



LIVING ON THE EDGE

Occupying the facade to enrich urban density.

A 120 POINT THESIS SUBMITTED IN PARTIAL
FULFILMENT OF THE REQUIREMENTS FOR
THE DEGREE OF MASTER OF ARCHITECTURE
(PROFESSIONAL) THROUGH VICTORIA UNIVERSITY
OF WELLINGTON SCHOOL OF ARCHITECTURE.

KEZIAH ALCORN
02.2015

*“I want to stand as close to the edge as I can without going over.
Out on the edge you see all kinds of things you can’t see from the centre.”*

- Kurt Vonnegut.





*Dedicated to my Mum.
You are an inspiration.*

ACKNOWLEDGEMENTS .

Firstly, to Kerstin. You are an inspirational architect and friend. This would have been impossible without your guidance, patience and tough love. Thank you.

To my thesis group: Catherine, Charlotte and Amanda, for making the long days and nights such a laugh. You gals are the best.

To Aimee, Chelsea, Laura, Mags, Nell, Pricey and Tomo. I appreciate you forcing me to have a life outside uni and work - you are outstanding flatmates and friends.

Lastly, to Mum, Dad, my brothers Nathaniel, Simeon and Jarryd, and my new sister Katie. For your unfailing support and encouragement - thank you. I love you guys more than I can say.

*The rain came down, the streams rose, and the winds blew
and beat against that house; yet it did not fall,
because it had its foundation on the rock.*

-Matthew 7:25

-K



Figure i.1: *Mutually exclusive? A visual critique of the rift between natural space and urban density.* viii.

ABSTRACT.

DENSITY IS NECESSARY.

LIVING ON THE EDGE CRITIQUES OPPRESSIVE ASPECTS OF URBAN LIVING. IT ADVOCATES FAÇADE OCCUPATION TO ENHANCE THE EXPERIENCE OF DENSITY AND ENRICH THE STREET EDGE TO ACHIEVE A VIBRANT AND METROPOLITAN NEW ZEALAND.

SITED IN TE ARO, WELLINGTON CENTRAL, THE PROJECT PROPOSES A CITYWIDE INVERSION OF THE TYPICAL HIGH-RISE BUILDING LAYOUT, RELOCATING PRIMARY CIRCULATION TO THE STREET EDGE TO DRAMATICALLY REFORM THE SPATIAL RELATIONSHIPS BETWEEN DWELLING, BUILDING AND STREET.

THE PROJECT IS AN INHABITABLE FACADE SYSTEM COMPRISED OF VARIOUS COMBINATIONS OF THE COLONNADE, THE GALLERY AND THE ANNEXE. THIS CAN BE APPLIED TO EXISTING OR INTEGRATED WITH NEW BUILDINGS AND VARIED IN RESPONSE TO SPECIFIC STREET CONDITIONS.

BY CREATING MULTIFUNCTIONAL OUTDOOR LIVING INTEGRATED WITH CIRCULATION SPACES, THE DESIGN OFFERS A VISION FOR VERTICAL COMMUNITIES WITH ENHANCED DWELLING AMENITY TO ENCOURAGE MORE NEW ZEALANDERS TO EMBRACE HIGH DENSITY LIVING.

CONTENTS.

This thesis is divided into five chapters to allow quick referencing when directed between different sections of the document.

It should be used like a set of architectural drawings, rather than read consecutively as a traditional book.

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→ THE QUESTION ←

HOW CAN FACADE
OCCUPATION ENHANCE
THE EXPERIENCE OF
HIGH DENSITY LIVING?

INTRODUCTION.

Living on the Edge explores the inhabitation of the interface between façade and street.

By bringing activity, which is generally internalised, to the building edge, this thesis aims to:

- Create opportunity for interaction between tenants
- Activate and enliven the street edge
- Create vibrant outdoor living and circulation areas that enrich the experience of inner-city living.

With only 65% of New Zealanders now able to afford their own home, quality urban housing can offer a cost effective alternative form of living (Statistics New Zealand).

However, currently the vast majority of Kiwis still desire an “idealised and historically remote” version of rural life in suburban homes (Gatley and Walker).

This thesis investigates some of the problems associated with high-density housing both locally and globally.

In response to these problems, a method for facade occupation is developed, referred to as “applied living”.

Applied living is a combination of gallery, annexe and colonnade spaces, which can be applied to the exterior of existing, or integrated with new buildings, to provide supplementary outdoor space, encourage community, enrich the urban environment and, by improving the amenity and experience of higher density living, ultimately encourage Kiwis to embrace the urban lifestyle.

THESIS LAYOUT :

1. THE PROBLEM➤
Chapter 1 identifies three major issues which deter Kiwis from the high-density lifestyle.
2. EXISTING SITUATION➤
Chapter 2 analyses the quality of six local and six global high-density housing case studies.
3. THE GALLERY HUNCH➤
Chapter 3 investigates the potential of gallery circulation as a method for reforming high density living.
4. APPLIED LIVING TAXONOMY➤
Chapter 4 builds a taxonomy of outdoor living and circulation types as a toolkit for externally accessed high-density housing.
5. DESIGN APPLICATIONS➤
Chapter 5 implements the applied living taxonomy in two major design phases. Phase One comprises of six design options (non - site specific), and Phase Two offers detailed design proposals for three sites in central Wellington.



IN THIS CHAPTER

Chapter One identifies and discusses three major problems which deter New Zealanders from high-density living.

These are:

A: The Unusable Balcony

B: The Isolated Tenant

C: The Lifeless Facade

The 21st century dream of positive density is an established architectural ideal. Sustainable living in mixed-use “neighbourhoods” with shared green spaces is intended to promote vibrant, amenity-rich, pedestrian-oriented cities.

However, the apartment lifestyle is not fully accepted in New Zealand culture. The average Wellington apartment dweller lives in one apartment for 1-2 years, comparative to 7 years in stand-alone dwellings (Central City Apartment Dwellers Survey). This transient occupation indicates New Zealanders do not see high-density housing as a suitable long-term living solution.

This thesis aims to address this problem through improved design that will encourage New Zealanders to see high density housing as a genuine long term living solution.

Figure 1.1: *(Opposite) A visual summary of three major problems in high density housing.*



PROBLEM A



PROBLEM B



PROBLEM C

PROBLEM A

The Unusable Balcony

The unusable balcony is a commonly occurring problem in high-density housing. Currently 66% of Wellington apartments have either no outdoor space or a “small balcony” (Wellington City Council).

The obvious lack of inhabitation among these small Wellington balconies (see figure 1.2) proves that their size and environmental conditions renders them unpleasant, unusable spaces.

According to Wellington City Council’s *Central City Apartment Dwellers Survey*, 18% of people leaving apartments and relocating to the suburbs identified apartment size and lack of outdoor space as their main reason for relocation.

Figure 1.2: *(Opposite) The unused and unusable balconies of Wellington central.*

“People are more interested in the aesthetic composition of the façade than they are in the mostly unused, quasi-amenity of a veranda that offers some free floor space by virtue of a gaping concession in the planning system.”

*-Paul Keating
(Former Australian Prime Minister)
09 September, 2014*



PROBLEM B

The Isolated Tenant

A second negative aspect of high density housing is social isolation and lack of community.

Social ties are hugely beneficial for physiological wellbeing (Kawachi and Berkman), however 5.8% of people in Wellington region consider themselves to be socially isolated all or most of the time (Statistics New Zealand).

In high-density living, it is often difficult to begin an “over the fence” relationship with neighbouring tenants (*see figure 1.3*), when interaction only occurs for short periods of time in spaces such as elevators and internal hallways (*see figures 1.4 and 1.5*).

Living in isolation from social networks is associated with a greater likelihood of depression (Kawachi and Berkman), and casual social interactions in neighbourhoods occur more frequently when walking (Lund).

To combat high-density isolation, the architect should arrange space to encourage causal interaction between building tenants, promoting community and individual wellbeing.

*“...but more
important
is livability,
which means
affordability and
community.”*

*-Karen Stiles
(Owners Corporation
Network).*

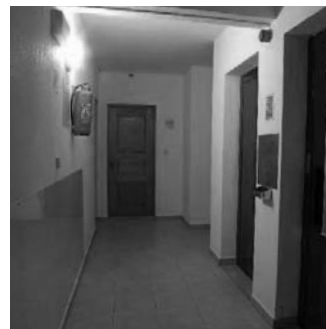


Figure 1.3: An over-the-fence neighbourly relationship between Tim and Wilson, from the television series *Home Improvement*.



Figure 1.4: *The silent elevator*: an example of social isolation in high density urban living.

Figure 1.5: (Right) uninhabited hallways: disconnected tenants commonly results in social isolation.

PROBLEM C

The Lifeless Facade

Humanization: verb \ hu·man·ize \ : to make (someone or something) seem gentler, kinder, or more appealing to people.

The final negative aspect of high density housing that this thesis seeks to address is the lifeless facade.

Poor quality facade design driven by economic, rather than human, considerations often produces building facades comprised of repetitive grids of windows and balconies (see figure 1.6). These facades hugely impact the collective urban landscape, resulting in an oppressive built environment.

“...an attempt is made to cramp the architecture into the framework of some budget formulated by the mechanical operations of a powerful bureaucratic system of the modern state, this system having nothing to do with human considerations.”

—Mayekawa
*Thoughts on Civilization
in Architecture*

*“Apartments today
look like egg-
cartons and ice
block trays, and
are responsible
for the public
backlash against
close-quarters
living.”*

—Paul Keating
*(Former Australian Prime
Minister)*
09 September, 2014

Figure 1.6: (Opposite)
*a visual inventory of
Wellington apartment
buildings with lifeless
facades.*





IN THIS CHAPTER

Chapter Two assesses the quality of six local and six international apartments/multi-unit dwellings with respect to the three problems identified in Chapter 1.

This allows a direct comparison between local and international high density housing, to ascertain what characteristics of high density housing generate a diverse, vibrant residential environment.

In particular, the implications of core location, circulation location, and the ratio of private interior to private/semi-private exterior / circulation space are analysed.

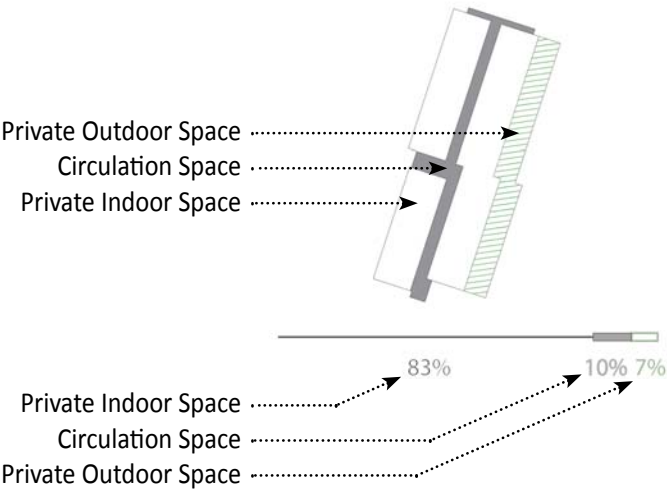
In this chapter, please note:

- *Sunlight will vary according to geographical location, and should be taken into account when analysing lighting conditions of outdoor spaces.*

HOW TO READ THIS DIAGRAM:

Each case study in Chapter Two is accompanied by a floor area analysis diagram. This diagram shows the building’s percentage breakdown of private indoor space, circulation space and private outdoor space.

Note: all floor area analysis diagrams are at a scale of 1:500 unless stated otherwise.



ASSESSING THE QUALITY OF SPACE.

The assessment table (right) is used to rate each of the 12 case studies with regard to the three “problems” identified in Chapter 1.

This thesis takes the stance that housing quality should not diminish as density increases.

To ensure this thesis generates high-density housing that functions with the amenity of a “standard home”, each criteria in the assessment table is derived from and assessed in accordance with the *Auckland City Council District Plan - Medium Density Housing Guideline* (Auckland City Council).

THE UNUSABLE BALCONY		
Quality of private outdoor space:	★★★★★☆☆	9/10
Size of private outdoor space:	★★★★★☆☆	7/10
Quality of natural light:	★★★★☆☆	5/10
THE ISOLATED TENANT		
Quality of communal outdoor space:	☆☆☆☆☆	0/10
Quality of circulation spaces:	★★★★★☆☆	9/10
Likelihood of casual tenant interaction:	★★★★☆☆	5/10
Quality of local amenities:	★★★★★☆☆	10/10
THE LIFELESS FACADE		
Height/scale appropriate for urban context:	★★★★★☆☆	10/10
Quality of visual appearance from street:	★★★★★☆☆	8/10
Visibility of apartment entry from street:	★★★★☆☆	6/10

OVERALL QUALITY: 69%

EXISTING SITUATION

*Local High Density Housing:
6 Wellington Case Studies*

L1.

LOCAL CASE STUDY #1:
WHARENUI APARTMENTS

Location: Cnr. Oriental Parade +
Grass Street, Wellington, NZ
Architect: Structon Group
Constructed: 1957

88% 12%

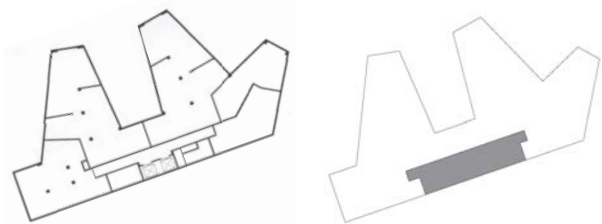


Figure 2.1: (Right) Wharenuui
Apartments interior view.

Figure 2.2: (Below) Street front
facade of Wharenuui Apartments.

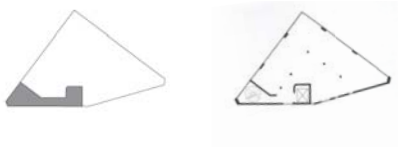


THE UNUSABLE BALCONY	
Quality of private outdoor space:	☆☆☆☆☆
Size of private outdoor space:	☆☆☆☆☆
Quality of natural light:	★★★★★
THE ISOLATED TENANT	
Quality of communal outdoor space:	★☆☆☆☆
Quality of circulation spaces:	★☆☆☆☆
Likelihood of casual tenant interaction:	★☆☆☆☆
Quality of local amenities:	★★★★★
THE LIFELESS FACADE	
Height / scale appropriate for urban context:	★☆☆☆☆
Quality of visual appearance from street:	★☆☆☆☆
Visibility of apartment entry from street:	☆☆☆☆☆
OVERALL QUALITY: 28%	

LOCAL CASE STUDY #2:
CLIFTON TOWER APARTMENTS:

Location: 202 Oriental Parade,
Wellington, NZ
Architect: Porter and Martin
Constructed: 1962

L2.



87% 13%



Figure 2.3: (Left) Clifton Tower
Apartments interior view.

Figure 2.4: (Below) Street front
facade of Clifton Tower Apartments.

THE UNUSABLE BALCONY	
Quality of private outdoor space:	☆☆☆☆☆
Size of private outdoor space:	☆☆☆☆☆
Quality of natural light:	★★★★☆
THE ISOLATED TENANT	
Quality of communal outdoor space:	☆☆☆☆☆
Quality of circulation spaces:	★☆☆☆☆
Likelihood of casual tenant interaction:	★☆☆☆☆
Quality of local amenities:	★★★★★
THE LIFELESS FACADE	
Height / scale appropriate for urban context:	★★☆☆☆
Quality of visual appearance from street:	★★☆☆☆
Visibility of apartment entry from street:	★★★☆☆
OVERALL QUALITY: 36%	



L3.

LOCAL CASE STUDY #3:
TATTOO APARTMENTS

Location: Wigan Street, Wellington,
NZ

Architect: ArchHaus

Constructed: 2011

83%

10% 7%

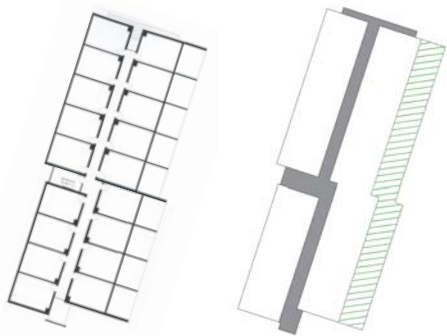


Figure 2.5: (Right) Interior of
a Tattoo Apartment at ground
level with outdoor space.

Figure 2.6: (Below) The
southern and western facades
of the Tattoo Apartments.



THE UNUSABLE BALCONY	
Quality of private outdoor space:	★★★★★
Size of private outdoor space:	★★★★☆
Quality of natural light:	★★★☆☆
THE ISOLATED TENANT	
Quality of communal outdoor space:	☆☆☆☆☆
Quality of circulation spaces:	★★★★★
Likelihood of casual tenant interaction:	★★★☆☆
Quality of local amenities:	★★★★★
THE LIFELESS FACADE	
Height / scale appropriate for urban context:	★★★★★
Quality of visual appearance from street:	★★★★☆
Visibility of apartment entry from street:	★★★☆☆
OVERALL QUALITY: 69%	

LOCAL CASE STUDY #4:
KELBURN RESIDENTIAL UNITS

Location: 32 Upland Road, Kelburn,
Wellington, NZ
Architect: Unknown
Constructed: Unknown

80% 20%

.L4.

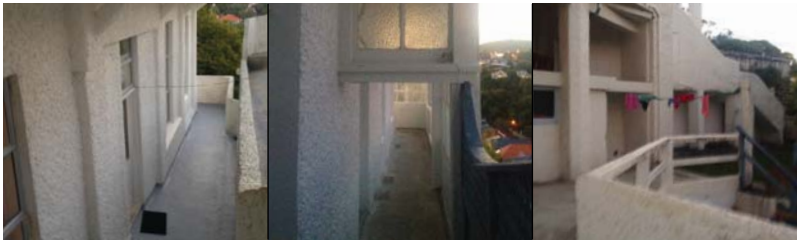


Figure 2.7: (Left) External gallery circulation and outdoor living spaces at 32 Upland Road.

Figure 2.8: (Below) View of the external gallery from the street edge.

THE UNUSABLE BALCONY	
Quality of private outdoor space:	★★★★☆
Size of private outdoor space:	★★★★☆
Quality of natural light:	★★★★★
THE ISOLATED TENANT	
Quality of communal outdoor space:	★☆☆☆☆
Quality of circulation spaces:	★★☆☆☆
Likelihood of casual tenant interaction:	★★★★☆
Quality of local amenities:	★★★★☆
THE LIFELESS FACADE	
Height / scale appropriate for urban context:	★★★★★
Quality of visual appearance from street:	★★☆☆☆
Visibility of apartment entry from street:	★★★★☆
OVERALL QUALITY: 62%	



L5.

LOCAL CASE STUDY #5:
JELlicoe APARTMENTS

Location: 189-191 The Terrace,
Wellington, NZ
Architect: A. A. Wild
Constructed: 1965

79% 19% 2%

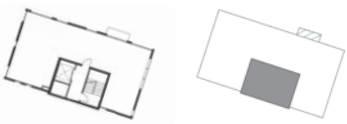
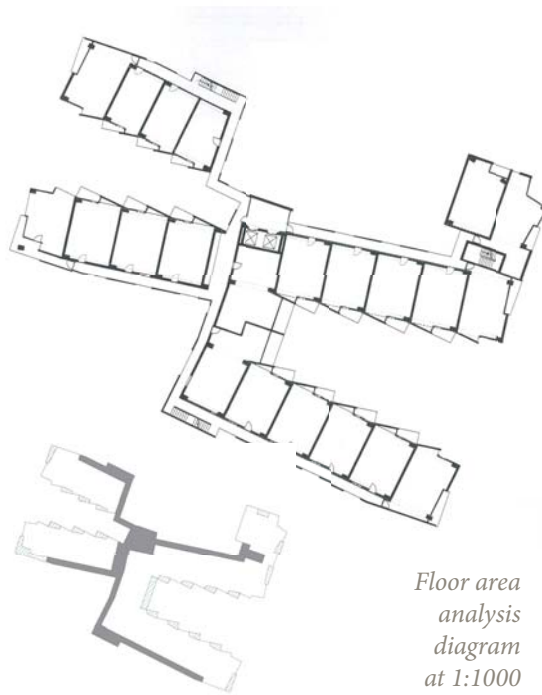


Figure 2.9: (Right) Ground level lobby interior. (Far right) View looking east from apartment interior.

Figure 2.10: (Below) View of Jellicoe Apartments from street.



THE UNUSABLE BALCONY	
Quality of private outdoor space:	★☆☆☆☆
Size of private outdoor space:	★☆☆☆☆
Quality of natural light:	★★★★☆
THE ISOLATED TENANT	
Quality of communal outdoor space:	☆☆☆☆☆
Quality of circulation spaces:	★★★★☆
Likelihood of casual tenant interaction:	★★★★☆
Quality of local amenities:	★★★★☆
THE LIFELESS FACADE	
Height / scale appropriate for urban context:	★★★★☆
Quality of visual appearance from street:	★★★★☆
Visibility of apartment entry from street:	★★★★☆
OVERALL QUALITY: 41%	



Floor area
analysis
diagram
at 1:1000

LOCAL CASE STUDY #6: SOHO APARTMENTS

Location: Taranaki Street,
Wellington, NZ
Developer: Conrad Properties
Constructed: 2007

75% 18% 7%

L6.

Figure 2.11: (Left) Interior of a
standard size Soho Apartment
living/dining area.

Figure 2.12: (Below) View of eastern
Soho Apartments facade from street.

THE UNUSABLE BALCONY

Quality of private outdoor space: ★☆☆☆☆

Size of private outdoor space: ★☆☆☆☆

Quality of natural light: ★★☆☆☆

THE ISOLATED TENANT

Quality of communal outdoor space: ☆☆☆☆☆

Quality of circulation spaces: ★☆☆☆☆

Likelihood of casual tenant interaction: ★★☆☆☆

Quality of local amenities: ★★★★★

THE LIFELESS FACADE

Height / scale appropriate for urban context: ★★☆☆☆

Quality of visual appearance from street: ★☆☆☆☆

Visibility of apartment entry from street: ★★☆☆☆

OVERALL QUALITY: 37%



EXISTING SITUATION

*Global High Density Housing:
6 Overseas Case Studies*

G1.

GLOBAL CASE STUDY #1:
ESTRADE HOUSE

Location: Prenzlauer Berg, Berlin,
Germany
Architect: Wolfram Popp
Constructed: 2001

75% 9% 16%

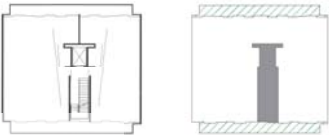
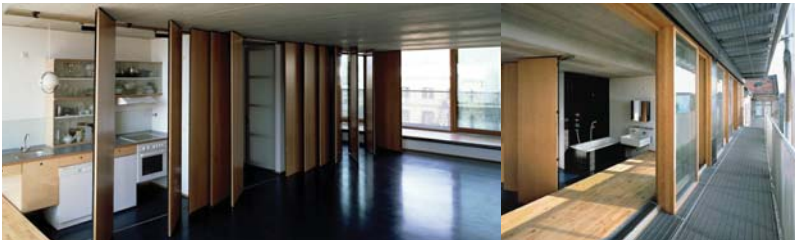
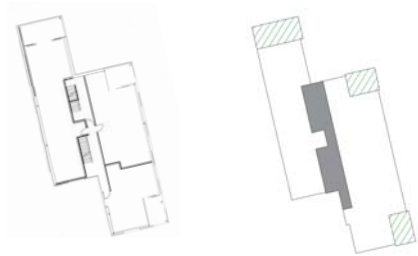


Figure 2.13: Estrade house
apartment interior (right) and
external balcony with permeable
metal grill flooring (far right).

Figure 2.14: (Below) Estrade
Apartment exterior, street facade.



THE UNUSABLE BALCONY	
Quality of private outdoor space:	★★★★☆
Size of private outdoor space:	★★★★☆
Quality of natural light:	★★★★☆
THE ISOLATED TENANT	
Quality of communal outdoor space:	☆☆☆☆☆
Quality of circulation spaces:	★★★★☆
Likelihood of casual tenant interaction:	★★★★☆
Quality of local amenities:	★★★★☆
THE LIFELESS FACADE	
Height / scale appropriate for urban context:	★★★★☆
Quality of visual appearance from street:	★★★★☆
Visibility of apartment entry from street:	★★★★☆
OVERALL QUALITY: 59%	



OBAL CASE STUDY #2:
AQUE APARTMENTS

Location: Sebastianstrasse,
Vienna, Austria
Architect: B & E Baumschlager-
Werbner
Year Constructed: 2001

75% 12% 13%

G2.



Figure 2.15: (Far left) opaque facade shows light through at night. (Left) moveable screens expose or enclose covered outdoor living areas.

Figure 2.16: (Below) daytime view of the Opaque Apartments from street.

THE UNUSABLE BALCONY	
Quality of private outdoor space:	★★★★☆
Size of private outdoor space:	★★★★☆
Quality of natural light:	★★★★☆
THE ISOLATED TENANT	
Quality of communal outdoor space:	★★★★☆
Quality of circulation spaces:	★★★☆☆
Likelihood of casual tenant interaction:	★★☆☆☆
Quality of local amenities:	★★★☆☆
THE LIFELESS FACADE	
Height / scale appropriate for urban context:	★★★★☆
Quality of visual appearance from street:	★★★★☆
Visibility of apartment entry from street:	★★☆☆☆
OVERALL QUALITY: 68%	



G3.

GLOBAL CASE STUDY #3:
RUE DES SUISSES APARTMENTS

Location: 149 Rue des Suisses, Paris,
France

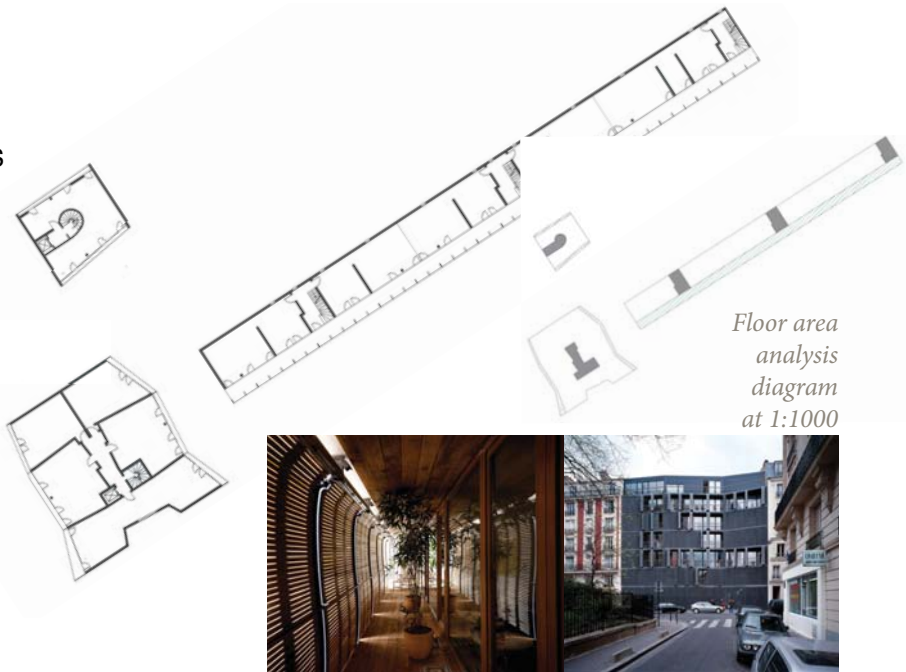
Architect: Herzog and De Mueron

Constructed: 2000

72% 9% 19%

Figure 2.17: (Right) view of
external living area with shutters
retracted. (Far right) Rue Des
Suisses apartment street facade.

Figure 2.18: (Below) sheltered
internal courtyard between Rue
Des Suisses apartment buildings.



THE UNUSABLE BALCONY	
Quality of private outdoor space:	★★★★★
Size of private outdoor space:	★★★★☆
Quality of natural light:	★★★★☆
THE ISOLATED TENANT	
Quality of communal outdoor space:	★★★★☆
Quality of circulation spaces:	★★★★☆
Likelihood of casual tenant interaction:	★★★★☆
Quality of local amenities:	★★★★☆
THE LIFELESS FACADE	
Height / scale appropriate for urban context:	★★★★★
Quality of visual appearance from street:	★★★★★
Visibility of apartment entry from street:	★★★★☆
OVERALL QUALITY: 82%	

GLOBAL CASE STUDY #4: HALL OF RESIDENCE

*Location: Enzianstraße 1-3,
Garching, Germany
Architect: Fink + Jocher
Constructed: 2005*

67%

33%



Figure 2.19: (Far and near left) views of external circulation space with planted mesh screening in different seasons. (Middle left) close up of apartment window from street.

Figure 2.20: (Below) view of Hall of Residence from street, showing circulation spaces.

THE UNUSABLE BALCONY	
Quality of private outdoor space:	★★★★☆
Size of private outdoor space:	★★★★☆
Quality of natural light:	★★★★☆
THE ISOLATED TENANT	
Quality of communal outdoor space:	★★★★☆
Quality of circulation spaces:	★★★★☆
Likelihood of casual tenant interaction:	★★★★☆
Quality of local amenities:	★★★★☆
THE LIFELESS FACADE	
Height / scale appropriate for urban context:	★★★★☆
Quality of visual appearance from street:	★★★★☆
Visibility of apartment entry from street:	★★★★☆
OVERALL QUALITY: 76%	



G5.

GLOBAL CASE STUDY #5:
TIMBER APARTMENTS

Location: Merano, Italy
Architect: Holzbox Tirol and Anton Hoss
Constructed: 2003

60% 16% 24%

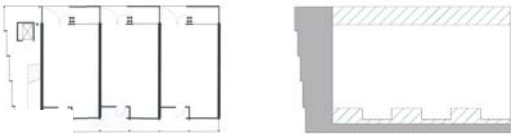
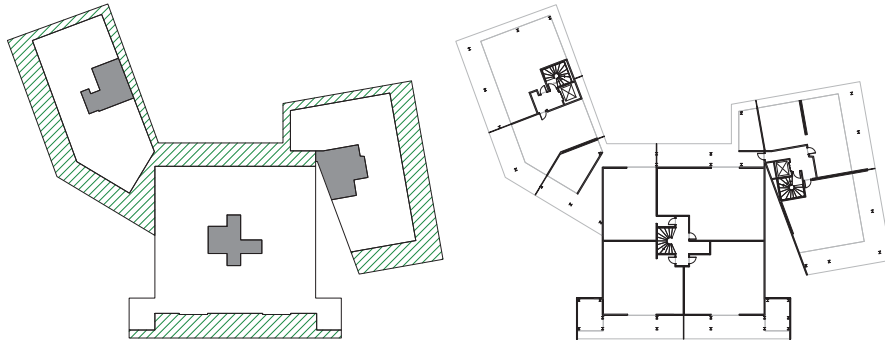


Figure 2.21: (Near right) close up of private outdoor areas from street. (Middle right) view of gallery circulation from rear. (Far right) interior view of gallery circulation.

Figure 2.22: (Below) the street facade of the Timber Apartments.



THE UNUSABLE BALCONY	
Quality of private outdoor space:	★★★★★
Size of private outdoor space:	★★★★☆
Quality of natural light:	★★★★☆
THE ISOLATED TENANT	
Quality of communal outdoor space:	★★★★☆
Quality of circulation spaces:	★★★★☆
Likelihood of casual tenant interaction:	★★★★☆
Quality of local amenities:	★★★★☆
THE LIFELESS FACADE	
Height / scale appropriate for urban context:	★★★★★
Quality of visual appearance from street:	★★★★★
Visibility of apartment entry from street:	★★★★☆
OVERALL QUALITY: 82%	



GLOBAL CASE STUDY #6: LA CHESNAIE HIGHRISE

Location: Saint-Nazaire, France

Architect: Lacaton & Vassal

.G6.

61%

7% 32%

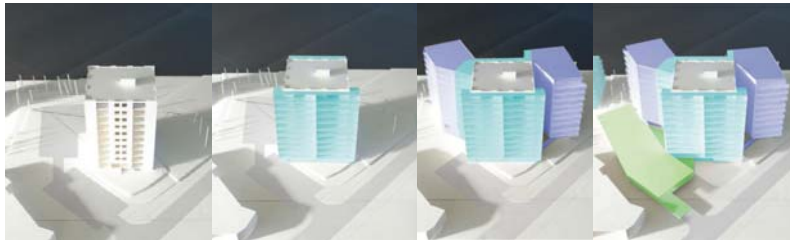


Figure 2.23: (Left) model series showing progression from original building to new building with applied winter

Figure 2.24: (Below) view showing transition from private interior to applied winter garden to balcony.

THE UNUSABLE BALCONY	
Quality of private outdoor space:	★★★★☆
Size of private outdoor space:	★★★★☆
Quality of natural light:	★★★★☆
THE ISOLATED TENANT	
Quality of communal outdoor space:	★★★★☆
Quality of circulation spaces:	★★★★☆
Likelihood of casual tenant interaction:	★★★★☆
Quality of local amenities:	★★★★☆
THE LIFELESS FACADE	
Height / scale appropriate for urban context:	★★★★☆
Quality of visual appearance from street:	★★★★☆
Visibility of apartment entry from street:	★★★★★
OVERALL QUALITY: 76%	



Design Investigation

INVESTIGATING NONTYPICAL ACCESS

Retrofitting circulation onto the Wharenui Apartments (refer to *Local Case Study #1*, pg. 21).

AIM:

To externalize all building circulation to enliven facade and promote tenant interaction.

Benefits:

- Tenant interaction increased
- Enlivened facade

Negatives:

- Expensive to relocate building core
- Circulation on shaded building facade and impeded interior light quality

INSIGHTS:

External circulation / living space has benefits, but may operate better as a supplementary space, rather than replacing the existing core and circulation

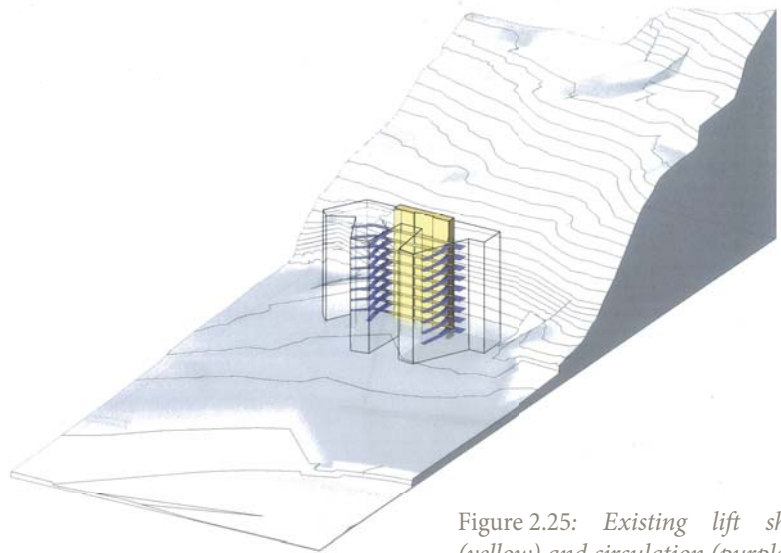


Figure 2.25: Existing lift shaft (yellow) and circulation (purple).

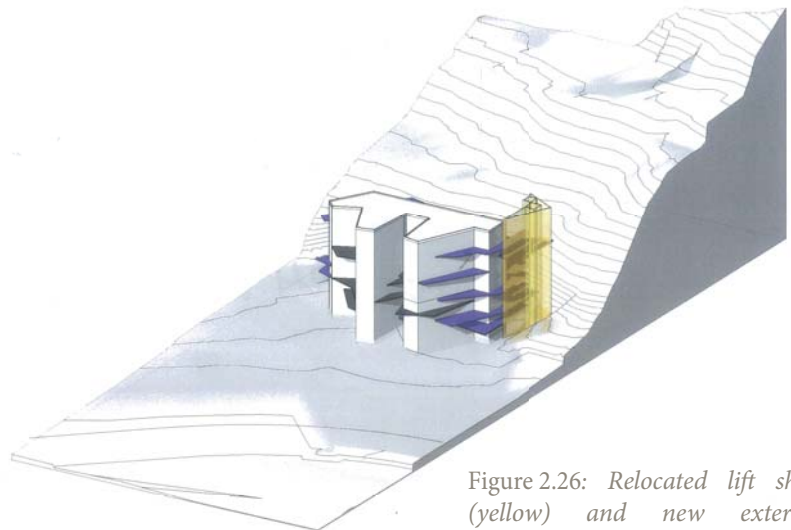


Figure 2.26: Relocated lift shaft (yellow) and new external circulation / living areas (purple).

CHAPTER TWO: MAIN FINDINGS

Buildings with an overall quality greater than 75% had between 19 - 32% of floor area as outdoor space.

Buildings with a quality of less than 50% had between 0 - 7% of the gross floor area as outdoor space. These results indicate that outdoor spaces have a significant effect on the perceived quality of a building.

Typically, Wellington's high density housing is accessed via internal corridors, with minimal outdoor space.

However, two local examples in this Chapter utilize an alternative form of circulation: the Kelburn Residential Units (pg. 24) and Soho Apartments (pg. 26), both of which are accessed via external galleries.

INSIGHTS

A notable difference can be drawn between Soho Apartments and the Kelburn Units. Although both are considered "gallery access" buildings, the Kelburn gallery areas have been inhabited and appropriated by occupants to serve a variety of purposes, whereas Soho Apartment galleries have no additional usage.

QUESTIONS RAISED:

What architectural, environmental and social conditions contribute to the success or failure of gallery circulation?

The above question will be explored in Chapter Three.

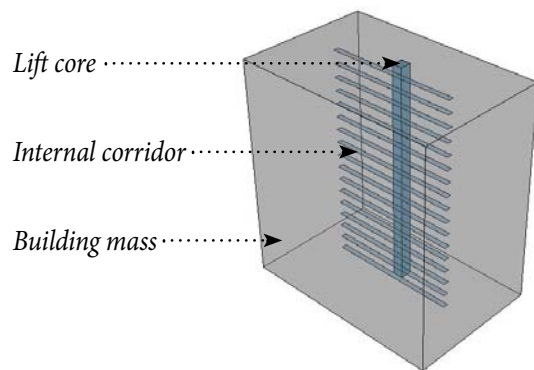


Figure 2.27: Typical building access: the central core.

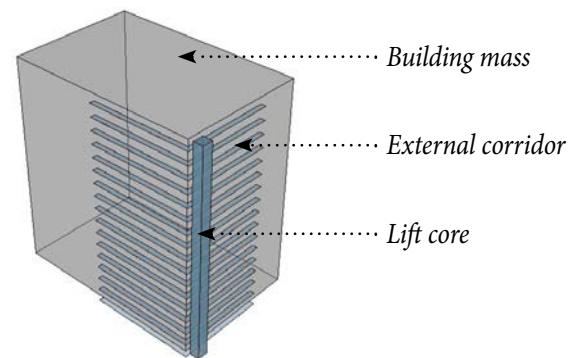


Figure 2.28: Nontypical building access: external gallery circulation.

Light vs. Depth

TESTING GALLERY WIDTHS

Investigating the retrospective application of external space within a high-density context.

LIGHT VS. DEPTH

A potential problem with the application of external space in a high-density context is the reduced width of the street resulting in decreased sunlight to pedestrian levels, and reduced light amenity to the internal spaces of the building to which the system is applied.

Finding a balance between the amenity provided by external space and the amenity of sunlight access is critical to the success of this system.

The Victoria Street Sectional Study (*figure 3.4*) shows that a street approximately 30 metres wide could build up to a height of 33 metres (approximately 12 storeys), and maintain sunlight access to the street for 6 months of the year. During winter, sunlight is able to penetrate to the higher interior spaces of the building, however the lowest 2-3 building storeys lose light all together.

Lighting conditions of both the street and applied living spaces will vary greatly depending on orientation, street width, and applied living depth. Appropriate applied living depths in response to street conditions will be tested further in Chapter 5: Design Applications.



SITE LOCATION

Scale 1 : 5,000



SITE LOCATION

Scale 1 : 50,000

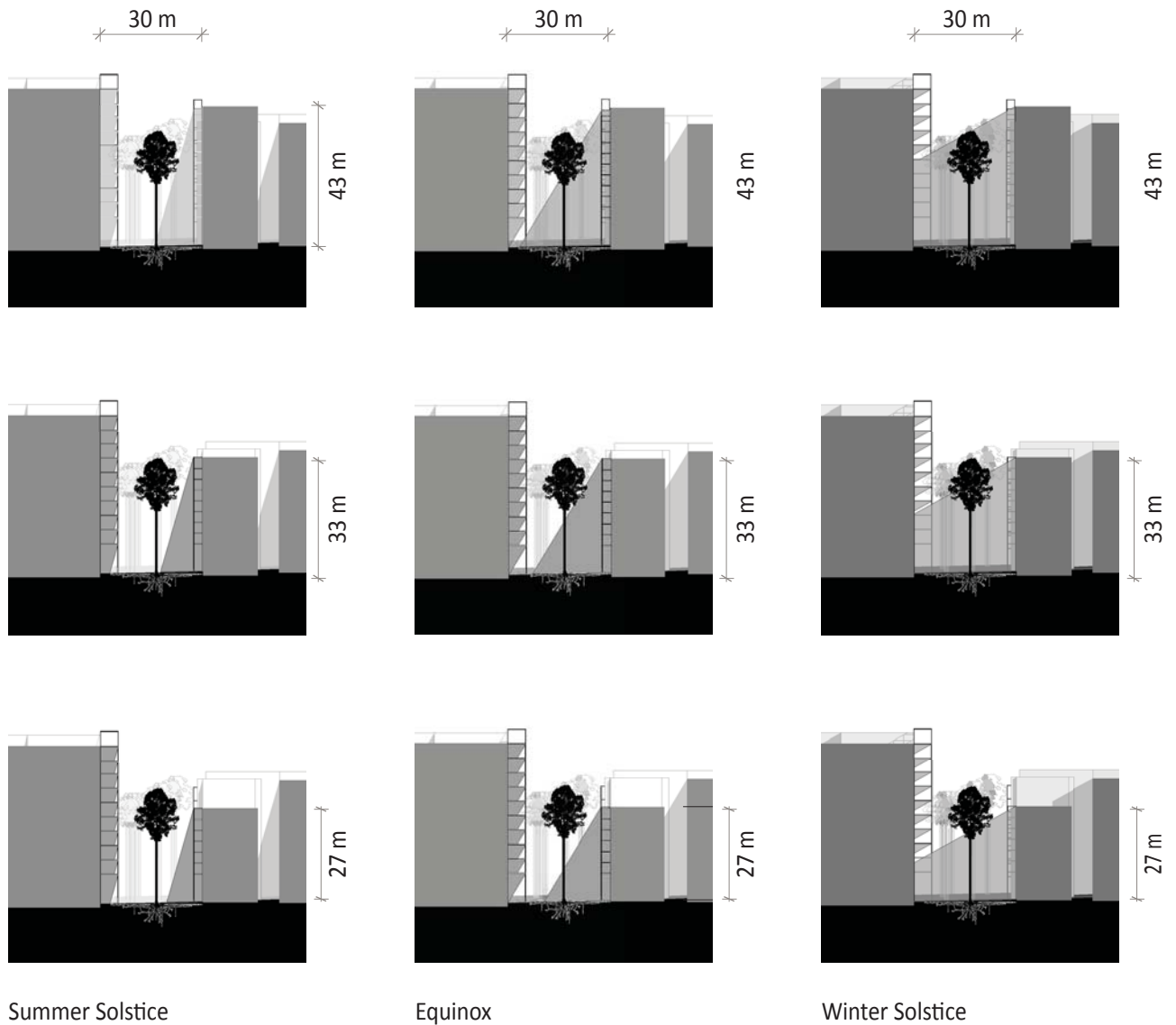


Figure 3.4: (Above) Victoria Street Sectional Study. Diagrams at 1 : 2000

ARCHITECTURAL CONTEXT

Inhabiting Circulation



Architectural Context

LE CORBUSIER: UNITÉ D'HABITATION

Throughout Chapter Three, the gallery has been investigated in terms of its benefits. Historically, however, multi-use circulation has been primarily an unsuccessful vision.

The pioneer for multi-use circulation was Le Corbusier, with the Unité d'Habitation in Marseilles, completed in 1952. Corbusier's vision was that the single building would act as a miniature city, with the corridors taking on the role of the "rue interieur", or "interior street". However, the corridors have never been occupied as such (see figures 3.5 - 3.6).



Figure 3.5 : The "internal street" of Unité d'Habitation in Marseilles (1952).



Figure 3.6 : The stark "internal street" of the Unité d'Habitation in Berlin (1959).

THE SMITHSONS: GOLDEN LANE HOUSING

In 1952, Corbusier's notion of the internal street was translated by Alison and Peter Smithson into an external deck access concept, referred to as "streets in the air".

Originally a design proposal for the London Golden Lane Housing competition, the "streets in the air" concept proposed gallery circulation as social spaces that would replace the existing street, which the Smithsons believed had become invalidated by the motor car (Crosby).

Although the Smithson's Golden Lane Housing proposal was never built, it was by far their most compelling external circulation proposal (see figure 3.7).

THE SMITHSONS: ROBIN HOOD GARDENS

In 1964-70 the Smithsons were commissioned to design Robin Hood Gardens - a social housing complex in Tower Hamlets, London. The street decks were again implemented, aiming to create spaces for neighbourly interaction within the newly emerging high-rise society.

However, the built reality of Robin Hood Gardens "produced more problems, both social and practical, than it solved" - falling far short of the Smithson's modern, pop-culture infused high-density dream (see figure 3.8) (Webster).

"Access governs intensity of use, suggests type of use; access can produce growth, can stop growth; can leave or give areas of complete calm; can decide areas of maximum interchange and intensity. The introduction of systems of access alter the feel of a place."

- Alison and Peter Smithson
(from *Without Rhetoric*)

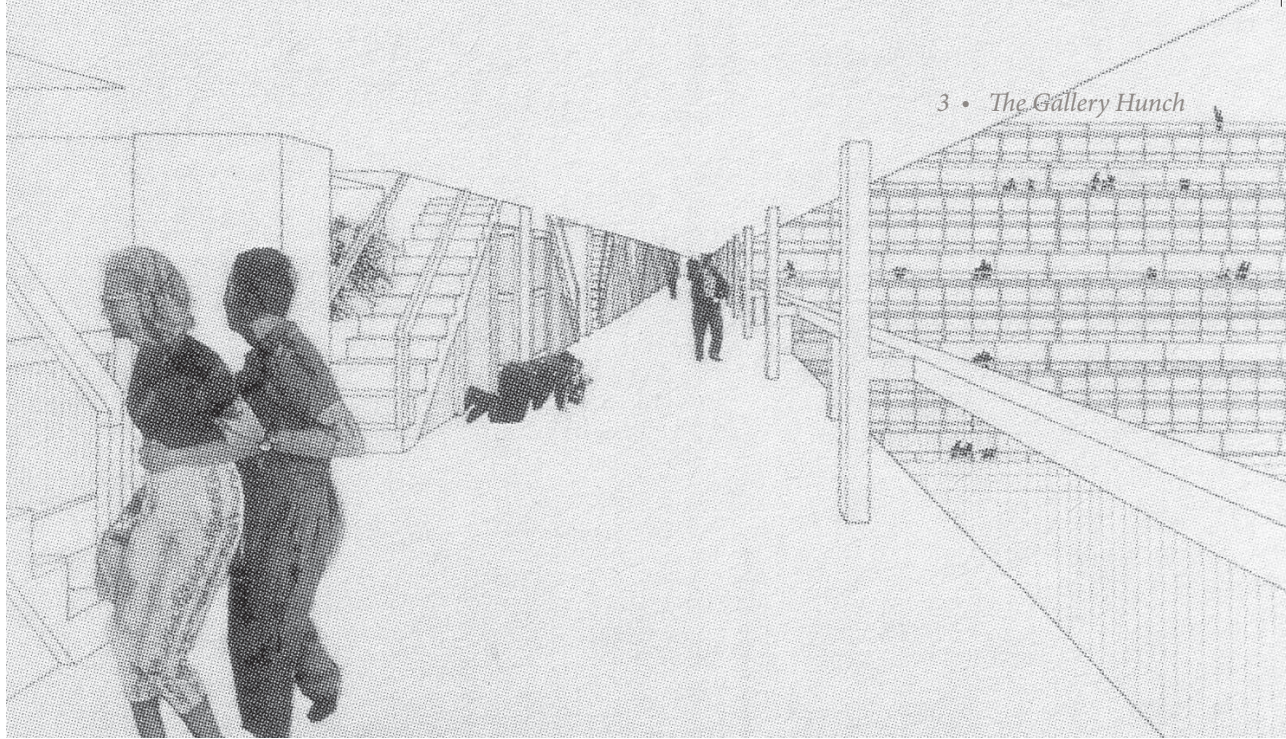


Figure 3.7: (Top right) Photomontage with Marilyn Monroe and Joe DiMaggio on the street deck of the Golden Lane Housing proposal. Peter Smithson, 1953.

Figure 3.8: (Right) A harsh reality: the street deck at Robin Hood Gardens, London.



Architectural Context

PROBLEMS IDENTIFIED:

So, what caused the Smithson's idealistic "streets in the air" proposal to fail? The following points list what I believe to be the primary problems with the Robin Hood Garden's "street deck" circulation.

1. Uninvested tenants. When a building is occupied as social housing, tenants often have little choice in their living situation. Short-term occupation and low income may limit the occupant's ability/desire to appropriate space.
2. Poor environmental conditions. Gallery spaces can often be wet, windy and exposed, producing unpleasant living conditions.
3. Too public. In Robin Hood Gardens, each gallery provides access to 36 units (over 100 people). Additionally, there are no security measures in place, so all galleries are publicly accessible. This causes fear of crime/theft and eliminates privacy.
4. Poor relationship between interior and exterior space. Robin Hood Gardens situates the living room on a separate level to the gallery, disconnecting the gallery from internal living areas.

SOLUTIONS TO IMPLEMENT:

In order to learn from the failures of historical gallery access, the following rules are applied to the design explorations to follow.

1. Assume owner-occupiers as tenants. This implies occupants have a vested interest in the care and usability of apartments /circulation spaces.
2. Ensure gallery spaces are sheltered from poor weather conditions.
3. Minimise units per level to 6 or less to develop tight-knit neighbourhoods, and assume the building has security systems (for example. swipe access, security cameras), so the building is a safe, secure living environment.
4. Place interior living areas immediately adjacent to multi-use circulation, with large openable doors that allow direct flow between spaces (see figure 3.9).



Figure 3.9: A Kiwi living necessity: indoor-outdoor flow.

FINAL THOUGHTS ON STREET DECKS

One of the fundamental problems of the “street in the air” concept is the notion that the occupant should inhabit the street.

Nobody sets up their couch and coffee table in a street. Neither does one do so on a footpath. The success of multi-use circulation space will not be achieved by widening access and professing that it is “communal”, but by defining pockets of private space that directly adjoin circulation, setting up an over-the-fence, footpath-to-front-porch connection (see figure 3.10).

The notion of the front porch implies a greater degree of privacy and ownership, and a notional, but not necessarily physical, threshold between the public and private spaces.

From here on, multi-use circulation should be considered the high-density equivalent of a deck or porch area: an extension of the interior, adjacent to a path connecting neighbouring properties. Not a public street.

Figure 3.10 : (Below) *The social front porch: placing private space adjacent to public circulation.*





Outdoor Space Catalogue

IN THIS CHAPTER

Chapter Four: Applied Living Taxonomy is a systematic categorization and analysis of typical outdoor living and circulation typologies found in buildings worldwide.

Through the categorization of existing types, an Applied Living Taxonomy is formed.

The taxonomy can then be utilized as a “kit of parts” within the design phases of this thesis to produce adjacent private outdoor space and circulation, translating the “footpath-to-front porch” relationship explained in Chapter 3 into a high density context by creating opportunities for neighbourly interaction.

HIGH DENSITY OUTDOOR SPACE: A GLOBAL CATALOGUE

Figure 4.1 (*opposite*) offers a preliminary categorization of external living spaces.

Common to these external spaces is the ability to be applied as a supplementary structure to the base building. They have the effect of enlivening the facade by revealing inhabitants and signs of their occupation to the street.

Figure 4.1: (*Opposite*) An initial categorization of residential “edge” spaces.



ARCADE

ar-cade
“A covered passage with arches along one or both sides” or; “A covered walk with shops along one or both sides”.



COLONNADE

col-on-nade
“A row of evenly spaced columns supporting a roof, an entablature, or arches.”



VERANDA

ver-anda
“A roofed platform along the outside of a house, level with the ground floor.”



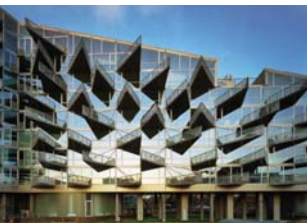
GALLERY

gal-lery
“A long room or passage, typically one that is partly open at the side to form a portico or colonnade.”



ANNEXE

an-nexe
“A building joined to or associated with a main building, providing additional space or accommodation”



BALCONY

bal-cony
“A platform enclosed by a wall or balustrade on the outside of a building, with access from an upper-floor window or door.”

Exposed Circulation Catalogue

EXPOSING CIRCULATION: A GLOBAL CATALOGUE

This page documents existing methods for expressing vertical circulation on a building facade. Some of the staircases documented are architectural, some sculptural, and others driven by necessity, such as fire codes.

The visibly expressed staircase offers the street a narrative of the movement within a building. By exposing circulation, a building can enrich the street by contributing to the overall perception of urban movement and liveliness.

Figure 4.2: (Opposite) An initial study and categorization of residential “edge” spaces. See list of figures for building descriptions and locations.



FIRE ESCAPE

fire es-cape
A number of horizontal platforms, one at each storey of a building with ladders or stairs connecting them, mounted to the building exterior.



VERTICAL CORE

vertical core
A vertically stacked tower of stairs reaching the full height of a building.



DIAGONAL

diagonal stair
One or more runs of stairs climbing a facade diagonally in one direction from ground to roof.



SCATTERED SECTIONS

scattered sections
A number of diagonal runs of stairs climbing portions of the facade. Each may differ in direction, and none extend fully from ground to roof.



SCATTERED

scattered stair
A number of single staircases, each spanning one storey only, scattered over a facade in a random looking manner.

Outdoor Space Catalogue

SPATIAL TRANSLATION: FROM 2D TO 3D

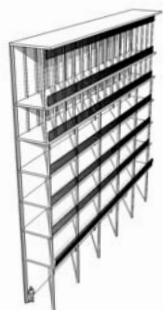
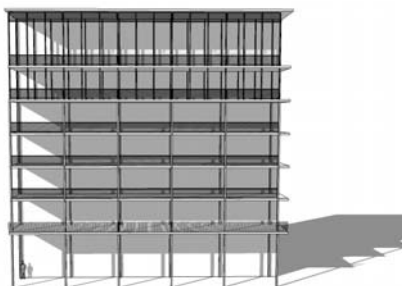
This section documents the initial translation of the High Density Outdoor Space Catalogue (pg. 71 - 72) into three-dimensional representation.

It attempts to model each category in its essential form, to understand more fully the crucial elements and spatial opportunities inherent within each type.

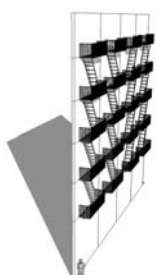
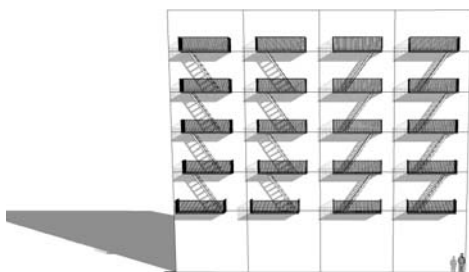
INITIAL FINDINGS

- It is difficult to differentiate the categories of the colonnade, arcade and veranda. Other than ornamental differences such as the repeated arch verses the repeated column/post, or differing construction materials such as stone verses timber, the resultant spaces are essentially identical. Each of the three categories have a repeating vertical element which orders the space in a regular manner, producing pockets of stillness between the vertical elements which lend themselves to becoming zones for occupation and appropriation.
- The gallery is fundamentally a circulation only zone, whereas the arcade / colonnade / veranda have a more generic space which loosely defines areas for occupation vs. movement.
- The balcony and annexe operate in a similar manner. Although one is enclosed and the other is an exterior element, both are essentially a protruding zone of private space.

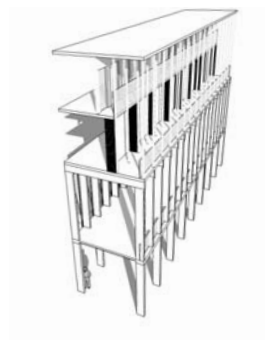
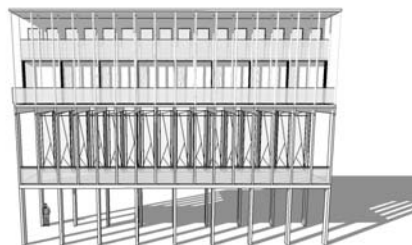
VERANDA



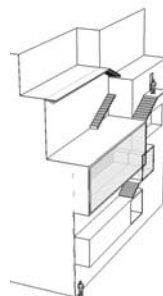
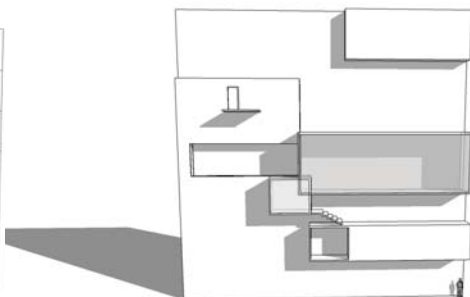
BALCONY



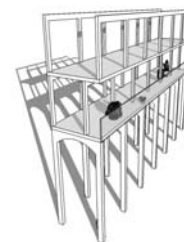
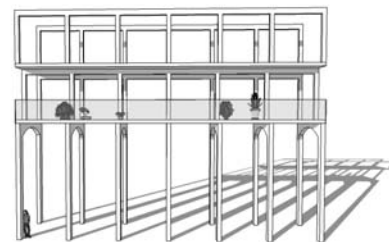
COLONNADE



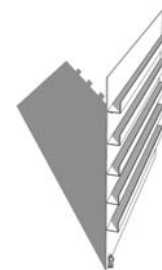
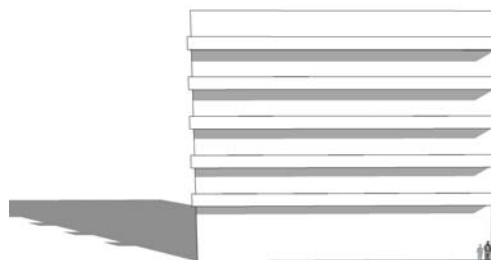
PROJECTED ROOM



ARCADE

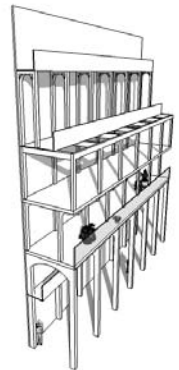
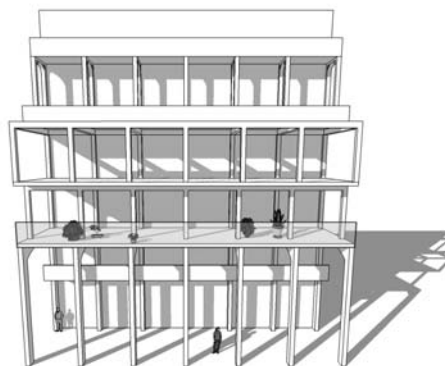
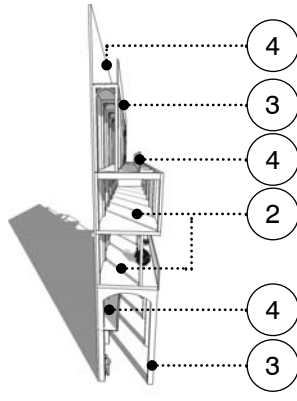
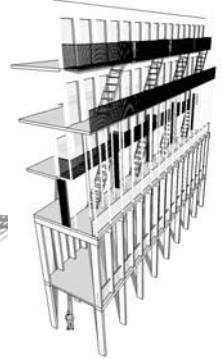
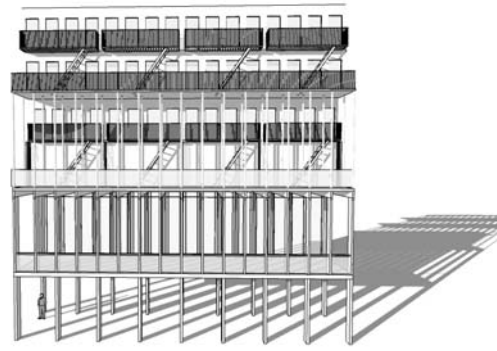
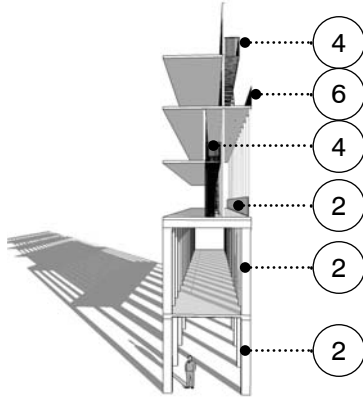


GALLERY



Combining Types

- (1) VERANDA
- (2) COLONNADE
- (3) ARCADE
- (4) BALCONY
- (5) PROJECTED ROOM
- (6) GALLERY
- (A) FIRE ESCAPE
- (B) VERTICAL CORE
- (C) DIAGONAL
- (D) SCATTERED SECTIONS
- (E) SCATTERED



COMBINING TYPES

“Combining Types” is an initial design investigation into the spaces produced by combining two or more categories of the High Density Outdoor Space Catalogue (see pg. 71 - 72).

As a general rule, the colonnade, arcade or veranda is used as a base structural system, and subsequently the other categories such as the balcony or gallery are fitted within it. The product is a diverse set of spaces, offering unique connections, both visual and physical, between levels of outdoor space.

Observations to note:

- The “projected room” category has not been implemented in these tests. Although it has some relationship to the street, it is essentially a type of indoor space. Therefore it will not be further considered within the “applied living” system.
- Experimentation with stair categories should be investigated further in subsequent sections.
- There are significant overlaps between some categories within the High Density Outdoor Space Catalogue (mentioned previously in “Initial Findings”, pg. 75-76). The six current categories should be condensed and refined to reflect the essential spatial qualities.

Figure 4.3: (Opposite) The cumulative effect of the applied living taxonomy when implemented across an entire street.



Applied Living Taxonomy

REASONS FOR COMBINING TYPES:

- Arcade, colonnade and veranda categories have been combined into the over arching term “colonnade” due to the strong similarities in their resultant spaces.
- The gallery category is maintained, referring to dedicated external circulation.
- “Annexe” replaces the balcony category. The term “balcony” was deemed too limiting, because it refers to external space accessed directly from an interior. Annexe, meaning “joined to or associated with a main building”, allows a broader definition. In the refined Applied Living Taxonomy, annexe refers to a generic pocket of private outdoor space which can be accessed from an external gallery, a colonnade or an interior space.
- “Projected room” has been discarded, because it was used to refer to a protruding area of internal space.

WHERE TO FROM HERE?

Within this chapter, the typical exterior living spaces have been categorised and refined into three general spatial typologies which form all types of outdoor space.

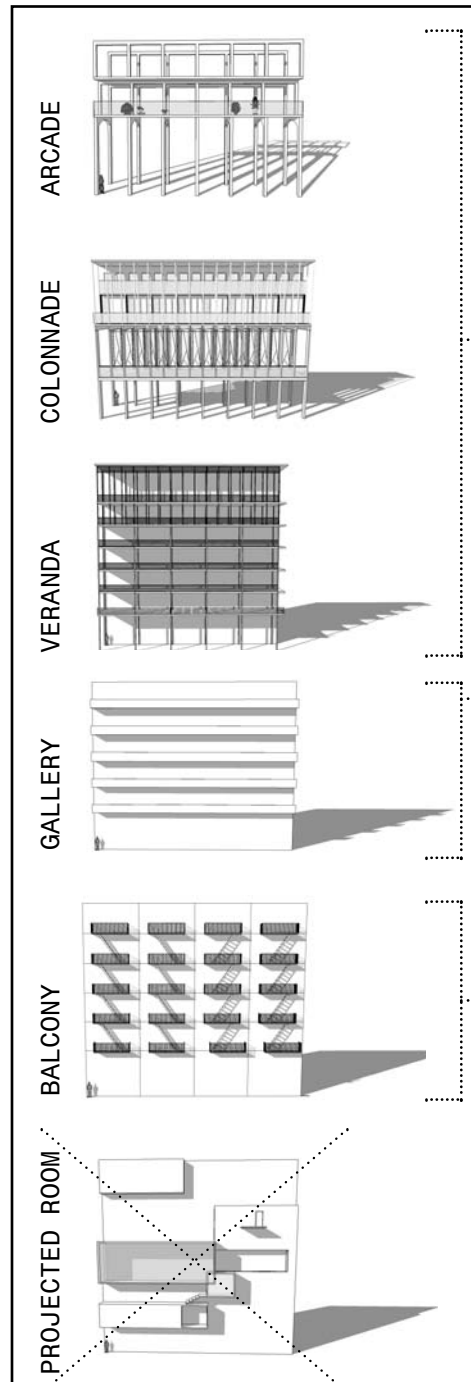
Essentially, these three spaces describe:

- Pockets of private space (annexe)
- Defined circulation zones (gallery)
- Unspecified spaces which can accommodate both private space and circulation zones (colonnade).

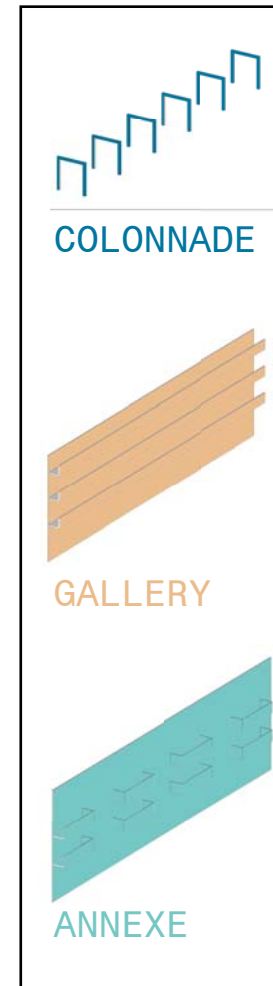
From here, Chapter 5 will look into utilizing the applied living taxonomy within a series of design iterations to create unique external living and circulation zones in order to encourage facade occupation.

Figure 4.4: (Opposite) Diagram showing the refinement of the Outdoor space Catalogue into the final Applied Living Taxonomy.

OUTDOOR SPACE CATALOGUE:



APPLIED LIVING TAXONOMY:



colonnade
An outdoor space which combines circulation and living areas without dictating specific inhabitable zones.

gallery
An external space dedicated to circulation only.

annexe
A defined zone of inhabitable private outdoor space, accessed via exterior circulation or directly from an interior.



IN THIS CHAPTER

Chapter Five implements the Applied Living Taxonomy developed within Chapter 4 through a series of design iterations, arranged in two main phases (see figure 5.1).

PHASE ONE

Phase one consists of six design tests (iterations A - F).

Each iteration begins by defining the relationships between private indoor space, external circulation and private outdoor space using a combination of two or more Applied Living Typologies.

These spatial relationships are set up on one level of the building, and are then combined with a Vertical Circulation Typology (*Chapter 4, pg. 73-74*) to inform the composition and functionality of the facade as a whole. Finally, each iteration explores facade materiality and construction as a means of creating sheltered external spaces, while maintaining sunlight access and visual permeability.

All Phase One iterations investigate the applied living system without reference to a specific site.

PHASE TWO

Phase Two combines the most successful aspects of the Phase One iterations to develop three final design proposals sited in Wellington Central.

The three sites are in close proximity to one another, but offer a diverse set of site conditions, forcing the applied living system to adapt in response to plot size, solar orientation, relationship to street and proximity to neighbouring buildings.

PURPOSE OF THE DESIGN:

This thesis does not aim to give a single solution for applied living, but rather offers a range of design manifestations to show the flexibility of this system and its ability to respond / adapt to a range of locations and site conditions.

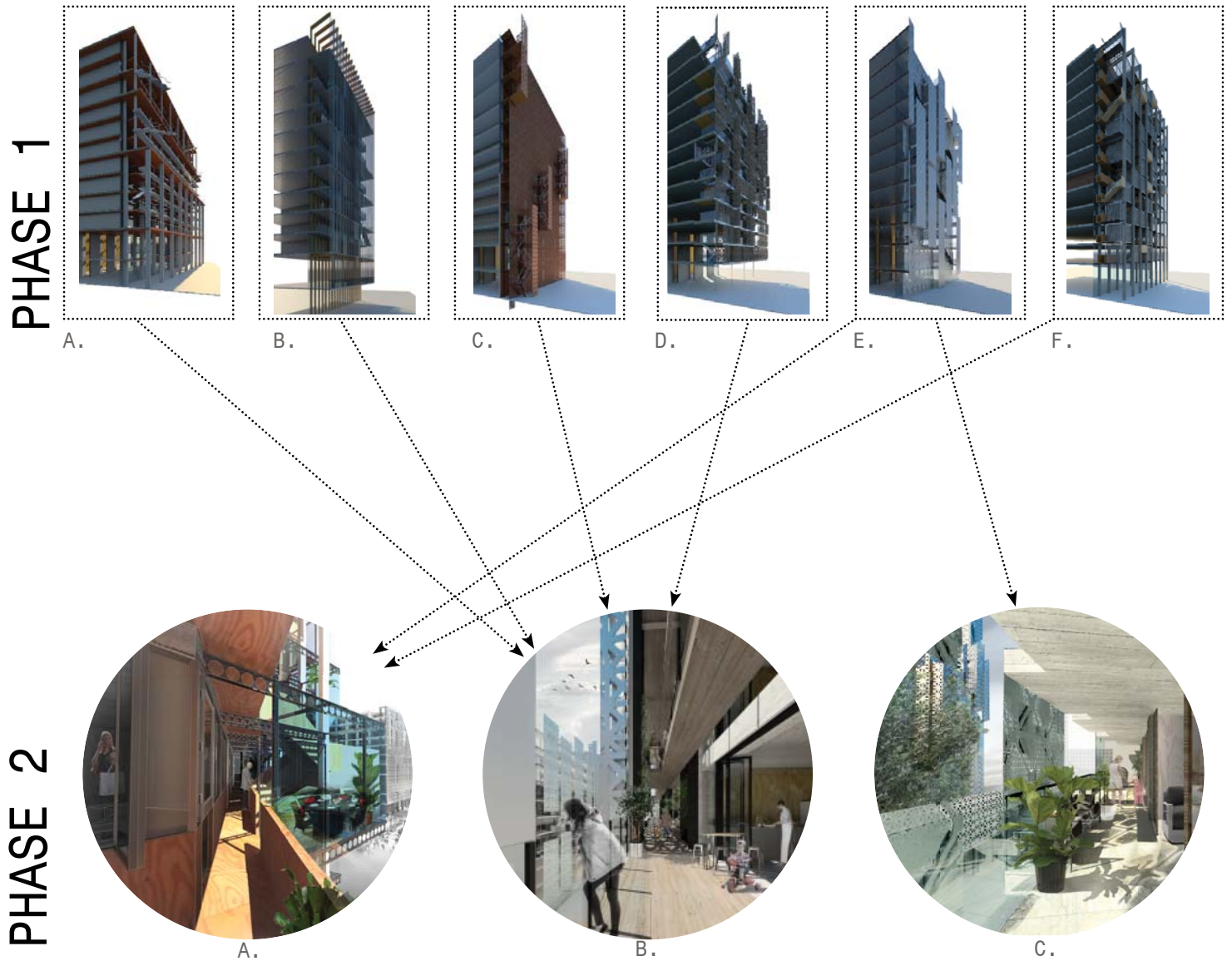


Figure 5.1: Summary diagram of the design applications process, showing Phase One iterations A - F, and their translation into three final design proposals

PHASE 1

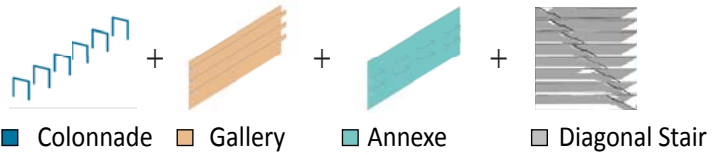
Applied living testing, iterations A - F

1A.

PHASE 1

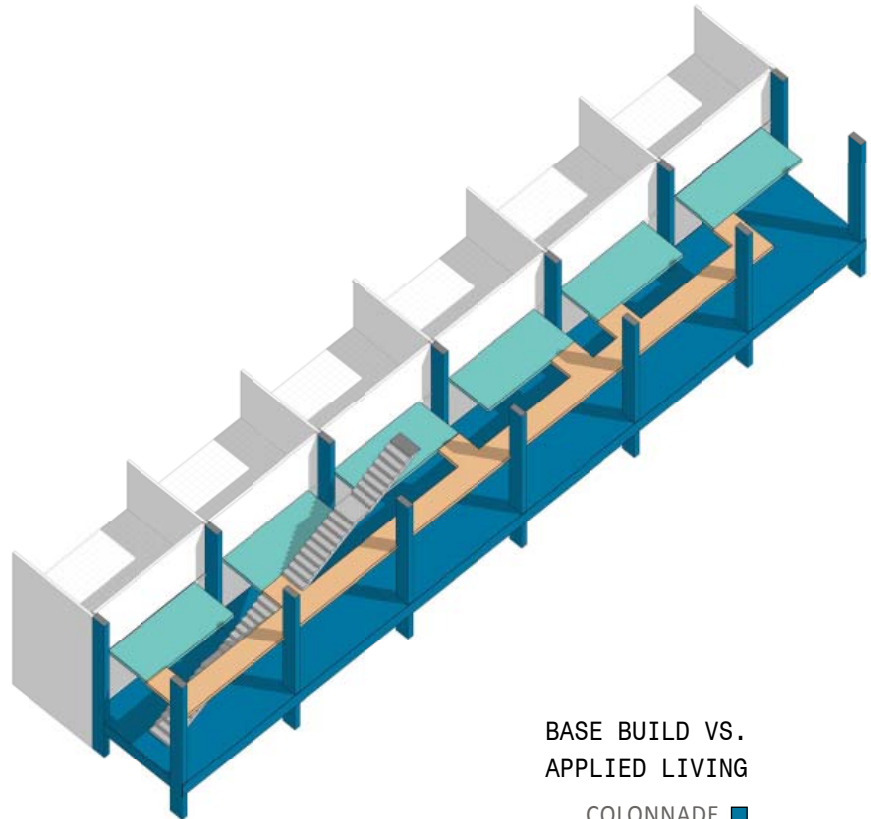
Iteration A

APPLIED LIVING COMBINATION:



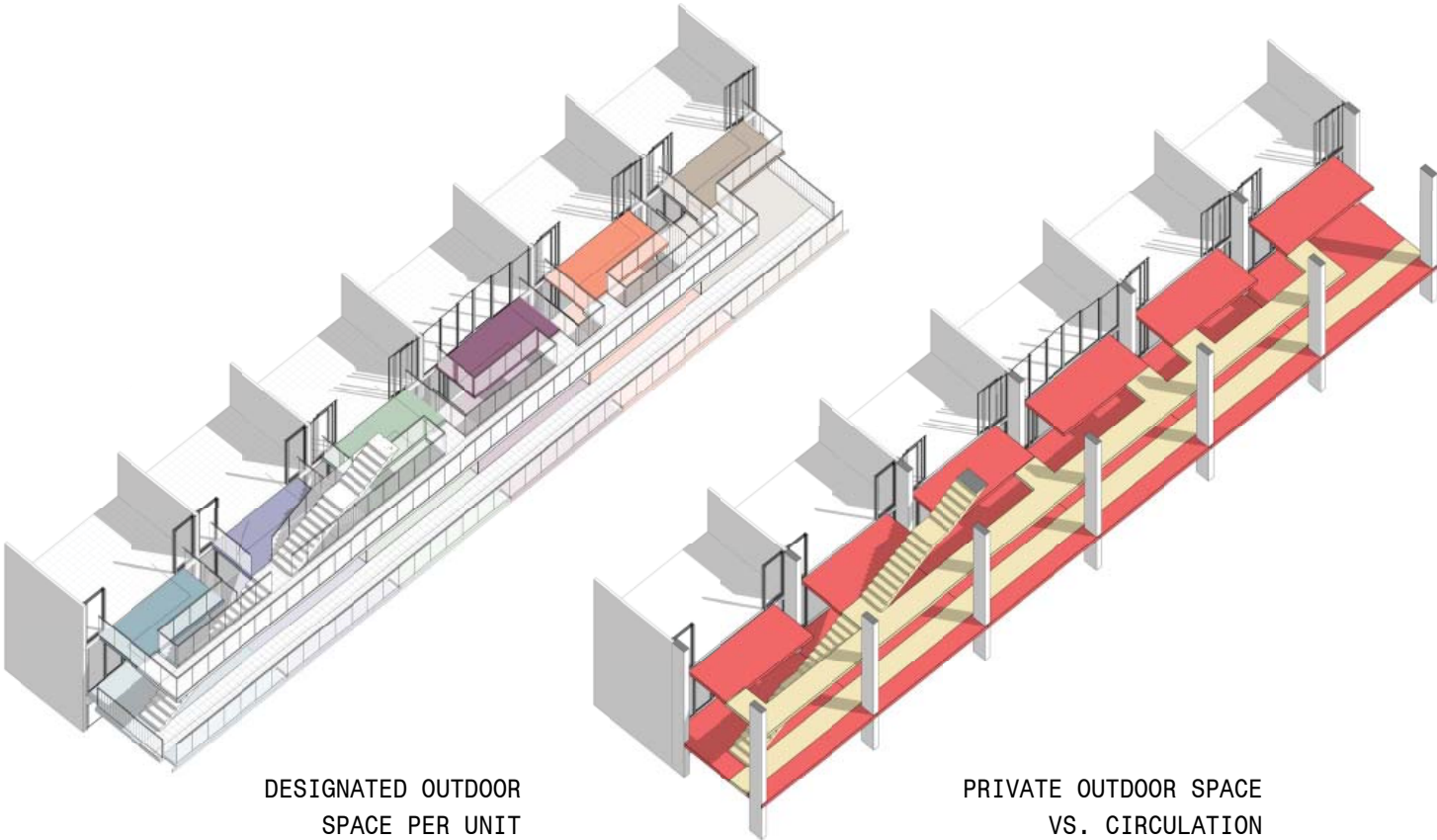
INITIAL SPATIAL RELATIONSHIPS

Iteration 1A combines all three applied living types, and assumes single storey apartments. Each level comprises of either colonnade access with integrated outdoor space, or gallery access with annexe outdoor space.



BASE BUILD VS.
APPLIED LIVING

- COLONNADE ■
- ANNEXE ■
- GALLERY ■
- VERTICAL CIRCULATION ■



DESIGNATED OUTDOOR
SPACE PER UNIT

- | | |
|--------|---------|
| UNIT 1 | UNIT 7 |
| UNIT 2 | UNIT 8 |
| UNIT 3 | UNIT 9 |
| UNIT 4 | UNIT 10 |
| UNIT 5 | UNIT 11 |
| UNIT 6 | UNIT 12 |

PRIVATE OUTDOOR SPACE
VS. CIRCULATION

- | |
|-----------------|
| PRIVATE OUTDOOR |
| CIRCULATION |

1A.

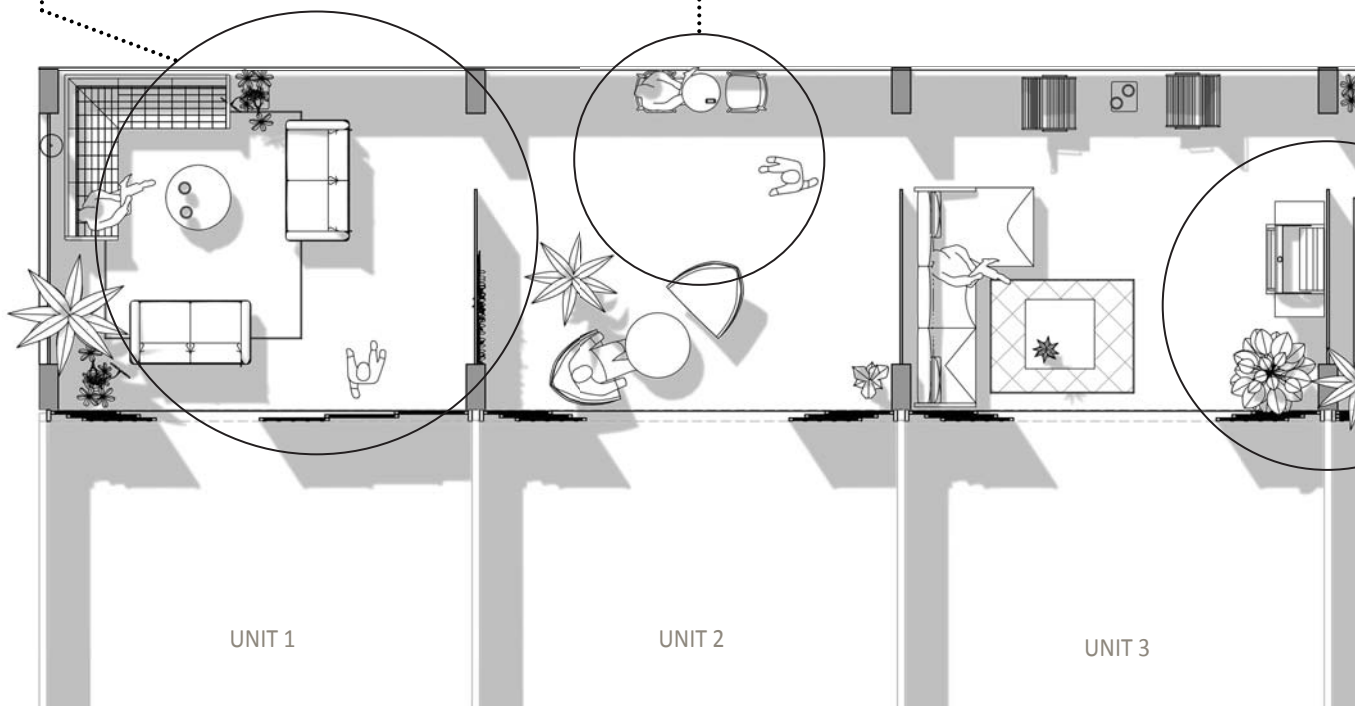
INHABITATION + PROXIMITY

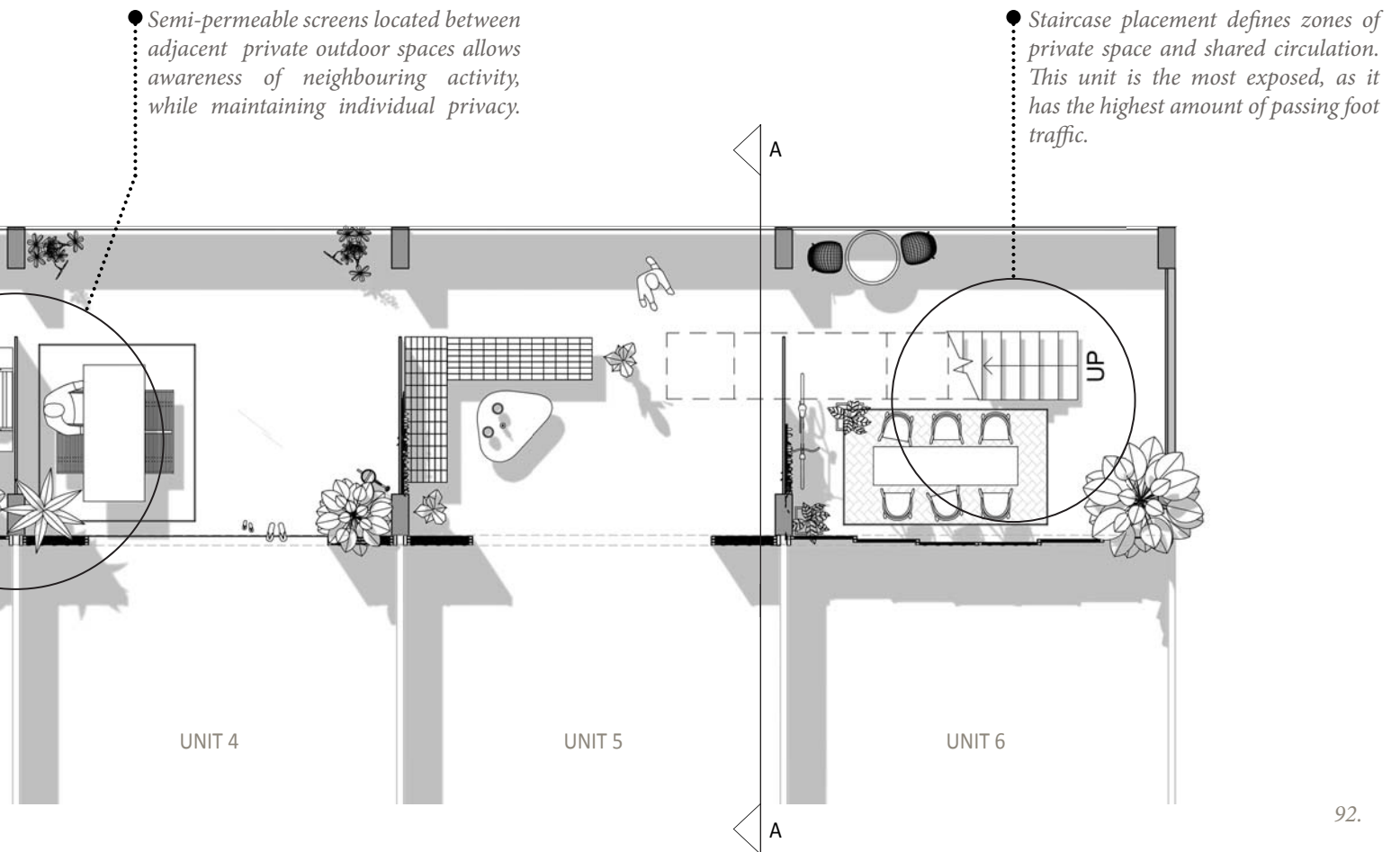
Level 2 Plan

Scale: 1:100

● The unit furthest from staircase entry has the greatest amount of privacy.

● Proximity between private social spaces and circulation allows casual tenant interaction.





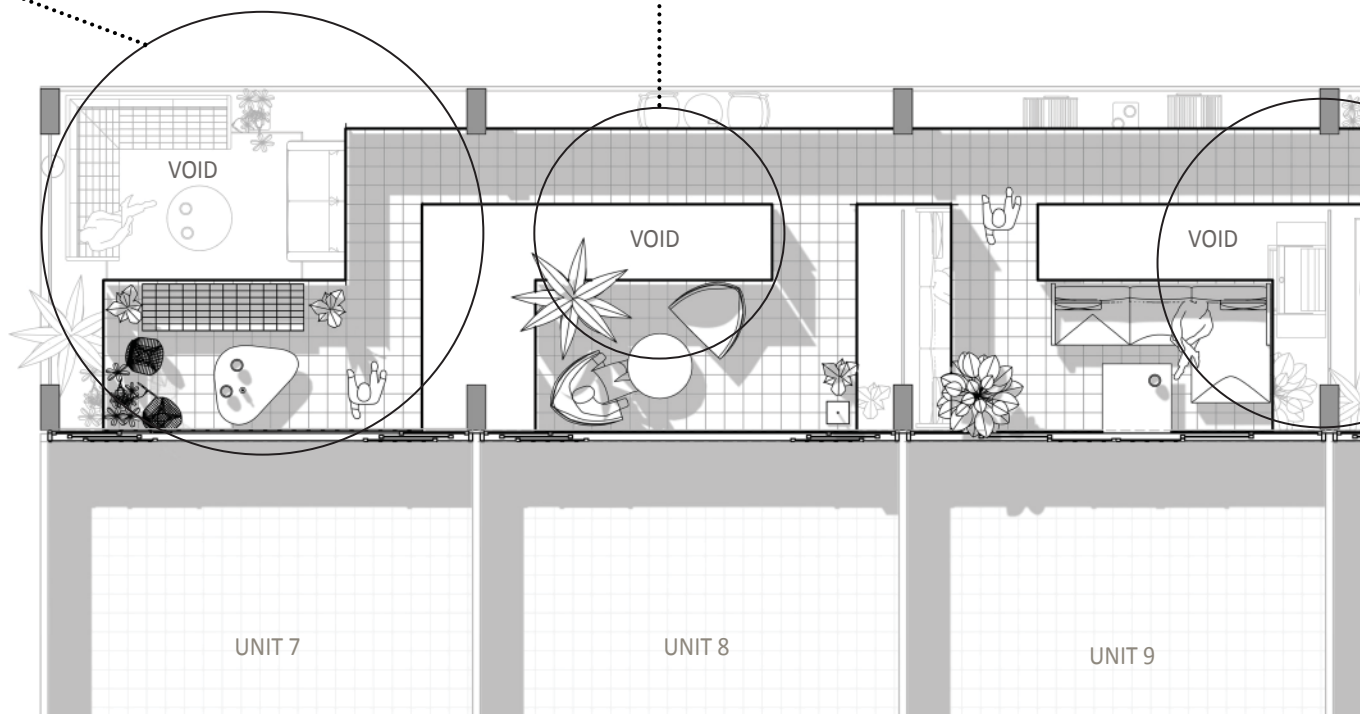
1A.

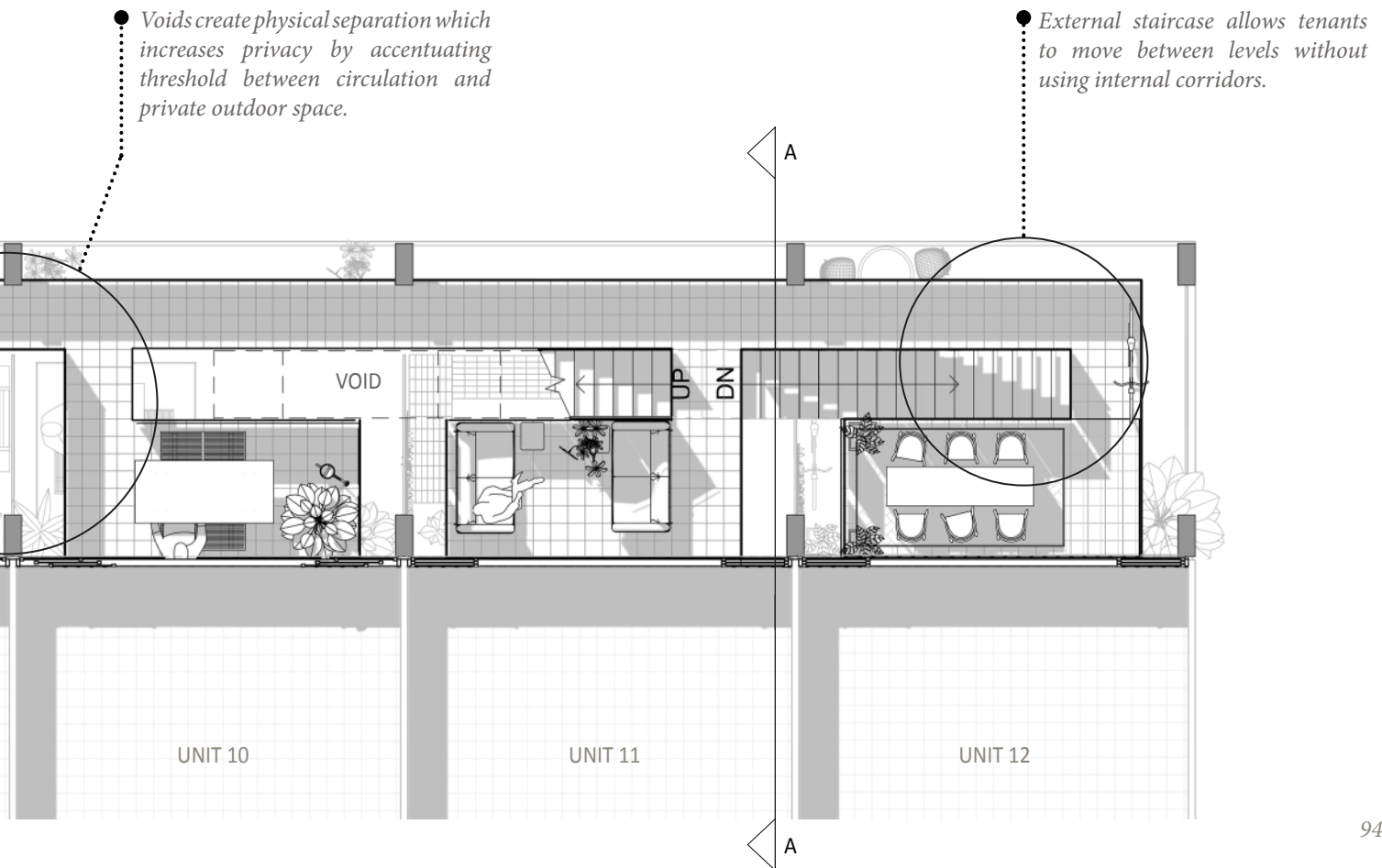
INHABITATION
+ PROXIMITY

Level 3 Plan
Scale: 1:100

● Voids to lower level allow visual awareness of neighbouring activity below.

● Voids provide a sense of height and spaciousness, and allow sunlight penetration to lower levels.



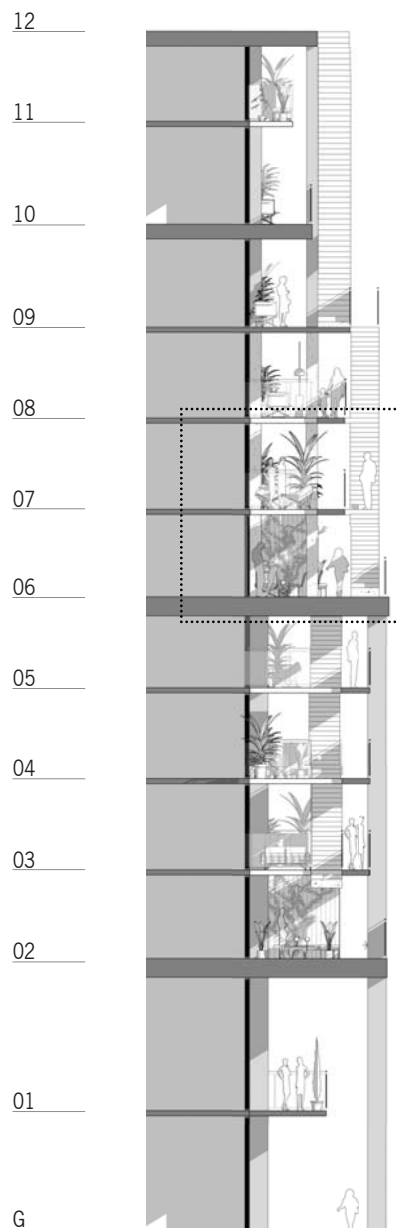


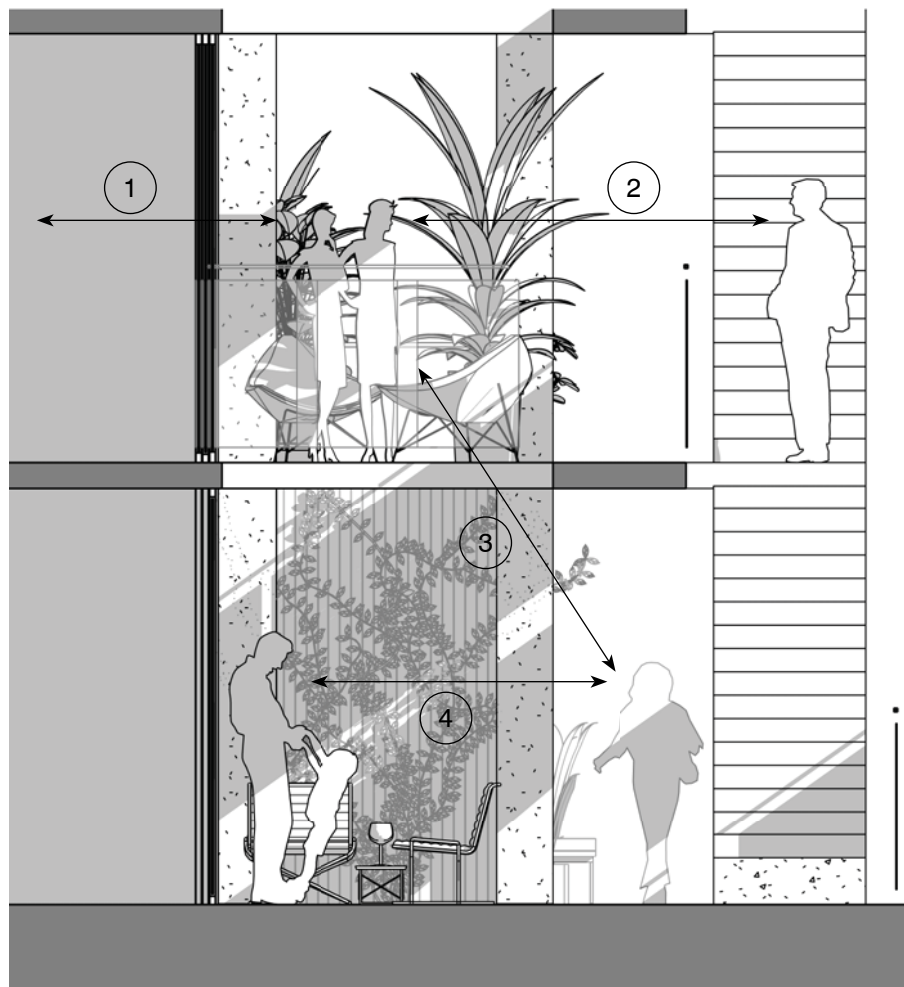
·1A·

INTERACTION
VS. PRIVACY

Sectional Investigation

- ① *Direct connection between private interior and private outdoor space.*
- ② *Visual awareness of vertical circulation from private outdoor space. Chance interactions between tenants may occur here.*
- ③ *Visual connection between outdoor space at different levels.*
- ④ *Outdoor space directly adjacent to circulation area, promoting tenant interaction.*





1A.

MATERIALITY +
FACADE COMPOSITION

Rendered / Elevational
Investigations

Potential for communal rooftop
area which can be accessed via
external staircases.

Colonnade used to express
verticality.

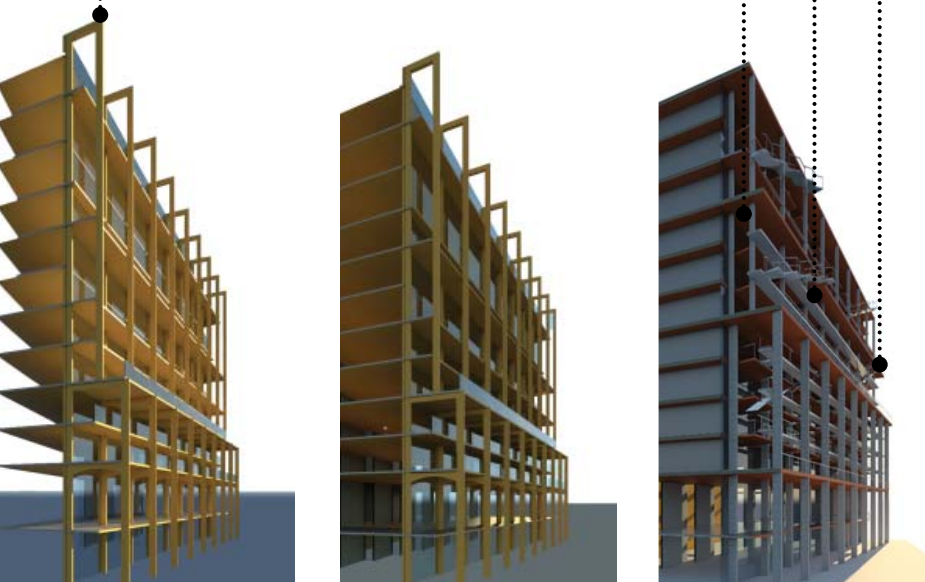
Timber ceiling offers some
materiality as feature.
Greater experimentation
with facade elements
should occur in subsequent
iterations, as this facade is
visually cluttered.

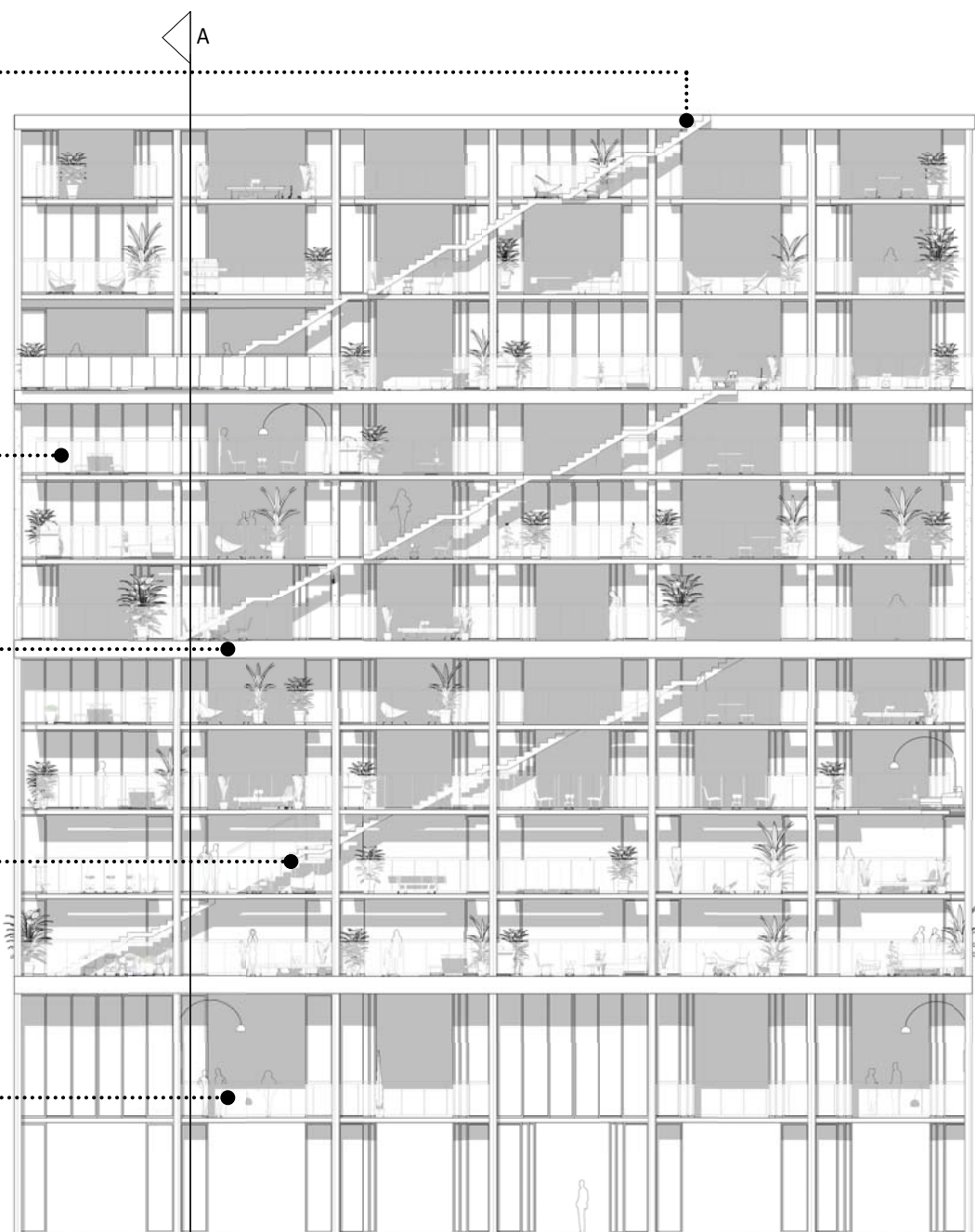
Lack of shelter may cause
external living spaces to be
cold and windy.

Floor thickened to differentiate
colonnade levels from annexe
/ gallery levels.

Stairs placed at building edge
is not ideal, as staircases receive
more sunlight than private
outdoor space.

Rentable ground / level 1 spaces
include "annexe" areas which
overhang the public footpath to
enliven pedestrian experience.



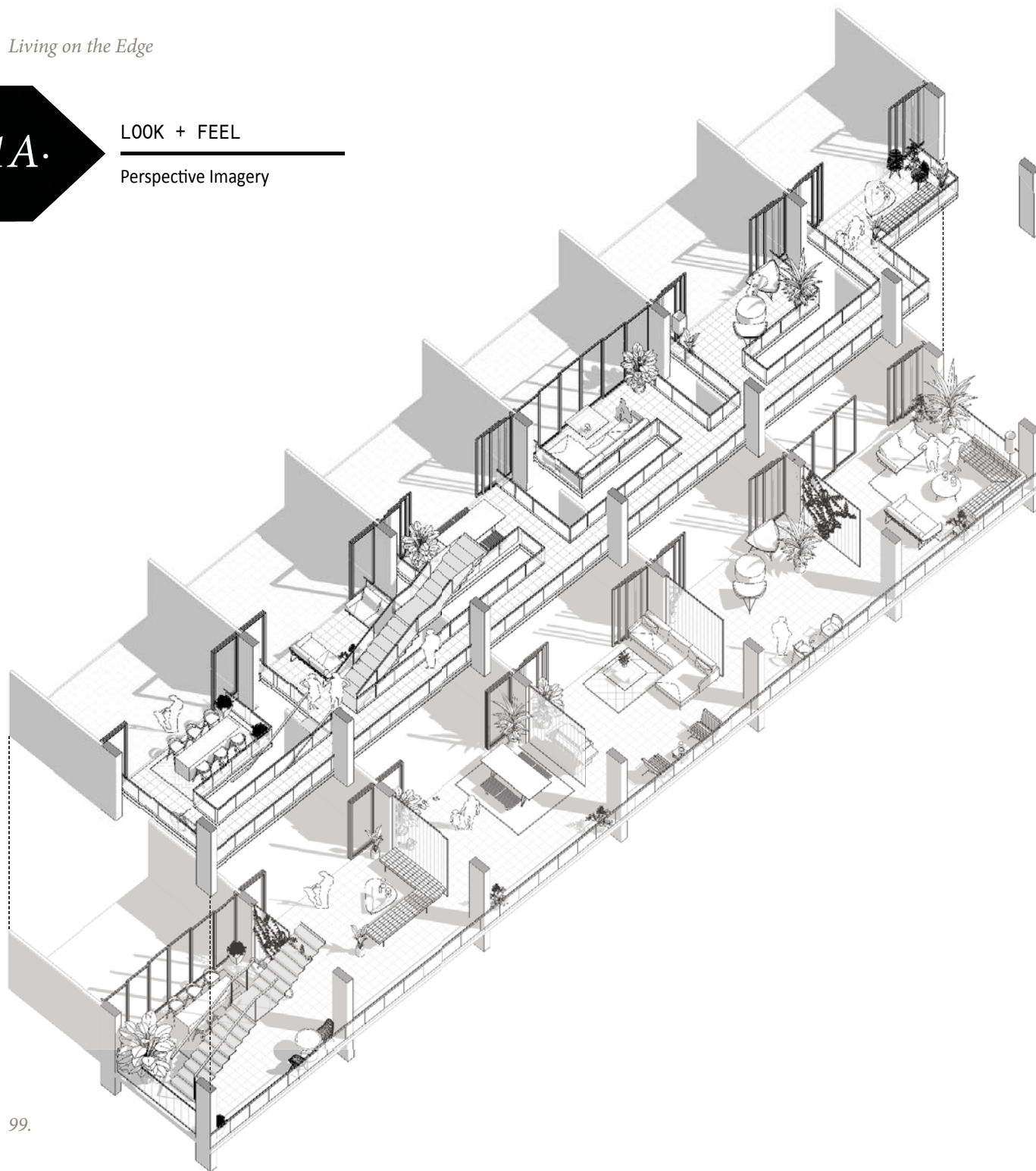


STREET ELEVATION
1 : 250

·1A·

LOOK + FEEL

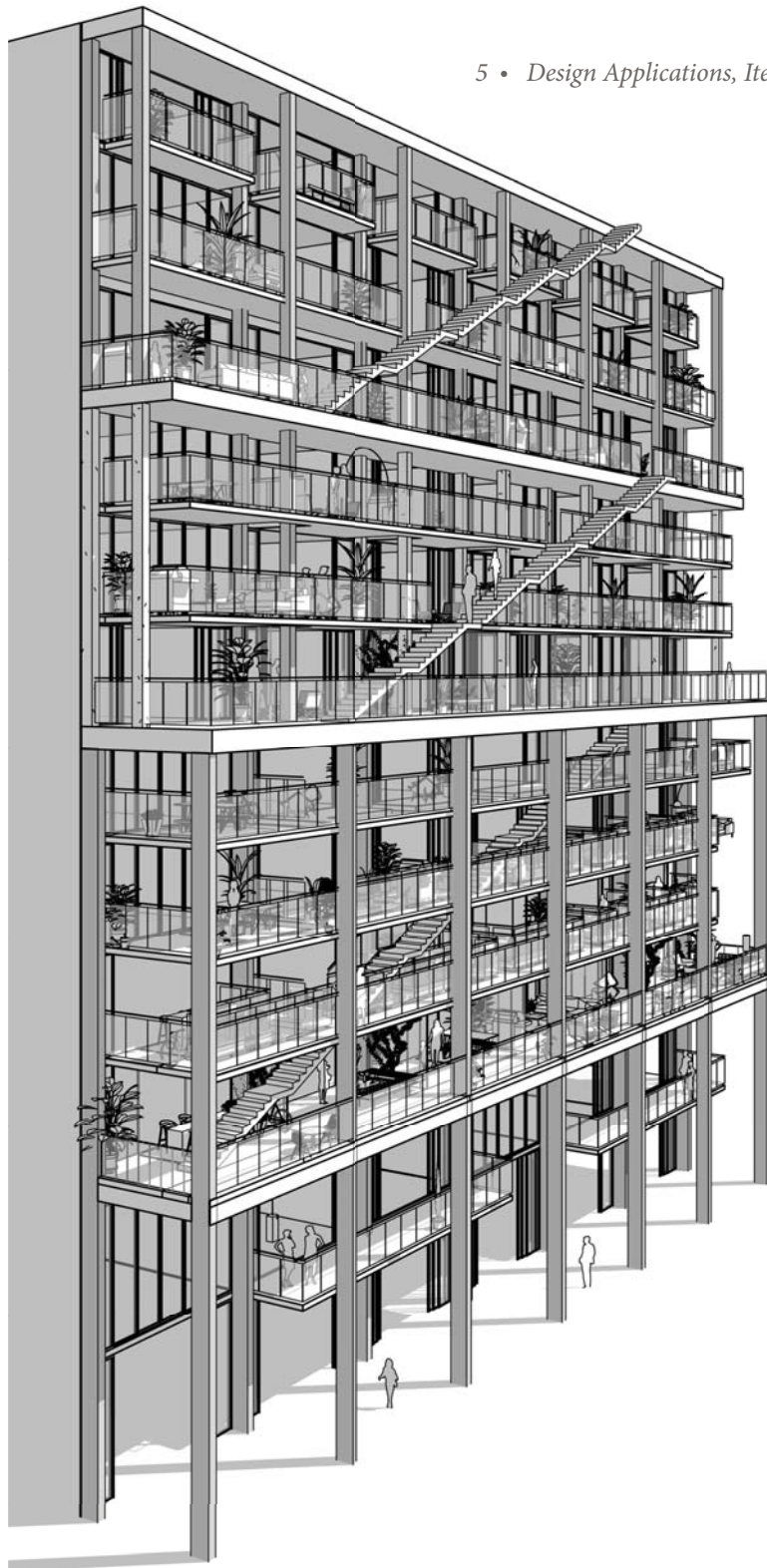
Perspective Imagery



SUMMARY OF LEARNINGS

Iteration A offers interesting vertical relationships between colonnade and annexe spaces.

However, the lack of wind and rain protection may inhibit the use of these spaces. Further experimentation with facade composition required.

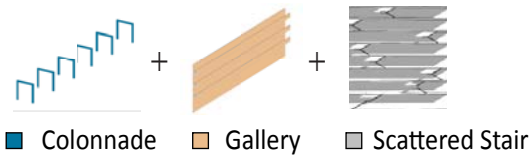


1B.

PHASE 1

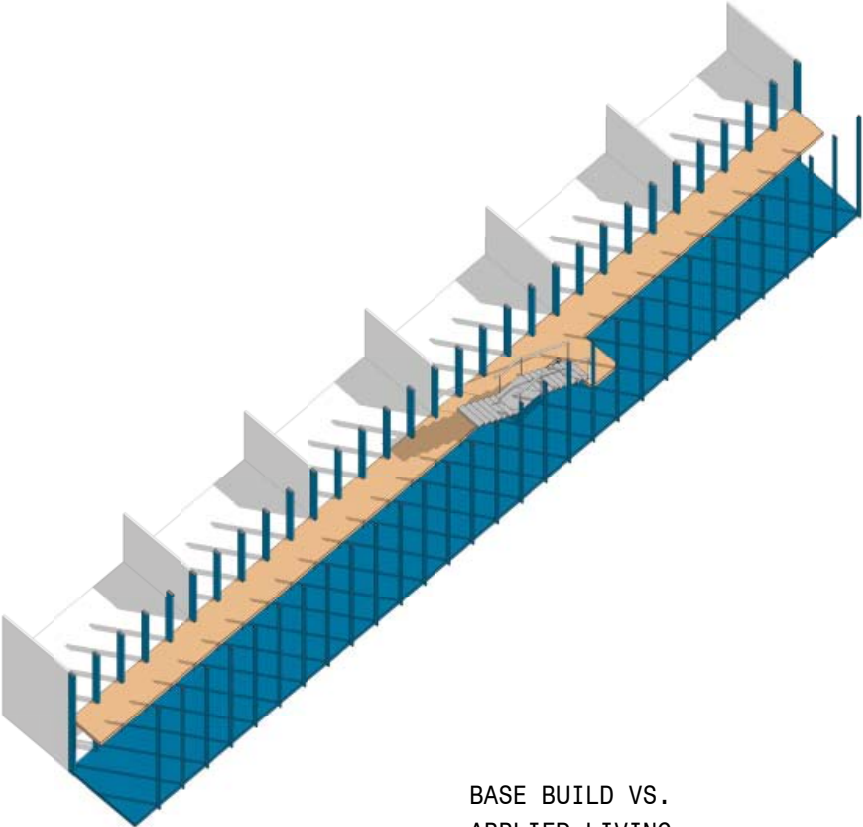
Iteration B

APPLIED LIVING COMBINATION:



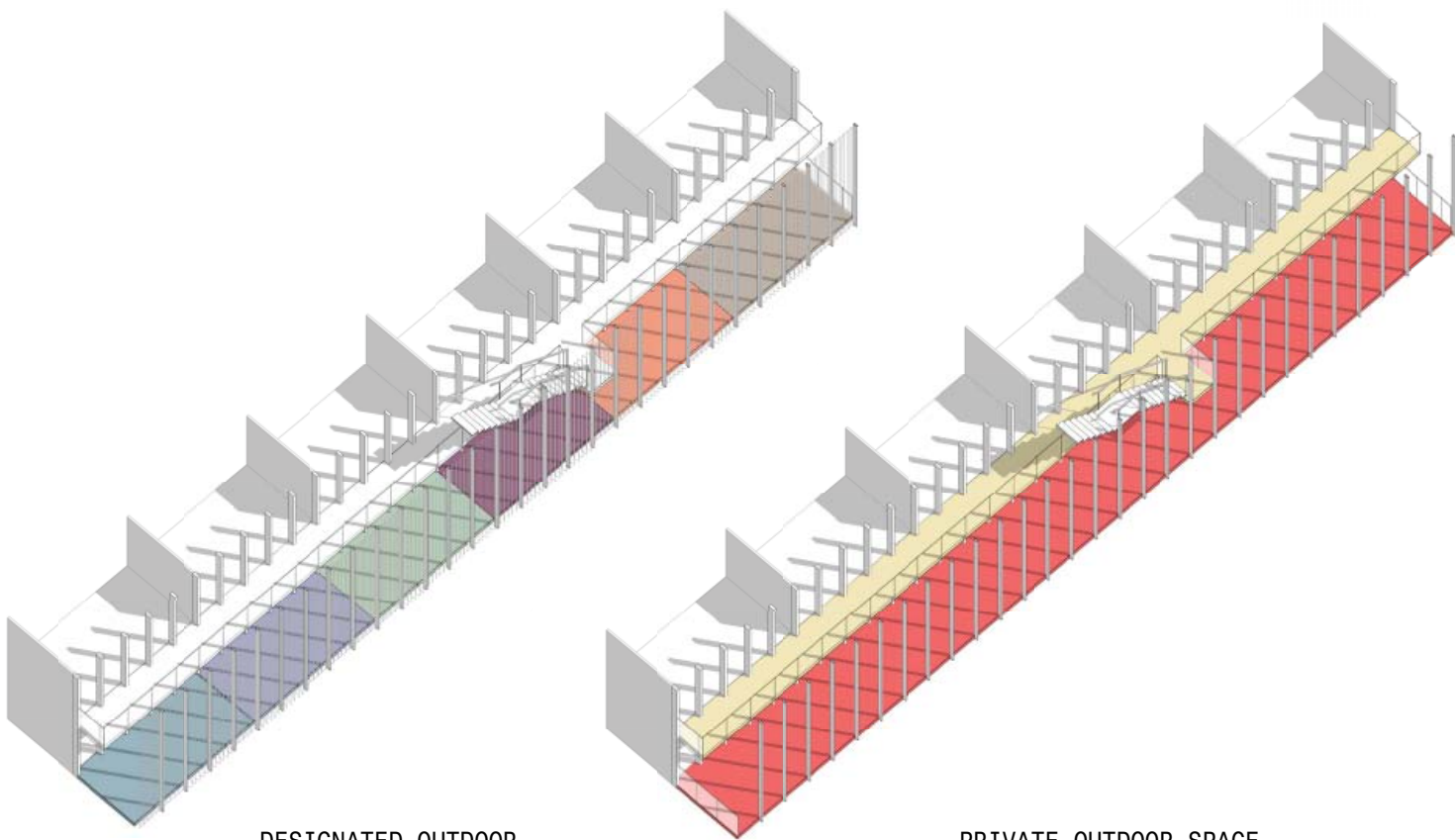
INITIAL SPATIAL RELATIONSHIPS

Iteration 1B combines colonnade and gallery types at alternating levels, and assumes double height maisonette apartments. Each apartment is accessed via the gallery level, with an open colonnade area providing private outdoor space for all units.



BASE BUILD VS.
APPLIED LIVING

- COLONNADE ■
- ANNEXE ■
- GALLERY ■
- VERTICAL CIRCULATION ■



DESIGNATED OUTDOOR
SPACE PER UNIT

- | | |
|--------|---------|
| UNIT 1 | UNIT 7 |
| UNIT 2 | UNIT 8 |
| UNIT 3 | UNIT 9 |
| UNIT 4 | UNIT 10 |
| UNIT 5 | UNIT 11 |
| UNIT 6 | UNIT 12 |

PRIVATE OUTDOOR SPACE
VS. CIRCULATION

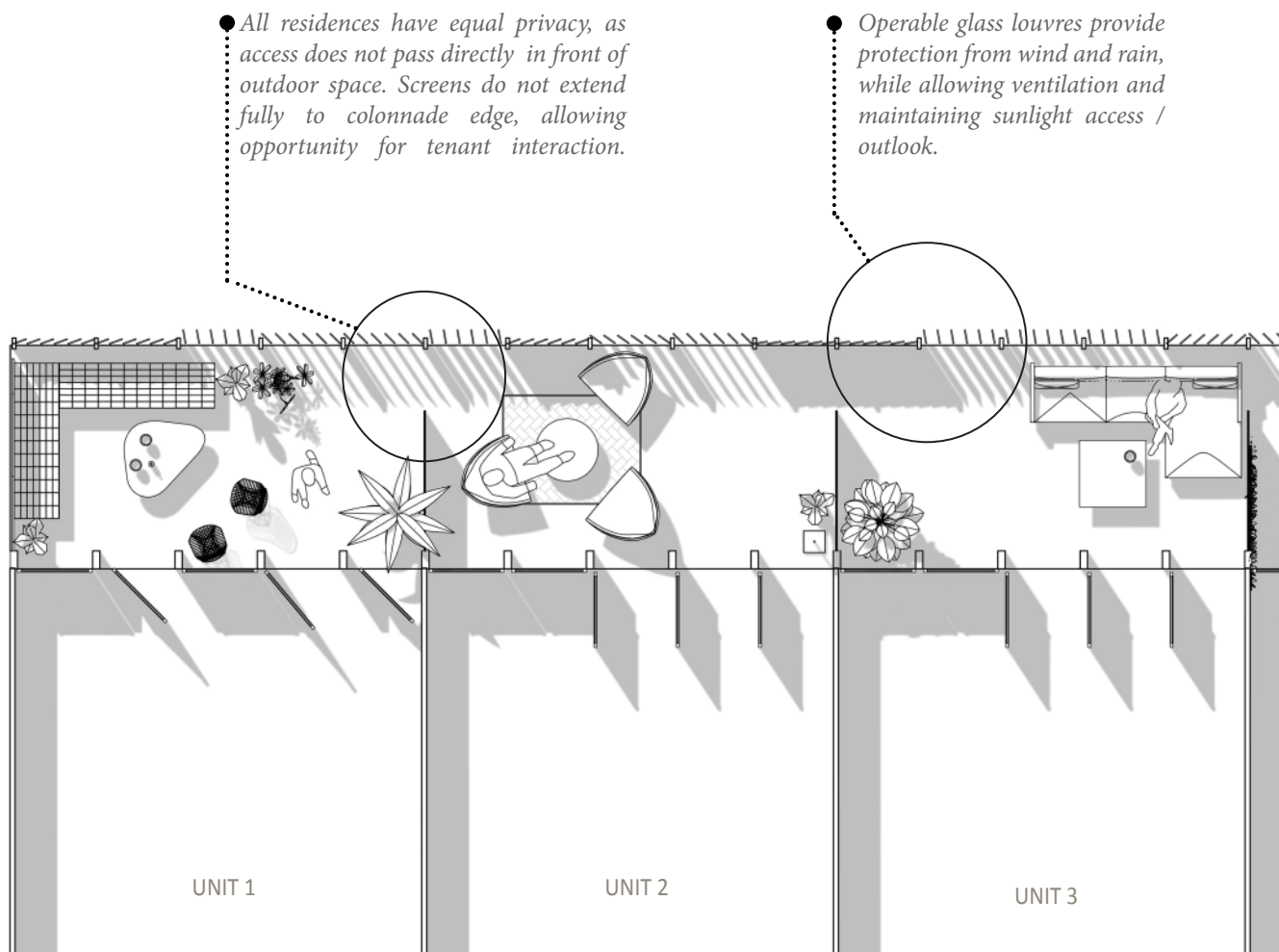
- | |
|-----------------|
| PRIVATE OUTDOOR |
| CIRCULATION |

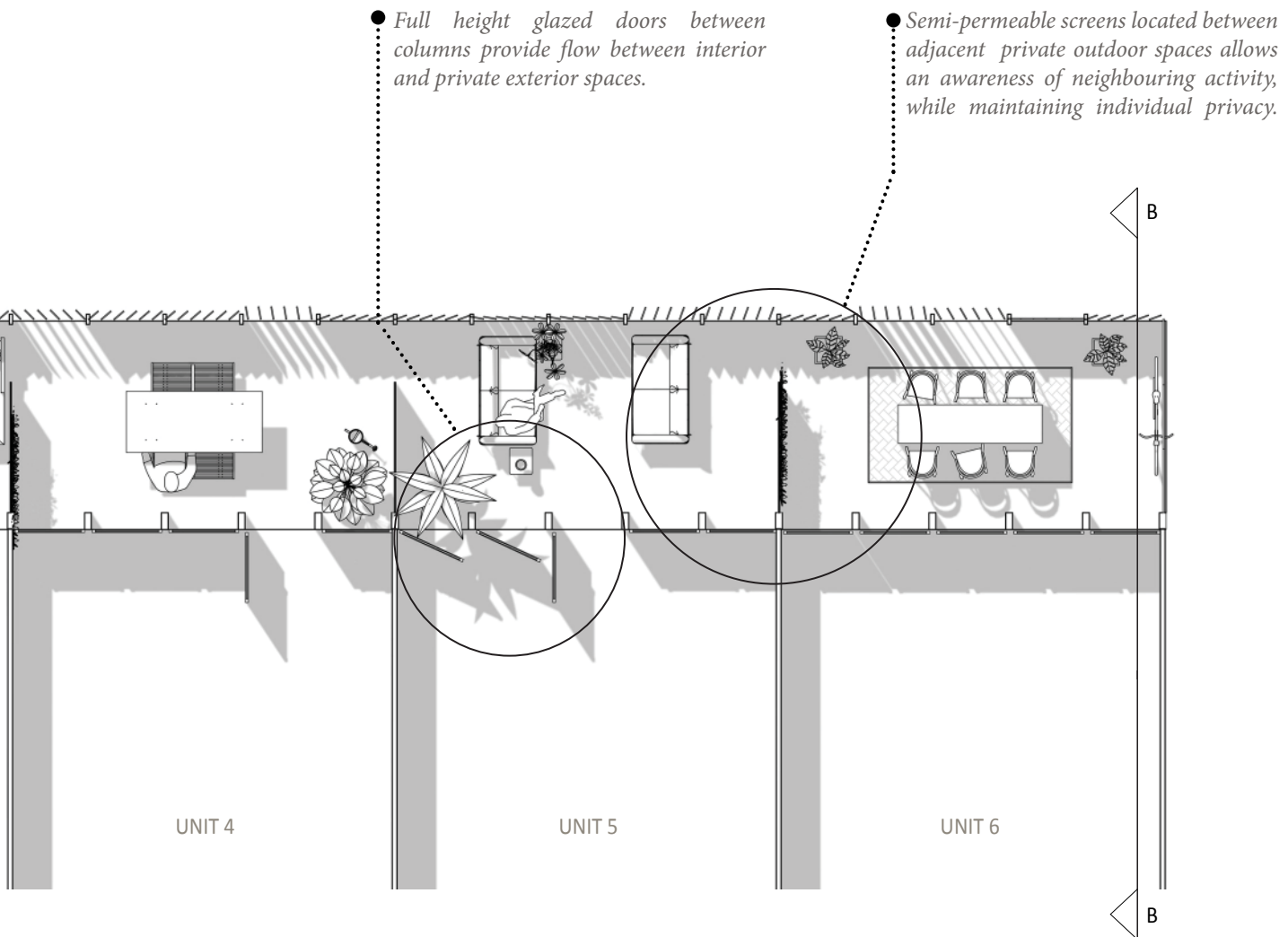
1B.

INHABITATION + PROXIMITY

Level 8 Plan: colonnade level

Scale: 1:100



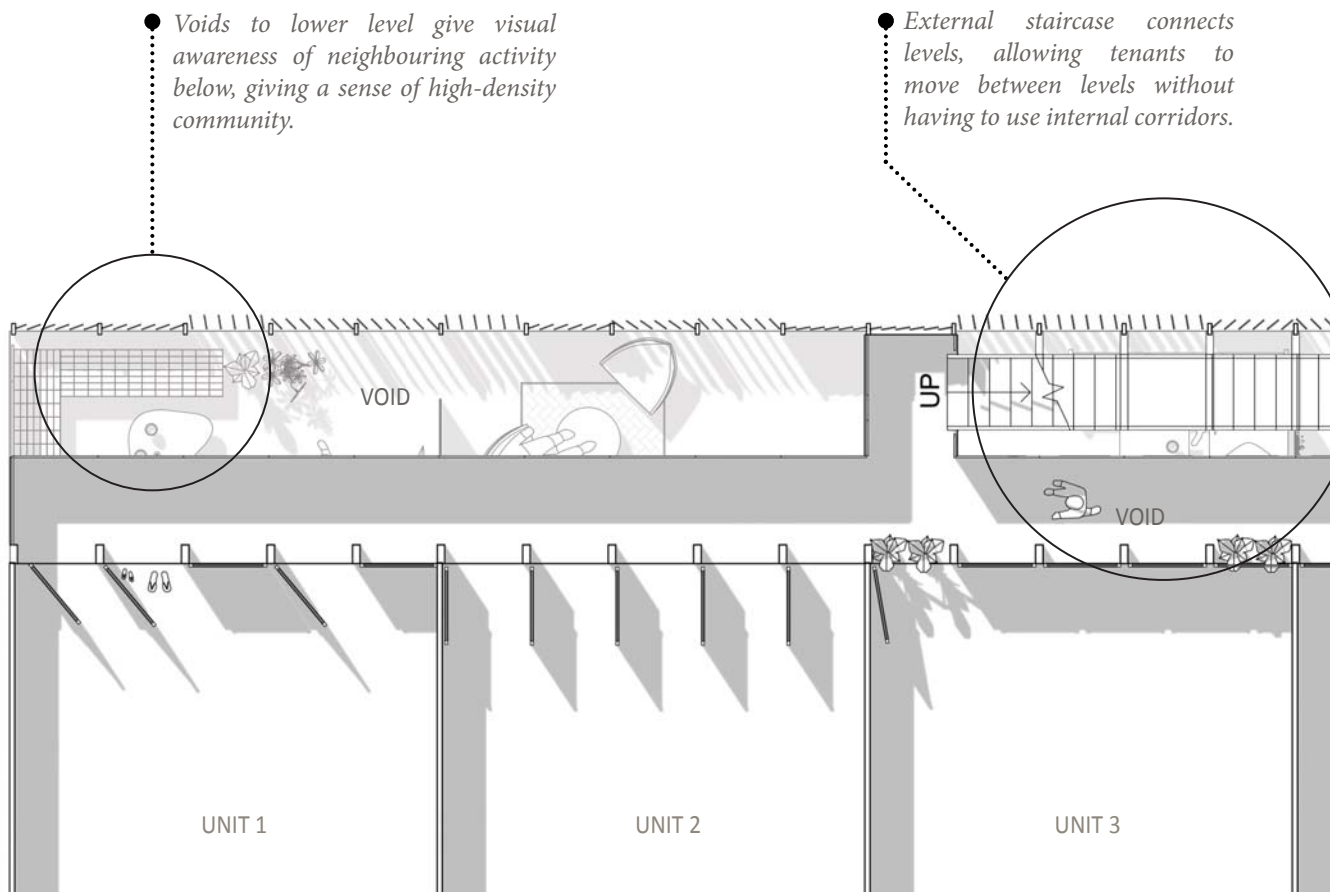


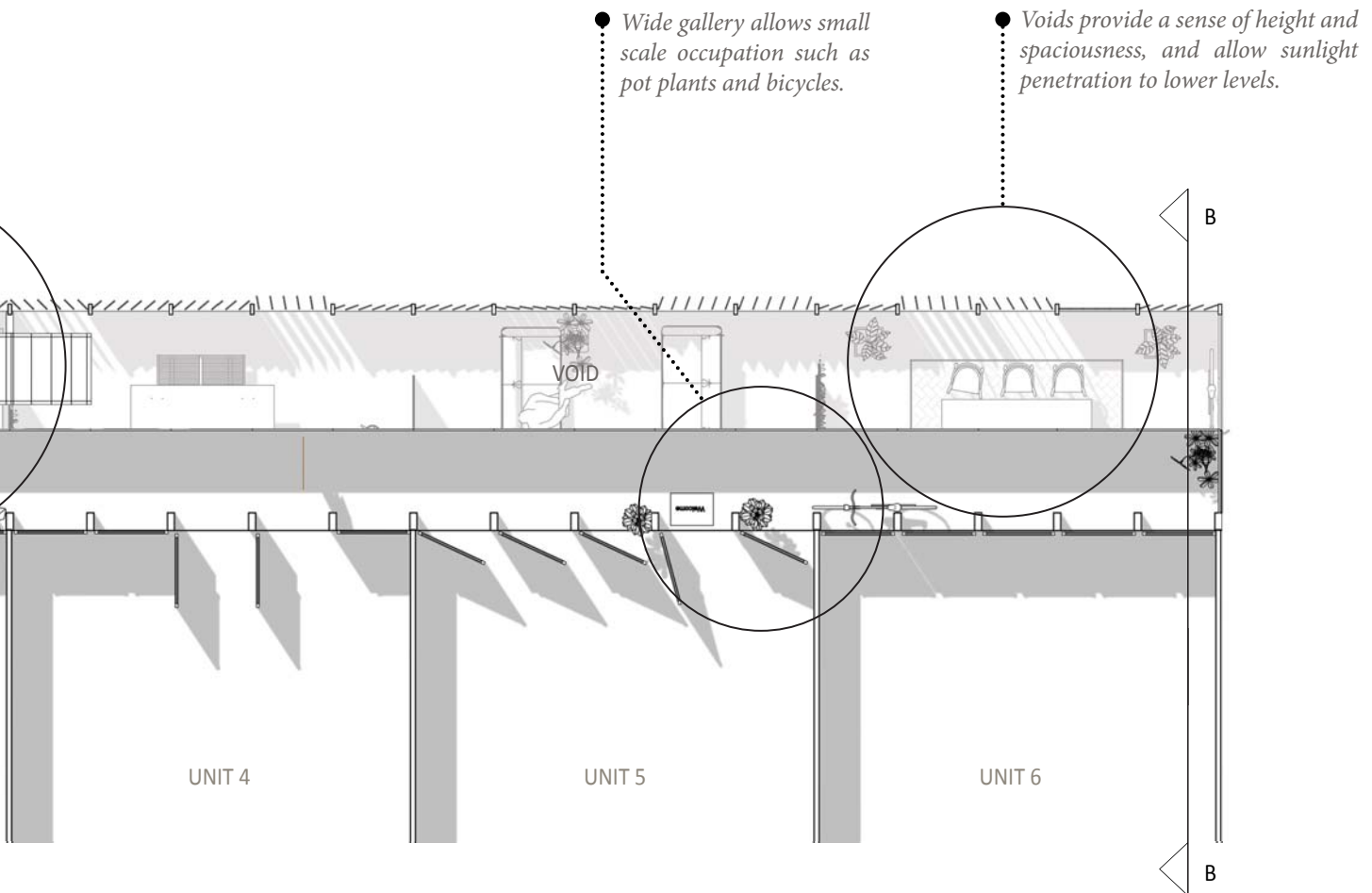
1B.

INHABITATION + PROXIMITY

Level 9 Plan: gallery access level

Scale: 1:100



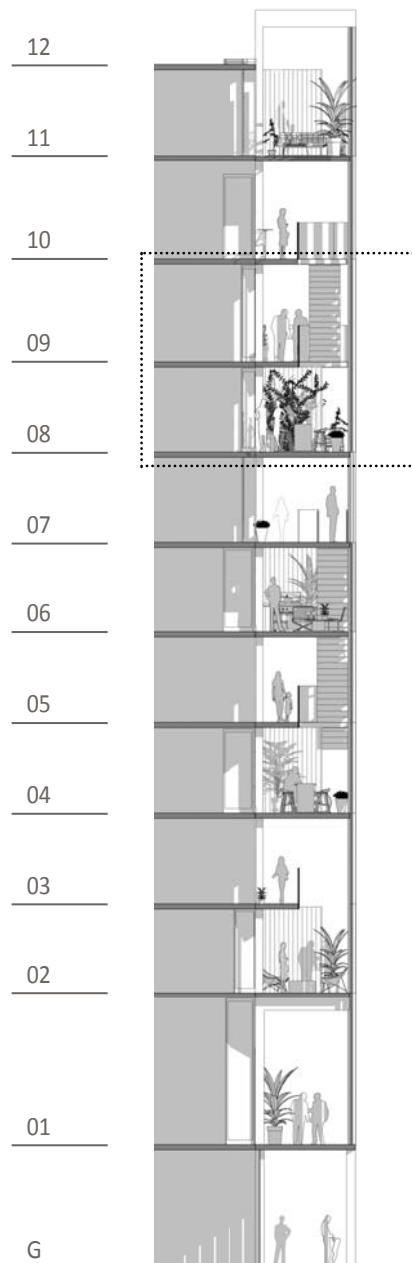


1B.

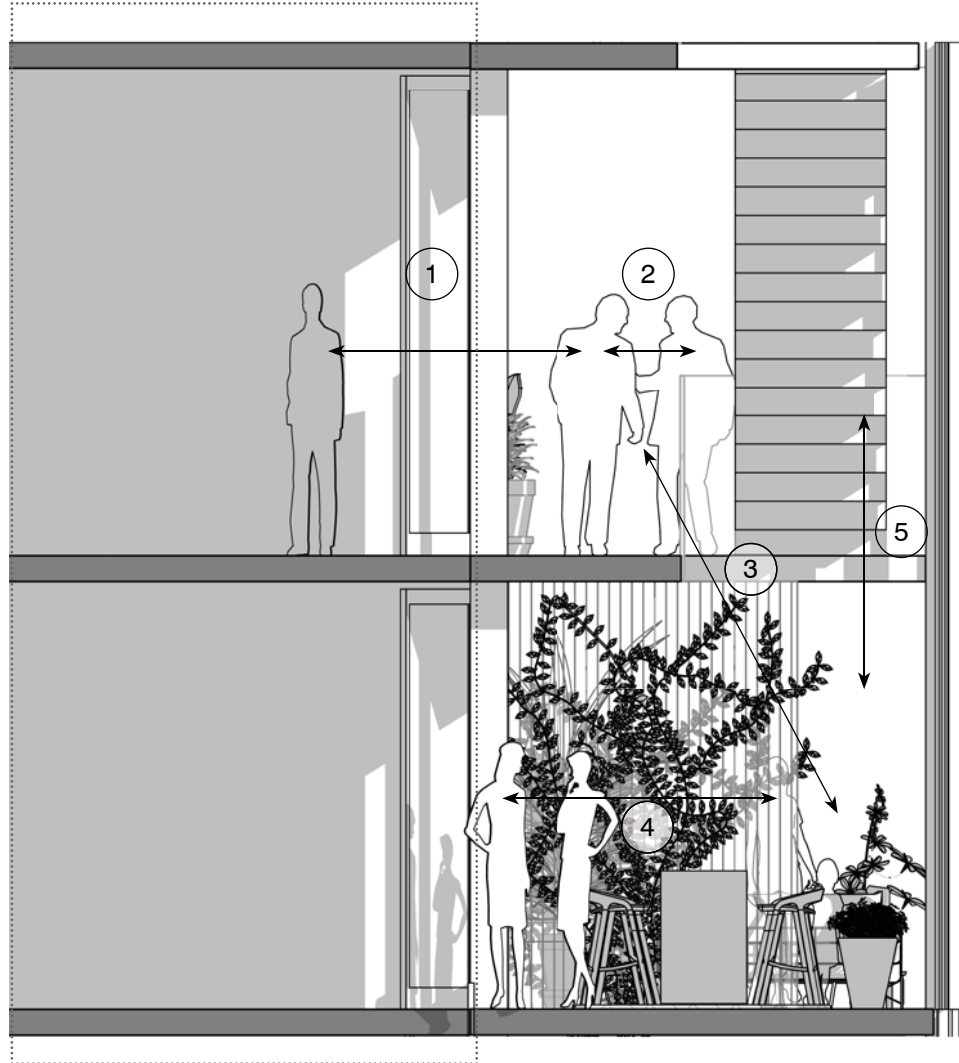
INTERACTION
VS. PRIVACY

Sectional Investigation

- ① *Direct connection between private interior and circulation space.*
- ② *Chance interactions between tenants at circulation to stair interface.*
- ③ *Visual connection between outdoor space at different levels.*
- ④ *Visual connection between neighbouring outdoor spaces.*
- ⑤ *Visual awareness of vertical circulation from private outdoor space.*



PRIVATE INTERIOR



DETAILED SECTION
1 : 50

1B.

MATERIALITY +
FACADE COMPOSITION

Rendered / Elevational
Investigations

*Combination of vertical
colonnade, protruding spiral
stairs and cross bracing is too
many visual elements.*

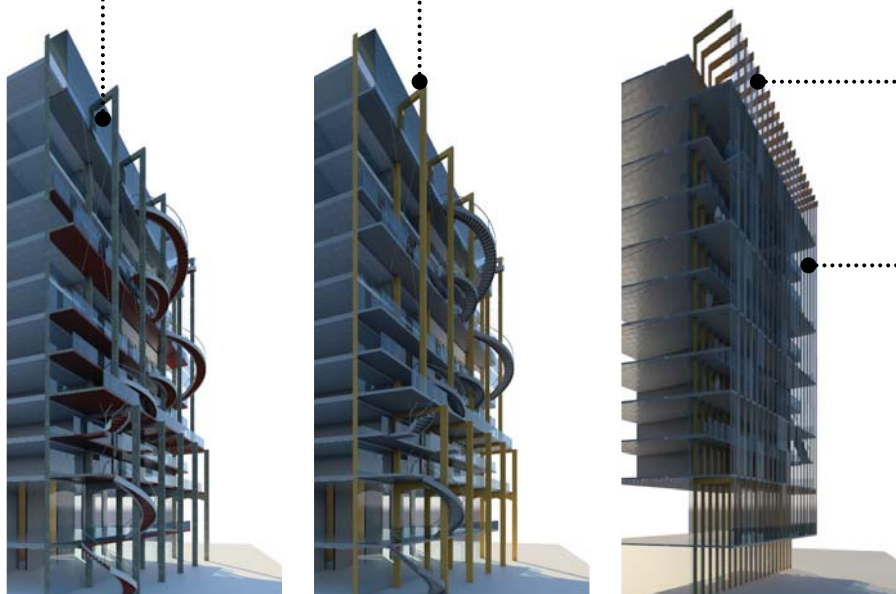
*Colonnade accentuated by
different materiality, but still
too many visual elements.
Facade also needs greater
protection from weather
conditions.*

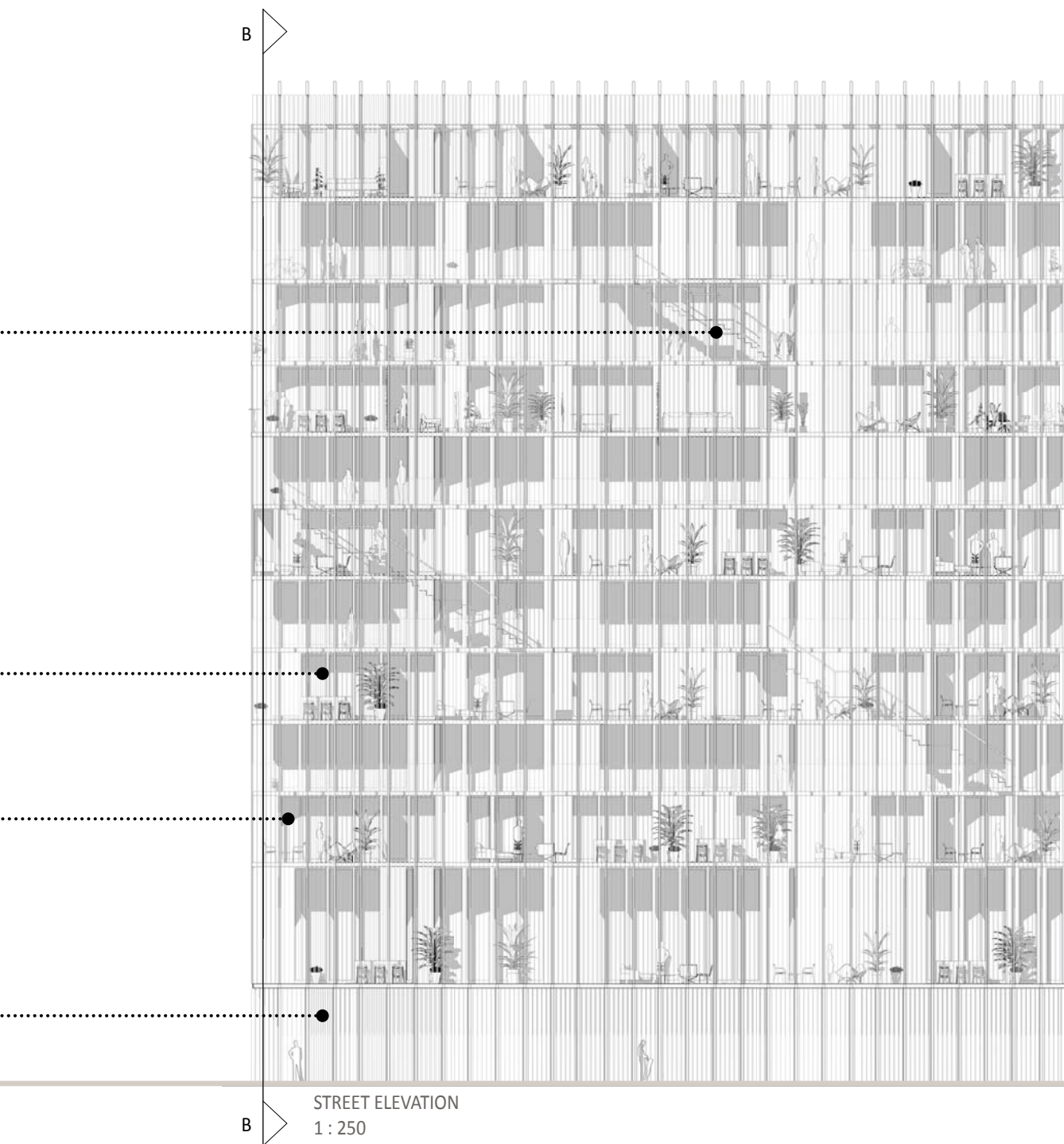
*External staircases connect
galleries at adjacent levels,
making neighbourhoods within
the building of 12 units.*

*Columns placed at close centres
to accentuate verticality in
exterior aesthetic.*

*Vertical glass louvres provide
protection from rain and wind.*

Rentable ground level.

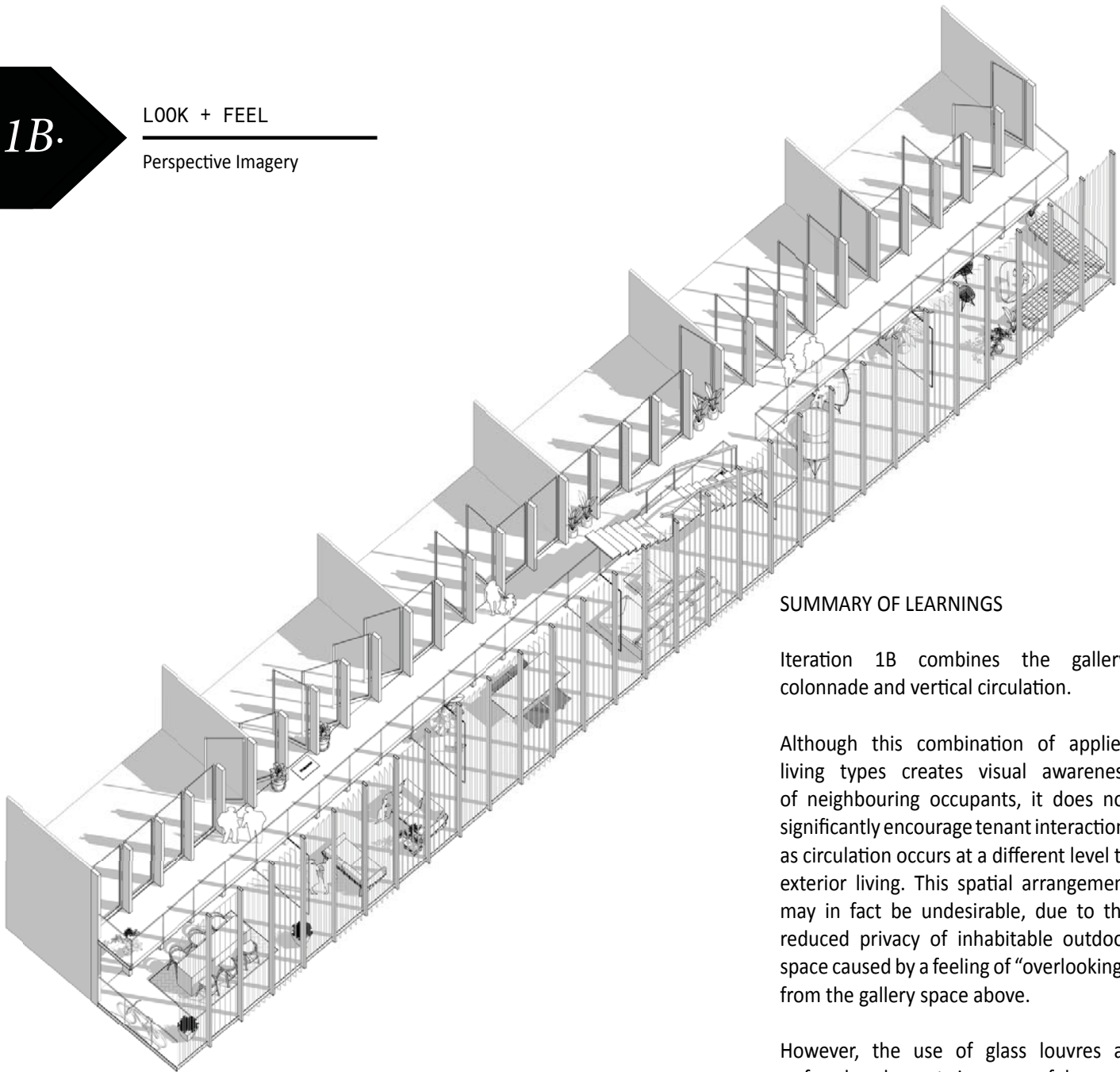




1B.

LOOK + FEEL

Perspective Imagery



SUMMARY OF LEARNINGS

Iteration 1B combines the gallery, colonnade and vertical circulation.

Although this combination of applied living types creates visual awareness of neighbouring occupants, it does not significantly encourage tenant interaction, as circulation occurs at a different level to exterior living. This spatial arrangement may in fact be undesirable, due to the reduced privacy of inhabitable outdoor space caused by a feeling of “overlooking” from the gallery space above.

However, the use of glass louvers as a facade element is successful, as it creates a winter garden type outdoor living area, sheltered from wind and rain.

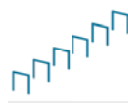


.1C.

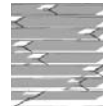
PHASE 1

Iteration C

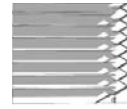
APPLIED LIVING COMBINATION:



+



+

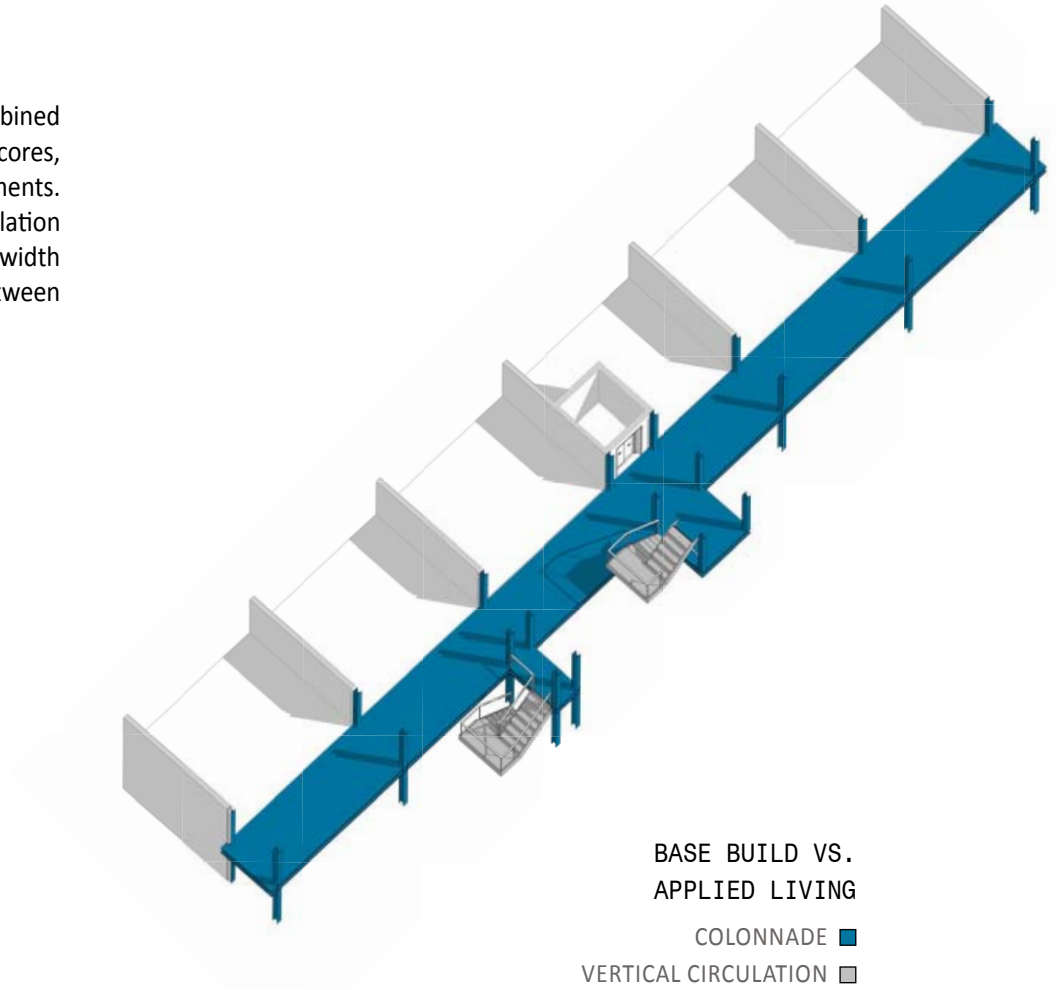


■ Colonnade

■ Scattered Stair ■ Vertical Core

INITIAL SPATIAL RELATIONSHIPS

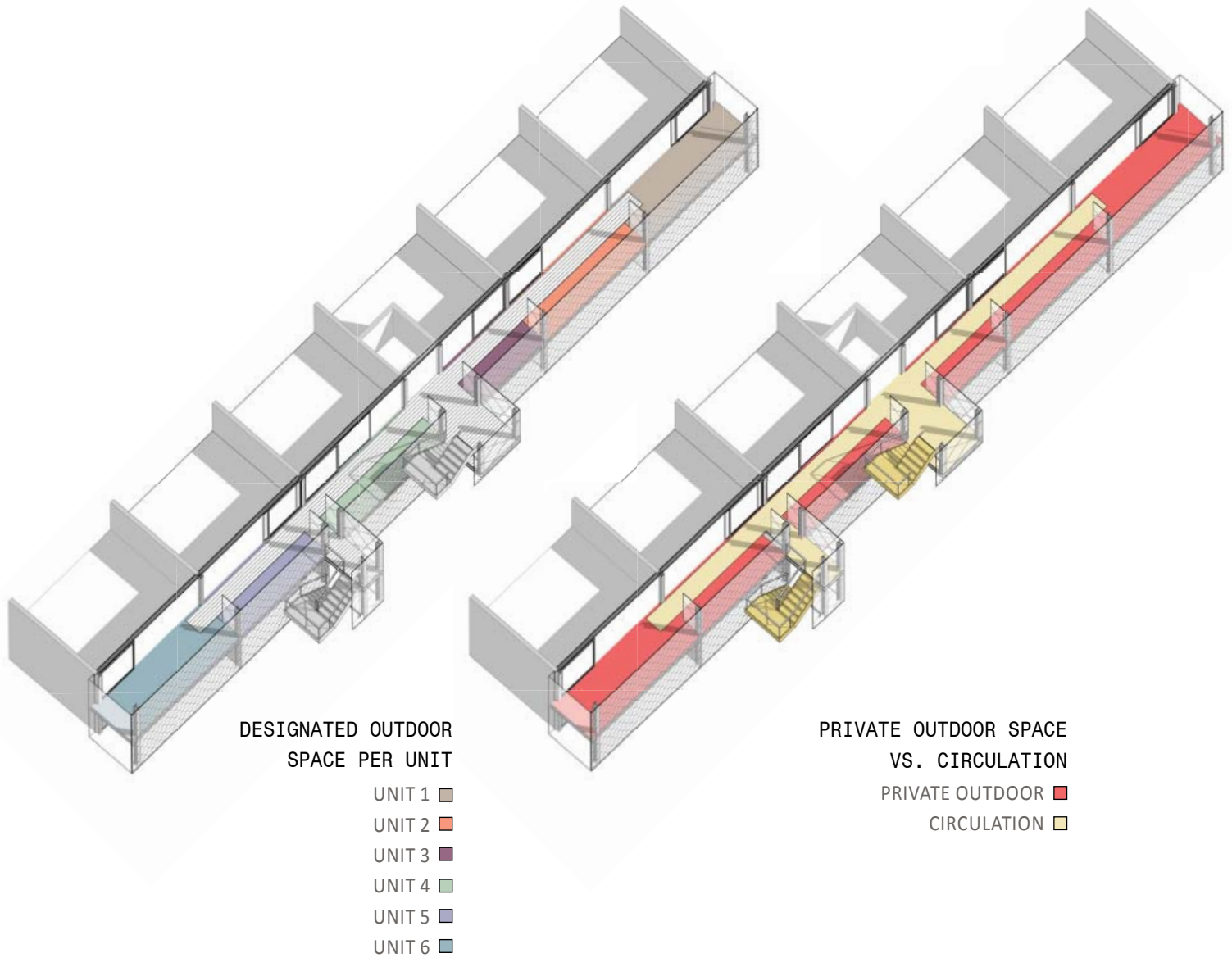
Iteration 1C uses the colonnade combined with scattered vertical circulation cores, and assumes single storey apartments. The colonnade has a nominal circulation width, and allows inhabitation the width of a wide chair or small table between columns.



BASE BUILD VS.
APPLIED LIVING

COLONNADE ■

VERTICAL CIRCULATION ■

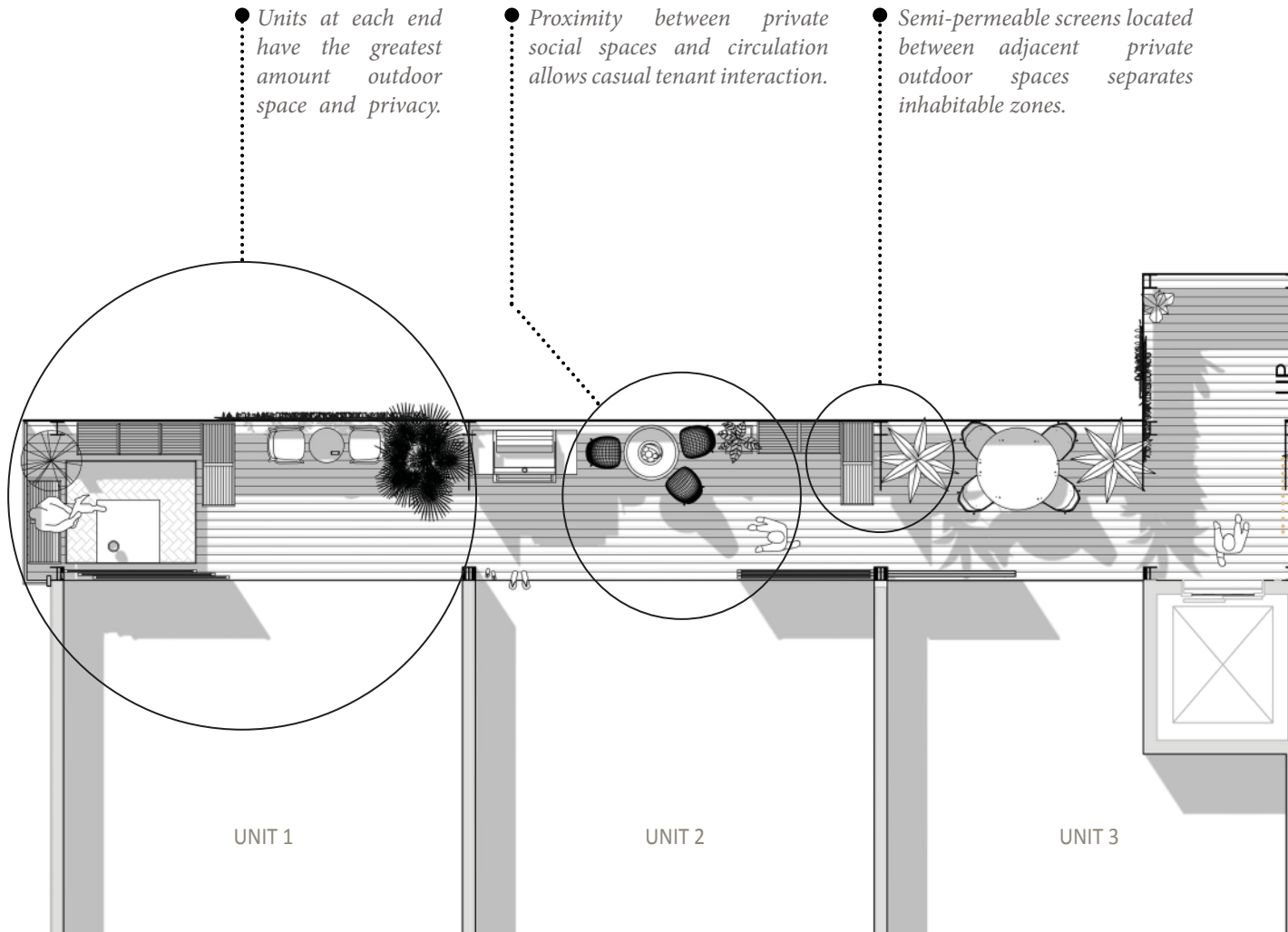


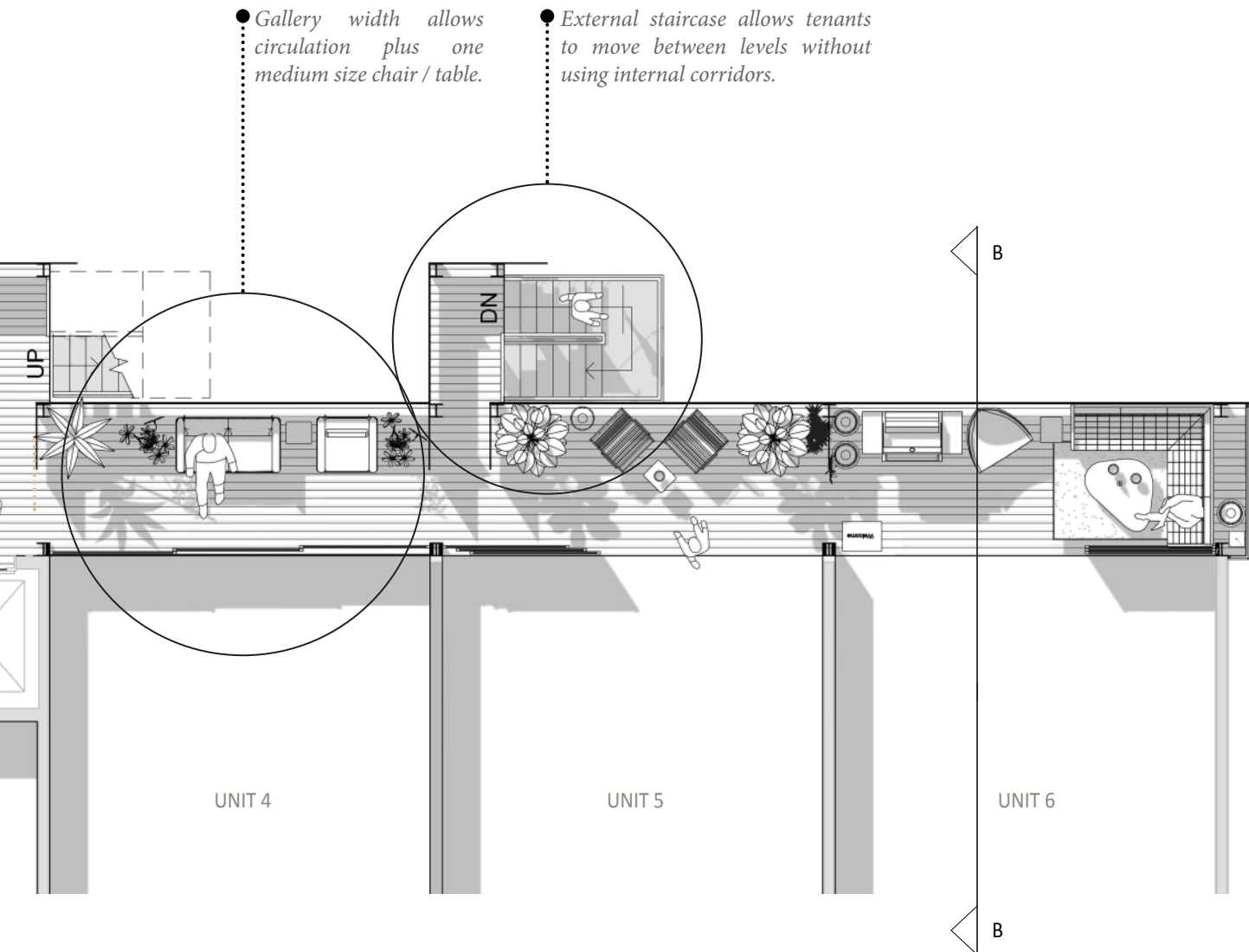
1C.

INHABITATION + PROXIMITY

Level 3 Plan

Scale: 1:100



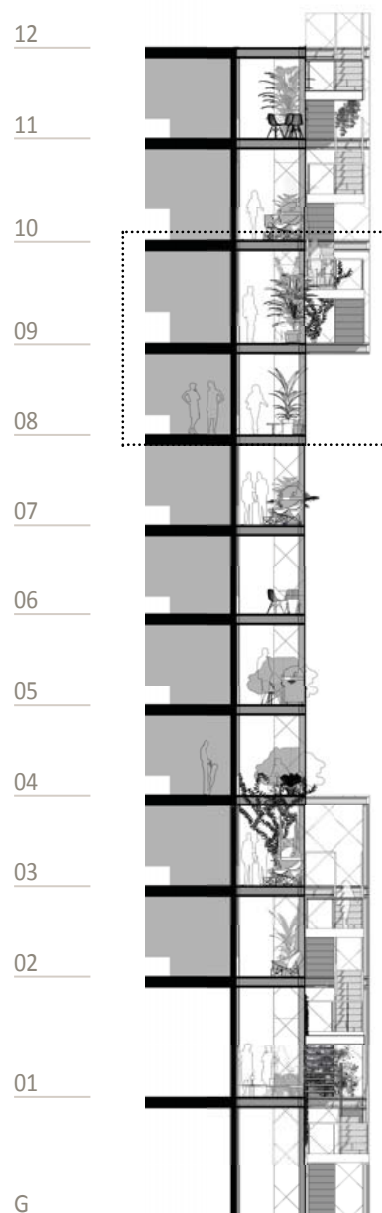


1C.

INTERACTION
VS. PRIVACY

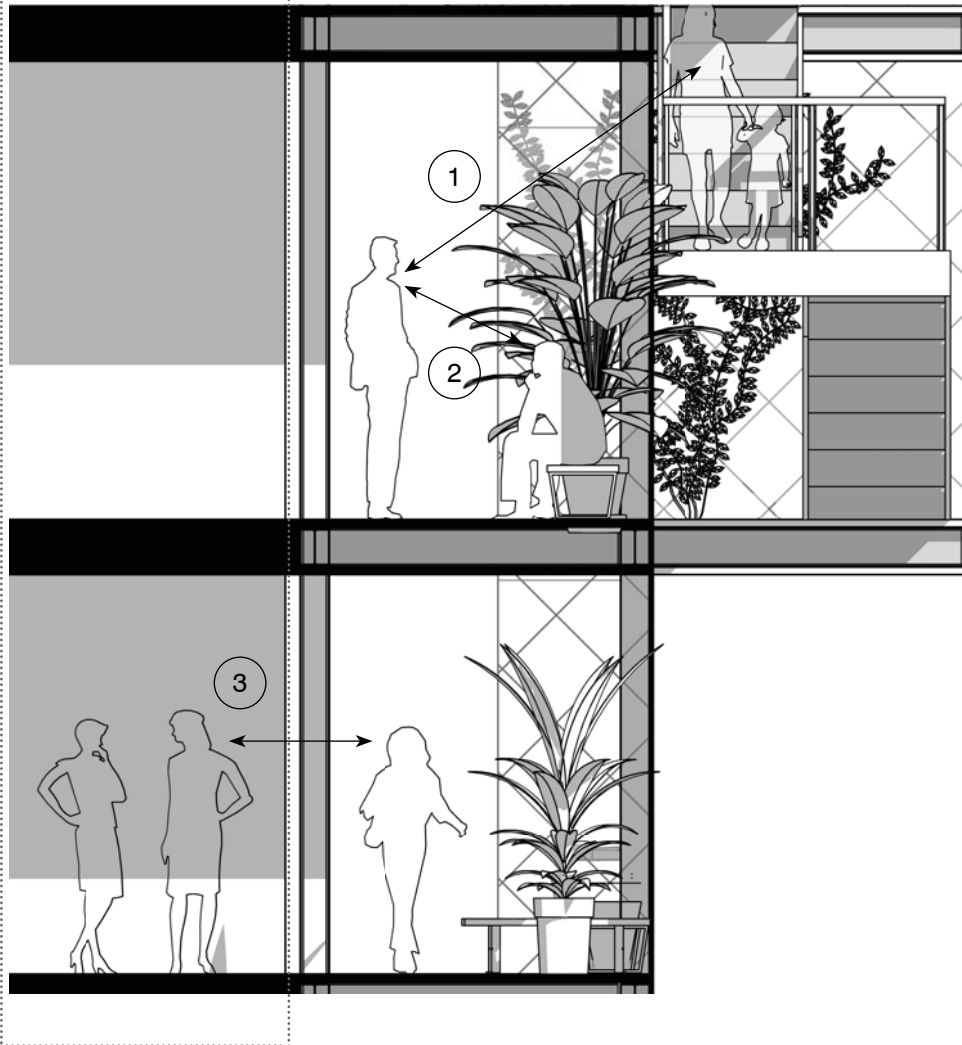
Sectional Investigation

- 1 Visual awareness of vertical circulation from colonnade area.
- 2 Chance interactions between tenants at interface between circulation and private outdoor space.
- 3 Connection between private interior and circulation space.



SECTION CC
1 : 250

PRIVATE INTERIOR



1C.

MATERIALITY +
FACADE COMPOSITION

Rendered / Elevational
Investigations

Potential for communal rooftop area
accessed via external staircases.

Copper balustrades at each level
makes facade visually repetitive.

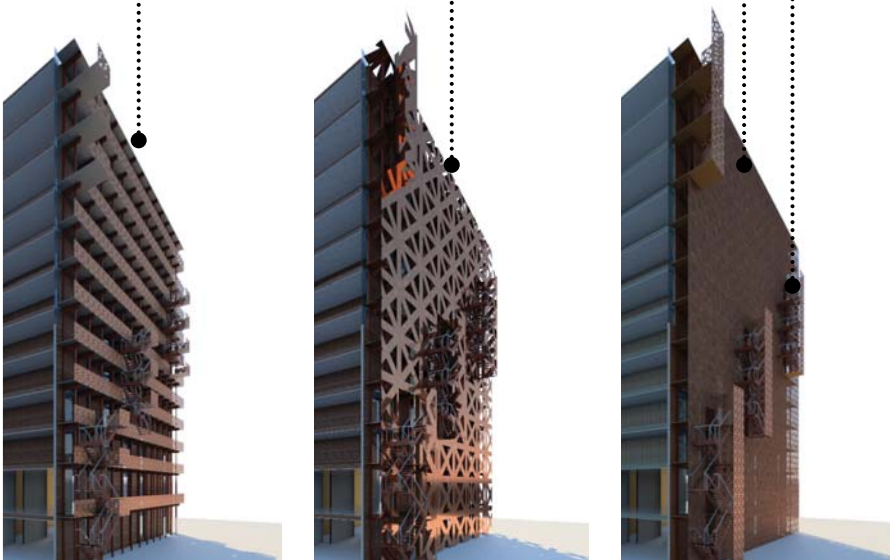
Continuous facade screen
makes the building read as one
element. However, the large
grain of the screen limits light
into colonnade spaces.

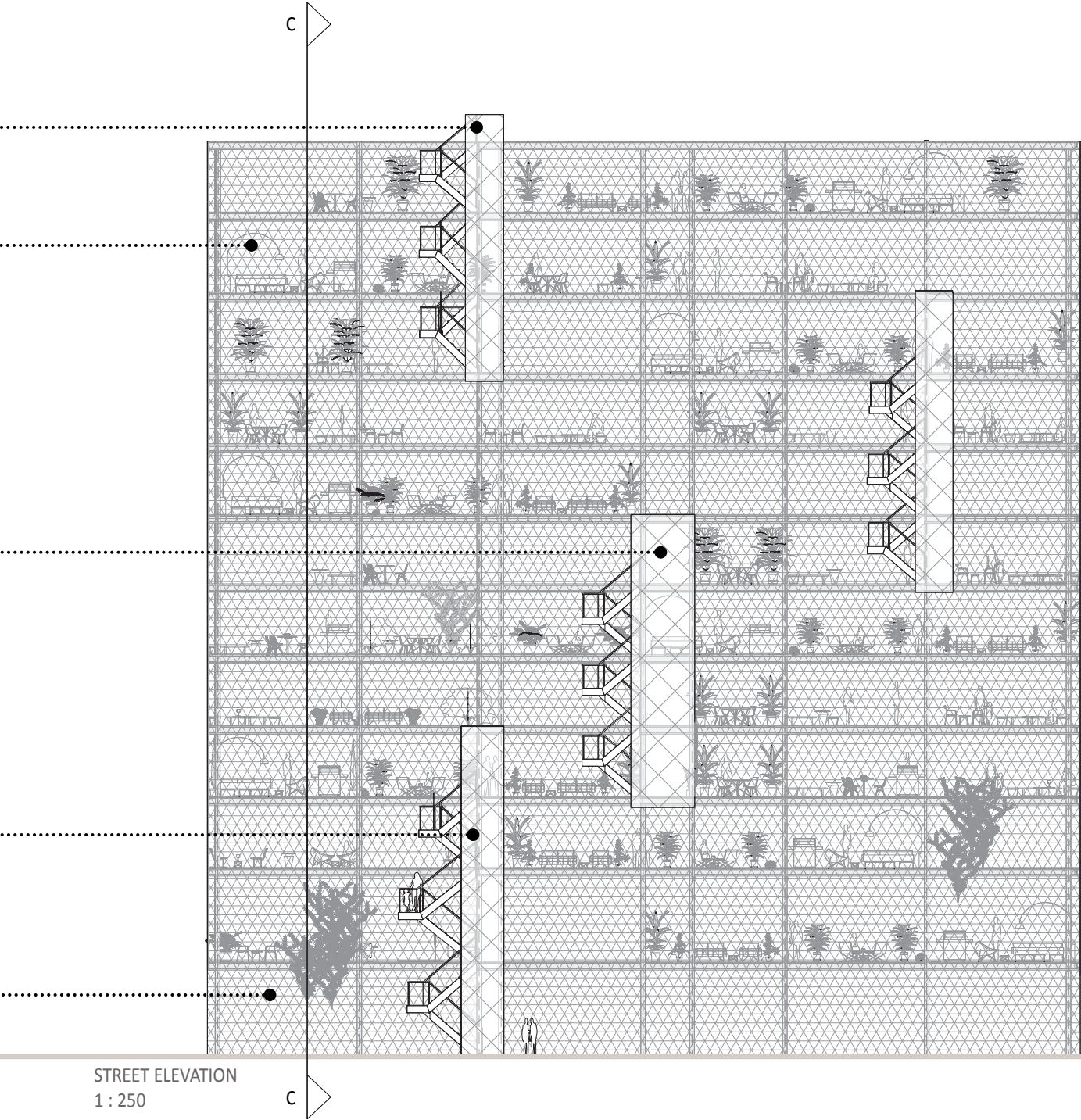
Permeable fixed copper screen
offers some wind protection.
Sunlight access to external
spaces will be dappled through
screen, not direct. This may be
appropriate depending on solar
orientation.

Scattered stair cores protrude
from facade to expose circulation
to street.

Stair core extends fully to ground
level. This is a problem, as it
means the facade is accessible to
public. Subsequent iterations will
not extend stairs to ground.

Rentable ground level.



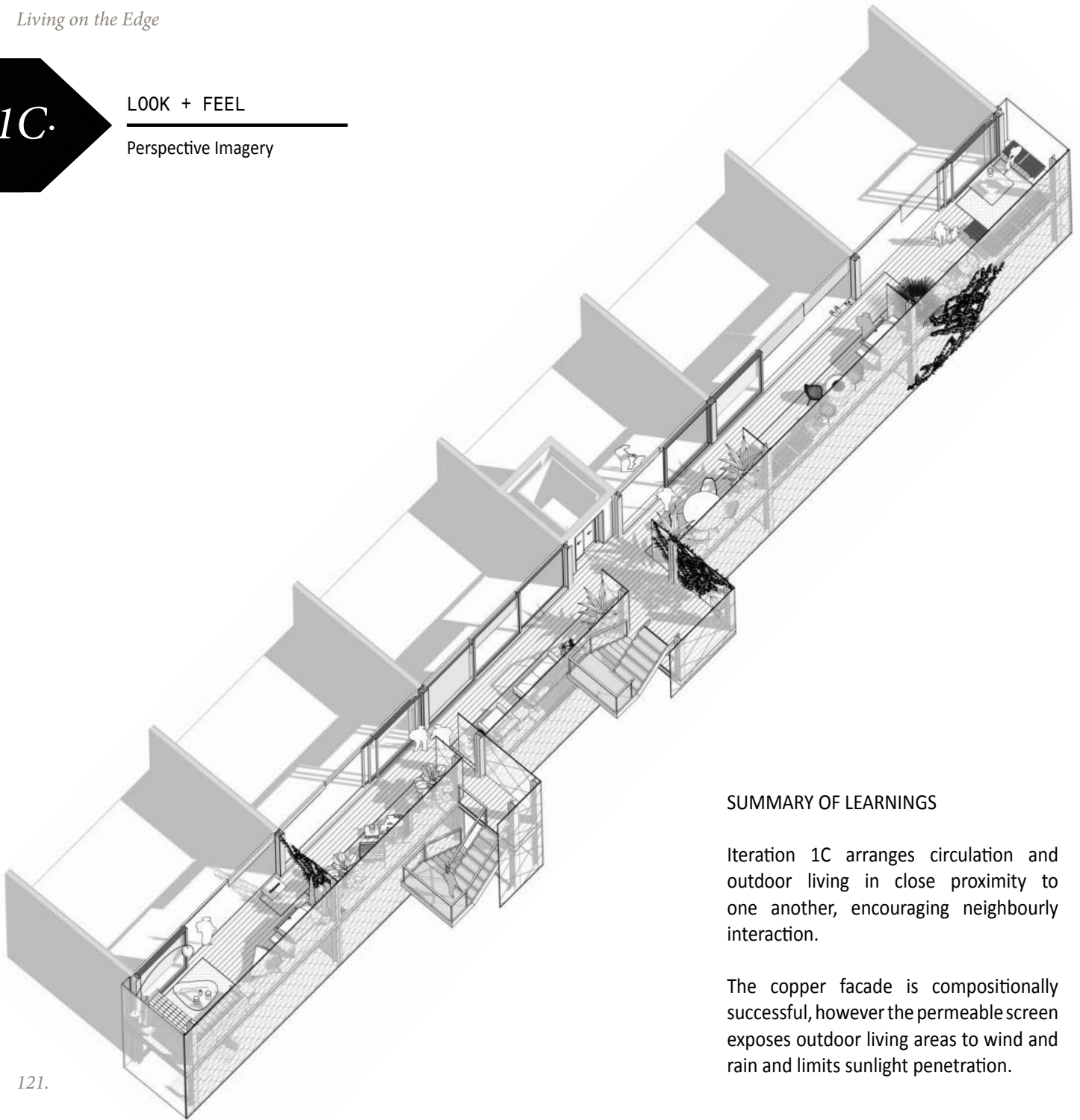


STREET ELEVATION
1 : 250

1C

LOOK + FEEL

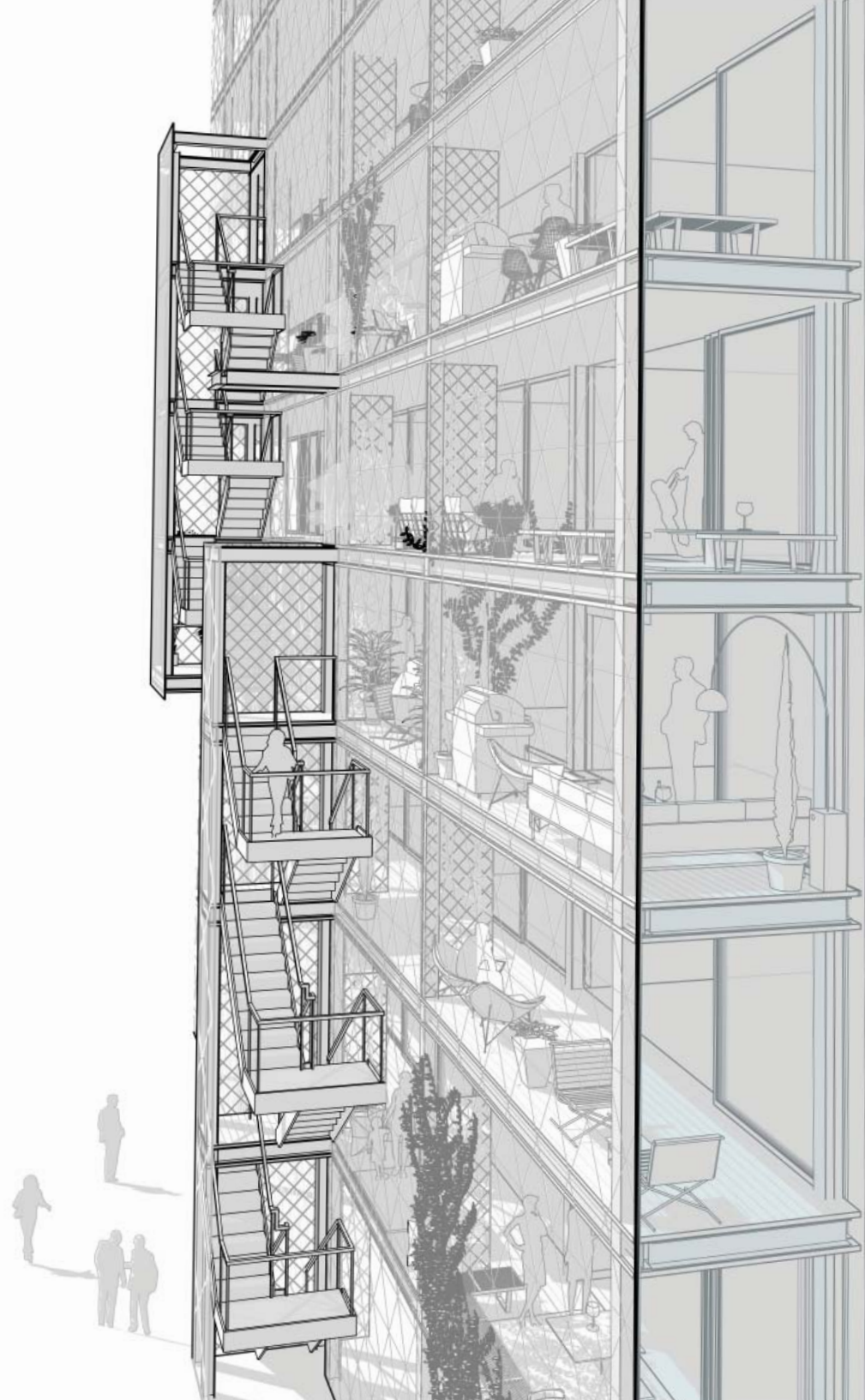
Perspective Imagery



SUMMARY OF LEARNINGS

Iteration 1C arranges circulation and outdoor living in close proximity to one another, encouraging neighbourly interaction.

The copper facade is compositionally successful, however the permeable screen exposes outdoor living areas to wind and rain and limits sunlight penetration.



.1D.

PHASE 1

Iteration D

APPLIED LIVING COMBINATION:



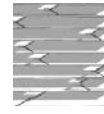
Gallery

+



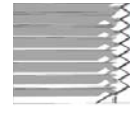
Annexe

+



Scattered Stair

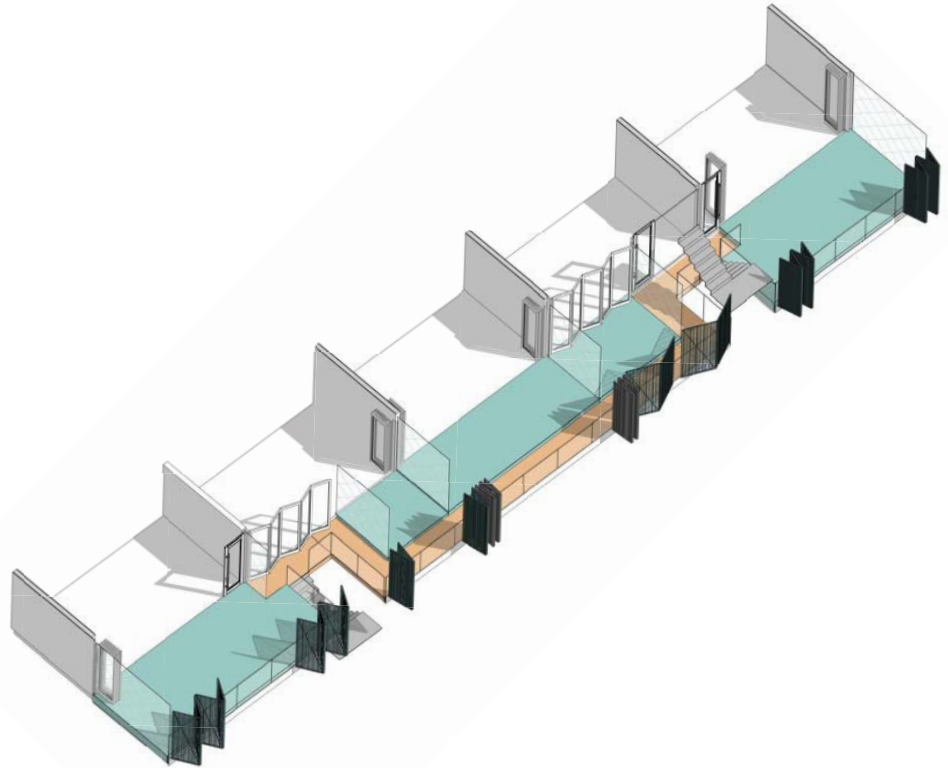
+



Vertical Core

INITIAL SPATIAL RELATIONSHIPS

Iteration 1D combines the gallery and annexe, and aims to more clearly separate outdoor space from circulation. This is achieved using a small step up from circulation areas to private space. This iteration places the circulation on the building edge, giving a direct flow between private interior and private exterior spaces.

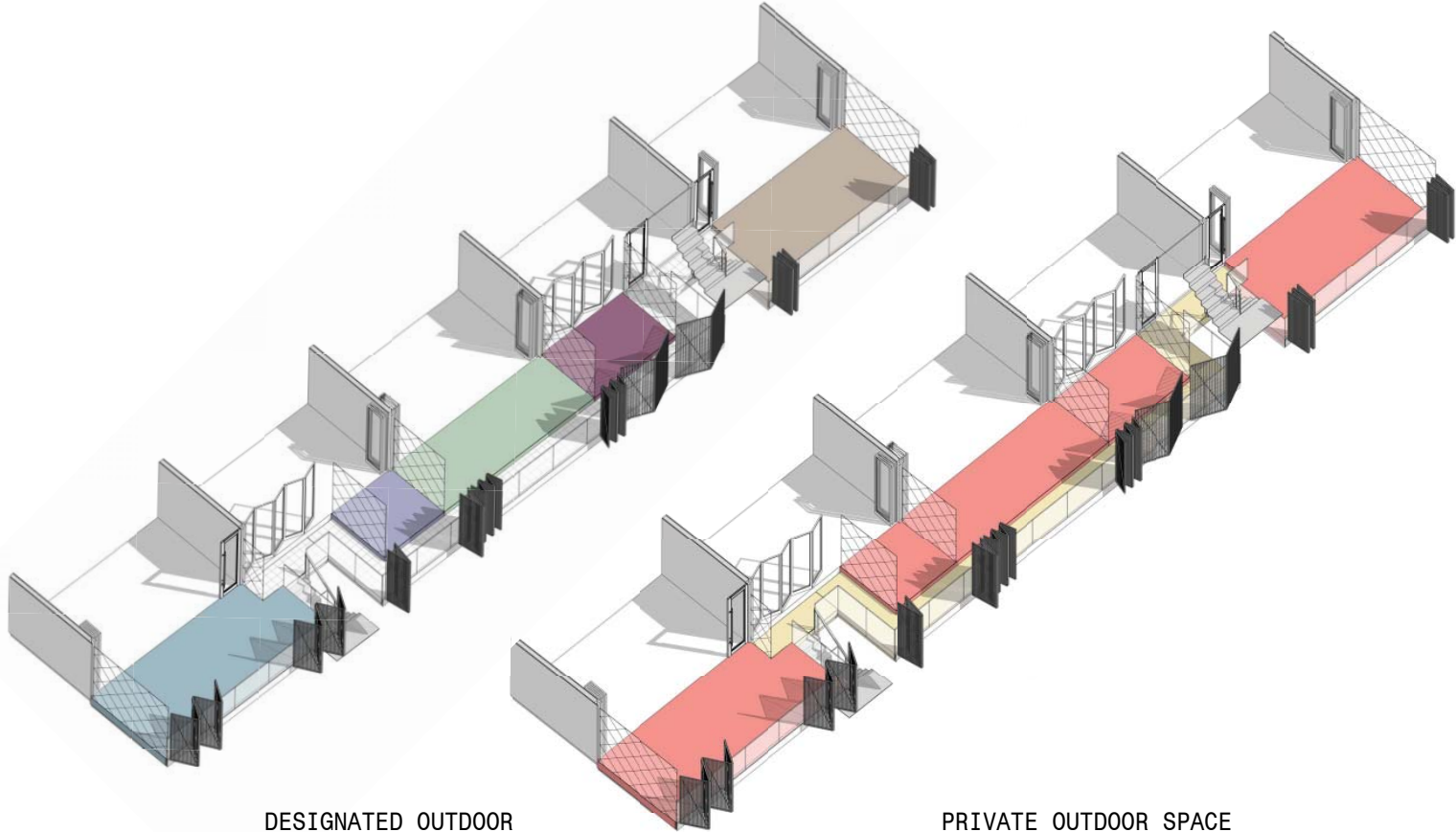


BASE BUILD VS.
APPLIED LIVING

ANNEXE 

GALLERY 

VERTICAL CIRCULATION 



DESIGNATED OUTDOOR
SPACE PER UNIT

- UNIT 1 ■
- UNIT 2 ■
- UNIT 3 ■
- UNIT 4 ■
- UNIT 5 ■
- UNIT 6 ■

PRIVATE OUTDOOR SPACE
VS. CIRCULATION

- PRIVATE OUTDOOR ■
- CIRCULATION ■

1D.

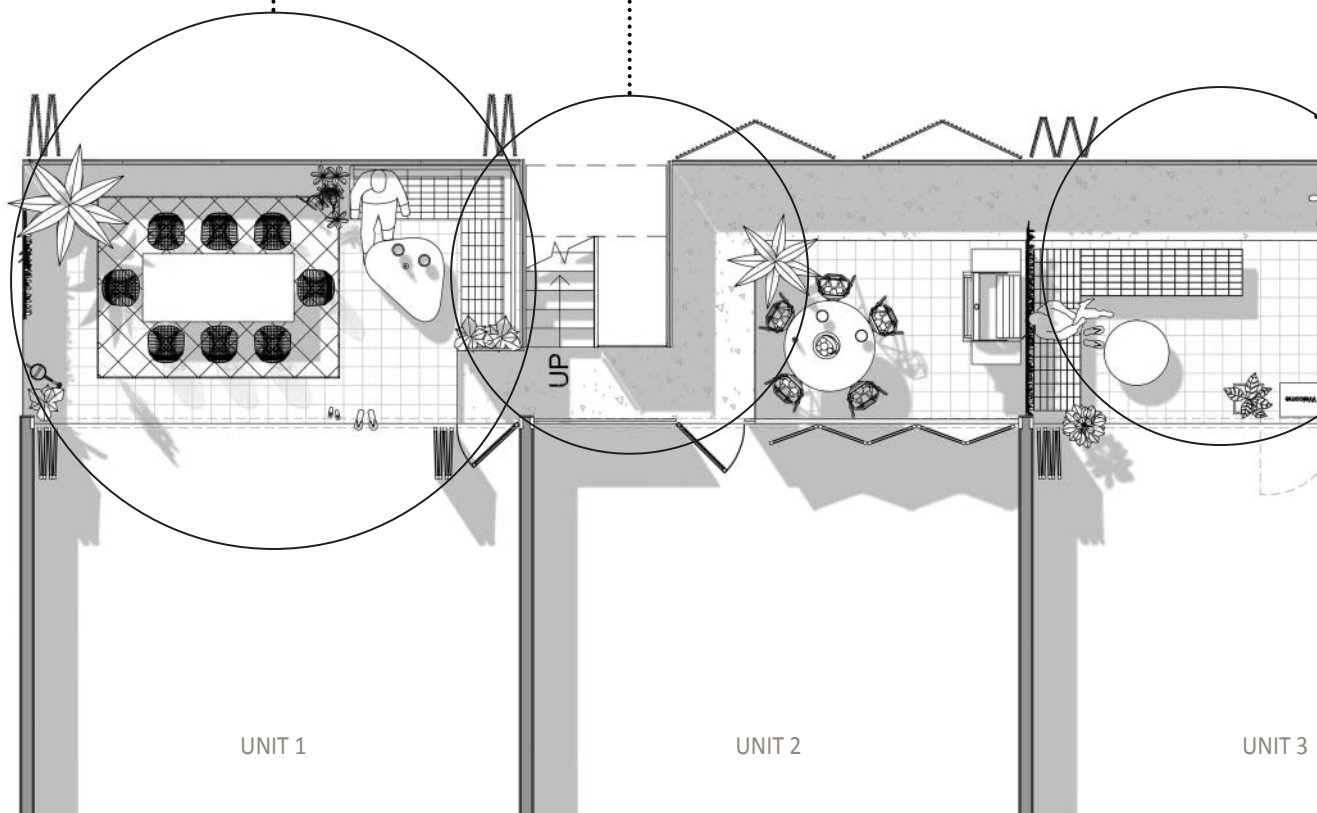
INHABITATION + PROXIMITY

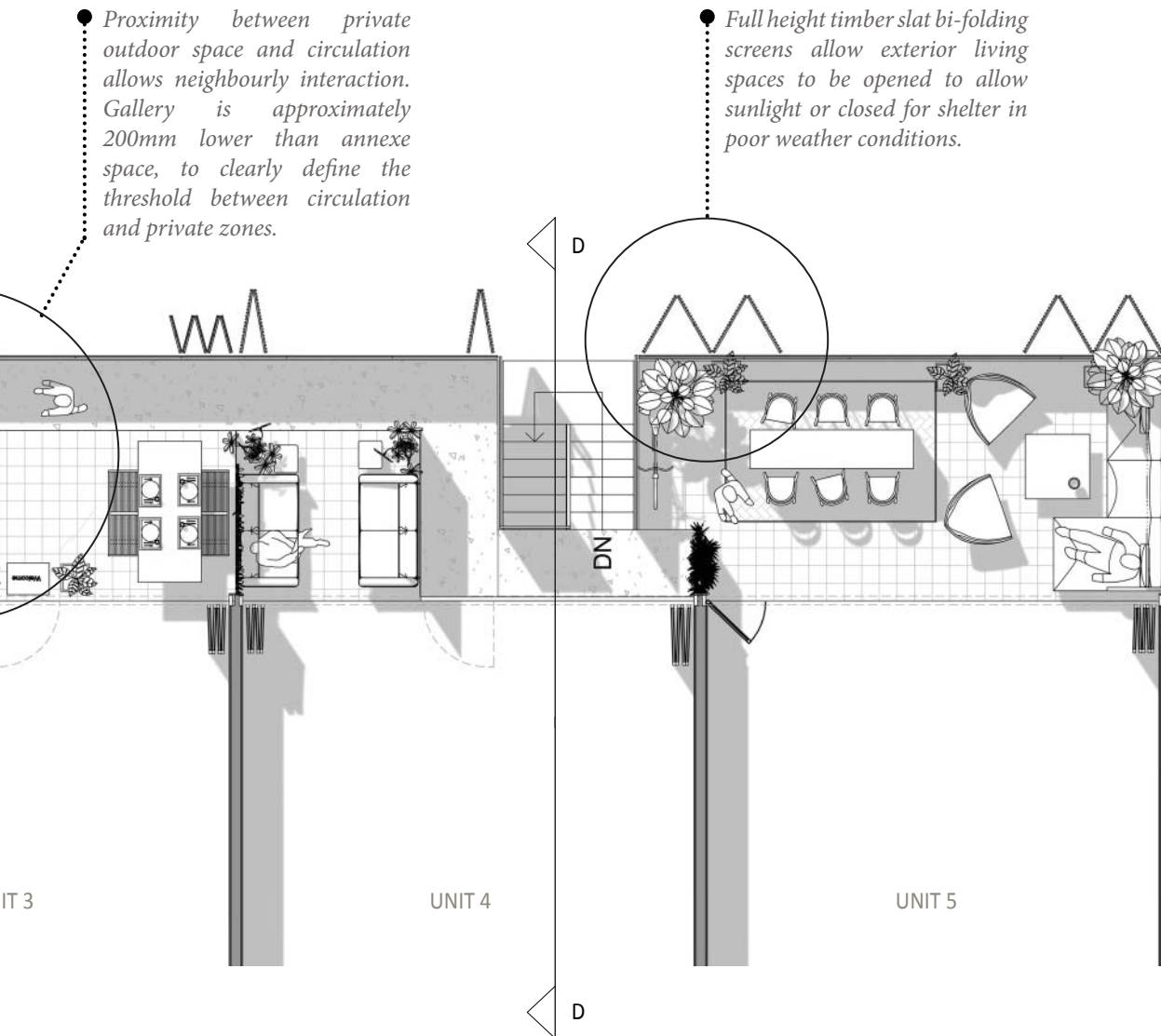
Level 6 Plan

Scale: 1:100

● Units at each end have the greatest amount of outdoor space and privacy.

● External staircase allows tenants to move between levels without using internal corridors.



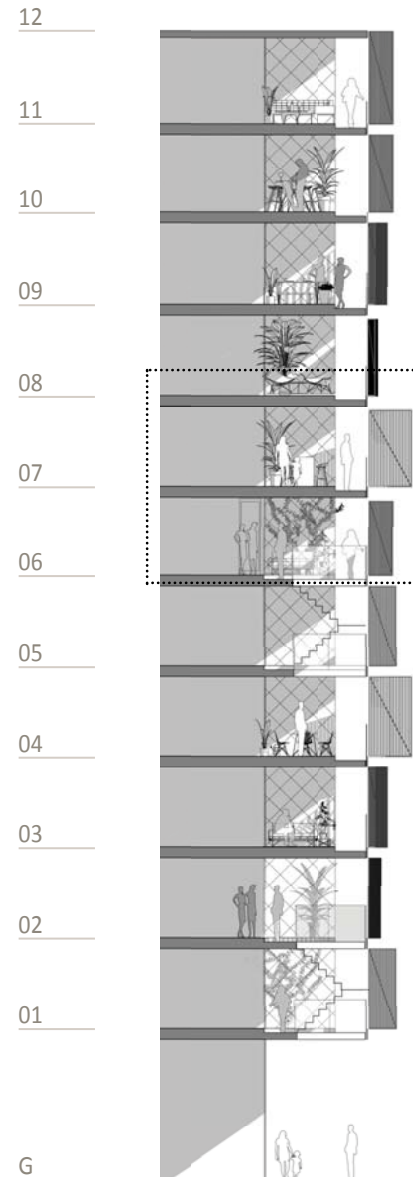


1D.

INTERACTION
VS. PRIVACY

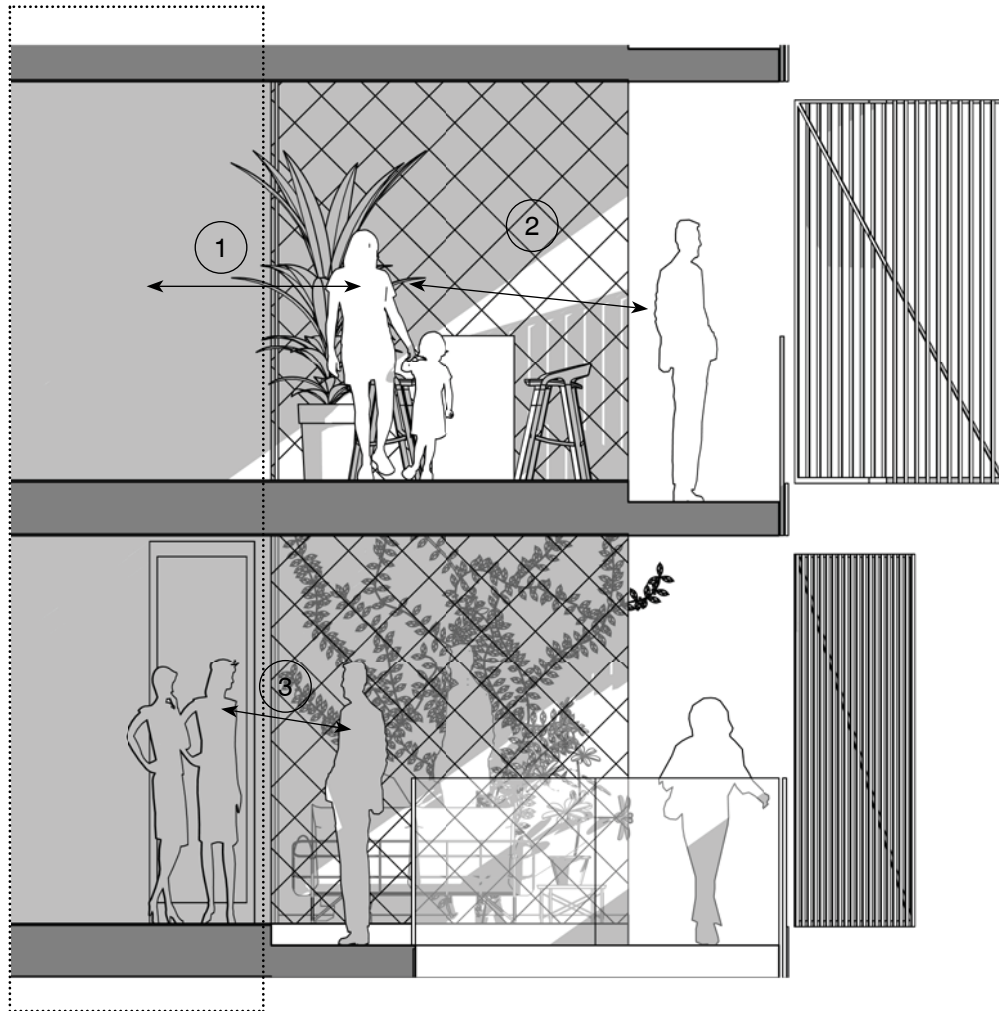
Sectional Investigation

- 1 Direct connection between private indoor and private outdoor space.
- 2 Chance interactions between tenants occur at interface between private outdoor space and circulation. Height difference defines threshold between circulation and inhabitable areas.
- 3 Neighbourly interaction may occur between private interior and circulation interface.



SECTION DD
1 : 250

PRIVATE INTERIOR



1D.

MATERIALITY +
FACADE COMPOSITION

Rendered / Elevational
Investigations



*Timber screens too permeable,
and offer little shelter.*

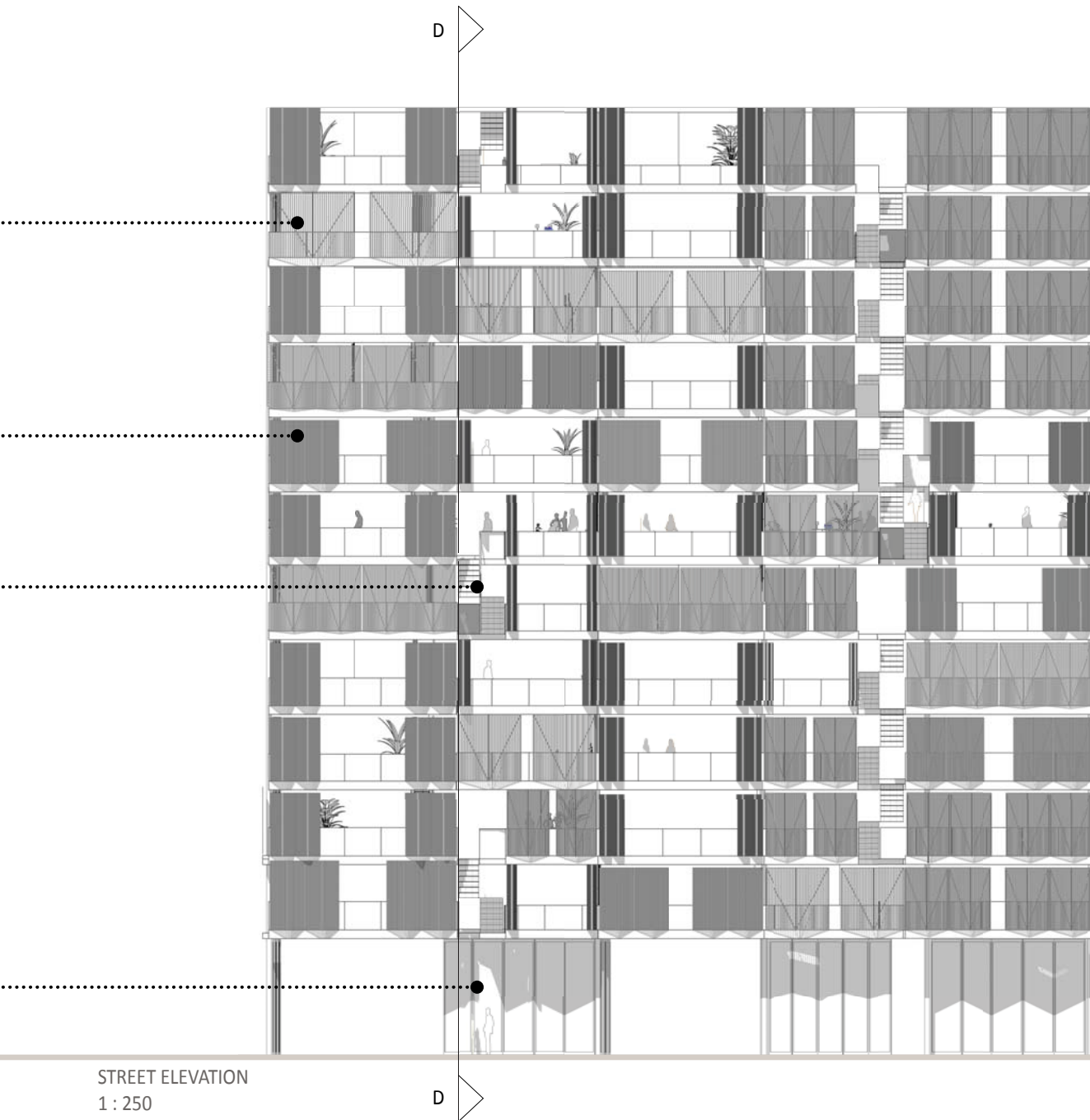
*Fixed timber screens limit
sunlight to interior spaces.*

*Bi-folding timber screens create
random patterns in facade
based on tenant usage. This
idea is taken from the Rue des
Suisses apartments (see case
study G3, pg. 29).*

*Full height timber slat bi-folding
screens provide protection from
rain and wind, while allowing
sunlight access if desired.*

*Recessed stair nooks provide
visual interest.*

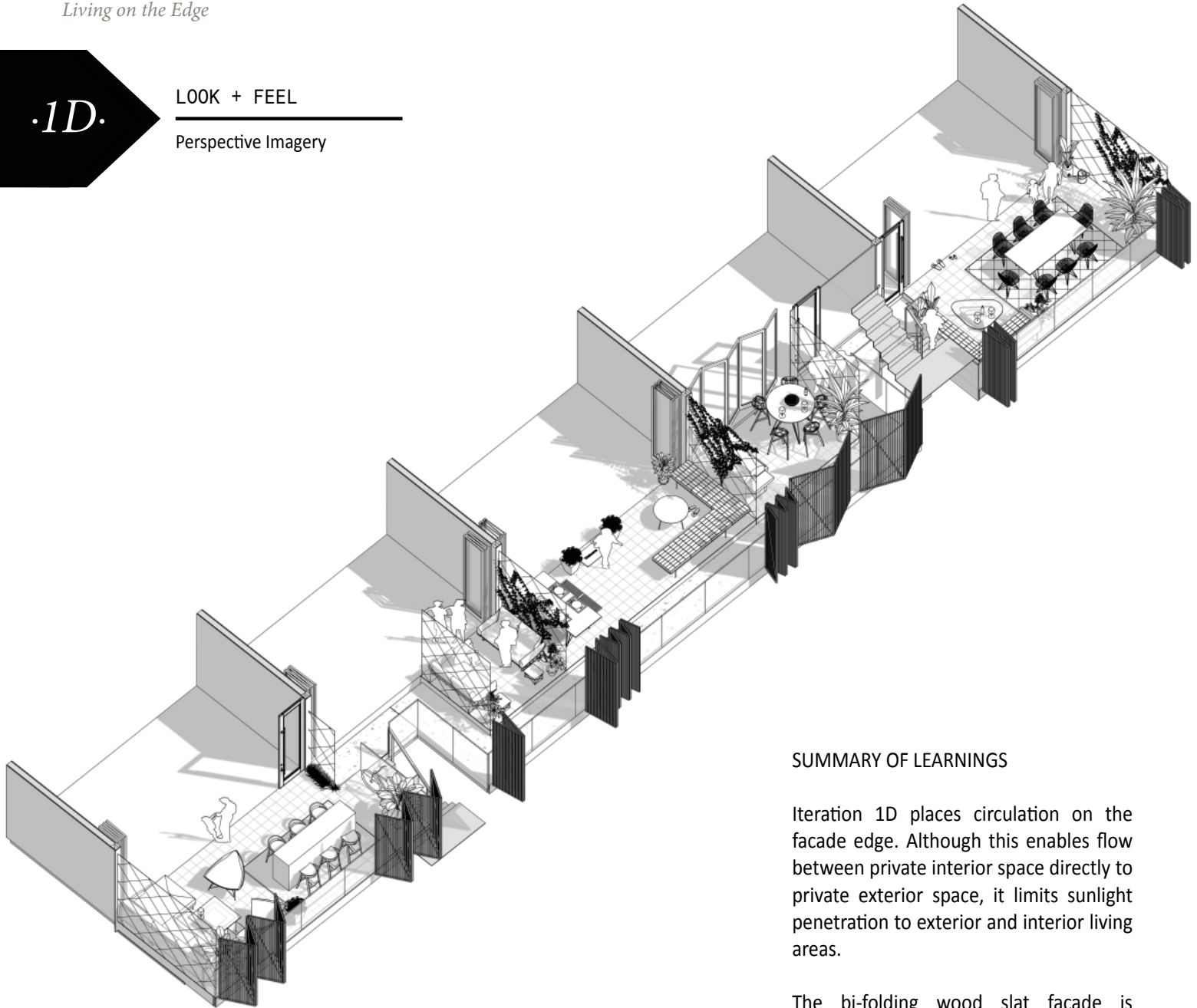
Rentable ground level.



1D.

LOOK + FEEL

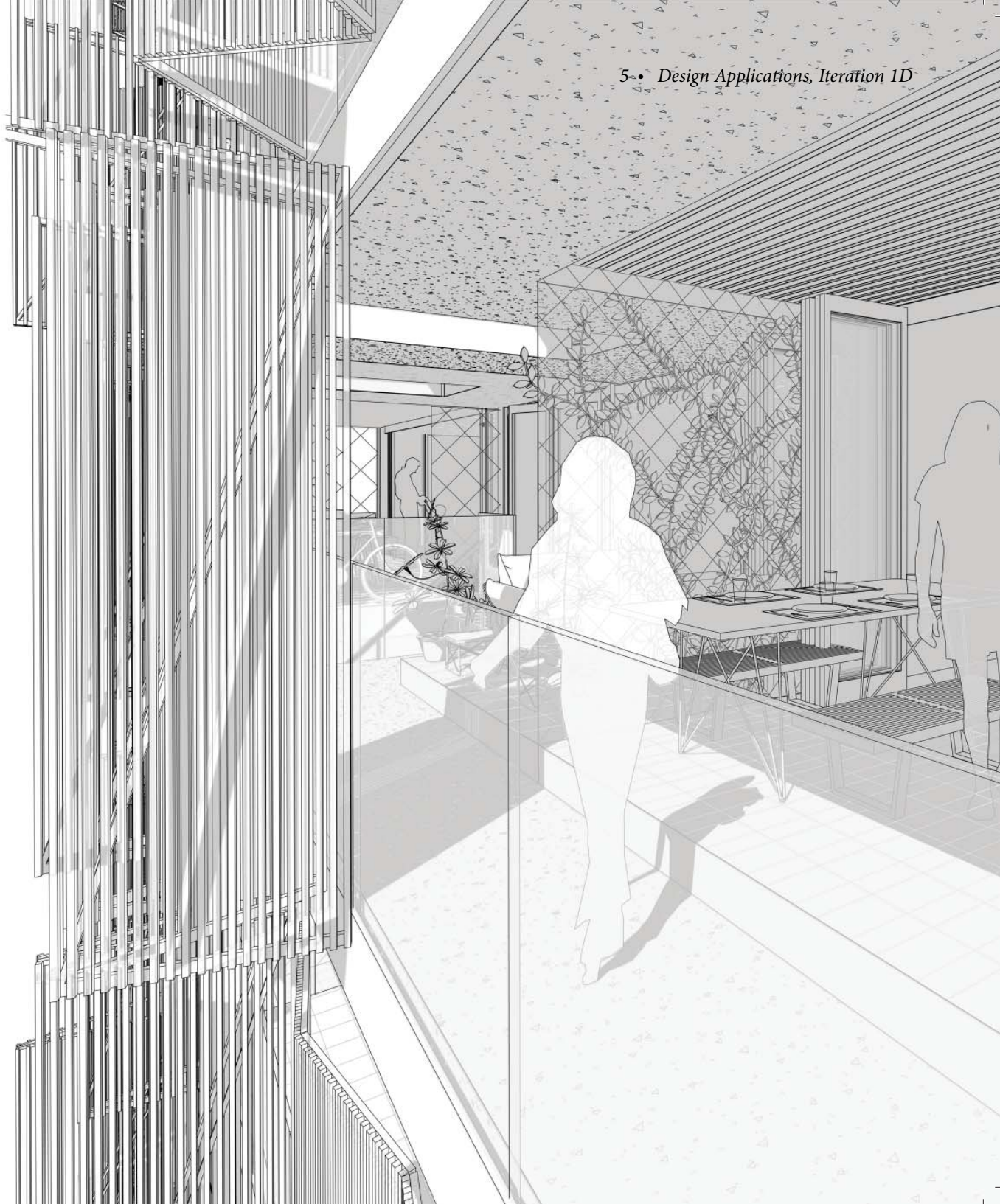
Perspective Imagery



SUMMARY OF LEARNINGS

Iteration 1D places circulation on the facade edge. Although this enables flow between private interior space directly to private exterior space, it limits sunlight penetration to exterior and interior living areas.

The bi-folding wood slat facade is successful both aesthetically and functionally, providing shelter from wind and rain.

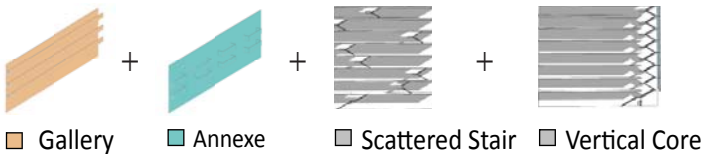


.1E.

PHASE 1

Iteration E

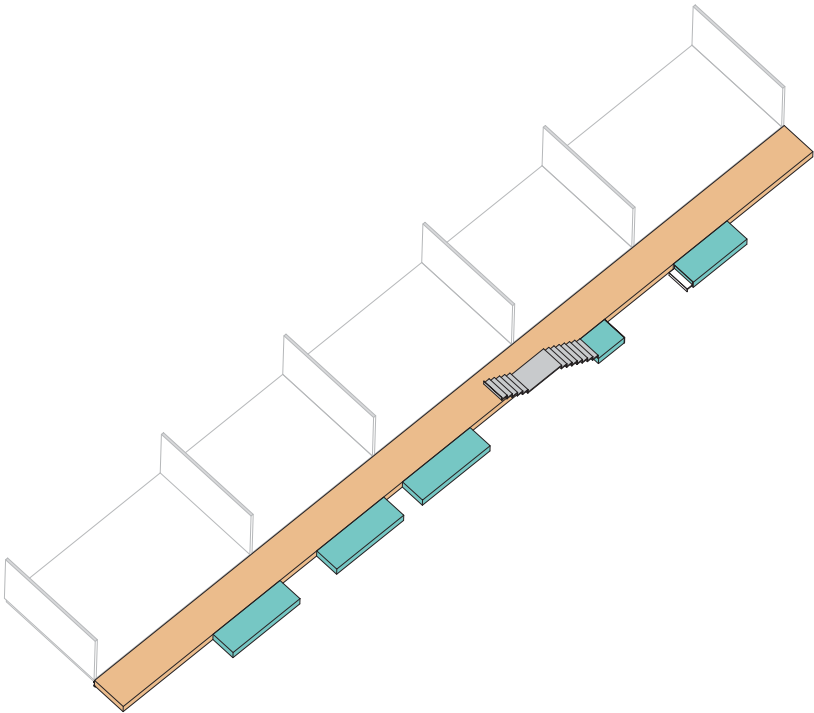
APPLIED LIVING COMBINATION:



INITIAL SPATIAL RELATIONSHIPS

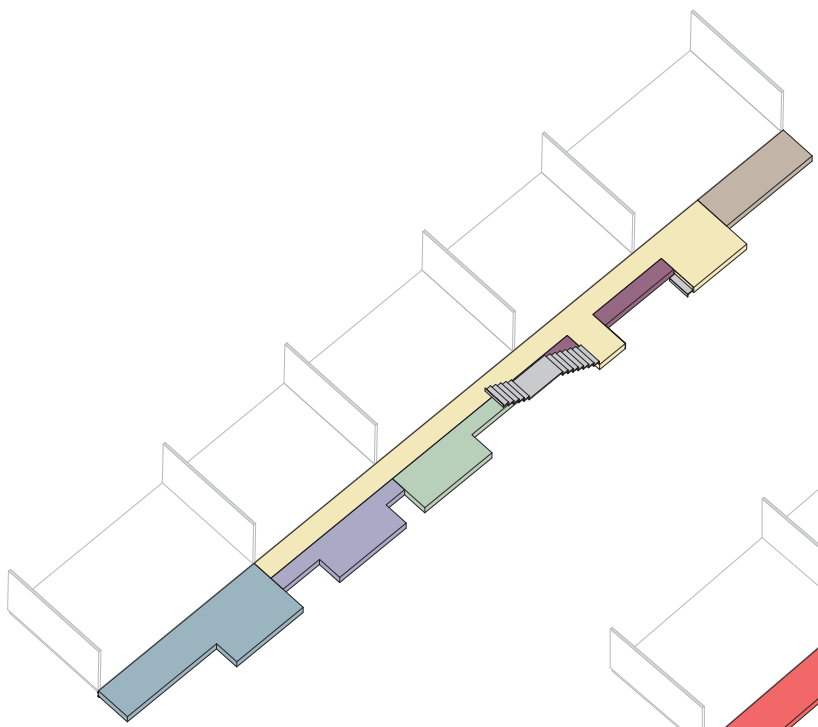
Iteration 1E is similar to Iteration 1C, however it implements the annexe to more clearly define zones for occupation.

Annexe spaces are placed on the facade edge to afford maximum sunlight, and full height glazed panels are placed in front of annexe areas to give shelter while allowing sunlight penetration.



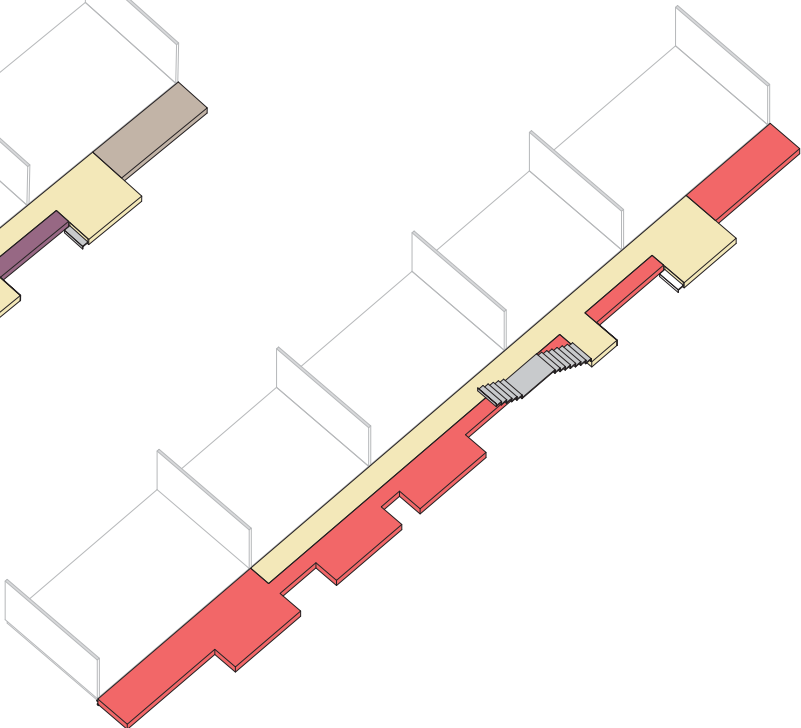
BASE BUILD VS. APPLIED LIVING

- EXISTING ☐
- ANNEXE ☒
- GALLERY ☒
- VERTICAL CIRCULATION ☒



DESIGNATED OUTDOOR
SPACE PER UNIT

- UNIT 1 ■
- UNIT 2 ■
- UNIT 3 ■
- UNIT 4 ■
- UNIT 5 ■



PRIVATE OUTDOOR SPACE
VS. CIRCULATION

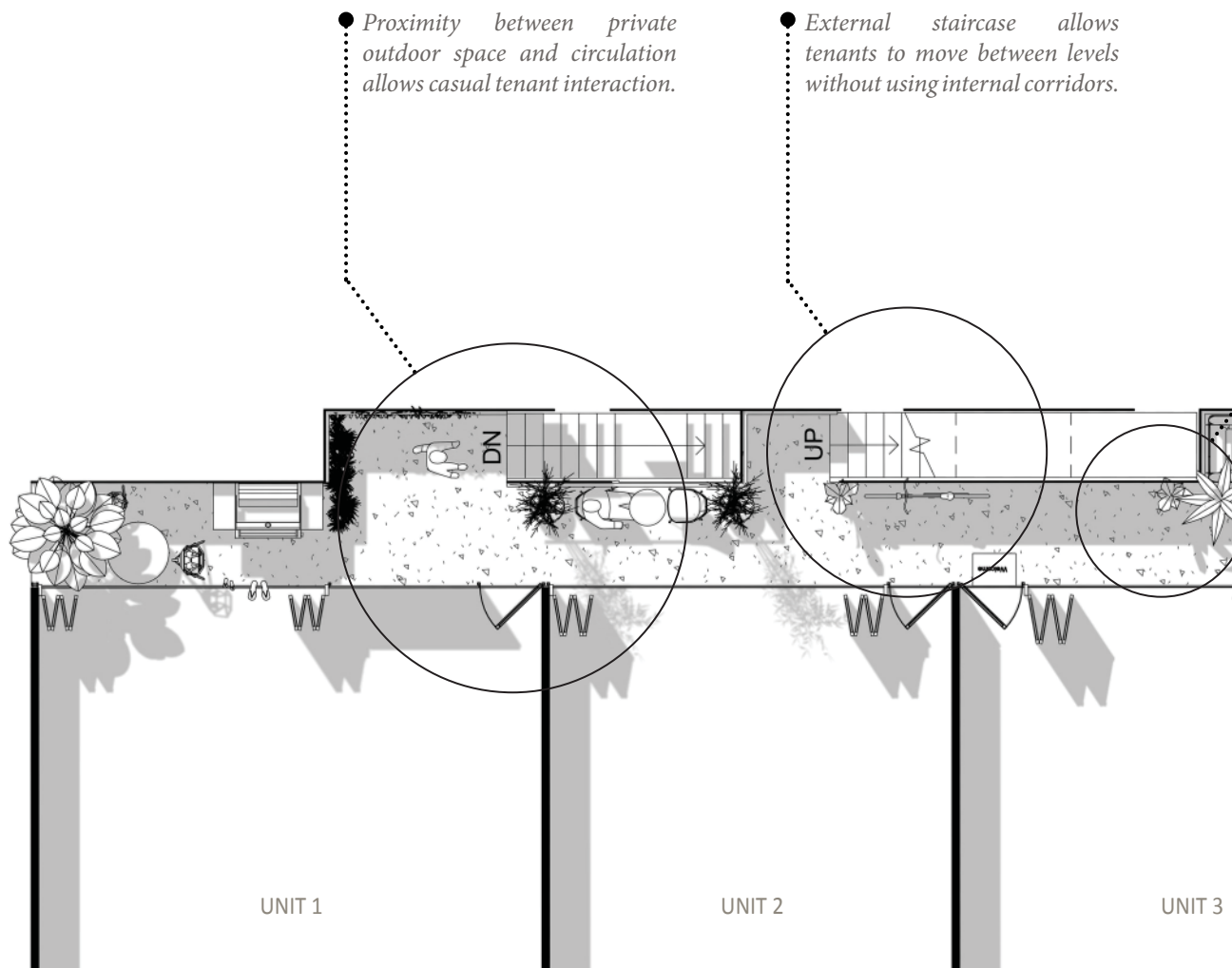
- PRIVATE OUTDOOR ■
- CIRCULATION ■

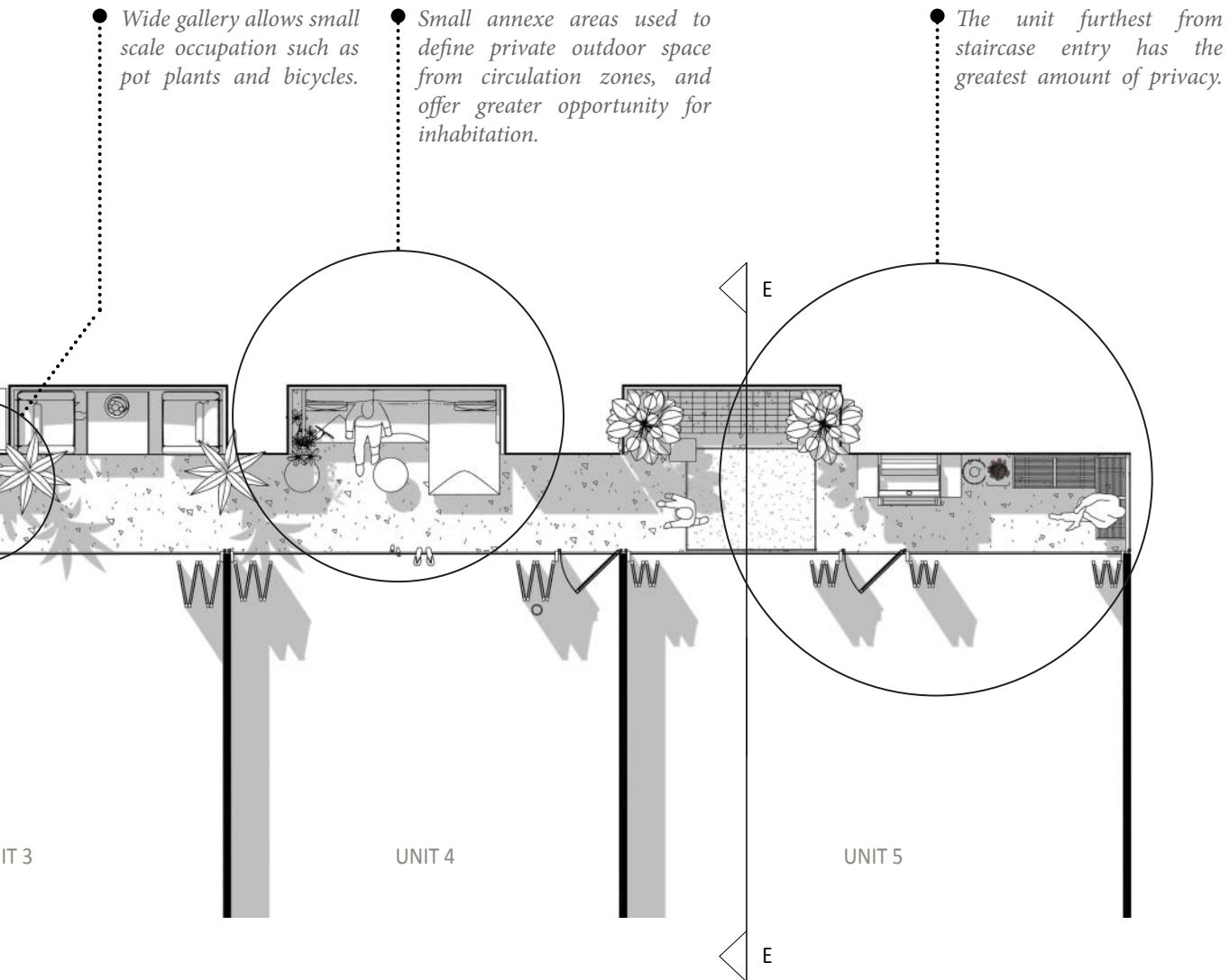
1E.

INHABITATION + PROXIMITY

Level 5 Plan

Scale: 1:100



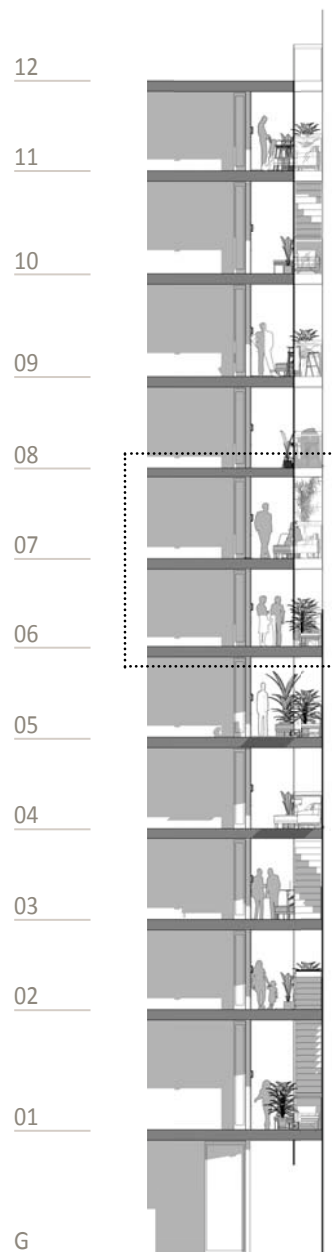


1E.

INTERACTION
VS. PRIVACY

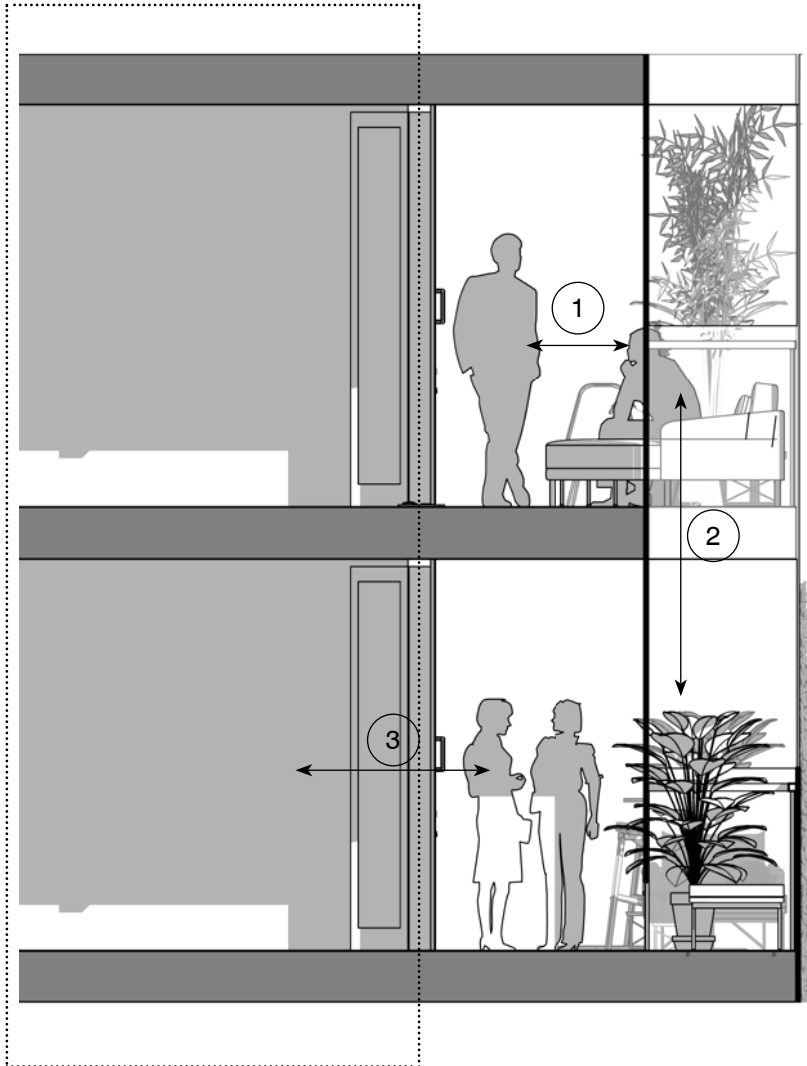
Sectional Investigation

- ① *Chance interactions between tenants at private outdoor space to circulation interface.*
- ② *Visual connection between outdoor space at different levels.*
- ③ *Level connection between private indoor space and circulation area.*



SECTION EE
1 : 250

PRIVATE INTERIOR



1E.

MATERIALITY +
FACADE COMPOSITION

Rendered / Elevational
Investigations

Stairs span between glass panels, exposing circulation and providing visual interest to the street, and to the apartments themselves.

Areas of opaque and clear glass create patterned facade and dapples light to applied living spaces. Experimentation with grain of glass pattern creates different interior and exterior effects.

Private outdoor space placed at facade edge to gain optimum solar access.

Glass panels give pattern and diversity to the facade, and allows good sunlight access to applied living spaces.

Full height glass panels protect annexe areas from wind and rain exposure. Sides of annexe have a standard height glass balustrade, allowing ventilation and outlook.

Rentable ground level.

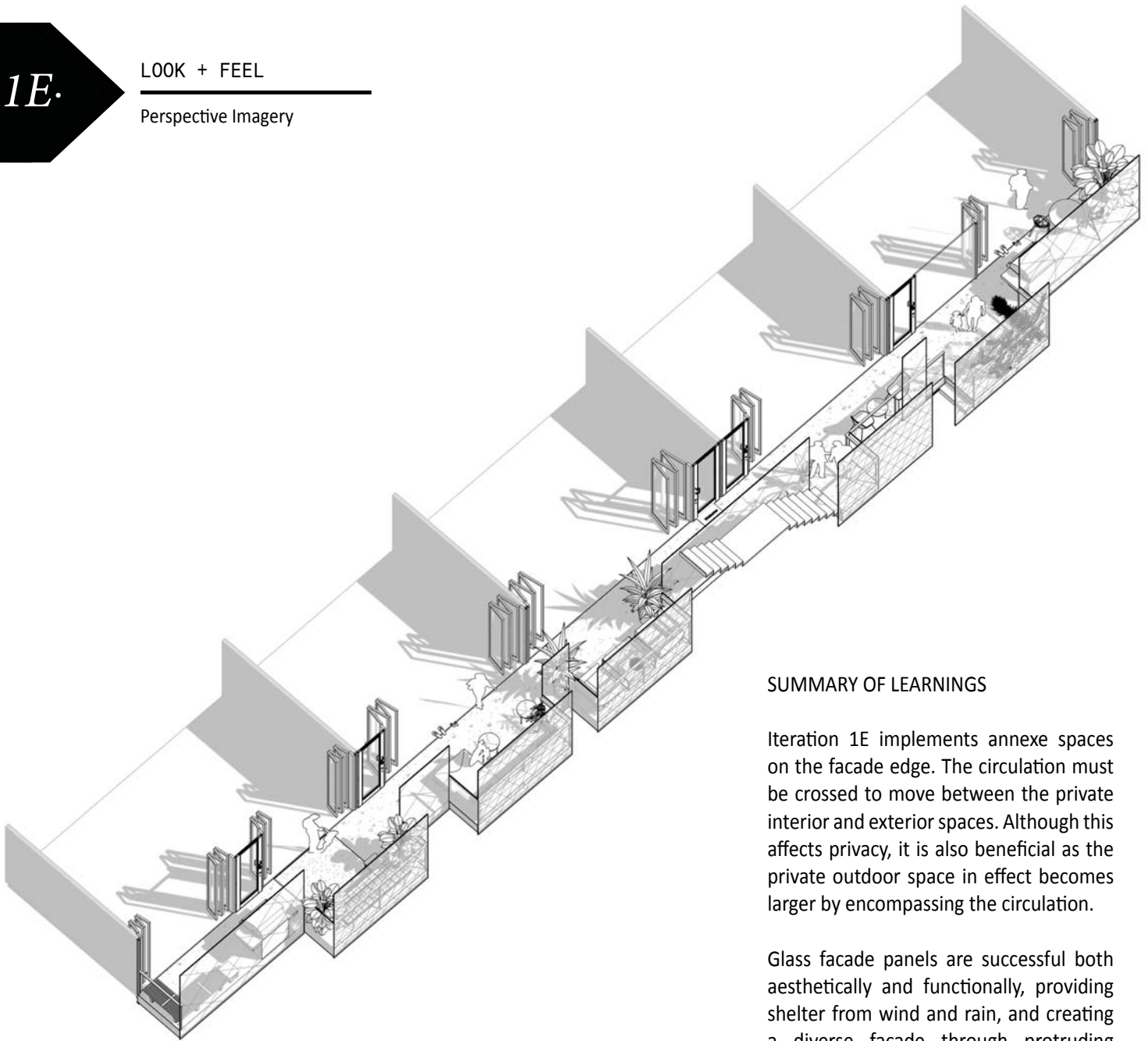




1E

LOOK + FEEL

Perspective Imagery



SUMMARY OF LEARNINGS

Iteration 1E implements annexe spaces on the facade edge. The circulation must be crossed to move between the private interior and exterior spaces. Although this affects privacy, it is also beneficial as the private outdoor space in effect becomes larger by encompassing the circulation.

Glass facade panels are successful both aesthetically and functionally, providing shelter from wind and rain, and creating a diverse facade through protruding annexe areas.

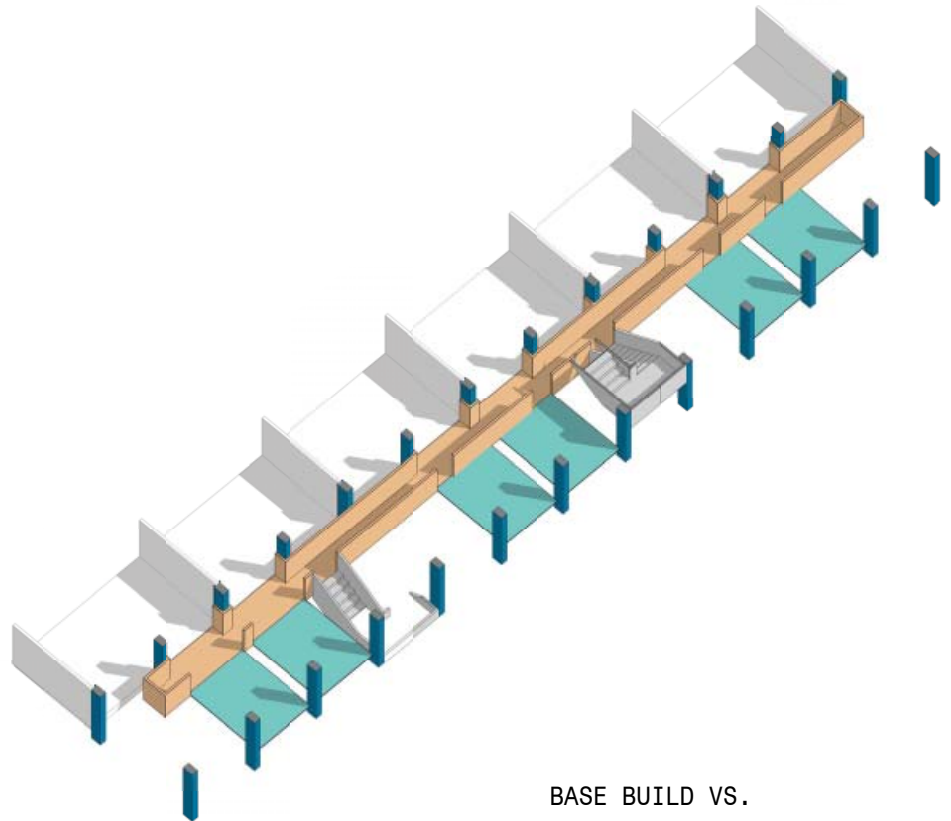
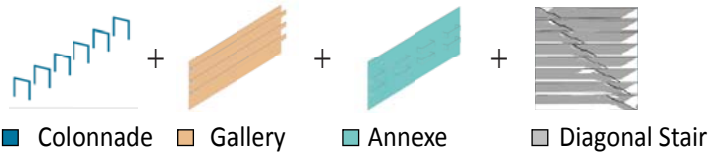


.1F.

PHASE 1

Iteration F

APPLIED LIVING COMBINATION:



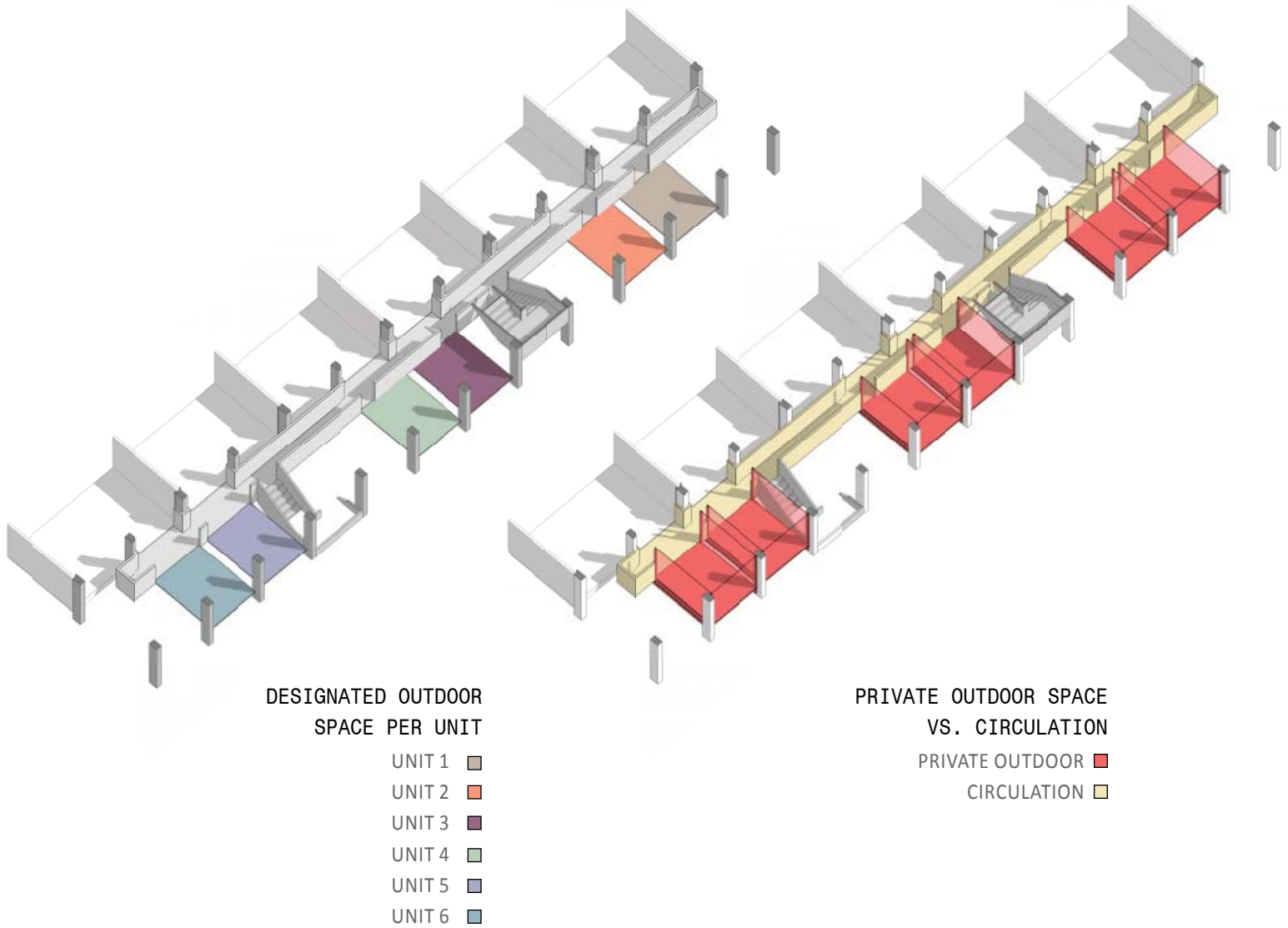
INITIAL SPATIAL RELATIONSHIPS

Iteration 1F uses all three applied living types. The colonnade is used as an overarching structural form, with gallery and annexe areas slotted within it.

Annexe spaces are placed on the facade edge to afford maximum sunlight

BASE BUILD VS. APPLIED LIVING

- EXISTING ☐
- ANNEXE ☒
- GALLERY ☒
- VERTICAL CIRCULATION ☒

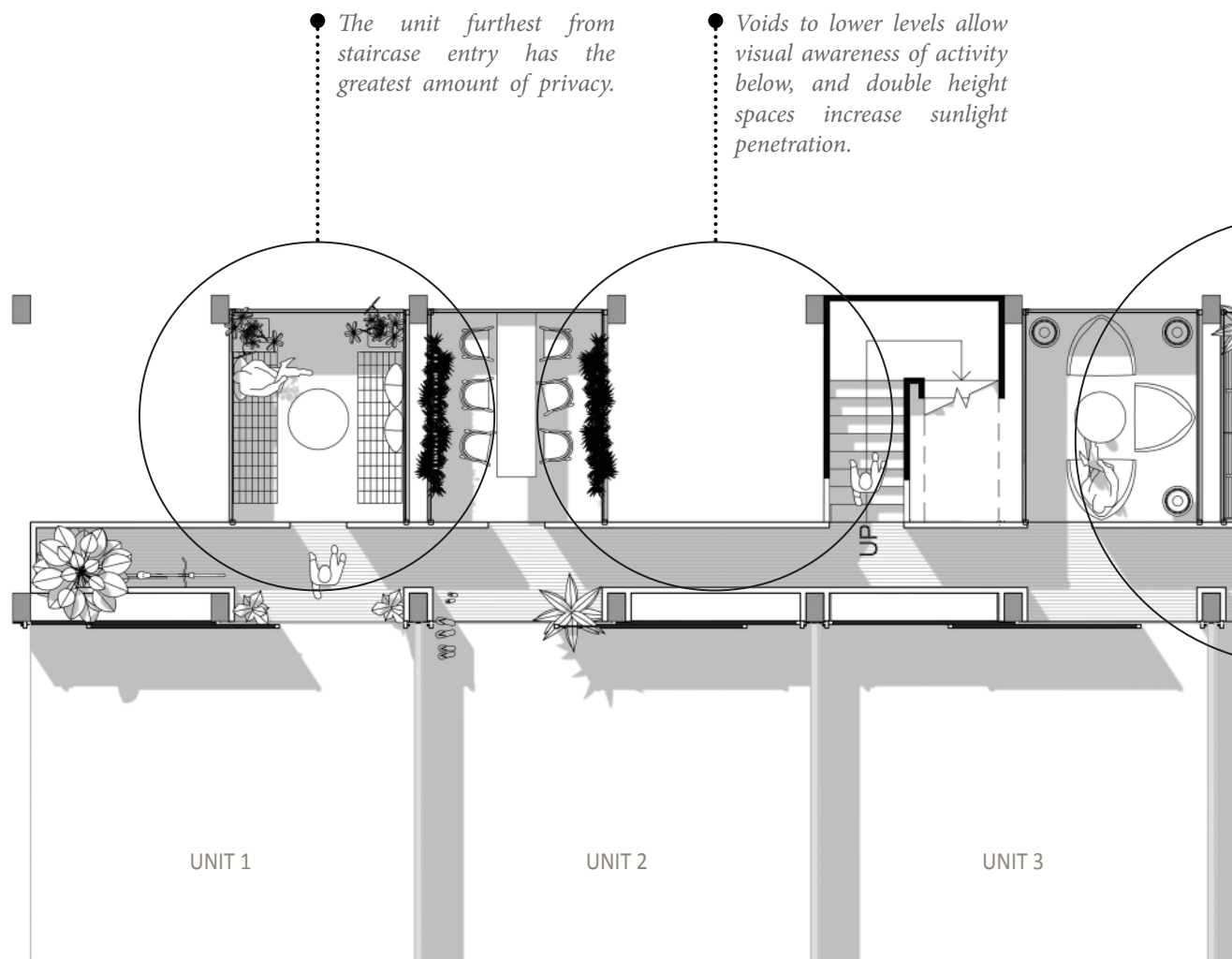


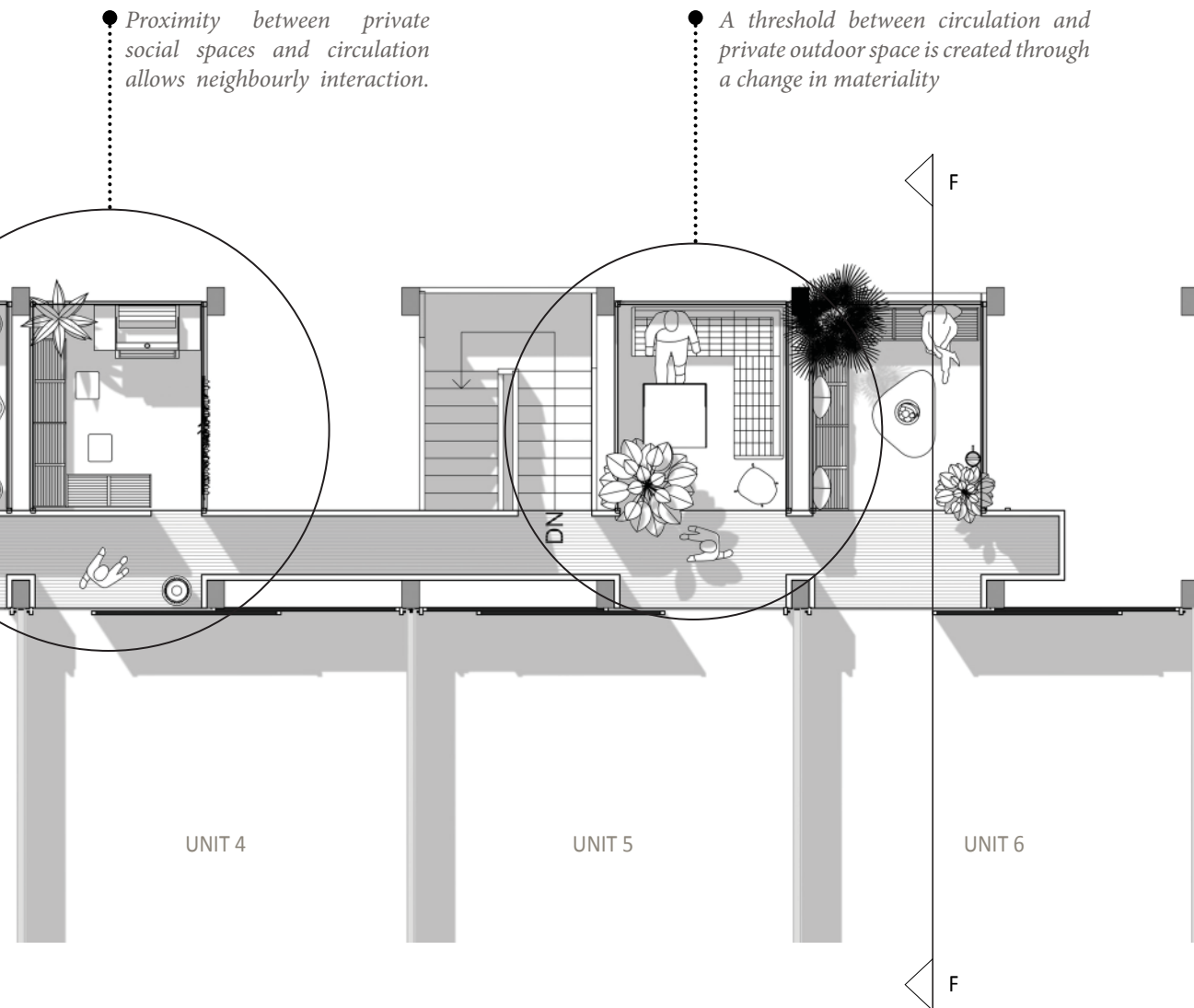
1F.

INHABITATION + PROXIMITY

Level 5 Plan

Scale: 1:100





1F.

INTERACTION
VS. PRIVACY

Sectional Investigation

- 1 Potential for tenant interaction at interface between circulation and private indoor space.
- 2 Visual awareness of vertical circulation from gallery. Chance interactions between tenants may occur here.
- 3 Visual awareness of vertical circulation from private outdoor space.
- 4 Level connection between private indoor and private outdoor space, separated by circulation zone.

12

11

10

09

08

07

06

05

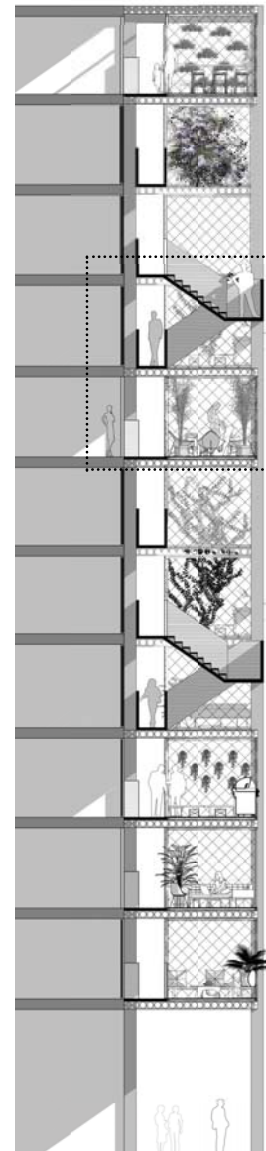
04

03

02

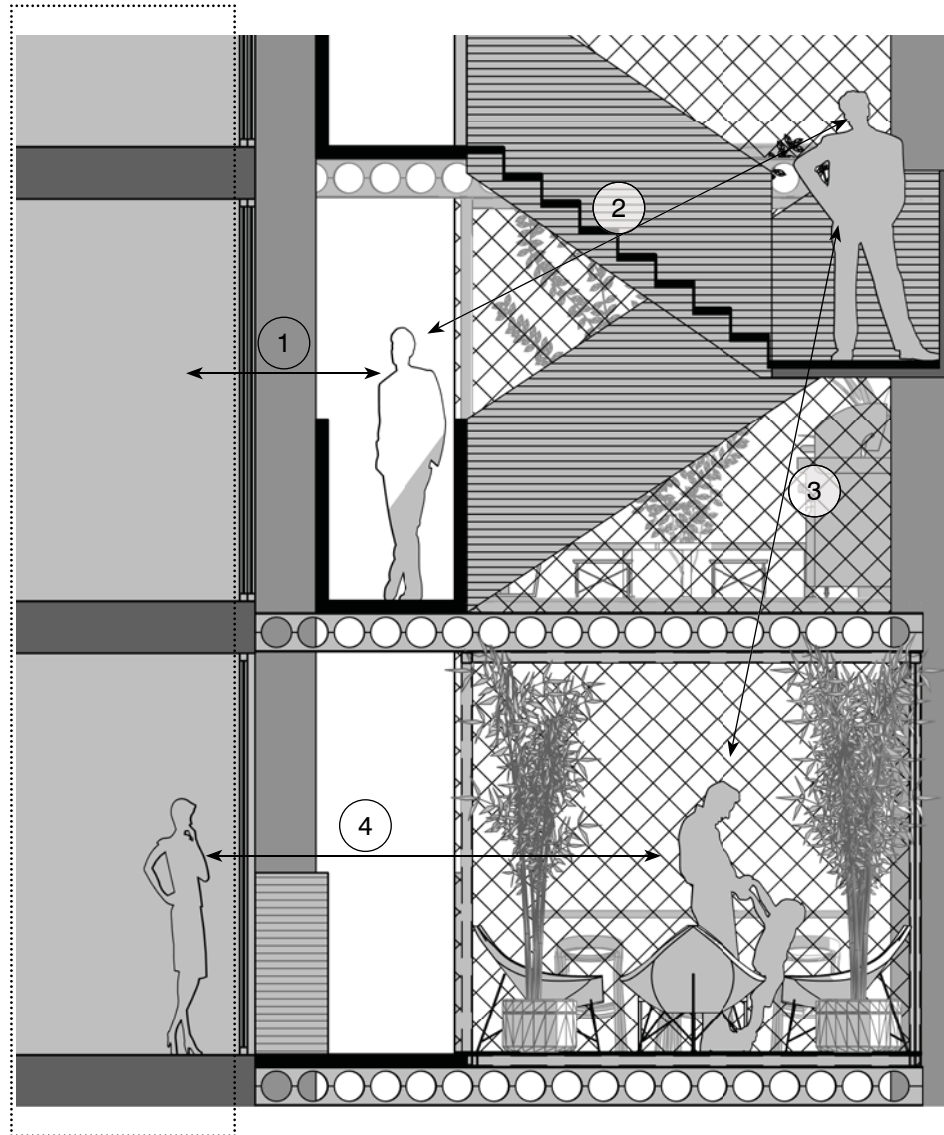
01

G



SECTION FF
1 : 250

PRIVATE INTERIOR



1F.

MATERIALITY +
FACADE COMPOSITION

Rendered / Elevational
Investigations

Full height mesh
cladding on two sides
of annexe, and half
height glass balustrade
on the street facing
side provides
unhindered outlook.

Full height mesh on
two sides of annexe and
half height mesh on the
street facing side.

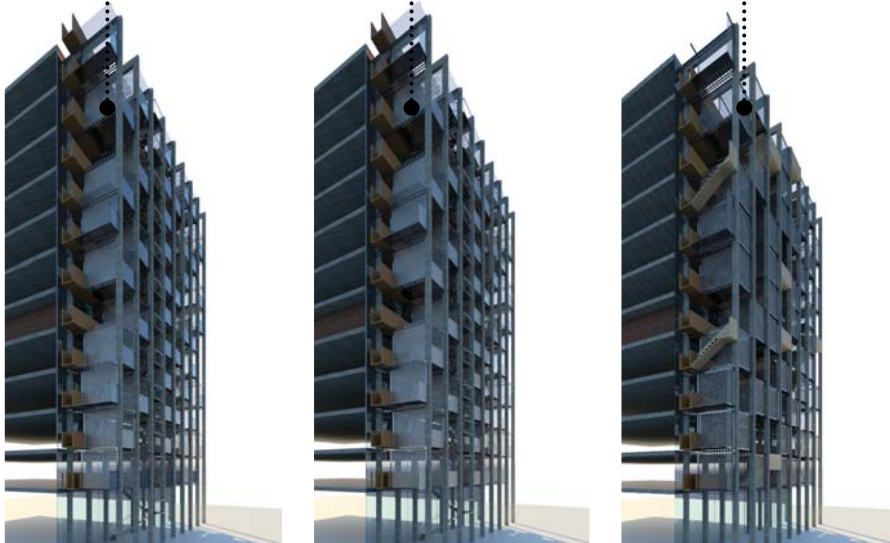
Full height mesh on
three sides of annexe.
Views hindered, but
provides safer outdoor
space.

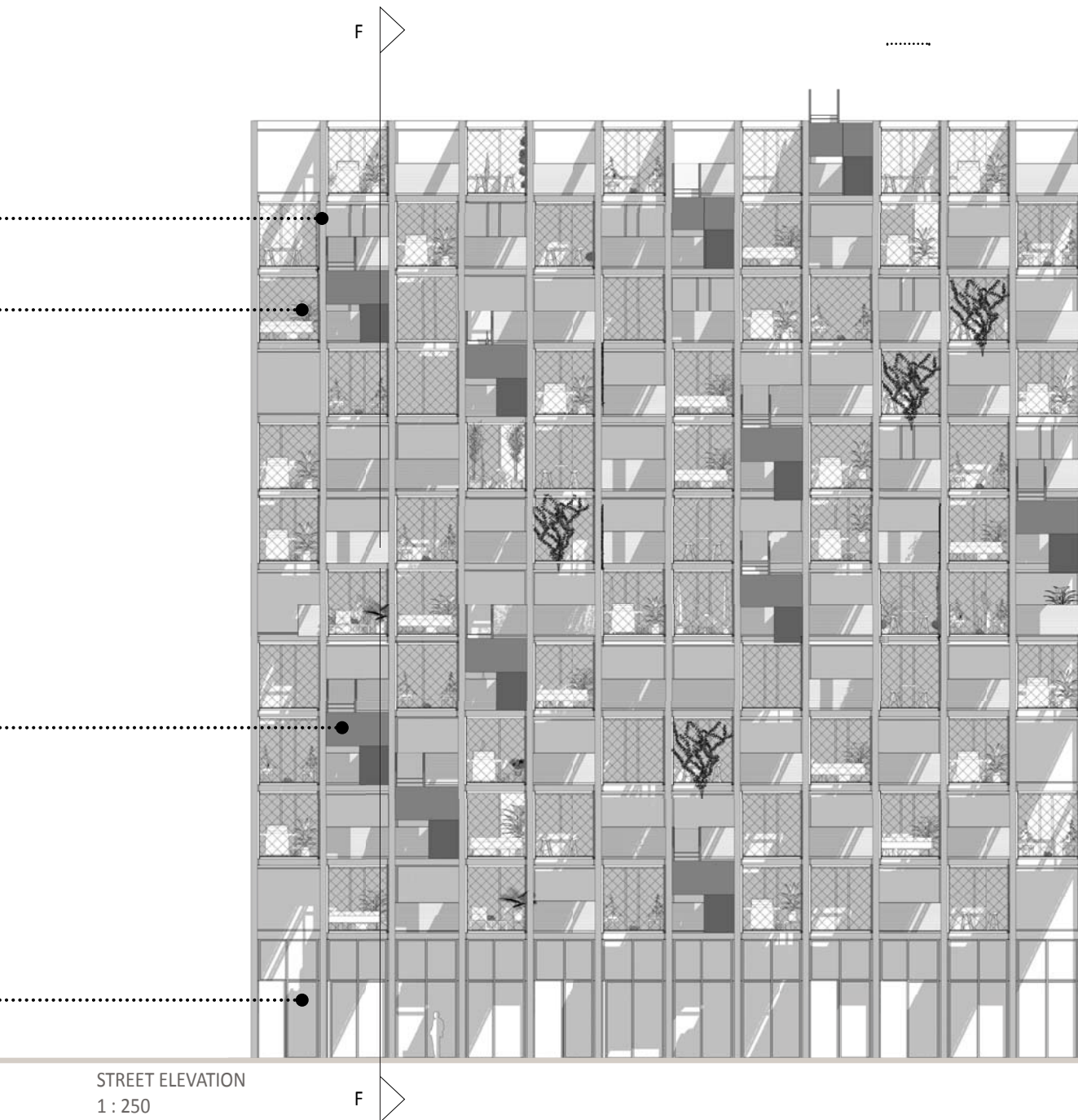
Colonnade used to express
verticality

Use of mesh cladding on
annexe areas allows the
building to host climbing
plants in outdoor areas (see
Case Study G4, pg. 30).
However, lack of shelter may
cause external living spaces to
be cold and windy.

Stairs recessed into nooks in
facade to provide shelter and
visual interest.

Rentable ground level.

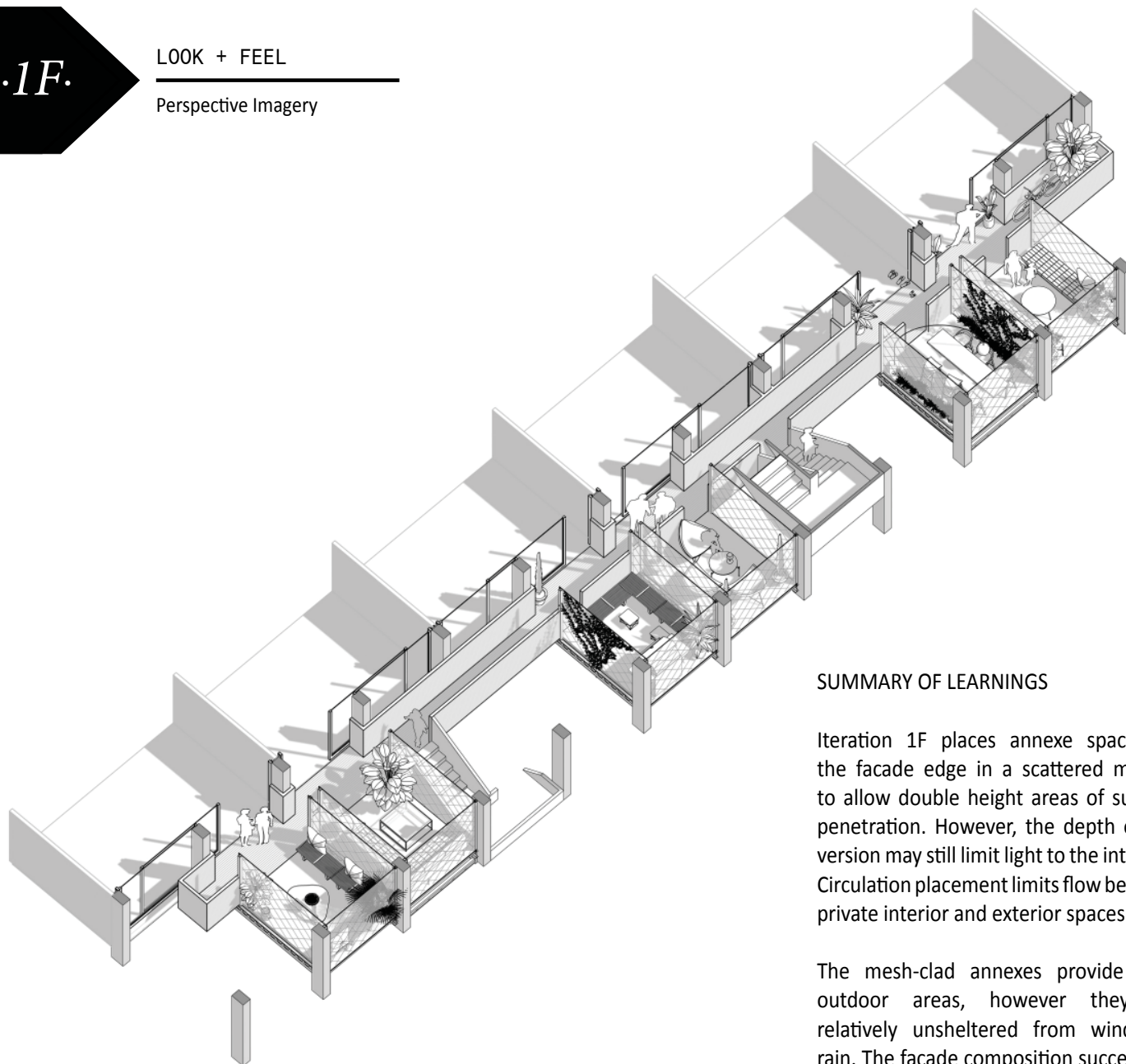




1F.

LOOK + FEEL

Perspective Imagery



SUMMARY OF LEARNINGS

Iteration 1F places annexe spaces on the facade edge in a scattered manner to allow double height areas of sunlight penetration. However, the depth of this version may still limit light to the interiors. Circulation placement limits flow between private interior and exterior spaces.

The mesh-clad annexes provide large outdoor areas, however they are relatively unsheltered from wind and rain. The facade composition successfully exposes life, but the facade elements could be further refined.



PHASE ONE: MAIN FINDINGS

A significant problem encountered in iterations A - F is the placement of private outdoor space within the applied living system.

Placing circulation on the outer facade edge allows direct flow between private interior and private exterior space. However, this placement also results in reduced sunlight to both internal and external inhabitable space.

Alternatively, when external living space is placed on the facade edge it allows inhabitable areas to receive the maximum sunlight, and allows the circulation zone to be encompassed into the outdoor space, effectively increasing the size of inhabitable outdoor area.

As a result of these observations, all inhabitable zones will be placed on the outer facade edge during Phase Two design proposals.



A.

ADVANTAGES:

Alternating colonnade levels with gallery / annexe levels creates double height outdoor spaces which increase sunlight penetration and create vertically spacious external living areas.

DISADVANTAGES:

Poor shelter from weather conditions.
Repetitive facade composition.



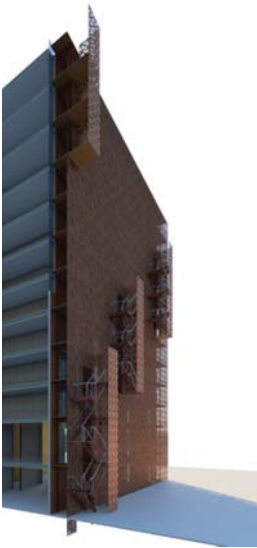
B.

ADVANTAGES:

Vertical glass louvers create sheltered winter gardens, and allow the tenant to expose or enclose outdoor living spaces dependant on weather conditions.

DISADVANTAGES:

Circulation placed above private outdoor space causes overlooking and inhibits privacy. Deep applied living system reduces sunlight to private interior space.



C.

ADVANTAGES:

Perforated facade allows a semi-exposed degree of visual permeability. Placement of inhabitable zone on facade edge encompasses circulation into outdoor living space (effectively increasing the outdoor space), and provides maximum light to inhabitable areas.

DISADVANTAGES:

Fixed metal screen offers little weather protection and reduces sunlight access.



D.

ADVANTAGES:

Bi-folding screen facade allows tenant to expose or enclose outdoor living spaces dependant on weather conditions / privacy requirements.

DISADVANTAGES:

Circulation located on outer facade edge combined with deep applied living system causes overshadowing of private outdoor / private indoor space.



E.

ADVANTAGES:

Fixed glass panels provide shelter to private outdoor space while maintaining sunlight access.

DISADVANTAGES:

Annexe areas do not align with units in plan, creating confusion regarding ownership of exterior living spaces.



F.

ADVANTAGES:

Vertically / horizontally staggered annexes produces double height voids, increasing sunlight penetration to interior space. This allows a deeper applied living system which consequently creates larger areas of private outdoor space.

DISADVANTAGES:

Mesh annexe walls offer little shelter from weather conditions and inhibit views out.

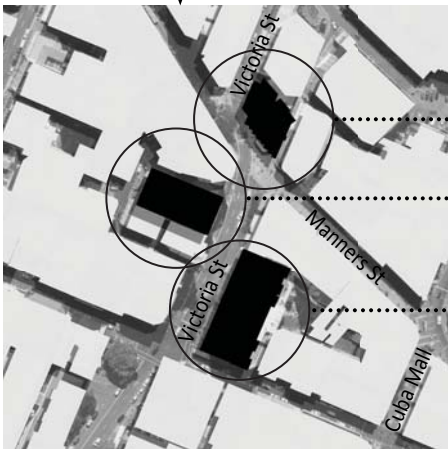
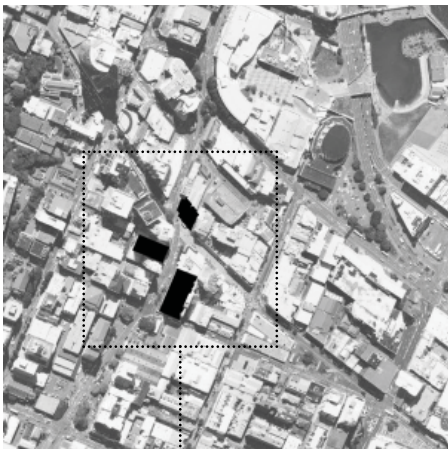
PHASE 2

Applied living site applications, Iterations A - C

PHASE TWO:

Phase One investigated applied living in a theoretical manner, without reference to a specific site.

Phase Two combines successful aspects of the Applied Living iterations from Phase One, and inserts them onto three sites in Wellington Central, adapting the applied living system as necessary to respond to site-specific conditions.



SITE LOCATION
Scale 1 : 1 000



Figure 5.2: Iteration A site location.
*Applied living integrated within
new build proposal.*



Figure 5.3: Iteration B site.
*External living applied
to existing building.*



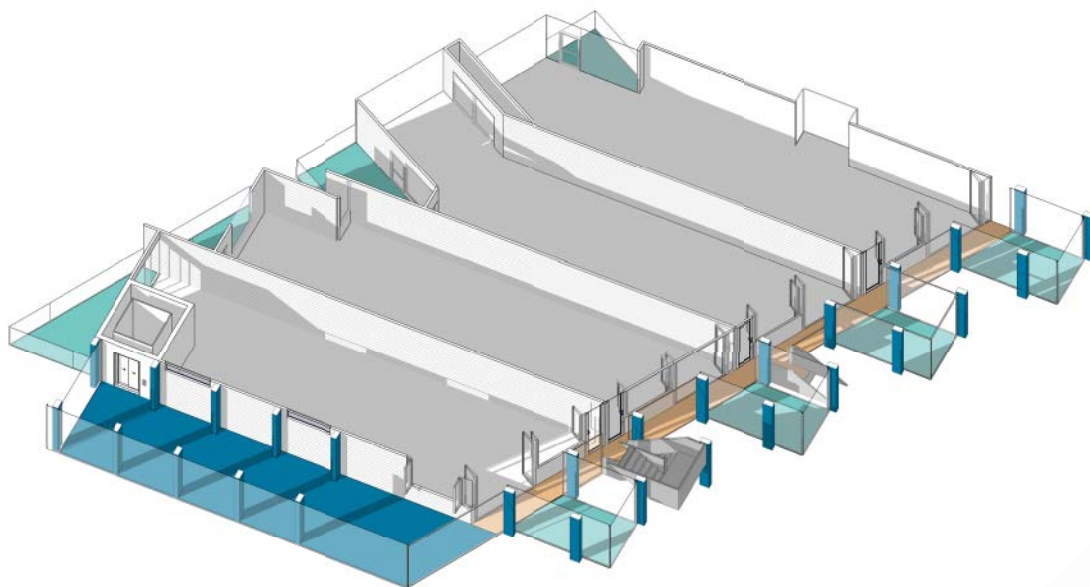
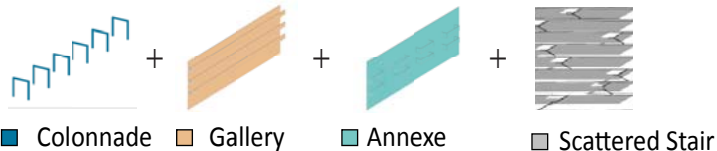
Figure 5.4: Iteration C site.
*External living applied
to existing building.*

2A

PHASE 2

Iteration A

APPLIED LIVING COMBINATION:

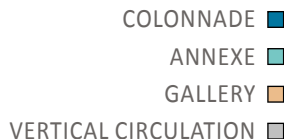


INITIAL SPATIAL RELATIONSHIPS

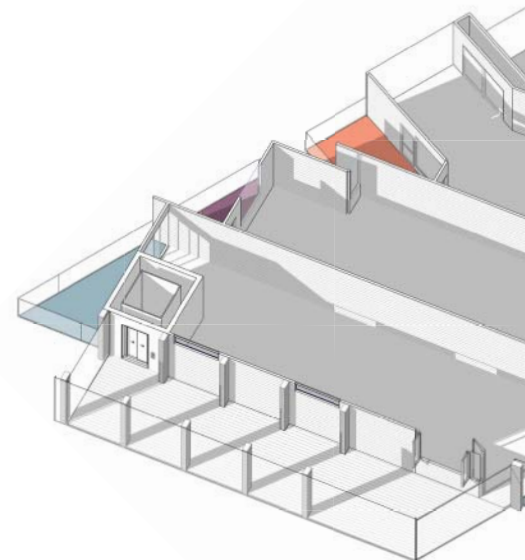
Iteration 2A is a development of phase one iteration 1F, integrated with aspects of iteration 1E.

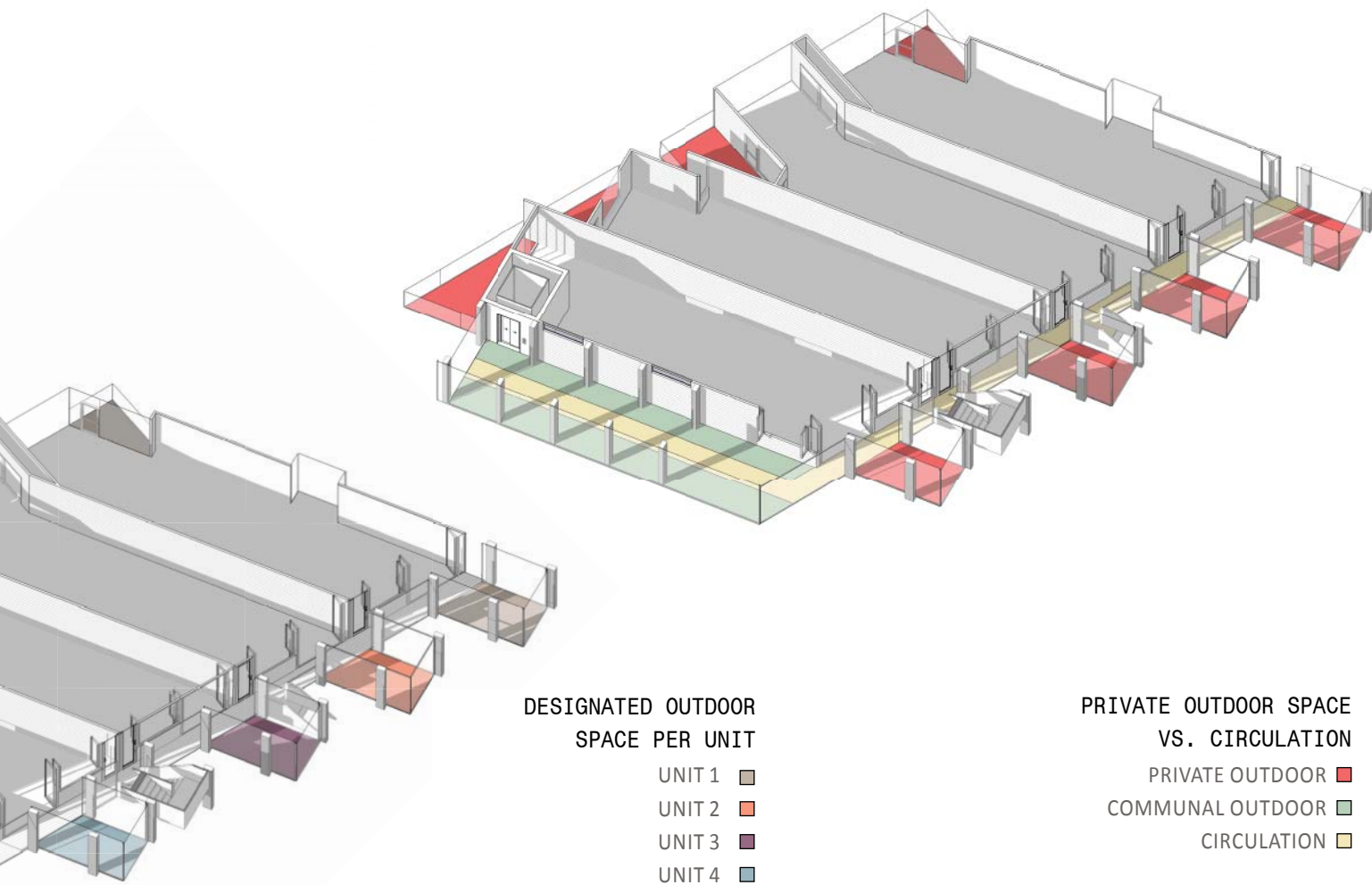
The units are accessed via a communal colonnade lift lobby, leading onto gallery access. The annexe spaces are placed on the south-west facade to engage with the busiest street frontage, and to receive afternoon/evening sun.

BASE BUILD VS. APPLIED LIVING



The full height glazed panels from iteration 1E are used to enclose the annexes instead of mesh to create sheltered, winter garden type exterior living spaces.



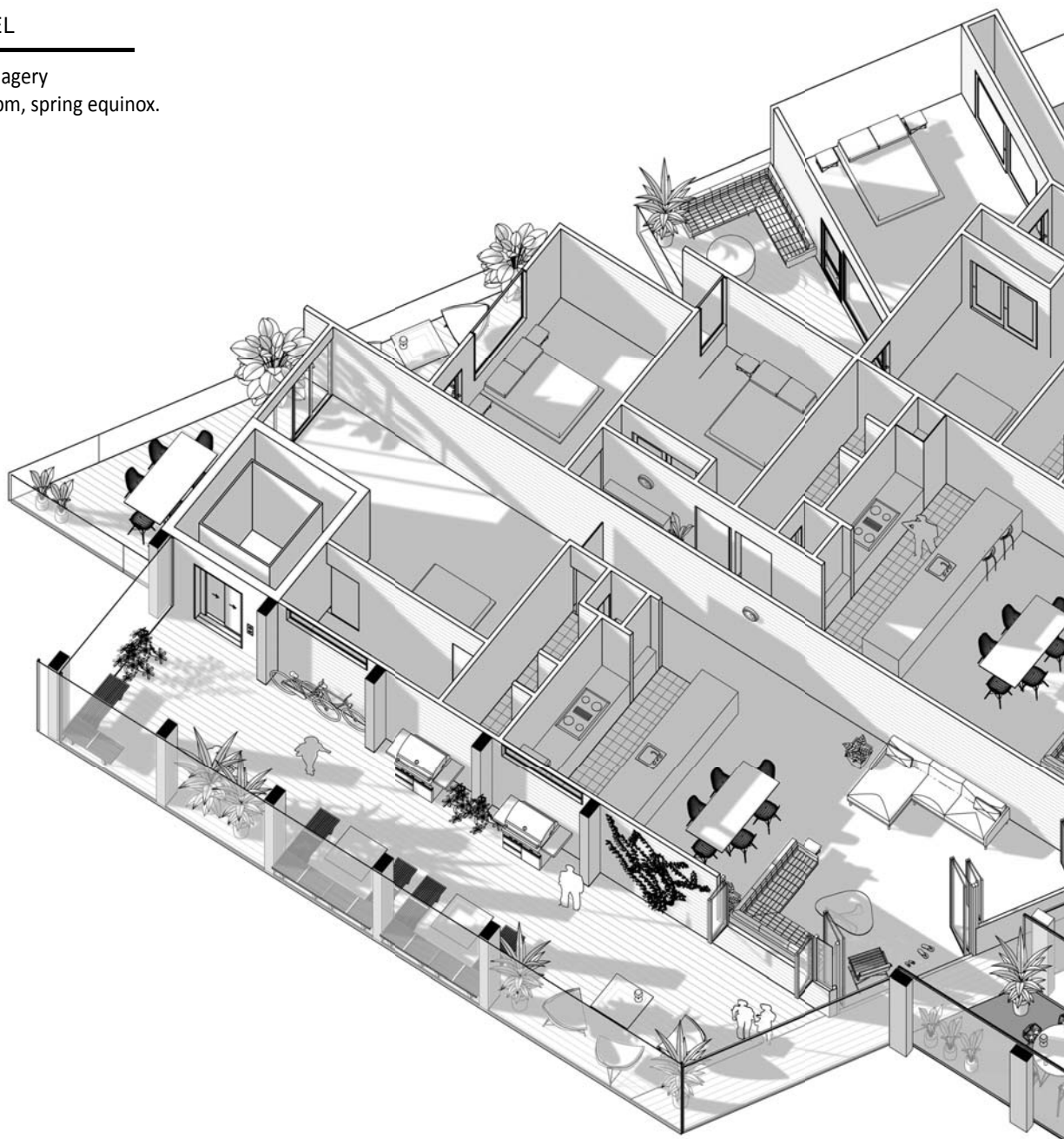


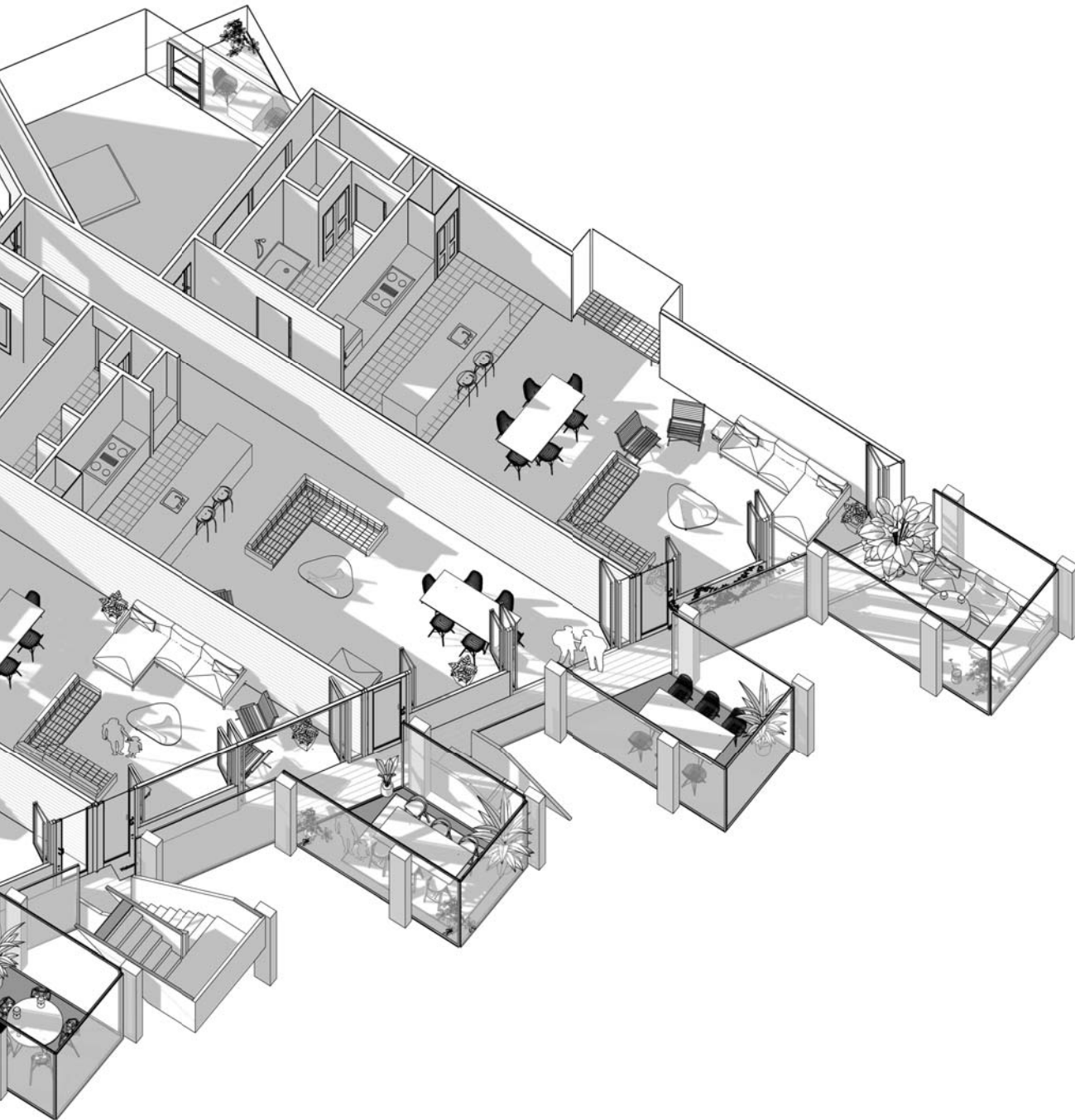
·2A·

LOOK + FEEL

Perspective Imagery

Sunlight at 12pm, spring equinox.





2A.

INHABITATION + PROXIMITY

Level 4 Plan

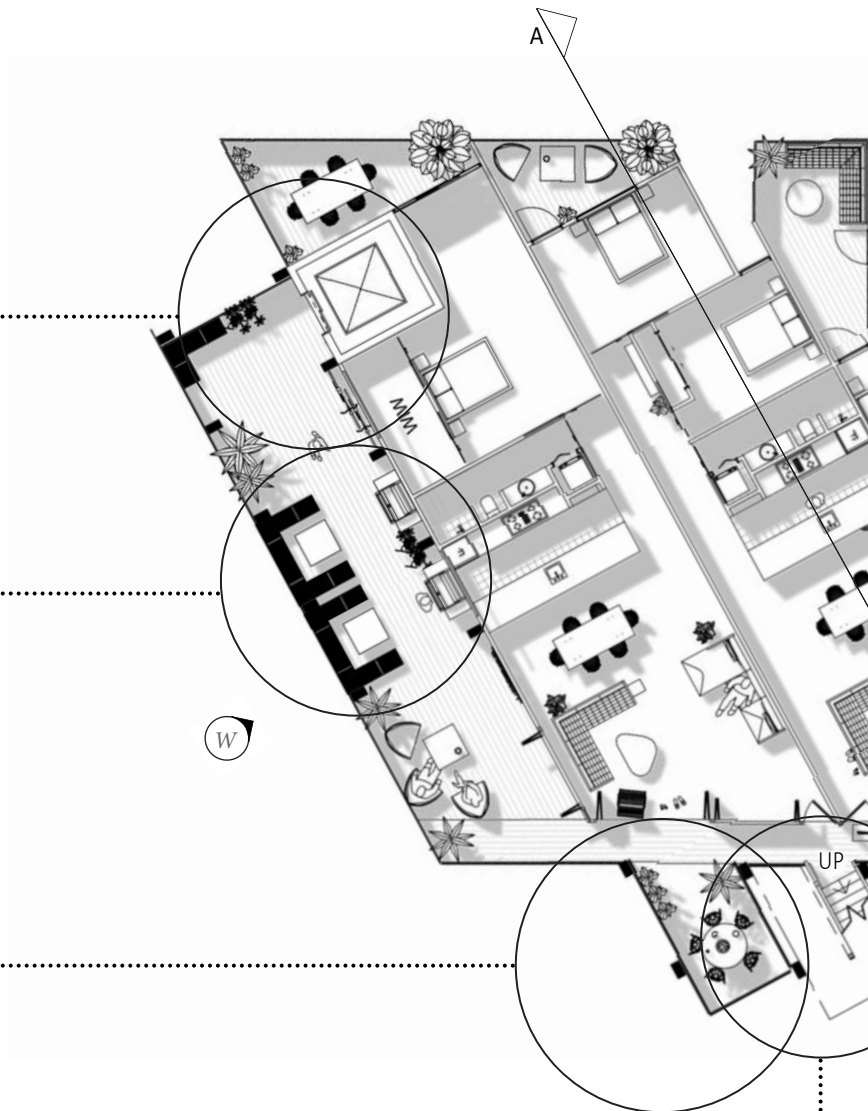
Scale: 1:200

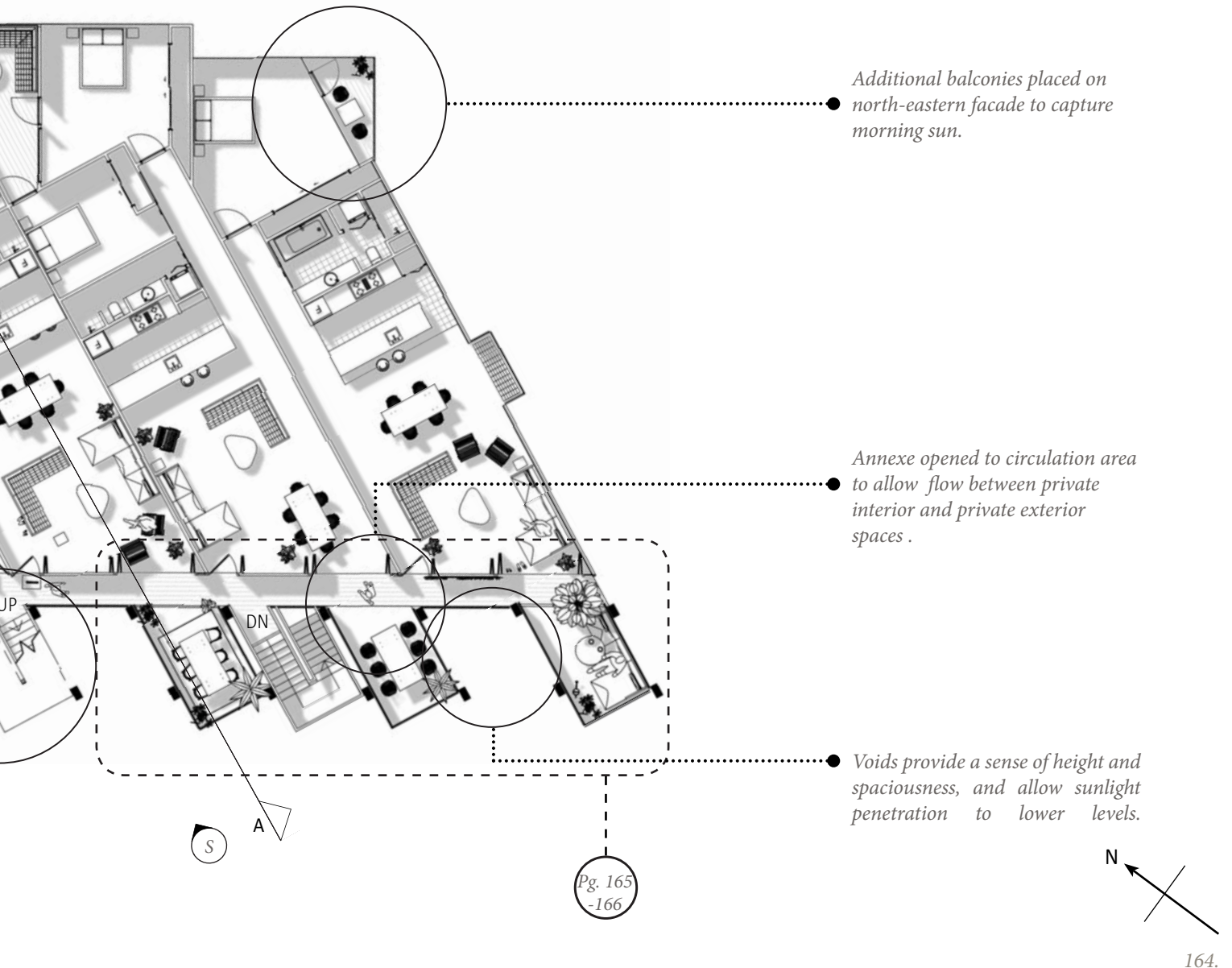
Direct access from lift to exterior space gives feeling of openness.

Shared facilities such as BBQ areas aim to encourage tenant interaction, and build neighbourliness.

Outdoor areas have full height glass walls to provide shelter from wind, while maintaining sunlight access.

External staircase connects levels, allowing tenants to move between levels without using internal corridors.

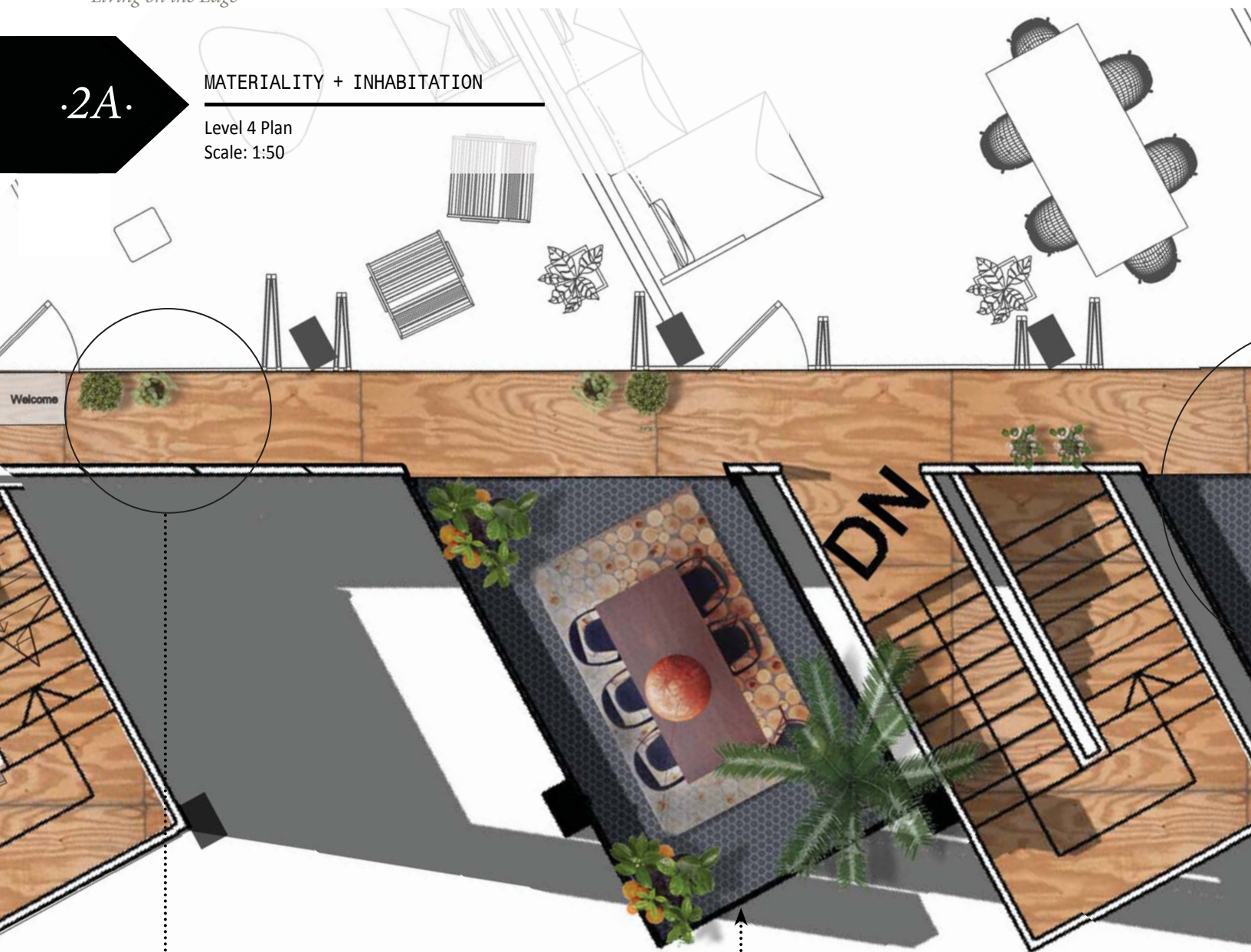




2A.

MATERIALITY + INHABITATION

Level 4 Plan
Scale: 1:50



● 1.2 metre wide gallery allows small scale occupation such as pot plants.

● Full height glazed annexe walls on three sides to provide shelter from wind.



● *Annexe opened to circulation area to allow flow between private interior and private exterior spaces .*

● *Threshold between circulation and private outdoor space is created through a change in materiality*

2A.

FACADE COMPOSITION

Elevational Investigations

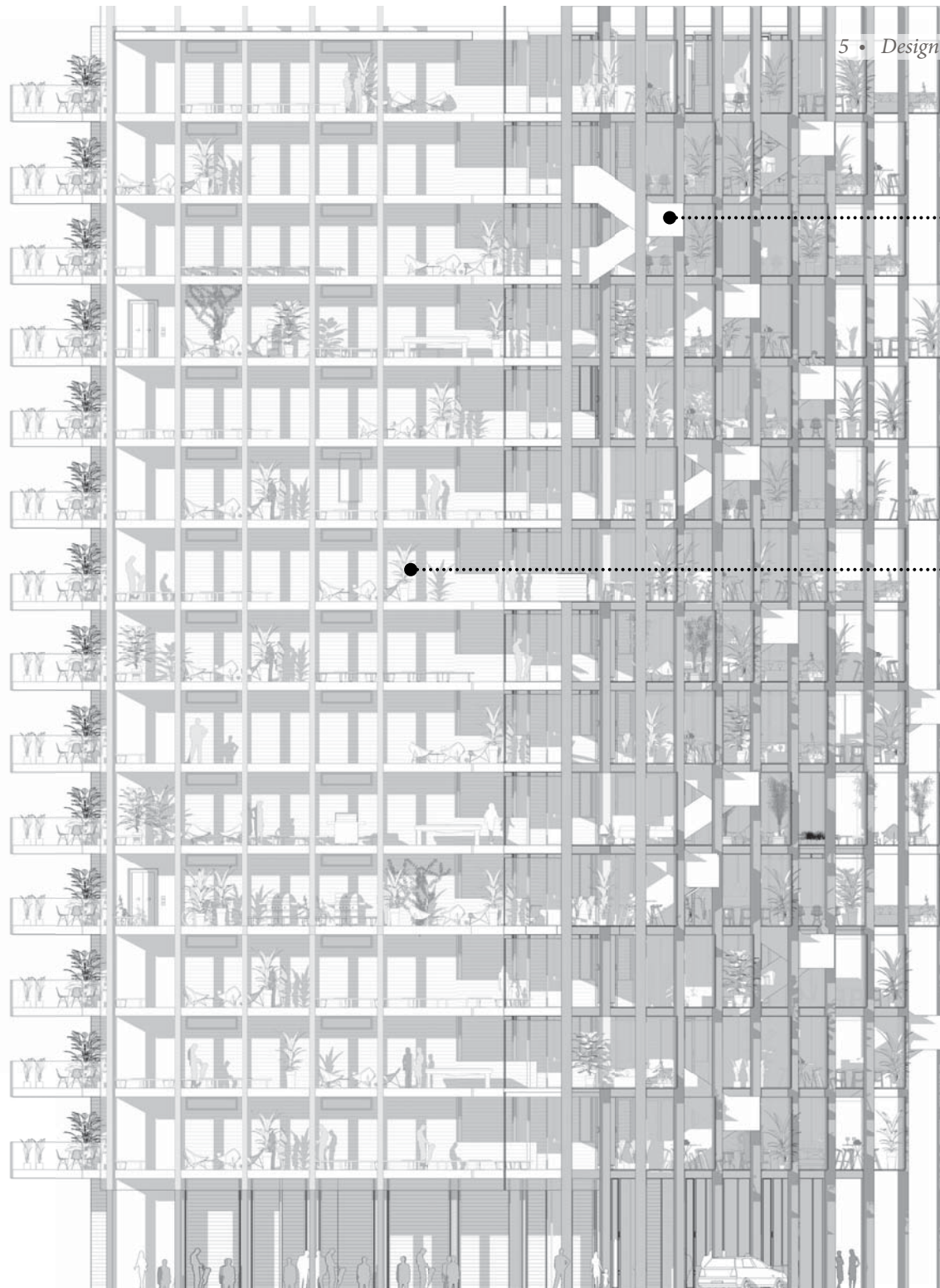
Annexes are staggered in plan to address the main street frontage (south elevation) and optimise sunlight access into external living spaces.

Annexes are staggered vertically and horizontally to allow sunlight access to internal spaces

South facade hosts the private outdoor space and gallery circulation.

Rentable ground level.





Stairs exposed and
scattered across facade

West facade contains
a communal lobby
space at each level.

2A.

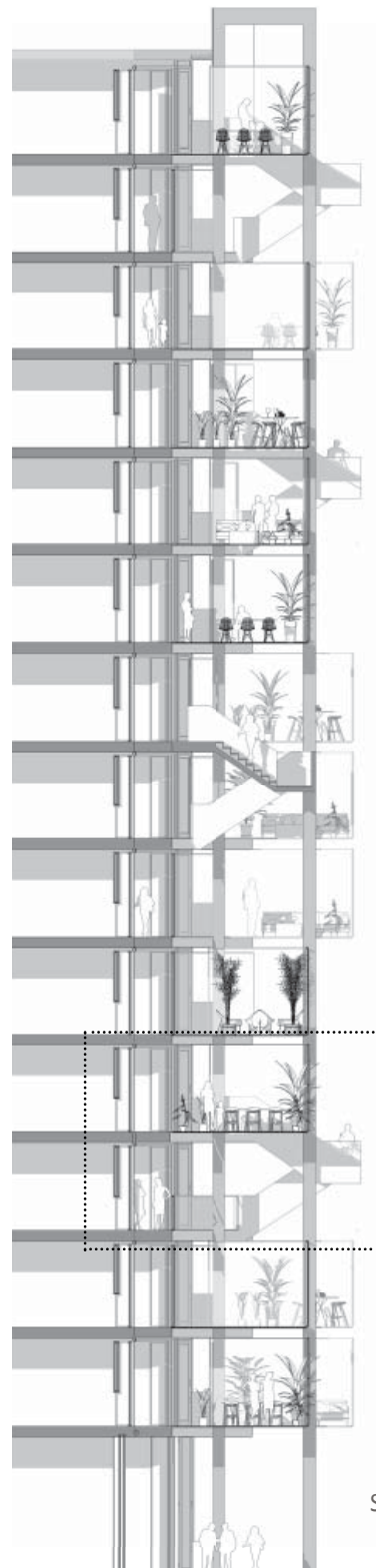
INTERACTION
VS. PRIVACY

Sectional Investigation

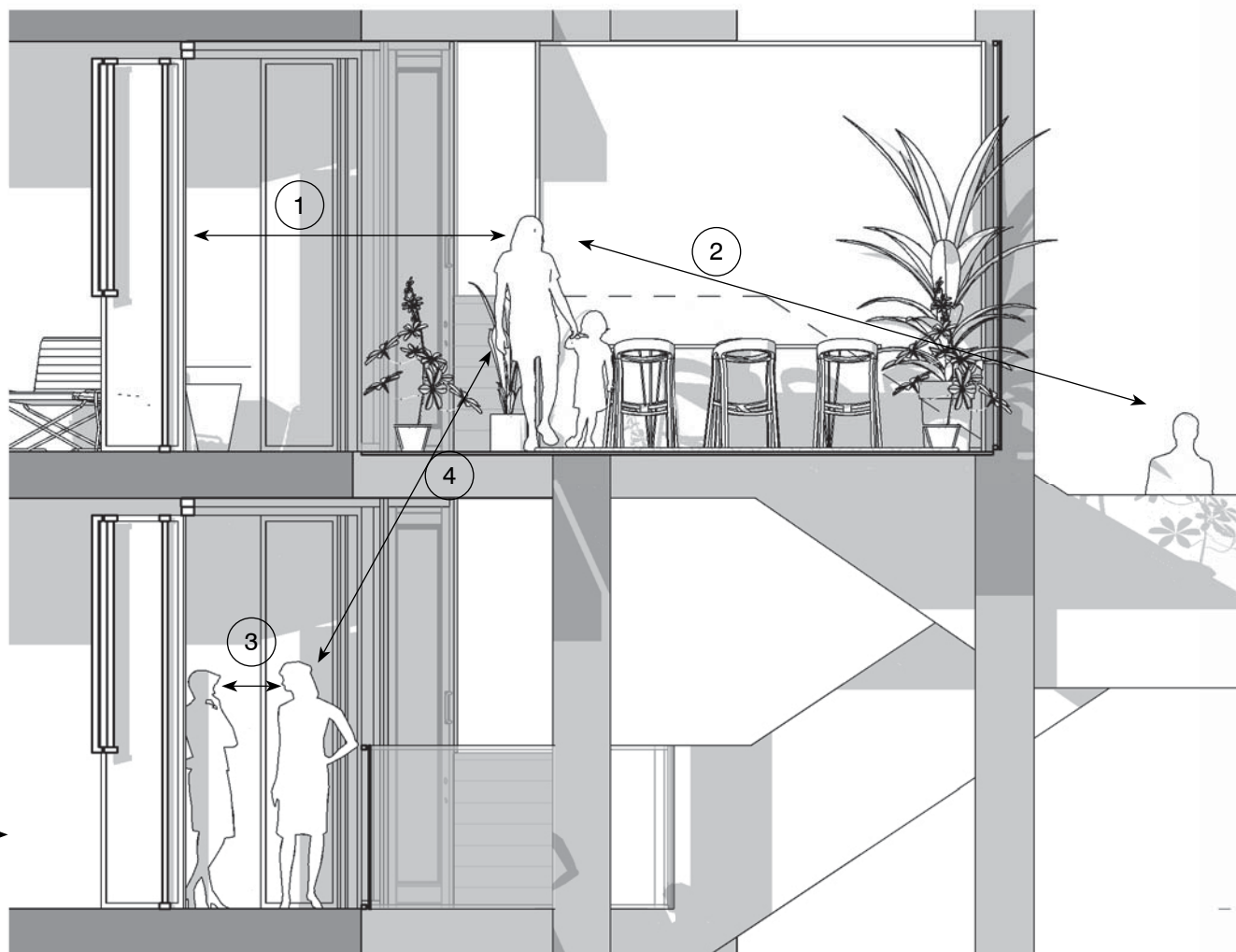
- 1 Open connection across circulation between private indoor and private outdoor space.
- 2 Visual awareness of vertical circulation from private outdoor space / gallery.
- 3 Visual connection between private outdoor space / circulation at different levels.
- 4 Chance interaction between tenants at interface between private indoor space and circulation.

169.

R
14
13
12
11
10
09
08
07
06
05
04
03
02
01
G



SECTION AA
1 : 250



DETAILED SECTION
1 : 50

2A.

LOOK + FEEL

Visualization Imagery



Figure 5.5: Interior perspective of communal lobby space, with indication of potential uses and inhabitation.

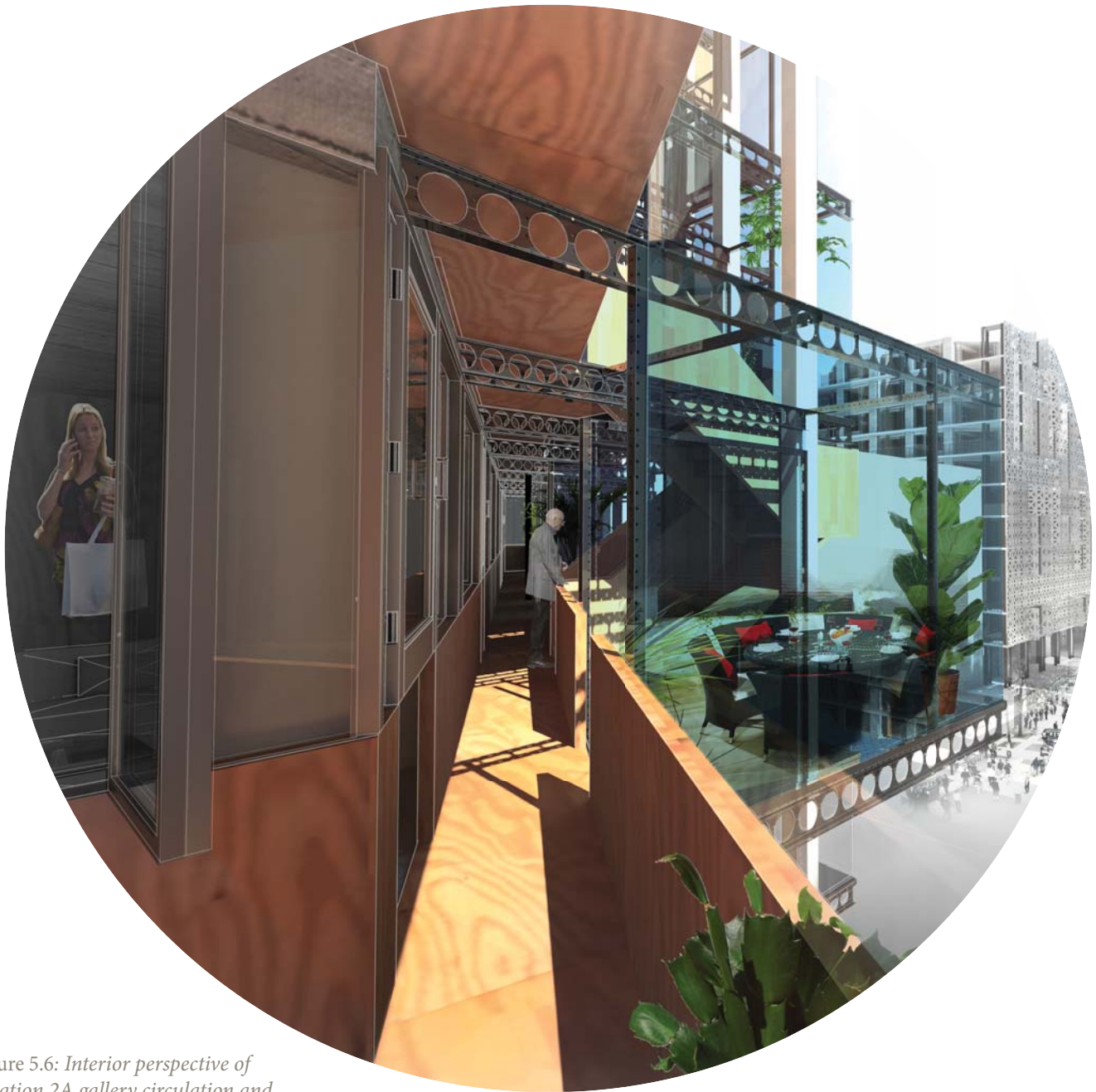


Figure 5.6: *Interior perspective of iteration 2A gallery circulation and annexe spaces on south western facade.*

2A

LOOK + FEEL

Visualization Imagery

SUMMARY OF LEARNINGS

Iteration 2A places annexe spaces on the southern facade edge to enliven the primary street frontage (Manners Street).

The scattered annexe aesthetic from iteration 1F is maintained, however the mesh annexe walls have been replaced by full height glazing (from iteration 1E) to provide shelter to private outdoor spaces.

Problems encountered:

- Creating habitable outdoor spaces on a south-facing facade. The exterior living spaces were angled and full height glazed walls implemented to optimise the limited sunlight access.
- Defining an approach to interior planning was difficult, as the applied living system prioritises exterior living spaces at the expense of interior amenity.

Insights:

- The applied living scheme works best when implemented as a supplementary outdoor living system for existing buildings. This will be explored in iterations 2B and 2C.

Figure 5.7: Exterior view of Iteration 2A applied living system and activated street edge. View of southern elevation.

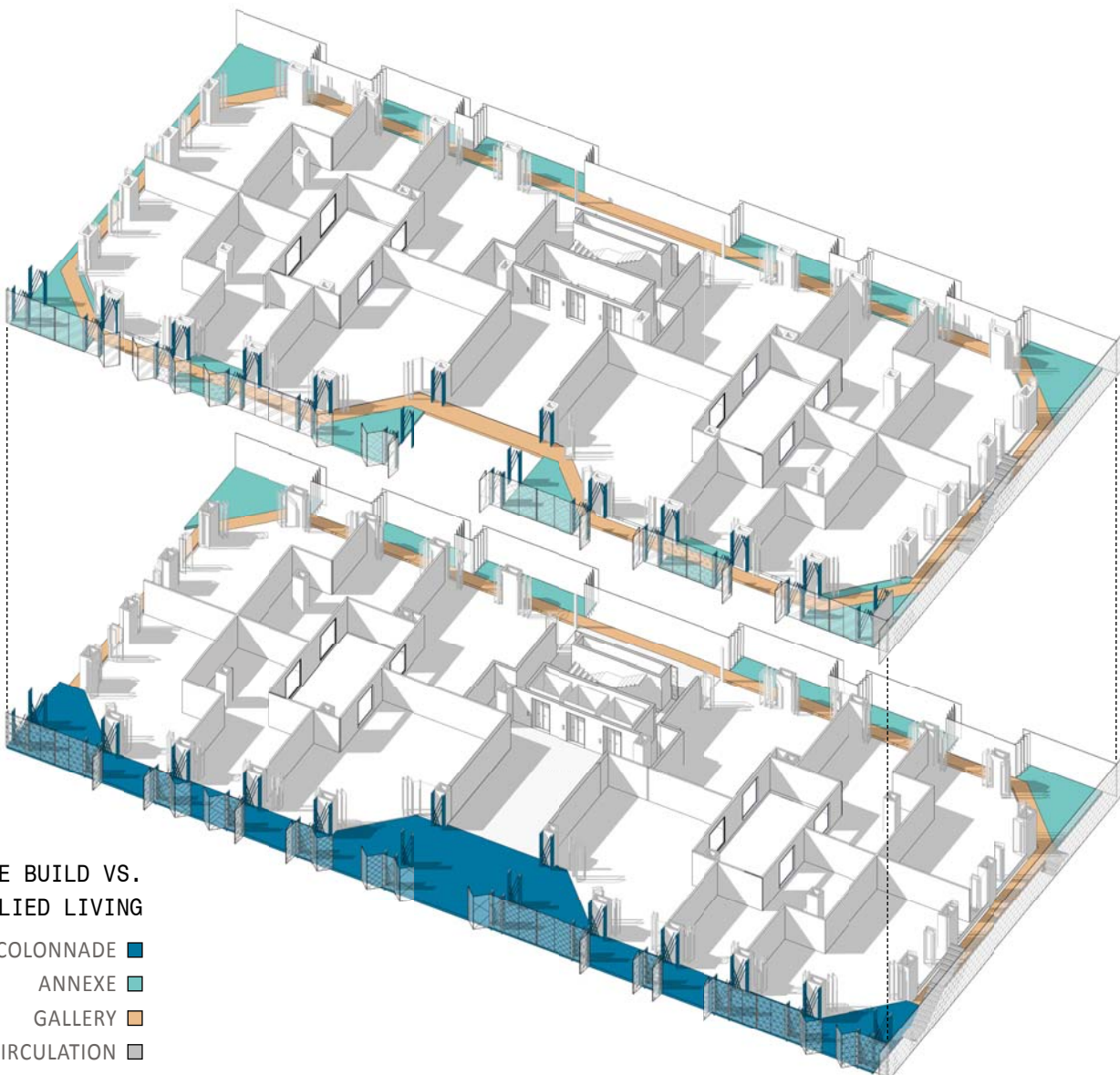
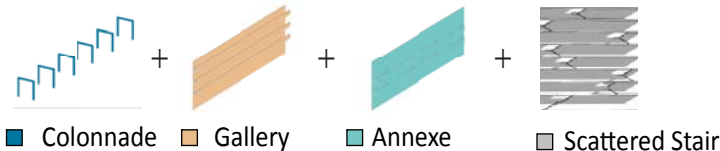


2B.

PHASE 2

Iteration B

APPLIED LIVING COMBINATION:



BASE BUILD VS.
APPLIED LIVING

- COLONNADE ■
- ANNEXE ■
- GALLERY ■

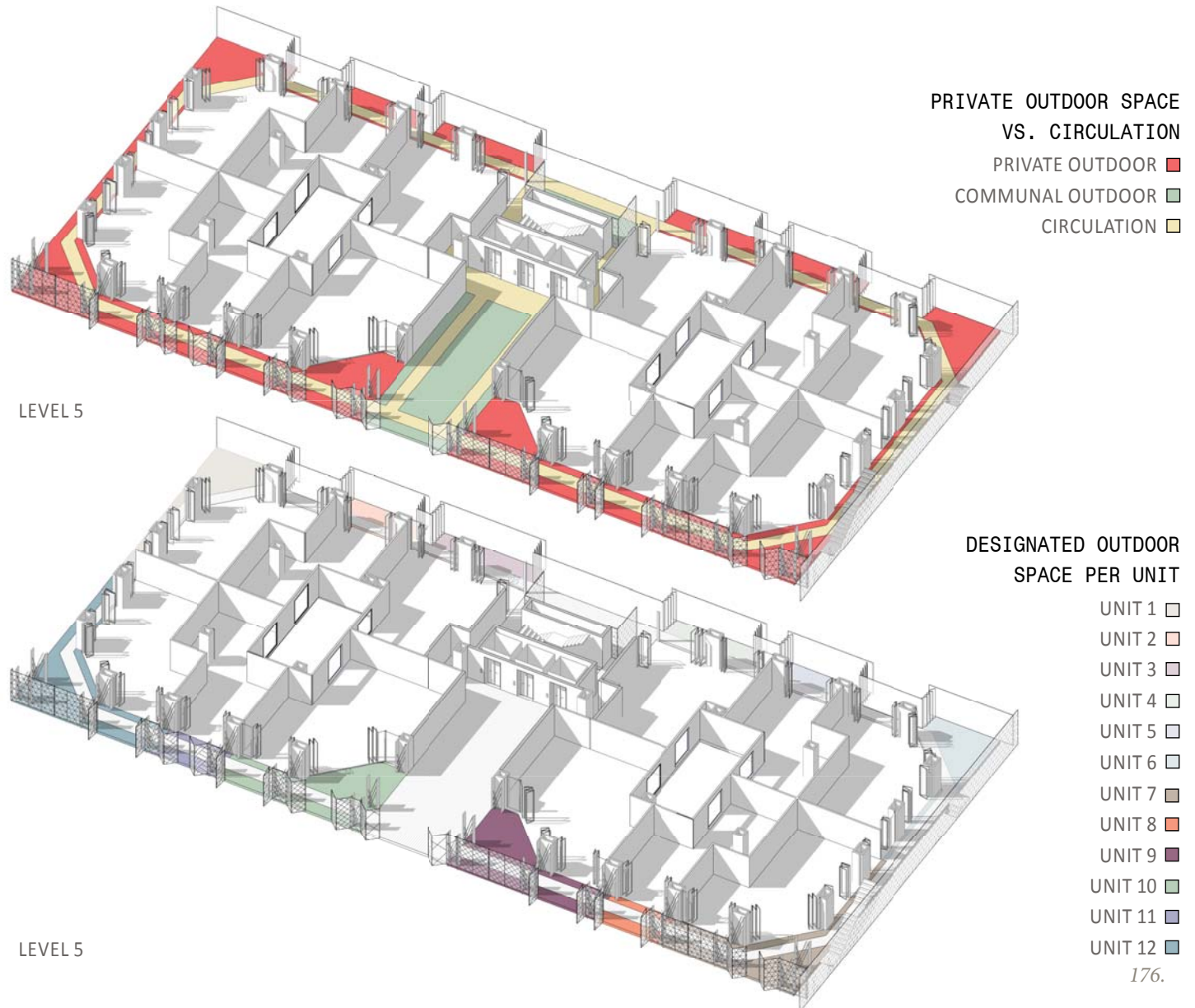
VERTICAL CIRCULATION ■

INITIAL SPATIAL RELATIONSHIPS

The Iteration 2B applied living system combines aspects of iterations 1A, 1B, 1C and 1D to create external spaces that vary dependant on facade orientation.

The units are accessed via the original building's central core, leading to a central lift lobby / shared social space that connects to the exterior living / circulation spaces.

Each apartment is single storey, with outdoor living space which varies dependant on orientation.

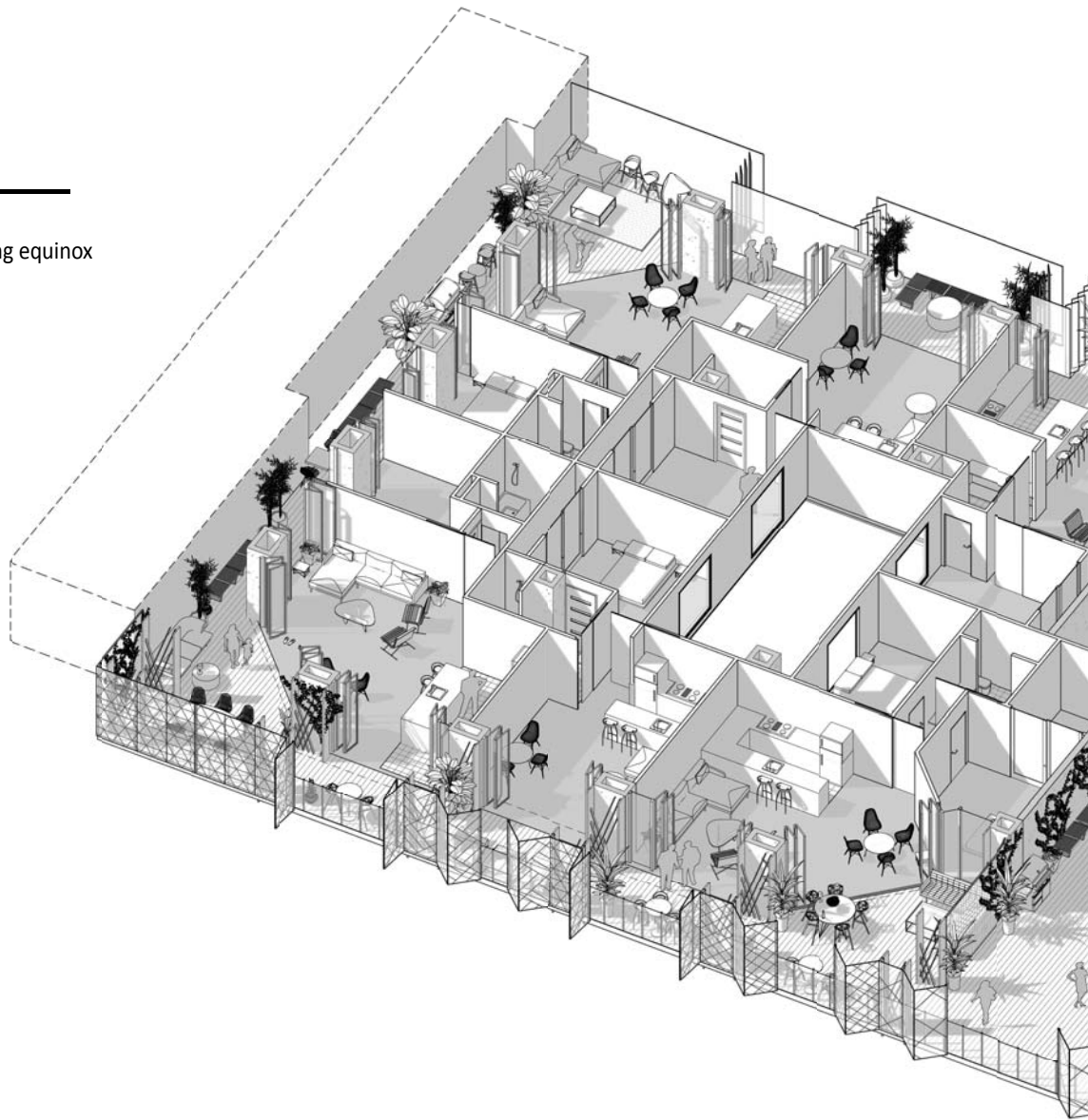


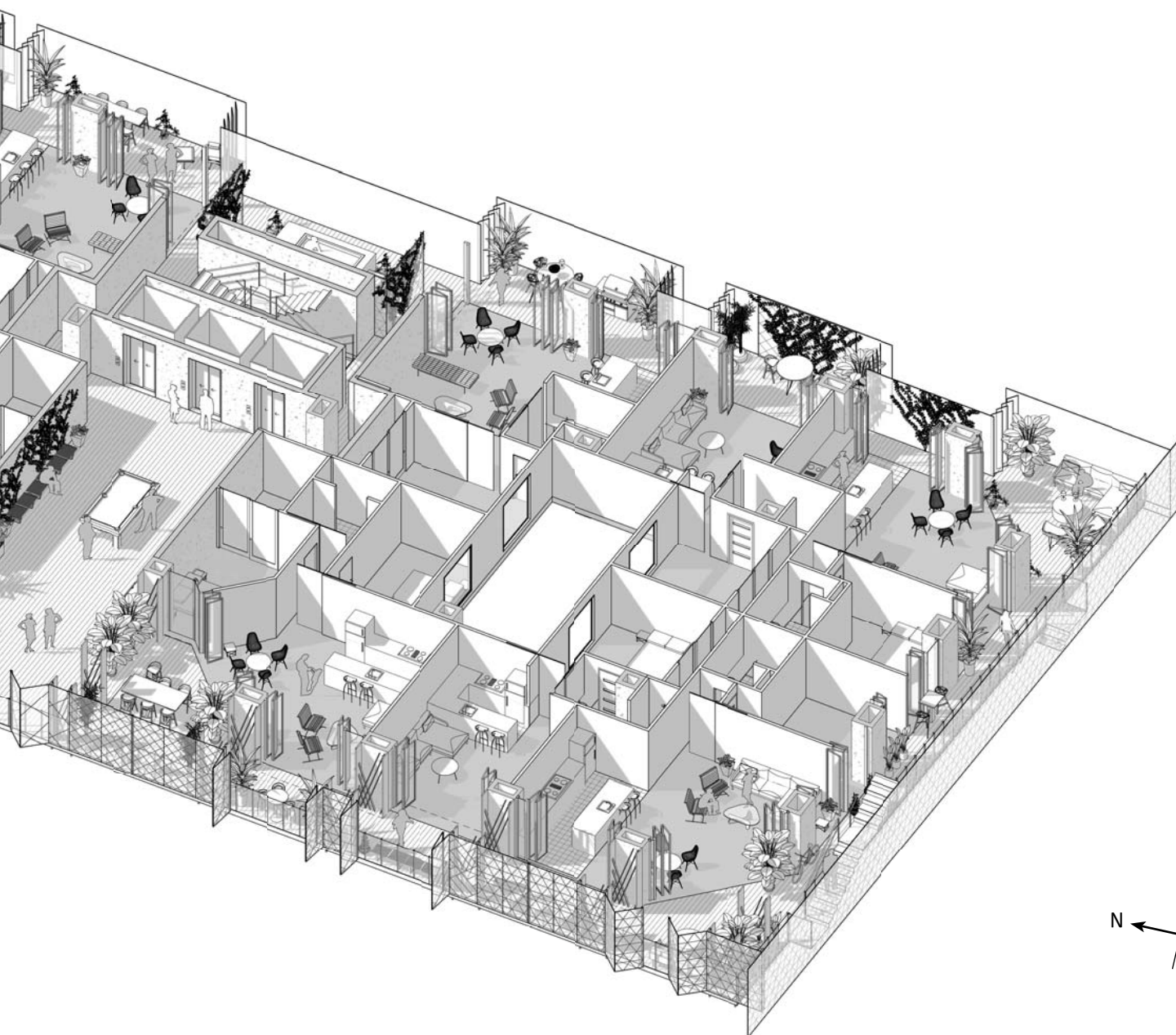
2B.

LOOK + FEEL

Perspective Imagery

Sunlight at 12pm, spring equinox





2B.

INHABITATION + PROXIMITY

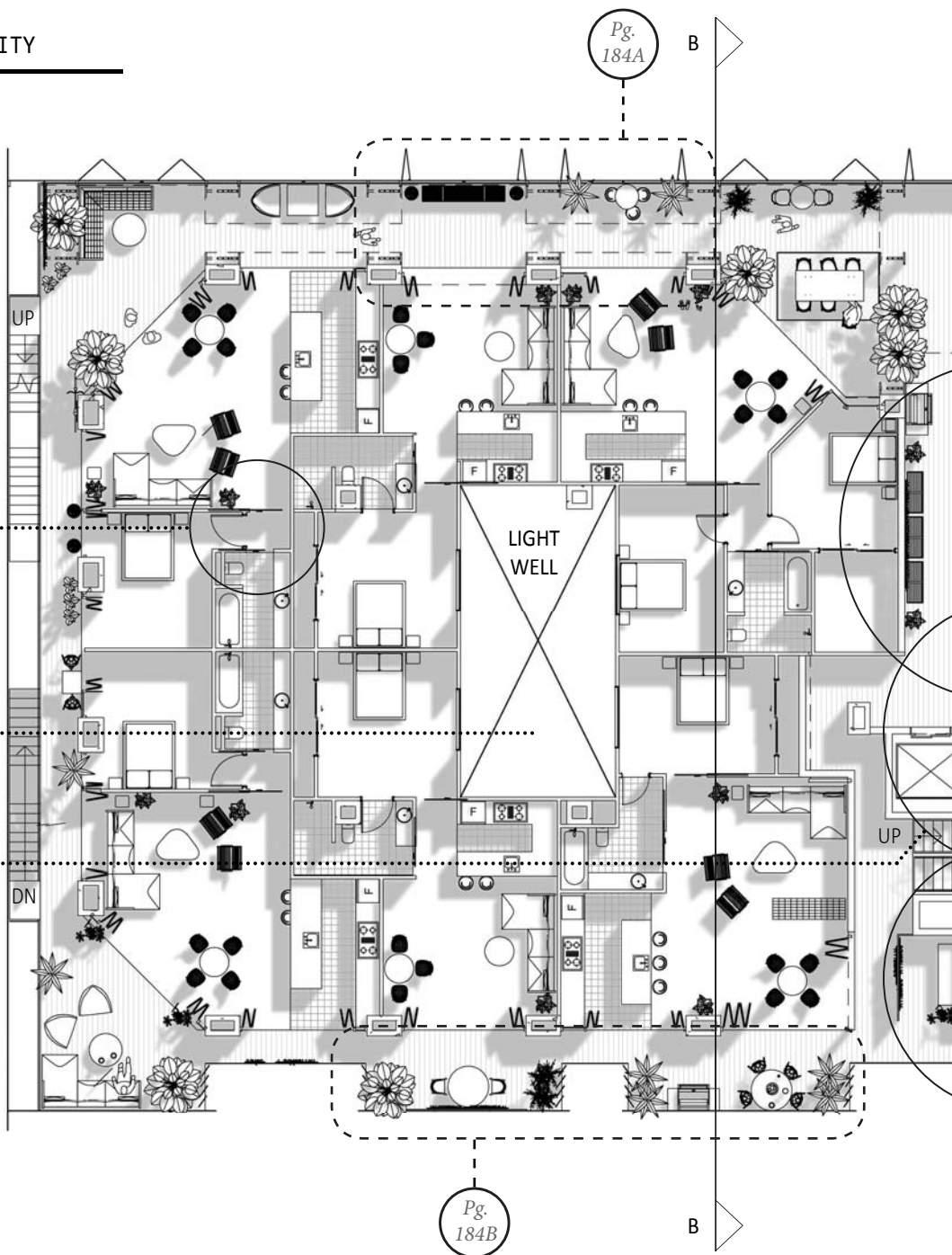
Level 4 Plan

Scale: 1:200

All apartments are planned to allow movement between the bedrooms and bathroom without visibility from the living areas or external circulation space.

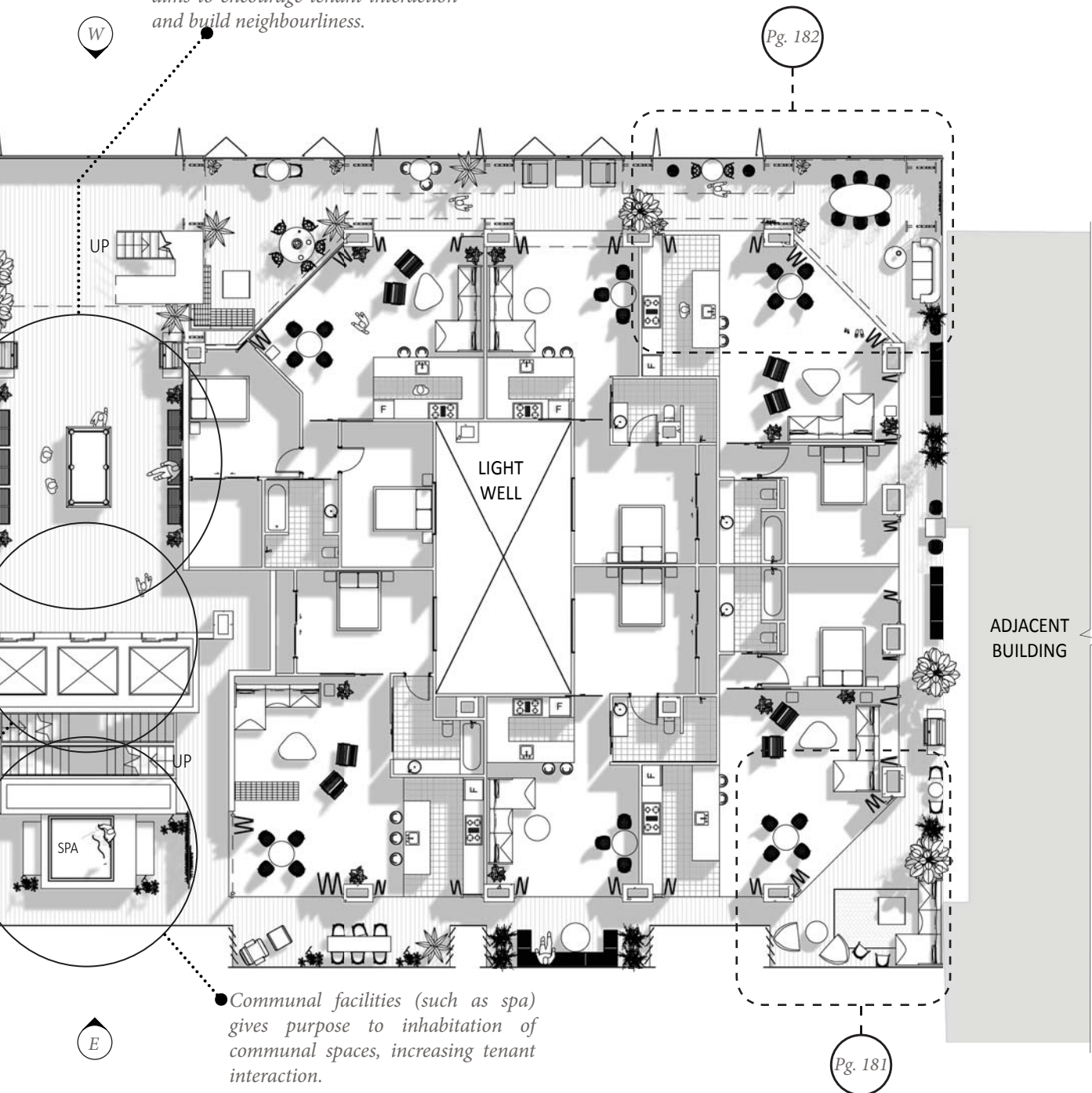
Light wells inserted to provide light to internal bedrooms.

Direct access from lift into lobby with view to street gives feeling of openness. Core placement remains from original building.



Shared pool table area in lift lobby
aims to encourage tenant interaction
and build neighbourliness.

Pg. 182



ADJACENT
BUILDING

Communal facilities (such as spa)
gives purpose to inhabitation of
communal spaces, increasing tenant
interaction.

Pg. 181

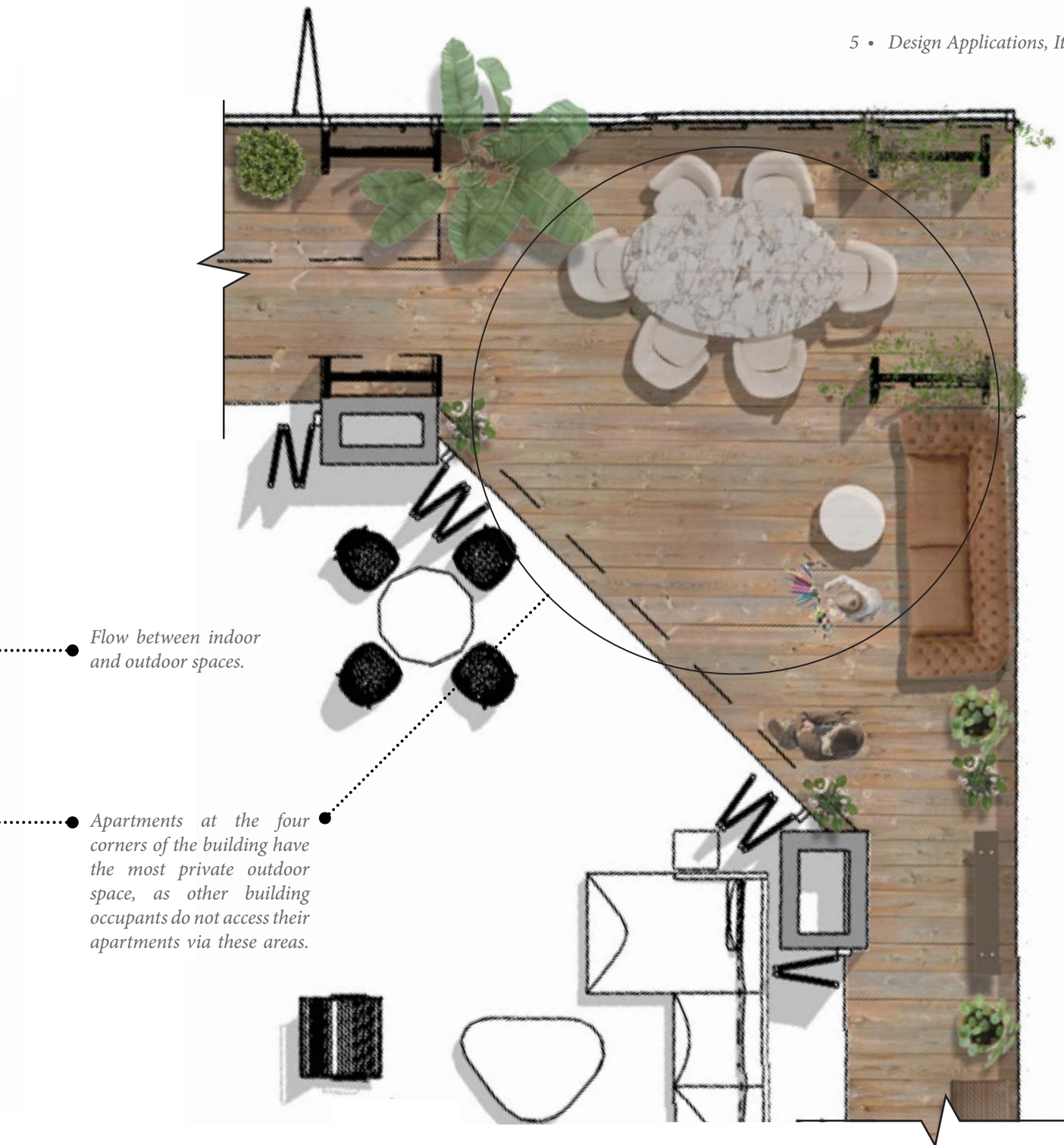
180.

2B.

INHABITATION + PROXIMITY

Level 4 Detail Plans
Scale: 1:50



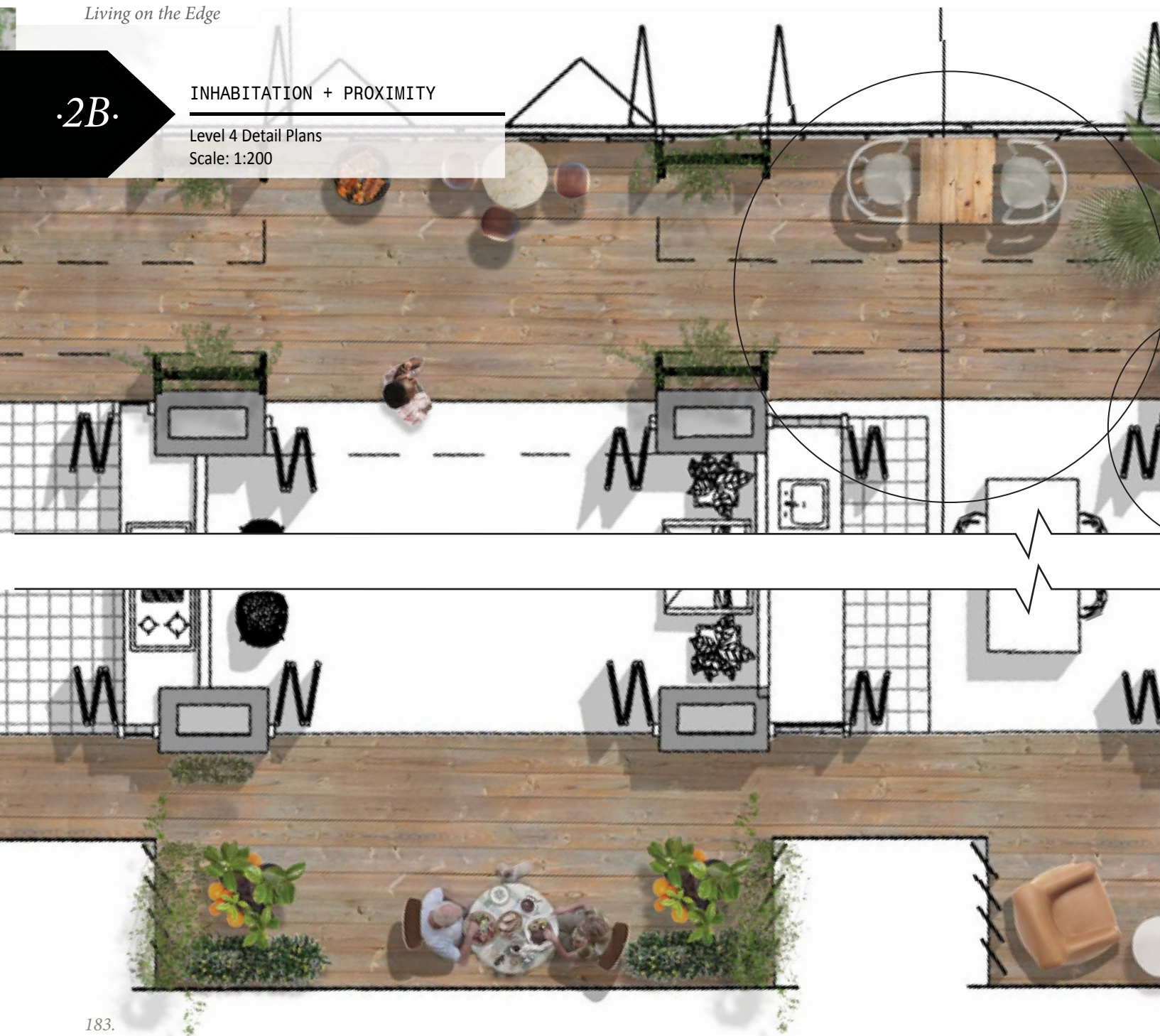


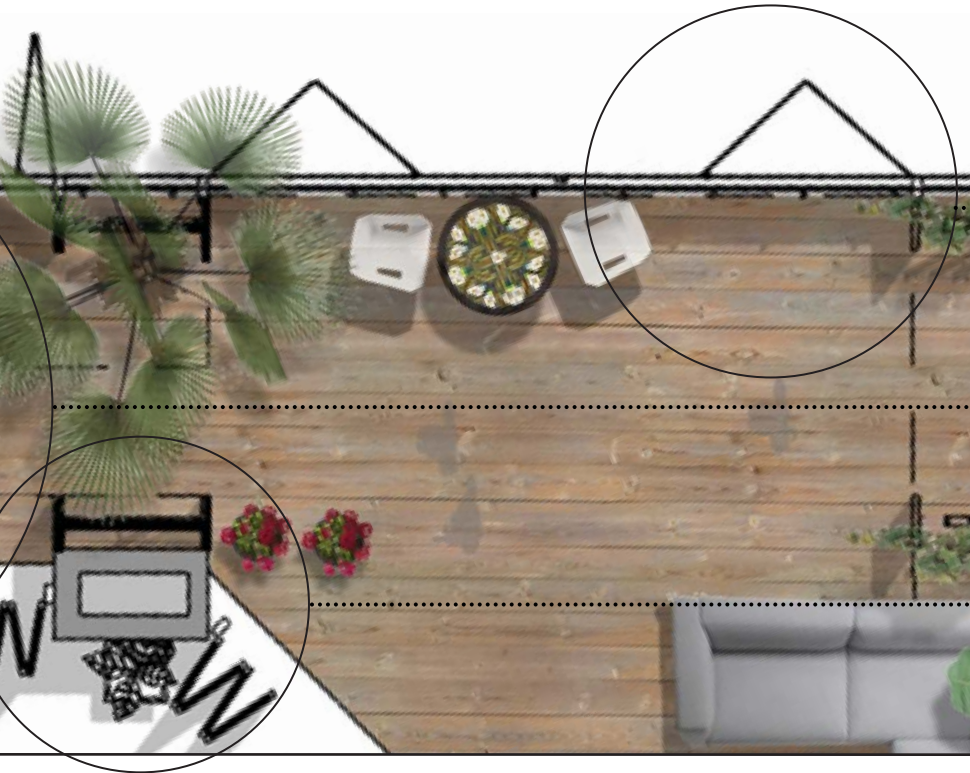
2B.

INHABITATION + PROXIMITY

Level 4 Detail Plans

Scale: 1:200



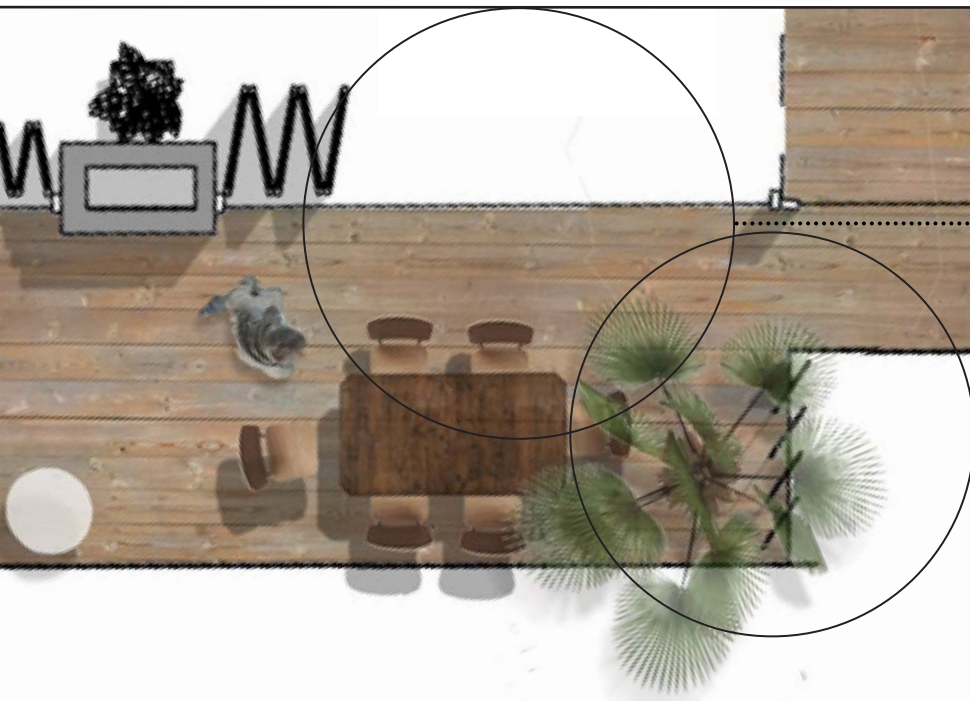


Full height operable metal bi-folding screens allow tenants to decide on their degree of shelter and privacy from the street

Adjacent circulation and living spaces encourage tenant interaction.

Column placement between units creates slight spatial separation, and implies niches for occupation.

A.



B.

Circulation zone becomes integrated into outdoor space. This is beneficial, as the circulation takes on multiple uses, and makes a more spacious outdoor living area.

Winter gardens on eastern facade provide a sheltered outdoor area. Vertical glass louvres allow localized climate control for tenants.

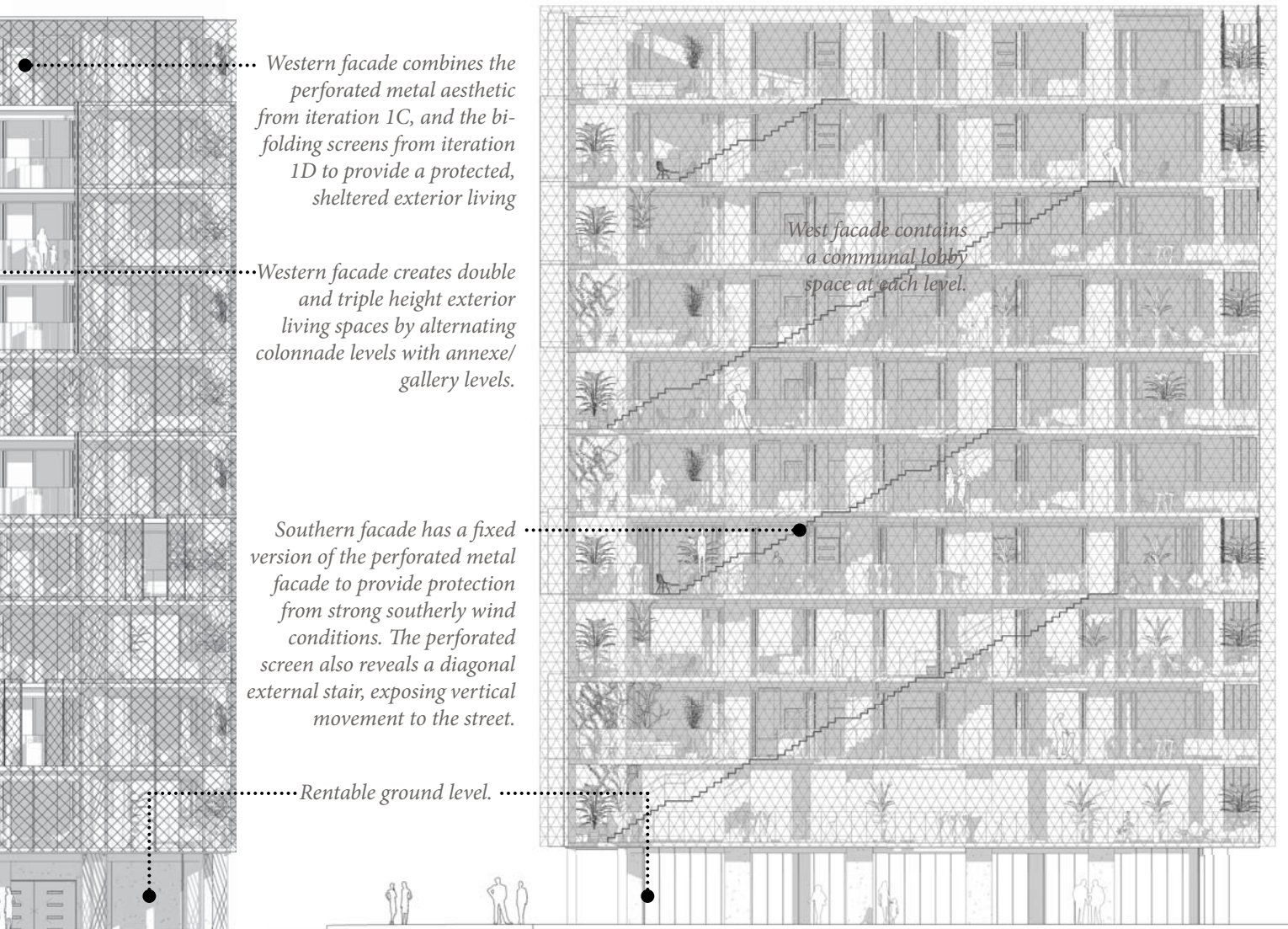
2B.

FACADE COMPOSITION

Elevational Investigations



WEST ELEVATION
1 : 250



SOUTH ELEVATION
1 : 250

2B.

FACADE COMPOSITION

Elevational Investigations

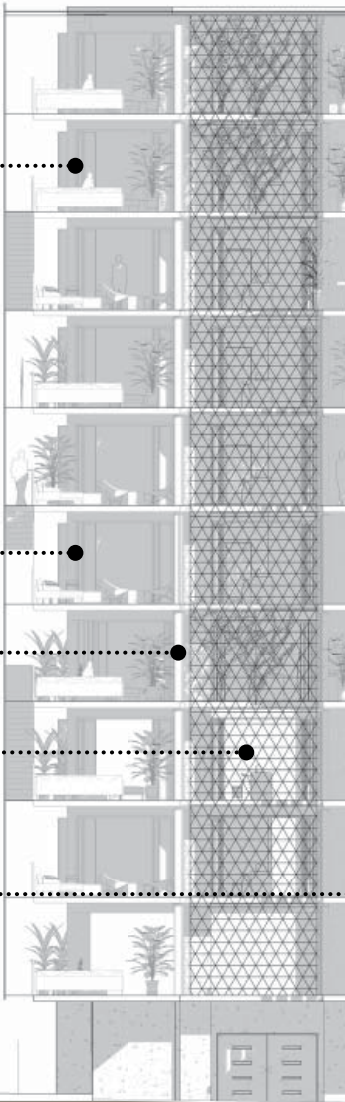
The eastern facade is shaded by surrounding buildings. To create liveable external environments, winter garden annexe spaces are used here, with one fixed glazed panel and two sides with operable glass louvres. This allows tenants to have control over the internal environment.

Annexe

Vertical glass louvres

Fixed perforated metal screen in recessed circulation only zones

Communal area on each storey (spa shown here in plan).



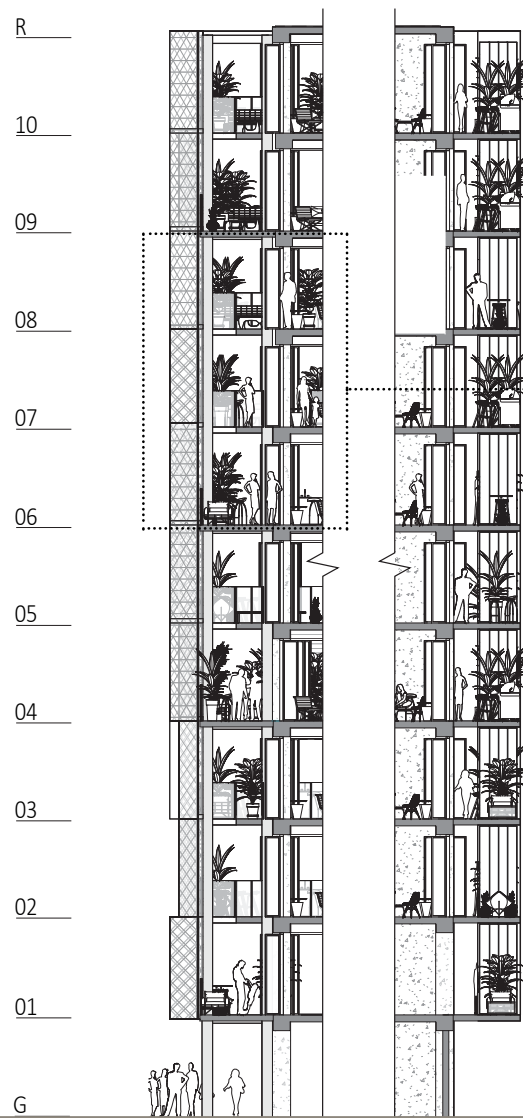


2B.

INTERACTION
VS. PRIVACY

Sectional Investigation

- 1 Interactions between tenants at interface between private indoor and gallery space. A small void is used to physically separate circulation from private indoor space, adding privacy.
- 2 Visual awareness of vertical circulation from private outdoor space / gallery.
- 3 Chance interactions between tenants in colonnade area, at interface between private indoor / private outdoor space and circulation



SECTION BB
1 : 250



DETAILED SECTION
1 : 50

2B.

LOOK + FEEL

Visualization Imagery



SUMMARY OF LEARNINGS

Iteration 2B integrates aspects of four phase one iterations to create different applied living conditions on each facade in response to orientation and environmental conditions.

Positives:

- The combination of living areas and access with triple height areas creates socially and aesthetically engaging spaces.

Problems encountered:

- To create privacy from neighbouring tenants in the applied living area, bedrooms are placed towards the building core. However, the large floor plate of the original building (previously an office space) creates problems providing daylight to central rooms. Light wells were inserted to achieve this, however, adding light wells to an existing building increases cost and may reduce validity.

Insights:

- The applied living scheme is most successful when implemented on existing buildings with a small floor plate.

Figure 5.8: (Left) West elevation view of Iteration 2B, showing activated street edge and materiality of perforated metal screening.



Figure 5.9: Iteration 2B applied living space on western facade. Image shows triple height colonnade with annexe and galleries above.
192.

.2C.

PHASE 2

Iteration C

APPLIED LIVING COMBINATION:



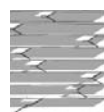
Gallery

+

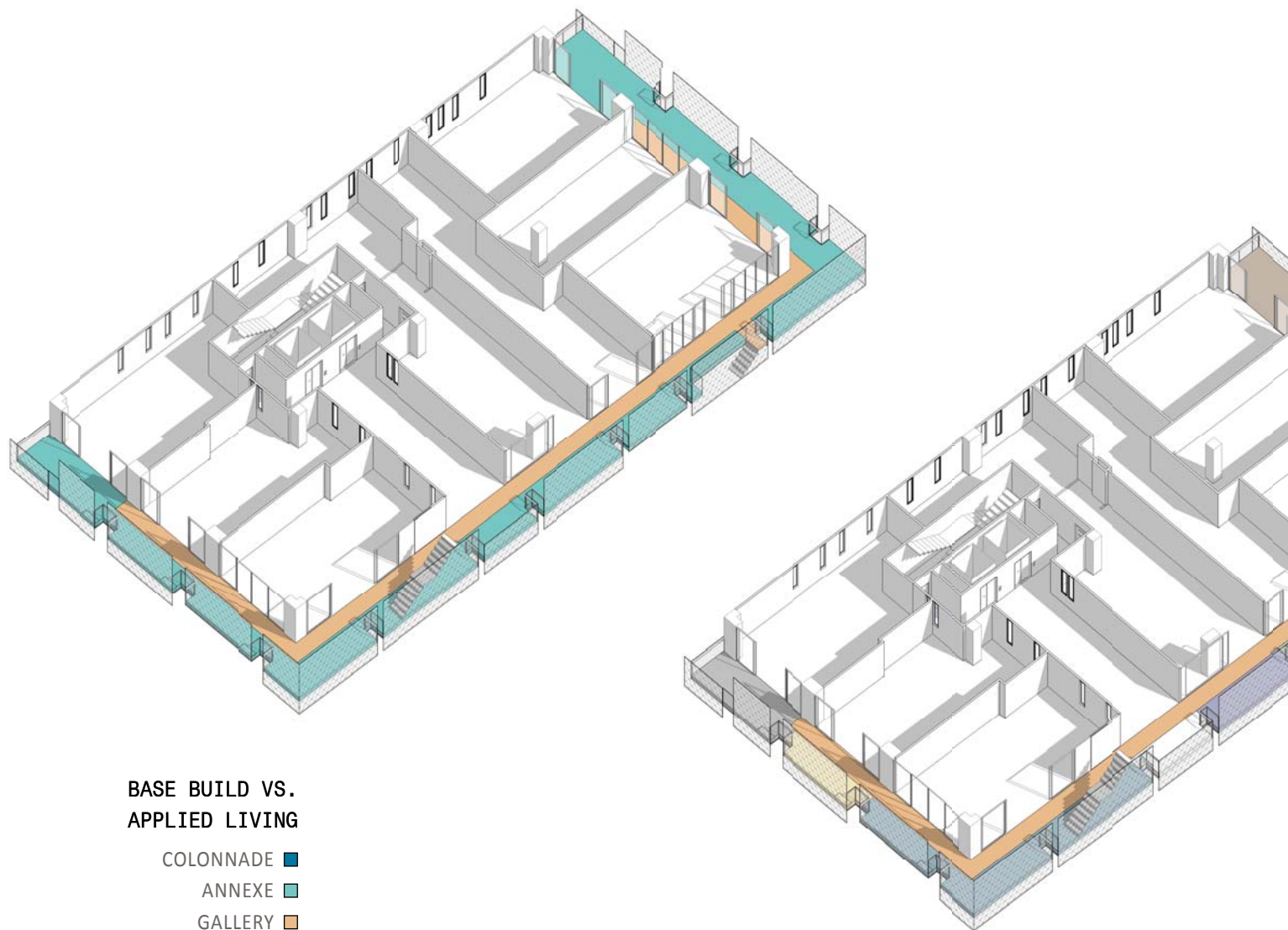


Annexe

+



Scattered Stair



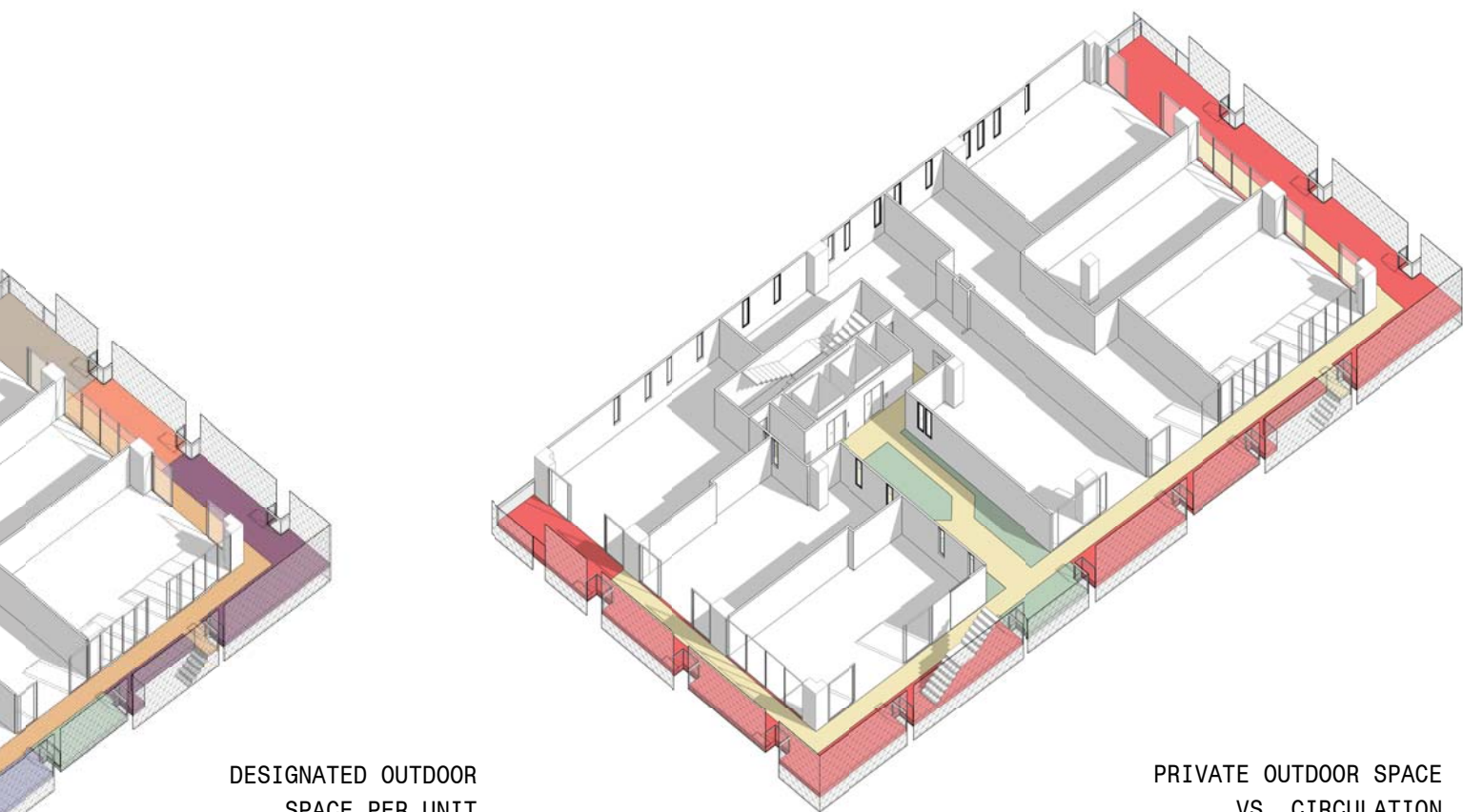
BASE BUILD VS.
APPLIED LIVING

COLONNADE ■

ANNEXE ■

GALLERY ■

193. VERTICAL CIRCULATION ■



DESIGNATED OUTDOOR
SPACE PER UNIT

- UNIT 1 ■
- UNIT 2 ■
- UNIT 3 ■
- UNIT 4 ■
- UNIT 5 ■
- UNIT 6 ■
- UNIT 7 ■
- UNIT 8 ■

PRIVATE OUTDOOR SPACE
VS. CIRCULATION

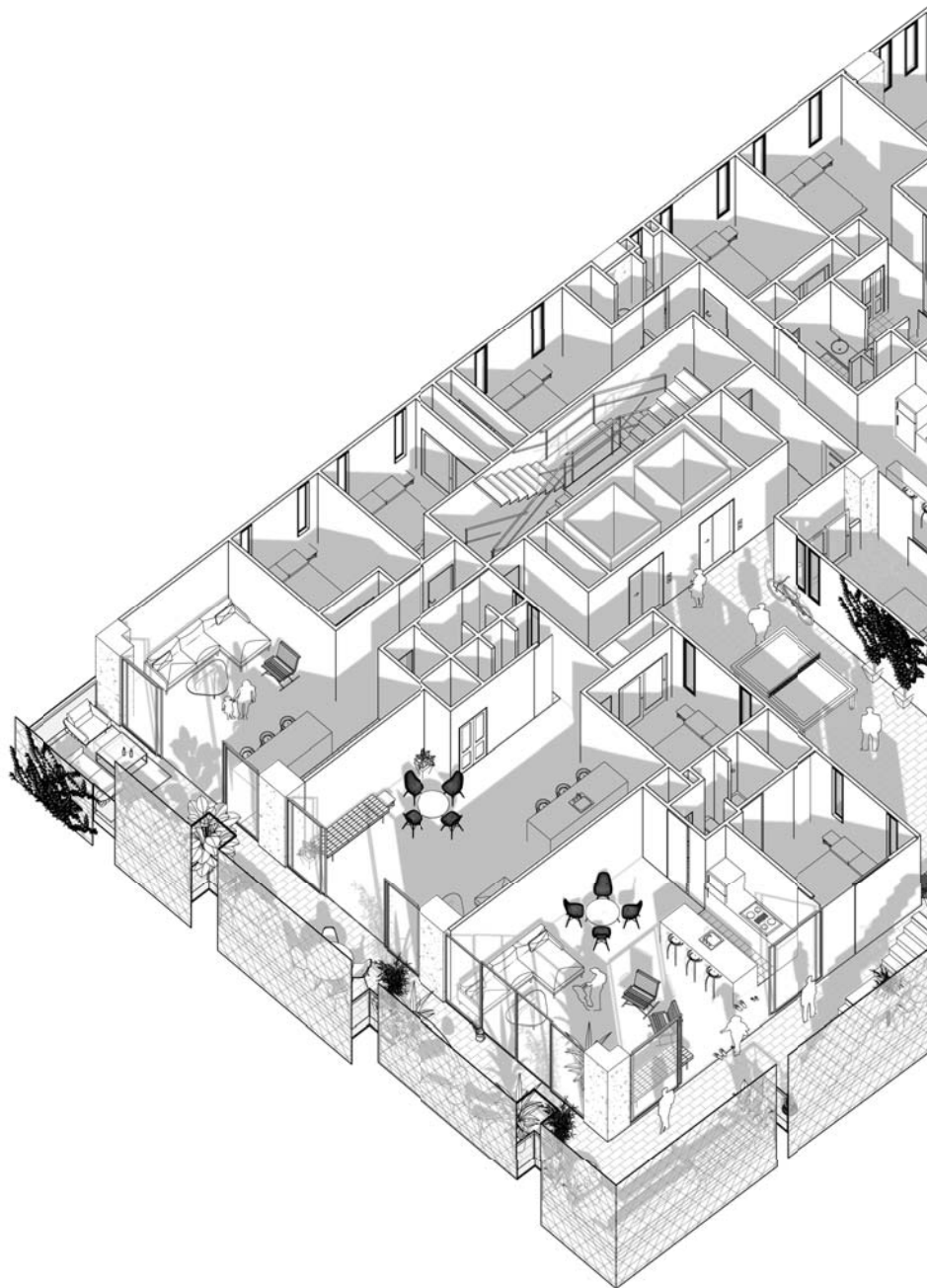
- PRIVATE OUTDOOR ■
- COMMUNAL OUTDOOR ■
- CIRCULATION ■

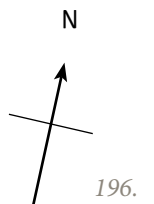
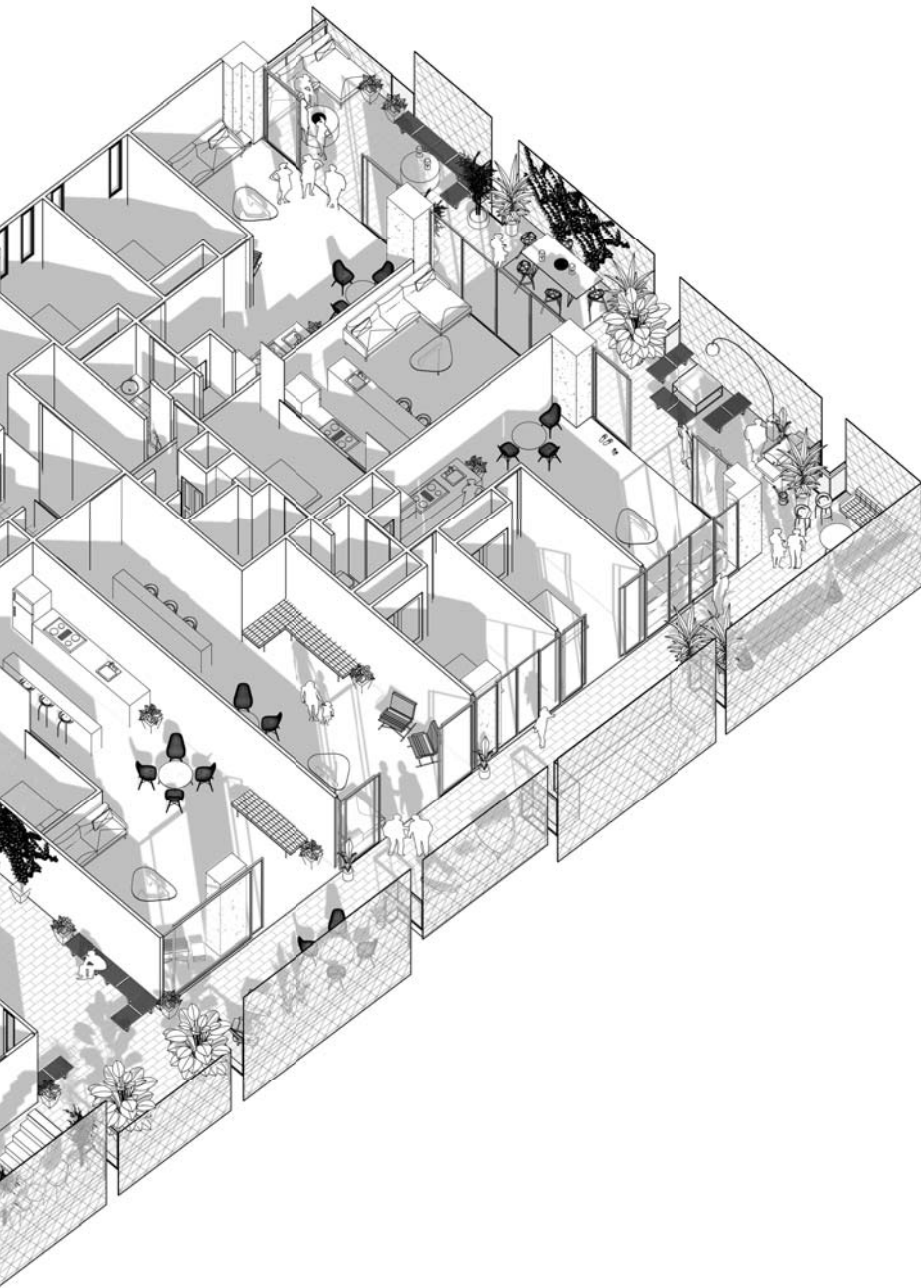
·2C·

LOOK + FEEL

Perspective Imagery

Sunlight at 10am, spring equinox





External staircase connects levels, allowing tenants to move between levels without having to use internal corridors.

EDWARD STREET

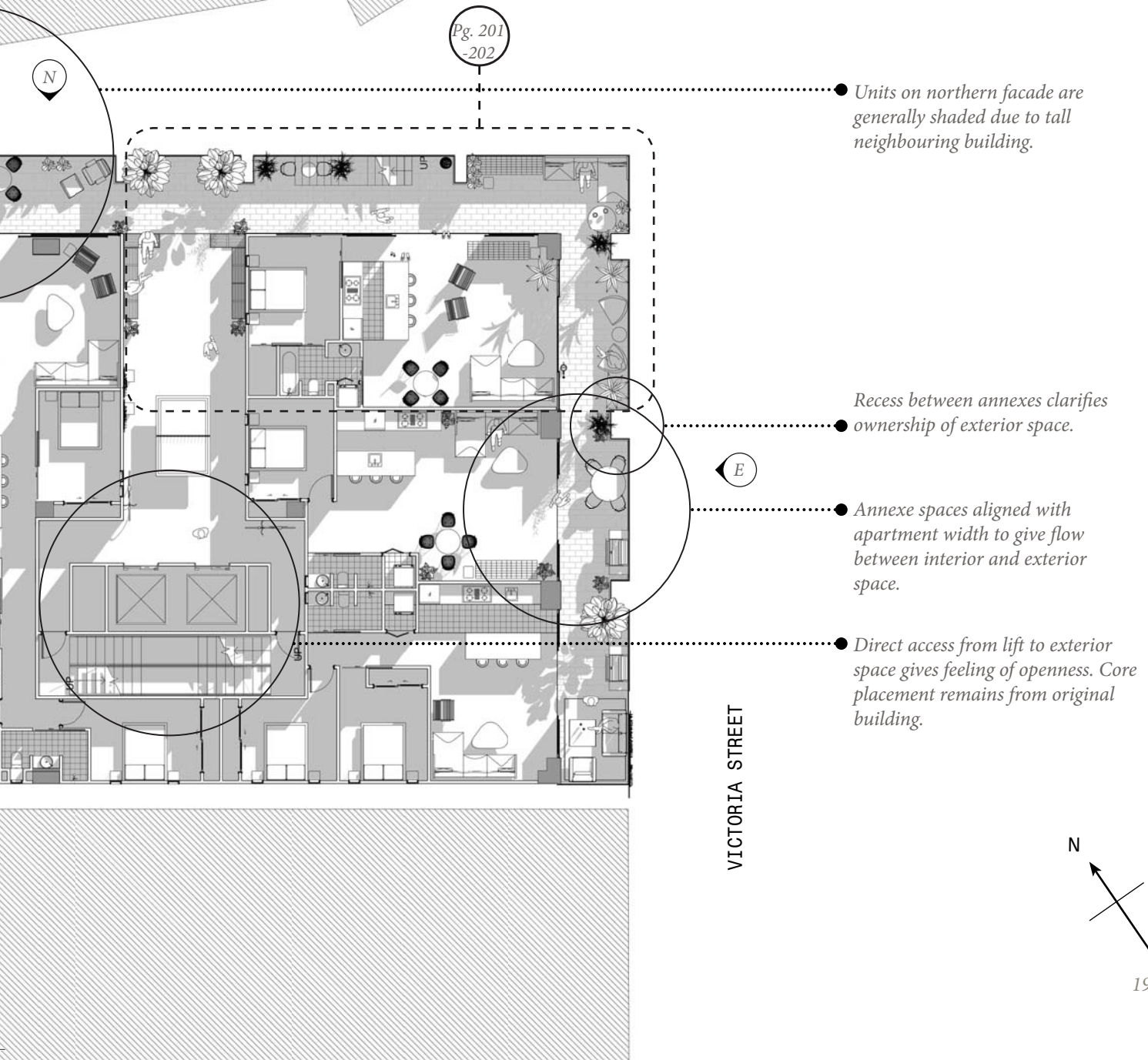


Pg. 199

Pg. 200

C

C



2C.

INHABITATION + PROXIMITY

Level 4 Detail Plan
Scale: 1:50

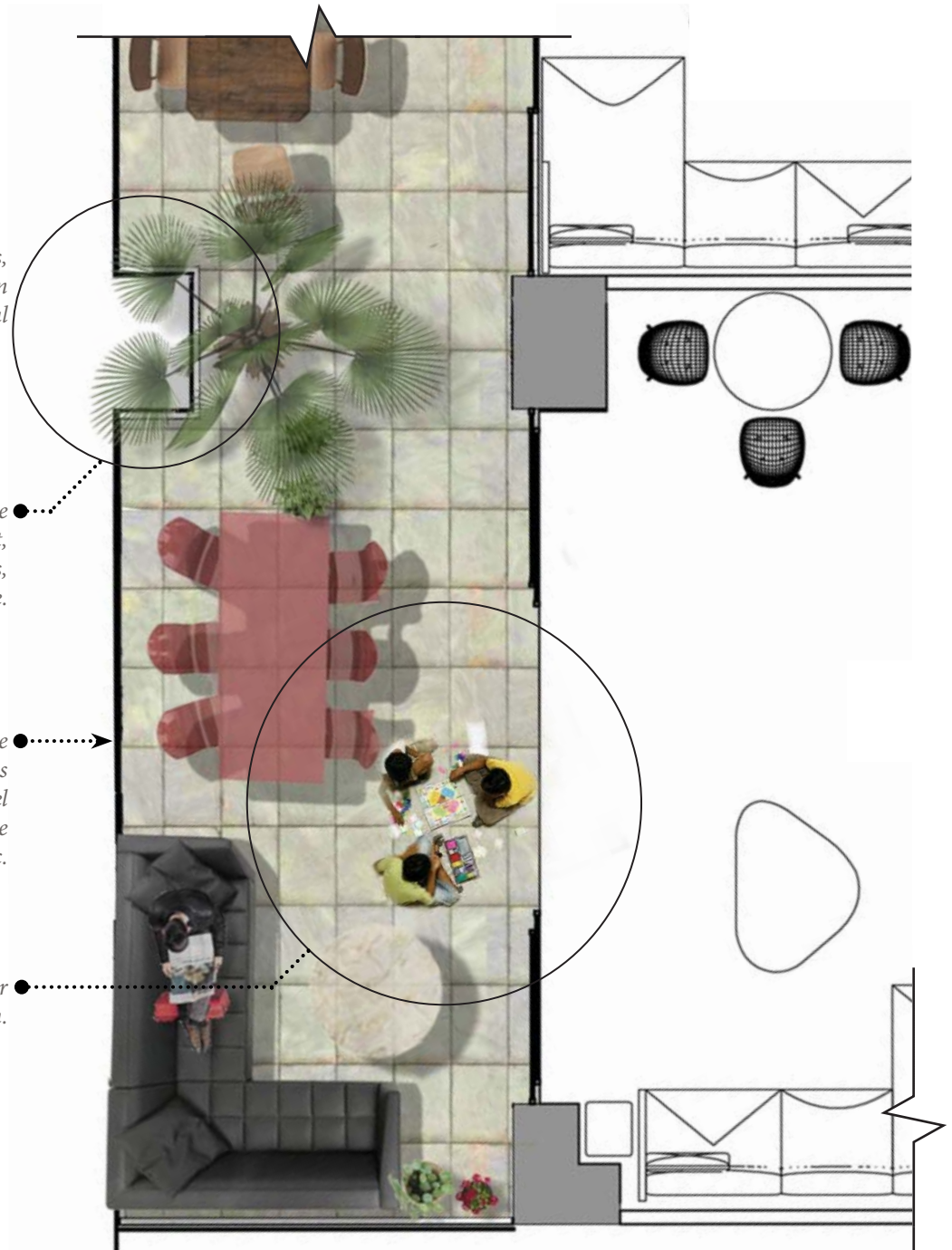


External staircase connects levels, allowing tenants to move between levels without using internal corridors.

Glass balustrade in recess to give moments of unimpeded views out, and allow views of lower levels, enriching the visual experience.

Full height glass wall to provide shelter from wind. Sunlight access is maintained, but glazed panel has frosted patterning to offer some privacy and a unique aesthetic.

Circulation zone utilized for occupation.



2C.

INHABITATION + PROXIMITY

Level 4 Detail Plans

Scale: 1:50

LIFT
LOBBY/
SOCIAL
SPACE

● Lift lobby combined with shared social area aims to encourage tenant interaction and build neighbourliness.

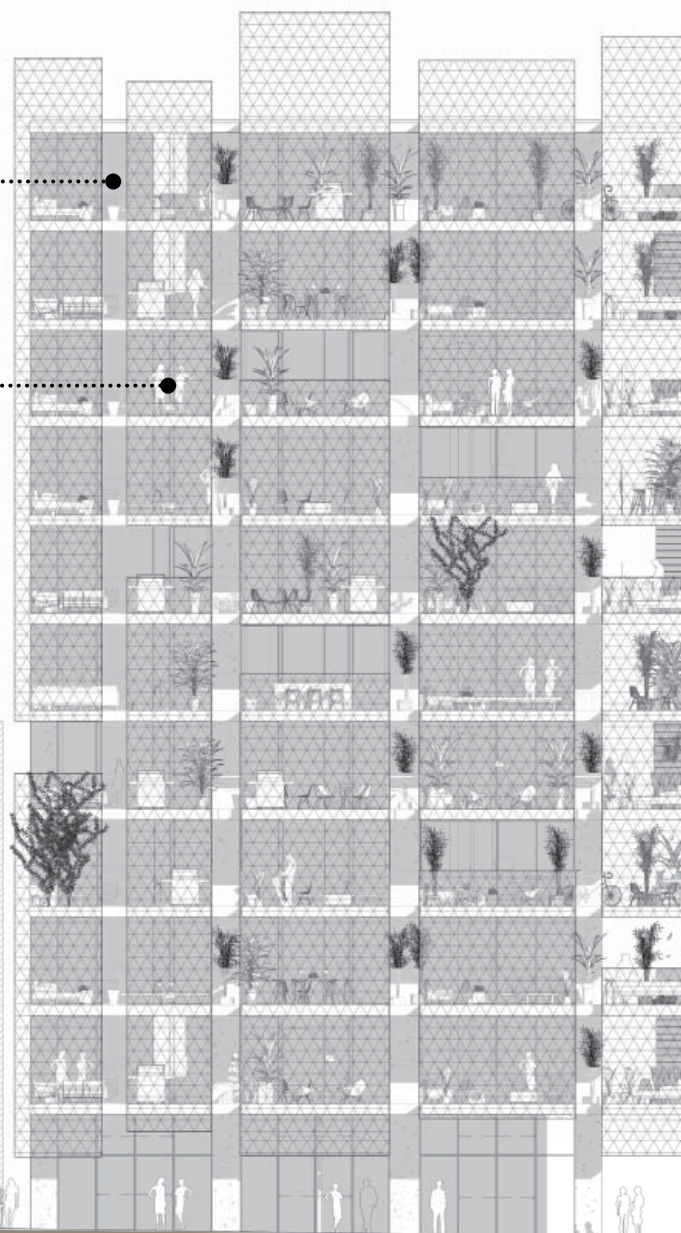


FACADE COMPOSITION

Elevational Investigations

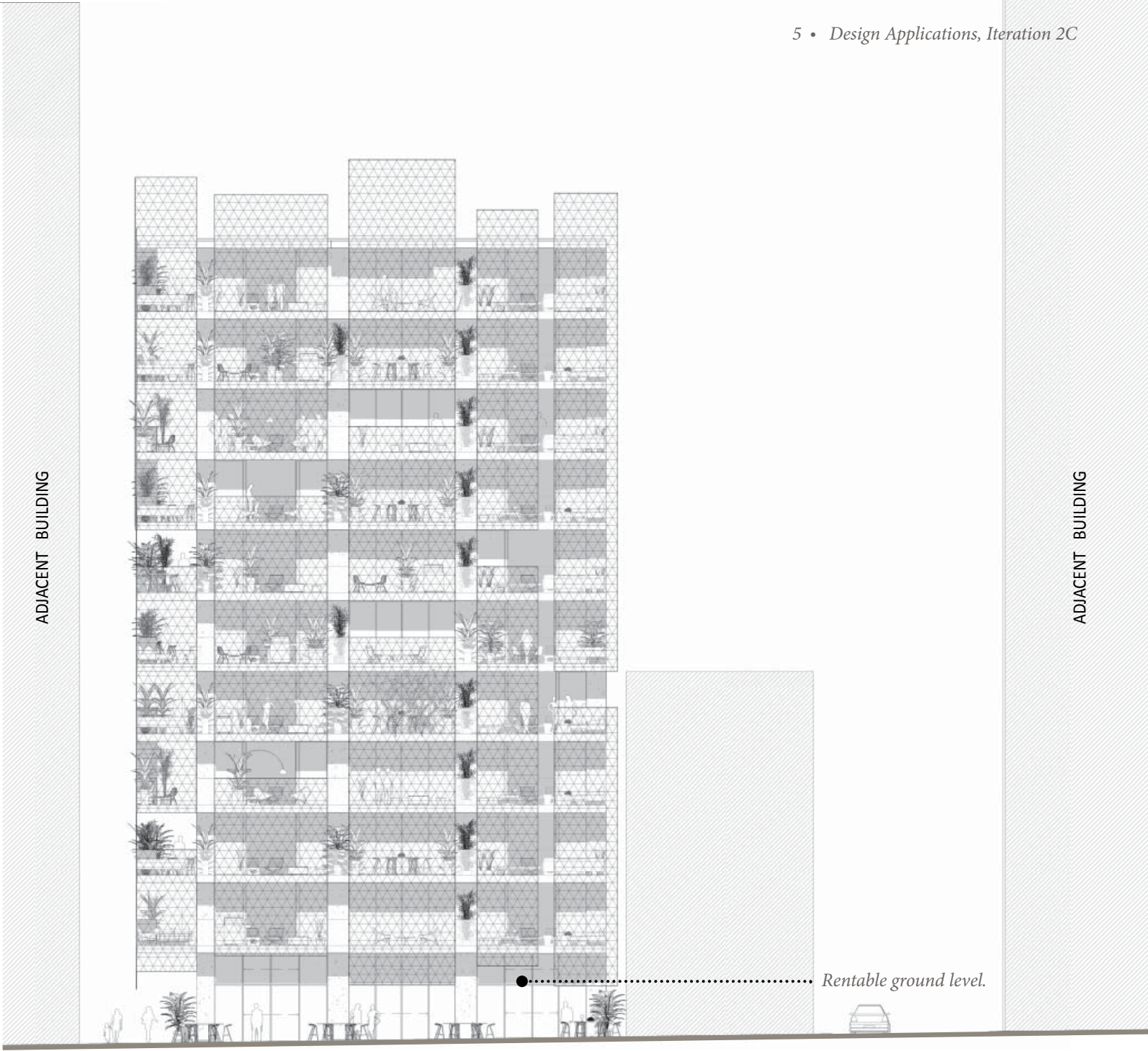
Glass balustrade in recess to give moments of unimpeded views out, and allow views of lower levels, enriching the visual experience.

Full height glass wall to provide shelter from wind. Sunlight access is maintained, but glazed panel has fritted patterning to offer some privacy and a unique aesthetic.



ADJACENT BUILDING

ADJACENT BUILDING



WEST ELEVATION 204.
1 : 250

·2C·

FACADE COMPOSITION

Elevational Investigations

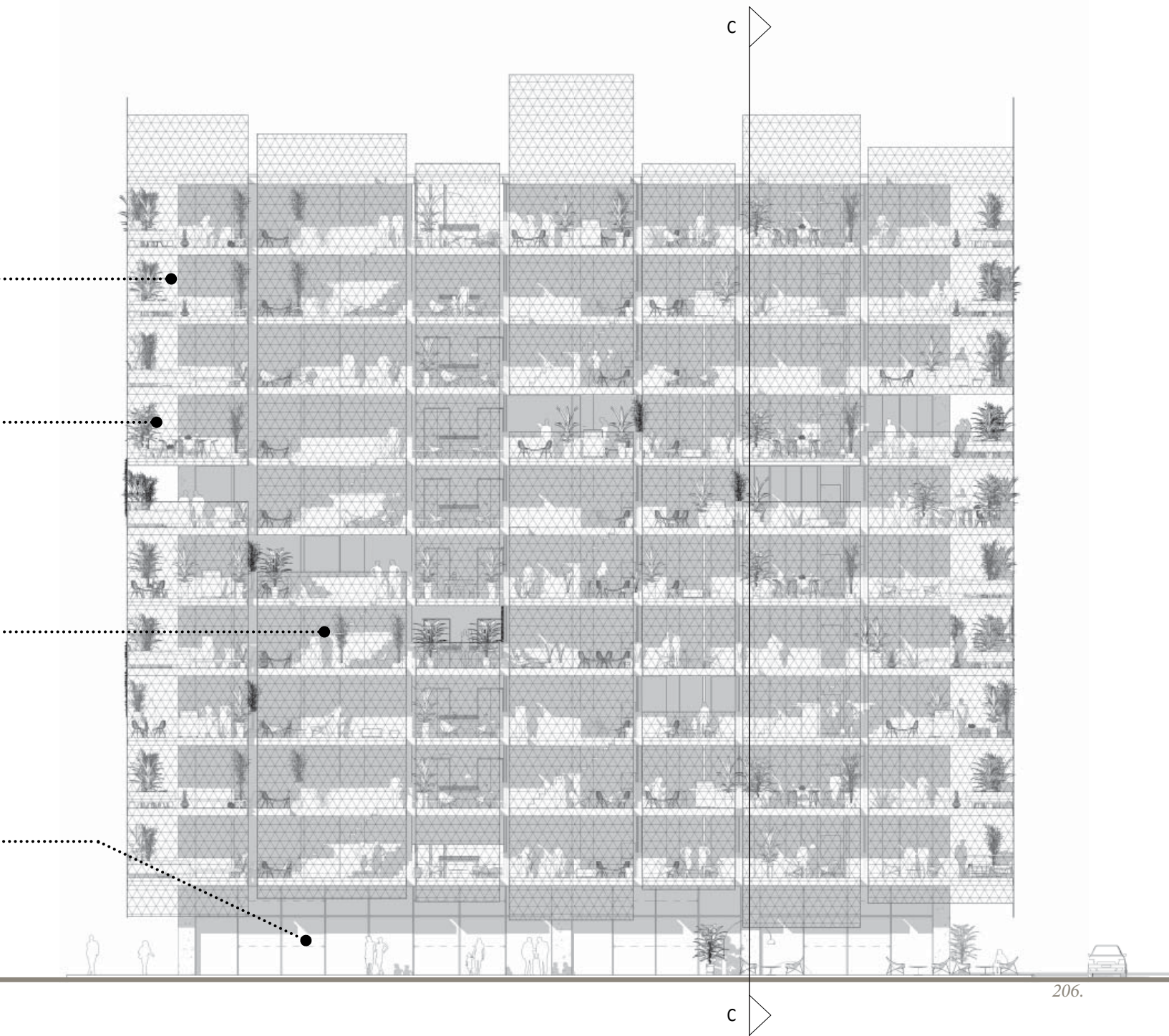
Glass panels provide protection
from rain and wind.

Majority of private outdoor
space placed on western and
eastern street facing facades.

External staircases expressed on
northern facade

Rentable ground level.





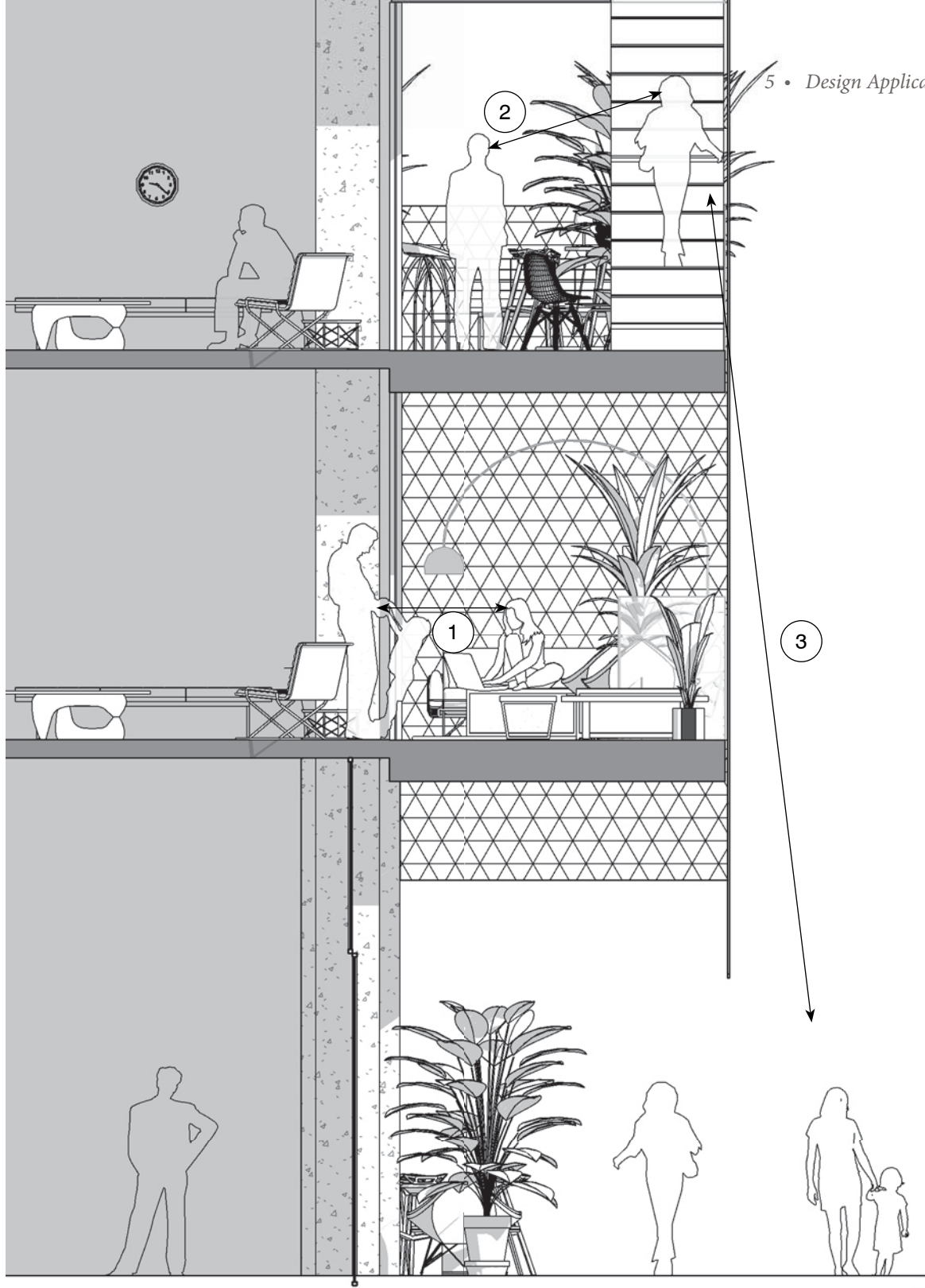
2C.

INTERACTION
VS. PRIVACY

Sectional Investigation

- 1 Interactions between tenants at interface between private indoor space, private outdoor space and gallery space.
- 2 Visual awareness of vertical circulation from street, and of street from circulation.
- 3 Chance interactions between tenants at interface between private outdoor space and circulation.





DETAILED SECTION
1 : 50
208.

2C.

LOOK + FEEL

Visualization Imagery

Figure 5.10: East elevation view of Iteration 2C, showing glazed facade and enlivened street edge.





Figure 5.11: *Iteration 2C*
applied living space. Image
shows connection between
gallery circulation, annexe
and private indoor space.

PHASE TWO SUMMARY

Phase Two investigates the application of the Applied Living system onto three sites in Wellington Central. Iteration 2A proposes the system integrated as part of a new build, and iterations 2B and 2C add Applied Living to two existing buildings, adapting the system to suit site conditions.

MAIN ADAPTION REQUIRED:

The most significant drivers behind the placement and adaption of the system were solar orientation, available space for the applied system and the structural setbacks of the existing building.

Solar orientation effects the usability of spaces. Ideally, the Applied Living system should be implemented on north, west and east facing facades. However, where this cannot be achieved (such as Iteration 2A, where the primary street frontage is southern), spaces should provide shelter and optimise natural light access as much as possible.

The available space for the system is defined by a combination of the original building's setback from street, the width of the street which influences the degree of overshadowing, and the appropriate extent to which the system can overhang the public footpath (determined by city council guidelines / consent).

Finally, the building's structural layout affects the placement of units. This was seen in Iteration 2C, where the system was adapted to optimise flow between private indoor and private outdoor space, and to avoid confusion over the ownership of private outdoor space.

MOST SUCCESSFUL ITERATION

Iteration 2A was most successful, as the position of vertical circulation (both lift and stairs) causes building tenants to rely entirely on the Applied Living system for all circulation. This encourages tenant interaction, and pushes living to the edge.

CHALLENGES

A significant challenge encountered in Iterations 2B and 2C was moving occupants from the existing central core to the Applied Living / circulation zone. To achieve this, a lift lobby / communal area was inserted at each level.

As well as operating as a circulation zone, the lobby space aims to provide an area for social interaction (indicated by a notional activity) which provides neighbourhood amenity and builds community.

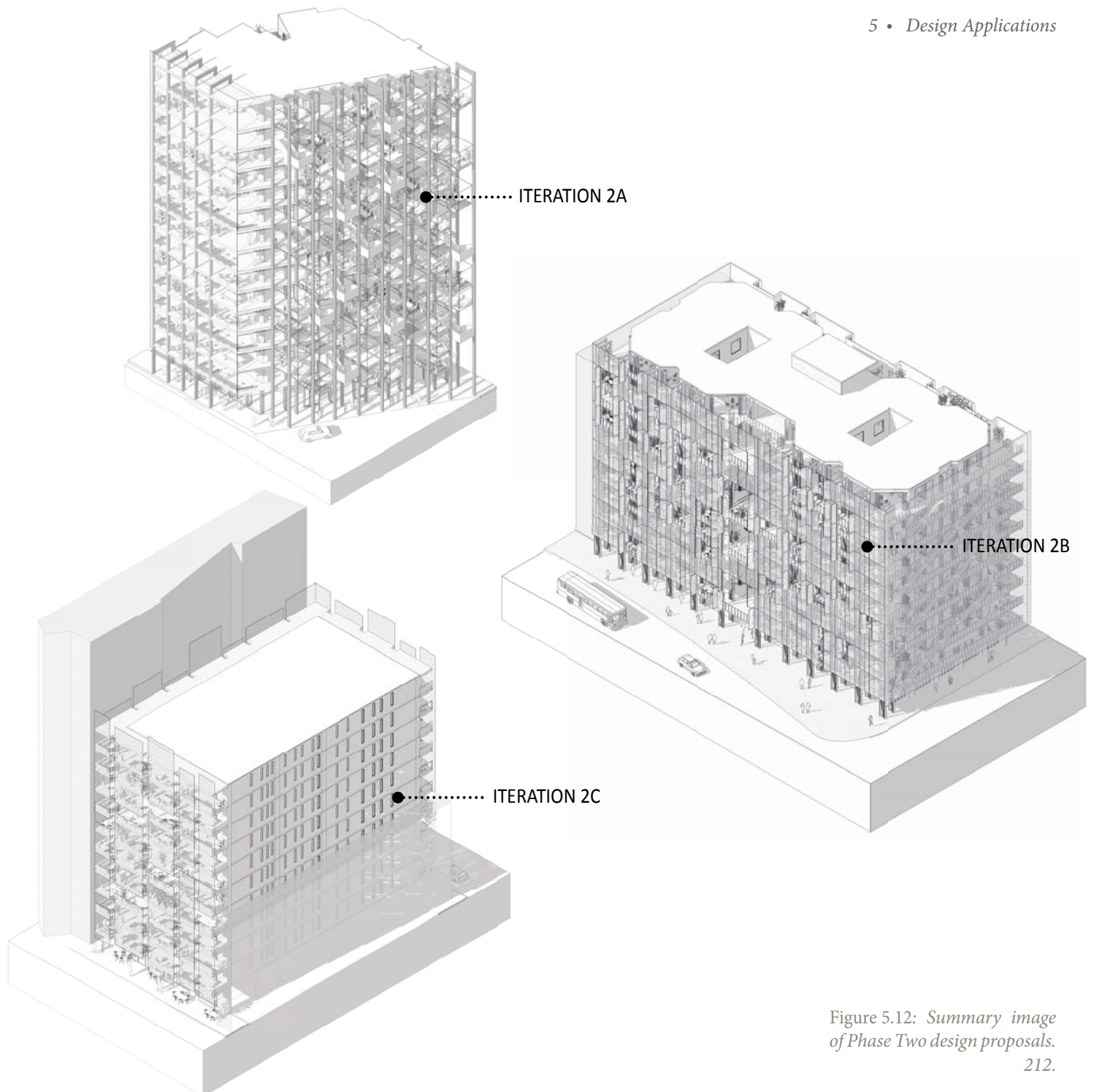
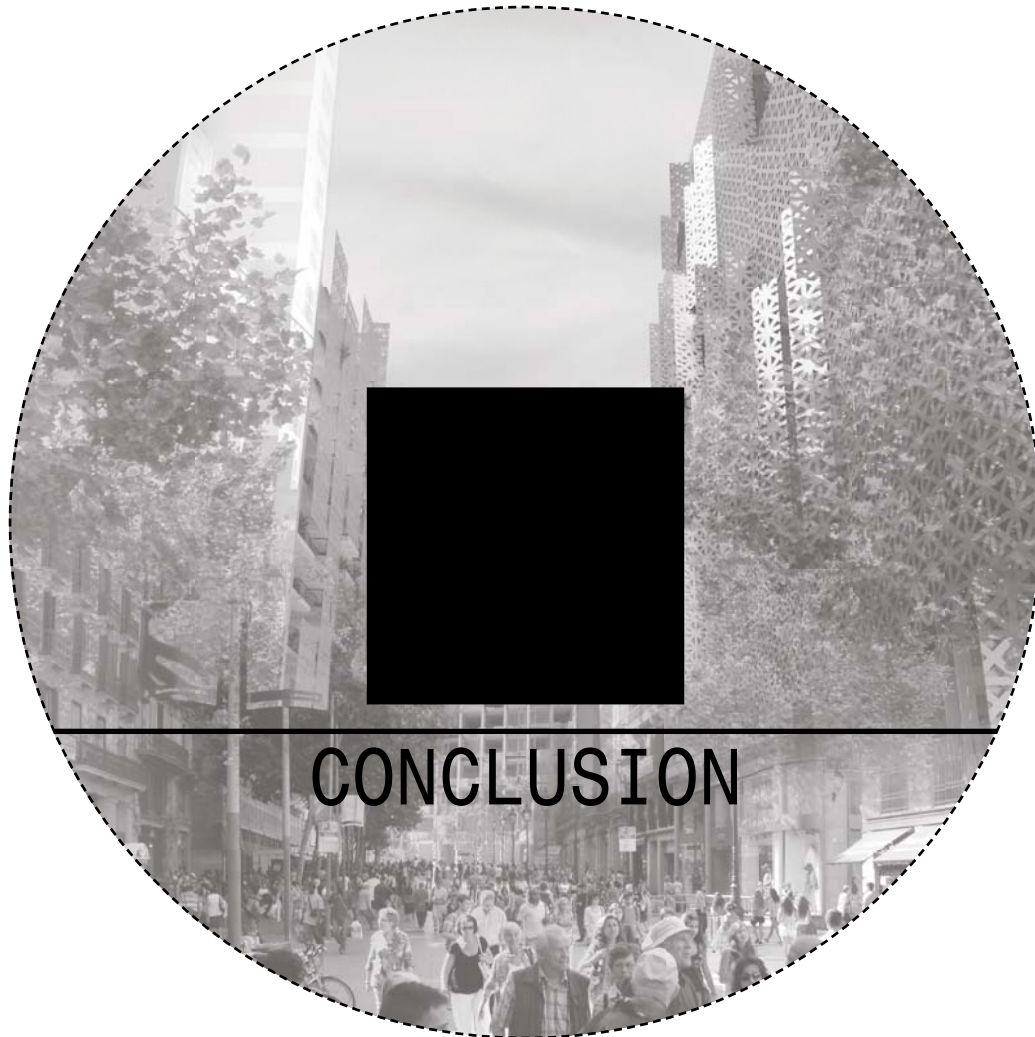


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Conclusion

THIS THESIS PROPOSES A SYSTEMATIC APPROACH FOR RETROFITTING EXISTING BUILDINGS WITH EXTERIOR LIVING AND CIRCULATION SPACE THROUGH THE IMPLEMENTATION OF A TAXONOMY OF APPLIED LIVING.

The Applied Living system comprises of three major parts: the annexe (private pockets of outdoor space), the gallery (dedicated circulation zones), and the colonnade (shared space which can be appropriated by tenants).

The Applied Living system is proposed as a method for rectifying three common problems found in Wellington's high density housing: the unusable balcony, the isolated tenant, and the lifeless facade, in order to improve the experience and desirability of high density living.

The final scheme - Living on the Edge - offers solutions to these problems.

1. It provides a range of private outdoor spaces and promotes a flow between indoor and outdoor living areas that far exceeds the usability of the typically small multi-unit development balcony.
2. The placement of circulation adjacent to the indoor/outdoor living of each dwelling creates ample opportunities for neighbourly interaction, therefore it connects tenants and encourages community.
3. By bringing a variety of everyday life activities to the building edge at all levels, the scheme contributes a lively and engaged street façade to the city.



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PHASE 2,
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Figure 6.1: (Opposite) Victoria Street intersection showing applied living iterations 2A, 2B and 2C, the resultant activated street edge.

Critical Review

OPPORTUNITIES

By creating a design method deploying a system rather than a singular design proposal, this scheme offers an approach to urban retrofitting which can be varied to suit different site conditions.

It can also be applied to other building types including commercial as well as residential, and can be implemented incrementally or at a more strategic citywide scale.

This system has potential to aid the conversion of commercial buildings to residential through the application of supplementary exterior space. However, further testing of methods to address the greater light requirements of deeper floor plates would be a crucial next step.

Finally, investigation into the cost implications of this approach and whether it can be an economically viable alternative to new builds is critical.

LIMITATIONS

The Applied Living system relies on being the primary means of circulation within a residential complex in order to concentrate interior activity to the buildings edge and maximise the overlap between building occupants.

Accordingly, the preferred floor plate is shallow: only one dwelling deep so access and the majority of solar penetration can be from the living edge only.

A deeper floor plate was found to require light wells in order to provide sufficient solar access to rooms in the building centre, causing significant internal alteration to the existing building. This dissipated the effectiveness of the living façade by taking away its ability to function as a “tack-on” system of supplementary spaces.

A potential conflict is in relation to the depth of the actual applied system. It needs to be wide enough, at least in part, to be inhabitable, but not too wide that it creates excessive shadowing of interior space. Voids and other cuts in the facade system in part address this problem.

Orientation is also critical. Through design iterations, the Applied Living system was shown to be most effective when used on the west, east and north-facing street facades. Where necessary, south-facing outdoor space was found to be preferable to none (*see Gallery #7, pg. 50*). However, this requires further exploration.

For some occupants, the fact that the Applied Living scheme often locates common circulation directly in front of private indoor space may be a serious limitation. Related to this is the creation of view lines between floors. While this was seen as desirable to enhance connectivity between occupants, by some it will be seen instead as an infringement on their visual privacy.

This spatial arrangement, which is intrinsic to the Applied Living system, will not be seen as appropriate by all people. Therefore, the extent to which this scheme could be implemented across a citywide scale is limited by the size of its market of buyers.

Figure 6.2: (Opposite) Exterior image of Iteration 2C showing the activated street edge.



Citywide Effects

“Everything that exists in the city is both collective and individual.”

*- Aldo Rossi
Architecture of the City.*

The Applied Living scheme is instrumental at a range of scales including: the individual dwelling, the residential complex, the street and the city.

1. MICRO EFFECTS: THE INDIVIDUAL

Applied Living improves occupant amenity by providing larger, more pleasant outdoor spaces, better flow between indoor and outdoor areas, and an increased sense of community through architecturally facilitated tenant interaction.

2. MACRO-EFFECTS: THE CITY

Although the applied living scheme is a composite of private spaces that are not publicly accessible, the occupation of the facade has a significant visual impact on the street.

If implemented across a citywide scale, applied living becomes a collectively experienced part of the built environment through promoting publicly “borrowed” visual amenity and exchange between the dwelling and the public realm. Consequently, this system has significant potential for enriching the urban environment as a whole.

LIVING ON THE EDGE PROVIDES A METHOD FOR RETROFITTING
EXISTING BUILDING STOCK WITH EXTERIOR LIVING AND CIRCULATION
SPACE TO GENERATE A DISTINCTLY URBAN SENSIBILITY AND
ENHANCED CONNECTIVITY BETWEEN DWELLINGS AND STREET.

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*The
End*



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