Building Code analysis and requirements per VBBL 2025 - Part 9

9.3.1.6 Compressive strength of concrete 15 MPa walls, 20 MPa concrete floors
9.3.1.7 Concrete mix per Table 9.3.1.7 regarding aggregate sizes
9.3.1.9 Cold weather requirements temperature between 10 C and 25 C
9.3.2.1 Lumber grading per table 9.3.2.1: SPF #2 KD lumber, UNO
9.3.2.5 Moisture content shall not be more than 19% at time of installation
9.3.2.9 Sill plates to be PT lumber with foam gasket against concrete surface
9.4.2.2 Specified snow loads per 9.4.2.2 – refer to structural drawings and loads
9.4.2.5 Seismic design parameters – refer to structural engineering drawings
9.4.3.1 Maximum deflections per Table 9.4.3.1: floor joists L/360 – see structural
9.4.4.1 Bearing pressure in conformance with Table 9.4.4.1 and Geotech Report
9.5.2.1 Accessible Design Requirements do not apply to this project
9.5.3.1 Ceiling heights in conformance with Table 9.5.3.1: min ceiling height 2.1m
9.5.5.1 Doorway opening sizes per Table 9.5.5.1: 810 x 1980 mm, except bathrooms can be 760 x 1980 and closets/ensuites are permitted to be 610 x 1980 mm
9.6.1.3 Structural properties of glass should meet or exceed Table 9.6.1.3
9.6.1.4 Glazed doors and sidelights greater than 500 mm must be safety glass
9.7.2.1 Entry doors must be provided with glass, viewer or a sidelight
9.7.3.3 Heat transfer of windows and doors per 9.7.3.3 or Part 5 of BCBC 2024
9.7.4.2 Windows must conform to NAFS standard and CSA A440S1
9.7.5.1 Sliding Doors shall be equipped with locking pin and meet ASTM F842
9.7.5.2 Resistance to forced entry (swing doors) per ASTM F476 or 25mm deadbolt
9.7.5.3 Windows within 2m of grade are to be protected against forced entry
9.8.2.1 Stair width to be minimum 860 mm per clause 9.8.2.1 (2)
9.8.2.2 Clear height above stairs in single dwelling unit must be at least 1950 mm
9.8.3.2 There is no minimum number of risers WITHIN a dwelling unit
9.8.4.1 Stair risers must be a maximum of 180 mm and a minimum of 125 mm
9.8.4.2 Stair treads must be a maximum of 355 mm and a minimum of 255 mm
9.8.4.8 Stair nosing shall extend between 6 mm and 14 mm
9.8.6.3 Landing dimensions minimum: as wide and long as the width of the stair
9.8.7.1 Stairs within a dwelling unit, with more than 2 risers require only one handrail
9.8.7.2 Handrail within a dwelling unit need not be continuous
9.8.7.4 Handrail height shall be between 863 mm and 1070 mm
9.8.8.1 Guardrails required where level is more than 600mm above grade
9.8.8.3 Guards in dwelling units to be not less than 900 mm high, max 100mm gaps
9.9.3.3 Exit corridors within a dwelling unit shall be a minimum of 860 mm
9.9.6.2 Ceiling height at exits to be a minimum of 1980 mm
9.9.6.5 Exit doors in dwelling units need not swing in the direction of travel
9.9.9.1 Exit door not more than 1.5m above ground level, one storey from high level
9.9.10.1 Un-sprinklered units require egress windows min 0.35 m2 and 380 mm width
9.9.11.1 Exit signs not required for exits not serving more than one dwelling unit
9.9.12.3 Emergency lighting not required for exits not serving more than one dwelling
9.10.8.1 Fire Resistance Rating of floors shall be 45 min; roofs do not require rating
9.10.8.3 Fire Resistance Rating of supporting elements to match rating of level above
9.10.9.1 Smoke tight barriers not required within a dwelling unit
9.10.9.4 Rated floors within a dwelling are not fire separations
9.10.9.16 Units shall be separated by fire resistance rating of minimum 1 hr in 2 level
9.10.14.4 Spatial separation calculations per drawings and Table 9.10.14.4 -A
9.10.14.5 Minimum construction requirements per Table 9.10.14.5 -A
9.10.16.1 Concealed horizontal and vertical spaces to be broken by fire blocking
9.10.18.4 Smoke detectors are not required in sprinklered bldgs with elec supervision
9.10.19.8 Interconnected smoke alarms are required in non-sprinklered buildings
9.10.20.3 Access for Fire Equipment by street or roadway
9.10.20.4 Fire Extinguishers are not required within dwellings
9.11.1.1 Sound transmission: ASTC Rating of 47 and STC rating of 50
9.13.2.6 Damp proofing of floors on ground with polyetylene 0.15mm thick
9.13.4.3 Requires rough in for Subfloor depressurization for Radon Gas
9.14.3.3 Foundation requires 100 mm diam drainage piping with granular material
9.15.4.6 Foundation to extend minimum 150mm above finished ground level
9.18.2.1 Crawlspace access minimum 500 x 700 mm
9.18.3.1 Unheated crawlspaces require venting 0.1m2 per 50m2 of area
9.19.1.2 Roof venting min 1/300 of insulated ceiling area and 1/150 for 1:6 or less
9.19.2.1 Attic access minimum 0.32m2 with no dimension less than 500 mm
9.20.13.1 Aluminium flashing minimum thickness of 0.48 mm
9.23.2.2 Wood in contact with concrete to be PT or separated with a gasket
9.19.2.1 Attic access minimum 0.32m2 with no dimension less than 500 mm
9.25.2.1 Thermal insulation in conformance with BCBC 2024
9.25.3.1 Air barrier in conformance with BCBC 2024
9.25.4.2 Vapour barrier in conformance with BCBC 2024
9.26.3.1 Asphalt shingles min slope 1:3 regular application and 1:6 min low slope
9.26.5.1 Eaves protection min 900mm up slope and min 300 mm past inside of wall
9.27.2.2 Minimum protection from precipitation ingress by rainscreen cladding
9.27.3.8 Flashings at top and bottom of envelope penetrations to have end dams
9.27.5.4 Attachment of cladding per 9.7.5.4 of VBBL 2025
9.27.9.3 Panel cladding – Hardboard Engineered wood siding
9.27.9.4 Lapped strip siding- Hardboard Engineered wood siding
9.27.12.1 Perforated vinyl soffit materials
9.29.2.1 Waterproof wall finish1.8m showers,400 mm tubs w/o showers
9.29.5.9 Drywall screws at minimum 300mm spacing where supports max 400mm
9.29.10.4 Tile walls to be installed on moisture-resistant backing board
9.32.2.1 Rooms shall be ventilated naturally 9.32.2.2 or mech per article 9.32.2.3
9.32.3.5 Principal Ventilation exhaust fan L/s per table 9.32.3.5
9.32.3.6 Kitchens require an exhaust fan and bathrooms need fan or operable window
9.32.3.7 Heated crawlspace ventilation must be connected by transfer grill or ducted
9.32.3.9 Vents to be protected by steel mesh with openings 6mm – 12mm
9.32.4.2 Carbon monoxide alarms required for garages and fuel burning appliances
9.32.2.1 Rooms shall be ventilated naturally 9.32.2.2 or mech per article 9.32.2.3
9.33.3.1 Interior temperatures 22C living, 18C un-fin basements, 15 heated crawl
9.33.6.14 Filters and odour removal equipment per Class 2 air filter CAN/ULC-S111
9.34.1.4 Recessed light fixtures to be installed with Insulated ceiling (IC) boxes
9.34.2.3 Every stairway shall be lighted and controlled by 3 way switching

9.36.2.6 Effective insulation values per Zone 4 in Table 9.36.2.6-C
Ceilings below attics RSI 8.67 (r-value 39.2)
Cathedral Ceilings/flat roofs RSI 4.67 (r-value 26.5)
Walls RSI 3.08 (r-value 17.50)
Floors over unheated spaces RSI 4.67 (r-value 26.5)

9.36.2.7 Windows and doors to be U-value 1.22 per Zone 4 in Table 9.36.2.7-D
9.36.2.8 Effective insulation values per Zone 4 in Table 9.36.2.6-C RSI 3.46 (r-value 20)

PROJECT DATA
Civic Address:
1109 COMMERCIAL DRIVE, VANCOUVER, BC
PID: 030 - 104 - 645

Legal Description:
Lot A Section 33, Block 5N RG 6W PL EPP New Westminster Land District

Zoning: CA

BUILDING CODE ANALYSIS:

Site Area: 7524 sq ft (699 m2)
Building Area 5280 sq ft (490 m2)
Number of Storeys 3
Number of Streets 3

Proposed Uses Residential, Commercial and Parking
(Consideration of a 3 Storey Residential Building)
Code Classification: PART 9 VBBL 2025
Commercial floor fire rating over parcade: 2 hours
Residential floor fire rating over commercial: 1 hour
No rating of roof is required unless a roof occupancy is included.

Floor Areas:

Unit 201	554 sq ft	51.0m2	two bedroom apartment
Unit 202	471 sq ft	43.7 m2	two bedroom apartment
Unit 203	351 sq ft	32.6 m2	studio apartment
Unit 204	482 sq ft	44.8m2	two bedroom apartment
Unit 205	321 sq ft	448m2	studio apartment
Unit 206	398 sq ft	29.8 m2	studio apartment
Unit 207	480 sq ft	44.6m2	one bedroom apartment

FSR CALCULATIONS:

Site Area: 7524 sq ft (699 m2)

Upper Floor Area: 4449 sq ft (413 m2) 0.59 FSR

Ground Floor Area: 4393 sq ft (408 m2) 0.58 FSR

Basement level Area: 5372 sq ft (490 m2) 0.70 FRS (excluded)

CHANGE OF USE UPGRADES REQUIRED PER VBBL 2025 Part 11
Change of Major Occupancy (Flow Chart #2)

UPGRADE LEVEL

F4 Fire and Life Safety
Entire building to substantially meet the intent of health, fire and life safety requirements of VBBL as well as provide protection to adjacent property

Entire Building: Entire building - Alarms and detectors, emergency lighting, access to exits, exits, exit signs, flame spread ratings, fire fighting access and water supply, floor assemblies and support, spatial separation, occupancy separation, standpipes and sprinklers, washrooms, lighting levels, sound transmission classifications, ventilation, building envelope review.

S4 Structural
The entire building shall be brought up to an acceptable level in order to meet seismic requirements of VBBL 2025.

Entire Building: Building to be upgraded to resist 75% of current Bylaw specified lateral force levels where the building is evaluated as having less than 60% of the current required seismic resistance.

N4 Non-structural
The entire building and acceptable open space to be reviewed to ensure safety from overhead falling hazards.

Entire Building: Restrain all interior partition walls, ceiling supporting frames, t-bar assemblies, gypsum ceiling wall boards,all overhead mechanical ducts and equipment. Restrain exterior falling hazards to resist forces due to seismic event from cladding, veneer, cornices, parapets, canopies, awnings and ornaments attached to the building.

A4 Accessibility
The existing building shall be upgraded in order to provide the minimum accessibility requirements of VBBL 2025.

Entire Building: Existing level of accessibility must be maintained throughout the project area. No additional accessibility enhancements are required.

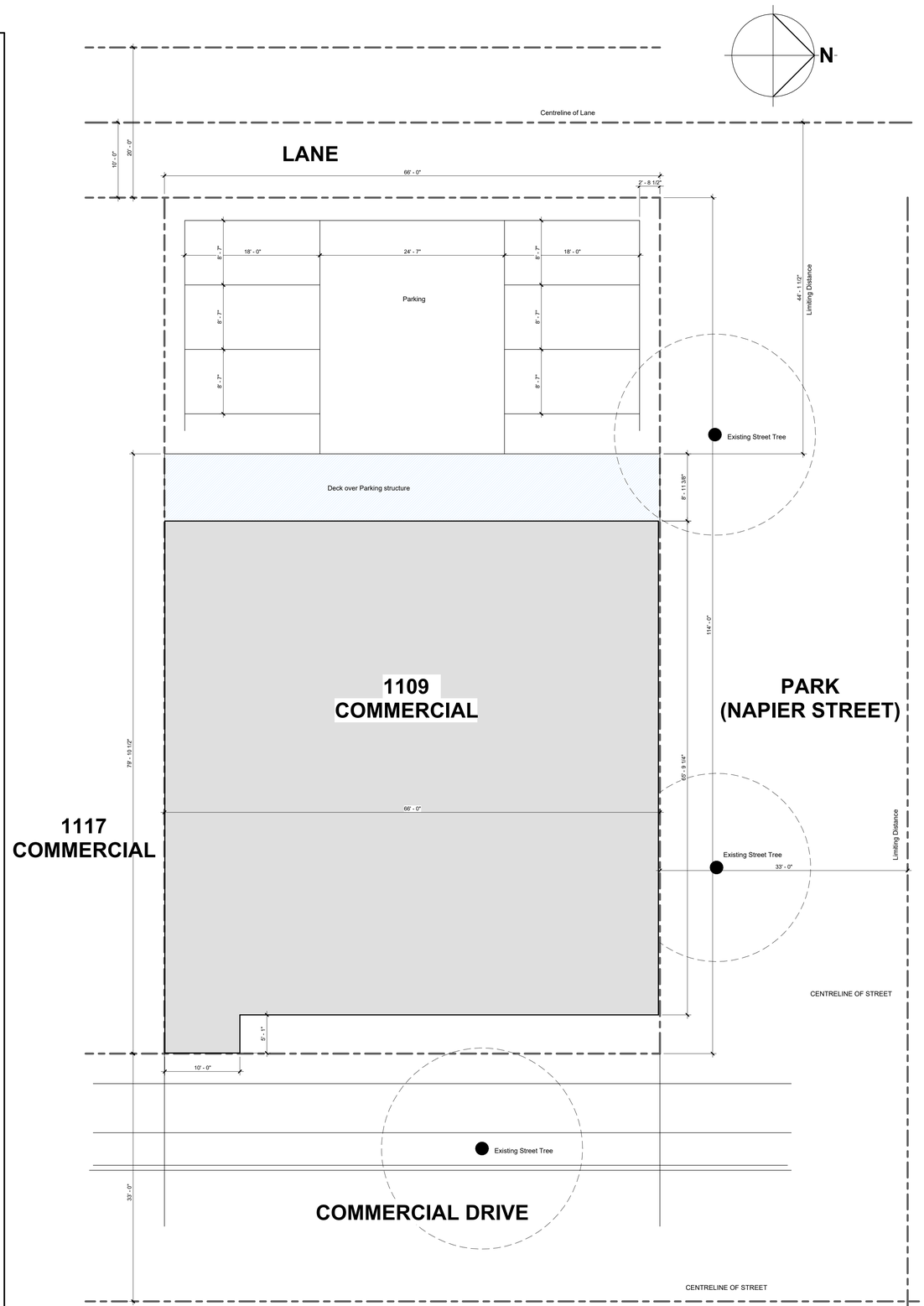
E3 Energy
Envelope:
(1) Provide an HVAC System Assessment report, to be signed and sealed by a design professional. Report to include effective R-values, blower test, list of uogrades to achieve a complainace rating using COMcheck software (latest version).
(2) Reduce air leakage of all fenestration and doors per 5.4.3.2 ASHRAE 90.1-2016
(3) Upgrade all below grade wall insulation per 5.5.3.3 ASHRAE 90.1-2016
(4) Inspect and remediate all ceiling space and floor space equipment and services including ductwork, plumbing insulation, penetrations, dampers valves, coils, pans and drains.
(5) Inspect and remediate all floor/crawlspace services
(ducts, plumbing, insulation, penetrations, drains etc)

HVAC:
(1) Upgrade dead band settings per 6.4.3.1.2 ASHRAE 90.1-2016
(2) Upgrade set point overlap restrictions per 6.4.3.2 ASHRAE 90.1-2016
(3) Upgrade off hour controls per 6.4.3.3 ASHRAE 90.1-2016
(4) Upgrade ventilation system controls per 6.4.3.4 ASHRAE 90.1-2016
(5) Upgrade heat pump auxiliary heat controls per 6.4.3.5 ASHRAE 90.1-2016
(6) Upgrade freeze protection and snow/ice melting systems per 6.4.3.7 ASHRAE 90.1-2016
(7) Balance all systems per 6.7.2.3 ASHRAE 90.1-2016

SWH:
(1) Provide HVAC System Assessment Report to be signed and sealed by a design professional. Report to include: systems review, upgrade and re-commissioning options, with estimates for energy savings and cost paybacks.
(2) Upgrade SWH system controls per 7.4.4 of ASHRAE 90.1-2016

Lighting:
(1) Provide a comprehensive lighting system assessment Report to be signed and sealed by a design professional. Report to include systems review, upgrade options with estimates for energy savings and cost paybacks.
(2) Upgrade total exterior lighting power per 9.4.2 of ASHRAE 90.1-2016 of the suite.
(3) Meet the interior lighting power allowance by the building area method per 9.5 of ASHRAE 90.1-2016
(4) Meet the interior lighting power allowance by the space-by-space method per 9.5 of ASHRAE 90.1-2016

Exterior or Patio heating:
(1) Remove exterior space heating system
(2) Upgrade energy intensity, system and unit/zone controls (per 10.2.2.22 (3) and (4)



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REVISIONS / ISSUES:

NO.	DESCRIPTION	DATE

1109 COMMERCIAL DRIVE

VANCOUVER BC

SITE PLAN /COVER SHEET

PROJECT NUMBER	2508
DATE	15 September, 2025
DRAWN BY	RB
CHECKED BY	RB

A 1.00

SCALE As indicated

PLOT DATE: 2026-08-21 8:30:02 AM