



GENERAL AND SPECIFIC OBJECTIVES 2020

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 for the preparation of an architectural program**
- specific objectives **1.1.1** Identify the components of an architectural program.
- 1.1.2** Describe the different process phases for the development of an architectural program.
- 1.2 Analyze an architectural program**
- 1.2.1** Analyze an architectural program regarding its feasibility (project constraints and opportunities).
- 1.2.2** Analyse the program regarding the site components.
- 1.2.3** Analyse the program regarding the proposed budget.
- 1.2.4** Compare program with the client's objectives.
- 1.3 Understand the principles of sustainable development within an architectural project**
- 1.3.1** Describe the principles of sustainable development.
- 1.3.2** Identify optimal site design.

THEME SITE AND ENVIRONMENTAL ANALYSIS

- general objective **2.1 Understand the principles related to the siting of a building and its environment: land planning, urban design and environmental evaluation**
- specific objectives **2.1.1** Describe the physical, cultural and regulatory factors related to site planning.
- 2.1.2** Explain urban design issues and planning processes that influence the design of a building on a specific site.
- 2.1.3** Identify strategies for dealing with environmental issues in site evaluation.
- 2.2 Apply the principles related to the siting of a building to its environment**
- 2.2.1** Formulate a building siting solution given a specific site, selected physical factors and design criteria.
- 2.2.2** Explain the principles of grading and storm water management as they apply to site design.
- 2.2.3** Describe the relationship between energy consumption and site design.
- 2.2.4** Describe impacts of universal accessibility as it applies to site design.
- 2.3 Analyze data relevant to the siting of a building to its environment**
- 2.3.1** Explain data from environmental and engineering reports to determine design opportunities/constraints.
- 2.3.2** Explain data from a legal land survey.
- 2.3.3** Compare design solutions based on given criteria.

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

general objective **3.1 Understand engineering systems**

- specific objectives
- 3.1.1 Describe the main properties of the structural system.
 - 3.1.2 Describe the main properties of the mechanical system (plumbing, heating, ventilation, air conditioning, fire protection).
 - 3.1.3 Describe the main properties of the electrical system (lighting, electricity supply and distribution, fire alarm system, security and communications systems).
 - 3.1.4 Describe the main properties of the civil engineering system (drainage, water supply, infrastructure).
 - 3.1.5 List the codes, regulations and standards that apply to the engineering systems.
- 3.2 Analyze engineering systems and their impacts on the project**
- 3.2.1 Compare the advantages and limitations of the structural system.
 - 3.2.2 Compare the advantages and limitations of the mechanical systems.
- 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 cost management**
- 4.2.1 Critique the client's budget in conjunction with the program and the conditions for completing the project.
 - 4.2.2 Critique the recommendations made to a client following a value analysis.
- 4.3 Understand the various methods of estimating cost**
- 4.3.1 Describe the methods for estimating cost.
- 4.4 Apply estimating methods within the framework of a project**
- 4.4.1 Identify the resources available to do a cost estimate.
 - 4.4.2 Differentiate between the concepts of construction costs, project costs and overall costs.
 - 4.4.3 Use the preferred estimating method in a given situation.

THEME CODE RESEARCH

- general objective 5.1 Understand the scope and application of the National Building Code of Canada to the design, construction and occupancy of buildings
- specific objectives 5.1.1 Identify the parts of the Code which apply to specific building projects.
- 5.1.2 Interpret the Division B appendices in Volume 2 of the Code.
- 5.1.3 Identify the scope and application of referenced standards included in the Code.
- 5.2 Apply the minimum standards of Division B of the National Building Code to design development
- 5.2.1 Apply the classification and construction requirements to a proposed building.
- 5.2.2 Apply building fire safety requirements to a proposed building.
- 5.2.3 Apply floor area safety requirements to a proposed building.
- 5.2.4 Apply barrier free requirements to a proposed building.
- 5.3 Apply the minimum standards of the National Building Code to construction documents regulated by Division B Part 3
- 5.3.1 Interpret the Code requirements for fire safety.
- 5.3.2 Interpret the Code requirements for sound separations.
- 5.3.3 Interpret the Code requirements for safety in floor areas.
- 5.3.4 Interpret the Code requirements for exits.
- 5.3.5 Interpret the Code requirements for health.
- 5.3.6 Interpret the Code requirements for barrier free design.
- 5.4 Apply the minimum standards of the National Building Code to construction documents regulated by Division B Part 9
- 5.4.1 Apply prescriptive Code requirements for structural design.
- 5.4.2 Apply prescriptive Code requirements for safety.
- 5.4.3 Apply prescriptive Code requirements for health.
- 5.4.4 Apply prescriptive Code requirements for envelope design.
- 5.5 Understand the requirements for achieving design compliance using alternative solutions, as set out in Division A and Subsection 1.1.2. of Division B of the National Building Code
- 5.5.1 Identify the proper application of an alternative solution in a building design.
- 5.5.2 Identify Code objectives and their application.
- 5.5.3 Identify the functional statements associated with a Code requirement.
- 5.5.4 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 for schematic design, given specific conditions.
 - 6.1.2 Categorize the engineering services required for the schematic design of a given project (program, clients and context).
 - 6.1.3 Identify the documentation typically prepared for the client's approval of the schematic design.
 - 6.1.4 Explain the scope of building code analysis in schematic design.
 - 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 for design development, given specific conditions.
 - 7.1.2 Categorize the engineering services required for the design development of a given project (program, clients and context).
 - 7.1.3 Identify the documentation typically prepared for the client's approval of the design development.
 - 7.1.4 Describe the impacts of universal accessibility on design development.
 - 7.1.5 Explain the principles of sustainable design as they relate to design development.

THEME FINAL PROJECT

general objective **8.1** Understand the principles of construction

- specific objectives
- 8.1.1 Explain general structural principles.
 - 8.1.2 Explain general mechanical principles (plumbing, heating, ventilation, air conditioning, fire protection, conveyance systems).
 - 8.1.3 Explain the principles of soil mechanics.
 - 8.1.4 Explain the principles of foundations.
 - 8.1.5 Explain the principles of building envelope.
 - 8.1.6 Explain the principles of acoustic design for a building.)
 - 8.2 Know construction materials and their properties**
 - 8.2.1 Choose the appropriate materials for a given project.
 - 8.2.2 Identify the main properties of load-bearing materials (metal, wood, concrete, masonry).
 - 8.2.3 Identify the properties of the types of building framework (metal, wood, concrete, masonry).
 - 8.2.4 Identify the properties of the main types of insulating materials.
 - 8.2.5 Identify the properties of the main types of air/vapour/water barriers.
 - 8.2.6 Identify the properties of the main types of finishing materials.
 - 8.2.7 Identify the impact of materials and processes on health and the environment. ►

general objective **8.3 Understand construction processes**

- specific objectives
- 8.3.1 Describe foundation systems as they relate to soil types and conditions.
 - 8.3.2 Describe the role of components in a building envelope.
 - 8.3.3 Choose construction methods that are appropriate to given criteria (cost, timing, durability, aesthetics, performance) and environmental conditions.

8.4 Evaluate material assemblies

- 8.4.1 Evaluate an acoustic assembly.
- 8.4.2 Evaluate a firestop assembly.
- 8.4.3 Evaluate an assembly of materials in relation to its thermal resistance.
- 8.4.4 Evaluate an assembly of materials in relation to moisture control.
- 8.4.5 Evaluate an assembly of materials in relation to its air-tightness.
- 8.4.6 Develop a structural system with a wooden frame from data provided.

8.5 Understand the components of the construction documents

- 8.5.1 Describe the contents of the specifications.
- 8.5.2 Describe the function of the specifications.
- 8.5.3 Describe the function of the working drawings.
- 8.5.4 List the main components of the working drawings.
- 8.5.5 Explain the relationships among the components of the construction documents.

8.6 Understand the principles of writing a technical specification

- 8.6.1 Explain the links between the MasterFormat and the National Master Specification (NMS).
- 8.6.2 Distinguish among the divisions of the NMS that are common or specific to each of the disciplines (architecture, structural, mechanical, electrical, etc.).
- 8.6.3 Match a construction element to the appropriate division of the MasterFormat.
- 8.6.4 Describe the components of a typical MasterFormat specification section.
- 8.6.5 List the rules related to writing a good specification.

8.7 Evaluate the components of the construction documents

- 8.7.1 Verify that products, materials and assemblies conform to standards and codes.
- 8.7.2 Check that architectural documents are coordinated and complete.

THEME BIDDING AND CONTRACT NEGOTIATIONS

- general objective **9.1 Understand the different methods of realizing construction projects**
- specific objectives **9.1.1 Differentiate between the forms 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 parties in a construction contract.
- 9.3 Understand the methods for the awarding of a construction contract**
- 9.3.1 Describe the responsibilities of each party involved in the tendering process.
- 9.3.2 Describe the role of the local construction associations and bid depositories in the tendering process.
- 9.3.3 Describe the methods for the awarding of a construction contract.
- 9.3.4 Describe the stages of a standard tendering process.
- 9.3.5 Describe the documentation required for each phase of the tendering process.
- 9.4 Evaluate the bids submitted by the contractors**
- 9.4.1 Describe architect's responsibility in making recommendations.
- 9.4.2 Assess bid submissions.

THEME CONSTRUCTION PHASE — OFFICE

- general objective **10.1 Understand the roles of the architect and other participants in the administration of the construction contract**
- specific objectives **10.1.1 Explain the roles and responsibilities of the architect in the administration of a given construction contract.**
- 10.1.2 Explain the roles and responsibilities of the client (owner) in the administration of a given construction contract.
- 10.1.3 Explain the roles and responsibilities of the contractor in the administration of a given construction contract.
- 10.2 Understand office administration tasks related to the different stages of a construction contract**
- 10.2.1 Explain the tasks related to the construction phase (from the initial construction meeting, throughout construction and close-out, until the end of the warranty period).
- 10.2.2 Describe the documentation required of the contractor prior to 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 involved in processing payment for the work.
- 10.2.5 Explain the tasks involved in the review of shop drawings and submittals.
- 10.2.6 Explain the terms of a contract related to deficiencies, take-over procedures, commissioning, indemnification and warranty.
- 10.3 Apply the administration forms appropriate to different aspects of construction**
- 10.3.1 Complete a certificate for payment.
- 10.3.2 Complete a change order.
- 10.3.3 Complete relevant forms or reports (substantial completion, final inspection, field review, etc.)

THEME CONSTRUCTION PHASE — SITE

- 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 in the administration of a given construction contract.
- 11.1.2 Explain the roles and responsibilities of the client (owner) in the administration of a given construction contract.
- 11.1.3 Explain the roles and responsibilities of the contractor in the administration of a given construction contract.
- 11.1.4 Explain the roles and responsibilities of the architect with respect to inspection and testing firms.
- 11.2 Understand site tasks related to the different stages of a construction contract
- 11.2.1 Explain the tasks related to the construction phase on site (from the initial construction meeting, throughout construction and close-out, until the end of the warranty period).
- 11.2.2 Describe the procedures for monitoring construction progress.
- 11.2.3 Explain the terms of the construction contract related to field review.
- 11.2.4 Explain the terms of the construction contract related to the takeover procedures.
- 11.2.5 Explain the terms of the construction contract related to issues of hazardous materials and toxic substances.
- 11.3 Apply the administration forms appropriate to different aspects of construction
- 11.3.1 Complete relevant forms or reports (meeting report, field review, etc.).

THEME PROJECT MANAGEMENT

- general objective 12.1 Understand the principles of project management and the provision 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, internal and outside resources).
- 12.1.3 Describe the contents of a project file.
- 12.2 Evaluate a work plan
- 12.2.1 Identify the main components of a work plan.
- 12.2.2 Explain the essential elements of effective team management (communications, objectives, etc.).
- 12.2.3 Evaluate a given work plan.
- 12.2.4 Describe the quality insurance process in a project.



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