Canadian Standard of Competency for Architects
Full Version

March 2023

Required Form of Comprehension
(See last page for details)

1	**PROGRAMMING**			
	1.1	**Prepare an architectural functional program**		**3**
		1.1.1	Assemble and organize components and information related to an architectural functional program	
		1.1.2	Apply the components and information required to prepare an architectural functional program for a client	
	1.2	**Incorporate principles of sustainable development within an architectural program**		**3**
		1.2.1	Identify design strategies that maximize the benefits of existing environmental conditions	
		1.2.2	Apply the principles of sustainable and resilient development	
	1.3	**Evaluate the architectural program**		**5**
		1.3.1	Evaluate the feasibility of the program with respect to project constraints and opportunities	
		1.3.2	Evaluate the feasibility of the program relative to the site	
		1.3.3.	Evaluate the project and construction cost, and budget implications of the program	
		1.3.4	Evaluate the program against stated client objectives	
		1.3.5	Evaluate the sustainability and resilience elements of the program	
2	**SITE AND ENVIRONMENTAL ANALYSIS**			
	2.1	**Propose solutions to the siting of a building in relation to its environment**		**5**
		2.1.1	Propose sustainable grading and storm water management solutions	
		2.1.2	Evaluate the siting of the building in relation to sustainability and resilience	
		2.1.3	Propose solutions for the siting of the building in relation to access and circulation	
		2.1.4	Evaluate the siting of the building in relation to the data derived from engineering, geotechnical and environmental reports, land surveys and land title searches	
		2.1.5	Evaluate the siting of a building in relation to zoning and other regulatory requirements	
3	**SCHEMATIC DESIGN**			
	3.1	**Define schematic design principles and approaches**		**2**
		3.1.1	Understand the history of architecture – globally and locally	
		3.1.2	Understand the theory of architecture – historic and current	
		3.1.3	Understand the evolution of aesthetic design	
		3.1.4	Understand the evolution of environmental theory and practice	
		3.1.5	Understand the process of community consultation	
	3.2	**Analyze design principles and solutions in relation to context**		**4**
		3.2.1	Explain social consequences – positive and negative	
		3.2.2	Explain contextual/ environmental/ community influences	
	3.3	**Evaluate aesthetics of design solutions**		**5**
		3.3.1	Evaluate massing/form and proportion/scale	
		3.3.2	Evaluate materials in relation to selection criteria	
		3.3.3	Evaluate aesthetic rigour and coherence	
		3.3.4	Evaluate siting in relation to its impact to the aesthetic of the design solution	
	3.4	**Utilize conceptual and representational skills to imagine and communicate design concepts and solutions**		**3**
		3.4.1	Convey design concept using 3D visualization	
		3.4.2	Prepare graphic representations to illustrate the design concept and solution	
		3.4.3	Prepare a physical or virtual model to validate the design concept and solution	
		3.4.4	Prepare a narrative design explanation	
	3.5	**Assess technical aspects of the schematic design solutions**		**5**
		3.5.1	Assess information required for schematic design	
		3.5.2	Assess the impact of factors such as human behaviour, historic precedent and design theory on schematic design	

		3.5.3	Assess engineering services required for the schematic design of the project	
		3.5.4	Assess the scheduling implications for construction	
	3.6	**Produce schematic design solutions for a project**		**6**
		3.6.1	Create a schematic design solution that complies with building codes, including accessibility requirements, specialist codes, zoning and other regulatory requirements	
		3.6.2	Develop design concepts that integrate programming requirements that establish spatial relationships	
		3.6.3	Create a schematic design solution that integrates consultant and/or community input	
		3.6.4	Evaluate design solution alternatives	
		3.6.5	Create a sustainable design solution for a specific site, given existing physical factors and design criteria	
		3.6.6	Prepare documentation required for the client's approval	
	3.7	**Consider the principles of energy efficiency and environmental impacts**		**5**
		3.7.1	Evaluate passive and active design solutions	
		3.7.2	Evaluate strategies for compliance with applicable energy and emissions objectives	
		3.7.3	Understand the principles of carbon consumption related to building design/ construction process	
4	**ENGINEERING SYSTEMS INTEGRATION**			
	4.1	**Understand structural systems and their influence on design**		**2**
		4.1.1	Outline the general principles of the structural design approach	
		4.1.2	Outline the code and regulatory requirements related to structure	
		4.1.3	Illustrate the implications of design decisions on the selection of systems, materials, technology and construction detail	
		4.1.4	Describe the influence of site and environmental characteristics on the selection, design and construction of structural systems	
		4.1.5	Illustrate the principles of primary and lateral forces and their effect on the building design	
		4.1.6	Understand soil mechanics and its influences on foundation design	
		4.1.7	Understand the environmental and sustainability impact of the choice of structural system	
	4.2	**Understand mechanical systems (passive and active) and their influence on sustainability and design**		**2**
		4.2.1	Summarize factors affecting selection of mechanical systems	
		4.2.2	Explain code requirements relative to passive and active mechanical systems	
		4.2.3	Understand the environmental and sustainability impact of the mechanical system design	
		4.2.4	Explain the influence of the mechanical system on the overall design	
	4.3	**Understand electrical systems (lighting, power supply and distribution, fire alarm systems, security and communication systems) and their influence on sustainability and design**		**2**
		4.3.1	Rationalize the selection of lighting systems and its influence on the design in relation to the environment and sustainability	
		4.3.2	Explain the influence of power supply and distribution systems, including alternative energy supply systems, on the design in relation to the environment and sustainability	
		4.3.3	Explain the impact of fire alarm, security and communication systems on design	
	4.4	**Understand civil engineering systems (water management – supply, drainage and infrastructure) and their influence on sustainability and design**		**2**
		4.4.1	Explain the impact of the civil engineering system on the local environment, sustainability, and site and building design	
		4.4.2	Explain the interface with municipal systems and approval process, service agreements (where applicable), etc.	
	4.5	**Analyze the choice of engineering system options relative to a project**		**4**
		4.5.1	Analyze the advantages and limitations of the choice of structural systems	
		4.5.2	Analyze the advantages and limitations of the choice of mechanical systems	
		4.5.3	Analyze the impact of the choice of structural, mechanical and electrical systems, including lighting, on the building and site design	
5	**BUILDING COST ANALYSIS**			
	5.1	**Understand factors influencing cost**		**2**

		5.1.1	Outline factors influencing project budget and financing, including life cycle costing	
		5.1.2	Summarize cost implications of alternate design solutions	
		5.1.3	Illustrate the cost implications of scheduling of construction	
	5.2	**Understand methods of estimating costs (range of options)**		**2**
		5.2.1	Understand methods of estimating costs at various stages of a project (schematic design, design development, contract documents) and the architect's responsibility in relation to cost estimates	
	5.3	**Apply cost estimating methods to a project**		**3**
		5.3.1	Organize resources available to prepare a cost estimate	
		5.3.2	Apply cost estimating methods to different building types and/or delivery models	
		5.3.3	Apply preferred methods of cost estimation (unit price, elemental, divisional, assembly, etc.)	
	5.4	**Develop cost planning/ cost control methodology**		**6**
		5.4.1	Develop client's budget in conjunction with the program and the conditions for completing the project	
		5.4.2	Produce recommendations for the client following a value analysis	
	5.5	**Understand principles of life cycle costs**		**2**
		5.5.1	Understand principles of life cycle costs and the selection of materials/ systems related to their sustainability and resilience relative to a project	
6	**CODE RESEARCH**			
	6.1	**Understand the scope and application of the national and local building codes to the design, construction and occupancy of a building**		**2**
		6.1.1	Understand which parts of the code(s) apply to specific building projects	
		6.1.2	Understand the use of reference standards within the code	
		6.1.3	Understand the use of Division B Appendices within the code and/or its local equivalent	
	6.2	**Apply code requirements to the design process**		**3**
		6.2.1	Apply building classification and construction requirements for a proposed building	
		6.2.2	Apply fire safety requirements for a proposed building	
		6.2.3	Apply floor area safety requirements for a proposed building	
	6.3	**Apply code requirements to construction documents**		**3**
		6.3.1	Apply code requirements for fire safety	
		6.3.2	Apply code requirements for sound separations	
		6.3.3	Apply code requirements for safety in floor areas	
		6.3.4	Apply code requirements for exits	
		6.3.5	Apply code requirements for health	
	6.4	**Demonstrate awareness of alternate solution provisions in national and local building codes**		**1**
		6.4.1	Have awareness of code objectives and their application	
		6.4.2	Have awareness of acceptable application of an alternative solution in building design	
		6.4.3	Have awareness of functional statements associated with a code requirement	
		6.4.4	Have awareness of documents and information required to file an alternative solution	
	6.5	**Apply energy-related code requirements to a project**		**3**
		6.5.1	Apply energy-related code requirements to the design process for a project	
	6.6	**Apply codes and applicable standards related to accessibility**		**3**
		6.6.1	Understand principles of equity, diversity and inclusion	
		6.6.2	Apply National/ Provincial building codes and municipal regulations	
		6.6.3	Apply CSA B651 Accessible Design for the Built Environment and other design standards	
		6.6.4	Apply principles of accessibility to a project at each of its design phases	
7	**DESIGN DEVELOPMENT**			
	7.1	**Assess factors influencing design development**		**5**
		7.1.1	Assess information required for design development given specific conditions	
		7.1.2	Assess building construction system choices made for a particular design, including impact on sustainability	

		7.1.3	Assess material choices made for a particular design, including impact on sustainability	
		7.1.4	Propose engineering services required for the design development of a given project	
		7.1.5	Develop schedules and outline specifications for materials, finishes, fixed equipment and fixtures	
		7.1.6	Assess strategies related to indoor air quality and energy conservation and compare alternative solutions relating to these aspects	
	7.2	**Assess engineering systems and regulatory factors**		**5**
		7.2.1	Assess the implications of mechanical, electrical and structural systems on design	
		7.2.2	Assess the implications of building codes, including accessibility, on design	
	7.3	**Develop a solution that responds to the factors influencing the design**		**6**
		7.3.1	Develop detailed design solutions in response to project criteria	
	7.4	**Evaluate alternatives in finalizing a detailed solution**		**5**
		7.4.1	Evaluate aesthetic assumptions as they apply to detailed solutions	
		7.4.2	Evaluate emotional, psychological and spatial implications of a detailed solution	
		7.4.3	Evaluate final form and function	
		7.4.4	Evaluate solutions in relation to contextual, social, environmental and other criteria/constraints	
	7.5	**Evaluate detailed solutions with regards to client/user group program needs**		**5**
		7.5.1	Evaluate spatial implications of detailed solutions	
		7.5.2	Evaluate spatial inter-relationships of detailed solutions	
	7.6	**Develop design documentation (for review and approval of the proposed solution)**		**6**
		7.6.1	Develop appropriate documentation for client approval	
		7.6.2	Develop appropriate documentation for authorities' approval	
		7.6.3	Produce communication methodology with clients and user groups	
	7.7	**Incorporate principles of energy efficiency and environmental concepts**		**3**
		7.7.1	Apply the principles to exterior wall and roof assemblies	
		7.7.2	Evaluate the building in relation to various sustainability programs	
8	**CONSTRUCTION DOCUMENTS**			
	8.1	**Understand components of construction documents**		**2**
		8.1.1	Explain components of project manual (bidding requirements, contract forms, contract conditions and specifications	
		8.1.2	Explain components of working drawings	
		8.1.3	Explain hierarchy of importance among various components of construction documents	
	8.2	**Understand construction materials, their properties and influence on design and documentation**		**2**
		8.2.1	Understand appropriate use of materials for a given project	
		8.2.2	Understand structural properties of materials (wood, metal, concrete, masonry)	
		8.2.3	Understand the properties of different types of assembly materials (wood, metal, concrete, masonry)	
		8.2.4	Understand the properties of main types of insulating materials	
		8.2.5	Understand the properties of main types of air, vapour, water and weather control layers	
		8.2.6	Understand the properties of main types of finishing materials	
		8.2.7	Have awareness of the impact of materials on human and environmental health throughout their full life cycle	
	8.3	**Create assemblies with consideration to their properties and influence on design and documentation**		**6**
		8.3.1	Develop acoustic assemblies using sound-rating requirements	
		8.3.2	Create fire-resistant building and fire stop assemblies	
	8.4	**Create a building envelope (design and detailing)**		**6**
		8.4.1	Select and assemble the components of a building envelope	
		8.4.2	Design assemblies in relation to thermal resistance, moisture control and air tightness	
		8.4.3	Design approach to glazing systems	
		8.4.4	Apply building code requirements to non-combustible cladding and insulation	
	8.5	**Apply the principles of a project manual and its technical specifications**		**3**

		8.5.1	Develop a coordinated and complete project manual, including technical specifications	
		8.5.2	Select bidding requirements and general conditions applicable to the project (contract forms, contract conditions, etc.)	
		8.5.3	Apply principles related to writing an appropriate specification	
	8.6	**Coordinate construction documents**		**4**
		8.6.1	Review, modify and coordinate architectural construction documents (products, material assemblies) to standards and codes	
		8.6.2	Review, modify and coordinate architectural construction documents for compliance with project criteria (cost, timing, aesthetics, performance, sustainability/ resilience and environmental conditions)	
		8.6.3	Coordinate architectural documents with sub-consultant documents (structural, mechanical, electrical, etc.)	
9	**PROCUREMENT AND CONTRACT AWARD**			
	9.1	**Summarize methods of realizing construction projects/ forms of project delivery**		**2**
		9.1.1	Summarize common forms of project delivery	
	9.2	**Summarize major types of construction contracts, including purpose and obligations**		**2**
		9.2.1	Compare different type of construction contracts	
		9.2.2	Explain the purposes of common CCDC contracts as they relate to project delivery methods	
		9.2.3	Describe the responsibilities of parties to, or referenced in, a construction contract (owner/client, contractor, consultant, etc.)	
	9.3	**Evaluate bids submitted by contractors**		**5**
		9.3.1	Clarify the architect's responsibility to the client in making recommendations	
		9.3.2	Evaluate submitted tenders for technical compliance	
		9.3.3	Explain bid and performance bonds and their role in the tendering process	
		9.3.4	Prepare required post-tender addenda and contract award documents	
	9.4	**Apply process for considering and awarding construction contracts**		**3**
		9.4.1	Compare responsibilities of each party involved in the tendering process	
		9.4.2	Prepare documentation required during the tendering process (addenda, clarifications, etc.)	
		9.4.3	Apply the process of awarding a construction contract	
10	**CONSTRUCTION PHASE**			
	10.1	**Analyze the role of architects and others in the administration of the construction contract (office and site)**		**4**
		10.1.1	Clarify the roles and responsibilities of the architect and others in the administration of the construction contract	
		10.1.2	Select mechanisms to resolve differences in interpretation, disputes and conflicts arising from the contract documents	
		10.1.3	Identify steps to assemble evidence in preparation for arbitration or court proceedings	
		10.1.4	Clarify contracts and professional obligations related to the observation of construction	
	10.2	**Administer construction phase office tasks**		**4**
		10.2.1	Administer tasks required in the construction phase (from initial construction meeting, through construction and close out, until end of warranty period)	
		10.2.2	Analyze documentation required from the contractor prior to commencement of construction	
		10.2.3	Administer tasks involved in processing payment for work	
		10.2.4	Administer tasks involved in review of shop drawings and submittals	
		10.2.5	Administer the terms of the contract related to deficiencies, take-over procedures, commissioning, indemnification and warranty	
	10.3	**Administer construction phase site tasks**		**4**
		10.3.1	Administer tasks related to the construction phase on site (from initial construction meeting, through construction and close out, until end of the warranty period)	
		10.3.2	Select procedures for monitoring construction progress	
		10.3.3	Administer tasks related to field review	
		10.3.4	Administer tasks related to contract closeout, takeover and occupancy	
		10.3.5	Coordinate tasks related to hazardous materials	

		10.3.6	Understand the responsibilities of the contractor and the architect relative to site safety	
		10.3.7	Understand the responsibilities of the contractor with respect to environmental impacts during construction (waste management, sediment control, etc.)	
	10.4	**Administer appropriate forms and documents**		**5**
		10.4.1	Prepare certificates for payment	
		10.4.2	Select and prepare contemplated/proposed changes, change directives and changes orders	
		10.4.3	Prepare other relevant forms or reports (field review, final, review, etc.)	
		10.4.4	Evaluate claims of substantial performance/completion	
		10.4.5	Appraise professional obligations relating to lien and other related legislation	
		10.4.6	Assess professional obligations related to letters of assurance/schedules (if applicable)	
11	**MANAGEMENT OF THE PROJECT**			
	11.1	**Apply the principles of managing an architectural project**		**3**
		11.1.1	Implement a project management process	
		11.1.2	Organize role(s) of the individuals involved in a project	
		11.1.3	Organize the contents of a project file	
	11.2	**Develop and implement work plans**		**6**
		11.2.1	Create and implement the main components of a work plan	
		11.2.2	Organize essential elements of effective team management (communications, objectives, etc.)	
		11.2.3	Create quality assurance process and quality control processes for a project	
12	**PROFESSIONALISM AND PROFESSIONAL PRACTICE**			
	12.1	**Consider external relationships in practice management**		**5**
		12.1.1	Assess management of consultants, personnel and teams	
		12.1.2	Establish fees for services relative to a project	
		12.1.3	Evaluate consultant service agreements	
		12.1.4	Demonstrate negotiation and dispute resolution skills	
	12.2	**Consider internal aspects of practice management**		**5**
		12.2.1	Understand the business of (legal structure options for) architectural practice in relevant jurisdiction(s)	
		12.2.2	Understand finance, accounting and legal requirements for successful professional practice	
		12.2.3	Understand financial forecasting and planning for professional firm success	
		12.2.4	Assess risk management, insurance and professional business ethics	
		12.2.5	Evaluate human resource and administration planning	
		12.2.6	Apply human resource management – fair workplace, human rights, diversity, inclusion and equity	
		12.2.7	Apply strategic management of information technology	
		12.2.8	Describe organizational management	
		12.2.9	Describe office administration	
	12.3	**Understand the role of a self-governing profession in contemporary Canadian society**		**2**
		12.3.1	Understand relevant Architects Act, and related documents	
		12.3.2	Understand the implications and obligations of a self-governing profession	
		12.3.3	Understand the legal, professional and broad ethical obligations of an architect as a member of a self-governing profession, including competency and conduct requirements	

This document should be read in conjunction with *Definitions of Competencies* and *Forms of Comprehension.*

Each of the competency areas contains several sub-components (x.x). A list of indicators (x.x.x) is included for each sub-component to suggest activities that can demonstrate competence in that sub-component of the competency.

***Forms of Comprehension** (Blooms Levels)*

1 Remember
2 Understand
3 Apply
4 Analyze
5 Evaluate
6 Create

Refer to *Forms of Comprehension* for description of each level