

**THE NEW SURREY HOSPITAL  
AND  
BC CANCER CENTRE PROJECT**

**Schedule 1 – Statement of Requirements**

**Appendix 1S – Child Care Centre Requirements**

# APPENDIX 1S - CHILD CARE CENTRE REQUIREMENTS

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Attachment 1: Functional Program – Child Day Care

Attachment 2: Door Requirements

Attachment 3: Room Finish Requirements

Attachment 4: Equipment List

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### PART 1. GENERAL REQUIREMENTS

- 1.1.1 The Design-Builder is responsible for the Design and Construction of the Child Care Centre which will include the following:
  - 1.1.1.1 All surface parking, lay-by parking, On-Site and Off-Site Utilities, including all Off-Site utilities required by the City of Surrey;
  - 1.1.1.2 All roadways, sidewalks, pathways, bicycle lanes, and interconnections to City street network including along James Hill Drive and 180th Street, and at surrounding intersections of Highway 10 and James Hill Drive at 180th and 184th Streets as shown in Appendix 1E [Civil Infrastructure Plans], including all Off-Site works and services required by the City of Surrey;
  - 1.1.1.3 All exterior areas including the Outdoor Play Spaces; and
  - 1.1.1.4 All of the Functional Components, rooms and spaces described in Attachment 1: Functional Program – Child Day Care.
- 1.1.2 Unless noted otherwise, the requirements as set out in Schedule 1 – Statement of Requirements apply to the Child Care Centre with the following exceptions:
  - 1.1.2.1 Part 6 Facilities Construction Subgroup Specifications;
  - 1.1.2.2 Part 7 Facilities Services Subgroup Specifications; and
  - 1.1.2.3 Part 8 Site and Infrastructure Subgroup Specifications.
- 1.1.3 Standards and Guidelines
  - 1.1.3.1 Design-Builder will undertake the Design and Construction of the Child Care Centre in accordance with:
    - 1.1.3.1(1) BC Child Care Licensing Regulations.
  - 1.1.3.2 Unless noted otherwise, provide materials and finishes in accordance with the City of Vancouver Childcare Technical Guidelines Section 3.0 Technical.

### PART 2. CIVIL REQUIREMENTS

- 2.1 General Requirements
  - 2.1.1 All On-Site works will be in accordance with the latest edition of the BC Building Code, Master Municipal Construction Documents (MMCD), the Surrey Building Bylaw No. 17850, the City's Design Criteria Manual, and the City's Supplementary Master Municipal Construction Documents.
  - 2.1.2 All On-Site works will meet the requirements stated in Section 4.15 of Schedule 1 – Statement of Requirements.

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### 2.2 Servicing

- 2.2.1 Provide dedicated sanitary, storm, and domestic and fire water service connections of adequate diameter, grade and depth to serve the Child Care Centre, refer to On-Site infrastructure requirements as described in Appendix 1E [Civil Infrastructure Plans].
- 2.2.2 Services will include pipes, manholes, cleanouts, valves, fittings, and all other required appurtenances to comply with applicable municipal and provincial standards.
- 2.2.3 All applicable materials used in the construction of the On-Site civil works will be tested in accordance with and at the frequency specified in the latest version of the City's Supplementary Master Municipal Construction Documents and the MMCD Platinum as outlined in Section 4.15 of Schedule 1 – Statement of Requirements.
- 2.2.4 Provide a water meter and chamber at the Child Care Centre service connection as per City's Water Meter and Service Connection Design Criteria Manual & Supplementary Specifications.
- 2.2.5 Rainwater management design for major and minor events will meet the City's bylaws and requirements.
- 2.2.6 Servicing design will follow the requirements of the Water System Seismic Design Standards and Class 1 requirements of the Sanitary Sewer Seismic Design Standards in the City's Design Criteria Manual including joint restraint, flexible connections, and other seismic resilience considerations therein.
- 2.2.7 The Design-Builder will undertake corrosion investigation and provide cathodic protection or other corrosion protection method to metallic components of the sanitary and water systems. Water system design will follow the requirements of Corrosion Protection in the City's Design Criteria Manual including the application of exterior zinc-coating on metallic pipes.

### 2.3 Site Grading and Drainage

- 2.3.1 Site grading, slopes, and retaining walls will follow the requirements outlined in Section 8.1 of Schedule 1 – Statement of Requirements.
- 2.3.2 Site grading will align with and suit the proposed grades of the surrounding site.
- 2.3.3 Roadways and paved areas will have positive drainage to shed rainwater quickly to storm drainage facilities. No surface ponding is permitted.

### 2.4 Paving and Roadworks

- 2.4.1 All road works and paving will meet the requirements stated in Section 4.15.8 of Schedule 1 – Statement of Requirements.
- 2.4.2 Pavement structure will meet the recommendations of the Design-Builder's geotechnical engineer.

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### PART 3. ARCHITECTURAL REQUIREMENTS

#### 3.1 General Requirements

- 3.1.1 The Child Care Centre will be a standalone, one-storey structure with associated exterior playgrounds.
- 3.1.2 Refer to Schedule 1 – Statement of Requirements, Section 5.2 Post-disaster for minimum elevation of the Child Care Centre.
- 3.1.3 Refer to Schedule 1 – Statement of Requirements, Section 5.7.2.2 Rain Screen Principles for building envelope requirements.

#### 3.2 Acoustic, Vibration, and Noise Control Requirements

##### 3.2.1 General

- 3.2.1.1 The Design and Construction of the Child Care Centre will be in consultation with an Acoustic and Vibration Consultant.
- 3.2.1.2 The Acoustic and Vibration Consultant will provide, as a minimum, reporting to the Authority on all aspects covered in this Acoustic, Vibration, and Noise Control Requirements Section at three stages of design:
  - 3.2.1.2(1) A guidance and design direction document at 30% design,
  - 3.2.1.2(2) A detailed review and recommendations document at 90% design, and
  - 3.2.1.2(3) A confirmation of design compliance review at 100% design.
- 3.2.1.3 Where acoustic requirements are not specified, the Acoustic and Vibration Consultant will provide recommendations for design targets that align with the requirements for similar types of spaces listed within the Schedule 1 – Statement of Requirements, for approval by the Authority.
- 3.2.1.4 Where acoustic tile ceilings are used, they will be rated minimum NRC 0.70 and CAC 35.

##### 3.2.2 Sound Isolation

- 3.2.2.1 Provide wall and floor assemblies with minimum STC ratings in accordance with those listed below with field performance of walls and floors within 5 points of the calculated STC when measured according to ASTC testing standards for ASTC (wherever applicable) or NIC (for spaces non-compliant with ASTC testing):

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- 3.2.2.1(1) Partitions between Sleep/Quiet Rooms and all other spaces – STC 50;
- 3.2.2.1(2) Partitions between Play Rooms and all other spaces – STC 50; and
- 3.2.2.1(3) Partitions for all other spaces – STC 45.
- 3.2.2.2 Wall, floor and ceiling assemblies separating mechanical equipment from occupied spaces will be designed to limit noise levels in occupied spaces to those listed in Section 3.2.3 Interior Background Noise.
- 3.2.2.3 Doors in acoustic rated partitions will be rated minimum STC 15.
- 3.2.2.4 Interior windows/glazing will be rated minimum STC 35.
- 3.2.2.5 Where audibility is required for child monitoring/safety, provide one of the following to enable appropriate monitoring and sound isolation requirements:
  - 3.2.2.5(1) electronic monitoring systems;
  - 3.2.2.5(2) operable openings; or
  - 3.2.2.5(3) permanent openings.
- 3.2.3 Interior Background Noise
  - 3.2.3.1 The noise from mechanical and other systems will not exceed the noise levels specified below:
    - 3.2.3.1(1) Sleep/Quiet Rooms - 35 dBA;
    - 3.2.3.1(2) Play Rooms - 40 dBA; and
    - 3.2.3.1(3) All other spaces - 45 dBA.
- 3.2.4 Room Acoustics
  - 3.2.4.1 All childcare spaces must include a T-bar ceiling covering a minimum of 75% of the ceiling area with ceiling heights not exceeding 3 m. Alternatively, each space in the Child Care Centre will not exceed the following:
    - 3.2.4.1(1) 0.6 s RT60 in each of the octave bands from 500 to 2000 Hz for spaces with a volume equal to or less than 283 m<sup>3</sup>.
    - 3.2.4.1(2) 0.7 s RT60 in each of the octave bands from 500 to 2000 Hz for spaces with a volume greater than 283 m<sup>3</sup>.
- 3.2.5 Exterior Noise Sources / Outdoor Play Spaces / Exterior Noise Ingress

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- 3.2.5.1 Outdoor Play Spaces will be designed such that sound levels will not exceed 55 dBA 24 hour equivalent sound level from all sources, excluding noise from train horns/whistles.
- 3.2.5.2 The Child Care Centre will limit noise ingress from sources such as mechanical systems, roadways, and rail to less than the following, based on a 24 hour equivalent sound level:
  - 3.2.5.2(1) Sleep/Quiet Rooms - 35 dBA;
  - 3.2.5.2(2) Play Rooms - 40 dBA; and
  - 3.2.5.2(3) All other spaces - 45 dBA.
- 3.2.5.3 Sound levels listed herein will not be exceeded by more than 5 dB during Facility generator testing when taken as a Leq for the duration of the generator testing.
- 3.2.5.4 Rail and rail yard noise will not exceed the following Lmax, fast levels in the following spaces:
  - 3.2.5.4(1) Sleep/Quiet Rooms - 45 dBA;
  - 3.2.5.4(2) Play Rooms - 57 dBA;
  - 3.2.5.4(3) All other indoor spaces - 62 dBA; and
  - 3.2.5.4(4) Outdoor Play Spaces – 72 dBA (outdoor play space Lmax target excludes noise from train horns/whistles).
- 3.2.6 Floor Vibration
  - 3.2.6.1 Vibration levels from internal (e.g., footfalls) and external sources other than rail (e.g., road) will not exceed the following values when measured as rms levels in each of the one-third octave bands from 8 to 100 Hz with limits doubled (i.e., 280 and 600  $\mu\text{m/s}$ , respectively) in the 4 Hz one-third octave band and interpolated for the 5 and 6.3 Hz one-third octave bands:
    - 3.2.6.1(1) 140  $\mu\text{m/s}$  in Sleep/Quiet Rooms; and
    - 3.2.6.1(2) 300  $\mu\text{m/s}$  in all other spaces.
  - 3.2.6.2 Vibration levels from rail events will not exceed the following values when measured as rms levels in each of the one-third octave bands from 8 to 100 Hz with limits doubled (i.e., 280 and 600  $\mu\text{m/s}$ , respectively) in the 4 Hz one-third octave band and interpolated for the 5 and 6.3 Hz one-third octave bands:
    - 3.2.6.2(1) 250  $\mu\text{m/s}$  in Sleep/Quiet Rooms; and
    - 3.2.6.2(2) 400  $\mu\text{m/s}$  in all other spaces.



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### 3.2.7 Vibration Isolation of Equipment

- 3.2.7.1 All equipment will be appropriately vibration isolated to limit structure-borne noise and vibration levels to be in accordance with the requirements of this Acoustic, Vibration, and Noise Control Requirements Section.
- 3.2.7.2 All mechanical equipment and associated piping, ductwork, and conduit will be vibration isolated in accordance with ASHRAE Handbook 2019, Chapter 49.
- 3.2.7.3 Electrical connections to vibration isolated equipment will be made with flexible conduit or other flexible means so as not to restrict the maximum anticipated movement of the equipment under the design seismic excitation.
- 3.2.7.4 Electrical connections will incorporate a length of braided flexible tubing or conduit with a 360° loop.

### 3.2.8 Acoustic, Noise, and Vibration Testing and Verification

- 3.2.8.1 Testing will only be undertaken by an Acoustic and Vibration Consultant at the discretion of the Authority and cost of the Design-Builder.
- 3.2.8.2 Any deficiencies will be corrected at the expense of the Design-Builder, and follow-up testing to demonstrate compliance will be done at the Design-Builder's expense.

## 3.3 Concrete (Division 3)

### 3.3.1 Section 03 30 00 – Cast-in-Place Concrete

- 3.3.1.1 Finish concrete floors with a smooth, dense, trowel finish with a Class A Flatness Classification in accordance with CSA A23.1
- 3.3.1.2 Provide reinforced concrete housekeeping pad dowelled into structural concrete slab-on grade for equipment in conjunction with mechanical, electrical, and other Building System requirements.
  - 3.3.1.2(1) Concrete construction will follow “Best Practice Guidelines for Concrete Placement Planning, Field Testing, and Sample Collection” jointly prepared by the BC Ready-Mixed Concrete Association and the Canadian Council of Independent Laboratories.

## 3.4 Masonry (Division 4)

### 3.4.1 Section 04 22 00 – Brick Veneer Masonry

- 3.4.1.1 Part 1 General

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### 3.4.1.1(1) References

- 3.4.1.1(1)(a) CSA S304.1-04 (R2010) Design of Masonry Structures.
- 3.4.1.1(1)(b) CAN/CSA A371-14 (R2019) Masonry Construction for Buildings.
- 3.4.1.1(1)(c) CSA A82-14 Fired masonry brick from clay or shale.
- 3.4.1.1(1)(d) ASTM C216 – 21 Standard Specification for Facing Brick (Solid Masonry Units made from Clay or Shale).
- 3.4.1.1(1)(e) CAN/CSA A179-14(R2019) Mortar and grout for unit masonry.
- 3.4.1.1(1)(f) CSA A370:14 (R2018) Connectors for Masonry.
- 3.4.1.1(1)(g) ASTM A951/A951M-06 Standard Specification for Steel Wire for Masonry Joint Reinforcement.
- 3.4.1.1(1)(h) Masonry Institute of British Columbia (MIBC) Veneer Guide Masonry Specification.

### 3.4.1.2 Part 2 Products

#### 3.4.1.2(1) Acceptable Materials

- 3.4.1.2(1)(a) Face Brick, fired clay, CSA A82 or ASTM C216 Grade SW. Type and colour to be selected by consultant.
- 3.4.1.2(1)(b) Mortar Type S to CAN/CSA A179. Colour to be determined by consultant.
- 3.4.1.2(1)(c) Joint Reinforcing ASTM A951/A951M-06 ladder type stainless steel.
- 3.4.1.2(1)(d) Connector System to CSA A370, Fero Slotted Rap Ties, stainless steel L plates and wire ties, with polyethylene insulation retainers, and stainless steel fasteners, or approved equal.
- 3.4.1.2(1)(e) Flashings:
  - 3.4.1.2.1.(e).1 Stainless Steel Sheet Metal, type 304 0.9mm MIBC c/w hemmed drip edge.

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- 3.4.1.2.1.(e).2 Membrane self adhered bituminous  
SOPREMA SOPRASEAL STICK 1100T or  
approved equal.
- 3.4.1.2(1)(f) Sealant (metal flashing laps)
  - 3.4.1.2.1.(f).1 Tremco Geogard Seam Sealer polyurethane  
or approved equal.
- 3.4.1.2(1)(g) Weep/Vent Screens of cellular polypropylene
  - 3.4.1.2.1.(g).1 Acceptable Materials
    - (g).1.1 Dur-O-Wal Cell Vents
    - (g).1.2 Cell-Vent, Block-Lok
- 3.4.1.2(1)(h) Cavity Drainage Protection
  - 3.4.1.2.1.(h).1 Acceptable Materials
    - (h).1.1 Mortar Net
    - (h).1.2 Mor-Control
- 3.4.1.2(1)(i) Galvanized Steel Shelf Angle per engineered  
design.
- 3.4.1.2(1)(j) Water Repellent Coating clear penetrating sealer  
for brick
  - 3.4.1.2.1.(j).1 Fabrikem Fabrishield 761
- 3.4.1.3 Part 3 Execution
  - 3.4.1.3(1) Not applicable.
- 3.5 Metals (Division 5)
  - 3.5.1 Section 05 40 00 – Lightweight Steel Framing
    - 3.5.1.1 Part 1 General
      - 3.5.1.1(1) Summary
        - 3.5.1.1(1)(a) Section includes:
          - 3.5.1.1.1.(a).1 Load bearing wall framing;
          - 3.5.1.1.1.(a).2 Exterior non-load bearing wall framing;
          - 3.5.1.1.1.(a).3 Roof rafter framing;
          - 3.5.1.1.1.(a).4 Ceiling joist framing;
          - 3.5.1.1.1.(a).5 Soffit framing; and
          - 3.5.1.1.1.(a).6 Interior partition framing.
      - 3.5.1.1(2) References

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- 3.5.1.1(2)(a) Referenced standards refer to the latest edition except where specified otherwise. Where referenced standards conflict with this specification, this specification governs.
- 3.5.1.1(2)(b) ASTM A653/ A653M-15e1, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- 3.5.1.1(2)(c) ASTM A792/ A792M-10(2015), Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
- 3.5.1.1(2)(d) ASTM A924/ A924M-16ae1, Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot Dip Process.
- 3.5.1.1(2)(e) ASTM A123M-15, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
- 3.5.1.1(2)(f) CSA W47.1-09(R2014), Certification of Companies for Fusion Welding of Steel Structures.
- 3.5.1.1(2)(g) CSA W55.3-08 (R2013), Resistance Welding Qualification Code for Fabricators of Structural Members Used in Buildings.
- 3.5.1.1(2)(h) CSA W59-13, Welded Steel Construction (Metal Arc Welding).
- 3.5.1.1(2)(i) CAN/CSA-S136-16, Cold Formed Steel Structural Members.
- 3.5.1.1(2)(j) CAN/CGSB-1.181-99, Ready-Mixed Organic Zinc-Rich Coating (Withdrawn).
- 3.5.1.1(2)(k) Association of Wall & Ceiling Contractors (AWCC) of British Columbia Specifications Standard Manual.
- 3.5.1.1(2)(l) Canadian General Standards.
- 3.5.1.1(2)(m) CGSB 1-GP-181M Standard for Coating, Zinc Rich, Organic Ready Mix.
- 3.5.1.1(3) Design Criteria

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- 3.5.1.1(3)(a) Design will be based on Limit States Design principles using factored loads and resistances.
- 3.5.1.1(3)(b) Loads and load factors will be determined in accordance with the British Columbia Building Code.
- 3.5.1.1(3)(c) All design loads will be as indicated on drawings.
- 3.5.1.1(3)(d) Resistances and resistance factors will be determined in accordance with the British Columbia Building Code and CSA-S136.
- 3.5.1.1(3)(e) Conform to the requirements of specified fire rated assemblies.
- 3.5.1.1(3)(f) Provide bridging to prevent member rotation and member translation perpendicular to the minor axis. Provide for secondary stress effects due to torsion between lines of bridging. Do not rely on sheathing to resist torsion or minor axis buckling.
- 3.5.1.1(3)(g) Maximum deflections under specified loads will conform to the following:
  - 3.5.1.1.3.(g).1 Exterior load-bearing wall framing:
    - (g).1.1 Wall studs supporting material susceptible to cracking such as concrete block, masonry veneer or granite tile (L/720).
    - (g).1.2 Wall studs supporting stucco and EIFS Walls (L/360).
    - (g).1.3 Wall studs supporting material not susceptible to cracking (L/240).
  - 3.5.1.1.3.(g).2 Interior load-bearing wall framing:
    - (g).2.1 Maximum deflection of L/360 of the wall height under a horizontal load of 0.25 kPa.
  - 3.5.1.1.3.(g).3 Exterior non-load bearing wall framing:
    - (g).3.1 Maximum horizontal deflection of L/360 of the wall height.
  - 3.5.1.1.3.(g).4 Interior non-load bearing wall framing:
    - (g).4.1 Maximum deflection of L/240 of the wall height under a horizontal load of 0.25 kPa.
  - 3.5.1.1.3.(g).5 Roof Rafter Framing:

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- (g).5.1 Maximum vertical deflection of L/360 of the horizontally projected span for live load or roof snow load.
    - 3.5.1.1.3.(g).6 Ceiling Joist Framing:
      - (g).6.1 Maximum vertical deflection of L/360 of the span for live loads and L/240 for total loads of the span.
  - 3.5.1.1(3)(h) Design components or assemblies to accommodate specified erection tolerances of the structure.
  - 3.5.1.1(3)(i) The spacing of members will not exceed the following:
    - 3.5.1.1.3.(i).1 Wall studs 400 mm o.c.
    - 3.5.1.1.3.(i).2 Roof rafters 600 mm o.c.
    - 3.5.1.1.3.(i).3 Ceiling joists 400 mm o.c.
  - 3.5.1.1(3)(j) Design framing systems to allow for movement of the structure without damage of overstressing, sheathing failure, connection failure, undue strain of the fasteners and anchors, or other detrimental effects when subject to a maximum ambient temperature of 120 deg F (67 deg C).
  - 3.5.1.1(3)(k) Design wind bearing stud end connections to accommodate floor/roof deflections such that the studs are not loaded axially.
  - 3.5.1.1(3)(l) Design framing system to maintain clearances at openings, to allow for construction tolerances and to accommodate live load deflection of primary building structure as follows:
    - 3.5.1.1.3.(l).1 Upward and downward movement of 25 mm.
  - 3.5.1.1(3)(m) Connections between lightweight steel framing members will be by bolts, welding or sheet metal screws.
  - 3.5.1.1(3)(n) Resistances for sheet metal screws will be based on the manufacturer's lower bound test values multiplied by the appropriate resistance factor,  $\Phi_c$ , given in CSA-S136
- 3.5.1.1(4) Submittals

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- 3.5.1.1(4)(a) Shop drawings will bear the stamp and signature of a qualified Professional Engineer registered in the Province of British Columbia.
- 3.5.1.2 Part 2 Products
- 3.5.1.2(1) Materials
- 3.5.1.2(1)(a) Steel will have metallic coatings that conform to one of the following ASTM standards:
- 3.5.1.2.1.(a).1 ASTM A653/A653M-15e1 - Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
  - 3.5.1.2.1.(a).2 ASTM A792/A792M-10(2015) - Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
  - 3.5.1.2.1.(a).3 ASTM A924/A924M-16 Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process.
- 3.5.1.2(1)(b) Steel will conform to the requirements of CSA-S136 and will be identified as to specification, type, grade and mechanical properties.
- 3.5.1.2(1)(c) Roof and wall members forming part of the exterior building envelope will have a minimum coating of Z180 galvanizing in accordance with ASTM A653 M. Other coatings (e.g. aluminum-zinc alloy) providing equal or better corrosion protection may be used.
- 3.5.1.2(1)(d) Sheet metal screws will have a minimum coating thickness of .008 mm of zinc or cadmium. Other coatings providing equal or better corrosion protection may be used.
- 3.5.1.2(1)(e) Welding electrodes will be of the 480 MPa minimum tensile strength series (e.g. E480XXX, E480S-X).
- 3.5.1.2(1)(f) Zinc rich paint for touching up welds and damaged metallic coatings will conform to CGSB 1-GP-181M.
- 3.5.1.2(1)(g) The minimum steel thickness exclusive of coating will be as follows:

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- 3.5.1.2.1.(g).1 Wall studs 0.91 mm.
      - 3.5.1.2.1.(g).2 Thicker material may be required to satisfy structural requirements.
    - 3.5.1.3 Execution
      - 3.5.1.3(1) Not applicable.
  - 3.5.2 Section 05 50 00 – Metal Fabrications
    - 3.5.2.1 Refer to Schedule 1 – Statement of Requirements, Section 6.5.3.
- 3.6 Wood, Plastics and Composites (Division 6)
  - 3.6.1 Section 06 10 00 – Rough Carpentry
    - 3.6.1.1 Part 1 General
      - 3.6.1.1(1) References
        - 3.6.1.1(1)(a) APA - The Engineered Wood Association (formerly American Plywood Association)
        - 3.6.1.1(1)(b) ASTM A307-21 Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength.
        - 3.6.1.1(1)(c) CAN/CSA G164-M92 (1998) Hot Dip Galvanizing of Irregularly Shaped Articles.
        - 3.6.1.1(1)(d) CSA B111-1974 (R2003) Wire Nails, Spike and Staples.
        - 3.6.1.1(1)(e) CAN/CSA O86:19 Engineering design in wood.
        - 3.6.1.1(1)(f) CAN/CSA O141:05 (R2019) Softwood Lumber.
        - 3.6.1.1(1)(g) CAN/CSA O121-17 Douglas fir plywood.
        - 3.6.1.1(1)(h) CAN/CSA O151-15 Canadian softwood plywood.
        - 3.6.1.1(1)(i) SCAQMD Rule 1168 (South Coast Air Quality Management District).
        - 3.6.1.1(1)(j) National Lumber Grades Authority (NLGA) Standard Grading Rules for Canadian Lumber 2014.
          - 3.6.1.1.1.(j).1 NLGA Special Product Standards:



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- (j).1.1 SPS 1 Finger-joined Structural Lumber.
    - (j).1.2 SPS 3 Finger-joined “Vertical Stud Use Only” Lumber.
    - (j).1.3 SPS 4 Finger-joined Machine Graded Lumber.
  - 3.6.1.1(1)(k) Canadian Lumber Standards Accreditation Board.
  - 3.6.1.1(2) Requirements
    - 3.6.1.1(2)(a) Engineered Design.
    - 3.6.1.1(2)(b) Miscellaneous backing and blocking.
    - 3.6.1.1(2)(c) Support for interior gypsum board.
- 3.6.1.2 Part 2 Materials
  - 3.6.1.2(1) Lumber
    - 3.6.1.2(1)(a) Softwood lumber unless specified otherwise, S4S S-Dry, moisture content 12% or less per CSA O141.
  - 3.6.1.2(2) Panel Materials
    - 3.6.1.2(2)(a) Douglas Fir Plywood (DFP), unsanded, sheathing grade, CSA O121-17, for standard construction.
  - 3.6.1.2(3) Miscellaneous Lumber, furring, blocking, nailing strips, grounds, rough bucks, cants, curbs, fascia backing, and sleepers:
    - 3.6.1.2(3)(a) Softwood lumber S2S is acceptable;
    - 3.6.1.2(3)(b) Board sizes “Standard” or better grade;
    - 3.6.1.2(3)(c) Dimension sizes: “Standard” light framing or better grade; and
    - 3.6.1.2(3)(d) Post and timber sizes: “Standard” or better grade.
  - 3.6.1.2(4) Accessories
    - 3.6.1.2(4)(a) Sill Gasket polyethylene foam.
- 3.6.1.3 Part 3 Execution
  - 3.6.1.3(1) Not applicable.

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### 3.6.2 Section 06 17 53 – Shop Fabricated Wood Trusses

#### 3.6.2.1 Part 1 General

##### 3.6.2.1(1) References

- 3.6.2.1(1)(a) CAN/CSA O86:19 Engineering Design in Wood.
- 3.6.2.1(1)(b) CSA O141:05 (R2109) Softwood Lumber.
- 3.6.2.1(1)(c) Truss Plate Institute Canada (TPIC).
  - 3.6.2.1.1.(c).1 TPIC 2019 Truss Design Procedures and Specifications for Light Metal Plate Connected Wood Trusses.
- 3.6.2.1(1)(d) CSA S347:14 (R2018) Method of test for evaluation of truss plates used in lumber joints.

##### 3.6.2.1(2) Requirements

- 3.6.2.1(2)(a) Roof structure to support:
  - 3.6.2.1.2.(a).1 Gypsum board membrane attic enclosure and fire protection;
  - 3.6.2.1.2.(a).2 Suspended ACT and gypsum board ceilings;
  - 3.6.2.1.2.(a).3 HVAC ductwork and electrical light fixtures; and
  - 3.6.2.1.2.(a).4 Sprinkler system.

#### 3.6.2.2 Part 2 Materials

##### 3.6.2.2(1) Components

- 3.6.2.2(1)(a) Softwood Lumber CSA O141.
- 3.6.2.2(1)(b) Truss Plates to TPIC 2019 and CSA S347.
- 3.6.2.2(1)(c) Fastenings to CSA O86.

#### 3.6.2.3 Part 3 Execution

- 3.6.2.3(1) Not applicable.

### 3.6.3 Section 06 20 00 – Finish Carpentry

#### 3.6.3.1 Part 1 General

##### 3.6.3.1(1) Summary

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- 3.6.3.1(1)(a) Architectural woodwork/millwork refer to Attachment 1: Functional Program – Child Day Care.
- 3.6.3.1(2) References
- 3.6.3.1(2)(a) Architectural Woodwork Manufacturers Association of Canada (AWMAC), “Architectural Woodwork Standards, Edition 1, 2009”.
- 3.6.3.1(2)(b) City of Vancouver Childcare Technical Guidelines 2019.
- 3.6.3.1(3) Requirements
- 3.6.3.1(3)(a) Material and workmanship will meet or exceed recommendations and requirements of AWMAC’s Standards and NAAWS.
- 3.6.3.1(3)(b) Provide service and seismic restraint.
- 3.6.3.1(4) Quality Assurance
- 3.6.3.1(4)(a) Qualifications
- 3.6.3.1.4.(a).1 Manufacturer will be a firm specializing in the fabrication of architectural woodwork with a satisfactory record of performance on projects of comparable size and quality. The manufacturer to be acceptable to the Architect and Authority
- 3.6.3.1.4.(a).2 Installer Qualifications: A firm specializing in millwork installation with a satisfactory record of performance on projects of comparable size and quality, and approved by the fabricator.
- 3.6.3.1(4)(b) Inspection
- 3.6.3.1.4.(b).1 The Design-Builder is to engage AWMAC and pay for the Guarantee and Inspection Service (GIS).
- 3.6.3.1(4)(c) Warranty
- 3.6.3.1.4.(c).1 If the manufacturer is a member of AWMAC, obtain the two (2) year AWMAC Guarantee.
- 3.6.3.1.4.(c).2 If the manufacturer is not a member of AWMAC, provide a maintenance bond in lieu of the AWMAC Guarantee.

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- 3.6.3.2 Part 2 Products
  - 3.6.3.2(1) Acceptable Materials
    - 3.6.3.2(1)(a) As recommended in City of Vancouver Childcare Technical Guidelines.
- 3.6.3.3 Part 3 Execution
  - 3.6.3.3(1) Not applicable
- 3.7 Thermal and Moisture Protection (Division 7)
  - 3.7.1 Section 07 21 00 – Thermal Insulation
    - 3.7.1.1 Part 1 General
      - 3.7.1.1(1) References
        - 3.7.1.1(1)(a) Refer to Acceptable Products technical data.
      - 3.7.1.1(2) Performance Requirements
        - 3.7.1.1(2)(a) Control of heat transfer, and moisture resistance.
    - 3.7.1.2 Part 2 Materials
      - 3.7.1.2(1) Acceptable Products
        - 3.7.1.2(1)(a) Cavity Insulation, Semi Rigid Mineral Wool Boards CAVITYROCK manufactured by ROCKWOOL.
        - 3.7.1.2(1)(b) Mineral Wool Batt Insulation for stud framing and attic, COMFORTBATT manufactured by ROCKWOOL.
        - 3.7.1.2(1)(c) Extruded Polystyrene for Foundation Walls Styrofoam SM manufactured by Dupont.
        - 3.7.1.2(1)(d) Approved equals.
    - 3.7.1.3 Part 3 Execution
      - 3.7.1.3(1) Not applicable.
  - 3.7.2 Section 07 27 00 – Air Barriers
    - 3.7.2.1 Part 1 General
      - 3.7.2.1(1) References

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- 3.7.2.1(1)(a) Refer to Acceptable Product's technical data.
- 3.7.2.1(2) Performance Requirements
  - 3.7.2.1(2)(a) Resistance to air leakage and moisture, and allow vapour diffusion.
- 3.7.2.2 Part 2 Materials
  - 3.7.2.2(1) Acceptable Products
    - 3.7.2.2(1)(a) Self-adhesive membrane vapour permeable air barrier: SOPRASEAL STICK VP manufactured by SOPREMA.
    - 3.7.2.2(1)(b) Or approved equal.
- 3.7.2.3 Part 3 Execution
  - 3.7.2.3(1) Refer to Acceptable Product Manufacturer's "Air Barrier Systems Guide".
- 3.7.3 Section 07 26 00 – Vapour Retarders
  - 3.7.3.1 Part 1 General
    - 3.7.3.1(1) References
      - 3.7.3.1(1)(a) ASTM C755-20, Standard Practice for Selection of Water Vapor Retarders for Thermal Insulation.
      - 3.7.3.1(1)(b) ASTM C1136-2, Standard Specification for Flexible, Low Permeance Vapour Retarders for Thermal Insulation.
      - 3.7.3.1(1)(c) ASTM E1643 Standard Practice for Selection, Design, Installation and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill under Concrete Slabs.
      - 3.7.3.1(1)(d) ASTM E1745 Standard Specification for Plastic Water Vapour Retarders Used in Contact with soil or Granular Fill under Concrete Slabs.
    - 3.7.3.1(2) Performance Requirements
      - 3.7.3.1(2)(a) Control of vapour diffusion per BCBC.
  - 3.7.3.2 Part 2 Materials

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- 3.7.3.2(1) Products
  - 3.7.3.2(1)(a) Polyethylene sheet 0.15 mm ( 6 mil ) for walls and ceiling, ASTM C755.
  - 3.7.3.2(1)(b) Polyethylene sheet 0.38 mm ( 15 mil ) for under slabs, ASTM E1745.
- 3.7.3.3 Part 3 Execution
  - 3.7.3.3(1) ASTM C1136 & E1643.
- 3.7.4 Section 07 31 13 – Fiberglass Reinforced Asphalt Shingles
  - 3.7.4.1 Part 1 General
    - 3.7.4.1(1) References
      - 3.7.4.1(1)(a) Canadian General Standards Board (CGSB)
        - 3.7.4.1.1.(a).1 CAN/CGSB-37-GP 4M, Lap Cement
        - 3.7.4.1.1.(a).2 CAN/CGSB-37-GP-5Ma, Roofing Cement
        - 3.7.4.1.1.(a).3 CAN/CGSB-51.32, Sheathing, Membrane, Breather Type.
      - 3.7.4.1(1)(b) Roofing Contractors' Association of British Columbia (RCABC)
        - 3.7.4.1.1.(b).1 RCABC Roofing Practices Manual (RPM).
      - 3.7.4.1(1)(c) Canadian Standards Association (CSA).
        - 3.7.4.1.1.(c).1 CAN/CSA A123.5, Asphalt shingles made from glass felt and surfaced with mineral granules.
        - 3.7.4.1.1.(c).2 CSA A123.2, Asphalt-Coated Roofing Sheets.
        - 3.7.4.1.1.(c).3 CAN/CSA-A123.3, Asphalt Saturated Organic Roofing Felt.
        - 3.7.4.1.1.(c).4 CAN3-A123.51, Asphalt Shingle Application on Roof Slopes 1:3 and Steeper.
        - 3.7.4.1.1.(c).5 CAN3-A123.52, Asphalt Shingle Application on Roof Slopes 1:6 to Less Than 1:3.
        - 3.7.4.1.1.(c).6 CSA B111, Wire Nails, Spikes and Staples.
    - 3.7.4.2 Part 2 Materials
      - 3.7.4.2(1) Products
        - 3.7.4.2(1)(a) Fiberglass-reinforced asphalt shingles: to CSA A123.5

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- 3.7.4.2(1)(b) Type: self-seal, standard, pattern rectangular.  
Mass: minimum 33 kg/m<sup>2</sup>. Colours: as selected by the Authority.
- 3.7.4.2(1)(c) Roofing underlayment: self-adhesive, non-woven glass fibre matt coated with SBS modified bitumen, minimum thickness 1.8 mm, bottom surface release film, top surface sanded.
- 3.7.4.2(1)(d) Roofing Cement.
- 3.7.4.2(1)(e) Nails to CSA B111.
- 3.7.4.3 Part 3 Execution
  - 3.7.4.3(1) Application
    - 3.7.4.3(1)(a) Asphalt shingle work will be in accordance with CAN3 A123.51 and/or A123.52, and with RCABC RPM, except where specified otherwise.
    - 3.7.4.3(1)(b) Install layer of self-adhesive roof underlayment over entire roof area.
- 3.7.5 Section 07 44 46 – Fiber-Reinforced Cementitious Cladding
  - 3.7.5.1 Part 1 General
    - 3.7.5.1(1) References
      - 3.7.5.1(1)(a) Refer to Acceptable Product manufacturer's technical data and base specifications.
    - 3.7.5.1(2) Requirements
      - 3.7.5.1(2)(a) Engineered design for structural securement, heat transfer control and rain screen principles.
  - 3.7.5.2 Part 2 Products
    - 3.7.5.2(1) Material Description
      - 3.7.5.2(1)(a) Cement boards and/or panels of hydraulic cement, silica, and other additives and reinforced integrally with cellulose fibres.
    - 3.7.5.2(2) Acceptable Manufacturers and Products

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- 3.7.5.2(2)(a) WOODTONE Rustic Series Lap & Panels, ColorSelect Lap, Panels & Trim.
- 3.7.5.2(2)(b) JamesHardie line of cladding products, HardiePlank Lap Siding, HardieShingle Siding, HardiePanel Vertical Siding, HardieTrim Boards.
- 3.7.5.2(2)(c) Allura Architectural Panels, Lap Siding, and Trim.
- 3.7.5.2(2)(d) Nichiha Architectural Wall Panel and Lap Siding.
- 3.7.5.2(2)(e) or approved equal
- 3.7.5.2(3) Components and Accessories
  - 3.7.5.2(3)(a) Engineered thermally broken corrosion resistant cladding support system to suit arrangements for building envelope function, and approved by cladding manufacturer.
- 3.7.5.3 Part 3 Execution
  - 3.7.5.3(1) Application
    - 3.7.5.3(1)(a) Per panel manufacturer's directions.
- 3.7.6 Section 07 52 16 – SBS Modified Bitumen Roofing
  - 3.7.6.1 Refer to Schedule 1 – Statement of Requirements, Section 6.7.19.
- 3.7.7 Section 07 61 00 – Sheet Metal Roofing and Cladding
  - 3.7.7.1 General
    - 3.7.7.1(1) References
      - 3.7.7.1(1)(a) Sheet Metal and Air Conditioning Contractors' National Association (SMACNA) Architectural Sheet Metal Manual.
      - 3.7.7.1(1)(b) Roofing Contractors Association of British Columbia (RCABC) Roofing Practices Manual (RPM).
      - 3.7.7.1(1)(c) American Society for Testing and Materials ASTM.
        - 3.7.7.1.1.(c).1 ASTM D523, Standard Test Method for Specular Gloss.
        - 3.7.7.1.1.(c).2 ASTM A755/A755M, Standard Specification for Steel Sheet, Metallic coated by the Hot-



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		Dip Process and Prepainted by the Coil-Coating Process for Exterior Exposed Building Products.
	3.7.7.1.1.(c).3	ASTM A792 / A792M - 21a Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated (Galvalume) by the Hot-Dip Process.
	3.7.7.1(1)(d)	Canadian Sheet Steel Building Institute (CSSBI)
	3.7.7.1.1.(d).1	CSSBI S8, Quality and Performance Specification for Prefinished Sheet Steel Used for Building Products.
	3.7.7.1.1.(d).2	CSSBI B17, Barrier Series Prefinished Steel Sheet: Product Performance & Applications.
	3.7.7.1.1.(d).3	CSSBI Sheet Steel Facts #12, Fastener Guide for Sheet Steel Building Products.
3.7.7.2	Part 2	Materials
	3.7.7.2(1)	Material Description
	3.7.7.2(1)(a)	Roofing panels of roll formed standing seam style profile with snap lock concealed fastener arrangement.
	3.7.7.2(1)(b)	Wall panels of roll formed flat profile with insert lock and concealed fastener arrangement.
	3.7.7.2(1)(c)	Aluminum-zinc coated (Galvalume) sheet steel to ASTM A792 / A792M.
	3.7.7.2.1.(c).1	Thickness: minimum 0.607 mm 0.0239 in (24 gauge).
	3.7.7.2.1.(c).2	Finish Coatings
	(c).2.1	SMP Silicone-Modified Polyester.
	(c).2.2	PVDF Polyvinylidene Fluoride.
	(c).2.3	Or approved alternate.
	(c).2.4	Colour to be determined by consultant.
	3.7.7.2(2)	Acceptable Manufacturers and Products
	3.7.7.2(2)(a)	Roofing
	3.7.7.2.2.(a).1	VicWest Prestige 16 & 20.
	3.7.7.2.2.(a).2	Westform Metals Prolok 12 & 16.
	3.7.7.2.2.(a).3	Or approved equal.
	3.7.7.2(2)(b)	Sheet Metal Wall/Soffit Cladding

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- 3.7.7.2.2.(b).1 Vicwest AD 300-R.
      - 3.7.7.2.2.(b).2 Westform Metals HF12R1.
      - 3.7.7.2.2.(b).3 Or approved equal.
    - 3.7.7.2(2)(c) Underlay
      - 3.7.7.2.2.(c).1 SOPREMA LASTOBOND Shield HT.
      - 3.7.7.2.2.(c).2 Or approved equal.
  - 3.7.7.3 Part 3 Execution
    - 3.7.7.3(1) Application
      - 3.7.7.3(1)(a) Manufacturers' Instructions
- 3.7.8 Section 07 62 00 – Sheet Metal Flashing and Trim
  - 3.7.8.1 Part 1 General
    - 3.7.8.1(1) References
      - 3.7.8.1(1)(a) Sheet Metal and Air Conditioning Contractors' National Association (SMACNA) Architectural Sheet Metal Manual.
      - 3.7.8.1(1)(b) Roofing Contractors Association of British Columbia (RCABC) Roofing Practices Manual (RPM).
      - 3.7.8.1(1)(c) American Society for Testing and Materials ASTM
        - 3.7.8.1.1.(c).1 ASTM A792 / A792M - 21a Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process (Galvalume).
        - 3.7.8.1.1.(c).2 ASTM A755/A755M, Standard Specification for Steel Sheet, Metallic coated by the Hot-Dip Process and Prepainted by Coil-Coating Process for Exterior Exposed Building Products.
        - 3.7.8.1.1.(c).3 ASTM D523, Standard Test Method for Specular Gloss
      - 3.7.8.1(1)(d) Canadian Sheet Steel Building Institute (CSSBI)
        - 3.7.8.1.1.(d).1 CSSBI S8, Quality and Performance Specification for Prefinished Sheet Steel Used for Building Products.
        - 3.7.8.1.1.(d).2 CSSBI B17, Barrier Series Prefinished Steel Sheet: Product Performance & Applications.

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- 3.7.8.1.1.(d).3 CSSBI Sheet Steel Facts #12, Fastener Guide for Sheet Steel Building Products.
- 3.7.8.2 Part 2 Materials
  - 3.7.8.2(1) Acceptable Products
    - 3.7.8.2(1)(a) Sheet Metal Material Aluminum-zinc coated (Galvalume) sheet steel ASTM A792 / A792M
      - 3.7.8.2.1.(a).1 Thickness: minimum 0.607 mm 0.0239 in (24 gauge).
      - 3.7.8.2.1.(a).2 Finish Coatings:
        - (a).2.1 SMP Silicone-Modified Polyester.
        - (a).2.2 PVDF Polyvinylidene Fluoride.
        - (a).2.3 Colour to be determined by consultant.
      - 3.7.8.2.1.(a).3 Manufacturers
        - (a).3.1 Cascadia Metals.
        - (a).3.2 VicWest.
        - (a).3.3 Westform Metals.
        - (a).3.4 Or approved alternate.
    - 3.7.8.2(1)(b) Flashing Screws
      - 3.7.8.2.1.(b).1 Pan Head, 316 stainless steel, #8 x 1" min.
      - 3.7.8.2.1.(b).2 Exposed: w/ hex head & neoprene washer, colour to match.
    - 3.7.8.2(1)(c) Underlay
      - 3.7.8.2.1.(c).1 SOPREMA LASTOBOND Shield HT.
      - 3.7.8.2.1.(c).2 Or approved equal.
    - 3.7.8.2(1)(d) Isolation coating
      - 3.7.8.2.1.(d).1 Alkali resistant bituminous paint.
    - 3.7.8.2(1)(e) Roofing Cement ASTM D4568.
    - 3.7.8.2(1)(f) Sealants
      - 3.7.8.2.1.(f).1 Tremco Geogard Seam Sealer polyurethane.
      - 3.7.8.2.1.(f).2 Or approved equal.
    - 3.7.8.2(1)(g) Accessories
      - 3.7.8.2.1.(g).1 Non corrosive clips, straps and anchors.
    - 3.7.8.2(1)(h) Touch-up paint
      - 3.7.8.2.1.(h).1 As recommended by manufacturer.
- 3.7.8.3 Part 3 Execution

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- 3.7.8.3(1) Installation to follow guidelines of RCABC RPM and SMACNA
- 3.7.9 Section 07 71 00 – Sheet Metal Gutters and Downspouts
  - 3.7.9.1 Part 1 General
    - 3.7.9.1(1) References
      - 3.7.9.1(1)(a) See acceptable manufacturer's technical information
  - 3.7.9.2 Part 2 Materials
    - 3.7.9.2(1) Acceptable Products
      - Lindab Rainline Gutter System, Prefinished Galvanized Steel, Half Round Gutter and Round Pipe Downspout, c/w System Accessories or approved equal.
      - 3.7.9.2(1)(a) Sealants and Isolation coatings as recommended by manufacturer.
  - 3.7.9.3 Part 3 Execution
    - 3.7.9.3(1) Installation to follow manufacturer's directions.
- 3.8 Openings (Division 8)
  - 3.8.1 Section 08 11 00 – Hollow Metal Doors & Frames
    - 3.8.1.1 Part 1 General
      - 3.8.1.1(1) Summary
        - 3.8.1.1(1)(a) This section describes hollow metal frames for the wood doors of the rooms in general, and the hollow metal door(s) and frame(s) for the utility room(s).
      - 3.8.1.1(2) References
        - 3.8.1.1(2)(a) Canadian Steel Door Manufacturers' Association (CSDMA)
          - 3.8.1.1.2.(a).1 Recommended Specifications for Commercial Steel Doors and Frames 2018.
          - 3.8.1.1.2.(a).2 Recommend Selection and Usage Guide for Commercial Steel Door and Frame Requirements 2009.

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- 3.8.1.2 Part 2 Products
  - 3.8.1.2(1) Materials
    - 3.8.1.2(1)(a) Steel Material, thickness and construction per CSDMA Selection and Usage Guide, and Specifications.
- 3.8.1.3 Part 3 Execution
  - 3.8.1.3(1) Not applicable.
- 3.8.2 Section 08 14 00 - Wood Doors
  - 3.8.2.1 Part 1 General
    - 3.8.2.1(1) References
      - 3.8.2.1(1)(a) CAN/CSA O132.2 Series 90 (R2003) Wood Flush Doors.
      - 3.8.2.1(1)(b) Architectural Woodwork Manufacturers Association of Canada (AWMAC), "North American Architectural Woodwork Standards" (NAAWS).
      - 3.8.2.1(1)(c) Wood Door Manufacturers Association (WDMA).
  - 3.8.2.2 Part 2 Materials
    - 3.8.2.2(1) Wood Flush Doors
      - 3.8.2.2(1)(a) Solid core: to CAN/CSA-O132.2
        - 3.8.2.2.1.(a).1 Construction:
          - (a).1.1 Solid particleboard core: stile and rail frame bonded to particleboard core with wood lock blocks 7-ply construction.
        - 3.8.2.2.1.(a).2 Solid wood core:
          - (a).2.1 Glued block core with wood edge band.
          - (a).2.2 Framed block glued core.
          - (a).2.3 Framed block non-glued core.
          - (a).2.4 Stile and rail core.
          - (a).2.5 7-ply construction.
        - 3.8.2.2.1.(a).3 Face Panels:
          - (a).3.1 Hardwood; veneer grades: Grade I (Premium).

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- 3.8.2.2.1.(a).4 Adhesive: Type II (Water resistant) for interior doors.
- 3.8.2.2(1)(b) Hollow core: to CAN/CSA-0132.2
  - 3.8.2.2.1.(b).1 Construction:
    - (b).1.1 Ladder core with lock blocks, 7-ply construction.
  - 3.8.2.2.1.(b).2 Face Panels:
    - (b).2.1 Hardwood: Grade I (Premium)
  - 3.8.2.2.1.(b).3 Adhesive: Type II (water resistant) for interior exterior doors.
- 3.8.2.3 Part 3 Execution
  - 3.8.2.3(1) Not applicable.
- 3.8.3 Section 08 41 13 - Aluminum Entrances
  - 3.8.3.1 Part 1 General
    - 3.8.3.1(1) Summary
      - 3.8.3.1(1)(a) This section describes the aluminum and glass screens and doors for the main entrance, access to the outdoor playground, and other exterior doors.
    - 3.8.3.1(2) References
      - 3.8.3.1(2)(a) Refer to Schedule 1, Section 6.8.17.
      - 3.8.3.1(2)(b) Specifications of Acceptable Products.
  - 3.8.3.2 Part 2 Materials
    - 3.8.3.2(1) Acceptable Products
      - 3.8.3.2(1)(a) Alumicor FlushGlaze BF 3400.
      - 3.8.3.2(1)(b) KAWNEER TRIFAB 601UT.
      - 3.8.3.2(1)(c) Or approved equal.
    - 3.8.3.2(2) Acceptable Finishes
      - 3.8.3.2(2)(a) Anodized
      - 3.8.3.2(2)(b) Polyvinylidene fluoride (PVDF)
  - 3.8.3.3 Part 3 Execution

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3.8.3.3(1) Refer to Acceptable Product manufacturer's installation instructions and engineered design.

### 3.8.4 Section 08 53 13 – Aluminum Clad Vinyl Frame Windows

#### 3.8.4.1 Part 1 General

##### 3.8.4.1(1) Summary

3.8.4.1(1)(a) The work of this section generally describes provisions of prefinished aluminum clad vinyl frame windows with insulating glazing units, fixed with casement and/or awning type operable panels.

3.8.4.1(1)(b) The windows are generally to be fixed, accompanied with either casement or awning type operable panels.

##### 3.8.4.1(2) References

3.8.4.1(2)(a) AAMA 502 – Voluntary Specification for Field Testing of Newly Installed Fenestration Products 2012.

3.8.4.1(2)(b) AAMA/WDMA/CSA 101/I.S.2/A440 – North American Fenestration Standard/Specification for windows, doors, and skylights 2017.

3.8.4.1(2)(c) ASHRAE 90.1 (I-P Edition) Energy Standard for Buildings Except Low-Rise Residential Buildings (ANSI Approved; IES Co-sponsored) 2016.

3.8.4.1(2)(d) ASTM B221, Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

3.8.4.1(2)(e) ASTM E1105 – Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Wall by Uniform of Cyclic Static Air Pressure Difference 2015.

3.8.4.1(2)(f) CAN/CGSB-12.8-M97, "Insulating Glass Units".

3.8.4.1(2)(g) CAN/CGSB-12.10-M76, "Glass, Light and Heat Reflecting".

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- 3.8.4.1(2)(h) CAN/CGSB-12.20-M89, "Structural Design of Glass for Buildings".
  - 3.8.4.1(2)(i) Glazing Contractors Association of British Columbia (GCA), "Glazing Systems Specifications Manual".
  - 3.8.4.1(2)(j) BC Energy Efficiency Act Regulations for Windows, Glazing, Doors and Skylights.
- 3.8.4.2 Part 2 Products
- 3.8.4.2(1) Acceptable Manufacturers and Products
    - 3.8.4.2(1)(a) All Weather Windows: Apex Alloy 9950 Series
    - 3.8.4.2(1)(b) Jeld Wen: DFHybrid
    - 3.8.4.2(1)(c) Neuffer: Twinset 5000
    - 3.8.4.2(1)(d) Ply Gem Canada: Design Architectural Series
    - 3.8.4.2(1)(e) Or alternative as approved by the Authority.
  - 3.8.4.2(2) Materials General
    - 3.8.4.2(2)(a) Frame and integral members: 100% high impact resistant uPVC, 2.0 mm thick material with galvanized metal internal reinforcing as necessary to meet design requirements, with factory applied acrylic interior finish.
    - 3.8.4.2(2)(b) Exterior cladding of aluminum with finish to match aluminum entrance framing to AAMA 2605.
  - 3.8.4.2(3) Performance Criteria
    - 3.8.4.2(3)(a) Meet or exceed requirements of NAFS-08, and the following performance requirements for fixed windows and operable windows:
      - 3.8.4.2.3.(a).1 Fixed windows
        - (a).1.1 Performance Class: LC- Light Commercial.
        - (a).1.2 Performance grade: PG 45.
        - (a).1.3 Design Pressure: 2160 Pa.
        - (a).1.4 Air Infiltration/Exfiltration Level: Fixed.
        - (a).1.5 Water penetration resistance: 330 Pa.



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- (a).1.6 Forced Entry: F20, pass test for resistance to forced entry.
- 3.8.4.2.3.(a).2 Operable windows
  - (a).2.1 Performance Class: LC- Light Commercial.
  - (a).2.2 Performance grade: PG 30.
  - (a).2.3 Design Pressure: 2160 Pa.
  - (a).2.4 Air Infiltration/Exfiltration Level: A3.
  - (a).2.5 Water penetration resistance: 330 Pa.
  - (a).2.6 Forced Entry: F20, pass test for resistance to forced entry.
  - (a).2.7 Insect Screens: S2.
- 3.8.4.2(4) Accessories
  - 3.8.4.2(4)(a) Fasteners: series 300 stainless steel.
  - 3.8.4.2(4)(b) Aluminum metal back angle: mill finish aluminum, 1.5 mm thick, profile and size as indicated on drawings.
  - 3.8.4.2(4)(c) Weatherstripping at operable sash: neoprene, thermoplastic rubber or EPDM, flexible at minimum design temperature, and as follows:
    - 3.8.4.2.4.(c).1 Profiled to mechanically key into window frame and operable sash;
    - 3.8.4.2.4.(c).2 Removable without special tools and without dismantling of sash or frame;
    - 3.8.4.2.4.(c).3 Designed to maintain pressure contact against sash through design temperature range.
  - 3.8.4.2(4)(d) Joint Sealants: as recommended by manufacturer for substrates.
  - 3.8.4.2(4)(e) Insulating Foam Sealant: one-part polyurethane, closed cell foam, skin forming type, expanding 10% minimum.
  - 3.8.4.2(4)(f) Foam Backer Rod: extruded closed cell backer rod, oversize 30 to 50%.
  - 3.8.4.2(4)(g) Screens: Standard duty, Class A, aluminum mesh 18 x 16/25 mm with extruded aluminum sash and four metal clip or screw retainers per side. Screen sash finish will match colour of window sash. Screen colour black.

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- 3.8.4.2(5) Fabrication
  - 3.8.4.2(5)(a) Fabricate window units square and true with maximum tolerance of plus or minus 1.5 mm for units with a diagonal measurement of 1800 mm or less, and 3 mm for units with a diagonal measurement over 1800 mm.
  - 3.8.4.2(5)(b) Corner joints: fusion welded.
  - 3.8.4.2(5)(c) Intermediate mullions and t-bars, butt jointed and screwed.
  - 3.8.4.2(5)(d) Continuously and uniformly compress length of gaskets during installation, to compensate for linear shrinkage.
  - 3.8.4.2(5)(e) Installation of IGUs: factory installed.
- 3.8.4.3 Part 3 Execution
  - 3.8.4.3(1) Not applicable.
- 3.8.5 Section 08 80 00 - Door Hardware
  - 3.8.5.1 Performance Requirements
    - 3.8.5.1(1) Finish hardware will be heavy duty suitable for institutional use.
    - 3.8.5.1(2) Hinges: ANSI Grade 1, warranted for the life of the Child Care Centre. Size hinges according to manufacturer's recommendations. Provide hinges with concealed maintenance free Teflon or plastic bearings and non-removable pins.
    - 3.8.5.1(3) All doors to have continuous (piano type) hinges: ANSI Grade 1, geared aluminum type. Provide removable serviceable power transfers where required.
    - 3.8.5.1(4) Locksets and latch sets: ANSI A156.13, fully mortised grade 1 type, lever handles will be solid material and provide a full return to the door. Provide lever handle locksets are with break-away/free-wheeling levers. Where doors are monitored for access control, provide request to exit switches in the lockset. Provide locksets from one of the following manufacturers:
      - 3.8.5.1(4)(a) Schlage
      - 3.8.5.1(4)(b) Sargent

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- 3.8.5.1(4)(c) Best
- 3.8.5.1(5) Deadbolts: ANSI A156.13, fully mortised grade 1 type. Provide Deadbolts from one of the following manufacturers:
- 3.8.5.1(5)(a) Schlage
- 3.8.5.1(5)(b) Sargent
- 3.8.5.1(5)(c) Best
- 3.8.5.1(6) Door closers: ANSI A156.4, Grade 1 type. Size all door closers to suit conditions and in accordance with barrier-free accessibility codes. Provide delayed action closers at all locations. Do not locate door closers on the corridor side of openings. Provide through-bolt mounting for closers. Selectable hold open arms and spring-loaded stops are to be provided where applicable as determined in consultation with the Authority. Do not provide friction type hold open arms. Main arm and forearm are to be solid forged steel. Provide Door Closers from one of the following manufacturers:
- 3.8.5.1(6)(a) LCN
- 3.8.5.1(6)(b) Sargent
- 3.8.5.1(6)(c) Norton
- 3.8.5.1(7) Exit devices: ANSI 156.3 Grade 1 type. All exit devices will be listed for accident hazard and fire exit. Latch retraction devices will require an inrush of 1amp or less, have a manual key override and will not require proprietary power supplies. Vertical rod exit devices are to be concealed, less bottom rod type. Where doors are monitored for access control, provide request to exit switches in the exit device. Provide Exit Devices from one of the following manufacturers:
- 3.8.5.1(7)(a) VonDuprin
- 3.8.5.1(7)(b) Sargent
- 3.8.5.1(7)(c) Corbin
- 3.8.5.1(8) Door stops: Provide heavy duty wall stops.
- 3.8.5.1(9) Floor stops are not permitted for safety and cleanliness reasons. Provide solid backing for wall stops.

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- 3.8.5.1(10) Coordinators: Provide bar type coordinators for pairs of fire rated doors with astragals. Prepare for vertical rod strikes and provide mounting brackets for stop mounted hardware.
- 3.8.5.1(11) Astragals: Provide full length astragals for all exterior doors. Provide short lip strike plates where they conflict with astragals. The astragal is not to be cut to accommodate strike plates.
- 3.8.5.1(12) Flush bolts: Provide heavy duty automatic latching top bolts. Mounting height of top flush bolts will not exceed 1800 mm. Provide heavy duty manual bottom bolts with dust proof strikes.
- 3.8.5.1(13) Power transfers: Mortise power transfers into the edges of the door and frame. All power transfers are to be serviceable without removal of the door.
- 3.8.5.1(14) Power supplies: Provide power supplies with relay boards that completely isolate hardware power from the access control system and individually fused outputs for each hardware device. Provide a minimum of 25% room for expansion and 5Ah battery backup.
- 3.8.5.1(15) Request to exit devices: Locate request to exit devices in the door hardware wherever the hardware allows.
- 3.8.5.1(16) Door position switches: Provide double throw double pole door position switches.
- 3.8.5.1(17) Automatic swing door operators: Provide Record-USA series 8100 Electromechanical Automatic Operators or alternative as approved by the Authority. Provide operators with on-board timing sequencers, power close mode, dynamic stack pressure compensation and opening assist. Upon loss of power, manual opening force will not exceed 15 lbf. Provide door mounted safety sensors on both sides of doors with automatic operation. Provide through-bolt mounting for operator arms. Provide a key switch located on the secure side to toggle function Auto/Open/Close. Key switches are to be keyed to the building masterkey system. Touch-free actuators are to be provided at two heights on both sides of the opening in accordance with BCBC. Where the opening can be approached in more than one direction from the same side of the opening, provide additional actuators.
- 3.8.5.1(18) Finger protection: Provide full length finger protection on the push and pull side of doors as set out in hardware groups. Staff areas are excluded.

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### 3.8.5.2 Hardware groups:

#### 3.8.5.2(1) Group EXT-1

- 3.8.5.2(1)(a) Door with automatic operator;
- 3.8.5.2(1)(b) Hinges;
- 3.8.5.2(1)(c) Concealed power transfer;
- 3.8.5.2(1)(d) Exit Hardware (Latch retraction and request to exit provided in the door hardware);
- 3.8.5.2(1)(e) Automatic operator;
- 3.8.5.2(1)(f) Actuators;
- 3.8.5.2(1)(g) Remote key switch to deactivate;
- 3.8.5.2(1)(h) Ability to be held open; and
- 3.8.5.2(1)(i) Perimeter seals.

#### 3.8.5.2(2) Group INT-1

- 3.8.5.2(2)(a) Hinges;
- 3.8.5.2(2)(b) Passage;
- 3.8.5.2(2)(c) Stop;
- 3.8.5.2(2)(d) Finger protection;
- 3.8.5.2(2)(e) Ability to be held open; and
- 3.8.5.2(2)(f) Perimeter seals.

#### 3.8.5.2(3) Group INT-2

- 3.8.5.2(3)(a) Hinges;
- 3.8.5.2(3)(b) Privacy with occupied indicator;
- 3.8.5.2(3)(c) Closer-Surface mount delayed action;
- 3.8.5.2(3)(d) Kickplate;
- 3.8.5.2(3)(e) Stop; and
- 3.8.5.2(3)(f) Perimeter seals.

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### 3.8.5.2(4) Group INT-3

- 3.8.5.2(4)(a) Hinges;
- 3.8.5.2(4)(b) Lockset;
- 3.8.5.2(4)(c) Stop; and
- 3.8.5.2(4)(d) Perimeter seals.

### 3.8.5.2(5) Group INT-4

- 3.8.5.2(5)(a) Hinges;
- 3.8.5.2(5)(b) Passage;
- 3.8.5.2(5)(c) Stop;
- 3.8.5.2(5)(d) Ability to be held open; and
- 3.8.5.2(5)(e) Perimeter seals.

## 3.8.6 Section 08 80 50 – Glazing

### 3.8.6.1 Part 1 General

#### 3.8.6.1(1) References

- 3.8.6.1(1)(a) ANSI Z97.1, Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test.
- 3.8.6.1(1)(b) ASTM C1036, Standard Specification for Flat Glass.
- 3.8.6.1(1)(c) ASTM C1048, Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass.
- 3.8.6.1(1)(d) ASTM C1172, Standard Specification for Laminated Architectural Flat Glass.
- 3.8.6.1(1)(e) ASTM C1376, Standard Specification for Pyrolytic and Vacuum Deposition Coatings on Flat Glass.
- 3.8.6.1(1)(f) ASTM C1349, Standard Specification for Architectural Flat Glass Clad Polycarbonate.
- 3.8.6.1(1)(g) ASTM C1503, Standard Specification for Silvered Flat Glass Mirror.

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- 3.8.6.1(1)(h) ASTM F1233, Test Method for Security Glazing Materials and Systems.
- 3.8.6.1(1)(i) CAN/CGSB-12.1, Tempered or Laminated Safety Glass.
- 3.8.6.1(1)(j) CAN/CGSB-12.3, Flat, Clear Float Glass.
- 3.8.6.1(1)(k) CAN/CGSB-12.8, Insulating Glass Units.
- 3.8.6.1(1)(l) CAN/CGSB-12.20-M, Structural Design of Glass for Buildings.
- 3.8.6.1(1)(m) IGMA, Insulating Glass Manufacturer's Alliance.
- 3.8.6.1(1)(n) ULC CAN4 S104-M, Standard Method for Fire Tests of Door Assemblies.
- 3.8.6.1(1)(o) ULC CAN4 S106-M, Standard Method for Fire Tests of Window and Glass Block Assemblies.
- 3.8.6.1(2) Performance Requirements
  - 3.8.6.1(2)(a) Thickness of Glass: Use most stringent requirements.
    - 3.8.6.1.2.(a).1 Conforming to BC Building Code requirements according to maximum glass sizes, wind loadings, guard and seismic forces in determining glass thickness.
    - 3.8.6.1.2.(a).2 Conforming to Section 3.2 Acoustic, Vibration, and Noise Control Requirements.
- 3.8.6.2 Part 2 Products
  - 3.8.6.2(1) Manufacturers
    - 3.8.6.2(1)(a) Manufacturers (typical): Subject to conformance to requirements of this Section, provide typical glazing materials by one of the following:
      - 3.8.6.2.1.(a).1 AGC Glass Company.
      - 3.8.6.2.1.(a).2 Oldcastle Building Envelope.
      - 3.8.6.2.1.(a).3 Vitro Architectural Glass (formerly PPG Industries Ltd.).
      - 3.8.6.2.1.(a).4 Or alternative as approved by the Authority.
    - 3.8.6.2(1)(b) Processed Glass

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- 3.8.6.2.1.(b).1 Safety (Tempered) Glass: Type 2, tempered; Class B, float or plate glass, clear, conforming to CAN/CGSB-12.1-M90.
- 3.8.6.2.1.(b).2 Safety (Laminate) Glass: Type 1. Laminated; Class B, float or plate glass, clear; conforming to CAN/CGSB-12.1-M90, 1.52mm (0.060") minimum thickness vinyl interlayer.
- 3.8.6.2.1.(b).3 Heat-Strengthened Glass: conforming to ASTM C1036 - 11e1, ASTM C1048 - 12e1 and to compressive stress guidelines set by the Glass Tempering Association.
- 3.8.6.2.1.(b).4 Translucent Glass: for privacy glazing and for privacy screens will be 6mm laminated safety glass with diffuse white vinyl interlayer.
- 3.8.6.2.1.(b).5 Low-Emissivity Glass: low-emissivity, high transmittance coating on glazing quality, float glass, tempered and heat strengthened, having virtually clear appearance, maximizing visible light transmittance, and minimizing solar heat gain to greatest extent possible on #2 or #3 surface of insulating glass units as recommended by the manufacturer or specified herein.
  - (b).5.1 Clear glass insulated units with Low-E on no.2 surface.
- 3.8.6.2(1)(c) Fabricated Glass Units
  - 3.8.6.2.1.(c).1 Insulating Glass: sealed insulating glass units conforming to CAN/CGSB-12.8-M97 with 12.7 mm (1/2") air space between glass lites; sealant-type edge construction to maintain a hermetic seal; fabricated to provide the following overall characteristics:
    - (c).1.1 Exterior glass: clear float glass, glazing quality (Tempered glass to doors and sidelights);
    - (c).1.2 Air Space: 12.7 mm (1/2") air space, air-filled;
  - 3.8.6.2.1.(c).2 Interior glass: tempered and float glass, glazing quality, clear;
    - (c).2.1 Edge construction: twin primary seals of polyisobutylene; tubular aluminum spacer-bar frame with sealed corners, and filled with desiccant; and secondary seal outside of bar, bonded



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- to both sheets of glass and bar, of polysulfide or silicone sealant;
- (c).2.2 Low E coating on No.2 or No.3 surface;
- (c).2.3 Sealed units with ceramic frit on inboard lite, no.3 surface (or Opacicoat) glass to be heat-strengthened with silk-screen pattern and colour per Details/Consultant selection.

### 3.8.6.2(2) Performance Requirements

- 3.8.6.2(2)(a) Nonmetal framing, all:
  - 3.8.6.2.2.(a).1 Assembly Max. U 0.31
  - 3.8.6.2.2.(a).2 Max. SHGC 0.36
- 3.8.6.2(2)(b) For conformance to ASHRAE 90.1, the manufacturer will submit, with the shop drawings, a signed and dated certification listing the U-factor (NFRC 100), SHGC (NFRC 200), and air leakage rate (NFRC 400) for all glazing.
- 3.8.6.2(2)(c) Mirrors
  - 3.8.6.2.2.(c).1 Washroom Mirrors: mirrors will conform to ASTM C1503 - 08(2013) "Standard Specification for Silvered Flat Glass Mirrors" (No. 1 Quality); 5 mm thick polished plate or float glass, backed with silvered copper paint for high-humidity use.
- 3.8.6.2(2)(d) Accessories
  - 3.8.6.2.2.(d).1 Glazing Tape: non-shrinking butyl rubber tape with continuous built-in shim, self-adhesive surface. Accepted Products: "POLYshim II Tape" as manufactured by Tremco Ltd., or other approved.
  - 3.8.6.2.2.(d).2 Glazing Splines: Neoprene or polyvinylchloride, manufacturer's standard dry glazing splines to suit aluminum extrusions and glazing thickness.
  - 3.8.6.2.2.(d).3 Glazing Blocks: Neoprene (80 Durometer hardness) to give minimum 4 mm (5/32") clearance, and as required by glass weights and light sizes.
  - 3.8.6.2.2.(d).4 Spacer Blocks: Neoprene (80 Durometer hardness) or of non-ferrous metal and

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		designed to fully bedded in glazing materials; to give minimum 4 mm (5/32") clearance, and as required by glass weights and light sizes.
	3.8.6.2.2.(d).5	Solvent Cleaner: As required for glazing materials and as recommended by manufacturer.
3.8.6.3	Part 3 Execution	
	3.8.6.3(1)	Not applicable.
3.9	Finishes (Division 9)	
3.9.1	Section 09 21 16 – Gypsum Board Assemblies	
3.9.1.1	Part 1 General	
	3.9.1.1(1)	References
	3.9.1.1(1)(a)	ASTM C475, Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.
	3.9.1.1(1)(b)	ASTM C514, Specification for Nails for the Application of Gypsum Board.
	3.9.1.1(1)(c)	ASTM C840-20, Specification for Application and Finishing of Gypsum Board.
	3.9.1.1(1)(d)	ASTM C954, Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs From 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in thickness.
	3.9.1.1(1)(e)	ASTM C1002, Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.
	3.9.1.1(1)(f)	ASTM C1047, Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base.
	3.9.1.1(1)(g)	ASTM C1280, Standard Specification for Application of Gypsum Sheathing.
	3.9.1.1(1)(h)	ASTM C1177/C1177M, Standard Specification for Glass Mat Gypsum Substrate for use as Sheathing

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- 3.9.1.1(1)(i) ASTM C1178/C1178M, Standard Specification for Glass Mat Water Resistant Gypsum Backing Board.
  - 3.9.1.1(1)(j) ASTM C1396/C1396M, Standard Specification for Gypsum Board.
  - 3.9.1.1(1)(k) ASTM C1629, Standard Classification for Abuse Resistant Nondecorated Interior Gypsum Panel Products and Fibre Reinforced Cement Panels.
  - 3.9.1.1(1)(l) ASTM D3273, Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.
  - 3.9.1.1(1)(m) ASTM E90, Standard Test method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
  - 3.9.1.1(1)(n) BC Association of Wall and Ceiling Contractors (AWCC), Wall and Ceiling Institute " 2012 Specification Manual ".
  - 3.9.1.1(1)(o) CAN/CGSB-19.21-M87, "Sealing and Bedding Compound for Acoustical Purposes".
  - 3.9.1.1(1)(p) ASTM G21-13, "Standard Practice for Determining resistance of Synthetic Polymeric Materials to Fungi".
- 3.9.1.2 Part 2 Materials
- 3.9.1.2(1) Products
    - 3.9.1.2(1)(a) Acceptable Manufacturers
      - 3.9.1.2.1.(a).1 CertainTeed
      - 3.9.1.2.1.(a).2 CGC (USG)
      - 3.9.1.2.1.(a).3 Georgia Pacific
      - 3.9.1.2.1.(a).4 Or approved equal
    - 3.9.1.2(1)(b) Gypsum Board Products per ASTM C1396/C1396M
      - 3.9.1.2.1.(b).1 Gypsum Boards 15.9 mm (5/8") thickness, standard, and moisture resistant for wet areas.
    - 3.9.1.2(1)(c) Tile Backer Boards per ASTM C1178
      - 3.9.1.2.1.(c).1 Tile Backer Boards 15.9 mm (5/8") thickness.

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- 3.9.1.2(1)(d) Framing
  - 3.9.1.2.1.(d).1 Wood Framing as specified in Division 6.
  - 3.9.1.2.1.(d).2 Metal framing for bulkhead and drop ceilings:
    - (d).2.1 Armstrong Drywall Grid Systems
- 3.9.1.3 Part 3 Execution
  - 3.9.1.3(1) Application
    - 3.9.1.3(1)(a) Perform work to ASTM C840 and related standards.
- 3.9.2 Section 09 51 23 – Acoustical Tile Ceilings
  - 3.9.2.1 Part 1 General
    - 3.9.2.1(1) Reference
      - 3.9.2.1(1)(a) Acceptable Products technical information and installation instructions.
    - 3.9.2.1(2) Additional References
      - 3.9.2.1(2)(a) ASTM E580/E580M, Standard Practice for Installation of Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels in Areas Subject to Earthquake Ground Motions.
      - 3.9.2.1(2)(b) CSA S832:14 (R2019) Seismic risk reduction of operational and functional components (OFCs) of buildings.
    - 3.9.2.1(3) Requirements
      - 3.9.2.1(3)(a) Engineered Design.
  - 3.9.2.2 Part 2 Materials
    - 3.9.2.2(1) Acceptable Products
      - 3.9.2.2(1)(a) Lay-in Acoustic Ceiling Panels
        - 3.9.2.2.1.(a).1 Armstrong, ULTIMA Health Zone AirAssure or approved equal.
      - 3.9.2.2(1)(b) Suspended Metal Grid
        - 3.9.2.2.1.(b).1 Armstrong Prelude X or approved equal.
  - 3.9.2.3 Part 3 Execution

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- 3.9.2.3(1) Installation
  - 3.9.2.3(1)(a) Install per product manufacturer's instructions and engineered design.
- 3.9.3 Section 09 65 00 - Resilient Flooring
  - 3.9.3.1 Part 1 General
    - 3.9.3.1(1) Summary
      - 3.9.3.1(1)(a) Sheet vinyl flooring generally throughout the building.
    - 3.9.3.1(2) Reference Standards
      - 3.9.3.1(2)(a) ASTM F1303-04(2021) Standard Specification for Sheet Vinyl Floor Covering with Backing.
      - 3.9.3.1(2)(b) ASTM F1861-21 Standard Specification for Resilient Wall Base.
      - 3.9.3.1(2)(c) ASTM F1913-04(2014) Standard Specification for Vinyl Sheet Floor Covering Without Backing.
      - 3.9.3.1(2)(d) CAN/ULC-S102.2:2018 Standard Method of Test for Surface Burning Characteristics of Flooring, Floor Covering and Miscellaneous Materials and Assemblies.
      - 3.9.3.1(2)(e) National Floor Covering Association of Canada (NFCA) – Floor Covering Reference Manual.
      - 3.9.3.1(2)(f) Resilient Floor Covering Institute (RFCI) and Scientific Certification Systems (SCS) – FloorScore® IAQ Certification Program.
    - 3.9.3.1(3) Quality Assurance
      - 3.9.3.1(3)(a) Manufacturer qualifications: Company specializing in manufacturing the products specified in this section with a quality management system, and minimum five years documented experience.
      - 3.9.3.1(3)(b) Source Limitations: Obtain resilient flooring and accessories from single source manufacturer for each specific product type.

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- 3.9.3.1(3)(c) All preparation, materials, and workmanship will be in strict accordance with NFCA requirements as detailed in the latest (online edition of the NFCA Floor Covering Reference Manual of Canada, ([www.floorcoveringreferencemanual.com](http://www.floorcoveringreferencemanual.com)) and material manufacturer's written recommendations for conditions of work and guarantee / warranty periods as set out in Appendix 1X [Warranty Requirements].
- 3.9.3.1(3)(d) Companies specializing in performing work of this section will have a minimum five (5) years documented experience and detail requirements for conditions of work that apply, and comply with the NFCA Specification Standards Manual.
- 3.9.3.1(3)(e) The cost of the Quality Assurance Program (QAP) , will be included in the cost of the floor covering work. Contact NFCA ([ww.nfca.ca](http://www.nfca.ca)) for clarifications prior to submitting a bid.
- 3.9.3.1(3)(f) The cost of a 100%, two-year, Maintenance Bond is to be carried under the project by the floor covering contractor.
- 3.9.3.1(3)(g) All Work described in this Section is included under the Quality Assurance Program (QAP) of NFCA (National Floor Covering Association), as detailed in the latest (online) edition of the Floor Covering Reference Manual of Canada ([www.floorcoveringreferencemanual.com](http://www.floorcoveringreferencemanual.com)) and will be reviewed in accordance with QAP requirements therein by an Inspection Agency assigned by the National Floor Covering Association (NFCA).
- 3.9.3.1(3)(h) Any preparation, materials, and workmanship that do not meet NFCA requirements will be replaced in accordance with Quality Assurance requirements without any additional cost to the Owner.
- 3.9.3.1(3)(i) On award of contract, contact NFCA and request a QA Review Form and submit prior to ordering materials.
- 3.9.3.1(3)(j) Qualification of installers performing all work will meet the requirements detailed in PART A05 Trade

## APPENDIX 1S - CHILD CARE CENTRE REQUIREMENTS

- Qualifications in the latest edition of the NFCA Floor covering Reference Manual.
- 3.9.3.1(3)(k) Installer Qualifications – The floor covering contractor at the time of and throughout the performance of the work will be a member in good standing of the National Floor Covering Association (NFCA) and referenced on the NFCA website ([www.nfca.ca](http://www.nfca.ca)).
- 3.9.3.2 Part 2 Products
- 3.9.3.2(1) Materials
- 3.9.3.2(1)(a) Vinyl Sheet Flooring
- 3.9.3.2.1.(a).1 Tarkett iQ Optima.
- 3.9.3.2.1.(a).2 Forbo Sphera Energetic.
- 3.9.3.2.1.(a).3 Or approved equal.
- 3.9.3.2(1)(b) Sheet Rubber Resilient Athletic Flooring triple-durometer, calendered, vulcanized Mondo Advance or approved equal.
- 3.9.3.3 Part 3 Execution
- 3.9.3.3(1) Not applicable.
- 3.9.4 Section 09 72 00 – Wall Covering
- 3.9.4.1 Refer to Schedule 1 – Statement of Requirements, 6.10.6 Section 10 26 00 Wall and Door Protection.
- 3.9.5 Section 09 91 00 – Painting
- 3.9.5.1 Part 1 General
- 3.9.5.1(1) References
- 3.9.5.1(1)(a) Master Painters Institute (MPI) MPI Architectural Specifications Manual.
- 3.9.5.2 Part 2 Materials
- 3.9.5.2(1) Acceptable Products
- 3.9.5.2(1)(a) MPI listed products per MPI listed systems.
- 3.9.5.3 Part 3 Execution

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- 3.9.5.3(1) Application
  - 3.9.5.3(1)(a) MPI listed systems for metal substrate
    - 3.9.5.3.1.(a).1 HM Door Frames, access ladder  
INT 5.1E ALKYD (over q.d. alkyd primer).
  - 3.9.5.3(1)(b) MPI listed systems for wood substrate
    - 3.9.5.3.1.(b).1 Wood Door Panels – opaque  
INT 6.3B ALKYD (over alkyd primer).
    - 3.9.5.3.1.(b).2 Wood Door Panels - clear for wood grain  
exposed  
INT 6.3K POLYURETHANE VARNISH.
  - 3.9.5.3(1)(c) MPI listed systems for gypsum board substrate
    - 3.9.5.3.1.(c).1 Light use areas, and ceilings  
INT 9.2A LATEX (over latex primer /sealer).
    - 3.9.5.3.1.(c).2 Institutional areas  
INT 9.2B HIGH PERFORMANCE  
ARCHITECTURAL LATEX (over latex primer  
/sealer).
    - 3.9.5.3.1.(c).3 High traffic areas, nutrition areas, and  
washrooms  
INT 9.2C ALKYD (over latex primer /sealer).
- 3.10 Specialties (Division 10)
  - 3.10.1 Section 10 28 00 – Washroom Accessories
    - 3.10.1.1 Part 1 General
      - 3.10.1.1(1) References
        - 3.10.1.1(1)(a) ASTM A269, Seamless and Welded Austenitic  
Stainless Steel Tubing for General Service.
        - 3.10.1.1(1)(b) ASTM A480/A480M, Standard Specification for  
General Requirements for Flat-Rolled Stainless  
and Heat-Resisting Steel Plate, Sheet and Strip.
        - 3.10.1.1(1)(c) ASTM A1008/A1008M, Steel, Sheet, Cold-Rolled  
Carbon, Structural, High-Strength Low Alloy and  
High Strength Low Alloy with Improved Formability.
        - 3.10.1.1(1)(d) CAN/CSA B651, Accessible Design for the Built  
Environment.



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- 3.10.1.1(1)(e) CAN/ULC S109, Flame Tests of Flame-Resistant Fabrics and Films.
- 3.10.1.1(2) Performance Requirements
  - 3.10.1.1(2)(a) Perform work in accordance with AHJ and as outlined herein.
  - 3.10.1.1(2)(b) Washroom accessories and installation will be in conformance with BCBC requirements for Persons with Disabilities.
  - 3.10.1.1(2)(c) Barrier-free Grab Bars (including security healthcare and detention healthcare grab bars): Comply with CAN/CSA B651.
- 3.10.1.1(3) Quality Assurance
  - 3.10.1.1(3)(a) Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.
- 3.10.1.2 Part 2 Products
  - 3.10.1.2(1) General
    - 3.10.1.2(1)(a) Provide washroom accessories in all washrooms. Provide and install the type, size, and number of washroom accessories as determined with the Authority. All accessories will be compatible with Authority provided consumable supplies.
    - 3.10.1.2(1)(b) Unless noted otherwise, do not use recessed dispensers (such as those for paper towels, soap and waste receptacle).
    - 3.10.1.2(1)(c) Unless noted otherwise, use commercial and hospital-grade accessories free from imperfections in manufacture and finish.
  - 3.10.1.2(2) Materials
    - 3.10.1.2(2)(a) Sheet Steel: ASTM A1008/A1008M.
    - 3.10.1.2(2)(b) Stainless Steel Sheet: ASTM A480/A480M, Type 304.

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- 3.10.1.2(2)(c) Tubing: ASTM A269, stainless steel.
- 3.10.1.2(2)(d) Fasteners, Screws, and Bolts: Hot dip galvanized, stainless steel where exposed to view Tamper Resistant, and security type.
- 3.10.1.2(2)(e) Expansion Shields: Fibre, lead, or rubber as recommended by accessory manufacturer for component and substrate.
- 3.10.1.2(3) **Fold-Down Infant Change Tables**
  - 3.10.1.2(3)(a) Safety straps to hold infant securely.
  - 3.10.1.2(3)(b) Antimicrobial finish able to withstand repeated routine cleaning with hospital-grade disinfectants.
  - 3.10.1.2(3)(c) Minimum closed dimensions of 890 mm L x 560 mm H x 100 mm W with minimum open width of 58 cm.
  - 3.10.1.2(3)(d) High-density polyethylene construction with stainless steel veneer front.
  - 3.10.1.2(3)(e) Integral compartment for disposable, biodegradable liners 330 mm x 460 mm.
- 3.10.1.2(4) **Adult Washrooms**
  - 3.10.1.2(4)(a) Provide the following accessories as required:
    - 3.10.1.2.4.(a).1 soap dispenser;
    - 3.10.1.2.4.(a).2 double stainless steel toilet paper dispenser;
    - 3.10.1.2.4.(a).3 paper towel dispenser;
    - 3.10.1.2.4.(a).4 paper towel / garbage disposal;
    - 3.10.1.2.4.(a).5 mirror;
    - 3.10.1.2.4.(a).6 grab bar accessible to Persons with Disabilities, with integral tactile grip finish;
    - 3.10.1.2.4.(a).7 coat hook;
    - 3.10.1.2.4.(a).8 secured sharps disposal container;
    - 3.10.1.2.4.(a).9 sanitary napkin dispensers;
    - 3.10.1.2.4.(a).10 sanitary napkin disposals; and
    - 3.10.1.2.4.(a).11 solid polymer surface Utility shelf.
- 3.10.1.2(5) **Infants/Toddlers and Pre-Schoolers' Washrooms**
  - 3.10.1.2(5)(a) Provide the following safety rated accessories as required:
    - 3.10.1.2.5.(a).1 soap dispenser;

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- 3.10.1.2.5.(a).2 double stainless steel toilet paper dispenser;
- 3.10.1.2.5.(a).3 paper towel dispenser (without saw tooth);
- 3.10.1.2.5.(a).4 paper towel / garbage disposal; and
- 3.10.1.2.5.(a).5 mirror.

### 3.10.2 Section 10 51 00 – Lockers

- 3.10.2.1 Refer to Schedule 1 – Statement of Requirements.

### 3.11 Furnishings (Division 12)

#### 3.11.1 Section 12 24 13 – Roller Window Shades

- 3.11.1.1 Refer to Schedule 1 – Statement of Requirements.

## PART 4. STRUCTURAL REQUIREMENTS

### 4.1 Structural Design and Design Principles

- 4.1.1 The structural design, including minimum design loads, general provisions, and material specifications, will satisfy the requirements of the current BC Building Code that is in effect at the time of the building permit submission, local bylaws, other applicable or referenced Design standards, loading criteria required by equipment suppliers or construction technique and the loading and performance requirements detailed in this Section.
- 4.1.2 Prior to starting Construction of the Child Care Centre, Design-Builder's Structural Engineer-of-Record will have a qualified second Professional Engineer perform a concept review satisfying the requirements of the Engineers and Geo-scientists of British Columbia Permit to Practice requirements.
- 4.1.3 Design-Builder's Structural Engineer-of-Record will perform field review of the Construction at sufficient frequency and review of the reports of the applicable inspection and testing agencies to verify that the Child Care Centre has been built in substantial conformance to the approved IFC structural drawings and any authorized amendments thereto.
- 4.1.4 The structural Design will be to an Importance Category of 'Normal' Related Importance Factors as defined in the current BC Building Code will be applied to seismic, wind and snow loads.
- 4.1.5 Design-Builder will provide copies of the structural and geotechnical field reviews on a bi-weekly basis to the Authority.

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### 4.2 Design Criteria

#### 4.2.1 Performance Requirements

4.2.1.1 Unless higher loads are required by the specific use and occupancy, and equipment loads, the following minimum floor Design live loads will apply:

4.2.1.1(1) Main Floor 4.8kPa (100PSF)

4.2.1.1(2) Attic 0.5kPa (10 PSF)

4.2.1.2 Roofs will be designed for a minimum net uplift wind load of 1.5 kPa and for the minimum snow and rain loads required by BCBC and the local building bylaws. The roof will be designed to accommodate concentrated loads from equipment, machinery and features, whether roof or ceiling-mounted.

4.2.1.3 Roofs will be designed for the superimposed dead load of roofing materials, ceilings, mechanical equipment, but not be less than 1.0 kPa.

#### 4.2.2 Site Preparation and Substructures

4.2.2.1 Foundation systems will provide adequate support to the superstructure while limiting overall and differential settlement to amounts acceptable to the Authority for the structure and serviceability over the term of the contract.

4.2.2.2 A supplementary geotechnical investigation will be required and provided by the Design-Builder to specify foundation Design parameters.

4.2.2.3 Foundation systems and site preparation Design will be in accordance with recommendations from the Design-Builder's Geotechnical Consultant. Foundations will be designed by the Design-Builder's Structural Engineer-of-Record.

4.2.2.4 Foundations are to be founded a minimum of 600 mm, or at a depth recommended by the Design-Builder's Geotechnical Consultant, whichever is greatest, below finish grade to provide for frost protection.

4.2.2.5 During site preparation and Construction, the Design-Builder's Geotechnical Consultant will provide site reviews and on-going testing to confirm the general intent of the foundation and site preparation specification and Design recommendations, including any densification, are carried out.

### 4.3 Superstructure

4.3.1 The preferred structural system will be either wood frame or lightweight steel framing with double pitched pre-engineered roof trusses.

4.3.2 The roof structure will be designed to accommodate the hanging piping, etc.

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### 4.4 Lateral Load Resisting System

- 4.4.1 Lateral wind and seismic loads will be resisted by well distributed plywood shear walls or sheet metal.
- 4.4.2 Plywood sheathing on the roof trusses will serve as a roof diaphragm.

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### PART 5. MECHANICAL REQUIREMENTS

#### 5.1 Mechanical Systems Design Principles

- 5.1.1 Provide HVAC, plumbing and fire suppression systems in accordance with the BCBC, applicable standards referenced by the BCBC and local City by-laws.

#### 5.2 Main Services

- 5.2.1 Provide a dedicated (metered as applicable) services (electricity and storm) directly connected to utility providers network. Storm and sewer services will be as set out in Appendix 1E [Civil Infrastructure Plans]. No connection to CH/CC and Energy Centre will be provided. Domestic cold water and fire protection will have combined services.

#### 5.3 Fire Suppression (Division 21)

- 5.3.1 Provide a fully sprinklered building with wet type sprinkler system. All sprinkler heads will be concealed type.
- 5.3.2 Locate the fire department connection in proximity to the entrance, and a maximum 45 m away from a hydrant.
- 5.3.3 Provide fire extinguishers in fully recessed cabinets, in accordance with NFPA 10.

#### 5.4 Plumbing (Division 22)

- 5.4.1 Domestic cold water will be distributed through the building as required. Incoming combined water/fire line will be decoupled within water entry room. Appropriate backflow prevention devices will be installed. Provide an irrigation loop.
- 5.4.2 Domestic hot water will be generated within the building with electrical instantaneous heaters at the point of the use.
- 5.4.3 Hot water will be temperature adjustable.
- 5.4.4 Temperature controlled water (max. 49°C or 120°F) to be provided to all children's hand basins, Art sinks, diapering sinks, and any other sinks children will be using. CSA approved mixing valves will be provided locally as required at these locations.
- 5.4.5 High temperature water will be provided to kitchen, dishwasher, laundry, and janitor's sink.
- 5.4.6 Each plumbing fixture to have its own shut-off valve. All faucets to have aerators for water conservation.
- 5.4.7 All art sinks to be stainless steel complete with a faucet ledge. 395 mm (18") deep sink preferred. Provide a floor-mounted sediment trap at all art sinks. Approved product: Zurn Z1180 Solids Interceptor, or pre-approved alternate.

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- 5.4.8 At diaper change table provide a single compartment stainless steel sink complete with a faucet ledge, minimum 300 mm (12") deep, with swing tap (gooseneck preferred) and hand spray attachment.
- 5.4.9 In each kitchen two-compartment stainless steel sink(s) complete with faucet. Provide a separate single compartment stainless steel hand washing sink, complete with faucet ledge, in the largest kitchen to support a catered lunch program.
- 5.4.10 Provide a floor-mounted mop sink type is to be used in Housekeeping Room, complete with approved backflow preventer valve.
- 5.4.11 All children's toilets to be tank style with round bowls and closed front toilet seats.
- 5.4.12 At full-size toilets provide low-flow, gravity standard, and dual flush.
- 5.4.13 Toilets to meet a Maximum Performance (MaP) Test of 500g or better.
- 5.4.14 Flush valves are to be Sloan dual flush or approved equal.
- 5.4.15 At infant washroom provide per group minimum:
  - 5.4.15.1 One (1) 250 mm (10") high toilet, sealed to the floor, complete with closed front toilet seat; and
  - 5.4.15.2 One (1) child-accessible hand basin (installed with rim @ 20" height) complete with lever.
- 5.4.16 At toddler washroom provide per group a minimum:
  - 5.4.16.1 Two (2) toilets, sealed to the floor, complete with closed front toilet seat (may be 250 mm (10") or full size); and
  - 5.4.16.2 Two (2) child-accessible hand basins (installed with rim @ 20" height) complete with lever.
- 5.4.17 At 3-5 washroom provide per group a minimum:
  - 5.4.17.1 Three (3) toilets, full size, sealed to the floor, complete with closed front toilet seat. Provide privacy for one toilet; and
  - 5.4.17.2 Three (3) child-accessible hand basins (installed with rim @ 20" height) complete with lever.
- 5.4.18 Provide hose bibbs at the following locations:
  - 5.4.18.1 side of the building facing the outdoor play area;
  - 5.4.18.2 one for each sandbox, post mounted;

## APPENDIX 1S - CHILD CARE CENTRE REQUIREMENTS

- 5.4.18.3 side of building in proximity to the condensing units; and
- 5.4.18.4 one in proximity to outdoor garbage storage, along with an area drain.
- 5.4.19 Hose bibs to meet the following requirements:
  - 5.4.19.1 Frost-free with a vacuum breaker;
  - 5.4.19.2 Vandal Resistant when they occur at-grade or at any location that is accessible to the public;
  - 5.4.19.3 Recessed if wall-mounted in outdoor play spaces; and
  - 5.4.19.4 Keyed and Tamper Resistant in outdoor play spaces.
- 5.4.20 Where access panel are required, locate in areas inaccessible to children. If an access panel is located in a child- accessible area, the panel will have smooth, rounded and eased edges and will be Tamper Resistant.
- 5.4.21 Required storm and sanitary will connect to the Utility providers network.
- 5.4.22 All drains in outdoor play spaces, including roof drains, will be provided with sediment traps. Traps to be accessible for clean-out.
- 5.4.23 If there is insufficient head room in the space below for a sediment trap, then the Authority may consider a wye 45 elbow complete with clean-out access on a case-by-case basis.
- 5.4.24 At roof drains in play areas, use two level drains (at play surface and at roof membrane) and provide sediment traps in hard surfaces near loose fill and entrances.
- 5.4.25 Interior floor drains to be provided in each washroom, kitchen and janitor room. All floor drains to have pre-approved trap primers. Trap primers to be accessible within the same room as the floor drain behind access panels.
- 5.5 Heating, Ventilating and Air Conditioning (Division 23)
  - 5.5.1 The Child Care Centre HVAC System will be outdoor air supply fan feeding fan coil units, complete with electrical coil for tempering. Space heating and cooling will be provided with localized Fan Coil Units (FCU's) complete with refrigerant coils fed by VRF Heat-pump system.
- 5.6 Integrated Automation (Division 25)
  - 5.6.1 Thermal comfort as well as control for the Child Care Centre will be provided with programmable thermostats integrated to a standalone control system. Each play room, sleeping room, and quiet room will have dedicated fan coil units and thermostats. HVAC servicing of other rooms will be arranged as zones with shared fan coil units and thermostats to generally suit window exposure and orientation.



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- 5.6.2 Perimeter will be on separate zones and will be no more than 4.5 m from an outside wall along a common exposure. Perimeter zones will not exceed 30 square metres.
- 5.6.3 Open area interior control zones will not exceed 180 square metres.
- 5.6.4 Provide a permanent carbon dioxide monitoring system. Provide sensors to monitor outdoor air concentration and to monitor spaces where design occupant density exceeds 24 people per 93 square metres. At minimum, provide sensors for the Sleeping Rooms.
- 5.6.5 The Child Care Centre will have a standalone controls system. Provide required hardware for Authority remote interface via a web browser. Controls system interface will not require installation of a dedicated application, only a web browser. The standalone controls system will not be part of the FMO DDC network.

## APPENDIX 1S - CHILD CARE CENTRE REQUIREMENTS

### PART 6. ELECTRICAL (DIVISION 26)

#### 6.1 Design Principles

- 6.1.1 Utilize specification grade power distribution, lighting and lighting controls, fire alarm system equipment, and electrical devices.
- 6.1.2 Install electrical equipment and devices that require regular maintenance in readily accessible locations.
- 6.1.3 Provide a minimum of 25% spare physical and electrical capacities in the electrical service size, service entrance main distribution panels (MDP) and branch panelboards.
- 6.1.4 Provide a minimum of 40% spare electrical capacities in lighting and power (receptacle) branch circuits, except where dedicated branch circuits feeding known and fixed loads (e.g. oven/range, microwave), then the fixed and known load value can be used.
- 6.1.5 The Child Care Centre will be standalone and will not be connected to the Facility's power distribution, lighting controls, and fire alarm systems.

#### 6.2 Electrical Service and Power Distribution

- 6.2.1 The electrical service for the Child Care Centre will be a new secondary service from BCH. Coordinate exact service arrangement including PMT if required with BCH. The Child Care Centre will not be connected to the Energy Centre and does not require essential power distribution.
- 6.2.2 Locate the power distribution equipment indoor, in a dedicated electrical room with direct access to the exterior.
- 6.2.3 Provide power distribution equipment and utilize 208Y/120V, 3-phase, 4-wire distribution voltage from BC Hydro to service the Child Care Centre.
- 6.2.4 Disconnect switch and fuse combination will not be used in lieu of breakers.
- 6.2.5 208V Central Distribution Panel (CDP) will:
  - 6.2.5.1 Be service entrance rated and designed and factory-assembled and tested in accordance with CSA C22.2 No. 29;
  - 6.2.5.2 Consist of molded case type breakers and a pad-lockable device for main breaker and each sub-panel breaker;
  - 6.2.5.3 Directly feed sub-panels which will in turn feed branch circuits. Do not feed branch circuits directly from the CDP except for fire alarm control panel and dialler circuits;
  - 6.2.5.4 Have prepared breaker spaces for 3x200A, 3-pole; and

## APPENDIX 1S - CHILD CARE CENTRE REQUIREMENTS

- 6.2.5.5 Have an integral SPD.
- 6.2.6 Panelboard:
  - 6.2.6.1 Provide separate panelboards for lighting, mechanical, and power/receptacle loads;
  - 6.2.6.2 Branch circuit breakers will be bolt-on type;
  - 6.2.6.3 Hinged door with two-point latch and locks;
  - 6.2.6.4 Will not be located in the Play Room, Sleeping Rooms, Quiet Rooms, or Storage Rooms;
  - 6.2.6.5 Painted exterior cover with colour to match the upstream CDP. If located in the corridor, the door will be painted to match the architectural finish of the wall; and
  - 6.2.6.6 Label each branch circuit with a unique descriptor on typewritten directory.
- 6.2.7 Provide digital metering system to monitor the main feeder as well as all sub-panel feeders. Branch circuit level monitoring is not required. The metering system will include:
  - 6.2.7.1 Electrical energy and power and power quality monitoring;
  - 6.2.7.2 Device communication interface hardware;
  - 6.2.7.3 Ancillary equipment including CTs, PTs, servers, terminals and displays; and
  - 6.2.7.4 Software, licensing and programming.
- 6.2.8 Provide battery back-up units for fire alarm system, exit signage, and emergency lighting.
- 6.3 Wiring Methods, Materials and Devices
  - 6.3.1 Utilize CSA 5-15R, 15A duplex receptacles for general-purpose receptacles.
  - 6.3.2 All general-purpose receptacles will be child-proof type.
  - 6.3.3 Allow a maximum of five (5) general-purpose receptacles on a dedicated branch circuit.
  - 6.3.4 Utilize CSA 5-20R 15/20A T-Slot duplex receptacles with a 20Amp breaker for housekeeping receptacles:
    - 6.3.4.1 A minimum of one (1) housekeeping receptacle will be provided in each room/space, vestibule, and alcove. Provide a maximum spacing of 7.5m per receptacle along the corridor and install on alternate sides of each corridor.
    - 6.3.4.2 Provide receptacles and connections on dedicated branch circuits for equipment identified on Attachment 4: Equipment List.

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- 6.3.4.3 Provide tamper resistant receptacles in all areas accessible to children.
- 6.3.4.4 Provide arc-flash protection for all sleeping area receptacles.
- 6.3.5 In the Reception:
  - 6.3.5.1 Provide four (4) general-purpose duplex receptacles for workstations. Locate the receptacles as per the final fit-out of the space:
    - 6.3.5.1(1) Provide USB 3.0 charging ports for all workstation receptacles.
  - 6.3.5.2 Allow for maximum of four (4) receptacles on a dedicated 15A circuit.
- 6.3.6 In each Play Room/Quiet Room:
  - 6.3.6.1 Provide general-purpose duplex receptacles along the perimeter wall at maximum spacing of one (1) every 3 meters, such that there is a minimum of one (1) general-purpose receptacle on each wall.
- 6.3.7 In each Sleeping Room:
  - 6.3.7.1 Provide general-purpose duplex receptacles along the perimeter wall with one (1) receptacle each wall.
- 6.3.8 In the Nourishment Room:
  - 6.3.8.1 Provide CSA type 5-20R GFCI protected duplex receptacles above kitchen counters at 1 meter spacing for general use; and
  - 6.3.8.2 Allow for maximum of two (2) counter receptacles on a dedicated 20A circuit.
- 6.3.9 In the Lounge:
  - 6.3.9.1 Provide one (1) general-purpose duplex receptacles on each wall; and
  - 6.3.9.2 Provide USB 3.0 charging ports for all general-purpose receptacles.
- 6.3.10 In the Washroom:
  - 6.3.10.1 Provide GFCI protected general-purpose receptacles adjacent to sink; and
  - 6.3.10.2 Allow for maximum of two (2) receptacles on a dedicated 15A circuit.
- 6.3.11 In the Laundry Room:
  - 6.3.11.1 Provide GFCI protected duplex receptacles above sorting counters at 1 meter spacing for general use; and
  - 6.3.11.2 Allow for maximum of two (2) receptacles on a dedicated 15A circuit.

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- 6.3.12 Provide CSA type 5-20R GFCI protected duplex receptacles with weatherproof in-use cover at each exterior door. Allow for maximum of three (3) receptacles on a dedicated 20A circuit.
- 6.3.13 All branch circuit conductors will run in conduit (EMT).
- 6.3.14 Flexible conduit (BX) will be used for final drops to luminaires, millwork connections and in tight spaces. BX will not be used for wiring in wall partitions.
- 6.3.15 Provide 27mm conduit rough-ins for Door Intercom at the Reception/Family Arrival Area to the Staff Support Area and Office.
- 6.3.16 Provide rough-ins for future access controlled doors. Access controlled doors will include:
  - 6.3.16.1 All perimeter doors to the exterior including service rooms;
  - 6.3.16.2 Family Arrival Area/Reception door to the interior space; and
  - 6.3.16.3 Private Offices.
- 6.3.17 Access controlled door rough-ins will include:
  - 6.3.17.1 one (1) above door junction box (150mm x 150mm) in accessible ceiling;
  - 6.3.17.2 one (1) 27mm conduit from door junction box to Communications Room/Closet;
  - 6.3.17.3 one (1) 21mm conduit to each device:
    - 6.3.17.3(1) Door contact;
    - 6.3.17.3(2) Hinge for power transfer;
    - 6.3.17.3(3) Door strike;
    - 6.3.17.3(4) Remote release control at the Office and Staff Support Area;
    - 6.3.17.3(5) Request to Exit Device; and
    - 6.3.17.3(6) Card reader.
- 6.3.18 Intrusion detection system device rough-ins will include:
  - 6.3.18.1 One (1) 27mm conduit to each exterior door location for future motion detectors; and
  - 6.3.18.2 One (1) 27mm conduit to Reception and Staff Support Area for future keypad.
- 6.3.19 Provide labels at both end so the conduits indicating location of the opposite end.
- 6.3.20 All rough-in conduits will be completed with pull string.

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### 6.4 Lighting and Lighting Controls

- 6.4.1 Provide complete lighting solutions that align with the requirements and recommendations of the BCBC, WorkSafe BC OHS Regulation (General Conditions, Illumination, Section 4.64 – 4.69), and IES Lighting Handbook (11th Edition). Where the recommendations vary among these standards, whichever illuminance levels are greatest and whichever requirements apply to LED lighting will govern unless otherwise reviewed with the Authority.
- 6.4.2 Provide luminaires that are easily maintainable and accessible. Luminaires will be constructed such that LED strips and drivers are removable and replaceable without needing to replace the fixture itself wherever possible.
- 6.4.3 All luminaires will be free of light leaks. Luminaires in Family Arrival Area/Reception will be of form to provide a friendly, inviting, welcoming, non-institutional ambience feel.
- 6.4.4 LED drivers and control modules to meet the following requirements:
  - 6.4.4.1 Operable from 50/60 Hz input source of 120 V through 277 V or 347 V through 480 V with sustained variations of  $\pm 10\%$  (voltage) with no damage;
  - 6.4.4.2 Input power factor greater than 0.90 from 20% to 100% rated load;
  - 6.4.4.3 Input current THD less than 20% from 20% to 100% rated load;
  - 6.4.4.4 Comply with NEMA 410 for inrush current limits;
  - 6.4.4.5 Output current regulated to  $\pm 5\%$  across published load range;
  - 6.4.4.6 Output ripple current at maximum output:
    - 6.4.4.6(1) less than 15 % measured peak-average/average;
    - 6.4.4.6(2) less than 5 % low frequency content (< 120 Hz).
- 6.4.5 LEDs will meet the following requirements:
  - 6.4.5.1 2200 – 3500 Kelvin colour temperature for interior spaces and 3000 kelvin colour temperature for exterior;
  - 6.4.5.2 All luminaires to have correlated colour temperature tolerances within a 3-step MacAdam ellipse limit and to maintain a CRI of  $\geq 80$  throughout the full dimming range;
  - 6.4.5.3 Comply with IESNA LM-79 testing procedures;
  - 6.4.5.4 Minimum lumen maintenance of L70 @ 50,000 hours. Comply with IESNA LM-80 and LM-21 testing procedures;

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- 6.4.5.5 LEDs of the same type to be from the same manufacturing batch and labelled with bin information sufficient to allow future colour matching of replacement luminaires; and
- 6.4.5.6 Capable of continuous dimming, flicker and noise free, from 10%–100% of rated
- 6.4.6 For Warranty requirements refer to Appendix 1X [Warranty Requirements]
- 6.4.7 The interior lighting and lighting controls system will be designed to meet or exceed the minimum requirement per ASHRAE 90.1.
- 6.4.8 Provide ceiling recessed luminaires with tunable correlated colour-temperature (CCT) function equipped with compatible control system for Play Rooms, Sleeping Rooms and Quiet Rooms.
- 6.4.9 Provide aesthetically pleasing direct/indirect luminaires in the Reception, Nourishment Room, Lounge, and Office.
- 6.4.10 Provide ceiling recessed downlight for Washrooms.
- 6.4.11 Provide surface mounted linear strip light for Laundry Room, Clean Storage, Housekeeping Room and Soiled Holding.
- 6.4.12 Provide exterior bollard and post-top luminaires in the Outdoor Play Spaces.
- 6.4.13 Provide exterior soffit recessed luminaires at the main entrance and wall mounted luminaires adjacent all other exterior doors.
- 6.4.14 Provide a lighting controls system utilizing a combination of line voltage and extra low voltage (0-10V) control techniques.
  - 6.4.14.1 Utilize dual-technology (passive infrared and ultrasonic) vacancy sensors to automatically shut off lighting within each space except for the service room; and
  - 6.4.14.2 Provide low voltage room controller where a space requires multiple control zones and control devices.
- 6.4.15 Continuous dimming control will be provided for all spaces except for Washrooms, Soiled Holding, Storage and Housekeeping Rooms.
- 6.4.16 All exterior lighting will have full cut-off with minimal glare in accordance with International Dark-Sky Association (IDA) requirements. 3000 Kelvin colour temperature. Exterior lighting controls technique will be via astronomical timeclock and photocell.
- 6.4.17 Exit signs will be of green pictogram style complete with integral battery back-up and provided with its dedicated circuit from panelboard.

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6.4.18 Emergency lighting will be provided using local area lighting and powered from emergency lighting inverter.

6.5 Mechanical Equipment Connections

6.5.1 As per section 7.7.17 of Schedule 1 – Statement of Requirements.

6.6 Seismic Restraints

6.6.1 As per section 7.7.18 of Schedule 1 – Statement of Requirements.



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### PART 7. COMMUNICATIONS (DIVISION 27)

#### 7.1 General Requirements

- 7.1.1 These technical guidelines are to be read in conjunction with applicable sections of Schedule 1 – Statement of Requirements, Appendix 1G [Campus Perimeter Pathway System Technical Specifications] and Appendix 1M [PHSA Communications Infrastructure Standards and Specifications].
- 7.1.2 The Design-BUILDER is not required to provide DAS infrastructure to the Child Care Centre as required in Section 7.8.21 of Schedule 1 – Statement of Requirements as long as the Design of the building does not trigger application of the AHJ's Public Safety Radio Building Amplification System Bylaw.
- 7.1.3 The provision of Telecommunications services to the Child Care Centre is the responsibility of the Operator. Where building and security systems and fire alarm require internet or telephony connections these connections will be provided by the Authority. The Design-BUILDER will coordinate with the Authority regarding the specific requirements associated with these connections.
- 7.1.4 The Design-BUILDER is to provide a Telecommunications grounding and bonding infrastructure in the Child Care Centre in accordance with Section 7.8.7 of Schedule 1 – Statement of Requirements.

#### 7.2 Communications Pathway System

- 7.2.1 The Design and Construction of the Communications Pathway System in the Child Care Centre will comply with Sections 7.8.8.1, 7.8.8.2, 7.8.8.3 and 7.8.8.6 of Schedule 1 – Statement of Requirements.
- 7.2.2 The Design-BUILDER will connect the Child Care Centre to the CPPS. Refer to Appendix 1G [Campus Perimeter Pathway System Technical Specifications] for requirements.

#### 7.3 Communications Room

- 7.3.1 Placement of equipment, Structured Cabling and wiring for communications and other Extra-low Voltage systems (such as security systems) within an electrical room in the Child Care Centre is permissible as long as the following conditions are achieved in the Design and Construction of the building:
  - 7.3.1.1 Adequate space is provided for the equipment, Structured Cabling and wiring associated with all communications and other Extra-low Voltage systems in the Child Care Centre. This includes space for Telecommunications carriers' equipment, cabling and cabling terminations.
  - 7.3.1.2 The layout of the space will:

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- 7.3.1.2(1) Ensure that the aforementioned equipment, Structured Cabling and wiring is easy to use and maintain;
  - 7.3.1.2(2) Facilitate the routing of power, Structured Cabling and Extra-low Voltage systems wiring;
  - 7.3.1.2(3) Provide direct access to the horizontal Communications Pathway System in the building and to the Service Entrance Facility; and
  - 7.3.1.2(4) Provide the required working clearances in and around equipment as per Section 7.8.8.9 of Schedule 1 – Statement of Requirements.
- 7.3.1.3 The space provided for the equipment, Structured Cabling and wiring associated with all communications and other Extra-low Voltage systems will be:
- 7.3.1.3(1) Located away from all services and conditions that are visible or hidden within the fabric of the building that will endanger or adversely affect the operation and performance of the aforementioned equipment, cabling and wiring. This includes mechanical equipment and services; and
  - 7.3.1.3(2) Kept distance from electrical equipment such that EMI will not impact the operation and performance of the aforementioned equipment, cabling and wiring.
- 7.3.1.4 The space allocated for the equipment, Structured Cabling and wiring associated with all communications and other Extra-Low Voltage systems in the Child Care Centre will not be located in mechanical rooms, washrooms, janitor's closets or storage rooms.
- 7.3.1.5 If any one of the above conditions cannot be met, the Design-Builder will provide a dedicated TR that meets the requirements of a small communications closet as detailed in Appendix 1M [PHSA Communications Infrastructure Standards and Specifications (refer to C-STD-004.4-C-SCC / C-STD-005.4-C-SCC)].
- 7.3.1.6 The walls of the space provided for the equipment, Structured Cabling and wiring associated with all communications and other Extra-low Voltage systems will be to underside of slab. The Design-Builder will provide a minimum of 6 m<sup>2</sup> (8 ft. x 8 ft.) of contiguous dedicated wall space to support a wall mount equipment rack and the equipment and wiring required for communications and other Extra-Low Voltage systems.
- 7.3.1.7 All walls will be lined with rigidly installed 19 mm AAA G1S plywood painted with two coats of light-coloured paint applied to all sides. Sanding between coats is mandatory. The plywood panels will extend from the finished floor level or from the top of the cove base to a height of 3048 mm. Expose certified stamped mark.

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- 7.3.1.8 The Design-Builder will provide the space allocated for communications and other Extra-Low Voltage systems with the following:
- 7.3.1.8(1) A 5-20RA duplex receptacle dedicated for the wall mount equipment rack. Location and elevation of this receptacle to be coordinated with placement of wall mount equipment rack;
  - 7.3.1.8(2) Two (2) 5-20RA duplex receptacles to be placed on the sheet of plywood dedicated for other wall mount cabinet (ex. Security, Telecommunications carriers' equipment). Location and elevation of these receptacles are to be coordinated with placement of wall mount equipment;
  - 7.3.1.8(3) A 5-20RA duplex convenience receptacle situated centrally along the 6 m<sup>2</sup> (8 ft. x 8 ft.) of contiguous dedicated wall space mounted at standard height; and
  - 7.3.1.8(4) Lighting in accordance with Section 7.8.9.7(4) of Schedule 1 – Statement of Requirements.
- 7.3.1.9 As active electronic equipment is sensitive to environmental conditions and have strict requirements for the operating environment, the Design-Builder will ensure the space provided for communications, carrier and other Extra-Low Voltage systems equipment is adequately supplied with cooling by the HVAC delivery system for the Child Care Centre and that environmental control for humidity, dust and other contaminants is provided.
- 7.3.1.10 The Design-Builder will supply and install a wall mounted equipment cabinet. Refer to Appendix 1M [PHSA Communications Infrastructure Standards and Specifications] for further details on the products listed below.
- 7.3.1.10(1) The wall mounted cabinet supplied will be:
    - 7.3.1.10(1)(a) Hammond SR1803819 complete with door (door type to be determined by the Authority), vertical cable managers, a horizontal cable manager, 19" mounting rails on the front and rear of the cabinet, fan kit (including two fans, guards and cords and thermostat; or
    - 7.3.1.10(1)(b) Belden XWM243031-S01 REV.4 complete with all accessories including fan kits, guards and filters.
  - 7.3.1.10(2) The installation of the wall mounted cabinet will be reviewed by a professional structural engineer registered in British Columbia for certification as being seismically restrained.

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7.3.1.10(3) The Design-Builder will supply and install a 1RU horizontal basic PDU inside the wall mounted cabinet with a plug type to match the receptacle dedicated for the wall mounted cabinet or the UPS supplied by the operator.

### 7.3.2 Structured Cabling

7.3.2.1 The Design and Construction of the horizontal Category 6A subsystem for the Child Care Centre will comply with Section 7.8.10.2 of Schedule 1 – Statement of Requirements unless otherwise noted in this appendix.

7.3.2.2 Application of ANSI/TIA-1179-A Health Care Facility Telecommunications Cabling Standard will not be required for the Child Care Centre.

7.3.2.3 The provision of TOs in the Child Care Centre will comply with Section 7.8.10.4 of Schedule 1 – Statement of Requirements unless otherwise noted in this appendix.

7.3.2.4 The Design-Builder will provide:

7.3.2.4(1) Two (2) TOs in the office, reception area, staff lounge and in the preschool and infant / toddler playrooms;

7.3.2.4(2) A CATV Outlet in accordance with Section 7.8.22 in Schedule 1 – Statement of Requirements in the staff lounge, preschool and infant / toddler playrooms as required by the operator;

7.3.2.4(3) A TO with a single Data Drop in ceilings for Wi-Fi, sufficient for coverage in all public and staff use areas provided in a manner consistent with Section 7.8.12 of Schedule 1 – Statement of Requirements; and

7.3.2.4(4) All TOs required for other systems being provided in the Child Care Centre as specified in this appendix (Security, BMS, Fire Alarm, etc.).

7.3.3 The Design-Builder will provide any wall and ceiling reinforcement required to support the HD digital display monitors, mounts and associated components that would be installed by the operator in the staff lounge, preschool and infant / toddler playrooms.

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### PART 8. ELECTRONIC SAFETY AND SECURITY (DIVISION 28)

#### 8.1 Fire Alarm System

- 8.1.1 Provide a single stage fire alarm system for the Child Care Centre.
- 8.1.2 The complete fire alarm system will be single addressable, fully supervised microprocessor-based system utilizing digital techniques for data control, and digital multiplexing techniques for data transmission. The system will be complete with remote monitoring by the Operator's designated monitoring agent.
- 8.1.3 The system will be designed and installed in accordance with the latest applicable versions of the standards set out in Section 2.4.6 of Schedule 1 – Statement of Requirements.
- 8.1.4 The fire alarm control unit panel will be located in the Electrical Room; remote annunciator complete with active graphic will be installed at the Reception and Family Arrival area adjacent to firefighter response location.
- 8.1.5 Provide smoke detectors in each enclosed space of the Child Care Centre.
- 8.1.6 For additional requirements, refer to Schedule 1 – Statement of Requirements performance criteria as set out in Section 7.9.3.2 of Schedule 1.

#### 8.2 Exterior Improvements (Division 32)

##### 8.2.1 General Requirements

- 8.2.1.1 The design of landscaping surrounding the facility and the outdoor play area to be reviewed and approved by the Authority
- 8.2.1.2 The outdoor play area, arrangements, materials, equipment, furniture, and features to be appropriate of pre-fabricated and /or custom built components, durable, weather resistant, of sturdy safe construction, easy to clean, and free from hazards, all following CSA Z614
- 8.2.1.3 The outdoor play area is to be accessible to persons with disabilities.
- 8.2.1.4 Attachment 1: Functional Program - Child Day Care

##### 8.2.2 References

- 8.2.2.1 CSA Z614:20 Children's playground equipment and surfacing
- 8.2.2.2 BC Child Care Licensing Regulation
- 8.2.2.3 City of Vancouver Childcare Technical Guidelines 2019

##### 8.2.3 Quality Assurance

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- 8.2.3.1 The outdoor play area is to be reviewed and audited by an inspector certified with the Canadian Parks and Recreation Association and is a member of the Canadian Playground Safety Institute.
- 8.2.3.2 The Design-Builder is to provide to the Authority, at Substantial Completion a "Playground Equipment Inspection Report" with an Overall Compliance Rating of 100% from the inspector.
- 8.2.4 Constructions
  - 8.2.4.1 Paving
    - 8.2.4.1(1) Provide concrete walkways, raised from vehicle paving, accessible, and sloped to drains
  - 8.2.4.2 Landscape Plantings
    - 8.2.4.2(1) Trees that shade the outdoor play area will be deciduous type.
    - 8.2.4.2(2) Plants to be of sufficient size to withstand use of area.
    - 8.2.4.2(3) All plants will be non-poisonous and non hazardous.
    - 8.2.4.2(4) Grass not to be in high traffic areas.
  - 8.2.4.3 Exterior Noise Barrier Enclosure
    - 8.2.4.3(1) Provide an architecturally aesthetic, solid acoustic noise barrier at a minimum 1.8m high or as otherwise required to meet the requirements of the Agreement, around the perimeter of the Outdoor Play Spaces, which will include:
      - 8.2.4.3(1)(a) heavy-duty engineered design;
      - 8.2.4.3(1)(b) precast concrete panel, pressure treated wood or galvanized steel sheet with weather proof resin finish coating system;
      - 8.2.4.3(1)(c) lockable gate for maintenance access;
      - 8.2.4.3(1)(d) posts set in concrete filled augured holes;
      - 8.2.4.3(1)(e) padding, rounded corners, no sharp edges and other similar such safety features; and
      - 8.2.4.3(1)(f) perimeter below-grade burrowing barrier.
    - 8.2.4.3(2) Low level fence subdividing the outdoor play area to meet general requirements.

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### 8.2.4.4 Outdoor Play Area

8.2.4.4(1) Refer to Attachment 1: Functional Program – Child Day Care for information on the area subdivision of the outdoor play area.

8.2.4.4(2) Canopies will be of:

8.2.4.4(2)(a) engineered steel frame and fabric, water shedding, rounded corners and no sharp edges with underside arrangement that does not allow bird perching;

8.2.4.4(2)(b) galvanized steel frame components, prefinished with weatherproof and wear resistant resin finish coating;

8.2.4.4(2)(c) translucent marine grade vinyl coated polyester fabric; and

8.2.4.4(2)(d) stainless steel and corrosion resistant rigging.

8.2.4.4(3) Sandboxes (containers) will include:

8.2.4.4(3)(a) perimeter seating ledge;

8.2.4.4(3)(b) water permeable liner and drainage;

8.2.4.4(3)(c) light weight cover of metal frame and fabric net;

8.2.4.4(3)(d) thoroughly washed brick sand or an equivalent; and

8.2.4.4(3)(e) sand depths

8.2.4.4.3.(e).1 minimum 30 cm for Infant/Toddler Group

8.2.4.4.3.(e).2 minimum 45 cm for 3 – 5 Group

8.2.4.4(4) Playground Equipment will be:

8.2.4.4(4)(a) appropriate for age groups, CSA Z614:20, selection to be approved by Authority;

8.2.4.4(4)(b) constructed of durable, weather resistant materials and be non-toxic;

8.2.4.4.4.(b).1 HDPE;

8.2.4.4.4.(b).2 galvanized steel with resin finish coating;

8.2.4.4.4.(b).3 fasteners of stainless steel or other corrosion resistant material;

8.2.4.4.4.(b).4 wood;

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- (b).4.1 species robinia or cedar;
- (b).4.2 pressure treated woods to be non-toxic, arsenic-free.

### 8.2.4.4(5) Acceptable playground fall protection surface products:

- 8.2.4.4(5)(a) engineered wood chip system;
- 8.2.4.4(5)(b) poured in place rubber system;
- 8.2.4.4(5)(c) or alternate approved by the Authority

### 8.2.4.4(6) Outdoor Toy Storage

- 8.2.4.4(6)(a) Prefabricated, 2.4 m x 1.5m x 2.1m high, weatherproof, gable roof, wood grain embossed HDPE double walls, galvanized steel reinforcing and roof support, lockable double door, with shelving.

### 8.2.4.4(7) Outdoor Furniture

- 8.2.4.4(7)(a) Seating and tables for social zones to meet general requirements.

### 8.2.4.5 Irrigation System

- 8.2.4.5(1) Provide an irrigation system using high-efficiency technology with digital dial control (DDC) to service all landscaped areas with plant material.
- 8.2.4.5(2) Design and installation will follow recommendations of the Standards for Landscape Irrigation Systems of the Irrigation Industry Association of BC (IIABC).