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Living in Nature

"As the woods are the same, the trees standing in their places, the rocks and the earth... they are always different too, as lights and shadows and seasons and moods pass through them." —Emily Carr













Elements of Nature

The project draws from its unique West Vancouver context, nestled in the forested slopes of the North Shore mountains, on the traditional and unceded territories of the Coast Salish People.

The Skwxwú7mesh Úxwumixw (Squamish) and səlilwətał (Tsleil Waututh) People, villages and communities, have occupied and governed these lands since before modern records began.

Living every day in this spectacular place, West Vancouver residents are immersed in nature. Since incorporation in 1912, this setting has shaped how the District has developed and grown. The dramatic topography, stunning views and abundant forests have inspired architects and builders, giving rise to the distinctive architecture of West Coast Modernism.

The project incorporates elements of this style and the natural context. Where the program allows it, expanses of glass are deployed to flood the interiors with daylight and maintain a connection to nature and the community. Playing with 'lights and shadows and seasons' the reflectivity of materials change from dry to wet days throughout the years. The inside blurs with outdoors around courtyards and open space, erasing boundaries between inside and out, allowing the residents of all abilities to connect with nature.

Working with the landscape, the base connects to the rocks that form the mountains, the foundation providing solidity. The body is formed by trunks of the trees, creating texture and rhythm as people pass by and through the site. The forest canopy and mountain peaks inform the top, outlining the profile against the sky.



Long Term Care Household Model

The proposed household model for the Long Term Care intentionally moves away from an institutional approach resulting in a more 'home-like' setting. Each resident has their own room with a three piece en-suite bathroom, enhancing their quality of life. Common dining, living and activity areas within the household maintain a smaller communal feel. All support services are provided through the nonresident area 'back of house' central core serving both neighbourhoods.

The household model facilitates isolation during annual flu and other viral outbreaks. Further strategies, such as the glazed vestibule at the household entry, double as an isolation room to mitigate against viral outbreaks, while continuing to allow visitors.

The stacked neighbourhoods bring efficiencies in to the care model, which benefit Residents and Team Members.



Long Term Care Small Household Model

The L-shaped plan cluster residents' rooms around the shared amenity spaces, minimizing corridors. The replicated floor plan increases team efficiency as they move between houses. The L-shaped plan also provided the best fit on the site.



Household

Layout of Household into 3 clusters of Resident rooms with public areas adjacent to central core. (12 Residents)



Neighbourhood

2 Households back to back = Neighbourhood (24 Residents per floor) Make into two buildings to reduce overall height.





3



Building

Then stack 10 neighbourhoods (4 at south and 6 at centre) for vertical servicing and density (240 Suites)

Public Consultation

Since summer 2020, Baptist Housing has been reaching out to the community maintaining a dialogue with the neighbourhood as the project design has progressed. They have communicated their plans through multiple media and public information events inviting feedback. Through this a number of themes emerged, which the project team has and will try to address as the project moves forward:

- Design and Density
- Traffic and Noise
- Views
- Construction Period
- Environmental Stewardship

Design and Density

Concern regarding the height, density and impact of the project on the local neighbourhood. Specific concern regarding massing on Burley Drive.

Traffic and Noise

Community neighbours raised concern with a proposed vehicle access off Burley Drive, pointing to speeding vehicles and volume of traffic at busy periods.

Views

There was concern that the development will impact views. The specific request was to address impacts on views for residents at Burley Drive and Inglewood Avenue. Design o explore alternatives to massing through reorganization of massing forms and working with the topography to submerge program below grade.

Construction Period

There was concern construction activity will generate noise and traffic in the neighbourhood.

Environmental Stewardship

Some feedback centred on what the project would be doing beyond District targets and building codes. The project is balancing many environmental aspects such as user experience and creating a healthy environment, community connection, water use, ecology, future adaptability and resilience, material content, waste and recycling.

FIRST PHASE - 253 homes



Refer to Appendix J for the full Public Engagement report.







CONSTRUCTION

Traffic, noise and disruption for many years.

ENVIRONMENTAL STEWARDSHIP

Project is not doing enough beyond what is required by code.



CONSTRUCTION

Our response

Provide shuttle for off-site parking for trades, prefabricate to reduce time to build, phase work to use new building as a buffer to neighbourhood for later stages.



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ENVIRONMENTAL STEWARDSHIP

- Project takes a holistic approach from user experience to environmental performance
- Salmon Safe have been engaged
- PV arrays are planned to generate some power
- On-site housing for staff intend to provide equity for staff and reduce overall commutes and support local economy
- Planning for future climate adaptability and resilience
- Selection of low or no VOC materials.

Refer to Building Performance and Sustainability section on page 40 for additional strategies.

Key Design Drivers

The proposed design responds to the project drivers through a logical sequence of moves considering the funding model, existing residents, site context, community input, outdoor amenity, natural landscape and scale.

Phase 1



Replacement of Long Term Care

Baptist Housing is required to maintain continuous operation of the 230 Vancouver Coastal Health long term care beds throughout the construction of the replacement of the Long Term Care building.



Perimeter Landscape Buffer

Create a landscape around the perimeter of the site to integrate with the natural landscape.

Small Household Model

Apply Small Household Model to create porosity on Burley Drive. Improved design for outbreak / pandemic risk reduction.





Hide Servicing and Traffic

Work with topography to underground traffic and services to allow for landscaping at grade.

Phase 2 & 3



Move Density

Move density to Taylor Way and respond to topographic profile of hill. Keep centre of site free for open spaces.

Step Massing Create steps in massing to respond to topography create stepped terracing from south edge of site



Immersion in Nature

Connect and immerse all buildings within the landscape.







Activate Courtyard Activate Courtyard as outdoor living spaces for residents.

Site

Design Narrative

Site

Phased Development Plan: Phase 1

The project will be phased to minimize disruption to the existing residents at Inglewood. The Long Term Care building will be built first. On completion of this phase, Team Members will spend a period of time in full training and orientation in the new facility before the residents are moved in. The old structure will then be demolished and Phase 2 construction commences.

The physical constraints of the available site, combined with the small household model for Long Term Care, determine the form of Phase 1. The two resulting L-shape masses maximize the floor plate, providing the required number of beds in the fewest number of floors.

Working with the topography of the site, the two buildings of Phase 1 are connected by a main level that is entirely submerged below grade along Burley Drive. The main entry is off Inglewood Avenue. Below grade vehicular access and service corridors run north-south on this west side. Public spaces and circulation on the east side open up to the (future) central courtyard.

As a result, the south and centre blocks will appear as a four and six storeys on Burley Drive, respectively. The Level 1 below will be at the same elevation the care centre is today.

In response to feedback from local residents, the team has worked hard to minimize the impact on Burley Drive, delete vehicular access to the site from Burley Drive, and integrate the development into the neighbourhood as sensitively as possible.



Phased Development Plan: Phase 2 & 3

The full build out transforms the Inglewood site into an active community of care, providing a full range of seniors' care options clustered around a central courtyard. Arcades and amenities activate the edges, while covered walkways create comfortable connections between the buildings.

The natural landscape of the north shore is echoed at the site edges where the buildings nestle into the topography on the west of the site. The Independent Living building is 6 storeys tall at Inglewood Avenue. It terraces up to 10 storeys as it moves north along Taylor Way. The Affordable Housing building at the north east quadrant is 9 storeys of residences with a 10th shared amenity floor.

The north block of Long Term Care/Assisted Living has its own main entry which can be accessed directly from Taylor Way (southbound only) or via the below-grade roadway at the west of the site. The steep topography at this part of the site sees two levels below grade on the Burley Drive side, which emerge above grade on to the central courtyard. This building connects with the Phase 1 Long Term Care at Level 1 as well as in the parkade.

Long Term Care

230 beds Funded by Vancouver Coastal Health 10 beds Private pay 240 beds Total

Assisted Living & Long Term Care

32 suites Private Pay AL Suites 72 beds Private Pay LTC Beds

Affordable Seniors & Team Member Housing

48 homes Seniors Housing 107 homes Team Member Housing Total in partnership with BC Housing 155 homes

Independent Living (IL)

200 suites IL Suites







Building Performance and Sustainability

Project Goals

Building Performance and Sustainability are key design drivers of Inglewood. This facility will meet aggressive energy and carbon reduction targets, including the District of West Vancouver 'Sustainable Building Policy' and Baptist Housing's own aspirations for the long term operational performance of the facility.

Baptist Housing and ZGF developed the Owner's Project Requirements (OPR) and used them to develop the consulting team Request for Proposal (RFP) and consultant selection process. The OPR were used to define preliminary sustainability aspirations for the project. The Building Performance & Sustainability Goals Diagram (right) is used to visualize the subjective value (1-5) of project performance goals within key focus areas.

Baptist Housing and the project team generated the Building Performance and Sustainability goals for Inglewood at a series of workshops at the early schematic design phase. These workshops had the following objectives:

- Review and confirm Baptist Housing's Aspirations for Inglewood
- Review Stakeholders' Building Performance and Sustainability requirements (District of West Vancouver, Vancouver Coastal Health, BC Housing, and Province of BC)
- Review and confirm Baptist Housing's project specific **Building Performance and Sustainability Goals**
- Review recommended strategies and opportunities for achieving those goals
- Define next steps for design response and consultant collaboration.

The result of the workshop series was to develop design responses that:

- Focus on the experience of residents, staff and visitors, and improve infection control for residents
- Improve operational energy performance with capital investment in strategies with a 9 year payback
- Ensure Baptist Housing remains a responsible community member through construction and operation.





COMMUNITY

District of West Vancouver (DoWV) Energy Requirements

DoWV adopted the BC Energy Step Code and Low Carbon Energy System as part of its climate emergency response, and in alignment with the District's Community Energy & Emissions Plan.

Building	DoWV Target for Inglewood				
	TEDI (kWh/m²/yr)	TEUI (kWh/m²/yr)	Operational GHGI (kg CO ₂ e/m²/yr)	Embodied Carbon (kg CO ₂ e/m²/yr)	
LTC	Step 1* no TEDI target	Step 1 no TEUI target	7.4	N/A	
AL/LTC	Step 1* no TEDI target	Step 1 no TEUI target	7.4	N/A	
АН	Step 3 - 30	Step 3 - 120	3	N/A	
IL	Step 3 - 30	Step 3 - 120	3	N/A	

* Step 1 buildings are to comply with Part 8 of NECB

Stakeholder Energy Requirements

BC Housing

Requires the Affordable Housing building to meet BC Energy Step Code 3.

The District of West Vancouver

Energy targets are as follows:

- 1. Residential occupancies (AH & IL) to be **BC Energy Step** Code 3 with a Low Carbon Energy System (LCES)
- B2 (LTC & AH) occupancies to be BC Energy Step Code 1 2. with a Low Carbon Energy System
- 3. LCES to have a Co-efficient of Performance greater than 2 and Greenhouse Gas Intensity (GHGI) emissions less than 3 kg CO₂e/m²/yr for residential occupancies and <7.4 kg $CO_2e/m^2/yr$ for care facilities.

BC Energy Step Code

The DoWV requires compliance with the BC energy step code in order for buildings to reach a "net-zero energy ready" level of efficiency by 2032. There are four steps within the Step Code with increasing performance metrics and making buildings more energy efficient. For more information visit: www.energystepcode.ca

Low Carbon Energy System

The DoWV requires that new residential buildings be built using low-carbon energy systems or be net-zero energy ready. Low Carbon Energy System is a mechanical system providing all thermal conditioning and all domestic hot water heating for a building, from primarily low-carbon energy sources. More information is available on the DoWV Website.

The key metrics for measuring Energy use and Carbon emissions are:

Energy Use

TEUI: Total Energy Use Intensity measures all energy required (e.g. plug loads: lighting, appliances, and process loads: elevators, mechanical systems, fans). TEUI is measured and expressed in kWh/m²/year

Carbon Emissions

GHGI: Greenhouse Gas Intensity measures of the emissions intensity of a building's emissions. GHGI is measured and expressed in kg $CO_2e/m^2/year$. There are two types of carbon emissions in buildings **Operational** and **Embodied.**

Operational Carbon: A measure of the green house gas emissions during operation of the building.

Embodied Carbon: A measure of the total green house gas emissions associated with the extraction, manufacturing, transporting, installing, maintaining and disposing of construction materials and products.

Total Carbon: Embodied Carbon plus the Operational carbon over 60 years.

- **LTC** Long Term Care
- **AL** Assisted Living



TEDI: Thermal Energy Demand Intensity measures the heating and cooling demand. (e.g. passive gains: incoming solar radiation, heat generated by indoor appliances, and losses, such as heat losses through the building envelope) TEDI is measured and expressed in kWh/m²/year

AH Affordable Seniors & Team Member Housing

IL Independent Living **DoWV** District of West Vancouver **LCES** Low Carbon Energy System

Energy Targets

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LTCLong Term CareALAssisted Living

Independent Living Affordable Seniors & Team Member Housing

IL

AH



TEUI Total Energy Use IntensityGHGI Greenhouse Gas IntensityTEDI Thermal Energy Demand Intensity

	AL/LTC	
	Target	Performance
TEDI (kWh/m²/yr)	N/A	78
TEUI (kWh/m²/yr)	N/A	148
GHGI (CO ₂ e/m²/yr)	7.4	5.7
de la constante		
and the for		
2.4		
		1.1
	AH	
	AH Target	Performance
TEDI (kWh/m²/yr)	AH Target 30	Performance 18
TEDI (kWh/m²/yr) TEUI (kWh/m²/yr)	AH Target 30 120	Performance 18 90
TEDI (kWh/m²/yr) TEUI (kWh/m²/yr) GHGI (CO ₂ e/m²/yr)	AH Target 30 120 3	Performance 18 90 1

How does Inglewood Compare?

The energy and carbon performance of the Inglewood campus is significantly better than the District of West Vancouver targets:

Long Term Care Buildings



* DoWV requirements for Long Term Care Buildings do not include targets for TEDI and TEUI.

The Long Term Care Buildings (LTC and AL) do not have a TEDI or TEUI target as the BC Energy Step Code has not set energy targets for this type of facilities. However, when evaluating against typical buildings, (Source: Morrison Hershfield 2019 benchmarking report for Public Sector Buildings) the Long Term Care Buildings have a higher TEDI due to an enhanced infection control response with increased ventilation in suites and common areas. In addition, per Vancouver Coastal Health Design Guidelines the setpoint temperatures in the suites are 25°C-28°C, which is substantially higher than typical Long Term Care facilities. Despite this, Inglewood achieves superior EUI and GHGI due to an improved envelope performance, the inclusion of earth tubes to pre-condition incoming air for ventilation, and the electrification of heating, cooling and domestic hot water with high efficiency mechanical system.

Industry Average for LTC and AL taken from BC Energy Step Code Development for Pubic Sector Buildings http://energystepcode.ca/app/uploads/sites/257/2019/07/BC-Step-Code-Public-Sector-Buildings-Report-rev2_1.pdf

Typical Industry for AH and IL taken from Energy Step Code 2018 Metrics Research Full Report Update https://energystepcode.ca/app/uploads/sites/257/2018/09/2018-Metrics_Research_Report_Update_2018-09-18.pdf

Residential Buildings



* GHGI for Residential Buildings is represented as a weighted average of the IL and AH

The residential buildings (IL & AH) are significantly surpassing requirements from the District of West Vancouver for TEDI/TEUI and GHGI performance. This is the result of using a high-performing building envelope & the electrification of heating, cooling and domestic hot water with high efficiency mechanical systems.

Legend





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Inglewood

Inglewood Total Carbon

The following provides a brief overview of the Total Carbon emissions for Inglewood. The total carbon impact is the combined embodied and operational carbon generated during the lifetime of a building. The construction and operation of Inglewood will require less total carbon than similar buildings of this type.

Operational Carbon

Inglewood is meeting the Operational Carbon (GHGI targets) through an improved envelope performance, and a highly efficient electrification of the mechanical systems.



Embodied Carbon

Baptist Housing have developed the baseline Embodied Carbon results for Inglewood and are evaluating strategies and materials that are cost effective, locally available and constructible to reduce the embodied carbon.

Total Carbon



A project's Total Carbon impact is the combination of Operational and Embodied Carbon over the lifetime of the building; the lifecycle. For the purposes of calculating this, the period of 60 years has been used for the lifecycle. It is measured in tonnes CO₂ equivalents.

Healing Environment & Sustainability

While a large emphasis through early Design Development has focused on building energy performance, several other strategies and targets have been developed to promote a healing environment and advance sustainability. The following outlines additional features included in the project and / or under further investigation.

Experience: Residents and Team Members

The project's goal to enhance Resident and Team Member health and wellbeing has informed the following key strategies:

1. Enhanced Air Quality

- Improved air quality through selecting materials with low levels of Volatile Organic Compounds (VOCs).
- Increased ventilation rates with 100% outdoor air.
- Long Term Care and Assisted Living
- 3 air changes per hour with 100% outdoor air and negatively pressurized suite spaces
- 30% improvement on ASHRAE for common areas and variable air volume with CO₂ control.
- Affordable Housing and Independent Living
- Residential ASHRAE 62.1-2001
- 30% improvement on ASHRAE for common areas and variable air volume with CO₂ control.

2. Design for Community

- Facilitate independent living and foster community through programming and space design.
- Baptist Housing's approach to creating a Campus of Care is to incorporate design features that will promote community connectivity. Community is considered at the building scale through "houses" within the Long Term Care floors and common amenity spaces for activity and socialization, at the campus scale through shared courtyard and amenity spaces, and at the larger neighbourhood scale by considering amenities that can be utilized by the West Vancouver community.

3. Design for Health

• Fitwel certification for the Independent Living building is under review. Fitwel provides third party certification and awards projects for their efforts in prioritizing occupant health and wellness through design and building operations.





4. Adaptability

Adaptability is being addressed over a range of scales, including:

- Adaptable unit design for changing needs of a senior to 'Age in Place'.
- Flexible amenity areas to accommodate future changes in use.
- Climate resiliency with mechanical and electrical system design; designing the current climate while considering requirements and system capacities for a future, warmer climate.







Healing Environment & Sustainability (cont.)

6. Water

The project has incorporated multiple stormwater treatment methods including vegetated roof, expansive landscaped area, and four large stormwater detention vaults, plus filter cartridge systems like Jellyfish. These areas together will catch, filter, and slow the release of all stormwater that lands on the site before it ultimately gets conveyed to the municipal system and Brothers Creek.

- Reducing potable water by 30% through water efficient plumbing fixtures.
- Landscaping is to be native, adaptive and drought resistant with a highly efficient irrigation system.
- Rainwater reuse for irrigation is under investigation.

7. Ecology

Baptist Housing and the project team are focused on respecting and preserving the local ecology of the North Shore by utilizing the following strategies:

- Landscaping is to be native, adaptive and drought resistant with a highly efficient irrigation system.
- Include biophilia in occupied outdoor spaces that aids in developing habitats for local flora and fauna.
- AH and IL building roof spaces will be activated for the occupants with edible gardens, localized planting, and social gathering spaces.
- **Rooftop Design:** An extensive green roof will also fill the roof of the South Long Term Care building.

AH and IL building roof spaces will be activated for the occupants with edible gardens, localized planting, and social gathering spaces.

• Salmon Safe: The project has completed the preliminary assessment phase of the Salmon Safe Certification Program. This campus-scale certification evaluates projects for stormwater management, ecological functionality, landscape design and maintenance, and climate resiliency to protect salmon habitats through environmentally responsible design.

8. Waste and Materials

The environmental impact of construction and operation practices of Inglewood will be minimized through:

- Diverting 80% of construction waste from landfill.
- Low VOC products will be selected for the interiors.
- The embodied impact of materials will be evaluated to determine alternate solutions.
- The occupied building will have means of separating recyclable and organic waste from going to the landfill.





Integrated Design Strategies

Baptist Housing and the ZGF Design Team have developed integrated design strategies for the project through a number of early design stage workshops to understand the opportunities and value for Inglewood. The following is a summary of the Building Performance and Sustainability strategies.

Affordable Seniors & AH Team Member Housing Assisted Living AL

LTC Long Term Care IL Independent Living





Electrical System

- Centralized emergency power generation to provide greater resiliency for the LTC, AL/ LTC and AH.
- The campus Energy Centre will distribute electricity to LTC, AL/LTC and AH.
- IL will be on it's own independent connection to BC Hydro.

Experience: Residents and Team Members

The team is reviewing certifications, such as Fitwel, to validate the enhanced design features with the intent of improving Resident and Team Member health and well-being and reducing impact on local ecology.

High-performance Envelope

- Enhanced insulation (walls, roofs, floors),
- Limited thermal bridges, .
- Reduced infiltration through improved airtightness and non-metal glazing framing to significantly reduce heat loss through windows,
- Target 25% WWR for suites with 60% for common areas.

Site and Ecology

Landscaping is to be native, adaptive and drought resistant with a highly efficient irrigation system. Rainwater reuse for irrigation.

Mechanical System

- Central plant for LTC and AL/LTC and an individual plant approach for the AH and IL.
- Infection control in the LTC and AL/LTC with increased ventilation rates, humidification, and plasma ion system.
- Domestic Hot Water provided through preheat Air Source Heat Pump with gas fired top up for all buildings, kitchen, and laundry.

Metering Strategy

N

Metering of utilities (including water) by building for all buildings, and by suite for AH and IL for electricity.



Photovoltaic (PV) Panels

Collaborating with local PV experts, the project team plans to integrate an energy generation strategy to future-proof the project for PV installation, at a minimum.

Water and Waste

- Reducing potable water by 30% through water efficient plumbing fixtures.
- 80% of construction waste will be diverted from landfill. The occupied building will have means of separating recyclable and organic waste from going to the landfill.

Embodied Carbon

- · Baseline analysis has been carried out of structural and envelope systems
- Cost effective, constructible solutions will be developed to reduce the embodied carbon impact of the buildings.

Salmon Safe

This campus-scale certification enhances the project goal to respect North Shore ecology and verifies site-wide strategies to protect local salmon habitats through responsible design.

LTC and AL/LTC

- Heating and Cooling: Air Source Heat Pumps with back up gas-fired boilers, distribution through radiant panels
- **Ventilation:** 100% outdoor air provided with Energy Recovery Ventilator and Earth Tubes.

AH and IL

- Heating and Cooling: Air Source Heat Pumps with back up gas-fired boilers, distribution through four pipe fan coils
- Ventilation: 100% outdoor air provided with in-suite Heat Recovery Ventilation.

Circulation

Phase 1 Circulation

The site is ideally located to provide ease of access for friends and family from West Vancouver, and, with its close proximity to the Upper Levels Highway, those coming from further afield.

Vehicles circulate through the site on a below-grade roadway that connects to service spaces along the western side of Level 1 and underground parking for team members and visitors.



VehiclesBelow Ground / Building

Loading Below Ground/ Building



Phase 2 & 3 Circulation

During construction of Phase 2 & 3, all passenger and loading access to the Long Term Care building will be from the permanent access at Inglewood Avenue.

A new a right in right out access from Taylor Way will be added to alleviate traffic on Inglewood Avenue.

The Phase 1 underground parking access will be extended to provide a second service space and access to parking for all residents of the site.

Legend

VehiclesBelow Ground / Building

Loading Below Ground/ Building









3

Public Realm

The main design objectives and inspiration for the public realm are connection and community. The topography of the site creates substantial grade change which was integrated into the landscape as sunken courtyards and terraced gardens.

Pathways weave through planted areas to provide public pedestrian access to a variety of outdoor spaces, from the amphitheatre in the central courtyard to quieter spaces around the edges of the site.

Along Burley Drive and Inglewood Avenue a new dedicated bike lane, boulevard and sidewalk follow the site perimeter. The existing narrow sidewalk and retaining wall at Taylor Way will be replaced with a wider sidewalk and boulevard, set back from the edge of the highway.

Public Access Garden



Lounge

IL



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