Town of Labrador West

Tanya Lake Community Centre

Schematic Design Report

2020-11-12

fathom

Front Entrance Rendering by Fathom

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Our philosophy

For more than 20 years, major clients throughout the Atlantic provinces, across Canada, and abroad have commissioned Fathom to solve complex problems while providing expert service.

Our firm offers non-traditional solutions and creativity to every problem—the results of deep collaboration between disciplines
and clients. Owned by principal Rob LeBlanc, our studio unites architects, planners, landscape architects and civil engineers along with interpretive planners, public engagement, wayfinding and brand specialists. Together these professions give strategic guidance, create culturally relevant buildings, boost your brand presence, engross audiences and oversee our projects from feasibility to realized solutions.

Fathom collaborates at all scales, from sign designs and museum exhibits to cultural buildings, from downtown streetscapes to comprehensive master plans for parks and university campuses.

01 Project Summary

Trail Rendering by Fathom

1.1 Project Background

The community center is designed to capitalize on a beautiful landscape and create a landmark for the Labrador City community at the head of the Tanya Lake Trail.

The new building will weave together the trail system surrounding Tanya Lake, providing a means to navigate the large grade change between the trails and the parking area and signifying a point of arrival along the trail network. The building and site design capture the amazing view of Tanya Lake and create a living room for the community to gather. By blocking prevailing winds and maximizing daylight, the new building supports both indoor and outdoor community activities and improves comfort in cold and winter. Employing the use of colour, the community center will liven up the winterscape through the intensity, spread, contrast, and colour of different lighting elements.

The community centre is to be inclusive, fully accessible, and multi-purpose; forming a regional landmark that promotes indoor and outdoor community experience and connectivity.

Design Principals

Fathom Studio designed the community center using six guiding principles. These principles provided the framework for the project throughout the schematic design process.

Planning and Layout

- Building is easily understood and navigated by the users
- Access points make sense with the surrounding landscape and parking areas

Exterior Appearance

- Exterior appearance reflects the vitality of this type of community building
- Incorporates current materials and building technologies
- Low maintenance and designed for seasonability

Interior Design

- Interior design is welcoming and bright
- Uses low maintenance finishes in high-use areas
- Pulls materials from the natural environment

Sustainable Systems and Design Practices

- Uses green and sustainable components where possible
- Alternate energy sources considered
- Promotes a healthy environment; good air, water quality
- Helps reduce operational costs
- Includes best engineering practices

Accesibility

- Considers all users' age and mobility
- Allows access to all building facilitis for users and staff

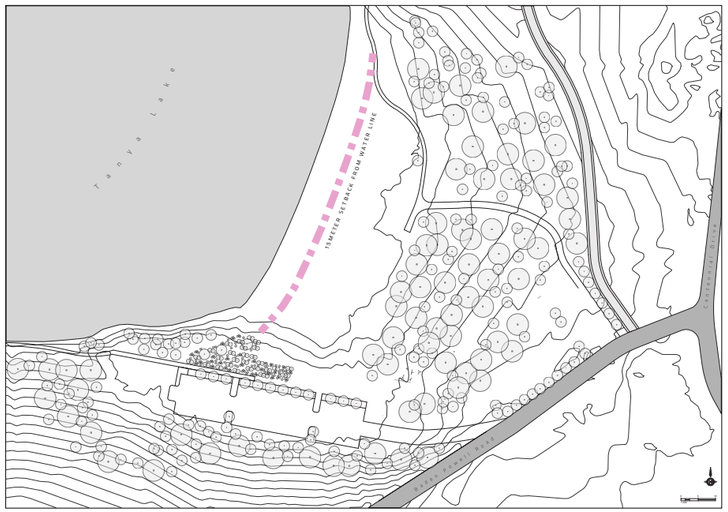
Relationship with the Landscape

- Connects and makes accessible existing trails and landscape features
- Establishes a gateway experience
- Works with existing grades and exterior landscape features
- Promotes new exterior experiences and synergies

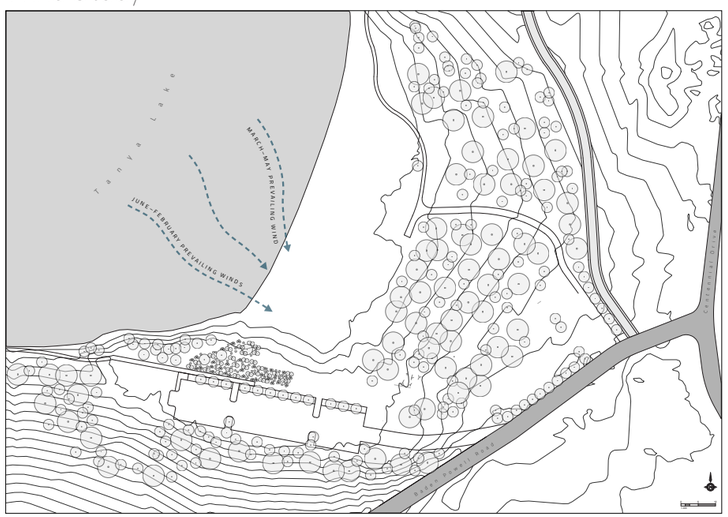
1.2 Site Analysis

Fathom Studio performed a site analysis to identify multiple site constraints. Located between the water and a steep hill, consideration for wind protection, site access, water clearance, and maximizing daylighting were all driving factors in the final form and location of the building.

Water Setback

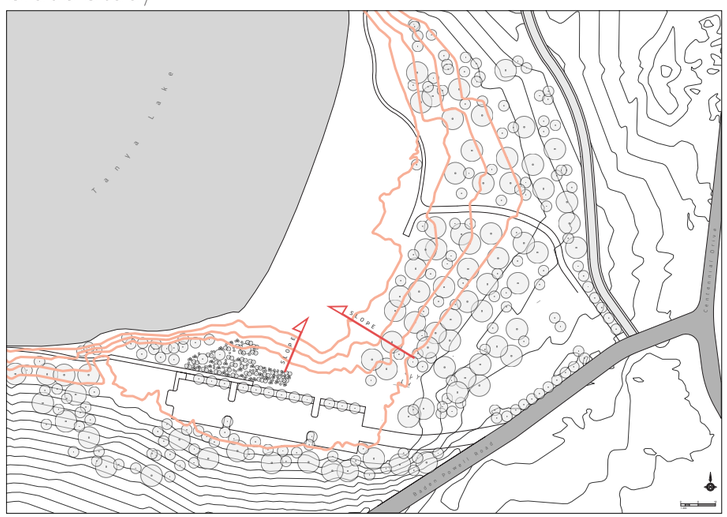


Wind Study



Sun Study

Grade Study



1.3 Building Program

Program

The building program sets out the list of building blocks and their basic requirements. It serves to define the building's vision and space allocation guidelines.

Through a series of public consultation exercises and public surveys, stakeholders and residents of Labrador West were able to weigh-in on the highest programmatic needs and current gaps in their recreation and multi-purpose space requirements in the community. Fathom Studio worked with the Town of Labrador City and the community to develop a building program to provide multi-use spaces including a multi-purpose room for large gatherings, a performance studio that doubles as meeting rooms, a youth zone, a kids indoor play area, a teaching kitchen, a sound recording studio, and an art room.

Public Engagement Results

Indoor Recreation

Community stakeholders were given the option to choose three of a total of six indoor recreation programs that the future community centre may accommodate. The community voted overwhelmingly for a flexible all ages recreation space. While Labrador West currently has several larger arenas and recreation spaces, there is a need for a flexible all ages recreation space that has the potential to host a wide spectrum activities and events.

Community Space

Stakeholders were asked to choose three out of eight community space programs and facilities. Top votes went to a cafe space, an accessible conference room/event space, as well as an accessible meeting room. Programs of low priority included: a maker's/arts and crafts space, library, and sound recording studio.

Indoor/ Outdoor Space

Community stakeholders were asked to vote for their top three out of six Indoor/ Outdoor programs and facilities. The top priority was an outdoor concert space/ stage followed closely by outdoor movie projection. These top choices are highly compatible programs as they require similar layouts and servicing. A community market, covered picnic area, and watercraft rentals were considered lower priority.

Indoor Recreation

Flexible Recreation Space
Votes: 12

Indoor Play Area (Loose Parts)
Votes: 3

Indoor Jungle Gym/ Climbing Wall
Votes: 2

Indoor Game Space (All Ages)
Votes: 2

Community Space

Cafe
Votes: 10

Accessible Conference Room/ Event Space
Votes: 9

Accessible Meeting Room
Votes: 7

Community Kitchen
Votes: 5

Indoor/Outdoor

Outdoor Concert Space/ Stage
Votes: 13

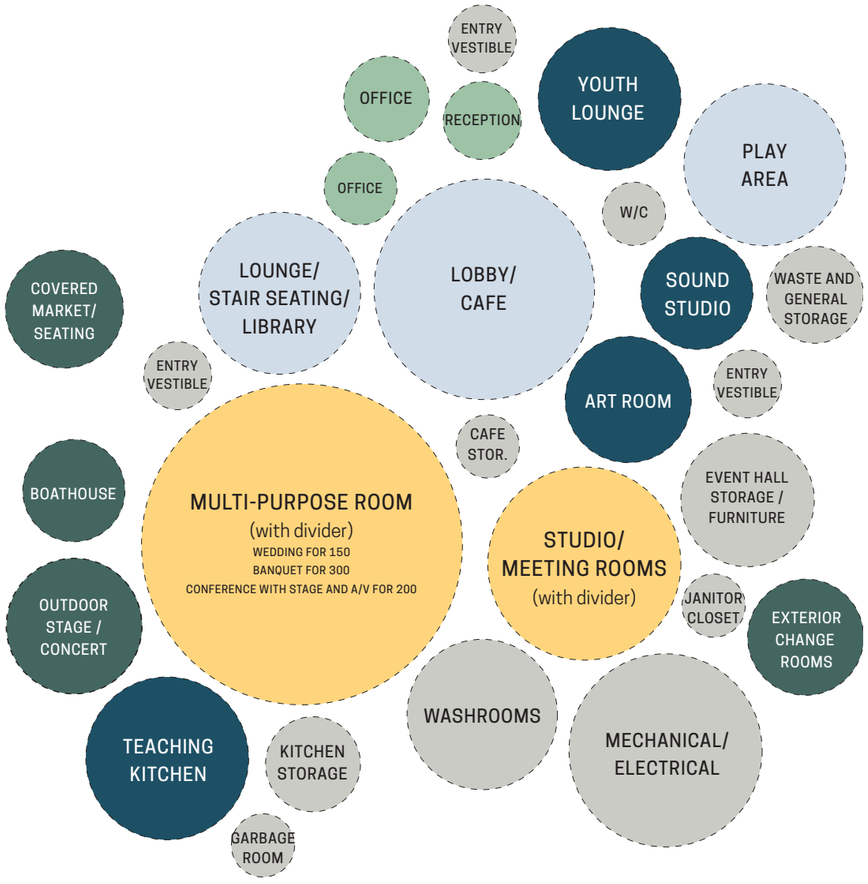
Outdoor Movie Projection
Votes: 8

Community Market
Votes: 7

Covered Picnic Area
Votes: 6

Building Program Diagram

- administrative spaces
- flexible spaces
- activity / program spaces
- assembly spaces
- support / storage / services
- exterior spaces



Building Program	Room #	# of Rooms	Net Area (m2)	Gross Area (m2)	% Gross Area	Notes
Administrative Spaces			**47**	**53**	**4%**	
Reception	105	1	16	18		
Office	106	1	12	13		Admin, Staff
Shared Office	107	1	19	22		Admin, Staff
Flexible Spaces			**252**	**284**	**20%**	
Lobby	100	1	79	90		Combination tables, chairs, and soft lounge seating
Play Area	102	1	74	84		Open playspace with rock climbing wall
Coffee Bar	104	1	22	25		Small café with flexible seating in adjacent lobby area
Lounge Area	001	1	77	85		Soft lounge seating and stair seating. Library shelving along stair seating as a potential satellite site or lending shelf for popular books
Activity/Program Spaces			**210**	**239**	**16%**	
Youth Lounge	101	1	55	62		Youth games room (ex. pool table, ping pong, video games)
Sound Studio	109	1	37	42		Sound recording room or rentable space for teaching music lessons
Art Room	112	1	48	55		Recreation and art space. Can be rented for art classes or as a studio to artists
Teaching Kitchen	012	1	70	80		Teaching kitchen for 15 students, can double as a food prep area for large gatherings
Assembly Spaces			**306**	**349**	**24%**	
Multi-Purpose Room	002	1	217	247		Includes operable partition to connect with Studio/Meeting Rooms
Studio/Meeting Rooms	004	2*	89	102		Multi-purpose space for small gatherings with operable partition to create two smaller gathering spaces or connect with Multi-Purpose room for one large event space
Support/Storage/Services			**380**	**430**	**30%**	
Coffee Bar Storage	103	1	5	6		
Barrier Free W/C	108	1	5	6		
General Storage	110	1	4	4		
Waste Storage	111	1	7	8		
Vestibules	-	4	23	26		
Furniture Storage	005	1	27	31		For flexible furniture used in Multi-purpose room and Studio/Meeting Rooms
Mechanical Room	006	1	63	72		
Electrical Room	007	1	16	18		
Female Washroom	008	1	40	45		9 stalls
Male Washroom	009	1	23	26		3 stalls 2 urinals
Barrier Free W/C	010	1	4	5		
Garbage	011	1	5	6		
Kitchen Storage	-	2	9	10		Walk in fridge and freezer
Janitor Closet	013	1	4	4		
Misc. Circulation	-	-	145	163		Corridors, elevator, stairs
Exterior Spaces			**86**	**101**	**7%**	
Exterior Change Rooms	014	6	49	56		3 stalls and 3 showers open to public
Boathouse	-	1	37	45		For watercraft storage and rentals

Front Lobby Rendering by Fathom

02 Design

2.1 Building at a Glance

The community centre is designed to capitalize on a beautiful landscape and create a landmark for the Labrador City community at the head of the Tanya Lake Trail. The building is embedded in the natural sloping grade and utilizes the change in grade to become part of the landscape. The main access is the upper level, located on the same level as the main parking area. As you enter the building, the monolithic exterior is carved out to reveal a faceted wood interior and reception millwork, a coffee shop, and an indoor play space for children that features a climbing wall and reading nook.

As you turn the corner around reception you are confronted with a full double height glazed view of Tanya Lake and the exterior courtyard. A seating area with library and hearth compliment the view. On the lower level, a large multipurpose space opens directly onto the beach for indoor/outdoor flexibility. The teaching kitchen can serve this space or provide concessions to the exterior courtyard through a pass-through window. The north exterior courtyard wall provides a canvas for movie projections or performances with outdoor amphitheatre seating. Further down the beach, a fire pit, boathouse, and removable wharf complement the beach.

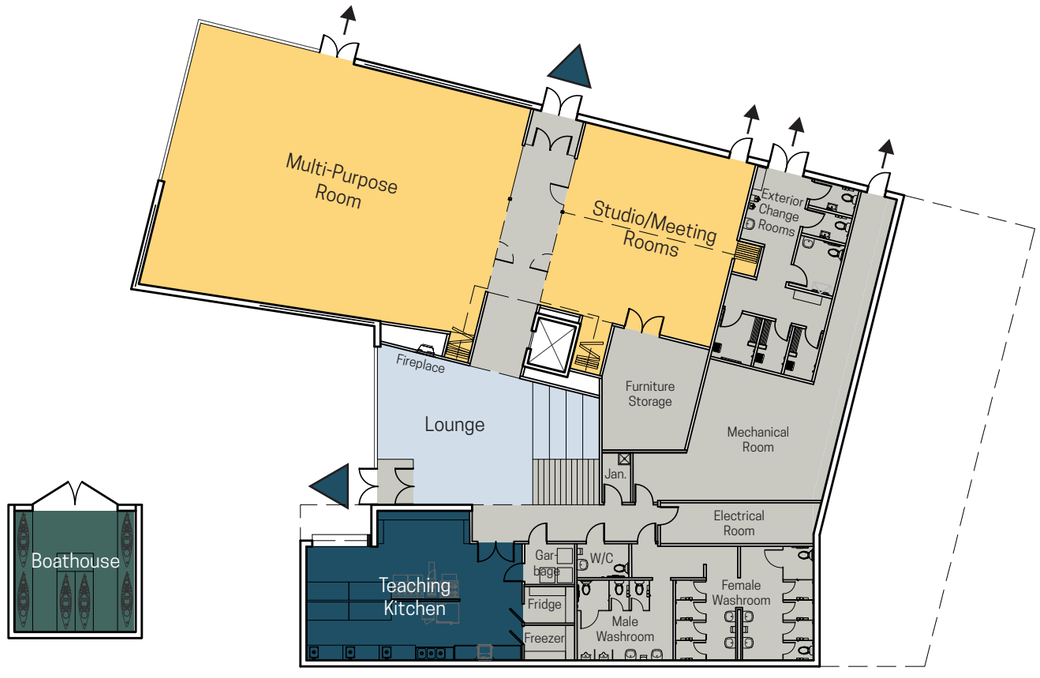
2.2 Site and Landscape Plan

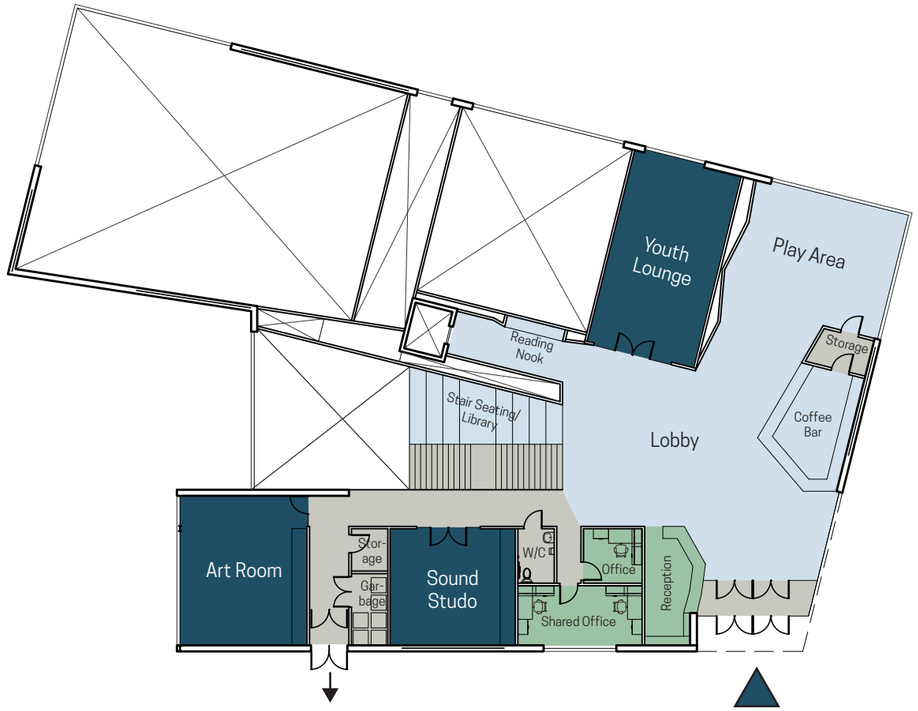
2.3 Schematic Floor Plans

Legend

- administrative spaces
- flexible spaces
- activity / program spaces
- assembly spaces
- support / storage / services
- exterior spaces

- main entrance/exit
- secondary exit





2.4 Building Code Summary

Applicable Code: National Building Code of Canada 2015						Reference
Major Occupancy(s): Group A Div.2 Assembly						3.1.2.1(2)
Building Area 974m²						Div. A 1.4.1.2
Floor Areas	Lower Level	874 m²	62%			
	Main Level	539 m²	38%			
	Total GFA	**1413 m²**	**100%**			
Number of Storeys	*Above Grade:* One	*Below Grade:* One				Div A. 1.4.1.2; 3.2.1.1
Height of Building (m)	9m					3.2.1.1
Number of Streets/Access Routes	One					3.2.2.10, 3.2.5.4
Building Classification:	Group A, Division 2, up to 2 Storeys, Increased Area, Sprinklered					3.2.2.26
Sprinkler System	■ Entire Building ☐ Basement Only ☐ In Lieu of Roof Rating ☐ Not Required					3.2.2.26
Standpipe Required	☐ Yes	■ No				3.2.5.8
Fire Alarm Required	■ Yes	☐ No				3.2.4.1
Water Service Supply is Adequate	■ Yes	☐ No				3.2.5.7
High Building	☐ Yes	■ No				3.2.6.1(1)(d)
Construction	Non-Combustible					3.2.2.26
Required Fire Resistance (FRR hours)						3.2.2.26
	Horizontal Assemblies — Floors	0	hour	(45 min if combustible)		
	Roof	0	hours			
	Mezzanine	0	hour	(45 min if combustible)		
	Members Supporting — Floors	0	hours	(45 min if combustible)		
	Roof	0	hours			
	Mezzanine	0	hours	(45 min if combustible)		
	Separations — Suites	45	min			3.3.1.1 (2)
	Janitor	0	hours			3.3.1.21 (3)
	Service Room	1	hours			3.6.2.1, 3.6.2.5
	Exits	45	min			3.4.4.1 (1)
Total Occupancy Load (m²/person)						3.1.17
	Lower Level — Space with non-fixed seats and	0.95m²/person x	306 m² =	322 Persons		
	Lounge	1.85m²/person x	77 m² =	42 Persons		
	Kitchen	9.3m²/person x	70 m² =	8 Persons		
	Total			**371 Persons**		
	Main Level — Lounge	1.85m²/person x	125 m² =	68 Persons		
	Kitchen	9.3m²/person x	22 m² =	2 Persons		
	Public corridor for additional	3.7m²/person x	79 m² =	21 Persons		
	School Shops	9.3m²/person x	37 m² =	4 Persons		
	School Laboratory	4.6m²/person x	48 m² =	10 Persons		
	Office	9.3m²/person x	53 m² =	6 Persons		
	Total			**111 Persons**		
	Total Occupancy Load			**483 Persons**		

Applicable Code: National Building Code of Canada 2015						Reference
Barrier-Free Design	■ Yes	☐ No (explain)				3.8
Hazardous Substances	☐ Yes	■ No				3.3.1.2., 3.3.1.20
Water Closets	Required	5 Male +	9 Female	=	**14 W/C**	3.7.2.2.-A
Exit Widths	Occupant Load	483 x	6 mm/person	=	**2944 mm**	3.4.3.2, 3.4.3.2
Egress Doorways	Except for dwelling units, a minimum of 2 egress doorways located so that one foorway could provide egress from the room or suite as required by article 3.3.1.3. if the other doorway becomes inaccesible to the occupants due to a fire which originates in the room or suite, shall be provided for every room and every suite a) that is used for a high-hazard industrial occupancy and whose area is more than 15m2, b) intended for an occupant load more than 60, c) in a floor area that is not sprinklered throughout, and i) the area of a room or suite is more htan the value in Table 3.3.1.5.-A, or ii) the travel distance within the rooom or suite to the nearest egress doorway is mroe than the value in Table 3.3.1.5.-A, or d) in a floor area that is sprinklered throughout and does not contain a high-hazard industrial occupancy and i) the travel distance to an egress doorway is more than 25m, or ii) the area of the room or suite is more than the value in Table 3.3.1.5.-B						3.3.1.5. (1)
Location of Exits	The exits shall be located so that the travel distance to at least one exitshall be not more than 45m in a floor area that contains an occupancy other than a high-hazard industrial occupancy, provided it is sprinklered throughout.						3.4.2.5
Distance Between Exits	The least distance from two exits from a floor area shall be: a. one half the maximum diagonal dimension of the floor area, but need not be more than 9m; b. one half the maximum diagonal dimension of the floor area, but not less than 9 m.						3.4.2.3
Interconnected Floor Space	A building containing an interconnected floor space shall be sprinklered throughout						3.2.8.3.
	An interconnected floor space need not conform to the requirements of Articles 3.2.8.3. to 3.2.8.8., provided a) it consists of the first storey and the story next above or below it, but not both, b) it is sprinklered throughout or, where the building area is not more than oen half of the area permitted by subsection 3.2.2., the opening through the floor area are used only for stairways, escalators, or moving walks, and c) it contains only Group A, Division 1, 2 or 3, Group D, Group E, or Group F, Division 2 or 3 major occupancies.						3.2.8.2 (6)
	An interconnected floor space shall be designed so that the combustible contents, excluding interior finishes, in those parts of a floor area in which the ceiling is more than 8m above the floor, are limited to not more than 16g of combustible material for each cubic metre of volume of the interconnected floor space.						3.2.8.8.
	An exit opening into an interconnected floor space shall be protected at each opening into the interconnected floor space by a vestibule a) with doorways that are not less than 1.8m apart, b) that is separated from the remainder of the floor area by a fire separation that is not required to have a fire-resistance rating, and c) that is designed to limit the passage of smoke so that the exit stair shaft does not contain more than 1% by volume of contaminated air from the fire floor, assuming an outdoor temperature equal to the January design temperature on a 2.5% basis determined in accordance with subsection 1.1.3						3.2.8.4 (1)
	The required exit width for exit stairs that serve interconnected floor space designed in accordance with Articles 3.2.8.3. to 3.2.8.8. shall be cumulative, unless a) the stairs provide not less than 0.3m2 of area of treads and landings for each occupant of the interconnected floor space, or b) protected floor spaces conforming to article 3.2.8.5. are provided at each floor level and the protected floro space on a floor level has not less than 0.5m2 of space for each occupant of that floor level of the interconnected floor space.						3.4.3.2 (6)

2.5 Energy Efficiency

Energy Efficiency

The plans presented have been designed with future LEED Silver certification goals in mind. The following measures have been taken in regards to energy efficiency:

Architectural

- The building envelope has been designed to meet the intent of the National Energy Code of 2017
- Note that r-values can be increased further to reduce the energy consumption by 50%. This option can be explored as a value-add in the next phase of design.

Mechanical

- High Efficiency Building Envelope
- Energy Recovery on ventilation air
- Variable speed fans on the energy recovery ventilator
- Low Flow Kitchen Range Hoods
- Air conditioning system with variable speed fans and compressors
- Variable speed domestic water booster pumps
- Low flow plumbing fixtures will reduce domestic hot water requirements
- Pipe and duct insulation to meet or exceed the national energy code

Electrical

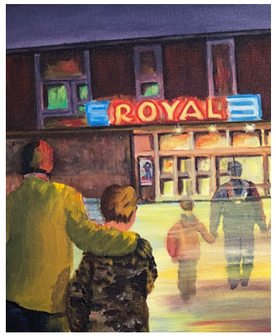
- High Efficiency Power Transformation
- Smart Power Meter at Building Service Entrance
- Electric in-floor Heating System
- Energy Efficient LED Lighting
- Automatic Lighting Controls including Occupancy and Daylight Sensing
- Lighting Controls to National Energy Code

2.6 Design Outline

Architecture

The primary design language references the geology of Labrador City's history as a mining town. The act of carving away the earth to create value has been used as a design metaphor for the architecture of this building. The primary public circulation and gathering space is carved through the heart of the building. The carved warm wood interior provides the opportunity for reading nooks, play spaces for youth, and library shelving.

A second design inspiration was light, specifically at night. We were inspired by an image from our initial visit; a painting of the old theater lit up at night, acting as a beacon for the community. With limited daylight hours in the midst of winter it will be critical that exterior lighting will act as a signal to the community and draw people into it's warmth. The play of light during the day and at night, both during winter and summer months, will feature strongly in this project.



Painting of Old Theatre

Photograph of Local Light Display

Dichroic Glass

Exterior Building Materials

The exterior building presents a hard outer monolithic shell, using a combination of white materials. A combination of masonry and translucent lgiht diffusing glass gives the illusion of a single form with no openings. Using dichroic glass as a facade accent will add movement and colour accross the south facade throughout the day as the sun moves across the building. Using clear glass in thoughtful locations will indicate to users entry points and where the building has been carved away to reveal a faceted and carved interior.

Dichroic glass displays two different colors by undergoing a color change in certain lighting conditions. This finish offers a way to create unique, ever-changing colour. This transparent film provides a dichroic effect, meaning it appears to change colour when viewed at various angles. In addition to changing colours based on the viewer's angle, it also changes colour based on the lighting location and, in our case, the solar azimuth angle - casting crystal-like shadows on the building face, bringing a sense of playfulness and light to the monolithic facade.

Interior Building Materials

The interior building is formed with a series of faceted walls, using a combination of baltic birch plywood panelling and painted GWB to create the feeling of entering a carved, jagged rock. The wood surfaces will create zones within the interior for people to stop and inhabit; the reception area, the coffee shop, the kids indoor play area, and the reading nooks. The wood will create a warm interior to juxtapose the monolithic exterior. Flame spread rating will be calculated for interior walls and wood finishes will be treated accordingly with flame-retardant finish if required.

Felt accents will be considered to create acoustical softness within the building, while adding a layer of comfort. Felt will be used as an acoustic treatment within the play area and other open areas, as well as for seating along the tiered seating adjacent to the stairs and to line the wall at the reading nook.

Landscape Architecture

The landscape architectural schematic design explored ways to foster and support social activity, accessibility, active transportation, and recreation in conjunction with the interior community centre program. The landscape design serves to activate the arrival to the site and provide opportunities for a range of programs and activities suited to the site. The design aims to connect the community to Tanya Lake through design that reflects the unique character of Labrador City.

Sidewalks with planting buffers between the walk and parked vehicles creates an enjoyable arrival for pedestrians. The entry plaza provides space for moveable outdoor furniture or art installations. Column light features enhance the arrival space along the entry plaza sidewalk and provide a playful atmosphere. These sculptural elements provide interest in the day or evening while playing off the subarctic environment and subtly lighting the space. Bike racks, which also serve as a sculptural element when not in use, are nestled between the building face and plantings on a crushed stone to provide a permeable surface for stormwater to infiltrate and an attractive space for all to enjoy.

The exterior amphitheatre serves to provide exterior program space, seating with views toward the lake or toward the event courtyard, and an adjacent walkway to provide safe access to the event courtyard or the barrier-free boardwalk. The stairs are oriented toward the lake to use the natural landscape as part of the experience.

The barrier-free boardwalk wraps along the face of the building outside the multi-purpose room. This boardwalk provides access to the boat launch and to the event courtyard. The boardwalk continues along the lawn area with picnic tables and connects to the regional trail network. The boardwalk also helps to protect natural drainage patterns on the site and promote vegetation throughout these low-lying areas. Plant materials native to the region have been selected and planting areas have been strategically placed throughout the landscape to provide pockets of vegetation that integrate the entire design.

Efforts were made to preserve and protect sensitive areas by minimizing disturbance to the site by utilizing the existing gravel parking area to the maximum extent possible. The existing grades and gravel parking areas were connected and 89 parking stalls, eight of which are universally accessible, could be introduced without introducing retaining walls along the parking lot or slopes exceeding 10% within the parking driveway areas. The parking lot preserves existing vegetation along Baden Powell Road to protect the soil, buffer the parking lot, and to frame the arrival to the community centre. A drop-off zone at the building entry is provided. A planted traffic island provides a physical and visual buffer between this drop-off and the main vehicular circulation route through the parking lot.

In design development phases, it is recommended that the potential for a vegetated swale

be explored in the planting areas that run parallel to the asphalt parking area and the access sidewalk.

Design Guidelines

Landscape architectural design will be in accordance with the current editions of the following codes, standards, and references:

- Town of Labrador City Development Regulations
- Government of Newfoundland and Labrador Department of Transportation and Works Specifications Book
- Newfoundland and Labrador Master Specification Guide Division 3, Division 31, and Division 32
- Canadian Society of Landscape Architects & Canadian Nursery Landscape Association Canadian Landscape Standard
- Buildings Accessibility Regulations under the Buildings Accessibility Act as Consolidated by Newfoundland and Labrador
- National Building Code of Canada

Civil Engineering

The civil/site development for the community centre will be designed to integrate well with the unique features and topography of the Tanya Lake beach and surrounding vicinity. The current project represents a significant enhancement of a previously developed site situated adjacent to one of the most popular natural recreation and community gathering locations in Labrador City and indeed the entire region.

The site development will involve the improvement and expansion of existing granular parking areas which did serve the former boat house and currently serves the Tanya Lake recreation area. The parking area will be expanded to accommodate parking for 89 vehicles. Traffic movement will be facilitated by paved accessways and a roundabout. The vehicular driving and parking areas will be finished with a pavement structure comprised of Class B Granulars, Class A Granulars and Asphaltic Concrete. Concrete curbs, walkways, aprons and ramps will provide the hardscape surfaces for pedestrian movements while achieving compliance with accessibility guidelines. Site grading will be designed to work with the natural and/or existing gradients to the greatest practical degree while achieving the necessary critical building floor level elevations and achieve a finish grading surface which directs surface drainage away from the building.

A storm water drainage system comprised of rock lined drainage swales, ditch inlets and piping will intercept water which naturally drains towards the site and direct the runoff to Tanya Lake. A storm water system of pre-cast concrete catch basins and manholes connected by piping of various diameters will collect water from the hardscaped surfaces of the site and convey the water to a concrete headwall and rock lined outlet swale at a discreet location away from the

beach area into Tanya Lake. A weep tile and subdrain system will be installed around the perimeter of the building foundation and under the lowest level floor slab.

Water for domestic and fire fighting purposes will be supplied to the property via a 200mm diameter DI water main from a connection to the municipal water system on Centennial Drive in the vicinity of the Baden Powell Road intersection. The water main will also be equipped with gate valves and will service a fire hydrant on the site. The water main will be placed with a depth of bury of 4.0 meters for frost protection or will be protected with 50mm factory applied insulation if and where shallow bury water main is determined to be a preferable option.

Due to the developed site and building floor levels being set at a lower elevation than the existing municipal sanitary sewer system on Centennial Drive, the sanitary sewer infrastructure for the project is anticipated to be comprised of a PVC gravity sewer line from the building to a pre-cast concrete pumping station equipped with duplex pumps a short distance away from the principal building. Sewage will be pumped via a HDPE forcemain from the pumping station to an existing sanitary sewer manhole in the vicinity of the Baden Powell Road. The forcemain will be buried at a soil cover of 4.0 meters or an insulated HDPE pipe with a 50mm factory applied insulation jacket will be installed where a shallow bury installation is the preferred alternative. The in ground sewage pumping station will be equipped with a service enclosure given the climatic conditions of the site.

Reference Design Documents

Design of the Civil Works will be in accordance with the current edition of the following reference documents:

- Guidelines for the Design, Construction and Operation of Water and Sewerage Systems, Government of Newfoundland and Labrador.
- Municipal Water, Sewer and Roads Specifications, Government of Newfoundland and Labrador.
- Town of Labrador City, Municipal Plan.
- Buildings Accessibility Act and Regulations, Government of Newfoundland and Labrador.
- Project Management and Design Administration Manual, Government of Newfoundland and Labrador.
- Guidelines for Municipal Engineering Services, PEGNL.

Structural

The structural systems for the community centre will satisfy the functional and architectural requirements of the facility and will accommodate the mechanical and electrical systems. The emphasis of the Schematic Design is to confirm the structural framing systems used for the facility. This includes the grid layout, the location of shear walls and other bracing required as well as structural framing materials and the foundation system. The main roof is at a constant

elevation and is typically framed with structural steel except for the timber framed roof over the multi-purpose room and the studio meeting room. The upper floor is framed with a thin concrete slab supported on composite steel deck and supported on shallow steel beams to keep the overall depth of the floor framing as shallow as possible. Based on the geotechnical report, the ground water table is close to the surface and yet typically frost can penetrate three to four meters into the ground during winter months in Labrador City. To work around these conflicting issues, the building is raised to keep it out of the ground water and rigid insulation will be provided around the perimeter to provide frost protection.

Design Codes

Design of the structural systems will be in accordance with the current edition of the following codes, standards and references:

- National Building Code of Canada (NBCC) and Supplements as adopted by the Province
- of Newfoundland and Labrador
- CSA A23.1 & A23.2 – Concrete Materials and Methods of Concrete Construction / Test
- Methods and Standard Practices for Concrete
- CSA A23.3 - Design of Concrete Structures
- CSA S16 - Design of Steel Structures
- CSA 086 - Engineering Design in Wood

Mechanical

The mechanical systems at the Tanya Lake Community Centre will be designed to integrate with the building architecture and interior design to deliver a set of cost effective, easy to maintain, energy efficient systems that provide a quiet, thermally comfort space with excellent indoor air quality.

The building will be designed to meet the requirements of the National Building Code, National Energy Code and Canada Green Building Council (CaGBC) LEED for New Construction and Major Renovations rating system at the silver certification level.

Plumbing fixtures will be water efficient, commercial grade with electronic activation. Domestic water pressure will be boosted with a pump. Heating will be electric based due to its low energy cost in Labrador City and its low maintenance requirements. Ventilation air will be through a high efficiency energy recovery ventilator (ERV) with electric resistance supplemental heat providing superior indoor air quality. An air handler will provide makeup air to the kitchen to balance exhaust from the range hoods. Air-conditioning will be included in the multi-purpose and studio spaces to accommodate higher occupancy levels and warm summer days. Humidification will be installed in the ERV to improve environmental quality. HVAC systems will be integrated into a web-based building automation system allowing remote monitoring and alarming.

Electrical

The electrical power, lighting, fire alarm and security systems at the Tanya Lake Community Centre will be designed to integrate with the building architecture and interior design to deliver a set of cost effective, maintainable, energy efficient systems that performs reliably and provides flexibility for staff and occupants.
The design of the electrical systems will be an integrated approach with other disciplines including architecture, mechanical, structural and civil. Electrical requirements will be coordinated with these disciplines to ensure constructability is achieved.

The building will be designed to meet the requirements of the National Building Code, National Energy Code and Canada Green Building Council (CaGBC) LEED for New Construction and Major Renovations rating system at the silver certification level.

All transformation shall qualify as high efficiency, 600V, 3 phase power shall be used where acceptable to minimize wiring size to motors and other heating devices. Heating will be electric based due to its low energy cost in Labrador City and its low maintenance requirements. The main heating system will be electric in-floor to reduce the visibility of the heating system supplemented with electric baseboard and cabinet heaters where required. All lighting used for this project shall be energy efficient LED type. Fluorescent lighting is not permitted. Lighting shall be controlled in a way to integrate both manual and automatic controls to reduce the energy use and run time, such as daylighting controls and occupancy sensing in compliance with the National Energy Code.

2.7 Cost Estimates

A preliminary Class C cost estimate was generated for the schematic design as well as a high level estimate for design services for future project phases. These estimates provide an understanding of the magnitude of investment for the project. Refer to Appendix C for full Class C cost estimate.

CLASS 'C' COST ESTIMATE SUMMARY	
Building	$ 6,132,578.00
Site	$1,761,463.00
General Requirements & Mark-up	$1,223,576.00
Construction Sub-Total	**$9,117,617.00**
Design Contingency	$911,762.00
Construction Contingency	$802,350.00
Contingency Sub-Total	**$1,714,112.00**
LEED Silver Allowance	$401,000.00
TOTAL (before taxes)	**$ 11,232,729.00**

DESIGN SERVICES ESTIMATE (BASED ON THE 2009 RAIC FEE SCHEDULE)	
Design Services	$ 1,300,000.00
TOTAL (before taxes)	**$ 1,300,000.00**

PROJECT TOTAL (before taxes)	**$ 12,532,729.00**

2.8 Renderings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03 Appendices

A. Outline Specifications

B. Schematic Design Drawings

C. Class C Cost Estimate

D. Kitchen Equipment