

**WORKER ACCOMMODATION PROJECT AGREEMENT**

**SCHEDULE 29, PARTS 1-9**

**BC HYDRO OFFICES – SPECIFICATIONS AND DRAWINGS**

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# WORKER ACCOMMODATION PROJECT AGREEMENT

## SCHEDULE 29, PART 1

### BC HYDRO OFFICES – SPECIFICATIONS AND DRAWINGS

#### 1 INTERPRETATION

##### 1.1 Definitions

In this Schedule 29 [BC Hydro Offices - Specifications and Drawings], in addition to the definitions set out

“**BCHO Users**” means collectively BC Hydro personnel, Visitors (BCHO) and Services Personnel who will use the BC Hydro Offices;

“**Communications Overview**” means the concept communications overview attached as Appendix 29C [Communications Overview (BCHO) to this Schedule 29 [BC Hydro Offices - Specifications and Drawings];

“**Evidence Based Design (BCHO)**” has the meaning set out in Section 3.1 of this Schedule 29 [BC Hydro Offices - Specifications and Drawings];

“**Functional Program (BCHO)**” has the meaning set out in Section 2.2.5 of this Schedule 29 [BC Hydro Offices - Specifications and Drawings];

“**Indicative Designs (BCHO)**” has the meaning set out in Section 2.2.6 of this Schedule 29 [BC Hydro Offices - Specifications and Drawings];

“**Project Design Principles (BCHO)**” has the meaning set out in Functional Program (BCHO); and

“**Telecom Contractor**” has the meaning set out in Section 7.6.1(b) of this Schedule 29 [BC Hydro Offices - Specifications and Drawings].

##### 1.2 Interpretation

This Schedule 29 [BC Hydro Offices - Specifications and Drawings] is written as a performance specification and defines Project Co’s minimum obligations for Design and Construction. Except as expressly stated otherwise, Project Co will carry out the Design and Construction as required and contemplated by a provision of this Schedule 29 [BC Hydro Offices - Specifications and Drawings] whether or not the provision is written as an obligation of Project Co or is stated in the imperative form.

Terms such as “cost effective”, “appropriate”, “sufficient”, “minimize” and related will be construed and interpreted in terms of whether they are cost effective, appropriate, sufficient, minimizing, etc. from the perspective of a prudent designer who balances capital costs against maintenance, service delivery, operational efficiency and other non-capital costs over the life of the BC Hydro Offices.

Unless expressly stated otherwise, each reference to a standard in this document will be deemed to mean the latest version of that standard.

##### 1.3 Acronym List

%ALCONS – Percentage Articulation Loss of Consonants

AAS – Aluminum Association Standards

Worker Accommodation Project Agreement –  
Schedule 29 [BC Hydro Offices - Specifications and Drawings] Parts 1-9

AAMA	–	American Architectural Manufacturers Association
AATCC	–	American Association of Textile Chemists and Colorists
ACI	–	American Concrete Institute
ANSI	–	American National Standards Institute
ASHRAE	–	American Society of Heating, Refrigerating and Air-conditioning Engineers
ASME	–	American Society of Mechanical Engineers
ASPE	–	American Society of Plumbing Engineers
ASTM	–	American Society for Testing and Materials
AWCC	–	Association of Wall and Ceiling Contractors
AWI	–	America Woodworking Institute
AWMAC	–	Architectural Woodwork Manufacturers Association of Canada
AWWA	–	American Water Works Association
BCICA	–	British Columbia Insulation Contractors Association
BCLNA	–	British Columbia Landscape & Nursery Association
BCLS	–	British Columbia Landscape Standard
BCSA	–	British Columbia Safety Authority
BCSLA	–	British Columbia Society of Landscape Architects
BICSI	–	Building Industry Consulting Service International
BMS	–	Building Management System
CACF	–	Central Alarm Control Facility
CCTV	–	Closed Circuit Television
CCVE	–	Closed Circuit Video Equipment
CGSB	–	Canadian General Standards Board
CFC	–	Chlorofluorocarbon
CMCA	–	Canadian Masonry Contractors Association
CPTED	–	Crime Prevention Through Environmental Design
CSA	–	Canadian Standards Association

CSDFMA	–	Canadian Steel Door and Frame Manufacturers Association
CSSBI	–	Canadian Sheet Steel Building Institute
Cx	–	Commissioning
dB	–	Decibel
DVD	–	Digital Versatile Disc
DHI	–	Door and Hardware Institute
EOC	–	Equipment Operations Center
EIA	–	Electronic Industries Association
ePDU	–	Electronic Power Distribution
FSTC	–	Field Sound Transmission Coefficient
FUS	–	Fire Underwriters Survey
GCA	–	Glazing Contractors Association of British Columbia
HFC	–	Hydrofluorocarbon
HP	–	Horsepower
HOA	–	Hand-Off-Auto
HVAC	–	Heating, Ventilating and Air-Conditioning
IEEE	–	Institute of Electrical and Electronic Engineers
IESNA	–	Illuminating Engineering Society of North America
IAQ	–	Indoor Air Quality
IGMAC	–	International Glazing Manufacturers Association of Canada
IPv4	–	Internet Protocol version 4
KW	–	Kilowatt
KWH	–	Kilowatt hours
KV	–	Kilovolt
KVA	–	Kilovolt Ampere
LCD	–	Liquid Crystal Display
LED	–	Light Emitting Diode

LMS	–	Lodge Management System
MDF	–	Medium Density Fiberboard
MOTI	–	BC Ministry of Transportation and Infrastructure
MPI	–	Master Painters Institute
MSI	–	Musculoskeletal Injury
MWR	–	Municipal Wastewater Regulation - BC Ministry of Environment
NEMA	–	National Electrical Manufacturers Association
NFCA	–	National Floor Covering Association
NFPA	–	National Fire Protection Association
NIC	–	Network Interface Controller
OEL	–	Occupational Exposure Limits
OHS	–	Occupational Health and Safety
PC	–	Personal Computer
PFC	–	Perfluorinated chemicals
PPE	–	Personal Protective Equipment
PTAC	–	Packaged Terminal Air Conditioner
PVC	–	Polyvinyl Chloride
SMACNA	–	Sheet Metal and Air Conditioning Contractors National Association
SPD	–	Surge Protection Device
TAB	–	Testing, Adjusting, Balancing
TAC	–	Transportation Association of Canada
TDMM	–	Telecommunications Distribution Methods Manual
TIA	–	Telecommunications Industry Association
TTMAC	–	Terrazzo Tile and Marble Association of Canada
UL	–	Underwriters' Laboratories
ULC	–	Underwriters' Laboratories of Canada
UPS	–	Uninterruptible Power Supply



V	–	Volt
Vac	–	Volt (alternating current)
VAR	–	Volt Ampere Reactive power
VFD	–	Variable Frequency Drive
VLAN	–	Virtual Local Area Network
VOC	–	Volatile Organic Compounds
VoIP	–	Voice Over Internet Protocol
WAN	–	Wide Area Network
WFA	–	Wood First Act
WHO	–	World Health Organization
WMM	–	Wi-Fi Multimedia

**WORKER ACCOMMODATION PROJECT AGREEMENT**

**SCHEDULE 29, PART 2**

**BC HYDRO OFFICES – SPECIFICATIONS AND DRAWINGS**

**2 GENERAL**

**2.1 Project Overview**

A brief overview of the BC Hydro Offices is set out below.

The BC Hydro Offices will include the following:

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

**2.2 Scope of the Specifications to this Schedule 29 [BC Hydro Offices – Specifications and Drawings]**

The descriptions of the BC Hydro Offices in this Schedule 29 [BC Hydro Offices – Specification and Drawings], including the Appendices attached to and referenced in Schedule 29 [BC Hydro Offices – Specification and Drawings] set out the minimum requirements of the BC Hydro Offices, with emphasis on the identification of major components of the BC Hydro Offices. The Specifications have not been written to include complete detail of the Design and Construction. This Schedule 29 [BC Hydro Offices - Specifications and Drawings] will be interpreted:

- (a) considering Section 4.2 of the Agreement;
- (b) in accordance with Schedule 2 [Design and Construction Protocols]; and
- (c) to reflect any adjustments or refinements to the BC Hydro Offices made during the design review process.

### 2.2.2 Additional Rooms and Spaces

Notwithstanding anything in the Specifications, design and construct the BC Hydro Offices to include all rooms and spaces required to comply with the terms of this Agreement, including sufficient rooms and spaces necessary for the operation and maintenance of the BC Hydro Offices and for Project Co to perform the Services to the BC Hydro Offices in accordance with this Agreement.

### 2.2.3 Energy

Project Co will provide energy for the BC Hydro Offices.

### 2.2.4 Standards

(a) Project Co will undertake the Design and Construction:

- (i) in accordance with the standards set out in this Schedule 29 [BC Hydro Offices - Specifications and Drawings];
- (ii) in accordance with the 2012 BC Building Code and all applicable Laws;
- (iii) having regard for the concerns, needs and interests of all persons who will use the BC Hydro Offices;
- (iv) in accordance with Good Industry Practice;
- (v) to the same standards that an experienced, prudent, and knowledgeable temporary operator of a similar facility in North America, whether to be operated publicly or privately, would employ;
- (vi) to the same standard that an experienced, prudent and knowledgeable long term owner of a high quality remote office facility in North America would employ;
- (vii) if Project Co wishes to make reference to a code or standard from a jurisdiction outside of Canada, then Project Co will demonstrate to BC Hydro's satisfaction that such code or standard meets or exceeds the requirements of this Agreement;
- (viii) in accordance with the BC Hydro policy: <http://www.bchydro.com/about/suppliers/doing-business-with-bchydro.html> and
- (ix) if more than one standard is applicable then the highest such standard will apply.

(b) Project Co will undertake the Design and Construction of the BC Hydro Offices in compliance with all applicable standards, including, but not limited to:

- (i) ACI:
  - (A) ACI 315R: Manual of Engineering and Placing Drawings for Reinforced Concrete Structure.
- (ii) ANSI:
  - (A) ANSI B16.1, Cast Iron Pipe Flanges and Flanged Fittings, Class 25, 125, 250 and 800.

- (iii) ANSI/ACI:
  - (A) ANSI/ACI 117, Tolerances for Concrete Construction and Materials; and
  - (B) ANSI/ACI 315, Details and Detailing of Concrete Reinforcement.
- (iv) ANSI/AWWA:
  - (A) ANSI/AWWA B300, Hypochlorites;
  - (B) ANSI/AWWA B301, Water Treatment - Liquid Chlorine;
  - (C) ANSI/AWWA C104/A21.4, Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water;
  - (D) ANSI/AWWA C105/A21.5, Polyethylene encasement for Ductile-Iron Piping for Water and Other liquids;
  - (E) ANSI/AWWA C110/A21.10, Ductile-Iron and Gray Iron Fittings, 3 inches through 48 inches for Water and Other Liquids;
  - (F) ANSI/AWWA C111/A21.11, Rubber Gasket Joints for Ductile-Iron and Gray Iron Pressure Pipe and Fittings;
  - (G) ANSI/AWWA C150 Thickness Design of Ductile-Iron Pipe;
  - (H) ANSI/AWWA C151/A21.51, Ductile-Iron Pipe, Centrifugally Cast in Metal Moulds or Sand Lined Moulds for Water or Other Liquids;
  - (I) ANSI/AWWA C153/A21.53, Ductile-Iron Compact Fittings, 3 inches through 16 inches, for Water and Other Liquids;
  - (J) ANSI/AWWA C200, Water Pipe 6 inches and Larger, Steel;
  - (K) ANSI/AWWA C203, Coal Tar Protective Coatings and Linings for Steel Water Pipelines - Enamel and Tape-Hot Applied;
  - (L) ANSI/AWWA C205, Cement Mortar Protective Lining and Coating for Steel Water Pipe - 4 inches and larger- Shop Applied;
  - (M) ANSI/AWWA C206, Field Welding of Steel Water Pipe;
  - (N) ANSI/AWWA C207, Steel Pipe Flanges for Waterworks Service, 4 inches through 144 inches;
  - (O) ANSI/AWWA C208, Fabricated Steel Water Pipe Fittings, Dimensions for;
  - (P) ANSI/AWWA C210, Liquid Epoxy Coating Systems for the Interior and Exterior of Steel Water Pipelines;
  - (Q) ANSI/AWWA C301, Pre-stressed Concrete Pressure Pipe Steel Cylinder Type for Water and Other Liquids;
  - (R) ANSI/AWWA C303, Reinforced Concrete Pressure Pipe Steel Cylinder Type, Pre-tensioned for Water and Other Liquids;

- (S) ANSI/AWWA C500, Gate Valves for Water and Sewage Systems;
  - (T) ANSI/AWWA C502, Dry-Barrel Fire Hydrants;
  - (U) ANSI/AWWA C504, Butterfly Valves;
  - (V) ANSI/AWWA C509, Resilient-Seated Gate Valves for Water and Sewerage Systems;
  - (W) ANSI/AWWA C600, Installation of Ductile-Iron Water Mains, and their Appurtenances;
  - (X) ANSI/AWWA C602, Cement Mortar Lining of Water Pipelines - 100 mm and larger - In Place;
  - (Y) ANSI/AWWA C651, Disinfecting Watermains;
  - (Z) ANSI/AWWA C800, Underground Service Line Valves and Fittings;
  - (AA) ANSI/AWWA C900, Pressure Pipe, 4 inches through 12 inches for Water, Polyvinyl Chloride (PVC);
  - (BB) ANSI/AWWA C901, Polyethylene (PE) Pressure Pipe and Tubing, .5 inch through 3 inches for Water Service;
  - (CC) ANSI/AWWA C902, Polybutylene (PB) Pressure Pipe and Tubing, .5 inch through 3 inches for Water Service;
  - (DD) ANSI/AWWA C905, Pressure Pipe, 14 inches through 36 inches for Water, Polyvinyl Chloride (PVC);
  - (EE) ANSI/AWWA C906, Polyethylene (PE) Pressure Pipe and Fittings, 4 inches through 63 inches, for Water Distribution; and
  - (FF) ANSI/AWWA C907, Standard for Polyvinyl Chloride (PVC) Pressure Fittings for Water – 4 inches through 8 inches (100mm through 200mm).
- (v) ANSI / EIA:
- (A) 568-B.1 & 568-B.2 (CSA-0T529-M95) Commercial Building Telecommunications Cabling Standard – Parts 1 & 2;
  - (B) 568-B3 (CSA-T529-M95) Commercial Building Telecommunications Cabling Standard – Part 3;
  - (C) 569-B (CSA-T530) Commercial Building Standard for Telecommunications Pathways and Spaces;
  - (D) 606A (CSA-T528) Administration Standard for Telecommunications Infrastructure of Commercial Buildings; and
  - (E) 607A (CSA-527): Commercial Grounding and Bonding Requirements for Telecommunications.

- (vi) ANSI / TIA:
  - (A) 942 Telecommunications Infrastructure Standard for Data Centers; and
  - (B) TSB-162: Telecommunications Cabling Guidelines for Wireless Access Points.
- (c) ANSI / ESNA American National Standard Practice for Lighting:
  - (i) IESNA RP 29-06.
- (d) ASHRAE (American Society of Heating, Refrigeration and Air-Conditioning Engineers):
  - (i) Handbooks: Fundamentals, Refrigeration, HVAC Systems and Equipment;
  - (ii) Design of Smoke Control Systems;
  - (iii) 52.2: Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size;
  - (iv) 55: Thermal Environmental Conditions for Human Occupancy;
  - (v) 62.1: Ventilation for Acceptable Air Quality;
  - (vi) 90.1: Energy Efficient Design for New Buildings;
  - (vii) 111: Practices for Measurement, Testing, Adjusting and Balancing of Building HVAC systems;
  - (viii) 129: Measuring Air Change Effectiveness; and
  - (ix) 135: Data Communication Protocol for Building Automation and Control Network.
- (e) ANSI / ASME (American National Standards Institute / American Society of Mechanical Engineers):
  - (i) A13.1 Visibility Standard (Pipe Labeling);
  - (ii) B16 Piping Component Standards;
  - (iii) B31 Pressure Piping Code;
  - (iv) B36 Piping Standards;
  - (v) X358.1: Emergency Eyewash and Shower Equipment;
  - (vi) Section IX: Welding Qualifications; and
  - (vii) Unfired Pressure Vessels.
- (f) ASPE (American Society of Plumbing Engineers):
  - (i) Plumbing Engineering Design Handbook, Volumes 1 – 4.

- (g) ASTM (American Society for Testing and Materials):
- (i) ASTM A36, Standard Specification for Structural Steel;
  - (ii) ASTM A48, Specification for Gray Iron Castings;
  - (iii) ASTM A53, Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless;
  - (iv) ASTM A90, Test Method for Weight of Coating on Zinc-Coated (Galvanized) Iron or Steel Articles;
  - (v) ASTM A120, Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated (Galvanized) Welded and Seamless, for Ordinary Uses;
  - (vi) ASTM A121, Specification for Zinc-Coated (Galvanized) Steel Barbed Wire;
  - (vii) ASTM A283/A283M, Specification for Low and Intermediate Tensile Strength Carbon Steel Plates, Shapes and Bars;
  - (viii) ASTM A307, Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile;
  - (ix) ASTM A325, Standard Specification for High-Strength Bolts for Structural Steel Joints;
  - (x) ASTM A585, Specification for Aluminum-Coated Steel Barbed Wire;
  - (xi) ASTM A716, Specification for Ductile - Iron Culvert Pipe;
  - (xii) ASTM A746, Specification for Ductile - Iron Gravity Sewer Pipe;
  - (xiii) ASTM A775/A775M, Specification for Epoxy-Coated Reinforcing Steel Bars;
  - (xiv) A185-06 - Standard Specification for Steel Welded Wire Fabric;
  - (xv) A82/A82M-05 - Standard Specification for Steel Wire, Plain, for Concrete Reinforcement;
  - (xvi) ASTM B62, Specification for Composition Bronze or Ounce Metal Castings;
  - (xvii) ASTM B88M, Specification for Seamless Copper Water Tube;
  - (xviii) ASTM C14M, Specification for Concrete Sewer, Storm Drain and Culvert Pipe;
  - (xix) ASTM C76M, Specification for Reinforced Concrete Culvert, Storm Drain and Sewer Pipe;
  - (xx) ASTM C88, Test Method for Soundness of Aggregates by Use of Sodium Sulphate or Magnesium Sulphate;
  - (xxi) ASTM C109, Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2 inches or 50 mm Cube Specimens);
  - (xxii) ASTM C117, Test Method for Material Finer than 0.075 mm Sieve in Mineral Aggregates by Washing;

- (xxiii) ASTM C123, Test Method for Lightweight Pieces in Aggregate;
- (xxiv) ASTM C127, Test Method for Specific Gravity and Absorption of Coarse Aggregate;
- (xxv) ASTM C128, Test Method for Specific Gravity and Absorption of Fine Aggregate;
- (xxvi) ASTM C131, Test Method for Resistance to Degradation of Small Size Course Aggregate by Abrasion and Impact in the Los Angeles Machine;
- (xxvii) ASTM C136, Method for Sieve Analysis of Fine and Coarse Aggregates;
- (xxviii) ASTM C139, Specification for Concrete Masonry Units for Construction of Catch basins and Manholes;
- (xxix) ASTM C171, Specification for Sheet Materials for Curing Concrete;
- (xxx) ASTM C309, Specification for Liquid Membrane-Forming Compounds for Curing Concrete;
- (xxxi) ASTM C332, Specification for Lightweight Aggregates for Insulating Concrete;
- (xxxii) ASTM C443M, Specification for Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets;
- (xxxiii) ASTM C478M, Specification for Precast Reinforced Concrete Manhole Sections;
- (xxxiv) ASTM C506M, Specification for Reinforced Concrete Arch Culvert, Storm Drain and Sewer Pipe;
- (xxxv) ASTM C507M, Specification for Reinforced Concrete Elliptical Culvert, Storm Drain and Sewer Pipe;
- (xxxvi) ASTM C827, Test Method for Early Volume Change of Cementitious Mixtures;
- (xxxvii) ASTM C902, Specification for Pedestrian and Light Traffic Paving Brick;
- (xxxviii) ASTM C939, Test Method for Flow of Grout for Preplaced-Aggregate Concrete;
- (xxxix) ASTM D140, Method for Sampling Bituminous Materials;
- (xl) ASTM D412, Test Method for Rubber Properties in Tension;
- (xli) ASTM D624-86, Test Method for Rubber Property-Tear Resistance;
- (xlii) ASTM D698, Test Method for Moisture Density Relations of Soils and Soil Aggregate Mixtures Using 2.49 kg Rammer and 304.8 mm Drop;
- (xliii) ASTM D995, Specification for Requirements for Mixing Plants for Hot-Mixed, Hot-Laid Bituminous Paving Mixtures;
- (xliv) ASTM D1248, Specification for Polyethylene Plastics Moulding and Extrusion Materials;
- (xlv) ASTM D1557, Specification for Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures using 10lb (4.54 kg) Rammer and 18 inch (457 mm) Drop;



- (xlvi) ASTM D1559, Test Method Resistance to Plastic flow of Bituminous Mixtures Using Marshall Apparatus;
- (xlvii) ASTM D1751, Specification for Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction (Non-extruding and Resilient Bituminous Types);
- (xlviii) ASTM D1752, Specification for Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction;
- (xlix) ASTM D1784, Standard Specification for Rigid Polyvinyl Chloride (PVC) Compounds and Chlorinated Polyvinyl Chloride (CPVC) Compounds;
- (I) ASTM D2152, Test Method for Quality of Extruded Polyvinyl Chloride (PVC) Pipe by Acetone Immersion;
- (ii) ASTM D2241, Standard Specification for Polyvinyl Chloride (PVC) Plastic Pipe (SDR-PR);
- (iii) ASTM D2310, Classification for Machine Made Reinforced Thermosetting Resin Pipe;
- (iiii) ASTM D2412, Standard Test Method for External Loading Properties of Plastic Pipe by Parallel-Plate Loading;
- (liv) D3212, Specification for Joints for Drain and Sewer Plastic Pipes using Flexible Elastomeric Seals;
- (lv) ASTM D2419, Test Method for Sand Equivalent Value of Soils and Fine Aggregate;
- (lvi) ASTM D2774, Practices for Heat Joining Polyethylene Pipe and Fittings;
- (lvii) ASTM D2680, Specification for Acrylonitrile-Butadiene-Styrene (ABS) and Polyvinyl Chloride (PVC) Composite Sewer Piping;
- (lviii) ASTM D2774, Practices for Underground, Installation of Thermoplastic Pressure Piping;
- (lix) ASTM D2837, Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials;
- (lx) ASTM D2992, Method for Obtaining Hydrostatic Design Basis for Reinforced Thermosetting Resin Pipe and Fittings;
- (lxi) ASTM D2996, Specification for Filament Wound Reinforced Thermosetting Resin Pipe;
- (lxii) ASTM D3034, Specification for Type PSM Polyvinyl Chloride (PVC) Sewer Pipe and Fittings;
- (lxiii) ASTM D3212, Specifications for Joints for Drain and Sewer Plastic Pipes using Flexible Elastomeric Seals;
- (lxiv) ASTM D3139, Joints for Plastic Pressure Pipes using Flexible Elastomeric Seals;
- (lxv) ASTM D3203, Test Method for Percent Air Voids in Compacted Dense and Open Bituminous Paving Mixtures;

- (lxvi) ASTM D3405, Specification for Joint Sealants, Hot Poured for Concrete and Asphalt Pavements;
  - (lxvii) ASTM D4318, Test Method for Liquid Limit, Plastic Limit and Plasticity Index of Soils;
  - (lxviii) ASTM E11, Specification for Wire Cloth Sieves for Testing Purposes;
  - (lix) ASTM E1155M, Test Method for Determining Floor Flatness and Levelness Using the F-Number System;
  - (lxx) ASTM F477, Specification for Elastomeric Seals (Gaskets) for joining Plastic Pipe;
  - (lxxi) ASTM F679, Specification for Type PSM Polyvinyl Chloride (PVC) Sewer Pipe and Fittings;
  - (lxxii) ASTM F714, Polyethylene (PE) Plastic Pipe (SDR-DR) Based on Outside Diameter;
  - (lxxiii) ASTM F794, Specification for Polyvinyl Chloride (PVC) Ribbed Gravity Sewer Pipe and Fittings based on Controlled Inside Diameter;
  - (lxxiv) BCLS - BCSLA and BCLNA - BC Landscape Standard;
  - (lxxv) ASTM E917.24401-1 Life Cycle Cost Assessment Methodology; and
  - (lxxvi) B88: Copper Piping.
- (h) CAN3/CAN/CSA:
- (i) CAN3-A165 Series, CSA Standards on Concrete Masonry Units;
  - (ii) CAN3-B137.3, Rigid Polyvinyl Chloride (PVC) Pipe for Pressure Applications;
  - (iii) CAN4-S543, Internal Lug, Quick-Connect Couplings for Fire Hose;
  - (iv) CAN3-B70, Cast Iron Soil Pipe and Fittings, and Means of Joining;
  - (v) CAN/CSA-086 Engineering Design in Wood;
  - (vi) CAN3-G401, Corrugated Steel Pipe Products; and
  - (vii) CAN3-A23.3: Design of Concrete Structures for Buildings.
- (i) CAN/CGSB:
- (i) CAN/CGSB-8.1, Sieves Testing, Woven Wire;
  - (ii) CAN/CGSB-8.2, Sieves Testing, Woven Wire, Metric;
  - (iii) CAN/CGSB-37.2, Emulsified Asphalt, Mineral Colloid-Type, Unfilled, for Damp proofing and Waterproofing and for Roof Coatings;
  - (iv) CAN/CGSB-16.1, Asphalts, Liquids Petroleum, for Road Purposes;
  - (v) CAN/CGSB-16.2, Asphalts, Emulsified, Anionic Type, for Road Purposes;

- (vi) CAN/CGSB-16.3, Asphalt Cements for Road Purposes; and
  - (vii) CAN/CGSB-16.5, Asphalt, Emulsified, High Float Type, for Road Purposes.
- (j) CGSB:
- (i) CGSB 1-GP-12c, Standard Paint Colours;
  - (ii) CGSB 1-GP-59M, Enamel, Exterior Gloss Alkyd Type;
  - (iii) CGSB 1-GP-5M, Thinner, Petroleum Spirits, Low Flash (R/84);
  - (iv) CGSB 1-GP-71, Method of Testing Paints and Pigments;
  - (v) CGSB 1-GP-74M, Paint, Traffic, Alkyd;
  - (vi) CGSB 1-GP-149M, Paint, Traffic, Reflectorized Alkyd, White and Yellow;
  - (vii) CGSB 1-GP-181M, Coating, Zinc-Rich, Organic, Ready Mixed;
  - (viii) CGSB 51-GP-51M, Polyethylene Sheet for Using in Building Construction; and
  - (ix) CGSB 41-GP-25M, Pipe, Polyethylene, for the Transport of Liquids.
- (k) CAN ULC:
- (i) S524 Standards for the Installation of Fire Alarm Systems; and
  - (ii) S537 Standards for Verification of Fire Alarm Systems.
- (l) CSA (Canadian Standards Association):
- (i) CSA A82.5, Structural Clay Non-Load-Bearing Tile;
  - (ii) CSA A82.56, Aggregate for Masonry Mortar;
  - (iii) CSA A123.3, Asphalt or Tar Roofing Sheets;
  - (iv) CSA A257, Standards for Concrete Pipe;
  - (v) CSA A257, Standards for Concrete Pipe;
  - (vi) CSA B137.0, Definitions, General Requirements, and Methods of Testing for Thermoplastic Pressure Piping;
  - (vii) CSA B1337.1, Polyethylene Pipe, Tubing and Fittings for cold Water Pressure Services;
  - (viii) CSA B137.2, PVC Injection Moulded Gasketed Fittings for Pressure Applications;
  - (ix) CSA B137.3, Rigid Polyvinyl Chloride (PVC) Pipe for Pressure Application;
  - (x) CSA B137.6, CPVC Pipe, Tubing and Fittings for Hot and Cold Water Distribution Systems;

- (xi) CSA B137.7, Polybutylene (PB) Pipe for Cold Water Distribution Systems;
- (xii) CSA B137.8, Polybutylene (PB) Pipe for Pressure Applications;
- (xiii) CSA B137.9, M91, Polyethylene / Aluminum / Polyethylene Composite Pressure Pipe;
- (xiv) CSA B137.16, Recommended Practice for the Installation of CPVC Piping for Hot and Cold Water Distribution Systems;
- (xv) CSA B181.12, Recommended Practice for the Installation of PVC Drain, Waste and Vent Pipe Fittings;
- (xvi) CSA B182.1, Plastic Drain and Sewer Pipe and Pipe Fittings;
- (xvii) CSA B182.11, Recommended Practice for the Installation of Plastic Drain and Sewer Pipe and Pipe Fittings;
- (xviii) CSA B182.2, Large Diameter, Type PSM PVC Sewer Pipe and Fittings;
- (xix) CSA B182.4, Large Diameter Ribbed PVC Sewer Pipe and Fittings;
- (xx) CSA C22.1, Safety Standard for Electrical Installations;
- (xxi) CSA C22.2, Canadian Electrical Code Part 2, General Requirements;
- (xxii) CSA C22.3, Canadian Electrical Code Overhead Systems;
- (xxiii) CSA G30.3, Cold Drawn Steel Wire for Concrete Reinforcement;
- (xxiv) CSA G30.5, Welded Steel Wire Fabric for Concrete Reinforcement;
- (xxv) CSA G30.12, Billet-Steel Wire for Concrete Reinforcement;
- (xxvi) CSA G30.14, Deformed Steel Wire for Concrete Reinforcement;
- (xxvii) CSA G30.15, Welded Deformed Steel Wire Fabric for Concrete Reinforcement;
- (xxviii) CSA G30.16, Weldable Low Allow Steel Deformed Bars for Concrete Reinforcement;
- (xxix) CSA G164, Hot Dip Galvanizing of Irregularly Shaped Articles;
- (xxx) CSA S157, Strength Design in Aluminum;
- (xxxii) CSA S269.3, Formwork;
- (xxxiii) CSA W59, Welded Steel Construction (Metal Arch Welding);
- (xxxiv) CSA W186, Welding of Reinforcing Bars in Reinforced Concrete Construction;
- (xxxv) B651-95: Barrier Free Design;
- (xxxvi) C9-02 Dry Type Transformers;
- (xxxvii) C22.1 & C22.2 Canadian Electrical Code as adopted in British Columbia;

- (xxxvii) C282 Emergency Electrical Power Supply for Buildings;
- (xxxviii) Z462 - Workplace Electrical Safety;
- (xxxix) A23.4-09 - Precast Concrete - Materials and Construction;
- (xl) W186-M1990 (R2002) - Welding of Reinforcing Bars in Reinforced Concrete Construction;
- (xli) A370-04 (R2009) - Connectors for Masonry;
- (xlii) A23.1-09/A23.2-09 - Concrete Materials and Methods of Concrete Construction / Methods of Test and Standard Practices for Concrete;
- (xliii) S832-06 (R2011) – Seismic Risk Reduction of Operational and Functional Components (OFCS of buildings);
- (xliv) S478-95 (R2007) Guideline on Durability of Buildings;
- (xlv) S16-09 - Design of Steel Structures;
- (xlvi) S136-07 - Design of Cold Formed Steel Members;
- (xlvii) S157-05 (R2010) – Strength Design in Aluminum;
- (xlviii) S304.1-04 (R2010) - Masonry Design for Buildings;
- (xlix) CSA S832-06 Guidelines for Seismic Risk Reduction of Operational and Functional Components of Buildings;
- (l) B45 Series – 94: Plumbing Fixtures;
- (li) B64 Series 94: Backflow Preventers and Vacuum Breakers;
- (lii) B52HB: Mechanical Refrigeration Code;
- (liii) B125: Plumbing Fittings;
- (liv) B139: Installation Code for Oil-Burning Equipment;
- (lv) B149.1: Natural Gas and Propane Installation Code; and
- (lvi) B651: Barrier Free Design.
- (m) NFPA (National Fire Protection Association):
  - (i) 10: Standard for Portable Fire Extinguishers;
  - (ii) 13: Standard for Installation of Sprinkler Systems;
  - (iii) 14: Standard for Installation of Standpipe and Hose Systems;
  - (iv) 17: Standard for Dry-Chemical Extinguishing Systems;

- (v) 20: Standard for the Installation of Stationary Pumps for Fire Protection;
  - (vi) 90A: Standard for Installation of Air Conditioning and Ventilation Systems;
  - (vii) 92A: Standard for Smoke Control Systems Utilizing Barriers and Pressure Differences;
  - (viii) 96: Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations; and
  - (ix) 101: Life Safety Code.
- (n) National Building Code of Canada.
  - (o) British Columbia Insulation Contractors Association (BCICA) Quality Standards Manual for Mechanical Insulation.
  - (p) IEEE:
    - (i) 802.1 series for Interworking, Security, Audio/Video Bridging and Data Centre Bridging;
    - (ii) 802.3 series of Ethernet Standards;
    - (iii) 802.11 series of Wireless Standards; and
    - (iv) IEEE 519-1992 Harmonic Limits.
  - (q) NETA:
    - (i) ATS International Electrical Testing Association (Acceptance Testing Specifications); and
    - (ii) MTS Standards for Maintenance Testing.
  - (r) ECABC Seismic Restraint Standards Manual.
  - (s) BICSI Telecommunications Distribution Methods Manual (TDMM).
  - (t) Master Municipal Construction Document (MMCD) and MMCD supplemental specifications, as authored or adopted by the applicable authorities that have jurisdiction.
  - (u) Ministry of Transportation and Infrastructure (MOTI) Standard Specifications for Highway Construction.
  - (v) BC Supplement to TAC Geometric Design Guide.

#### 2.2.5 Functional Program (BCHO)

The standards set out in the functional program prepared by BC Hydro (the **Functional Program (BCHO)**) attached as Appendix 29A [Functional Program (BCHO)] will provide the minimum standards to which Project Co will Design and Construct the BC Hydro Offices. The Functional Program (BCHO) is a critical component of the overall specifications and is to be used in conjunction with this Schedule 29 [BC Hydro Offices - Specifications and Drawings] in Project Co's Design and Construction.

### 2.2.6 Indicative Design (BCHO)

- (a) BC Hydro has prepared indicative designs (the '**Indicative Designs (BCHO)**') for the BC Hydro Offices which are attached at Appendix 29B [Indicative Designs (BCHO)]. The Indicative Designs (BCHO) are based on the initial Specifications and reflects BC Hydro's preliminary consultations with potential users of the BC Hydro Offices.
- (b) Project Co may refer to the Indicative Designs (BCHO) as a basis for its design, but BC Hydro makes no representation as to the accuracy or completeness of any aspect of the Indicative Design and Project Co will be responsible for all aspects of Design and Construction whether or not it uses all or any part of the Indicative Designs (BCHO), and will independently verify the accuracy of any information contained in or inferred from the Indicative Designs (BCHO).

## WORKER ACCOMMODATION PROJECT AGREEMENT

### SCHEDULE 29, PART 3

#### BC HYDRO OFFICES – SPECIFICATIONS AND DRAWINGS

#### **3 DESIGN GUIDELINES AND PRINCIPLES**

##### 3.1 Evidence Based Design (BCHO)

Project Co will apply Evidence Based Design (BCHO) methodologies in undertaking the Design.

**“Evidence Based Design (BCHO)”** means that decisions about the design of the BC Hydro Offices will be based on credible research, information derived from comparable projects, and information about BC Hydro operations, in order to achieve the best possible outcomes. The goal of Evidence Based Design (BCHO) is to deliver optimal workflow outcomes, productivity, economic performance, and BCH Users satisfaction.



## WORKER ACCOMMODATION PROJECT AGREEMENT

### SCHEDULE 29, PART 4

#### BC HYDRO OFFICES – SPECIFICATIONS AND DRAWINGS

#### **4 BC HYDRO OFFICES DEVELOPMENT REQUIREMENTS**

##### 4.1 BC Hydro Offices Development

##### 4.1.1 General Design

Project Co will Design the BC Hydro Offices:

- (a) to be located generally as shown on the Indicative Designs (BCHO);
- (b) to preserve the area indicated on the Indicative Designs (BCHO) as the location for the installation for the future cellphone tower;
- (c) to design landscape and circulation routes to have clear unobstructed views of surrounding areas for safety surveillance; and
- (d) to locate garbage and recycling bins within roofed/walled enclosures and/or screen them from public view.

##### 4.1.2 Pedestrian and Vehicular

Project Co will Design the BC Hydro Offices:

- (a) to integrate vehicular circulation routes with pedestrian zones that promote safe travel, and minimize conflict between vehicles and pedestrians;
- (b) to situate vehicular service entrances so that they are integrated into the design with minimal visual impact;
- (c) to provide safe pedestrian crossings that are clearly designated using markings and signage;
- (d) to provide clear, direct pedestrian routes that are unimpeded by vehicles;
- (e) to provide pedestrian routes within and to/from the BC Hydro Offices, the parking area and the Accommodation Building that are clearly delineated and logical in terms of directness;
- (f) to provide that all walkways and other surfaced areas have positive drainage to shed rain water quickly with minimum side slope gradients of two percent (2%);
- (g) to provide walkways with a minimum width of 1.5 m (5 feet); and
- (h) to provide energy efficient lighting on all walkways in proximity to the BC Hydro Offices including the parking lot.

##### 4.1.3 Noise Protection

Project Co will Design the BC Hydro Offices such that internal noise levels in the BC Hydro Offices do not exceed those established by the World Health Organization (WHO) found at: World Health Organization

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Guidelines for Community Noise; edited by Birgitta Berglund, Thomas Lindvall, and Dietrich H Schwela; published 1999.

#### 4.1.4 BC Hydro Offices Wayfinding and Exterior Signage

Project Co will Design the BC Hydro Offices:

- (a) to provide external directional signage that:
  - (i) clearly identifies the BC Hydro Offices and its components including the main entry, visitor entry, bus drop off area, parking;
  - (ii) clearly indicates points of access for the parking areas and restrictions for various vehicle types; and
  - (iii) is well illuminated, backlit, reflective or high contrast and easily visible at night;
- (b) to provide all necessary exterior signage to direct traffic from the access roads; and
- (c) to provide such signage that it is visible for drivers of vehicles to identify at a far enough distance so that they can safely slow down and follow the signage to enter the BC Hydro Offices and find the parking areas.

#### 4.1.5 BC Hydro Offices Lighting

Project Co will Design and Construct the BC Hydro Offices:

- (a) with outdoor lighting, with a hierarchy of fixture types designed according to functional and security needs (including CPTED), and reflecting the hierarchy of pedestrian corridors;
- (b) such that light fixtures within the reach of pedestrians will be vandal resistant;
- (c) such that lighting on roadways and pedestrian paths connected to the BC Hydro Offices will meet the requirements of the latest version of IESNA RP-8 for the appropriate classification of roadway;
- (d) such that lighting for parking lots, will meet the requirements of the latest version of IESNA RP-20;
- (e) to include lighting with flat lens HID or LED luminaries of the type and colour required by the application;
- (f) with lighting on pedestrian paths to illuminate not just the path but also the surrounding area adjacent to the path; and
- (g) with lighting that is Dark Skies compliant.

#### 4.1.6 BC Hydro Offices Safety Through Design

Project Co will Design the BC Hydro Offices:

- (a) so that the exteriors provide opportunities for people to easily view what is happening around them during the course of their everyday activities;
- (b) to eliminate entrapment spots; and

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- (c) to incorporate CPTED principles in the design of all exterior areas of the BC Hydro Offices.

## 4.2 Parking

### 4.2.1 General

Project Co will Design and Construct the BC Hydro Offices to provide parking for BCHO Users in accordance with the requirements of this Schedule 29 [BC Hydro Offices - Specifications and Drawings] and all other applicable standards.

### 4.2.2 Parking Stall Sizes

Project Co will ensure that the parking stalls comply with the following:

- (a) the minimum parking stall dimensions will be 6.0 m x 3.5 m (20 feet by 11.5 feet); and
- (b) the minimum drive aisle widths will be 8.0 m (26.25 feet).

### 4.2.3 Parking Design Principles

Project Co will Design and Construct the parking for the BC Hydro Offices:

- (a) having not less than [REDACTED] parking stalls;
- (b) to provide rails and 110 volt electrical plug-in for every parking stall. Automobile heater receptacles shall be controlled to limit energy consumption and demand, as defined by CSA C22.1;
- (c) to provide adequate provision for ingress and egress to all parking spaces to ensure ease of mobility, clearances, and safety of vehicles and pedestrians;
- (d) to clearly mark all parking spaces as directed by BC Hydro;
- (e) to include parking lot layouts in an orderly and logical design to minimize confusion and excessive internal circulation;
- (f) to provide HID or LED lighting sufficient to illuminate entire parking area; and
- (g) to surface the parking lot with materials that minimize dust.

## 4.3 BC Hydro Offices Infrastructure

### 4.3.1 General

Project Co will Design and Construct the BC Hydro Offices to provide adequate and reliable infrastructure and necessary services to the BC Hydro Offices.

### 4.3.2 Extension of Area Services

Project Co will be responsible for connecting all off site services requested pursuant to Schedule 6 [Specifications and Drawings] including an [REDACTED]

#### 4.3.3 Services Infrastructure

Project Co will Design and Construct the infrastructure for the BC Hydro Offices as follows:

(a) General:

- (i) so that all BC Hydro Offices servicing meets or exceeds the design and quality requirements established by this Schedule 29 [BC Hydro Offices - Specifications and Drawings], or applicable laws and standards and to meet the needs of the BC Hydro Offices and the BCHO Users;
- (ii) to establish arrangements to provide potable water and dispose of sewage; and
- (iii) at Project Co's discretion, to use electricity or natural/gas for heating, that while either choice is allowed, [REDACTED]

(b) Sanitary Sewage System: Project Co will Design and Construct the sewage system:

- (i) to include sewage collection from the BC Hydro Offices;
- (ii) such that the design, permitting, construction, operation and reporting will meet the requirements of MWR;
- (iii) that uses a gravity sewage collection system wherever possible;
- (iv) that uses sanitary collection sewers of a diameter, grade and depth to safely convey all sewage from the BC Hydro Offices;
- (v) so that the sanitary sewer system includes pipes, manholes and all other required appurtenances that comply with MWR;
- (vi) so that the sanitary sewer system is buried;
- (vii) so that the sanitary sewer system will convey all peak flows without surcharging the collection system where surcharging means the hydraulic grade line of flow exceeds the obvert of the pipe;
- (viii) so that the sanitary sewer system will convey the flow from the BC Hydro Offices to the wastewater treatment and disposal system; and
- (ix) so that the collected sewage effluent will be treated and disposed of in accordance with the MWR.

(c) Storm Sewers and Drainage:

- (i) Project Co will Design and Construct the storm sewers, storm sewer management strategies and drainage networks;
- (ii) to be of a size, grade and depth to safely manage and convey all BC Hydro Offices storm water to the receiving system;
- (iii) to include the pipes, manholes, catch basins (if required), inlets, outfalls, detention ponds and all other required appurtenances to comply with applicable laws, standards, and common industry standards;

- (iv) to, at minimum, not to exceed the pre-construction discharge rates after the completion of the BC Hydro Offices for a 1 in 2 year storm;
  - (v) to include storm water/oil and grit separation devices or other water quality treatment devices as required, capturing and treating runoff from all road and parking area surfaces;
  - (vi) to include a BC Hydro Offices storm water management system which complies with all federal and provincial land-development regulations and guidelines and "Storm Water Planning: A Guidebook for British Columbia" for storm water attenuation and runoff / recharge water quality;
  - (vii) to ensure that neighbouring lands are protected from flooding and nuisance runoff issues; and
  - (viii) to include adequately sized water quality/sediment control components for surface parking lots, before discharging to the Worker Accommodation Area retention systems, groundwater recharge facilities or the Worker Accommodation Area drainage system.
- (d) If required, Project Co will provide pumping facilities for storm water to the Worker Accommodation Area and surrounding area are adequately drained.

█ [REDACTED]

█ [REDACTED]

█ [REDACTED]

█ [REDACTED]

█ [REDACTED]

█ [REDACTED]

█ [REDACTED]

█ [REDACTED]

█ [REDACTED]

(f) Road Works:

Project Co will Design and Construct:

- (i) the roadways, including the walkways, signage, roadway markings, and traffic calming devices connecting the parking and sidewalks associated with the BC Hydro Offices to the roadways and walkways being utilized for the balance of the facilities;
- (ii) all roadways to provide safe passage between parking areas, loading areas, emergency vehicle areas and drop off;
- (iii) so that the minimum width of the roadway surface is nine (9.0) metres (30 feet); and
- (iv) all roadways will accommodate fire truck access in accordance with the requirements of applicable Laws and/or standards.

(g) Street Lighting: Project Co will Design and Construct street lighting:

- (i) to provide lighting for the roadways, walkways and parking areas associated with the BC Hydro Offices to ensure safe vehicle and pedestrian traffic with respect to collisions, personal safety, and building access/egress; and
- (ii) all WAA lighting will carry the "Dark Sky Compliant" certification, in accordance with the Illuminating Engineering Society / International Dark-Sky Association's Model Lighting Ordinance.

(h) Electrical Services: Project Co will Design and Construct electrical services:

- (i) to provide electrical services to the BC Hydro Offices meet Canadian Electrical Code; and
- (ii) with a service capacity to be determined in accordance with the requirements of Section 8 of CSA C22.1.

(i) Telecommunications Services:

- (i) Project Co will Design and Construct the BC Hydro Offices to provide adequate telecommunication services to the BC Hydro Offices.

(j) Gas Services:

- (i) Project Co will Design and Construct the BC Hydro Offices to provide natural gas/propane services adequate to service the BC Hydro Offices.

**WORKER ACCOMMODATION PROJECT AGREEMENT**

**SCHEDULE 29, PART 5**

**BC HYDRO OFFICES – SPECIFICATIONS AND DRAWINGS**

**5 WORKER ACCOMMODATION BUILDING DESIGN REQUIREMENTS**

5.1 Incident Requirements

- (a) Project Co will Design and Construct the BC Hydro Offices for the need to protect the life and safety of all BCHO Users and for continuation of services following an incident including, but not limited to, earthquake, chemical spill, extended power interruption or contamination of water supply. Particular attention should be paid to the buildings, generators, transformers and service connections.

█ [REDACTED]

█ [REDACTED]

█ [REDACTED]

█ [REDACTED]

█ [REDACTED]

█ [REDACTED]

█ [REDACTED]

█ [REDACTED]

5.2 Architecture

5.2.1 Building Form and Character

(a) General:

- (i) the design of the BC Hydro Offices will be robust and consistent with good quality;
- (ii) the glazing will optimize views, increase daylight penetration and reduce energy consumption; and
- (iii) the mechanical and electrical equipment are enclosed or screened, or incorporated in architectural elements that are consistent in form, material, and detail with the rest of the building and noise attenuated.

(b) Exterior Building Materials and Colour:

- (i) the exterior cladding materials of the BC Hydro Offices will be durable; will exhibit a high quality finish and robust detailing;

- (ii) the number of exterior cladding materials will be minimized to reduce the number of envelope joints; and
- (iii) wood, if used on the exterior, will be selected, located and treated to minimize maintenance and optimize its life span.

### 5.2.2 Building Configuration and Internal Circulation

#### (a) Building Entrances:

- (i) exterior entrances into the BC Hydro Offices will be shielded from snow and rain by canopies or building overhangs;
- (ii) BC Hydro Offices entrances will be oriented away from direct prevailing winds and utilize wind mitigating measures;
- (iii) The pedestrian areas and amenities (02 Covered Smoking Area and 03 BBQ Area), and outdoor areas to the BC Hydro Offices will be protected from the wind thereby extending the seasonal duration of outdoor activities;
- (iv) the main entrance to the BC Hydro Offices will be configured and sized to preserve the airlock effect for climate control;
- (v) wheelchair access will be provided at the main entrance; and
- (vi) sufficient lighting will be provided to ensure safe operations when entering and exiting the BC Hydro Offices.

#### (b) Access:

Project Co will Design and Construct the BC Hydro Offices:

- (i) to minimize the potential of trips and falls; and
- (ii) to ensure that all spaces, to the extent possible, are disabled accessible.

#### (c) Exit Stairs:

Project Co will Design and Construct the BC Hydro Offices to locate exit stairs that are conveniently accessible from main circulation routes.

### 5.2.3 Building Envelope

- (a) The building envelope will prevent the accumulation and stagnation of rain, snow, ice and dirt on the horizontal and vertical surfaces of the building envelope and in the area between the entrance to the mudroom and the bus pick-up/drop-off area.
- (b) The building envelope will prevent both the ingress of exterior moisture and the trapping of condensation from infiltrating humid air within the envelope.
- (c) The building envelope will ensure that materials and systems of the wall and roof assemblies contribute to reducing heat gains and losses with minimal decline in performance over their expected lifespan.



- (d) The building envelope will ensure continuity of the air vapour, thermal and moisture barriers across the entire envelope.
- (e) The building envelope will avoid thermal bridging.

#### 5.2.4 Interior Walls and Partitions

- (a) Interior wall and partition systems will provide acoustic separations as required for the specific functions to be carried out in the spaces affected.
- (b) Interior walls and partitions, partition systems and interior finishes will comply with the following criteria:
  - (i) facilitate cleaning, maintenance and hygiene;
  - (ii) be of permanence and durability including impact resistance; and
  - (iii) minimize adverse impact on indoor air environmental quality.
- (c) Interior walls and partitions will provide fittings, attachments and internal bracing/backup as required to accommodate and support wall mounted equipment.

#### 5.2.5 Ceilings

- (a) Ceiling height, above the finished floor, will not be less than the following specifications unless defined elsewhere in this Schedule 29 [BC Hydro Offices - Specifications and Drawings]:
  - (i) office areas and other rooms: 2.44 meters (8 feet); and
  - (ii) ceilings in rooms with equipment requiring specific clear heights will be based on specific equipment requirements.

#### 5.2.6 Lighting

- (a) Lighting systems will comprise a major component of the energy efficiency and liveability functions and will have the following minimum performance specifications:
  - (i) lights will be dimmable across their full range in meeting rooms;
  - (ii) illumination sources utilized will be optimized by considering the ceiling light reflectance coefficient; and
  - (iii) light reflectance coefficient for ceiling surfaces will be greater than 0.80.
- (b) The lumination range will meet the recommendations of the "IESNA – The Lighting Handbook" for the particular space or activity.

#### 5.2.7 Flooring

- (a) Flooring will be complementary and integral to the functional and aesthetic requirements of the interior space and support pedestrian safety.
- (b) The flooring material will:
  - (i) be ergonomically comfortable;

- (ii) provide ease of cleaning and maintenance; and
  - (iii) be hygienic and easy to replace.
- (c) Floor finishes will:
- (i) support anticipated types and concentration of pedestrian, vehicular or wheeled traffic;
  - (ii) be imperviousness to concentrations of moisture in wet areas; and
  - (iii) minimize adverse impact on indoor air environmental quality.

5.3 Interior Spaces

5.3.1 Main Entrance

- (a) The main entrance landing will have open pattern, industrial floor grates with scrapers to facilitate the cleaning of boots prior to entry and will be an “Ice Free Zone”.
- (b) The whole door U-value of the main entrance doors will be less than 0.7 W/m<sup>2</sup>K to assure thermal efficiency.

5.3.2 Training/Meeting Room

- (a) The BC Hydro Offices will have a single training/meeting room (40 feet) adjacent to the reception area.
- (b) The BC Hydro Offices training room will be lockable.
- (c) The BC Hydro Offices training/meeting room will be provisioned with phone, wired Ethernet, wireless connections and electrical outlets.
- (d) The BC Hydro Offices training/meeting room will be provisioned with the following: audio/video conferencing capability, microphone, wall mounted speakers, ceiling mounted projector and multiple white boards.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

5.3.5 Janitorial Room

The janitorial room will be sized to handle the BC Hydro Offices.

### 5.3.6 Miscellaneous Equipment Storage

The BC Hydro Offices will have at least one (1) storage room in the shipping and receiving area to accommodate items such as outdoor equipment (tables, chairs), surplus equipment and amenities

### 5.3.7 Offices

- (a) Each office will have at least one receptacle every 3 meters with a minimum of one per wall.
- (b) Each office will have a two telecom receptacles, each receptacle shall have two outlets one marked VOIP and one data. The first telecom receptacle shall be located 1.4 meters from the corner opposite the door on the perpendicular wall. The second shall be located facing the first receptacle on the wall parallel to the door.

## 5.4 Interior Environment

### 5.4.1 Equipment & Storage

- (a) The BC Hydro Offices will provide storage shelves that are:
  - (i) cleanable with BC Hydro approved detergents and disinfectants;
  - (ii) not located under sinks; and
  - (iii) a minimum of 200 mm (7.9 inches) above the floor to facilitate routine cleaning.
- (b) If open shelving is provided for storage, the bottom shelf of such shelving will be a solid surface to prevent contamination from the floor.

### 5.4.2 Ergonomic Design

The BC Hydro Offices will employ ergonomic design, consistent with good industry practice, of all work spaces including millwork, furniture, lighting and finishes to eliminate strain and injury to cleaning/maintenance and to BCHO Users.

### 5.4.3 Interior Signage

Room signage, for all rooms, will distinguish room functions. Administrative space signage requires a pocket to insert specific information such as name of occupant. Provide small door tags for all door frames.

## 5.5 Exterior Spaces

### 5.5.1 Building Landscaping

The landscaping will include a minimum of the following:

- (a) 38 mm (1 ½ inches) gravel with less than ten percent 10% fines used in non-paved and non-grass areas; and
- (b) pathways will be surfaced and be provided with markers indicating edges of pathways that can be seen above anticipated snowfall levels.



- [Redacted]
- [Redacted]
- [Redacted]

(b) The BC Hydro Offices' mechanical will:

- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]

5.7.3 Incident Design Considerations

- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]

5.8 Electrical Systems Design

(a) The BC Hydro Offices will incorporate the following design principles for electrical, communications and security systems:

- (i) all electrical systems, materials and equipment will be of a type and quality intended for use in a facility similar to the BC Hydro Offices;
- (ii) all electrical systems in the BC Hydro Offices will be configured to meet requirements in an efficient manner, with optimal utilization of space, staff and equipment resources;
- (iii) all electrical systems in the BC Hydro Offices will provide continuity of the Services to the BC Hydro Offices, serviceability of equipment and a comfortable and safe working environment;

(iv) 

(v) will include systems and equipment coordinated to provide synergy and reliable electrical performance for the various BC Hydro Offices functions.

(b) The BC Hydro Offices will incorporate devices and systems to minimize the noise and vibrations of electrical equipment/ components e.g., transformers, luminaries and cables including:

(i) locating electrical equipment and feeder routes to minimise the risk to service continuity resulting from incidents, including but not limited to: fire, flood, adverse weather, seismic events, construction activities and vandalism; and

(ii) integrating any energy incentive programs into the electrical systems.

(c) The lighting and receptacles shall meet ASHRAE 90.1, clearly mark receptacles that are controlled, the nearest receptacle to a telecom receptacle must not be controlled.

## WORKER ACCOMMODATION PROJECT AGREEMENT

### SCHEDULE 29, PART 6

#### BC HYDRO OFFICES – SPECIFICATIONS AND DRAWINGS

##### **6 BC HYDRO OFFICES CONSTRUCTION SUBGROUP SPECIFICATIONS**

##### 6.1 Concrete

##### 6.1.1 Overriding Principles

- (a) If applicable, design and construct cast in place or precast concrete of appropriate properties for the intended use in accordance with the requirements of all applicable Laws, standards and specifications.
- (b) If applicable, design for the applicable concrete exposure class and provide high sulphate resistant performance where applicable.
- (c) Maximize the fly ash content of the mix.
- (d) Use wood formwork for cast in place concrete.

##### 6.1.2 Quality Requirements

- (a) Cause any cast in place concrete and concrete materials to be inspected and tested by a CSA certified testing laboratory.
- (b) Cause any precast concrete materials and workmanship to be inspected and tested by the precast concrete contractor as part of its quality control program in accordance with all applicable standards.

##### 6.1.3 Performance Criteria

- (a) Finish any concrete floors with a smooth, dense, steel trowel finish with a Class F2 Flatness Classification in accordance with CAN/CSA A23.1/A23.2-09, except where more strict requirements are needed to suit the proposed occupancy or equipment that will be located in the space. Overlay toppings to level floors will not be used.
- (b) Repair any cracks in concrete floors and walls to suit the floor finish and long-term serviceability requirements for the floor.
- (c) Water proof all foundation walls for any below-grade occupied spaces and crawl spaces to prevent groundwater ingress. Construction joints will have purpose-made water stops. Install perimeter draining system around the exterior of earth-retained foundations if recommended by a geotechnical engineer.
- (d) Any exposed architectural concrete will comply with CAN/CSA A23.1/A23.2-09 to minimize honey combing or patching.
- (e) Provide vapour barrier under any slabs-on-grade in the form of continuous, cross-linked, minimum ten (10) mil polyethylene sheet.
- (f) Provide weeping tile as required to ensure proper drainage of the sub surface foundations and walls.

## 6.2 Metals

### 6.2.1 Basic Requirements

- (a) Structural steel, steel deck, and cold-formed steel stud design and construction may be considered for building elements and systems, where appropriate.

### 6.2.2 Performance Criteria

- (a) Design structural steel, steel deck, and cold-formed steel stud systems to comply with the deflection and vibration criteria outlined in this Schedule 29 [BC Hydro Offices - Specifications and Drawings].
- (b) Erection tolerances for steel construction will be in accordance with all applicable CAN/CSA standards.
- (c) For steel floor and roof construction, the deflection of steel beams, joists, and girders due to the wet weight of concrete topping slabs is to be considered. Topping slab thickness may have to vary to maintain floor levelness tolerances. The additional concrete ponding weight is to be considered in the design of the structure.
- (d) Any concrete topping slabs will be finished with a smooth, dense, steel trowel finish. Design and construct concrete topping slabs on steel deck to control cracking and avoid random surface shrinkage cracking and radial cracking around re-entrant corners. Implement concrete construction and curing procedures to minimize cracking for concrete topping slabs on metal deck.
- (e) Steel floor/roof decking is to be wide rib profile for ease of attachment of current and future services, equipment, and fixtures using drilled insert expansion anchors into the bottom of the deck ribs.
- (f) Fire proof structural steel floor/roof framing and supporting members will meet the fire rating requirement. Spray on or applied fireproofing material is not to be used to achieve required floor deck fire rating.

### 6.2.3 Structural Steel and Steel Joists

#### (a) Quality Requirements:

- (i) quality assurance testing and monitoring of workmanship to be carried out by an approved testing laboratory using testing procedures as specified in the CAN/CSA standards listed in Section 2 of this Schedule 29 [BC Hydro Offices - Specifications and Drawings] to verify soundness of representative shop and field welds;
- (ii) material quality including sourcing and welding quality will be monitored by an independent testing agency; and
- (iii) the specification for preparation and painting of structural steel components will conform to the MPI Standards.

#### (b) Guardrails & Handrails:

- (i) provide guardrails and handrails with a minimum diameter of 42 mm (1.7 inches) or as required;



- (ii) all guardrails will be designed for their usage classification and per applicable codes;
- (iii) provide a durable painted finish for steel guardrails; and
- (iv) provide a manufactured pre-finish for stainless steel or aluminum guardrails.

### 6.3 Wood, Plastics and Composites (including Millwork)

#### 6.3.1 Basic Requirements

- (a) The use of wood and plastic products will be within the limitations of combustible content restrictions for the specific occupancy classification of the BC Hydro Offices.
- (b) Timber is considered an acceptable product for BC Hydro Offices structure.
- (c) Do not use urea formaldehyde containing materials in the BC Hydro Offices.
- (d) As required, provide rough carpentry, wood backing materials, backing boards for mechanical rooms and electrical/communication rooms, roof sheathing, copings, cant strips, finish carpentry and architectural woodwork, including but not limited to exterior fascia's, cabinets, casework, frames, panelling, ceiling battens, trim, installation of doors and hardware, and other wood-related products and applications:
  - (i) to support functionality as required for operation of the BC Hydro Offices; and
  - (ii) for wood products exposed to view in finished interior and exterior installations.
- (e) Wood studs will comply with applicable CSA standards for lumber. Provide solid polymer fabricated or stainless steel surfacing for:
  - (i) counters that incorporate integral sinks; and
  - (ii) other areas as required to create surfaces that provide antiseptic or clean characteristics, special or regular maintenance, and resistance to caustic action of chemicals or agents.
- (f) Provide acrylic plastic products or other products as required for wall cladding, wall protection, corner protection, casework finishing, trims, ornamental elements, and other applications to achieve a quality of interior finish suitable for use by BCHO Users.
- (g) Prepare and propose locations and types of all handrails, bumper guards, and wall protection.
- (h) Use pressure treated wood for any exterior exposed wood.

#### 6.3.2 Wall Guards and Corner Guards, Handrails, Wall Protection, Door Edge and Door Frame Protection

- (a) Wall and Corner Guards:
  - (i) provide protection of walls and exposed wall corners in BCHO Users areas, service areas, and other areas where needed to protect walls and exposed corners and
  - (ii) select materials appropriate to the amount and degree of impact anticipated.

- (b) Handrails:
  - (i) provide handrails in all stair areas of an appropriate type; and
  - (ii) select materials and shapes appropriate for the use and provide continuous uninterrupted supports.
- (c) Wall Protection:
  - (i) provide wall splash back protection behind and surrounding hand sinks, scrub sinks and housekeeping sinks; and
  - (ii) apply sheet wall protection to faces of doors where impact damage is anticipated. Use sheet wall protection that complements the installation of door edge and frame protection.

### 6.3.3 Finish Carpentry, Millwork and Architectural Woodwork

- (a) Conform to AWMAC Quality Standards Manual for minimum “Custom Grade” and DHI standards for the design, fabrication, materials, installation, and workmanship of finish carpentry and architectural woodwork.
- (b) Adhesives will be non-toxic, non-solvent glue to comply with AWMAC Quality Standards Manual, Canadian ‘Eco-Logo’ program, and Canada Green Building Council.

## 6.4 Thermal and Moisture Protection

### 6.4.1 Basic Requirements

- (a) Design construction assemblies according to sound building envelope principles.
- (b) Design construction assemblies to prevent the ingress of moisture or water vapour from the exterior through the building envelope and the passage of air through the building envelope from the interior spaces to the exterior and vice versa.
- (c) Design construction assemblies to prevent the ingress of moisture through foundation walls below grade, both subject and not subject to Hydrostatic pressure.
- (d) Provide thermal protection to resist the transfer of heat through exterior walls and roofs to create comfortable, liveable interior environments.
- (e) Provide resistance to the propagation and spread of fire for exterior walls and interior walls designated as fire-resistance rated separations where appropriate.

### 6.4.2 Performance Criteria

#### (a) Damp Proofing:

- (i) damp proofing is not to be used as a means to prevent moisture ingress.

#### (b) Waterproofing:

- (i) provide waterproofing to prevent moisture ingress to basement and crawlspaces below grade;

- (ii) use membrane waterproofing to prevent water ingress over suspended slabs and decks and associated walls over habitable spaces where water collection is anticipated;
  - (iii) use fluid-applied waterproofing for mechanical room floors;
  - (iv) provide waterproof membranes in exterior walls as part of the building envelope and integral with rain screen or cavity wall assemblies;
  - (v) dam the floor under key mechanical equipment in the mechanical rooms and mechanical shafts with a continuous curb and waterproofing to contain the water; and
  - (vi) provide floor drains.
- (c) Vapour Barriers:
- (i) prevent water vapour transmission and condensation in wall assemblies, roofing assemblies, and under concrete slabs-on-grade within the BC Hydro Offices perimeter by means of a continuous vapour barrier membrane.
- (d) Air Barriers:
- (i) prevent air leakage caused by air pressure across the wall and roof assembly by means of air barrier assemblies; and
  - (ii) provide air barrier assemblies that:
    - (A) limit air exfiltration and infiltration through materials of the assembly, joints in the assembly, joints in components of the wall assembly, and junctions with other building elements including the roof; and
    - (B) prevent air leakage caused by air pressure across the wall and roof assembly, including interruptions to the integrity of wall and roof systems such as junctions with dissimilar constructions.
- (e) Thermal Protection:
- (i) if applicable, provide rigid and semi-rigid thermal insulation as part of the building envelope to prevent the transfer of heat both from the interior to the exterior and vice versa, depending on seasonal conditions, and to resist the absorption of water;
  - (ii) use thermal protection materials of a type and quality that will provide consistent environmental quality to enclosed spaces;
  - (iii) minimum insulation values are to be determined by ASHRAE 90.1, either through the prescriptive method, or through energy modeling; and
  - (iv) design will consider the trade-offs associated with higher insulation values and overall, long term operating costs.
- (f) Roofing:
- (i) comply with the Roofing Contractors Association of British Columbia (RCABC) Guarantee Roof Star latest standards and requirements for a five (5) year Guarantee, as published in the Roof Star Roofing Practices Manual. Perform roofing quality inspections as required by the RCABC to obtain the RCABC warranty;

- (ii) comply with Roof Star Roofing Practices Manual “Acceptable Materials List,” including:
  - (A) flexible membrane for reflective roofs – Elastomeric or Thermoplastic (single-ply system), Energy Star compliant (highly reflective) and high emissivity (of at least 0.9 when tested in accordance with ASTM 408);
- (iii) if used, foamed plastic insulation will be CFC- and HCFC-free and comply with the province of British Columbia Ozone Depletion Substances Regulations;
- (iv) provide a complete horizontal barrier to weather;
- (v) roofing systems will include:
  - (A) flashings;
  - (B) thermal insulation;
  - (C) roofing specialties and accessories required for completion;
  - (D) protection from solar radiation; and
  - (E) roof drainage, including overflow scuppers;
- (vi) provide sheet metal flashings that divert water away from membrane flashing termination and protect the membrane from deterioration due to the exterior elements and mechanical damage. Provide flexible membrane sub-flashing continuously under the metal;
- (vii) metal roofing systems, if used, will be complete with continuous waterproof membrane as part of the assembly and provide clear internal paths of drainage to allow any trapped moisture to drain to the exterior and avoid the staining of architectural finishes, forming of puddles, forming of icicles, and dripping on pedestrians; and
- (viii) in designing the BC Hydro Offices, including any roof systems, ensure that entrance ways are protected from sliding snow and ice and that there are no accumulations of snow and ice in roof valleys.

(g) Fire and Smoke Protection:

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

(h) Sealants:

- (i) all sealants and sealant primers used on the interior of the BC Hydro Offices will be low VOC;
- (ii) apply sealant materials to:
  - (A) seal the building envelope systems and around openings in the building envelope systems as required to prevent water ingress;
  - (B) seal around and over cavities in or behind surface elements to allow effective hygiene control. Sealant around door frames must include joints at bottom of door frames between floor finish and frames;
  - (C) seal joints between dissimilar or similar materials to allow a smooth or even transitions; and
  - (D) seal expansion or controls joints in the building envelope systems or structural systems to allow movement;
- (iii) for the exterior use, sealants will completely and continuously fill joints between materials;
- (iv) for the interior use, sealants at frames such as those at doors, windows and skylights, to completely fill joints between dissimilar materials using one component, acrylic emulsion, paintable type;
- (v) use silicone caulking that is mildew-resistant and impervious to water for caulking washroom plumbing fixtures;

- (vi) use sealants with self-levelling properties for expansion and control joints in concrete floors using two-component epoxy urethane sealants;
- (vii) use non-sag sealants for exterior vertical expansion and control joints in masonry or wall cladding; and
- (viii) use sealants that allow for minimum twenty-five (25%) movement in joint width.

## 6.5 Cladding

### 6.5.1 Acceptable cladding materials include

- (a) Concrete & Precast Concrete.
- (b) Glass & Glazing.
- (c) Phenolic Panels.
- (d) Metal or Composite Aluminum Cladding.
- (e) Aluminum Curtain Wall.
- (f) Wood Cladding.

### 6.5.2 Phenolic Panels

- (a) Phenolic panels will be high density phenolic resin with acrylic resin finish.
- (b) Phenolic panels will comply with all applicable CSA standards.

### 6.5.3 Metal Cladding

- (a) Metal panel cladding can be integrated into aluminum curtain wall system or be a stand-alone system.
- (b) Metal panel will have baked enamel finish. Aluminum to be prefinished aluminum or baked enamel finish.
- (c) Maximum panel deviation (flatness) to be 3 mm (0.12 inches) in 1530 mm (60.2 inches) in any direction for assembled units (non-accumulative – no oil canning).

### 6.5.4 Wood Cladding

- (a) Wood cladding will comply with the *Wood First Act* (WFA) - (British Columbia) and all applicable CSA standards.

## 6.6 Openings

### 6.6.1 Basic Requirements

- (a) Except where wire glass is required, construct interior windows, sidelights and glazing forming part of doors of tempered glass. For exterior glazing at doors and sidelights, use laminated glass.

- (b) Installation methods and locations for doors, frames and hardware will conform to the standards of the Door and Hardware Institute.
- (c) Doors:
- (i) doors are to be sized, fabricated and installed to suit the intended function of the space or room requiring acoustic, visual privacy, security, special HVAC requirements, fire-resistance rated separations or other closures;
  - (ii) size requirements for doors:
    - (A) size door openings to accommodate movement of both people and equipment;
    - (B) provide door openings of adequate width to suit the intended purpose of rooms on either side of the doors and allow for the movement of people and equipment associated with those rooms;
    - (C) no single door will have a width of less than 750 mm (30 inches);
    - (D) no single door will have a height less than 2032 mm (80 inches) unless specifically required for access to services or other purposes where height is restricted; and
    - (E) Provide double doors into rooms where large pieces of equipment will be moved in or out and where said equipment cannot pass through a single 1200 mm (48 inch) wide opening;
  - (iii) doors may swing into BCHO User bathrooms, provided they allow for ease of BCHO Users. Equip such doors with appropriate hardware to allow the door to be opened out into the room in an emergency situation. Alternatively “barn type” sliding doors may be used for BCHO User bathrooms;
  - (iv) avoid doors swinging into corridors in a manner that may obstruct traffic flow or reduce the corridor traffic flow or to spaces that are used infrequently and are not subject to occupancy such as small closets;
  - (v) provide all doors with appropriate hinges, edge protection and face protection that minimizes damage and resulting disruptive maintenance;
  - (vi) provide doors and door frames with the capability to withstand the varying and high levels of humidity and impact that may occur within specific rooms and maintain their inherent aesthetic and functional capacities; and
  - (vii) BCHO Users staff room doors to the corridor will:
    - (A) use lever style door handle;
    - (B) equipped with lockable passage sets, mortise and accessible by key and access card swipe; and
    - (C) use compressible seals on sides of door frame.

(d) Windows:

- (i) size, configure, and adequately construct windows to suit rooms that require daylight, views and/or natural ventilation;
- (ii) provide non-operable windows in all BCHO Users rooms and spaces where acceptable for the functionality of the room or space;
- (iii) window framing systems will be thermally-broken and designed based on pressure equalized rain screen principles;
- (iv) coordinate glazing heights with adjacent wall protection, handrails, and other accessories to achieve functional and aesthetic cohesiveness; and
- (v) BCHO User staff room windows will:
  - (A) be thermo sealed with a frost break;
  - (B) have a R-value of 6.5 or better; and
  - (C) have horizontal slat mini-blinds with twist open/close mechanism.

6.6.2 Performance Criteria(a) Hollow Metal Doors and Frames:

- (i) materials and manufacture of hollow metal doors and frames will comply with the requirements of the Canadian Steel Door and Frame Manufacturer's Association (CSDFMA);
- (ii) provide interior metal doors with flush face construction;
- (iii) provide exterior metal doors with:
  - (A) flush face construction;
  - (B) edge seams that correspond with door function and minimize maintenance needed; and
  - (C) finishes that resist corrosion from exposure to weather;
- (iv) provide pressed metal frames or knock down expandable frames with:
  - (A) fully welded construction;
  - (B) thermally-broken door frames for exterior door; and
  - (C) each jamb anchored to suit wall type and to receive the frame.

(b) Door Glazing:

- (i) for exterior hollow metal door glazing, use sealed units with warm edge, in thermally-broken frames to prevent heat loss; and



- (ii) for interior hollow metal door glazing use tempered glass.
- (c) Wood Doors:
- (i) all wood doors will comply with all applicable standards, including the Quality Standards for Architectural Woodwork published by the AWMAC;
  - (ii) wood doors will have hardware and finishes that suit the intended function;
  - (iii) construct, finish, and install wood doors to minimize the requirement for maintenance and resulting disruption to BC Hydro Offices operations;
  - (iv) fire-resistance rated doors will have a homogeneous incombustible mineral core and meet AWMAC Quality Standards Option 5 blocking;
  - (v) install finish hardware securely to resist loosening over time. Fasten to solid wood backing, except where hardware is designed to be through-bolted; and
  - (vi) use paint grade hardwood veneer with AWMAC No. 3 edge, finish to suit the intended use.
- (d) Aluminum Entrances:
- (i) use aluminum doors within aluminum entrances;
  - (ii) use frames that are thermally-broken, flush glazed, aluminum sections, to accept insulating glass units;
  - (iii) incorporate in the frames a draining and venting system with a complete air and vapour seal which allows any moisture entering the frame to drain to the exterior and allowing air into the pressuring chamber;
  - (iv) use aluminum swing entrance doors that are heavy-duty commercial that may be automatically operated; and
  - (v) apply aluminum finish to exposed aluminum surfaces. Finish will be permanent and resistant to corrosion caused by weather exposure and climate.
- (e) Specialty Doors:
- (i) for fire doors, provide automatic closing device operated by fire door release device connected to fire alarm system.
- (f) Aluminum or PVC Windows:
- (i) aluminum windows will comply with all applicable standards, including the AAS and the AAMA field testing specifications;
  - (ii) incorporate in windows a draining and venting system complete with air and vapour seal, allowing any water entering the framing/system and the glazing detail cavities to drain to the exterior and also allow air into the pressuring chamber;
  - (iii) incorporate a thermal-break; and

(iv) for exposed aluminum surfaces, provide a finish that is permanent and resistant to corrosion resulting from weather exposure and climate.

(g) Skylights:

- (i) any skylights will comply with all applicable standards, including the AAS, and the AAMA field testing specifications;
- (ii) any skylight is to be sealed double glazed in thermally-broken, internally drained rain screen type extruded aluminum frames; plastic skylights are not to be used; and
- (iii) for exposed aluminum surfaces, provide a finish that is permanent and resistant to corrosion resulting from weather exposure and climate.

(h) Exterior Entrance Mat Wells:

- (i) provide a recessed, integrated mat well at major entrances with built in drainage.

(i) Glass and Glazing:

- (i) glass and glazing will comply with all applicable standards, including the Insulating Glass Manufacturers Association of Canada (IGMAC) Guidelines and the GCA Glazing Systems Specifications Manual;
- (ii) exterior and/or interior glass and glazing may be provided as integral components of the exterior envelope, interior partitions, exterior and interior doors, handrail balustrades, skylights and decorative and ornamental glazing;
- (iii) provide assemblies that resist local seismic conditions; and
- (iv) use laminated safety glass in any single-glazed skylights, entry doors and sidelights, or as the inboard light of a double-glazed skylight. Any single-glazed skylights are not to be used when separating interior and exterior environments.

(j) Finish Hardware:

- (i) finish hardware will comply with all applicable standards, including the quality standards of the DHI;
- (ii) finish hardware will be selected that has a useful expected life of at least ten (10) years;

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]



## 6.7 Finishes

### 6.7.1 Basic Requirements

- (a) Provide interior finishes that are capable of being maintained throughout a ten (10) year operating period.
- (b) In areas where finishes and associated systems will come into contact with water as part of cleaning or other procedures, allow water to collect and exit without causing damage to the finishes or substrate.
- (c) For areas where wear is a concern use durable finish materials able to withstand damage caused by pedestrian and wheeled traffic and that are easily replaceable/repairable if damaged.
- (d) Give priority to infection prevention and control in the selection of finishes in the food preparation area.
- (e) Acoustic characteristics of finish materials will be a priority consideration.
- (f) Select finish materials that do not use known carcinogenic material or chemicals in their manufacture or disposal.

### 6.7.2 Performance Criteria

#### (a) Interior Wall Framing:

- (i) interior wall framing will comply with all applicable standards, including the CSSBI and the AWCC Wall & Ceiling Specification Standards Manual for materials and workmanship for interior walls, including steel studs and furring and gypsum board ceiling suspension systems; and
- (ii) system design and components will meet seismic restraint requirements where applicable.

#### (b) Gypsum Board:

- (i) gypsum board will comply with all applicable standards, including the AWCC Wall & Ceiling Specification Standards Manual;
- (ii) performance specifications:
  - (A) gypsum board will be no less than 12.7 mm (1/2 inch) in thickness;
  - (B) type X rated gypsum board will be used in all areas requiring a one (1) hour (20 FSR) fire rating;
  - (C) gypsum board will be mold and mildew resistant and in wet areas. "Blue rock" or equivalent will be used; and
  - (D) utilize vinyl clad type X gypsum board or equivalent;

- (iii) when using ceramic wall tile in wet areas use cementitious backer board or glass mat water-resistant gypsum backing panels;
  - (iv) use vinyl battens to achieve a finished look;
  - (v) provide abuse-resistant gypsum board where needed to increase resistance to abrasion, indentation and penetration of interior walls and ceilings;
  - (vi) use glass mat surfaced gypsum sheathing board wherever exterior gypsum sheathing is required at exterior walls; and
  - (vii) provide airborne sound insulation for gypsum board/stud assembly to close off air leaks and flanking paths by which noise can go around the assembly:
    - (A) make assemblies airtight;
    - (B) do not locate back to back recessed wall fixtures such as cabinets or electrical, telephone and television outlets, which perforate the gypsum board surface;
    - (C) carefully cut any opening for fixtures to the proper size and appropriately seal piping penetration. Seal conduit/duct/piping penetrations with tape and fill at the plenum barrier;
    - (D) make the entire perimeter of a sound insulating assembly airtight to prevent sound flanking; and
    - (E) use an acoustic caulking compound or acoustical sealant to seal between the assembly and all dissimilar surfaces (including at window mullions) in accordance with the recommendations of an acoustic consultant.
- (c) Ceramic Tile:
- (i) any ceramic tile will comply with all applicable standards, including the TTMAC Specification Guide 09300 Tile Installation Manual;
  - (ii) in order to reduce opportunities for the spread of infection, avoid use of ceramic tile in the food preparation area;
  - (iii) provide control joints and expansion joints in conformance with the recommendations of the TTMAC Tile Installation Manual;
  - (iv) provide a waterproof membrane under ceramic floor and wall tile in showers and other wet areas. The membrane will be trowel-applied, built-up, liquid-applied or sheet-applied;
  - (v) provide crack isolation membranes to resist crack transmission from the substrate due to lateral movement;
  - (vi) use elastomeric sheets or trowel-applied materials suitable for subsequent bonding of ceramic tile; and
  - (vii) set ceramic tile with latex modified mortar and grout with epoxy grout.

(d) Acoustic Tile Ceilings:(i) *General:*

- (A) install any acoustic ceiling tiles, in a suspension system, that provide sound attenuation required to suit the intended function of the room;
- (B) all acoustic tile ceilings used in spaces which do not have special cleaning, maintenance or environmental needs will have a noise reduction co-efficient of 0.80;
- (C) provide accessibility to the ceiling spaces where access is required to mechanical, electrical or other service systems;
- (D) special surface-treated ceiling tiles, such as Mylar, vinyl-faced or metal-faced tiles, may be used where maintenance and ease of cleaning are priorities as well as the accessibility and acoustic requirements;
- (E) provide acoustical panels that are appropriate for the internal design temperature of 20° C (68° F) and maximum seventy percent (70%) relative humidity. If these parameters are expected to be exceeded, consider use of acoustical units specifically designed for such applications; and
- (F) use ceiling tiles with scratch-resistant surfaces in any area where lay-in ceiling panels frequently need to be removed for plenum access.

(ii) *Performance Specifications*

- (A) fine textured finish;
- (B) anti-microbial;
- (C) sag resistant;
- (D) Class A flame spread rating;
- (E) light reflectance coefficient greater than 0.80;
- (F) ceiling attenuation class rating greater than 40, where applicable; and
- (G) noise reduction coefficient greater than 0.70, where applicable.

(e) Hard Ceilings:

- (i) in rooms where a fire rating is not required, construct hard ceilings of 16 mm (5/8 inch) gypsum board;
- (ii) in rooms where a fire rating is required the thickness of the gypsum board is to be determined by the fire rating required; and
- (iii) provide hard ceilings for the following rooms: BCHO User staff rooms and washrooms.

- (iv) *Access Panels:*
  - (A) where hard ceilings are used, provide access panels to allow for mechanical and electrical servicing in the ceiling; and
  - (B) access panel will be prefinished in the same manner as the adjacent ceiling surface.
- (f) Flooring General Considerations:
  - (i) comply with all applicable standards, including the NFCA Specification Standards Manual and US Federal Specification RR-T-650d;
  - (ii) in selecting flooring materials, consider cleaning and maintenance, pedestrian and rolling traffic, acoustics and aesthetics;
  - (iii) use heavy-duty materials for flooring on which wheeled or service vehicle traffic is anticipated and where wear and damage may result;
  - (iv) where epoxy flooring is used in wet areas, use water and slip-resistant grade and prevent water or moisture transmission to the substrate;
  - (v) form coved bases 150 mm (4 inches) high, straight cut, finished with clear silicone caulking. Do not cap;
  - (vi) use permanent, heavy-duty integral materials such as seamless epoxy quartz flooring for flooring in areas subject to moisture and heat over extended periods of time;
  - (vii) use water resistant and slip-resistant flooring in Common Areas, staff washrooms and BCHO User washrooms;
  - (viii) consider resilient tile products for flooring in service corridors and service areas; and
  - (ix) use anti-static flooring material for telecommunication rooms.
- (g) Flooring Performance Specifications:
  - (i) static coefficients of friction of not less than 0.50 for dry and not less than 0.93 for wet or greasy conditions per the ASTM;
  - (ii) *Carpets and Carpet Tiles:*
    - (A) roll carpet or carpet squares may be used;
    - (B) carpet will be anti-microbial and stain resistant;
    - (C) minimum face weight of 0.68 kg per square meter (20 ounces per square yard);
    - (D) durability rating greater than four (4); and
    - (E) minimum of 6.35mm (¼ inch) pad will be used under carpeted areas.

(h) Acoustic Treatment:(i) *Performance Specifications*

- (A) B FSTC rating of not less than 50 for interior walls, where required; and
- (B) C FSTC rating of not less than 50 for ceiling/floor interfaces.

(i) Painting and Protective Coatings:

## (i) use low emitting materials, paints and coatings (low VOC);

(ii) *Walls, Doors and Shelving*

- (A) use eggshell or semi-gloss for all walls, doors and painted shelving;

(iii) *Door Frames and Metal Doors*

- (A) use semi-gloss for all door frames and metal doors;

(iv) *Wood Finished Doors*

- (A) use clear coat interior rub varnish for all wood finish doors;

(v) *Paint Grade Doors*

- (A) use semi-gloss for all paint grade doors;

(vi) *Ceilings:*

- (A) use eggshell paint for all painted ceilings;

## (vii) conform to all applicable standards, including the material and workmanship requirements of MPI Architectural Painting Specification Manual;

## (viii) use exterior paints of a quality designed to protect substrate materials from weather and climate conditions;

## (ix) use exterior and interior finish materials with surface finishes either as integral to the finish material or field-applied separately to the surface of the finish material;

## (x) provide a special protective coating on exterior and interior materials that are subject to corrosion from exposure to moisture or other corrosive agents, and where painting is deemed to be insufficient protection. Materials requiring a special protective coating include exterior and interior structural, galvanized, and miscellaneous steel; and

## (xi) if seamless epoxy wall coatings are used, provide a two-component, high solids, zero or low VOC, solvent-free, epoxy glaze wall coating that is seamless and abrasion, chemical, and UV-resistant.

(j) Vinyl Acrylic Wall Covering:

- (i) if vinyl/acrylic covering is used, provide vinyl/acrylic high impact rigid sheet gypsum board, nominal 10 mm (0.40") thickness with colour-matched vinyl/acrylic trim for

joint/transitions. 5/16" thick vinyl covered gypsum board is acceptable as a second decorative layer; and

- (ii) furnish complete packaged system containing all primers and adhesive. Use non water-based and non-hazardous primer and adhesive materials.

(k) Dry Erase Wall Covering:

- (i) provide as required throughout the BC Hydro Offices pigmented gloss vinyl wall covering presentation surfaces for dry erase markers; and
- (ii) provide trim and other accessories including but not limited to wall covering trim of anodized aluminum, low profile trim, plastic marker dispensers, dry erase markers (set of 4 colours), low odour, and eraser, magnets, cleaner towels.

6.8 Specialties

6.8.1 Basic Requirements

- (a) Provide specialty products manufactured for the specific purposes intended.

6.8.2 Tackboards and Whiteboards

- (a) Provide, as required:

- (i) tackboard surfaces that allow pin penetration of the surface materials and have reasonable resistance to deterioration; and
- (ii) use whiteboard surfaces that allow use of felt-type writing instruments and allow erasing/cleaning with minimal effort. Use porcelain ceramic on steel surface, magnetic, scratch and abrasion-resistant and have maximum contrast, glare control, and reflectivity.

- (b) Provide tackboards and whiteboards with extruded aluminum frames, accessory trays, map rails and map hooks.

- (c) Use non-toxic, water based lamination adhesive for tackboards and whiteboards.

6.8.3 Projection Screens

- (a) Provide, as required, projection screens mounted from recesses in ceilings or wall mounted.
- (b) Provide supports and power as required to coordinate with mobile or fixed projector units, including ceiling mounted projectors.
- (c) Provide for trims and finishes compatible with the design of the rooms.

6.8.4 Compartments and Cubicles

- (a) Provide compartments and cubicles including toilet partitions, change cubicles, and other compartments and cubicles requiring privacy and security.
- (b) Provide exposed surfaces that are permanent, water-resistant, corrosion-proof, and readily cleaned and maintained.



- (c) Secure partitions and standards to the floor or ceiling structure, and in a manner to resist lateral loading and impact.
- (d) For compartment/cubicle doors, use material matching the partitions and include permanent, purpose-made hardware. Design doors and hardware to provide barrier-free access.

#### 6.8.5 Toilet Partitions Composition

- (a) For galvanized sheet: conform to ASTM A653 with minimum ZF001 (A01) zinc coating. Finish in polyester, baked enamel or powder coating.
- (b) For stainless steel: use Type 304 conforming to ASTM A240 with No. 4 finish.
- (c) For plastic laminate: use Grade 10/HGS GP50, scuff-resistant, high pressure laminate that conforms to NEMA LD-3.
- (d) For fibre-reinforced plastic (fibreglass): use a moisture resistant grade.
- (e) Avoid use of particleboard core partitions.

#### 6.8.6 Storage Shelving Systems

- (a) Provide storage systems for materials in designated storage areas.

#### 6.8.7 Washroom Accessories

- (a) Provide washroom accessories as specified below. Determine the type, size, and number of accessories and placement on walls with regard for the numbers and categories of users.
- (b) Install washroom accessories to allow cleaning and maintenance of the accessory and surrounding wall area.
- (c) Recessed dispensers will not be used e.g., paper towels, soap.
- (d) Use commercial grade accessories free from imperfections in manufacture and finish.
- (e) Use fittings with concealed fastening for security and discouragement of tampering.
- (f) BCHO User washrooms will include the following:
  - (i) low flow toilet no greater than 6.0 litres (1.6 gallons) per flush;
  - (ii) low flow faucets no greater than 5.7 litres (1.5 gallons) per minute;
  - (iii) in male restroom, urinals will be wall-hung and low-consumption with electric hands-free flush valve operation;
  - (iv) soap dispensers – “hands free” type;
  - (v) toilet paper dispensers;
  - (vi) paper towel dispensers – “hands free” type;
  - (vii) paper towel/waste disposal containers built into countertop;

- (viii) mirrors;
- (ix) barrier-free grab bars (with integral tactile grip finish);
- (x) coat hooks;
- (xi) sanitary napkin dispensers in female washrooms;
- (xii) sanitary napkin disposals in female washrooms; and
- (xiii) utility shelf.

## 6.9 Equipment

### 6.9.1 Equipment Supports

- (a) Provide equipment supports for equipment with proper backing and structural reinforcing as needed.

## 6.10 Furnishings

### 6.10.1 General

- (a) Provide and install all millwork and casework accessories as required to support the programs and functions described in these Specifications or as required to support the operation of the BC Hydro Offices.
- (b) Furnishings will be designed and specified in accordance with all appropriate ergonomic design principles and will also meet minimum criteria set out in the Occupational Health and Safety Regulations and the Ergonomics (MSI) Requirements of Work Safe B.C.
- (c) The BC Hydro Offices and its components must be accessible by people with different functional capacities. Universal design principles will be applied in the design and planning to ensure the furnishings are usable by all people without the need for specialized design or adaptation. Counters, desks, and work surfaces in non-office areas will include wheelchair access.
- (d) Products, including foam and upholstery, will be fire retardant.

### 6.10.2 Millwork and Casework

- (a) Design will consider a minimum useful life of ten (10) years.
- (b) Millwork or casework means custom fabricated wood, thermafoil wrapped MDF or metal cabinetry/counter components and accessories that are installed with little or no modification. Millwork and casework may be used interchangeably.
- (c) Millwork or casework components can include but are not limited to work surfaces (such as counters, desks and work benches) and storage (such as cabinetry, files, drawers and cabinets). Typical applications will include: BCHO User staff rooms, kitchen, and other rooms.
- (d) Provide the following as millwork/casework:
  - (i) kitchen food preparation and delivery: counters, upper and lower cabinets, dry food storage, drawers and shelving;

- (ii) utility, housekeeping and storage cabinetry and shelving;
  - (iii) reception station;
  - (iv) training room, meeting room storage, cabinetry; and
  - (v) any other millwork/casework required to deliver the Services to the BC Hydro Offices.
- (e) Performance Specifications:
- (i) *General:*
    - (A) products suitable for commercial use;
    - (B) exposed components to be hardwood or thermafoil wrapped MDF, select quality, free of visual defects which impair appearance/serviceability;
    - (C) plywood or MDF acceptable for the substrate under high pressure laminate or equivalent for horizontal surfaces;
    - (D) all materials used in the fabrication will be new and the best grade obtainable for their respective types;
    - (E) all materials and components must be suitable for use in the climate where the BC Hydro Offices are located, impervious to damage from cold, dryness and heat and not subject to rusting, corrosion, mildew, rot, de-lamination, cracking, warping or splitting;
    - (F) for hardwood construction: (a) all joints will be glued, screwed and bolted; and (b) corner blocks will be glued and screwed;
    - (G) for thermafoil wrapped MDF construction, all joints will be doweled and glued;
    - (H) all supportive hardware will not be visible;
    - (I) drawers to have side mounted full extension ball bearing glides. Quality to be "Accuride" or better;
    - (J) exposed finishes to be heat and stain resistant;
    - (K) finishes will conform with AWI Finish System #TR-6. Thermafoil wrapped MDF construction/product is exempt from this requirement;
    - (L) all hardwood surfaces are to be sanded and cleaned to remove dust and loose particles prior to sealing and finish application; and
    - (M) finishes and lacquers are to be sprayed for maximum coverage and colour continuity.

### 6.10.3 Furniture

- (a) Provide and install all furniture and accessories as required to support the programs and functions described in this Schedule 29 [BC Hydro Offices – Specifications and Drawings] or as required to support the operation of the BC Hydro Offices.

(b) Furniture includes:

- (i) Desks with lockable drawers, tables & chairs in reception and as requested in the BCHO Users staff room (including kitchen area and soft seating lounge); and
- (ii) Lockable filing cabinets and bookcases.

(c) Durability:

- (i) activity, waiting, and dining room furniture will be engineered for high traffic use; and
- (ii) BCHO Users staff room furniture will be tested to ensure durability and function for the anticipated BCHO Users profile.

(d) Cleaning and Ease of Maintenance:

- (i) the size, shape, and design of the furniture will allow easy access for cleaning; and
- (ii) materials, upholstery, and finishes will be capable of withstanding institutional grade detergents, cleaners, and disinfectants with no effect on the appearance, integrity, or life of the product. Selection should be based on the understanding of the principles of decontamination and maintenance requirements and able to withstand multiple applications of diluted disinfectants over time.

(e) Comfort, Ergonomics, and Safety:

- (i) reception furniture will be designed to promote comfort;
- (ii) seating will have the stability to assist the BCHO Users in entering and exiting the chair;
- (iii) all items of furniture will be stable and will not move or tip over when touched by a person requiring support;
- (iv) furniture will not constitute a hazard for persons with varying abilities and disabilities;
- (v) back support will be provided on seating pieces, through the use of a high or mid back, to provide adequate back support to various populations;
- (vi) task seating will be ergonomically correct with respect to the seat height and pan depth. Task seating will be height adjustable, with height adjustable lumbar support to maintain correct body alignment, adjustable back rest tilt, adjustable seat pan depth, height, width, and swivel adjustable armrests. The seat pan will have a waterfall edge on the seat pan or a radius front seat cushion to avoid restriction of circulation to the lower legs; and
- (vii) training/meeting room seating will have a backrest recline function, be stackable, mobile, cleanable and durable.

(f) Seating:

- (i) *BCHO Users Staff Room*
  - (A) desk chair: padded ergonomically adjustable chair on wheels designed to handle a static load of 158 kg (350 pounds).

(g) Office Workstations:

- (i) *Height:* allow leg clearance and movement under the work surface and keyboard to be placed at 720 mm (28.5 inches);
- (ii) *Depth:* allow room for keyboard, document holder between the keyboard and monitor and monitor positioned for comfortable viewing 760 mm (30 inches). Additional depth may be required depending on the tasks completed at the workstation;
- (iii) *Width:* to accommodate two 27 inch width monitors, keyboard and mouse, telephone, writing and reading areas 1,524 mm (60 inches). Additional width depending on tasks completed at the workstation and less width for “drop in” workstations; and
- (iv) any “smart” or “hardwired” desks will be fully coordinated for proper circuitry and any other building requirements.

(h) Filing / Storage:

- (i) filing is for legal filing, unless specified otherwise. In order to maximize filing capacity, files will be set up for side-to-side filing;
- (ii) during installation, the conversion parts of the files will be left in the file to allow for front-to-back / side-to-side conversion at a later time; and
- (iii) filing will be equipped with hanging frames at the time of installation.

(i) Performance Specifications:

- (i) *General:*
  - (A) suitable for /commercial use; and
  - (B) at a minimum meet California Technical Bulletin #117 and NFPA 260 standards.
- (ii) *Upholstery:*
  - (A) smooth and tight, no puckering of fabric;
  - (B) be seamless where possible or have double stitched seams located on the non-contact areas of the furniture or sealed;
  - (C) upholstered furniture will be covered with fabrics that are fluid-resistant, non-porous and can withstand cleaning with industrial grade chemicals;
  - (D) interior components seat: Tight cushion with poly wrapped Dacron foam core with twenty-nine (29) kg per cubic meter (1.8 lb. per cubic foot) density encased in polyurethane foam and wrapped polyester fibres. Polyurethane seat foam has 44 lb. indentation load deflection and forty-eight (48) kg per cubic meter (3 lb. per cubic foot) density;
  - (E) interior components back: Tight cushion with poly wrapped Dacron foam core with 1.8 lb. per cubic foot density encased in polyurethane foam and wrapped polyester fibres. Polyurethane seat foam has 11.3 kg (25 lb.) indentation load deflection and forty-eight (48) kg per cubic meter (3 lb. per cubic foot) density;

- (F) be impermeable to water and quick-drying;
  - (G) seating will have removable seat cushions for cleaning and/or “clean-out” spaces between the seat and back for lounge seating applications;
  - (H) be anti-microbial, and/or have anti-microbial inhibitor technology;
  - (I) have a good abrasion rating for high-use areas (with a minimum of 100,000 DR (ASTM D4157-02 Wyzenbeek Test Method));
  - (J) have a high-rating for colour-fastness, exceeding forty (40) hours (AATCC Method 16A);
  - (K) be stain-resistant;
  - (L) be latex-free;
  - (M) have low VOC's;
  - (N) contain no heavy metals;
  - (O) have no HFR's and/or PFC's; and
  - (P) have limited use of PVC's, avoiding use of PVC's where possible.
- (iii) *Construction:*
- (A) the quality and make of the product (its construction, finish materials, and maintenance requirements) will be designed for intense use;
  - (B) products with replaceable components are preferred;
  - (C) seat deck is to be eight (8) gauge hand tied steel coil spring support Interior components;
  - (D) back deck will contain sinuous wire springs;
  - (E) joints will be double doweled, corner blocked, gusseted with rails as appropriate, assembled with screws, T-nails and resin coated staples after a generous glued application;
  - (F) material and methods of assembly will comply with the American Woodworking Institute (AWI) Premium Grade Requirements;
  - (G) material and components must be suitable for use in the climate where lodging, impervious to damage from cold, dryness and heat and not subject to rusting, corrosion, mildew, rot, de-lamination, cracking, warping or splitting;
  - (H) materials used in the fabrication will be new and the best grade obtainable for their respective types;
  - (I) exposed components to be hardwood, select quality, free of visual defects with impair appearance/service-ability. Wood to be fully seasoned, Kiln dried to moisture content of five to seven percent (5-7%). Parts to be sanded with no defects; and

- (J) have glides suitable for floor surface where installed.
- (iv) *Finishes:*
  - (A) conform with AWI Finish System #TR-6;
  - (B) exposed finishes to be heat and stain resistant;
  - (C) all surfaces are to be sanded and cleaned to remove dust and loose particles prior to sealing and finish application; and
  - (D) finishes and lacquers are to be sprayed for maximum coverage and colour continuity. Any highlighting, antiquing or distressing to be done by hand.

#### 6.10.4 Accessories

- (a) Provide and install all furniture and accessories as required to support the programs and functions described in this Schedule 29 [BC Hydro Offices – Specifications and Drawings] or as required to support the operation of the BC Hydro Offices.

#### 6.10.5 Window Coverings

- (a) Blinds should be selected to provide optimum privacy, sun and heat control, be easy to clean, not prone to electrostatic charge.
- (b) Window coverings will allow control of exterior light entering the room during daylight hours.
- (c) Window coverings will provide privacy in the labour relations office.
- (d) Use window coverings manufactured from materials and mechanisms that minimize cleaning and maintenance operations.

## WORKER ACCOMMODATION PROJECT AGREEMENT

### SCHEDULE 29, PART 7

#### BC HYDRO OFFICES – SPECIFICATIONS AND DRAWINGS

#### **7 FACILITIES SERVICES SUBGROUP SPECIFICATIONS**

##### 7.1 Mechanical Systems Design Principles

Intentionally left blank.

##### 7.2 Fire Suppression

###### 7.2.1 Fire Protection

###### (a) Basic Requirements:

- (i) provide a sprinkler system and equipment that is designed for the applicable occupancy classification;
- (ii) provide a standpipe hose system and equipment that is designed for the applicable occupancy classification;
- (iii) provide a double check valve assembly on the sprinkler system take-off connection from the water supply. The assembly will be complete with OS&Y gate valves on both sides and tamper proof switches;
- (iv) provide a fire pump system, if required, to meet the water pressure and flow requirements;
- (v) provide dry type sprinkler heads and/or a dry type sprinkler system in areas that may be subject to freezing temperatures;
- (vi) sprinkler heads in areas subject to vandalism will be vandal proof;
- (vii) provide portable fire extinguishers selected and located for the applicable occupancy classification in accordance with NFPA 10 - Portable Fire Extinguishers;
- (viii) provide fire extinguishers complete with fully recessed cabinets. Each fire extinguisher will be located within the space it serves, and will be sized and have the required hazard classification for that space. Do not use water extinguishers or other limited types. At Project Co's election, fire extinguishers in mechanical and electrical rooms may be surface mounted;
- (ix) coordinate fire extinguisher locations with BC Hydro or the governmental authority having jurisdiction during design; and
- (x) provide zone shut-off valves that are readily identifiable and accessible from the floor level, but not located in BCHO User staff rooms. Zone valves will be located within the zone served.



(b) Performance Criteria:

- (i) provide fire department connections in a method and at locations that are approved by BC Hydro;
- (ii) all equipment will be CSA or ULC approved;
- (iii) equipment installation will comply with manufacturers' requirements; and
- (iv) fire protection systems and equipment will be installed, tested and certified by a qualified and licensed contractor, who is regularly engaged in such installations.

7.3 Plumbing

7.3.1 WAA Services

(a) Basic Requirements:

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

(b) Performance Criteria:

- (i) water delivered to the BC Hydro Offices will meet the water quality requirements of all applicable standards and Laws, including the British Columbia Drinking Water Protection Regulation and the requirement of the Guidelines for Canadian Drinking Water Quality; and
- (ii) provide approved meters for domestic water and natural gas/propane. The meters will be used to accurately measure water flow and natural gas/propane consumption in all flow conditions.

7.3.2 Domestic Hot Water Systems

(a) Basic Requirements:

- (i) [REDACTED]

- (ii) [Redacted]

7.3.3 Plumbing Distribution Systems

(a) Basic Requirements

- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]

(b) Performance Criteria

- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]

7.3.4 Plumbing Fixtures

(a) Basic Requirements:

- (i) provide fixtures as described in this Schedule 29 [BC Hydro Offices - Specifications and Drawings] and as needed to comply with all applicable codes and regulations;
- (ii) Fixtures selected must have proven acceptable in performance from previous installations in similar facilities to the BC Hydro Offices;

- (iii) select all sink basin and faucet combinations to minimize the potential for splatter and contamination. Ensure the faucet does not discharge directly into the drain;
  - (iv) washroom, hand washing, janitor and hand hygiene sinks will be equipped with overflow drains or floor drains;
  - (v) barrier-free plumbing fixtures, fittings, and carriers will be provided as required;
  - (vi) the toilet bowl must be designed to accommodate the flow of the flush valve. Toilet bowls will not splash or spray water onto the toilet rim or anywhere outside the toilet bowl and will be designed to minimize the aerosolization of the toilet contents;
  - (vii) provide lids for all toilets. Ensure all flush valve operators extend above the height of the open lid;
  - (viii) urinals will be wall-hung and low-consumption with electronic hands-free flush valve operation;
  - (ix) BCHO Users washroom lavatory fixtures will be sensor activated;
  - (x) equipment cleaning sinks and other utility sinks will be made of stainless steel with blade handle faucets with a gooseneck spout. Sinks will be large and deep to accommodate proper washing of equipment. Materials and piping will be suitable for the intended application of the sink;
  - (xi) provide suitable quantities of janitors' sinks, hose bibs and drinking fountains with bottle fillers to provide sufficient service to the BC Hydro Offices:
    - (A) locate a drinking fountain with bottle fillers in or near BCHO User staff rooms; and
  - (xii) provide all required services, connections and accessories to the equipment.
- (b) Performance Criteria:
- (i) provide accessible clean-outs for all sinks and lavatories above the flood-level rim of the sink;
  - (ii) the following applies for all electronic sensor activated fixtures:
    - (A) the duration of sensor faucet flow will be adjustable. All sensors will be able to operate for a minimum of thirty (30) seconds without interruption of flow, to facilitate proper hand washing. Sensors will turn off automatically when hands are no longer in the sensor range; and
    - (B) the domestic hot water recirculation system will be connected to the fixture's hot water no further than 3 m from the fixture shut-off at the wall;
  - (iii) provide water hammer arresters as required to effectively arrest water hammer; and
  - (iv) if system pressure exceeds the acceptable delivery pressure, then provide pressure reducing valves. Place the reducing valves in accessible locations.

7.3.5 Plumbing Drainage and Venting Systems

(a) Basic Requirements:

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

7.4 Heating, Ventilating and Air Conditioning

7.4.1 Design

- (a) [REDACTED]
- [REDACTED]
- [REDACTED]

7.4.2 Heating Plant

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

7.4.3 Cooling Plant

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

7.4.4 Space Heating and Cooling

(a) Basic Requirements:

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]

(b) Performance Criteria:

- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]

7.4.5 Ventilation

(a) Basic Requirements:

- [Redacted]
- [Redacted]
- [Redacted]

█ [REDACTED]

(b) Performance Criteria:

- (i) provide Indoor Air Quality (IAQ) plans that meet ASHRAE 62.1, ASHRAE 62.2 and the Worker Accommodation’s IAQ requirements;
- (ii) all equipment for supply air, return air and general exhaust systems that will be located exterior to the BC Hydro Offices will be designed and constructed to withstand exposure to outdoor conditions;
- (iii) make allowances in duct sizing and equipment selections to provide flexibility for future changes in spaces;
- (iv) provide drainage for low points of fresh air intakes, cooling coil drain pans, air handling units, duct mounted humidifiers, ductwork, and all other interconnected components to prevent moisture or contaminants from collecting within the system. Provide sufficient access panels to allow for inspection and cleaning;
- (v) in accordance with ASHRAE 62, ASHRAE 62.2, and NFPA 96 a, fresh air intakes will be located so that they don’t capture contaminants from outdoor sources including, but not limited to, exhaust from adjacent buildings and vehicles. All intakes will be located in areas that are not accessible by the BCHO Users; and
- (vi) provide seismic mitigation and building separation devices for all ductwork that crosses buildings and/or utility corridors.

7.4.6 Exhaust Systems

(a) Basic Requirements:

- █ [REDACTED]
- █ [REDACTED]

7.4.7 Fire Dampers

- █ [REDACTED]
- █ [REDACTED]

7.4.8 Metering Requirements for Energy Measurement and Verification

- (a) Provide meters on all services connected to the BC Hydro Offices.
- (b) Provide all required meters, sensors, and trend logging equipment within the BC Hydro Offices to meet the energy monitoring requirements.

#### 7.4.9 Sound Attenuation and Vibration Isolation

- (a) Mechanical systems will prevent sound and vibration transmission between spaces, prevent transmission from mechanical equipment to the spaces, and minimize sound and vibration transmission to the outside of the BC Hydro Offices.
- (b) Provide vibration isolation devices on all equipment with rotating components.
- (c) All hung equipment will utilize spring isolators designed for the weight and vibration characteristics of the equipment.
- (d) Provide flexible connections where needed to isolate mechanical equipment sound and vibration from ducting, piping and electrical wiring systems.
- (e) Ensure duct silencers meet or exceed the requirements of the ductwork for cleanliness and inspection.
- (f) Utilize internal duct insulation coated to prevent fibre erosion at air velocities up to twenty-five (25) m/sec (82 f/s).

#### 7.4.10 Testing, Adjusting, Balancing (TAB) and Commissioning (Cx)

- (a) Without limiting Project Co's commissioning obligations, Project Co will:
  - (i) perform Testing, Adjusting and Balancing and Commissioning (TAB & Cx) of all mechanical equipment in accordance with ASHRAE Guideline 1.1 and Standard 111;
  - (ii) integrate the TAB & Cx into the Work Program and Schedule. Configure the TAB & Cx plan so it will support a phased occupancy of the BC Hydro Offices, if required by construction conditions;
  - (iii) utilize a quality assurance system throughout the TAB & Cx process to ensure that TAB & Cx has been performed to all equipment and systems requiring TAB & Cx. Demonstrate the quality assurance system to BC Hydro prior to beginning TAB & Cx;
  - (iv) ensure any construction or installation errors are identified and remedied prior to the start of Cx functional testing;
  - (v) perform follow-up TAB & Cx services during each season over the first year of the BC Hydro Offices' operation;
  - (vi) make all TAB & Cx reports available to BC Hydro. The reports will identify how much additional capacity is available for in all systems; and
  - (vii) retain complete records of all TAB and Cx data.

### 7.5 Electrical

#### 7.5.1 Wiring Methods, Materials and Devices

- (a) All power receptacles will be identified if they are controlled.
- (b) Provide HDMI cable from the projector to the millwork for the computer.



(c) Basic Requirements

- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
  - [Redacted]
  - [Redacted]
- [Redacted]

(d) Performance Criteria:

- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]

(e) Minimum Receptacle Requirements:

- [Redacted]

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

7.5.2 Raceways

(a) Basic Requirements:

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
  - [REDACTED]
  - [REDACTED]
  - [REDACTED]
  - [REDACTED]
  - [REDACTED]
  - [REDACTED]
- [REDACTED]
- [REDACTED]

(iv) indicate the location of conductors encased or embedded in concrete or masonry by conspicuous permanent markers set in the walls, floors, or ceilings. Markers will indicate

[Redacted]

(b) Performance Criteria:

- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]

7.5.3 Electrical Utilities

(a) Site Requirements:

- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]

(b) Basic Requirements:

- [Redacted]
- [Redacted]
- [Redacted]

(c) Performance Criteria:

- [Redacted]
- [Redacted]

7.5.4 Service Switchgear – Over 600 Volts

(a) Basic Requirements:

- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]

7.5.5 Uninterruptible Power Supply (UPS) Systems

(a) Basic Requirements:

- [Redacted]
- [Redacted]

(b) Performance Criteria:

- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]

█ [Redacted]

7.5.6 Distribution Equipment – 600 Volts and below

(a) Basic Requirements:

█ [Redacted]

(b) Performance Criteria:

- █ [Redacted]
- █ [Redacted]
- █ [Redacted]
- █ [Redacted]
- █ [Redacted]
- █ [Redacted]
- █ [Redacted]
- █ [Redacted]
- █ [Redacted]
- █ [Redacted]

7.5.7 Metering

(a) Basic Requirements:

█ [Redacted]

- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]

(b) Performance Criteria:

- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]

7.5.8 Grounding and Bonding

(a) Basic Requirements:

- [Redacted]

(b) Performance Criteria:

- [Redacted]

7.5.9 Seismic Requirements for Electrical Systems

(a) Basic Requirements:

- (i) provide seismic restraint for all electrical equipment and components of electrical systems;
- (ii) provide seismic restraint systems and methods that facilitate ease of maintenance and ease of replacement and reconfiguration of electrical equipment and systems and other equipment and building components; and
- (iii) provide seismic restraint systems and methods that coordinate with the BC Hydro Offices architecture and finishes. Wherever practicable, conceal components of seismic restraints from BCHO Users view. Where concealment is not practicable, provide systems that complement the BC Hydro Offices architecture and finishes.

(b) Performance Criteria:

- (i) provide seismic support for all electrical equipment and components of electrical systems that have the potential to cause injury or damage during or following a seismic event.

7.5.10 Power Quality

(a) Basic Requirements:

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

7.5.11 Lighting

(a) Basic Requirements:

- (i) the lighting installed will meet the requirements this Schedule 29 [BC Hydro Offices - Specifications and Drawings];
- (ii) lighting systems will accommodate the needs of staff and visitors, and will support the visual tasks being performed and the desired appearance of the space;
- (iii) provide complete lighting solutions which align with the requirements and recommendations of the IESNA Lighting Handbook for the specific tasks performed;
- (iv) provide lighting controls with flexibility to adjust lighting to suit functions and activities and permit simple and integrated control of lighting. Design controls to be easily operated and conveniently and appropriately located for each area and function;
- (v) lighting controls will comprise a significant part both of the energy management of the BC Hydro Offices and of the flexibility required to adjust lighting to suit functions and activities;
- (vi) provide lighting controls that meet the BC Building Code and ASHRAE 90.1;
- (vii) provide luminaries which are easily maintainable e.g., accessible components, quick change capability; and
- (viii) provide luminaries which minimize accumulation of dust and debris and locate luminaries such that they are easily cleaned and of suitable construction to withstand chemical cleaning.

(b) Performance Criteria:

- (i) provide luminaries that require minimal cleaning and permit practical and easy access and disassembly. All lighting components will be commercial grade;
- (ii) the use of LED lighting is encouraged. Where LED is not used, utilize fluorescent lighting. Use high efficiency electronic fluorescent linear T8 and T5 lamps when possible. Do not use incandescent lighting unless otherwise indicated in this Schedule 29 [BC Hydro Offices - Specifications and Drawings];
- (iii) minimize use of battery-operated unit emergency lighting. Battery-operated emergency lighting may be an acceptable alternative as a second level of emergency lighting in areas including emergency power distribution rooms and mechanical areas;
- (iv) utilize low glare, recessed indirect LED or fluorescent luminaries specifically design to eliminate indirect glare in offices, reception areas and other areas where computer terminals and similar screens are available;
- (v) design lighting in corridors to limit glare;



- (vi) design lighting in technology conference rooms and audio/video conferencing facilities to maximize viewing of monitors and screens and provide suitable illumination for people being viewed;
- (vii) utilize vandal resistant and dark sky compliant exterior luminaries. All luminaries will be either ceramic metal halide or LED type;
- (viii) utilize LED type exit signs;
- (ix) protect lighting controls from unauthorized operation;
- (x) design all lighting in administration areas to be capable of being switched from a central location;
- (xi) in open areas and corridors, zone and subdivide lighting to permit energy management and appropriate control and variation of light levels;
- (xii) integrate controls in audio/video conference rooms and meeting rooms with equipment controls and control stations in the room so that the lighting can be varied as required for different activities. Provide a minimum of two (2) levels of lighting control;
- (xiii) provide manually operated lighting controls of a type, which can be completely cleaned and disinfected without requiring any disassembly, and which will not deteriorate or be otherwise adversely affected by frequent cleaning and disinfection;
- (xiv) install specifically rated lighting controls for the application/condition in locations where they may be subjected to excessive moisture or to chemicals that might cause deterioration;
- (xv) utilize occupancy sensors and daylight control systems to maintain light levels at appropriate levels based upon the occupancy of the room and the quantity of daylight. This will include dual technology occupancy sensors in offices, meeting rooms, restrooms, support spaces, and storage rooms and daylight control systems at perimeter rooms where daylight contribution is significant. Occupancy sensors will have manual override capability to enable full control by occupant; and
- (xvi) provide a time clock, photocell and contactors with HOA switch for control of site lighting.

7.5.12 Mechanical Equipment Connections

(a) Basic Requirements:

- [REDACTED]
- [REDACTED]

(b) Performance Criteria:

- [REDACTED]

■ [Redacted]

■ [Redacted]

7.5.13 Specialty Systems

(a) Basic Requirements:

(i) special electrical and communications systems are required in the BC Hydro Offices and form essential parts of the BC Hydro Offices. Provide power supply, specially conditioned power and communication conduits and other electrical operational support equipment to meet all requirements of these special electrical and electronic systems.

(b) Performance Criteria:

(i) utilize commercial quality (or higher) cables, connectors, conduit systems, fittings and hardware to make connection to special equipment and to provide for high levels of reliability, durability and ease of maintenance of the equipment; and

(ii) provide connections to special equipment that easily permit removal and replacement of the equipment.

7.6 Communications

7.6.1 General

■ [Redacted]

■ [Redacted]

■ [Redacted]

■ [Redacted]

■ [Redacted]

■ [Redacted]

■ [Redacted]

■ [Redacted]

■ [Redacted]

■ [Redacted]

(b) The telecom infrastructure for the BC Hydro Offices will comprise facilities and systems provided by Project Co, BC Hydro and any other telecom provider (the **Telecom Contractor**) engaged by BC Hydro to provide communication services to the BC Hydro Offices. To provide context, the following paragraphs briefly outline the division of scope between the parties. Also refer to the

Worker Accommodation Project Agreement –  
Schedule 29 [BC Hydro Offices - Specifications and Drawings] Parts 1-9

Communications Overview attached as Appendix 29C [Communications Overview (BCHO)]. The scope for each element to be provided is further detailed in each section of these requirements.

■ [REDACTED]

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

■ [REDACTED]

- (m) The locations for Wi-Fi access points (APs) to be reviewed and Accepted following Review.
- (n) Project Co to complete all duct work to enable Telecom Contractors to place fiber optic cable for interconnection to external networks and to install network equipment and user terminals.
- (o) The Communications Overview attached as Appendix 29C [Communications Overview (BCHO)] provides general guidance on physical arrangements, equipment layouts and acceptable products but does not replace any requirement otherwise set out in this Schedule 29 [BC Hydro Offices – Specifications and Drawings].

7.6.2 Network Interconnection Facilities

(a) The BC Hydro Offices will connect to external networks over primary and secondary communication links as shown in the Communications Overview.

(b) [Redacted]

(c) [Redacted]

- [Redacted]
  - [Redacted]
  - [Redacted]
- [Redacted]
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7.6.3 Cable Entrance

- [REDACTED]

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
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- [REDACTED]

7.6.4 Telecom Room

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

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- [Redacted]

7.6.5 Communications Pathways

- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]

7.6.6 Structured Cabling System

- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]



- [Redacted]
- [Redacted]
- [Redacted]

(e) Horizontal cabling to be provisioned as follows:

- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
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- [Redacted]
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- [Redacted]

(f) Data outlets to be:

- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]

- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]

7.6.7 Grounding System

- [Redacted]
- [Redacted]

7.6.8 Wireless Lan Access Points

- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]

7.6.9 Uninterruptible Power System

- [Redacted]

(b) [Redacted]

■ [Redacted]

■ [Redacted]

(c) [Redacted]

■ [Redacted]

■ [Redacted]

■ [Redacted]

■ [Redacted]

■ [Redacted]

7.6.10 Labeling and Records

(a) Project Co will provide physical labels keyed to infrastructure documentation and records that can be used as a basis for telecom administration and maintenance.

(b) Labeling and cable records are required per EIA/TIA-606-B Administration Standard for the Telecoms Infrastructure.

(c) The minimum documentation records will include:

- (i) test records in electronic form as a PDF file;
- (ii) a paper copy of the test records will be left in the telecom room;
- (iii) floor plan drawing showing the completed installation with drop label locations in electronic form as a Visio or DGN file; and
- (iv) a paper copy of the floor plan drawing will be left on the wall of the Telecom Room.

7.6.11 Cellular Service

(a) Basic Requirements:

■ [Redacted]

■ [Redacted]

7.6.12 Cellphone Tower Power Infrastructure

(a) Basic Requirements:

- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]

(b) Performance Criteria:

- (i) [Redacted]

7.6.13 Cellphone Tower Communications Infrastructure

(a) Basic Requirements:

- (i) [Redacted]
- [Redacted]

(b) Performance Criteria:

- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]

7.7 Electronic Safety and Security

7.7.1 General

- (a) Utilize Crime Prevention through Environmental Design (CPTED) principles along with workplace safety and security considerations.
- (b) Design the BC Hydro Offices with safety and security in mind.
- (c) Ensure a safe environment through proper utilization of electronic access control, video monitoring and intrusion detection systems.
- (d) Minimize the visibility of security devices to reinforce the welcoming nature and residential qualities of the BC Hydro Offices.

7.7.2 Fire Alarm System

(a) Basic Requirements:

- (i) provide a fire alarm system for the BC Hydro Offices and ensure that that system meets or exceeds the requirements in this Schedule 29 [BC Hydro Offices - Specifications and Drawings];
- (ii) fire alarm system must be of a type where failed devices can be rapidly replaced and programmed by operations and not require on site presence of manufacturer's representative;
- (iii) provide a fire alarm system of the type and to the extent as required by the relevant occupancy rating for each building; and
- (iv) provide telephone connection and fire alarm monitoring service to ULC S561-13 requirements with equipment meeting ULC S559-04.

(b) Performance Criteria:

- (i) [REDACTED]
- (ii) [REDACTED]
- (iii) [REDACTED]

[REDACTED]

[REDACTED]

- [REDACTED]

- [REDACTED]

- [REDACTED]

- [REDACTED]

- [REDACTED]

- [REDACTED]

- [REDACTED]

- [REDACTED]

- [REDACTED]

- [REDACTED]

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- [Redacted]

## WORKER ACCOMMODATION PROJECT AGREEMENT

### SCHEDULE 29, PART 8

#### BC HYDRO OFFICES – SPECIFICATIONS AND DRAWINGS

#### **8 BUILDING DESIGN REQUIREMENTS**

##### 8.1 Exterior Improvements

##### 8.1.1 Aggregate Base Courses

###### (a) Basic Requirements:

- (i) utilize granular sub-base for stability of surface treatment through freeze thaw cycles and for its ability to stop rainwater penetration. Sub-base material to meet MMCD 31 05 17, Clause 2.8 – Select Granular Sub Base, or approved equivalent; and
- (ii) utilize granular base for stability of surface of surface treatment through freeze thaw cycles and for its ability to stop rainwater penetration. Base material to meet MMCD 31 05 17, Clause 2.10 – Granular Base, or approved equivalent.

##### 8.1.2 Seal Coat

###### (a) Basic Requirements:

- (i) utilize asphaltic seal coat on roadways and parking lots to control dust.

###### (b) Performance Criteria:

- (i) seal coat mix is to be suitable for use in climatic conditions found at the WAA. Seal coat will meet or exceed MOTI Specification 508 – Graded Aggregate Seal Coat – Class A.

##### 8.1.3 Paving

###### (a) Basic Requirements:

- (i) utilize paving in areas that require firm, long lasting hard surfaces for activities such as pedestrian pathways, loading docks, barbeque area and the BC Hydro Offices entrances.

##### 8.1.4 Prevailing Winds

###### (a) Basic Requirements:

- (i) protect pedestrians at BC Hydro Offices entrances and high activity pedestrian areas from the negative effects of the prevailing winds.

###### (b) Performance Criteria:

- (i) design and install the landscape with trees, shrubs, hedges, walls or other elements to protect pedestrians from the prevailing winds.



#### 8.1.5 Tree, Shrubs and Groundcover

##### (a) Basic Requirements:

- (i) provide landscape plans for the BC Hydro Offices; and
- (ii) use of indigenous flora will be considered a priority.

##### (b) Performance Criteria:

- (i) all planting is to be per BCLS;
- (ii) trees to be no smaller than 7 cm (2.76 inches) diameter for deciduous shade trees, 2 meters (6.6 feet) in height for ornamental/understory trees and 2.5 meters (8.2 feet) in height for coniferous trees upon installation;
- (iii) shrubs will be no smaller than #3 pot size upon installation;
- (iv) to ensure safety and security, sightlines must be provided through any cluster of tall growing vegetation by keeping all under storey plants to a maximum of 1.2 meters (3.9 feet) in height;
- (v) at least fifty percent (50%) of the total plants on the BC Hydro Offices area are to be native to the Central Interior of British Columbia;
- (vi) do not install any plants listed as poisonous to humans by the Canadian Government's Canadian Poisonous Plants Information System; and
- (vii) shrubbery within 2 meters (6.6 feet) of walkways will not exceed 50 cm (20 inches) in height.

#### 8.1.6 Utility Visibility

##### (a) Basic Requirements:

- (i) locate refuse/recycling areas, shipping, loading or utility areas, satellite dishes, and other similar structures, such as outdoor vents, mechanical equipment, or transformers out of BCHO User view;
- (ii) in cases where the above items cannot be located out of view, they must be screened out of BCHO User view; and
- (iii) garbage and recycling bins must be easily accessible, and contained within roofed/walled enclosures or screened from BCHO User view.

##### (b) Performance Criteria:

- (i) refuse/recycling areas, shipping, loading or utility areas, satellite dishes, and other similar structures, such as outdoor vents, mechanical equipment, or transformers must be screened out of BCHO User view;
- (ii) garbage and recycling bins must be easily accessible, and contained within roofed/walled enclosures, or screened from BCHO User view; and
- (iii) bury electrical wires.

## 8.2 Landscaping

### 8.2.1 Minimize the amount of impervious surfaces

### 8.2.2 Fire Resistance

- (a) Follow the recommendation of FireSmart Canada in designing the landscaping:
  - (i) adhere strictly to the recommendation for Priority Zone 1 in Chapter 3; and
  - (ii) consider the recommendations provided for Priority Zone 2 in Chapter 3.
- (b) Reference: <https://www.firesmartcanada.ca/resources-library/protecting-your-community-from-wildfire>.

### 8.2.3 Slopes and Retaining Walls

- (a) Basic Requirements:
  - (i) grade the BC Hydro Offices area to provide positive drainage throughout except where required for storm water detention/retention; and
  - (ii) avoid over-steepened slopes that cannot hold growing medium and plants.
- (b) Performance Criteria:
  - (i) ensure adequate gradients to avoid ponding throughout the BC Hydro Offices area except where required for storm water detention/retention;
  - (ii) slopes that is no steeper than 2:1 will be finished with growing medium and plant material. Provide riprap on slopes where required; and
  - (iii) slopes steeper than 2:1 will be retained using retaining walls e.g., cast-in-place C.I.P concrete, precast concrete.

## WORKER ACCOMMODATION PROJECT AGREEMENT

### SCHEDULE 29, PART 9

#### BC HYDRO OFFICES – SPECIFICATIONS AND DRAWINGS

#### **9 DECOMMISSIONING SPECIFICATIONS**

##### 9.1 BC Hydro Offices Infrastructure

##### (a) General Requirements:

- (i) prepare and submit for approval a decommissioning, salvage plan and disposal plan complete with schedule for the works;
- (ii) the decommissioning, salvage plan and disposal plan will include input from an environmental consultant with demonstrated experience in decommissioning activities;
- (iii) the decommissioning, salvage plan and disposal plan will include a list of salvageable equipment and materials and options for the handling, temporary stockpiling and subsequent off-site disposal or salvage of equipment and materials;
- (iv) remove all above ground infrastructure/chattels associated with the BC Hydro Offices;
- (v) Project Co will leave the above ground site in a clean and tidy state, free from all debris and rubbish;
- (vi) BC Hydro Offices clean-up will meet or exceed the quality requirements of BC Hydro and the Ministry of Environment regulations;
- (vii) Project Co will provide BC Hydro with an environmental site assessment report upon completion of removal of BC Hydro Offices infrastructure;
- (viii) the environmental site assessment report will be prepared by an independent consultant designated or approved by BC Hydro;
- (ix) Project Co will implement any measures identified in the environmental site assessment report as being required to remove or rehabilitate any BC Hydro Offices site contamination;
- (x) removal or rehabilitation of BC Hydro Offices site contamination will meet or exceed the quality requirements of BC Hydro and the Ministry of Environment; and
- (xi) Notwithstanding sub-sections 9.1(b) through 9.1(h) below, do not remove the infrastructure required for the continuous operation of the BC Hydro Offices.

##### (b) Facilities:

- (i) disassemble and remove all above ground components of the BC Hydro Offices;
- (ii) cap and cover remaining surface infrastructure with soil including all foundations which projected above the existing grade during the operating period; and
- (iii) remove all other above ground appurtenances around the BC Hydro Offices.

- (c) Sanitary Sewage System:
- (i) remove all above ground sewage system infrastructure: treatment plants, control systems and all other above ground appurtenances;
  - (ii) salvage or dispose of all above ground materials in a suitable disposal location; and
  - (iii) contaminated soils will be disposed of in accordance with the *Environment Management Act*.
- (d) Water System:
- (i) remove all above ground water system infrastructure, hydrants, reservoirs, booster stations, treatment plants and all other above ground appurtenances;
  - (ii) cap all well sources in accordance with Provincial health Standards; and
  - (iii) salvage or dispose of all above ground materials in a suitable disposal location.
- (e) Road Works and Parking Areas:
- (i) Cap and cover all roadways, walkways and parking areas together with all other above ground appurtenances and associated works with soil; and
  - (ii) Salvage or dispose of all above ground materials in a suitable disposal location.
- (f) Electrical Services:
- (i) remove the following above ground electrical infrastructure: generators, transformers, switch gear, street lighting, parking lot plug-ins, concrete works, and all other above ground appurtenances and associated works; and
  - (ii) salvage or dispose of all above ground materials in a suitable disposal location.
- (g) Telecommunications:
- (i) remove all above ground telecommunications infrastructure, antennas, cabling and all above ground other appurtenances and associated works; and
  - (ii) salvage or dispose of all above ground materials in a suitable disposal location.
- (h) Gas Servicing:
- (i) remove all above ground natural gas/propane infrastructure, meters, valves, tanks, associated concrete works and all other above ground appurtenances and associated works; and
  - (ii) salvage or dispose of all above ground materials in a suitable disposal location.

**WORKER ACCOMMODATION PROJECT AGREEMENT**

**APPENDIX 29A**

**BC HYDRO OFFICES – FUNCTIONAL PROGRAM**

(See attached)





















































































































**WORKER ACCOMMODATION PROJECT AGREEMENT**

**APPENDIX 29B**

**BC HYDRO OFFICES – INDICATIVE DESIGN**

(See attached)



**WORKER ACCOMMODATION PROJECT AGREEMENT**

**APPENDIX 29C**

**BC HYDRO OFFICES – COMMUNICATIONS OVERVIEW**

(See attached)









