



GENERAL AND SPECIFIC OBJECTIVES 2019

LICENSING AUTHORITIES WHICH RECOGNIZE THE ExAC ARE:

- Alberta Association of Architects [AAA]
- Architectural Institute of British Columbia [AIBC]
- Architect's Association of New Brunswick [AANB]
- Architects Association of Prince Edward Island [AAPEI]
- Architects Licensing Board of Newfoundland & Labrador [ALBNL]
- Manitoba Association of Architects [MAA]
- Newfoundland and Labrador Association of Architects [NLAA]
- Nova Scotia Association of Architects [NSAA]
- Ontario Association of Architects [OAA]
- Ordre des architectes du Québec [OAQ]
- Saskatchewan Association of Architects [SAA]
- The Northwest Territories Association of Architects [NWTAA]

THEME PROGRAMMING

- general objective **1.1 Understand the process involved in developing an architectural program**
- specific objectives 1.1.1 Identify the components of an architectural program.
- 1.1.2 Describe the process involved in developing an architectural program.
- 1.2 Analyze an architectural program**
- 1.2.1 Analyze an architectural program from the point of view of project constraints and opportunities.
- 1.2.2 Analyze the program from the point of view of the site components.
- 1.2.3 Analyze the program from the point of view of the proposed budget.
- 1.2.4 Analyze the program from the point of view of the client's objectives.
- 1.2.5 Analyze the program from the point of view of the spatial requirements.
- 1.2.6 Analyze the program from the point of view of sustainable design principles.

THEME SITE AND ENVIRONMENTAL ANALYSIS

- general objective **2.1 Understand the principles related to the siting of a project**
- specific objectives 2.1.1 Explain the physical, cultural and regulatory factors associated with site planning.
- 2.1.2 Explain the urban design issues and planning processes that influence the design of a building on a specific site.
- 2.1.3 Identify strategies for addressing environmental issues during the evaluation of a site.
- 2.2 Apply the principles of site design**
- 2.2.1 Given a specific site, selected physical factors and design criteria, determine the site design options.
- 2.2.2 Apply the principles of grading and storm water management to site design.
- 2.2.3 Describe the relationship between the energy performance of a building, its placement on the site and the site design.
- 2.2.4 Describe the impact of universal accessibility on site design.
- 2.3 Analyze data relevant to the site for a project**
- 2.3.1 Explain data obtained from environmental and engineering reports.
- 2.3.2 Explain data obtained from a land surveyor's drawing and a topographical map.
- 2.3.3 Compare site design solutions based on specific criteria.

THEME COORDINATING ENGINEERING SYSTEMS (STRUCTURAL, MECHANICAL, ELECTRICAL, CIVIL)

general objective **3.1 Understand engineering systems**

- specific objectives
- 3.1.1 Explain the principles and properties of the structural system (foundations, superstructure).
 - 3.1.2 Explain the principles and properties of the mechanical system (plumbing, heating, ventilation, air conditioning, fire protection).
 - 3.1.3 Explain the principles and properties of the electrical system (lighting, electrical supply and distribution, fire alarm system, security and communications systems).
 - 3.1.4 Explain the principles and properties of the civil engineering system (drainage, water supply, infrastructure).

3.2 Analyze engineering systems and their impact on a project

- 3.2.1 Analyze the advantages and limitations of structural systems.
- 3.2.2 Analyze the advantages and limitations of mechanical systems.
- 3.2.3 Analyze the advantages and limitations of electrical systems.
- 3.2.4 Analyze the advantages and limitations of civil engineering systems.
- 3.2.5 Analyze the impact of the integration of the engineering systems on building performance.

3.3 Coordinate engineering systems documentation

- 3.3.1 Describe ways to coordinate with the consultants.
- 3.3.2 Identify the key stages at which coordination should occur.
- 3.3.3 Coordinate the engineering systems documentation with the architectural documentation.

THEME COST MANAGEMENT

general objective **4.1 Understand the factors influencing cost**

- specific objectives
- 4.1.1 Identify the factors influencing cost.
 - 4.1.2 Explain how these factors influence cost.

4.2 Evaluate costs

- 4.2.1 Evaluate the project cost in relation to the program and the program and the conditions for completing the project.
- 4.2.2 Provide recommendations to a client on following a value analysis.

4.3 Compare the various cost estimating methods

- 4.3.1 Differentiate between cost estimating methods.

4.4 Apply the various cost estimating methods to a project

- 4.4.1 Identify the resources available for the preparation of a cost estimate.
- 4.4.2 Differentiate between construction costs, project costs and overall costs.
- 4.4.3 Apply the appropriate estimating method to a specific situation.

THEME NATIONAL BUILDING CODE OF CANADA

- general objective **5.1 Understand the scope and application of the National Building Code to the design, construction and occupancy of buildings**
- specific objectives
- 5.1.1 Identify which parts of the Code apply to various building types.
 - 5.1.2 Explain the Division B appendices in Volume 2 of the Code.
 - 5.1.3 Determine the scope and application of the standards which are referenced in the Code.
- 5.2 Apply the minimum standards of the National Building Code to a building governed by Part 3 of Division B**
- 5.2.1 Apply the classification and construction requirements to a building project.
 - 5.2.2 Interpret the Code requirements concerning fire safety.
 - 5.2.3 Interpret the Code requirements concerning floor area safety.
 - 5.2.4 Interpret the Code requirements concerning barrier-free design.
 - 5.2.5 Interpret the Code requirements concerning sound transmission.
 - 5.2.6 Interpret the Code requirements concerning exits.
 - 5.2.7 Interpret the Code requirements concerning health.
- 5.3 Apply the minimum standards of the National Building Code to a building governed by Part 9 of Division B which is in the construction documents phase**
- 5.3.1 Apply prescriptive Code requirements concerning structural design.
 - 5.3.2 Apply prescriptive Code requirements concerning safety.
 - 5.3.3 Apply prescriptive Code requirements concerning health.
 - 5.3.4 Apply prescriptive Code requirements concerning envelope design.
- 5.4 Understand the requirements for achieving design compliance using alternative solutions, as set out in Division A and in Subsection 1.1.2. of Division B of the National Building Code**
- 5.4.1 Identify the proper application of an alternative solution in a building design.
 - 5.4.2 Identify Code objectives and their application.
 - 5.4.3 Identify the functional statements associated with a Code requirement.
 - 5.4.4 Identify the documents and information required to file an alternative design solution.

THEME SCHEMATIC DESIGN

general objective **6.1 Understand aspects of schematic design**

- specific objectives
- 6.1.1 Identify the information required at the schematic design, phase.
 - 6.1.2 Determine the engineering services required at the schematic design phase.
 - 6.1.3 Identify the documentation required to obtain the client's approval of the schematic design.
 - 6.1.4 Explain the scope of the analysis of the building code and of universal accessibility at the schematic design phase.
 - 6.1.5 Explain the principles of sustainable design as they relate to schematic design.

THEME DESIGN DEVELOPMENT

general objective **7.1 Understand aspects of design development**

- specific objectives
- 7.1.1 Identify the information required at the design development phase.
 - 7.1.2 Determine the engineering services required at the design development phase.
 - 7.1.3 Identify the documentation required to obtain the client's approval of the design development.
 - 7.1.4 Describe the impact of the analysis of the building code and of universal accessibility at the design development phase.
 - 7.1.5 Describe the impact of sustainable design at the design development phase.

THEME FINAL PROJECT

general objective **8.1 Be knowledgeable about construction materials and their properties**

- specific objectives
- 8.1.1 Choose the appropriate materials for a project.
 - 8.1.2 Identify the properties of load-bearing materials (metal, wood, concrete, masonry).
 - 8.1.3 Identify the properties of the main types of insulating materials.
 - 8.1.4 Identify the properties of the main types of air/vapour/water barriers.
 - 8.1.5 Identify the properties of the main types of finishing materials.
 - 8.1.6 Identify the properties of fire resistance materials.
 - 8.1.7 Identify the impact of materials and processes on health and the environment.

8.2 Understand construction principles and systems in order to be able to choose the most appropriate construction methods

- 8.2.1 Explain the principles of soil mechanics.
- 8.2.2 Describe foundation systems as they relate to soil types and conditions.
- 8.2.3 Explain the design principles for the building envelope and the functions of its components.
- 8.2.4 Explain the principles of acoustical design for a building.
- 8.2.5 Choose construction methods that are appropriate to specific criteria (cost, timing, durability, performance) and environmental conditions.

general objective **8.3 Evaluate material assemblies**

- specific objectives
- 8.3.1 Evaluate an acoustical assembly.
 - 8.3.2 Evaluate a firestop assembly.
 - 8.3.3 Evaluate an assembly of materials in relation to its thermal resistance.
 - 8.3.4 Evaluate an assembly of materials in relation to moisture control.
 - 8.3.5 Evaluate an assembly of materials in relation to its weathertightness.
 - 8.3.6 Evaluate an assembly of materials in relation to its durability.
 - 8.3.7 Evaluate a wood-frame structural system.

8.4 Understand the components of the construction documents

- 8.4.1 Describe the contents of the project manual.
- 8.4.2 Describe the role of the project manual.
- 8.4.3 Describe the role of the working drawings.
- 8.4.4 List the main components of the working drawings.
- 8.4.5 Explain how the construction documents are related to each other.
- 8.4.6 Explain the different methods of specifying.

8.5 Understand the principles of specification writing

- 8.5.1 Explain the connection between the MasterFormat and the National Master Specification (NMS).
- 8.5.2 Distinguish which divisions of the NMS are common or specific to each of the disciplines (architectural, structural, mechanical, electrical, etc.).
- 8.5.3 Assign a construction element to the appropriate division of the MasterFormat.
- 8.5.4 Describe the components of a typical MasterFormat specification section.
- 8.5.5 List the maxims which govern the writing of a good specification.

8.6 Evaluate the components of the construction documents

- 8.6.1 Verify that products, materials and assemblies conform to standards and codes.
- 8.6.2 Check that the architectural documents are coordinated and complete.

THEME BIDDING AND CONTRACT NEGOTIATIONS

general objective **9.1 Compare the different types of construction project delivery**

specific objectives 9.1.1 Differentiate between the types of project delivery.

9.2 Understand the types of construction contract

9.2.1 Identify the different types of construction contract.

9.2.2 Explain the purpose of the CCDC construction documents.

9.2.3 Describe the responsibilities of the parties to a construction contract.

9.3 Understand the procedures for the awarding of a construction contract

9.3.1 Describe the responsibilities of each party involved in the bidding process.

9.3.2 Describe the role of local construction associations and bid depositories in the bidding process.

9.3.3 Describe the methods for awarding a construction contract.

9.3.4 Describe the phases of a typical bidding process.

9.3.5 Describe the documentation required for each phase of the bidding process.

9.4 Evaluate the bids submitted by the contractors

9.4.1 Assess the conformity of the bid submissions.

9.4.2 Describe the architect's responsibility in making recommendations.

THEME CONSTRUCTION PHASE – OFFICE FUNCTIONS

general objective **10.1 Understand the roles of the architect and the other participants in the administration of a construction contract**

specific objectives 10.1.1 Explain the roles and responsibilities of the architect.

10.1.2 Explain the roles and responsibilities of the client/owner.

10.1.3 Explain the roles and responsibilities of the contractor.

10.2 Understand the office-function tasks associated with the construction phase

10.2.1 Explain the tasks associated with the construction phase (from the initial meeting, before, during and at the end of the work, until the end of the warranty period).

10.2.2 Describe the documentation required of the contractor prior to the commencement of construction.

10.2.3 Describe the type of documentation required to effect changes to the construction contract.

10.2.4 Explain the tasks associated with payment for the work.

10.2.5 Explain the tasks associated with the review of shop drawings, other documents and submittals.

10.2.6 Explain the terms and conditions of a contract concerned with deficiencies, take-over procedures, commissioning, indemnification and warranty.

10.3 Demonstrate the use of administrative forms appropriate to different aspects of construction

10.3.1 Complete a certificate for payment.

10.3.2 Complete a change request.

10.3.3 Complete relevant forms and reports (field review, substantial completion, etc.).

THEME CONSTRUCTION PHASE – FIELD FUNCTIONS

general objective **11.1 Understand the roles of the architect and the other participants in the administration of a construction contract**

- specific objectives
- 11.1.1 Explain the roles and responsibilities of the architect.
 - 11.1.2 Explain the roles and responsibilities of the client/owner.
 - 11.1.3 Explain the roles and responsibilities of the contractor.
 - 11.1.4 Explain the roles and responsibilities of the architect with respect to inspection and testing firms.

11.2 Understand the field functions associated with the construction phase

- 11.2.1 Explain the field functions associated with the construction phase (from the initial construction meeting, through construction and close-out, until the end of the warranty period).
- 11.2.2 Explain the procedures for monitoring construction progress.
- 11.2.3 Explain the terms of the construction contract concerned with field review.
- 11.2.4 Explain the terms of the construction contract concerned with the takeover procedures.
- 11.2.5 Explain the terms of the construction contract concerned with issues of hazardous materials and toxic substances.

THEME PROJECT MANAGEMENT

general objective **12.1 Understand the principles of project management and the delivery of professional services**

- specific objectives
- 12.1.1 Explain the project management process.
 - 12.1.2 Describe the role of the individuals involved in a project (project manager, in-house and external resources).
 - 12.1.3 Describe the contents of a project file.
 - 12.1.4 Explain the main components of a work plan.
 - 12.1.5 Explain the essential elements of effective team management (communications, objectives, etc.).
 - 12.1.6 Describe the quality assurance process for a project.
 - 12.1.7 Explain the methods used to calculate the architect's fees.



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