BUILDING CODE ANALYSIS - NBC 2015

BUILDING DESCRIPTION – IQALUIT NEW COMMUNITY DAYCARE

Intervention Type	☒ New construction
Building Area :	441 m²
Building Height :	2 storeys
Building Classification	Group A, Division 2, up to 2 storeys, Sprinklered
Interconnected Floor Space (if applicable)	☒ yes ☐ no
Construction Type	☒ combustible allowed ☐ non-combustible Heavy timber construction permitted as combustible construction is allowed (art. 3.1.4.6 & 3.1.4.7).
Sprinkler Protection	☒ yes ☐ no 3.2.2.27, 3.2.5.13.
Fire Alarm and Detection System	☒ yes ☐ no Section 3.2.4.1 applies as sprinklered and occupant load is more than 40 Single or 2-stage permitted.
Number of Facing Streets	☒ 1 ☐ 2 ☐ 3 (future) Joamie Court street 3.2.2.10., 3.2.5.4., 3.2.5.5., 3.2.5.6.
Applicable Part – NBC div.B.	☒ 3 ☒ 4 ☒ 5 ☒ 6 ☐ 9 ☐ 10

OCCUPANT LOAD — Article 3.1.17.1

	Theoretical (person/m²)	Programmatic*
GROUND FLOOR	71	26
2ND FLOOR	48	45
TOTAL OCCUPANT LOAD	**119**	**71**

*Per Building Program: 60 children + 11 staff as confirmed by client

As the GN regulations limit the number of children in play areas, the occupancy per programmatic requirements prevails in the children's rooms as per the building's occupant and staff structure.

FIRE RESISTANCE RATING OF REQUIRED FIRE SEPARATION

Roof /Floor Assemblies	0h		3.2.2.27.
Exits	45mins		3.4.4.1.
Corridors Used by the Public	0h	As building is sprinklered throughout.	3.3.2.6.
Mechanical Room	1h		3.6.2.1.1.)
Electrical Room	1h		3.6.2.1.6.)
Janitor Room/Laundry Room	0h	As building is sprinklered throughout.	3.3.1.21. 3), 3.3.1.22. 3), 3.1.8.4.

LIMITING DISTANCE – Construction of Exterior Walls — Subsections 3.2.3.1. & 3.2.3.7. Table 3.2.3.1.D applicable

Wall	Area (m²)	L.D. (m)	Permitted Max. % of Openings	FRR	Type of Construction required	Type of Cladding required
North	>150	20.5	100 %	45min.		Combustible allowed
East	>150	12	100%	45 min.		Combustible allowed
South	>150	9.8	100%	45 min.		Combustible allowed
West	>150	6.6	57%	45 min.		Combustible allowed

WATER CLOSETS — Section 3.7 / 3.8 for barrier-free design

Staff and public WC

Number of persons of each sex	Quantity of W.C.	Quantity of sinks
Ground floor: 6 staff 3.7.2.2.4.) Based on programmatic occupant load. Occasionally used by visitors/parents	1	1
2nd floor: 5 staff 3.7.2.2.4.) Based on programmatic occupant load.	1	1

Children playrooms

Nunavut Daycare Regulation 34 requires 1 toilet per 10 children (regardless of sex) & is more stringent than NBC.

Infants & toddlers : 20 (unisex) Based on programmatic occupant load.	2 (with sinks) – per regulation 34 (GN) 4 WC and sinks are provided in total (2 per playroom)
Preschooler: 40 (unisex) Based on programmatic occupant load.	4 (with sinks) – per regulation 34 (GN) 6 WC with sinks are provided in total (2 per playroom)

BARRIER-FREE ACCESSIBILITY — Section 3.8

Applicability of section 3.8.	☒ yes ☐ no 3.8.1.1.	
Barrier-free entrances	50% of pedestrian entrances must be barrier-free: main entrance	3.8.1.2.
Barrier-free path of travel	Required at entrance storey and on every floor area served by a passenger-elevating device. A wheelchair lift is included in the project so the 2nd level is also accessible.	3.8.2.2.
	Not required for service rooms, janitor rooms, service spaces or any spaces used solely by employees.	3.8.2.3
Power Door Operators	Power door operator not required as building of group A is less than 500 m2 in building area	3.8.2.7
Barrier-free washrooms required	☒ yes ☐ no 3.8.2.3.	

EXTERIOR WALL ASSEMBLIES

W1 EXTERIOR WALL (effective RSI ≈ 5.5)
- 35mm METAL CLADDING PANELS, PREPAINTED, TYPE 1 AND 2 (SEE ELEVATIONS)
- 22mm HORIZONTAL METAL FURRING @ 406mm c/c
- BREATHABLE DRAINAGE MEMBRANE (MEMB.10)
- 76mm EXTRUDED POLYSTYRENE RIGID INSULATION (INSUL.BRD.2) BETWEEN 76mm VERTICAL GALV. ST. SUB-GIRTS (Z-BAR), 18 GA. @ 610mm c/c
- 152mm SEMI-RIGID STONE WOOL INSULATION (INSUL.BAT.6) BETWEEN THERMAL CLIP SYSTEM (WITH HORIZONTAL L-BAR) @ 406mm c/c (VERT.) AND 610mm c/c (HORIZONTAL)
- SELF-ADHESIVE AIR/VAPOUR BARRIER MEMBRANE (MEMB.6)
- 13mm EXTERIOR GYPSUM SHEATING BOARD
- 152mm METAL STUDS,16 GA. @ 406mm c/c
- 16mm INTERIOR GYPSUM BOARD, TYPE X

W1a EXTERIOR WALL (CRAWL SPACE) (effective RSI ≈ 5.5)

SAME AS W1 WITHOUT INTERIOR GYPSUM BOARD

W1b EXTERIOR WALL (SKIRTING)
- 35mm METAL CLADDING PANELS, PREPAINTED, TYPE 1 AND 2 (SEE ELEVATIONS)
- 22mm HORIZONTAL METAL FURRING @ 406mm c/c
- BREATHABLE DRAINAGE MEMBRANE (MEMB.10)
- 76mm EXTRUDED POLYSTYRENE RIGID INSULATION (INSUL.BRD.2) BETWEEN 76mm VERTICAL GALV. ST. SUB-GIRTS (Z-BAR), 18 GA. @ 610mm c/c
- 19mm TREATED PLYWOOD

W2 EXTERIOR WALL (effective RSI ≈ 5.5)
- METAL TILES, PREPAINTED, TYPE 5, 6 AND 7 (SEE ELEVATIONS)
- SELF-ADHESIVE BREATHABLE MEMBRANE (MEMB.8)
- 16mm EXTERIOR GRADE PLYWOOD
- 76mm VERTICAL GALV. ST. SUB-GIRTS (Z-BAR), 18 GA. @ 610mm c/c
- BREATHABLE DRAINAGE MEMBRANE (MEMB.10)
- 76mm EXTRUDED POLYSTYRENE RIGID INSULATION (INSUL.BRD.2) BETWEEN 76mm VERTICAL GALV. SUB-GIRTS (Z-BAR), 18 GA. @ 610mm c/c
- 152mm SEMI-RIGID STONE WOOL INSULATION (INSUL.BAT.6) BETWEEN THERMAL CLIP SYSTEM (WITH HORIZONTAL L-BAR) @ 406mm c/c (VERT.) AND 610mm c/c (HORIZONTAL)
- SELF-ADHESIVE AIR/VAPOUR BARRIER MEMBRANE (MEMB.6)
- 13mm EXTERIOR GYPSUM SHEATING BOARD
- 152mm METAL STUDS, 16 GA. @ 406mm c/c
- 16mm INTERIOR GYPSUM BOARD, TYPE X

W2a EXTERIOR WALL (effective RSI ≈ 5.5)
- 10mm COMPOSITE CEMENT PANELS
- 76mm VERTICAL GALV.ST.SUB-GIRT (Z-BAR), 18 GA. @ 610mm c/c
- BREATHABLE DRAINAGE MEMBRANE (MEMB.10)
- 76mm EXTRUDED POLYSTYRENE RIGID INSULATION (INSUL.BRD.2) BETWEEN 76mm VERTICAL GALV.ST.SUB-GIRTS (Z-BAR), 18 GA. @ 610mm c/c
- 152mm SEMI-RIGID STONE WOOL INSULATION (INSUL.BAT.6) BETWEEN THERMAL CLIP SYSTEM (WITH HORIZONTAL L-BAR) @ 406mm c/c (VERT.) AND 610mm c/c (HORIZONTAL)
- SELF-ADHESIVE AIR/VAPOUR BARRIER MEMBRANE (MEMB.6)
- 13mm EXTERIOR GYPSUM SHEATING BOARD
- 152mm METAL STUDS, 16 GA. @ 406mm c/c
- 16mm INTERIOR GYPSUM BOARD, TYPE X

W3 EXTERIOR WALL (CRAWL SPACE) (effective RSI ≈ 8.6)
- 152mm INSULATED METAL PANELS, PREPAINTED, TYPE 8
- 92mm METAL STUDS, 18 GA. @ 406mm c/c

W4 EXTERIOR WALL (PORCH)
- 35mm METAL CLADDING PANELS, PREPAINTED, TYPE 2
- 22mm HORIZONTAL METAL FURRING @ 406mm c/c
- 92mm METAL STUDS, 14 GA. @ 305mm c/c
- 22mm HORIZONTAL METAL FURRING @ 406mm c/c
- 35mm METAL CLADDING PANEL, PREPAINTED, TYPE 2

W5 STROLLER STORAGE WALL
- 35mm METAL CLADDING PANELS, PREPAINTED, TYPE 2
- 22mm HORIZONTAL METAL FURRING @ 406mm c/c
- 102mm STEEL STUDS, 16 GA. BETWEEN STEEL HSS
- 22mm HORIZONTAL METAL FURRING @ 406mm c/c
- 35mm METAL CLADDING PANELS, PREPAINTED, TYPE 2

W6 PLAYGROUND STORAGE WALL
- 35mm METAL CLADDING PANELS, PREPAINTED, TYPE 1
- 22mm HORIZONTAL METAL FURRING @ 406mm c/c
- BREATHABLE DRAINAGE MEMBRANE (MEMB.10)
- 13mm EXTERIOR GRADE PLYWOOD
- 38 x 89mm WOOD STUDS @ 406mm c/c
- 35mm METAL CLADDING PANELS, PREPAINTED, TYPE 2
- 13mm EXTERIOR GRADE PLYWOOD

FLOOR ASSEMBLIES

F1 EXPOSED GROUND FLOOR (effective RSI ≈ 8.6)
- FLOOR FINISH
- 38mm CONCRETE TOPPING WITH GLYCOL CONDUITS FOR RADIANT FLOOR
- 50mm EXTRUDED POLYSTYRENE RIGID INSULATION (INSUL.BRD.1)
- 100mm CONCRETE SLAB ON STEEL DECK (SEE STRUCTURE)
- STEEL JOIST (SEE STRUCTURE)
- 64mm SUB-GIRTS (Z-BAR), 18 GA. @ 610mm c/c
- 152mm INSULATED METAL PANELS, PREPAINTED, TYPE 8

F2 SECOND FLOOR
- FLOOR FINISH
- 38mm CONCRETE TOPPING WITH GLYCOL CONDUITS FOR RADIANT FLOOR
- 50mm EXTRUDED POLYSTYRENE RIGID INSULATION (INSUL.BRD.1)
- 19mm PLYWOOD
- 89 mm WOOD DECK (SEE STRUCTURE)
- WOOD BEAM (SEE STRUCTURE)

F3 EXPOSED CRAWL SPACE FLOOR (effective RSI ≈ 8.6)
- 19mm PLYWOOD, TONGUE AND GROOVE
- STEEL DECK (SEE STRUCTURE)
- STEEL BEAM (SEE STRUCTURE)
- 64mm SUB-GIRTS (Z-BAR), 18 GA. @ 610mm c/c
- 152mm INSULATED METAL PANELS, PREPAINTED, TYPE 8

F4 GROUND FLOOR (OVER CRAWL SPACE)
- FLOOR FINISH
- 38mm CONCRETE TOPPING WITH GLYCOL CONDUITS FOR RADIANT FLOOR
- 50mm EXTRUDED POLYSTYRENE RIGID INSULATION (INSUL.BRD.1)
- 100mm CONCRETE SLAB ON STEEL DECK (SEE STRUCTURE)
- STEEL JOIST (SEE STRUCTURE)

F5 EXPOSED SECOND FLOOR (effective RSI ≈ 15.8)
- FLOOR FINISH
- 38mm CONCRETE TOPPING WITH GLYCOL CONDUITS FOR RADIANT FLOOR
- 50mm EXTRUDED POLYSTYRENE RIGID INSULATION (INSUL.BRD.1)
- 19mm PLYWOOD
- 89 mm WOOD DECK (SEE STRUCTURE)
- 100mm SPRAY FOAM INSULATION (INSUL. SPR.1)
- MINERAL FIBRE FLEXIBLE BATT INSULATION, FULL CAVITY (INSUL.BAT.4)
- 152mm HORIZONTAL STUDS, 18 GA. @ 406mm c/c
- 13mm EXTERIOR GYPSUM SHEATING
- FURRED OUT SPACE, VARIABLE HEIGHT, MADE WITH VERTICAL 92mm STUDS
- 22mm METAL FURRING
- 16mm EXTERIOR GRADE PLYWOOD
- SELF-ADHESIVE BREATHABLE MEMBRANE (MEMB.8)
- METAL TILES, PREPAINTED, TYPE 5, 6 AND 7

ROOF ASSEMBLIES

R1 HIGH ROOF (effective RSI ≈ 7.4)
- 35mm METAL CLADDING PANELS, PREPAINTED, TYPE 3
- SELF-ADHESIVE WATERPROOFING MEMBRANE (MEMB.9)
- 19mm EXTERIOR GRADE PLYWOOD
- 152mm SEMI-RIGID STONE WOOL INSULATION (INSUL.BAT.6) BETWEEN 152mm GALV.ST.SUB-GIRTS (Z-BAR), 18 GA. @ 610mm c/c
- 3mm THERMAL BREAK AT CONTACT POINTS BETWEEN SUB-GIRTS
- 2 LAYERS OF 76mm POLYISOCYANURATE BOARD INSULATION (INSUL.BRD.3) BETWEEN 152mm GALV.ST.SUB-GIRTS (Z-BAR), 18 GA. @ 610mm c/c
- SELF-ADHESIVE AIR/VAPOUR BARRIER MEMBRANE (MEMB.4)
- 19mm EXTERIOR GRADE PLYWOOD
- 44mm WOOD DECK (SEE STRUCTURE)

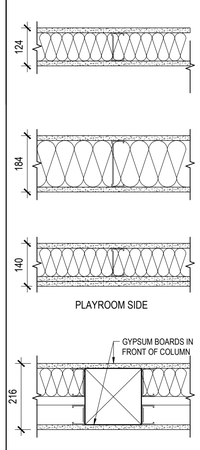
R2 LOW ROOF (effective RSI > 7.4)
- 35mm METAL CLADDING PANELS, PREPAINTED, TYPE 1
- SELF-ADHESIVE WATERPROOFING MEMBRANE (MEMB.9)
- 19mm EXTERIOR GRADE PLYWOOD
- WOOD JOIST (SEE STRUCTURE)
- 152mm SEMI-RIGID STONE WOOL INSULATION (INSUL.BAT.6)
- 2 LAYERS OF 76mm POLYISOCYANURATE BOARD INSULATION (INSUL.BRD.3)
- 16mm EXTERIOR GRADE PLYWOOD
- WOOD JOIST (SEE STRUCTURE) AND MINERAL FIBRE FLEXIBLE BATT INSULATION (INSUL.BAT.4), FULL CAVITY (VARIABLE HEIGHT)
- SELF-ADHESIVE AIR/VAPOUR BARRIER MEMBRANE (MEMB.4)
- 19mm EXTERIOR GRADE PLYWOOD
- 44mm WOOD DECK (SEE STRUCTURE)

R3 PORCH ROOF
- 35mm METAL CLADDING PANELS, PREPAINTED, TYPE 2
- SELF-ADHESIVE WATERPROOFING MEMBRANE (MEMB.9)
- 19mm EXTERIOR GRADE PLYWOOD
- WOOD JOIST (SEE STRUCTURE) AND MINERAL FIBRE FLEXIBLE BATT INSULATION, FULL CAVITY (INSUL.BAT.4)
- 19mm EXTERIOR GRADE PLYWOOD
- SELF-ADHESIVE WATERPROOFING MEMBRANE (MEMB.9)
- 35mm METAL CLADDING PANELS PREPAINTED TYPE 2

R4 STROLLER STORAGE ROOF
- 35mm METAL CLADDING PANELS, PREPAINTED, TYPE 2
- SELF-ADHESIVE WATERPROOFING MEMBRANE (MEMB.9)
- 16mm EXTERIOR GRADE PLYWOOD
- 102mm STEEL STUDS, 16 GA. BETWEEN STEEL HSS
- 22mm HORIZONTAL METAL FURRING @ 406mm c/c
- 35mm METAL CLADDING PANELS PREPAINTED TYPE 2

R5 PLAYGROUND STORAGE ROOF
- 35mm METAL CLADDING PANELS, PREPAINTED, TYPE 1
- SELF-ADHESIVE WATERPROOFING MEMBRANE (MEMB.9)
- 16mm EXTERIOR GRADE PLYWOOD
- 38 x 184mm WOOD JOIST @ 406mm c/c
- 13mm EXTERIOR GRADE PLYWOOD

INTERIOR WALL TYPES

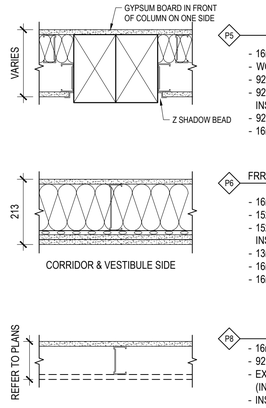


P1 STC 47
- 16mm INTERIOR GYPSUM BOARD, TYPE X
- 92mm STEEL STUDS @ 406mm c/c
- 92mm MINERAL FIBRE ACOUSTICAL BATT INSULATION (INSUL.BAT.1)
- 16mm INTERIOR GYPSUM BOARD, TYPE X

P2 FRR 1hr, STC 51 — ULC W453
- 16mm INTERIOR GYPSUM BOARD, TYPE X
- 152mm STEEL STUDS @ 406mm c/c
- 152mm MINERAL FIBRE ACOUSTICAL BATT INSULATION (INSUL.BAT.1)
- 16mm INTERIOR GYPSUM BOARD, TYPE X

P3 STC 52
- 16mm INTERIOR GYPSUM BOARD, TYPE X
- 92mm STEEL STUDS @ 406mm c/c
- 92mm MINERAL FIBRE ACOUSTICAL BATT INSULATION (INSUL.BAT.1)
- 16mm INTERIOR GYPSUM BOARD, TYPE X
- 16mm INTERIOR GYPSUM BOARD, TYPE X

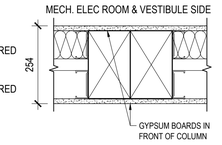
P4 FRR 1hr — ULC W454
- 16mm INTERIOR GYPSUM BOARD, TYPE X
- WOOD STRUCTURE, SEE STRUCTURE
- 92mm STEEL STUDS @ 406mm c/c, STAGGERED
- 92mm MINERAL FIBRE ACOUSTICAL BATT INSULATION (INSUL.BAT.1)
- 64mm STEEL STUDS @ 406mm c/c, STAGGERED
- 16mm INTERIOR GYPSUM BOARD, TYPE X



P5
- 16mm INTERIOR GYPSUM BOARD, TYPE X
- WOOD STRUCTURE, SEE STRUCTURE
- 92mm STEEL STUDS @ 406mm c/c, STAGGERED
- 92mm MINERAL FIBRE ACOUSTICAL BATT INSULATION (INSUL.BAT.1)
- 92mm STEEL STUDS @ 406mm c/c, STAGGERED
- 16mm INTERIOR GYPSUM BOARD, TYPE X

P6 FRR 2hr, STC 59 — ULC W453
- 16mm INTERIOR GYPSUM BOARD, TYPE X
- 152mm STEEL STUDS @ 610mm c/c ,
- 152mm MINERAL FIBRE ACOUSTICAL BATT INSULATION (INSUL.BAT.1)
- 13mm RESILIENT CHANNEL
- 16mm INTERIOR GYPSUM BOARD, TYPE X
- 16mm INTERIOR GYPSUM BOARD, TYPE X

P8
- 16mm INTERIOR GYPSUM BOARD, TYPE X
- 92 OR 152 mm STEEL STUDS @ 406mm
- EXTERIOR WALL W1 COMPOSITION (INTERIOR GYPSUM MUST NOT BE INSTALLED)
- INSTALL VERTICAL GRILLS ON WALL FURR OUT IN EXTERIOR WALL. REFER TO DETAIL 4/A-751 AS AN EXAMPLE.



P9 FRR 1hr — ULC W454
- 16mm INTERIOR GYPSUM BOARD, TYPE X
- WOOD STRUCTURE, SEE STRUCTURE
- 92mm STEEL STUDS @ 406mm c/c, STAGGERED
- 92mm MINERAL FIBRE ACOUSTICAL BATT INSULATION (INSUL.BAT.1)
- 92mm STEEL STUDS @ 406mm c/c, STAGGERED
- 16mm INTERIOR GYPSUM BOARD, TYPE X

P10
- 16mm INTERIOR GYPSUM BOARD, TYPE X
- 92 OR 152 mm STEEL STUDS @ 406mm c/c, STAGGERED
- 92 OR 152 mm MINERAL FIBRE ACOUSTICAL BATT INSULATION (INSUL.BAT.1)
- 92 OR 152 mm STEEL STUDS @ 406mm c/c, STAGGERED
- 16mm INTERIOR GYPSUM BOARD, TYPE X

P11 FRR 1hr — ULC W452
- 16mm INTERIOR GYPSUM BOARD, TYPE X
- 64mm E-C-H STEEL STUDS @ 610mm c/c
- 25mm INTERIOR GYPSUM BOARD, TYPE X

Public Works and Government Services Canada
Travaux publics et Services gouvernementaux Canada
REAL PROPERTY SERVICES
Western Region
SERVICES IMMOBILIERS
Région de l'ouest

PRELIMINARY
NOT FOR CONSTRUCTION

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Revision	Description	Date
5		
4		
3		
2		
1		
0	ISSUED FOR TENDER	2018–03–16

Client: **Indigenous and Northen Affairs Canada**

Public Works and Government Services Canada

Project Title / Projet:

NEW IQALUIT DAYCARE

Designed by / Dessiné par: **AR, RG**

Drawn by / Dessiné par: **AR, KD, EL, HS**

Approved by / Approuvé par: **AF**

PWGSC Project Manager / Administrateur de Projets TPSGC: **Russell Knister**

Drawing Title / Titre du dessin:

ARCHITECTURE
TYPICAL ASSEMBLIES & CODE ANALYSIS

Project No./No. de projet	Drawing No./No. de dessin	Revision no.
9214-17-00	A-002 02 OF 42	0