Public Works and Government Services Canada | Travaux publics et Services gouvernementaux Canada

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Architectural & Engineering Services

# TERMS OF REFERENCE

## Regional Psychiatric Centre Gatehouse

**For:**

**Correctional Service Canada (CSC)**

**Regional Psychiatric Centre**

**Saskatoon, Saskatchewan**

February 9, 2022

www.pwgsc-tpsgc.gc.ca

# Table of Contents:

# 1 PROJECT DESCRIPTION

## 1.1 GENERAL

### 1.1.1 PURPOSE OF THE TERMS OF REFERENCE (TOR)

.1 Public Works & Government Services Canada (PWGSC) requires the services of an architectural firm (Consultant), acting as the Prime Consultant with a multi-disciplinary team of sub-consultants for the delivery of services required for this project.

### 1.1.2 THE TOR AND THE DOING BUSINESS WITH PWGSC DOCUMENTATION AND DELIVERABLES MANUAL

.1 The TOR describes the project specific requirements, services and deliverables while the *Doing Business with PWGSC Documentation and Deliverables Manual* outlines the standards and procedures for construction documents, cost estimating and project scheduling.

.2 Document precedence:

.1 In the event of a document conflict the TOR takes precedence.

### 1.1.3 PROJECT INFORMATION

| Project Information | |
|---|---|
| Project Title: | Regional Psychiatric Centre Gatehouse |
| Project Address: | Regional Psychiatric Centre<br>2520 Central Avenue North,<br>Saskatoon, Saskatchewan |
| PWGSC Project Number: | R.118396 |
| PWGSC Departmental Representative: | Bruce Bartnik |

## 1.2 BACKGROUND INFORMATION

### 1.2.1 USER DEPARTMENT

.1 The User Department referred to throughout the TOR is Correctional Service Canada (CSC)

.1 CSC is the federal government agency responsible for administering sentences of a term of two years or more, as imposed by the courts. CSC is responsible for managing institutions of various security levels and supervising offenders under conditional release in the community.

.2 CSC, as part of the criminal justice system and respecting the rule of law, contributes to public safety by actively encouraging and assisting offenders to become law-abiding citizens, while exercising reasonable, safe, secure and humane control.

### 1.2.2 USER DEPARTMENT'S NEED

.1 CSC needs a new principal entrance building, also known as a Gatehouse, at their Regional Psychiatric Centre (RPC). This will replace the existing Gatehouse which is undersized and no longer meets the needs of the facility.

### 1.2.3 EXISTING CONDITIONS

.1 The RPC is a multi-level psychiatric hospital located in Saskatoon, Saskatchewan, and operated by CSC through an affiliation agreement between the Government of Canada and the University of Saskatchewan.

.2 The RPC is classified as a custodial forensic psychiatry facility (Federal Forensic Hospital) with multiple security levels and a staff of 345. The Centre provides assessment, intensive programming, treatment for mental disorders, and 24-hour medical care to individuals from the federal and provincial justice systems.

.3 The Security Functional Department group provides control of access to and egress from the Institution, the armoury, Emergency Response Team (ERT) support space, security administration, and the Admissions & Discharge functions. The existing Gatehouse is co-located with the Sally Port and contains the ERT spaces and the Armoury, but other Security activities and functions are located in other buildings. For example, the Main Communication Control Post (MCCP) is currently located in Building A05, and Security Administration office spaces are located in Building A07. It would be beneficial to consolidate more of the security department functions into the Gatehouse.

### 1.2.4 CHALLENGES AND CONSTRAINTS

.1 All site visits must be arranged through the Departmental Representative.

.1 Visits to the Work site may be affected by Provincial Public Health measures implemented as a result of the COVID-19 pandemic. Access may be restricted or completely prohibited at any time and alternate means of gathering the information relevant to the design may be required.

.2 All access throughout the Institution will be escorted by CSC.

.2 Construction on the project site will be performed during the full operation of the facilities.

.1 Project phasing must be planned to avoid disruptions to the daily operation of the facilities.

.3 Work will be carried out during normal working hours, when the Institution is fully occupied and operational.

.4 Limited User Department cash flow may require completion of Work in four phases over several fiscal years:

.1 Phase 1 – Pre-Design/Functional Program Services;

.2 Phase 2 – Schematic Design and Design Development;

.3 Phase 3 – Construction Documents Service;

.4 Phase 4 – Tendering and Construction Administration to Post Construction Service.

## 1.3 OUTLINE OF WORK

### 1.3.1 NEW CONSTRUCTION WORK

.1 The project requires design Work to construct a new RPC Gatehouse to serve as the main, secure access point for the RPC.

### 1.3.2 PHASE 1 – PRE-DESIGN/ FUNCTIONAL PROGRAMMING SERVICES

.1 Using the 2018 RPC Master Plan as a basis, extensive functional programming will be undertaken to define and verify spatial and operational requirements of the Gatehouse. The new Gatehouse may include, but is not necessarily limited to:
- .1 The Main Communication Control Post (MCCP);
- .2 Principal Entrance Control Post (PECP);
- .3 External Control;
- .4 Security Admin;
- .5 Emergency Response Team (ERT);
- .6 Armoury;
- .7 A vehicular and pedestrian sally port;
- .8 Staff wellness centre;
- .9 Training rooms;
- .10 Dog handler area;
- .11 Key Room;
- .12 Interview Rooms;
- .13 Cafeteria;
- .14 Lockers.

.2 Refer to Section 2.1 of the TOR.

### 1.3.3 PHASES 2 TO 4 – DETAILED DESIGN AND CONSTRUCTION SERVICES

.1 Design, Construction Documents Service to Post Construction Service.
- .1 Detailed design / construction documents services, tender services, construction services and post construction services for Phase 1 Pre-Design Work.

## 1.4 OBJECTIVES

### 1.4.1 GENERAL GOALS

.1 Quality Design through the:
- .1 Appropriateness of the real property solution for its use and location;
- .2 Collaborative Project Delivery process – refer to Definitions;
- .3 Economic viability of the real property solution considered and/or developed;
- .4 Successful incorporation of environmentally sustainable solutions;
- .5 Maintenance and development of effective and efficient facilities;
- .6 Appropriate incorporation of innovations within the project delivery and solutions, and;
- .7 Achievement through the design delivery of public policy, program and services to Canadian citizens resulting in inspiring and timeless solutions.

.2 Fully integrate all new components and systems including architectural, interior design, structural, mechanical, electrical, IT and security design.

.3 Provide an integrated design and construction process involving:

.1 Interdisciplinary collaboration, including all stakeholders as identified, design professionals, contractors and authorities having jurisdiction;

.2 Agreed upon design principles and decision making protocols.

.4 Consider the User Department's changing needs and future uses to create solutions that are flexible and that are able to evolve over time:

.1 Employ advanced systems and technologies to support contemporary operating requirements with capacity for growth and change.

.5 Enable a healthy, safe, positive and vibrant workplace for employees to advance wellbeing and productivity through the provision of good air quality, a balance of natural and artificial lighting, acoustic control, sufficient space requirements and efficient building systems.

.6 Enhance the local context for the benefit of both its direct users and the broader community;

.7 Review trends and identify, through benchmarking, requirements necessary to provide creative, functional and cost effective Work solutions.

.8 Integrate innovative universal design and accessibility to enable inclusiveness and non-discrimination.

.9 Integrate universal design for accessibility in all fit-up components to ensure workplace features are accessible to all users including those with permanent and temporary disabilities/impairments.

.10 Provide clear and comprehensive furniture documents to support implementation of the project specific furniture procurement strategy and installation.

.11 Integrate the Government of Canada Workplace Fit-Up standards, User Department standards and all functional requirements to provide best long-term value for the duration of the lease.

.12 Provide a design that is efficient and cost effective considering both initial cost and operation & maintenance costs over a life cycle of 25 years.

### 1.4.2 ENVIRONMENTAL/SUSTAINABLE DEVELOPMENT

.1 This project is required to be net-zero carbon.

.2 Design using sustainable design principles based on LEED® Gold requirements.

.1 Certification will not be pursued.

.3 Use the Athena® Sustainable Material Institute's Eco-calculator to assess alternatives at the schematic design phase, for environmental impacts.

.4 The Real Property Sustainability Handbook (2021), the Project GHG Options Analysis Methodology guideline and the Project Sustainability Planning and Tracking Tool will all be used to guide sustainable goals

and requirements. Refer to Appendix A for a condensed overview (only black text applicable).

.1 Prepare and recommend all required verifications to ensure net zero carbon has been achieved at the end of the project.

.5 Integrate and track all applicable components of the above noted resources into the Sustainable Development strategy and update at all milestones.

### 1.4.3 PROJECT DELIVERY

.1 Project delivery will be Design Bid Build.

.2 Provide fully integrated and coordinated professional and design services for the delivery of a project in accordance with the requirements in the TOR and as contained herein.

.3 Obtain written authorization from the Departmental Representative before proceeding from one project milestone to another.

.4 Coordinate all services with the Departmental Representative.

.5 Establish and maintain a Project Management Plan.

.6 Maintain continuity of key personnel and a dedicated working team for the life of the project.

.7 Deliver the project to be within:

.1 The construction Budget established during preliminary project approval, and;

.2 The Project Milestones in this TOR.

.8 Provide:

.1 Full coordination of services with other consultants and contractors engaged by PWGSC such as:

.1 Shared Services Canada (information technology and telephone installations);

.2 Furniture installers;

.3 Furniture movers;

.4 Geotechnical consultant;

.9 Conduct Quality Assurance reviews during the Project Milestones, including the application of Value Engineering principles during the design of all complex systems.

## 1.5 SUMMARY OF SERVICES AND SPECIALTIES

### 1.5.1 GENERAL SERVICES

.1 Provide a full Consultant Team including the following specialist services:

.1 Registered Architectural Services:

.1 Professional/Registered/Licensed Interior Designer;

.2 Professional/Registered Engineering Services:

.1 Civil Engineering;

.2 Structural Engineering;

.3 Mechanical Engineering;

.4 Electrical Engineering;

.3 Commissioning specialist;

.1 Consulting team professionals may function as the Commissioning Authority.

.4 Sustainability specialist;

.5 Landscape Architect;

.6 Cost Estimating specialist;

.1 Certified by the Canadian Institute of Quantity Surveyors.

.2 Consultant services will be implemented in phases. At any time, PSPC reserves the right to cancel the project and not proceed with successive phases. If that situation occurs, the consultant will only be compensated for the completed phases or partial completion of a phase in progress.

## 1.6 SCHEDULE

### 1.6.1 GENERAL

.1 The scope of Consultant Work for this project will be separated into four phases as described in 1.3 – Outline of Work.

.2 Deliver the project to be ready for occupancy in accordance with the project milestone listing identified below.

.3 Prepare a Project Schedule in accordance with the milestone list.

### 1.6.2 ANTICIPATED MILESTONE DATES

| Project Phase | Milestone Completion Date | Duration |
|---|---|---|
| Consultant Contract Award | April 22, 2022 | |
| Phase 1 - Pre-Design | August 22, 2022 | 4 months |
| PWGSC Quality Assurance Review | Sept. 2, 2022 | 2 weeks |
| Phase 2 - Schematic Design | October 14, 2022 | 6 weeks |
| PWGSC Quality Assurance Review | October 28, 2022 | 2 weeks |
| Design Development | Dec. 30, 2022 | 2 months |
| PWGSC Quality Assurance Review | January 13, 2023 | 2 weeks |
| Phase 3 - 66% Construction Documents | March 15, 2023 | 2 months |
| PWGSC Quality Assurance Review | March 31, 2023 | 2 weeks |
| 99% Construction Documents | May 17, 2023 | 7 weeks |
| PWGSC Quality Assurance Review (including CADD files) | May 31, 2023 | 2 weeks |
| Tender Documents | June 15, 2023 | 2 weeks |
| Phase 4 - Construction Tender Award | Sept. 7, 2023 | 12 weeks |
| Substantial Performance (including: Commissioning Completion and Interim Commissioning Report) | Sept. 19, 2024 | 1 year |

| | | |
|---|---|---|
| Final Completion (including: Standard Operating Procedures; Final Inspection and Acceptance) | Nov. 19, 2024 | 2 months |
| In-Service (i.e. occupancy by the User Departments) | Nov. 19, 2024 | |
| Post Construction (including: Final Certificate of Completion; Record Documents; O&M Manual; Commissioning Manual and Standard Operating Manual; Warranty Deficiency List) | Dec. 17, 2024 | 4 weeks |
| PWGSC Quality Assurance Review (including CADD files) | Dec. 31, 2024 | 2 weeks |
| Post Construction (including: Final Warranty Review Report; Final Commissioning Manual and Standard Operating Manual) | July 22, 2025 | 29 weeks |

## 1.7 COST

### 1.7.1 ESTIMATED CONSTRUCTION COST

.1 The Estimated Construction Cost is anticipated at this time to be $4,100,000.

.1 The Estimated Construction Cost does not include project management fees, administrative costs, Consultant fees, risk allowance, escalation or GST and is in 'Budget-Year (Current)' dollars.

## 1.8 EXISTING DOCUMENTATION

### 1.8.1 AVAILABLE FOR THE CONSULTANT

.1 Limited as-built drawings will be available at the start of the Pre-Design phase. The Consultant will be responsible for verifying the accuracy of the information incorporated into the design.

.2 Building drawings are in AutoCAD (dwg) format.

.1 The drawings will require modifications by the Consultant.

.2 The drawings will require the Consultant's verification of all critical dimensions and features pertaining to the fit-up.

.3 Survey of the building site in AutoCAD (dwg) format;

.4 Government of Canada Workplace Fit-Up Standards, GCworkplace Design Guide and the GCworkplace Space Planning Workbook.

.5 Government of Canada furniture procurement documentation.

.6 CSC Technical Criteria for Correctional Institutions;

.7 CSC Accommodation Guidelines;

.8 RPC Master Plan (2018).

### 1.8.2 DISCLAIMER

.1 Reference information will be available in the language in which it is written.

.2 The documentation may be unreliable and is offered, "as is" for the information of the Consultant.

.3 The Consultant is responsible for verifying the accuracy of the information incorporated into the final design.

## 1.9 CODES, ACTS, STANDARDS, REGULATIONS

### 1.9.1 GENERAL

.1 In addition to Provincial/Territorial and Municipal Acts, Codes, By-laws and Regulations appropriate to the area of concern, the following Codes, Acts, Standards and Guidelines are applicable to this project (in the event of a conflict between codes, the more stringent shall take precedence):

.1 NRC National Building Code of Canada 2015;

.2 NRC National Fire Code of Canada 2015;

.3 NRC National Plumbing Code of Canada 2015;

.4 NRC National Energy Code of Canada for Buildings 2017;

.5 CSA/B561-18, Accessible Design for the Built Environment;

.6 The Canada Labour Code (CLC);

.7 The Canada Occupational Health and Safety Regulations;

.8 PWGSC Mechanical Document (MD) Standards;

.1 The Departmental Representative will provide electronic copies on request.

.9 Government of Canada Workplace Fit-Up Standards, GCworkplace Design Guide and the GCworkplace Space Planning Workbook;

.10 PSPC Seismic Standard bulletin, 2018-03-02;

.11 CSC Technical Criteria for Correctional Institutions;

.12 CSC Accommodation Guidelines (relevant sections);

.13 Real Property Sustainability Handbook (2021);

.1 Project Sustainability Planning and Tracking Tool;

.14 Project GHG Options Analysis Methodology Guideline;

.2 At the start-up meeting the Departmental Representative may provide additional codes and standards unique and not published by the Federal Government.

.3 The Authorities Having Jurisdiction (AHJ) on this project are:

.1 The local municipal AHJs;

.2 CSC Departmental Fire Protection Coordinator as identified in the Treasury Board of Canada Secretariat Fire Protection Standard;

.4 Identify, analyse and design the project in accordance with the requirements of all AHJs and all applicable Codes, Acts, Standards and Guidelines and Legislation:

.1 Be versed with the legislation and requirements that are unique to Federal Government buildings in Canada;

.1 Standard Operation Procedures to meet CLC.

.2 Be versed with the legislation and requirements that are unique to Federal Government projects tendered through Public Works and Government Services Canada.

# 2 REQUIRED SERVICES

## 2.1 GENERAL REQUIREMENTS

### 2.1.1 SERVICES

.1 Commissioning.
.2 Cost Management.
.3 Pre-Design.
.4 Schematic Design.
.5 Design Development.
.6 Construction Documents.
.7 Tendering (to assist the Departmental Representative).
.8 Construction Support.
.9 Post Construction.

## 2.2 PROJECT REVIEW AND ACCEPTANCE

### 2.2.1 GENERAL

.1 Comply with all applicable laws and regulatory requirements as required by the General Conditions of the Contract.

### 2.2.2 QUALITY ASSURANCE REVIEWS, ACCEPTANCE AND PRESENTATIONS

.1 Each submission at each Project Milestone is subject to reviews by the Departmental Representative, the User Department, PWGSC Architecture and Engineering Centre of Expertise (AECOE) and other project stakeholders.
.2 The federal government generally defers to provincial and municipal authorities for specific regulations, standards and inspections but in areas of conflict, the more stringent authority prevails.
.3 At each submission:
  .1 Review submissions to be posted on the project FTP site (e.g. AutoDesk BIM 360 Docs) in searchable PDF format;
  .2 Expected turnaround time for each review is ten (10) working days;
  .3 The Consultant Team will receive review comments in the form of an editable MS Word document or MS Excel document;
    .1 Provide a single coordinated written response within five (5) working days of receiving review comments;
    .2 The purpose of this review is information and awareness for PWGSC and not quality control for the Consultants. The Consultant Team must employ their own quality control program and remain fully responsible for the design and services provided.

## 2.3 RISK MANAGEMENT

### 2.3.1 CONTEXT

.1 The Departmental Representative prepares the Risk Management Plan.
.2 Assist the Departmental Representative with the identification of risk items and factors arising from the technical requirements of the project.

## 2.4 COMMISSIONING SERVICE

### 2.4.1 GENERAL

.1 The purpose of the Commissioning Service is to certify that a fully functioning project, meeting the Owner's Project Requirements (OPR), is delivered to the User Department through appropriate design and construction verifications.

.2 Commissioning (Cx) is an integral part of the Consultant's required services.

.1 Required Cx activities and deliverables are listed within each project phase service.

.3 Participation in commissioning is based on the project scope, complexity and risk.

.4 Provide commissioning service on the basis of CAN/CSA Z320-11.

### 2.4.2 SCOPE AND ACTIVITIES

.1 Refer to Pre-Design to Post-Construction Services for Commissioning scope and activities.

### 2.4.3 DELIVERABLES

.1 Refer to Pre-Design to Post-Construction Services for commissioning deliverables.

## 2.5 COST MANAGEMENT SERVICE

### 2.5.1 GENERAL

.1 In addition to the cost estimating requirements in the *Doing Business with PWGSC Documentation and Deliverables Manual* include the following cost management services:

.1 Cost estimates and Consultant billing are also required to be broken down by fiscal year (i.e. April 1 - March 31);

.2 Include a cost breakdown for commissioning activities in all cost estimates.

### 2.5.2 DELIVERABLES

.1 Four (4) cost estimates.

.1 Refer to Pre-Design, Schematic Design, Design Development, and Construction Document Services for cost estimate deliverables.

## 2.6 PRE-DESIGN SERVICE

### 2.6.1 GENERAL

.1 The Pre-Design Report demonstrates the Consultant's readiness to commence the Work and consolidate the scope of the design.

.2 The Pre-Design Report will be utilized as the benchmark project control document to monitor progress of the project.

### 2.6.2 SCOPE AND ACTIVITIES

.1 Participate in meetings, prepare agenda, minutes and decision logs.

.2 Visit the project site, analyse site conditions and document any conditions that will impact project delivery and design.

.3 Review:

.1 Existing reports, documents and material related to the project, including the functional requirements and all other requirements identified in this TOR;
.2 Security documentation including the Threat and Risk Assessment, statement of security intent and CSC Accommodations Guideline and Technical Criteria document;
.3 Site features and restrictions (i.e. landscape features, topographical feature, climatic influences, setback requirements, easements, existing buildings, and/or structures);
.4 Municipal infrastructure, subsurface and above grade services, including capacities and limitations (i.e. storm water drainage, fire protection, domestic water, power, and/or telecommunications);
.5 Historical/archaeological features as well as previous uses;

.4 Confirm:
.1 Project specific goals and objectives;
.2 All the program information and project requirements to identify any conflicts or potential additional Work and indicate the impact on project scope, schedule and costs;
.3 Building requirements for Information Services, Multi-media, Security requirements to confirm design standards;
.1 Specifications for requirements will be provided by Shared Services Canada (SSC) and the User Department.
.4 If seismic hazard is applicable to this project;
.5 All additional information that will be required to deliver the project;
.6 Preliminary summaries of regulatory and statutory requirements, AHJ, codes, regulations and standards;
.7 Sustainable development strategy;
.1 Prepare a report to align with all applicable requirements of:
.1 The Real Property Sustainability Handbook (2021);
.2 Project Sustainability Planning and Tracking Tool;
.3 Project GHG Options Analysis Methodology Guideline;
.2 Prepare and recommend all required verifications to ensure net zero carbon has been achieved at the end of the project.

.5 Prepare a Project Procedures Plan – refer to Definition.
.1 Commentary on the Departmental Representative's:
.1 Preliminary Cost Estimate;
.2 Preliminary Schedule (including Commissioning);
.3 Risk Management Plan.

.6 Initiate the Commissioning (Cx) Process;
.1 Develop the Owner Project Requirements (OPR) - refer to Definition.
.2 Confirm the extent of Cx requirements;
.3 Define the Commissioning Team;
.4 Develop a project specific design phase Commissioning Plan. Refer to Definition.

### 2.6.3 FUNCTIONAL PROGRAM SCOPE AND ACTIVITIES

.1 Prepare a Level 3 Functional Program. Refer to definitions.

.2 On the basis of the Departmental Representative's information, the Government of Canada Workplace Fit-Up Standards, GCworkplace Design Guide and the GCworkplace Space Planning Workbook, meet with the User Department to develop the functional requirements.

.3 Prepare an agenda and a questionnaire to facilitate an on-site assessment of the User Department's functional space and operational/service requirements:

.1 Develop and document for User Department approval the relationship and adjacencies of all functional areas.

.4 Prepare a complete list of all functional needs clearly describing all space requirements including:

.1 Useable area requirements for each individual functional space/area type;

.2 Gross area summary needed to accommodate the functional program;

.3 A description of work activity within each space.

.5 Confirm and compare space allocations against the User Department organizational chart if available.

.6 Provide a summary of each functional space type including:

.1 Plan diagram (including equipment and furnishings);

.2 Common spaces;

.3 Equipment spaces;

.4 Support spaces, and;

.5 Other functional spaces required by the User Department.

.7 Provide a summary of the number (and type) of staff for each functional space.

.8 Provide a description of the specific technical requirements indicating general Architectural, Structural, Civil/Landscape, Mechanical and Electrical systems applicable to each functional area and/or each space type including:

.1 Required operational and service infrastructure;

.1 Collaborate with identified lead User Department representative and the Departmental Representative to obtain professional and technical input,

.2 Identify all required special conditions to support the project program,

.3 Identify all security, acoustic and special fire separation requirements, and;

.4 Identify any potential Occupational Health and Safety requirements.

.2 A review and definition of all audio-visual and IT requirements;

.9 Identify major equipment and casework requirements for each functional space.

.10 Review and define the User Department's storage requirements including:
  .1 Size, locations, furnishings/equipment and security.
.11 Prepare a regulatory analysis, including applicable Codes, Standards and Regulations.
.12 Prepare a Firearms Management Strategy including any required storage, maintenance area or discharge areas. Include list of all applicable procedures and guidelines.
.13 Prepare an Existing Furniture Assessment
  .1 Prepare an on-site furniture assessment including:
    .1 Manufacture, series, model type;
    .2 Age of furniture and applicable warranties;
    .3 Location of existing furniture;
    .4 The technical nature, condition, aesthetic, ability to procure additional parts and services for the existing furniture and ease of facility management as it pertains to the health, safety, and welfare of the end-users;
    .5 Recommendations and percentage of existing furniture for reuse in "as-is" condition, refurbished for reuse, slated for surplus through Crown Assets, slated for recycling/landfill or a combination thereof;
      .1 Suitability of the existing furniture to be incorporated into a new floor plan, should consider the sizes of the components (e.g. height of system panels, adjustability of work surfaces, reduction in paper storage, etc.).
    .6 Cost Benefit Analysis;
      .1 Furniture options;
        .1 Cost estimates for furniture options;
        .2 Basis of Estimate (BOE) narrative.
      .2 Justifications and recommendations for a furniture reuse strategy based on best value;
        .1 Analyse and compare cost estimates for furniture options,
        .2 Non-monetary costs and considerations (e.g. environmental impact, disruption to operations, etc.).
.14 Prepare an Existing Furniture Inventory for Reuse Report
  .1 Provide a complete inventory of all screens/partitions, workstations and components, freestanding furniture, equipment, and appliances suitable for the project as per the Existing Furniture Assessment.
  .2 Include quantity, size and details unique to the project.
  .3 Based upon the Functional Program provide a spreadsheet showing all existing furniture, equipment and appliances to be reused, repurposed, reconfigured and/or stored as surplus as part of the project.
  .4 Update the report throughout the project as required.

.15 Prepare an estimate of the improvement costs:
- .1 Prepare, based on the Functional Program, a Budgetary summary of design items/components and estimated cost breakdown, and;
- .2 Include a Class 'D' cost estimate in the compiled Pre-Design document.
  - .1 CSC/CSI UniFormat™ 2010;
  - .2 Indicative (+/- 20%-25%), Uniformat™ Level 2 detail is required;
  - .3 Include the Basis of Estimate (BOE) – refer to Definition.

.16 Based upon the approved draft Functional Program, develop, for Acceptance by the Departmental Representative and User Department, the following:
- .1 Spatial relationship diagrams to indicate adjacency requirements between each of the spaces and groups of spaces, and;
- .2 Block plans:
  - .1 Showing the location of each functional component, and;
  - .2 To determine reasonable net to gross area ratios.

.17 Provide preliminary options review for potential reuse of spaces that will be vacated to move into the new gatehouse.

.18 Functional Program Workshops:
- .1 Arrange and facilitate four (4) functional program workshops shortly after appointment of the Consultant Team;
  - .1 Introduce the Functional Program process, stages and required arrangements and authorities, and;
  - .2 Participate in a site tour to understand the occupancy and operational requirements, office support areas, Special Purpose Space needs and layouts, and project related requirements.
- .2 Arrange and facilitate follow up sessions during Pre-Design Functional Program Services as required.

### 2.6.4 DELIVERABLES

.1 Pre-Design Report documenting the Pre-Design Scope and Activities and Functional Program Scope and Activities.
- .1 Revise as required.
- .2 Provide one (1) electronic searchable PDF copy on the project FTP site.

### 2.6.5 OPTIONAL TERMINATION OF CONSULTANT AGREEMENT OR PROJECT DELAY

.1 Upon completion of the Phase 1 (Pre-Design Service) PWGSC reserves the right to terminate the Consultant Agreement or delay the start of subsequent phases (Detailed Design and Construction Services) for up to one year.
- .1 Payment for Work completed to the end of Phase 1 will be in accordance with the General Conditions.

## 2.7 SCHEMATIC DESIGN SERVICE

### 2.7.1 GENERAL

.1 Explore, develop and compare design options for increased program and space efficiencies, operational effectiveness, and potential areas of optimization, performance verification, preliminary cost analysis and alternatives.

.2 Facilitate the selection of one (1) design option for further detail development and evaluation:

.1 Establishes the Basis of Design (BOD) to confirm completeness of response to the functional programming requirements - refer to Definition.

.3 Present a Schematic Design Report for:

.1 PWGSC Quality Assurance (QA) review, and;

.2 Departmental Representative sign-off and approval to proceed to Design Development Services.

### 2.7.2 SCOPE & ACTIVITIES

.1 Participate in meetings, prepare agenda, minutes and decision logs.

.2 Prepare a Schematic Design Report documenting the review and analysis of a minimum of three (3) viable and distinct multi-disciplinary options.

.1 Develop, for the Departmental Representative's Acceptance, the evaluation parameters.

.2 Conduct design option feasibility studies exploring possible technical and environmental strategies which are viable and have potential for development.

.3 Analyse each option for compliance with the project functional and technical requirements in the approved Pre-Design report.

.4 Develop and include a Basis of Design (BOD) narrative for each option – refer to the Definition.

.5 Confirm compliance with applicable codes, acts and regulations for each option. If applicable, present alternate solutions for consideration by both the Departmental Representative and the AHJ.

.6 Identify and document risks for each option and recommend corrective measures.

.3 Recommend one option to proceed to Design Development (DD).

.4 Obtain the Departmental Representative's Acceptance of the recommended option.

.5 Architectural:

.1 Prepare a site plan indicating relationships, landscape concept, building outlines, main accesses, roadways, vehicular and pedestrian traffic patterns;

.2 Provide building plans, showing the relative position of main accommodation areas, circulation patterns, floors, horizontal and vertical space relationships, and mechanical/electrical shafts;

.3 Include elevations, sections and typical wall details for the building envelope;

.4 Include Furniture Layout:
.1 Based on Existing Furniture Assessment, provide detailed list of furniture to be reused and coordinate with layout.
.2 New furniture will be supplied by CSC through CORCAN.
.1 Coordinate with CORCAN for layout.
.5 Provide perspectives and/or 3D visualization diagrams, and;
.6 Calculate the gross building area and provide a net area summary of all functional spaces.

.6 Civil:
.1 Describe the overall impact on the site systems infrastructure;
.2 Verify all site services information;
.3 Provide a site plan showing the existing building, proposed site services, building service connections, site drainage, roads, parking and sidewalks, and;
.4 Include a preliminary analysis of the impact on existing systems when contributing to existing sewer lines.
.5 Landscaping requirements.

.7 Structural:
.1 Describe the potential impact on the existing building structures and include any required structural modifications and/or upgrades;
.2 Provide a general description of the structures, including systems considered and benefits/disadvantages;
.3 Include design loads for all load cases, and;
.4 Prepare concept drawings of structural systems proposed, including typical floor plans, foundations, lateral systems and explanatory sketches.
.5 Consider seismic loading in accordance with the PWGSC Seismic Standard bulletin, 2018-03-02.

.8 Mechanical Engineering:
.1 Analyse optional mechanical schemes;
.1 Conduct life cycle cost analyses to determine the most beneficial mechanical systems;
.1 Base Life Cycle Cost (LCC) analyses on a projected building life of 25 years;
.2 Establish and confirm an energy Budget, and;
.3 Confirm compliance with OPR.
.2 Confirm Operational and Maintenance (O&M) requirements, including staffing, differentiated by:
.1 Code requirements;
.2 Failure modes / risks, and;
.3 Priorities appropriate to the complexity and size of the facility.
.3 Provide a schedule of requirements, listing:
.1 Rooms and the mechanical building services to be provided including unique or specialized equipment.

.1 Provide narratives associated with the manner in which the proposed mechanical service and systems compare with the user/occupant requirements.

.9 Electrical Engineering:

.1 Provide an electrical design synopsis, describing the electrical Work in sufficient detail for assessment and Acceptance by the Departmental Representative;

.1 Include feasibility and economic studies of proposed systems complete with cost figures and loads, and in accordance with the Sustainable Development requirements.

.2 Prepare a site plan showing the location of electrical and telecommunication service entrances;

.3 Prepare floor plans indicating locations and sizes of:

.1 Major electrical equipment and distribution centres, and;

.2 Telecommunications rooms, closets and major conduits.

.4 Provide normal and emergency power distribution details, including a diagram showing the distribution up to distribution centres on each floor;

.5 Indicate typical lighting concepts for the interior and exterior environments;

.6 Indicate typical ceiling (or floor) distribution systems for lighting, power and telecommunications, and;

.7 Provide concept descriptions of fire alarm and security systems.

.10 Update the OPR and Commissioning Plan.

.11 For each of the respective design options and the fully developed final selected design submission milestones, provide a BOD narrative and a Preliminary Project Description (PPD) using PPDFormat™, latest version – refer to the Definitions for further detail.

.1 Submit Cost Estimates based on respective PPDFormat™ Level(s) of Detail.

.12 Review, validate and update the details of the Functional Program requirements, including space data sheets.

.13 Update the sustainable design strategy and report on sustainability targets.

.14 Provide energy simulation of the proposed design options including estimated annual energy cost, as may be directed by the Departmental Representative:

.1 Predicted by using current energy cost for the appropriate area or by;

.2 Provision of Government of Canada (GoC) bulk energy commonly supplied where available.

.15 Update the Budget, schedule and risk analysis and identify any conflicts that will need to be addressed with respect to scope, quality, schedule, and cost:

.1 Prepare a Class 'C' Cost Estimate for each option.

.1 CSC/CSI UniFormat™ 2010;
.2 Indicative (+/- 15%), Uniformat™ Level 3 detail is required;
.3 Include the Basis of Estimate (BOE) – refer to Definition.

.16 Facilitate a presentation of the Schematic Design report involving the Departmental Representative and User Department representatives.
.1 Anticipate minor revisions to the schematic designs prior to sign-off by the Departmental Representative and User Department.

### 2.7.3 DELIVERABLES

.1 Schematic Design Report documenting the Schematic Design Scope and Activities.
.1 One (1) electronic searchable PDF copy on the project FTP site.

## 2.8 DESIGN DEVELOPMENT SERVICE

### 2.8.1 GENERAL

.1 Refine and develop the selected design option prepared and approved in Schematic Design.
.2 Finalize all major design components, technical criteria and performance objectives, cost estimates schedule and codes/standards regulatory compliance prior to advancing to the Construction Document Service.
.1 Confirm that the design continues to support the project specific objectives documented in the Pre-Design Service.
.3 Integrate all components and systems, including architectural, structural, mechanical, electrical, information technology (IT), multimedia, security and furniture design.
.4 Prepare the Design Development Report, which consist of drawings and other documents to describe the scope, quality and cost of the project in sufficient detail to facilitate design approval, confirm code compliance and obtain authorization to prepare the construction documents.

### 2.8.2 SCOPE AND ACTIVITIES

.1 Participate in meetings, presentations, prepare agenda, minutes and decision logs.
.2 Prepare a Design Development Report to further develop the selected Schematic Design option and expand the intent for each discipline to complete the design for this project.
.3 Develop sub-system options for various disciplines.
.4 Present/submit the design for review to authorities having jurisdiction as required.
.5 Architectural:
.1 Prepare a site plan showing the building and infrastructure items including the following:
.1 Pedestrian, vehicular, security, and delivery service access.
.2 Provide floor plans for each level (including the roof) showing all accommodation requirements, including all necessary circulation areas, stairs, elevators and ancillary spaces anticipated for service use;

.3 Indicate building grids, modules, and key dimensions;
.4 Provide reflected ceiling plans of ceilings with special features;
.5 Show elevations of all exterior building facades indicating all doors and windows, accurately sized and projected from the floor plans and sections;
.1 Clearly indicate levels for grade, all floors, ceilings, roof and penthouse levels;
.6 Develop cross-sections through the building to show floor levels, room heights and inner corridor elevations;
.7 Identify primary architectural materials proposed for the exterior and interior of the building, including choice of finishes;
.8 Provide plans and preliminary details for millwork, built-in furniture and lab casework;
.9 Provide detail sections of walls with special design features requiring illustration and explanation at this stage, such as firewalls, acoustical barriers, security partitions and isolation/separation of laboratory spaces;
.10 Special construction and demolition, including heritage conservation and rehabilitation requirements, and hazardous materials abatement;
.11 Update furniture plan and coordination with CORCAN.
.12 Provide sections and details for any spaces requiring acoustic security;
.1 Include Sound Transmission Class (STC) ratings for doors, transfer ducts and other assemblies.

.6 Civil:
.1 Further refine site plans showing site services and building service connections referenced to proposed building outlines, site access roads and sidewalks, including existing and proposed grades and drainage improvements;
.2 Indicate locations of manholes (complete with invert elevations), valves, and fire hydrant locations;
.3 Identify proposed pipe sizes and slopes, where applicable, and include pipe invert elevations at building foundation;
.4 Identify, by means of the Design Summary Sheets, pipe capacity and estimated flow for storm and sanitary sewers;
.5 When contributing to an existing sewer, include analysis of impact on existing systems;
.6 Provide Hydraulic Analysis of any relevant alterations to existing water distribution systems in the vicinity of the proposed building to confirm anticipated maximum available fire flow. Calculate and compare site flows to building site fire flow, and;
.7 Provide typical trench and related details, including profiles of below grade services.

.7 Structural:

.1 Provide drawings indicating modifications to existing structure and new structural systems, structural materials, cladding details, fireproofing methods and other significant or unusual details;
.2 Indicate all design loads, e.g. dead and live loads, on all plans with atypical loads marked;
.3 Live loads are to include localized seismic, wind and snow, and;
.4 Provide brief design calculations including outputs from computerized analysis.

.8 Mechanical:
.1 Update the mechanical design synopsis (BOD) for the selected option include the following;
.1 Overview,
.2 Code and Standards Analysis,
.3 Site Services and Utilities,
.4 Fire Protection Systems,
.5 Plumbing Systems,
.6 Heating Systems,
.7 Cooling Systems,
.8 Ventilation Systems,
.9 Exhaust Systems,
.10 Insulation,
.11 Humidification Systems,
.12 Acoustic and sound control measures,
.13 Controls, and;
.14 Energy Conservation Measures and Energy Analysis Report.
.2 Provide system schematics for heated water, chilled water, ventilation and plumbing systems;
.3 Provide catalogue cut sheets of representative equipment for each type of component to be used on the project;
.4 Provide preliminary layout drawings showing locations and sizing of all major components and systems such as:
.1 Ventilation, cooling and heating systems showing locations, and all major equipment layouts in mechanical rooms;
.2 Plumbing systems, showing routing and sizing of major lines and location of pumping and related other equipment, and;
.3 Fire protection systems showing major components.
.5 Provide brief design calculations including outputs from computerized analysis.
.1 Update the energy analysis.

.9 Electrical:
.1 Update the electrical design synopsis for the selected option. Provide data on the total connected load, the maximum demand and diversity factors and the sizing of the emergency load;

.2 Elaborate on proposed emergency power schemes and provide preliminary installation details for any emergency generator installation;
.3 Indicate metering locations on a distribution diagram;
.4 Provide typical lighting, power and telecommunication system details for all workspaces;
.5 Include lighting design and control schemes for typical lighting arrangements;
.6 Elaborate on the exterior lighting scheme;
.7 Provide typical fixture concepts;
.8 Provide a fire alarm riser diagram;
.9 Indicate the security systems major conduit requirements on floor plans;
.10 Provide typical security system details (conduit and boxes) that will be included on construction drawings, and;
.11 Provide design calculations including outputs from computerized analysis.

.10 Continue to review all applicable statutes, regulations and by-laws in relation to the design of the project and conduct a detailed code analysis to demonstrate compliance.
.1 If there are non-compliance issues, develop alternative solutions to support the design and submit for approval to the AHJ.

.11 Analyse the Constructability of the project and advise on the construction phasing process and duration.

.12 Develop a Preliminary Project Description to Uniformat™ Level 4 detail – refer to Definition.

.13 Update the Budget, schedule, risk analysis and identify any conflicts that will need to be addressed with respect to the scope, quality, schedule and cost.

.14 Corresponding directly to the Preliminary Project Description PPDFormat™, prepare a Class B Cost Estimate:
.1 CSC/CSI UniFormat™ 2010;
.2 Substantive (+/- 10%), Uniformat™ Level 4 detail is required;
.3 Include the Basis of Estimate (BOE) – refer to Definition.
.4 For each Furniture Category include delivery, installation and applicable taxes.

.15 Update the sustainable design strategy and report.

.16 Identify proposed architectural/interior design materials, finishes and colours:
.1 Submit three (3) finish and colour scheme options on three (3) finish sample boards;
.2 Final furniture finish choices will be made after the award.

.17 Update the OPR, BOD and Commissioning Plan.
.1 Confirm BOD and Commissioning Plan conformance to OPR.

.18 Develop system component lists including equipment, components, systems and different levels of integration between systems to be commissioned:
  .1 List of components that delineate and make up the respective systems;
  .2 List of systems that delineate and make up the respective integrated systems, and;
  .3 List of integrated systems.
.19 Develop Commissioning forms and verification check sheets specific to pre-functional (static installation and start-up) and functional performance verification tests (dynamic operation and integrated operation) for all components, systems and integrated systems specific to the project.
.20 Develop a Commissioning Issues/Resolution log.
.21 Provide a written response to the PWGSC Schematic Design Quality Assurance (QA) review.
.22 Update furniture plan and coordination with CORCAN.
.23 Coordinate a multi-disciplinary approach to sustainability, program design, site design, building design and commissioning.
.24 Facilitate a presentation of the Design Development report involving the Departmental Representative and User Department representatives.
  .1 Anticipate minor revisions prior to Acceptance by the Departmental Representative and User Department.

### 2.8.3 DELIVERABLES

.1 Design Development Report documenting the Design Development Scope and Activities.
  .1 One (1) electronic searchable PDF copy on the project FTP site.

## 2.9 CONSTRUCTION DOCUMENTS SERVICE

### 2.9.1 GENERAL

.1 Develop the necessary construction documents required to tender the approved design.

### 2.9.2 SCOPE AND ACTIVITIES

.1 Participate in meetings, prepare agenda, minutes and decision logs.
  .1 Present updates and supporting analysis within project meetings.
.2 Prepare one (1) tender package coordinated with all disciplines.
.3 Prepare construction documents in accordance with the *Doing Business with PWGSC Documentation and Deliverables Manual*.
  .1 Finalize designs according to the Budget and schedule;
    .1 Coordinate the Work, including scope changes required to remain within Budget,
    .2 Non-compliances may require revisions to the contract documents at the Consultants cost,
.4 Provide a cost breakdown by unit rate and/or trade for review of bids and comparison with the successful Contractor's cost breakdown.

.5 Update the project schedule.
.6 Establish a quality control process for the construction and contract administration stage.
.7 Participate in stakeholder coordination and Value Engineering meetings.
.8 Update the BOD and OPR.
.9 Develop commissioning construction documentation complete with verification forms using National Master Specifications (NMS) Division 01 specifications including:
  .1 An updated Cx Plan with detailed commissioning strategies, Cx forms/check sheets and training requirements;
  .2 Cx forms and verification check sheets ready for commissioning of specific components, equipment, systems and integrated systems specific to the project;
    .1 Component verification (Static Verification),
    .2 Installation verification,
    .3 Start-up,
    .4 Systems verification test,
    .5 Integrated system functional performance verification for dynamic operation, and;
    .6 Cx issue log.
  .3 Expected design performance parameters;
    .1 Observed performance including any indication of whether or not this performance is acceptable, and;
    .2 Design Engineer of Record date and signatures along with those performing and witnessing the test.
.10 Provide written response to PWGSC comments at 66% and 99% review stages and integrate comments into the final construction documents.
.11 Participate in the Risk Management process.
.12 Include in the contract documents, a requirement for the contractor to develop a waste reduction and management plan during the construction of this project.

### 2.9.3 DELIVERABLES

.1 Include items listed in the "Scope and Activities" section above, the *Doing Business with PWGSC Documentation and Deliverables Manual* and items listed below.
.2 66% complete Construction Documents (minimum requirements):
  .1 Updated OPR and BOD documents;
  .2 Updated sustainable design strategy and report;
  .3 Updated project schedule;
  .4 Construction Drawings and Specifications;
    .1 All drawing sheets and specification sections required for tendering should be included in this submission.
  .5 One (1) electronic searchable PDF copy on the project FTP site.
  .6 Updated Class B Cost Estimate;

.1 CSC/CSI UniFormatTM 2010;
.2 Substantive (+/- 10%), Uniformat™ Level 4 detail and MasterFormat™ is required;
.3 Basis of Estimate (BOE).

.3 99% complete Construction Documents, fully coordinated as if ready for tender:
.1 This submission incorporates all revisions required by the review of the previous submission and a written response to the PWGSC 66% review;
.2 Class A Cost Estimate;
.1 CSC/CSI UniFormat™ 2010;
.2 Substantive (+/- 5%), Uniformat™ Level 5 detail and MasterFormat™ is required;
.3 Include the Basis of Estimate (BOE) – refer to Definition.
.3 Updated project schedule;
.4 Updated sustainable design strategy and report;
.5 Construction Drawings;
.1 Drawings should reflect 99% completeness as a complete design without any incomplete drawings (as if ready for tendering).
.6 Complete Specifications;
.1 Including all required sections coordinated with the drawings;
.2 Bidders' price breakdown form (for submission at tender closing), and;
.3 Commissioning specifications, including forms applicable to Pre-Functional verification (Static Verification, installation & start-up) and Functional Performance Verification Testing (operational and dynamic).
.4 User Department security requirements,
.1 Provided by the User Department.
.7 One (1) electronic searchable PDF copy on the project FTP site.
.1 Include drawings in both DWG and PDF formats for review by PWGSC.

.4 Final (100%) Construction Documents ready for tendering:
.1 Incorporate all revisions required by the review of the previous submission and a written response for the PWGSC 99% review;
.2 The submittal includes:
.1 Signed and sealed documents:
.1 One (1) electronic searchable PDF copy on the project FTP site.
.2 Updated sustainable design strategy and report;
.3 Updated project schedule, and;
.4 Construction Drawings & Specifications as per the *Doing Business with PWGSC Documentation and Deliverables Manual* except as follows:

.3 The Consultant must confirm in writing that:
.1 The documents are ready to be issued for tender,
.2 The checklist in the *Doing Business with PWGSC Documentation and Deliverables Manual* has been reviewed in concert with the requirements of the Consultant Agreement, and;
.3 A full review and coordination of the Contract Documents are complete and in accordance with professional standard of care.

## 2.10 TENDER SERVICE

### 2.10.1 GENERAL

.1 Support the Departmental Representative with the tender.
.2 The Contract Authority for this project is the PWGSC Real Property Contracting (RPC) branch.
.3 Tendering will use the Public Works and Government Services internet procurement system (https://buyandsell.gc.ca).

### 2.10.2 SCOPE AND ACTIVITIES

.1 Apply for a Building Permit from the AHJ along with the supporting documentation for a permit application. The Contractor will be responsible for all other permits.
.2 When requested, the Consultant will be required to:
.1 Provide the Departmental Representative with information required by bidders to interpret construction documents;
.2 Prepare addenda in response to all questions within two (2) business days during the bidding period and submit to the Departmental Representative;
.3 Attend one (1) on site bidder's conference;
.4 If PWGSC decides to re-tender the project, or any specific tender package, provide full services to the Departmental Representative, and;
.5 During Bid Review and Analysis assist the Departmental Representative as required by analysing and reconciling any differences between pre-tender estimates and submitted bids.

### 2.10.3 DELIVERABLES

.1 Addenda.
.2 Written responses to all questions.
.3 Bid analysis and/or recommendations.

## 2.11 CONSTRUCTION SUPPORT SERVICE

### 2.11.1 GENERAL

.1 Support the Departmental Representative with the construction phase and confirm that the quality, Budget and schedule meet the project requirements.

### 2.11.2 SCOPE AND ACTIVITIES

.1 The Consultant shall share all project information with PWGSC:

.1 All material specifications, mixes and test results shall be turned over to the Departmental Representative for future maintenance by PWGSC and others.

.2 General Services:

.1 Prepare minutes and report on project and construction site meetings;

.2 Review contractor submissions;

.3 Update the project log tracking with approved major decisions, including those impacting project scope, Budget and schedule;

.3 Construction & Contract Administration:

.1 Provide bi-weekly field reviews and as required to fulfill the Consultant's professional obligations to monitor the construction activities throughout the construction period and keep the Departmental Representative informed of Work progress;

.1 Reject unsatisfactory Work;

.2 Provide written reports for field reviews;

.2 Furnish supplemental instructions to the Contractor with reasonable promptness or in accordance with a schedule for such instructions agreed to by PWGSC and the Contractor;

.3 Provide additional drawings to clarify, interpret or supplement the contract documents;

.4 Review and comment on various documents such as the Contractor's Progress Claims and all information impacting schedules;

.5 Offer timely technical advice on all disputes and claims between PWGSC and the Contractor;

.6 Identify need for special tests, inspections and additional Work, and;

.7 Assist the Departmental Representative to prepare the Certificate of Substantial Performance and provide sign-off.

.4 Cost Services:

.1 Evaluate change orders, claims, Work completed and cash flow;

.2 Determine the amounts owing to the Contractor based on Work progress and certify payments to the Contractor.

.5 Changes to the Work:

.1 Assist the Departmental Representative in preparing Contemplated Change Notices (CCNs) and Change Orders (COs) to be issued by the Departmental Representative.

.6 Review, witness, verify test, approve and sign off all commissioning submittals for performance parameters before test and after test including:

.1 All factory test reports and data;

.2 Installation, start-up and Testing, Adjusting and Balancing (TAB);

.3 Components, systems and integrated systems based checks;

.4 Cx forms and verification checklists, process and procedures specific to components, systems and different levels of integration between systems;
.5 Cx schedule;
.6 Deferred, seasonal and re-test system deficiency;
.7 Review and assist with O&M and Owner Training Manual;
.8 Oversee and Document Functional Performance Testing;
.1 Follow up on testing issues as required.
.9 Update the Cx Issues Log;
.10 Conduct field reviews complete with Cx site reports verifying components and systems being commissioned in accordance with the OPR and the BOD;
.11 Chair Cx Team meetings and report progress on a bi-weekly basis complete with minutes for distribution;
.12 Provide verification of final reports upon completion of the entire project;
.13 Lead and facilitate the Cx Team's Interim Acceptance Report sign-off, and;
.14 Engineer(s) of Record Letter of Acceptance.

.7 Coordinate with the CSC Fire Protection Engineer (FPE) for a Fire and Life Safety Inspection.

### 2.11.3 DELIVERABLES

.1 Meeting minutes.
.2 Bi-weekly field review and work progress reports (including construction photographs).
.3 Reviewed shop drawings, test reports/certificates and other submissions.
.4 Clarifications, Supplemental Instructions, Contemplated Change Notices and Change Order Recommendations.
.5 Reviewed and certified Contractor Progress Claims.
.6 Comments to Contractor Schedule, and Change Orders.
.7 Completed Certificate of Substantial Performance.
.8 Standard Operating Procedures - refer to the Definition.
.9 Interim Commissioning Report - refer to the Commissioning Report Definition.

## 2.12 POST CONSTRUCTION SERVICE

### 2.12.1 GENERAL

.1 Support the Departmental Representative in obtaining all final documents required for project Close-out (refer to the "Project Milestones" definition).

### 2.12.2 SCOPE AND ACTIVITIES

.1 Project Close-out Services:

.1 Revise documentation to reflect all changes, revisions and adjustments after completion of commissioning;

.2 Prepare and submit electronic record drawings (AutoCAD format as per the *Doing Business with PWGSC Documentation and Deliverables Manual* requirements) and specifications based on Contractor's marked-up as-builts;

.3 Assist the Departmental Representative to prepare the final Certificate of Completion and provide sign-off;

.4 Review the Operations and Maintenance manual;

.5 Finalize the Commissioning Manual;

.1 Oversee, follow up and ensure any deficiencies not completed by the Contractor are completed;

.2 Resolution of any warranty issues on commissioned systems during the warranty period;

.3 Provide ongoing consultation with the construction teams in support of their project closeout activities and submittals related to systems and assemblies commissioning specific deliverables in compliance to the Commissioning Plan, Commissioning Specifications and Owner's Project Requirements (OPR);

.4 Finalize the Commissioning Report based on;

.1 Final Cx Plan and associate testing and verification documents,

.2 Final Cx issues Log,

.3 Post occupancy changes,

.4 Deferred commissioning,

.5 Information not available or incomplete at Interim Acceptance.

.5 Coordinate deferred commissioning for those systems that have been functionally tested and/or turned over where re-testing and commissioning is required;

.6 Certify that all installations have been completed and function in accordance with the Cx Plan, OPR and the Consultant's Basis of Design (BOD);

.7 As per the Commissioning Plan, ensure that all completed operating and maintenance manuals, warranties, guarantees and other required submittals are turned over to the Departmental Representative.

.2 Warranty Services:

.1 Participate in warranty inspections with the Departmental Representative and Contractor;

.2 Provide a warranty deficiency list;

.1 Monitor and certify correction of deficiencies before expiry of warranties.

### 2.12.3 DELIVERABLES

.1 Warranty Deficiency List.

.2 Final Certificate of Completion.

.3 Record Documents:

.1 One (1) electronic searchable PDF copy of each record document on the project FTP site;

.2 One (1) copy of each record drawing in AutoCAD - DWG file format.

.1 Refer to the *Doing Business with PWGSC Documentation and Deliverables Manual* for AutoCAD drawing requirements and standards.

.3 Include furniture.

.4 Operations and Maintenance Manual(s):

.1 Three (3) hard copies.

.2 One (1) electronic searchable PDF copy on the project FTP site.

.3 Include furniture.

.5 Final Commissioning Manual (signed) - refer to the Definition.

.6 Final Systems Operation Manual (signed) - refer to the Definition.

.7 Recommissioning Manual - refer to the Definition.

.8 Final Warranty Review Report.

.1 Final certification of installation and warranty from manufacturers.

.2 Sign-off on Warranty.

# 3 PROJECT ADMINISTRATION

## 3.1 GENERAL REQUIREMENTS

.1 The administration requirements outlined in this section are applicable to all PWGSC projects in the Western Region, unless otherwise indicated in the TOR.

## 3.2 LANGUAGE

.1 Construction documents must be prepared in English.

## 3.3 MEDIA

.1 The Consultant shall not respond to any media inquiry.

.2 Direct all media requests to the Departmental Representative.

## 3.4 PROJECT MANAGEMENT

### 3.4.1 GENERAL

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

.2 The PWGSC 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.

## 3.5 LINES OF COMMUNICATION

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

.1 This includes formal contact between the Consultant Team, the Contractor, the PWGSC Project Team and the User Department.

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

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

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

## 3.6 MEETINGS

### 3.6.1 GENERAL

.1 The Departmental Representative will arrange meetings throughout the project, with representatives from:

.1 The User Department;

.2 PWGSC;

.3 The Consultant Team, and;

.4 The Contractor (during the construction phase).

.2 Standing agenda items shall include:

.1 Project Schedule;

.2 Cost;

.3 Risk;

.4 Quality, and;
.5 Health and Safety.

.3 Project Start-up Meeting:
.1 Shall be arranged and facilitated by the Departmental Representative, and;
.2 Includes the PWGSC AECOE Design Manager, PWGSC AECOE Furniture Specialist, User Department Representatives and the Consultant Team.

### 3.6.2 DESIGN PHASE:

.1 Bi-weekly meetings with PWGSC and the Consultant Team will normally be held via teleconference.

### 3.6.3 TENDER PHASE

.1 Attend one (1) on site bidder's conference.

### 3.6.4 CONSTRUCTION PHASE:

.1 Bi-weekly meetings with PWGSC, the Consultant Team and the Contractor will normally be held at the construction site for the duration of the project with ability for teleconference attendance.

.2 In addition include site meetings for the following activities:
.1 Field Reviews;
.2 Commissioning & Verification, including an inspection by the CSC Fire Protection Engineer;
.3 Substantial Performance;
.4 Final Completion;
.5 Post Construction Warranty.

## 3.7 CONSULTANT RESPONSIBILITIES

.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;
.1 Professional registrations / certifications must remain current.
.3 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 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 TOR requirements.

### 3.7.2 DESIGN PROJECT MILESTONES

.1 Attend meetings.
.2 Record the issues and decisions.
.3 Prepare and distribute minutes within two (2) working days of the meeting.
.4 Ensure sub-consultants attend all required meetings.

### 3.7.3 CONSTRUCTION PROJECT MILESTONE

.1 Record the meeting issues and decisions.
.2 Prepare and distribute minutes within two (2) working days of the meeting.
.3 Attend meetings and provide site inspection services;
.4 Ensure sub-consultants provide site inspection services and attend all required meetings.
.5 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.

## 3.8 PWGSC RESPONSIBILITIES

### 3.8.1 ADMINISTRATION

.1 PWGSC 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.

### 3.8.2 REVIEWS

.1 PWGSC will review the Work at various stages and reserves the right to reject unsatisfactory Work at any stage.

### 3.8.3 ACCEPTANCE

.1 PWGSC 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.

### 3.8.4 PWGSC 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 PWGSC;

.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.

### 3.8.5 PWGSC ARCHITECTURE AND ENGINEERING CENTRE OF EXPERTISE (AECOE)

.1 Provides advisory services and Quality Assurance Reviews of Consultant deliverables.

.2 Participates regularly in design and construction Project Milestones and may attend meetings as and when required.

.3 Provides a Design Manager for the project who will coordinate the services of AECOE.

## 3.9 USER DEPARTMENT RESPONSIBILITIES

### 3.9.1 USER DEPARTMENT PROJECT LEADER

.1 Is accountable for the expenditure of public funds and delivery of the project in accordance with the terms accepted by the Treasury Board.

.2 Reports to the senior User Department executive management.

.3 Will play several critical roles for the successful implementation of the project, including:

.1 Coordination of the quality, timing and completeness of information and decisions relating to issues related to the functional performance of the facility.

## 3.10 BUILDING PERMITS AND OCCUPANCY PERMITS

.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. Consultant will advise and assist administration of any necessary permit fees.

.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.

.3 The Consultant shall pay for the Building Permit and the Contractor shall pay for permits on behalf of PWGSC.

## 3.11 REVIEW AND APPROVAL BY CSC FIRE PROTECTION

.1 The CSC-NHQ Fire Protection Department will conduct reviews and approvals.

.2 CSC-NHQ 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 Part 2 of this TOR.

## 3.12 TECHNICAL REPORTS

.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 Standard practice for the organization of technical reports include:

.1 A cover page, clearly indicating the nature of the report, the date, the PWGSC 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.

.3 The report content must:

.1 Use a proper numbering system (preferably legal numbering), for ease of reference and cross-reference;

.1 The use of 'bullet points' are to be avoided.

.2 Use proper grammar, including using complete sentences, for clarity, to avoid ambiguity and facilitate easy translation into French, if required;

.1 The use of undefined technical terms, industry jargon and cryptic phrases are to be avoided.

.3 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.

# 4 APPENDIX A

## 4.1 BASELINE GREENING COMMITMENTS

# PLACEMAT - BASELINE GREENING COMMITMENTS – Real Property Assets 2021

| BASELINE GREENING COMMITMENTS – PSPC CROWN-OWNED PROJECT DELIVERY<br>*Black: applies to all of Government.* *Blue: existing commitments specific to PSPC.* ***Blue Bold: newly proposed PSPC commitments through consultation with Service Lines and Regions.*** | | | | |
|---|---|---|---|---|
| **Type of project** | **Climate Change Mitigation (Greenhouse Gas (GHG) Reduction)** | **Climate Change Adaptation (Resiliency)** | **Sustainability Certifications[1]** | **Waste and Plastics / Water / Biodiversity / Materials / Employee Wellbeing** |
| **New Construction** | All new buildings will prioritize low-carbon. Investment decisions will be based on total cost of ownership.<br>• net-zero carbon building unless a life-cycle cost-benefit analysis indicates net-zero-carbon-ready[2] construction<br>• application of GHG Options Analysis Methodology[3] to determine the optimal GHG savings<br>• 28% more energy efficient than National Energy Code of Canada for Buildings (NECB) performance<br>• energy-use metering (by 2022)<br>• disclose amount of embodied carbon in structural materials (by 2022)<br>• 30% less embodied carbon[4] in major construction materials (by 2025) | Climate resilient building:<br>• Climate Risk and Vulnerability Assessment (CRVA) completed (integrate into design, construction and building operations)<br>• apply climate-resilient building guidance by National Research Council (NRC) Canada | • LEED Gold **(aspirational LEED Platinum) or equivalent[5] (Green Globes, Living Building Challenge)**<br>• **WELL Silver or equivalent (Fitwel)** | • 90% diversion of construction and demolition waste from landfills (strive to achieve 100% by 2030)<br>• reduce water consumption by using best-in-class water-use practices[6] and designing all new buildings to effectively manage storm water<br>• retain or restore biodiversity<br>• low volatile organic compound (VOC) materials<br>• conduct whole building (or asset) life-cycle assessments (for structural materials) by 2025 at the latest[7]<br>• engagement and integrated planning with communities of practice, government and stakeholders<br>• create sustainable workplaces, including employee mobilization and action |
| **Major Renovation/ Retrofit** | All major building retrofits, including significant energy performance contracts will prioritize low-carbon. Investment decisions will be based on total cost of ownership.<br>• application of GHG Options Analysis Methodology to determine the optimal GHG savings | Climate resilient building:<br>• Climate Risk and Vulnerability Assessment (CRVA) completed (integrate into design, construction and building operations) | • **LEED Gold or equivalent (Green Globes)** to replace LEED Silver<br>• **Fitwel 2-stars or equivalent (WELL)** | • 90% diversion of construction and demolition waste from landfills (strive to achieve 100% by 2030)<br>• reduce water consumption by using best-in-class water-use practices and designing all new buildings to effectively manage storm water<br>• retain or restore biodiversity |

[1] Sustainability Certifications allow PSPC to meet many of the key elements under the Greening Government Strategy (2020)
[2] Net-zero-carbon-ready building is one that could operate as a net-zero-carbon building in the future.
[3] Life-cycle cost approach will use a period of 40 years and a carbon shadow price[3] of $300 per tonne and be maintained at all project stages.
[4] Embodied Carbon refers to carbon dioxide emitted during the manufacture, transport and construction of building materials together with end-of-life emissions
[5] Equivalence: Each application has the option of using another recognized industry standard to reach the same level of performance.
[6] Based on industry-recognized standards and compared with similar real property classes in Canada.
[7] Awaiting further direction from TBS. TBS has mandated the NRC to work with industry to develop a made in Canada LCA protocol with accompanying tools.

# PLACEMAT - BASELINE GREENING COMMITMENTS – Real Property Assets 2021

| | | | | |
|---|---|---|---|---|
| | • 24% more energy efficient than NECB performance<br>• energy use metering (by 2022)<br>• disclose amount of embodied carbon in structural materials (by 2022)<br>• 30% less embodied carbon in major construction materials (by 2025)<br>• HVAC-R: replace high global warming potential refrigerants | • apply climate-resilient building guidance by NRC Canada | | • low volatile organic compound (VOC) materials<br>• conduct whole building (or asset) life-cycle assessments (for structural materials) by 2025 at the latest<br>• engagement and integrated planning with communities of practice, government and stakeholders<br>• create sustainable workplaces, including employee mobilization and action |
| **Interior Fit-up (1,000 $m^2$ or greater)** | N/A | N/A | • LEED Silver or equivalent (Green Globes)<br>• **Fitwel 1-star or equivalent** | • 90% diversion of construction and demolition waste from landfills (strive to achieve 100% by 2030)<br>• 75% diversion of plastic waste from landfills (by 2030)<br>• low volatile organic compound (VOC) materials in building interiors |
| **Interior Fit-up (less than 1,000 $m^2$)** | N/A | N/A | • no certification | • 90% diversion of construction and demolition waste from landfills (strive to achieve 100% by 2030)<br>• 75% diversion of plastic waste from landfills (by 2030)<br>• low volatile organic compound (VOC) materials in building interiors |
| **Site Analysis & Master Planning** | Net-zero carbon site / campus:<br>• recommission large energy-intensive buildings on a regular cycle<br>• implement smart building technology<br>• HVAC-R: replace high global warming potential refrigerants | Climate resilient site / campus:<br>• Climate Risk and Vulnerability Assessment (CRVA) completed for site / campus (integrate into design, planning, construction and operation)<br>• apply climate-resilient building guidance by NRC Canada<br>• prioritize adaptation of federal assets with critical operations and most at risk | • no certification<br>• **develop framework to guide sustainability, strategy based on One Planet Living or equivalent LEED Neighbourhood Development, Living Community Challenge, SITES** | • whole building (or asset) life-cycle assessments (by 2025)<br>• retain or restore biodiversity<br>• engagement and integrated planning with communities of practice, government and stakeholders<br>• create sustainable workplaces, including employee mobilization and action |

# PLACEMAT - BASELINE GREENING COMMITMENTS – Real Property Assets 2021

| BASELINE GREENING COMMITMENTS – PSPC CROWN-OWNED BUILDING OPERATIONS<br>*Black: applies to all of Government.* *Blue: existing commitments specific to PSPC.* ***Blue Bold: newly proposed PSPC commitments through consultation with Service Lines and Regions.*** | | | | |
|---|---|---|---|---|
| **Type of project** | **Climate Change Mitigation (GHG Reduction)** | **Climate Change Adaptation (Resiliency)** | **Sustainability Certification** | **Waste and Plastics / Water / Biodiversity / Materials / Employee Well-being** |
| **New or recently renovated Existing Building (1,000 $m^2$ or greater and built or renovated 2020 onwards)** | Net-zero carbon building:<br>• recommissioning large energy-intensive buildings on a regular cycle and/or implementing smart building technology<br>• HVAC-R: replace high global warming potential refrigerants<br>• application of GHG Options Analysis Methodology<br>• energy-use metering (by 2022)<br>• whole building (or asset) life-cycle assessments (by 2025 at the latest) for major buildings and infrastructure projects<br>• 30% less embodied carbon in major construction materials (in 2025) | Climate resilient building:<br>• Climate Risk and Vulnerability Assessment (CRVA) completed (integrate into design, planning, construction and building operations)<br>• apply climate-resilient building guidance by NRC Canada | • **BOMA BEST Gold or equivalent every 3 years**<br>• **Fitwel 2-stars or equivalent every 3 years** | • 90% diversion of construction and demolition waste from landfills (strive to achieve 100% by 2030)<br>• 75% diversion of non-hazardous operational waste from landfills (by 2030)[8]<br>• 75% diversion of plastic waste from landfills (by 2030)<br>• eliminate the unnecessary use of single-use plastics in operations<br>• track and disclose waste diversion (by 2022)<br>• reduce water consumption by tracking and disclosing potable water consumption (by 2022), using best-in-class water-use practices, and designing all new buildings to effectively manage storm water<br>• retain or restore biodiversity<br>• climate-resilient groundskeeping<br>• low volatile organic compound (VOC) materials<br>• engagement and integrated planning with communities of practice, government and stakeholders<br>• creating sustainable workplaces, including employee mobilization and action |
| **Existing Building (1,000 $m^2$ or greater)** | Net-zero carbon building:<br>• recommission large energy-intensive buildings on a regular cycle and/or implement smart building technology<br>• energy use metering (by 2022) | Climate resilient building:<br>• Climate Risk and Vulnerability Assessment (CRVA) completed, (integrate into planning and building operations)<br>• apply climate-resilient building guidance by NRC Canada | • **BOMA BEST Silver or equivalent every 3 years**<br>• **Fitwel 1-star or equivalent every 3 years** | • 75% diversion of non-hazardous operational waste from landfills (by 2030)<br>• 75% diversion of plastic waste from landfills (by 2030)<br>• eliminate unnecessary use of single-use plastics in operations<br>• track and disclose waste diversion (by 2022)<br>• reduce water consumption by tracking and disclosing potable water consumption (by 2022)<br>• minimize environmentally harmful and hazardous chemicals and materials used and disposed of in real property operations |

[8]. Defined as diversion from landfill in major urban centres where facilities exist.

# PLACEMAT - BASELINE GREENING COMMITMENTS – Real Property Assets 2021

| | | | | |
|---|---|---|---|---|
| | | | | • whole building (or asset) life-cycle assessment (by 2025 at the latest) for major buildings<br>• retain or restore biodiversity<br>• climate-resilient groundskeeping<br>• creating sustainable workplaces, including employee mobilization and action |

| **BASELINE GREENING COMMITMENTS – PSPC LEASED BUILDINGS**<br>*Black: applies to all of Government. Blue: existing commitments specific to PSPC.* ***Blue Bold: newly proposed PSPC commitments through consultation with Service Lines and Regions.*** | | | |
|---|---|---|---|
| **Type of Lease** | **Climate Change Mitigation (GHG Reduction)** | **Climate change adaptation (Resiliency)** | **Sustainability Certification / Employee Well-being** |
| **Major Markets[9] (1,000 m² or greater)** | • new leases / renewals landlords must report energy, GHG emissions, water usage, and waste generated via ENERGY STAR Portfolio Manager (info to be publicly disclosed in 2023)<br>• GHG emissions to be reported by 2025<br>• 75% of new leases / renewals must be in net-zero carbon, climate-resilient buildings (in 2030) | • develop a zero-carbon, climate-resilient leasing portfolio plan and a program to work with landlords (by 2023) | • **2-5 year lease term: BOMA BEST Certified or equivalent**<br>• **Over 5 year lease term: BOMA BEST Certified Silver or equivalent** |
| **Major Markets (More than 5 000 to 9999 m²)** | | | • **BOMA BEST Certified Silver or equivalent** |
| **Major Markets (10,000 to 20,000 m²)** | | | • **BOMA BEST Certified Gold or equivalent**<br>• **Fitwel 1-star or equivalent** |
| **Major Markets (over 20,000 m²)** | | | • **BOMA BEST Certified Platinum or equivalent**<br>• **Fitwel 1-star or equivalent** |
| **Other Markets (1,000 m² or over)** | | | • **2-5 year lease term: BOMA BEST Certified or equivalent**<br>• **Over 5 year lease term: BOMA BEST Certified Silver or equivalent** |
| **All Markets (500 m² or over)** | | | • ENERGY STAR Portfolio Manager for energy, GHG emissions, water and waste<br>• **integrate waste and plastic requirements in new and renewed leases and third-party commercial leases** |

Greening Government Strategy, A Government of Canada Directive (2020): https://www.canada.ca/en/treasury-board-secretariat/services/innovation/greening-government/strategy.html
Public Services and Procurement Canada's Departmental Sustainable Development Strategy: 2020 to 2023: https://www.tpsgc-pwgsc.gc.ca/rapports-reports/smdd-dsds/smdd-dsds-2020-2023-eng.html

[9] National Capital Region, Vancouver, Calgary, Edmonton, Winnipeg, Toronto, Montreal, Québec City, and Halifax.

# 5 DEFINITIONS

## 5.1 PURPOSE

### 5.1.1 DOCUMENT DEFINITIONS:

.1 Definition of words and phrases in the Terms of Reference (TOR), and *Doing Business with PWGSC – Documentation and Deliverables 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.

## 5.2 DEFINITIONS

### 5.2.1 ACCEPTANCE

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

### 5.2.2 BASE BUILDING

.1 As per Government of Canada Workplace Fit-Up standards.

### 5.2.3 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 Consultant BOD also outlines the intended systems for the project, the 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 3 detail 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;
.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.

### 5.2.4 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; such as, background supporting material – Scope, Description of mark-up & add-ons, etc.
.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; in tabular or spreadsheet format, including;
.1 Cost reconciliation and cost variance with detail narrative, and;
.10 Significant market events that may influence the costs.

.5 With the last submission include:
.1 Variances related to:
.1 Change Orders;
.2 Work Package estimate, and;
.3 Estimate Construction Cost.
.2 Price quotes from suppliers, guidelines that are used to guide estimates, bottom-up estimates, parametric estimates-details to generate estimates, analogous estimate-details of the historical project used, third party estimates, analysis-details of any analysis, validations & approvals.
.6 Detailed Elemental Cost Estimates; must be itemized separately to Material, Labour and Equipment Cost.
.7 Refer also to the "Cost Estimate" Definition.

### 5.2.5 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.

### 5.2.6 "CANADA", "CROWN"/"HER MAJESTY"

.1 Her Majesty the Queen in right of Canada.

### 5.2.7 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 PWGSC 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.

### 5.2.8 COMMISSIONING AUTHORITY

.1 Refer to the:

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

.2 CSA Z 320, Article 3 Definitions for Third Party description;

.3 TOR for the requirement of a Cx Authority as a part of the Consultant Team membership or of an independent third party Cx Authority to be separately engaged by PWGSC.

### 5.2.9 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.

### 5.2.10 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/Cx Authority sign-off at a Construction Contract Substantial Performance and Completion (final) milestones.

### 5.2.11 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;
.1 Detailed tasks, roles and responsibilities, schedule, work flow processes and a list of the systems to be commissioned, and;
.2 Coincides with the design documents such as the specifications so that the Commissioning Team is clear on the goals and process.
.3 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.

### 5.2.12 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 PWGSC) or,

.2 A Contractor's Cx Agent.

### 5.2.13 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/Cx Authority, unless otherwise stated, will only make recommendations, and observations during the design review.

### 5.2.14 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.

### 5.2.15 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;
  .8 Deferred commissioning; and
  .9 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.

### 5.2.16 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.

### 5.2.17 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.

### 5.2.18 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 – including PWGSC Cx Manager;
  .2 User Department – O&M Personnel;
  .3 Consultant(s) (dependant on the TOR, including Consultant's Cx Authority);
  .4 Contractor's Agent; and
  .5 Contractor's Agencies.

### 5.2.19 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 personnel.

### 5.2.20 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 activities 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 personnel.

### 5.2.21 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.

### 5.2.22 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.

### 5.2.23 CONSULTANT

.1 Architectural/Interior Design/Engineering firm acting in the capacity of Prime Consultant and professional of record for the provision of services described in the TOR.

.1 The Consultant manages and coordinates the Consultant Team (refer to Definition).

### 5.2.24 CONSULTANT TEAM

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

### 5.2.25 COST ESTIMATE

.1 Refer to the *Doing Business with PWGSC Documentation and Deliverables Manual*, Section 3 - 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 PPDFormat™ and MasterFormat™ National Master Specifications:

.1 During Schematic Design (SD) – Uniformat™ Level 3 detail;

.1 For further detail refer to Preliminary Project Description (PPD/PPDFormat™) Definition.

.2 During Design Development (DD) – as per Uniformat™ Level 4 detail;

.1 For further detail refer to Preliminary Project Description (PPD/PPDFormat™) Definition, and;

.3 During Construction Documentation (CD) – as per Uniformat™ Level 5 detail and 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) – refer to Definition.

### 5.2.26 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.

### 5.2.27 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.

### 5.2.28 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.

### 5.2.29 Estimated Construction Cost

.1 The Budget identified in the TOR or subsequently in writing by the Departmental Representative:

.1 Also stated as "Cost Estimate".

### 5.2.30 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.

### 5.2.31 Fit-Up Standards

.1 Space and cost (funding) allocation and workplace configuration and furnishing as per Framework for Office Accommodation and Accommodation Services – Government of Canada Workplace Fit-Up Standards, GCworkplace Design Guide and the GCworkplace Space Planning Workbook.

.1 Departmental Representative will provide electronic copies.

### 5.2.32 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.

### 5.2.33 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) are included in the GCworkplace documents for office accommodation projects (fit-ups).
.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/Interior Design: Area needs, adjacencies, circulation, acoustics, health and safety, personnel 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 program, 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 Program 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 program;

.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.

### 5.2.34 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.

### 5.2.35 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.

### 5.2.36 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.

### 5.2.37 Master Schedule (Master Project Schedule)

.1 Refer to the *Doing Business with PWGSC Documentation and Deliverables Manual*.

### 5.2.38 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.

### 5.2.39 Move Process

.1 Requires coordination with the User 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.

### 5.2.40 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.

### 5.2.41 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 Consultant, in consultation with "the Owner" - PWGSC/User Department, 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 Personnel 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 personnel 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.

### 5.2.42 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.

### 5.2.43 PERMITS AND FEES

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

### 5.2.44 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 functional element supported by a Basis of Design narrative may also be substantiated by the OPR;

.1 Corresponding, per Level 4 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%.

### 5.2.45 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.

### 5.2.46 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 TOR may pre-establish additional services, such as providing,
        .1 OPR, and,
        .2 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 PWGSC 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 PWGSC 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 4;
.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 PWGSC QA reviews.

.4 Construction Documentation:
.1 Refer to *Doing Business with PWGSC Documentation and Deliverables 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 TOR 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.

### 5.2.47 Project Team

.1 Typically includes entities, such as:

.1 Departmental Representative,

.2 Consultant Team;

.3 Independent third parties also in contract with PWGSC, and;

.4 User Department and Operational personnel.

### 5.2.48 PWGSC Commissioning Manager (PWGSC Cx Mgr)

.1 Government commissioning liaison amongst all project stakeholders and reports to the Departmental Representative.

.2 Undertakes Quality Assurance Reviews of Cx submissions.

### 5.2.49 Quality

.1 The degree to which the Work meets or exceeds the Project requirements and expectations.

### 5.2.50 Quality Assurance (QA) Reviews

.1 PWGSC 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.

### 5.2.51 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.

### 5.2.52 Recommissioning Manual

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

### 5.2.53 Risk Management Plan

.1 Departmental Representative (DR) initiates and maintains a PWGSC 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.

### 5.2.54 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.

### 5.2.55 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).

### 5.2.56 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, 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.

### 5.2.57 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.

### 5.2.58 Systems Operations Manual (Systems Descriptions/Systems Manual)

.1 Developed throughout the project lifecycle.

.2 Refer to CSA Z320 Article 3, Definitions.

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

.4 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.

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

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

### 5.2.59 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.

### 5.2.60 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.

### 5.2.61 Work

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

### 5.2.62 Work Breakdown Structure (WBS)

.1 Integral to schedules and project execution plans.

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