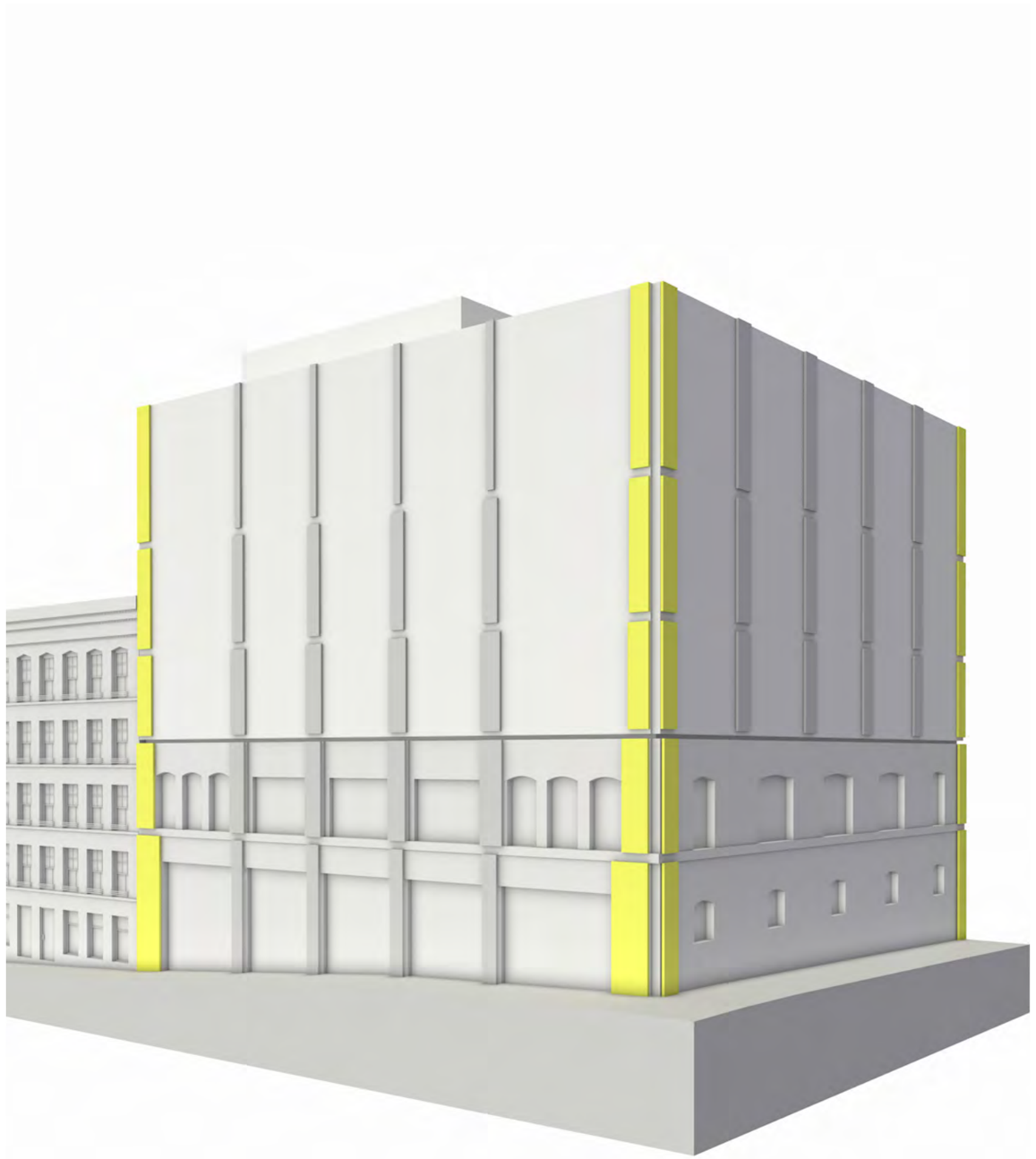
3

PROPOSED DESIGN
RESPOND TO CONTEXT IN ELEVATION

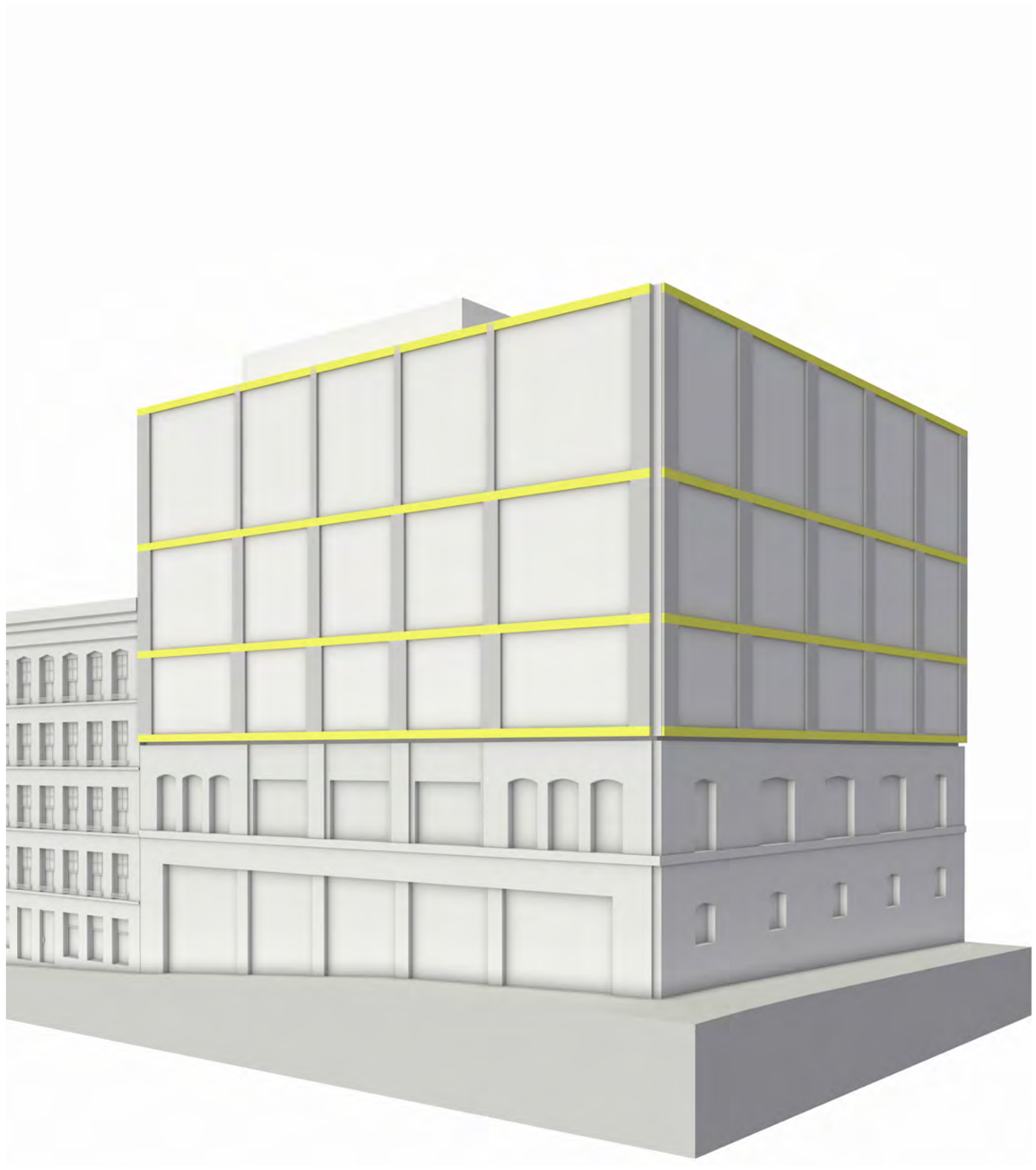
- With reference to the existing building the end piers act as book ends whilst maintaining the tapered form
- This directly references the thinning of traditional load bearing masonry walls on upper floors.



3

PROPOSED DESIGN
RESPOND TO CONTEXT IN ELEVATION

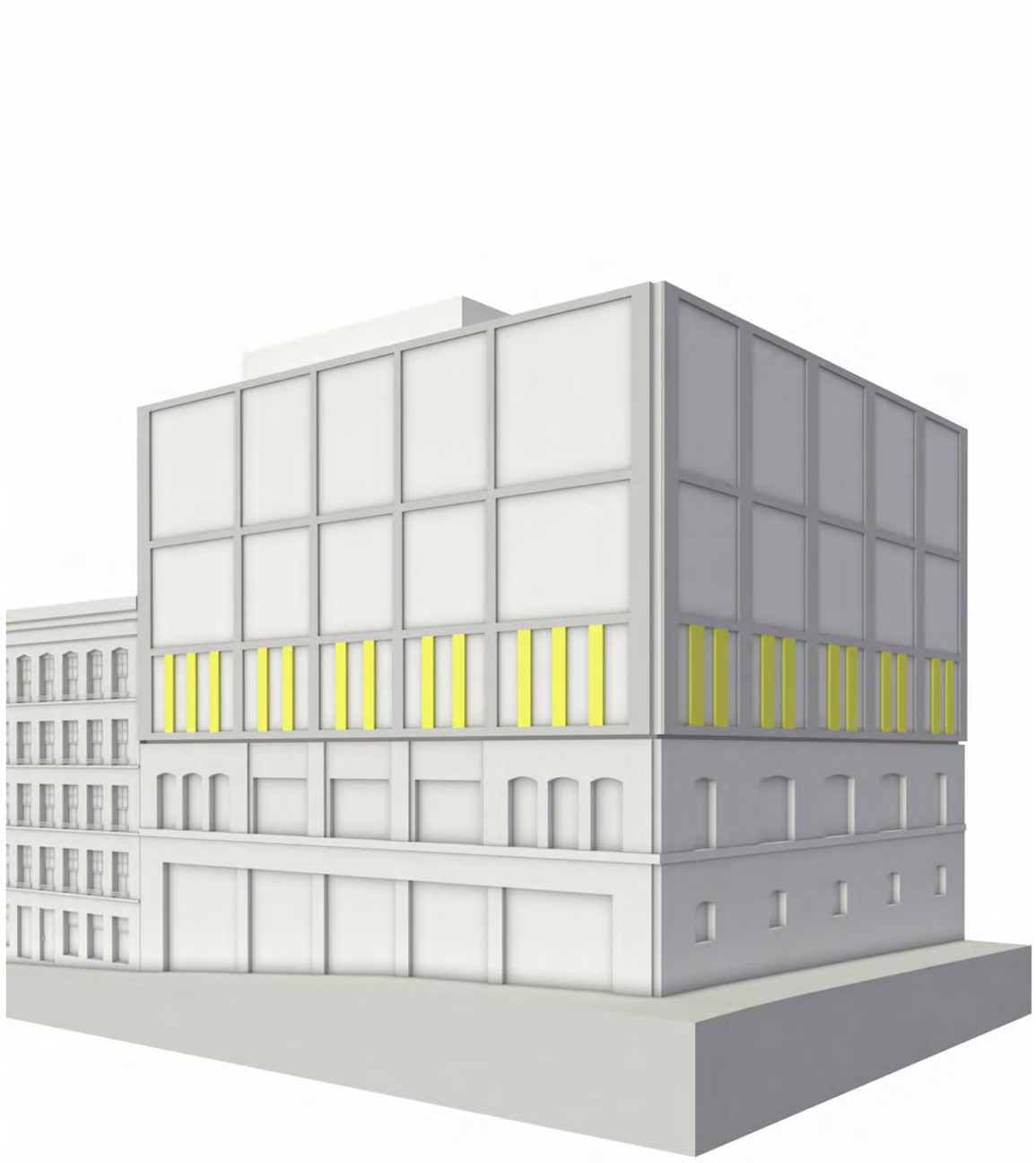
- The horizontal expression of the existing building is referenced on the new addition
- These strong datum lines clearly demarcate the floor levels and complement the rest of the street wall



3

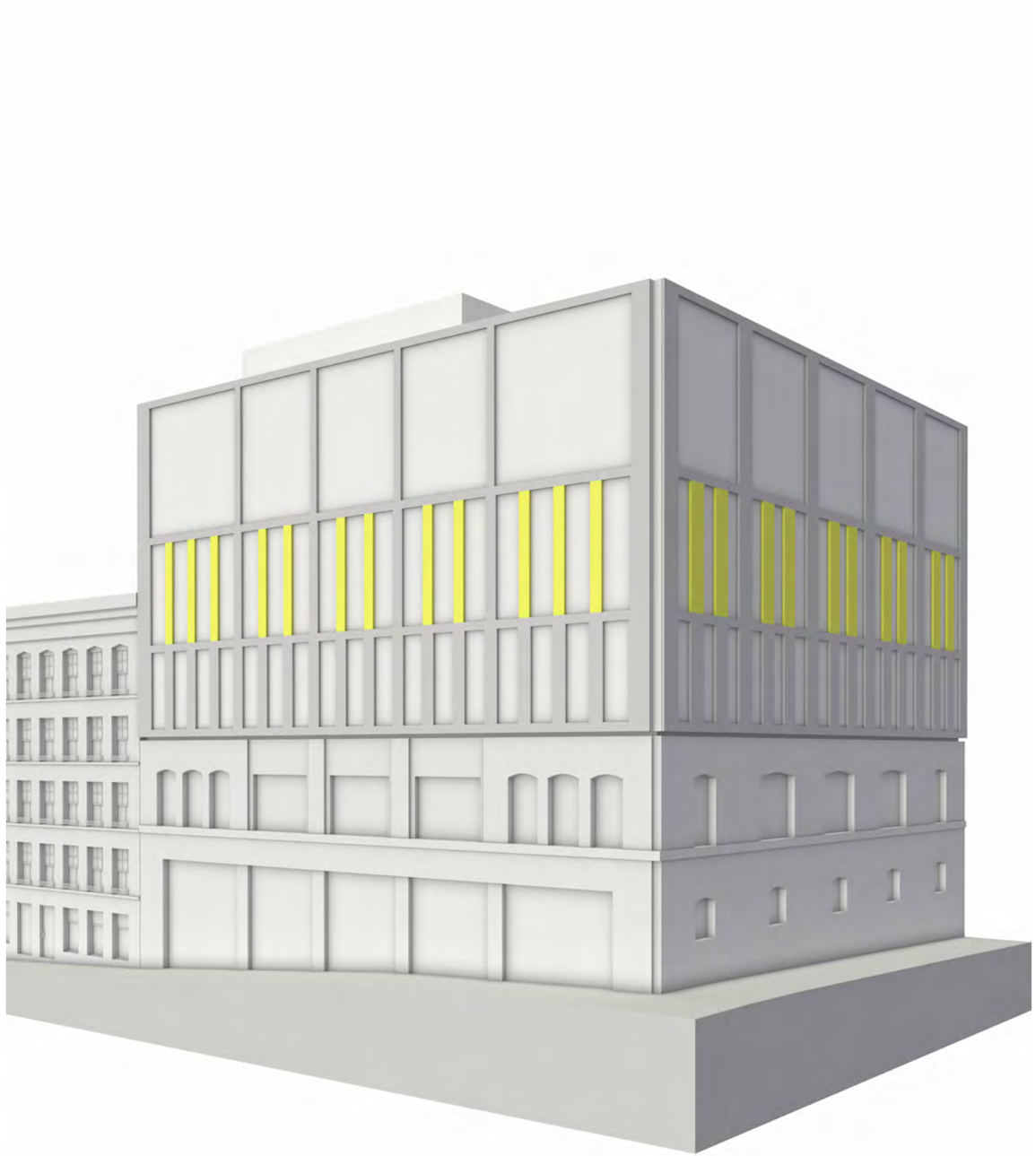
PROPOSED DESIGN
RESPOND TO CONTEXT IN ELEVATION

- Solid elements are distributed across the elevation to generate a finer grain
- The rhythm and proportions of the openings have a strong connection to both the existing facade and the neighbouring buildings of the block



3 PROPOSED DESIGN
RESPOND TO CONTEXT IN ELEVATION

- The same method of distribution is applied to the upper floors, ensuring the piers are centered on the one below
- The opening widths increase proportionately at each floor as the piers gently taper

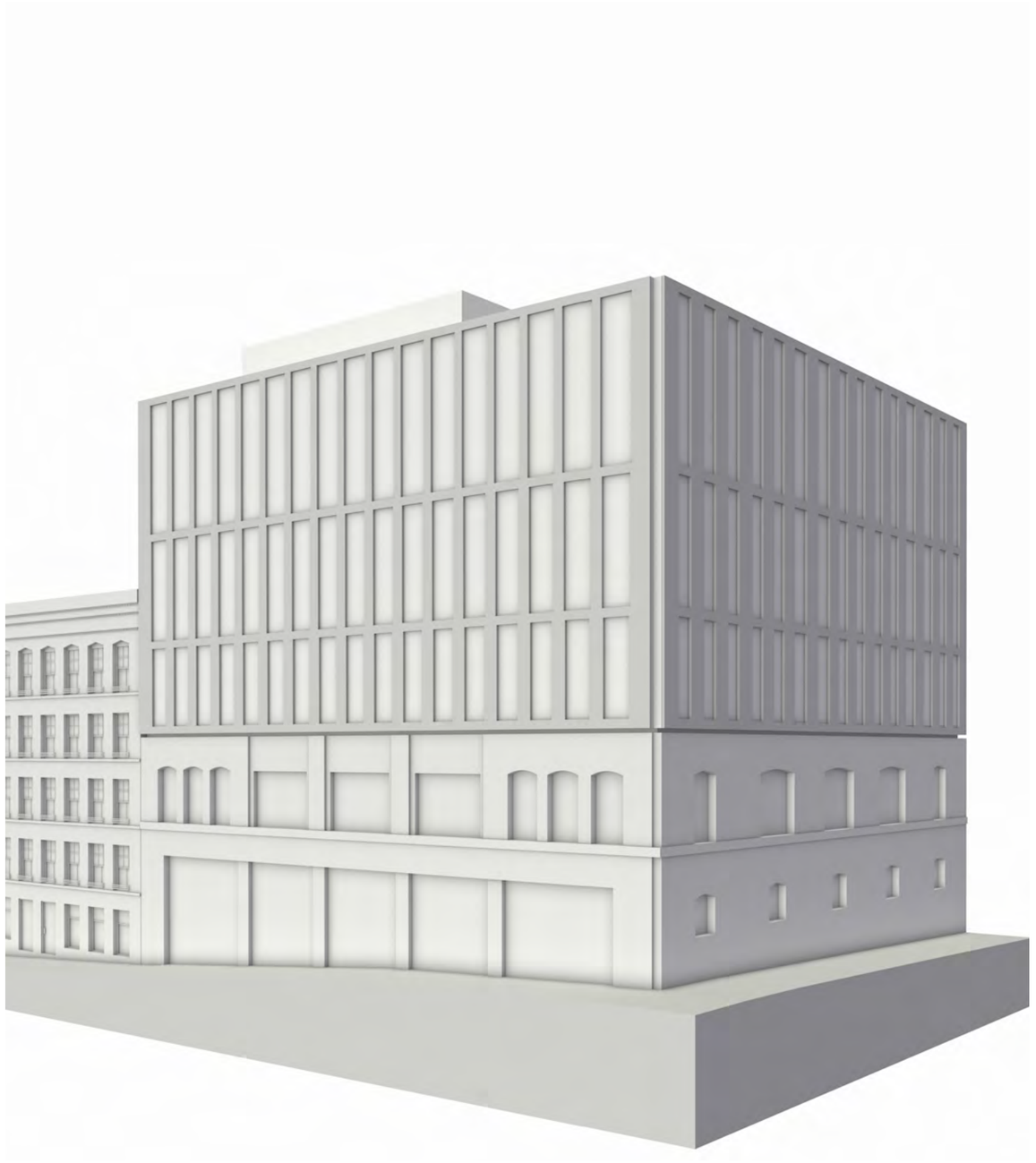


3 PROPOSED DESIGN
RESPOND TO CONTEXT IN ELEVATION

- The top floor repeats the same process

3 PROPOSED DESIGN
RESPOND TO CONTEXT IN ELEVATION

- The overall appearance of the elevation is strongly grounded in a sensitive and direct response to the existing building ensuring visual compatibility



3 PROPOSED DESIGN
RESPOND TO CONTEXT IN ELEVATION

STREET GRID

Neighbouring buildings on Beatty Street apply a simple facade grid to each level above grade. Windows typically sit deep in the envelope, emphasizing the grid. Each building has different elements that vary the grain of the grid, such as brick arches above the uppermost windows or changes in the spacing of openings.

3

PROPOSED DESIGN
BEATTY STREET ELEVATION

3 PROPOSED DESIGN
PROPORTION + MATERIALITY

AMENITY + MECHANICAL PENTHOUSE SET BACK FROM PRINCIPAL FACADES TO PRESERVE AN UNINTERRUPTED STREETWALL MASSING

A BACK-PAINTED GLASS PANEL EXPRESSES BOTH A SOLID AND REFLECTIVE CHARACTER SUBTLY REFERENCING THE STEPPED CORNICES OF NEIGHBOURING BUILDINGS

BRICK PIERS THIN AND OPENINGS INCREASE IN SIZE AT EACH LEVEL, LIGHTENING THE BUILDING AS IT GOES UP FROM THE EXISTING

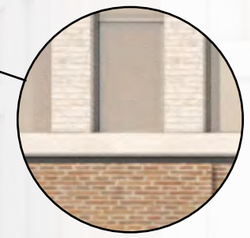
WINDOW OPENING PROPORTIONS INCREASE FROM 3:1 AT LEVEL 3, TO 4:1 AT LEVEL 4, TO 5:1 AT LEVEL 5

HORIZONTAL BANDS AT EACH FLOOR REFERENCE THE BANDED EXPRESSION OF THE EXISTING BUILDING

SOLID END PANELS REDUCE IN WIDTH AT EACH LEVEL, CONSISTENT WITH THE EXISTING BUILDING

NATURAL LIGHT COLOURED BRICK

PRECAST CONCRETE FLOOR BANDS



PRECAST CONCRETE BAND WITH STEEL C-CHANNEL

3 PROPOSED DESIGN
REINTERPRETED CHARACTER ELEMENTS

3 PROPOSED DESIGN
VIEW FROM TERRY FOX PLAZA

3 PROPOSED DESIGN
VIEW FROM SIDE LANE (REAR ELEVATION)

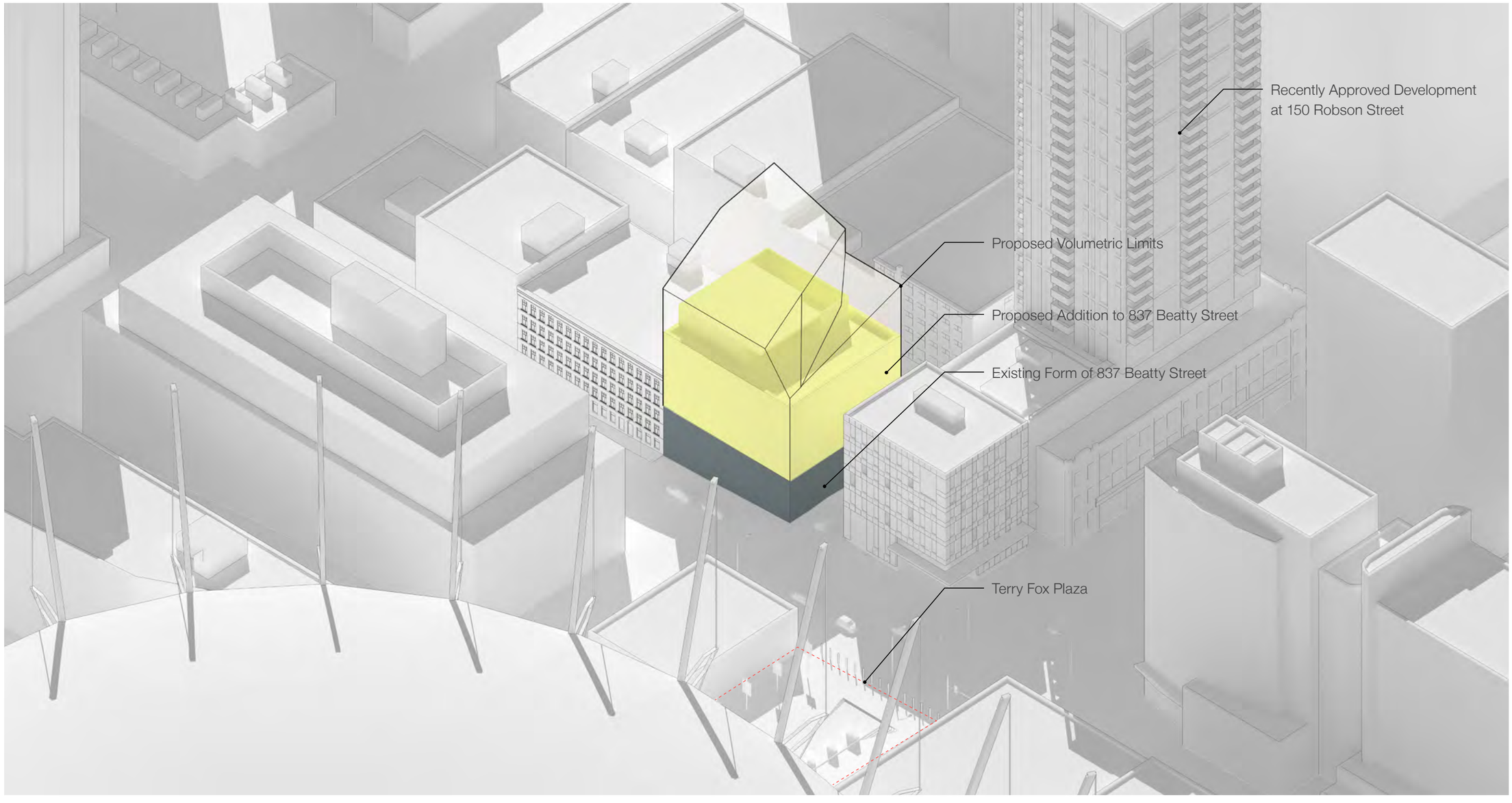
3 PROPOSED DESIGN
VIEW FROM WEST BEATTY STREET

04 DESIGN PRINCIPLES REVIEW

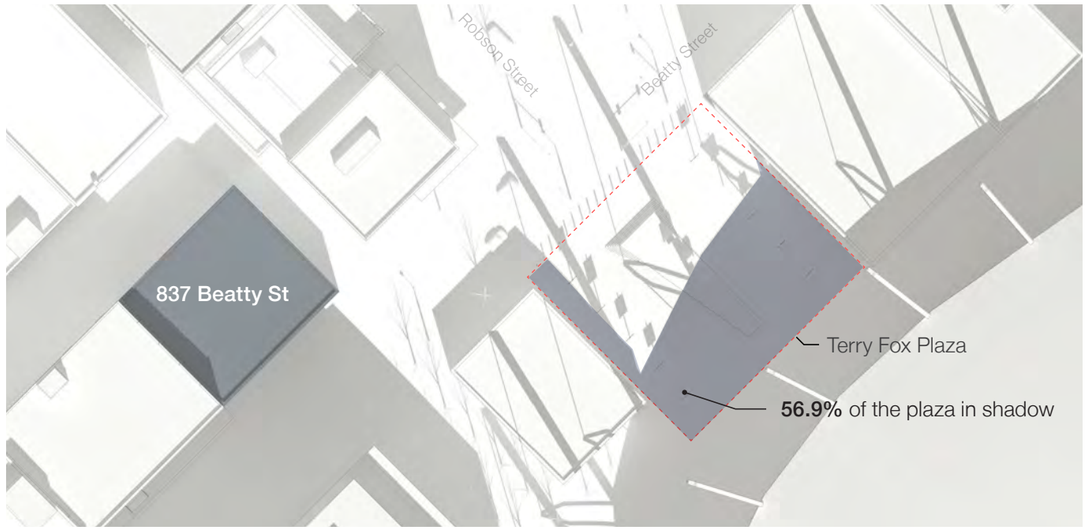
A MINIMIZE SHADOW IMPACT ON OPEN SPACES

- ✔ Minimize net incremental increase in shadow impact to Terry Fox Plaza on the summer solstice between 4:00 pm and 7:00 pm
- ✔ Prevent or minimize shadowing of public or semi-public open spaces at the spring and fall equinoxes between 11:30 am and 2:30 pm

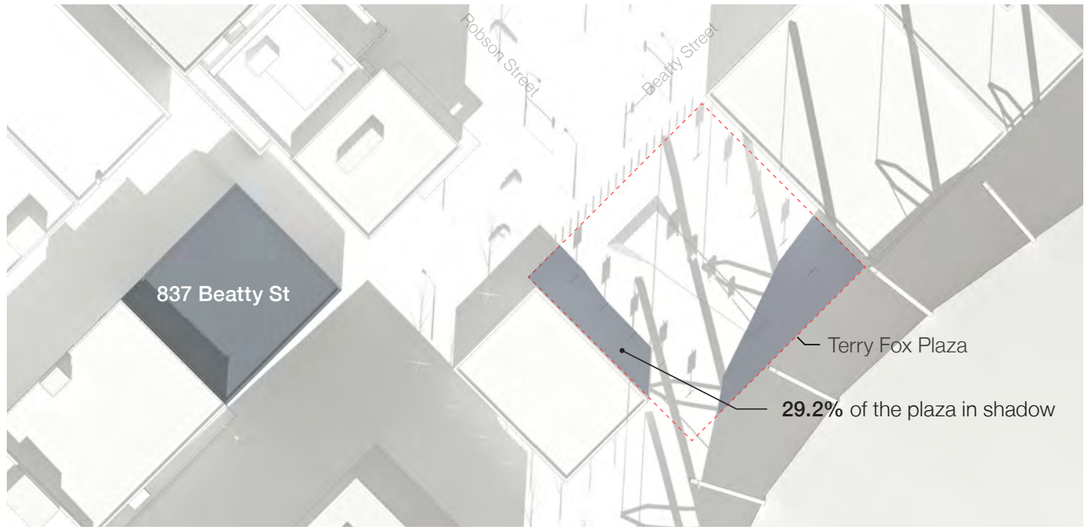
4A MINIMIZE SHADOW IMPACT ON OPEN SPACES
PROPOSED MASSING WITHIN VOLUMETRIC LIMITS



4A MINIMIZE SHADOW IMPACT ON OPEN SPACES
EXISTING SHADOW IMPACT – SPRING / FALL EQUINOX

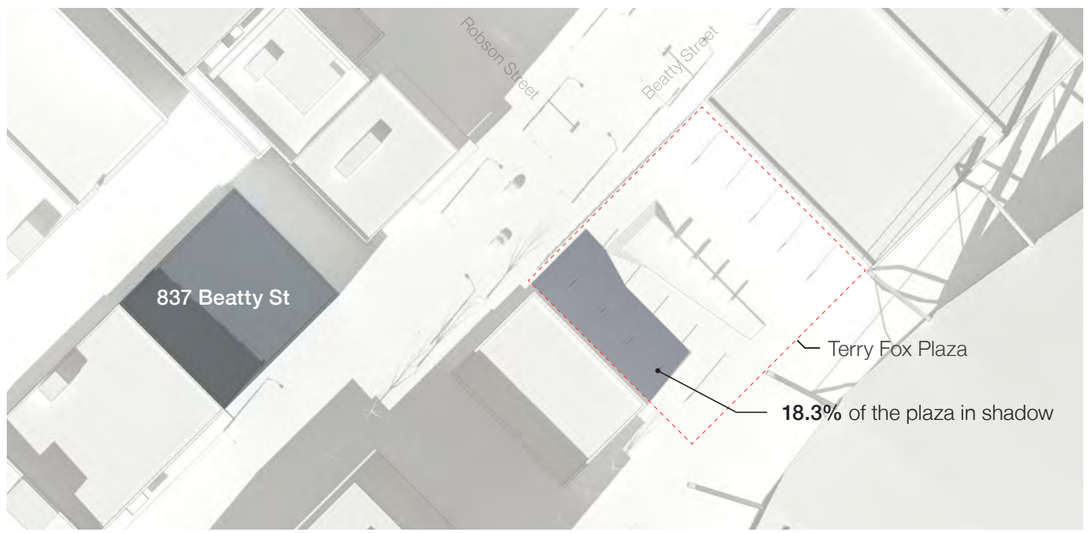


11:30



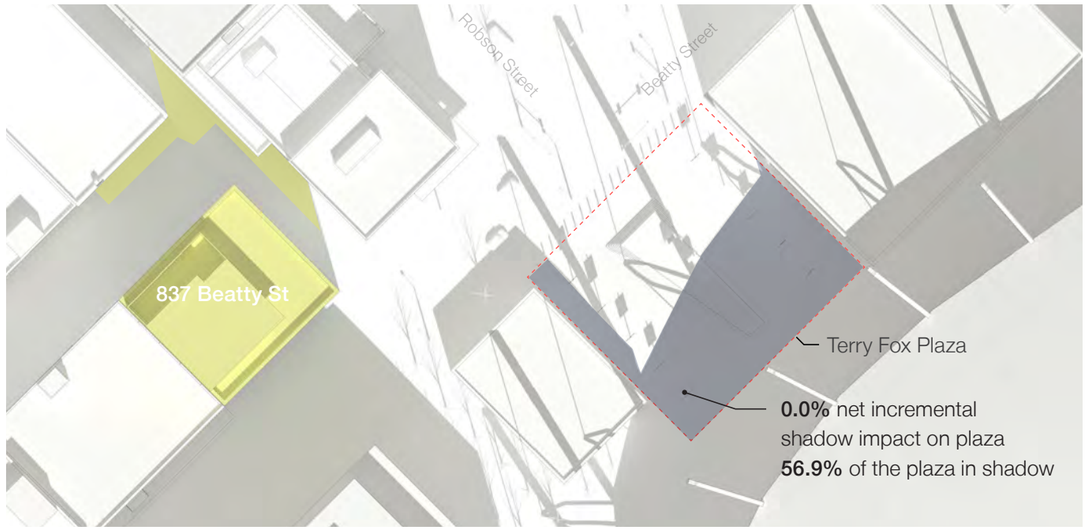
12:30

13:30



14:30

4A MINIMIZE SHADOW IMPACT ON OPEN SPACES
RESULTING SHADOW IMPACT – SPRING / FALL EQUINOX



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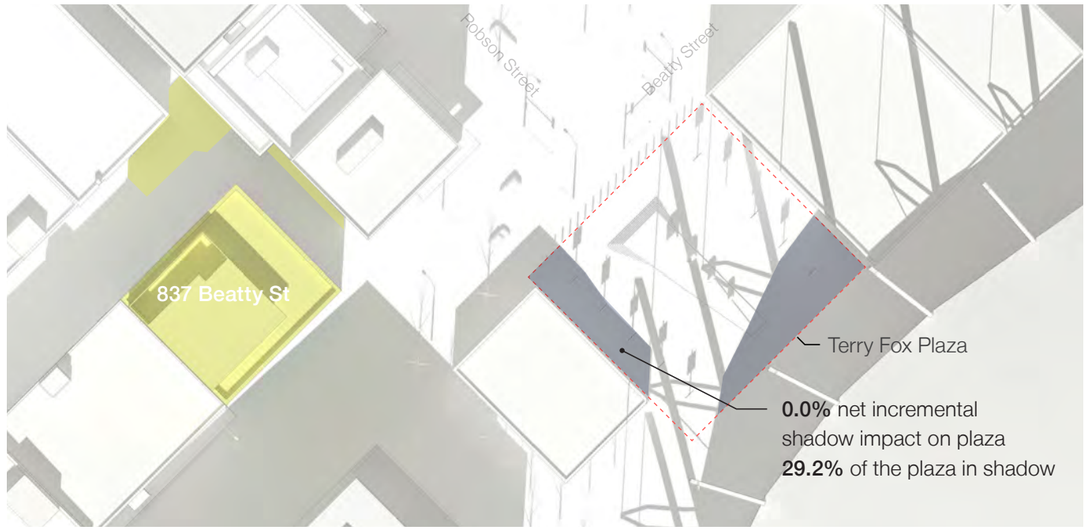

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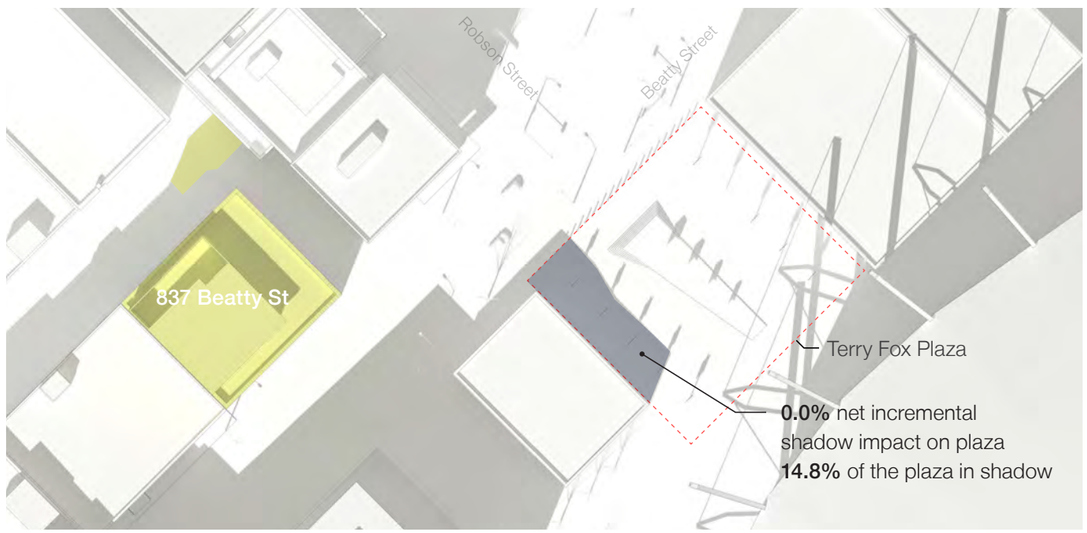

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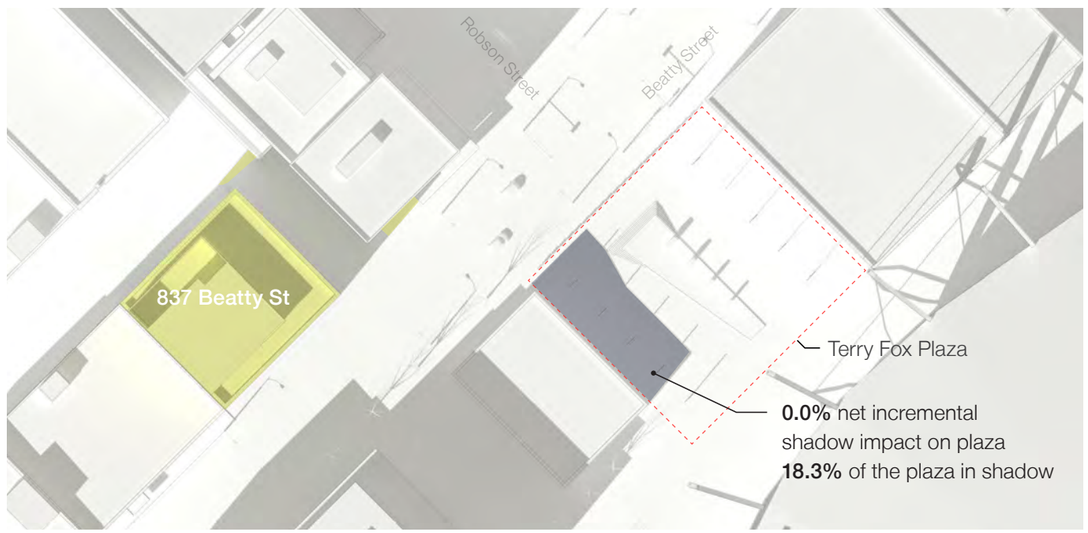

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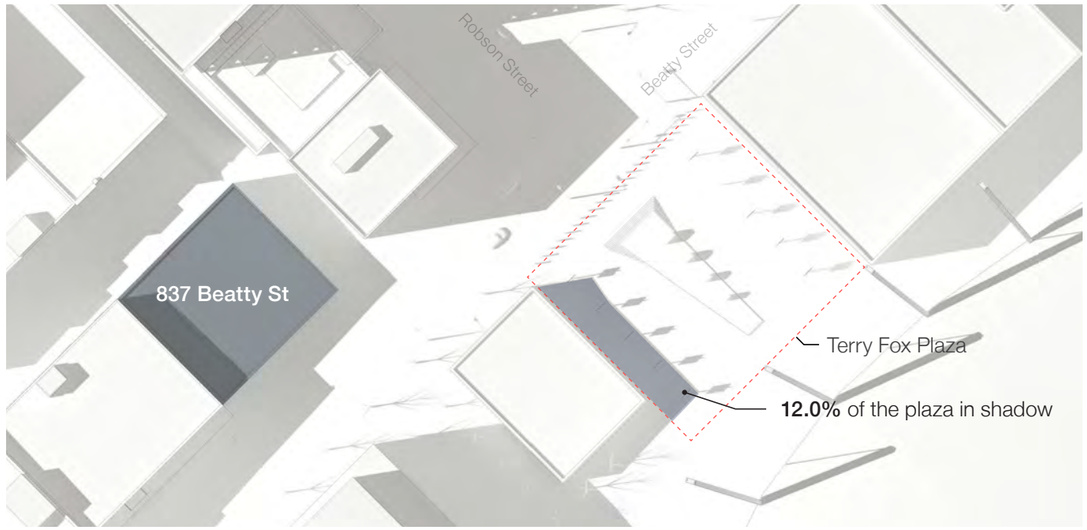
4A MINIMIZE SHADOW IMPACT ON OPEN SPACES
EXISTING SHADOW IMPACT – SUMMER SOLSTICE



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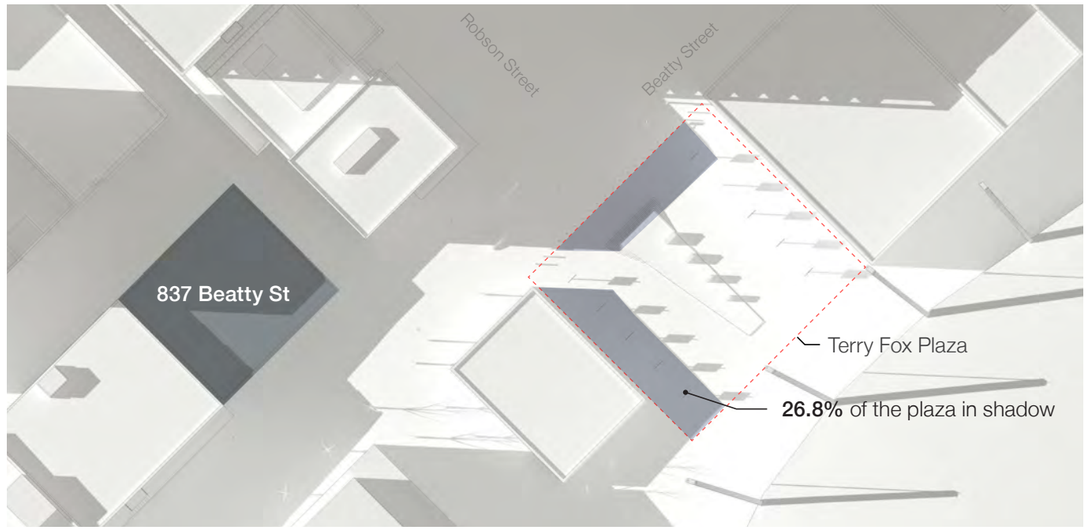

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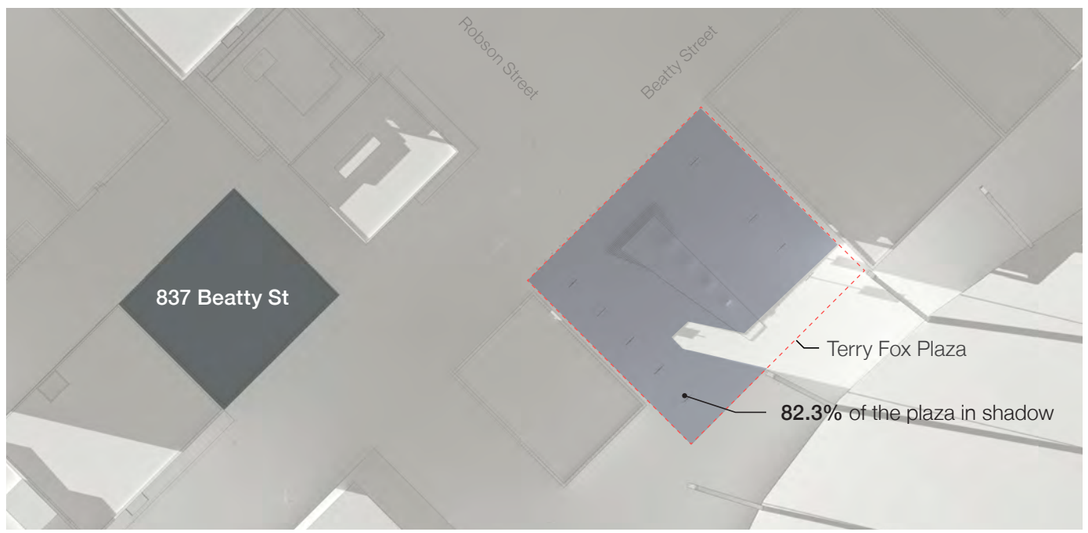

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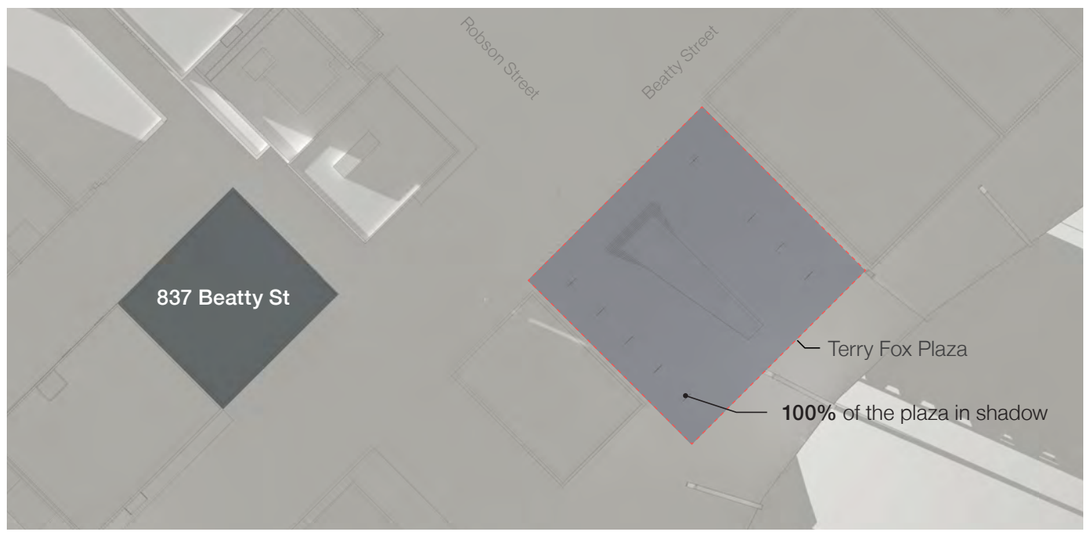
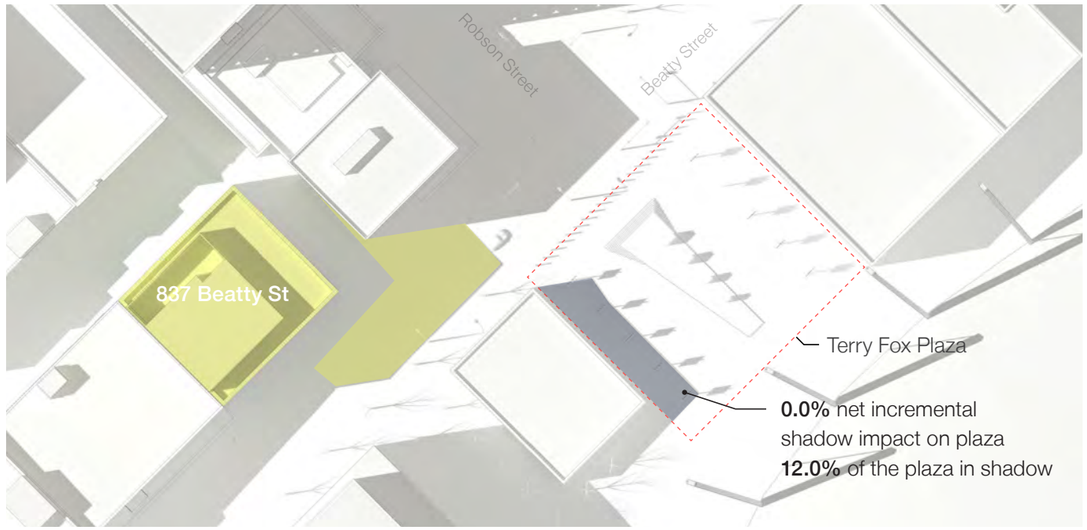


19:00

4A MINIMIZE SHADOW IMPACT ON OPEN SPACES
RESULTING SHADOW IMPACT – SUMMER SOLSTICE



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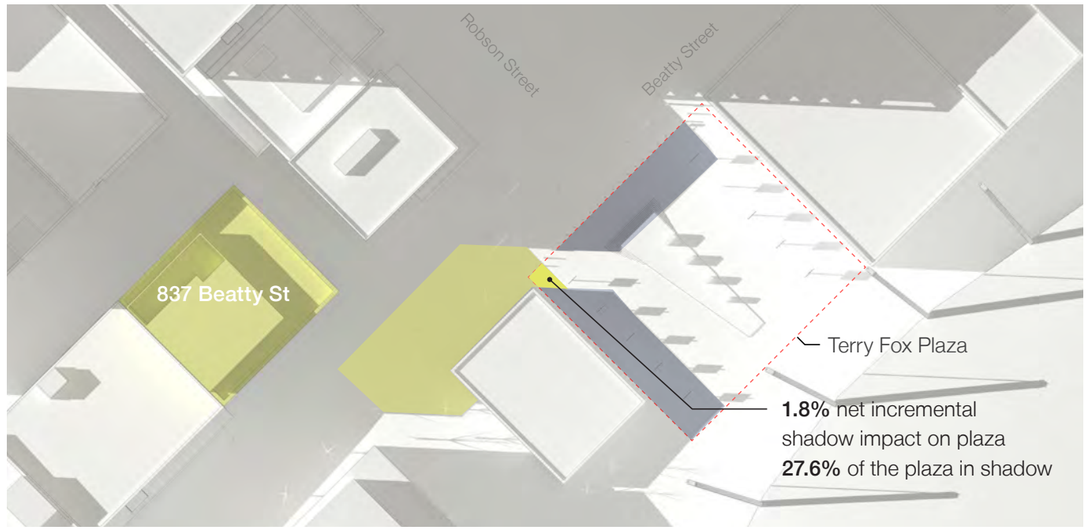

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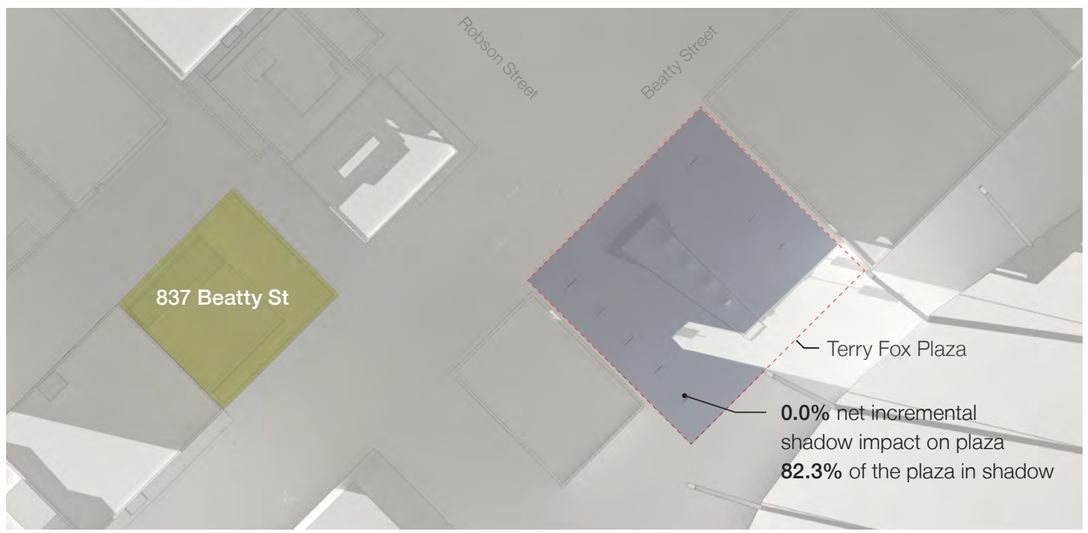


18:00

19:00

B RESPOND TO THE HERITAGE CONTEXT

- ✔ The addition should be sensitive to the heritage building and maintain the unique character of the block created by the grouping of heritage context buildings
- ✔ The historic structure should be rehabilitated and incorporated in the development
- ✔ The massing and design of the addition should be physically and visually compatible with, subordinate to, and distinguishable from the heritage building

4B RESPOND TO HERITAGE CONTEXT

C INCREASE EMPLOYMENT DENSITY

- ✔ Protect, enhance, increase and densify employment spaces and support the creation of more commercial employment space, particularly within the CBD Shoulder Area
- ✔ The existing density is 2.0 while the allowable density is an outright (FSR) of 5.0 + conditional 0.5 Heritage Bonus = 5.5 — increase site utilization with an additional 3.0 FSR of commercial office to maximize employment space

4C INCREASE EMPLOYMENT DENSITY

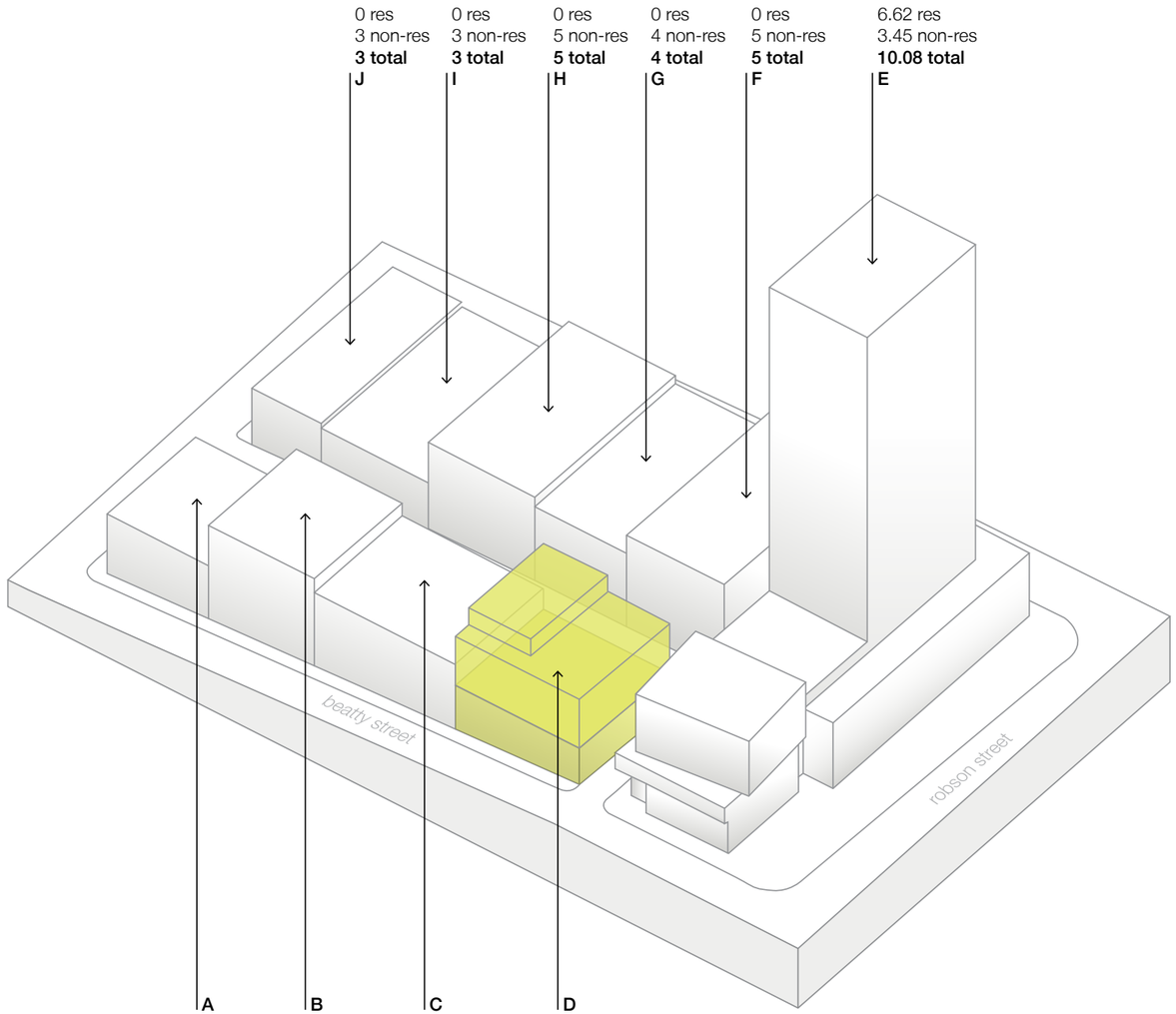
4C INCREASE EMPLOYMENT DENSITY
IMPROVE SITE UTILIZATION

- An addition to 837 Beatty would allow the site to match neighbouring densities
- The target of 5.0 FSR from the Downtown Official Development Plan would be met, plus an additional 0.5 FSR heritage bonus.
- Reflecting the City's objectives, rehabilitating the existing building would extend its lifetime and further protect the vernacular heritage of the block.

A	101 smithe street	
B	871 beatty street	
C	857 beatty street	
D	**837 beatty street**	
E	150 robson street	
F	840 cambie street	
G	842 cambie street	
H	858 cambie street	
I	888 cambie street	
J	896 cambie street	

non residental = residental =

DENSITY COMPARISON OF BUILDINGS IN 'BLOCK 68' AFTER ADDITION

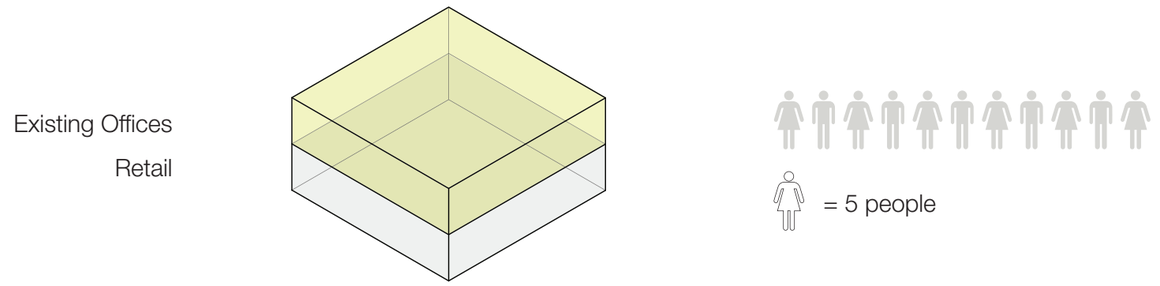


4C INCREASE EMPLOYMENT DENSITY
CREATE NEW EMPLOYMENT SPACE

- Increasing density from the current FSR of 2.0 to a potential 5.5 significantly increases the employment capacity of the site
- Protecting and enhancing job spaces is a key objective highlighted in the City of Vancouver's Economic Action Strategy. In a neighbourhood experiencing increased residential development, an addition of commercial space helps balance the live/work nature of the area and lessen the dependency on automobiles
- The existing office capacity is 55 people[1]
- The potential office capacity is 234 people
- The additional capacity is 179 people[2]

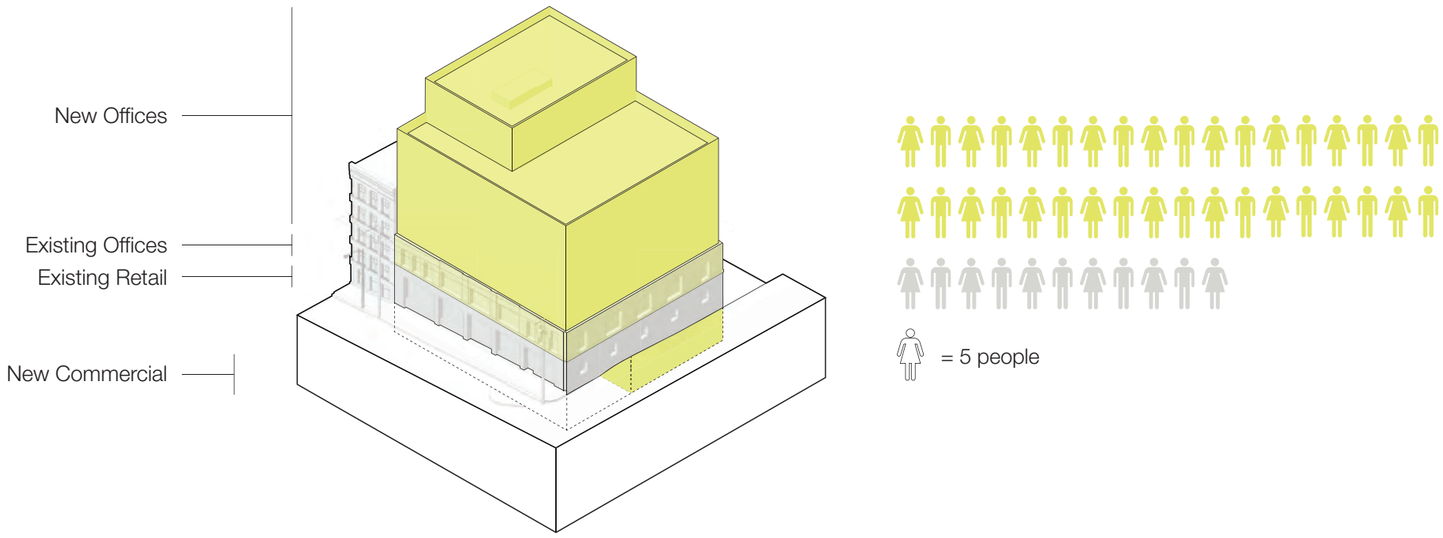
1. Office capacity is determined by taking the leasable floor area and dividing it by the area per person to arrive at an occupant load as prescribed by Section 3.17 of the Vancouver Building Bylaw. Actual office employment numbers will differ from the occupant load, but the occupant load serves as a useful comparison between existing and proposed density.
2. For the purposes of this comparison, the retail space at the ground floor and its associated employment have been held constant.

EXISTING EMPLOYMENT DENSITY AT 837 BEATTY ST



Employment capacity at current FSR of 2.0

POTENTIAL EMPLOYMENT INCREASE AT 837 BEATTY ST



Potential employment capacity at FSR of 5.5

D REDUCE GHGI + EMBODIED CARBON

- ✓ Improve energy efficiency of the existing building through upgrades to envelope, mechanical systems, service water heating and lighting
- ✓ Reduce solid waste by rehabilitating the existing building and reusing existing mass timber elements
- ✓ Create the addition using mass timber to reduce embodied carbon
- ✓ Eliminate the use of natural gas for base building mechanical systems in favour of high-efficiency, electric heat pumps and electric hot water

4D REDUCE GHGI + EMBODIED CARBON
MASS TIMBER CONSTRUCTION

MASS TIMBER CARBON CALCULATION

- Glulam Columns
  11 per floor x 3 floors x 365 x 365 mm x 4.5 m
- Glulam Beams
  82 m per floor x 3 floors x 365 x 500 mm
- DLT/NLT Floor
  574 m^2 per floor x 3 floors x 184 mm
- Plywood Sheathing
  574 m^2 per floor x 3 floors x 19 mm

Carbon Summary

Canadian Wood Council / Conseil canadien du bois

Results

Volume of wood products used:
414 cubic meters (14,636 cubic feet)

U.S. and Canadian forests grow this much wood in:
1 minutes

Carbon stored in the wood:
370 metric tons of carbon dioxide

Avoided greenhouse gas emissions:
143 metric tons of carbon dioxide

Total potential carbon benefit:
513 metric tons of carbon dioxide

Equivalent to:

109 cars off the road for a year

Energy to operate 54 homes for a year

Project Name: 837 Beatty Street
Date: February 18, 2020

Results from this tool are based on wood volumes only and are estimates of carbon stored within wood products and avoided emissions resulting from the substitution of wood products for non-wood products. The results do not indicate a carbon footprint or global warming potential and are not intended to replace a detailed life cycle assessment (LCA) study. Please refer to the References and Notes' for assumptions and other information related to the calculations.

4D REDUCE GHGI + EMBODIED CARBON
HIGH EFFICIENCY BUILDING SYSTEMS

01 ENVELOPE

- The existing envelope will be improved through the repair and restoration of windows with higher energy performance than existing
- The new envelope will meet or exceed the requirements of the Vancouver Building Bylaw (including the Zero Emissions Building Plan and ASHRAE 90.1) and meet the LEED Gold Standard

02 MECHANICAL SYSTEMS

- Ventilation will be provided with an Energy Recovery Ventilator (ERV) which exchanges heat from exhausted air with incoming fresh air to achieve higher efficiency
- Heating and cooling will be provided with a Variable Refrigerant Flow (VRF) system that uses heat pumps to condition spaces
- Both systems will be fully electric

03 SERVICE HOT WATER

- Domestic hot water will be provided with electric tanks serving each floor for optimum efficiency

04 LIGHTING

- All base building lighting will be LED
- Shell spaces will be provided with LED base fixtures

A1 APPENDIX 1

A1 APPENDIX 1
PROJECT TEAM

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