

# QUALIFICATION PROFILE

## 1.3 – Contractor — All buildings

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**CONTENTS SUBJECT TO MODIFICATION AT ANY TIME.**

We wish to thank the experts who contributed to work on this subclass:

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- Direction de la planification (DP)

In this document, the masculine form has been used in a non-discriminating manner for the sole purpose of ensuring reading ease.

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- Refer to the Construction Code (CQLR, c. B-1.1, r. 2)
- Refer to the Safety Code (CQLR, c. B-1.1, r. 3)
- Know the field of application of the Regulation respecting the guarantee plan for new residential buildings (CQLR, c. B-1.1, r. 8)
- Refer to the Regulation respecting the professional qualification of contractors and owner-builders (CQLR, c. B-1.1, r. 9)
- Comply with requirements of the Act respecting labour relations, vocational training and workforce management in the construction industry (CQLR, c.R-20)
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- Comply with requirements relating to energy efficiency
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- Comply with requirements relating to drainage

- Comply with requirements relating to foundations and footings
- Manage the execution of foundation work

### **Building's structure**

- Ensure compliance with requirements relating to structural design (part 4 of Chapter I, Building, of the Québec Construction Code)
- Understand load transfer mechanisms and the different types of structures
- Know the basic characteristics related to the structural strength of materials
- Manage the execution of structural work

### **Building's envelope (doors and windows, insulation and air and water tightness)**

- Comply with requirements relating to the building's envelope
- Comply with the special requirements of part 5 – Environmental separation, of Chapter I, Building, of the Québec Construction Code
- Comply with the special requirements of part 11– Energy efficiency, of Chapter I, Building, of the Québec Construction Code
- Manage the execution of work relating to the building's envelope, insulation, sheathing, vapour barrier and air and water tightness
- Comply with requirements relating to doors and windows
- Manage the execution of work on doors and windows
- Comply with requirements relating to materials, installations and equipment
- Comply with requirements relating to roof spaces

### **Fire protection**

- Define key terms relating to fire detection and alarm systems
- Comply with requirements relating to fire protection
- Comply with requirements relating to fire detection and alarm systems
- Comply with requirements relating to firefighting measures
- Comply with requirements relating to fire protection – exits
- Comply with requirements relating to fire protection – propagation of the fire
- Manage the execution of work relating to fire protection
- Comply with requirements relating to masonry and concrete chimneys and smoke pipes

### **Evacuation measures**

- Define key terms relating to evacuation measures
- Comply with requirements relating to evacuation measures
- Comply with requirements relating to accident prevention
- Comply with special requirements relating to tents and inflatable structures

### **Environmental separation**

- Define key terms relating to fire separations, spatial separations and the protection of façades
- Apply requirements relating to spatial separations and the protection of façades
- Establish a partition's fire resistance
- Comply with requirements relating to the integrity and fire resistance of fire separations
- Comply with requirements relating to the flame-spread rating of interior finishes
- Comply with requirements relating to sound insulation
- Manage the execution of work on interior divisions

### **Building mechanics**

- Ensure compliance with special requirements relating to heating, ventilating and air conditioning (part 6 of Chapter I, Building, of the Québec Construction Code)
- Ensure compliance with requirements relating to heating and air conditioning
- Ensure compliance with requirements relating to electrical installations
- Manage the execution of a building's electrical and mechanical work
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- Comply with the special requirements of Chapter I, Building, of the Québec Construction Code
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  - Part 9 – Housing and Small Buildings
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  - Part 11 – Energy Efficiency
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## **SUSTAINABLE DEVELOPMENT ..... 35**

- Be familiar with the principles of sustainable development applicable to work authorized by this subclass
- Apply design rules relating to sustainable development
- Apply sustainable development to construction and demolition
- Prepare the building for sound operation consistent with sustainable development

## **APPENDIX – COMPETENCE-BASED APPROACH (MODEL USED) ..... 38**

## LICENCE SUBCLASSES DEFINITIONS

### 1.3 – Contractor - All buildings

This subclass authorizes construction work on any building, including those of subclass 1.2, and construction work on inflatable structures referred to in paragraph 2 of section 3.4 of the Regulation respecting the application of the Building Act.

It also authorizes construction work relating to a new residential building in this subclass to the extent that the work is subcontracted on behalf of the holder of a licence in subclass 1.1.1 or 1.1.2.

This subclass authorizes construction work in subclasses 2.6, 3.1, 4.1, 5.1 and 6.1 of Schedule II relating to a building or inflatable structure covered by this subclass.

Lastly, it authorizes similar or related construction work.<sup>1</sup>

### 2.6 – Contractor - Piles and special foundations

This subclass authorizes construction work relating to soil mechanics such as piles and caissons, cofferdams, tiebacks, underpinnings or grouting of soil and rock.

It also authorizes construction work in subclass 2.5 of Schedule III.

Lastly, it authorizes similar or related construction work.<sup>1</sup>

### 3.1 – Contractor - Concrete structures

This subclass authorizes construction work relating to cast or precast structural concrete.

It also authorizes construction work in subclass 3.2 of Schedule III.

Lastly, it authorizes similar or related construction work.<sup>1</sup>

### 4.1 – Contractor - Masonry structures

This subclass authorizes construction work relating to structural masonry and masonry outer walls.

It also authorizes construction work in subclass 4.2 of Schedule III.

Lastly, it authorizes similar or related construction work.<sup>1</sup>

### **5.1 – Contractor - Metallic structures and pre-fabricated concrete elements**

This subclass authorizes construction work relating to metallic structures and steel structural elements as well as structural assembly work using prefabricated concrete elements.

It also authorizes construction work in subclass 5.2 of Schedule III.

Lastly, it authorizes similar or related construction work.<sup>1</sup>

### **6.1 – Concrete - Wood structures**

This subclass authorizes construction work relating to wood structures.

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

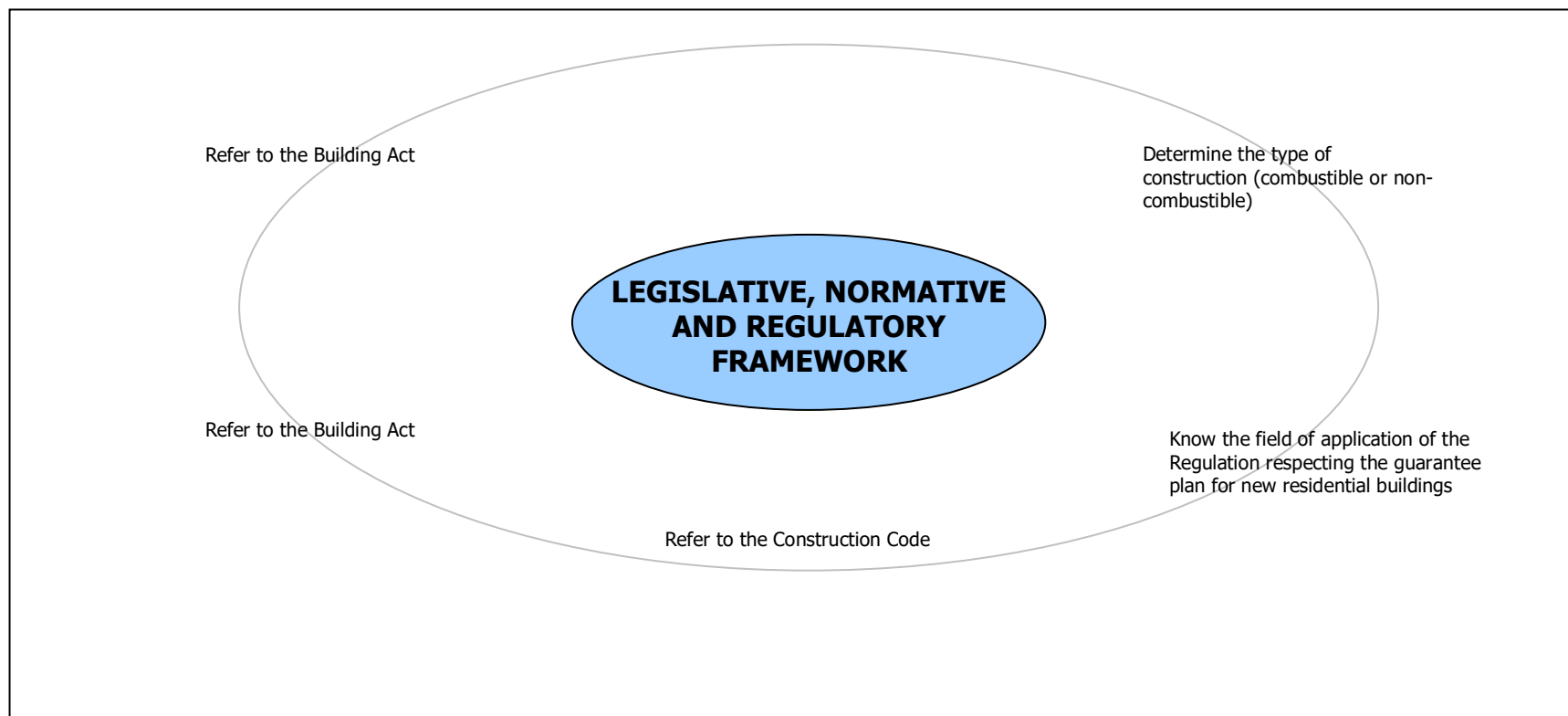
Lastly, it authorizes similar or related construction work.<sup>1</sup>

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<sup>1</sup> Source: *Regulation respecting the professional qualification of contractors and owner-builders.*

## LEGISLATIVE, NORMATIVE AND REGULATORY FRAMEWORK

### ELEMENTS OF COMPETENCE





## LEGISLATIVE, NORMATIVE AND REGULATORY FRAMEWORK

FIELDS OF EXPERTISE	ELEMENTS OF COMPETENCE	BASIC SKILLS REQUIRED
<b>Structures</b>	1. Refer to the Building Act (CQLR, c. B-1.1)	1.1. Refer to the Building Act
		1.2. Refer to the Regulation respecting the application of the Building Act
		1.3. Understand the notions involved in different and equivalent measures
		1.4. Understand the guarantor's obligations
<b>Structures</b>	2. Refer to the Construction Code (CQLR, c. B-1.1, r. 2)	2.1. Use the Construction Code's different chapters: <ul style="list-style-type: none"> <li>○ Chapter I, Building</li> <li>○ Chapter II, Gas</li> <li>○ Chapter III, Plumbing</li> <li>○ Chapter IV, Elevators and Other Elevating Devices</li> <li>○ Chapter V, Electricity</li> <li>○ Chapter VII, Passenger Ropeways</li> <li>○ Chapter VIII, Petroleum Equipment Installation</li> <li>○ Chapter IX, Amusement Rides and Devices</li> <li>○ Chapter X, Bathing Places</li> </ul>
		2.2. Distinguish: <ul style="list-style-type: none"> <li>○ Construction Code (CQLR, c. B-1.1, r. 2)</li> <li>○ National Building Code of Canada – 2010 (NBC) by the NRC</li> <li>○ Québec Construction Code – Chapter I, Building</li> <li>○ Municipal construction by-laws (specific to each city)</li> </ul>
		2.3. Ensure that all work subject to the Building Act is carried out in compliance with the appropriate standards and codes, notably those to which the different chapters of the Construction Code refer
		2.4. Understand how to determine what version of Chapter I, Building, of the Construction Code to use (based on the year, location, type of building, etc.)
		2.5. Know the field of application of the Québec Construction Code, Chapter I, Building

## LEGISLATIVE, NORMATIVE AND REGULATORY FRAMEWORK

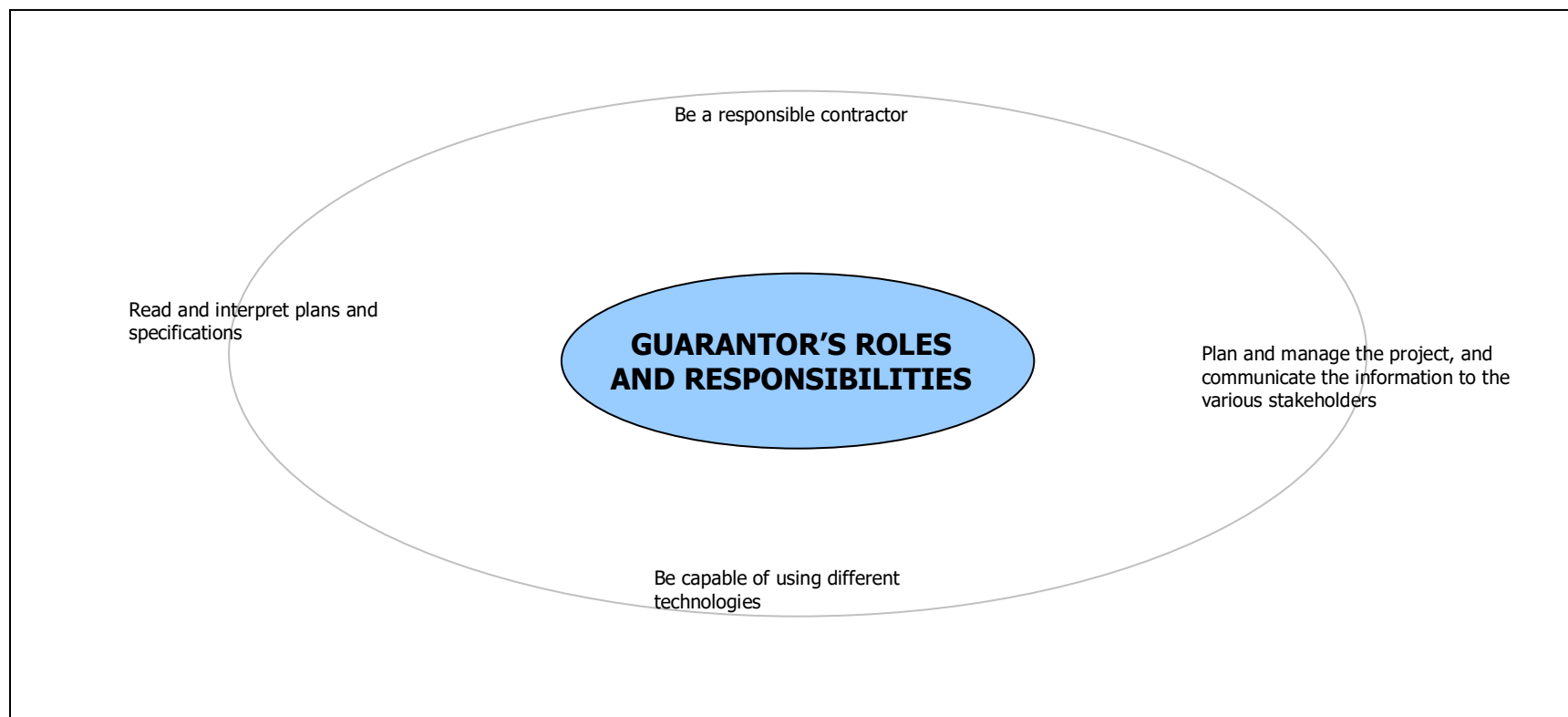
FIELDS OF EXPERTISE	ELEMENTS OF COMPETENCE	BASIC SKILLS REQUIRED
		<p>2.6. Understand the structure of the Construction Code, Chapter I, Building, and know how to locate the information required by the project</p> <p>2.7. Refer to the key terms defined in Chapter I, Building, of the Québec Construction Code</p>
<b>Structures</b>	3. Refer to the Safety Code (CQLR, c. B-1.1, r. 3)	<p>3.1. Use the Safety Code's different chapters:</p> <ul style="list-style-type: none"> <li>○ Chapter I, Plumbing</li> <li>○ Chapter II, Electricity</li> <li>○ Chapter III, Gas</li> <li>○ Chapter IV, Elevators and Other Lifts</li> <li>○ Chapter V, Passenger Ropeways</li> <li>○ Chapter VI, Petroleum Equipment Installation</li> <li>○ Chapter VII, Amusement Rides and Devices</li> <li>○ Chapter VIII, Buildings</li> </ul>
<b>Structures</b>	4. Know the field of application of the Regulation respecting the guarantee plan for new residential buildings (CQLR, c. B-1.1, r. 8)	4.1. Know the field of application of the Regulation respecting the guarantee plan for new residential buildings
<b>Structures</b>	5. Refer to the Regulation respecting the professional qualification of contractors and owner-builders (CQLR, c. B-1.1, r. 9)	<p>5.1. Master the application of the Regulation respecting the professional qualification of contractors and owner-builders</p> <p>5.2. Identify work authorized by the different classes and subclasses</p> <p>5.3. Establish interrelations between subclasses as well as subcontracting possibilities and obligations</p> <p>5.4. Ensure that all work subject to the Building Act is carried out by contractors with the appropriate subclass licence</p>
	6. Comply with requirements of the Act respecting labour relations, vocational training and workforce management in the construction industry (CQLR, c. R-20)	<p>6.1. Refer to the Act respecting labour relations, vocational training and workforce management in the construction industry</p> <p>6.2. Comply with requirements relating to a building's workforce in keeping with criteria specific to this act</p> <p>6.3. Know the regulations that apply to workers holding competency cards</p>

## LEGISLATIVE, NORMATIVE AND REGULATORY FRAMEWORK

FIELDS OF EXPERTISE	ELEMENTS OF COMPETENCE	BASIC SKILLS REQUIRED
<b>Structures</b>	7. Know the legislative, normative and regulatory framework relating to the construction of buildings	7.1. Know the fields of practice of the different professionals on the job site (architects, engineers, technologists, etc.)
		7.2. Identify work that is reserved exclusively for master electricians and master pipe mechanics
		7.3. Know the field of application of the Regulation respecting pressure vessels (CQLR, c. B-1.1, r. 6.1)
		7.4. Know the normative and regulatory framework relating to lifting equipment (equipment's conformity, fire separations or breaks, impact on barrier-free design, etc.)
		7.5. Refer to the Act respecting the conservation of energy in buildings (CQLR, c. E-1.1) and the Regulation respecting the conservation of energy in new buildings (CQLR, c. E-1.1, r. 1)
		7.6. Know the field of application of part 11 of the Québec Construction Code's Chapter I, Building
		7.7. Refer to the Environment Quality Act (CQLR, c. Q-2), to the Regulation respecting wastewater disposal systems for isolated dwellings (CQLR, c. Q-2, r. 22) and the Regulation respecting the quality of drinking water (CQLR, c. Q-2, r. 40)
		7.8. Know required distances for a septic field, as set forth in the Regulation respecting wastewater disposal systems for isolated dwellings
		7.9. Refer to the Act respecting land use planning and development (CQLR, c. A-19.1) and municipal zoning by-laws
		7.10. Refer to municipal by-laws relating to construction
		7.11. Refer to municipal by-laws relating to fire protection

## GUARANTOR'S ROLE AND RESPONSIBILITIES

### ELEMENTS OF COMPETENCE



## GUARANTOR'S ROLES AND RESPONSIBILITIES

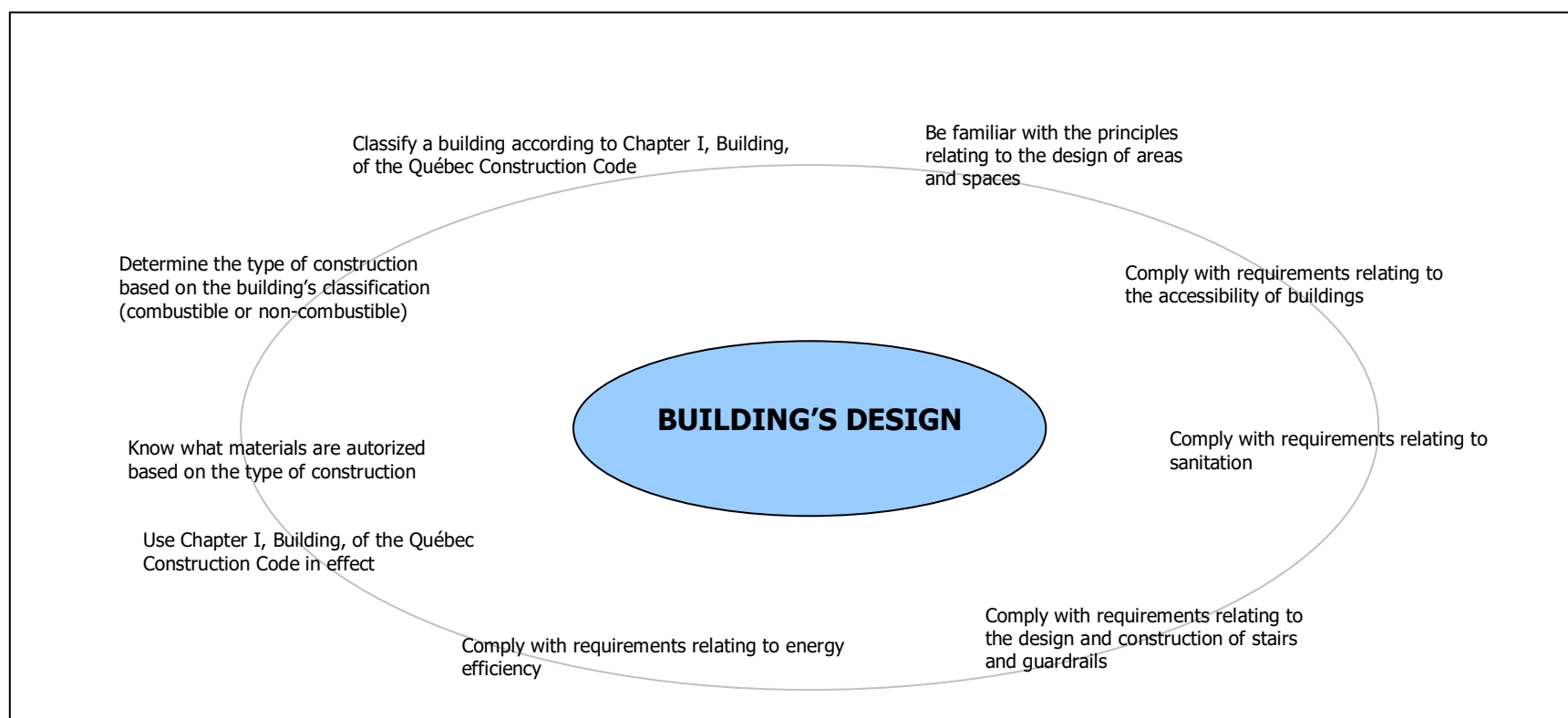
FIELDS OF EXPERTISE	ELEMENTS OF COMPETENCE	BASIC SKILLS REQUIRED
<b>Professional attitude</b>	8. Be a responsible contractor	8.1. Take the measures needed to comply with the requirements of the Québec Construction Code, Chapter I, Building (fire separations, exits, alarms, sprinklers, heights, etc.)
		8.2. Know the contractor's responsibilities with regards to compliance with the Building Act
		8.3. Understand the co-responsibility of the contractor and designer with regards to the quality of the work as it relates to articles 2101 et seq. of the Civil Code (CQLR, c. CCQ-1991)
		8.4. Understand the role of each of the stakeholders on the construction site
		8.5. Supervise the work of labourers and subcontractors on the job site
		8.6. Ensure the proper execution of the work
		8.7. Ensure that the mechanical elements installed in the building (ducts, pipes, etc.) remain in place if the structure moves
		8.8. Coordinate interrelations among the various stakeholders on the job site
		8.9. Ensure that materials delivered to the job site comply with plans and specifications
		8.10. Ensure that work on the job site is carried out by the book, in compliance with the legislative, regulatory and normative framework
		8.11. Be aware of the impact of failure to comply with good sustainable development practices
		8.12. Comply with municipal by-laws relating to construction projects
<b>Language</b>	9. Read and interpret plans and specifications	9.1. Recognize and interpret various elements of the plans and specifications
<b>Structures</b>	10. Be capable of using the different technologies	10.1. Have a knowledge of the basics of information technology as it relates to building information modeling
		10.2. Have a knowledge of the basics of different software such as word processing, spreadsheets and project management

## GUARANTOR'S ROLES AND RESPONSIBILITIES

FIELDS OF EXPERTISE	ELEMENTS OF COMPETENCE	BASIC SKILLS REQUIRED
<b>Procedures</b>	11. Plan and manage the project, and communicate the information to the various stakeholders	11.1 Use the information required for the building's construction and provided by the various technologies for the management of the project and its plans and specifications
		11.2 Plan the order in which the work must be carried out
		11.3 Use different visual tools such as the Gantt diagram

## BUILDING'S DESIGN AND CONSTRUCTION

### ELEMENTS OF COMPETENCE



## BUILDING'S DESIGN AND CONSTRUCTION

FIELDS OF EXPERTISE	ELEMENTS OF COMPETENCE	BASIC SKILLS REQUIRED
<b>Procedures</b>	12. Classify a building according to Chapter I, Building, of the Québec Construction Code.	12.1. Determine the building's height, surface area and use
		12.2. Refer to the Code to determine a building's classification (building uses, surface area, type of construction, height, average grade level, etc.)
	13. Determine the type of construction based on the building's classification (combustible or non-combustible)	13.1. Refer to the Construction Code, Chapter I, Building, to determine the type of construction authorized
		13.2. Take into account the building's characteristics based on the building's uses (presence of sprinklers, building height, fire separations, type of structures, etc.)
<b>Procedures</b>	14. Know what materials are authorized based on the type of construction	14.1. Apply requirements relating to combustible and non-combustible materials
		14.2. Understand the different types of materials permitted or required based on the type of construction (electrical wiring, insulation, pipework, etc.)
<b>Structures</b>	15. Use Chapter I, Building, of the Québec Construction Code in effect	15.1. Understand the structure of the information contained in Chapter I, Building, of the Construction Code
		15.2. Understand the Code's principle by objective
		15.3. Be able to locate, in the Code, the information required for the project
		15.4. Know if a building is subject to municipal or provincial regulations
		15.5. Be able to determine the chapters of the Building Act to which a project is subject, e.g.: <ul style="list-style-type: none"> <li>○ Chapter II – Construction work (Construction Code)</li> <li>○ Chapter III – Public safety (Safety Code)</li> <li>○ Chapter IV – Qualifications (licences)</li> </ul>
<b>Structures</b>	16. Comply with requirements relating to energy efficiency	16.1. Ensure that the building complies with prevailing regulations relating to energy efficiency
<b>Contents</b>	17. Comply with requirements relating to the design and construction of stairways and guardrails	17.1. Comply with requirements relating to guardrails
		17.2. Know the terms relating to stairways



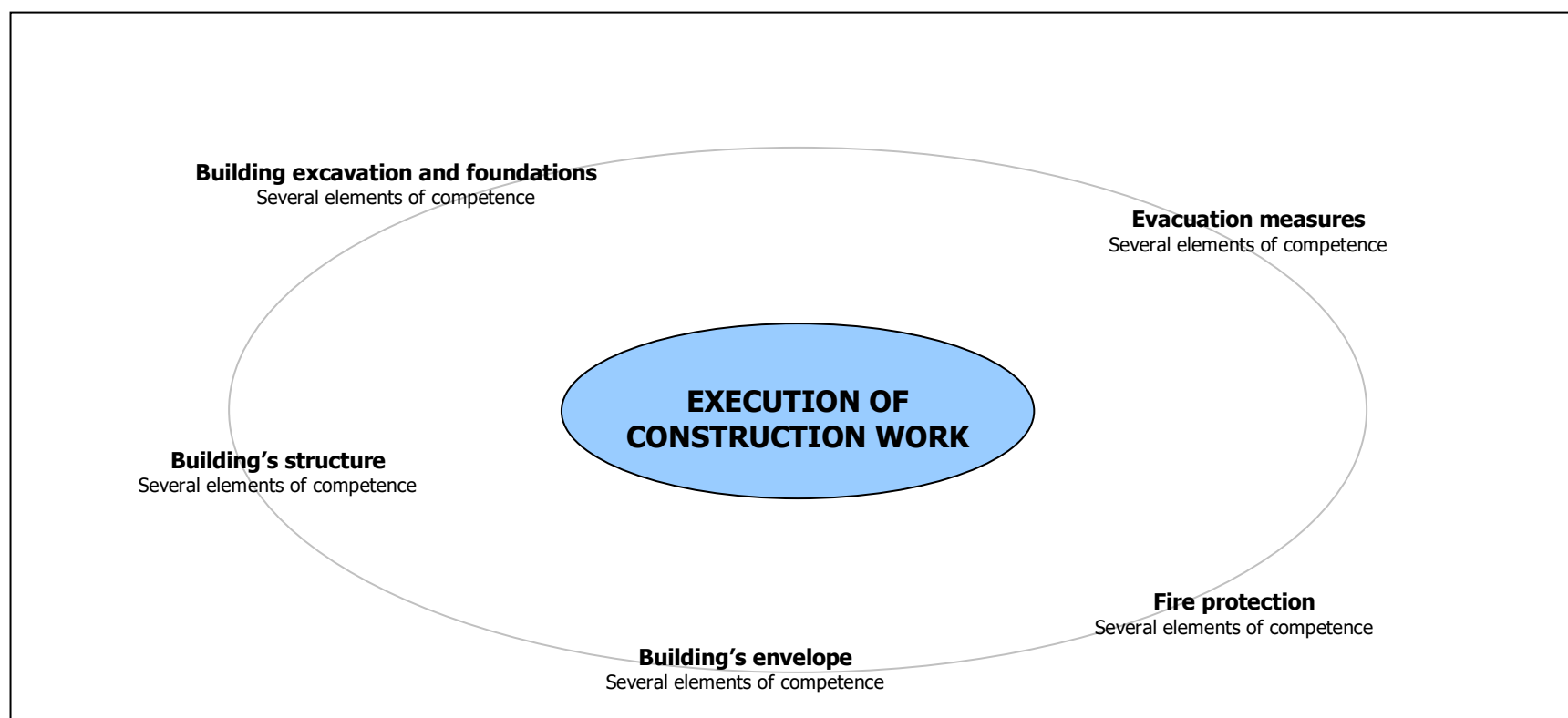
FIELDS OF EXPERTISE	ELEMENTS OF COMPETENCE	BASIC SKILLS REQUIRED
		17.3. Master the sizing of stairways
		17.4. Manage the execution of construction work on a stairway
		17.5. Comply with requirements relating to guardrails
<b>Structures</b>	18. Comply with requirements relating to sanitation	18.1. Comply with requirements relating to the number and type of sanitary facilities

## ACCESSIBILITY

FIELDS OF EXPERTISE	ELEMENTS OF COMPETENCE	BASIC SKILLS REQUIRED
<b>Structures</b>	19. Comply with requirements relating to the accessibility of buildings	19.1. Know what buildings are subject to accessibility requirements and barrier-free design
		19.2. Comply with requirements relating to accessibility and possible exemptions
		19.3. Comply with requirements relating to the protection of disabled persons on barrier-free floor areas
		19.4. Comply with requirements relating to adapted sanitary facilities, appropriate equipment, dimensions and manoeuvring areas
		19.5. Know about "barrier-free circulation" and related requirements (widths, floor openings, drops, slopes, thresholds, electric doors, parking stalls, access ramps, access to elevators or lifting devices for disabled persons, etc.)
<b>Contents</b>	20. Know the principles relating to the design of spaces and areas	20.1. Comply with requirements relating to a building's barrier-free accesses
		20.2. Comply with requirements relating to barrier-free circulation
		20.3. Comply with requirements relating to the accessibility and adaptability of buildings
		20.4. Comply with requirements relating to the clearance height of mezzanines

## EXECUTION OF CONSTRUCTION WORK

### ELEMENTS OF COMPETENCE



## EXECUTION OF CONSTRUCTION WORK

### Building excavation and foundations

FIELDS OF EXPERTISE	ELEMENTS OF COMPETENCE	BASIC SKILLS REQUIRED
<b>Contents</b>	21. Comply with requirements relating to excavation	21.1. Understand the importance of the excavation based on the depth of frost penetration
		21.2. Understand the importance of installing foundations on undisturbed soil
<b>Procedures</b>	22. Comply with requirements relating to backfilling	22.1. Refer to the appropriate standard for backfilling (part 4 of Québec Construction Code – Structural Design, Chapter I, Building)
		22.2. Ensure that the backfill material is acceptable
		22.3. Ensure that the type of soil on site is suited to the backfill
		22.4. Apply the positive slope line principle to backfilling
<b>Procedures</b>	23. Manage the execution of excavation and backfilling work	23.1 Determine the excavation slopes required based on the type of soil
		23.2 Recognize what situations require that a soil test be carried out by a specialized firm (types of soil, types of project, etc.)
		23.3 Recognize soil types and assess their loadbearing capacity (bearing pressure)
<b>Contents</b>	24. Comply with requirements relating to protection against moisture and the infiltration of underground gases	24.1. Comply with requirements relating to the sealing of concrete slabs
		24.2. Ensure that groundwater does not affect foundations
		24.3. Apply requirements relating to the protection of floors from the infiltration of underground gases
		24.4. Comply with requirements relating to the protection of walls against moisture
<b>Contents</b>	25. Comply with requirements relating to drainage	25.1. Ensure the underground drainage of foundations
		25.2. Ensure the drainage of surface waters

FIELDS OF EXPERTISE	ELEMENTS OF COMPETENCE	BASIC SKILLS REQUIRED
	26. Comply with requirements relating to foundations and footings	26.1. Comply with requirements relating to foundations and footings
<b>Procedures</b>	27. Manage the execution of foundation work	27.1. Check excavation levels before building foundations
		27.2. Build different types of foundations based on the soil and the load to be supported
		27.3. Install footing formwork taking setbacks into account
		27.4. Check the key path or anchoring sheet
		27.5. Supervise placement of the concrete
		27.6. Ensure adequate curing of the concrete
		27.7. Ensure proper control of the backfill
		27.8. Understand the notion of lateral force

### Building's structure

FIELDS OF EXPERTISE	ELEMENTS OF COMPETENCE	BASIC SKILLS REQUIRED
<b>Contents</b>	28. Ensure compliance with requirements relating to structural design (part 4 of Chapter I, Building, of the Québec Construction Code)	28.1. Identify, in the plans, errors or constraints that could interfere with the execution of the project
		28.2. Ensure compliance with requirements relating to temporary works such as temporary walls, scaffolding and formwork
		28.3. Understand the various loads that could affect the building
		28.4. Comply with requirements relating to foundations (materials used for the foundations, types of soil, etc.)
<b>Contents</b>	29. Understand load transfer mechanisms and the different types of structures	29.1. Understand the vocabulary related to different types of loads
		29.2. Identify the effects of wind, earthquakes, etc. on the building

FIELDS OF EXPERTISE	ELEMENTS OF COMPETENCE	BASIC SKILLS REQUIRED
		29.3. Understand the effects of loads on the structure 29.4. Know the characteristics of different types of loads 29.5. Identify critical load-transfer elements and locations 29.6. Understand the role of bracing and possible impact of its modification or absence
<b>Contents</b>	30. Know the basic characteristics related to the structural strength of materials	30.1. Know the specifications and characteristics of special piles and foundations 30.2. Know the specifications and characteristics of different types of concrete structures (precast concrete, concrete poured on site, ground slab, structural slab, etc.) 30.3. Know the specifications and characteristics of masonry structures (concrete blocks and bricks) 30.4. Know the specifications and characteristics of metal structures 30.5. Know the specifications and characteristics of precast concrete structures 30.6. Know the specifications and characteristics of light-frame wood structures 30.7. Know the specifications and characteristics of different types of solid wood-framed structures
<b>Procedures</b>	31. Comply with requirements relating to structural strength	31.1. Comply with the regulatory requirements relating to concrete structures 31.2. Comply with the regulatory requirements relating to masonry structures 31.3. Comply with the regulatory requirements relating to metal and precast concrete structures 31.4. Comply with the regulatory requirements relating to wood structures
<b>Procedures</b>	32. Manage the execution of structural work	32.1. Comply with structural plans and specifications, with special attention given to the span and alignment of supports (part 4 of Québec Construction Code, Chapter I, Building) 32.2. Recognize the possible impacts of failure to comply with structural plans and specifications 32.3. Ensure that structural elements comply with the regulatory requirements 32.4. Ensure the quality of materials and avoid exposing them to the elements

FIELDS OF EXPERTISE	ELEMENTS OF COMPETENCE	BASIC SKILLS REQUIRED
		32.5. Comply with span requirements relating to structural elements
		32.6. Order the appropriate roof trusses
		32.7. Properly handle and brace roof trusses in compliance with the manufacturer's specifications
		32.8. Ensure that structural elements are properly secured
		32.9. Ensure that the lintels of loadbearing walls are properly supported down to the sill plate
		32.10. Ensure that the building's mechanical and electrical work do not affect the structural integrity of the building

### Building's envelope

FIELDS OF EXPERTISE	ELEMENTS OF COMPETENCE	BASIC SKILLS REQUIRED
<b>Structures</b>	33. Comply with requirements relating to the building's envelope	33.1. Understand the functions of exterior cladding
		33.2. Ensure the integrity of the building's envelope
		33.3. Calculate the thermal resistance of an outer wall
<b>Contents</b>	34. Comply with the special requirements of part 5 – Environmental separation, of Chapter I, Building, of the Québec Construction Code	34.1. Understand the general principle of the vapour barrier
		34.2. Understand requirements relating to air and water tightness and ventilation
		34.3. Understand the drainage principle
<b>Contents</b>	35. Comply with the special requirements of part 11 – Energy efficiency, of Chapter I, Building, of the Québec Construction Code	35.1. Understand the field of application of part 11 – Energy efficiency, of Chapter I, Building, of the Québec Construction Code
		35.2. Comply with requirements relating to energy efficiency
		35.3. Comply with general requirements relating to the thermal resistance of the various elements to be insulated

FIELDS OF EXPERTISE	ELEMENTS OF COMPETENCE	BASIC SKILLS REQUIRED
<b>Procedures</b>	36. Manage the execution of work relating to the building's envelope, insulation, sheathing, vapour barrier and air and water tightness	36.1. Understand the characteristics of different types of insulation
		36.2. Comply with manufacturers' instructions
		36.3. Ensure the compatibility of materials
		36.4. Ensure that the function of structural elements is not compromised by cuts into them
		36.5. Ensure that all flashings are properly installed
		36.6. Ensure that all required air barriers are properly installed
		36.7. Ensure that all required vapour barriers are properly installed
		36.8. Ensure that all waterproofing membranes are present and properly installed
		36.9. Ensure that all required insulation is present and properly installed
		36.10. Ensure that foundations protect the building from the infiltration of underground gases
		36.11. Ensure the appropriate level of insulation for the required resistance
		36.12. Ensure that thermal breaks are limited
		36.13. Ensure that the level of thermal resistance of every element of the building's envelope complies with the regulatory requirements
		36.14. Ensure that ventilation ducts are insulated where required
		36.15. Ensure that windows and other openings are properly positioned in the wall's composition
		36.16. Ensure that caulking is properly installed
		36.17. Control sealing and insulation work to reduce heat loss and water infiltration through the building's envelope
<b>Structures</b>	37. Comply with requirements relating to doors and windows	37.1. Explain the cases where a guardrail or other measure is required to block the top-hinged or sliding part of windows and limit their opening (vertical or horizontal)

FIELDS OF EXPERTISE	ELEMENTS OF COMPETENCE	BASIC SKILLS REQUIRED
		37.2. Know doors' intrusion-resistance requirements 37.3. Comply with door threshold height requirements 37.4. Explain the minimum size requirements of a room's windows in a building without sprinklers
<b>Procedures</b>	38. Manage the execution of work on doors and windows	38.1. Call on an engineer in the case of major structural modifications 38.2. Ensure that doors and windows are properly installed 38.3. Ensure that doors and windows are installed in compliance with applicable standard 38.4. Comply with manufacturers' specifications
<b>Structures</b>	39. Comply with requirements relating to materials, installations and equipment	39.1. Understand the impact of the height of the groundwater table on admissible ground pressure 39.2. Understand techniques for protecting wood against termites and rot
	40. Comply with requirements relating to roof spaces	40.1. Explain the requirements relating to the ventilation of roof spaces



## Fire protection

FIELDS OF EXPERTISE	ELEMENTS OF COMPETENCE	BASIC SKILLS REQUIRED
<b>Language</b>	41. Define key terms relating to fire detection and alarm systems	41.1. Know the definitions of Québec Construction Code, Chapter I, Building, relating to fire protection
		41.2. Distinguish between a smoke detector and a smoke alarm
		41.3. Distinguish between a firewall and a fire separation
		41.4. Distinguish between an exit and an access to an exit
<b>Structures</b>	42. Comply with requirements relating to fire protection	42.1. Know the principle justifying requirements relating to the protection of an exit from a fire originating in a compartment
		42.2. Be familiar with standards applicable to fire protection
		42.3. Explain how to ensure the fire-protection rating of a blocking device
		42.4. Comply with requirements for limiting the spread of smoke in high-rise buildings
		42.5. Comply with special requirements applicable to high-rise buildings
		42.6. Comply with requirements relating to exits
		42.7. Comply with requirements relating to smoke alarms and smoke detectors
<b>Structures</b>	43. Comply with requirements relating to fire detection and alarm systems	43.1. Comply with requirements relating to the installation and verification of a fire alarm system
		43.2. Comply with requirements relating to the audibility of the fire alarm signal
		43.3. Name criteria for the loss of the signal's audibility
		43.4. Comply with requirements relating to smoke alarms
		43.5. Know the emergency electrical supply required for the fire alarm system
<b>Structures</b>		44.1. Understand the notion of access route

FIELDS OF EXPERTISE	ELEMENTS OF COMPETENCE	BASIC SKILLS REQUIRED
	44. Comply with requirements relating to firefighting measures	44.2. Comply with requirements relating to the access route 44.3. Ensure compliance with requirements relating to firefighting equipment
<b>Structures</b>	45. Comply with requirements relating to fire protection — exits	45.1. Comply with requirements relating to the size and opening direction of doors
		45.2. Comply with requirements relating to accesses to exits
		45.3. Comply with requirements relating to exits
		45.4. Comply with requirements relating to egress via hallways and exits through mezzanines
		45.5. Comply with requirements relating to egress from dwelling units with mezzanine or 2-storey units in apartment buildings
		45.6. Comply with the rule for determining requirements when there are several main uses
		45.7. Comply with requirements relating to common exits from housing units
		45.8. Comply with requirements relating to suspended ceilings
		45.9. Comply with requirements relating to the protection of mezzanines
		45.10. Comply with requirements relating to the protection of communicating areas
		45.11. Comply with requirements relating to an underground parking garage
<b>Structures</b>	46. Comply with requirements relating to fire protection — propagation of the fire	46.1. Comply with requirements relating to the integrity of fire separations
		46.2. Comply with key factors if a separation is required
		46.3. Understand notions of firewalls and fire separations
		46.4. Comply with requirements relating to the prevention of flame propagation
		46.5. Comply with requirements relating to protection from one compartment to the next (soffits, unprotected openings, etc.)
		46.6. Comply with requirements relating to blocking devices in fire separations

FIELDS OF EXPERTISE	ELEMENTS OF COMPETENCE	BASIC SKILLS REQUIRED
		<p>46.7. Comply with requirements relating to the protection of pipes and wires</p> <p>46.8. Comply with requirements relating to the obligation to install armoured glass</p> <p>46.9. Comply with wall and door sealing requirements</p> <p>46.10. Comply with the principle underlying spatial separation</p> <p>46.11. Comply with requirements for protecting roof spaces from fire</p> <p>46.12. Distinguish types of materials with a low flame-propagation rating from those with a high rating</p> <p>46.13. Comply with requirements relating to plastic foams</p> <p>46.14. Comply with requirements relating to the use of materials whose flame-propagation rating meets with the requirements of Québec Construction Code, Chapter I, Building</p> <p>46.15. Comply with requirements relating to fire alarm systems (based on use, size and number of persons)</p>
<b>Procedures</b>	47. Manage the execution of work relating to fire protection	<p>47.1. Ensure that any fire protection system required by plans and specifications is installed in compliance with standards in effect in Québec, by a contractor holding the appropriate subclass licence:</p> <ul style="list-style-type: none"> <li>○ Lightning protection (subclass 13.1)</li> <li>○ Fire alarm systems (subclass 13.2)</li> <li>○ Fire extinguishing systems (subclass 13.3)</li> <li>○ Local fire extinguishing systems (subclass 13.4)</li> </ul> <p>47.2. Understand the incorporation by reference of the standards in force used in Québec Construction Code, Chapter I, Building</p> <p>47.3. Comply with manufacturers' specifications without compromising compliance with the Construction Code</p> <p>47.4. Ensure the compliance of fire protection systems</p> <p>47.5. Ensure that the systems' components are firmly secured to structural elements</p>

FIELDS OF EXPERTISE	ELEMENTS OF COMPETENCE	BASIC SKILLS REQUIRED
		47.6. Ensure that work on fire protection systems does not affect the integrity of the building's structure or its fire separations
<b>Contents</b>	48. Comply with requirements relating to masonry and concrete chimney and smoke pipes	48.1. Refer to standards applicable to the different types of fireplaces

### Means of egress

FIELDS OF EXPERTISE	ELEMENTS OF COMPETENCE	BASIC SKILLS REQUIRED
<b>Structures</b>	49. Define key terms relating to means of egress	49.1. Know the terms relating to means of egress (evacuation measures)
<b>Procedures</b>	50. Comply with requirements relating to means of egress	50.1. Comply with distances established for means of egress (from accesses to exits and exits), in order to determine the number of exits required
		50.2. Comply with the required number of exits and accesses to exits
		50.3. Understand the notion of dead-end corridors
		50.4. Identify areas where requirements apply based on the opening direction of doors
		50.5. Comply with requirements relating to the fire protection of exits
		50.6. Comply with requirements relating to measures for the evacuation of mechanical rooms
		50.7. Calculate the number of persons who will be using exits at the same time, in order to establish requirements relating to exits
		50.8. Know notions relating to evacuation measures
<b>Structures</b>	51. Comply with requirements relating to accident prevention	51.1. Ensure well-balanced stairs
		51.2. Determine the height required for guardrails

## Means of egress

FIELDS OF EXPERTISE	ELEMENTS OF COMPETENCE	BASIC SKILLS REQUIRED
		51.3. Comply with the requirements of Québec Construction Code, Chapter I, Building, when designing stairs
		51.4. Comply with requirements relating to panic bars on doors
<b>Structures</b>	52. Comply with requirements relating to tents and inflatable structures	52.1. Comply with requirements relating to evacuation measures applicable to tents and inflatable structures
		52.2. Understand the requirements relating to the clearance of tents and inflatable structures from other structures

## Environmental separation

FIELDS OF EXPERTISE	ELEMENTS OF COMPETENCE	BASIC SKILLS REQUIRED
<b>Structures</b>	53. Define key terms relating to fire separations, spatial separations and the protection of façades	53.3. Be familiar with the definitions of Québec Construction Code, Chapter I, Building, relating to the separation of different environments
<b>Contents</b>	54. Apply requirements relating to spatial separations and the protection of façades	54.1. Calculate the percentage of unprotected openings allowed based on limiting distance, compartmentalization and the building's use
		54.2. Comply with requirements relating to the protection of exits and walls exposed to another wall
<b>Language</b>	55. Establish a partition's fire resistance	55.1. Understand the method for calculating the fire resistance rating of a partition, wall, floor, roof, service space and mechanical room
<b>Structures</b>	56. Comply with requirements relating to the integrity and fire resistance of fire separations	56.1. Comply with requirements relating to the integrity of fire separations (blocking devices, fire dampers, ducts, wiring, pipes, gaskets, valves, ventilation ducts, kitchen hoods and bathroom fans, concealed spaces, etc.)
		56.2. Comply with requirements relating to the compartmentalization of attics
		56.3. Comply with requirements relating to firewalls and fire separations

## Environmental separation

FIELDS OF EXPERTISE	ELEMENTS OF COMPETENCE	BASIC SKILLS REQUIRED
<b>Contents</b>		56.4. Know the different compositions of walls authorized as fire separations
		56.5. Comply with requirements relating to allowable openings, over-evaluation (possibility of exceeding the roof), and authorized materials
		56.6. Apply rules relating to firewalls, fire separations and fire barriers
		56.7. Maintain the integrity of a fire separation
<b>Contents</b>	57. Comply with requirements relating to the flame-spread rating of interior finishes	57.1. Understand how the required flame-spread rating is calculated
		57.2. Identify the flame-spread rating of an interior finish
		57.3. Comply with requirements relating to interior finishes
<b>Contents</b>	58. Comply with requirements relating to sound insulation	58.1. Refer to the table of Québec Construction Code, Chapter I, Building, regarding the sound insulation and fire resistance of walls
		58.2. Comply with sound transmission requirements between different environments
		58.3. Be familiar with a building's soundproofing principles
		58.4. Contain and control the different types of sound in a building
<b>Mastery of procedures</b>	59. Manage the execution of work on interior divisions	59.1. Ensure compliance with the specifications prescribed by the approval number when an assembly requires a fire rating or soundproofing
		59.2. Ensure that assemblies requiring a fire rating extend to loadbearing elements or are fitted with approved blocking devices
		59.3. Ensure that openings in walls comply with regulations governing soundproofing between different environments
		59.4. Ensure that gypsum board and other finishing panels are installed according to best practices
		59.5. Ensure the presence of anti-lift devices for suspended ceilings when fire resistance is required

## Environmental separation

FIELDS OF EXPERTISE	ELEMENTS OF COMPETENCE	BASIC SKILLS REQUIRED
		59.6. Ensure that the fire separation has the required fire resistance rating
		59.7. Provide adequate nailing bases where required
		59.8. Ensure that divisions are installed in compliance with plans and specifications

## Building mechanics

FIELDS OF EXPERTISE	ELEMENTS OF COMPETENCE	BASIC SKILLS REQUIRED
<b>Contents</b>	60. Ensure compliance with special requirements relating to heating, ventilating and air conditioning (part 6 of Chapter I, Building, of the Québec Construction Code)	60.1. Name the characteristics of each type of HVAC equipment
		60.2. Name the criteria that can determine the installation procedure for this type of equipment (the installation's positioning in the building, the presence of gas or dust, cooking equipment, etc.)
		60.3. Ensure the compliance of the parking garages' ventilation systems
<b>Contents</b>	61. Ensure compliance with requirements relating to heating and air conditioning	61.1. Provide for adequate clearance of ducts
		61.2. Refer to applicable heating and air conditioning standards
		61.3. Comply with requirements relating to the protection of pipes and ducts
		61.4. Distinguish between natural and mechanical ventilation
<b>Contents</b>	62. Ensure compliance with requirements relating to electrical installations	62.1. Ensure compliance with the general requirements applicable to heating and air conditioning installations contained in Chapter I, Building, of the Construction Code
		62.2. Ensure compliance with regulations relating to electrical installations

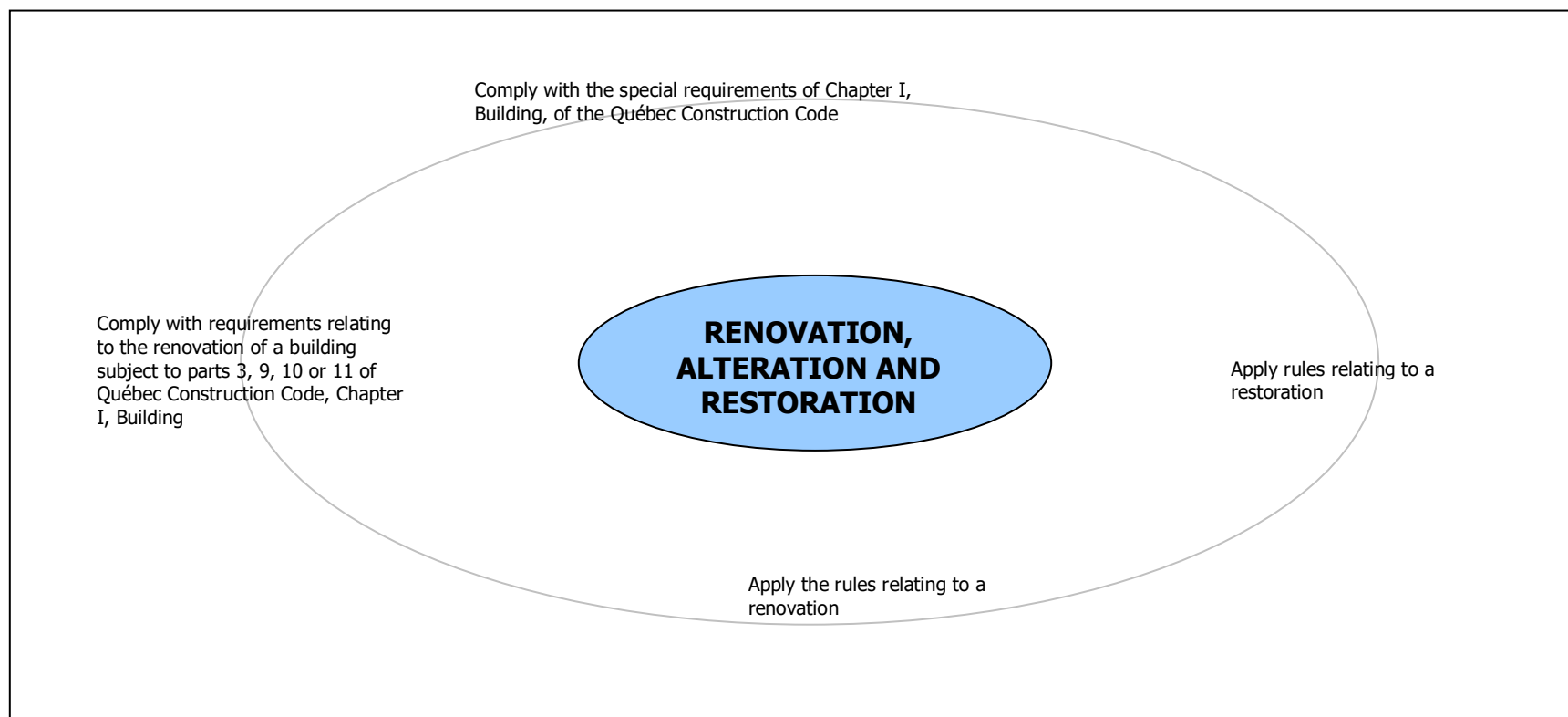
## Building mechanics

FIELDS OF EXPERTISE	ELEMENTS OF COMPETENCE	BASIC SKILLS REQUIRED
		62.3. Ensure compliance with proper practices relating to energy efficiency
		62.4. Comply with requirements relating to the installation of charging stations for electric vehicles
<b>Procedures</b>	63. Manage the execution of a building's electrical and mechanical work	63.1. Ensure compliance with plans for electrical and plumbing work
		63.2. Ensure compliance with rules relating to the accessibility and adaptability of buildings
		63.3. Comply with requirements relating to sumps and drainage pits
	64. Ensure the integrity of fire separations	64.1. Ensure the integrity of fire separations when piercing them to allow for the passage of pipes, ducts, or wiring



## RENOVATION, ALTERATION AND RESTORATION

### ELEMENTS OF COMPETENCE



## RENOVATION, ALTERATION AND RESTORATION

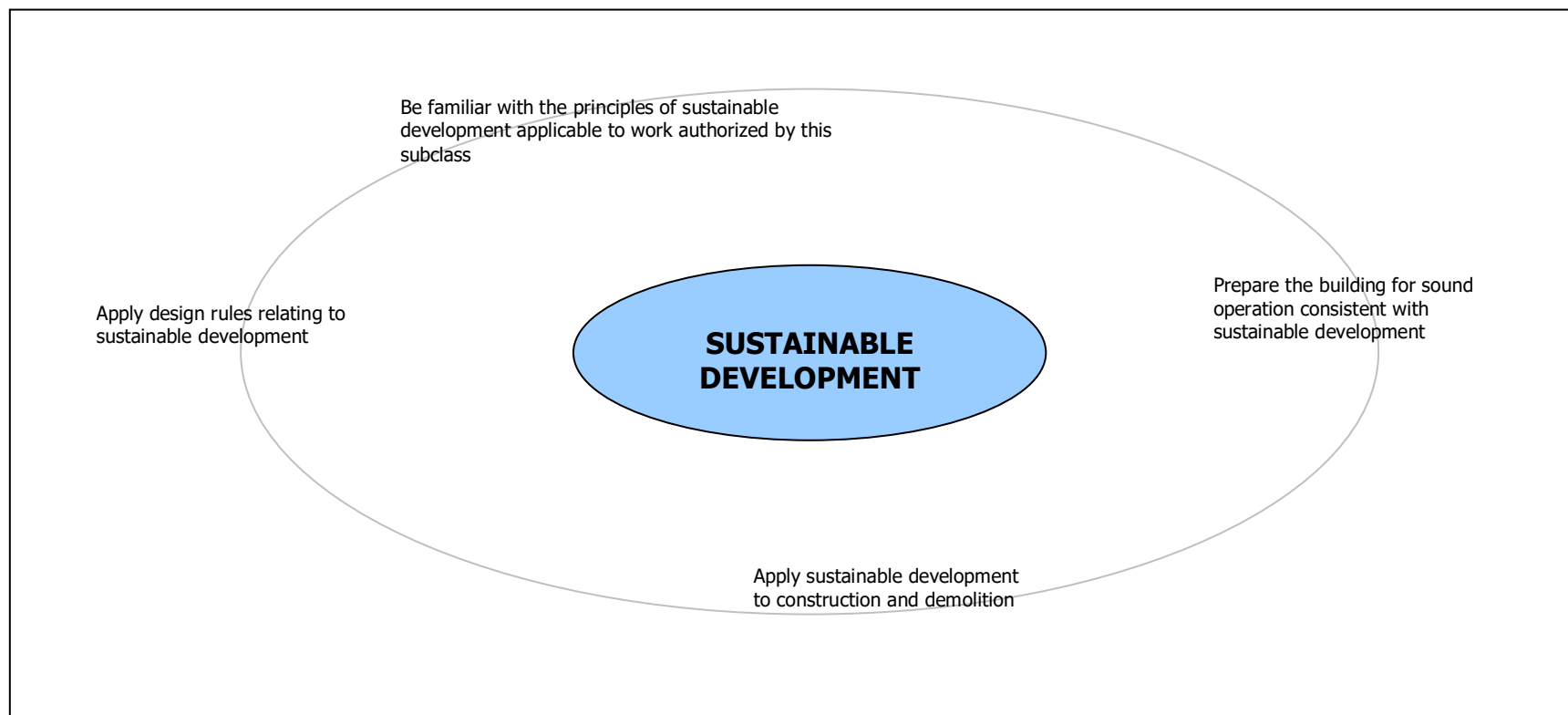
FIELDS OF EXPERTISE	ELEMENTS OF COMPETENCE	BASIC SKILLS REQUIRED
<b>Structures</b>	65. Comply with the special requirements of Chapter I, Building of the Québec Construction Code	65.1. Be familiar with the fields of application of part 10 of the Québec Construction Code, Chapter I, Building
		65.2. Be familiar with the objective of part 10 of the Québec Construction Code, Chapter I, Building
		65.3. Distinguish between the following notions: "maintenance", "repairs", "alteration" and "upgrading to current standards"
		65.4. Be familiar with exemptions to the application of the Québec Construction Code, Chapter I, Building (article 10.2.2.1 of the Building Act [RLRQ, B-1.1])
		65.5. Comply with requirements relating to evacuation measures in cases where they serve the altered part of a building
		65.6. Comply with requirements relating to alarm systems
		65.7. Comply with the safety requirements of the altered part of a building
<b>Procedures</b>	66. Comply with requirements relating to the renovation of a building subject to parts 3, 9, 10 and 11 of Chapter I, Building, of the Québec Construction Code <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <ul style="list-style-type: none"> <li>Part 3 – Fire Protection, Occupant Safety and Accessibility</li> <li>Part 9 – Housing and small buildings</li> <li>Part 10 – Existing Buildings under Alteration Maintenance Work or Repair Work</li> <li>Part 11 – Energy Efficiency</li> </ul> </div>	66.1. Develop a strategy for renovation work on a building subject, among others, to part 3 of the Construction Code, in order to comply with its requirements
		66.2. Develop a strategy for renovation work on a building subject, among others, to part 9 of Québec Construction Code, Chapter I, Building, in order to comply with its requirements
		66.3. Anticipate the impact of changes to the building's use on its mechanics
		66.4. Determine the work to be carried out in a renovation
		66.5. Determine the work to be carried out when expanding an existing building
		66.6. Comply with the legislative framework relating to sustainable development
<b>Procedures</b>	67. Apply rules relating to a renovation	67.1. Ensure that the structural alterations comply with the Construction Code's requirements
		67.2. Ensure that the tightness of the building's envelope is maintained

## RENOVATION, ALTERATION AND RESTORATION

FIELDS OF EXPERTISE	ELEMENTS OF COMPETENCE	BASIC SKILLS REQUIRED
		67.3. Ensure that the integrity of fire separations and firewalls is maintained
		67.4. Ensure that the building's safety is maintained while work is being carried out (exits, alarm systems, sprinklers, etc.)
<b>Procedures</b>	68. Apply rule relating to a restoration	68.1. Know the differences between renovation, alteration and restoration
		68.2. Determine what buildings are classified as heritage buildings
		68.3. Be familiar with the specific nature of heritage buildings

## SUSTAINABLE DEVELOPMENT

### ELEMENTS OF COMPETENCE

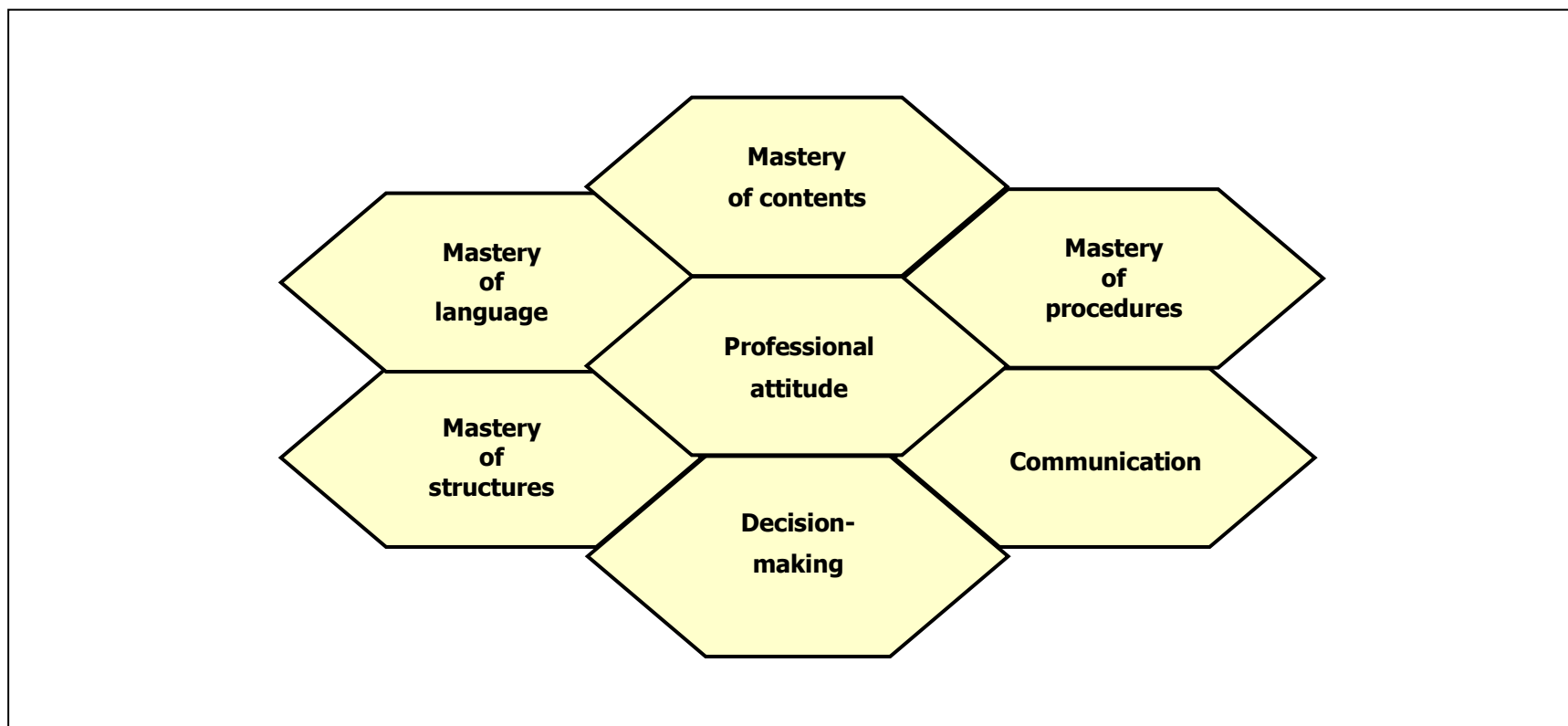


## SUSTAINABLE DEVELOPMENT

FIELDS OF EXPERTISE	ELEMENTS OF COMPETENCE	BASIC SKILLS REQUIRED
<b>Language</b>	69. Be familiar with the principles of sustainable development applicable to work authorized by this subclass	69.1. Be familiar with the principles of sustainable development applicable to many different types of buildings
		69.2. Understand the key design criteria involved in a sustainable building
		69.3. Be familiar with the key sustainable development certifications and reference standards
		69.4. Build according to the building's projected service life
		69.5. Be familiar with techniques and equipment reducing the consumption of drinking water
		69.6. Be familiar with techniques and equipment allowing the management of rainwater and the reuse of grey waters
		69.7. Apply energy conservation principles
		69.8. Ensure the proper management of construction, renovation and demolition waste (CRD)
<b>Structures</b>	70. Apply design rules relating to sustainable development	70.1. Be familiar with criteria for the selection of preferred sites
		70.2. Establish design strategies integrating the principles of sustainable development
		70.3. Know the criteria to identify ecological materials
		70.4. Identify projects where wood would be the preferred structure, further to the objectives of the Wood Charter
		70.5. Understand the directives and explanatory guide "Mass timber buildings of up to 12 storeys" (complementing the NBC 2010 Modified Québec)
		70.6. Favour the use of local wood species, trees harvested in compliance with sustainable practices and pieces of recycled wood or wood non-imbued with prohibited products
		70.7. Identify already built or existing elements that can be recovered

## SUSTAINABLE DEVELOPMENT

FIELDS OF EXPERTISE	ELEMENTS OF COMPETENCE	BASIC SKILLS REQUIRED
		70.8. Identify elements of the built heritage that can be preserved
		70.9. Understand the design of housing units that can be adapted to allow individuals of diminished autonomy to remain in their home as long as possible (grow home)
		70.10. Have the ability to provide professional designers with concepts related to sustainable buildings
<b>Structures</b>	71. Apply sustainable development to construction and demolition	71.1. Identify construction, renovation, deconstruction and demolition strategies that make it possible to limit the loss of materials
		71.2. Adapt the storage and handling of materials to protect them from the elements and preserve their quality
<b>Procedures</b>	72. Prepare the building for sound operation consistent with sustainable development	72.1. Build to facilitate the building's maintenance and prevent the development of mildew and fungal contamination once its construction is complete (dry rot, etc.)

**APPENDIX – COMPETENCE-BASED APPROACH (MODEL USED)****CONSTRUCTION CONTRACTOR'S QUALIFICATION PROFILE**

## ELEMENTS OF COMPETENCE (examples)

<b>Contents:</b>	<ul style="list-style-type: none"> <li>Know the information</li> <li>Know specific concepts</li> <li>Know general concepts</li> </ul>	<b>Professional attitude:</b>	<ul style="list-style-type: none"> <li>Be open</li> <li>Be critical</li> <li>Be supportive</li> <li>Be autonomous</li> <li>Be creative</li> <li>Be responsible</li> </ul>
<b>Language:</b>	<ul style="list-style-type: none"> <li>Understand the symbols</li> <li>Understand the representation system</li> <li>Understand meanings</li> <li>Translate meanings</li> </ul>	<b>Communication:</b>	<ul style="list-style-type: none"> <li>Understand the role of stakeholders</li> <li>Understand contexts</li> <li>Understand intentions</li> <li>Understand messages</li> <li>Formulate messages</li> </ul>
<b>Structures:</b>	<ul style="list-style-type: none"> <li>Categorize elements</li> <li>Understand mechanisms</li> <li>Understand laws</li> <li>Understand systems</li> <li>Make inferences</li> </ul>	<b>Decision-making:</b>	<ul style="list-style-type: none"> <li>Use information</li> <li>Set goals</li> <li>Develop a plan</li> <li>Solve problems</li> <li>Carry out projects</li> </ul>
<b>Procedures:</b>	<ul style="list-style-type: none"> <li>Know the operations</li> <li>Know the sequence of operations</li> <li>Know standards of execution</li> <li>Execute procedures</li> <li>Automate the execution of procedures</li> </ul>		

### **NOTE**

The model used to develop the qualification profile is inspired by the work of **DISCAS**, education consultants.