Professional qualification of construction contractors

Competency profile

6.1 - Contractor – Wood structures

Régie du bâtiment Québec

This document was produced with the collaboration of the team of competency assessment advisors (Direction de la qualification) of the Régie du bâtiment du Québec.

In this document, the masculine gender is used without discrimination and solely for the sake of brevity.

Changes to the content may be made at any time.

Table of contents

Introduction

The person who passes the exam can act as a guarantor for construction work included in subclass 6.1 - Contractor – Wood structures.

This competency profile is based on the scope of application of the *Building Act*, as well as on Section (21-22-23 or 24) of the *Regulation respecting the professional qualification of contractors and owner-builders*.

Subclass definition

6.1 - Contractor – Wood structures

This subclass authorizes construction work relating to wood structures.

It also authorizes construction work in subclass 6.2 of Schedule III.

Finally, it authorizes similar or related construction work.

Module 1 – DEFINITIONS AND TYPES OF STRUCTURES

Elements of competency covered in this module:

1. Define concepts and terms related to wood structures
2. Describe the main characteristics of wood structures and their components
3. Define concepts and terms related to wood structures

Module 1 – DEFINITIONS AND TYPES OF STRUCTURES

Elements of competency	Skills required
1. Define concepts and terms related to wood structures	1.1. Define terms associated with wood structures: warping, moisture content, etc.
	1.2. Define “allowable deflection” (1/240; 1/360; 1/420, etc.)
2. Describe the main characteristics of wood structures and their components	2.1. Define the concepts of “live load,” “dead load” and “bearing surface”
	2.2. List the various loads that can act on a structure (snow, wind, earthquake, etc.)
	2.3. Explain the impact of a “lateral load” on a structure (causes, consequences, etc.)
	2.4. Explain the difference between a “concentrated load” and a “uniformly distributed load”
3. Define concepts and terms related to wood structures	3.1 Name the elements that make up the various structures and their functions
	3.2 Name the connections that ensure the stability of a structure
	3.3 Name the elements that make up bracing
	3.4 Name the various components that ensure the lateral stability of wood structures
	3.5 List the types of wood frame connections
	3.6 List the characteristics of wood and its derivatives (marking, moisture content, tolerance, termite protection, minimum wood quality) (9.3.2)
	3.7 Recognize the mechanical properties of visually graded lumber (from the lumber mark or stamp, MER)

Elements of competency	Skills required
	3.8 Identify the materials (qualities and grades) and their specific characteristics used on the market for wood structures (SPF, no. 1 and 2, OSB01-02, etc.)

Module 2 – LEGISLATIVE, NORMATIVE AND REGULATORY FRAMEWORK

Elements of competency covered in this module:

4. Situate wood structural work in relation to the various codes and standards in force

Module 2 – LEGISLATIVE, NORMATIVE AND REGULATORY FRAMEWORK

Elements of competency	Skills required
4. Situate wood structural work in relation to the various codes and standards in force	4.1. Identify and define the use of the parts and sections of the *Québec Construction Code, Chapter I: Building* applicable to wood structural work
	4.2. Define the role of the *Canadian Standards Association* (CSA)
	4.3. Identify the various standards applicable to wood structural work (CSA and others)
	4.4. Outline the scope of the various codes and standards applicable to wood structural work (materials, building types, etc.)
	4.5. Describe the links between the various codes and standards specific to wood structural work and the *Québec Construction Code, Chapter I: Building* (organizational structure)

Module 3 – PLANS AND SPECIFICATIONS

Elements of competency covered in this module:

5. Read and interpret drawings and plans of structures (wood)
6. Read and interpret the divisions of specifications relating to structures (wood)

Module 3 – PLANS AND SPECIFICATIONS

Elements of competency	Skills required
5. Read and interpret drawings and plans of structures (wood)	5.1. Locate the various elements of the various types of structures on a plan
	5.2. Locate wood structural elements on a plan
	5.3. Explain the meaning of the main symbols used in drawings of wood structures
	5.4. Locate, read and interpret the main dimensions and annotations of elements of wood structures
	5.5. Locate, read and interpret cross-sections and details associated with elements of wood structures
	5.6. Read and interpret general notes and tables associated with elements of wood structures
	5.7. Prepare the quantity survey for wood for the structure
	5.8. Read and interpret erection diagrams (or standard installation plans) for wood structures
	5.9. Read and interpret shop drawings for wood structures
6. Read and interpret the divisions of specifications relating to structures (wood) **(1995 17-division system with reference to the new 2004 49-division system)**	6.1. Define the divisions and sections of construction specifications associated with frameworks of a building
	6.2. Interpret information relating to wooden framework in specifications

Module 4 – STANDARDS AND EXECUTION OF WORK

Elements of competency covered in this module:

7. Plan and organize wood structural work
8. Manage the execution of wood structural work
9. Modify or renovate a wood structure
10. Ensure quality control of wood structural work
11. Ensure health and safety in relation to wood structural work

Module 4 – STANDARDS AND EXECUTION OF WORK

Elements of competency	Skills required
7. Plan and organize wood structural work	7.1. Communicate to the general contractor the limits of the work supplied by the wood structures contractor
	7.2. Determine the stages and logical order of execution of wood structural work
	7.3. Identify elements to be supplied by other disciplines but installed by the wood structures contractor
	7.4. Explain the importance of properly coordinating the interface (common boundaries) between the various disciplines on the site
	7.5. Describe the characteristics of wood structural projects that require plans and specifications
	7.6. Explain the process for modifying wood structures
	7.7. Explain how climatic conditions can affect wood structural work
	7.8. Determine the maximum weight of equipment that can be placed on a wood structure
8. Manage the execution of wood structural work	8.1. Explain when a structural element must be sized by an engineer
	8.2. Ensure that the quality of materials on the site meets the requirements of structural drawings and standards
	8.3. Explain proper practices for storing and protecting materials on the site (wood kept dry, not in contact with the ground, out of the sun, etc.)
	8.4. Use assembly drawings supplied by manufacturers for trusses and engineered wood
	8.5. Identify a maximum allowable deflection expressed in terms of a clear span (9.4.3)

Elements of competency	Skills required
	8.6. Determine the characteristics of wooden framework fasteners for small buildings (length and spacing, type and number depending on location) (9.23.3.4)
	8.7. Determine the maximum span for rafters, joists, beams and lintels in small buildings (application, length, etc.) (9.23.4.1 and 2)
	8.8. Determine the maximum span of a steel beam (9.23.4.3)
	8.9. Determine dimensions and spacing of studs (9.23.10)
	8.10. Determine dimensions and spans of lintels for load-bearing walls (9.23.12)
	8.11. Determine the maximum spacing allowed between two columns, beams or joists in small buildings (9.17 and 9.23)
	8.12. Determine scope of engineered wood from supplier tables
	8.13. Determine the minimum thickness required for floor, roof and wall panels and the requirements for flooring layers (ceramic base, etc.)
	8.14. Explain the corrections to be made to the maximum span of floors supporting a concrete covering in a small building (9.23.4.4)
	8.15. Explain the corrections to be made to the maximum span of roof elements that must carry additional dead loads imposed by roofing materials (9.23.4.5)
	8.16. Ensure that notches or cuts do not weaken load-bearing elements (9.23.5)
	8.17. Explain anchoring requirements (method, bolts) (9.23.6)
	8.18. Explain groundsill requirements (dimensions, location) (9.23.7)

Elements of competency	Skills required
	8.19. Explain the requirements for floor beams (assembly, supports, dimensions, position of joints, etc.) (9.23.8)
	8.20. Explain the applicable requirements and assembly methods for joists without beams (stirrups, overlaps, etc.)
	8.21. Explain floor joist requirements (supports, strapping, etc.) (9.23.9)
	8.22. Explain the functions, construction methods and requirements of floor bracing (cross-bridging, struts, laths)
	8.23. Explain the position allowed and load transfer required for load-bearing and non-load-bearing partitions parallel and perpendicular to joists
	8.24. Explain structural rules for cantilevers (maximum span, fastening, 1/3, 2/3, etc.)
	8.25. Explain the requirements for the temporary and permanent assembly and bracing of wall frames (bracing, steering, etc.) (9.23.10)
	8.26. Explain the requirements for sill plates and wall plates (dimensions, joints, etc.) (9.23.11)
	8.27. Explain roof and ceiling framing requirements for small buildings (location, notches, etc.) (9.23.13)
	8.28. Explain the functions, construction methods and requirements for the assembly and bracing of roof structures (trusses, rafters, etc.)
	8.29. Properly handle and brace roof trusses according to truss designer's specifications
	8.30. Ensure that elements are properly secured
	8.31. Ensure that lintels in load-bearing walls are adequately supported up to the sill plate

Elements of competency	Skills required
	8.32. Ensure that fire-rated connections are continuous to load-bearing elements or fitted with approved closures
	8.33. Ensure the presence of fire-stops in assemblies where required (junction of concealed spaces)
	8.34. Ensure structural stability during construction, when bracing elements are not installed
9. Modify or renovate a wood structure	9.1. Assess existing structures requiring modification, relocation or partial removal
	9.2. Explain the procedures to be followed when renovating a structure (temporary support, etc.)
10. Ensure quality control of wood structural work	10.1. List ways to ensure quality control of structural work
	10.2. List the tests and trials to be carried out on materials used in structural work
	10.3. Identify those responsible for the various stages of quality control of structural work
	10.4. Ensure the quality of materials (upon receipt, but also according to optimal storage conditions)
	10.5. Solve problems in the execution of structural work (solutions, schedule adjustments, etc.)
11. Ensure health and safety in relation to wood structural work	11.1. List fall-arresting devices and require their use by workers, where applicable *(Safety Code for the Construction Industry*, ss. 2.9 and 2.10.12 and 3.8)
	11.2. Ensure safe handling of wall sections during assembly
	11.3. Ensure safe handling of roof trusses when lifting them