

APPENDIX 2A SUBMITTALS

1. PROGRESSIVE SUBMITTALS

- (a) The Design-Builder will provide Submittals to the Owner for review at the following stages:
 - (1) Schematic Design - 30% complete;
 - (2) Design Development - 60% complete;
 - (3) Pre-Tender - 90% complete;
 - (4) Issued for Construction - 100% complete.

- (b) Drawings and Models
 - (1) The Design-Builder will prepare and submit to the Owner for review:
 - (A) A BIM model using REVIT 2015;
 - (B) AutoCAD drawings Version 2016 including plot configuration files;
 - (C) PDFs of all drawings in metric (millimeter) and prepared to current industry standards; and
 - (D) Full colour exterior and interior renderings.

- (c) Exterior renderings will illustrate the following Facility elevations:
 - (1) Main entry (or entries view);
 - (2) Lougheed Highway view;
 - (3) Holly Drive view.

- (d) Interior renderings will illustrate:
 - (1) Main lobby (or lobbies)
 - (2) Typical client room / living area (both Maples and PAC);
 - (3) Typical activity / recreation area.

1.2 Specifications

- (a) Specifications for all disciplines will be organized according to CSI/CSC MasterFormat using the 2014 Update (50 Divisions; 6-digit Section numbers), using CSC full-page SectionFormat/PageFormat.
- (b) The Design-Builder will provide complete specifications for all disciplines with sufficient information to enable the Owner to verify the compliance with the requirements of the Owner's Statement of Requirements and the Agreement and to accurately construct the Facility as intended.
- (c) Use proprietary specifications where proprietary products are known:
- (1) Research sufficient additional materials to provide a range of acceptable products that will match the performance requirements specified.
 - (2) When a single source product, type and model are listed within the specification, it must include a full technical specification that lists critical technical characteristics deemed necessary to permit a review in order to assess compliance of any potential substitution.
 - (3) Limit the use of single source basis-of-design proprietary product listings: include a solicitation for substitutions during the bid period when single source specifications are necessary.
- (d) Shop drawings and product data sheets are not considered as specifications for the progress submittals.

2. ARCHITECTURAL CONSTRUCTION DOCUMENTS

Percentage Complete at Submission Stages	30%	60%	90%	100%	As Built
<i>Drawing Content</i>					
Site plans, sections and details – includes coordination with civil works, hard landscape features and site servicing	✓	✓	✓	✓	✓
Title sheet, legends, drawing list, key plans and assembly listings	✓	✓	✓	✓	✓
Floor plans, penthouse and roof plans	✓	✓	✓	✓	✓
Reflected ceiling plans	✓	✓	✓	✓	✓
Exterior elevations	✓	✓	✓	✓	✓
Interior elevations	-	✓	✓	✓	✓
Building sections, transverse, longitudinal	✓	✓	✓	✓	✓

Percentage Complete at Submission Stages	30%	60%	90%	100%	As Built
Wall sections	✓	✓	✓	✓	✓
Large scale plans, lobbies, special purpose spaces, conference rooms, kitchens	✓	✓	✓	✓	✓
Large scale plans Client Rooms and washrooms	✓	✓	✓	✓	✓
Plan and section details	-	✓	✓	✓	✓
Vertical movement – plans, sections and details, stairs, ramps, elevators	✓	✓	✓	✓	✓
Special elements, furnishings, and signage	-	✓	✓	✓	✓
Schedules, doors, windows, hardware, and finishes	-	✓	✓	✓	✓
Daylighting graphic plans and sections		✓	✓	✓	✓
<i>Specifications</i>					
Table of Contents	✓	✓	✓	✓	✓
General Requirements	✓	✓	✓	✓	✓
Existing Conditions – if any	✓	✓	✓	✓	✓
Concrete	-	✓	✓	✓	✓
Masonry	-	✓	✓	✓	✓
Metals	-	✓	✓	✓	✓
Wood, Plastics and Composites	-	✓	✓	✓	✓
Thermal and Moisture Protection	✓	✓	✓	✓	✓
Openings	✓	✓	✓	✓	✓
Door Hardware; Door program and functioning started in coordination with requirements for Electronic Safety and Security	✓	✓	✓	✓	✓
Finishes	✓	✓	✓	✓	✓
Specialties	✓	✓	✓	✓	✓
Equipment	-	✓	✓	✓	✓
Furnishings	-	✓	✓	✓	✓
Special Construction – if any	-	✓	✓	✓	✓
Conveying Equipment – Elevators	✓	✓	✓	✓	✓
<i>Other</i>					
Room Data Sheets	✓	✓	✓	✓	✓

- (a) The Design-Builder will provide Construction Documents that include the items set out in Sections 2(b) through 2(m) as required to achieve the percentage of completion for the submissions.
- (b) The Design-Builder will clearly indicate:
 - (1) Floor elevations (geodetic) complete with floor level changes, stairs and ramps; and
 - (2) Floor finishing tolerances, slopes for drainage, drain openings, etc. will be identified.
- (c) Plans, sections and elevations will contain:
 - (1) The outlines of the exterior walls and partitions in relation to the structural framework complete with graphical representation of materials cross- references to partition types and dimensions;
 - (2) Clearly indicated functions of each building material component and rain screen construction component, i.e. air barrier, vapour barrier, moisture barrier, acoustical barrier, security barrier, fire resistance, thermal resistance, etc.;
 - (3) The location of doors and windows, and other openings complete with cross-references to door, window and hardware schedules;
 - (4) The location of fixtures and equipment for washrooms, kitchens, meeting rooms, equipment/mechanical/electrical/telecommunications rooms complete with cross-references to equipment schedules, notes and dimensions;
 - (5) Clearly indicated barrier-free access, path of travel, clearances complete with notes and dimensions;
 - (6) Room name and number of interior space. Maintain Owner room reference number as stated in the Room Data Sheets. The As-built drawings will include final room numbering as per the signage requirements in the Statement of Requirements and as coordinated with and approved by the Owner;
 - (7) Graphically represent construction and finish materials for walls and floors;
 - (8) Illustrate built-in furniture, millwork and equipment; and
 - (9) Graphically illustrate separations, including fire separation(s), acoustic separation(s), and security separation(s).
- (d) Reflected ceiling plans will contain:

- (1) Graphical representation of ceiling finishes, fixtures complete with cross-reference to lighting, security, sprinkler, HVAC, fire alarm, ceiling heights, access panel sizes and locations;
 - (2) Clearly indicated bulkheads, if any, complete with graphical representation of construction and materials, notes, ceiling heights and dimensions; and
 - (3) Clearly indicated graphical representation of systems and equipment interference for structural, mechanical, electrical, telecommunications, security, complete with cross-reference notes and dimensions.
- (e) Penthouse and roof plans will contain:
- (1) The location of fixtures and equipment for mechanical, electrical, maintenance, complete with notes and dimensions;
 - (2) Clearly indicated roof penetrations for equipment, hatches, access paver paths, radio antennae supports/ties, etc.; and
 - (3) Graphically represent construction and finish materials for roof.
- (f) Exterior elevations will contain:
- (1) The location of doors and windows, borrowed lights, and other openings;
 - (2) Graphical representation of construction and finish materials, including a legend and notations; and
 - (3) Scuppers, down spouts or drainage systems, hose bibs and electrical outlet and exterior light locations.
- (g) Interior elevations will contain:
- (1) The location of doors, windows, and other openings; all wall mounted equipment, dimensions of vertical changes in material, room numbers; and
 - (2) Graphical representation of construction and finish materials, including a legend and notations is to be provided.
- (h) Building sections will contain:
- (1) Clearly indicated floor construction/assemblies, floor elevations, dimensions and ceiling lines; and
 - (2) Clearly indicated graphical representation of systems and equipment interference for structural, mechanical, electrical, telecommunications, security, etc., complete with cross-reference notes and dimensions.

- (i) Wall sections will contain:
- (1) Clearly indicated detail location tags and references; wall type notations; and critical dimensions; and
 - (2) Clearly indicated graphical representation of systems and equipment interference for structural, mechanical, electrical, telecommunications, security, etc. complete with cross-reference notes and dimensions.
- (j) Vertical movement plans, sections and details will contain clearly indicated rise and run, headroom clearances, landing elevations, vertical and horizontal dimensions, railing and guards complete with barrier-free clearances, notes and dimensions.
- (k) Special elements, furnishings, systems furniture, signage, etc. will contain:
- (1) Detailed graphical representations of furniture, systems furniture, signage, etc. in relation to exterior and interior walls, structural framework, material connections and interrelationships complete with cross-reference to schedules, notes, materials, and dimensions; and
 - (2) Detailed location of fixtures and equipment for telecommunications, IMIT, security, etc. complete with cross- reference to equipment schedules, notes and dimensions.
- (l) Schedules (doors, hardware, windows, room finishes, furniture, etc.) will contain:
- (1) Clearly indicated material, size, fire / thermal / acoustic / security resistance rating, colour, texture, pattern, etc.; and
 - (2) Schedules maybe graphical and/or tabular in drawing or specification format.
- (m) Room data sheets will contain room measurements, area, ceiling height and information relating to equipment, millwork, casework and mechanical and electrical services, and all other details set out in the Owner's Room Data Sheets.

3. INTERIOR DESIGN CONSTRUCTION DOCUMENTS

Percentage of Drawings Completed	30%	60%	90%	100%	As Built
<i>Drawing Content</i>					
Floor plans, reflected ceiling plans	✓	✓	✓	✓	✓
Interior Elevations	-	✓	✓	✓	✓
Large scale plans	-	✓	✓	✓	✓
Plan and section details	-	✓	✓	✓	✓
Millwork – plans, sections, details	-	✓	✓	✓	✓
Special elements, furnishings, signage, etc.	-	✓	✓	✓	✓

Percentage of Drawings Completed	30%	60%	90%	100%	As Built
Schedules, doors, windows, hardware, finishes, furniture, partitions, etc.	-	✓	✓	✓	✓
<i>Specifications</i>					
Finishes	-	✓	✓	✓	✓
Specialties	-	✓	✓	✓	✓
Equipment	-	✓	✓	✓	✓
Furnishings	-	✓	✓	✓	✓
<i>Sample Board/Presentation</i>					
Colour boards Master Colour Palette	-	✓	-	✓	✓
Sample boards	-	✓	-	✓	✓
Presentation to client	-	✓	-	✓	✓

- (a) Floor plans will contain:
- (1) The outlines of the exterior walls and interior partitions, cross-reference to partition types and dimensions;
 - (2) All millwork, furniture, fixtures and equipment, located on the floor plans, labelled and cross referenced to schedules and details;
 - (3) The designation (usually by room name and number) of interior space; and
 - (4) Graphical representation of construction and finish materials for walls and floors.
- (b) Interior elevations will contain:
- (1) Clear indication of wall finishes, colour choices and details; and
 - (2) The location of doors and windows, and other openings complete with finishes.
- (c) Large scale plans (scale 1:50 or larger) will include:
- (1) Spaces listed in the Appendix 1B – Functional Program and Clinical Specifications to be represented at a large scale;
 - (2) Mechanical rooms;
 - (3) Electrical rooms; and
 - (4) IT/Communication rooms.
- (d) Millwork plans, sections and details: Clearly indicate millwork layout, section elevations, and details complete with material choices, notes and dimensions.
- (e) Special elements, furnishings, systems furniture, signage, etc. will contain:

- (1) Detailed graphical representations of furniture, systems furniture, signage, etc., complete with key plans, elevations, schedules, notes, materials and dimensions; and
 - (2) Base-building elements will be graphically distinct from special elements.
- (f) Schedules will contain:
- (1) Clear indication of material, colour, texture, pattern, etc.; and
 - (2) Schedules maybe graphical and/or tabular in drawing or specification format.

4. CODE CONSTRUCTION DOCUMENTS

Percentage of Drawings Completed	30%	60%	90%	100%	As Built
<i>Drawing Content</i>					
Fire Separation and Exiting Travel Distance Plans	✓	✓	✓	✓	✓
Code Compliance Report	✓	✓	✓	✓	✓

- (a) Code compliance report will contain:
- (1) BC Building Code data matrix including design considerations;
 - (2) Fire and life safety data summary (may be illustrated graphically); and
 - (3) Approach to BC Building Code compliance including any proposed alternative solutions.

5. CIVIL CONSTRUCTION DOCUMENTS

Percentage of drawings completed	30%	60%	90%	100%	As Built
<i>Drawing Content</i>					
Title sheet, typical sections and details used on this project	✓	✓	✓	✓	✓
Existing Conditions	✓	✓	✓	✓	✓
Erosion and Sediment Control	✓	✓	✓	✓	✓
Temporary Service during Construction	✓	✓	✓	✓	✓
Site Coordination and Layout and turning templates for service and emergency vehicles	✓	✓	✓	✓	✓
Storm Water Drainage Plan	✓	✓	✓	✓	✓
Grading, site servicing, roads, parking lot(s), Hardscape and street lights	✓	✓	✓	✓	✓
Deep and Shallow Utilities Plan and profile, on and off site	✓	✓	✓	✓	✓
Retaining Walls Plan and Profile <1.0m high	✓	✓	✓	✓	✓
Sections and details	✓	✓	✓	✓	✓
Pavement Marking and Signage Plans			✓	✓	✓
<i>Specifications</i>					
Clearing, Grubbing & Stripping	✓	✓	✓	✓	✓
Earthworks	✓	✓	✓	✓	✓
Site Servicing	✓	✓	✓	✓	✓
Water, Sanitary Sewer and Storm Sewer	✓	✓	✓	✓	✓
Flushing, Pressure Testing & Disinfection Plan	✓	✓	✓	✓	✓
Base and Sub Base Course Aggregates	✓	✓	✓	✓	✓
Asphalt Paving	✓	✓	✓	✓	✓
Exterior Improvements	✓	✓	✓	✓	✓
Manholes and Catch basins			✓	✓	✓
Cast in place concrete			✓	✓	✓
Pavement Markings			✓	✓	✓

- (a) Existing conditions drawing(s) will contain all pertinent topographic information, contours at appropriate interval with spot elevations in clear legible format, all underground utilities

including inverts and depths, size and type, borehole and test pit locations and elevations, existing and new survey monuments.

- (b) Site coordination and layout drawing(s) will contain:
- (1) Horizontal and vertical control, the principal site elements to be constructed, survey monuments and/or nearby buildings or structures which may be used to show the relative location of the proposed structure of work, sufficient dimensions or coordinates that the exact location of proposed work is clearly identified, construction lay down area, relative locations of all below and above ground utilities (i.e. electrical, watermain, sanitary sewer, storm sewer, etc.), site removals;
 - (2) Demonstrated vehicle/pedestrian movement;
 - (3) Grading plan will contain the building footprint and finished floor elevation, proposed grades with existing contours/grades provided in background in light font, drainage structures numbered, typical sections, dimensions and proposed site development features, including pavement/curb, sidewalk type, and street light locations;
 - (4) Deep and shallow utilities plan and profile will contain horizontal location and vertical depths of new, existing, and temporary services; manholes; drainage structures; valves; roof leader tie in points; location of foundation drainage (if required); structure data table;
 - (5) A plan for flushing, pressure testing and disinfecting the water service to the Facility, which the Design-Builder will develop and submit to the City of Coquitlam for approval; and
 - (6) Storm water management plan will contain catchment areas, existing storm sewer systems, flow direction, calculations for pre-development and post-development flows, detention calculations and best management practices as well as all requirements to meet City of Coquitlam bylaws.

6. STRUCTURAL CONSTRUCTION DOCUMENTS

Percentage of Drawings Completed	30%	60%	90%	100%	As Built
<i>Drawing Content</i>					
Title Sheet, General Notes	✓	✓	✓	✓	✓
Typical Details	✓	✓	✓	✓	✓
Slab, Column, and Beam Schedules	✓	✓	✓	✓	✓
Foundation Plans	✓	✓	✓	✓	✓

Floor and Roof Framing Plans	✓	✓	✓	✓	✓
Sections and Details	✓	✓	✓	✓	✓
Wall and Bracing Elevations	✓	✓	✓	✓	✓
Wall Sections	✓	✓	✓	✓	✓
<i>Specifications</i>					
Concrete (Division 03)	✓	✓	✓	✓	✓
Masonry (Division 04)	✓	✓	✓	✓	✓
Metals (Division 05)	✓	✓	✓	✓	✓
Earthwork and Piling (Division 31)	✓	✓	✓	✓	✓

(a) Title Sheet, General Notes, will contain:

- (1) General description of the structure, its main components, gravity load resisting and lateral load resisting systems;
- (2) Codes and standards, with dates of issue, to which the design conforms;
- (3) Description of the lateral load resisting system will indicate values of R_d (ductility factor) and R_o (overstrength factor) used in the design;
- (4) Importance factors used in the design;
- (5) Design criteria indicating vertical design loads including dead and superimposed dead loads; occupancy live loads; snow loads (including drift); wind uplift loads; mechanical equipment loads; construction loads; Client lift loads; special loading considerations;
- (6) Horizontal design loads indicated including seismic loads, wind loads, lateral earth pressures and hydrostatic pressures;
- (7) Loading plans showing area loads not covered by design criteria information such as planter and soil loads with an indication of maximum soil depth;
- (8) Geotechnical information used in the design including reference to geotechnical report, footing or pile bearing capacities, site classification and site coefficients;
- (9) Concrete mix requirements indicating application, exposure classification, minimum 28-day compressive strength, and maximum aggregate size; and
- (10) Concrete cover requirements, based on weather and soil exposure, fire resistance rating, or chloride penetration.

- (b) Schedules as required for items such as columns, beams, slabs, walls, foundations, baseplates, and embed plates.
- (c) Foundation plans, fully coordinated with other consultant's drawings, will contain:
 - (1) Gridlines and gridline dimensions;
 - (2) Foundation types, sizes and reinforcement, including strip footings, pad footings, rafts, piles and pile caps, soil anchors and grade beams. Foundations will be located relative to the supported structure. Indicatively show and detail steps in footings; indicate pile base and cut-off elevations. Indicate frost protection and ad freeze mitigation measures;
 - (3) Interior slabs-on-grade including thickness, reinforcement, contraction joint requirements, and subgrade requirements including moisture barrier if required. Indicate step heights or top of slab elevations and ensure step conditions etc. are sufficiently detailed. Show pits for elevators and mechanical openings;
 - (4) Concrete walls including thickness and reinforcement. Clearly indicate shear walls and, if detailed elsewhere, ensure adequate referencing. Ensure wall corners, openings, intersections control joints, and construction joints are sufficiently detailed. Provide full height wall sections as required;
 - (5) Concrete columns, pedestals and pilasters including dimensions and reinforcement, including tie arrangement details;
 - (6) Steel columns including size and base plate details; and
 - (7) Load bearing masonry walls if applicable, including stud sizes and spacing, plywood sheathing thickness and nailing requirements, masonry unit dimensions, reinforcement and grouting. Provide sufficient details as required.
 - (8) Floor and roof framing plans will be fully coordinated with the Design-Builder's other consultant discipline drawings and will contain:
 - (A) Gridlines and gridline dimensions;
 - (B) Concrete slabs including thickness, cambers and reinforcement. Show all openings coordinated with other consultants. Indicate step heights or relative elevations. Ensure step conditions, slab edge conditions, construction joints, delay strips, and such are sufficiently detailed;
 - (C) Concrete walls including thickness and reinforcement. Clearly indicate shear walls and, if detailed elsewhere, ensure adequate referencing. Ensure wall corners, intersections, control and construction joints are sufficiently detailed. Provide full height wall sections as required;

- (D) Concrete columns, pedestals and pilasters including size and reinforcement, including tie and column rebar arrangement details. Ensure that columns starting, stopping and continuing are sufficiently detailed; ensure that offset column transitions are sufficiently detailed;
 - (E) Concrete beams including dimensions and reinforcement. Elevate beams with complex reinforcement. Ensure beams are sufficiently detailed;
 - (F) Detail concrete stairs, including throat thickness, reinforcement and sufficient details for cast in place stairs. For precast concrete stairs provide sufficient seating details;
 - (G) Steel deck with or without concrete topping including thicknesses, deck type, connection to supporting structure, and shear transfer elements. Ensure sufficient deck edges, mechanical openings, ledger angles, framing around openings, and structural requirements for support of mechanical equipment are adequately detailed;
 - (H) Steel beams, open web steel joists and steel trusses, including member sizes or depths, spacing, embed plates where connected to concrete and cambers. Ensure all design forces and moments are provided for use by connection designer, open web steel joist designer and truss designer. Ensure steel girts and ledgers between levels are clearly called up. Provide elevations for members between levels if required for clarity;
 - (I) Steel columns including size, base plate, embed plate and cap plate details;
 - (J) Detail steel stairs, including stringer sizes and connection details; and
 - (K) Detail all specialist equipment supports, including gymnasium equipment and mechanical equipment.
- (9) Elevations, fully coordinated with other consultants drawings, for the following items:
- (A) Concrete wall or shear wall elevations as required to convey information not detailed on plan including complex areas of reinforcement, openings, shear wall zones, headers and such;
 - (B) Concrete beam elevations for beams with complex reinforcement;
 - (C) Steel bracing elevations including member sizes, forces and sufficient information for connection designer; and

- (D) Any other elevations deemed necessary to convey sufficient structural information.
- (10) Sections and details will contain information for all structural conditions not dealt with completely on plans, elevations or schedules. Additional information includes, but is not limited to clarification of structural geometry, reinforcement, connection configurations and welding.

7. MECHANICAL CONSTRUCTION DOCUMENTS

Percentage of Drawings Completed	30%	60%	90%	100%	As Built
<i>Drawing Content</i>					
Legends, regulatory data, drawing list, key plans	✓	✓	✓	✓	✓
Fire suppression – plans, sections, details	✓	✓	✓	✓	✓
Plumbing – plans, sections, details	✓	✓	✓	✓	✓
Heating and Cooling (Hydraulic) – plans, sections, details	✓	✓	✓	✓	✓
HVAC – plans, sections, details	✓	✓	✓	✓	✓
Integrated Automation – plans, sections, details	✓	✓	✓	✓	✓
Schematics and schedules, air and water flow diagrams, equipment schedules, control					
Washroom fittings to be reviewed and approved by architect, mechanical lead, and Owner	✓	✓			✓
<i>Specifications</i>					
General Requirements	✓	✓	✓	✓	✓
Fire Suppression	✓	✓	✓	✓	✓
Plumbing	✓	✓	✓	✓	✓
Heating, Ventilating and Air Conditioning	✓	✓	✓	✓	✓
HVAC Integrated Automation	✓	✓	✓	✓	✓
<i>Other</i>					
Energy Model and Report	✓				

- (a) Regulatory sheet – will contain (may be included on title sheet):
- (1) Design load assumptions and calculations.
- (b) Fire Suppression, plans, sections, details will contain:

- (1) Design calculations for water flow with water supply flow data, fire pump (if required), and smoke control;
 - (2) Clearly indicated ceiling and slab elevations (geodetic) complete with level changes, bulkheads, beams, etc.;
 - (3) The location of doors and windows, and other openings;
 - (4) The location of “special fire hazard / load” conditions such as compact storage shelving, vaults, electronic data processing rooms, etc.;
 - (5) The location of fixtures and equipment for washrooms, kitchens, conference rooms, equipment/mechanical/electrical/telecommunications rooms;
 - (6) The designation (usually by room name and number) of interior space;
 - (7) Graphic indication of fire separation(s), acoustic separation(s), security separation(s), etc.; and
 - (8) Any specialist fire suppression elements required as part of an alternative solution to code requirements.
- (c) Plumbing, plans, sections, details will contain:
- (1) Design calculations for water supply including pressure, hot water heating, sanitary waste sizing and roof drainage;
 - (2) Riser diagrams with flows indicated for domestic hot and cold water lines, waste and vent lines; and
 - (3) Plumbing fixture schedule.
- (d) Heating and cooling (hydraulic), plans, sections, details will contain:
- (1) Design calculations for water supply including pressure, hot water heating, glycol solution and chilled water, expansion loops;
 - (2) Riser diagrams with flows indicated for heating and chilled water lines; and
 - (3) Equipment schedule.
- (e) Heating, cooling and ventilation (HVAC) plans, sections, details will contain:
- (1) Design calculations for block loads for heating and refrigeration, system load and supply air calculations including minimum outside air to be admitted, system pressure static analysis at peak and minimum block loads, acoustical calculations, building heating, cooling and ventilation loads, flow and head

calculations for pumping systems, sizing of fuel storage, distribution and vibration isolation;

- (2) HVAC piping layouts including valves complete with locations where temperature, pressure, flow, contaminant/combustion gases, vibration gauges and remote sensing is required;
 - (3) HVAC duct layouts and true sizes (double line) including fire dampers and volume control dampers;
 - (4) Layout of equipment rooms at 1:50 scale showing mechanical equipment including space for maintenance (filter replacement, valve adjustments, etc.) and removal / replacement of mechanical equipment (coils, heat exchangers, pumps, boilers, chiller tube bundles, etc.); service pathways within room;
 - (5) Roof plan with roof-mounted equipment and penthouses complete with indication of servicing and maintenance access;
 - (6) HVAC outside air intake and exhaust air discharge including louver sizes and locations relative to each other, ensuring security and acoustic concerns have been taken into considerations;
 - (7) HVAC riser diagram(s), schematic flow and riser diagrams including airflow and water flow quantities and balancing for heating and cooling equipment, flow energy measuring devices for water and air systems. Clear indication of penetrations through rated wall, floor and roof assemblies complete with details;
 - (8) Automatic temperature control diagram(s) including control flow diagrams showing sensors, valves and controllers, sequence of operation of systems, diagram showing control signal interface with sequence of operation, locations and connections of energy metering devices for major equipment;
 - (9) Equipment schedule including but not limited to chillers, boilers, pumps, air handling units, fans, terminal units, diffusers and grilles;
 - (10) Clear indication of seismic restraints for HVAC systems and equipment;
 - (11) Integrated automation plans, sections, details will contain:
 - (A) Design calculations.
 - (B) Integrated automation layout.
- (f) Schematic and schedules will contain:
- (1) Clearly indicated type, flow, head, speed, class, BHP, electrical, etc.

- (2) Schedules maybe graphical and/or tabular in drawing and/or specification format.
- (g) Energy Model:
- (1) compliant software for LEED submission, demonstrate that the proposed design meets the energy use provisions detailed in the mechanical sections of Schedule 1 – Statement of Requirements and Appendix 1A Energy Model.
 - (2) Provide an energy model report which will include the following information as a minimum:
 - (A) Executive summary.
 - (B) Building information, including but not limited to the location, weather file used, total floor area, outdoor design temperatures and humidity.
 - (C) Building envelope inputs for both reference building and proposed building, including but not limited to roof assembly U-value, wall assembly U-value, fenestration overall U-value, window to wall ratio, shading coefficient, internal and external shading devices.
 - (D) Internal loads inputs per room for both reference building and proposed building, including but not limited to lighting power density, lighting control, plug loads, occupants.
 - (E) Indoor design conditions per room for both reference building and proposed building, including but not limited to occupancy schedules, indoor design temperatures, indoor design humidity levels, ventilation air.
 - (F) Mechanical systems for both reference building and proposed building, including but not limited to system description, fan control, fan power, outdoor air, exhaust air, heat recovery system, equipment efficiencies.
 - (G) Facility energy plant for both reference building and proposed building, including but not limited to heating type and efficiencies, cooling type and efficiencies, service water heating type and efficiencies.
 - (H) Utility rates for all types of fuel.
 - (I) Energy modelling results for both reference building and proposed building, including but not limited to energy summary by end use, energy type, energy use and energy intensity, energy use savings and energy cost savings.

8. ELECTRICAL CONSTRUCTION DOCUMENTS

Percentage of Drawings Completed	30%	60%	90%	100%	As Built
<i>Drawing Content</i>					
Legends, regulatory data, drawing list, key plans	✓	✓	✓	✓	✓
Location, Site – plans, sections and details	✓	✓	✓	✓	✓
Lighting, Emergency Lighting and Lighting Controls – plans, sections, details and circuiting	✓	✓	✓	✓	✓
Power – plans, sections, details and circuiting			✓	✓	✓
Communications Systems, including structured wiring, Nurse Call System and Public Address	✓	✓	✓	✓	✓
Fire Alarm and Emergency lighting plans	✓	✓	✓	✓	✓
Security – plans	✓	✓	✓	✓	✓
Large Scale –Electrical and Communication rooms layouts, plans, 3-D layout including equipment dimensions.	✓	✓	✓	✓	✓
Power Single Line Diagram and Details	✓	✓	✓	✓	✓
Grounding Diagram and Details	✓	✓	✓	✓	✓
Lighting Control Diagram and Details	✓	✓	✓	✓	✓
Communication schematics	✓	✓	✓	✓	✓
Communications Risers	✓	✓	✓	✓	✓
Security Riser Diagrams	✓	✓	✓	✓	✓
Public Address Risers	✓	✓	✓	✓	✓
Fire Alarm Riser Diagram and Zone Schedules	✓	✓	✓	✓	✓
Schedules – Panels, Luminaire, Mechanical, etc.	✓	✓	✓	✓	✓
Lightning Protection	✓	✓	✓	✓	✓
Facility Threat and Risk Assessment Report	-	-	✓	✓	✓
Network Threat and Risk Assessment	-	✓	✓	-	-
<i>Specifications</i>					
General Requirements			✓	✓	✓
Electrical			✓	✓	✓
Communications			✓	✓	✓
Electronic Safety and Security			✓	✓	✓

- (a) Regulatory Sheet – will contain (may be included on title sheet) Design load assumptions and calculations. Calculations may be submitted separately in report format.

- (b) The Design-Builder will submit the following documents as part of the submissions. No hand written calculations will be accepted.
- (1) Coordination study including thermal and magnetic curves;
 - (2) Arc flash study;
 - (3) Lighting calculations, interior and exterior Illuminance (Avg., Max, Min, Max/Min, Avg./Min) levels, lighting power density, etc.;
 - (4) Generators load calculations;
 - (5) Load calculation per CEC;
 - (6) UPS load calculations;
 - (7) Transformers load calculations;
 - (8) Short circuit calculation;
 - (9) Voltage drop calculations;
 - (10) Cable tray sizing;
 - (11) Lighting protection assessment study;
 - (12) Proposed equipment cut sheets (luminaires, lighting controls, electrical distribution, wiring devices, generator, transfer switch, fire alarm system and devices, communications cabling and equipment, security head end and devices, etc.).
- (c) Electrical, plans, sections, details will contain:
- (1) Design calculations for short circuit, voltage drop, generator including UPS, etc.;
 - (2) Clearly indicated ceiling and slab elevations (geodetic) complete with level changes, bulkheads, beams, etc.;
 - (3) The location of doors and windows, and other openings;
 - (4) The location of main switchgear, transformer, generator and other major equipment, electronic data processing rooms, etc.;
 - (5) The location and sizes of main feeders, conduits and raceways;

- (6) The location and graphical representation of fixtures and equipment for washrooms, kitchens, conference rooms, equipment / mechanical / electrical/ telecommunications rooms complete with indication of seismic restraints;
 - (7) The designation (usually by room number) of interior space; and
 - (8) Graphic indication of fire separation(s), acoustic separation(s), security separation(s), etc.
- (d) Lighting, plans, sections, details will contain:
- (1) Reflected ceiling plan including lighting layout, emergency lighting, including clear indication of zoning, light levels, exit devices, etc. complete with cross references to lighting and equipment schedules and details; and
 - (2) Circuit layout of lighting control system.
- (e) Power and communications, plans, sections, details will contain:
- (1) Locations and sizes of main feeders, circuit panels, conduits and raceways;
 - (2) Single line drawing of primary and secondary power distribution including normal power, emergency power and UPS; and
 - (3) Drawings of telecommunications and data systems:
 - (A) IT network logical diagram
 - (B) IT network physical diagram
 - (C) IT voice network diagram
 - (D) IT wireless network diagram
- (f) Fire alarm and public address, plans, sections, details will contain:
- (1) Locations of graphic annunciator panel, all fire alarm initiation and alarm devices;
 - (2) Single line drawing of fire alarm riser;
 - (3) Fire alarm zone schedules; and
 - (4) Fire alarm sequence of operations.
- (g) Security, plans, sections, details will contain:
- (1) Locations of graphic annunciator panel, security control room and riser diagram;

- (2) Locations of exterior site, door, window, and area detectors, control devices, camera locations; and
- (3) Single line drawing of security riser.
- (h) Large scale, plans, sections, details will contain:
 - (1) Locations of equipment, panels, generators, switchgear, etc., complete with space for maintenance and removal
 - (i) Lightning protection will contain:
 - (1) Plans identifying intercepting conductors, air terminals, down conductors, ground electrodes, interconnections, etc.
 - (2) Installation details.

9. ELEVATOR CONSTRUCTION DOCUMENTS

- (a) The Design-Builder is to make submissions to the Owner for review at the following stages:

Percentage of Drawings Completed	30%	60%	90%	100%	As Built
<i>Document Phase</i>					
VT Analysis Report	✓				✓
VT Analysis Report		✓			✓
<i>Specifications</i>					
VT Specifications		✓			✓
VT Specifications			✓		✓
VT Specifications				✓	✓
<i>Procurement</i>					
Technical Submission Review				✓	✓
<i>Construction</i>					
Final Inspection Report				✓	✓
<i>Commissioning</i>					
Technical Submission Review – Record Drawings				✓	✓
Commissioning Plan Review – Commissioning				✓	✓

10. LANDSCAPE CONSTRUCTION DOCUMENTS

Percentage of Drawings Completed	30%	60%	90%	100%	As Built
<i>Drawing Content</i>					
Layout and Site Grading Plan	✓	✓	✓	✓	✓
Irrigation Plan	-	✓	✓	✓	✓
Planting Plan	-	✓	✓	✓	✓
Landscape Details and Specifications	-	✓	✓	✓	✓
Sun/Shade Gardens	✓	✓	✓	✓	✓
Garden Enlargement Plans	-	✓	✓	✓	✓
<i>Specifications</i>					
General Requirements	✓	✓	✓	✓	✓
Equipment	-	✓	✓	✓	✓
Furnishings	-	✓	✓	✓	✓
Planting*	-	✓	✓	✓	✓
Landscape Establishment Maintenance	-	✓	✓	✓	✓
<i>Sample Board/Presentation</i>					
Colour Boards Illustrating Planting Material	-	✓	✓	✓	✓
Sample Boards	-	✓	✓	✓	✓

* Planting specifications to include planting of trees, shrubs and groundcover, topsoil and finish grading, mulch, seeding, sodding.

- (a) The 30% Submittal will include scalable, digitally produced, colour rendered, form and character drawings which illustrate the following:
- (1) Outline of existing and proposed building(s) with existing trees or treed areas;
 - (2) Parking layout and surface treatment;
 - (3) Soft landscape treatment (trees, hedges, planting beds, vines, lawn etc.);
 - (4) Landscape structures (fences, trellis, arbours, retaining walls, lighting etc.);
 - (5) Location and size of amenity areas (if applicable);
 - (6) Location and size of courtyard and garden areas;
 - (7) Location of garbage enclosure;

- (8) A preliminary grading information sufficient to determine special treatment or provisions to retaining elements;
 - (9) A sun/shade study for the gardens;
 - (10) Garden and deck enlargement plans; and
 - (11) BCSLA landscape schedules of assurance (or landscape schedules applicable in a different Province or Territory in Canada) will be supplied by a landscape architect registered in a Province or Territory in Canada.
- (b) The 60% drawing Submittal will have resolved the layout and grading of the Site, with:
- (1) 60% of the irrigation and planting Design complete. Standard details will be incorporated, with site specific details underway;
 - (2) Water conservation and irrigation plan prepared by a qualified professional inclusive of a hydro zone plan, landscape water conservation irrigation report (landscape water budget) and an irrigation Design;
 - (3) A preliminary plant list of trees, shrubs, perennials and ground covers including quantities, botanical and common names, planting sizes, and on center spacing;
 - (4) Landscape cost estimate indicating topsoil, mulches, vegetative materials, hard and soft structures, fencing, site furniture, irrigation, etc.; and
 - (5) Location, material and height of bear proof garbage enclosures (detailed elevation drawings required).
- (c) The 90% drawing Submittal will include completed layout and grading, irrigation and planting Design. All details will be completed. Submittal will incorporate Owner input received at previous submissions.
- (d) The 100% drawings submittal will incorporate Owner input received at all previous submissions.

11. MOCK UP ROOMS AND PROTOTYPES

- (a) Design-Builder will, at its cost and as part of the user consultation and design review process described in Schedule 2 [Review Procedure], provide and make available to the Owner for review the “mock-ups” and “prototype” rooms described in this Section 11.
- (b) The Design-Builder will include dates on the Submittal Schedule for construction of and Owner review of mock-ups. The time periods for Owner review and comments on Submittals set out in Schedule 2 will apply to mock-ups.

- (c) By the date set out in the Submittal Schedule, the Design-Builder will provide 1:1 scale mock-ups (using either paper, tape markings on the floor or similar) of the following rooms indicating the dimensions and sizing of the room and location of millwork, services, equipment and furniture and configuration and headwalls:
- (1) Typical Client Room and Washroom/Shower;
 - (2) Typical Client Living and Client Dining Room;
 - (3) Tub/Shower Room;
 - (4) Recreation Room;
 - (5) Medical Room;
 - (6) Clean Utility Room;
 - (7) Care Team Station;
 - (8) Dirty Utility;
 - (9) Living/Dining Room;
 - (10) Recreation Room.
- (d) By the date set out in the Submittal Schedule, the Design-Builder will provide a 3-dimensional rendering of the following rooms indicating the dimensions and sizing of the room and location of millwork, services, equipment and furniture configuration and headwalls:
- (1) Typical Client Room and adjoining Toilet/Shower;
 - (2) Secure Room and Anteroom;
 - (3) Unit Kitchen and Dining Room;
 - (4) Day Room;
 - (5) Classroom;
 - (6) Laundry;
 - (7) Medical Room;
 - (8) Clean Utility;
 - (9) Bath/Shower.

- (e) By the date set out in the Submittal Schedule, the Design-Builder will provide fully constructed mock-ups of the following rooms, including all actual materials, finishes, millwork, services, equipment and furniture included in the design of the room so that the Owner and the User Consultation Group can experience all features of the Design and make design decisions:
- (1) Typical Client Room and adjoining Toilet/Shower;
 - (2) Secure Room.
- (f) During construction, Design-Builder will construct an in-situ 'prototype' of the following rooms, and make the prototype available to the Owner at appropriate stages of construction so that the Owner and the User Consultation Group can review the prototype room (including all materials, services, millwork, finishes, equipment and furniture) in its actual location within the Facility at various stages of construction, and consider whether any design adjustments are necessary:
- (1) Typical Client Room and adjoining Toilet/Shower;
 - (2) Secure Room;
 - (3) Clean Utility;
 - (4) Medical Room;
 - (5) Unit Kitchen;
 - (6) Dirty Utility;
 - (7) Dining Room;
 - (8) Laundry;
 - (9) Recreation Room;
 - (10) Care Team Station.
- (g) Mock-up rooms required to test the following:
- (1) Acoustics;
 - (2) Durability, Abuse Resistant;
 - (3) Windows;
 - (4) Doors;

- (5) Hardware;
- (6) Ligature risk.
- (h) Equipment and built-in furniture may be actual pieces or replicas, but must accurately represent the actual physical dimensions.
- (i) Design-Builder will modify the mock-ups as may be required as the Design develops based on feedback from the User Consultation Group and the Owner.
- (j) The purpose of the mock-up is to illustrate the Design. Design-Builder will update all Design documentation to reflect the mock-ups and prototypes, and any input from the Owner, including User Consultation Groups, and will submit all such updated Design documentation to the Owner for review under Schedule 2 [Review Procedure].
- (k) The Design-Builder will provide a site for the mock-ups at a location either within the Facility as it is under construction or at another location provided by Design-Builder near the Facility that is acceptable to the Owner.

12. COMMUNICATIONS CONSTRUCTION DOCUMENTS

Percentage of Drawings Completed	30%	60%	90%	100%	As Built
<i>Drawing Content</i>					
Legends, regulatory data, drawing lists, key plans	✓	✓	✓	✓	✓
Location, Site - plans, sections and details	✓	✓	✓	✓	✓
Communications Schematics	✓	✓	✓	✓	✓
Communications Floor Plans	✓	✓	✓	✓	✓
Communications Pathways Risers	✓	✓	✓	✓	✓
Communications Backbone Risers	✓	✓	✓	✓	✓
Wireless Communications Schematics	-	✓	✓	✓	✓
Communication Room Layouts	-	✓	✓	✓	✓
Staff Communication Risers	✓	✓	✓	✓	✓
Public Address Risers	✓	✓	✓	✓	✓
1:50 Floor Plans for Rooms with Audio Visual		✓	✓	✓	✓
Audio Visual Risers	✓	✓	✓	✓	✓
Intercommunication System Risers	✓	✓	✓	✓	✓
Emergency Intercom System Risers	✓	✓	✓	✓	✓
CATV System Risers	✓	✓	✓	✓	✓

Percentage of Drawings Completed	30%	60%	90%	100%	As Built
<i>Specifications</i>					
Division 27 General Requirements	-	-	✓	✓	✓
Division 27 Communications	-	-	✓	✓	✓

(a) Communications and IT plans will include:

(1) drawings of telecommunication and data systems:

- (A) IT network logical diagram;
- (B) IT network physical diagram;
- (C) IT voice network diagram;
- (D) IT wireless network diagram;
- (E) wireless predictive study at 30% and 100% drawing completion stages;
- (F) communication room layout diagram; and
- (G) telephony diagram; and

(2) drawings of public address, audio visual, video conferencing, intercommunication and CATV systems will include all head-end and demarcation locations as well as single line riser drawings for each system.

13. ELECTRONIC SECURITY CONSTRUCTION DOCUMENTS

Percentage of Drawings Completed	30%	60%	90%	100%	As Built
<i>Drawing Content</i>					
Legends, regulatory data, drawing lists, key plans	✓	✓	✓	✓	✓
Location, Site - plans, sections and details	-	✓	✓	✓	✓
ESS Floor Plans	-	✓	✓	✓	✓
ESS Schematics	✓	✓	✓	✓	✓
ESS Risers	✓	✓	✓	✓	✓
Fire Alarm Plans		✓	✓	✓	✓
Fire Alarm Risers	✓	✓	✓	✓	✓
ESS Integration Schematic	✓	✓	✓	✓	✓
Access Control Risers	✓	✓	✓	✓	✓

Percentage of Drawings Completed	30%	60%	90%	100%	As Built
Staff Duress Risers	✓	✓	✓	✓	✓
Intrusion Detection Risers	✓	✓	✓	✓	✓
Video Surveillance Plans	-	✓	✓	✓	✓
Video Surveillance Risers	✓	✓	✓	✓	✓
Clinical Camera System Risers	✓	✓	✓	✓	✓
<i>Specifications</i>					
General Requirements	-	-	✓	✓	✓
Electronic Safety and Security	-	-	✓	✓	✓

- (a) Fire alarm plans and risers will contain:
- (1) location(s) of all graphic annunciator panels, all fire alarm initiation and alarm devices, all integrations; and
 - (2) single line drawing of fire alarm riser with integrations.
- (b) Electronic security system plans, sections and details will contain:
- (1) locations of graphic annunciator panels, display workstations, system servers, security control room(s) and riser diagrams;
 - (2) locations of all field devices, panels, repeaters, and junction points; and
 - (3) integration and installation details for each system and each system combined with other systems. Include all integration physical connectivity and communications protocol that will be employed.