Professional qualification of construction contractors

Competency profile

2.4 - Contractor – Private sewerage systems

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.

Content may be amended at any time.

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Introduction

Successful candidates may act as guarantors for construction work included in subclass 2.4 - Contractor – Private sewerage systems.

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

2.4 - Contractor – Private sewerage systems

This subclass authorizes construction work that is not the exclusive domain of master pipe mechanics and relates to the treatment of building wastewater as well as similar or related construction work.

Module 1 – DEFINITIONS AND TYPES OF SYSTEMS

Elements of competency covered in this module:

1. Define and explain concepts and terms related to wastewater treatment systems
2. Describe the characteristics of the various systems and components of a wastewater disposal and treatment system
3. Describe the characteristics of certain accessories and components of a wastewater disposal and treatment system
4. Understand the process of choosing and locating systems and components

Module 1 – DEFINITIONS AND TYPES OF SYSTEMS

Elements of competency	Skills required
1. Define and explain concepts and terms related to wastewater treatment systems	1.1. Explain the basic principles of a domestic wastewater treatment system
	1.2. Define the concepts of "wastewater," "grey water" and "clarified water"
	1.3. Define the concept of "soil absorption system"
	1.4. Describe the main characteristics of the three most common types of residential systems: circuit with a soil absorption system, circuit with a sand-filter bed, circuit with an advanced secondary treatment system
2. Describe the characteristics of the various systems and components of a wastewater disposal and treatment system	2.1. Describe the main characteristics of a septic tank and the environmental conditions for its installation
	2.2. Describe the main characteristics of a soil absorption field, the environmental conditions for its installation and the construction standards for its placement
	2.3. Describe the main characteristics of a seepage bed, the environmental conditions for its installation and the construction standards for its placement
	2.4. Describe the main characteristics of a seepage pit, the environmental conditions for its installation and the construction standards for its placement
	2.5. Describe the main characteristics of an above-ground sand-filter bed, the environmental conditions for its installation and the construction standards for its placement
	2.6. Describe the main characteristics of a standard sand-filter bed, the environmental conditions for its installation and the construction standards for its placement
	2.7. Describe the main characteristics of an advanced secondary treatment system and the environmental conditions for its installation

Elements of competency	Skills required
	2.8. Describe the main characteristics of a tertiary treatment system and the environmental conditions for its installation
	2.9. Describe the main characteristics of a leaching field, the environmental conditions for its installation and the construction standards for its placement
	2.10. Describe the main characteristics and uses of an effluent filter
	2.11. Describe the main characteristics and functions of a pumping station, dosing station and flow separator
	2.12. Describe the main characteristics and functions of a solids pump
	2.13. Describe the main characteristics and uses of the various delivery pipes and their connections
3. Understand the process of choosing and locating systems and components	3.1. Describe the typical approach used to determine the location and type of system to be installed (soil characterization, hydraulic capacity, etc.)
	3.2. Describe the hierarchical principle of the *Regulation respecting waste water disposal systems for isolated dwellings* (R.S.Q., c. Q-2, r.8) as applied to the choice of soil absorption systems

Module 2 – LEGISLATIVE, NORMATIVE AND REGULATORY FRAMEWORK

Elements of competency covered in this module:

4. Situate work related to wastewater treatment systems in relation to the various codes and standards in force

Module 2 – LEGISLATIVE, NORMATIVE AND REGULATORY FRAMEWORK

Elements of competency	Skills required
4. Situate work related to wastewater treatment systems in relation to the various codes and standards in force	4.1. Know the *Environment Quality Act* (R.S.Q., c. Q-2) and the *Regulation respecting waste water disposal systems for isolated dwellings* (R.S.Q., c. Q-2, r.8) (purpose, scope)
	4.2. Identify the types of work requiring a municipal permit and those requiring approval from the Ministry of the Environment
	4.3. Situate the municipality's role in applying the *Regulation respecting waste water disposal systems for isolated dwellings* (R.S.Q., c. Q-2, r.8)
	4.4. Identify situations requiring that a wastewater disposal and treatment system be designed by an engineer (systems over 3,240 litres/systems for buildings other than residences)
	4.5. Explain the role of the Bureau de normalisation du Québec and name the main NQ standards that apply to private sewerage systems

Module 3 – PLANS AND SPECIFICATIONS

Elements of competency covered in this module:

5. Read and interpret a standard report on the installation of a wastewater disposal and treatment system

Module 3 – PLANS AND SPECIFICATIONS

Elements of competency	Skills required
5. Read and interpret a standard report on the installation of a wastewater disposal and treatment system	5.1. Read and interpret the site's environmental characteristics
	5.2. Read and interpret test results
	5.3. Read and interpret the suggested system characteristics
	5.4. Read and interpret the installation plan
	5.5. Read and interpret installation elevations

Module 4 – STANDARDS AND EXECUTION OF WORK

Elements of competency covered in this module:

6. Plan and organize work related to the installation of a wastewater disposal and treatment system
7. Use a tripod level
8. Install a septic tank
9. Install a prefabricated pumping station or a dosing station depending on volume and flow rate
10. Install a soil absorption field
11. Install a seepage bed
12. Install an above-ground sand-filter bed
13. Install a standard sand-filter bed
14. Install special systems (advanced secondary or tertiary)
15. Complete the work
16. Ensure health and safety in connection with installation of water catchment works

Module 4 – STANDARDS AND EXECUTION OF WORK

Elements of competency	Skills required
6. Plan and organize work related to the installation of a wastewater disposal and treatment system	6.1. Ensure that all required permits and authorizations have been obtained
	6.2. Order and receive the materials required for the type of system selected (comply with manufacturer's specifications, compliance standards, etc.)
	6.3. Determine the logical order of execution for work to install wastewater disposal and treatment systems
	6.4. Plan site access and equipment positioning
	6.5. Verify compliance with required margins for sealed and unsealed system components
7. Use a tripod level	7.1. Define "benchmark," "foresight," "backsight" and "height of instrument"
	7.2. Describe and explain the functioning principle of the laser level
	7.3. Describe and explain the functioning principle of the transit level
	7.4. Calculate a slope
	7.5. Calculate height differences
8. Install a septic tank	8.1. Know the compliance codes for septic tanks
	8.2. Determine location, ensuring that design margins and slopes remain unchanged
	8.3. Excavate to the required level, ensuring that the soil characteristics identified during design remain unchanged
	8.4. Install the septic tank according to the rules of the trade
	8.5. Connect delivery and effluent pipes

Elements of competency	Skills required
	8.6. Install chimneys
9. Install a prefabricated pumping station or a dosing station depending on volume and flow rate	9.1. Identify the characteristics (height, length) that determine pump selection
	9.2. Excavate to required level
	9.3. Set up the pumping station
10. Install a soil absorption field	10.1. Determine location, ensuring that design margins and slopes remain unchanged
	10.2. Excavate to the required level, ensuring that the soil characteristics identified during design remain unchanged
	10.3. Install in compliance with regulatory standards and best practices
11. Install a seepage bed	11.1. Determine location, ensuring that design margins and slopes remain unchanged
	11.2. Excavate to the required level, ensuring that the soil characteristics identified during design remain unchanged
	11.3. Install in compliance with regulatory standards and best practices
12. Install an above-ground sand-filter bed	12.1. Determine location, ensuring that design margins and slopes remain unchanged
	12.2. Excavate to the required level, ensuring that the soil characteristics identified during design remain unchanged
	12.3. Install in compliance with regulatory standards and best practices
13. Install a standard sand-filter bed	13.1. Determine location, ensuring that design margins and slopes remain unchanged
	13.2. Excavate to the required level, ensuring that the soil characteristics identified during design remain unchanged

Elements of competency	Skills required
	13.3. Install in compliance with regulatory standards and best practices
14. Install special systems (advanced secondary or tertiary)	14.1. Determine location, ensuring that design margins and slopes remain unchanged
	14.2. Excavate to the required level, ensuring that the soil characteristics identified during design remain unchanged
	14.3. Check system compliance with *BNQ* standards
	14.4. Install in compliance with manufacturer's standards
15. Complete the work	15.1. Inform the owner of preventive measures for using the system
	15.2. Inform the owner about the maintenance of installed system components
16. Ensure health and safety in connection with installation of water catchment works	16.1. Identify the risks associated with the installation of a wastewater disposal and treatment system: lifting heavy objects, use of heavy machinery, contact with disease-carrying contaminated water, etc.
	16.2. Explain the precautions to be taken when installing a wastewater disposal and treatment system: safe lifting techniques, compliance with rules governing heavy machinery, use of gloves, appropriate vaccination, etc.