1240-1250 Granville Street

Design Report for Development Permit Board

October 15, 2021

LWPAC + Intelligent City

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Client: P.Rock Ltd

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1.0 Introduction

Introduction

This design report for 1240-1250 Granville Street proposes a 9-storey mixed-use rental housing development with 1 storey of commercial uses at street level and 7 storeys of housing above. This site is located mid-block on the southeast side of Granville Street between Drake Street and Davie Street. The project is within the Downtown District (DD) zoning and falls under the Downtown Official Development Plan (DODP). Within the DODP, the project falls within area K3 which is bordered by Drake St. and Helmcken St. along Granville. The proposed development was designed to be generally compliant with the existing zoning framework with a proposed FSR of 3.675 (3.5 plus allowances).

This proposal exceeds the City's housing and sustainability goals. Through an enhanced housing typology, and the uses of advanced building and manufacturing technologies, the project enables a path where net zero readiness, superior livability and improved affordability are no longer mutually exclusive. The proposal provides a mix of 61 homes with a mix of 1BR and 2BR, and is designed to be compatible with the current and future urban fabric and needs of the city. The project aims to catalyze a revitalization of this part of Granville St.

The project will use advanced off-site prefabrication, and offers greatly reduced embodied and operational GHG emissions through the use of a mass timber structural system and a mass timber based building envelope system. The building is targeting Passive House energy performance and fast construction with less neighbourhood impact. The courtyard design encourages sustainable and healthy community driven lifestyles, with a high level of design quality. All homes have two sided exposure, allowing for less street noise, greater access to daylight and natural cross ventilation, and enables highly compact yet very livable home layouts.

This building will also set a precedent for repeatable yet adaptable mixed-used solutions. This is achieved through platform technology for high-rise EMTC (Encapsulated Mass Timber Code) compliant buildings that are prefabricated with the use of automated manufacturing. These processes, alongside an innovative building form and urban design response, enable an improved form of community living.

Project Objectives

LIVABILITY
- Innovative courtyard concept
- All homes have double-sided access to daylight
- All homes have natural cross ventilation and increased user comfort
- All homes have passive house walls for quiet street and courtyard side rooms
- Flexible and adaptable home layouts
- Open courtyard for access to nature instead of dark isolating hallways
- Common amenity spaces for lively social interaction and community
- Privacy gradient from homes to community oriented spaces
- Highly desirable commercial space with double height mass timber interior

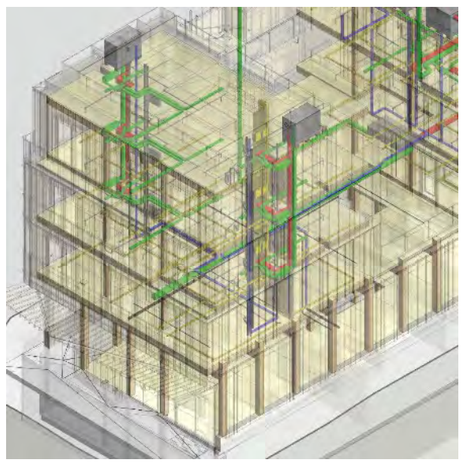
AFFORDABILITY
- Efficient and flexible layouts
- Compact, efficient and affordable homes
- A highly rational use of prefabricated building systems
- Lower construction costs through prefabrication and digital planning
- Better construction quality and airtightness
- Low energy cost due to passive house compliance
- A home for everyone: lowered life-cycle cost and operational cost
- Scalable construction system, providing benefits to future projects

SUSTAINABILITY
- Overall strong sustainability strategies with a focus on livability and longevity
- Net Zero Energy Readiness with Passive House certification
- Emergency response benefits from increased social connectedness and community
- Off-site prefabrication with thermal bridge free design
- Resilient, Durable Construction and Design
- Low carbon mass-timber construction system
- Less waste, less impact and faster construction
- Low emitting healthy materials and simplified material palette

The project attempts to meet all of the objectives and current policies of the City of Vancouver to innovate on current practices and bring meaningful, future-proof solutions for future urban developments and planning policies.

The Platforms for Life System

A



Digital Twin

Fully Resolved
Pre-engineered

B

Superstructure

C

Envelope

Fully Tested High-Rise Building Systems
Automated Offsite Precision Manufacturing

D

Full Product Solution

One-Stop Solution
De-Risked

Virtual Pre-construction

Prefabrication is based on full virtual pre-construction that used in an integrated design process well before construction starts, to ensure supply, cost, and quality control. Through complete project integration all contractors and stakeholders can be included from the beginning, enabling further efficiencies in the process.

Platform-Based Prefabricated Mass Timber

Off-site construction with mass timber components allows for higher precision, better quality, adaptability, predictability and faster on-site processes. The system is made of similar but customized components for a reduced number of primary building elements for cost efficiencies. Noise and pollution on site will be reduced, while delivery times will be accelerated.

Timber Carbon Sequestration

Mass timber is the only renewable, modern building material. Within the context of Canada's sustainable forest industry, the material is harvested, processed and applied with a negative carbon footprint through carbon sequestration. We see mass timber as an enabler for the future of carbon neutral buildings.

Biophilia

The timber structure will be exposed to surround inhabitants with the natural, healthy, and visual warmth. This is an experiential way of promoting the use of sustainable materials in construction as well as promoting a way of life which is more in touch with nature - a quality rarely achieved in modern buildings.

2.0 Site Context

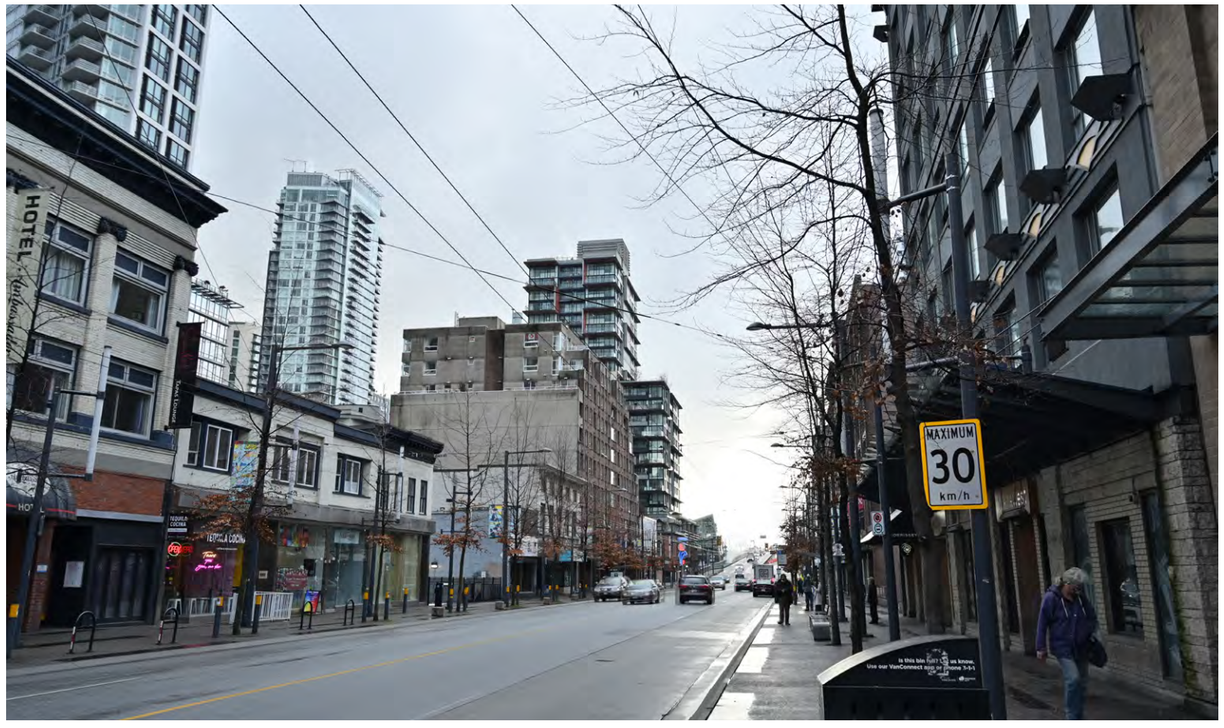
1200 Block of Granville St.

Granville St. is one of the most significant high streets in Vancouver, and this project aims to revitalize this section of the street to strengthen it as one of the hearts of downtown. It is also understood that this section of Granville St. will become a significant gateway into the city as the Granville Bridge Connector pedestrian and cyclist pathway is completed, and as the Beach district surrounding Vancouver House becomes increasingly activated. Granville street's status as a transit artery is also significant and this proposal responds to the City's goals of reducing personal car ownership and vehicular traffic. It is worth noting that this area has had a mix of residential and commercial uses for decades. This section of Granville St. also has a quieter character relative to the rest of Granville St. which is more compatible for housing and transitions the entertainment district gradually to the seawall.

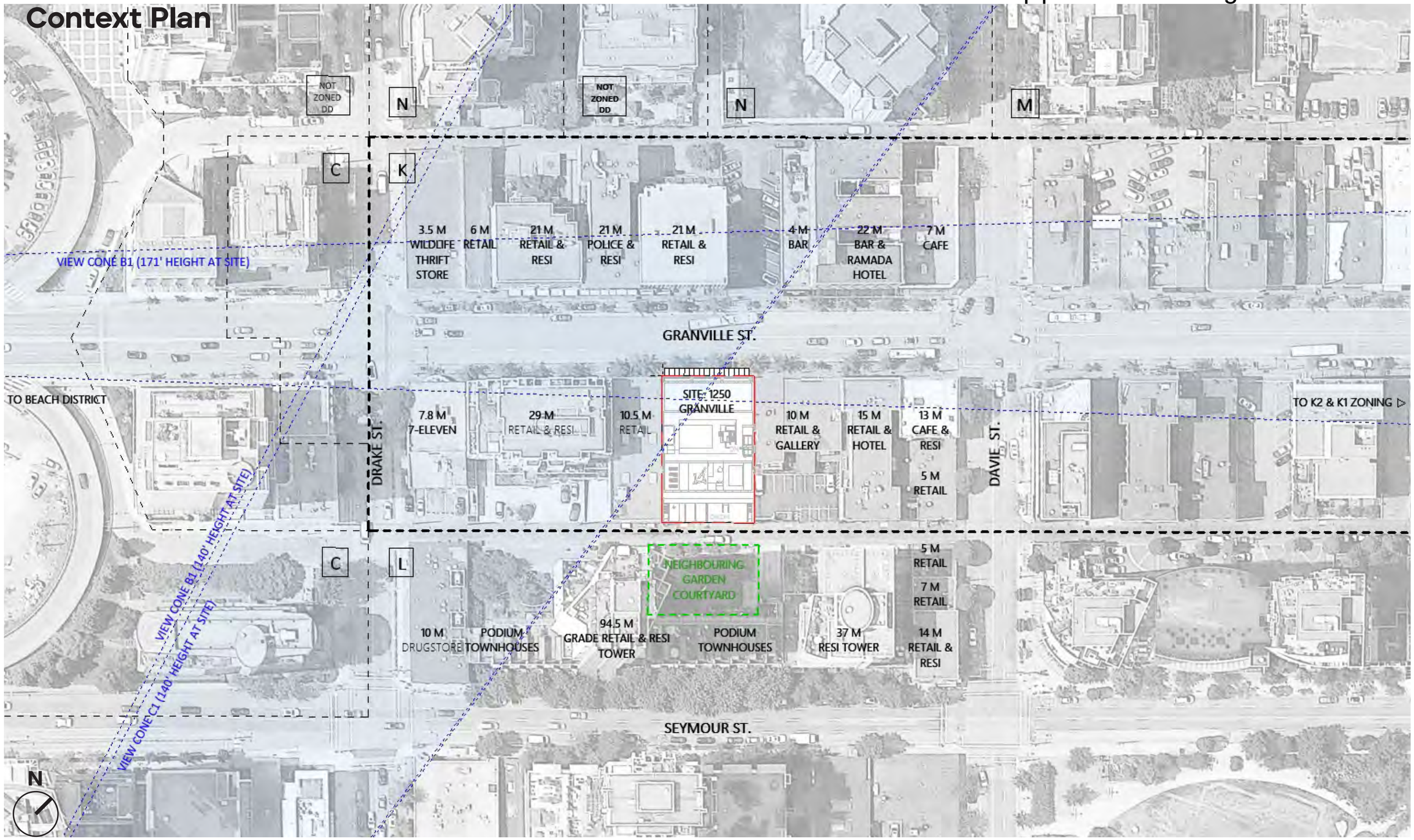
This proposal seeks to add a new richness to Granville St.,be a precedent for future policy and act as a catalyst for revitalizing the daily experience, activity and businesses in this area.

The site's urban context and the surrounding buildings along Granville street vary in height and density with a mixture of architectural styles and materiality that range in character and size. The buildings surrounding the site are primarily 2-10 storeys with retail uses at-grade and residential above. Additionally, several larger social housing, residential, and hotel buildings are mixed within lower density and historic buildings. These historic buildings typically consist of simple composed of rectangular massing with stone, brick or stucco with larger cornices, punched windows and often pilastered facades.

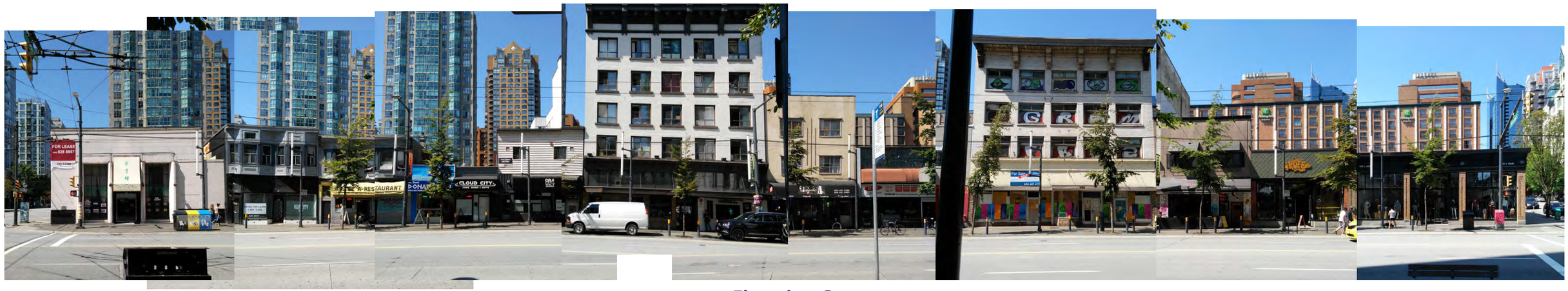
Newer buildings present added density and variety to the street, and some still reference the architectural rhythms of the historic building facades. Granville Street's lower buildings contrast with the neighbouring buildings to the northwest and southeast. Some of these new developments around the site are 12-30 storeys tall. This includes a 33-storey development directly south of the proposed development, along Seymour. This building shades the building site, along with a large swath of Granville, at certain times throughout the year. 140' view cones running over top of the site are not a concern for this 9-Storey Development.



Context Plan



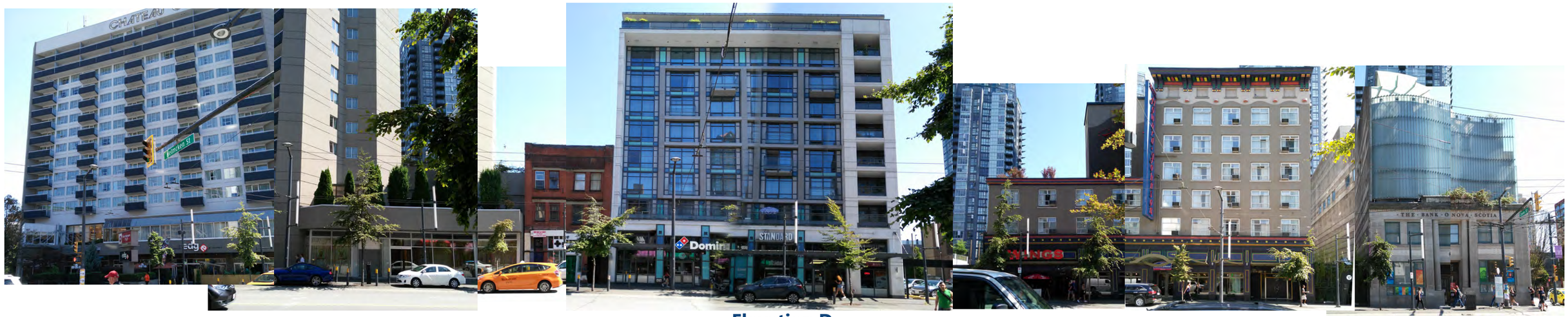
Streetscape Elevations



◀ Drake Street

Elevation C

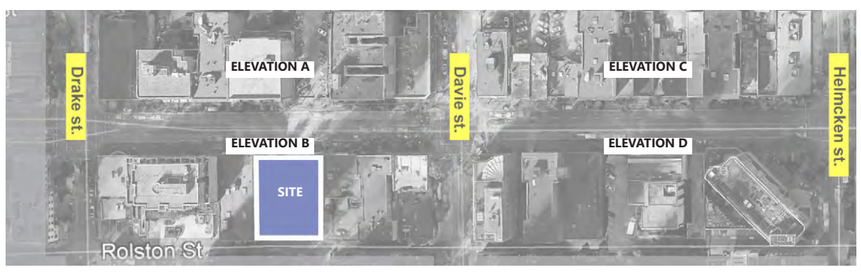
Helmcken Street ▶



◀ Helmcken Street

Elevation D

Davie Street ▶



Streetscape Elevations

◀ Drake Street

Elevation A

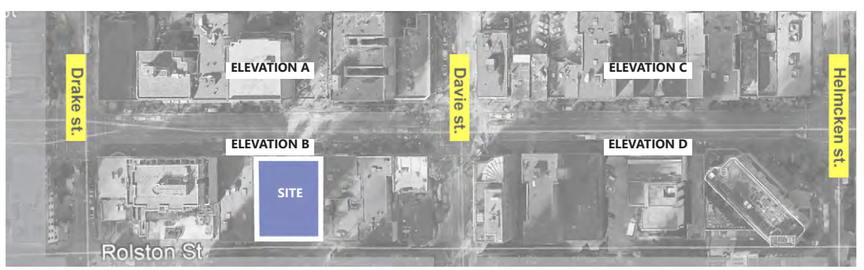
Davie Street ▶

◀ Davie Street

Elevation B

Elevation B

Drake Street ▶



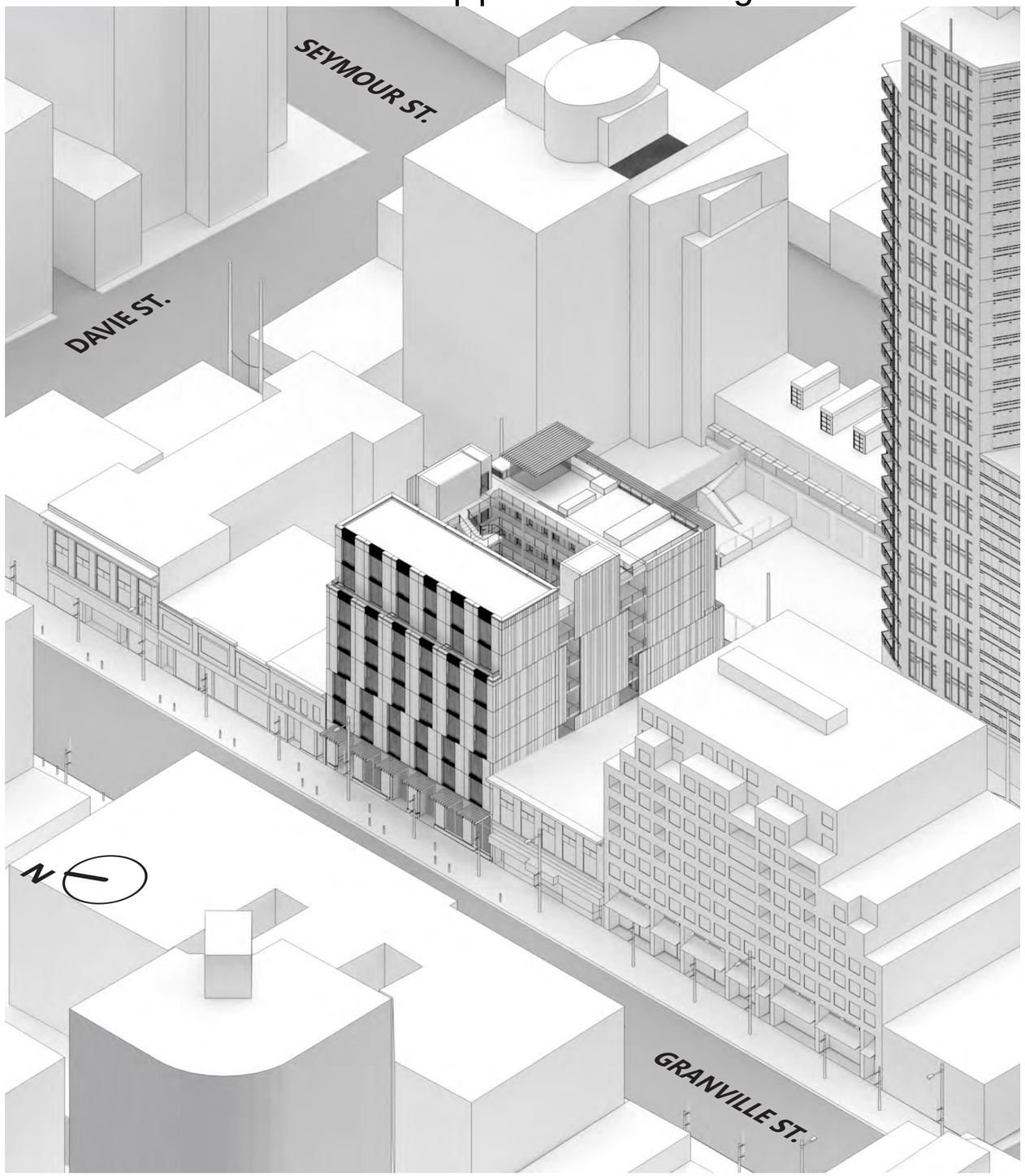
3.0 Design Rationale

Site Response - Massing

The building massing consists of a street-level double-height commercial storey with a direct connection to the street, as well as 7-storeys of housing above split into two massings defining a large courtyard at level 3. The design is an evolution of the courtyard typology pioneered by LWPAC's "Monad" building- completed in Kitsilano. It received 2 Urban Design Awards from the City of Vancouver in 2014.

The commercial massing at grade along Granville street is visually open and showcases the mass timber structural system. A mass timber and glass canopy at the top edge of the double-height commercial storey contextualize the new development with adjacent cornices on the neighbouring buildings and common along Granville St. This feature relates the building to its direct context architecturally while also providing rain cover to pedestrians. The commercial uses at street-level will contribute to an active street, creating foot traffic for businesses and a strong presence architectural during the day and at night.

The proposed building's central courtyard fragments the massing to create a unique outdoor communal amenity and spatial articulation - uncommon among urban infill buildings. Throughout the project, the surface of the cladding presents a varied profiling to dissolve the scale but still provide a cohesive whole. The overall elevation has an animated yet calm architectural presence. The vertical groupings create a massing which relates to the scale of 2-3 storey buildings on Granville as well as other 7-9 storey buildings. Furthermore, the walls on the side property lines are intended to feature a playful arrangement of vertical LED lights inspired by the street lighting of Granville St., at night, connecting the street visually with the building.

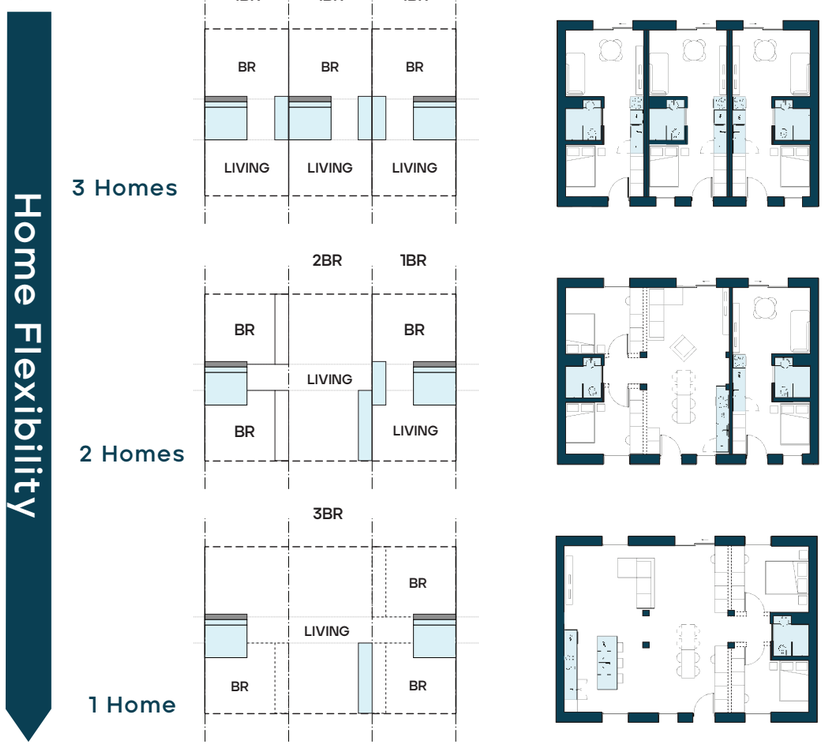


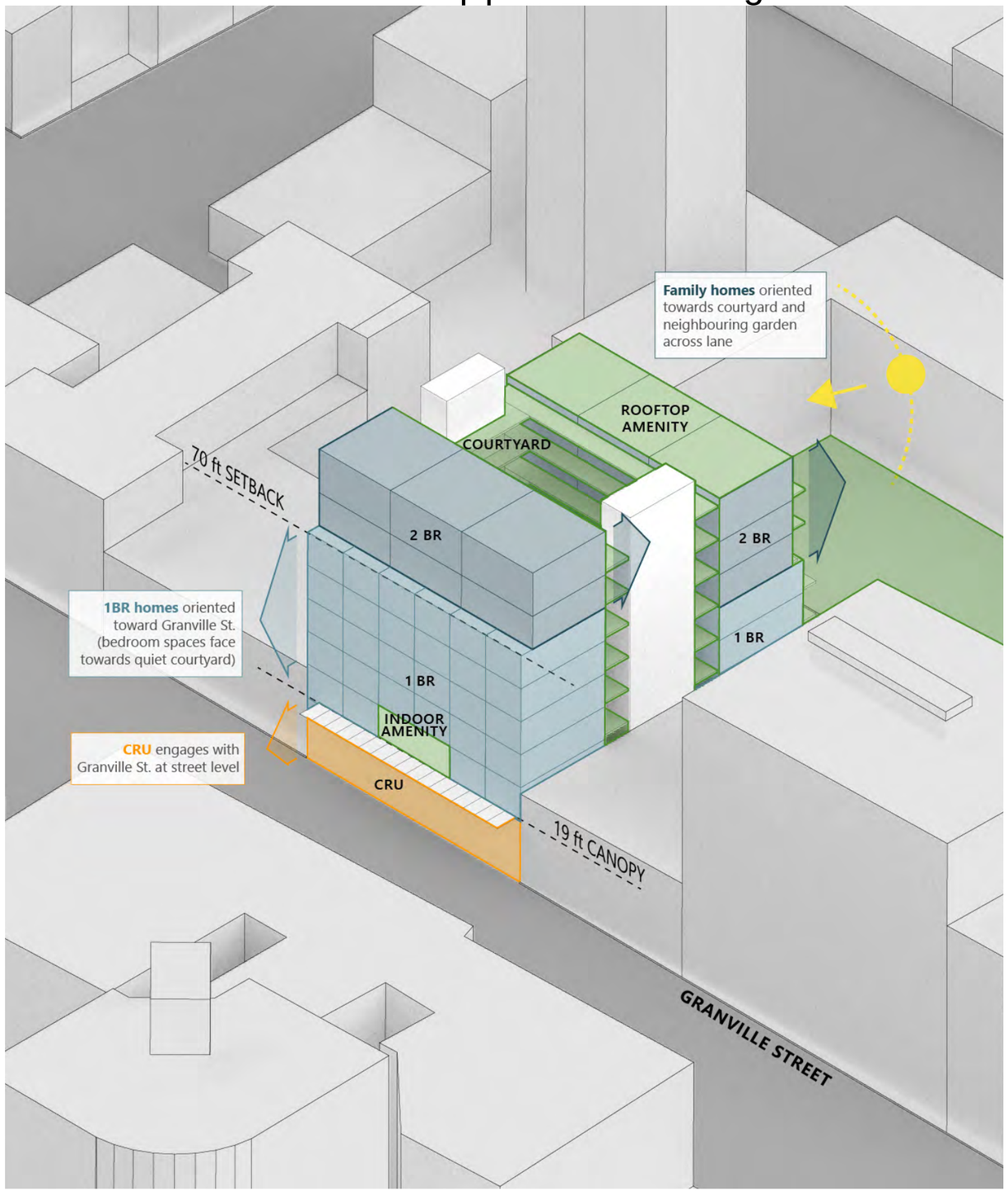
Site Response - Residential Program

The building design is a courtyard building consisting of front and rear residential blocks with an open-air courtyard and exterior walkways above a podium containing commercial uses and storage.

The front "block" facing the active Granville Steet primarily contain smaller 1-bedroom homes. Each providing quiet sleeping areas/bedroom at the courtyard, while the majority of family homes are located at the even quieter rear of the building facing a large garden/courtyard of the neighbouring podium-level townhomes directly across the lane. The high performance exterior wall provide superior acoustic and thermal control to the outside environment. The proposed building's central courtyard creates a space for community gatherings, events, and activities desiring indoor/outdoor connections.

Designed for longevity, the organization of the systems and structure allow for future alterations with minimal effort. By using a base module dimension, Monad Granville can evolve and reconfigure with a variety of home layouts thoughout its life-time; a truly adaptable system.

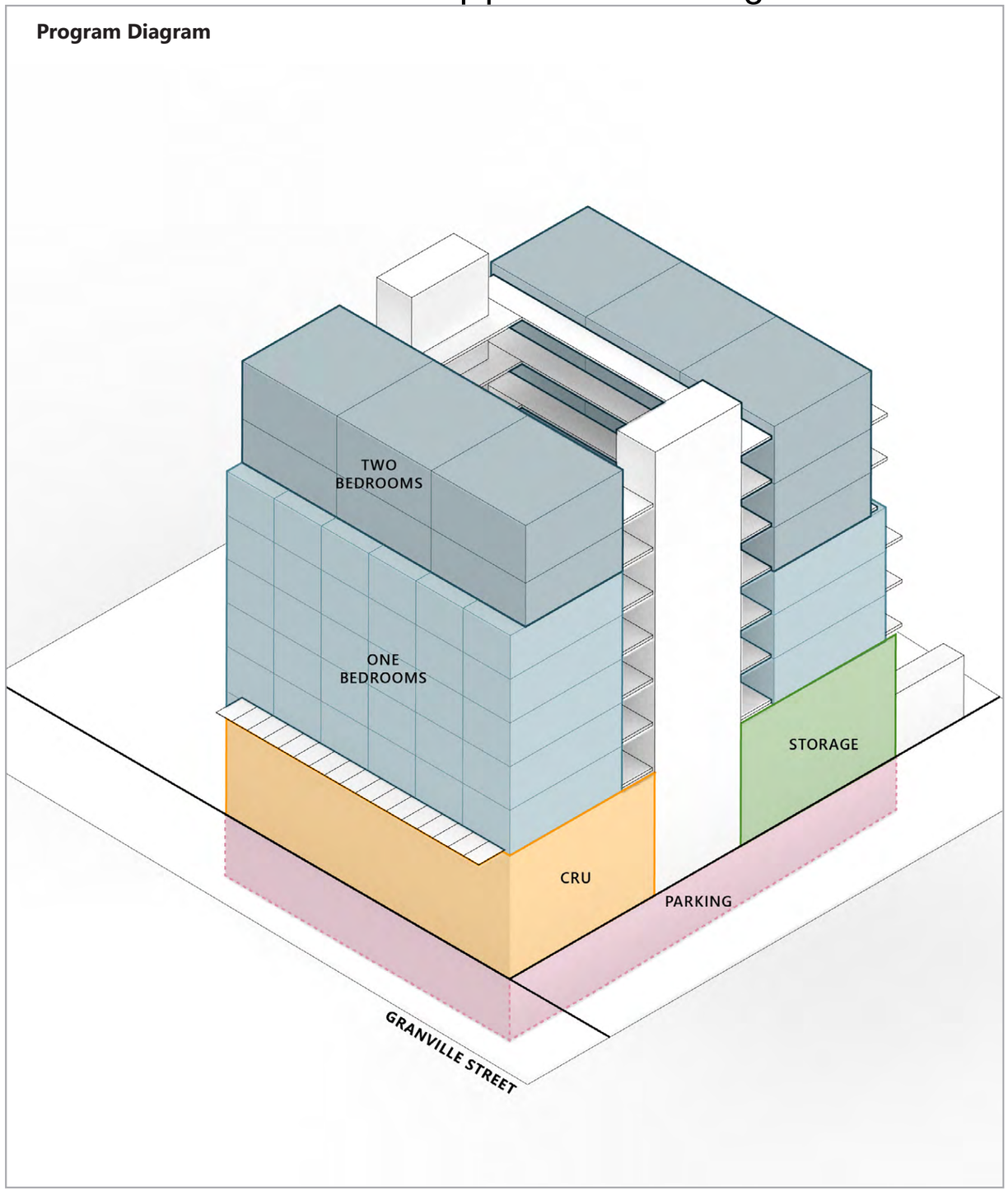




Project Statistics

Site Area:	836.1 sqm (9000 sf)
Granville St. Frontage:	22.86 m (75 ft.)
Depth:	36.57 m (120 ft.)
Height:	32.61 m (107 ft.)
Setbacks - Front:	4' at 70' height
Rear:	3.05 m (10 ft.) above lane parking/loading
Side:	none
Occupancies:	1 floor of Comm; 1 floor of Storage; 7 floors of Residential
GFA:	3699.8 sqm (39,824 sf)
Residential GFA:	3474.5 sqm (37,399 sf)
Commercial GFA:	225.3 sqm (2,425 sf)
Below Grade	836.1 sqm (9,000 sf)
Residential Mix	61 compact homes
1 Bedroom Juniors: 331 sf	46 (75%)
2 Bedrooms: 575 sf	15 (25%)
Parking	17 total, or 22 with stacking car lift
Required	5
Additional Spaces	12, or 18 with stacking car lift

Program Diagram



Project Statistics Detailed

Street Address:	1240-1250 Granville Street (Vancouver, BC)
Legal Lot Description:	LOTS 8 TO 10 ALL OF BLOCK 103, DISTRICT LOT 541 GROUP 1, NEW WESTMINSTER DISTRICT, PLAN 210
PID:	015-474-887: LOT 8 BLOCK 103 PLAN VAP210 DISTRICT LOT 541 NEW WESTMINSTER 015-474-909: LOT 9 BLOCK 103 PLAN VAP210 DISTRICT LOT 541 NEW WESTMINSTER 015-474-917: LOT 10 BLOCK 103 PLAN VAP210 DISTRICT LOT 541 NEW WESTMINSTER
Coordinates	49°16' 34.79" N, 123° 7' 34.33" W
Survey	Conducted by 360 Land Surveying (Nov. 8th, 2019)
Building Grades:	Survey complete. CoV Building Grades Confirmed.
Total Site Area:	835.9m² (8,998ft²)

PROJECT DATA — 9-Storeys: Commercial at-grade, 1 Floor of Storage + 7 Floors of Residential

	PERMITTED	PROPOSED
Zoning:	K3 Zoning	K3 Zoning
Total Gross Floor Space:	N/A	3,796m² (40,857ft²)
Site Coverage:	N/A	90%
Building Height:	Downtown ODP Fig. 1: 27.432m (90'-0") w/ angled setbacks, see sheet A02.01	from grade at Granville St. to rooftop level parapet w/ allowance* = 24.94m (81'-2") actual = 27.81m (91'-3") from grade at Granville St. to top of elevator parapet w/ allowance* = 25.93m (85'-1") actual = 28.80m (94'-6") *Additional height allowance of 2.87m (9'-5"): Bylaw 10.23A.2 - Passive House - 1.25m Bylaw 10.21A - Mass Timber Buildings - 18cm per floor - 0.18m x 9 storeys = 1.62m
Front Yard:	none	none at lower floors, 1.22 (4'-0") setback at level 8 and above
Rear Yard:	4.57m (15'-0")	4.57m (15'-0") to balconies at lower levels, 5.79m (19'-0") at level 6 and above.
Side Yard	none	none
FSR:	3.5 (5% additional FSR per CoV ZEB Tools policy = 3.675)	3.675 (0.33 for 1 floor of commercial, 3.35 for 7 floors of residential & 2 floors of storage)

CoV Parking By-Law Requirements: Vehicle Parking (9-Storey Version)

									No. of Parking
Off street Parking Space Regulations (4.3.1) Downtown Non-Residential: 1 Space per 115 sqm									
Total Non-Residential Area (m2)	225 m²	÷	115					=	2
Off street Parking Space Regulations (4.3.2) Downtown Residential: no minimum residential parking requirement for residential uses Downtown, including live-work use.									
								=	0
Off street Parking Space Regulations (4.8.4)(a) Residential Accessible: 1 Space per Seven Residential Units and .034 for additional count									
	61	-	7	=	54	x 0.034	= 1.84	= 1 +	2.8 =	3
Off street Parking Space Regulations (4.8.4)(b) Non-Residential Accessible: at least one accessible parking space when > 500sqm gross floor area of Non-Residential uses., + 0.4 Space per extra 1000sqm									
Total Commercial Area (m2)		225 m² <		500 m²					0
Off street Parking Space Regulations (4.3.4) Visitor: Lesser of 5% of total residential parking count and 0.05 space per dwelling unit up to max 0.1 space per dwelling unit									
Required res. parking count:	3	x 0.05	= 0.15						
# of units	61	x 0.05	= 3.05						
								=	0
								Net Total Vehicle Parking Required =	5

CoV Parking By-Law Requirements: Bicycle Parking: (9-Storey Version)

Class A

Off-street Bicycle Space Regulations (6.2.1.2) Residential: A minimum of 1.5 spaces for every dwelling unit under 65m2

Apartment Type	Area(Sq.ft)	Area(Sq.m)	No. of Units		Parking Req.(Space per Unit)	No. of Parking
1 Bedroom Jr.	330	30.7	46	x	1.5 =	69
2 Bedroom	561	52.1	15	x	1.5 =	22.5
				Total	=	92

Off street Parking Space Regulations (6.2.5.1) Retail and Service Uses: A minimum of one space for each 340 square metres of gross floor area.

Gross Retail Area:	225.25 m² / 340 m2	=	1
Net Total Class A Bicycle Parking Required		=	93

Class B

Off street Parking Space Regulations (4.2.1.3) Residential: A minimum of 2 spaces for any develcpment containing at least 20 dwelling units, and one additional space for every additional 20 dwelling units

Total Units:	61 -20 =	41	/20	2.05	+1 =	3

Off street Parking Space Regulations (6.2.5.1) Retail and Service Uses: A minimum of 6 spaces for any development containing a min. of 1,000 square metes of GFA

Commercial Area:	225.25 m² < 1,000 m2	=	0
Net Total Class B Bicycle Parking Required		=	3

Statement of Dwelling Uses

	1 BR	2 BR	Total
	330 sf	561 sf	
Level 1			
Level 2			
Level 3	10		10
Level 4	12		12
Level 5	12		12
Level 6	6	3	9
Level 7	6	3	9
Level 8		6	6
Level 9		3	3
Total	**46**	**15**	**61**
% of Total	75%	25%	100%
	1 BR	**2BR**	**Total**

GFA Summary

		Interior Areas (GFA)											
		Occupant Areas		Interior Circulation			Interior FSR Exclusions						
Level	**Total GFA**	**Residential Area**	**Commercial Area**	**Res. Circulation**	**Com. Circulation**		**Res. Storage**	**Res. Services**	**Com. Services**	**Amenity**	**Res. Wall Exclusions**	**Com. Wall Exclusions**	
P2	-												
P1	-												
Level 1	645.1 m² 6,944 sf		225.3 m² 2,425 sf	51 m²	547 sf	51 m² 547 sf	245.0 m² 2,637 sf	29.6 m² 318 sf	29.6 m² 318 sf	6.7 m² 72 sf	0 sf	7.3 m² 79 sf	
Level 2	397.0 m² 4,273 sf			47.4 m²	510 sf	0 sf	318.1 m² 3,424 sf	27.2 m² 293 sf		0 sf	4.3 m² 46 sf		3 sf
Level 3	448.5 m² 4,827 sf	111.2 m² 1,197 sf		44.8 m²	482 sf	0 sf	0 sf	15.7 m² 169 sf		0 sf	62.9 m² 677 sf	13.9 m² 149 sf	3 sf
Level 4	436.5 m² 4,698 sf	172.9 m² 1,861 sf		32.8 m²	353 sf	0 sf	0 sf	16.9 m² 182 sf		0 sf	0 sf	13.9 m² 149 sf	3 sf
Level 5	436.5 m² 4,698 sf	372.9 m² 4,014 sf		32.8 m²	353 sf	0 sf	0 sf	16.9 m² 182 sf		0 sf	0 sf	13.9 m² 149 sf	3 sf
Level 6	409.2 m² 4,405 sf	348.7 m² 3,753 sf		32.8 m²	353 sf	0 sf	0 sf	13.8 m² 148 sf		0 sf	0 sf	14.0 m² 150 sf	3 sf
Level 7	409.2 m² 4,405 sf	348.7 m² 3,753 sf		32.8 m²	353 sf	0 sf	0 sf	13.8 m² 148 sf		0 sf	0 sf	14.0 m² 150 sf	3 sf
Level 8	382.0 m² 4,112 sf	324.4 m² 3,492 sf		32.8 m²	353 sf	0 sf	0 sf	10.7 m² 115 sf		0 sf	0 sf	14.1 m² 152 sf	3 sf
L9-Rooftop	231.8 m² 2,495 sf	162.8 m² 1,753 sf		32.8 m²	353 sf	0 sf	0 sf	7.6 m² 82 sf		0 sf	22.1 m² 238 sf	6.4 m² 69 sf	3 sf
L10-Rooftop	0.0 m² 0 sf	0 sf		0 sf		0 sf	0 sf	0 sf		0 sf	0 sf	0 sf	3 sf
TOTAL	**3,796 m²** 40,857 sf	**2,242 m²** 24,129 sf	**225 m²** 2,425 sf	**340 m²** 3,657 sf		**51 m²** 547 sf	**563.1 m²** 6,061 sf	**152 m²** 1,638 sf	**30 m²** 318 sf	**92 m²** 987 sf	**94 m²** 1,016 sf	**7 m²** 78 sf	
		Total Occupant Area:	**2,467 m²** 26,555 sf	**Total Interior Circulation:**		**391 m²** 4,204 sf		**Total Service Exclusions:**	**182 m²** 1,956 sf		**Total Wall Exclusions:**	**102 m²** 1,094 sf	

Exterior Areas

Exterior Stairs	Exterior Circulation	Res. Balconies	Com. Balconies	Roof Decks
- -	- -	- -	- -	- -
0 sf	0.0 sf	0 sf	0 sf	8 sf
0 sf	9.0 m² 96.4 sf	35.7 m² 385 sf	0 sf	220.2 m² 2,370 sf
5.4 m² 58 sf	29.7 m² 319.4 sf	37.3 m² 401 sf	0 sf	91.0 m² 979 sf
24.9 m² 268 sf	29.7 m² 319.4 sf	37.2 m² 400 sf	0 sf	91.0 m² 979 sf
9.0 m² 97 sf	29.7 m² 319.4 sf	37.0 m² 398 sf	0 sf	90.4 m² 973 sf
9.0 m² 97 sf	29.7 m² 319.4 sf	37.0 m² 398 sf	0 sf	90.4 m² 973 sf
9.0 m² 97 sf	29.7 m² 319.4 sf	37.0 m² 398 sf	0 sf	110.6 m² 1,190 sf
0 sf	0.0 sf	0 sf	0 sf	268.1 m² 2,886 sf
0 sf	0.0 sf	0 sf	0 sf	217.2 m² 2,338 sf
57 m² 617 sf	**157.3 m²** 1,693.3 sf	**121 m²** 2,381 sf	**0 m²** 0 sf	**1,179 m²** 12,689 sf
		Tota Balcony Area:	**221 m²** 2,381 sf	

Res. Balcony FSR Allowance (COP 3-7)(a).0	
Gross Res. Area x 8%	278.6 m²
TotalRes. Balcony Area	221.2 m²
Balcony Area included in FSR	0.0 m²

FSR Summary

	FSR	Area sqm	Area sf
Site Area		835.9 m²	8,998 sf
Total GFA (Interior Area)			
Residential GFA	4.17	3,483 m²	37,488 sf
Commercial GFA	0.37	313 m²	3,369 sf
Total GFA	**4.54**	**3,796 m²**	**40,857 sf**
Additional Exterior FSR Area:			
+ Balcony Area exceeding 8% exemption		0 m²	0 sf
+ Exterior Stairs		57 m²	617 sf
+ Exterior Circulation		157 m²	1,693 sf
Total Additional Exterior FSR Area	**+ 0.26**	**215 m²**	2,310 sf
FSR Exclusions:			
- Res. Storage		563 m²	6,061 sf
- Services (equipment & shafts)		182 m²	1,956 sf
- Amenity Area		92 m²	987 sf
- Wall Exclusions		102 m²	1,094 sf
Total Exclusions	**- 1.12**	**938 m²**	10,098 sf
Total FSR:			
Residential Net FSR	3.34	2,796 m²	30,097 sf
Commercial Net FSR	0.33	276 m²	2,973 sf
Total FSR	**= 3.675**	**3,072 m²**	33,069 sf
	= 3.5 +5% (CoV ZEB Tools policy)		

TFA of Passive House Envelope	**2,597 m²** 27,958 sf

Parking Summary: (9-Storey)

Vehicle Parking	Required	Proposed Equiv.	Proposed Physical
Commercial: Regular	2	17	17
Residential: Regular	0	0	0
Residential: Visitor	0	0	0
Commerical: Accessible (each stall counts as 2 as per 4.1.15)	0	0	0
Residential: Accessible (each stall counts as 2 as per 4.1.15)	3	6	3
Car Share	0	1	1
Net Total Vehicle Parking	**5**	24	21

Bicycle Parking (9-Storey)	Required	Proposed
Class A		
Residential	92	123
Retail/Service	1	1
Net Total Class A Bicycle Parking	**93**	**124**
Class B		
Residential	3	3
Retail/Service	0	0
Net Total Class B Bicycle Parking	**3**	**3**

Loading (9-Storey)	Required	Proposed
Class A		
Residential 5.2.1 (no requirement)	0	0
Retail/Service 5.2.5 (no requirement)	0	0
Net Total Class A Loading	**0**	**0**
Class B		
Residential 5.2.1 (no requirement)	0	0
Retail/Service 5.2.5 (>465m2 = 1 space req.)	1	1
Net Total Class B Loading	**1**	**1**

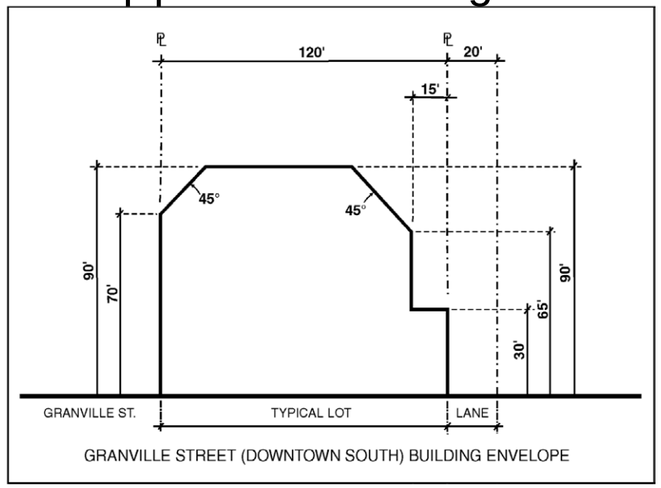
Passenger Space (9-Storey)	Required	Proposed
Class A		
Residential 7.2.1 (50-125 dwelling units = 1 spaces req.)	1	1
Retail/Service 7.2.5.1 (1 space per 4,000m2 GFA)	0	0
Net Total Class A Passenger Spaces	**1**	**1**
Class B		
Residential 7.2.1 (No requirement)	0	0
Retail/Service 5.2.5 (No requirement)	0	0
Net Total Class B Passenger Spaces	**0**	**0**

Height Allowances, FSR and Setbacks Rationale

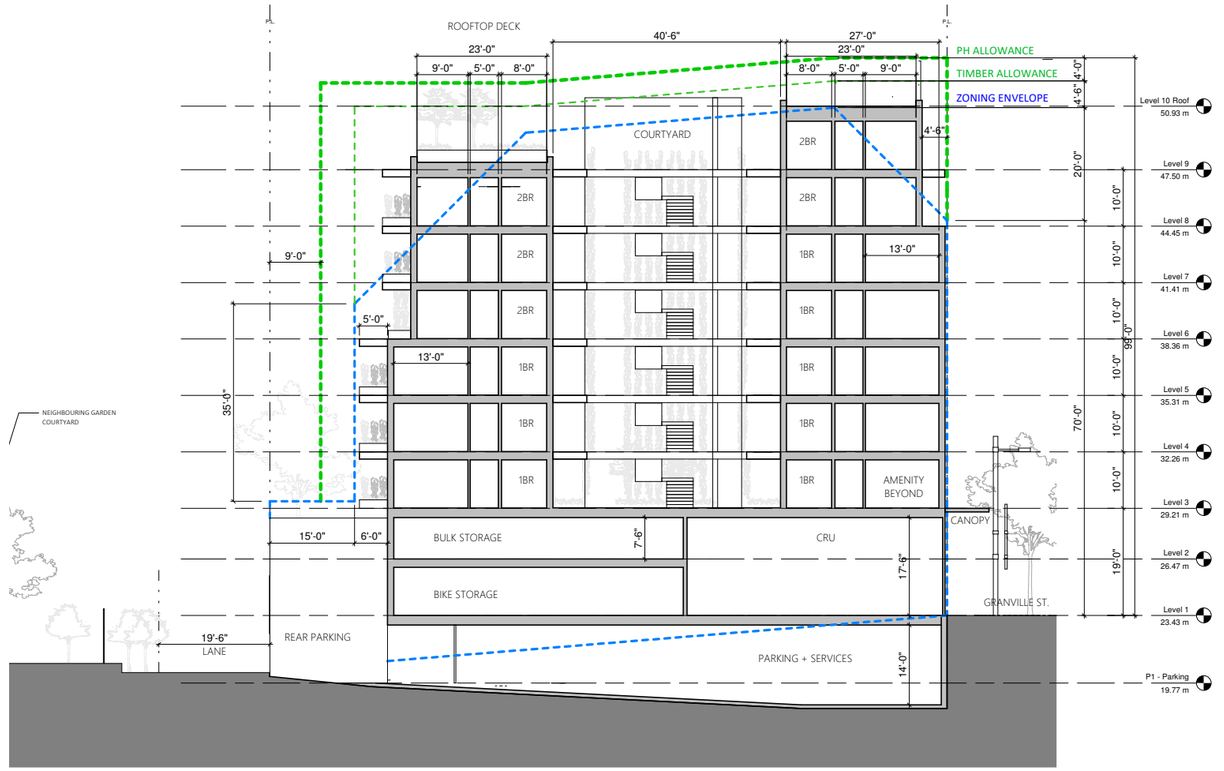
FSR	3.675 (3.5 w/ CoV ZEB allowance)
Height	Calculated with shown allowances: 90' (PH=10.23A,Timber=10.21A)
Actual	98.5'
Side Setback	No Side Setback
Rooftop and Amenity	Additional unconditioned indoor amenity space at roof deck with PV/solar hot water canopy above. Indoor amenity space at Level 9 (DODP 7.I)
Amenity Rooms	excluded from FSR (DODP 7.I)
Services	excluded from FSR (DODP 3.6.c & Zoning Bylaw 19-10.23A.3)
Wall Exclusions (for Passive House)	excluded from FSR (DODP 3.6.g)
Res. Bulk & Bike Storage	excluded from FSR (DODP 3.6.d)
5% Additional FSR Allowance - CoV ZEB Policy	Targeted - 3.5 FSR increased to an allowable 3.675 FSR (Zoning Bylaw 10.16)
Exterior Area (walkways, balconies, roof deck.. etc)	Portions excluded from FSR: (DODP 7.I, DODP 6.b) exterior walkways and urban porches excluded since they function as balconies or shared outdoor amenity, similar to a roof deck which would be excluded from FSR. 575 sf of walkway circulation included for each residential level to replicate what a comparable double-loaded corridor building on this site would require.

The proposed massing aligns with the 70'-high setback line and approximately with the 90' maximum height of the Area K3 zoning envelope in the Downtown ODP, giving the project a street-wall massing that steps back in alignment with the zoning intent. The rear block of the building steps down a storey relative to the front block to roughly comply with the zoning envelope also, ensuring daylight access to Granville St., the lane and the building's internal courtyard. The 40' courtyard has been discussed in-depth with the city on numerous occasions to provide ample lighting into the homes and landscape features within the courtyard level. This was seen reasonable due to the large courtyard garden directly across from the site.

The building generally conforms to the K3 zoning height under the downtown ODP, with some relaxations for using a high performance Passive House envelope and prefabricated Mass timber Building Systems. Using Zoning Bylaw 10.23A, we require relaxations for 1.25m due to roof deck insulation thickness for passive house at roof deck and setbacks with relaxations at the front and rear of the height envelope. Using Zoning Bylaw 10.21A, Additionally, a height of 18cm/floor for the use of prefabricated mass timber panels is necessary within this highly innovative project to accommodate for encapsulation thicknesses, systems integration, and floor build-up.



GRANVILLE STREET (DOWNTOWN SOUTH) BUILDING ENVELOPE



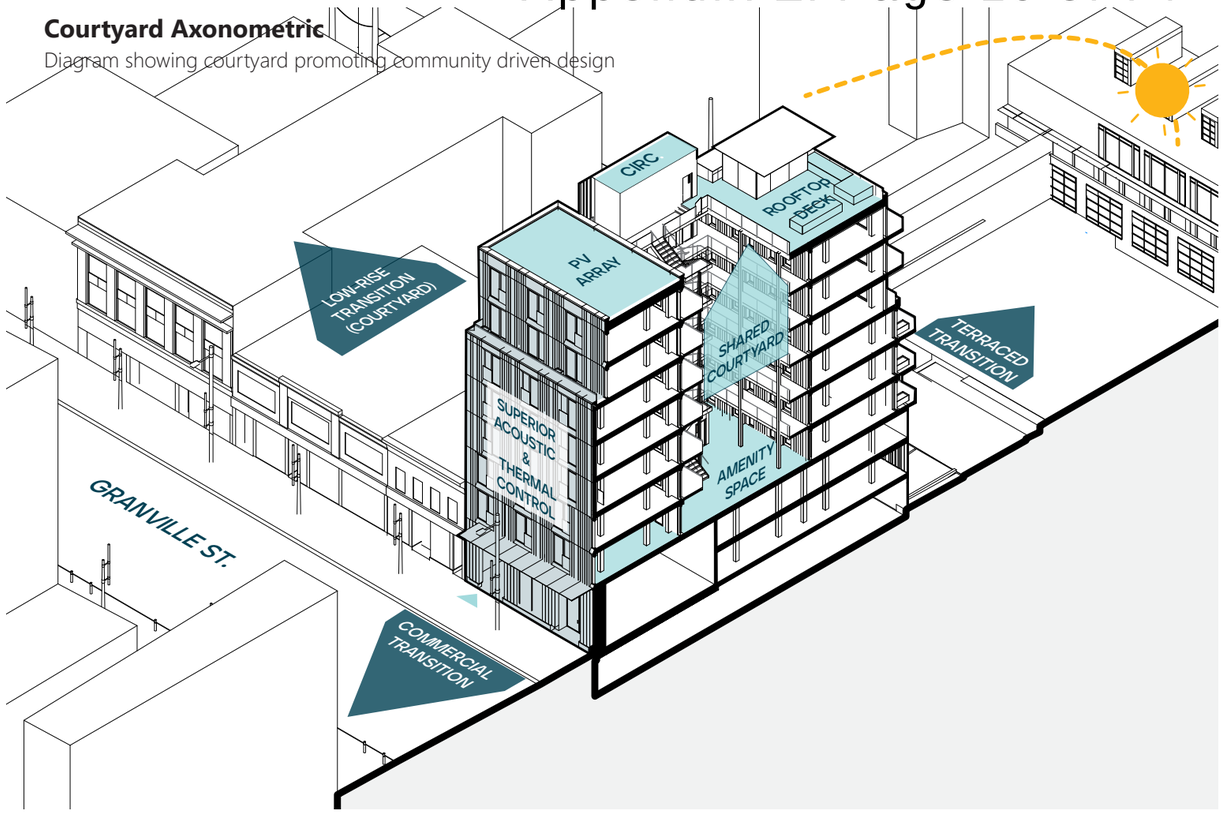
Courtyard

The large courtyard at the heart of the building serves as circulation for the residential levels while also providing access to nature and opportunities for informal encounters with neighbours, enabling a greater sense of community. The courtyard enables all homes to be double-sided, allowing for greater daylighting, natural cross-ventilation, and for the majority of bedrooms to be facing the quiet courtyard rather than the noisy street.

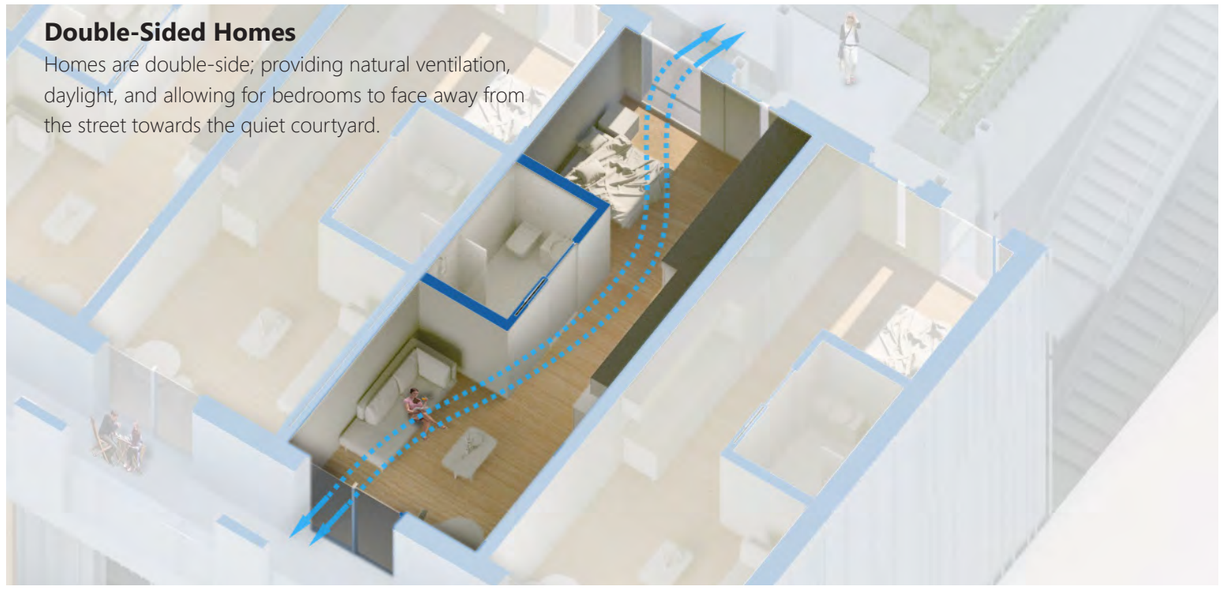
The double-sided homes with windows on two sides allows for space-efficient floor plans which require less floor area than a comparable single-sided apartment, offering optimized practical and desirable homes. This space saving reduces built floor area and affordability for tenants while maximizing the amount of people housed. An active, healthy and sustainable lifestyle are encouraged by prioritizing stair use, generous outdoor amenity and circulation space. These spaces will be planted as vertical gardens with hanging plants, lush planting on the courtyard-level and a generous rooftop amenity deck. Homes have widened walkways which serve also as personal porches facing the courtyard to enable neighbourly community interactions. The double sided homes with natural cross ventilation also significantly reduces cooling loads. Family homes are located near the roof top deck close to the play spaces allowing for safer play and child-minding. A shared indoor amenity room/lounge space is also provided at the courtyard level.

The courtyard and rooftop decks contain a diversity of spaces for a variety of activities and experiences. Our connected courtyards, rooftop gardens and indoor/outdoor amenities weave a network of spontaneity for social encounter, inclusion, and co-living. The outdoor spaces allow all generations to feel comfortable and connected in spaces full of nature and community amenities.

Courtyard Axonometric
Diagram showing courtyard promoting community driven design



Double-Sided Homes
Homes are double-side; providing natural ventilation, daylight, and allowing for bedrooms to face away from the street towards the quiet courtyard.



Platforms for Life and Sustainability on Granville St.

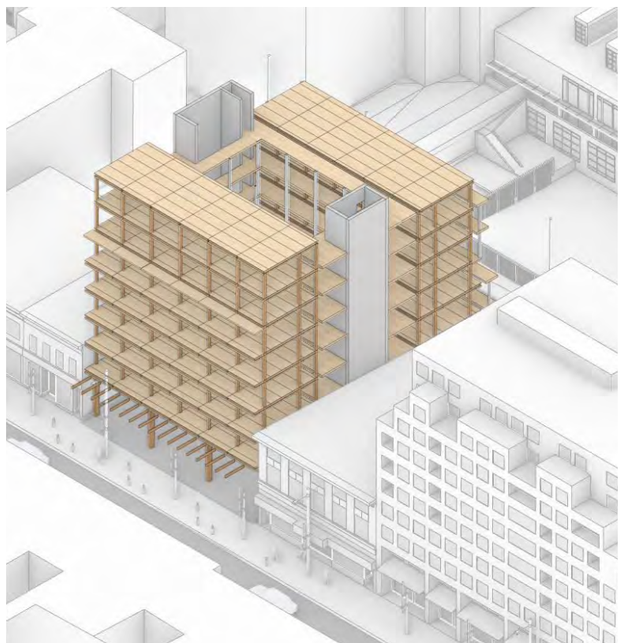
As a highly innovative, prefabricated high-rise (9 Storeys) mass-timber mixed-use rental building with Passive House performance, it will be a first of its kind. It will use a transformational approach to social and environmental urban living through innovative design strategies, construction, and building systems. The project delivery will use automated off-site prefabrication and outperform conventional housing projects in construction speed, accuracy and quality. The prefabrication will greatly reduce onsite construction time and noise, creating a minimal impact on the surrounding area during construction.

Monad Granville proves that it is possible to provide reliable, carbon neutral, Passive House buildings that cost less, last longer, and still offer a high level of customization. Systems and services are completely integrated and pre-cooridnated into manufacturing, allowing the building to come together more quickly on site with minimal construction noise. This technology is a continuation of projects with endless configurations and architectural form to strive for maximum sustainability and livability.

The building is estimated to reduce GHG emissions overall emissions by 70-90% with livability as the critical driver - compared to a typical incumbent building. Embodied, operational, and behavioural energy use and their associated emissions are considered through life cycle analysis. These three categories influence the form and materiality of this building along with a myriad of social sustainability characteristics.

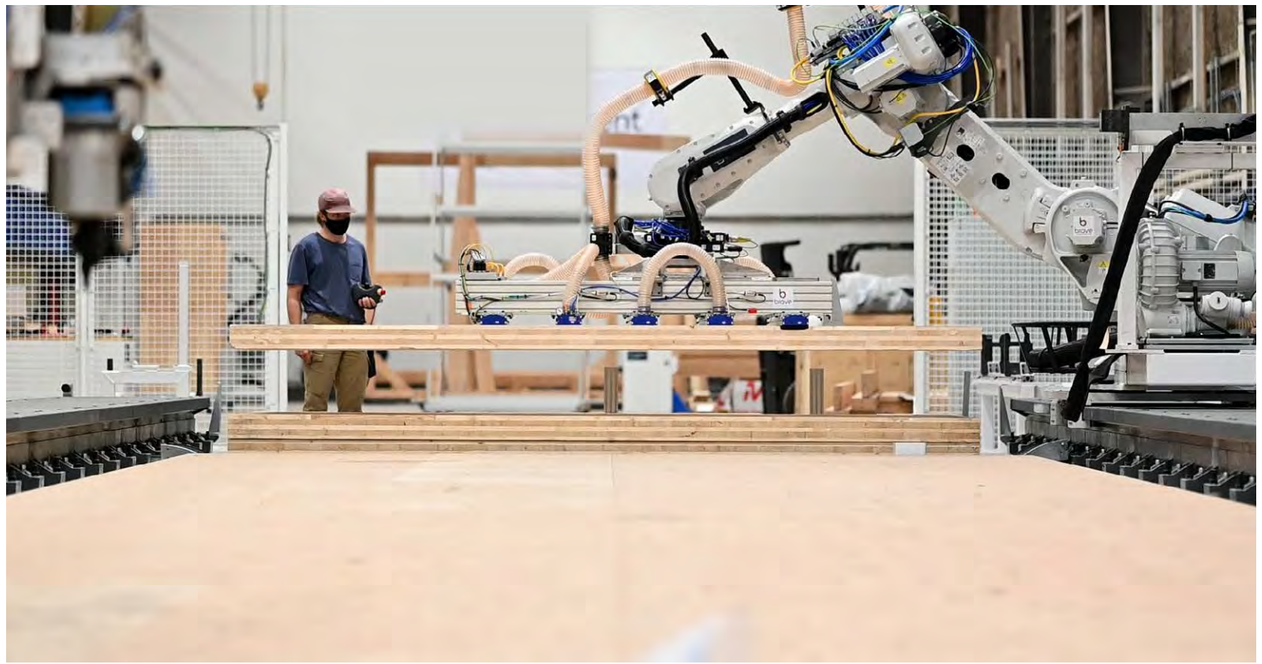
The building's mass timber structure is projected to reduce embodied emissions by approximately 30-60%. Operationally, the building's highly efficient envelope, and mechanical systems (HRVs, VRFs, heat pumps) result in excellent energy performance, quiet healthy indoor environments, and substantially increased building longevity for future-proof resilience. Behavioural shifts are based on user habits/needs, proximity to amenities and work, and transportation choices. The proposal encourages transit, car sharing, and bike use with the minimal required vehicle parking and additional bicycle parking provided as per the TDM plan. Car share spaces are also provided which is important for the majority of occupants who will not own personal vehicles.

In summary, the building aims to foster a culture of sustainability among its inhabitants which can extend into the city at large. This project is a precedent for a repeatable sustainable urban development along Granville St. and throughout the city.



Mass timber parametric model

Performance Mock-up wall panel lifted into place



Automated manufacturing in Intelligent City factory

Facade Contextual Design Response

The site's urban context and the surrounding buildings along Granville street vary in height and density with a mixture of architectural character and materiality.

- primarily 2-10 storeys with retail uses at-grade and residential above.
- several larger residential primary buildings; social housing, supportive house, market rental, and hotels
- Urgent need for revitalization in the neighbourhood due to reduced traffic day and night, and the recent pandemic

1249 Granville st.

1267 Granville st.

1256 Granville st.

1212 Granville st.

Neighbouring Buildings

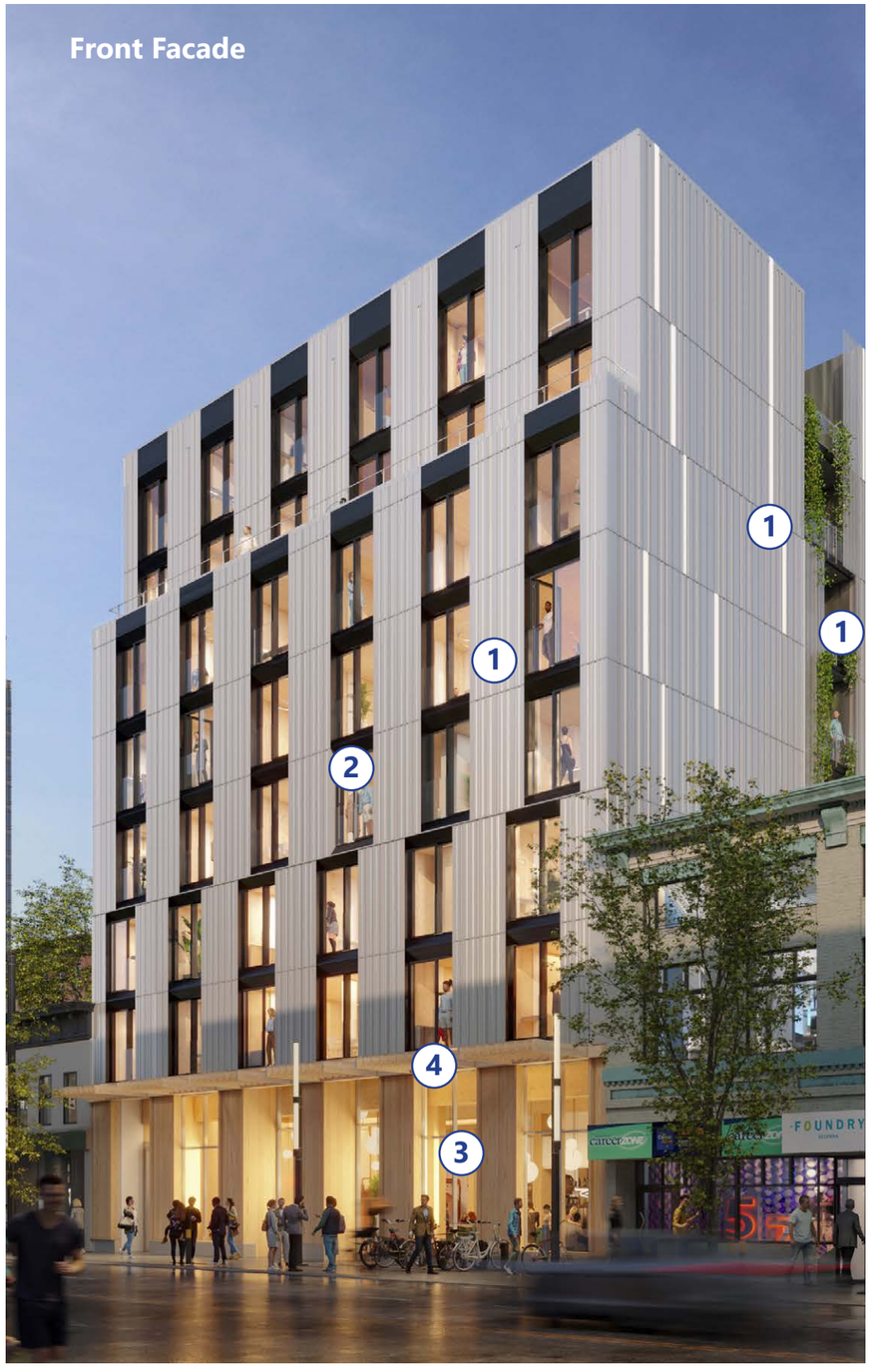
Granville street contains a number of buildings, some on the Vancouver heritage register, which reinforce the existing character of the street with detailed facades, cornices, brickwork, storefronts, signs and marquees.

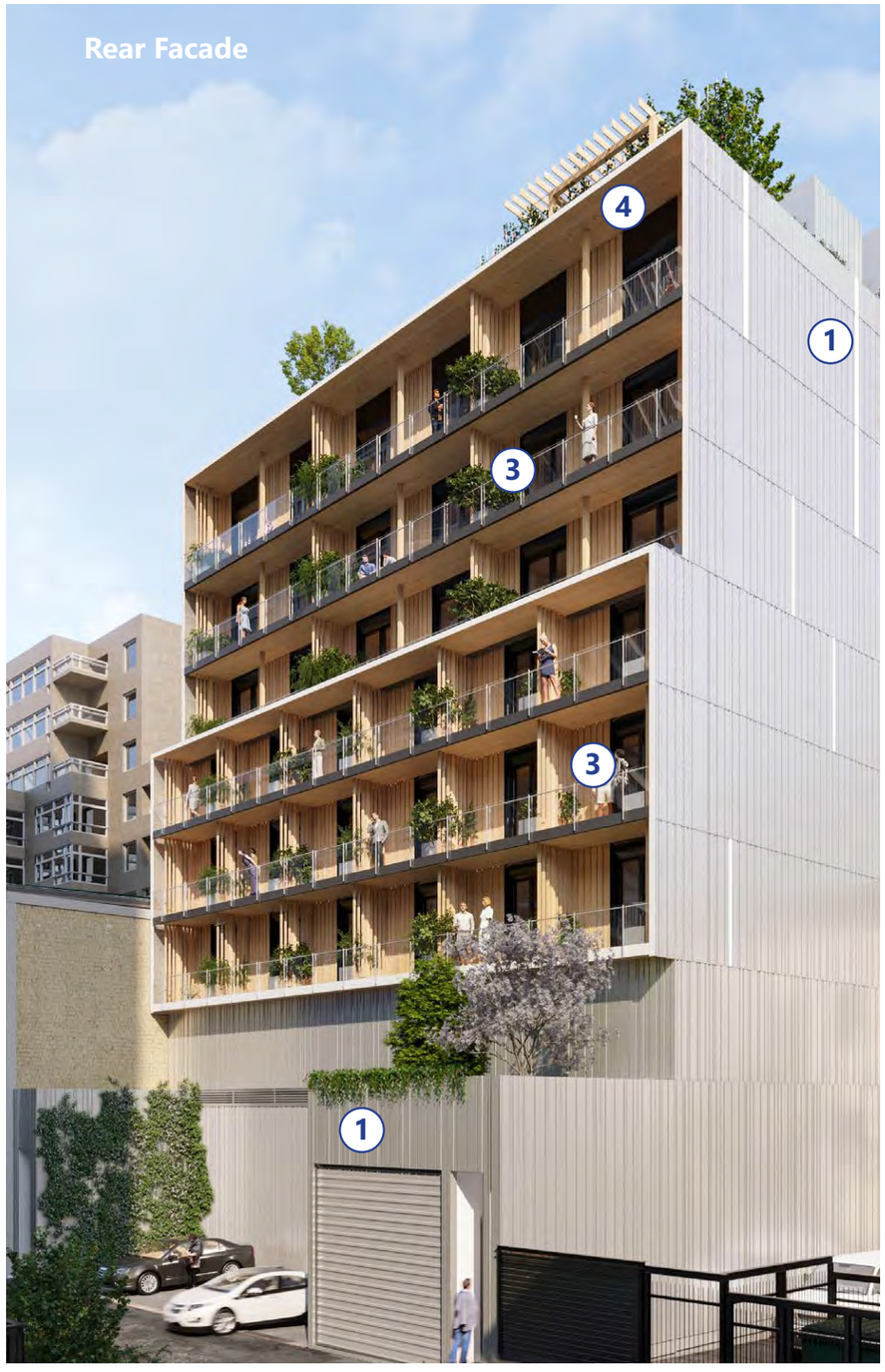
The proposed building's front facade design relates to the vertical rhythms of the neighbouring buildings' facades as well as the vertical scale and horizontal repetition of Granville's iconic lighting and signage.

The design aims to build upon the sense one has on Granville St. of these vertical elements hovering above you, guiding you along the street.

Proposed building lower-level street elevation

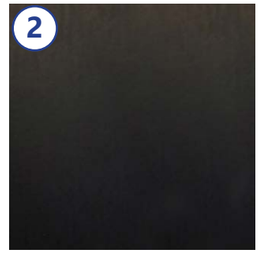
Facade Material Samples Board





Two Storey Performance Mock-up for Granville complete - passed testing verification for structural, water, and air.

White-Silver Metallic Folded Steel Cladding
Typical facade cladding, 24ga. Similar Profile with Perforation at rear parking area.

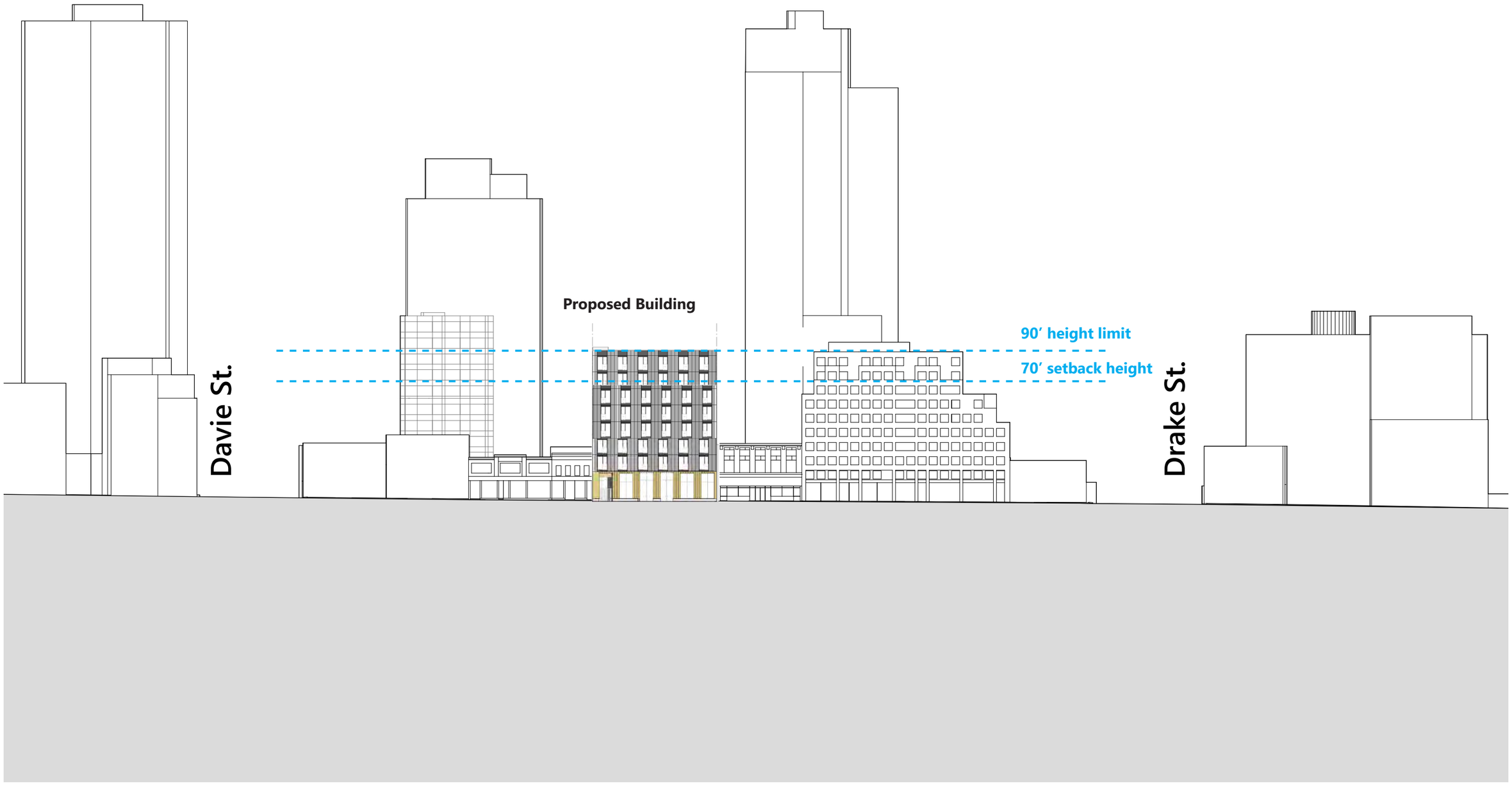


Matte Black Steel Flashing
At Window frames and cladding surrounding window sill & soffit.

Wood Composite Cladding Panels
Trespa "Denver Oak", Fundermax "Enigma", Parklex "Ash" or similar.

Glulam & CLT
Glulam beams at ground floor canopy and CLT undersides exposed at rear balconies.

Street Elevation with Proposed Building



Shadow Studies

Spring and Autumn Equinox:
September and March 21st

10:00 am

12:00 pm

2:00 pm

Summer Solstice:
June 21st

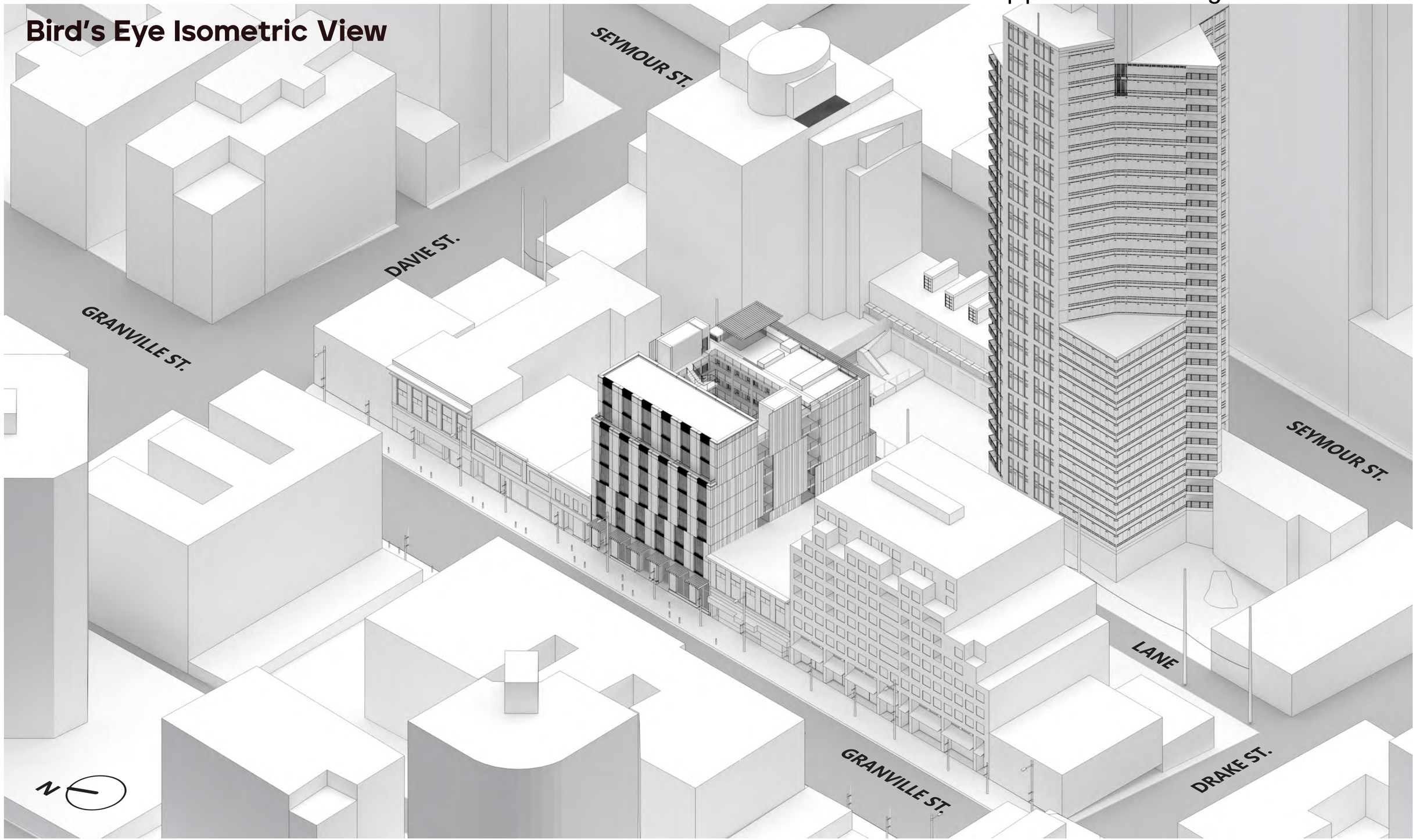
10:00 am

12:00 pm

2:00 pm

4.0 3D Views

Bird's Eye Isometric View



View of storefront

View of rear facade from townhomes across lane

View of rooftop deck and courtyard

Sustainability Features

5.0 Architectural Drawings

SURVEY PLAN OF LOTS 8 TO 10
ALL OF BLOCK 103, DISTRICT LOT 541
GROUP 1, NEW WESTMINSTER DISTRICT, PLAN 210

1 : 100 (0 1 2 4 6 8)

THE INTENDED PLOT SIZE OF THIS PLAN IS 560mm IN WIDTH BY 864mm IN HEIGHT (D SIZE) WHEN PLOTTED AT A SCALE OF 1:100

BCGS: 92G025
PID: 015-474-887 (LOT 8) 1240 GRANVILLE STREET
015-474-909 (LOT 9) 1240 GRANVILLE STREET
015-474-917 (LOT 10) 1250 GRANVILLE STREET
ZONING: DD (DOWNTOWN DISTRICT)

THIS PLAN SHOWS HORIZONTAL GROUND-LEVEL DISTANCES UNLESS OTHERWISE SPECIFIED. OFFSETS TO PROPERTY LINES ARE RADIAL OR PERPENDICULAR TO BOUNDARIES UNLESS SHOWN OTHERWISE.

ELEVATIONS SHOWN ON THE PLAN ARE GEODETIC AND DERIVED FROM GEODETIC CONTROL MONUMENT V-2767 (PUBL. ELEV. = 26.210 m).

THIS PLAN WAS PREPARED FOR BUILDING PERMIT APPLICATION AND ARCHITECTURAL DESIGN PURPOSES AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES. THIS DRAWING IS FOR THE EXCLUSIVE USE OF OUR CLIENT.

THIS DOCUMENT SHOWS THE RELATIVE LOCATION OF THE SURVEYED STRUCTURES AND FEATURES WITH RESPECT TO THE BOUNDARIES OF THE PARCEL DESCRIBED ABOVE. THIS DOCUMENT SHALL NOT BE USED TO DEFINE PROPERTY LINES OR PROPERTY CORNERS.

360 LAND SURVEYING AND E. PETUSHKOV, BCLS ACCEPT NO RESPONSIBILITY AND HEREBY DISCLAIM ALL OBLIGATIONS AND LIABILITIES FOR DAMAGES INCLUDING, BUT NOT LIMITED TO, DIRECT, INDIRECT, SPECIAL, AND CONSEQUENTIAL DAMAGES ARISING OUT OF OR IN CONNECTION WITH ANY DIRECT OR INDIRECT USE OR RELIANCE UPON THE PLAN BEYOND ITS INTENDED USE.

THIS DOCUMENT IS NOT VALID UNLESS ORIGINALLY SIGNED AND SEALED.

THIS PLAN LIES WITHIN THE METRO VANCOUVER REGIONAL DISTRICT (CITY OFVANCOUVER).

NOTES:

ALL TREES HAVE BEEN PLOTTED AS REQUIRED BY BYLAW NO. 3575.

THE SUBJECT PROPERTIES ARE ENCUMBERED BY THE FOLLOWING:

LOT 8
- EASEMENT, REGISTRATION: BX156449

LOT 9
- EASEMENT, REGISTRATION: BX156450

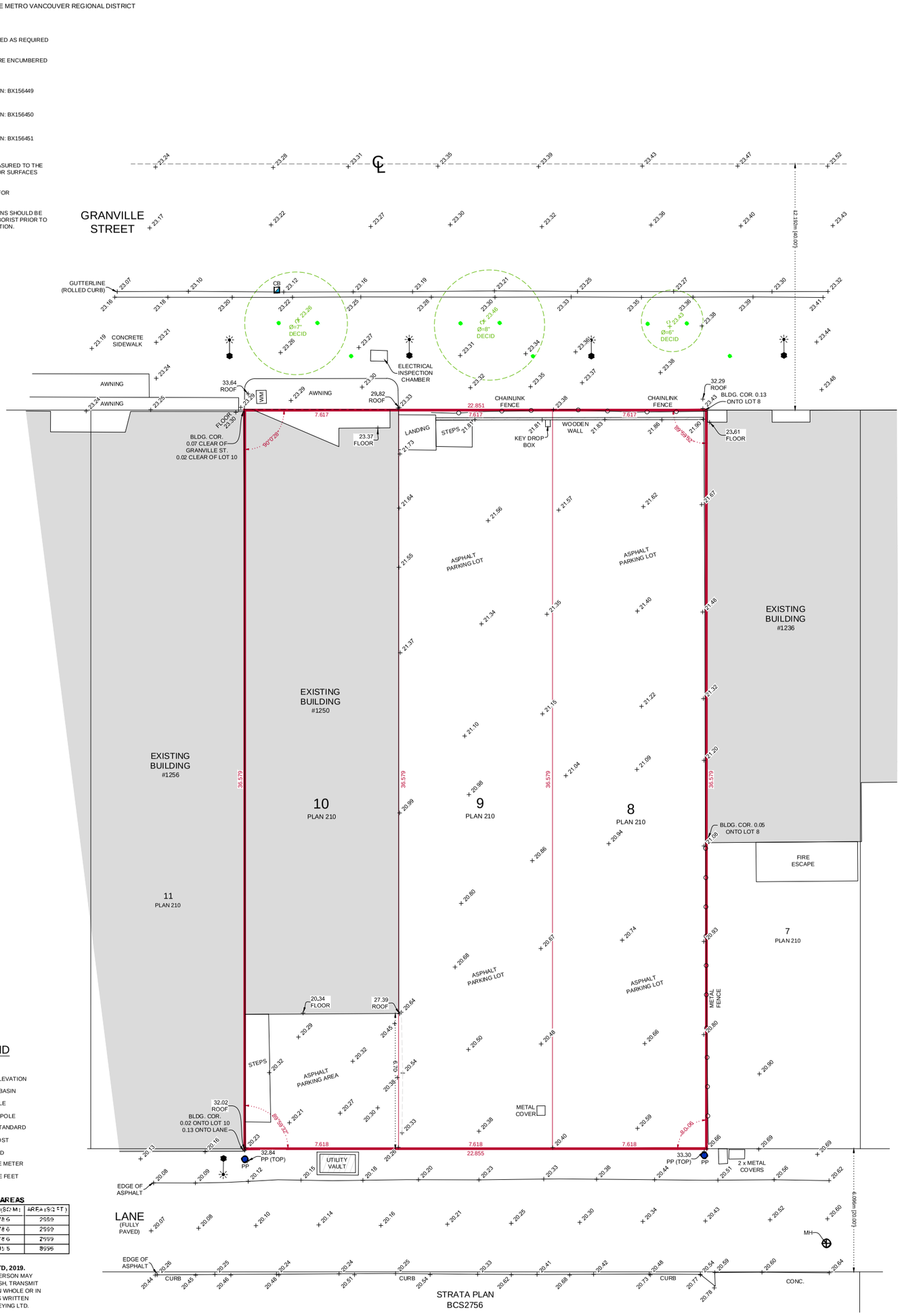
LOT 10
- EASEMENT, REGISTRATION: BX156451

DISCLAIMER:

BUILDING SETBACKS ARE MEASURED TO THE OUTERMOST VISIBLE EXTERIOR SURFACES UNLESS OTHERWISE NOTED

THIS PLAN IS NOT INTENDED FOR CONSTRUCTION PURPOSES.

TREE SPECIES AND DIMENSIONS SHOULD BE VERIFIED BY A QUALIFIED ARBORIST PRIOR TO DESIGN AND PERMIT APPLICATION.



LEGEND

XX.XX	SPOT ELEVATION
CB	CATCH BASIN
MH	MANHOLE
PP	POWER POLE
PP LS	LAMP STANDARD
	SIGN POST
	BOLLARD
SQ.M.	SQUARE METER
SQ.FT.	SQUARE FEET

*The Survey is 50% scale if ptinted on 11x17

TABLE OF AREAS

LOT	ADDRESS	AREA (SQ.M.)	AREA (SQ.FT.)
LOT 8	1240	278.6	2999
LOT 9	1240	278.6	2999
LOT 10	1250	278.6	2999
	TOTAL	835.5	8996

CERTIFIED CORRECT

ACCORDING TO LAND TITLE & SURVEY AUTHORITY RECORDS AND FIELD SURVEY. UNREGISTERED INTERESTS HAVE NOT BEEN INCLUDED OR CONSIDERED.

EVGENY PETUSHKOV, BCLS
NOVEMBER 8th, 2019

360 LAND SURVEYING
#20 - 1880 TRIUMPH STREET
VANCOUVER, BC V5L 1K3
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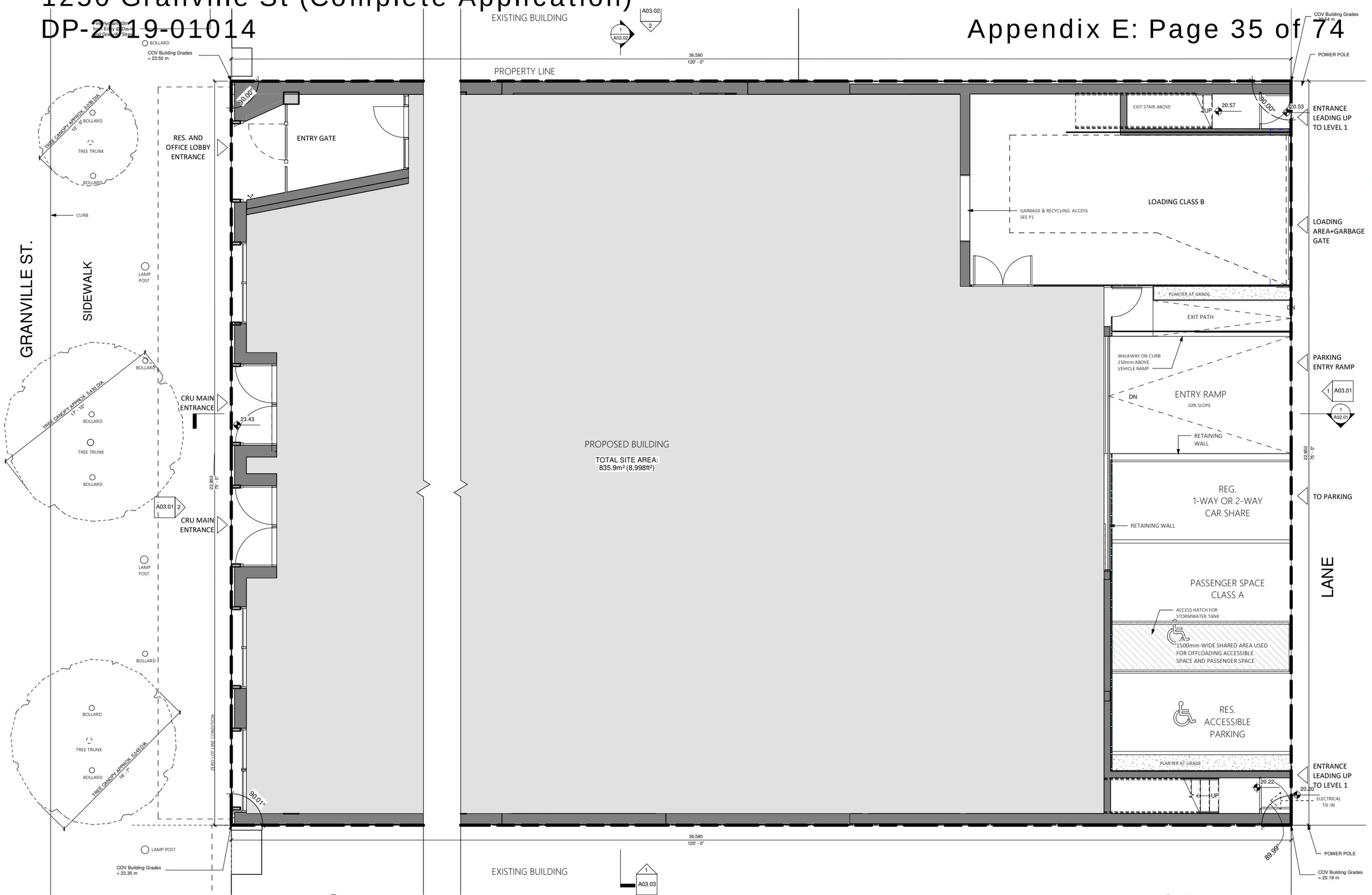
FILE: 2019090.DWG
FB: 051 (105)



LWPAC
LANG WILSON PRACTICE IN ARCHITECTURE CULTURE INC.

Intelligent City
INTELLIGENT CITY INC.

SITE PLAN

Section 05: Architectural Drawings