RCMP·GRC

ROYAL CANADIAN MOUNTED POLICE • GENDARMERIE ROYALE DU CANADA

RCMP's

Project Delivery Manual

For Architectural & Engineering Services

Royal Canadian Mounted Police | Gendarmerie royale du Canada

Canada

Contents

Revisions

Version	Date	Description
0.1	May 1, 2022	Draft Version

1 General

1.1 Effective Date

May 1, 2022

1.2 Purpose

This document provides architectural and engineering (A&E) consultants with the requirements for producing deliverables for RCMP projects in order to ensure a well-documented design process, and facilitate review by RCMP staff.

1.3 Scope

This document shall apply to design-bid-build projects undertaken by RCMP on its own behalf. It is applicable to all regions and can be supplemented with regional addendum identified in the Project Brief.

1.4 Harmonization with Project Brief

This document shall be used in conjunction with the project's Project Brief. In case of a conflict between documents, the requirements of the Project Brief prevail over those of this document.

1.5 Terminology

This document and the Project Brief utilizes the following terminology:

- "shall" is used to express a requirement, a provision the Consultant is obligated to meet; "should" is used to express a recommendation; and
- "may" is used to express an option or that which is permissible within the limits of this document.

2 Project Administration

2.1 General Requirements

2.1.1 The administration requirements outlined in this section are applicable to all RCMP project, unless otherwise indicated in the Project Brief.

2.2 Media

2.2.1 The Prime Consultant shall ensure that no member of the Consultant Team discusses the project with any third party without the consent of the Departmental Representative.

2.2.2 Direct all media inquiries to the Departmental Representative.

2.3 Project Management

2.3.1 RCMP administers the project on behalf of Canada and exercises continual control over the project during all phases of development.

2.3.2 The RCMP project management team, the Consultant Team, the Contractor and the User Department teams are to work cooperatively at every stage of the design and construction process in order to assure the creation of a successful project.

2.4 Lines of Communication

2.4.1 All communications will be through the Departmental Representative, unless directed otherwise.

2.4.2 This includes formal contact between the Consultant Team, the Contractor, the RCMP Project Team and the User Department.

2.4.3 Direct communication between members of the RCMP Project Team on routine matters may be required for resolution of technical issues.

2.4.4 However, this shall not alter project scope, Budget or schedules, unless confirmed in writing by the Departmental Representative.

2.4.5 During construction tender call, RCMP will conduct all correspondence with bidders and award the contract.

2.5 Meetings

2.5.1 The Prime Consultant shall:

1. Arrange project team meetings throughout the project, at the request of the RCMP Representative, on a regular basis and/or 'as required' for all members of the project team including as a minimum representative from:
    1. RCMP;
    2. Internal RCMP Resources, as required; and
    3. Consultant and sub-Consultants.
2. Attend all meetings and presentations required for the project. Additional Consultant team members shall be required to attend project team meetings to address their particular areas of expertise during the different delivery stages for each call-up.
3. Ensure all sub-consultants attend as required throughout the various phases of the project.
4. Record the issues, decisions and action items (with assigned responsibility) at each meeting, and prepare and distribute meeting minutes within 48 hours of the meeting. Meeting minutes shall clearly identify the status of the project and indicate, at a minimum, any issues raised during the project that may impact the cost, risks and schedule.

2.5.2 Design Phase:

1. Meeting locations and frequency will be specified in the project specific Project Brief.

2.5.3 Construction Phase:

1. Meetings (frequency will be specified in the project specific Project Brief) with RCMP, the Consultant Team and the Contractor will normally be held at the construction site for the duration of the project and as required.
2. Additional site meetings may include the following activities:
    1. Commissioning & Verification, including an inspection by the User Department Fire Protection Engineer;
    2. Substantial Performance;
    3. Final Completion;
    4. Post Construction Warranty.

2.6 Consultant Responsibilities

2.6.1 The Consultant Team includes the Consultant's staff, sub-consultants and specialists.

1. This team must maintain the same, or better, level of expertise, as presented in their proposal, for the duration of the project;
2. The team must include qualified registered architectural and engineering professionals with extensive relevant experience and who are capable of providing all required services;
3. Professional registrations / certifications must remain current. Team members may be qualified to provide services in more than one discipline, and;
4. The Consultant may expand the team to include additional disciplines.

2.6.2 The Consultant is responsible for:

1. Obtaining Departmental Representative Acceptance for each project phase before proceeding to the next phase;
2. Accurately communicating design, Budget, and scheduling issues to staff, sub-consultants and specialists;
3. Coordinating input for the Departmental Representative's Risk Management Plan, and;
4. Developing and coordinating a comprehensive quality assurance process to ensure that submissions are accurate, complete and meet Project Brief requirements.
5. Construction Project Milestone
    1. Attend meetings and provide site inspection services;
    2. Ensure sub-consultants provide site inspection services and attend all required meetings.
    3. The Consultant is responsible for:
        1. Coordinating and directing the Work of all team activities, sub- consultants and specialists;
        2. Preparing a design that meets project requirements, and;
        3. Obtaining approvals on behalf of the Departmental Representative from the User Department and other levels of government such as provincial and municipal governments.
            1. The Consultant shall adjust the documentation to meet the requirements of these authorities.

2.7 RCMP Responsibilities

2.7.1 Administration

1. RCMP administers the project and exercises continual control over the project during all phases of development.
2. The following administrative requirements apply during all phases of the project delivery.

2.7.2 Reviews

1. RCMP will review the Work at various stages and reserves the right to reject unsatisfactory Work at any stage.
2. If later reviews show that earlier Acceptances must be withdrawn, the Consultant shall re-design and re-submit at no extra cost.

2.7.3 Acceptance

1. RCMP Acceptance of submissions from the Consultant simply indicates that - based on a general review - the material complies with governmental objectives and practices, and meets overall project objectives.
2. Acceptance does not relieve the Consultant of professional responsibility for the Work or compliance with the contract.

2.7.4 RCMP Project Management

1. The Project Manager assigned to the project is the Departmental Representative.
2. The Departmental Representative is directly responsible for:
    1. The progress and administration of the project, on behalf of RCMP;
    2. Day-to-day project management and is the Consultant's single point of contact for project direction, and;
    3. Providing authorizations to the Consultant on various tasks throughout the project.
3. Unless directed otherwise by the Departmental Representative, the Consultant obtains all Federal approvals necessary for the Work.
4. Provides advisory services and Quality Assurance Reviews of Consultant deliverables.

2.8 Review and Approval by Provincial and Municipal Authorities

2.8.1 The federal government generally defers to provincial/territorial and municipal authorities for specific regulations, standards and inspections but in areas of conflict, the more stringent authority prevails.

2.8.2 Municipal authority review:

1. The purpose of this review is for information and awareness;
2. Submissions will be reviewed at the completion of specific phases as outlined in the Project Brief.

2.9 Building Permits and Occupancy Permits

2.9.1 The Consultant will review plans with the permit authority as early as necessary to assure smooth project development but no later than 66% Contract Documents, unless otherwise approved by the Departmental Representative. Consultant will advise and assist administration of any necessary permit fees.

2.9.2 The Consultant shall support the Contractor in its application for an Occupancy Permit and coordinate the resolution of all outstanding issues related to the permit.

2.9.3 The Consultant shall apply for the Building Permit and the Contractor shall pay for permits on behalf of RCMP.

2.10 Review and Approval by Authority Having Jurisdiction

This section replaces Sections 2.10 "REVIEW AND APPROVAL BY PROVINCIAL/TERRITORIAL AND MUNICIPAL AUTHORITIES" and 2.11 "BUILDING PERMITS AND OCCUPANCY PERMITS" where the User Department is acting as the AHJ (i.e. User Department Fire Protection Coordinator).

2.10.1 The User Department Fire Protection Coordinator will conduct reviews and approvals in place of provincial / municipal authorities.

1. The purpose of each review is for information and awareness;
2. Submissions will be reviewed at the completion of specific phases as outlined in the Project Brief.

2.11 Technical Reports

2.11.1 Technical Reports are official government documents, which are used to support an application for approval or to obtain authorization or Acceptance. Technical Reports must:

1. Be complete, clear and professional in appearance and organization, with proper reference to related parts and contents in the report;
2. Clearly outline the intent, objectives, process, results and recommendations;
3. Present the flow of information and conclusions in a logical, easy to follow sequence;
4. Be in written narrative, graphic, model (traditional and/or computer generated), and photographic format, which can be web enabled;
5. Have all pages are numbered in sequence, and;
6. Be printed double-sided, if hard copies are produced.

2.11.2 Standard practice for the organization of technical reports include:

1. A cover page, clearly indicating the nature of the report, the date, the RCMP project number and who prepared the report;
2. A Table of Contents;
3. An Executive Summary;
    1. A true condensed version of the report following the identical structure, including only key points and results/recommendations requiring review and/or approval;
4. The body of the report is to be structured such that the reader can easily review the document and locate, respond to and/or reference related information contained elsewhere in the report easily;
5. Appendices are to be used for lengthy segments of the report, supplementary and supporting information and/or for separate related documents.

2.11.3 The report content must:

1. Use a proper numbering system (preferably legal numbering), for ease of reference and cross-reference;
2. The use of 'bullet points' are to be avoided.
3. Use proper grammar, including using complete sentences, for clarity, to avoid ambiguity and facilitate easy translation into French, if required;
4. The use of undefined technical terms, industry jargon and cryptic phrases are to be avoided.
5. Be written as efficiently as possible, with only essential information included in the body of the report and supporting information in an appendix if needed.

3 Construction Documents

3.1 General

3.1.1 This section provides direction to Consultant firms on the preparation of construction documents (namely specifications and drawings) to be submitted to RCMP for real property projects across Canada.

3.1.2 Specifications, drawings, and addenda shall be complete and clear so that contractors can prepare bids without guesswork.

3.1.3 Principles of RCMP Contract Documents

1. Contact documents shall be prepared based on common public procurement principles. RCMP does not use Canadian Construction Documents Committee (CCDC) documents.
2. RCMP is responsible for preparing and issuing the construction contract and the terms and conditions as well as all other related bidding and contractual documents. For detailed information, the standard acquisition clauses and conditions commonly used by RCMP in the contracting process are available on the buyandsell.gc.ca website.

3.1.4 Translation

1. When bilingual documents are required in the Project Brief, all documentation including drawings, specifications, reports as well as all bidder questions shall be in both official languages.
2. Ensure that English and French documents are equal in all respects. There can be no statements where one version takes precedence over the other.

3.1.5 Construction Documents Definitions

1. Unless otherwise indicated in the Project Brief, construction document submissions (33%, 50% or 66%, 99%, and 100% / final) shall meet the definitions outlined below. Further discipline based requirements may be included in the Project Brief.
    1. 33%: shall demonstrate general intent of design and compliance and alignment with relevant standards. Summary specification required, but not a full specification.
    2. 50% or 66%: shall show full system, all components, requirements, and lack only minor details on drawings. Specifications shall be well advanced and contain major work and material requirements and lack only minor details.
    3. 99%: shall be for final review by RCMP, lacking no detail and complete with a project specific specification.
    4. 100% (or final): shall address comments by RCMP as required, signed and sealed by the responsible design professional in compliance with various provincial jurisdiction requirements, ready for tender.

3.1.6 Quality Assurance

1. It is the sole responsibility of the Consultant firms to undertake their own quality control process and to review, correct, and coordinate their documents (between disciplines). The Consultant shall also ensure the constructability of their design.

3.1.7 Quality Assurance Deliverables

1. For every construction document submission (33%, 50% or 66%, 99% and 100%), the Consultant shall provide:
    1. a completed and signed Checklist for the Submission of Construction Documents (see Appendix A); and

3.1.8 Terminology & Quantities

1. The Consultant shall use the term “Departmental Representative” instead of Engineer, RCMP, Owner, Consultant or Architect. “Departmental Representative” means the person designated in the Contract, or by written notice to the Contractor, to act as the Departmental Representative for the purposes of the Contract, and includes a person, designated and authorized in writing by the Departmental Representative to the Contractor.
2. Notations such as “verify on site,” “as instructed,” “to match existing,” “example,” “equal to,” “equivalent to,” and “to be determined on site by Departmental Representative” shall not be indicated in specifications nor in drawings, as such wording promotes inaccurate and inflated bids.
3. Construction documents shall permit bidders to bid accurately. If a precise quantity is impossible to identify (e.g. cracks to be repaired), then provide an estimated quantity for bidding purposes (to be used in conjunction with unit prices). Ensure that the terminology used throughout construction documents is consistent and does not contradict applicable codes and standards.

3.1.9 Units of Measure

1. All units of measure within drawings and specifications shall be based on the International System of Units (SI).

3.2 Drawings

3.2.1 General

1. All drawings shall be provided in an appropriately layered, non-exploded, correctly scaled, and in all other ways of reasonable quality.
2. Drawings produced shall be in accordance to acceptable CADD Standards:
    1. NCS-UDS (The U.S. National CADD Standard – Uniform Drawing System) with layer names in accordance with AIA layer naming standard. (nationalcadstandard.org)
    2. With prior approval by the Departmental Representative, the PSPC National CADD Standards may be used. (www.tpsgc-pwgsc.gc.ca/biens-property/cdao-cadd/page-3-eng.html)
    3. Other CADD Standard may be adopted, only with the prior written consent of the RCMP.
3. The use of Colour Tables (.CTB files) is discouraged. Rather, lineweights/styles should be controlled by layers and by Style Table (.STB file). If used, .CTB/.STB files must be provided.
4. Drawing shall also meet the following criteria:
    1. Primary dimensions are to be SI compliant. Building elements are to be dimensioned in mm, while some Civil and Landscape dimensions may be in m where indicated. The use of Imperial measurements is permitted, but must appear after SI measurements;
    2. No trade names present on any drawings; and
    3. No specification-type notes are on any drawing.

3.2.2 Information to be Included

1. Drawings should show the quantities of the elements, the configuration of the project, the dimensions, and details of how the work is constructed. There should be no references to future work or information that will be changed by future addenda. The scope of work should be clearly detailed, and elements not in the Contract should be eliminated or kept to an absolute minimum.

3.2.3 Title Blocks and Revision Notes

1. Use the provided ANSI B and/or ANSI D sized generic title blocks for drawings and sketches. Consultants may place their information in the upper-right of the border.

2. The percent of drawing completion should be included in the revision notes. Revision notes shall be inputted during design development, but cleared for 100% complete drawing (ready for tender).

3.2.4 Drawing Numbers

1. Drawings should be numbered in sets according to the type of drawing and the discipline involved. The following shall be applied:
    1. NCSv6-UDS Module 1, where AIA layering is employed. (www.nationalcadstandard.org/ncs6/pdfs/ncs6_uds1.pdf)
    2. PSPC National CADD Standard Section 2, when PSPC Standards are adopted in the project.

3.2.5 Presentation Requirements

1. Present the drawings in sets, providing the applicable demolition, site plan, civil, landscaping, architecture, structural, mechanical, and electrical drawings in that order. All drawings should be of uniform standard size.

3.2.6 Legends

1. Provide a legend of symbols, abbreviations, references, etc., on the front sheet of each set of drawings, or in the case of large sets of drawings, provided the legend immediately after the title sheet and index sheets using NCSv6-UDS Module 5 Terms and Abbreviation, and Module 6 Symbols.

3.2.7 Schedules and Tables

1. Where schedules or tables occupy entire sheets, locate them at the back of each set of drawings for convenient reference using NCSv6-UDS Module 3 Schedules.

3.2.8 North Arrow

1. Include a north arrow on all plans. Orient all plans in the same direction for easy cross-referencing. Wherever possible, lay out plans so that the north point is at the top of the sheet.

3.2.9 Drawing Symbols

1. Follow generally accepted drawing conventions, understandable by the construction trades and in accordance with RCMP publications using NCSv6-UDS Module 6 Symbols.

3.2.10 As-Built Drawings

1. As-built drawings are official record drawings and shall represent as constructed conditions including location and size of equipment, devices, plumbing lines, mechanical and electrical equipment, structural elements etc. As-built drawings shall be updated in CAD, handwritten notes are not acceptable.

3.2.11 Submission Format

1. Unless otherwise stated in the Project Brief, drawing submissions shall be in electronic and hard copy format.

2. Drawing Hard Copy Deliverable Format

1. Drawing submitted in hard copy shall be:
    1. printed to scale with black lines on white paper;
    2. bound with staple or other means into sets, where presentations exceed 50 sheets, the drawings for each discipline may be bound separately for convenience and ease of handling; and
    3. of a paper size as agreed to with the Departmental Representative.

3. Drawing Electronic Copy Deliverable Format

1. Drawing submitted electronically shall be provided:

1. without password protection or printing restrictions, unless requested;
2. in two formats:
    1. PDF/E-1 (in compliance with ISO 24517-1);
    2. .dwg format; and
3. in accordance with Appendix D.

3.3 Building Information Modelling (BIM)

3.3.1 RCMP is committed to using non-proprietary or "OpenBIM" standards. As such, the Consultant is not required to use any specific proprietary software format. For the sake of legacy information quality, the Consultant shall use the international standards of interoperability for BIM (IFC) in all cases where models are submitted. Consultants shall to work with software that is compliant to this standard.

3.3.2 Where used, BIM shall not replace the submission requirements outlined by this document. Rather, consultants shall submit models in addition requirements outlined herein.

3.3.3 Where BIM is used, models and modelled information shall be submitted in the following two formats:

1. .native (whichever format is native to the Modelling software used by the Consultant);
2. .ifc (Industry Foundation Classification – IFC4 – ISO 16739:2013); and

3.3.4 All Modelled Information, and Model Information Exchanges shall conform to:

1. Project-specific requirements, such as they are laid out in the Project Execution Plan, Project Documentation and Model Element Table; and
2. The project-identified BIM Standards & Guidelines.

3.3.5 Models for electronic submissions shall be organized as per Appendix D.

3.4 Specifications

3.4.1 National Master Specification

1. Specifications prepared for RCMP shall follow the most current version of the *National Master Specification* (NMS) format offered by the National Research Council.
2. The Consultant has overriding responsibility for the content of construction project specifications. For each specification, he or she shall edit, amend, and supplement the NMS template as deemed necessary to produce an appropriate project specification free of conflict and ambiguity. The Consultant should refer to the latest *NMS User's G*uide and *NMS Development Guide* issued by the National Research Council for further guidance on using the NMS.

3.4.2 Index

1. Specifications shall include an index which list all specification sections, including numbers of pages, as well as the division and section names.

3.4.3 Specification Organization

1. Narrow scope sections describing single units of work should be used for complex work. Broad scope sections may be used for less complex work. The Consultant shall use consistently for the entire specification either the NMS 1/3 page format, the NMS 2/3-page format or the Construction Specifications Canada (CSC) full-page format.
2. Start each section on a new right hand page and show the RCMP project number, NMS section title, NMS section number, page number, and specification date on each page. The project title, and Consultant's name are not to be indicated.

3.4.4 Standards

1. Code and standard references in the NMS may not be up to date, the Consultant shall ensure that the project specification use the current applicable edition of all references quoted.

3.4.5 Specifying Materials

1. Specifications should make use of generic names in referencing construction materials. The Consultant should refer to the latest version of the *NMS Development Guide* issued by the National Research Council for further details. The term "Acceptable Manufacturers" shall not be used, as this restricts competition and does not ensure the actual material or product will be acceptable.

2. Alternate Products and Materials

1. Alternative materials to those specified may be considered during the solicitation period; however, the onus will be on the Consultant to review and evaluate all requests for approval of alternative materials.

3. Sole Sourcing

1. Sole sourcing of materials and/or work is only allowed in exceptional and justifiable circumstances. Prior to including sole source materials and/or work, the Consultant shall contact the Departmental Representative to obtain approval for the sole sourcing. Consultants shall provide proper justification for all individual sole source requirements.
2. Sole sourcing for materials and work may be required when performing work on existing proprietary systems, such as fire alarm systems, building automation systems (BAS) etc.
    1. Wording for the sole source of work should be in Part 1 as follows:

       Designated Contractor

       Retain the services of [_____] to do the work of this section.
    2. Wording for the sole source of building automation system should be in Part 1 as follows:

       Designated Contractor

       Retain the services of [_____] or its authorized representative to complete the work of all building automation system sections.
    3. Wording for the sole source of building automation system should be in Part 2 as follows:

       Materials

       There is an existing [_____] system presently installed in the building. All materials must be selected to ensure compatibility with the existing [__] system.
    4. Wording for the sole source of materials (i.e. fire alarm systems) should be in Part 2 as follows:

       Acceptable Materials

       The only acceptable materials are [_____].

3.4.6 Measurement for Payment

1. The measurement for payment shall be provided in lump sum or unit prices.

2. Unit Prices

1. Unit prices should only be used in instances where the quantity can only be roughly estimated (e.g. earth work). The approval of the Departmental Representative shall be sought in advance of their use. In each applicable NMS section where unit prices are used, add new or replace paragraph title "Measurement for Payment" with "Unit Prices." and use the following wording:

[The work for this section] or [define the specific work if required, e.g. rock excavation] will be paid based on the actual quantities measured on site and the unit prices stated in the Bid and Acceptance Form.

2. Provide a unit price table, sample shown below, to designate the work to which a unit price arrangement applies. The table shall include:
    1. the price per unit and the estimated total price for each item listed;
    2. a complete description of each type of work covered; and
    3. items as described in the referenced specification section.

Item	Specification Reference	Class of Labour, Plant or Material	Unit of Measurement	Estimated Quantity	Price per Unit GST/HST extra	Estimated Total Price GST / HST extra
TOTAL ESTIMATED AMOUNT						

3.4.7 Cash Allowances

1. Construction documents shall be complete and contain all of the requirements for the contractual work. Cash allowances are to be used only under exceptional circumstances (i.e. utility companies, municipalities), where no other method of specifying pricing is appropriate.
2. To include cash allowances, obtain approval from the Departmental Representative in advance, and use Section 01 21 00 – Allowances of the NMS to specify the criteria.

3.4.8 Warranties

1. The 12-month warranty period specified in Government of Canada's standard acquisition clauses and conditions with regard to the contract should typically be retained as is. Extended warranties should only be used where experience has shown that serious defects are likely to appear after expiry of the standard one-year warranty period. When necessary to extend beyond the 12 month warranty period, use the following wording in Part 1 of the applicable technical sections, under the heading "Extended Warranty":

    For the work of this Section [_____], the 12 month warranty period is extended to [__] months.

    Where the extended warranty is intended to apply to a particular part of a specification section, modify the previous text as follows:

    For [_____], the 12 month warranty period is extended to [_] months.

3.4.9 Miscellaneous Requirements

1. Paragraphs noted as "Scope of Work" shall not be included. Within Part 1 – General of specifications, the paragraphs "Summary" and "Section Includes" shall not be utilized.

3.4.10 Specification Coordination

1. All sections of the specifications shall be coordinated, including the "Related Sections" portion of specifications and appendices. References to non-existent sections shall not be present within the specifications.

3.4.11 Regional Guide

1. The Consultant should contact the Departmental Representative to obtain the region's requirements for Division 01 (General Requirements) or other short-form specifications as appropriate.

3.4.12 Health and Safety

1. All project specifications are required to include Section 01 35 29 – Health and Safety Requirements. Confirm with the Departmental Representative to determine if there are any instructions to meet regional requirements.

3.4.13 Subsurface Investigation Reports

1. If required, subsurface investigation report(s) shall be included after Section 31, and the following paragraph added to Section 31:

   Subsurface Investigation Report(s)

   Subsurface investigation report(s) are included in the specification following this section.

   If the Departmental Representative determines that it is not practical to include the subsurface investigation report(s), alternate instructions will be provided.

   Where tender documents are to be issued in both official languages, the subsurface investigation report(s) shall be issued in both languages.

   In addition to providing the subsurface investigation report(s), the foundation information required by the current *National Building Code of Canada* (Division C, Part 2, 2.2.4.6) shall be included on foundation drawings.

3.4.14 Prequalification and Pre-Award Submissions

1. Do not include in the specifications any mandatory contractor and/or subcontractor prequalification or pre-award submission requirements that could become a contract award condition. If a prequalification process or a pre-award submission is required, contact the Departmental Representative.
2. There should be no references to certificates, transcripts, samples, the license numbers of a trade or subcontractor, or any other documentation or item being included with the bid.

3.4.15 Contracting Issues

1. Specifications describe the workmanship and quality of the work and shall not contain any contracting issues. Division 00 of the NMS is not used by RCMP, except for the Seals page 00 01 07 and the Table of Contents 00 01 10. In specifications, remove all references to the following:
   1. general instructions to bidders;
   2. general conditions;
   3. Canadian Construction Documents Committee (CCDC) documents;
   4. priority of documents;
   5. security clauses and clearances;
   6. terms of payment or holdback;
   7. the tendering process;
   8. bonding requirements;
   9. insurance requirements;
   10. alternative and separate pricing;
   11. site visits (mandatory or optional); and
   12. the release of lien and deficiency holdbacks.

3.4.16 Specification Submission Format

1. Unless otherwise stated in the Project Brief, specification submissions shall be in electronic and hard copy format.

2. Specification Hard Copy Deliverable Format
    1. Specifications submitted in hard copy shall be printed on both sides of 216 mm x 280 mm white bond paper.

3. Specification Electronic Copy Deliverable Format
    1. Specifications submitted electronically shall be:
        1. provided in PDF/A (in compliance with ISO 19005) format, without password protection and printing restrictions; and
        2. in accordance with Appendix D.

3.5 Addenda

3.5.1 Format

1. Prepare addenda using the format shown in Appendix C. No signature-type information is to appear.
2. Every page of the addendum (including attachments) shall be numbered consecutively. All pages shall have the RCMP project number and the appropriate addendum number. Sketches shall appear in the RCMP format, signed and sealed.
3. No Consultant information (name, address, phone #, Consultant project #, etc.) should appear in addenda or their attachments (except on sketches).

3.5.2 Content

1. Each item should refer to an existing paragraph of the specification or note/detail on the drawings. The clarification style is not acceptable.
2. Where there are many or major changes to a section or drawing, consider deleting the entire section or drawing and replacing it with a new version.

4 Cost Estimates

4.1 Cost Estimates Submission Formats

4.1.1 Format

1. Cost estimates for projects shall be prepared in the elemental analysis format, which is in accordance with the latest edition issued by the Canadian Institute of Quantity Surveyors (CIQS) for all RCMP regions excluding Quebec. Within Quebec region the cost estimates shall be prepared in the Uniformat II format.

4.1.2 Contents

1. All cost estimates shall contain the following:
    1. introduction narrative complete with an outline description of the cost estimate basis;
    2. description of information obtained and used in the cost estimate including the date received;
    3. listing of notable inclusions;
    4. listing of notable exclusions;
    5. listing of items/issues carrying significant risk;
    6. summary of the itemized cost estimate;
    7. itemized breakdown of cost estimate by elemental analysis for Class B, C, and D; and
    8. itemized breakdown of costs estimate in both elemental analysis and National Master Specification division format for Class A, including measured quantities, unit rate pricings and amounts for each item of work.
2. Allowances, if deemed necessary by Consultant, shall contain the following:
    1. design allowance to cover unforeseen items during design phase;
    2. escalation allowance for changes in market conditions between the date of the cost estimate and the date tender is called;
    3. construction allowance to cover unforeseen items during construction; and
    4. the basis of calculations of the above allowances.

4.2 Classes of Cost Estimates for Construction Projects

1. RCMP applies a detailed, four-level classification using the terms Class A, B, C and D. Apply these estimate classifications at the project stages as defined in the Project Brief. For projects required to be submitted to Treasury Board (TB) for approval: an indicative estimate shall be at least a Class D and a Substantive Estimate shall be at least a Class B.

2. Class D (Indicative) Estimate
    1. Based upon a comprehensive statement of requirements, an outline of potential solutions and/or functional program, this estimate is to provide an indication of the final project cost that will enable ranking to be made for all the options being considered. This cost estimate shall be prepared in elemental analysis format. The level of accuracy of a Class D cost estimate shall be such that no more than a 20% design allowance is required.

3. Class C Estimate

1. Based on schematic/conceptual design and/or comprehensive list of project requirements, this estimate shall be adequately detailed and shall be sufficient for making the correct investment decision. This cost estimate shall be based on measured quantities of all items of work and prepared in elemental analysis format. The level of accuracy of a Class C cost estimate shall be such that no more than a 15% design allowance is required.

4. Class B (Substantive) Estimate

1. Based on design development drawings and outline specifications, which include the preliminary design of all major systems and subsystems, as well as the results of all site/installation investigations, this estimate shall provide for the establishment of realistic cost objectives and be sufficient to obtain effective project approval.
2. This cost estimate shall be based on measured quantities of all items of work and prepared in elemental analysis format. The level of accuracy of a Class B cost estimate shall be such that no more than a 10% design allowance is required.

5. Class A (Pre-Tender) Estimate

1. Based on completed construction drawings and specifications prepared prior to calling competitive tenders, this estimate shall be sufficient to allow a detailed reconciliation and/or negotiation with any contractor's tender submission. This cost estimate shall be based on fully measured quantities of all items of work and prepared in both elemental analysis and Trade division format as per MasterFormat™. The level of accuracy of a Class A cost estimate shall be such that no more than a 5% design allowance is required.

5 Project Schedules

5.1 Schedule Format

5.1.1 Project schedules shall be submitted in the .mpp file extension (compatible with MS Project) and in searchable PDF format. The schedule shall include:

1. major and minor milestones;
2. activities representing discrete elements of work assigned to one person which:
3. are named using verb-noun combination (i.e. Review Design Development Report);
4. contain realistic durations in days;
5. project logic linking activities with appropriate relationships finish-start (FS), finish-finish (FF), start-start (SS); and
6. Identification of the critical path activities.

5.2 Progress Report

5.2.1 The progress report shall detail the progress of each activity up to the date of the report. It shall also include any logic changes made, both historic and planned; projections of progress and completion; as well as the actual start and finish dates of all activities being monitored.

5.2.2 The contents of each progress report will vary depending on the requirements at each project phase. A progress report should include:

1. an executive summary;
2. a narrative report;
3. a variance report;
4. a criticality report;
5. an exception report (as required);
6. the master schedule with cash flow projections; and
7. the detailed project schedule (network diagram or bar charts).

5.2.3 Executive Summary

1. The executive summary should provide a synopsis of narrative, variance, criticality and exception report, and is not to exceed one page.

5.2.4 Narrative Report

1. The project narrative shall detail the work performed to date, comparing work progress to planned, and presenting current forecasts. This report should summarize the progress to date, explaining current and possible deviations and delays and the required actions to resolve delays and problems with respect to the Detailed Schedule, and Critical Paths.

5.2.5 Variance Report

1. The variance report, with supporting schedule documentation, should detail the work performed to date and compare work progress to work planned. It should summarize the progress to date and explain all causes of deviations and delays and the required actions to resolve delays and problems with respect to the detailed schedule and critical paths. The variance report shall be presented in the following format:

Paper size: Letter
Paper format: Portrait

Title format:	Project Title, Report Type, Print Date, Data Date, Revision Block
Body text:	Narratives for each report to match other reports
Columns:	Activity ID, Activity Name, Planned Finish, Revised Finish, Variance, Activity % Complete

5.2.6 Criticality Report

1. The criticality report identifies all activities and milestones with negative, zero, and up to five days' Total Float. It is used as a first sort for ready identification of the critical paths, or near-critical paths, through the entire project. The criticality report shall be presented in the following format:

Paper size:	Letter
Paper format:	Portrait
Title format:	Project Title, Report Type, Print Date, Data Date, Revision Block
Body text:	Narratives for each report to match other reports
Columns:	Activity ID, Activity Name, Planned Finish, Revised Finish, Variance, Activity % Complete

5.2.7 Exception Report

5.2.8 The exception report shall be provided when unforeseen or critical issues arise. The Consultant shall advise the Departmental Representative and submit the details and proposed solutions in the form of an exception report. The report shall include sufficient description and detail to clearly identify:

1. scope changes, including identifying the nature, reason, and total impact of all identified and potential project scope changes affecting the project;
2. delays and accelerations, including identifying the nature, reason, and total impact of all identified and potential duration variations; and
3. options enabling a return to the project baseline, including Identifying the nature and potential effects of all proposed options for returning the project within the baselined duration.

5.2.9 The exception report shall be provided in the following format:

Paper size:	Letter
Orientation:	Portrait
Title format:	Project Title, Report Type, Print Date, Data Date, Revision
Body text:	Narrative to match other reports

Paper size:	Letter
Orientation:	Landscape
Title format:	Project Title, Report Type, Print Date, Data Date, Revision
Columns	Activity ID, Activity Name, Duration, Remaining Duration, Start, Finish, Total Float

5.2.10 Master Schedule

1. A master schedule including cash projection shall be provided in the following format:

Paper size:	11X17
Orientation:	Landscape
Columns"	Activity ID, Activity Name, Duration, Activity % Complete, Start, Finish, Total Float
Footer format:	Project Title, Report Type, Print Date, Data Date, Revision Block

Sorting:	Early Start, then Early Finish, then Activity ID based on the WBS.

5.2.11 Detailed Project Schedule

1. A detailed project schedule shall be provided along with a network diagram or bar charts in the following format:

Paper size:	11X17
Orientation:	Landscape
Columns:	Activity ID, Activity Name, Duration, Activity % Complete, Start, Finish, Total Float
Footer format:	Project Title, Report Type, Print Date, Data Date, Revision Block
Sorting:	Early Start, then Early Finish, then Activity ID based on the WBS.

6 Definitions

6.1 Purpose

6.1.1 Document Definitions

1. Definition of words and phrases in the Project Brief, and *RCMP's Project Delivery Manual* to:
    1. Expand the detail associated with the services and deliverables addressed in the above Documents, and;
    2. Provide a clear understanding of the project scope, procedures, and quality performance requirements.
2. Additional Definitions can be found on the Supply Manual Glossary: https://buyandsell.gc.ca/policy-and-guidelines/supply-manual/glossary/1#q lossary - Buyandsell.gc.ca

6.2 Definitions

6.2.1 Acceptance

1. Refer to the Supply Manual Glossary.
2. A formal action taken by an assigned person with authority (contractual or otherwise) to declare some aspect of the project is permitted to proceed.

6.2.2 Basis of Design (BOD)

1. Refer to CSA Z320 Article 3, Definitions.
    1. For further detail refer to ASHRAE 202, Article 8 – Basis of Design, Article 8.2 – Requirements.
2. A dynamic narrative document throughout the Project Milestones, recording the rationale for decisions and confirming to the Project Team design conformance to the ideas, concepts and criteria considered important to the owner as contained in the Owner Project Requirements (OPR) - for OPR see Definition;
    1. As the Design Consultant BOD also outlines the intended systems for the project, the Design Consultant's Cx Process Manager/Cx Authority, using a compliance evaluation/tracking matrix, confirms the BOD's compliance to the OPR.
3. Documents the primary thought processes and assumptions behind design and implementation decisions.
4. Text and graphics are organized to facilitate future use as a building reference document.
    1. The O&M Manual describes "what" components/systems have been selected, the BOD describes "why" and "how" the design achieves the performance requirements of the OPR, and;
    2. BOD and OPR are components of the Cx Manual.
        1. OPR - refer to Definition for further information.
5. Includes:
    1. A Summary:
        1. Project's conceptual framework;
        2. Compliance with OPR statement (including new Owner directives);
        3. Compliance with the Functional Program, and;
        4. Rationale for decisions made throughout the specific Project Milestone.
    2. Design assumptions, such as:
        1. Anticipated future changes not included in the project, and;

2. Selected assembly and system performance requirements.

3. A Uniformat™ Level 4 narrative description and statement on the purpose of the selected components, assemblies, systems and methods – see PPDFormat™ Definition, including:
    1. Areas served by the respective components, assemblies and systems, and;
    2. Illustrations of system configurations, including single line and plan drawings of each system.
4. Design options and analysis considered during the:
    1. Life Cycle Costing and Value Engineering workshops, and;
    2. Development of sustainable features and strategies.
5. Calculations and option analysis matrixes, organized by discipline, including:
    1. Connected or related loads and system capacities, and;
    2. Design criteria and the applicable codes/standards used in the calculations.
6. Special features or unique supply items/sources, general control strategies, sequences, and reset schedules, such as:
    1. Building Components and Connectivity (BCC – see Definitions for further details);
    2. Seasonal switch-over procedures, and;
    3. Emergency procedures during a fire condition, power or equipment failure, including:
        1. Reference to Standard Operating Procedures requirements and definition.
7. Interfaces with existing systems, and;
8. Maintenance issues.

6.2.3 Basis of Estimate (BOE)

1. A "living" document throughout the project design, construction process and project life cycle.
2. Provides a framework for progress monitoring and reporting.
3. Prepared and updated to facilitate the understanding, assessment and validation of the estimated value breakdowns, independent of any other supporting documentation.
4. Includes:
    1. Level of consensus between concurrent/third party estimates;
    2. Estimate methodology;
    3. Basis of pricing - cost data sources, and allowances;
    4. Description of information obtained and used in the estimate including the date received;
    5. Notable assumptions, exclusions and inclusions;
    6. Listing of items/issues carrying notable risks;
    7. Opportunities, and any deviations from standard practices;
    8. Record of pertinent communications and agreements that have been made between the estimator and other project stakeholders;
    9. Major changes relative to previous estimates;
        1. Significant market events that may have an effect on the costs, and;
    10. Estimate reconciliation.
5. With the last submission include:
    1. Variances related to:
        1. Change Orders;
        2. Work Package estimate, and;

3. Estimate Construction Cost.

2. And, any additional relevant information.

6.2.4 Budget

1. Developed using Cost Estimates and the Project Schedule.
2. Provides a view of how much the project is estimated to cost both in total and periodic terms.
3. Determines the cost performance baseline for use in cost management variance analysis such as, determining earned performance value.
4. Is aligned with funding limits to confirm funding availability/appropriation.
5. Also refer to - Estimated Construction Cost definition.

6.2.5 Building Components and Connectivity (BCC)

1. Provide complete and integrated Building Components and Connectivity (BCC) for the User Department's project from Pre-Design to Project Close Out.
2. BCC Services are the seamless integration of all specialized building component and connectivity required for a finished project that is ready for use by the occupants in compliance with the Property Management Manual (PMM).
3. See Project Brief for applicable BCC elements within the project parameters.

6.2.6 "CANADA", "CROWN"/"HER MAJESTY"

1. Her Majesty the Queen in right of Canada.

6.2.7 Collaborative Project Delivery

1. The Collaborative Project Delivery approach promotes and facilitates knowledge collaboration between design and construction professionals and subject matter experts to create optimal design and construction solutions and methodologies in order to achieve an appropriate, timely and fiscally responsible Quality project delivery.
    1. Recognizes that project success is tied to all Project Team members' success in the integrated process.
        1. The Collaborative Project Delivery process starts at the Pre- Design with Departmental Representative as Lead Partnering Session and the Consultant, as Lead, project start-up meeting early in Schematic Design.
            1. Collaborative Project Delivery is an interactive process which continues throughout the project life cycle.
2. Joint Project Team goals include:
    1. Ownership and focus on Quality including, Owner Project Requirements (OPR), Basis of Design (BOD) as well as Budget and schedule performance;
    2. Focus on optimizing the design and construction as a whole to fulfill the RCMP Quality expectations;
    3. Mutual support for the project procedures and management;
    4. Leveraging Value Engineering, Life Cycle Costing and commissioning skills, and;
    5. Creation of an innovative learning environment.

6.2.8 Commissioning Authority

1. Refer to the:
    1. Commissioning Process Manager (CPM) Definition for description of Cx Authority and part of the Consultant's Team;

2. CSA Z 320, Article 3 Definitions for Third Party description;
3. Project Brief for the requirement of a Cx Authority as a part of the Consultant's Team membership or of an independent third party Cx Authority to be separately engaged by RCMP.

6.2.9 Commissioning Evaluation Report

1. A Cx Manual component.
2. Includes a debriefing report, with aspects such as:
    1. A complete assessment of the project;
    2. Lessons learned;
    3. Variances between the actual and planned levels of performance;
    4. A listing of components and systems not commissioned and the reasons;
    5. Recommended follow-up actions including Re-commissioning.

6.2.10 Commissioning (CX) Manual

1. Deliverable by Consultant's Cx Process Manager/Cx Authority.
2. Contains the following:
    1. Updated Owner Project Requirements (OPR);
    2. Updated Basis of Design (BOD);
    3. Updated Commissioning Plan;
    4. Static Verification, start-up and Functional Performance Testing reports;
    5. Commissioning Report;
    6. User and operator training reports;
    7. Occupancy and operations evaluation reports;
    8. All relevant project reports and correspondence, and;
    9. Recommendations for Re-commissioning and frequency by equipment type and system.
3. Requires Cx Process Manager sign-off at a Construction Contract Substantial Performance and Completion (final) milestones.

6.2.11 Commissioning (CX) Plan

1. Deliverable by Consultant's Cx Process Manager/Cx Authority.
2. Refer to CSA Z320 Article 4.2.3 Commissioning Plan.
    1. For further detail refer to the following ASHRAE 202 Articles:
        1. Article 7 – Commissioning Plan, Article 7.2 – Requirements;
        2. Article 10 – Design Review, Article 10.2 – Requirements;
        3. Article 11 – Commissioning Submittal Review – Article 11.2 Requirements;
        4. Article 15 – Training, Article 15.2 Requirements.
3. A dynamic document throughout the project life cycle.
4. Outlines a Plan to execute the scope of Work.
    1. The ongoing Plan development is carried out through iterative reviews, workshops, and meetings to ultimately become the complete plan including construction and occupancy milestones of the project.
5. "Design Phase" (Pre-Design) Cx Plan:
    1. Cx Plan is based on the Programming, OPR and Acceptance of risk and Budget;

1. Outlines a preliminary execution plan including activities, Cx Team roles and responsibilities, schedules and deliverables for pre design and subsequent design and BOD ultimately be updated and completed during the construction and occupancy milestones.

6. "Design Phase" (Schematic Design, Design Development and Construction Documents) Cx Plan:
    1. Cx Plan is updated to address the remaining Project Milestones including construction documentation, construction and occupancy. The Cx Plan includes;
    2. Detailed tasks, roles and responsibilities, schedule, work flow processes and a list of the systems to be commissioned, and;
    3. Coincides with the design documents such as the specifications so that the Commissioning Team is clear on the goals and process.
    4. Refer to CSA Z320 Article 4.3. – Design Phase, Article 4.3.1, General.
        1. For further detail refer to ASHRAE 202, Article 10 Design Review – Article 10.2 Requirements.
7. "Construction Phase" Cx Plan:
    1. During the Construction milestone, the updated Cx Plan continues to outline the Cx Team's roles and responsibilities, implementation of issues resolution protocol, the procedures and forms for documenting commissioning activities and the schedules for commissioning activities, reporting and deliverables.
    2. Refer to CSA Z320 Article 4.4 – Construction Phase, Article 4.4.1, General.
        1. Add the following requirements:
            1. Cx schedule, and Installation start-up lists.
        2. For further detail refer to ASHRAE 202, Article 11 Commissioning Submittal Review –Article 11.2 Requirements.

6.2.12 Commissioning (CX) Process

1. Refer to CSA Z320 Article 4, Commissioning Process.
2. A dynamic document throughout the project life cycle.
3. The process by which the design and construction documents (plans, sections, specifications, BOD, etc.) are confirmed to be consistent with each other; includes the commissioning requirements and the OPR.
4. During the Cx design reviews the Consultant is ultimately responsible for the project design and final decisions regarding the design expected performance.
    1. Supporting the Cx Process may also be the Consultant's Commissioning Process Manager/Cx Authority to lead the Cx Team in the design and implementation of the Process that may involve, for example either;
        1. A third party Cx Provider company, procured by RCMP) or,
        2. A Contractor's Cx Agent.

6.2.13 Commissioning Process Manager (CPM)

1. Cx functional entity:
    1. May also be identified as Cx Authority entity.
2. Member of the Consultant Team.
3. Overall functional responsibilities is to lead the Commissioning Team in the:

1. Design of the Commissioning Process so that it begins with commissioning of individual components and progresses to commissioning the complete integrated building system as a whole, and;
2. Update of the BOD and OPR during design and construction.

4. Dependent the requirement for independence from the design and construction management, the CPM may include the functional role and be identified as a functional Commissioning Authority entity in, for example, the Cx Plan Specification, article - Roles and Responsibilities of the Cx Team:
    1. Regarding “independent Commissioning Authority” requirements, refer to Canada Green Building Council (CGBC).
5. Requires a unique combination of engineering, design fundamentals and building operations knowledge including: energy systems design, installation and operation, commissioning planning and process management, hands-on field experience with energy systems performance, interaction, start-up, balancing, testing, troubleshooting, operation and maintenance procedures, and energy systems automation and controls.
6. Responsible for Cx deliverables, such as:
    1. Sequencing;
    2. Means and methods;
    3. Verification of installation and performance to BOD and OPR;
    4. Documentation and related sign-offs, and;
    5. Manuals.
7. Cx Process Manager, unless otherwise stated, will only make recommendations, and observations during the design review.

6.2.14 Commissioning Record Checklist

1. Refer to CSA Z320 Article 4.9, Final Documentation.
    1. Add to Article 4.9.3, Additional Commissioning Documentation, the following requirements:
        1. Certificate of Interim Acceptance;
        2. Final Certificate of Completion;
        3. Deferred Cx Test Report;
        4. System and Environmental Check Reports e.g. Storage Tanks;
        5. Final Cx Report;
        6. Cx Evaluation Report, and;
        7. Final Standard Operation Procedures.
2. Cx Record Checklist outlines the deliverables to be assembled and updated over the course of the Design, Construction and Delivery Close Out.
3. Cx Record Checklist may include sections such as:
    1. Commissioning Plan;
    2. Commissioning Schedule;
    3. Owner’s Project Requirements (OPR);
    4. Basis of Design (BOD);
    5. Project Team, complete with functional entity titles;
    6. Design QA Review compiled reports;

7. Project Issues/Resolutions Logs;
8. Cx Issues/Resolutions Logs;
9. Commissioning meeting minutes;
10. Commissioning specifications;
11. Commissioning forms and check sheets;
12. Commissioning site reports;
13. Coordination drawings;
14. Testing and inspection procedures;
15. System start-up plans;
16. Construction Checklists;
17. Inspection reports;
18. Test reports;
19. Commissioning test certifications;
20. Training plans;
21. Training documentation – electronic and hard copy;
22. Deferred testing documentation;
23. Post-construction review/re-inspection report;
24. Systems Manual;
25. Operations and Maintenance Manual; and
26. Re-commissioning Manual.

6.2.15 Commissioning Report

1. Deliverable by Consultant's Cx Process Manager/Cx Authority.
2. A Cx Manual Component (at Construction Contract Substantial Performance and Completion – final/post Warranty) milestone.
    1. Requires CPM/Cx Authority sign-off and Consultant verification at Substantial Performance and Completion.
3. The Cx Report (at Substantial Performance) is based on:
    1. Final BOD and OPR;
    2. System components list requiring commissioning;
    3. Final performance verification forms and check sheets: component, systems and integrated systems - design values to actuals;
        1. Static, installation, start-up, functional performance and integrated system verification;
    4. All commissioning site review reports;
    5. Commissioning issue logs and progress reports;
    6. Final training sessions;
    7. Post occupancy changes; Deferred commissioning; and
    8. Current information not available or incomplete at Interim Acceptance/Substantial Performance.
4. A Final Commissioning Report (prior to end of Warranty Period), which includes:
    1. Final Cx Evaluation Report;
    2. Updated Cx Report from Substantial Performance;

3. Post-Occupancy test results and evaluations; and
4. Updated Issues/Resolutions Log – highlighting documented Cx resolutions.

5. All progressive/interim Acceptances requiring all Project Team members to sign-off.

6.2.16 Commissioning Risk Assessment

1. Deliverable by Consultant's Cx Process Manager/Cx Authority.
2. The Cx Risk Assessment aligns the rigor of the Commissioning Process with the following 2 risk items associated with Architectural and Engineering systems:
    1. Building: The function and performance; and
    2. Deliverables: The deficiencies, such as, inaccurate as-built documentation, ineffective owner/occupant training, lack of documented system performance testing, and lack of comprehensive systems manuals.
3. The Cx Risk Assessment is often summarized in a matrix and accompanied by a basis of assessment narrative.
4. The premise of the Cx Risk Assessment is to identify:
    1. Building type and the intended use as a guide for Cx risk associated with the intended building systems; and
    2. How the performance of each system will affect the performance of all other systems, and how non-performance in the building may have a negative impact on function and operational confidence.

6.2.17 Commissioning Scope

1. Facilitated deliverable by Consultant's Cx Process Manager/Cx Authority.
2. Conducted by a Cx Team.
3. An integrated developmental process for determining the level of Cx effort based on the scope, rigor, OPR, building operation and function, including:
    1. Cx prioritization; and
    2. Cx Risk Assessment.

6.2.18 Commissioning Team (CX TEAM)

1. The objective of the team is to encourage interdisciplinary collaboration to confirm the Cx Process is completed and the facility criteria has been achieved.
2. Cx Team composition is first identified and defined at the Pre-Design milestone, followed by an integrated development of a Cx Process and the assignment of the Cx roles and responsibilities and corresponding services and deliverables.
3. Size and membership varies depending on the project size, complexity and phase of design and construction.
4. Team make-up may consist of a:
    1. Departmental Representative;
    2. User Department – O&M Personnel;
    3. Consultant(s) (dependent on the Project Brief, including Consultant's Cx Authority);
    4. Contractor's Agent; and
    5. Contractor's Agencies.

6.2.19 Construction Documents or Contract Documents

1. The drawings and specifications (including addenda).

6.2.20 Contractor's Commissioning Agencies

1. To be identified as the in the specifications as the "Contractor's Sub- Contractor Commissioning Agency/Agencies" (CS-CCxA) functional entity/entities, in the Cx Plan Specifications, article - Roles and Responsibilities of the Cx Team. Includes Agencies, such as:
    1. Installing contractor/sub-contractor;
    2. Equipment manufacturers, such as, elevators, emergency generators;
    3. Specialist Cx Agency, Cx Work outside the scope or expertise of other Cx Agencies, Work such, as environmental space condition, air quality; and
    4. TAB Agency, such as adjusting flow rated and pressure related to ducted air and hydronic systems, fans and pumps.
2. Available for emergency and troubleshooting service during the first year of occupancy and modification outside the responsibilities of the O&M personal.

6.2.21 Contractor's Commissioning Agent

1. Responsibilities are distinct from the Contractor's site supervisor.
2. To be identified in the specifications (Cx Plan Section, article – Roles and Responsibilities of the Cx Team,) as the "Contractor's Commissioning Agent" (CCxA) functional entity.
3. Responsible for the implementation of all commissioning actives required by the specifications, including demonstrations, training, testing, preparation and submission of testing reports.
4. Available for emergency and troubleshooting service during the first year of occupancy and modification outside the responsibilities of the O&M personal.

6.2.22 Constructability

1. The extent to which the design of the building facilitates the ease of construction, which is subject to the overall requirements for the completed building project.
2. The effective and timely integration of construction knowledge into the conceptual planning, design, construction, and field operations of a project to achieve project goals and building performance at the optimal level by:
    1. Implementing a Quality project delivery process which also meets the project objectives in the best possible time and accuracy at the most cost-effective levels; and
    2. A balance of various project, environmental and market constraints.

6.2.23 Construction Checklist – Checks and Tests

1. Also known as Contractor's Cx "systems readiness checklist".
2. Confirms specified equipment is provided, undergone Static Verification, properly installed, initially Started-up and checked out in preparation for full operation and Functional Performance Testing.
3. Refer to CSA Z320 Article 4.4 – Construction Phase.
    1. Add to Article 4.4.2 – Pre-construction the following requirements:
        1. Cx schedule, and Installation start-up lists.

6.2.24 Constant Dollar Estimate

1. This is an estimate expressed in terms of the dollars of a particular base fiscal year.
2. It includes no provisions for inflation.
3. Cash Flow over a number of fiscal years may also be expressed in constant dollars of the base year including no allowance for inflation in the calculation of costs.
    1. For Current Dollar Estimates – see Definitions;

6.2.25 Consultant

1. Refer to the Supply Manual Glossary.
2. Architectural/Interior Design/Engineering firm acting in the capacity of Prime Consultant and architect of record for the provision of services described in the Project Brief.
    1. The Consultant manages and coordinates the Consultant Team (refer to Definition).

6.2.26 Consultant Team

1. The Consultant (architectural/interior design/engineering firm and Prime Consultant) and their sub-consultants including professionals and advisors with whom RCMP has contracted to provide other services described in this Project Brief.

6.2.27 Cost Estimate

1. Refer to the *RCMP's Project Delivery Manual,* Section 4 - Cost Estimates for further Cost Estimate details.
2. Cost Estimate as compared to the Budget – see Definition.
3. Estimates cost of the Work associated with the overall project at each Project Milestone, and tender packages, Division 01 General Requirements and other supporting activities within the project lifecycle.
4. Cost breakdown estimating is formatted as per CIQS general best practices including the following formats associated with PPDFormat™ and MasterFormat™ (MF) National Master Specifications:
    1. During Schematic Design (SD) – Uniformat™ Level(s) of Detail as mutually agreed upon by the Departmental Representative and Consultant;
        1. For further detail refer to Preliminary Project Description (PPD/PPDFormat™) Definition.
    2. During Design Development (DD) – as per Uniformat™ Level of Detail 5;
        1. For further detail refer to Preliminary Project Description (PPD/PPDFormat™) Definition, and;
    3. During Construction Documentation (CD) – as per MasterFormat™ - Divisional and Sectional details;
        1. National Master Specifications (NMS) is the basis for construction specifications.
5. For all Cost Estimates include the Basis of Estimate (BOE) – see Definition.

6.2.28 Current Dollar Estimate

1. Budget Year Dollars is also to be referred to as Nominal dollars.
2. An estimate based on costs arising in each Fiscal Year (FY - ending March 31) of the project schedule.
3. Escalated to account for inflation and other economic factors affecting the period covered by the estimate.
4. Costs and benefits across all periods should initially be tabulated in Budget Year Dollars for the following reasons:
    1. It is the form in which financial data is usually available;
    2. Tax adjustments are accurately and easily made in Budget year dollars; and
    3. It enables during analysis, the construction a realistic picture which takes into account changes in relative prices.
5. Constant Dollar Estimate – see Definitions.

6.2.29 Departmental Representative (DR)

1. The person designated in the Contract, or by written notice to the Contractor/Consultant, to act as the Departmental Representative for the purposes of being a Contract entity.

6.2.30 Environmental Effects Determination (EED) Report

1. An EED is required prior to commencing work to ensure that the project will not cause significant adverse environmental effects
2. The EED draft and final report should include the appropriate sections described below. The report should sufficiently explain how the EED report arrived at its conclusions. It should also provide a clear description of any proposed mitigation measures or monitoring, and outline any requirements for follow-up that the Consultant believes are necessary.
    1. Introduction
        1. Purpose of the Environmental Effects Determination (EED)
        2. Requirement for an EED
        3. Project Description (including site history)
        4. Scope of EED
        5. Limitations
    2. Consultation
    3. Existing Environmental Conditions of the Project Sites
        1. Atmospheric Conditions
        2. Terrestrial Environment
        3. Aquatic Environment
        4. Species at Risk Inventory
        5. Archaeology Potential
    4. Environmental Effects & Recommended Mitigation Measures
        1. Assessment of Valued Biophysical and Physical Ecosystem Components
        2. Methodology for Significance Evaluation of Residual Environmental Effects
        3. Monitoring and Follow-Up
        4. Cumulative Effects
    5. Concluding Signatures
    6. Technical Authority and Project Lead sign off page
    7. Decision Record
    8. References
    9. List of Tables
        1. List of Appendices (as applicable)
        2. Mitigation Measures Summary Table
        3. Monitoring Requirements
3. Report Format:
    1. The Consultant shall deliver the draft and final report(s) in the following format:
        1. Draft report: Microsoft Word. Site plans, photographs and other graphics to be included as required. The Consultant shall provide the draft report in a format that will allow the Departmental Representative to provide comments back to the Consultant electronically.
        2. Final report: Adobe Acrobat (.pdf) and editable Microsoft Word. Site plans, photographs and other graphics to be included and three (3) double sided bound signed paper copies.

6.2.31 Estimated Construction Cost

1. The Budget identified in the Project Brief or subsequently in writing by the Departmental Representative:
2. Also stated as “Cost Estimate”.

6.2.32 Facility Turnover

1. Refer to CSA Z320 Article 4.7, Facility Turnover Activities.
    1. Add to Article 4.7 the following review requirements:
        1. Review signatories, client/stakeholder, of a document agreeing to accept project outcomes and/or on the condition that all recorded deficiencies are to be addressed as appended;
            1. Facility Turnover Activities are required where the project or part of the project (“partial interim occupancy”) is being turned over.

6.2.33 FIT-UP Standards

1. Space allocation and workplace configuration and furnishing using a hybrid of GCworkplace Design Guidelines and RCMP Property Management Manual (PMM) Standards.
    1. Departmental Representative will provide an electronic copy.

6.2.34 Functional Performance Testing

1. Refer to CSA Z320 Article 4.5, Functional Performance Testing.
    1. For further detail refer to ASHRAE 202, Article 13 Issues and Resolution Documentation – Article 13.2 Requirements.
        1. Review Functional Performance Testing data entry in the Issues and Resolutions log according to ASHRAE 202, Section 13, including:
            1. Tests at peak load conditions as identified in the Cx Plan.

6.2.35 Functional Program

1. May be included in the RFP or may be a Pre-Design deliverable stating the end state functional and operational goals.
    1. The term “Functional Programming” is only one component of a “Programming” service which may also include technical programming, Master Schedules and program requirement cost estimates.
    2. Functional Programming documentation and supporting templates (e.g. questionnaires, workshops) will be developed as part of the scope of work specific to the project parameters.
2. Defines the design problem by determining the details for achieving the goals. Goals may include, but are not limited to, design considerations regarding:
    1. Architecture: Area needs, adjacencies, circulation, acoustics, health and safety, personal forecasts, user characteristics, organizational structure, Budget and costs and project schedule;
    2. Engineering: HVAC, plumbing, electrical, security, and communications.
3. One of Three Program Levels of effort are use based on complexity and risk:
    1. Level 1 Program is used for small, relatively simple or repetitive types of projects where the standard requirements are well understood, includes;
        1. A summary of required useable spaces, along with net areas and general notes outlining specific space requirements;
        2. The approximate gross useable area required to accommodate the program;
        3. A description, in general terms, of the relationships between spaces and groups of spaces, in sufficient detail to commence the Schematic Design Stage;

2. Level 2 Program is used for larger projects with some degree of complexity, includes;
    1. A summary of required useable spaces, along with net areas;
    2. An outline of specific technical and functional requirements for each space;
    3. The approximate gross area required to accommodate the programme, determined by developing component diagrams;
    4. Relationship diagrams indicating adjacencies and flow patterns between spaces and groups of spaces, and;
3. Level 3 Program is used for major projects and projects with a high degree of complexity, includes;
    1. A qualitative (functional) and quantitative (net area and gross area) description of all required spaces;
    2. Detailed Programme Areas including;
        1. Net useable area requirements for each space;
        2. Component Gross area requirements for all component groups, and;
        3. Gross Area Summary needed to accommodate the programme;
    3. An outline of specific Technical Requirements, indicating general Architectural, Structural, Mechanical, Electrical and Security systems applicable to the entire building and/or to each similar space types;
    4. Room / Space Data Sheets, indicating specific requirements for each space type not covered in the technical requirements;
    5. Space Concept Plans, associated with each Space Data Sheet, indicating all fixed equipment and any special features;
    6. Component (Group or Department) concept planning diagrams indicating required relationships between all spaces in each component group;
    7. Component Relationship Diagrams, indicating relationships between all component groups;
    8. A Demonstration plan (to scale) to confirm that:
        1. Net to gross area ratios are reasonable; and
        2. Component group relationships can reasonably be achieved either within the established gross building area for new buildings or within the limitations of the building floor plate(s) for existing buildings.
    9. Mechanical Schematic Zoning and Directional Air Flow Diagrams for laboratory projects.
4. Program Level selection and the associated level of detail is also determined by the Cx complexity and risk, providing further supporting information to the OPR development.

6.2.36 Interim Acceptance

1. Refer to CSA Z320 Article 4.6, Interim Acceptance.
    1. Add to Article 4.6 (i) the following requirements:
        1. System Operations Manual and Standard Operating Procedures, including;
            1. Normal and emergency mode of operations, and;
            2. Life and Safety Compliance Report.
2. Interim Acceptance will be synonymous with Substantial Completion as per GC's of the Construction and Consultant Contract.

6.2.37 Issues/Resolution (I/R) Log

1. The I/R Log contains description of project issues and/or variances ranging from specifics such as with the Owner Project Requirements (OPRs) to general design and construction and related processes and deliverables.
    1. On an ongoing basis the log maintains the status of current/ongoing and resolved issues;
    2. Issues are identified and tracked as encountered during all design phases, construction and operations of the facility.
2. I/R Log is also included as an item in:
    1. The meeting Design and Construction agenda; and
    2. The monthly construction phase report on the Cx Plan.
3. For more information on what needs to be documented also refer to ASHRAE Guideline, The Commissioning Process.

6.2.38 Life Cycle Costing (LCC)

1. LCC methodology, used during investment analysis and planning, design, construction and procurement, employs a comprehensive economic comparison of competing options.
2. Comparison of competing options is to be made between ideas similar in nature that are designed to satisfy the same basic function or set of functions.
3. LCC interpretation, as related to competing options assessment.
    1. The sum of the present values that are associated with investment costs, capital costs, installation costs, energy costs, operating costs, maintenance costs, and disposal costs, over the lifetime of the project.
4. Refer to industry standard practices for measuring life cycle costs of the building and building systems such as, ASTM Standards.
5. Also refer to Value Engineering (Assessment) definition.

6.2.39 Master Schedule (Master Project Schedule)

1. Refer to the *RCMP's Project Delivery Manual,* Section 5 – Project Schedules

6.2.40 Mitigation Measures Form (MMF)

1. A template will be provided by the Departmental Representative to be used by the consultant in determining the significance of potential adverse environmental effects of a proposed basic project, as well as outlining the associated mitigation measures.

6.2.41 Move Plan

1. Identifies move tasks, dependencies, and task duration.
2. Explores potential move optimization and risk minimization.
3. Includes:
    1. Phasing, specific timeline/Gantt chart, order and process for relocations, hoteling (office) and final moves;
    2. Security protocols for interim and final moves;
    3. Drawings showing;
        1. All project furniture including new and reused, loose furniture, filing systems, equipment and appliances,
        2. Electrical and data services connections to furniture and interconnected panels (separate from electrical construction drawings).
    4. Swing space and interim storage requirements.

6.2.42 Move Process

1. Requires coordination with the Department's processes and protocols, including:
    1. Move specific resources and a Roles and Responsibilities matrix;
    2. Move activities and logistics associated with;
        1. Pre-Move - supply of boxes, packing, data labeling requirements, etc.
        2. Move Day - preventative operational downtime logistics,
        3. Post Move – unpacking and walkthroughs, and
        4. IT Moves – equipment/infrastructure disconnect/reconnect.
    3. Meeting Schedule;
    4. Checklists;
    5. Occupational Health and Safety as per the Canada Labour Code; and
    6. Compliance with the Contractor's site specific safety plan.

6.2.43 Operation and Maintenance Manual(s) (O&M)

1. Developed throughout the project lifecycle.
2. Produced by the Construction Manager/Contractor and is part of the Collaborative Project Delivery integrated process and is supported by the Consultant and Departmental Representative.
3. Requires Cx Process Manager sign-off at contract Substantial Performance.
4. Prepared using product information report forms/data provided by Subcontractors, Own Forces and information from other sources as required.
5. Refer to NMS Division 01 General Requirements document for further detail.

6.2.44 Owner Project Requirements (OPR)

1. Refer to CSA Z320 Article 3, Definitions.
    1. For further detail refer to ASHRAE 202, Article 6 - Owner's Project Requirements, Article 6.2 – Requirements.
2. Developed by "the Owner" - RCMP /User Department prior to Design or by Consultant during the Pre-Design Project Milestone.
3. Text and graphics are organized to facilitate future use as a building reference document.
    1. BOD and OPR are components of the Cx Manual.
4. A dynamic document throughout the project lifecycle that defines the Owner's values and end goals; their ideas, concepts and end state quantifiable and measurable performance benchmarks/criteria by usage, by systems and/or by occupancy classification associated with topics such as:
    1. Project Program – pertinent Functional (Space) Program extracts, such as;
        1. Basic facility data (such as, area, number of stories Occupancy and construction type(s)), user/area usage schedules, restrictions and limitations, expandability, flexibility and durability (life span).
    2. Environmental and Sustainability Goals including;
        1. LEED® certification, CO_2 monitoring, and resource reuse.
    3. Energy Efficiency Goals including;
        1. Measures affecting lighting and HVAC energy efficiency such as orientation shading, ventilation and renewable power.
    4. Indoor Environmental Quality Requirements regarding;

1. Lighting, temperature and humidity, acoustics, air quality, ventilation and filtration, controls adjustability, after hour's accommodations, natural daylighting, ventilation and views.

5. Equipment and system Expectations, such as;
    1. Levels of quality, reliability, flexibility, maintenance, complexity and target efficiencies, building system technologies regarding manufactures, acoustics, vibration, degree of integration, automation and functionality for controls load shedding and demand and response energy management.
6. Building Occupant and O&M Personal Expectations;
    1. Building operation description and by whom and at what capability, level of training and orientation for occupants and O&M staff.
7. Cx Process Manager Information;
    1. Name of Agency/Firm and contact person(s) and address name, address and personal contact.

5. Starting with the Pre-Design project milestone the OPR is the foundation of the Commissioning Process - an integral part of Commissioning and future Re-Commissioning.
    1. Working through the various other Project Milestones is supported by the BOD documenting that the various decisions, concepts, designs, calculations, and product selections to meet the OPR.

6.2.45 Partnering Session Workshop(s)

1. Partnering is used in the architecture, engineering and construction industry and is intended to assist Project Teams with setting goals, resolving disputes and improving project outcomes.
2. Workshop(s) are facilitated by the Consultant or designate. Participants include the Owner/User Department, Project Team and other stakeholders. Initial workshops establish relationships and ground rules, and then draw out essential client needs and design requirements.
3. Topics include, but are not limited to:
    1. Role and responsibilities matrix;
    2. Rules of engagement;
    3. Communication plan;
    4. Project status, goals, objectives, elements, scope, funding, and preliminary schedule;
    5. Deliverables plan;
    6. Measures of percentage complete and delivered;
    7. Issues tracking and documentation systems;
    8. Project risks and the initial Risk Management Plan;
    9. Review of existing available documentation and project site conditions;
    10. Schedule of biweekly (or as otherwise determined by the Departmental Representative) project and milestone meetings; and
    11. Communication and document control plan.

6.2.46 Permits and Fees

1. Refer to the Contract Documents, General Conditions (GCs).

6.2.47 Preliminary Project Description (PPD/PPDFORMAT™)

1. PPDFormat™ is a guideline document published by the Construction Specification Institute (CSI).
    1. A tool to evaluate the design practicality during the design phase.

2. The guide assists with an appropriate level of documenting qualitative and quantitative descriptions of "functional elements" – Elements and their respective Elemental Components, systems and assemblies comprising the project during the Schematic Design (SD) and Design Development (DD) Project Milestones.
    1. Associated deliverables are integral documents of the SD and DD Reports.
3. PPD is organized using the Uniformat™ hierarchical structure and corresponding Level of Detail (LoD) - levels 1–5.
    1. Elemental and Elemental Components LoD breakdowns parallel preliminary project cost estimating formats, providing corresponding quantitative cost estimates per functional element, elemental component and related qualitative descriptions.
    2. The Consultant and Departmental Representative are to agree on the LoD based on the required accuracy of the Cost Estimate to secure funding, manage cash flow or address risk.
4. LoD may also be dependent on factors such as:
    1. How PPD may be used to throughout the design and documentation process to provide for opportunities, such as;
        1. Tracking decision progressions during design options development and final selection of preferred/optimum solution;
    2. Function elements complexities, and;
    3. Design decisions progression, such as, designing from the exterior into the interior.

2. Preferred delivery format during the SD and DD Project Milestones is the "Outline Format Full Page Example" on page number 25 of the PPDFormat™ Guide.
    1. The Outline Format facilitates design progression tracking throughout the design phase Project Milestones.
3. With reference to the "Outline Format Full Page Example" and the outlined Element Levels, the LoD during the SD and DD Project Milestones is as follows:
    1. SD, Level 3 detail, complete with a "Description" article providing a generic description of the Level 3 functional element supported by a Basis of Design narrative may also be substantiated by the OPR;
        1. Corresponding, per Level 3 detail, Cost Estimate – Class 'C', +/- 15%.
    2. DD, Level 4 detail, complete with a "Description" article providing a generic description of the Level 4 functional element supported by a Basis of Design narrative may also be substantiated by the OPR;
        1. Corresponding, per Level 3 detail, Cost Estimate – Class 'B', +/- 10%.
4. Construction Documents, Level 5 detail:
    1. While Levels 1-4 may be defined in PPDFormat™ for Levels 5 and beyond, UniFormat™ 2010 considers these Levels discretionary requiring user definition;
    2. Level 5 detail includes, as per "Outline Format Full Page Example", the following articles:
        1. Functional Requirements addressing Element overall requisite including;
            1. Performance Requirements of the assembly that are quantifiable, measurable and,
            2. Design Requirements that, for example, may affect cost or be related to design quality regarding aesthetic, utility, performance or impact, but are not directly component attributes.

2. Components, a parts listing making up the functional element, complete with attributes that are prescriptive and/or performance based;
    1. Each Component is accompanied by a corresponding MasterFormat™ Section number to be the basis for Construction Documentation (CD) specifications.
3. Additional outline headings to be considered include;
    1. Alternates, for consideration of their effect on cost or schedule,
    2. Material/equipment Location Schedules,
    3. Workmanship and Fabrication requirements affecting cost,
    4. Reports associated with Codes, fire and zoning searches.
3. Corresponding, per Level 5 detail, Cost Estimate – Class 'A', +/- 5%.

6.2.48 Project Procedures Plan

1. A dynamic and evolving Plan to establish how the design, construction and closeout process will be structured to deliver projects on time and within budget and scope.
2. A measure against which performance is evaluated and success is judged.
3. Includes items such as:
    1. Organization and communication charts;
    2. Master Project Schedule complete with a detailed Work Breakdown Structure;
    3. Quality Management Plan, a procedures and documentation plan to determine for example documentation completeness and suitability, testing, inspection and submissions requirements;
    4. Construction procurement options and /or number and sequence of tender packages;
    5. Contracting/procurement strategies, bid packaging description, bidders' cost breakdowns;
    6. Site mobilization;
    7. Swing space;
    8. Commissioning Plan;
    9. Commissioning Issues Log;
    10. Project Decision Log;
    11. Risk issues log;
    12. Record management plan (including e-mails) establishing procedure regarding collection recording, tracking, access and storage.

6.2.49 Project Milestones

1. Pre-Design (PD)
    1. The Consultant Required Service includes activities such as:
        1. Analyse the Departmental Representative's information as may be presented at the time of Solicitation and the Project Start-up meeting; and
        2. Confirm, that based on the provided information, the Consultant is prepared to proceed with the Design Contract with regards to schedule, cost estimate, scope of Work and quality;
            1. Prior to proceeding with the design, the Consultant and the Departmental Representative may discuss additional services from the Consultant or Specialty Consultants,
            2. The Project Brief may pre-establish additional services, such as providing,
                1. OPR, and,
            3. Programming,

3. Pre-Design documentation become the project delivery guiding documents, utilized throughout the project life cycle.

2. Final Deliverable:
    1. Pre-Design Report.
3. Progressive Deliverables, such as:
    1. OPR;
    2. Functional Program; and
    3. Response to RCMP QA reviews.

2. Schematic Design (SD)
    1. The Consultant Required Service includes activities such as:
        1. Based on the project criteria established during PD, facilitate and provide conceptual design related documents, as per the pre-established number of required distinction options, to facilitate a decision on the preferred and/or optimum solution to proceed to Design Development;
            1. Submit the analysis the different design options against the Owner's Project Requirements (OPR) and Functional Program (FP).
        2. Provide SD documents such as drawings, reports, and other documentation or media to illustrate general scope, scale and relationships of project components, including;
            1. Plan form and massing;
            2. Site plan and appearance of the project in relation to orientation, topography, land use and utilities;
            3. Preliminary selection of assemblies, systems and load calculations;
            4. Approach to structural, mechanical and electrical systems, and
            5. Elemental and Elemental Component descriptions and Cost Estimates to PPDFormat™, Uniformat™ respective Levels of Detail as agreed upon with the Departmental Representative for the development the Preliminary Project Description PPD);
                1. Preliminary Project Description (PPD/PPDFormat™) – refer to Definition for further detail.
    2. Final Deliverable:
        1. Schematic Design Report.
    3. Progressive Deliverables, such as:
        1. Updated BOD and OPR;
        2. Cx Plan; and
        3. Response to RCMP QA reviews.

3. Design Development (DD)
    1. The Consultant Required Service includes activities such as:
        1. Based on the SD design option selected, facilitate and provide documentation to define and describe all aspects of the project, with the purpose that all that remains is the formal Construction Documentation;
        2. Resolve any issues/coordination carried over from SD, refine design and coordinate all discipline details and finalize spatial, functional and operational performance requirements to minimize risk of modifications during Construction Documentation;

3. Provide DD documents such as drawings, reports, and other documentation or media to illustrate and define the design concept in terms of, such as;
    1. Siting;
    2. Plan form and massing;
    3. Character and materials;
    4. Structural, mechanical and electrical systems, and;
    5. Elemental and Elemental Component descriptions and Cost Estimates to Uniformat™ Level of Detail 5;
        1. Refer to Preliminary Project Description (PPD/PPDFormat™) Definition for further detail;
    6. Preliminary modeling and simulations (such as energy analysis and daylight simulation), and;
    7. Cx Plan and Cx construction cost including testing procedures and check sheets/forms (as per CAN/CSA Z320) associated with;
        1. Static Verification;
        2. Start-up, and;
        3. Functional Performance Testing.
2. Final Deliverable:
    1. Design Development Report.
3. Progressive Deliverables, such as:
    1. Updated BOD and OPR;
    2. Cx Plan, and;
    3. Response to RCMP QA reviews.

4. Construction Documentation:
    1. Refer to RCMP's Project Delivery Manual.
5. Tender:
    1. The Consultant Required Service includes activities such as;
        1. Provide assistance and advisory services as may be necessary to the Departmental Representative in, obtaining a competitive bid and in awarding a construction contract.
    2. Deliverables, such as;
        1. Addenda;
        2. Written responses to questions, and
        3. Bid analysis and/or recommendations.
6. Construction:
    1. The Consultant Required Services includes activities such as;
        1. Provide assistance and advisory contract administration services to the Departmental Representative to administer the construction contract as set out in the general conditions of the contract for construction;
            1. The Consultant is not an "Agent" of the Crown nor responsible for Contractor's performance.

2. Act as Departmental Representative's professional advisor in interpreting the contract documents;
3. Consult on the Contractor's performance, and;
4. Review the construction.

2. Deliverables;
    1. Multiple deliverables as per;
        1. Consultant's contract general conditions, and;
        2. Project Brief specified Deliverables.

7. Close Out:
    1. The Consultant Required Service includes activities such as;
        1. Provide assistance in the use and occupancy of the facility.
        2. Assist and advise Departmental Representative with;
            1. The Contractor's performance and guarantees documentation;
            2. Prior to the 12 month warranty period, review defects or deficiencies observed by the Departmental Representative;
                1. Compile items that require the Contractor's attention to complete the terms of the Contract.
    2. Final Deliverable;
        1. Year End Warranty Review – defect status.
    3. Progressive Deliverables, such as;
        1. Lessons learned.

6.2.50 Project Team

1. Typically includes entities, such as:
    1. Departmental Representative,
    2. Consultant Team;
    3. Independent third parties also in contract with RCMP, and;
    4. User Department and Operational personnel.

6.2.51 Quality

1. Refer to the Supply Manual Glossary.
2. The degree to which the Work meets or exceeds the Project requirements and expectations.

6.2.52 Quality Assurance (QA) Reviews

1. RCMP QA Reviews are an advisory service to the Project Team and stakeholders where respective submission/deliverable accountabilities remain in effect as per contractual conditions or other forms of commitment.
    1. The Consultant remains professionally accountable for the design validation and verification required of the Project Milestone submissions during the project life cycle.
2. QA Reviews, supported by commentary, conclude with a risk assessment associated with Quality of design and documentation deliverables, and include:
    1. Parameters to confirm at the onset of a review whether deliverables are appropriately scoped and detailed with respect to current Project Milestones or phase/progressive submissions.

3. QA Reviews focus on Quality Indicators (QI) parameters associated with Design Quality Indicators (DQI) and Quality Deliverable Indicators (QDI).
4. Design Quality Indicators (DQI):
    1. 3 Aspects of DQI:
        1. Functionality – design utility;
        2. Build Quality – design performance, and;
        3. Impact – project contextual interactivity (such as cultural, market, environmental conditions/factors):
            1. Project impact on context, and vice versa;
            2. Context impact on project.
    2. Each DQI Aspect is considered against Good Design Protocols, such as;
        1. Creativity and Technical Competence;
        2. Functional Suitability;
        3. Whole-of-Life Performance;
        4. Health, Safety and Security;
        5. Inspiring and Attractive;
        6. Appropriate Innovation, and;
        7. Sustainable and Enduring.
    3. As each DQI Aspect is considered against Good Design Protocols, each Aspect is also assessed against the same Characteristics such as:
        1. Conceptual Integrity;
        2. Functionality;
        3. Operability;
        4. Constructability, and;
        5. Claims Prevention.
5. Quality Deliverable Indicators (QDI):
    1. Focus on documentation delivery.
        1. Submitted documentation is assessed against 6 characteristics:
            1. Clarity;
            2. Completeness;
            3. Compliance;
            4. Consistency;
            5. Correctness, and;
            6. Decision Traceability.

6.2.53 Quality Management Plan

1. Quality Management goal is to assure:
    1. Design Quality;
        1. Confirmation design satisfies the Project Requirements,
        2. Complementary design principles,
        3. Planning/layout efficiency,

4. Accuracy, adequacy, conformance to standards of practice, compliance with codes and standards, cost effectiveness, quality, and fitness for purpose and function as per the TOR.

2. Construction Quality;
    1. Construction preparation – review schedule and check points,
    2. Follow-up of inspection and testing to confirm on-going performance compliance,
    3. Final acceptance.
3. Management Quality;
    1. Management assignments,
        1. Managers associated with design, project and construction,
        2. Quality process reporting and resolution forums,
        3. Decision making protocols.
    2. Document control,
    3. Risk management program.

6.2.54 RCMP Commissioning Manager (RCMP CX MGR)

1. Government commissioning liaison amongst all project stakeholders and reports to the Departmental Representative.
2. Undertakes Quality Assurance Reviews of Cx submissions.

6.2.55 Recommissioning Manual

1. Deliverable by the Consultant's Cx Process Manager/Cx Authority.
2. Refer to CSA Z320 Article 4.9.4, Recommissioning manual.

6.2.56 Risk Management Plan

1. Departmental Representative (DR) initiates and maintains a RCMP RM Program.
2. The objective of the Plan is to develop a methodology to improve risk management by:
    1. Establishing risk policies to confirm acceptable levels of non- compliance as per DR Risk Management Plan;
    2. Focusing on external and internal risk parameters, and;
    3. Articulating an approach/framework to identifying risk and its impact in advance and managing the risk with the goal of reducing, transferring or avoiding risk where appropriate.
3. Program and Plans are collaboratively monitored and amendments are proposed to the DR by the Project Team as required for an effective project delivery.

6.2.57 Standard Operating Procedures

1. Systems Operations Manual component.
2. Procedures are to meet the Canada Labour Code requirement of "every employer" (User Department) by way of "a qualified person to set out, in writing, instructions for operations, inspections, testing, clearing and maintenance" of various components, systems and integrated systems.
    1. Updated throughout the building lifecycle for continued safety and consistent Work practices.
    2. Capable of being the basis for the development of Departmental policies.
3. Includes site specific:
    1. Equipment, chemicals and other concerns such as life safety compliance, emergency provisions/procedures, security, access, sustainability and the environment.

2. Series of flow charts designed to model the actions, activities and network of interconnected activities associated with systems and related operations and maintenance.

6.2.58 Static Verification

1. Refer to CSA Z320 Article 4.4.4, Static Verification.
    1. Add to Article 4.4.4 the following review requirements:
        1. Review select equipment certificated of authenticity (such as, circuit breakers).

6.2.59 Sub-Project

1. User Department/Departmental Representative project Work completed by a Departmental Service Provider requiring a coordinated delivery in a main capital Works project, for example:
    1. IT Works, BCC, Furniture delivery and installation;
2. If Work takes place in the same space and time as capital Works then capital Work's health and safety plan governs Sub-Project Work.

6.2.60 Systems

1. Refer to CSA Z320 Article 5, Specific systems.
    1. Require confirmation of other systems, such as those that may relate to, for example:
        1. Civil Engineering;
            1. CSA Z320 currently considers related systems outside the building foot print and therefore not included in the Standard;
        2. Sound Masking;
            1. As part of CSA Article, 5.1.3.4, Interior Space, Functional Performance Testing;
        3. Duct Pressure Tests and Indoor Air Quality (IAQ) Tests;
            1. As part of CSA Article, 5.4.3.4, Mechanical Systems, Functional Performance Testing.

6.2.61 Systems Operations Manual (Systems Descriptions/Systems Manual)

6.2.62 Developed throughout the project lifecycle.

6.2.63 Refer to CSA Z320 Article 3, Definitions.

6.2.64 Extend the CSA Definition to include in emergency conditions as a mode of operation.

6.2.65 Normally produced by the Construction Manager/Contractor and as part of the Collaborative Project Delivery integrated process with Support by the Consultant and Departmental Representative.

6.2.66 Requires Cx Process Manager sign-off at contract Substantial Performance.

6.2.67 Standard Operating Procedures document is a component of the Systems Operations Manual – see Definition.

6.2.68 UNIFORMAT™

1. A uniform, hierarchical classification structure of construction systems and assemblies.
    1. Current version – CSI/CSC Uniformat™, 2010 edition.
2. UniFormat™ organizational structure also guides the development and delivery of:
    1. Cost Estimates – refer to Definition for further detail and;
    2. PPDFormat™, Preliminary Project Descriptions during the design phase – refer to Definition for further detail.
    3. Alphanumeric designations followed by MasterFormat™ followed by the line item.

6.2.69 Value Engineering (VE)

1. Value Engineering (Assessment) methodology, as related to competing options assessment, emphasizes the return-on-investment aspect of decision making in terms of LCC to maintain or improve the desired levels of capability and performance during planning, design, construction and procurement.
    1. When the options satisfy the required function, then the best value option is to be identified by comparing the first costs and life-cycle costs of each alternative.
2. Refer to industry standard practices for value methodologies associated with buildings and building systems such as, SAVE and ASTM Standards.
3. Also refer to Life-Cycle Costs definition.

6.2.70 Work

1. Refer to Contract Documents: General Conditions (GCs).

6.2.71 Work Breakdown Structure (WBS)

1. Integral to schedules and project execution plans.

End

Appendix A Checklist for the Submission of Construction Documents

Date:	
Project Title:	Project Location:
Project Number:	Contract Number:
Consultant's Name:	RCMP Departmental Representative:
Review Stage (stages may vary at discretion of project team): 33% ☐ 50% ☐ 66% ☐ 99% ☐ 100% ☐	

Drawings\Design			
Item	Verified by	Explanations	Action By
1 Index			
1a The index shows a complete listing of drawing titles and numbers.			
2 Title Blocks			
2a As approved by the Departmental Representative.			
3 Units			
3a All units of measure are metric.			
4 Trade Names			
4a Trade names are not used.			
5 Specification Notes			
5a There are no specification-type notes.			
6 Terminology			
6a The term “Departmental Representative” is used instead of “Engineer,” “RCMP,” “PWGSC,” “Owner,” “Consultant,” or “Architect.”			
6b Notations such as “verify on site,” “as instructed,” “to match existing,” “example,” “equal to,” “equivalent to,” and “to be determined on site by” are not used.			
7 Information to be included			
7a The project quantities, configurations, dimensions, and construction details are included.			
7b References to future work and elements not in the tender documents do not appear or are kept to an absolute minimum and clearly marked.			

Drawings|Design			
Item	Verified by	Explanations	Action By
8 Quality Assurance			
8a Coordination review of the design between various disciplines has been completed by the Consultant.			
8b Constructability review of design has been performed.			
9 Signing and Sealing			
9a Every final drawing bears the seal and signature of the responsible design professional in compliance with various provincial jurisdiction requirements.			

Specifications			
Item	Verified by	Explanations	Action by
1 National Master Specification			
1a The current edition of the National Master Specification (NMS) has been used.			
1b Sections have been included for all work identified on drawings and sections have been edited.			
2 Index			
2a The index shows a complete list of specifications sections with the correct number of pages.			
3 Organization			
3a Either the NMS 1/3- or 2/3-page format or the Construction Specifications Canada full-page format is used consistently for the entire specifications.			
3b Each section starts on a new page and the project number, section title, section number, page number and date is shown on each page.			
3c The Consultant's name is not indicated.			
4 Terminology			
4a The term "Departmental Representative" is used instead of "Engineer," "RCMP," "PWGSC," "Owner," "Consultant," or "Architect."			

4b Notations such as “verify on site,” “as instructed,” “to match existing,” “example,” “equal to,” “equivalent to,” and “to be determined on site by” are not used.			
5 Dimensions			
5a Dimensions are provided in metric only.			
6 Standards			
6a The current edition of all references quoted is used.			
7 Specifications Materials			
7a The method of specifying materials uses recognized standards. Actual brand names and model numbers are not specified.			
7b Materials are specified using standards and performance criteria.			
7c Non-restrictive, non-trade name “prescription” or “performance” specifications are used throughout.			
7d The term “Acceptable Manufacturers” is not used.			
7e No sole sourcing has been used.			
7f If sole sourcing has been used, the correct wording has been used and a justification, estimate, and specification have been provided to the Departmental Representative for the sole-sourced products.			
8 Measurement for Payment			
8a Unit prices are used only for work that is difficult to estimate.			
9 Cash Allowances			
9a No cash allowances have been used or if they have, approval from the Departmental Representative has been received.			
10 Miscellaneous Requirements			
10a No paragraphs noted as “Scope of Work” are included.			
10b In Part 1 - General of any section, the paragraphs “Summary” and “Section Includes” are not used.			
11 Specification Coordination			
11a The list of related sections and appendices are coordinated.			

12 Health and Safety			
12a Section 01 35 29.06 – Health and Safety Requirements is included.			
13 Subsurface Investigation Reports			
13a Subsurface investigation reports are included after Section 31.			
14 Prequalifications			
14a There are no mandatory contractor and/or subcontractor prequalification requirements or references to certificates, transcripts, licence numbers of a trade or subcontractor, or other such documentation or item included in the bid.			
15 Contracting Issues			
15a Contracting issues do not appear in the specifications.			
15b Division 00 of the NMS is not used except 00 01 07 (Seals Page) and 00 01 10 (Table of Contents).			
16 Quality Assurance			
16a There are no specification clauses with square brackets "[ ]" or lines "_" indicating that the document is incomplete or missing information.			
17 Signing and Sealing			
17a Every final specification bears the seal and signature of the responsible design professional as required. Seals and signatures shall be shown in NMS section 00 01 07.			

I confirm that the drawings and specifications have been thoroughly reviewed and that the items listed above have been addressed or incorporated. I acknowledge and accept that by signing, I am certifying that all items noted above have been addressed.

Consultant's Representative: _____

Firm name: _____

Signature: _____ Date: _____

Appendix B Addenda Formatting Template

Instructions

To re-issue a drawing with an addendum:

- indicate the drawing number and title; and
- list the changes or indicate the revision number and date.

To re-issue a specification with an addendum:

- indicate the section number and title; and
- list all changes (i.e. deletions, additions, and replacements) by article or paragraph.

The addendum, drawings and specifications should be sent as separate files.

Sample Addendum

Date: _____

Addendum Number: _____

The following changes in the bid documents are effective immediately.

This addendum will form part of the construction documents.

DRAWINGS:

1 A1 Architecture

.1

SPECIFICATIONS:

1 Section 01 00 10 – General Instructions

.1 Delete article (xx) entirely.

.2 Refer to paragraph (xx.x),

delete the following: …

and replace with the following: …

2 Section 23 05 00 – Common Work Results - Mechanical

.1 Add new article (x) as follows:

Appendix C Directory Structure and Naming Convention Standards for Construction Tender Documents

Electronic Submissions

Electronic submittals of drawings, specification and models shall be in the following format unless otherwise specified in the Project Brief or instructed by the Departmental Representative:

- On media burned to read only memory (ROM) on either CD-ROM or DVD+R where:
  - CD-ROMs comply with ISO 9660:1988 standards;
  - DVD+Rs are 4.7 GB, single-sided, single-layer and comply with ISO/IEC 17344:2006 standards;
  - media is "closed" upon completion of burning; and
  - media is usable in such a way that files may be accessed and copied from it.

If BIM model size is greater than storage capacity of a DVD, refer to Project Brief or contact the Departmental Representative for transmission instructions.

Some projects may require the Consultant to upload files to an electronic system outlined in the Project Brief or as instructed by the Departmental Representative.

Directory Structure

1st Tier Subfolder

The 1st tier of the directory structure shall be "Project ######" where ###### represents each digit of the Project Number. The Project Number must always be used to name the 1st tier folder and it is always required. Free text can be added following the Project Number, to include such things as a brief description or the project title.

2nd Tier Subfolder

The 2nd tier of the directory structure shall consist of: "Bilingual - Bilingue", "English" and "Français" folders. The folders of the 2nd tier cannot be given any other names since the Government Electronic Tendering System (GETS) uses these names for validation purposes. At least one of the "Bilingual - Bilingue", "English" and "Français" folders is always required, and these must always have one of the applicable subfolders of the 3rd tier.

3rd Tier Subfolder

The 3rd tier of the directory structure shall consist of: "Drawings - Dessins", "Drawings", "Models", "Specifications", "Reports", "Dessins", "Modèles", "Devis" and "Rapports". The folders of the 3rd tier cannot be given any other names since GETS also uses these names for validation purposes. There must be always at least one of the applicable 3rd tier folder in each document.

4th Tier Subfolder - Drawings

The 4th-tier subfolders for Drawings should reflect the various disciplines of the set of drawings. Because the order of appearance of the subfolders on the screen will also determine the order of printing, it is necessary to start with a number the identification name of the subfolders in the "Drawings – Dessins", "Drawings" and "Dessins" folders. The first subfolder must be always reserved for the Title Page and/or the List of Drawings unless the first drawing of the set is an actual numbered discipline drawing.

The 4th tier “Drawings” and “Dessins” folder shall follow the naming convention: ## - Y

Where:

= a two digit number ranging from 01 to 99 (leading zeros must be included)

Y = the title of the folder Example: 03 – Mechanical

For the “Drawings - Dessins” folder: ## = Y - Z

Where:

= a two digit number ranging from 01 to 99 (leading zeros must be included)

Y = the English title of the folder

Z = the French title of the folder Example: 04 - Electrical – Électrique

The numbering of the 4th tier subfolders is for sorting purposes only and is not tied to a specific discipline. For example, “Architecture” could be numbered 05 for a project where there is four other disciplines before “Architecture” in the set of drawings or 01 in another project where it’s the first discipline appearing in the set.

The order of the drawings shall be the same as in the hard copy set. GETS will sort each drawing for both screen display and printing as per the following rules:

- The alphanumerical sorting is done on an ascending order;
- The alphanumerical order of the subfolders determines the order of appearance on the screen as well as the order of printing (as an example: all the drawing PDF files in the 01 sub-older will be printed in alphanumerical order before the drawings in the 02 sub- folder etc.);

Each drawing PDF file within each subfolder will also be sorted alphanumerically. This will determine the order of appearance on the screen as well as the order of printing (i.e. Drawing A001 will be printed before Drawing A002, Drawing M02 before Drawing M03, etc.).

4th-Tier Subfolders for Specifications

The “Specifications” and “Devis” folders must have 4th tier sufolders created to reflect the various elements of the specifications. Because the order of appearance of the subfolders on the screen will also determine the order of printing, it is necessary to start with a number the identification name of the subfolders in the “Specifications” and “Devis” folders.

The 4th tier subfolders for specifications must adhere to the following standard naming convention for the “Specifications” and “Devis” folders:

- Y

Where:

= a two digit number ranging from 01 to 99 (leading zeros must be included)

Y = the title of the folder

Example: 02 – Divisions

Numbering of the 4th tier subfolders is for sorting purposes only and is not tied to an element of the specifications.

It is essential to ensure that the order of the elements of the specifications on the CD-ROM be exactly the same as in the hard copy. GETS will sort each element of the specifications for both screen display and printing as per the following rules:

- The alphanumerical sorting is done on an ascending order.
- The alphanumerical order of the subfolders determines the order of appearance on the screen as well as the order of printing (as an example: all the specifications PDF files in the 01 subfolder will be printed, in alphanumerical order before the PDF files in the 02 subfolder, etc.).
- Each specifications PDF file within each subfolder will also be sorted alphanumerically. This will determine the order of appearance on the screen as well as the order of printing (i.e. Division 01 will be printed before Division 02, 01 - Appendix A before 02 - Appendix B, etc.).

Directory Structure Example

The following is an example of the directory structure for the tender document, refer to previous sections for requirements, and use only sections applicable to the given project:

Project ######
- Bilingual – Bilingue
  - Drawings – Dessins
    - 01 - Drawing List – Liste des dessins
    - 02 – Demolition – Démolition
    - 03 – Architecture – Architectural
    - 04 – Civil – Civil
    - 05 – Landscaping - Aménagement paysager 06 – Mechanical – Mécanique
    - 07 – Electrical – Électricité 08 – Structural - Structural
    - 09 – Interior Design – Aménagement intérieur
  - English
    - Drawings
      - 01 - Drawing List
      - 02 – Demolition
      - 03 – Architecture
      - 04 – Civil
      - 05 – Landscaping
      - 06 – Mechanical
      - 07 – Electrical
      - 08 – Structural
      - 09 – Interior Design
      - …
    - Models Specifications
      - 01 – Index
      - 02 – Divisions
      - 03 – Appendices
    - Reports
  - Français
    - Dessins Modèles Devis Rapports

Naming Convention for PDF Files

Each drawing, specifications division or other document that are part of the tender documents must be converted in PDF format (without password protection) in accordance with the following standard naming convention and each PDF file must be located in the appropriate subfolder of the directory structure.

Drawing File Names

Each drawing must be a separate single page PDF file. The naming convention of each file shall be:

X### - Y

Where:

X = the letter or letters from the drawing title block ("A" for Architecture or "ID" for Interior Design for example) associated with the discipline

= the drawing number from the drawing title block (one to three digits)

Y = the drawing name from the drawing title block (for bilingual drawings, the name in both English and French is to appear).

Example: A001 - First Floor Details

Each drawing that will be located in the appropriate discipline 4th tier subfolders must be named with the same letter ("A" for Architecture Drawings for example) and be numbered. The drawing number used to name the PDF file must match as much as possible the drawing number of the actual drawing (the exception being when leading zeros are required).

The following important points about drawings are to be noted:

- The drawing PDF files within each subfolder are sorted alphanumerically for both displaying and printing. If there are more than 9 drawings in a particular discipline the numbering must use at least two numerical digits (i.e. A01 instead of A1) in order to avoid displaying drawing A10 between A1 and A2. The same rule applies when there are more than 99 drawings per discipline i.e. three digits instead of two must be used for the numbering (for example M003 instead of M03);
- If drawing PDF files are included in the "Bilingual - Bilingue" folder, these cannot be included as well in the "English" and/or "Français" folders;
- If drawings not associated with a particular discipline are not numbered (title page or list of drawings for example), these will be sorted alphabetically. While this does not represent a problem if there is only one drawing in the subfolder, it could disrupt the order when there are two or more drawings. If the alphabetical order of the drawings name does not represent the order on the hard copy set, the drawings are to be named as per the following standard convention when converted in PDF format to ensure proper display and printing order.

Specifications

Each specifications division must be a separate PDF file and all pages contained in each PDF file must have the same physical size (height, width). The drawings and specifications index must also be a separate PDF file. If there are other documents that are part of the Specifications (e.g. Appendix or other) these are to be separate PDF files as well.

Documents Other Than Specifications Divisions

Because PDF files within the Specifications subfolders are sorted alphanumerically (in ascending order) for both on screen display and printing order, all files that appear in folders other than the "Divisions" subfolder must be named using a number:

- Y

Where:

= Two digit number ranging from 01 to 99 with leading zeros required

Y = Name of the document

Example: 01 – Drawings and Specifications Index

Specifications Divisions

The specifications divisions must be named as follows:

Division ## - Y

Where:

Division ## = the actual word "Division" followed by a space and a two digit number ranging from 01 to 99 (with leading zeros required)

Y = name of the Specifications Division as per CSC/CSI MasterFormat™

Example: Division 05 – Metals

The Numbering of the Divisions cannot be altered from CSC/CSI MasterFormat™ even if some Divisions are not used in a given project. For example, Division 05 will always remain Division 05 even if Division 04 is not used for a given project.

Media Label

The CD-ROM or DVD+R shall be labeled with the following information:

Project Number / Numéro de projet

Project Title / Titre du projet

Documents for Tender / Documents pour appel d'offres

Disk X of/de X

Example:

Project 123456 / Projet 123456

Repair Alexandra Bridge / Réparation du pont Alexandra

Documents for Tender / Documents pour appel d'offres

Disk 1 of/de 1