform alignment and levelling operations	6	B	60	○	●	●	●	●		○	▲	▲	▲	▲	▲
To build and install furniture and finishing accessories	8	B	90	○	●	●	●	●	○	○	▲	▲	▲	▲	▲
To construct forms for footings, foundation walls and concrete walls	9	B	105	○	●	●	●	●	○	○	▲	▲	▲	▲	▲
To perform operations related to the construction of deep foundations	10	B	30	○	●	○	●	○	●	○	▲	△	△	▲	▲
To construct forms for concrete columns, beams, slabs and stairs	11	B	105	○	●	●	●	●	●	○	▲	▲	▲	▲	▲
To frame floors	12	B	60	○	●	●	●	●	○	○	▲	▲	▲	▲	▲
To frame walls	13	B	90	○	●	●	●	●	○	○	▲	▲	▲	▲	▲
To build roofs	14	B	105	○	●	●	●	●	●	○	▲	▲	▲	▲	▲
To perform insulating, soundproofing and ventilation operations	15	B	45	○	●	●	●	●	○	○	▲	▲	▲	▲	▲
To do exterior finishing work	16	B	105	○	●	●	●	●	●	○	▲	▲	▲	▲	▲
To do interior finishing work	17	B	120	○	●	●	●	●	○	○	▲	▲	▲	▲	▲
To build wood stairs	18	B	120	○	●	●	●	●		○	▲	▲	▲	▲	▲

## Harmonization

The Ministère de l'Éducation, du Loisir and du Sport harmonizes its vocational and technical programs by establishing similarities and continuity between secondary- and college-level programs within a particular sector or between sectors in order to avoid overlap in program offerings, to recognize prior learning and to optimize the students' progress.

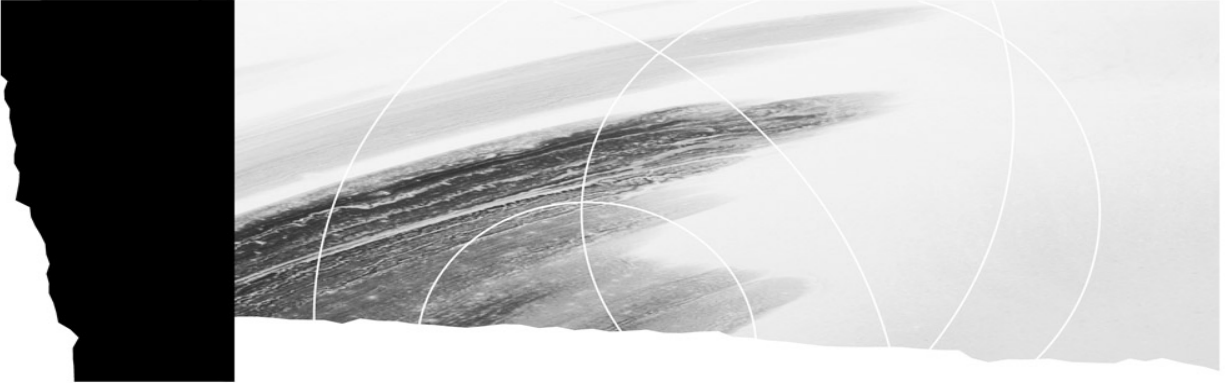
Harmonization establishes consistency between training programs and is especially important in ensuring that the tasks of a trade or occupation are clearly identified and described. Harmonization makes it possible to identify tasks requiring competencies that are common to more than one program. Even if there are no common competencies, training programs are still harmonized.

Harmonization is said to be “inter-level” when it focuses on training programs at different levels, “intra-level” when it focuses on programs within the same educational level, and “inter-sector” when carried out between programs in various sectors.

An important aspect of harmonization is that it allows the common features of competencies to be identified and updated as needed. Common competencies are those that are shared by more than one program; once acquired in one program, they can be recognized as having been acquired in another. Competencies with exactly the same statement and elements are said to be identical. Common competencies that are not identical but have enough similarities to be of equal value are said to be equivalent.

The *Carpentry* program does not share any competencies with other programs at this time.





## **Part II**

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### **Program Competencies**





Competency 1      Duration 15 hours      Credit 1

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***Situational Competency***

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**Statement of the Competency**

To determine their suitability for the trade and the training process.

**Elements of the Competency**

- Be familiar with the nature of the trade.
- Understand the training program.
- Confirm their career choice.

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**Learning Context**

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**Information Phase**

- Learning about the job market in carpentry: job prospects, remuneration, potential for advancement and transfer, and hiring criteria and processes.
- Learning about the nature and requirements of the job (tasks, working conditions, evaluation criteria, workers' rights and responsibilities) during field trips, interviews or information sessions given by industry representatives, by reading documentation, etc.
- Recognizing the importance of teamwork in carpentry.
- Presenting the information gathered at a group meeting and discussing their perceptions of the trade: advantages, disadvantages, requirements.

**Participation Phase**

- Identifying the skills, aptitudes, attitudes and knowledge required to practise the trade.
- Learning about the training project: program of study, training process, evaluation methods and certification of studies.
- Determining the relevance of the program to the work environment of a carpenter.
- Sharing their initial reactions to the trade and the training process.

**Synthesis Phase**

- Making a list of their preferences, aptitudes, knowledge about the field and personal qualities.
- Comparing their profile with the requirements of the program and the trade.
- Recognizing the strengths that will help them and the weaknesses for which they must compensate.
- Giving the reasons for their choice to continue or withdraw from the program.

### Instructional Guidelines

- Create a climate that is conducive to personal growth and to the students' integration into the job market.
- Encourage the students to engage in discussions and to express themselves.
- Motivate the students to take part in the suggested activities.
- Help the students acquire an accurate perception of the trade.
- Provide the students with a means of assessing their career choice honestly and objectively.
- Organize field trips to companies representative of the types of places where most carpenters work.
- Make available all pertinent documentation: information about the organization of companies and the trade, programs of study, guides, etc.
- Set up meetings with specialists in the trade.

### Participation Criteria

#### Information Phase

- Gather information on most of the topics to be covered.
- Appropriately express their views on the trade, relating these views to the information they have gathered.

#### Participation Phase

- Give their opinions on some of the requirements that they will have to meet in order to practise the trade.
- Carefully examine the documents provided.
- Appropriately express their views on the training program during a group discussion.

#### Synthesis Phase

- Sum up their preferences, aptitudes, knowledge about the field and personal qualities in a report.
- Explain their decision to continue or withdraw from the program.

### Suggestions for Competency-Related Knowledge and Know-How

The following is a summary of the knowledge, skills, strategies, attitudes and perceptions related to each phase of the learning context, along with their attendant guidelines.

#### Information Phase

Situate this competency in the program of study.

Purpose of the competency, links with other competencies, course outline

Be receptive to information about the trade and training program.

Conditions promoting receptiveness: visual and auditory attention, favourable climate, interest, concentration, physical and mental well-being

Make an effort to share their perceptions of the trade with their classmates.

Advantages of sharing their point of view and listening to others

The Trade and the Training Process		Code: 761651
Recognize the main rules governing group discussion.	Rules of group discussion: participation, respect of others' right to speak, observance of the topic, attentiveness to others, acceptance of diverging points of view	
Learn about the trade.	General characteristics, specific requirements, tasks, working conditions, performance criteria	
Describe teams that work in carpentry.	Workteam organization, rules, roles, functions, limitations	
<b>Participation Phase</b>		
Learn about the different vocational training options.	Initial and continuing training, admission requirements	
Describe the <i>Carpentry</i> program.	Competencies and links with the trade, content of the different modules, training process, certification of studies	
Identify the appeal of the training process and the difficulties involved.	Principal attractions, main difficulties, means of overcoming difficulties	
<b>Synthesis Phase</b>		
Describe the report requested.	Definition of terms used, content and format of the report	



Competency 2      Duration 30      hours      Credits 2

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## ***Situational Objective***

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### **Statement of the Competency**

Ensure health, safety and physical well-being on construction sites.

### **Elements of the Competency**

- Adopt a responsible attitude regarding dangers to personal health and safety.
- Be aware of the importance of complying with occupational health and safety standards and regulations.
- Recognize dangerous situations or unsafe behaviour and applicable preventive measures.

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### **Learning Context**

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#### **Information Phase**

- Learning about the risks inherent in construction sites.
- Learning about the health and safety standards and regulations on construction sites.
- Learning about emergency measures.
- Reflecting on the importance of developing occupational health and safety skills.

#### **Participation Phase**

- Experiencing situations in which it is necessary to prevent risks and eliminate hazards associated with the environment, facilities, equipment, machinery, tools, materials, energy sources, etc.
- Participating in activities that allow students to recognize risks associated with transporting loads and working in constricted postures.
- Participating in activities that allow students to recognize safety signs and symbols (e.g. hazardous products, roadwork, transportation of hazardous materials).
- Comparing different high-risk behaviours observed on a construction site and identifying the basic principles underlying safe behaviour.

#### **Synthesis Phase**

- Producing a report containing:
  - a summary of their newly acquired knowledge and skills
  - an evaluation of their attitude toward occupational health and safety
  - objectives and means of improving their behaviour

### Instructional Guidelines

- Provide the required sources of information.
- Invite, as needed, resource persons specialized in certain areas of occupational health and safety to speak to the class.
- Make effective use of audiovisual materials.
- Make extensive use of learning situations that are representative of conditions on construction sites.
- Ensure that students avoid dangerous behaviours during simulation exercises.
- Encourage all students to participate in discussions.
- Guide the students' evaluation process by providing them with appropriate tools (e.g. questionnaire) to help them analyze their experience and set objectives.

### Participation Criteria

#### Information Phase

- Consult available sources of information.
- Describe the advantages of complying with health and safety standards and regulations.

#### Participation Phase

- Participate responsibly in the suggested activities.
- State the principles underlying safe behaviour.
- List the risks inherent in construction sites and the applicable preventive measures.

#### Synthesis Phase

- Produce a report containing:
  - a summary of their newly acquired knowledge and skills
  - an evaluation of their attitude toward occupational health and safety
  - objectives and means of protecting their health, safety and physical well-being, as well as that of others, on a construction site

### Suggestions for Competency-Related Knowledge, Skills, Attitudes and Perceptions

The following is a list of knowledge, skills, attitudes, perceptions and guidelines related to the learning context.

#### Information Phase

Be receptive to information on health and safety on construction sites.

Recognize the most common dangers to health, safety and physical well-being on construction sites.

Recognize the sources of information relating to health and safety on construction sites and find information in these sources.

Roles and responsibilities in matters relating to health and safety on construction sites  
Regulatory framework governing occupational health and safety

Identify the advantages of complying with health and safety standards and regulations.

Prevention of illness and accidents  
Importance of wearing personal protective equipment

#### Participation Phase

Associate the risks inherent in construction sites and the trade with applicable preventive measures.

Risks inherent in the constructive site itself and in the practice of the trade  
Preventive measures to apply according to the risks involved  
Workplace Hazardous Materials Information System (WHMIS)





Competency 3      Duration 75 hours      Credits 5

***Behavioural Competency*****Statement of the Competency**

To use hand tools and portable electric tools to join materials.

**Achievement Context**

- Given specifications and drawings
- Using fasteners
- Using measuring and marking instruments
- Using the appropriate portable tools

**Elements of the Competency****Performance Criteria**

- |  |   |
|--|---|
| 1. Plan the work.                                    | <ul style="list-style-type: none"> <li>• Accurate interpretation of specifications and drawings</li> <li>• Appropriate choice of portable tools and measuring and marking instruments</li> </ul>  |
| 2. Mark and measure workpieces.                      | <ul style="list-style-type: none"> <li>• Accurate reading</li> <li>• Correct repetition of measurements in the same positions on the material to be cut</li> <li>• Appropriate technique for marking angles</li> </ul>  |
| 3. Cut and shape materials.                          | <ul style="list-style-type: none"> <li>• Appropriate choice of cutting tool</li> <li>• Proper adjustment of saws, shapers, drills and sanders</li> <li>• Precise cutting and shaping of materials</li> <li>• Effective and safe technique for using portable electric tools</li> </ul>  |
| 4. Nail and screw workpieces in different positions. | <ul style="list-style-type: none"> <li>• Appropriate choice of nails, screws and anchors</li> <li>• Effective and safe use of hammers, screwdrivers, nail guns and screw guns</li> <li>• Appropriate positioning of workpieces to be nailed and screwed</li> <li>• Safe handling of pneumatic tools</li> <li>• Appropriate use of nail set and accessories</li> </ul> |
| 5. Join the shaped parts.                            | <ul style="list-style-type: none"> <li>• Appropriate choice of joining method and fasteners</li> <li>• Effective gluing technique</li> <li>• Solidity of joint</li> <li>• Appearance of finished product</li> </ul>   |
| 6. Do preventive maintenance on the tools.           | <ul style="list-style-type: none"> <li>• Appropriate choice of lubricant</li> <li>• Proper sharpening of cutting and shaping tools</li> </ul>   |

*For the competency as a whole:*

- Strict application of health and safety rules
- Appropriate planning and organization of work
- Verification of the quality of the assemblies
- Tidiness of work area

### **Suggestions for Competency-Related Knowledge and Know-How**

The following is a summary of the knowledge, skills, strategies, attitudes and perceptions related to each element of the competency, along with their attendant guidelines.

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>• Be familiar with the main types of measurements used on construction sites.</li> </ul> <p>Related to elements 1 and 2</p> | <p>Use of a tape measure graduated in Imperial and metric units; knowledge of fractions, inches, feet, millimetres, metres, slopes, degrees and linear measurements</p>  |
| <ul style="list-style-type: none"> <li>• Be familiar with the squaring instruments and methods used in construction.</li> </ul> <p>Related to elements 1 and 2</p> | <p>Use of a carpenter's square, combination square, T-bevel, T-square, drywall square and rafter square; simultaneous use of square and tape measure (3-4-5 rule)</p>  |
| <ul style="list-style-type: none"> <li>• Develop marking skills.</li> </ul> <p>Related to element 2</p>  | <p>Freehand marking; marking using instruments found on construction sites; marking of parallel lines, circles, angles, etc. on lumber</p>   |
| <ul style="list-style-type: none"> <li>• Recognize lumber used in carpentry.</li> </ul> <p>Related to elements 1 and 3</p>   | <p>Difference between the most common species, direction of the grain, precautions to take before shaping, familiarity with standard lumber dimensions</p>   |
| <ul style="list-style-type: none"> <li>• Identify the different hand tools.</li> </ul> <p>Related to elements 1 and 3</p>  | <p>Presentation of hand tools: plane, jack plane, jointer plane, rabbet plane, spokeshave, brace, hand drill, push drill, gouge; identification of the different types of screwdrivers</p>   |
| <ul style="list-style-type: none"> <li>• Use and maintain hand tools.</li> </ul> <p>Related to elements 2, 3, 4 and 6</p>  | <p>Use of hammer, chisel, block plane, handsaw, backsaw, fretsaw, keyhole saw, level, file, etc.; choice of drills and drill bits; application of sharpening methods</p>   |
| <ul style="list-style-type: none"> <li>• Choose the appropriate fastening system.</li> </ul> <p>Related to elements 4, 5 and 6</p>                                 | <p>Choice of screw (number, length, thread, head), choice of nails (e.g. regular, screw, finishing, box, concrete, galvanized, ring shank), choice of anchors (e.g. lag bolts, wood or metal expansion bolts, split bolts, lead anchors), choice of metal fittings, choice of joining method depending on the resistance</p> |

- Select the fastener.  
Related to element 5  
Type of glue to use depending on the job and the gluing technique used
- Use portable electric saws.  
Related to element 3  
Use of saws such as circular saws, mitre saws, jigsaws, reciprocating saws and chainsaws; appropriate choice of blade
- Use portable shaping tools.  
Related to element 3  
Use of shaping tools such as drills, finishing sanders, belt sanders, orbital disc sanders, planes, routers with fixed or plunge tables, and plate joiners; appropriate choice of cutting and sanding tool accessories
- Select the pneumatic nail gun.  
Related to element 4  
Choice of pneumatic tool based on the job, safe use and maintenance of pneumatic nail guns
- Identify the different gas-powered and compressed-air powered tools.  
Related to elements 1, 3 and 4  
Information about the use of gas-powered tools such as chainsaws, concrete cutting discs and compactors; information about the use of compressed-air nail guns



Competency 4      Duration 90 hours      Credits 6

***Behavioural Competency*****Statement of the Competency**

To process information contained in drawings, specifications and sketches.

**Achievement Context**

- Given information and reference documents
- Given drawings and specifications
- Given current standards and regulations
- For the production of carpentry sketches and development drawings
- Using drafting instruments and a drafting table

**Elements of the Competency****Performance Criteria**

- |  |  |
|--|--|
| 1. Gather the necessary information.   | <ul style="list-style-type: none"> <li>• Appropriate choice of drawings</li> <li>• Selection of the necessary information (standards, rules, documentation)</li> </ul>   |
| 2. Interpret drawings and specifications.  | <ul style="list-style-type: none"> <li>• Accurate interpretation of information contained in the legends, dimensions, symbols and conventions</li> <li>• Accurate interpretation of specifications</li> <li>• Accurate identification of cutting information</li> </ul>            |
| 3. Draw different geometric figures used in development drawings.                    | <ul style="list-style-type: none"> <li>• Observance of proportions</li> <li>• Figures consistent with the type of development</li> <li>• Accurate drawing</li> </ul>   |
| 4. Do a freehand drawing of the orthogonal projections of a simple technical object. | <ul style="list-style-type: none"> <li>• Observance of proportions</li> <li>• Drawing consistent with model</li> </ul>   |
| 5. Draw different views of construction drawings.                                    | <ul style="list-style-type: none"> <li>• Appropriate choice of views and sections</li> <li>• Proper use of measurement scales</li> <li>• Drawing consistent with specifications</li> <li>• Accurate positioning of symbols and dimensions</li> <li>• Clarity of drawing</li> </ul> |
| 6. Draw a sketch based on the information gathered.                                  | <ul style="list-style-type: none"> <li>• Accurate information</li> <li>• Accurate transposition of information</li> <li>• Sketch consistent with the information gathered</li> <li>• Clarity of sketch</li> </ul>  |

*For the competency as a whole:*

- Accurate identification of information
- Accurate association of information with the different drawings and specifications
- Quality of finished product

### **Suggestions for Competency-Related Knowledge and Know-How**

The following is a summary of the knowledge, skills, strategies, attitudes and perceptions related to each element of the competency, along with their attendant guidelines.

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>• Identify the drawings normally used in construction.</li> </ul> <p>Related to element 1</p>                         | <p>Identification of views related to the drawings (e.g. elevation, profile, section, detail, foundation plan, floor plan(s), roof plan), choice of drawing based on the job (e.g. remodelling, siting, architecture, structure, etc.)</p>   |
| <ul style="list-style-type: none"> <li>• Interpret the conventions, symbols and scales normally used in construction.</li> </ul> <p>Related to element 2</p> | <p>Interpretation of the different lines (e.g. contour, centre, dimension, extension, phantom, hatching), knowledge of symbols (representing materials, walls, partitions, openings, levels, distances, roof slope, etc.), interpretation of the title block, legends, annotations, etc.</p>   |
| <ul style="list-style-type: none"> <li>• Become familiar with the reference documents used in construction.</li> </ul> <p>Related to elements 1 and 2</p>    | <p>Familiarity with the different reference documents (e.g. <i>National Building Code of Canada</i>, municipal urban planning regulations), familiarity with the servitudes associated with a lot (e.g. aqueducts, sewers, power lines, rights of way, gas pipes, telecommunication wires)</p> |
| <ul style="list-style-type: none"> <li>• Draw geometric figures using drafting instruments.</li> </ul> <p>Related to element 3</p>                           | <p>Familiarity with instruments (e.g. compass, ruler, square) and methods of drawing technical parts, knowledge of the principal geometric figures used in construction</p>  |
| <ul style="list-style-type: none"> <li>• Draw the views of a drawing.</li> </ul> <p>Related to elements 4 and 5</p>  | <p>Methods of drawing views (e.g. elevation, profile, detail), principle of the different sections (e.g. cutting line, purpose of the different views), graphic representation of the different materials (symbols and hatching)</p>   |
| <ul style="list-style-type: none"> <li>• Add dimensions and symbols to a construction drawing.</li> </ul> <p>Related to element 5</p>                        | <p>Addition of extension lines, dimensions, annotations and various symbols (related to the site, concrete, insulation, rock, woodwork, etc.)</p>  |
| <ul style="list-style-type: none"> <li>• Draw different developments used in carpentry.</li> </ul> <p>Related to elements 3 and 4</p>                        | <p>Developments of different geometric figures (related to exterior finish)</p>  |

- Gather information.

Related to element 6

Importance of accurate information, production of a sketch based on information (e.g. wall structure, location of a new room, gallery), criteria related to the clarity of the information and the sketch





Competency 5      Duration 45 hours      Credits 3

***Behavioural Competency***

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**Statement of the Competency**

To do planning calculations.

**Achievement Context**

- Given actual data
- Given drawings and specifications
- Using a calculator
- Using a conversion table

**Elements of the Competency****Performance Criteria**

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- |   |   |
|---|---|
| 1. Perform basic operations.                                      | <ul style="list-style-type: none"> <li>• Correct use and conversion of units of measurement in the Imperial and metric systems</li> <li>• Accurate calculations and conversions</li> <li>• Logical reasoning</li> </ul> |
| 2. Calculate ratios and proportions.                              | <ul style="list-style-type: none"> <li>• Appropriate choice of variable to be isolated</li> <li>• Appropriate use of the rule of three</li> <li>• Accurate calculation of percentages</li> </ul>                        |
| 3. Calculate perimeters, angles, volumes, surfaces and diagonals. | <ul style="list-style-type: none"> <li>• Appropriate choice of calculation method</li> <li>• Correct use of unit of measurement</li> </ul>  |
| 4. Calculate the quantities of materials needed to do a job.      | <ul style="list-style-type: none"> <li>• Accurate interpretation of information in drawing</li> <li>• Correct reasoning</li> <li>• Accurate quantities</li> </ul>   |
| 5. Dimension materials for a construction job.                    | <ul style="list-style-type: none"> <li>• Accurate needs analysis</li> <li>• Accurate calculation of data</li> </ul>   |

*For the competency as a whole:*

- Appropriate choice of operations
- Accurate calculations
- Logical approach
- Proper planning

### Suggestions for Competency-Related Knowledge and Know-How

The following is a summary of the knowledge, skills, strategies, attitudes and perceptions related to each element of the competency, along with their attendant guidelines.

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>• Perform mathematical operations on whole numbers, decimals and fractions.</li> </ul> <p>Related to elements 1, 2, 3, 4 and 5</p> | <p>Addition, subtraction, multiplication and division of whole numbers, decimals and fractions</p>  |
| <ul style="list-style-type: none"> <li>• Do conversions.</li> </ul> <p>Related to elements 1, 2, 3, 4 and 5</p>   | <p>Conversion of whole numbers and decimals to percentages or vice versa</p>  |
| <ul style="list-style-type: none"> <li>• Calculate data in parentheses.</li> </ul> <p>Related to elements 2, 3, 4 and 5</p>   | <p>Priority of operations in formulas</p>   |
| <ul style="list-style-type: none"> <li>• Use the rule of three to solve problems.</li> </ul> <p>Related to elements 2, 4 and 5</p>  | <p>Calculation of elevations, heights and quantities using proportional data (e.g. stairwell, quantity of screws used)</p>  |
| <ul style="list-style-type: none"> <li>• Apply formulas to geometric figures.</li> </ul> <p>Related to elements 3, 4 and 5</p>  | <p>Appropriate use of mathematical formulas for finding the perimeter, area, volume and angle measurements of different geometric figures (e.g. square, rectangle, triangle, circle, hexagon, octagon, trapezoid)</p> |
| <ul style="list-style-type: none"> <li>• Apply the basic principles of geometry to different trade-related problems.</li> </ul> <p>Related to elements 3, 4 and 5</p>     | <p>Types of problems: floor surface area, concrete needed to fill a cylinder column and other types of formworks, roof slope, staircase slope, squaring of a large surface, etc.</p>                                  |
| <ul style="list-style-type: none"> <li>• Determine the quantity of materials needed to do a job.</li> </ul> <p>Related to element 4</p>                                   | <p>Accurate interpretation of information in the drawing in order to determine the quantity of floor coverings, roofing materials, insulation, drywall, etc. needed</p>   |
| <ul style="list-style-type: none"> <li>• Determine the length of the materials needed to do a job.</li> </ul> <p>Related to element 5</p>                                 | <p>Accurate interpretation of information in the drawing in order to make a cutting list including the number and length of studs, lintels and jack studs, etc. needed</p>  |

Competency 6      Duration 60 hours      Credits 4

***Behavioural Competency***

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**Statement of the Competency**

To perform alignment and levelling operations.

**Achievement Context**

- Given instructions or specifications related to layout or location plans
- Working with a classmate
- Using alignment and levelling instruments such as an optical level, a laser or a transit

**Elements of the Competency****Performance Criteria**

---

1. Plan the work.

- Accurate interpretation of layout or location plan
- Appropriate planning of the job
- Consideration of the immediate environment
- Correct verification of measurements

2. Locate the job to be done.

- Accurate identification of datum points or bench marks
- Correct transposition of data
- Accurate installation of excavation stakes
- Appropriate application of squaring methods using measuring and instruments

3. Construct the batter boards.

- Appropriate choice of materials
- Appropriate positioning of boards
- Proper assembly of batter boards
- Accurate positioning of dry lines

4. Establish levels.

- Observance of data shown in the drawing
- Appropriate establishment of grade point
- Appropriate setup
- Accurate readings and sightings
- Accurate identification of the different elevations
- Accurate verification of data recorded

5. Tidy up the work area.

- Appropriate cleaning of instruments and accessories
- Appropriate storing of instruments
- Cleanliness of the work area

*For the competency as a whole:*

- Strict application of health and safety rules
- Safe and effective use of tools and devices
- Accurate transposition of data taken from the drawing
- Accurate location and layout

### **Suggestions for Competency-Related Knowledge and Know-How**

The following is a summary of the knowledge, skills, strategies, attitudes and perceptions related to each element of the competency, along with their attendant guidelines.

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>• Gather the information needed to do the job.</li> </ul> <p>Related to element 1</p>                    | <p>Familiarity with municipal bylaws (e.g. minimum distance from front and side; building occupancy percentage with respect to the lot; level of aqueduct, storm drain and sanitary drain); familiarity with standards respecting rights of sight, servitudes and zoning</p> |
| <ul style="list-style-type: none"> <li>• Prepare the job.</li> </ul> <p>Related to elements 1 and 2</p>   | <p>Checking for building's squareness using diagonals, establishment of digging levels based on information from municipal services, determination of the materials needed to do the job</p>   |
| <ul style="list-style-type: none"> <li>• Select an instrument.</li> </ul> <p>Related to elements 1 and 2</p>                                    | <p>Functions of the different optical and laser instruments used on construction sites</p>   |
| <ul style="list-style-type: none"> <li>• Use an optical level.</li> </ul> <p>Related to elements 2, 3 and 4</p>                                 | <p>Installation and stabilization of tripod on different surfaces, verification and setups, establishment of sights (back, forward, height of instrument and altitude), familiarity with the purpose of sight markers, interpretation of sight data</p>                      |
| <ul style="list-style-type: none"> <li>• Record the results.</li> </ul> <p>Related to elements 2 and 4</p>                                      | <p>Standards and symbols related to reference marks, use of a record book, double checking in order to eliminate any possibility of error</p>  |
| <ul style="list-style-type: none"> <li>• Position a building using the layout plan.</li> </ul> <p>Related to element 2</p>                      | <p>Application of methods using property lines, location of missing boundary post, location of the corners of the building</p>   |
| <ul style="list-style-type: none"> <li>• Be familiar with different methods of installing batter boards.</li> </ul> <p>Related to element 3</p> | <p>Presentation of types of boards (on pickets or posts) and of the three- or four-picket technique (in the ground or on a base and weighted down)</p>   |

- Attach the dry lines.

Related to element 3

Alignment of locations with dry lines attached using nails or inserted in saw marks, tension of lines, types of knots

- Determine the steps in the digging.

Related to elements 1 and 4

Calculation of depth of footings, choice of equipment based on site conditions, planning of an access ramp for the concrete truck or pump, establishment of the amount of earth to be removed



Competency 7      Duration 45 hours      Credits 3

***Behavioural Competency*****Statement of the Competency**

To perform scaffolding, lifting and handling operations.

**Achievement Context**

- In trade-related situations
- Given information from the *Safety Code for the construction industry*
- Using the necessary tools and materials
- Using personal protective equipment and metal frame tubular scaffolding, scissor scaffolding, a ladder, swing stage, and lifting appliances

**Elements of the Competency****Performance Criteria**

- |  |   |
|--|---|
| 1. Plan the work.                              | <ul style="list-style-type: none"> <li>• Appropriate choice of scaffolding</li> <li>• Appropriate choice and preparation of safety accessories</li> </ul>   |
| 2. Prepare and install scaffolding components. | <ul style="list-style-type: none"> <li>• Appropriate installation of bases</li> <li>• Appropriate choice of locking devices</li> <li>• Accurate alignment and levelling</li> <li>• Appropriate selection of components</li> <li>• Observance of assembly and disassembly techniques</li> <li>• Protection of self and others in accordance with the <i>Safety Code for the construction industry</i></li> </ul> |
| 3. Install equipment and safety accessories.   | <ul style="list-style-type: none"> <li>• Solid anchoring</li> <li>• Appropriate means of access</li> </ul>  |
| 4. Use scissor scaffolding.                    | <ul style="list-style-type: none"> <li>• Effective stabilization of the device</li> <li>• Safe use consistent with manufacturer's recommendations</li> </ul>  |
| 5. Move equipment.                             | <ul style="list-style-type: none"> <li>• Correct estimate of weight of load</li> <li>• Appropriate choice of slings and cables</li> <li>• Appropriate choice of lifting appliances</li> <li>• Appropriate use of fastening methods</li> <li>• Observance of lifting techniques</li> <li>• Accurate interpretation of crane hand signals</li> </ul>  |
| 6. Check the work.                             | <ul style="list-style-type: none"> <li>• Thorough verification of the quality of the work</li> <li>• Adjustment of levels based on the sequence of operations and soil subsidence</li> </ul>  |

*For the competency as a whole:*

- Strict application of health and safety rules
- Appropriate work planning and organization
- Safe and effective use of tools and equipment
- Respect for the environment

### **Suggestions for Competency-Related Knowledge and Know-How**

The following is a summary of the knowledge, skills, strategies, attitudes and perceptions related to each element of the competency, along with their attendant guidelines.

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>• Select the scaffolding.</li> </ul> <p>Related to elements 1 and 2</p>  | Choice of scaffolding (tubular, flying, mobile, ladder jack, trestle, customized), identification of components (e.g. ladder frames, cross braces, pins, wheels, adjustment screws, platforms, guard rails, stirrups, etc.)   |
| <ul style="list-style-type: none"> <li>• Install the bases.</li> </ul> <p>Related to elements 1 and 2</p>   | Choice of different scaffolding supports based on the ground surface (e.g. structural lumber, concrete surface), levelling and alignment methods  |
| <ul style="list-style-type: none"> <li>• Sort the scaffolding components.</li> </ul> <p>Related to elements 2, 3 and 6</p>                                  | Identification of breakage and defects in components, planks and safety accessories   |
| <ul style="list-style-type: none"> <li>• Ensure the safety of the scaffolding and its surroundings.</li> </ul> <p>Related to elements 1, 2, 3, 4, and 6</p> | Familiarity with safety measures for working at heights (e.g. guard rails, lifeline, net, harness, belt) and methods of anchoring scaffolding; construction of temporary structures (e.g. runways, ladders, fences, access ramps, breezeways); choice of anchoring method based on materials; constant awareness of possible breakage of components and faulty installation |
| <ul style="list-style-type: none"> <li>• Disassemble the scaffolding.</li> </ul> <p>Related to elements 1 and 2</p>   | Use of equipment needed to lower components, observance of sequence of operations, storage of components  |
| <ul style="list-style-type: none"> <li>• Select the lifting appliances and accessories.</li> </ul> <p>Related to element 5</p>                              | Choice of hoist, slings, etc.   |
| <ul style="list-style-type: none"> <li>• Sling loads.</li> </ul> <p>Related to elements 5 and 6</p>   | Distinction between the different fastening methods, methods of estimating the capacity of different slings and tying knots   |
| <ul style="list-style-type: none"> <li>• Use crane hand signals.</li> </ul> <p>Related to element 5</p>   | Identification of the different signalling methods  |



- Move loads.

Related to elements 5 and 6

Methods of moving loads on horizontal, vertical and inclined planes



Competency 8      Duration 90 hours      Credits 6

***Behavioural Competency*****Statement of the Competency**

To build and install furniture and finishing accessories.

**Achievement Context**

- Given instructions or specifications
- Using solid wood and wood-based panel products
- Using laminate
- Using furniture hardware and accessories
- Using tools and power tools

**Elements of the Competency****Performance Criteria**

- |   |   |
|---|---|
| 1. Plan the work.                         | <ul style="list-style-type: none"> <li>• Accurate interpretation of information</li> <li>• Accurate calculation of quantities</li> <li>• Appropriate sequence of operations</li> <li>• Appropriate representation in a sketch</li> </ul>                  |
| 2. Prepare the equipment.                 | <ul style="list-style-type: none"> <li>• Appropriate choice of equipment and accessories</li> <li>• Correct adjustment of power tools</li> </ul>  |
| 3. Cut, shape and sand the material.      | <ul style="list-style-type: none"> <li>• Appropriate choice of materials</li> <li>• Correct use of machining techniques</li> <li>• Effective filing and sanding techniques</li> <li>• Observance of dimensions</li> </ul>                                 |
| 4. Assemble a furniture unit.             | <ul style="list-style-type: none"> <li>• Appropriate choice of assembly methods and fasteners</li> <li>• Appropriate choice of accessories</li> <li>• Precise and solid assemblies</li> <li>• Precise installation</li> </ul>                             |
| 5. Position and anchor furniture units.   | <ul style="list-style-type: none"> <li>• Precise levelling and positioning</li> <li>• Appropriate choice of anchor</li> <li>• Appropriate installation technique</li> </ul>   |
| 6. Install and anchor a laminate counter. | <ul style="list-style-type: none"> <li>• Appropriate choice of fasteners</li> <li>• Observance of installation technique</li> <li>• Precise work</li> </ul>   |
| 7. Verify the quality of the work.        | <ul style="list-style-type: none"> <li>• Thorough verification of the quality of the work</li> <li>• Appropriate adjustment of moving elements</li> <li>• Concern for preserving the finish</li> <li>• Appearance of adjustments and touch-ups</li> </ul> |

*For the competency as a whole:*

- Strict application of health and safety rules
- Appropriate work planning and organization
- Safe and effective use of tools and power tools
- Job consistent with the shop drawing
- Particular attention to the quality and appearance of the finished product
- Respect for the environment

### **Suggestions for Competency-Related Knowledge and Know-How**

The following is a summary of the knowledge, skills, strategies, attitudes and perceptions related to each element of the competency, along with their attendant guidelines.

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>• Become familiar with power tools.</li> </ul> <p>Related to element 2</p>                | <p>Familiarity with the operation of power tools (identification of parts and the direction of rotation of the blade or knife, adjustment of accessories, determination of possible operations), identification and installation of safety accessories, familiarity with the safe operation of power tools</p> |
| <ul style="list-style-type: none"> <li>• Prepare a work plan.</li> </ul> <p>Related to element 1</p>                             | <p>Interpretation of a shop drawing, familiarity with the rules and standards related to the construction of furniture units, familiarity with the different materials and fasteners used in furniture making, establishment of the cutting list, planning of the construction sequence</p>                    |
| <ul style="list-style-type: none"> <li>• Use power tools.</li> </ul> <p>Related to elements 2 and 3</p>                          | <p>Choice of equipment; construction of parts involving various machining features such as bevels, grooves, coves and rabbets; use of power tools (e.g. table saw, jointer, planer, band saw, drill press, belt sander) to build a furniture unit</p>  |
| <ul style="list-style-type: none"> <li>• Shape melamine panels.</li> </ul> <p>Related to elements 2, 3 and 4</p>                 | <p>Work method to be observed (cutting list taking into account the imitation wood grain); two-step cutting (rough cut and finished cut); choice of blade and throat plate clearance; identification of each part; methods for installing, filing and sanding the edge banding</p>                             |
| <ul style="list-style-type: none"> <li>• Cover a surface with plastic laminate.</li> </ul> <p>Related to elements 2, 3 and 4</p> | <p>Familiarity with the characteristics of laminates, methods of installing and cutting laminates (routing, using a carbide scoring knife or a table saw), establishment of sequence of operations (back, side and front), techniques for gluing and filing the edge banding</p>                               |

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<ul style="list-style-type: none"> <li>Assemble furniture parts made out of solid wood and panels.</li> </ul> <p>Related to element 4</p>	<p>Tests of different joining methods (e.g. rabbet joints, tongue-and-groove joints, biscuit joints, half lap joints, fitting joints, using cleats, 45° joints)</p>
<ul style="list-style-type: none"> <li>Install moving elements and finishing accessories.</li> </ul> <p>Related to elements 1, 4 and 7</p>	<p>Methods of installing different types of hinges, drawer slides, handles, catches, etc.; familiarity with 32-mm system; search for installation information in reference documents; production of various installation jigs</p>
<ul style="list-style-type: none"> <li>Determine the steps in the finishing process.</li> </ul> <p>Related to elements 3 and 7</p>	<p>Familiarity with the abrasives used, the sequence of operations, the different finishing products (stain, lacquer, varnish, paint); preparation of parts for finishing</p>
<ul style="list-style-type: none"> <li>Be familiar with the manufacturing and installation standards for fixed furniture units.</li> </ul> <p>Related to elements 1, 5 and 6</p>	<p>Familiarity with industry standards respecting the height, width and depth of fixed furniture units; familiarity with the space needed for electrical appliances and fixed furniture units</p>
<ul style="list-style-type: none"> <li>Repair furniture units.</li> </ul> <p>Related to element 7</p>	<p>Classification of repair products (e.g. a wood patch (dutchman), plastic wood, melamine paste, putty pencil); minor repairs to materials or finishing; adjustment of doors and drawer fronts</p>



Competency 9      Duration 105 hours    Credits 7

***Behavioural Competency***

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**Statement of the Competency**

To construct forms for footings, foundation walls and concrete walls.

**Achievement Context**

- Given instructions or specifications
- Given a foundation or wall plan
- Using the necessary tools, equipment and materials
- Using a powder actuated fastener and appropriate anchors
- Working with standard types of forms

**Elements of the Competency**

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**Performance Criteria**

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1. Plan the work.

- Accurate interpretation of information
- Appropriate estimate of the quantity of materials needed
- Appropriate choice of forms and components
- Appropriate representation in a sketch
- Accurate positioning of footings
- Appropriate fastening of dry lines
- Correct planning of the installation, levelling and squaring of the forms

2. Install footing forms.

- Correct installation of panels (plywood or planks), pickets, bracing and spacers
- Appropriate installation of shut offs
- Appropriate positioning of keyway and seals
- Appropriate positioning of sleeves
- Appropriate preparation and installation of templates to support the reinforcing rods and anchors

3. Install concrete wall forms.

- Appropriate positioning
- Appropriate installation of panels, ties and spacers
- Appropriate installation of wales
- Appropriate positioning and installation of openings, anchors and nailers
- Precise marking of pour line

- |                              |   |
|------------------------------|---|
| 4. Assemble permanent forms. | <ul style="list-style-type: none"> <li>• Appropriate installation of shoe</li> <li>• Assembly method consistent with manufacturer's recommendations</li> <li>• Appropriate positioning and installation of openings, anchors and nailers</li> <li>• Precise marking of pour line</li> </ul> |
| 5. Plumb and line the form.  | <ul style="list-style-type: none"> <li>• Appropriate bracing and levelling methods</li> <li>• Precise levelling and alignment</li> </ul>  |
| 6. Check the work.           | <ul style="list-style-type: none"> <li>• Thorough verification of the quality of the work (solidity, leakproofness, consistency with drawings, easy removal of forms)</li> </ul>  |
| 7. Tidy up the work area.    | <ul style="list-style-type: none"> <li>• Appropriate disassembly method</li> <li>• Appropriate material recovery and storage</li> </ul>   |

*For the competency as a whole:*

- Strict application of health and safety rules
- Appropriate work planning and organization
- Safe and effective use of tools and equipment

### Suggestions for Competency-Related Knowledge and Know-How

The following is a summary of the knowledge, skills, strategies, attitudes and perceptions related to each element of the competency, along with their attendant guidelines.

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>• Recognize the properties of concrete and the related quality criteria.</li> </ul> <p>Related to element 2</p> | Familiarity with the composition and properties of concrete, familiarity with the different quality controls  |
| <ul style="list-style-type: none"> <li>• Place the concrete.</li> </ul> <p>Related to element 7</p>  | Familiarity with the methods of placing, levelling and polishing concrete; familiarity with curing techniques; familiarity with the methods of protecting concrete from the cold (e.g. tarp, straw, blanket, heating) and constructing temporary shelters |
| <ul style="list-style-type: none"> <li>• Differentiate between the different types of footings.</li> </ul> <p>Related to element 7</p>                 | Types of footings (e.g. insulated, combined, continuous, step, pyramidal), familiarity with components (e.g. bracing, picket, cleat or tie), methods of making footings (e.g. preassembled, assembled on site)  |
| <ul style="list-style-type: none"> <li>• Position the foundation.</li> </ul> <p>Related to elements 2 and 4</p>  | Installation of batter boards and dry lines; methods of positioning the foundation (using a plumb line or level)  |



- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>• Level the footings.<br/>Related to elements 2 and 3</li> </ul>   | <p>Soil compacting methods (e.g. vibrating plate, water); methods of installing, squaring and levelling footings</p>  |
| <ul style="list-style-type: none"> <li>• Describe the different types of forms.<br/>Related to element 1</li> </ul>   | <p>Familiarity with the different types of forms (e.g. permanent, jump, slip, site built, prefabricated, aluminum, single- and double-tie)</p>  |
| <ul style="list-style-type: none"> <li>• Place the forms.<br/>Related to elements 4 and 6</li> </ul>  | <p>Methods of marking and squaring wall forms, familiarity with techniques for installing forms according to manufacturer's instructions, installation methods (e.g. ribbon strips, studs, ties, wales, bracing, armature)</p>  |
| <ul style="list-style-type: none"> <li>• Identify the different types of permanent forms.<br/>Related to element 5</li> </ul>   | <p>Difference between the different types of forms, manufacturer's installation method, familiarity with methods of installing anchors and bracing</p>  |
| <ul style="list-style-type: none"> <li>• Install scaffolding and safety accessories.<br/>Related to elements 4 and 5</li> </ul>   | <p>Methods of installing scaffolding and guard rails, methods of building and installing ramps, etc.</p>  |
| <ul style="list-style-type: none"> <li>• Build a template to support the reinforcing rods and anchors.<br/>Related to element 3</li> </ul>                                | <p>Methods of building and installing a template</p>  |
| <ul style="list-style-type: none"> <li>• Plan for control joints and false frames.<br/>Related to element 4</li> </ul>  | <p>Familiarity with the reasons for concrete shrinkage, method of installing a reinforcement at a vertical or horizontal junction, method of installing seals, methods of making and installing chamfer strips, methods of building and installing rough bucks</p>                |
| <ul style="list-style-type: none"> <li>• Determine the pouring levels for the concrete.<br/>Related to elements 4 and 5</li> </ul>  | <p>Techniques for measuring and marking levels, method of transferring levels using a level (construction, optical, water, laser), positioning of pour height (with nails or the installation of the mudsill)</p>   |
| <ul style="list-style-type: none"> <li>• Determine the steps in pouring the concrete, removing the forms, draining and waterproofing.<br/>Related to element 7</li> </ul> | <p>Familiarity with methods of placing concrete (e.g. directly from the concrete mixer, using a pump, a bucket or a conveyor), adjustment of shoring in the event of settling of the sleepers, familiarity with methods of removing forms, perimeter drains and waterproofing</p> |



Competency 10      Duration 30 hours      Credits 2

***Behavioural Competency*****Statement of the Competency**

To perform operations related to the construction of deep foundations.

**Achievement Context**

- Given instructions or information
- Given a drawing and specifications
- Using the necessary tools, equipment and materials

**Elements of the Competency****Performance Criteria**

- |  |   |
|--|---|
| 1. Plan the work.  | <ul style="list-style-type: none"> <li>• Accurate interpretation of information</li> <li>• Appropriate inspection of equipment</li> <li>• Appropriate choice of cables and slings</li> <li>• Accurate identification of the positioning of the piles</li> </ul> |
| 2. Prepare the pile driving equipment.                               | <ul style="list-style-type: none"> <li>• Appropriate handling of equipment</li> <li>• Appropriate installation of hoisting connections</li> <li>• Appropriate inspection and maintenance of equipment</li> </ul>  |
| 3. Plan the installation of piles, props and ties.                   | <ul style="list-style-type: none"> <li>• Choice of piles consistent with drawing</li> <li>• Positioning of piles, props and ties consistent with drawings and specifications</li> </ul>   |
| 4. Establish reference points to guide the positioning of the piles. | <ul style="list-style-type: none"> <li>• Correct establishment of reference points</li> <li>• Effective measurement</li> </ul>  |

*For the competency as a whole:*

- Strict application of health and safety rules
- Appropriate work planning and organization
- Safe and effective use of tools and equipment

**Suggestions for Competency-Related Knowledge and Know-How**

The following is a summary of the knowledge, skills, strategies, attitudes and perceptions related to each element of the competency, along with their attendant guidelines.

- Identify the various types of equipment and accessories.

Familiarity with terminology (e.g. pile, shaft, pillar, micropile, crane, driving hammer, ram, vibrating hammer)

Related to elements 1 and 3

<ul style="list-style-type: none"> <li>Identify the different types of piles used.</li> </ul> <p>Related to elements 1 and 3</p>	Types of piles: tube pile, bored pile, steel H or square pile, pedestal pile; measurement of the diameter of the pile, the thickness of the wall, etc.; familiarity with driving resistance methods (friction, refusing entry to the tip, pedestal)
<ul style="list-style-type: none"> <li>Identify the different types of soils.</li> </ul> <p>Related to element 1</p>	Identification of different soils (e.g. rock, coarse-grained soil, fine-grained soil, organic soil), reference documents
<ul style="list-style-type: none"> <li>Identify the different pile driving methods.</li> </ul> <p>Related to element 3</p>	Driving, boring, vibration, hydraulic head, etc.
<ul style="list-style-type: none"> <li>Inspect and maintain ties.</li> </ul> <p>Related to elements 1 and 2</p>	Identification of faulty materials and equipment (e.g. broken cables, broken welds, distorted beams, worn and distorted cables, corroded cables, defective slings)
<ul style="list-style-type: none"> <li>Describe the steps in installing a retaining wall.</li> </ul> <p>Related to element 1</p>	Types of retaining walls (e.g. wood honeycomb curtain walls, cast-in-place walls)
<ul style="list-style-type: none"> <li>Inspect the pile driving equipment.</li> </ul> <p>Related to element 2</p>	Replacement of wood in the cushion head, lubrication and inspection of the guide (e.g. cracks, wear)

Competency 11      Duration 105 hours      Credits 7

***Behavioural Competency*****Statement of the Competency**

To construct forms for concrete columns, beams, slabs and stairs.

**Achievement Context**

- Given instructions or information
- Given a drawing and specifications
- Using the necessary tools and materials
- Using scaffolding, jacks, stringers, and wooden and aluminum joists
- Using a powder actuated fastener and the appropriate anchors

**Elements of the Competency****Performance Criteria**

- |   |  |
|---|--|
| 1. Plan the work.                         | <ul style="list-style-type: none"> <li>• Accurate interpretation of information</li> <li>• Appropriate estimate of the quantity of materials needed</li> <li>• Appropriate choice of forms and components</li> <li>• Appropriate representation in a sketch</li> </ul>   |
| 2. Determine the location of the columns. | <ul style="list-style-type: none"> <li>• Accurate positioning of columns based on centre lines</li> <li>• Appropriate installation of templates</li> </ul>   |
| 3. Assemble and install the column forms. | <ul style="list-style-type: none"> <li>• Appropriate construction method</li> <li>• Positioning of column clamps consistent with drawing</li> <li>• Appropriate positioning of cleaning and inspection openings</li> <li>• Appropriate bracing, squaring and levelling of columns</li> <li>• Solidity of assemblies</li> </ul> |
| 4. Install the stringers and joists.      | <ul style="list-style-type: none"> <li>• Appropriate positioning and installation of the different supports (e.g. jacks, scaffolding)</li> <li>• Installation of stringers and joists consistent with drawing</li> <li>• Appropriate levelling of joists and columns</li> </ul>  |
| 5. Install the beam panels.               | <ul style="list-style-type: none"> <li>• Appropriate positioning of elements</li> <li>• Appropriate method of constructing the side walls of the beam</li> <li>• Appropriate bracing, squaring and levelling of beams</li> </ul>   |

- |   |  |
|---|--|
| 6. Install and adjust the slab panels.            | <ul style="list-style-type: none"> <li>• Appropriate positioning of supports</li> <li>• Leakproof installation and adjustment of panels</li> <li>• Appropriate levelling of slab</li> </ul>  |
| 7. Make and install the guardrails.               | <ul style="list-style-type: none"> <li>• Construction and installation consistent with the <i>Safety Code for the construction industry</i></li> </ul>   |
| 8. Construct forms for different types of stairs. | <ul style="list-style-type: none"> <li>• Accurate calculations</li> <li>• Correct production of working drawing</li> <li>• Appropriate installation of supports</li> <li>• Appropriate cutting and installation of risers</li> <li>• Appropriate bracing, alignment and levelling of form</li> </ul> |
| 9. Check the work.                                | <ul style="list-style-type: none"> <li>• Verification of the quality of the work (solidity, leakproofness, consistency with drawings, easy removal of forms)</li> </ul>  |
| 10. Tidy up the work area.                        | <ul style="list-style-type: none"> <li>• Appropriate disassembly method</li> <li>• Appropriate material recovery and storage</li> </ul>  |

*For the competency as a whole:*

- Strict application of health and safety rules
- Appropriate work planning and organization
- Safe and effective use of tools and equipment

### Suggestions for Competency-Related Knowledge and Know-How

The following is a summary of the knowledge, skills, strategies, attitudes and perceptions related to each element of the competency, along with their attendant guidelines.

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>• Identify the different types of concrete columns, beams and slabs.</li> </ul> <p>Related to element 1</p>            | Choice of column (e.g. square, rectangular, round), choice of beam (e.g. rectangular, hollow, cantilever, prestressed), choice of slab (solid, hollow, on grade, cantilever, light)                      |
| <ul style="list-style-type: none"> <li>• Be familiar with the methods of constructing and locking column forms.</li> </ul> <p>Related to elements 2 and 3</p> | Types of forms (wood for rectangular or square columns, cardboard for cylindrical columns), locking methods (e.g. metal bands or stirrup straps, collars, column clamps, studs)                          |
| <ul style="list-style-type: none"> <li>• Identify the different types of concrete stairs.</li> </ul> <p>Related to elements 8 and 9</p>                       | Choice of concrete stairs (e.g. enclosed, open, on grade), forms for risers (sloped, bevelled), method of constructing forms   |
| <ul style="list-style-type: none"> <li>• Calculate the stairs and risers.</li> </ul> <p>Related to elements 8 and 9</p>                                       | Familiarity with current rules and standards, familiarity with the terminology associated with concrete stairs (e.g. stair, riser, nosing, soffit), familiarity with the appropriate calculation methods |

<ul style="list-style-type: none"> <li>Be familiar with the areas that require reinforcing bars.</li> </ul> <p>Related to elements 1, 3, 8 and 9</p>	Resistance of concrete to tension, compression, shearing in the columns, beams, slabs, lintels, cantilevers, ramps, balconies and stairs; familiarity with methods of installing reinforcing bars; familiarity with the sequence of forming operations involving reinforcing bars
<ul style="list-style-type: none"> <li>State the operations involved in constructing forms for concrete beams, slabs, columns and stairs.</li> </ul> <p>Related to elements 1, 2, 3, 4, 5, 6, 7, 8, and 9</p>	Interpretation of drawings and specifications, preparation of the job, availability of materials, levelling of the land, construction of forms, placing of concrete, finishing of surfaces, removal of forms, cleaning
<ul style="list-style-type: none"> <li>Prepare the form to receive the concrete.</li> </ul> <p>Related to element 9</p>	Verification of defects in materials and in the job (e.g. knots, rot, wood grain, solidity of joist anchors)
<ul style="list-style-type: none"> <li>List the parts of a form that must be able to resist the greatest amount of pressure when the concrete is poured.</li> </ul> <p>Related to elements 3 and 9</p>	Verification of bottoms and corners, pouring of concrete when using a vibrator
<ul style="list-style-type: none"> <li>Be familiar with the different supports used in the construction of slab and beam forms.</li> </ul> <p>Related to elements 1, 4, 5 and 6</p>	Familiarity with the different supports used in slab and beam forms (e.g. ladder frames, vertical shores, wood columns, stringers, aluminum and wood joists), familiarity with the different panels used in forms for concrete slabs (board, plywood, chipboard, metal)
<ul style="list-style-type: none"> <li>Be familiar with the different methods of constructing specially shaped forms.</li> </ul> <p>Related to elements 3, 8 and 9</p>	Familiarity with the types of forms (hollow structures, moulded surfaces, moulded or irregular slab edges, stair nosing, rounded or moulded corners)
<ul style="list-style-type: none"> <li>Install cantilevered platforms.</li> </ul> <p>Related to elements 1 and 7</p>	Interpretation of drawings, installation of cantilevered metal elements, installation of jacks, installation of panels and balconies
<ul style="list-style-type: none"> <li>Be familiar with different methods of removing forms.</li> </ul> <p>Related to elements 9 and 10</p>	Establishment of sequence of operations for removing column, beam and slab forms
<ul style="list-style-type: none"> <li>Apply occupational health and safety rules.</li> </ul> <p>Related to elements 1, 2, 3, 4, 5, 6, 7, 8, and 10</p>	Application of the <i>Safety Code for the construction industry</i>





Competency 12      Duration 60 hours      Credits 4

***Behavioural Competency***

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**Statement of the Competency**

To frame floors.

**Achievement Context**

- Given framing plans, assembly drawings and specifications
- Given information from the National Building Code of Canada
- Using the necessary tools, equipment and materials

**Elements of the Competency****Performance Criteria**

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1. Plan the work.

- Accurate interpretation of plans and drawings
- Appropriate estimate of the quantity of materials needed
- Appropriate representation in a sketch

2. Install the mudsill.

- Accurate verification of levels and squaring
- Appropriate installation of seal (sill gasket)
- Appropriate drilling of mudsill to receive the anchor bolts

3. Install the supporting members.

- Appropriate construction techniques
- Accurate positioning of supports under the beam
- Accurate alignment of the beam
- Appropriate installation of load bearing wall

4. Install the joists and headers.

- Appropriate choice of joists
- Accurate spacing of joists according to the National Building Code of Canada
- Position of engineered lumber consistent with the assembly drawing
- Floor opening consistent with plan

5. Install the spacers and spacer bars.

- Accurate cutting of bridging
- Installation of wood or metal bridging consistent with plan

6. Install the underflooring.

- Correct positioning of panels
- Accurate alignment of joists

*For the competency as a whole:*

- Strict application of health and safety rules
- Appropriate work planning and organization
- Safe and effective use of tools and equipment
- Consistency with plans and the National Building Code of Canada
- Accurate marking

The term *joist* is used to designate both solid joists and engineered joists.

### **Suggestions for Competency-Related Knowledge and Know-How**

The following is a summary of the knowledge, skills, strategies, attitudes and perceptions related to each element of the competency, along with their attendant guidelines.

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>• Select the supporting members for a floor.</li> </ul> <p>Related to elements 1 and 3</p>     | <p>Appropriate choice of posts (e.g. steel, telescopic, wood) based on the beam, choice of beam (steel, TGI, glue-lam (LVL), solid), familiarity with the maximum span of compound and bladed-glued beams, methods of making compound beams and structural walls, familiarity with the components of a shear or load bearing wall (sill plates, studs, spacers, wall plates, jambs, lintels, bracing)</p> |
| <ul style="list-style-type: none"> <li>• Select the components of a floor.</li> </ul> <p>Related to elements 1 and 4</p>              | <p>Familiarity with the maximum span of floor joists, methods of installing wood and metal joists and headers, choice of joists (I-truss, wood or metal truss)</p>  |
| <ul style="list-style-type: none"> <li>• Locate the mudsill.</li> </ul> <p>Related to element 2</p>                                   | <p>Appropriate installation of mudsill for brick or clapboard exterior finish, method of identifying anchoring bolts on the mudsill</p>   |
| <ul style="list-style-type: none"> <li>• Mark the position of the joists.</li> </ul> <p>Related to element 4</p>                      | <p>Appropriate identification of joists: floor, rim, trimmers and headers; observance of centre-to-centre distances</p>   |
| <ul style="list-style-type: none"> <li>• Use different techniques for installing floor joists.</li> </ul> <p>Related to element 4</p> | <p>Installation of joists: using joist hangers, on a ledger strip, end-to-end on the beam or overlapped</p>   |
| <ul style="list-style-type: none"> <li>• Frame a cantilevered floor.</li> </ul> <p>Related to elements 4 and 5</p>                    | <p>Observance of standards</p>  |
| <ul style="list-style-type: none"> <li>• Select the subflooring.</li> </ul> <p>Related to element 6</p>                               | <p>Choice of panels, method of anchoring panels, preparation of a floor for a concrete slab, preparation of the floor to receive ceramic tiles</p>  |

- Identify defective materials that can affect the quality of the floor framing.

Visual inspection of materials and removal of defective materials

Related to elements 3 and 4



Competency 13      Duration 90 hours      Credits 6

***Behavioural Competency***

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**Statement of the Competency**

To frame walls.

**Achievement Context**

- Given drawings and specifications
- Given information from the National Building Code of Canada
- Using electric and pneumatic tools and the necessary equipment and materials

**Elements of the Competency****Performance Criteria**

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- |   |  |
|---|--|
| 1. Plan the work.                               | <ul style="list-style-type: none"> <li>• Accurate interpretation of drawings</li> <li>• Appropriate estimate of the quantity of materials needed</li> <li>• Correct establishment of a cutting list for the walls</li> <li>• Appropriate representation in a sketch</li> </ul> |
| 2. Install and mark the wall plates.            | <ul style="list-style-type: none"> <li>• Safe anchoring of wall plate to the floor</li> <li>• Correct identification of studs and openings</li> </ul>  |
| 3. Assemble wood and metal wall frames.         | <ul style="list-style-type: none"> <li>• Construction of lintels consistent with the National Building Code of Canada</li> <li>• Precise assembly and squaring</li> <li>• Appropriate installation of sheathing, air barrier and furring</li> </ul>                            |
| 4. Raise and anchor the walls.                  | <ul style="list-style-type: none"> <li>• Appropriate choice and use of wall-raising methods</li> <li>• Precise plumbing of corners</li> <li>• Precise alignment of walls</li> <li>• Safe anchoring and bracing of walls</li> </ul>   |
| 5. Mark and assemble wood and metal partitions. | <ul style="list-style-type: none"> <li>• Accurate positioning of partition on floor</li> <li>• Correct marking of studs and openings on wall plates</li> <li>• Precise levelling of partitions and openings</li> </ul>   |
| 6. Tidy up the work area.                       | <ul style="list-style-type: none"> <li>• Appropriate recovery and storage</li> </ul>   |

*For the competency as a whole:*

- Strict application of health and safety rules
- Appropriate work planning and organization
- Safe and effective use of tools and equipment
- Work consistent with drawings and the National Building Code of Canada
- Constant concern for the cleanliness of the work area

### **Suggestions for Competency-Related Knowledge and Know-How**

The following is a summary of the knowledge, skills, strategies, attitudes and perceptions related to each element of the competency, along with their attendant guidelines.

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>• Identify the different types of exterior wall framing.</li> </ul> <p>Related to element 1</p>  | <p>Familiarity with wall-framing methods: platform, balloon, full (pièce-sur-pièce and log construction), stressed skin panels, prefab</p>   |
| <ul style="list-style-type: none"> <li>• Identify the different components of wood and metal wall frames.</li> </ul> <p>Related to elements 1 and 5</p>                           | <p>Familiarity with the components of a wall: sill plates, studs, spacers, wall plates, jambs, jack studs, lintels, corner posts, bracing, etc.</p>  |
| <ul style="list-style-type: none"> <li>• Identify the different methods of anchoring wall plates and the different marking symbols.</li> </ul> <p>Related to elements 1 and 2</p> | <p>Different methods of anchoring wall plates: nailing at a 45° angle, using a metal strap, etc.; method of marking wall plates with symbols for jack and king studs, studs, etc.; method of installing a double wall plate to receive a concrete slab</p> |
| <ul style="list-style-type: none"> <li>• Size the components.</li> </ul> <p>Related to element 1</p>  | <p>Familiarity with the space needed to insulate doors and windows; calculation of the dimensions of the lintels (determination of load capacity and length), studs, jack and king studs, etc.</p>   |
| <ul style="list-style-type: none"> <li>• Select an assembly method.</li> </ul> <p>Related to elements 1, 4 and 5</p>  | <p>Familiarity with assembly methods (panels on the floor, on site, prefab panels), squaring method</p>  |
| <ul style="list-style-type: none"> <li>• Select a method of anchoring metal studs.</li> </ul> <p>Related to elements 3 and 5</p>  | <p>Familiarity with anchoring methods (screwing, crimping, bolting)</p>  |
| <ul style="list-style-type: none"> <li>• Assemble the corner posts.</li> </ul> <p>Related to element 3</p>  | <p>“L” or “U” assembly</p>   |

- Install the backing.  
Related to elements 3 and 5  
Different methods of installing backing at wall junctions
- Select the sheathing.  
Related to elements 1 and 3  
Choice of sheathing (e.g. fibreboard panel, expanded polystyrene panel, OSB, plywood); methods of installing sheathing panels, air barrier and furring
- Select a method of raising wood partitions.  
Related to element 4  
Wall-raising methods (e.g. by hand, using a telescoping wall jack)
- Brace the walls.  
Related to elements 3, 4 and 5  
Choice of alignment and bracing methods





Competency 14      Duration 105 hours      Credits 7

***Behavioural Competency*****Statement of the Competency**

To build roofs.

**Achievement Context**

- Given roofing plans, assembly drawings and specifications
- Given information from the National Building Code of Canada
- Using electric and pneumatic tools and the necessary equipment and materials

**Elements of the Competency****Performance Criteria**

- |  |  |
|--|--|
| 1. Plan the work.                            | <ul style="list-style-type: none"> <li>• Accurate interpretation of drawings</li> <li>• Accurate calculation of roofing elements</li> <li>• Appropriate estimate of the quantity of materials needed</li> <li>• Appropriate representation in a sketch</li> <li>• Appropriate choice and preparation of scaffolding and safety accessories</li> </ul>  |
| 2. Construct the truss jig.                  | <ul style="list-style-type: none"> <li>• Observance of construction standards and dimensions</li> <li>• Appropriate construction method</li> </ul>   |
| 3. Mark, cut and assemble roof components.   | <ul style="list-style-type: none"> <li>• Appropriate use of carpenter's square</li> <li>• Accurate marking</li> <li>• Appropriate choice of gussets: wood, metal, dimensions, quality</li> <li>• Appropriate anchoring of gussets</li> </ul>   |
| 4. Install the trusses, rafters and bracing. | <ul style="list-style-type: none"> <li>• Thorough inspection of the roof framing:               <ul style="list-style-type: none"> <li>– plumb</li> <li>– alignment of walls</li> </ul> </li> <li>• Precise spacing of rafters consistent with the National Building Code of Canada</li> <li>• Appropriate preparation for lifting the trusses</li> <li>• Positioning of trusses and bracing consistent with the assembly drawing</li> </ul> |
| 5. Install the sheathing.                    | <ul style="list-style-type: none"> <li>• Correct positioning of panels</li> <li>• Precise alignment of trusses</li> </ul>  |
| 6. Build the dormers.                        | <ul style="list-style-type: none"> <li>• Observance of proportions</li> <li>• Appropriate methods of assembling components and anchoring them to the roof</li> </ul>   |

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|---|--|
| 7. Install accessories and architectural elements.        | <ul style="list-style-type: none"> <li>• Observance of manufacturer's specifications</li> <li>• Appropriate methods of anchoring accessories and elements to the roof</li> </ul>   |
| 8. Install the flashing and shingles (asphalt and metal). | <ul style="list-style-type: none"> <li>• Leakproofness of flashing at junctions with accessories and ridges (valleys, intersections)</li> <li>• Appropriate installation and appearance of drip edge</li> <li>• Method of installing shingles consistent with manufacturer's requirements</li> <li>• Appropriate finishing of shingles at junctions with accessories and ridges (ridge, hips, valleys, intersections)</li> </ul> |
| 9. Verify the quality of the work.                        | <ul style="list-style-type: none"> <li>• Appropriate repair of shingles</li> <li>• Particular attention to the quality and appearance of the finished product</li> </ul>   |
| 10. Tidy up the work area.                                | <ul style="list-style-type: none"> <li>• Appropriate recovery and storage</li> </ul>   |

*For the competency as a whole:*

- Strict application of health and safety rules
- Appropriate work planning and organization
- Safe and effective use of tools and equipment
- Work consistent with drawings and the National Building Code of Canada
- Quality of finished product
- Constant concern for the cleanliness of the work area

### **Suggestions for Competency-Related Knowledge and Know-How**

The following is a summary of the knowledge, skills, strategies, attitudes and perceptions related to each element of the competency, along with their attendant guidelines.

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>• Be familiar with the different types of roofs.</li> </ul> <p>Related to element 1</p>                             | Types of roofs: flat, shed, gabled, hip, valley, gambrel, mansard   |
| <ul style="list-style-type: none"> <li>• Be familiar with the elements of a roof and the corresponding terminology.</li> </ul> <p>Related to element 1</p> | Roofing terminology: slope, run, span, rise, eaves, overhang, common rafter, jack rafter, hip rafter, valley rafter, ridgeboard, top plate, truss, gusset (fish plate), collar tie, etc.; familiarity with the principle of constructing parapets |
| <ul style="list-style-type: none"> <li>• Be familiar with roofing standards.</li> </ul> <p>Related to elements 1, 2 and 4</p>                              | Standards: slopes based on type of finishing, resistance of parts, spacing of supports (rafters and trusses) based on type of shingle, expansion joints   |

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<ul style="list-style-type: none"> <li>Calculate and cut rafters.</li> </ul> <p>Related to elements 1, 2 and 3</p>	Calculation of dimensions and lengths, birdsmouth and tail cut; use of rafter table; marking of cuts with carpenter's and rafter square
<ul style="list-style-type: none"> <li>Prepare the end trusses.</li> </ul> <p>Related to elements 2, 3 and 4</p>	Installation of backing, sheathing, furring and overhang spacers; preparation of temporary bracing; use of lifting methods
<ul style="list-style-type: none"> <li>Select and install the gussets.</li> </ul> <p>Related to element 3</p>	Choice of plywood or metal gussets; anchoring methods: nailing, bolting and pressure
<ul style="list-style-type: none"> <li>Be familiar with the methods of installing trusses.</li> </ul> <p>Related to element 4</p>	Marking of positions, manual assembly, mechanical assembly, temporary bracing, permanent bracing, alignment of eaves
<ul style="list-style-type: none"> <li>Build a dormer.</li> </ul> <p>Related to element 6</p>	Preparation of roof framing (doubling of rafters or trusses, installation of headers), on-site construction or assembly of different types of dormers (shed, gabled)
<ul style="list-style-type: none"> <li>Prepare the roof to receive accessories.</li> </ul> <p>Related to elements 4, 6 and 7</p>	Manufacturer's specifications, doubling, calculation of dimensions, positioning of parts
<ul style="list-style-type: none"> <li>Describe roof coverings and methods of installing them.</li> </ul> <p>Related to element 8</p>	Types of roof coverings: asphalt shingle, wood shingle, enamelled steel shingle, roof tiles, tin, roofing paper
<ul style="list-style-type: none"> <li>Make sure the roof is leakproof.</li> </ul> <p>Related to elements 8 and 9</p>	Choice of flashing (e.g. metal, tar membranes), methods of installing flashing (e.g. in valleys, at intersections, at junctions with accessories)
<ul style="list-style-type: none"> <li>Work safely.</li> </ul> <p>Related to elements 2, 3, 4, 5, 6, 7, 8, 9 and 10</p>	Use of harness; choice of scaffolding; method of anchoring asphalt shingles, tin, etc. depending on the slope; methods of handling materials according to temperature, slope, weight, etc.



Competency 15      Duration 45 hours      Credits 3

***Behavioural Competency*****Statement of the Competency**

To perform insulating, soundproofing and ventilation operations.

**Achievement Context**

- Given drawings and specifications
- Given current standards and regulations
- Given product data sheets
- Using the necessary tools, equipment, products and materials

**Elements of the Competency****Performance Criteria**

- |   |   |
|---|---|
| 1. Plan the work.   | <ul style="list-style-type: none"> <li>• Accurate interpretation of information</li> <li>• Appropriate planning of the quantity of materials needed</li> </ul>              |
| 2. Select the appropriate insulation and soundproofing for the job. | <ul style="list-style-type: none"> <li>• Appropriate choice of product based on the job and current standards</li> </ul>  |
| 3. Calculate the insulating value.                                  | <ul style="list-style-type: none"> <li>• Accurate result</li> </ul>   |
| 4. Install insulation and vapour barrier.                           | <ul style="list-style-type: none"> <li>• Appropriate methods of installing insulation and vapour barrier</li> <li>• Appropriate sealing of joints</li> </ul>                |
| 5. Insulate and caulk doors and windows.                            | <ul style="list-style-type: none"> <li>• Appropriate method of installing insulation</li> <li>• Appropriate leakproofness at junctions of door and window frames</li> </ul> |
| 6. Ventilate the roof space.  | <ul style="list-style-type: none"> <li>• Appropriate choice of ventilation elements</li> <li>• Appropriate installation of deflectors</li> </ul>                            |

*For the competency as a whole:*

- Strict application of health and safety rules
- Appropriate work planning and organization
- Safe and effective use of tools and equipment
- Quality of finished product

### Suggestions for Competency-Related Knowledge and Know-How

The following is a summary of the knowledge, skills, strategies, attitudes and perceptions related to each element of the competency, along with their attendant guidelines.

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>• Select insulation and soundproofing.</li> </ul> <p>Related to elements 1, 2 and 6</p>  | <p>Choice of different types of insulation (e.g. loose, bat, rigid, semi-rigid, sprayed, mineral wool, fibreglass, fibreboard, polyurethane panels), choice of different types of soundproofing (e.g. wool, acoustic panels, resilient channels, drywall panels, acoustic sealer), familiarity with the appropriate use of products</p>   |
| <ul style="list-style-type: none"> <li>• Describe the standards, regulations and methods associated with building insulation and soundproofing.</li> </ul> <p>Related to elements 2, 3, 4 and 5</p> | <p>Familiarity with current standards and regulations; familiarity with the causes of noise propagation; identification of thermal bridges; method of installing bat insulation between wood or metal studs; appropriate methods of insulating and soundproofing foundations, floors, walls and ceilings; appropriate methods of insulating door and window frames, cantilevered floors, air ducts and pipes, etc.; familiarity with the insulating and acoustic value associated with different manufacturing principles</p> |
| <ul style="list-style-type: none"> <li>• Select, install and seal a vapour barrier.</li> </ul> <p>Related to elements 2, 4 and 5</p>  | <p>Advantages and disadvantages of different vapour barriers (e.g. aluminum foil, polyethylene membrane); methods of installing and sealing a vapour barrier around junction boxes, air ducts, pipes, end joists, wall junctions, etc.; identification of furring and backing under the polyethylene membrane</p>   |
| <ul style="list-style-type: none"> <li>• Describe the standards, regulations and methods associated with building ventilation.</li> </ul> <p>Related to element 6</p>                               | <p>Familiarity with current standards and regulations, familiarity with the possible causes of condensation and rot in a building, identification of the effects of poor ventilation (e.g. mould, frost in the roof space, condensation on walls and ceilings), method of installing vents (in gables, ridgeboards, overhangs, roofs), method of installing baffles</p>   |
| <ul style="list-style-type: none"> <li>• Protect column surfaces.</li> </ul> <p>Related to elements 2 and 4</p>   | <p>Method of covering and decorating concrete and steel columns, safe use of powder actuated fastener, choice of appropriate anchors</p>  |

Competency 16 Duration 105 hours Credits 7

***Behavioural Competency*****Statement of the Competency**

To do exterior finishing work.

**Achievement Context**

- Given drawings and specifications
- Working on pre-prepared surfaces
- Given information from the National Building Code of Canada
- Using the necessary tools, power tools, equipment, products and materials

**Elements of the Competency****Performance Criteria**

- |   |  |
|---|--|
| 1. Plan the work.   | <ul style="list-style-type: none"> <li>• Accurate interpretation of information</li> <li>• Appropriate planning of the quantity of materials needed</li> <li>• Appropriate choice and preparation of scaffolding and safety accessories</li> </ul> |
| 2. Install door and window frames.  | <ul style="list-style-type: none"> <li>• Observance of installation heights</li> <li>• Observance of squaring and levelling</li> <li>• Appropriate number of shims and anchors</li> </ul>  |
| 3. Cover architectural elements (door and window contours) with aluminum. | <ul style="list-style-type: none"> <li>• Appropriate installation of frame</li> <li>• Appropriate preparation of template</li> <li>• Cutting and bending consistent with frame</li> <li>• Observance of sequence of operations</li> </ul>          |
| 4. Install the flashing and mouldings.                                    | <ul style="list-style-type: none"> <li>• Leakproofness around openings and at joints with the foundation</li> <li>• Appropriate cutting of mouldings</li> <li>• Appropriate installation of mouldings</li> </ul>                                   |
| 5. Install exterior wood, vinyl and wood fibre finishing.                 | <ul style="list-style-type: none"> <li>• Appropriate cutting technique</li> <li>• Observance of techniques for installing finishing according to manufacturer's specifications</li> </ul>  |
| 6. Finish the eaves and overhangs.  | <ul style="list-style-type: none"> <li>• Appropriate installation of soffit cladding</li> <li>• Appropriate method of attaching the fascia</li> </ul>  |
| 7. Caulk around openings and intersections.                               | <ul style="list-style-type: none"> <li>• Appropriate choice of product</li> <li>• Appropriate installation method</li> </ul>   |
| 8. Verify the quality of the work.  | <ul style="list-style-type: none"> <li>• Thorough verification of the quality of the work</li> <li>• Appropriate repair of wall coverings</li> <li>• Concern for preserving the finish</li> </ul>  |

9. Tidy up the work area.

- Appropriate material recovery and storage

*For the competency as a whole:*

- Strict application of health and safety rules
- Appropriate planning and organization of work
- Safe and effective use of tools and equipment
- Work consistent with drawings
- Precise work
- Constant concern for the quality and appearance of the work
- Constant concern for the cleanliness of the work area

### **Suggestions for Competency-Related Knowledge and Know-How**

The following is a summary of the knowledge, skills, strategies, attitudes and perceptions related to each element of the competency, along with their attendant guidelines.

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|--|--|
| <ul style="list-style-type: none"> <li>• Inspect the framing.</li> </ul> <p>Related to element 1</p>                               | Orientation, solidity and spacing of furring depending on the finishing; correction of waves in the wall; verification of squaring and levelling of corners  |
| <ul style="list-style-type: none"> <li>• Select the exterior finishing.</li> </ul> <p>Related to element 1</p>                     | Choice of types of finishing: clapboard (e.g. wood, vinyl, wood fibre, aluminum, fibre cement); mechanically anchored brick, wood shingle, etc.  |
| <ul style="list-style-type: none"> <li>• Select doors and windows.</li> </ul> <p>Related to elements 1 and 2</p>                   | Choice of different doors and windows (e.g. steel, wood, vinyl, aluminum), method of installing doors (single, double, garage, patio), method of installing windows (e.g. vertical sash, casement, bow, bay), method of building the structure around a garage door                |
| <ul style="list-style-type: none"> <li>• Bend aluminum siding.</li> </ul> <p>Related to elements 1 and 3</p>                       | Choice of siding (thickness), choice of tools (e.g. brake, chisel, pliers, knife, punch), maintenance and adjustment of brake, method of making sheathing, preparation of a jig, establishment of sequence of operations, method of anchoring aluminum products, sealing of joints |
| <ul style="list-style-type: none"> <li>• Install vinyl and aluminum mouldings.</li> </ul> <p>Related to elements 4, 5, 6 and 7</p> | Methods of installing, cutting and overlapping mouldings (e.g. drip, corner, "J" and "L" gutters, transition); alignment and levelling of interior and exterior corners  |



Exterior Finishing	Code:	761797
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| <ul style="list-style-type: none"> <li>• Use methods of installing finishing.<br/>Related to elements 3, 4, 5, 6 and 7</li> </ul>                    | <p>Methods of installing and cutting clapboard (vinyl, wood fibre, solid wood), joining (e.g. lap joints, tongue-and-groove joints, corner joints), installation methods (horizontal, vertical, angular), verification of the alignment of the finishing (between openings, on all sides of the building), method of installing shims</p> |
| <ul style="list-style-type: none"> <li>• Repair the finishing.<br/>Related to element 8</li> </ul>   | <p>Recognition, by sight, of installation or manufacturing defects; repair method (tools, appearance)</p>   |
| <ul style="list-style-type: none"> <li>• Adjust different exterior finishings on the same building.<br/>Related to elements 3, 4, 5 and 6</li> </ul> | <p>Methods of adjusting different finishings on the same building (e.g. using a scribe or overlapping techniques)</p>   |
| <ul style="list-style-type: none"> <li>• Select the finishing for the soffit and fascia.<br/>Related to element 6</li> </ul>                         | <p>Choice of soffit (vinyl, aluminum, vented, plywood panel, chipboard), choice of fascia (vinyl, aluminum, wood), installation method, choice of anchors (staples, nails, screws)</p>  |
| <ul style="list-style-type: none"> <li>• Make sure the contours and intersections are leakproof.<br/>Related to elements 7 and 8</li> </ul>          | <p>Method of sealing contours of openings and intersections (choice and application of product), principle of insect-proofing (e.g. screen on end furring, closing of corners)</p>  |



Competency 17      Duration 120 hours      Credits 8

***Behavioural Competency***

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**Statement of the Competency**

To do interior finishing work.

**Achievement Context**

- Given drawings and specifications
- Working on pre-prepared surfaces
- Given information from the National Building Code of Canada
- Using electric and pneumatic tools and the necessary equipment and materials

**Elements of the Competency****Performance Criteria**

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- |   |  |
|---|--|
| 1. Plan the work.   | <ul style="list-style-type: none"> <li>• Accurate interpretation of information</li> <li>• Establishment of a logical sequence of operations</li> <li>• Appropriate planning of the quantity of materials needed</li> </ul>  |
| 2. Install furring and backing.                           | <ul style="list-style-type: none"> <li>• Positioning of furring consistent with current standards</li> <li>• Appropriate installation of furring and backing</li> </ul>  |
| 3. Install interior finishing on walls and ceilings.      | <ul style="list-style-type: none"> <li>• Appropriate cutting and installation techniques</li> <li>• Appropriate anchoring consistent with manufacturer's standards</li> </ul>  |
| 4. Insulate exterior door and window frames.              | <ul style="list-style-type: none"> <li>• Appropriate choice of materials</li> <li>• Precise cutting</li> <li>• Appropriate installation</li> </ul>   |
| 5. Install interior doors, architraves and accessories.   | <ul style="list-style-type: none"> <li>• Proper construction of frame</li> <li>• Precise installation of doors and related hardware</li> <li>• Appropriate adjustment of:               <ul style="list-style-type: none"> <li>– margins</li> <li>– squaring</li> <li>– levelling</li> </ul> </li> </ul> |
| 6. Install supports for closet shelving and clothes rods. | <ul style="list-style-type: none"> <li>• Precise cutting</li> <li>• Observance of current rules and standards</li> <li>• Appropriate anchoring and sanding</li> </ul>  |

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| 7. Install suspended ceilings.          | <ul style="list-style-type: none"> <li>• Correct positioning based on a sketch of the position of the panels and main tees</li> <li>• Appropriate positioning and installation of wall angles and supports</li> <li>• Appropriate installation of main tees and cross tees</li> <li>• Correct installation of panels</li> </ul> |
| 8. Install wood and composite flooring. | <ul style="list-style-type: none"> <li>• Correct establishment of sequence of operations (installation, sanding, finishing)</li> <li>• Appropriate preparation of subfloor</li> <li>• Appropriate positioning of wood floorboards</li> <li>• Accurate installation of wood floorboards and composite panels</li> </ul>          |
| 9. Install baseboards.                  | <ul style="list-style-type: none"> <li>• Precise cutting</li> <li>• Appropriate anchoring method</li> </ul>   |
| 10. Verify the quality of the work.     | <ul style="list-style-type: none"> <li>• Thorough verification of the quality of the work</li> <li>• Concern for preserving the finish</li> <li>• Appropriate repair of wall and floor coverings</li> </ul>   |
| 11. Tidy up the work area.              | <ul style="list-style-type: none"> <li>• Appropriate material recovery and storage</li> </ul>   |

*For the competency as a whole:*

- Strict application of health and safety rules
- Appropriate planning and organization of work
- Safe and effective use of tools and equipment
- Work consistent with drawings
- Precise work
- Constant concern for the quality and appearance of the work
- Constant concern for the cleanliness of the work area

### **Suggestions for Competency-Related Knowledge and Know-How**

The following is a summary of the knowledge, skills, strategies, attitudes and perceptions related to each element of the competency, along with their attendant guidelines.

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|--|---|
| <ul style="list-style-type: none"> <li>• Select interior finishing materials.</li> </ul> | <p>Choice of wall and floor coverings (e.g. different types of drywall, suspended ceilings), choice of interior doors (solid wood, preassembled, folding, accordion), choice of finish mouldings (e.g. baseboards, window mouldings, chair rails, crown mouldings), choice of floor coverings (e.g. varnished or unvarnished floorboards, floating floor)</p> |
| <p>Related to elements 1 and 4</p>   |   |

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>• Plan the interior finishing.<br/>Related to element 1</li> </ul>                         | <p>Familiarity with the dimensions of products on the market, such as drywall panels, woodwork, ceiling mouldings, ceiling tiles and solid wood; familiarity with methods of anchoring coverings (e.g. nailing, screwing, gluing, suspending)</p>  |
| <ul style="list-style-type: none"> <li>• Correct defects in the framing.<br/>Related to elements 1 and 2</li> </ul>               | <p>Methods of straightening walls and ceilings (saw kerfs with shims or reinforcements), preparation of openings to receive doors</p>  |
| <ul style="list-style-type: none"> <li>• Prepare an access to the attic.<br/>Related to elements 1 and 2</li> </ul>               | <p>Construction and installation of a trap door</p>  |
| <ul style="list-style-type: none"> <li>• Install furring.<br/>Related to element 2</li> </ul>                                     | <p>Marking and installation methods, spacing of furring according to the National Building Code of Canada, positioning of backing (e.g. cupboards, curtain rods, electric baseboards)</p>  |
| <ul style="list-style-type: none"> <li>• Install soffits.<br/>Related to elements 2 and 3</li> </ul>                              | <p>Preparation of supports, construction methods (on-site, pre-assembled), anchoring method</p>  |
| <ul style="list-style-type: none"> <li>• Preassemble and install an interior door.<br/>Related to elements 4 and 5</li> </ul>     | <p>Method of constructing the frame, familiarity with methods of installing shims and levelling methods, comprehension of door handedness (left, right, reverse left, reverse right), methods of installing accessories (e.g. hinges, handles, door closers, locks, strike plates), methods of installing bifold doors</p> |
| <ul style="list-style-type: none"> <li>• Install a metal frame.<br/>Related to element 5</li> </ul>                               | <p>Choice of frame (e.g. welded, three-part), methods of installing metal frames, alignment and levelling methods</p>  |
| <ul style="list-style-type: none"> <li>• Define the height of suspended ceilings.<br/>Related to elements 1 and 7</li> </ul>      | <p>Choice of anchors depending on the structure, method of installing suspension wires, determination of the height the suspension wires are to be bent (e.g. using a laser, a tape measure, etc.)</p>   |
| <ul style="list-style-type: none"> <li>• Prepare the subfloor to receive the covering.<br/>Related to elements 1 and 8</li> </ul> | <p>Inspection and repair of subfloor defects (e.g. cracking, delaminating), verification of humidity in the subfloor, methods of installing coverings on wood panels and cement slabs, installation of membrane (insulating, soundproofing, water repellent), method of installing tiles (e.g. parquet, linoleum)</p>      |

- Identify problems associated with hardwood flooring.

Related to element 8

Types of problems: inappropriate storage (wood, floorboards or tiles), excessive humidity, shrinkage cracking, creaking, distortion (concave, convex), swelling of surfaces, etc.

- Be familiar with the steps involved in finishing wood floors.

Related to element 8

Sanding method (equipment, installation of paper on equipment, choice of paper, methods of using equipment), method of preparing wood filler, methods of applying finishes (e.g. with a roller, brush, sheepskin), types of finishes (e.g. polyurethane, urethane)

- Recognize problems associated with varnish.

Related to element 8

Types of problems: bubbles, dust, peeling, wrinkling, fragility, etc.

- Install woodwork.

Related to elements 4 and 9

Methods of cutting woodwork (coping, mitre, compound angle), installation methods (e.g. crown mouldings, architraves, chair rails)

- Repair walls and floors.

Related to elements 3, 8 and 10

Replacement of wood floorboards, repair of drywall panels, etc.

Competency 18      Duration 120 hours      Credits 8

***Behavioural Competency***

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**Statement of the Competency**

To build wood stairs.

**Achievement Context**

- Given instructions or specifications
- Given current regulations and standards
- Using a calculator
- Using marking instruments
- Using the appropriate tools and equipment
- Using the appropriate materials and hardware

**Elements of the Competency****Performance Criteria**

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- |  |   |
|--|---|
| 1. Plan the work.  | <ul style="list-style-type: none"> <li>• Accurate interpretation of information</li> <li>• Accurate calculations</li> <li>• Calculations consistent with actual dimensions</li> <li>• Organized planning of work</li> </ul>   |
| 2. Mark and cut stringers.                                     | <ul style="list-style-type: none"> <li>• Appropriate choice of materials</li> <li>• Appropriate marking method</li> <li>• Precise cutting</li> </ul>  |
| 3. Make the steps and risers and attach them to the stringers. | <ul style="list-style-type: none"> <li>• Organized establishment of sequence of operations</li> <li>• Appropriate choice of materials</li> <li>• Precision machining of parts</li> <li>• Observance of step and riser assembly methods for straight, L-shaped and spiral stairs</li> <li>• Accurate and constant measurement of steps and risers</li> </ul> |
| 4. Anchor the stairs.  | <ul style="list-style-type: none"> <li>• Appropriate work method</li> <li>• Appropriate anchoring technique</li> <li>• Precision cutting of head and foot</li> </ul>  |
| 5. Finish the stairs.  | <ul style="list-style-type: none"> <li>• Appropriate filling of holes</li> <li>• Appropriate sanding</li> <li>• Appropriate finishing of contour of stairwell</li> </ul>  |
| 6. Install the handrail and balusters.                         | <ul style="list-style-type: none"> <li>• Appropriate use of technique for installing anchors</li> <li>• Appropriate distance between balusters</li> <li>• Height of handrail consistent with current standards</li> </ul>   |

*For the competency as a whole:*

- Strict application of health and safety rules
- Work consistent with drawings
- Precise work
- Constant concern for the quality and appearance of the work
- Constant concern for the cleanliness of the work area

### **Suggestions for Competency-Related Knowledge and Know-How**

The following is a summary of the knowledge, skills, strategies, attitudes and perceptions related to each element of the competency, along with their attendant guidelines.

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>• Identify the different components of stairs.</li> </ul> <p>Related to element 1</p>  | <p>Types of open stringers (cut-out, notched), closed stringers, housed stringers and central stringers; familiarity with the terminology associated with stairs (e.g. step, riser, nosing, false stringer, tread length, flight, rise)</p>  |
| <ul style="list-style-type: none"> <li>• Be familiar with the different types of stairs and the related construction standards.</li> </ul> <p>Related to element 1</p>    | <p>Types of stairs: straight, L-shaped, spiral stairs, winders with balanced steps; familiarity with standards and regulations regarding stairs (National Building Code of Canada, municipal bylaws)</p>   |
| <ul style="list-style-type: none"> <li>• Do calculations for straight, L-shaped and spiral stairs.</li> </ul> <p>Related to element 1</p>                                 | <p>Calculations associated with risers, treads, runs, stairwells, headroom, balusters, handrails, etc.</p>   |
| <ul style="list-style-type: none"> <li>• Be familiar with the standard dimensions of components.</li> </ul> <p>Related to element 1</p>                                   | <p>Familiarity with the dimensions of the steps, risers, wall stringers and balusters on the market</p>  |
| <ul style="list-style-type: none"> <li>• Be familiar with the different methods of assembling steps, risers and stringers.</li> </ul> <p>Related to element 1</p>         | <p>Butt joints, tongue-and-groove joints, biscuit joints, cleats, metal brackets, screws, etc.</p>   |
| <ul style="list-style-type: none"> <li>• Make the stringers and wall stringers for straight, L-shaped and spiral stairs.</li> </ul> <p>Related to elements 1, 2 and 3</p> | <p>Development of full-scale working drawings, methods of marking spiral stairs (with a square, with a compass, by calculating), methods of cutting open stringers with a saw (e.g. portable circular saw, band saw, table saw, mitre saw), methods of notching stringers (with a radial saw, mitre saw, circular saw, router and jig), marking of wall stringers (with a square or jig), anchoring of stringers to wall, cleats, etc.</p> |



## Stairs

Code: 761818

- Select the method of anchoring and reinforcing the stairs and landings.

Related to elements 3 and 4

Methods of anchoring stairs (nails, screws, bolts, metal parts), methods of reinforcing stairs (e.g. wood supports, stops, etc.)

- Finish the contour of a stairwell.

Related to element 5

Choice of finish (e.g. plywood, solid wood, decorative mouldings), method of anchoring contour mouldings to the stairwell

- Describe different methods of finishing steps.

Related to element 5

Finishing methods: rounded edges, returned edges, mouldings, etc.

- Position and install balusters.

Related to element 6

Familiarity with standards and regulations respecting handrails and balusters (number of handrails depending on the use and width of the stairs, height of railing), methods of anchoring balusters and railings (e.g. dowels, pins, mortise and tenon, reinforcement)



Competency 19      Duration 15 hours      Credit 1

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## ***Situational Competency***

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### **Statement of the Competency**

To prepare to enter the work force.

### **Elements of the Competency**

- Identify the roles and responsibilities of the different organizations in the construction industry.
- Assess their fields of interest with respect to the job market.
- Do a synthesis of their training.

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### **Learning Context**

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#### **Information Phase**

- Learning about the main roles and responsibilities of organizations and employer and union associations during information meetings led by industry representatives.
- Learning about the laws and regulations governing labour relations in the construction industry.
- Learning about job search techniques in carpentry.
- Learning about job prospects in carpentry.

#### **Participation Phase**

- Receiving information about the topics addressed.
- Expressing their opinion and asking questions.
- Presenting their résumé and a cover letter.

#### **Synthesis Phase**

- Producing a report on their strengths and weaknesses with respect to the trade.
- Expressing their fields of interest with respect to the different types of carpentry.
- Explaining their job search process.

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### **Instructional Guidelines**

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- Create a climate that is conducive to personal growth and to the student's integration into the workforce.
- Encourage students to share their opinions with representatives of the trade.
- Provide students with an accurate perception of the trade.
- Provide students with the means of honestly and objectively assessing their fields of interest with respect to the different sectors of the construction industry.
- Encourage companies and organizations to participate actively.
- Make available relevant documentation about the different organizations in the construction industry and maintain a list of entrepreneurs.

## Participation Criteria

### Information Phase

- Participate in discussions and gather information on most of the topics to be covered.
- Express their views on the trade, relating these views to the information they have gathered.
- Present their résumé and a cover letter.

### Participation Phase

- Prepare a list of potential employers.
- Adequately express their fields of interest with respect to the job market.
- Participate in activities.

### Synthesis Phase

- Share their opinions and feelings about the trade.
- Present their job search approach.
- Participate in a meeting in order to produce a report.

## Suggestions for Competency-Related Knowledge and Know-How

The following is a summary of the knowledge, skills, strategies, attitudes and perceptions related to each phase of the learning context, along with their attendant guidelines.

### Information Phase

Learn about the resources available to carpenters.

Information about the Association de la construction du Québec (ACQ), the Association des constructeurs de routes et grands travaux du Québec (ACRGQTQ), the Association des entrepreneurs en construction du Québec (AECQ), the Association provinciale des constructeurs d'habitations du Québec (APCHQ), the Commission de la construction du Québec (CCQ); information about unions: the Centrale des syndicats démocratiques (CSD-Construction), the Confédération des syndicats nationaux (CSN-Construction), the Conseil conjoint de la Fédération des travailleurs du Québec (FTQ-Construction), the Conseil provincial du Québec des métiers de la construction "International" and the Syndicat québécois de la construction (SQC); information about the current collective agreement, benefits, etc.

Learn job search techniques.

Information on the various steps in a job search (e.g. résumé, cover letter, list of employers, visits to construction sites, networking, unions), follow-up techniques (e.g. in writing, by telephone, in person)

Learn about continuing training.

Information on continuing training and retraining for construction workers

Participation Phase

Talk with representatives of the trade.

Preparation of questions, acceptance of diverging views, respect for the other person

Discuss the accuracy of their perception of the trade.

Description of their perceptions of the job market, recognition of trade-related aptitudes and attitudes

Draw up a list of entrepreneurs as part of a job search.

Information about the company (e.g. sector of activity, number of employees, potential for advancement), submission of their résumé to selected employers

Synthesis Phase

Draw up a list of their aptitudes, preferences and fields of interest.

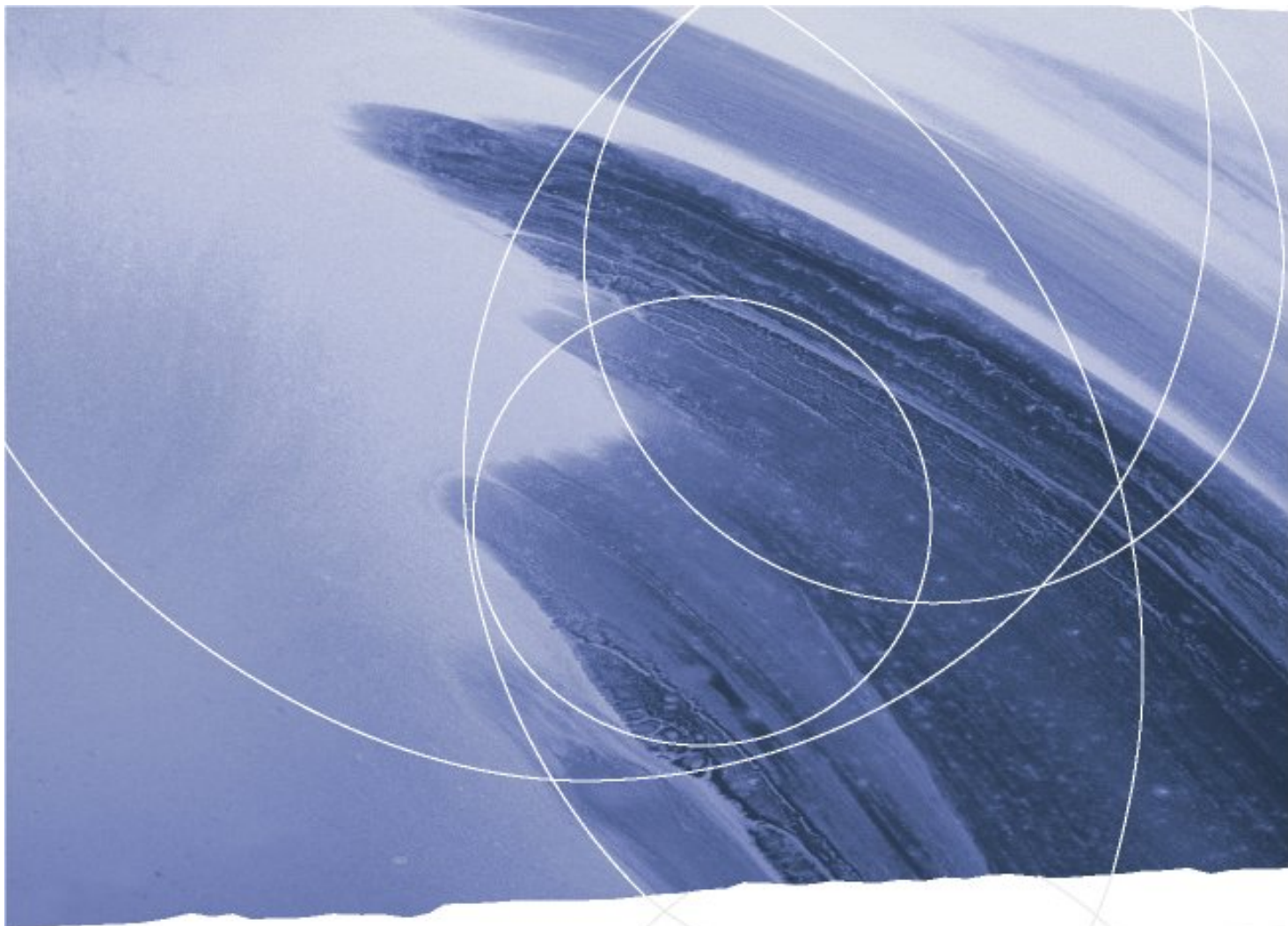
Self-evaluation of their aptitudes, preferences and fields of interest

Participate in a hiring interview.

Careful grooming, synthesis of training, evaluation of their abilities, feedback on the employability profile







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