Professional qualification of construction contractors

# Competency profile

## 14.2 - Contractor – Lifts for persons with physical disabilities

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.

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# Introduction

The person who passes the exam can act as a guarantor for construction work included in subclass 14.2 - Contractor – Lifts for persons with physical disabilities.

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

**14.2 - Contractor – Lifts for persons with physical disabilities**

This subclass authorizes construction work that is not exclusively reserved for electrical contractors relating to lifts for persons with physical disabilities governed by the current edition of standards CAN/CSA B355 “Lifts for Persons with Physical Disabilities” and CAN/CSA B613 “Private Residence Lifts for Persons with Physical Disabilities,” rendered applicable by Chapter IV of the *Construction Code* and defined in those standards, and related construction work.

# Module 1 – DEFINITIONS AND TYPES OF SYSTEMS

## Elements of competency covered in this module:

1. Define concepts and terms relating to installations of lifts for persons with physical disabilities
2. Describe the characteristics and operating principles of different installations of lifts for persons with physical disabilities

## Module 1 – DEFINITIONS AND TYPES OF SYSTEMS

| Elements of competency | Skills required |
|---|---|
| **1. Define concepts and terms relating to installations of lifts for persons with physical disabilities** | 1.1. Define types of lifts: enclosed and unenclosed vertical lifts; stair lifts; stair platform lifts (features of a device under *B355* versus *B613*) |
| | 1.2. Define terms relating to the components and installation of lifts: shaft, platform, cylinder, pump, controller, final terminal stopping device, chain, etc. |
| | 1.3. Define the different types of vehicles: standing platform, wheelchair platform, platform for wheelchair and helper, two-person platform, wheelchair |
| | 1.4. Define driving machine types: suspension cable, pulley, drum drive, screw and nut, hydraulic, pinion, rack, etc. |
| | 1.5. Define operation types for control devices: continuous pressure, continuous pressure level selection |
| **2. Describe the characteristics and operating principles of various installations of lifts for persons with physical disabilities** | 2.1. Describe the different types of lift components (brake, car safety, controller, door and door lock, etc.) and explain their field of application |
| | 2.2. Explain the operating principles of the various lifts: hydraulic, traction, screw and nut |
| | 2.3. Explain the hazards that can arise when using a lift and their impact on installation (location, safety devices, etc.) |
| | 2.4. Explain the uses of the different types of electrical conductors and wiring used in installation of elevators |
| | 2.5. Describe and explain the features of normal and emergency power sources to which elevators can |

| Elements of competency | Skills required |
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| | be connected (distribution circuits, accumulators and generators, etc.) |

# Module 2 – LEGISLATIVE, NORMATIVE AND REGULATORY FRAMEWORK

## Elements of competency covered in this module:

3. Situate work related to installations of lifts for persons with physical disabilities in relation to codes, regulations and standards

## Module 2 – LEGISLATIVE, NORMATIVE AND REGULATORY FRAMEWORK

| Elements of competency | Skills required |
|---|---|
| **3. Situate work related to installations of lifts for persons with physical disabilities in relation to codes, regulations and standards** | 3.1. Identify the certification standards prescribed by current regulations for lift components (CSA, UL, ASME, WH) |
| | 3.2. Explain the impact of Bill 72, *An Act to amend the Environment Quality Act and other legislative provisions with regard to land protection and rehabilitation* in relation to the use of hydraulic systems (soil protection and decontamination) |
| | 3.3. Explain the impact of the *Act respecting labour relations, vocational training and manpower management in the construction industry* (R.S.Q., c. R-20, a. 20) and the *Regulation respecting the application of the Act respecting labour relations, vocational training and manpower management in the construction industry* (c. R-20, r.1) on the installation of lifts |
| | 3.4. Explain the impact of the *Act respecting workforce vocational training and qualification* (R.S.Q., c. F-5, a. 30) and the *Regulation respecting the vocational training and qualification of manpower, covering electricians, pipe fitters, elevator mechanics and electrical machinery operators in sectors other than the construction industry* (c. F-5, r.4) on the installation of lifts |
| | 3.5. Explain the links between the various laws, regulations and standards governing lift installation work *(Building Act* [R.S.Q., c. B-1, 1], *Construction Code*, *Chapter IV:* |

| Elements of competency | Skills required |
| --- | --- |
| | *Elevators and Other Elevating Devices*, B-355, NBC 95, municipal regulations, etc.) |
| | 3.6. Explain the scope and coverage of standards applicable to work in relation to lift installations *(B355-00; B613-00)* |
| | 3.7. Identify and define the application of the *Québec Construction Code, Chapter I: Building* and *Chapter IV: Elevators and Other Elevating Devices* in relation to lift work |
| | 3.8. Identify and define the application of the *Québec Construction Code, Chapter III: Plumbing* in relation to work on passenger and freight elevators (French drain) |
| | 3.9. Identify and define the application of the *Québec Safety Code, Chapter IV: Elevators and Other Elevating Devices* |
| | 3.10. Recognize the scope of the *Canadian Electrical Code* (Section 38) and the *Construction Code, Chapter V: Electricity* in relation to the installation of elevating devices |
| | 3.11. List the authorities and organizations involved in the application and regulation of lifts (SHQ, OPHQ, SAAQ, CSST, etc.) |

# Module 3 – PLANS, SPECIFICATIONS AND ESTIMATES

## Elements of competency covered in this module:

4. Evaluate work relating to installations of lifts for persons with physical disabilities, based on an estimate and a site visit
5. Read and interpret plans and drawings relating to installations of lifts for persons with physical disabilities
6. Estimate work relating to lifts for persons with physical disabilities

## Module 3 – PLANS, SPECIFICATIONS AND ESTIMATES

| Elements of competency | Skills required |
|---|---|
| **4. Evaluate work relating to installations of lifts for persons with physical disabilities, based on an estimate and a site visit** | 4.1. Interpret information on the general and specific requirements of specifications for installation of lifts |
| | 4.2. Validate the choice of device according to the scope of the various standards, the customer's specific needs, the type of building and its constraints, etc. |
| | 4.3. Check all dimensions and identify any modifications, details, accessories and materials required |
| **5. Read and interpret plans and drawings relating to installations of lifts for persons with physical disabilities** | 5.1. Locate lift installation elements on a plan (plan view, etc.) |
| | 5.2. Interpret the symbols used for lift installations |
| | 5.3. Locate, read and interpret the main dimensions and annotations associated with lift installations |
| | 5.4. Locate, read and interpret cross-sections and details associated with lift installations |
| | 5.5. Read and interpret general notes and tables associated with lift installations |
| **6. Estimate work relating to lifts for persons with physical disabilities** | 6.1. Identify an elevator that meets the requirements of plans and specifications, needs and standards |
| | 6.2. Propose renovations to an elevation system in accordance with a need and applicable standards |
| | 6.3. Ensure availability, delivery times and prices of the identified elevator |
| | 6.4. Determine required resources (labour, equipment, materials) and productivity rate for the work |
| | 6.5. Explain the particulars of payments and warranties (subsidized and non-subsidized work) |
| | 6.6. Complete, check and submit the bid |

# Module 4 – STANDARDS AND EXECUTION OF WORK

## Elements of competency covered in this module:

7. Plan work in relation to the installation of lifts for persons with physical disabilities
8. Provide shop drawings and all specifications required for work on lifts for persons with physical disabilities
9. Manage the execution of work to install lifts for persons with physical disabilities
10. Manage repair, inspection and maintenance work on lifts for persons with physical disabilities
11. Ensure health and safety in connection with installation and maintenance work on lifts for persons with physical disabilities

## Module 4 – STANDARDS AND EXECUTION OF WORK

| Elements of competency | Skills required |
|---|---|
| **7. Plan work in relation to the installation of lifts for persons with physical disabilities** | 7.1. Assess specific user needs that have an impact on installation of lifts |
| | 7.2. Order and receive materials and lifts |
| | 7.3. Plan installation steps according to manufacturer's recommendations |
| | 7.4. Explain inspection and approval requirements for lifts |
| | 7.5. Explain the importance of properly coordinating the interface (common boundaries) between the various disciplines on the site |
| **8. Provide shop drawings and all specifications required for work on lifts for persons with physical disabilities** | 8.1. Ensure the production of shop drawings and installation sketches for lifts |
| | 8.2. Transmit drawings and specifications required to complete the work to the various parties involved |
| | 8.3. Explain the particulars of the work as specified on plans (symbols, dimensions, annotations, sections, details) |
| | 8.4. Produce installation or modification sketches, as required |
| **9. Manage the execution of work to install lifts for persons with physical disabilities** | 9.1. Deliver and move materials and equipment on site |
| | 9.2. Identify the right location for the various work (electricity, concrete, mechanical room, etc.) |
| | 9.3. Provide work tools and communicate safe ways of using them |
| | 9.4. Make sure mechanics understand installation steps specified by the manufacturer |

| Elements of competency | Skills required |
|---|---|
| | 9.5. Ensure that no unauthorized modifications are made to the integrity of the walls, fire separations and structure |
| | 9.6. Resolve technical, coordination and other difficulties as work progresses |
| | 9.7. Control quality during work and once installation is complete (plans and standards) |
| | 9.8. Check the power supply from the disconnect switch to the controller (amperage, wire size, etc.) |
| | 9.9. Ensure that work related to the installation of the elevator is completed prior to start-up (electricity, etc.) |
| | 9.10. Ensure start-up, verification and functional testing (perform start-up tests in accordance with R.S.Q. c. B-1.1, r.0.01.01.1) |
| | 9.11. Educate and train users in the safe use of the lift |
| | 9.12. Ensure that work complies with standards, plans and manufacturer's specifications (REPEAT) |
| | 9.13. Ensure that use and maintenance manuals (and other forms) are given to the owner or the owner's representative |
| | 9.14. Ensure that the declaration of work required for the installation of lifts is filed |
| **10. Manage repair, inspection and maintenance work on lifts for persons with physical disabilities** | 10.1. Diagnose an operating problem on an elevating device |
| | 10.2. Identify solutions for repairing a lift |
| | 10.3. Explain the obligations regarding verification and maintenance performed on lifts (frequency, standards, manufacturers, engineers, devices subject to the *Safety Code* |

| Elements of competency | Skills required |
|---|---|
| | [R.S.Q. c. B-1.1, r.0.01.01.1] *[B355]* versus devices not subject to the Code *[B613]*) |
| | 10.4. Propose an appropriate maintenance program for the lift in compliance with the *Safety Code* (R.S.Q. c. B-1.1, r.0.01.01.1) |
| | 10.5. Describe how to perform tests and checks (visual, electrical, etc.) |
| | 10.6. Maintain in accordance with manufacturer's instructions or *Safety Code, Chapter IV: Elevators and Other Elevating Devices* (Appendix B) |
| | 10.7. Explain the dangers involved in using an elevator and the conditions that require it to be taken out of service |
| | 10.8. Ensure production of maintenance and repair reports (logbook) |
| **11. Ensure health and safety in connection with installation and maintenance work on lifts for persons with physical disabilities** | 11.1. Identify the hazards associated with the installation and maintenance of lifts |
| | 11.2. Explain the precautions to be taken when installing and maintaining lifts (confined space, under the platform, working at height, movement, handling, etc.) |
| | 11.3. Ensure the placement and safe use of scaffolding |