



Project Brief
**Critical Infrastructure, Seismic Upgrades &
Space Optimization**

**High Commission of Canada
Nairobi, Kenya**

Limuru Road, Gigiri

Section 10
Commissioning Brief

Project Number: B-NROBI-102

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10. Commissioning (Cx)

10.1. General

10.1.1. Commissioning is a process that takes place at all stage of the project. At concept / design stages Cx activities serve to assure that the Owner's Project Requirements for items such as energy efficiency, sustainability, indoor environmental quality, fire protection & life safety, etc. are sufficiently defined and adequately & accurately reflected in the contract documents. It will provide the opportunity to assure that building systems and assemblies as designed will function according to user expectations.

10.1.2. The consultant will be responsible to prepare the documentation for the commissioning process to be followed by the contractor. The process includes construction checklists develop with the intent to convey pertinent information to the installers regarding concerns on installation and long-term operation of the facility and systems. The approach to the structure of the checklists is to keep it short and simple by focusing on key elements. Checklists span the duration from when equipment is delivered to the job site until the point that the system/component is started up and operational. Construction checklists are tools for transferring the information contained in the contract documents (drawings and specifications) to the workers in the field. This includes testing, adjusting and balancing and control system tuning.

10.1.3. At the construction stage, the consultant will supervise the installation of the equipment, material and systems, and witness the commissioning performed by the contractor and the independent certification firm when required. The two overarching goals of the Construction Phase are to assure the level of quality desired and to assure the requirements of the contracts are met.

10.2. Fire protection and life safety systems SOW

10.2.1. The for Fire protection and life safety systems certification shall be performed by a specialized Audit and Certification firm independent of both by contract and employment from the A/E team. This requirement shall be in the specification as for the cost to hire this firm will be the contractor responsibility.

10.2.2. Within the tender document's specification, the consultant will identify the process, procedures, methods and documentation for each phase of the Cx process and describe the requirement of the verification and testing to be performed by the contractor.

10.2.3. Once the contractor installation, initial verification and testing is completed, the certification and audit firm will proceed with their audit and certification of all fire protection and life safety systems. The audit firm must prepare a written report detailing the steps of all the verifications performed and a brief description of the process and instrumentation used and the result of the certification.

10.2.4. The completed Cx plan and certification, including all appendices must form part of the Cx record turned over at the end of the construction phase. All active and passive (components installed in the floors and walls and the doors rating and operation) fire protection and life safety systems must be Cx

10.3. Electrical infrastructure



10.3.1. The Electrical infrastructure certification shall be performed by a specialized Audit and Certification firm independent of both by contract and employment from the A/E team. This requirement shall be in the specification as for the cost to hire this firm will be the contractor responsibility.

10.3.2. Within the tender document's specification, the consultant will identify the process, procedures, methods and documentation for each phase of the Cx process and describe the requirement of the verification and testing to be performed by the contractor.

10.3.3. Once the contractor installation, initial verification and testing is completed, the certification and audit firm will proceed with their audit and certification of all electrical installation. The audit firm must prepare a written report detailing the steps of all the verification performed and a brief description of the process and instrumentation used and the results of certification.

10.3.4. The completed Cx plan and certification, including all appendices must form part of the Cx records turned over at the end of the construction phase.

10.4. Mechanical system

10.4.1. The Cx Process for all mechanical systems will consist of complete testing, adjustment and verifications of all the new mechanical installations and also a confirmation of the integration of the functionality with the existing systems.

10.4.2. The completed Cx plan and certification, including all appendices must form part of the Cx records turned over at the end of the construction phase.

10.5. O&M manuals

10.5.1. The manual shall include: as-built drawings, equipment data, model numbers for the equipment, parts lists, equipment options, operating manuals for each piece of equipment, sequence of operation testing and balancing reports and certifications, maintenance schedules, videos, and warranty schedules. The manual must be reviewed and certified complete by the project manager before submission to the facilities manager.

10.5.2. Manuals are to be provided in English and in electronic format and two (2) hard copies.

10.6. As Built Drawings

10.6.1. As-built drawings shall be provided at completion of the project and shall reflect all changes made in the working drawings during the construction process. They shall show the exact dimensions geometry and location of all elements of the work completed under this contract.

10.7. Training

10.7.1. Within the tender document's specification, the consultant shall identify the training requirements that the contractor will be responsible to provide.

10.7.2. For each system installed, training shall be provided to the property section describing the design objectives and how to operate the building. In addition of the information provided in the O&M manuals, the sequence of operation and the trouble shooting guide shall be provided and posted close to the system if possible.



10.8. Spare parts

10.8.1. The consultant shall include a list of spare parts within the specifications that the contractor will be responsible to provide at the end of the project. For each system installed and in addition to the final operating set, provide spare parts that are routinely changed as part of the maintenance program that may cause an interruption in the operation if not readily available.

10.9. Systems to be commissioned

10.9.1. The systems to be commissioned shall include but no limited to the following:

System / Equipment / Process Description	Description of Cx activities (provided by Contractor)
MECHANICAL	
Potable Water Piping system	
Sanitary Sewage system	
Ductwork	
Hot water tank	
Washroom accessories - Urinal Flushing valves, thermostatic valves	
Fan Coil Units (FCU)	
HVAC Controls – field device calibration / programming – sequence of operations verification	
Outdoor air Fans / Variable speed drives	
Main Air Handling Units / Variable speed drives	
Exhaust Air Fans	
Room Transfer Fans	
Variable Refrigerant Flow (VRF) systems: Outdoor unit and individual indoor units	
Testing and Balancing (TAB) of all fluid and air delivering systems.	
Kitchen Equipments	
ELECTRICAL	
Transformer	
Distribution/sub distribution boards including circuit breakers	
Grounding and Bonding	
Cables, Low Voltage 1kv Max	
Outlets	
Switches and cutouts	
Lighting Control system	



System / Equipment / Process Description	Description of Cx activities (provided by Contractor)
General Light Fixtures	
LIFE SAFETY SYSTEMS	
Exit Lights	
Emergency Lights	
Fire Alarm/detection System	
Sprinkler System	
Fire/ Smoke Dampers – operation and accessibility	