

## PMSHI ARBUTUS – DESIGN RATIONALE

### Background

The City of Vancouver, BC Housing and CMHC are partnering to deliver up to 350 new units of supportive housing to address the urgent crisis for people experiencing homelessness through the Permanent Modular Supportive Housing Initiative (PMSHI). PMSHI is intended to fill the growing need for supportive housing in the City of Vancouver via the rapid deployment of permanent modular housing, and this project, PMSHI Arbutus will provide 129 new homes for people experiencing homelessness.

### Project Overview

The project aims to create a high-quality, durable, and welcoming building that residents are proud to call home. To help guide the project's design, Vancouver Affordable Housing Agency (VAHA) and BC Housing developed the following principles for all PMSHI projects:

### PMSHI Principles

1. **Budget** – Design decisions are guided by the budget established for each project.
2. **Repeatable Design** – Maximize off-site manufacturing and minimize work on site, utilize floor plate replicability.
3. **Design within Neighbourhood Context** – Consideration of surrounding area densities, height, character, residential land use and planning context.
4. **Design for Beauty + Simplicity** – Achieve architectural appeal through cost effective building design, with particular attention paid to mitigating larger forms, massing, and excessive repetition.
5. **Customization of Facade** – Consider site and building size within the neighbourhood context while keeping the principle of replicability in mind.
6. **Energy Efficiency + Sustainability** – Ensuring that the building meets the City's energy and sustainability targets.
7. **Site Specific Landscaping** – Integrated with the public realm and building design as a means of achieving customization, permanency, and visual connection with the existing neighbourhood
8. **Conscientious Design of Outdoor Spaces** – Given the supportive nature of these housing projects, design conscientious outdoor amenity space in-lieu of balconies, which may include rooftop open space if ground floor space is not available or insufficient.
9. **Design to Ensure Functionality** – With both Operator and Residents in mind.

## Introduction

There are a total of 129 studio units proposed in 11 levels of prefabricated construction on top of a site-built podium. The podium contains various support services for residents and an at-grade parking area. The studio homes will be designed to accommodate a vulnerable and marginalized population and will come complete with small kitchens and in-suite storage for bicycles or mobility aids. The Statutory Right-of-Way (SRW) on the East side of the site will be dedicated to the City of Vancouver for the future development of the Arbutus Greenway that may include a streetcar. Along Arbutus Street an additional SRW setback is provided to expand an existing pedestrian sidewalk.

The at-grade covered parking is accessed from Arbutus Street. One class B loading space and one garbage staging area are provided along with 5 parking spaces and one class A passenger loading space.

A TDM Plan has been developed, targeting a total 60% reduction for residential parking, including a 20% reduction for Transit Accessibility.

## Urban Design

The proposed project is located within the Broadway Plan area and is aligned with the “Neighbourhood Big Moves” by creating new housing options near Arbutus Station (Broadway Plan Summary Highlight Document, pg. 3). The massing of the project has been designed to place the largest and tallest portion of the building to the south where greater density is planned under the Broadway Plan, and the two-storey plus mezzanine amenity podium to the North, allowing a transition to the existing smaller scale fabric of Kitsilano.

The proposed massing locates the tall residential portion (t/o parapet +45.65 m above grade) of the building on the south side of the site, closest to Broadway. Because the tallest portion of the building is set back from Delamont Park, shadows have been eliminated on the park site both on spring and fall equinoxes and minimizes shadowing of the St. Augustine schoolyard.

As the Broadway Corridor densifies, the proposed project will act as a transition point from the taller and more dense Arbutus Station area, and the lower-rise and lower density buildings that are common in the existing fabric of the neighbourhood.

## Neighbourhood Fit

This project aims to be a contextually relevant building while also setting a precedent for supportive housing projects and the future development of the Broadway Corridor in alignment with the Broadway Plan.

At the neighbourhood scale, the proposed project will be located in “Residential Area,” and “Station Area” of the Broadway Plan (Broadway Plan 2022, Pg. 50). The project is aligned with the plan directions by providing new affordable housing as well as by creating landscaped building setbacks and opportunities for large street trees on the North and South.

- The unusual site inspired a building configuration that responds in a unique way to each street frontage.
- The site’s proximity to the Arbutus Station Area will benefit the residents by allowing access to shops, services, amenities, and public transportation planned for in the Broadway Plan (Pg. 40), contributing to the overall Broadway Plan goal of creating a more equitable city.
- The overall land use slated for the proposed site is “Residential Area: High Rise (pg. 65 and 81) within the Kitsilano North - Area A with an allowable height of up to 20 storeys. The proposed building is significantly lower than what is allowable (pg. 84).
- The S.R.W. adjacent to the Arbutus Greenway on the east side of the building will be dedicated to the City of Vancouver for the future expansion of the Arbutus Greenway that may include a streetcar
- Along Arbutus Street an additional landscaped SRW setback is provided
- Existing street trees along Arbutus Street, 7th Ave, and 8th Ave have been retained.
- The program locates building services and parking on the southern portion of the site, in proximity to west 8th avenue and across the street from the future Translink bus loop located between Broadway and 8<sup>th</sup> Ave. The building’s residential entry and amenity spaces are located both along 7th Ave and along the Greenway. These spaces are more compatible with a quieter, more pedestrian-oriented scale of activity.
- To ensure residents feel safe and comfortable in their homes, and in the accompanying critical support spaces, clear vision glazing has been reduced at street level. To allow the residents and staff important views of nature and daylight on the main floor level, a private inner courtyard has been created. Particularly along the busy arterial Arbutus St, and along the popular Arbutus Greenway, windows are either frosted or raised up to clerestory level.

## Massing and Architectural Expression

The massing and layout has been carefully developed to create a warm, inviting front door on the quieter, more residential-scaled 7th Avenue. It provides the residents with a private approach to their homes.

The building form transitions into its urban context with lowered shoulders on the north and south side to break down the mass of the building.

The podium features rounded corners and a playful arrangement of windows to create a unique and engaging pedestrian experience. A portion of the podium roof is aligned with the floor of level 2 above, where the common outdoor terrace overlooks the activity of the Arbutus Greenway, and allows residents a private outdoor space with leafy trees and garden beds away from direct vehicular noise and activity. A second roof top garden space, on the south elevation, allows a smaller more private outdoor space with additional space for planting and smaller gatherings.

The tower portion of the building is constructed from volumetric steel modules, that are insulated and clad on site. This allows the individual unit facades to be articulated with an angled wall to provide visual interest on the East and West facades of the tower.

The south tower elevation, which will be highly visible from the future Arbutus Bus Loop, features glazed bay window style bump-outs, which break up the south elevation, and provides ample natural daylight to tower corridors. Residents will be able to see natural light, and views of the city on both ends of the corridor. Overheating is addressed with large horizontal sunshades, which also provide architectural interest to pedestrians who will view the building from the intersection of Broadway and Arbutus Street.

## Colour and Materiality

The character of this project is intended to be welcoming, warm and quietly elegant. Using traditional building materials on the podium, and a sophisticated, yet playful colour palette, the project will convey a sense of permanence and dignity.

The design of the lower elevation has been revised to a rich blue glazed brick with great colour variegation, and a slight iridescence. This brick ensures the building conveys a sense of durability, quality and permanence. The shimmering nature of the bricks will result in modulated light conditions throughout the day, particularly as the sun filters through the surrounding trees and soft landscaping. The podium windows are playfully located across the facades, and the quantity has been increased to help animate the façade on the lower levels. These windows are set into a vertical,

textured recess within the brick wall, helping to reduce the large horizontal mass of the podium, and adding an additional element of unexpected delight. The coursing pattern of the brick within the recess incorporates an alternating extruding brick bond which provides both visual and tactile interest for pedestrians.

The upper tower volume of the project is clad in a white terracotta. A warm white was chosen as a colour for this volume for two reasons. Firstly, because it will reduce the perceived weight and bulk of the tower massing, and second, because it will allow for a subtle play of shadow and light across the façade. A champagne tone metal flashing runs horizontally at each floor level below the windows. The flashing material is subtly reflective and brings warmth to the windowsills.

## Sustainability

In accordance with the City of Vancouver Rezoning Policy for Green Buildings, the project will be pursuing the ambitious Passive House certification (Path A), considered industry best practice for buildings that consume very little energy. As one of the first projects globally to target a tall steel, modular Passive House building, the team is making strategic decisions to ensure success.

Specific passive design strategies include:

- Solar shades on south facing windows
- Airtight envelope detailing
- Simple punched windows
- High quality doors and triple-pane windows
- Exterior insulation

After maximizing passive energy savings, the design will utilize:

- High-efficiency electric mechanical services
- Heat recovery ventilation system
- Recirculating hood fans and condensing dryers

Low embodied carbon will be achieved through:

- Specifying low embodied carbon and/or high recycled content building materials.
- Reduced crane time with modular construction
- Reduced construction waste with modular construction

A comprehensive rainwater management strategy has been developed that minimizes hardscape, adds rooftop gardens, and includes significant native restoration planting around the building. For rainwater that will not be infiltrated via

the landscape, a detention tank will be included below grade on the North side of the site.

## Sociability

The design aims to create a safe and secure building that avoids the health risks inherent with isolation and encourages social and creative engagement. The proposed design provides an ecosystem of amenity spaces that allow residents to choose from a variety of interaction levels. In addition, entry spaces have been enlarged to ensure respectful personal space can be maintained. This careful combination of spaces will provide a platform to nurture a connected community that is more resilient, healthy, and active.

PMSHI Arbutus was run through Human Studio's FLUID Sociability software for a 30-day simulation to test how the building is performing socially. Preliminary observations from simulation results are:

- The highest concentration of resident movement is centered on the ground floor and is driven by the daily use of the Dining Room by most residents.
- Most of the interactions occur in the open space of the ground floor with some happening in the corridors of the residential floors.

Because residents are encouraged to use elevators to go between floors, the elevator becomes the main driver of movement and interactions on residential floors.

The interior amenity spaces provided include:

- Multi-Purpose Amenity Space – Level 1: 90.4 m<sup>2</sup> [973 SF]
- Dining Room – Level 1: 111.2 m<sup>2</sup> [1,197 SF]
- Quiet Activity Room – Level 2: 32.3 m<sup>2</sup> [348 SF]
- Meeting Room – Level 2: 23.4 m<sup>2</sup> [252 SF]
- Computer Room – Level 2: 28.8 m<sup>2</sup> [310 SF]
- Common Lounge – 1 per residential floor (Level 2 – 12): 25.4 m<sup>2</sup> [273 SF]

Acknowledging that future residents will have a wide range of needs and comfort levels with social interaction, the design team has created a spectrum of social spaces throughout the project. The Level 1 Multi-Purpose Amenity space is modest in scale relative to typical social housing projects to ensure an inviting setting for relaxing and participating in activities. Each residential floor also has a smaller scale lounge reserved for the residents of that floor. This unique room functions as a communal living room shared with immediate neighbours that can be reached without the extra step of passing through elevators and communal hallways. Similarly, three separate outdoor spaces for residents are provided to create a range

of spaces to ensure that outward-facing opportunities for prospect and connection are available, as are quieter places of refuge.

The outdoor amenity spaces provided include:

- Courtyard - Level 1: 62.8m<sup>2</sup> [676 SF]
- Main rooftop amenity terrace (Level 2): 185.0 m<sup>2</sup> [1,991 SF]
- Secondary rooftop amenity terrace (Level 2): 35.9 m<sup>2</sup> [388 SF]

Connections to nature and place are critical for reducing stress and creating and sustaining mental health. Throughout the project, finishes will be selected to reflect the local west coast environment. Patterns that take inspiration from wood, leaves and stone provide much-needed relief from the synthetic hard surfaces that are often used for simplicity and durability. Simple design features, like being able to open a window, allow residents to feel connected to the sounds and smells of changing seasons. The basic act of providing access to variability in airflow and temperature, the sounds of birds singing, or the wind in the trees can have a profoundly restorative effect.

Connecting with food-growing has also been shown to be beneficial for mental health. Gardening provides stress-relief, connection to nature, and recreation in a safe outdoor space. The project is providing several opportunities for urban agriculture at the rooftop amenity space and in temporary plots along the Statutory Right-of-Way parallel to the Arbutus Greenway.

## Summary

Through the sustainability, sociability, urban design, massing, and materiality we believe that the project partners and Human Studio have collectively prepared a high-quality, durable, and welcoming building that future residents will be proud to call home.