

Inner-city palimpsest: building the city above the city

Simon Henstra

Associate Professor Nic Coetzer

Melinda Silverman

Tiaan Meyer

University of Cape Town

This dissertation is presented as part fulfillment of the degree of Master of Architecture (Professional) in the School of Architecture, Planning and Geomatics, University of Cape Town.

November 2014

The copyright of this thesis vests in the author. No quotation from it or information derived from it is to be published without full acknowledgement of the source. The thesis is to be used for private study or non-commercial research purposes only.

Published by the University of Cape Town (UCT) in terms of the non-exclusive license granted to UCT by the author.

Plagiarism

This means that you present substantial portions or elements of another's work, ideas or data as your own, even if the original author is cited occasionally. A signed photocopy or other copy of the Declaration below must accompany every piece of work that you hand in.

Declaration

1. I know that Plagiarism is wrong. Plagiarism is to use another's work and pretend that it is one's own.
2. I have used the Harvard convention for citation and referencing. Each significant contribution to, and quotation in, this essay/report/project from the work or works, of other people has been attributed, cited and referenced.
3. This essay/report/project is my own work.
4. I have not allowed, and will not allow anyone to copy my work with the intention of passing it off as his or her own work.

Name:

Signature:

Student number:

CONTENTS	Introduction	9
	Structure	11
	City scale	13
	Urban scale	31
	Block scale	43
	Erf Scale	61
	Conclusion	81
	Bibliography	84
	Image References	88

INTRODUCTION This dissertation emerged from a fascination with the rich urban and architectural fabric of dense inner-cities, the layered palimpsest, and strong sense of character as a result of the piecemeal evolution of the city over time.

Retaining this character is at odds with the phenomenon of a market-driven, developer-led method of place ‘un-making’ within the city which aims to maximise utility and scale, removes large portions of the existing urban fabric in the process, but adds much needed density to the city. The dissertation attempts to understand the paradox between the positive addition of density, and the negative destruction of good urban fabric and character.

While vacant erven within the city are scarce, the city’s density is far less than is planned due to many existing buildings having a lower bulk than is allowed. Simply put, there is a vast amount of airspace above the existing city which is being underutilised and underdeveloped. This dissertation explores a method of placemaking less dependent on the ground plane, and able to occupy the underutilised airspace above existing blocks and erven; densifying the city, and expanding its capacity, while maintaining the unique sense of character and rich urban fabric which is a product of generations of small steps in development.

The dissertation attempts to cover, as a narrative, the process of unpacking ideas as pragmatic as zoning and as poetic as what it means to contribute to the rich architectural palimpsest, and everything in between.

STRUCTURE

In doing so, the ideas and explorations are structured according to scale from the city to the erf, as a narrative for the process of uncovering and exploring, from a macro scale to finer detail, as the year has progressed.

The city scale deals with fairly broad theoretical and research aspects of the dissertation, from what I feel makes great and healthy cities, to the need to densify our existing urban environments, to the shortcomings of insensitive market driven city growth.

The urban scale discusses the Cape Town inner-city, analyses a portion of the city to understand both the physical and intangible makeup of a precinct, and introduces ideas of underdevelopment and vertical expansion to densify the city.

The block scale begins to explore a set of ideas in developing a strategy to create a new way of placemaking in the city. The ideas engage the pragmatic challenges of achieving this new typology, from dealing with landowners to satisfying legislation.

The erf scale discusses the application of these ideas in a site specific design, and the process of unpacking this new typology of architecture in the city.



fig. 1. China Town streetscape, Manhattan, New York City.

Fine grain historic core

Each district within the Cape Town inner-city has a distinct sense of place shaped by its rich cosmopolitan history. There is variation in the architecture, the planning, the scale, the technology, the infrastructure, all of which are a product of the evolution of the city. The reading of the city's evolution is embedded within the urban fabric of the city, and the city's manifestation gives it its identity.

Timeous evolution is a counterpoint to the ideologies of the modernist planners who instead sought a tabula rasa as a point of departure for planning and building a city. In *Collage City*, the authors' contention is that the modernists failed when they ignored poetics in favour of an engineered solution. The modernist solution of 'total design' also failed as it relied on a vision which, applied to an entire city context, hardly satisfied anyone's wants and needs because it failed to acknowledge the diversity and humanness of the citizens.¹

My reading of their ideas of a 'patchwork' or 'collage' city is one that acknowledges the diversity of the population and their desires and responds by opting instead for individual solutions; 'pocket utopias'² in a bricollage urban fabric. Perhaps a successful city is one with an underlying logic which has, over time, fragmented itself beyond recognition in response to individual demands and changes.

Yuri Artibise explains his comparison between fine and coarse grain urban fabric, in his article *Urban Fabric: The Form of Cities*.³ He begins by describing the nature of a simplified 'coarse grain' place.

1. Rowe, Colin, and Fred Koetter. *Collage City*. Cambridge, Mass.: MIT Press, 1998.

2. Ibid.

3. Yuri Artibise. "Urban Fabric." Yuri Artibise. Accessed May 11, 2014. <http://yuriartibise.com/urban-fabric/>.

Not only do coarse grain fabrics not give many opportunities for interconnecting; the fabric itself is usually inhospitable to interaction. Instead of asserting control over the street, such places turn inward, fortifying themselves against the perceived dangers of the outside. This begets yet more undesirability. In this regard coarse grain acts as a barrier for all but those who are there for a specific purpose...we are not comfortable spending more time than necessary in coarse-grained places.⁴

He then goes on to compare with a description of a 'fine grain' place, and how its evolutionary manifestation illustrates its democratic and social nature.

Fine grain urban fabric consists of several small blocks close together. Within each block are several buildings, most with narrow frontages, frequent storefronts, and minimal setbacks from the street. Streets and opportunities to turn corners are frequent, and as a result, so are storefronts. This offers many opportunities for discovery and exploration. Fine grained urban fabric is not imposed on a community like its coarse cousin. Rather, it evolves over time; responding to what came before, and adapting to what came afterwards. This evolutionary process creates places that are not frozen in the era when they were built, but are dynamic and reflective of a neighbourhood's changing needs. This creates an urban fabric that can seamlessly evolve over time from lightly developed residential areas to mixed-use retail to dense urban core, if that's what the community desires. In this way, they are far more resilient than the mega-projects mentioned above whom, when they lose a single tenant, often fail.⁵

Consider a comparison between the fine grain urban fabric of the city established by the Dutch upon settling in the Cape, to the su-

4. Yuri Artibise. "Urban Fabric." Yuri Artibise. Accessed May 11, 2014. <http://yuriartibise.com/urban-fabric/>.

5. Ibid.



fig. 2. Wale streetscape, Cape Town.

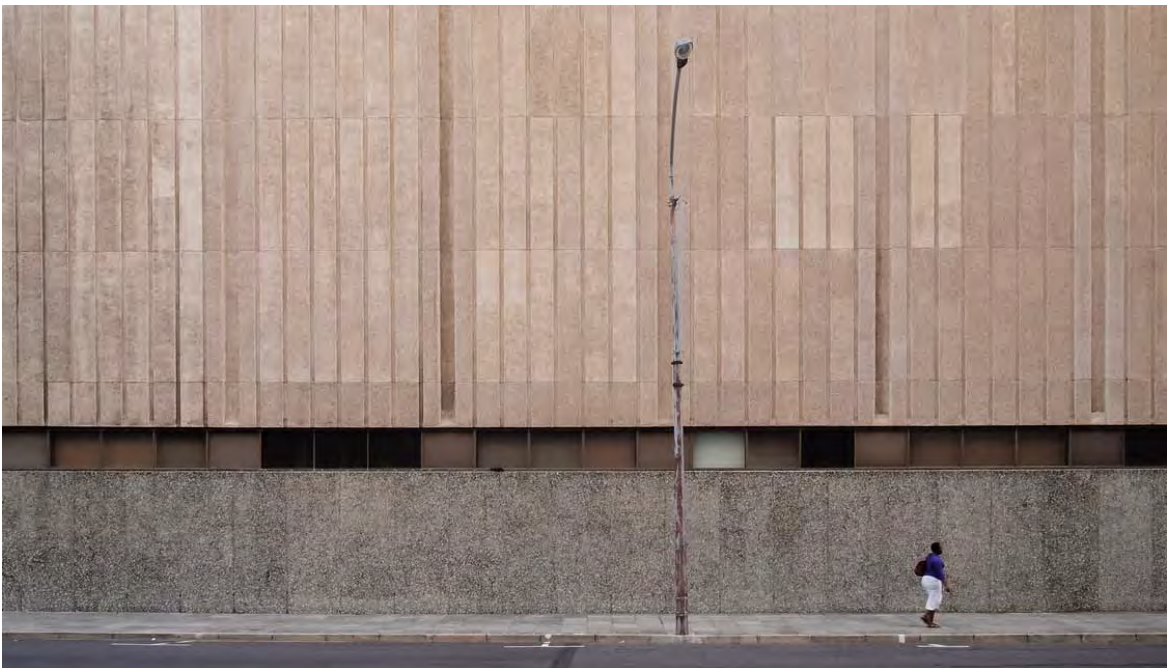


fig. 3. Foreshore streetscape, Cape Town.

perblock 'total design' urban fabric of the relatively recent foreshore extension of the city. The richness and variety of place-making in the historic core is far more human, cosmopolitan, democratic and social in nature, compared to the feeling of placelessness not unlike many modernist-planned precincts around the world. There will of course always be successful and unsuccessful parts of any city, and the foreshore is by all means part of the Cape Town inner city. However the comparison between these two urban situations suggests two things; perhaps it is the fine grain of the urban fabric that contributes to its success at a human scale, and also perhaps it is the length of time involved in the evolution of the city.

Density in the city

In 2007, the UN reported that for the first time ever, more than half the world's human population lived in an urban setting, and that number is on an upward trend.⁶ In addition, between 2011 and 2050, the world population is expected to grow from approximately 7 billion people to 9.3 billion people, highlighting the projected expansion of urban areas around the world.⁷ In 2011 the urban population in less developed regions around the world (including South Africa) was 2.67 billion, and by 2050 is expected to double to 5.12 billion people.⁸ If one looks at the rapid urban expansion in existing urban metropolitan areas around the world, such as Mexico City, Shanghai, London, Lagos and Johannesburg, it is indicative of a trend in expansion of existing urban areas opposed to the creation of new ones.⁹

6. Department of Economic and Social Affairs. "World Urbanisation Prospects: The 2011 Revision." United Nations, March 2012.

7. Ibid.

8. Ibid.

9. London School of Economics and Political Science, and Alfred Herrhausen Gesellschaft für Internationalen Dialog. *The Endless City: The Urban Age Project* by the London School of Economics and Deutsche Bank's Alfred Herrhausen Society. Edited by Richard Burdett and Deyan Sudjic. London: Phaidon, 2007.

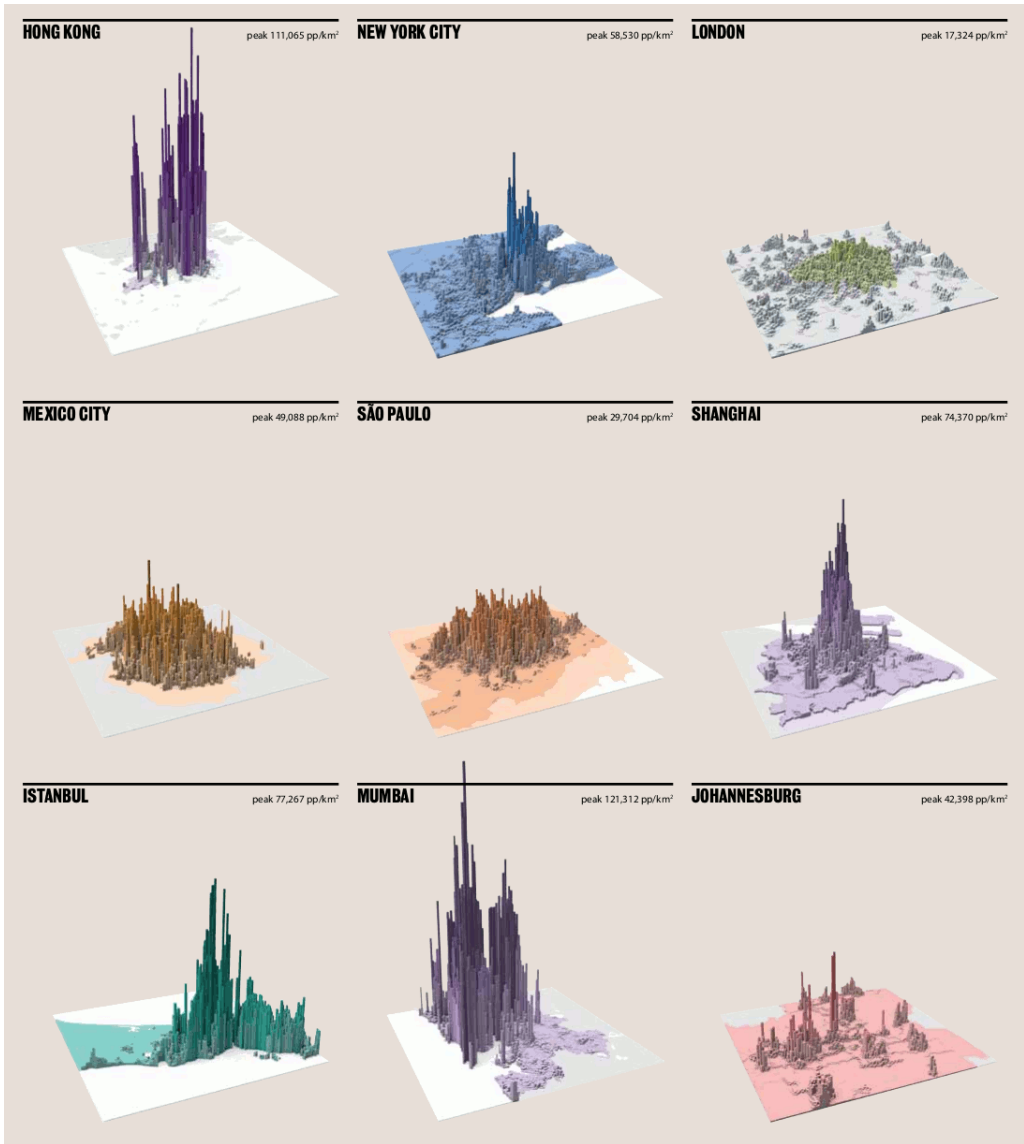


fig. 4. Density diagrams comparing the density between various world megapolises

What is interesting to note when comparing these metropolitan areas is the density of settlement for both the overall metropolitan area, and the inner-city. For instance Tokyo has a dense inner-city as well as a relatively high overall density, indicative of a compact city.¹⁰ Johannesburg however, has a very dense inner-city but a relatively low density overall¹¹, indicative of its sprawling suburban neighbourhoods, and reliance on motor vehicles.¹²

The reason for highlighting density in cities, is not however simply a premonition of our supposed impending rapid urbanisation, but to build a case for encouraging densification of inner-cities and metropolitan areas, as a positive action.

Urban sprawl is defined by David Soule in a very broad and succinct way, and its negative social, economic and environmental effects explained equally so.

Sprawl is low density, auto-dependent land development taking place on the edges of urban centres, often “leapfrogging” away from current denser development nodes, to transform open, undeveloped land, into single-family residential subdivisions and campus-style commercial office parks and diffuse retail uses. In its path, sprawl consumes thousands of acres of forest and farmland, woodlands and wetlands. It requires government to spend millions extra to build new schools, streets, and water and sewer lines. In its wake, sprawl leaves...traffic congestion stretching miles from urban centres.¹³

10. London School of Economics and Political Science, and Alfred Herrhausen Gesellschaft für Internationalen Dialog. *The Endless City: The Urban Age Project* by the London School of Economics and Deutsche Bank's Alfred Herrhausen Society. Edited by Richard Burdett and Deyan Sudjic. London: Phaidon, 2007.

11. Ibid.

12. Graham, James. “Exploding Johannesburg: Driving in a Worldly City.” *Transtext(e)s, Transcultures* 3 (2007): 67-83.

13. Soule, David C., ed. *Urban Sprawl: A Comprehensive Reference Guide*. Westport, Conn: Greenwood Press, 2006.



fig. 5. Aerial photograph of Cape Town inner-city, with overlaid CBD boundary.

On the other end of the scale, from urban sprawl and reliance on private motorised transport, is dense and pedestrian friendly settlement. In Jane Jacobs' *Life and Death of Great American Cities*, she lists four important 'generators of diversity' which "In combination...create economic pools of use"; mixed uses to have activity on the street at varying times, short blocks to promote permeability, buildings of varying ages and technologies which promotes diversity and accessibility, and density of people to create sufficient activity in the city.¹⁴

The time has come to acknowledge that walking will be an indispensable component of 21st-century transportation. Today's plan for urban and suburban growth envisions walkways as a vital part of multi-nodal transportation networks. Walking is great exercise and beneficial to health. Unlike cars, buses, trams and trains, walking consumes no fossil-fuel energy and leaves no carbon footprint. Equally important, walking can be a positive aesthetic experience.¹⁵

In 2012 the city released its official densification policy. The policy motivates that densification will help the city reduce the consumption of valuable/non-renewable resources, support the development of a viable public transport system, make the city more equitable, facilitate economic opportunity and support service provision, improve housing patterns and choice of house type, and contribute to urban place-making and improve safety.¹⁶

Within the inner-city, Cape Town has various infill sites available for development, but aside from this there are also many older low-rise buildings which, upon comparison with the zoning scheme,

14. Jacobs, Jane. *The Death and Life of Great American Cities*. Vintage Books ed. New York: Vintage Books, 1992.

15. Lewis, Roger K. "Terms, Mind-Sets Must Be Changed to Encourage and Enable More Walking in Cities." *The Washington Post*, May 8, 2010, sec. Business. <http://www.washingtonpost.com/wp-dyn/content/article/2010/05/07/AR2010050700088.html>.

16. The City of Cape Town. "Cape Town Densification Policy," February 2012.

are on sites with the capacity to have a much greater FAR, bulk or height, than currently exists. While Cape Town may not have the overall density comparable to other cities, it has portions where one can find this patchwork of fine grain urban fabric and history as described in the previous section. The question is how do you add liveable density to the city, while adding to the evolutionary patchwork, as opposed to taking away from it?

Good placemaking

As discussed above, densification can generate many positive effects on cities and metropolitan areas. What is important to balance is the way that the increase in densification physically manifests itself and its impact on the existing urban fabric of the city.

The entire inner-city Cape Town is not necessarily a tight knit, evolved, fine grain urban fabric. However there are parts of the city where this kind of urban fabric exists, and positively contributes to the public realm and the pedestrian experience of the city. Examples of this can be seen along the street edges of upper Long Street, and the newly pedestrianised Waterkant Street in the Cape Town historic core. If it is contributing positively to the public realm then perhaps it deserves to be retained.

Zoning exists in its truest sense as a means of regulating and managing the growth of cities from a practical sense; health, safety and efficiency. Stephen Townsend describes the tensions between two discourses in modern planning, property rights and good built-form/city-form. On the one hand, property rights describe the degree to which an owner may develop a portion of land. Zoning generally describes and governs this, as it describes the physical and practical limitations for possible development, in order to protect the public realm. Zoning is a series of tangible rules which must be met to gain permission from the municipality to build. It is easy to enforce because either plans comply or they don't. On the other hand is the good built-form/city-form discourse which is essentially urban design as we know it. Good built-form/city-form is more difficult to

enforce because “dealing with the quality of the urban environment, is difficult to regulate simply because good design is notoriously difficult to enforce.”¹⁷

With any urban intervention the aim should be for it to positively contribute toward the public realm, and so the argument is not against building new buildings, but for retaining existing urban fabric provided it positively contributes to the city and public realm. New buildings have to satisfy the demands of creating both a good and efficient private realm, and a responsible and positive public realm. If there are existing buildings that already contribute positively to the city and public realm, retain the urban fabric and use it as a base. The responsibility of creating a positive public realm disappears, and the addition merely has to extend the private realm. Just as there are gaps between existing buildings, there are gaps above them. There is opportunity for expansion and densification in the airspace above the city, between what exists and what is allowed.

Inner-city palimpsest

We cannot think of the conservation or management of our cities as in Europe: our cities are not homogenous in scale or in architectural character and they are not particularly significant in socio-political, architectural or townscape terms. Rather, management should be directed at enhancing the city, making denser, making richer; and we can and must introduce a dynamic life-affirming impetus to conservation and management that recognises the significance of the city itself and as the most special and most significant artefact in the environment, the greatest creation of humankind. Densification is not to be feared or bound with caveats; densification is the route to success. We must accept that the authentic conservation endeavour is the revitalisation of the city itself; and that each conservation endeavour/intervention is/must be an inventive and authentic act. “The art of fabricating a city

17. Townsend, Stephen. “A Question of Height: The Case of Cape Town City Centre,” August 23, 2012.



fig. 6, 7, 8. "The art of fabricating a city is an art of imbrication".

is an art of imbrication”, an art of creating with over-lapping elements. Thus, city-making is an art of creating palimpsests, it is both destructive and creative; and it is a truly modern art, taking into account both past, present and future imperatives and readings. Indeed we must accept that a positive result of the debates about the conservation and regulation of the city in the development and acceptance of the idea of the city as a living and unitary organism in which history and life are fused in a constantly developing continuity.¹⁸

Creating our city palimpsest is about understanding the possibilities and increasing the opportunities to create within the city.

While there are opportunities and incentives to attract development within the inner-city, perhaps the city should be offering a different perspective of opportunities and incentives to attract this specific type of healthy urban densification that this dissertation argues for. There are many technical barriers imposed by the city, which are potentially enough to deter smaller scale development. Reducing requirements for up-front studies, fast processing of permit applications, liberalisation of zoning schemes and elimination of parking minimums could all potentially be the tipping point of interest in investment.¹⁹ By offering incentives through the zoning scheme, through tax breaks, or by relaxing the legislation of private air rights, the city could attract a better kind of inner-city densification.

18. Townsend, Stephen. “A Question of Height: The Case of Cape Town City Centre,” August 23, 2012.

19. letsbola. “Barriers to Fine-Grained Urban Development.” Let’s Go LA. Accessed May 11, 2014. <http://letsbola.wordpress.com/2013/09/24/barriers-to-fine-grained-urban-development/>.



77 Plates 2 and 3 from the c1900 panorama attributed to George Budricks.

fig. 9. Portion of a Cape Town panorama taken in 1900, by George Budricks





fig. 10. Part of William Barclay Snow's c1862 Survey of Cape Town, much reduced (from a facsimile tracing in the Land Survey Branch of the City Engineer's Department)



fig. 11. Part of Walter Thom's c1895 Survey of Cape Town, much reduced (from a published reprint in the Land Survey Branch of the City Engineer's Department)



fig. 12. Central Cape Town as surveyed by William Barclay Snow c1862



fig. 13. Central Cape Town as surveyed by Walter Thom c1895



fig. 14. Central Cape Town as surveyed from the 1930's onwards

:Cape Town urban context [Urban analysis, siting, and urban response/strategy]

Historical urban context

At a point in the establishment of the Cape Colony, a plan for the physical layout of the town was implemented. This plan was characterised by the use of approximately square blocks, divided into narrow lots or 'erven', and used public squares and civic buildings as focal points in organising the general layout. The grid plan was largely influenced by the *Law of the Indies*, which was a popular set of guidelines used in organising newly established colonies.²⁰

Both the physical layout of the settlement and the processes of development that put them in place were informed by a clear underlying conception that allowed for relatively natural evolution. The plan was not concerned with every aspect of physical layout. The primary purpose of the planning undertaken was the spatial organisation of an overall framework in terms of which the most important elements were located. At best, the framework suggested a generic pattern for the most common buildings, such as dwellings, as a consequence of the specific dimensions of the town blocks and the way in which they could be subdivided into individual properties.²¹

This natural evolution is evident when comparing the surveys at different points in time. There is not much change between the survey done in 1862, and in 1895, however between 1895 and 1930's onwards, the size of the erven in many parts of the city become much larger as erven start to consolidate to create larger developable sites, a phenomenon that has continued to the present.

20. Abrahamse, Claire. Attwell, Melanie. Hart, Tim. "Cape Town Station Forecourt Precinct Phase 1 Heritage Impact Assessment", September, 2013.

21. Todeschini, Fabio. "Towards Contemporary Resilient Settlement Planning: Some Reflections on the 'Nature of an Appropriate Spatial Plan' from the Perspective of the Post-Colonial African Edge", 2013.



fig. 16. The precinct chosen to focus on includes 6 blocks on either side of Long Street, between Wale Street and Strand Street.

With the grain of the urban fabric within the city gradually becoming coarser, there are still portions of the inner-city with a fine grain urban fabric, and architecture that hints at previous eras in Cape Town's urban history.

While these portions contribute to a healthy urban fabric in the city, they lack the allowable density stipulated in the Cape Town zoning scheme. The leftover developable bulk comes in the form of underutilised airspace that exists above the existing buildings. The question is, how does one increase the density of the city, by utilising this developable airspace, while still retaining the existing urban fabric and contributing to the character and layering of the city?

To unpack this idea I wanted to analyse a portion of the city, to gain a better understanding of the existing urban fabric, the amount of leftover airspace, and the existing urban amenities. I chose to look at a portion of Long Street as an example, due to its high level of activity, its rich architectural and urban character and its capacity to further densify and act as a spine through the inner city. Through this process I also aimed to identify sites within the precinct which could be used as examples for exploration in the next scale.

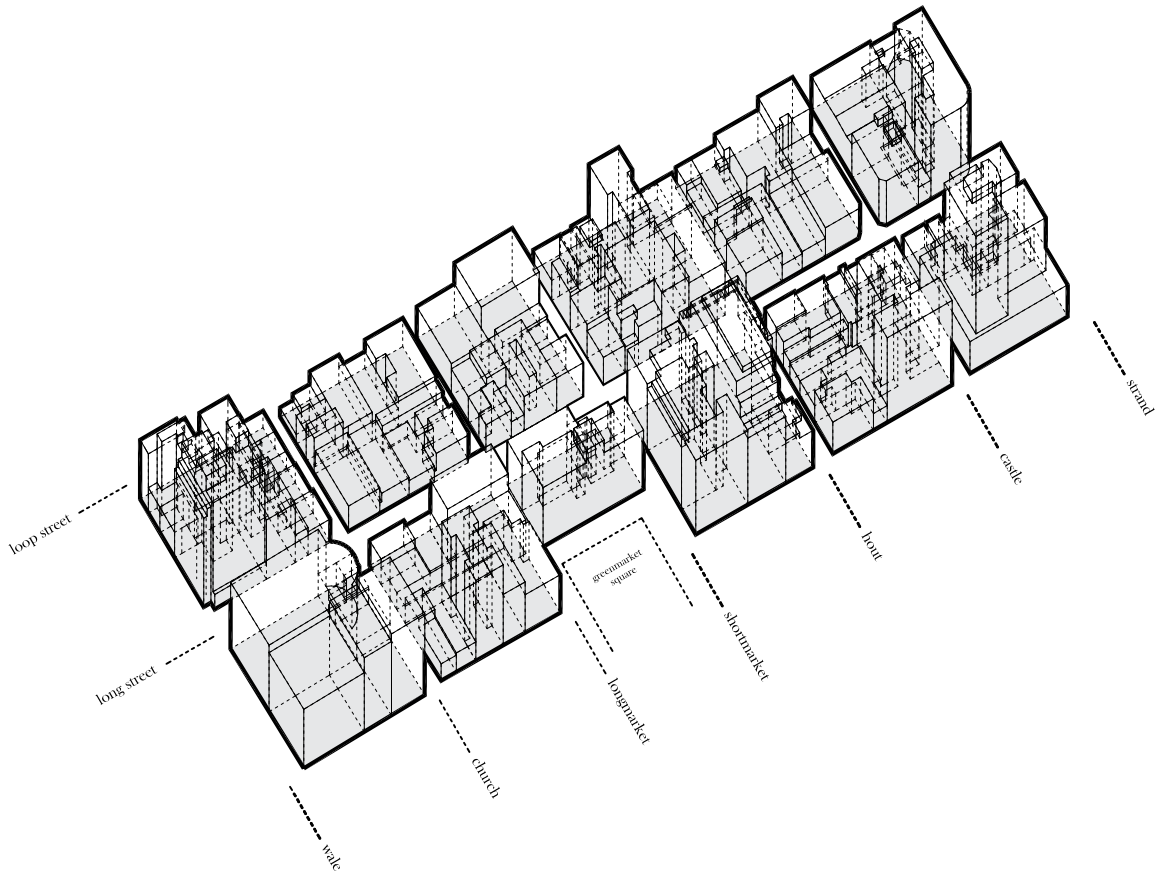


fig. 17. Long Street precinct, existing built form.

The existing urban fabric of the precinct is a mixture of old and new buildings, on both unchanged and consolidated even. The urban fabric provides a positive pedestrian experience and the street edges are active and animated.

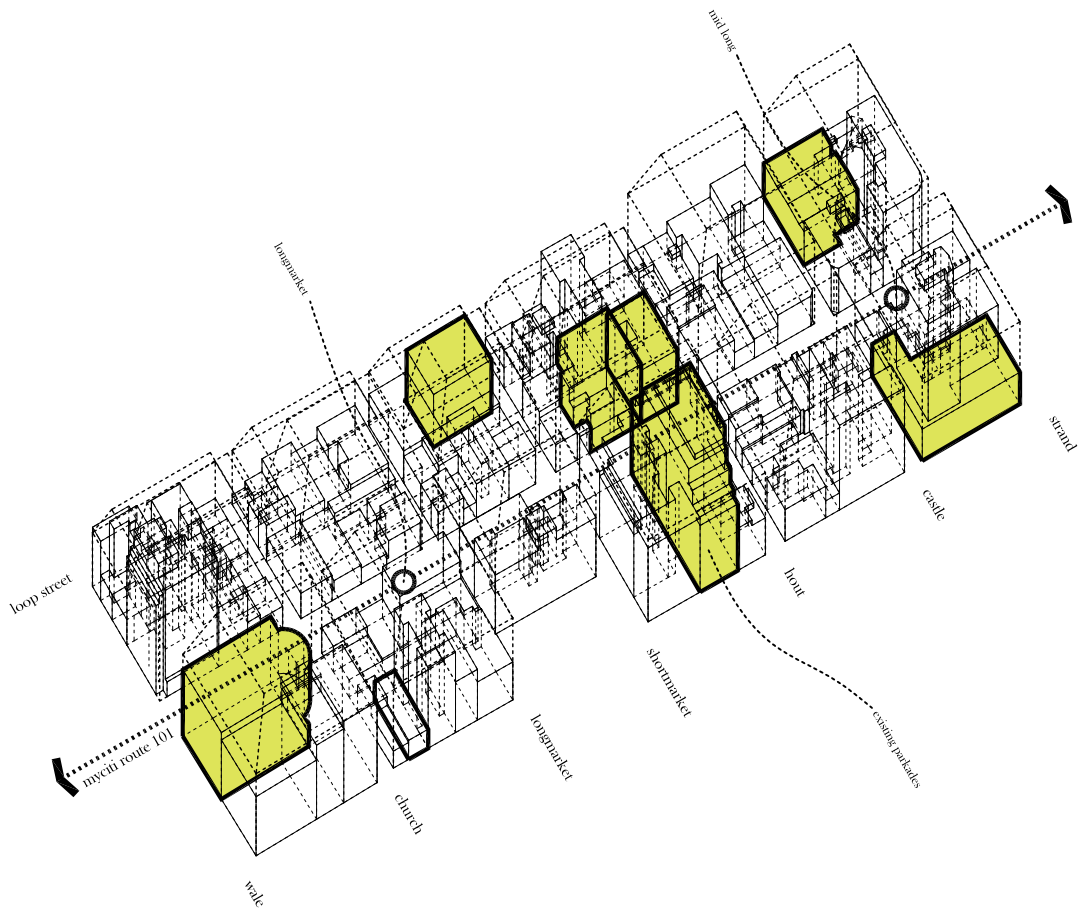


fig. 18. Long Street precinct, existing transport infrastructure.

One of the main IRT lines travels up Long Street, having two stops within the precinct. Parking in the historic core has traditionally been on the street and most older buildings provide no parking, but newer buildings are required to. To satisfy the deficit in the supply of parking, some existing buildings have either been converted into parkades, or have provided an excess of parking to offer for rental.

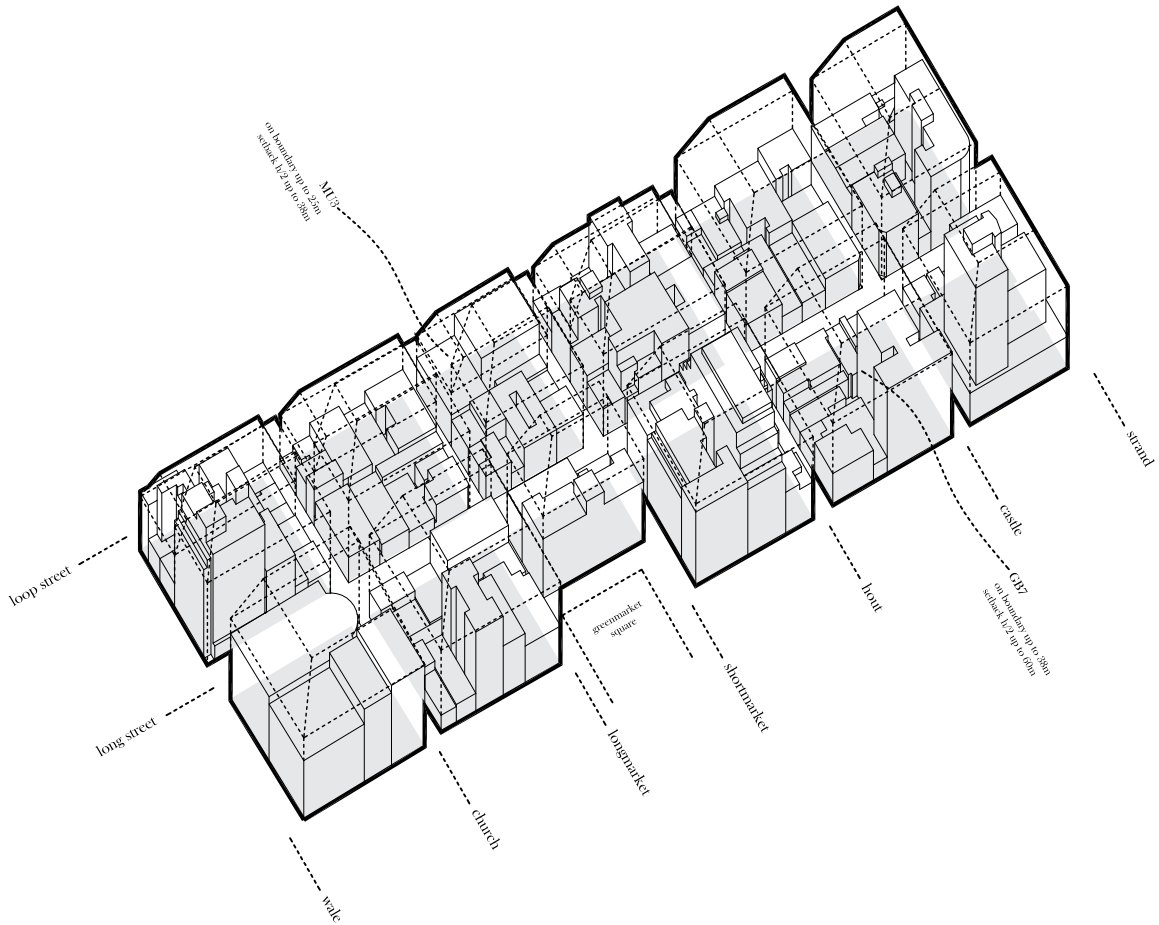


fig. 19. Long Street precinct, zoning setbacks and height restrictions.

opp. fig. 20. Long Street precinct, bulk calculations illustrating existing and leftover bulk.

The zoning of the precinct is a mixture of Mixed Use 3 (MU3), and General Business 7 (GB7). The setback lines are dotted above and show the 100% coverage up to a specified height, and the setback thereafter up to the height restriction. The allowable bulk in an MU3 zone is 6 times that of the site area, and in a GB7 zone, 12 times.

Each erf has been documented in terms of its site area, existing built fabric, used bulk and allowable bulk. The deficits between the existing bulk and the allowable bulk, is in some cases enormous, illustrating the potential density that could be added to the city, yet in the form of airspace above the existing fabric.

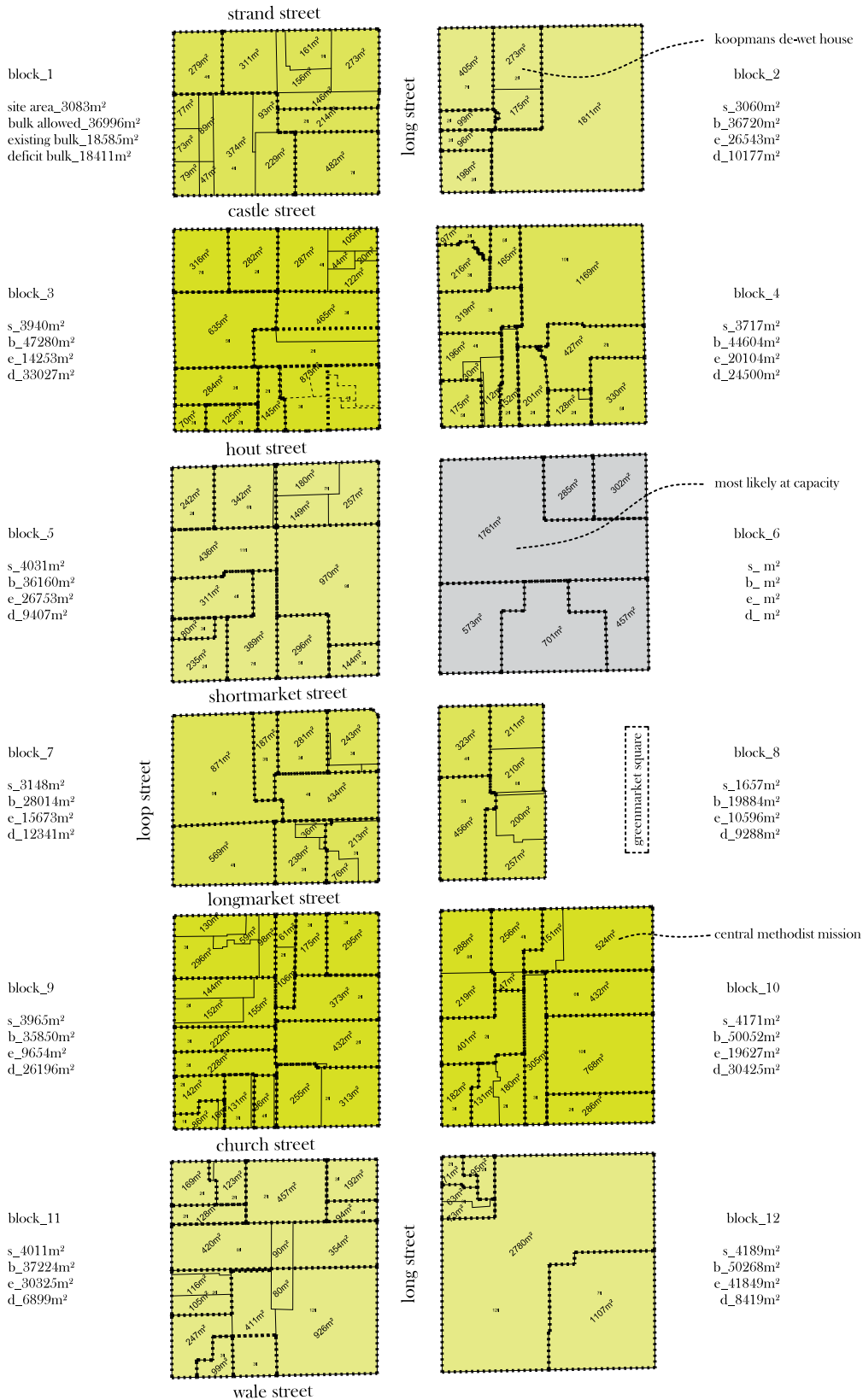
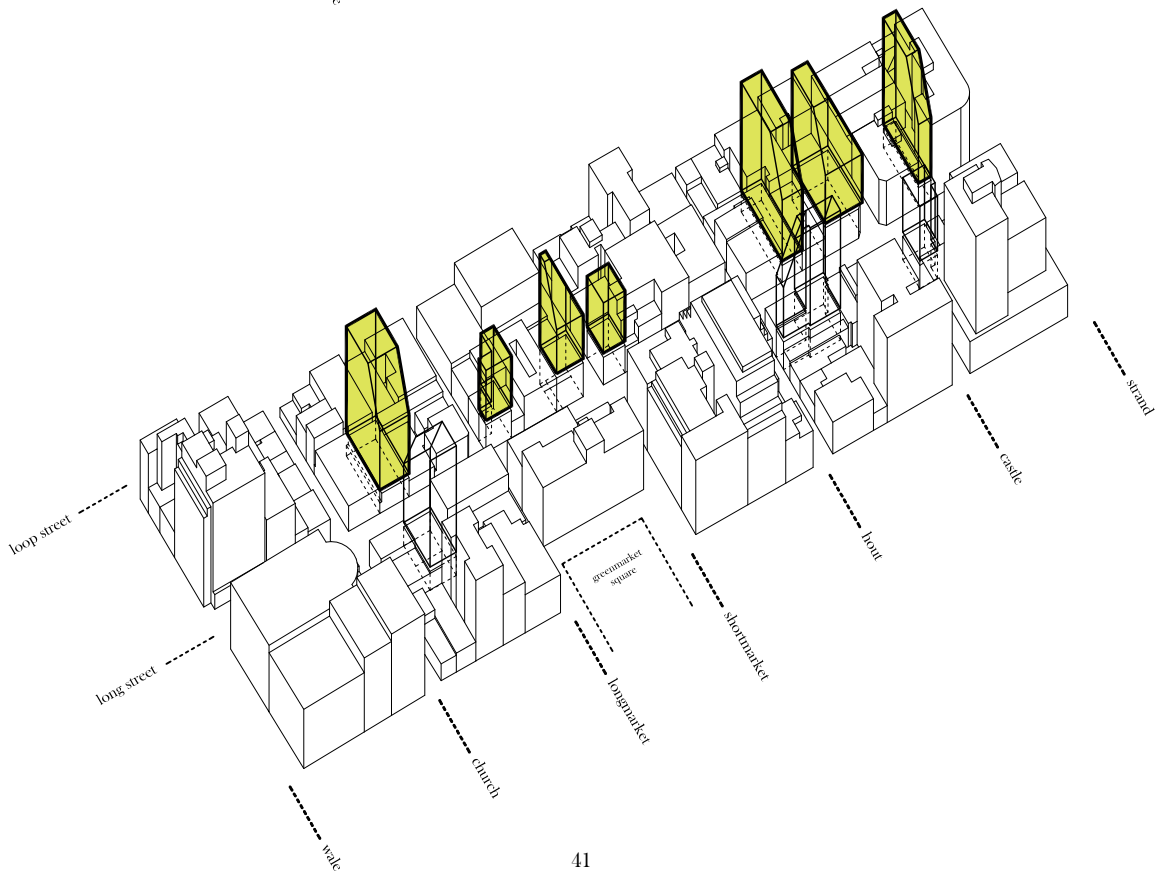


fig. 21. Long Street precinct, possible locations for additions within the existing urban fabric.

fig. 22. Long Street precinct, possible forms starting to emerge along the Long Street axis. over time.



BLOCK

:Strategies for development on Long Street. [Building a strategy and learning lessons in the pursuit of a more responsible and sensitive manner of placemaking, and adding density within the historic inner-city]

This section is an attempt to develop a strategy, or explore a set of ideas, in the pursuit of developing a new way of placemaking in the city, that would unpack the opportunities and barriers to entry in this context, and guide potential landowners/developers in this new way of placemaking.

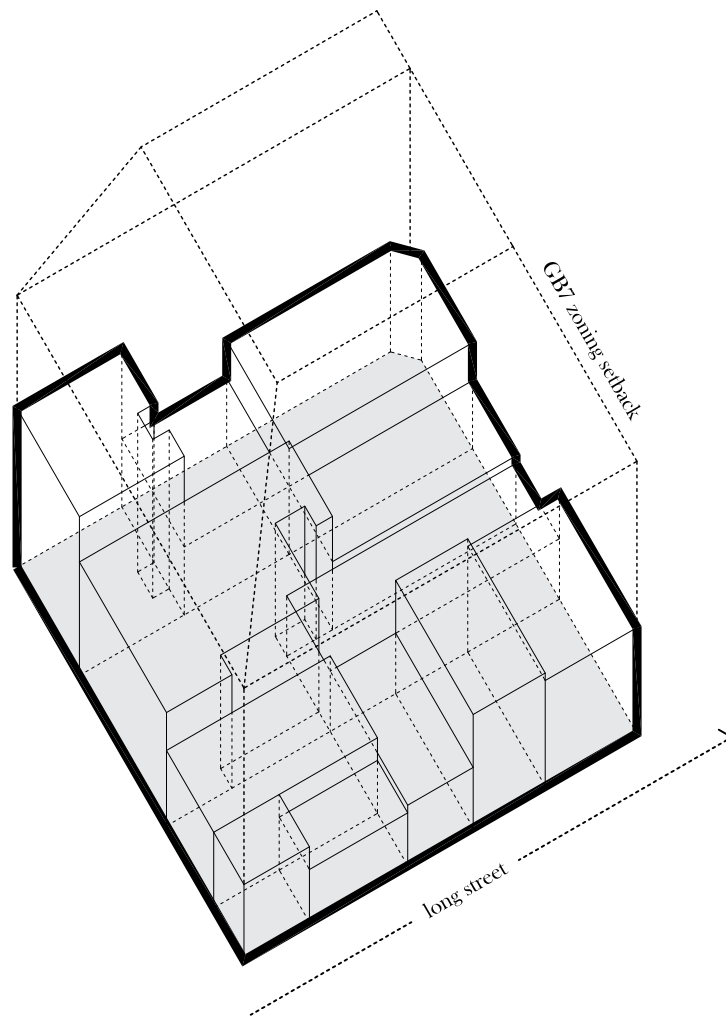


fig. 23. Example block within the Long Street precinct.

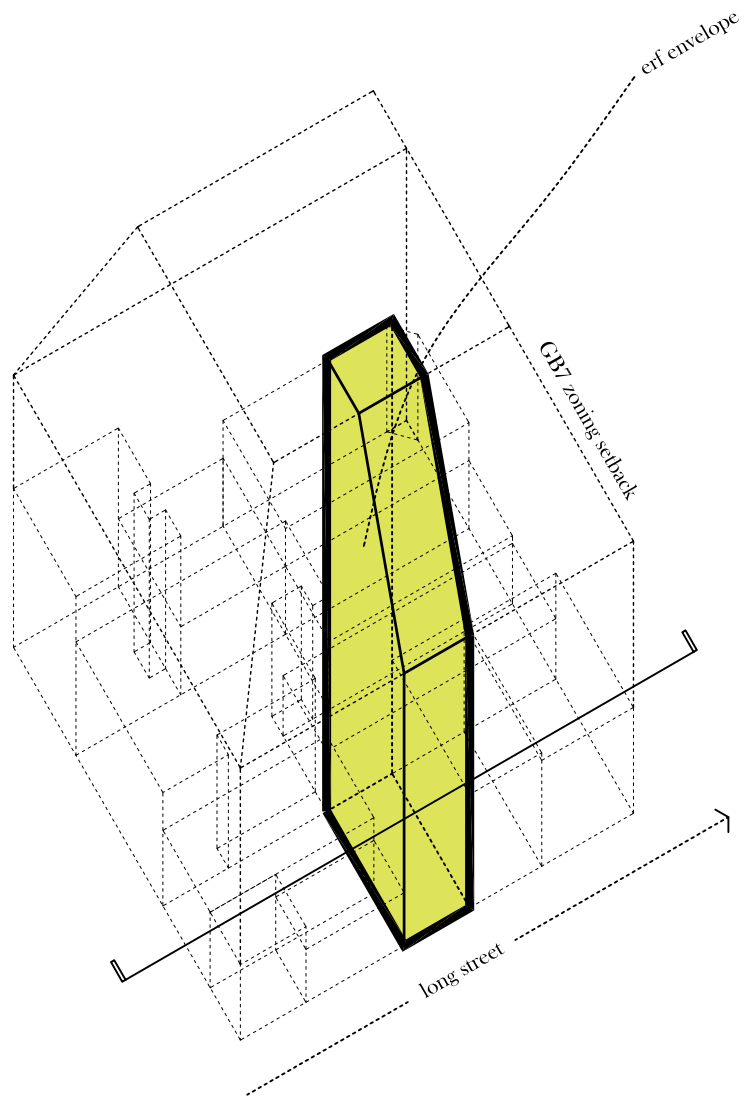


fig. 24. Infill site.

Infill building

I began to look at the idea of infill buildings or completing a city block, as this is a strategy done around the world. An infill site presents a rare opportunity in a city where a valuable piece of land is able to be developed, filling in the urban fabric and increasing the rentable floor space within a city.

The only issue being; it is a scarce opportunity and usually due to a building having been removed or having fallen into such disrepair that its effect on the urban fabric, and its physical value warrants the owner or purchaser to demolish it.

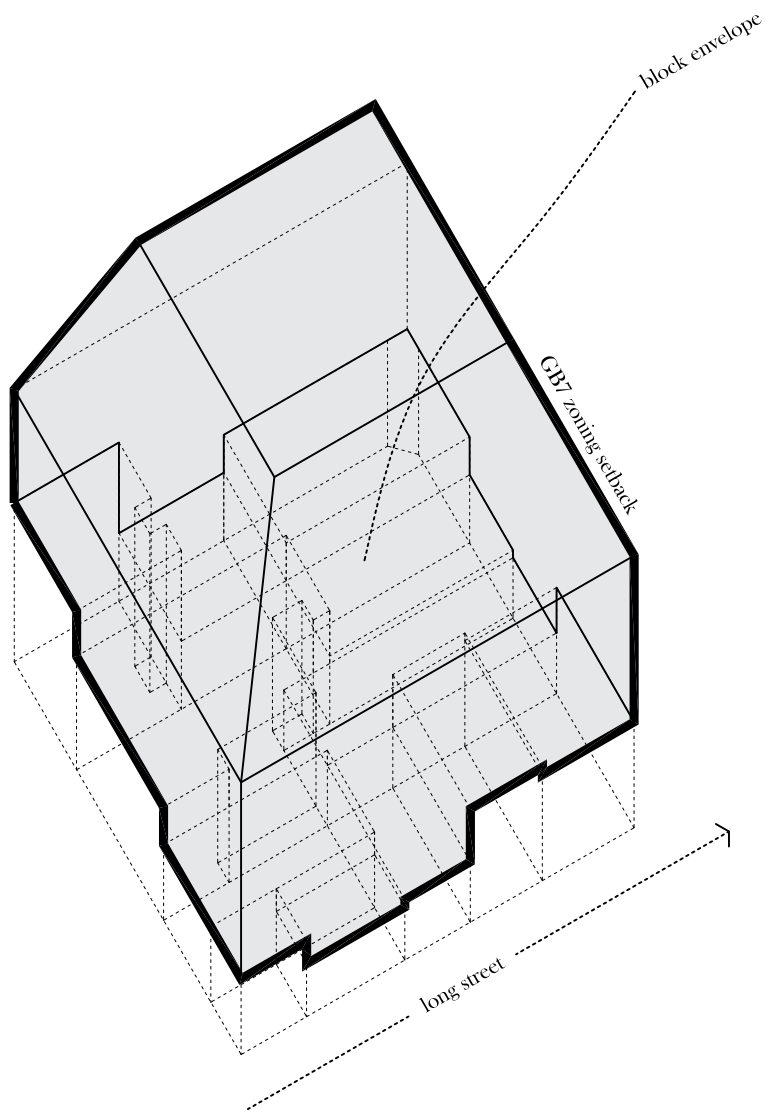


fig. 25. Underutilised airspace.

Underutilised airspace

I investigated the current zoning scheme in Cape Town, and identified the fact that there is an abundance of developable space in the inner-city. The issue however is that it all exists in the sky. The opportunities for expansion within the inner-city are underutilised airspace above existing healthy urban fabric.

I started to realise that instead of thinking about increasing density within the confines of traditional erf lines from a top down view, and thinking about infill in terms of fitting between two existing buildings, I should be thinking about vertical infill; filling in the gaps above the existing urban fabric.

By perceiving the existing built fabric of the city as an existing terrain, I could imagine a new 'ground' plane or datum above the city, upon which to extend the urban fabric. The new datum eliminates the existing erf boundaries which govern the fabric below, and the city block is freed for development within the leftover airspace that exists within the envelope.

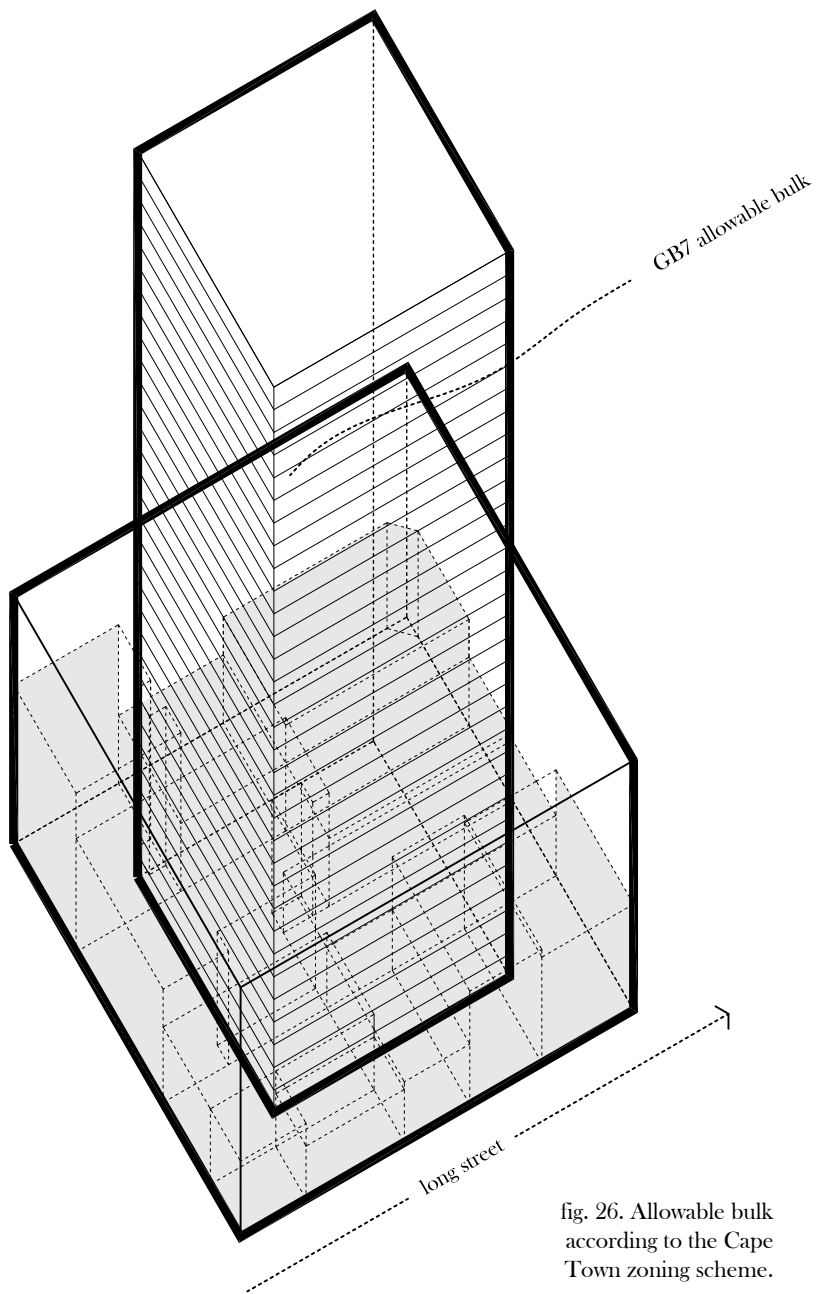


fig. 26. Allowable bulk according to the Cape Town zoning scheme.

Zoning

The current zoning scheme describes various conditions, but the most prominent zoned land in the inner-city is GB7 (General Business 7). This allows the land to develop to a maximum height of 60m and to a maximum FAR of 12.0.

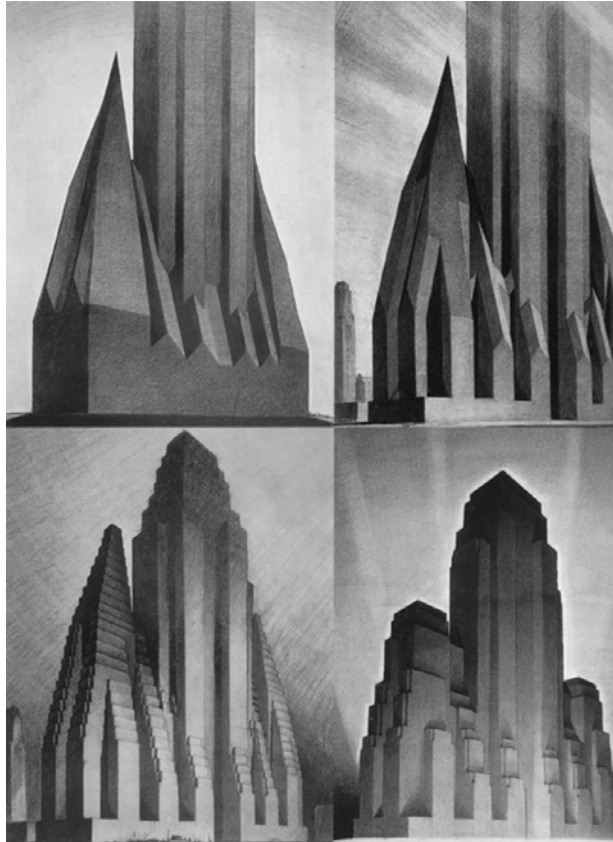


fig. 27. Hugh Ferriss' NYC zoning visualisations. In 1922 Hugh Ferriss was commissioned to create visualisations of the recently implemented NYC zoning regulations. The regulations stipulated limits to control the mass and height of buildings, protecting light access to the street, in an effort to combat the phenomenon of buildings occupying the whole site with as many levels as possible. The drawings show the characteristic ziggurat form that zoning setback formulas create.

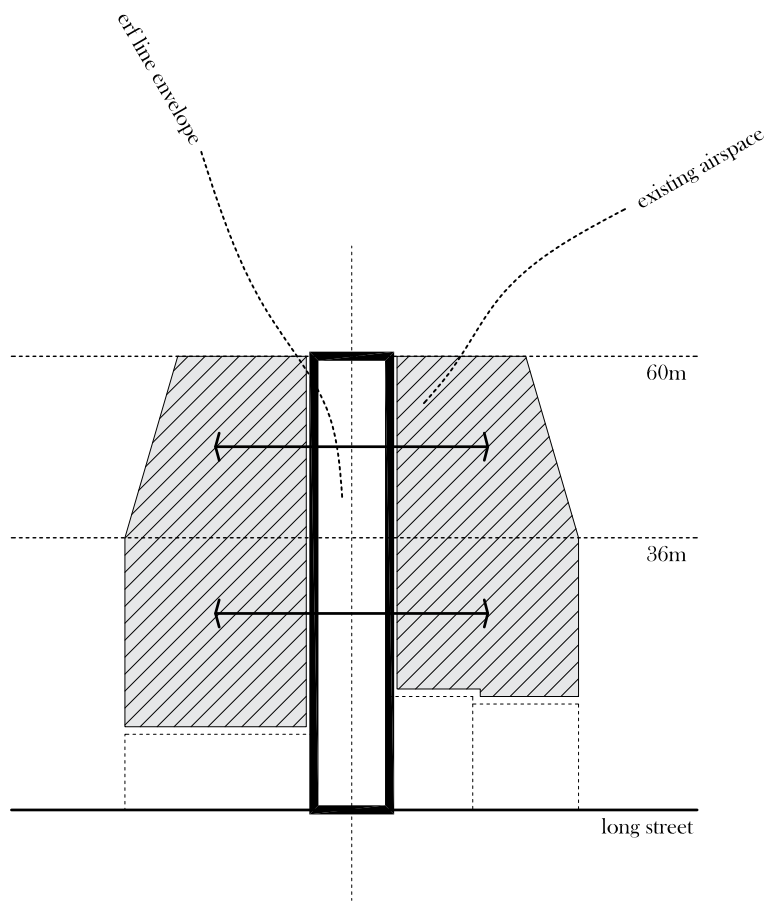


fig. 28. Transfer of development rights.

Purchasing FAR

While the footprint of the potential building would most likely be small, the building aims to add density and occupy the open airspace belonging to the surrounding buildings. This would mean that past a certain height the building would branch out and occupy the available open space.

To enable this, the developer would transfer a portion of, or all of, the undeveloped FAR (development rights) of the surrounding buildings, to add to its own FAR. The cost of the footprint would be low due to its size and lack of street access, and the development rights would be cheaper than buying an erf or neighbouring existing building.

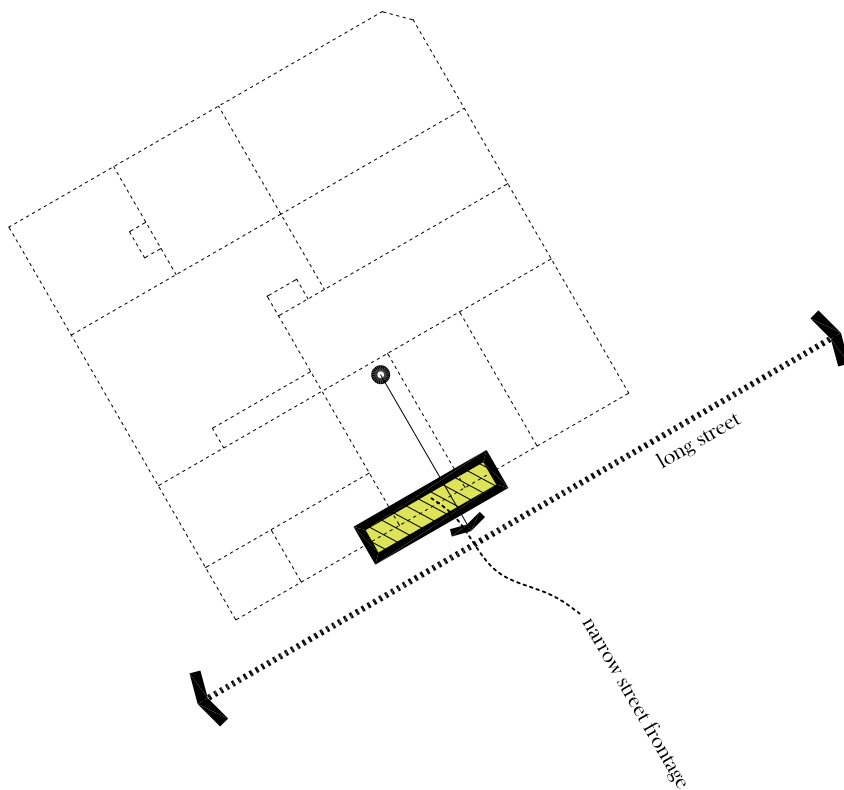


fig. 29. Street access.

Street access

While this new typology aims to move away from the importance of the ground plane, it is obviously important to understand how the new addition gains access to the street.

If the footprint of the new building is on a subdivided erf in the centre of the block, the developer needs to gain street access via a servitude or by renting access to one or more neighbouring lobbies to create thoroughfares.

In other instances the developer may use an existing building as part of the new addition, in which case street frontage already exists, and the ground floor can be converted to accommodate the new programme.

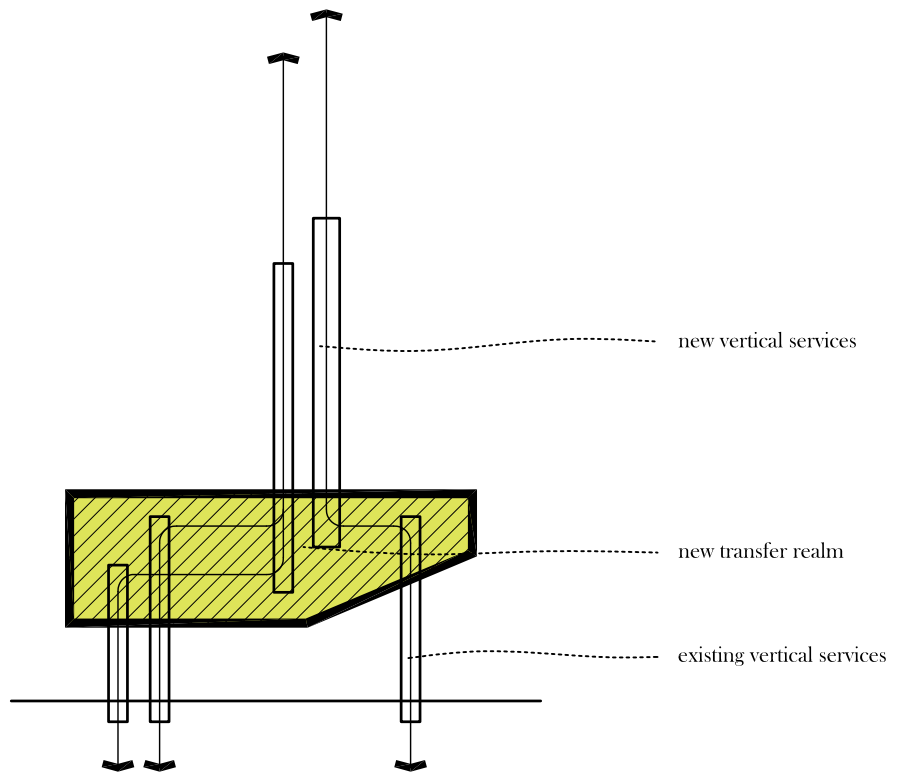


fig. 30. Vertical service sharing.

Vertical service sharing

The vertical services or service core (elevators, fire escapes, service ducts) on many multi-level buildings can occupy a large portion of the potential floor plate, and subsequently potentially rentable floor area. While the building will probably require its own elevators and service ducts, there is potential for the building to use its neighbours' fire escapes, provided access and security is carefully considered.

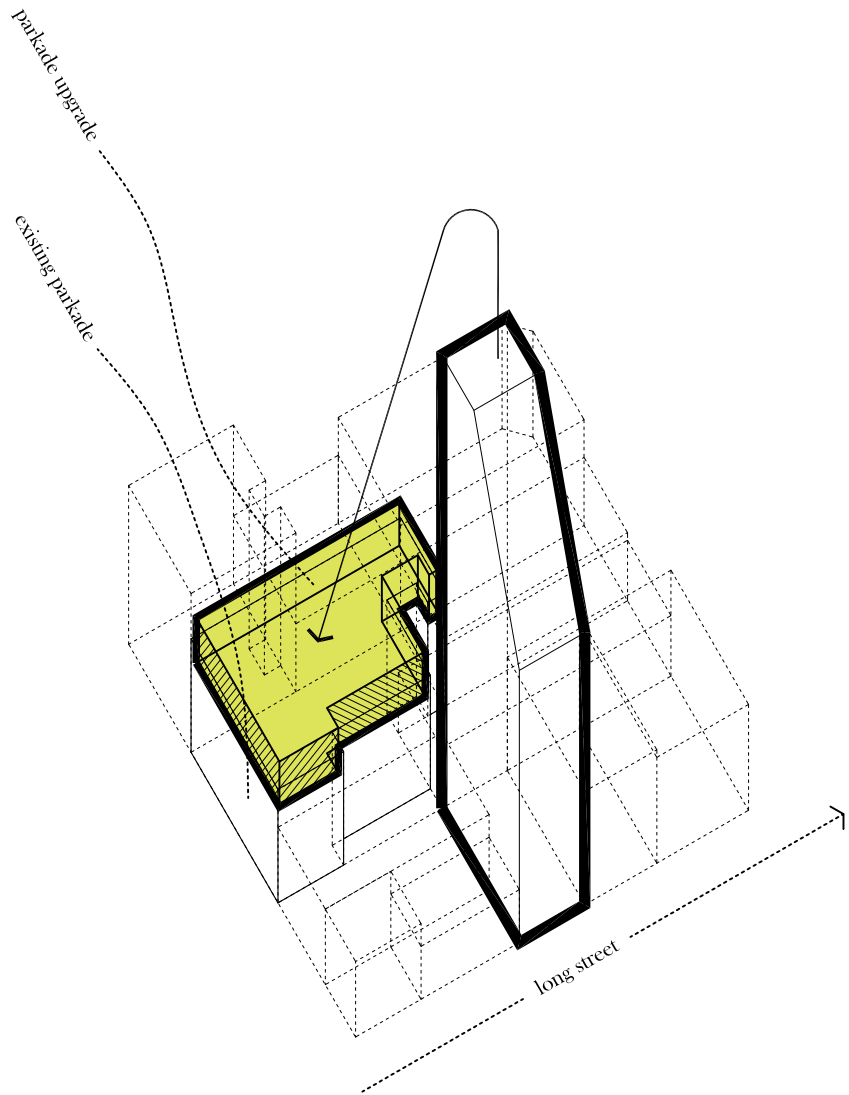


fig. 31. Parking requirements.

Parking

Parking requirements in the city is already a contentious topic as it is seen to be hugely prohibitive to inner-city development, due to the lack of existing space. In addition, it demands large footprints and can create dead facades. On the other hand, parking is still very necessary and valuable for both existing and new buildings, and the requirements need to be addressed, and engaged with.

The addition of new parking bays is very difficult in an existing inner-city context, and the attitude should be to add or acquire bays, and achieve efficient clever parking solutions wherever physically and responsibly possible. This could be done by converting part of the existing building, retrofitting or extending.

Alternatively, as part of this strategy the developer could approach a neighbouring land owner, and develop their existing parking in order to service the neighbours' parking requirements. This would satisfy both parties in that the parkade owner would be guaranteed the rental of his parking bays, and the new building would be able to satisfy its parking requirements.

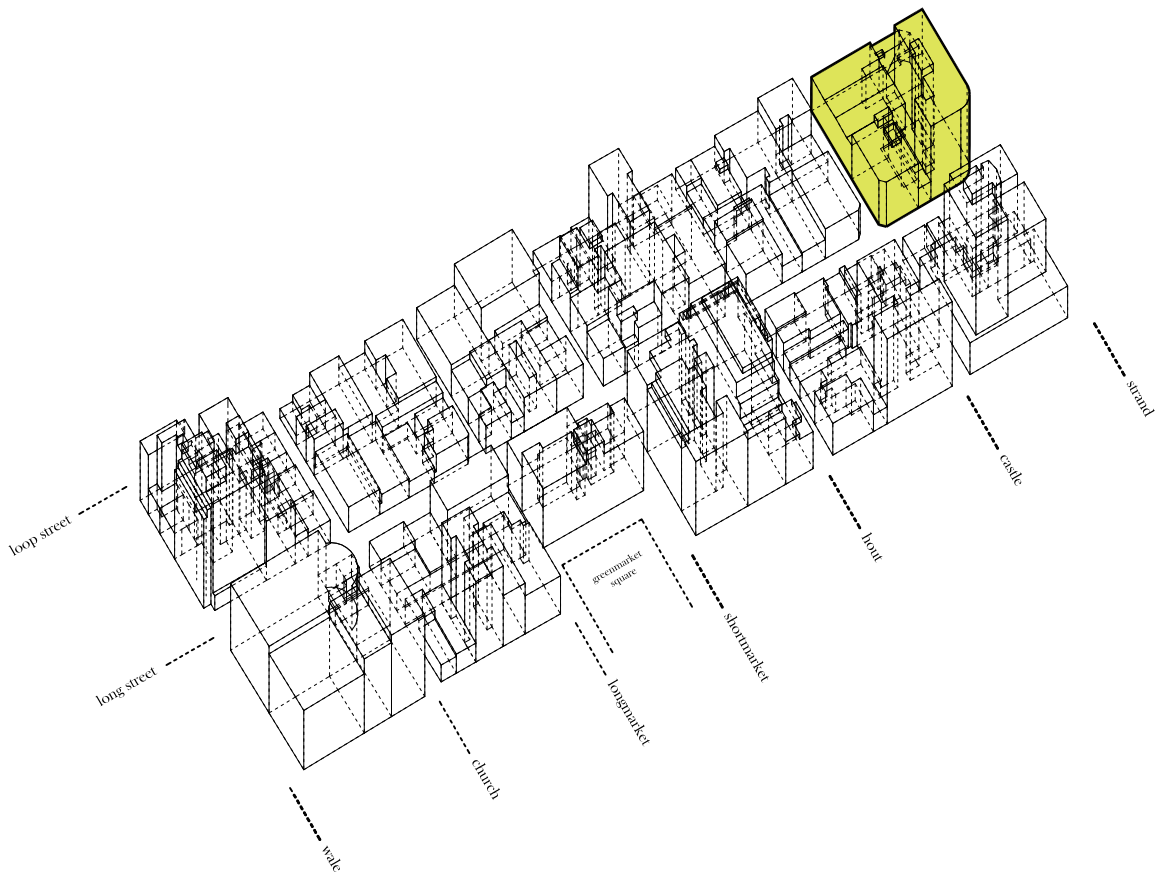


fig. 32. Site selection.

Ownership

The model for ownership is a difficult topic within the overall strategy. From the outset of exploring these ideas I was interested in the way that a single owner within a block could impact the city, opposed to a single owner owning the entire block. Ideally, the development would create as large an impact on the city as possible while impacting the immediate existing urban fabric as little as possible.

The difficulty arises when the single owner would like to make use of its neighbours existing facilities or services to supplement its development (separate to the neighbours' air rights). This would most likely work on a rental or exchange basis, and would impact the design in an incidental manner, incorporating those externalities which have been negotiated from neighbours.

While this would mean that the design needs to be flexible to incorporate new externalities or lose existing ones, it is in line with the palimpsest ideology; the evolutionary plug and unplug nature of humanistic city fabric.

Site selection

While these ideas remain fairly non-site specific, the reality is that any strategy will have to be applied in a different manner according to the specifics of the site. The next step was to choose a site and apply the logic discussed above, in uncovering the intricacies of the context, both pragmatically and architecturally, and testing the ideas in a real context.

The chosen site is no. 34 on Long Street, a narrow 7m wide erf which stretches from the street edge back to midway through the block, and remains largely unchanged since 1862. The neighbouring buildings are of varying ages and stages of change, and offer interesting opportunities to fill in a gap in the urban fabric and engage with a broad range of site specific challenges, in creating a responsive and responsible addition to the city.

59 Strand Street, corner Loop Street
BARCLAYS NATIONAL BANK LIMITED

erf : 2322
prop. ref. : WB 21D 17
inspected : April 1978

3 storey splay corner matched street fronts.
Ground : granite base courses, square joint rusticated pilasters, bronze, bronze aluminium, hardwood trimmings and granite framing to openings.
First and second floors : bronze aluminium windows, projecting terrazzo framing to openings, giant order fluted composite columns. Plastered concrete cornice and moulded parapet, suspect c1950. Modification of earlier building.



259.30

43.50

49 Loop Street, corner Castle Street
CARSONS MOTOR SALES
(Formerly ATKINSONS MOTORS LTD.)

erfen : 2317, 2318, 2319, 2320, 2321, 2326,
2327, 2328
prop. ref. : WB 21D 19
inspected : April 1978

G and 3 floors concrete or steel framed. 5 bay Loop Street, 6 bay Castle Street. Fine period structural bay-divided facades.
Ground : teak shopwork, leaded top lights, fine motor showroom doors, small square corner pane details. Loop Street left hand car access ramp to upper floors.
First floor : steel windows, lead glazed (part replaced with plate glass).
2 storey high giant order pilasters : facebrick base coursing, faggot facebrick panels, fine first floor level pulvinated plaster cornice supported on plaster moulded pilaster capitals with additional ornamental applied plaster escutcheons.
Second and third floors : plain plaster pilaster and walling panelling etc. Less ornate than lower floors. Steel industrial windows and steel leaded windows. Plain plaster parapet containing central stepping pediment on Loop Street with lettering "Atkinson Motors Ltd" and plaster escutcheon.
Interior : fine ground level period interior, plaster moulded piers, soffits etc.



282.38



259.29

43.54

43.53 Long Street, corner Castle Street
PERTH HOUSE, WILLIAM RAWBONE & CO., ASTRA FURNISHERS etc.

erf : 2325
prop. ref. : WB 21D 27
inspected : April 1978

2 storey (building appears to be designed to have additional floors), concrete framed.
Ground : bronze shopwork, marble (beige and brown), splay corner plastered concrete terrazzo edged canopy.
First floor : bronze aluminium windows, terrazzo surrounds and facings and moulded parapet, suspect c1955. Internal round concrete columns (some mosaic mirror clad).



259.28

43.52 34 Long Street
SELLARS (Formerly T. Gibson and Co.)

erf : 2324
prop. ref. : WB 21D 28
inspected : April 1978

2 storey, period terracotta shop front and interior.
Ground : fine teak shopwork, glazed double shop door, wrought iron grilles etc.
First floor : large pane teak arched shop show window, overall salmon pink terracotta imported shop facade with various decorative details including attached columns, escutcheons, decorative consoles and brackets. Side escutcheons still contain monogram "T. G. & Co." also central facade lettering "Merchants". Curving top pediment contains escutcheon dated 1896, firm's name recently removed.
Interior : mosaic entrance threshold, faience tiled dado matchboard ceilings, turned baluster stair to storage floor etc. Typical old central city narrow warehouse site basically unchanged since Snow's survey c1862, present structure possibly contains old fabric within. Building generally obscured in panoramas.
(Possibly built in 1904 despite date on building. The architect was A. De Witt. The front is steel framed, a pretty little survivor of the turn of century vogue for terracotta.)



258.27



259.33

47 Strand Street, corner Long Street
ATKINSON HOUSE, CHEMKAY CHEMIST, TV AND RADIO HOSPITAL, ATKINSONS (motor sales) etc.

erfen : 2334, 2335, 2336, 2337, 2347
prop. ref. : WB 21D 18
inspected : April 1978

G and 9 floors, concrete framed.
Ground : polished pink granite, chrome shopwork, travertine etc., curving round corner plastered canopy.
First floor : golden brown brick facing, steel windows, projecting terrazzo surrounds.



258.24

43.51

51

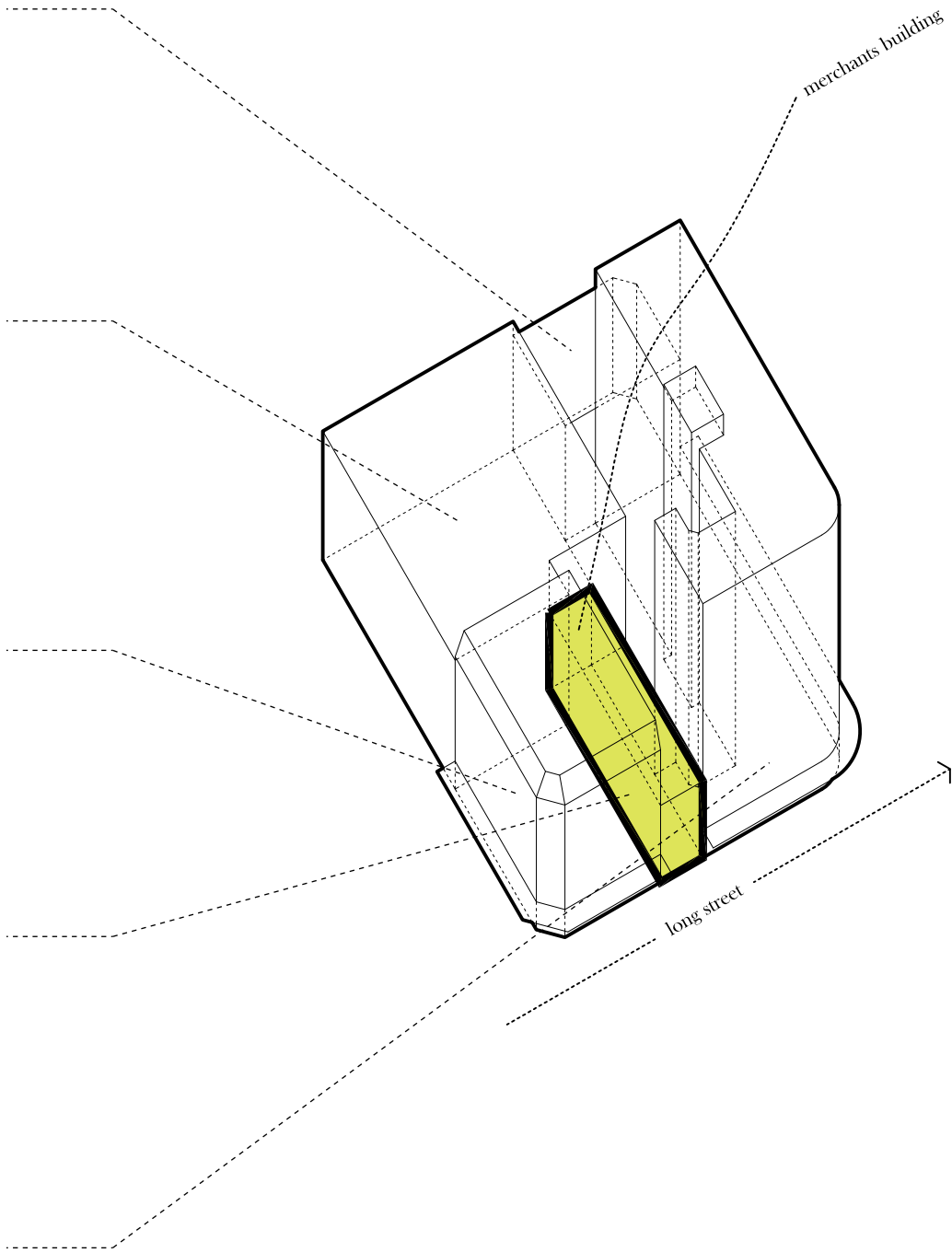


fig. 33. Block context.

ERF

:Palimpsest [understanding what is needed to propose an architectural response which reflects the theoretical underpinnings of the paper, and is as responsible in good placemaking and adding to the urban fabric of the city, as it is in contributing in the longevity of the city in adding density and flexibility]

The challenging thing with this dissertation is that it needs to fulfil two different criteria. On the one hand is the pragmatic numbers game which is necessary to engage with to make it a realistic typology for inner-cities around the world, not just Cape Town. This means engaging in applying the strategies in the previous chapter, and acknowledging physical constraints and demands such as density, bulk and parking.

On the other hand is the actual architectural response. A thoughtless response would be to maximise bulk, ignoring its impact on the urban environment, and overlooking the unique opportunities on offer nestled in this unique inner-city context. In a sense, this dissertation is investigating a uniquely new typology, and with it there are unique opportunities and challenges. To ignore these possibilities would be a shame, and would overlook the chance to continue to add to the city's evolutionary palimpsest.

pal-imp-sest

(noun) A manuscript or piece of writing material on which the original writing has been effaced to make room for later writing but of which traces remain. Something reused or altered but still bearing visible traces of its earlier form.

From the stages of theoretical investigation, I began to use the word 'palimpsest' to describe the unique evolutionary nature of cities with a richly developed and evolved urban fabric. In the context of the city, I refer to palimpsest to describe the humanistic patchwork fabric of cities, incidentally created by demand. It is used to describe an architecture of alterations and additions, an architecture which is contributed to by every city dweller. Palimpsest has since been used to drive an overall attitude in the architectural and spatial process of the project, and can be seen in the treatment of the programme, the circulation and urban form.

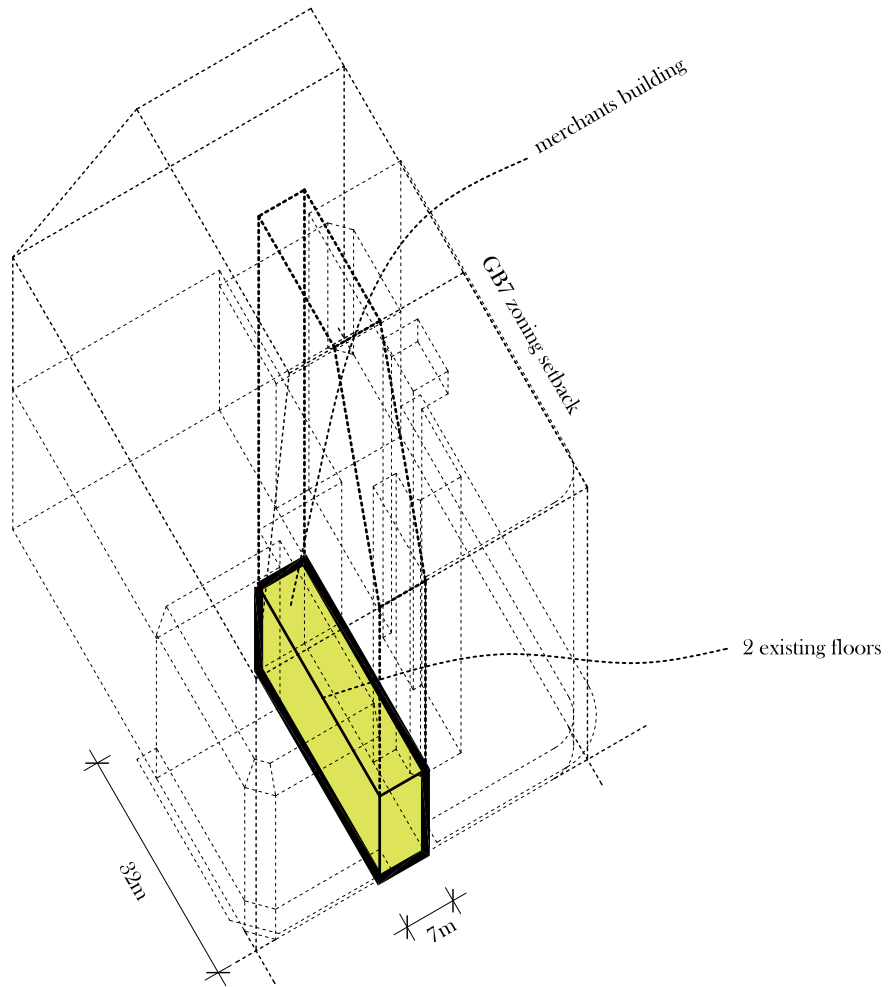


fig. 34. Merchants.

Pragmatics

The first obvious challenge that the site presented was its narrow and long footprint, and that it was positioned midway along the block. The difficult site meant the response would have to be carefully considered, balancing both efficiency and a good urban form, but the site is a perfect example of an old building on a largely unchanged erf since 1862 with an bulk very obviously below that of its neighbours, and its permitted capacity.

The very narrow and long site meant that there would be challenges of getting light to the back of the site and down between the neighbouring buildings, limited street frontage access, distribution of vertical services on such a small footprint, satisfying parking regulations, amongst other issues. In addition there would be the challenge of balancing this with creating a responsible and meaningful architectural response which positively contributes to the urban environment.

The small site obviously results in a very thin, narrow envelope and small bulk, and so the next logical step is to assume that the owner would purchase the remaining FAR from the neighbouring buildings. This enables the design to extend freely above and across the existing neighbours and ensures (for the foreseeable future) that the owner has the rights to all four orientations past a certain height. It also allows the size of any given floor to increase, making the new addition more feasible.

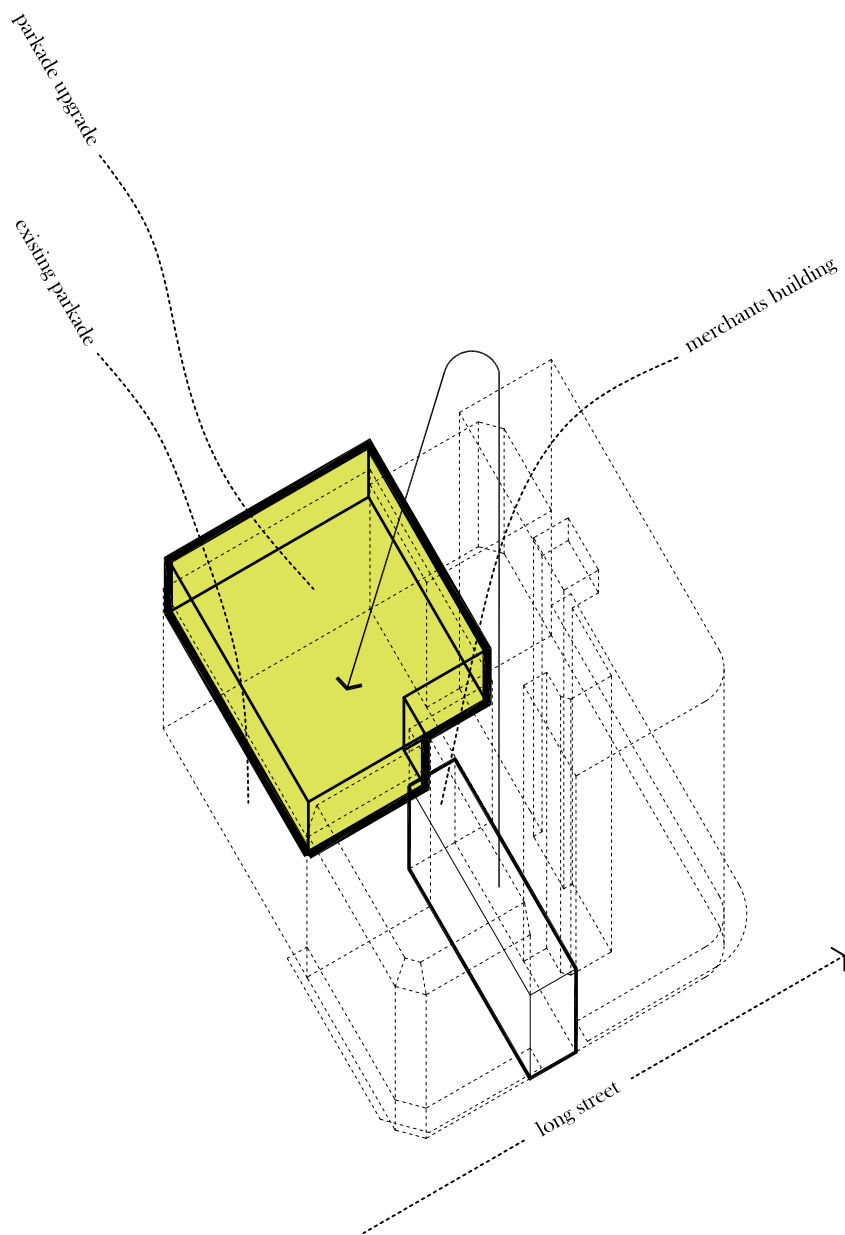


fig. 35. Satisfying parking requirements.

With such a narrow and small site, incorporating parking into the programme is extremely difficult. While there are public transport routes bordering the site, the incorporation of parking is still an important attraction and has to be addressed. The strategy doesn't specify a method for adding parking, but simply to find parking wherever possible, in such a tight inner-city context.

Considering the narrow street frontage, putting parking into the programme is essentially impossible; however one of the neighbouring buildings is already a parking garage which services the buildings within the block. The strategy for this project would therefore be to approach the owner of the parkade and develop the building to increase its capacity, and guarantee the rental of every added parking bay. This satisfies both owners, as the one is guaranteed parking while the other is guaranteed increased rental, while both buildings remain autonomous.

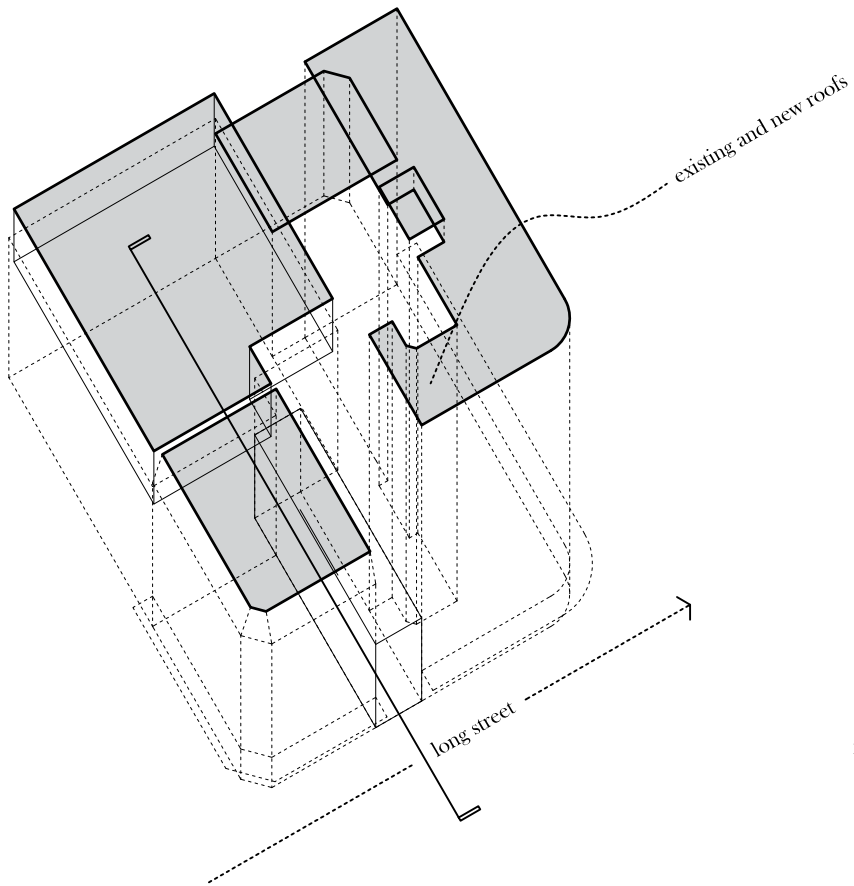


fig. 36. New above ground public realm.

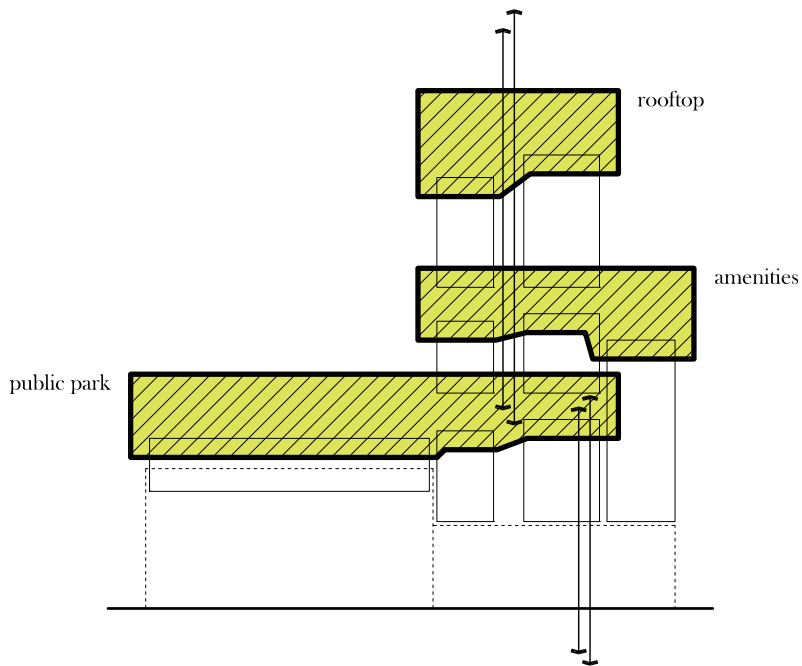


fig. 37. Public/private vertical negotiation.

Public/private

The fascinating opportunity of adding to an existing context is the opportunity to use the surrounding roofs to create public space within the block. A main design driver in the project was to use the existing roofscape, as well as new datum levels to create a three dimensional public space network as part of the design.

The narrow circulation zone and multiple levels results in a building which has a far more vertical orientation than horizontal. In a sense the section of the building could almost be treated as the plan, with the vertical services treated as a street, carrying the users ‘along’ the building to various floors.

What sets this typology apart further, is the interplay between the public and private levels. Usually height is used to differentiate and separate publicness and privateness, but in this case, the public and private programmatic elements are interwoven vertically. The vertical circulation routes through the building act as the separators, the use of public express, and private local routes and the access-control of public lobbies define the level of access of the user.

The slow uncovering of the nature of the site as well as developing the programme over the course of the project, started to reflect the ideas of Rem Koolhaas’ *Delirious New York: A Retroactive Manifesto for Manhattan*²². Themes of cross-programming between the private and public areas, related to the verticality of the created realms began to drive the project. Abolishing the traditional notions of ground plane publicness and above-ground privateness frees the architecture and programme, and hints at a new method of thinking in the city.

“Each new building spanning a block, like a collection of urban islands, each striving to be a ‘city within a city’, all potentially at war with one another.”²³

22. Koolhaas, Rem. “Delirious New York: A Retroactive Manifesto for Manhattan”, New York: Monacelli Press, 1978.

23. Ibid.

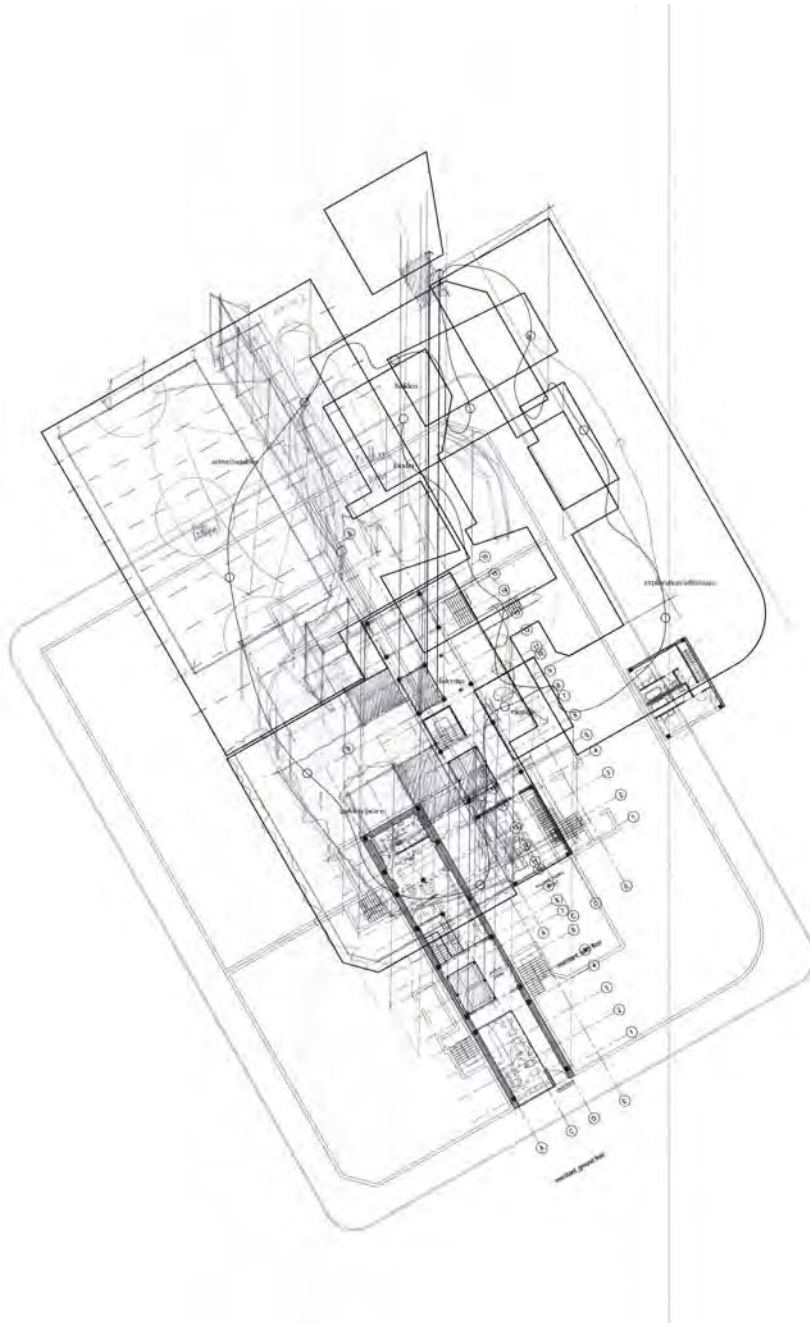


fig. 38. Roofscape axonometric exploration.

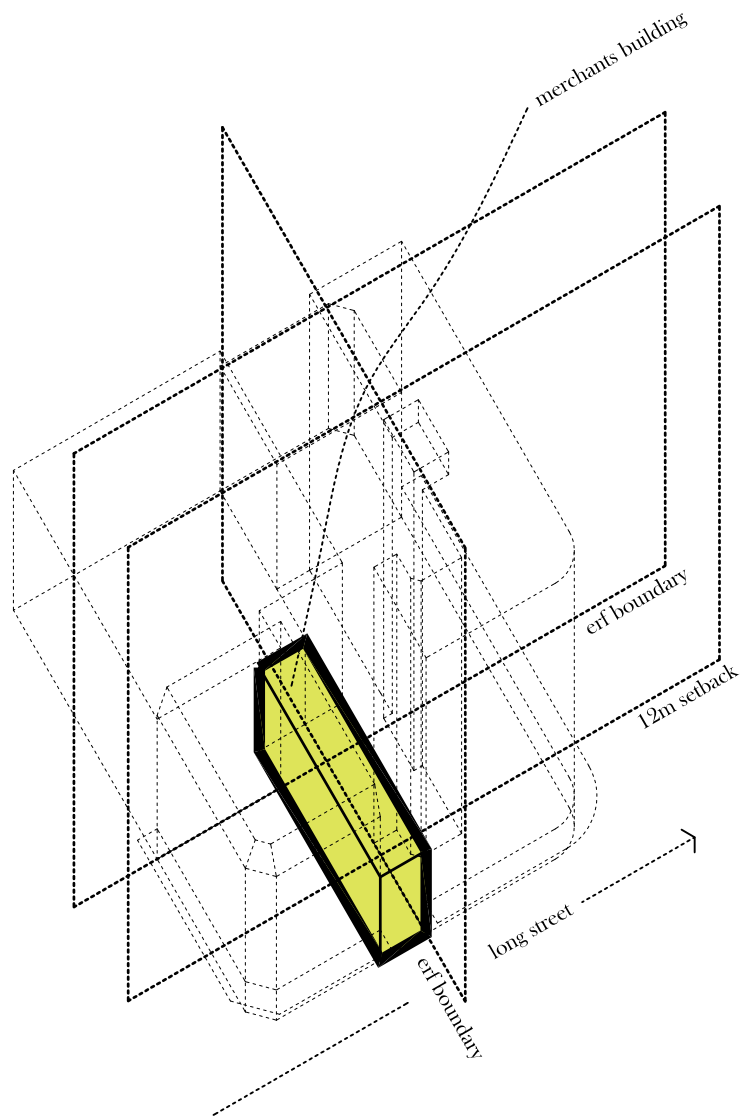


fig. 39. Invisible erf lines

Material/structural expression and form

In the pursuit of a design embedded in its context, and reflective of the nature of palimpsest, I used the vertical planes of the existing erf boundaries and the horizontal planes of the existing neighbouring roofs to unpack the site, and understand the unseen boundaries and borders of the block. The result is a building informed by and reflective of its context. The resulting form is a fractured group of masses, seen as a grouping of new additions opposed to a single one, which allows the new building to respond and embed itself in its immediate context, in such a complex and diverse situation.

I wanted the structural resolution of the new addition as well as the materiality of the building to reflect the attitudes of palimpsest, alteration and addition, and the dense inner-city context. On the topic of architectural lightness, Beukers and van Hinte highlight the importance of achieving lightness and ‘the renaissance of the minimum energy structure’. They express that until now, economic comfort and success has been synonymous with ‘heaviness’.²⁴ While this comment is more related to sustainability, pursuing an attitude of lightness can have large impacts on actual development, due to the fact that achieving structural efficiency in lightness can translate to efficiency in other areas of a project. In certain instances, the selection of lighter materials has a significant knock-on effect in the overall weight of the building. This lowers the dead load, resulting in savings on the necessary structure of the building, and subsequent cost of the structure.

24. Beukers, Adriaan. *Lightness: The Inevitable Renaissance of Minimum Energy Structures*. 2nd ed. Rotterdam: 010 publishers, 1999.

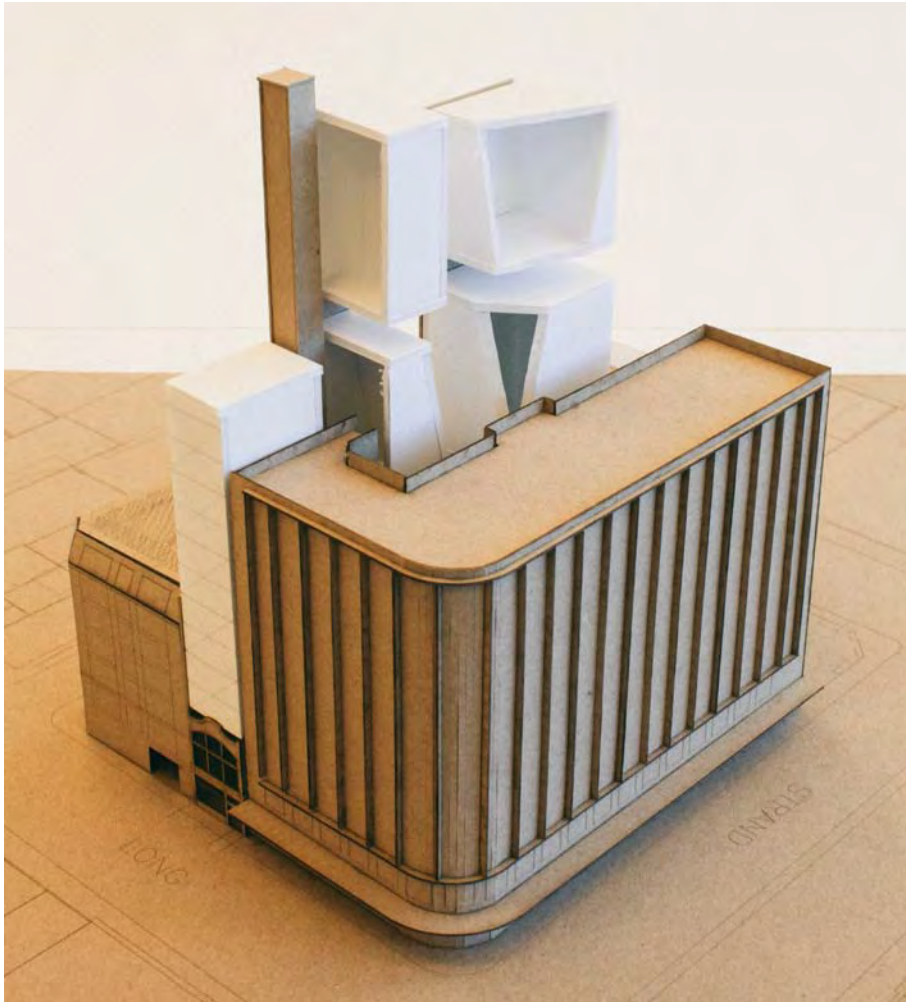


fig. 40. Exploring fractured form through models.

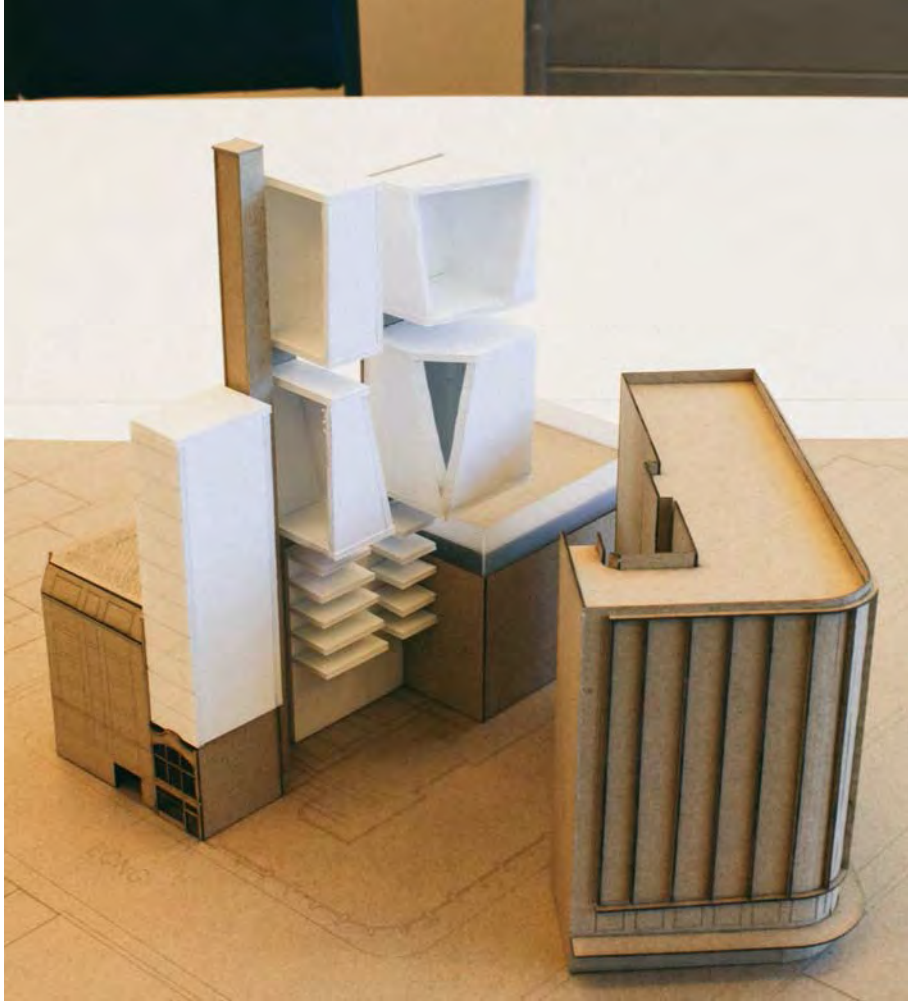


fig. 41. Carving out light to the centre of the block.

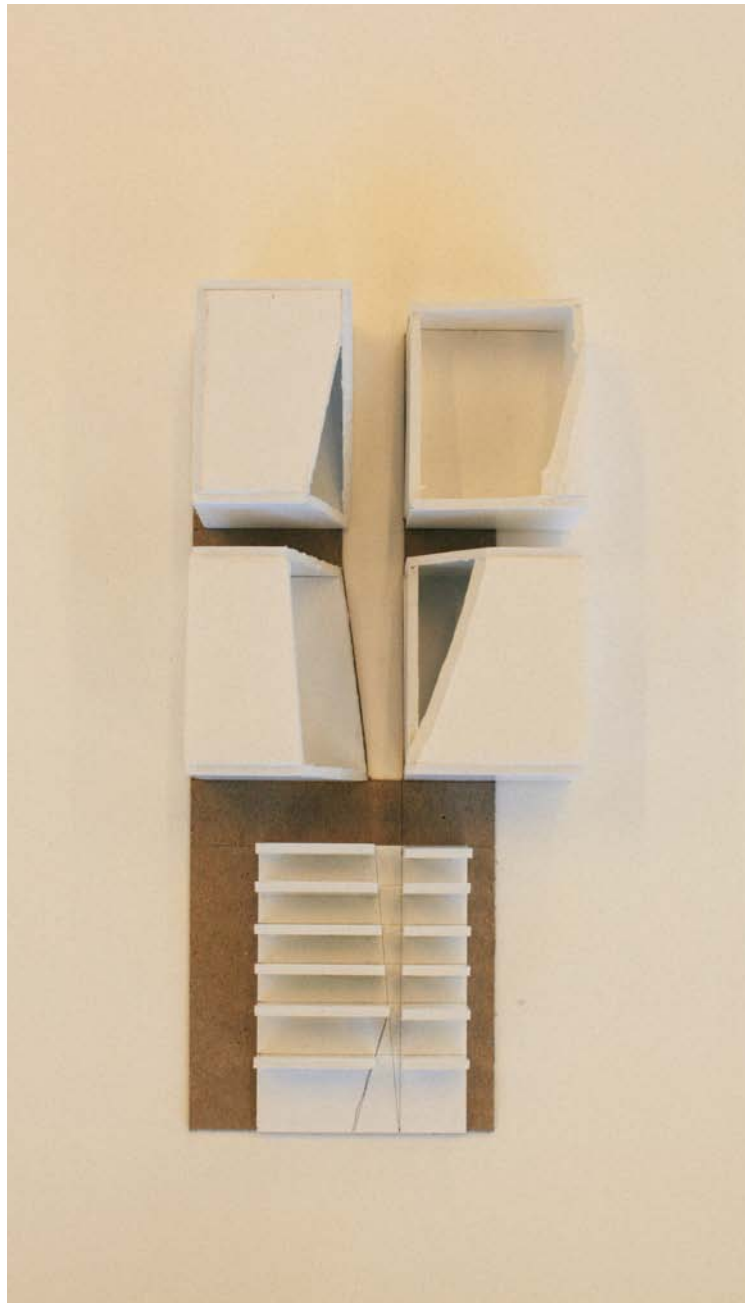


fig. 42. Carving out light to the centre of the block.

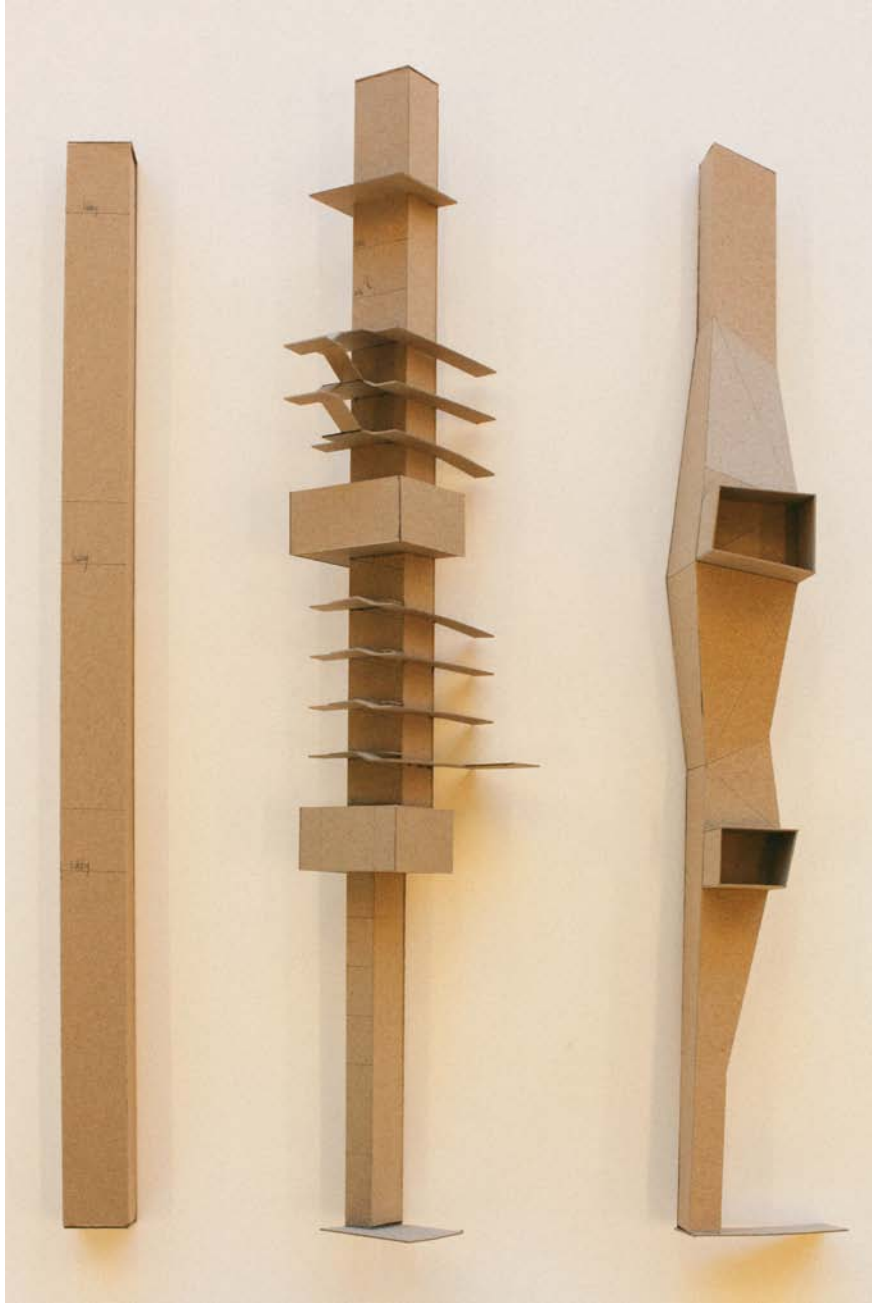


fig. 43. Vertical service core development.

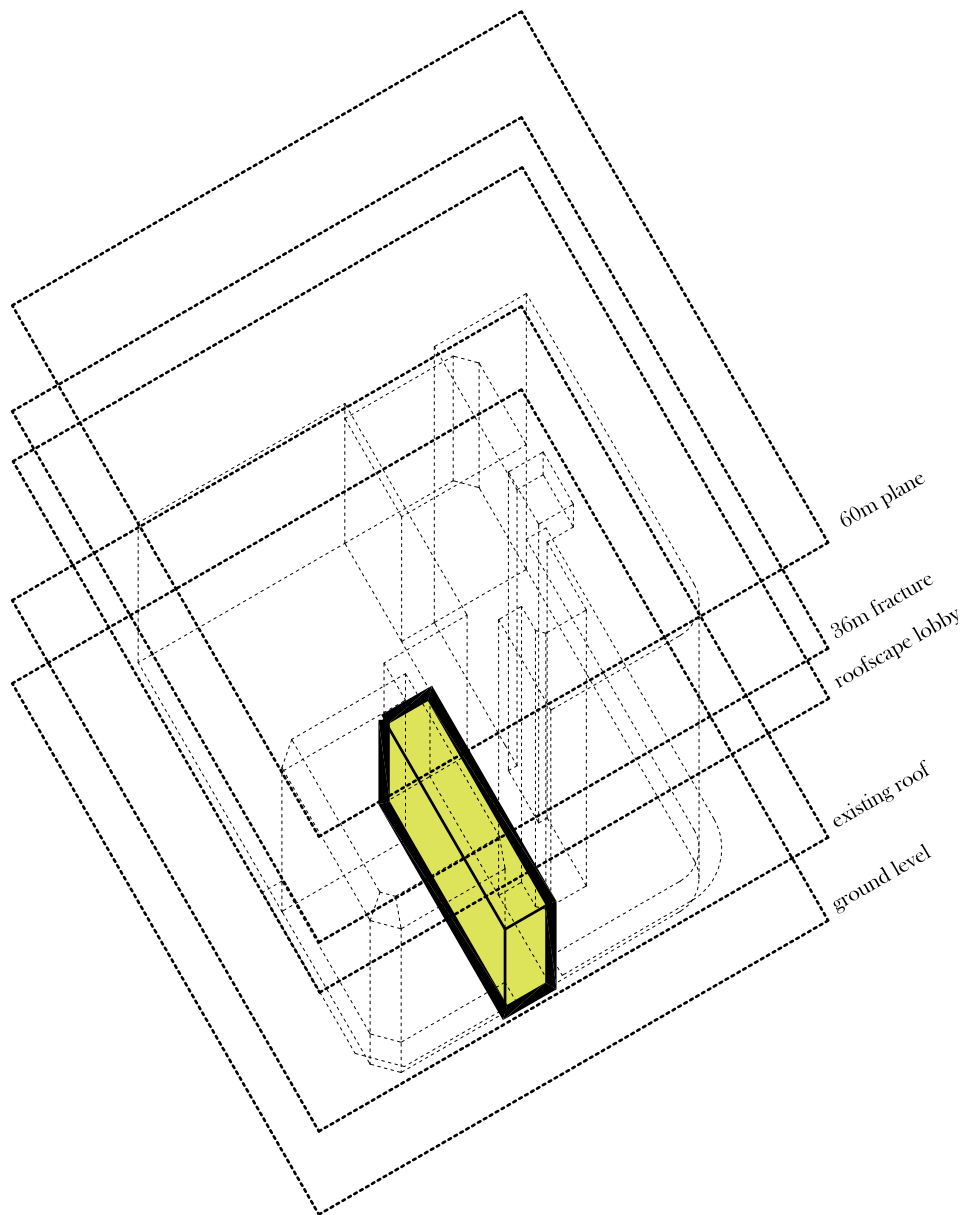


fig. 44. Invisible datum.

The use of steel for the primary structure of the new addition, as well as the various modular cladding façade systems, was a decision in keeping with the overall attitude. Steel as a material represents a way of making that seems more open-ended and non-permanent. The ability to dismantle or add to the existing structure embodies this attitude, opposed to the permanence or monumentality of concrete, for example.

Stewart Brand echoes this idea of an evolutionary built environment. He reframes thinking about built structures through a hierarchy of layers with varying lifespans.²⁵ Simply understanding that buildings evolve over time, makes one more aware of the impermanence of buildings and the unpredictability and influence of human nature and demand.

25. Brand, Stewart. *How Buildings Learn: What Happens after They're Built*. New York, NY: Viking, 1994.



fig. 45. Structural model exploration.



fig. 46. Structural model exploration.

CONCLUSION At the beginning of the year I set out with a broad interest in urban anthropology and an aim to better understand the intriguing phenomenon that is the city. I wanted to uncover the intricacies of urban fabric and the influence and interactions that everyday people had on the built environment.

The project is an attempt at simultaneously engaging in, and negotiating between the pragmatic ideals of city-making, and the poetic nature of a timeous and precious patchwork of urban fabric. By utilising the underutilised existing airspace in the city, the project adds residential density to the city and contributes a new public realm and public facilities which is an asset to its surroundings and neighbours. It unlocks a new realm above the ground plane and explores the relationship between verticality and cross-programming. Lastly, its physical resolution represents and contributes to the timeous evolutionary palimpsest that is the city's urban fabric.

Only through an intense fascination of the city, a desire to understand its genius loci, its demands and its abilities, can one begin to understand how paradoxical and ever-changing the city is. The mixture of informal and formal, public and private, wealthy and poor, young and old, large and small, makes for a truly remarkable place to exist.

This project should not be viewed in isolation, nor as a finished form. It is simply a moment in time in the city's growth, and only one of many contributors to the city's palimpsest of density, programme, and character.

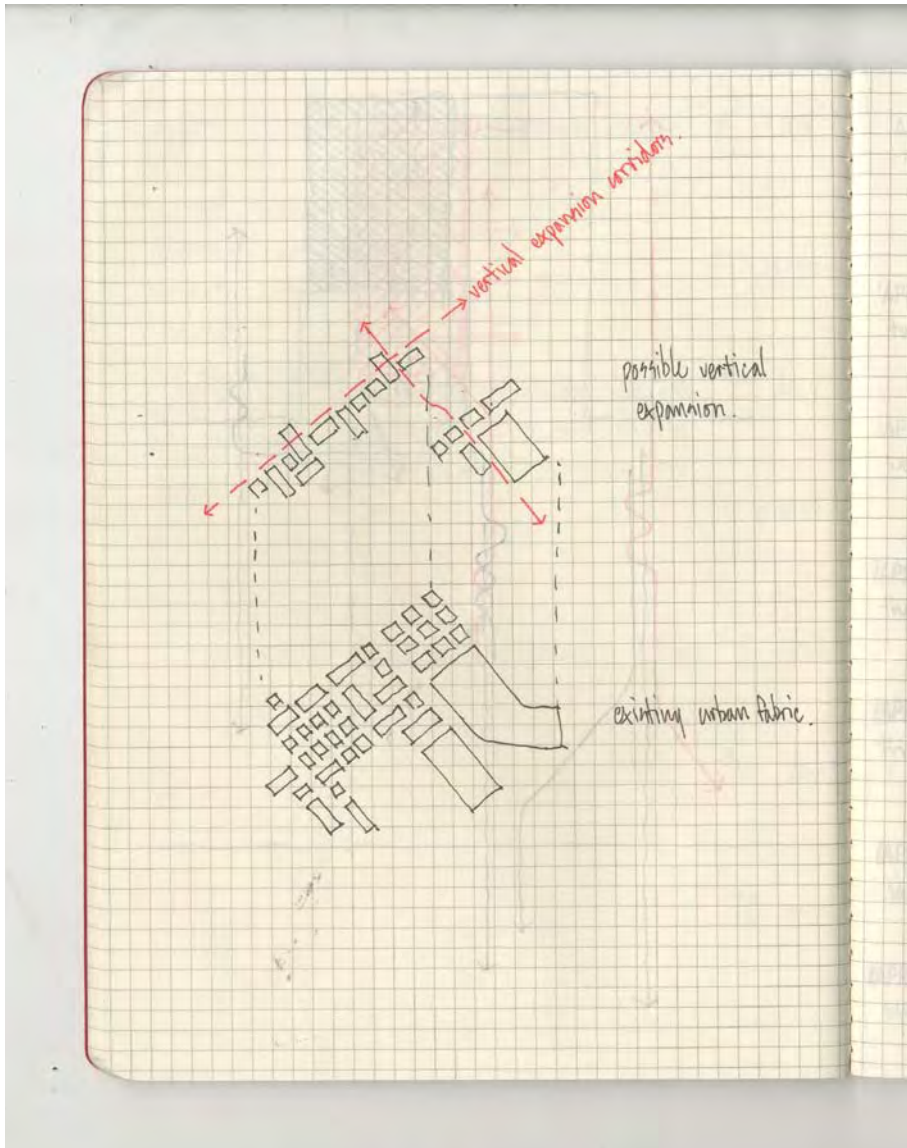


fig. 47. Early concept sketch.

- BIBLIOGRAPHY** Abrahamse, Claire. Attwell, Melanie. Hart, Tim. "Cape Town Station Forecourt Precinct Phase 1 Heritage Impact Assessment", September, 2013.
- Berman, Marshall. *All That Is Solid Melts into Air: The Experience of Modernity*. London: Verso, 1983.
- Binnie, Jon, ed. *Cosmopolitan Urbanism*. New York, NY: Routledge, 2006.
- Brand, Stewart. *How Buildings Learn: What Happens after They're Built*. New York, NY: Viking, 1994.
- Beukers, Adriaan. *Lightness: The Inevitable Renaissance of Minimum Energy Structures*. 2nd ed. Rotterdam: 010 publishers, 1999.
- Brand, Stewart. *How Buildings Learn: What Happens after They're Built*. New York, NY: Viking, 1994.
- Brown, Eliot. "Slim Pickings: The Rise of Skinny Skyscrapers." *Wall Street Journal*, November 16, 2012, sec. Real Estate. <http://online.wsj.com/news/articles/SB10001424127887324439804578109130156391110>.
- "Cape Town Okays Sale Of 'Air Rights' For Standard Bank Centre." Swindon Property Services. Accessed May 11, 2014. <http://www.swindon.co.za/index.php/blog/144-cape-town-okays-air-rights-sale>.
- City of Cape Town. "Cape Town Densification Policy," February 2012.
- City of Cape Town. "Zoning Scheme Regulations," November 2013.
- City of Cape Town. "Urban Development Zone Frequently Asked Questions," n.d.
- City of New York. "Glossary of Planning Terms." Accessed May 2, 2014. <http://www.nyc.gov/html/dcp/html/zone/glossary.shtml>.
- Department of Economic and Social Affairs. *World Urbanisation Prospects: The 2011 Revision*. United Nations, March 2012.
- Deeks, A.J. "When Old Meets New: Monitoring Load Sharing in a Concrete Building Extended Upwards,," n.d.
- El-Khoury, Rodolphe, and Edward Robbins, eds. *Shaping the City: Studies in History, Theory and Urban Design*. New York: Routledge, 2004.
- Garner, Gerald. *Johannesburg: Ten Ahead: A Decade of Inner-City Regeneration*. Craighall Park: Double G Media, 2011.

Graham, James. "Exploding Johannesburg: Driving in a Worldly City." *Transtext(e)s, Transcultures* 3 (2007): 67-83.

Harvey, J. *Urban Land Economics*. 6th ed. Basingstoke: Palgrave Macmillan, 2004.

Jacobs, Jane. *The Convention Follies, Part 5: A Conversation with Jane Jacobs*, July 27, 2000. <http://gse.buffalo.edu/fas/bromley/ccs/part5.htm>.

Jacobs, Jane. *The Death and Life of Great American Cities*. Vintage Books ed. New York: Vintage Books, 1992.

"Jane Jacobs and 21st-Century Preservation." *The Blog for Preservation Leadership Forum*. Accessed May 11, 2014. <http://blog.preservationleadershipforum.org/2014/02/27/jane-jacobs-osb/>.

Jaillon, Lara, and C. S. Poon. "Sustainable Construction Aspects of Using Prefabrication in Dense Urban Environment: A Hong Kong Case Study." *Construction Management and Economics* 26, no. 9 (September 2008): 953-66.

Kobet, Robert. "Modular Building and the USGBC's LEED," 2009.

Koolhaas, Rem. "Delirious New York: A Retroactive Manifesto for Manhattan", New York: Monacelli Press, 1978.

Lambek, Richard. *Urban Construction Project Management*. McGraw-Hill Construction Series. New York: McGraw-Hill, 2009.

letsbola. "Barriers to Fine-Grained Urban Development." *Let's Go LA*. Accessed May 11, 2014. <http://letsbola.wordpress.com/2013/09/24/barriers-to-fine-grained-urban-development/>.

Lewis, Roger K. "Terms, Mind-Sets Must Be Changed to Encourage and Enable More Walking in Cities." *The Washington Post*, May 8, 2010, sec. Business. <http://www.washingtonpost.com/wp-dyn/content/article/2010/05/07/AR2010050700088.html>.

London School of Economics and Political Science, and Alfred Herrhausen Gesellschaft für Internationalen Dialog. *The Endless City: The Urban Age Project* by the London School of Economics and Deutsche Bank's Alfred Herrhausen Society. Edited by Richard Burdett and Deyan Sudjic. London: Phaidon, 2007.

Morris, Keiko. "Sky Is Limit for Air Rights in Manhattan." *Wall Street Journal*, April 24, 2014, sec. New York. <http://online.wsj.com/news/articles/SB100014240527023038834304579520232545527834?mg=reno64-wsj&url=http%3A%2F%2Fonline.wsj.com%2Farticle%2F%2FSB100014240527023038834304579520232545527834.html>.

Ouroussoff, Nicolai. "Future Vision Banished to the Past." *The New York Times*, July 7, 2009, sec. Arts / Art & Design. <http://www.nytimes.com/2009/07/07/arts/design/07capsule.html>.

"Property Sales in Cape Town CBD Soar." *Business Day Live*. Accessed May 11, 2014. <http://www.bdlive.co.za/business/property/2014/04/04/property-sales-in-cape-town-cbd-soar>.

Rahimian, Ahmad, and Yoram Eilon. "Hearst Headquarters: Innovation and Heritage in Harmony," 2008.

Rice, Andrew. "From Barclays Center To Modular High Rises, SHoP Architects Is Changing The Way We Build Buildings." *Fast Company*. Accessed April 11, 2014. <http://www.fastcompany.com/3025601/shop-architects-the-new-skyline>.

Rowe, Colin, and Fred Koetter. *Collage City*. Cambridge, Mass.: MIT Press, 1998.

Soule, David C., ed. *Urban Sprawl: A Comprehensive Reference Guide*. Westport, Conn: Greenwood Press, 2006.

"These Photos Of Tiny, Futuristic Japanese Apartments Show How Micro Micro-Apartments Can Be." *Co.Exist*. Accessed April 11, 2014. <http://www.fastcoexist.com/3017659/these-photos-of-tiny-futuristic-japanese-apartments-show-how-micro-micro-apartments-can-be>.

Todeschini, Fabio. "Towards Contemporary Resilient Settlement Planning: Some Reflections on the 'Nature of an Appropriate Spatial Plan' from the Perspective of the Post-Colonial African Edge", 2013.

Townsend, Stephen. "A Question of Height: The Case of Cape Town City Centre," August 23, 2012.

Yuri Artibise. "Urban Fabric." *Yuri Artibise*. Accessed May 11, 2014. <http://yuriartibise.com/urban-fabric/>.

Washburn, Alexandros. *The Nature of Urban Design: A New York Perspective on Resilience*, 2013. <http://site.ebrary.com/id/10815158>.

IMAGE
REFERENCES

All images/drawings/diagrams by author unless specified.

fig. 1. China Town streetscape, Manhattan, New York City - Chris Ozer

fig. 4. Density diagrams comparing the density between various world megalopolises - Sudjic, 2007

fig. 5. Aerial photograph of Cape Town inner-city, with overlaid CBD boundary - google maps

fig. 6, 7, 8. "The art of fabricating a city is an art of imbrication" - Patrick Lindell

fig. 9. Portion of a Cape Town panorama taken in 1900 - George Budricks

fig. 10. Part of William Barclay Snow's c1862 Survey of Cape Town, much reduced (from a facsimile tracing in the Land Survey Branch of the City Engineer's Department) - Rennie, 1978

fig. 11. Part of Walter Thom's c1895 Survey of Cape Town, much reduced (from a published reprint in the Land Survey Branch of the City Engineer's Department) - Rennie, 1978

fig. 12. Central Cape Town as surveyed by William Barclay Snow c1862 - Rennie, 1978

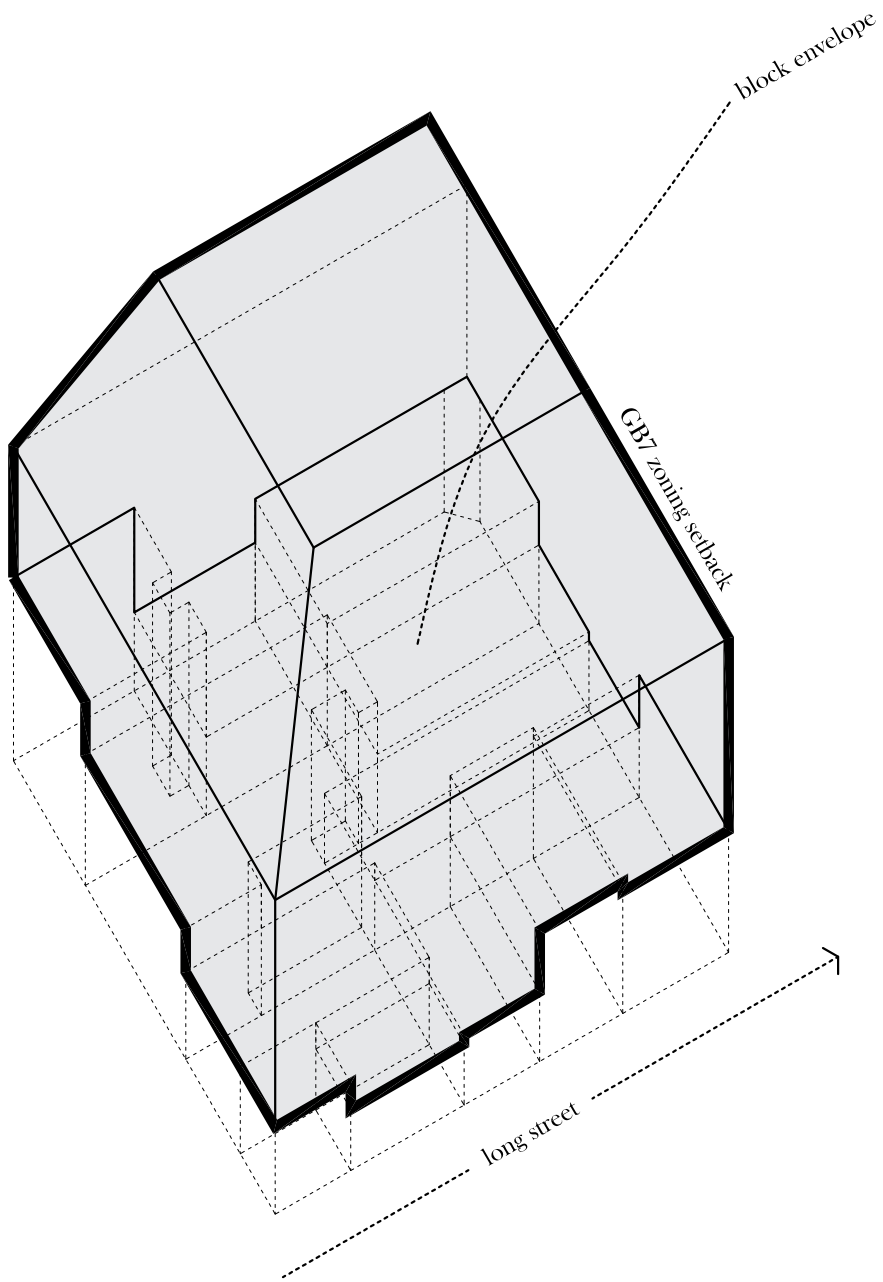
fig. 13. Central Cape Town as surveyed by Walter Thom c1895 - Rennie, 1978

fig. 14. Central Cape Town as surveyed from the 1930's onwards - Rennie, 1978

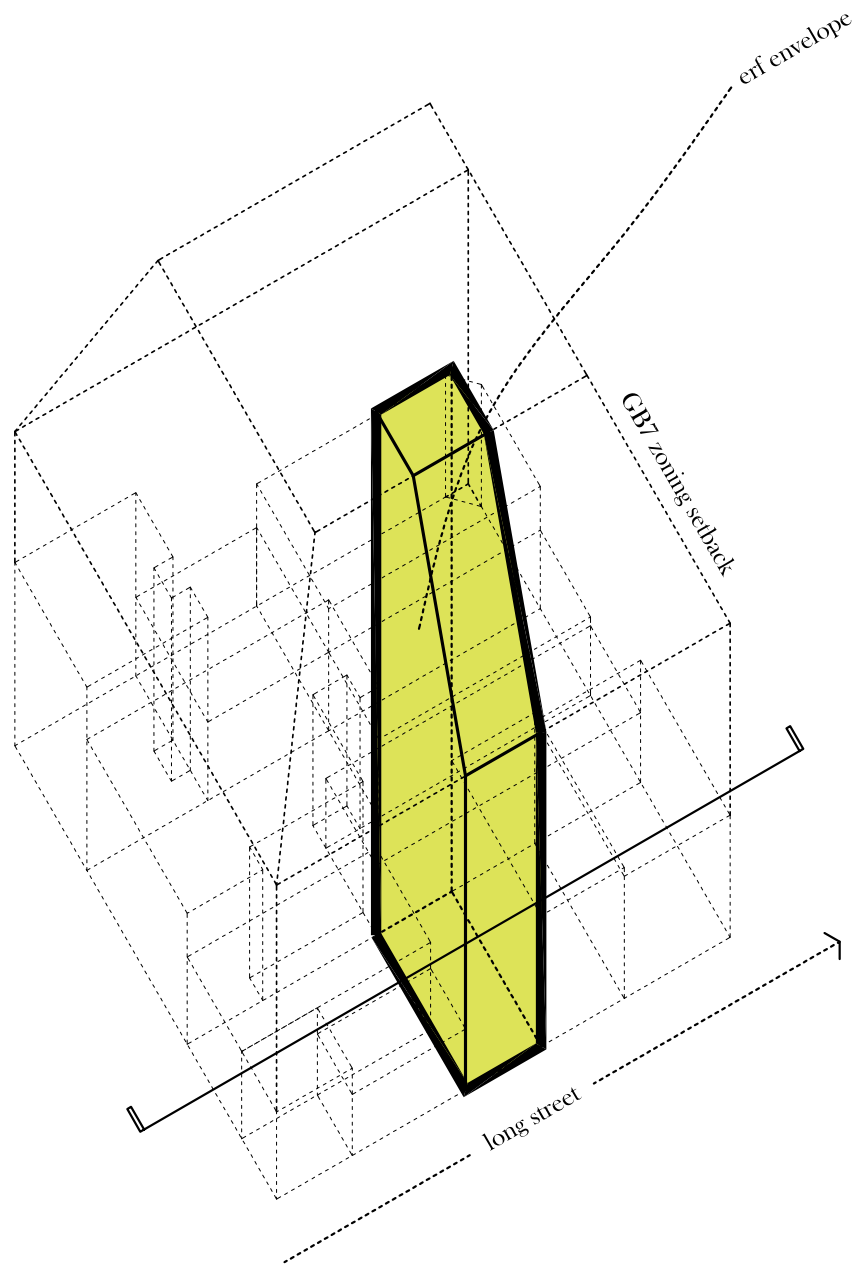
fig. 15. Photograph of page 86 of the Laws of the Indies - codesproject.asu.edu

fig. 27. NYC zoning visualisations - Hugh Ferriss

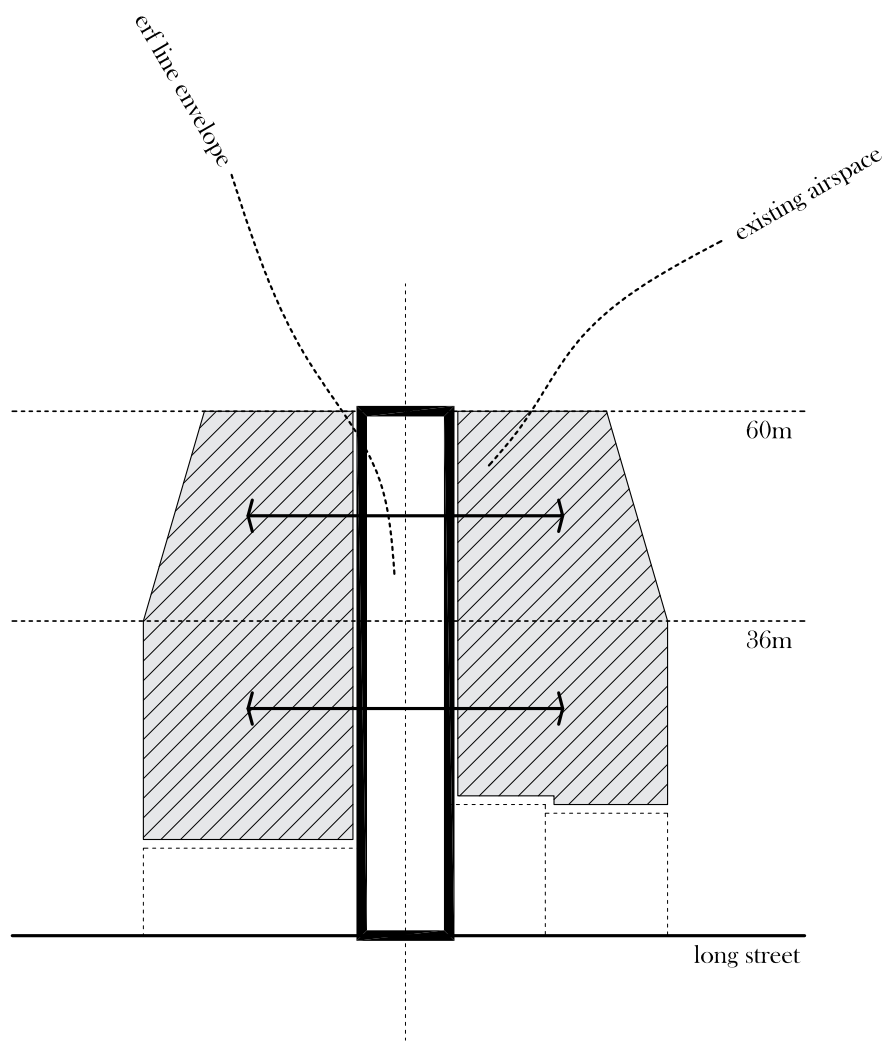
fig. 33. Block context - Rennie, 1978



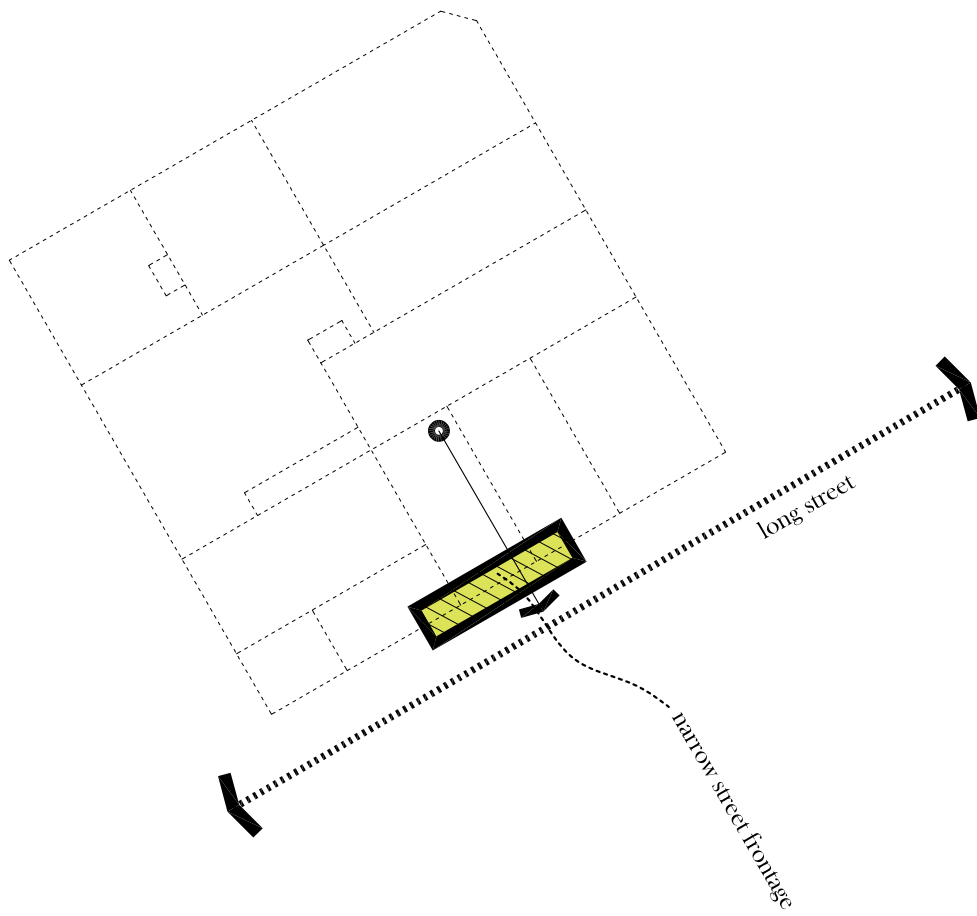
Mapping underutilised airspace within an existing city block.



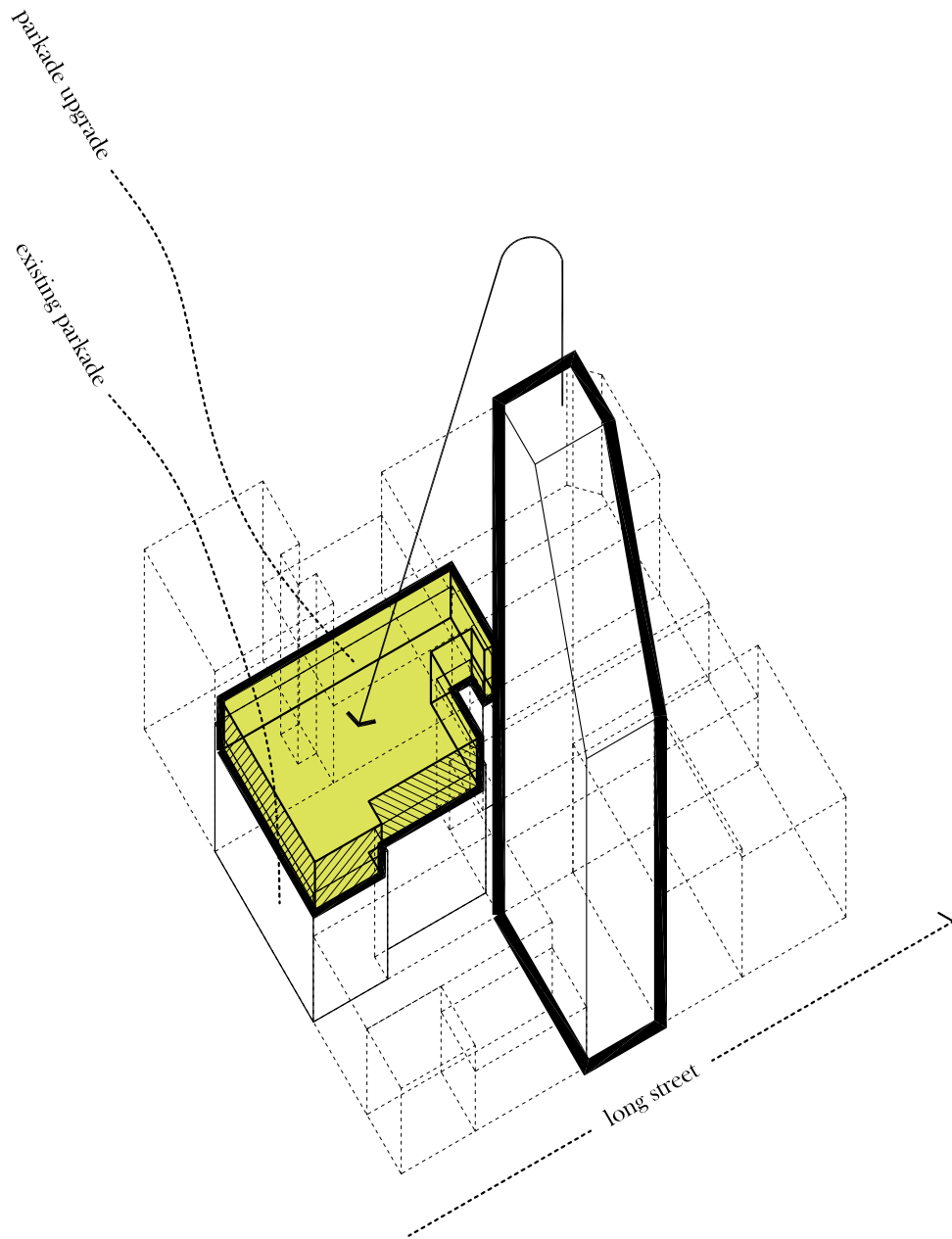
Mapping underutilised infill sites within city blocks.



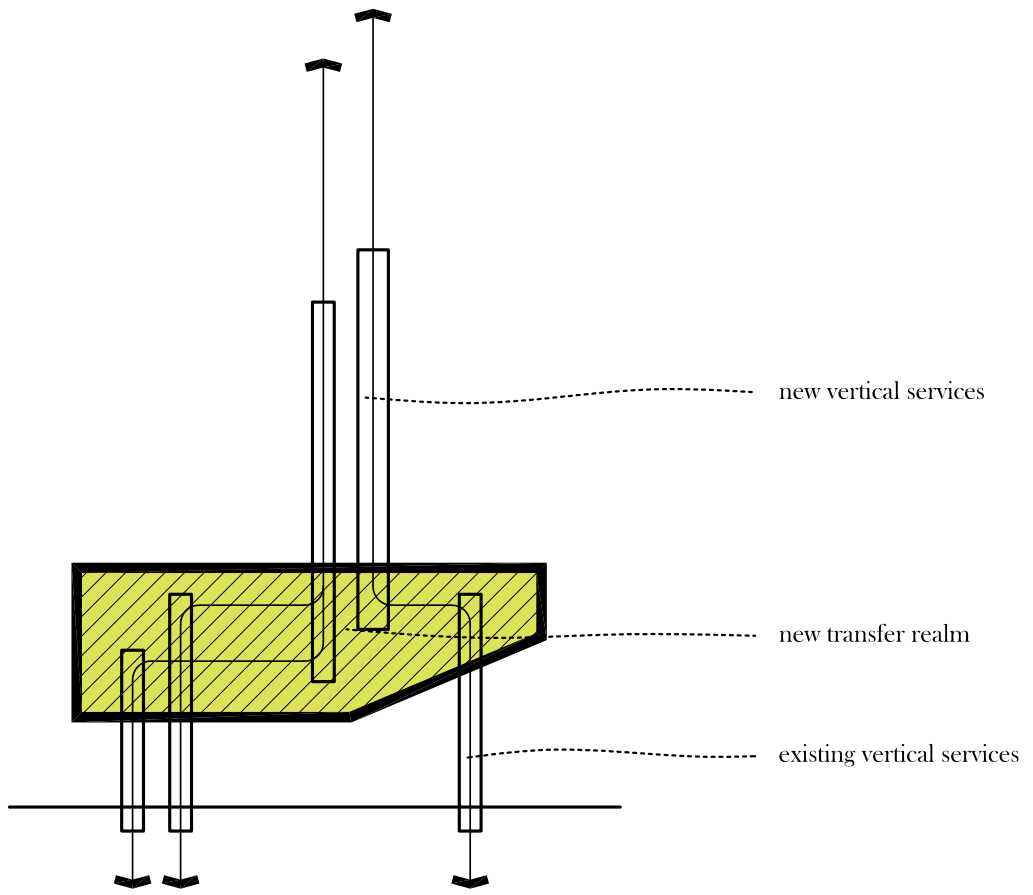
Potential gain in bulk through the transfer of neighbouring air rights.



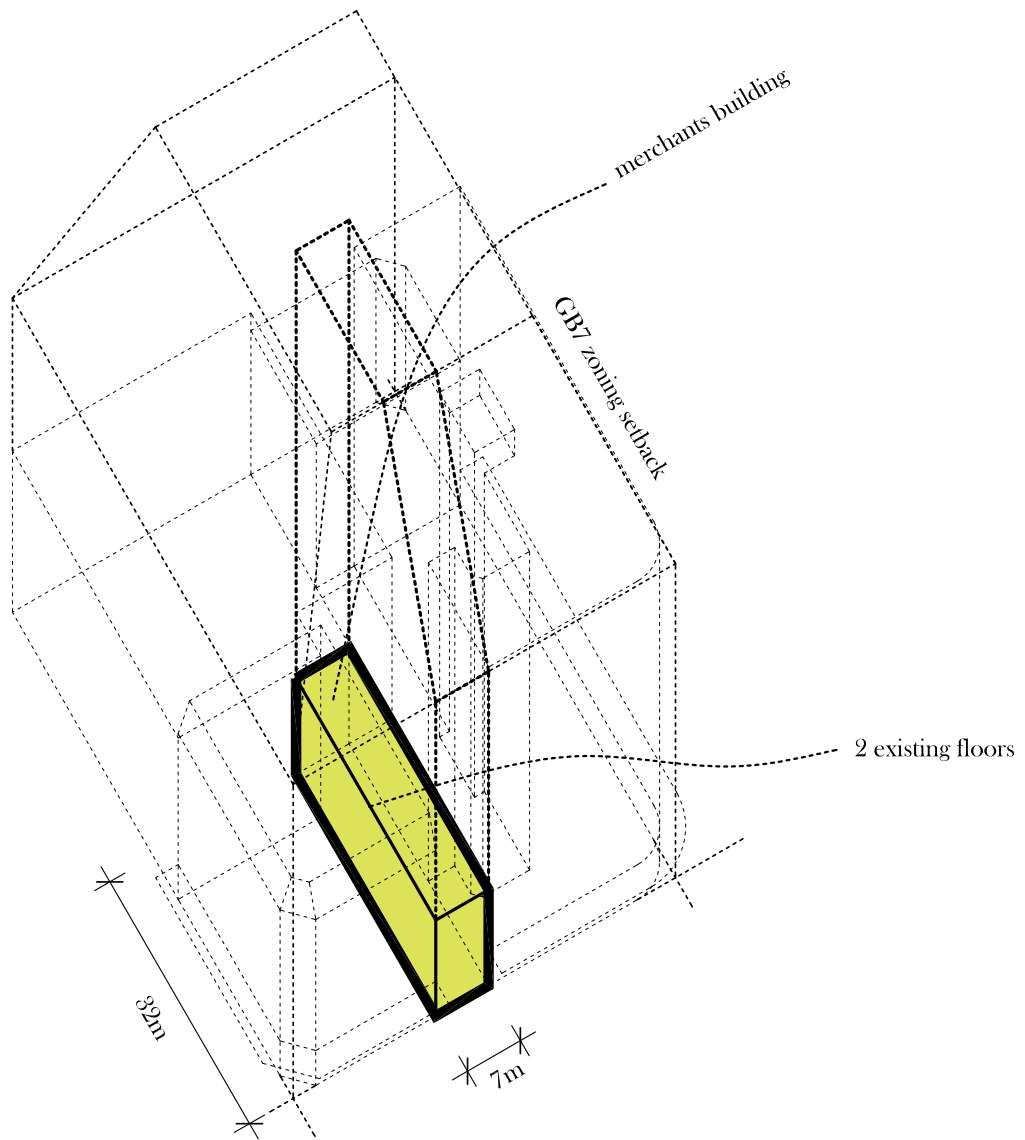
Understanding implications of narrow street frontage and access to the street in maintaining existing urban fabric.



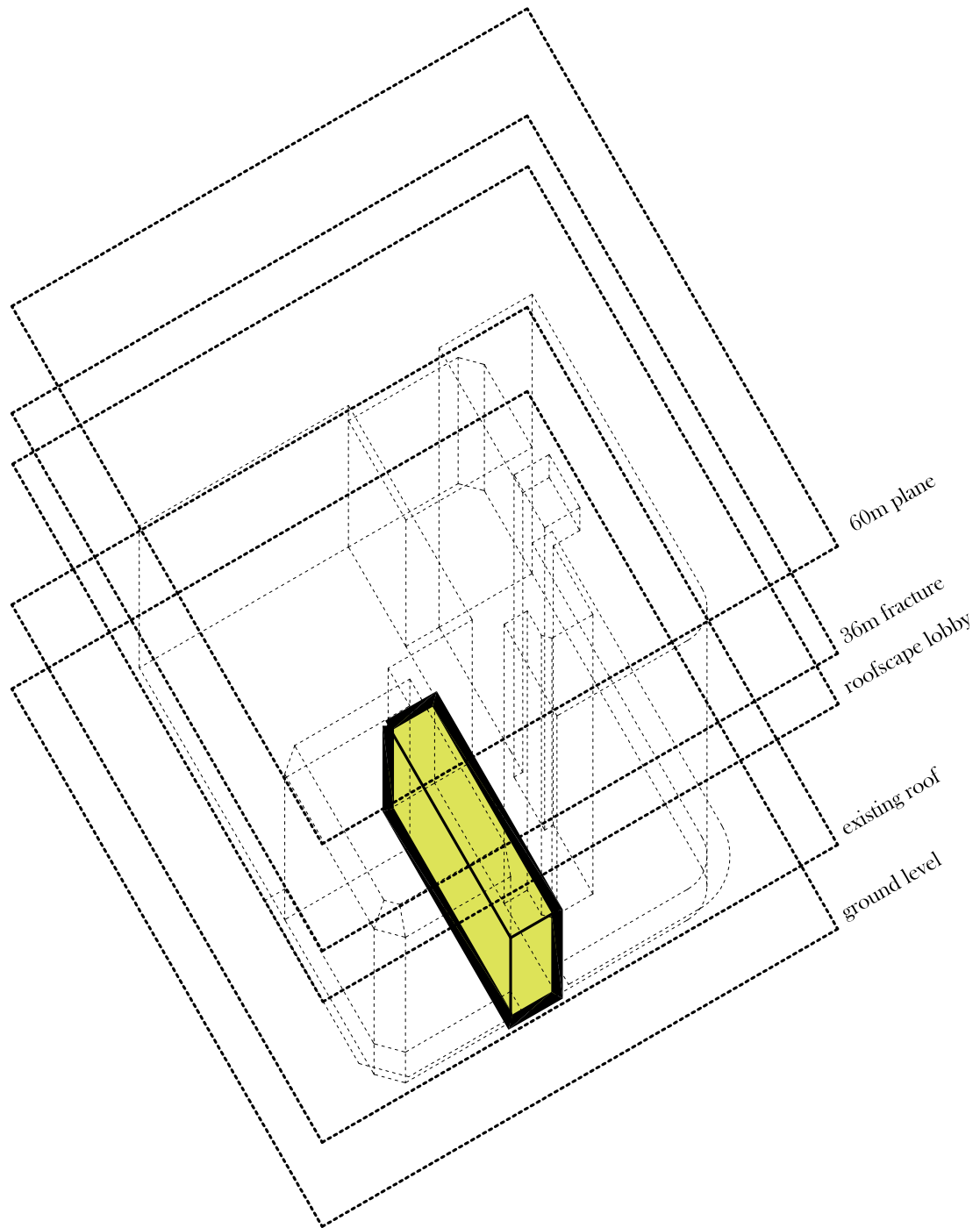
Increasing parking in a responsible manner and achieving it through clever solutions.



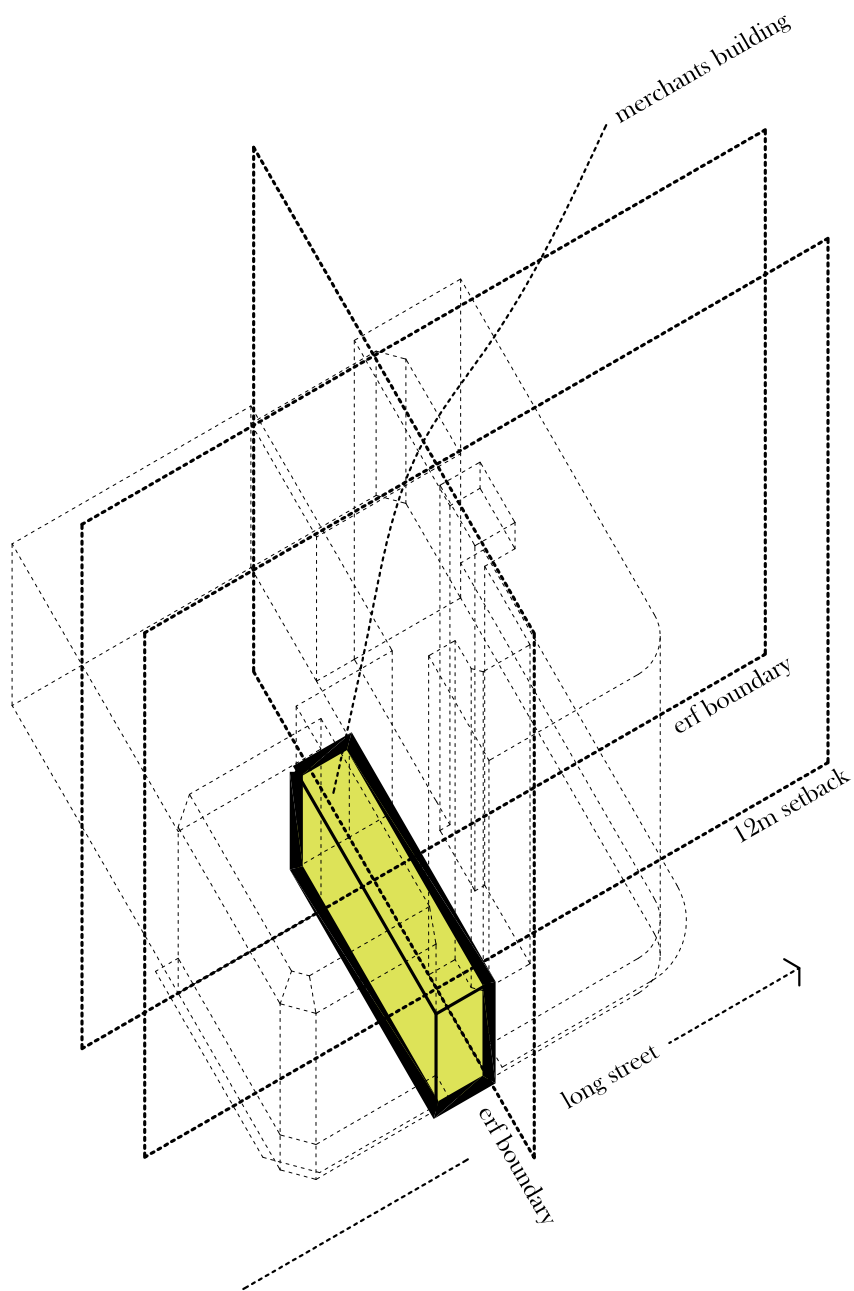
Mapping existing services within city blocks and identifying the capacity to integrate new and old.



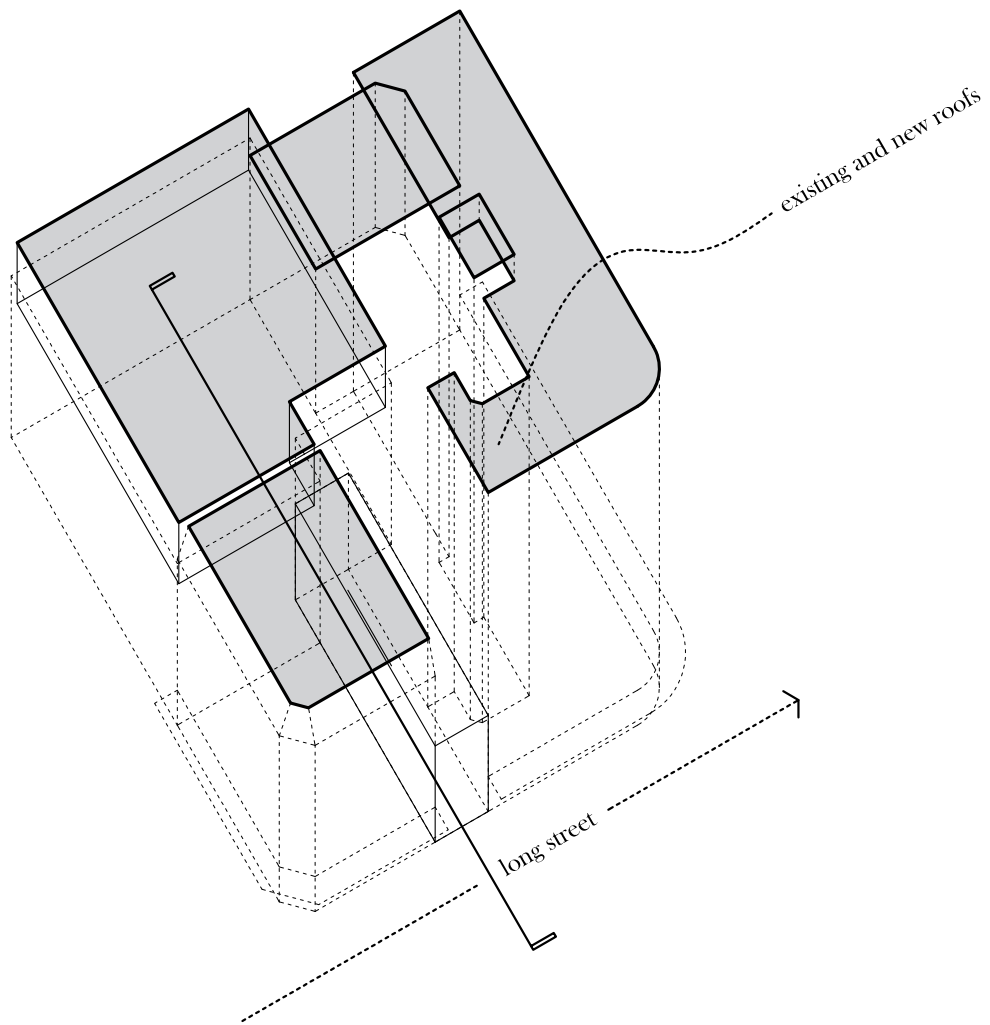
Merchants building situated within Long Street city block.



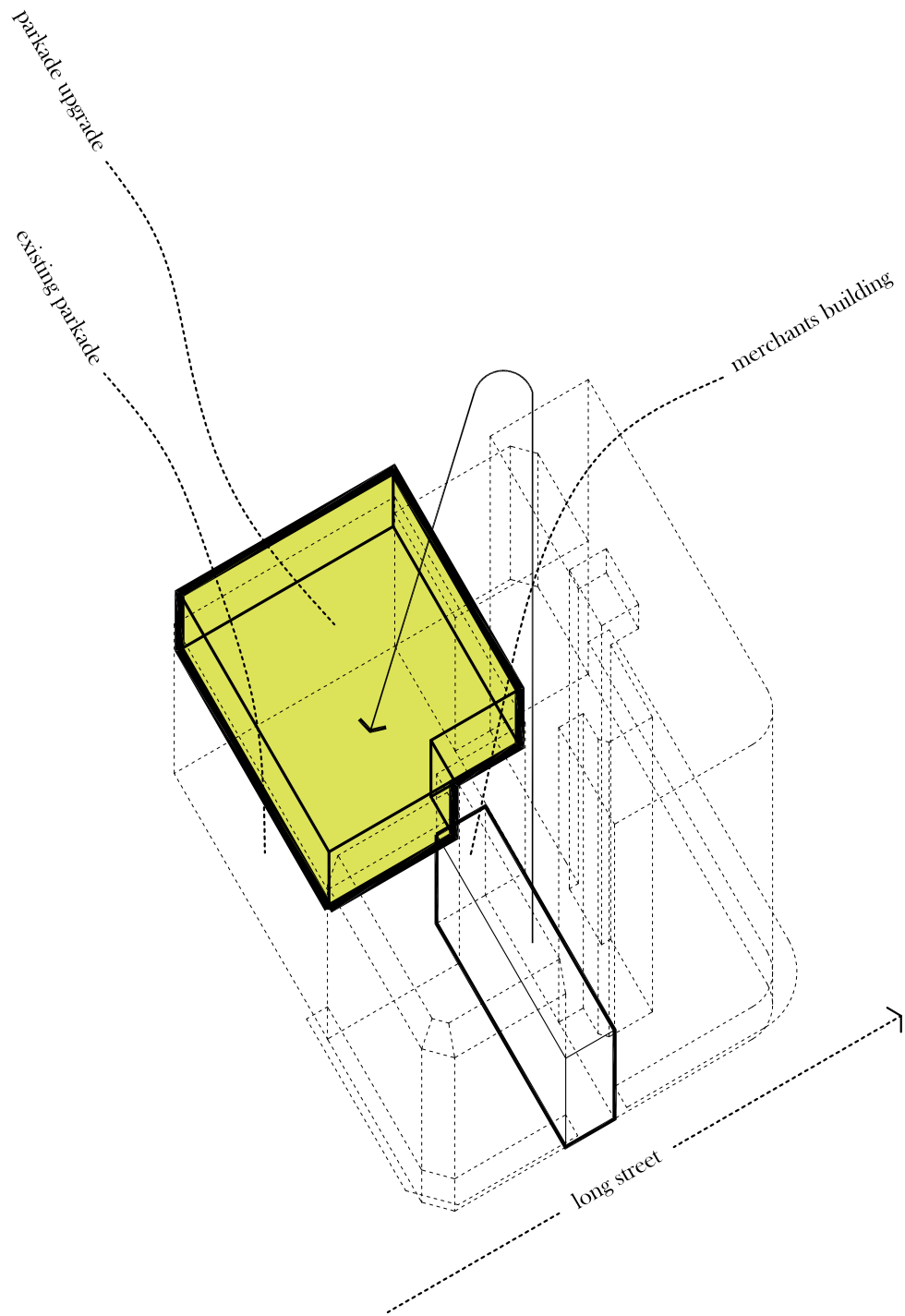
Invisible horizontal datum planes
dictated by existing context.



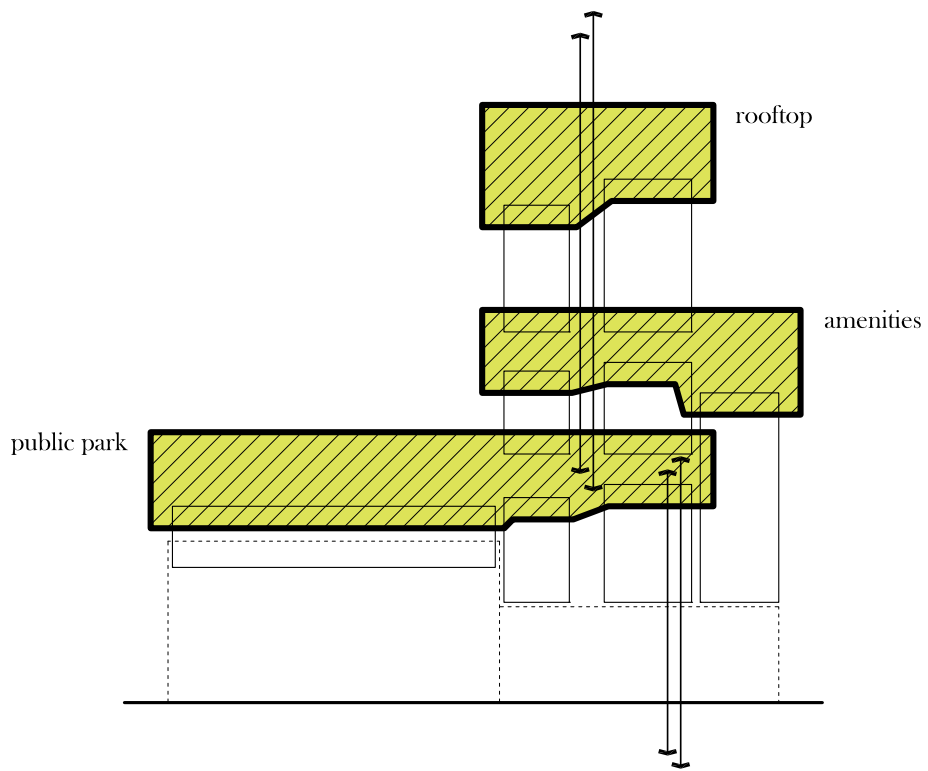
Invisible vertical datum planes dictated by existing erf lines.



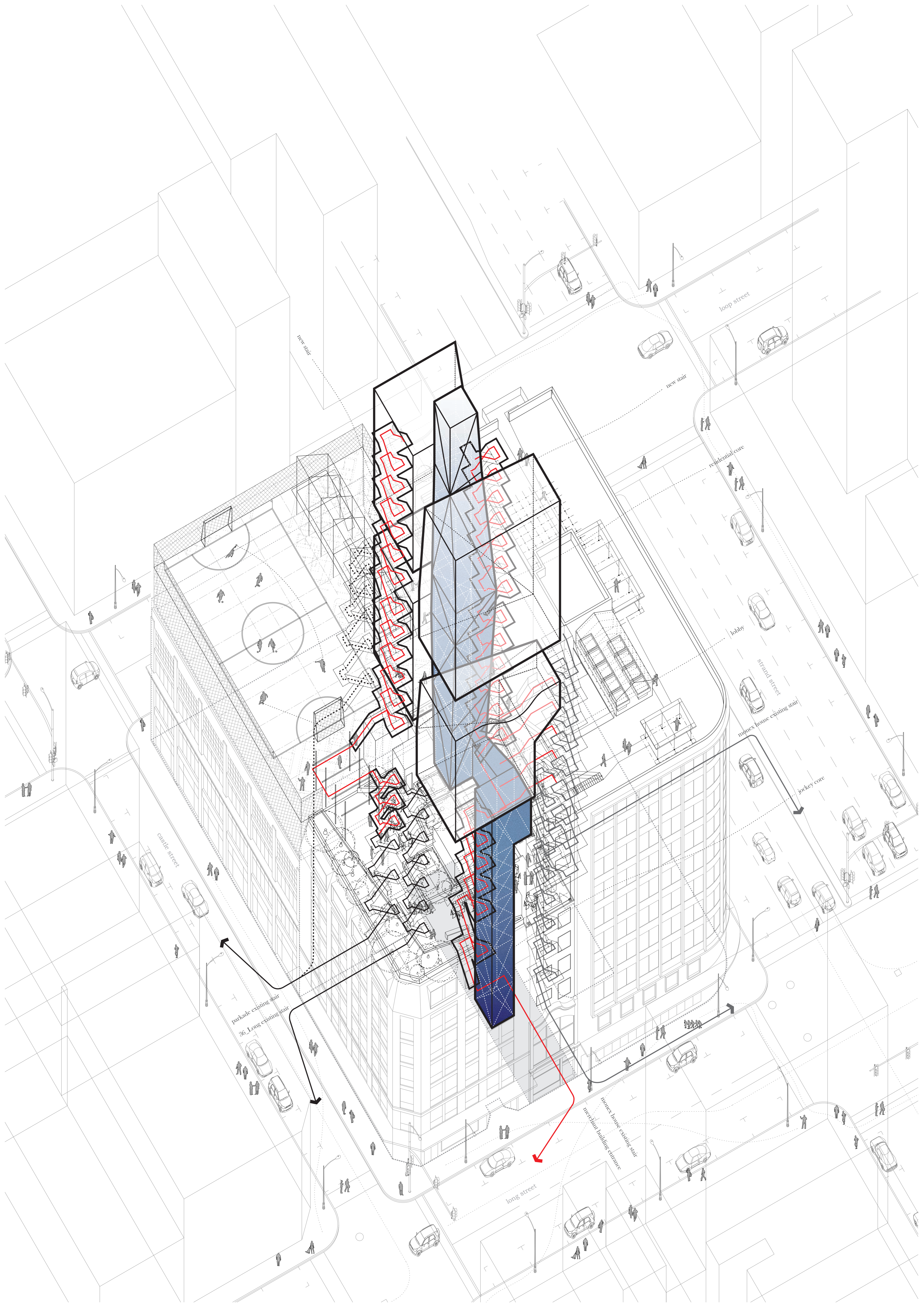
Gaining a new ground plane above the street in the extension of the public realm.



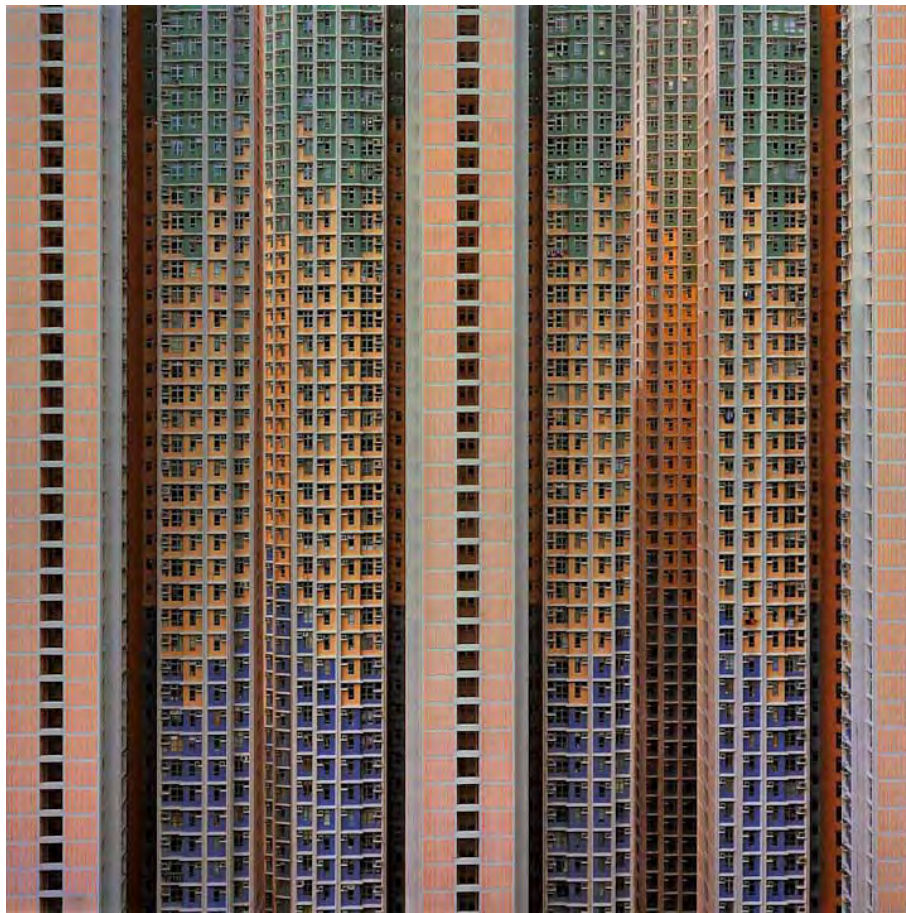
Fragmenting the building and increasing the parking capacity of a neighbouring building to satisfy increase in parking demand.

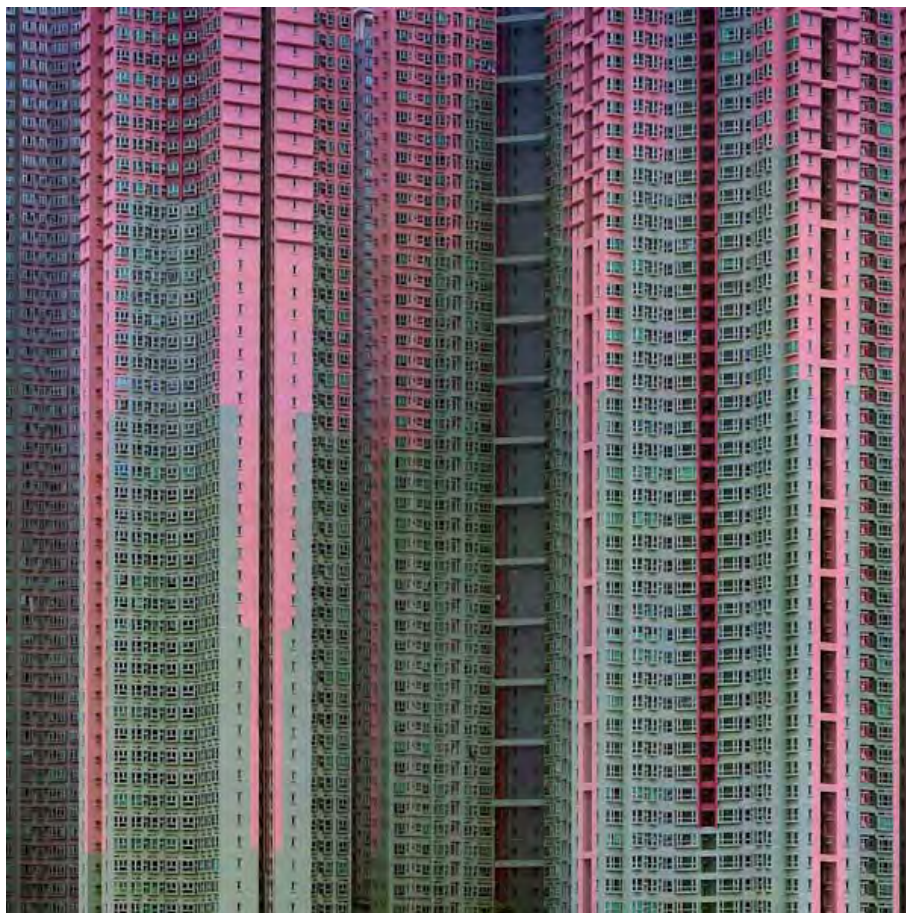
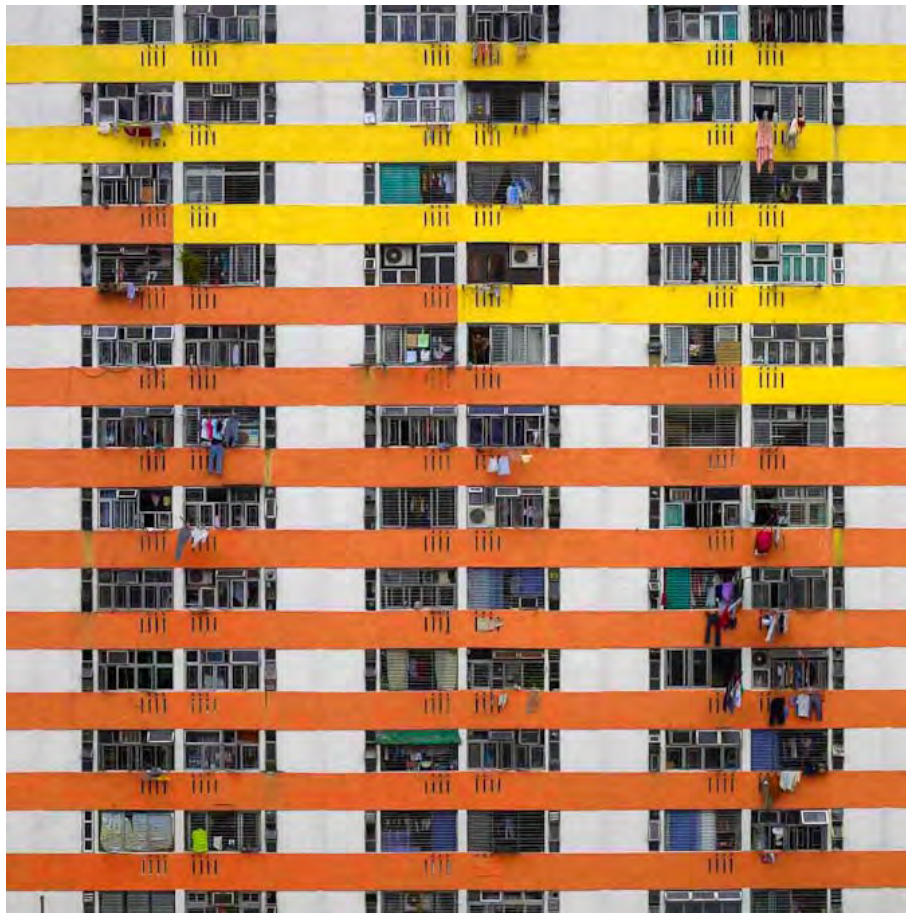


Vertical mix of public and private realms.







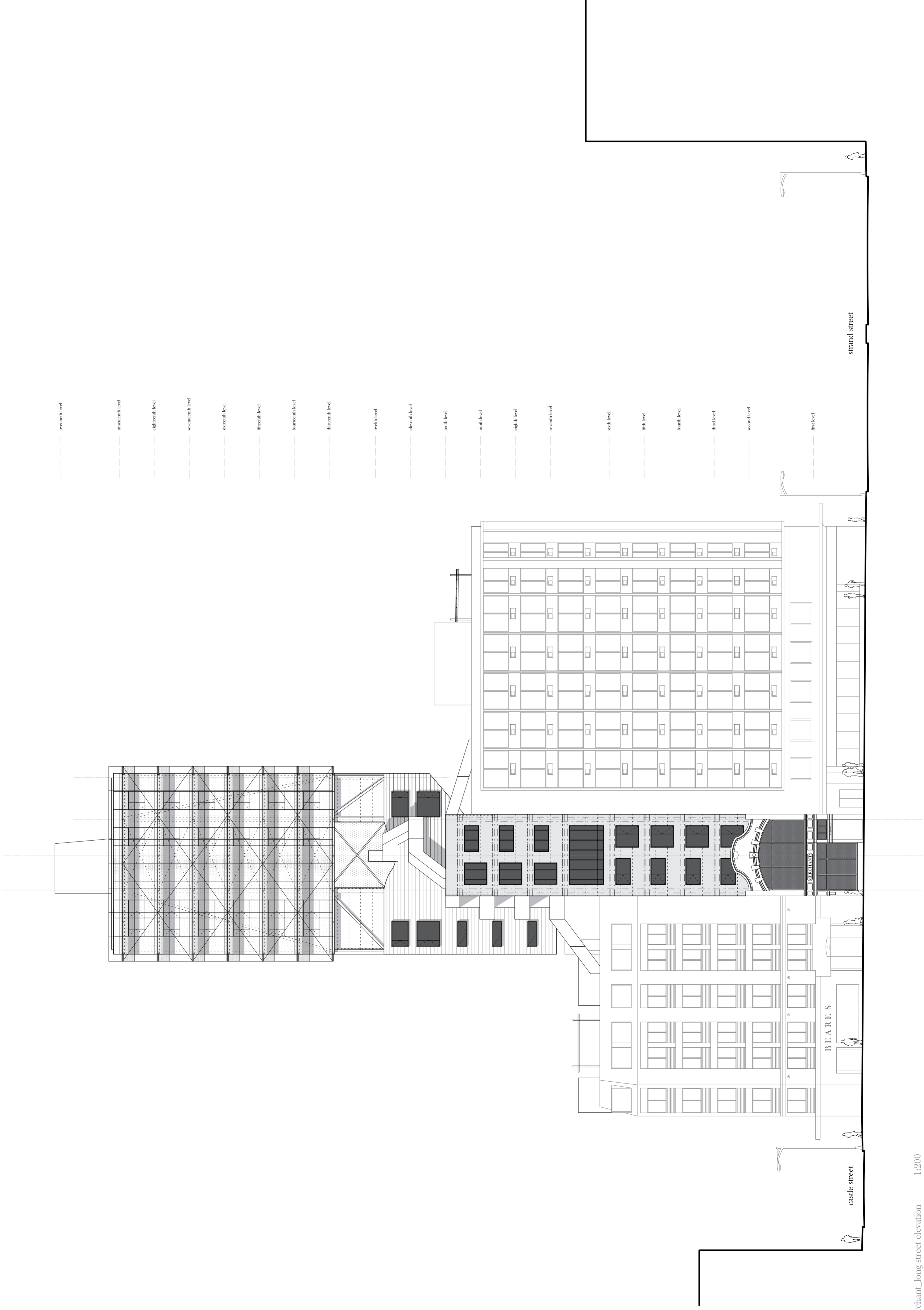


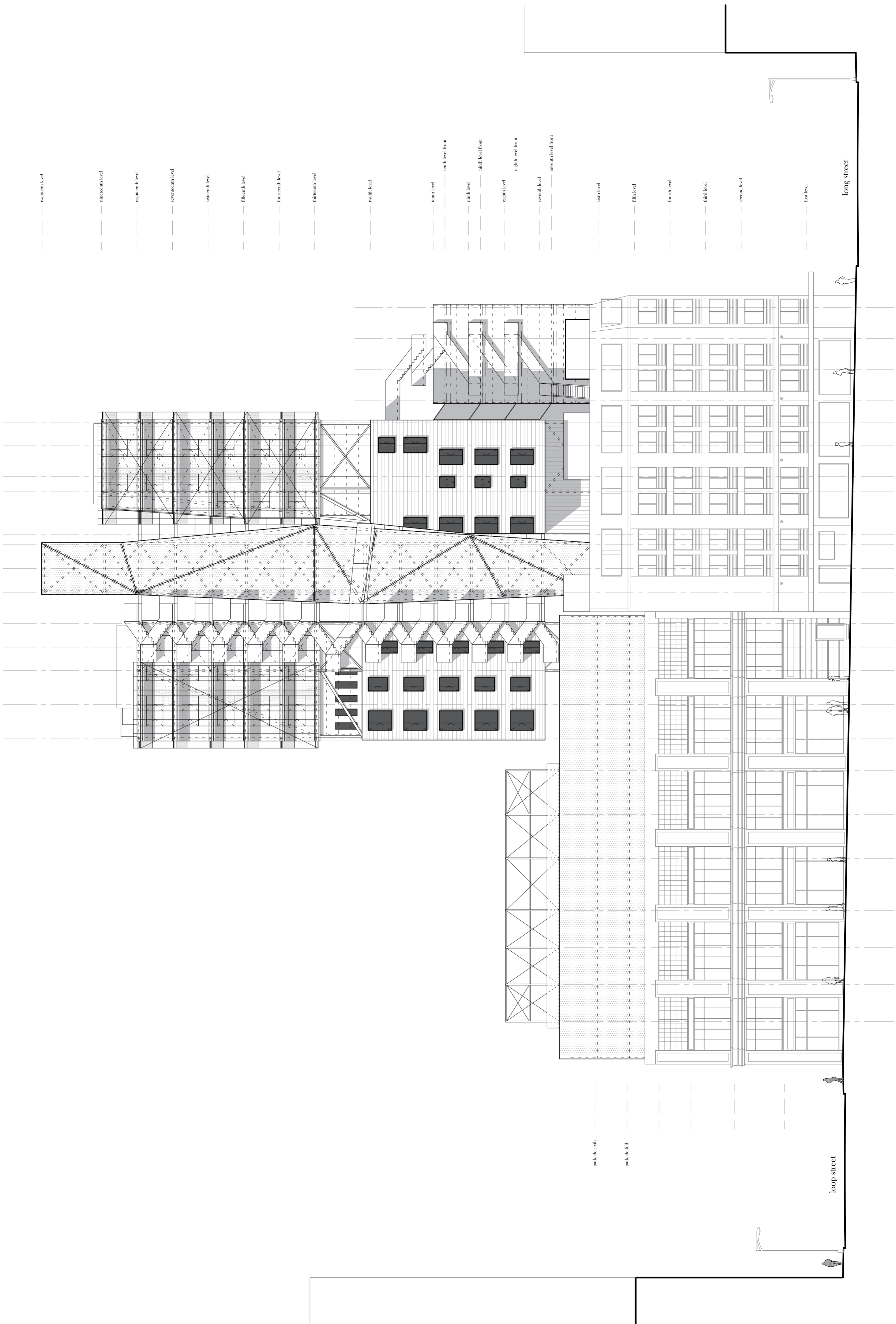












twentieth level

nineteenth level

eighteenth level

seventeenth level

sixteenth level

fifteenth level

fourteenth level

thirteenth level

twelfth level

eleventh level

tenth level

ninth level

eighth level

seventh level

sixth level

fifth level

fourth level

third level

second level

first level

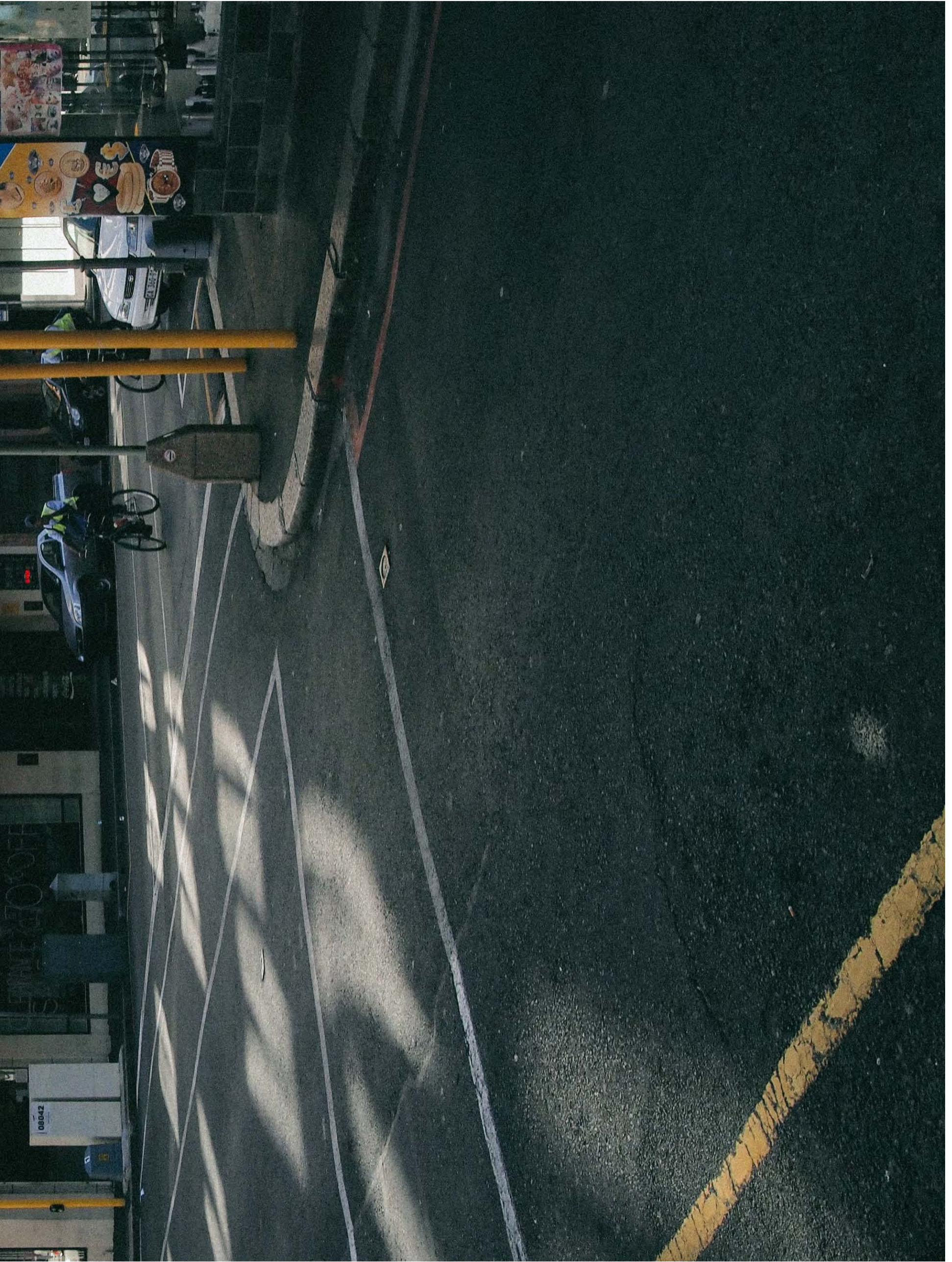
long street

loop street

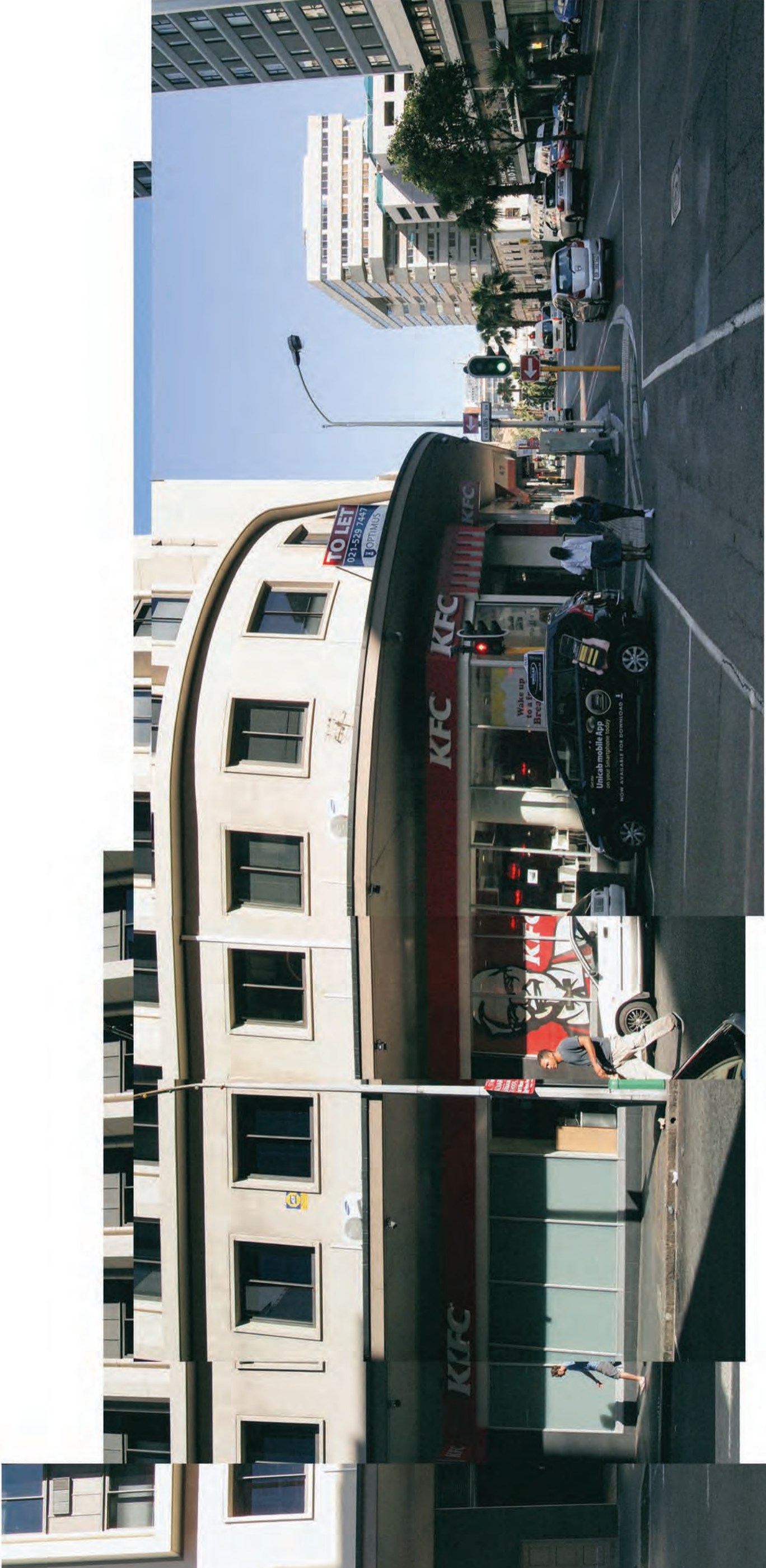
parkade sixth

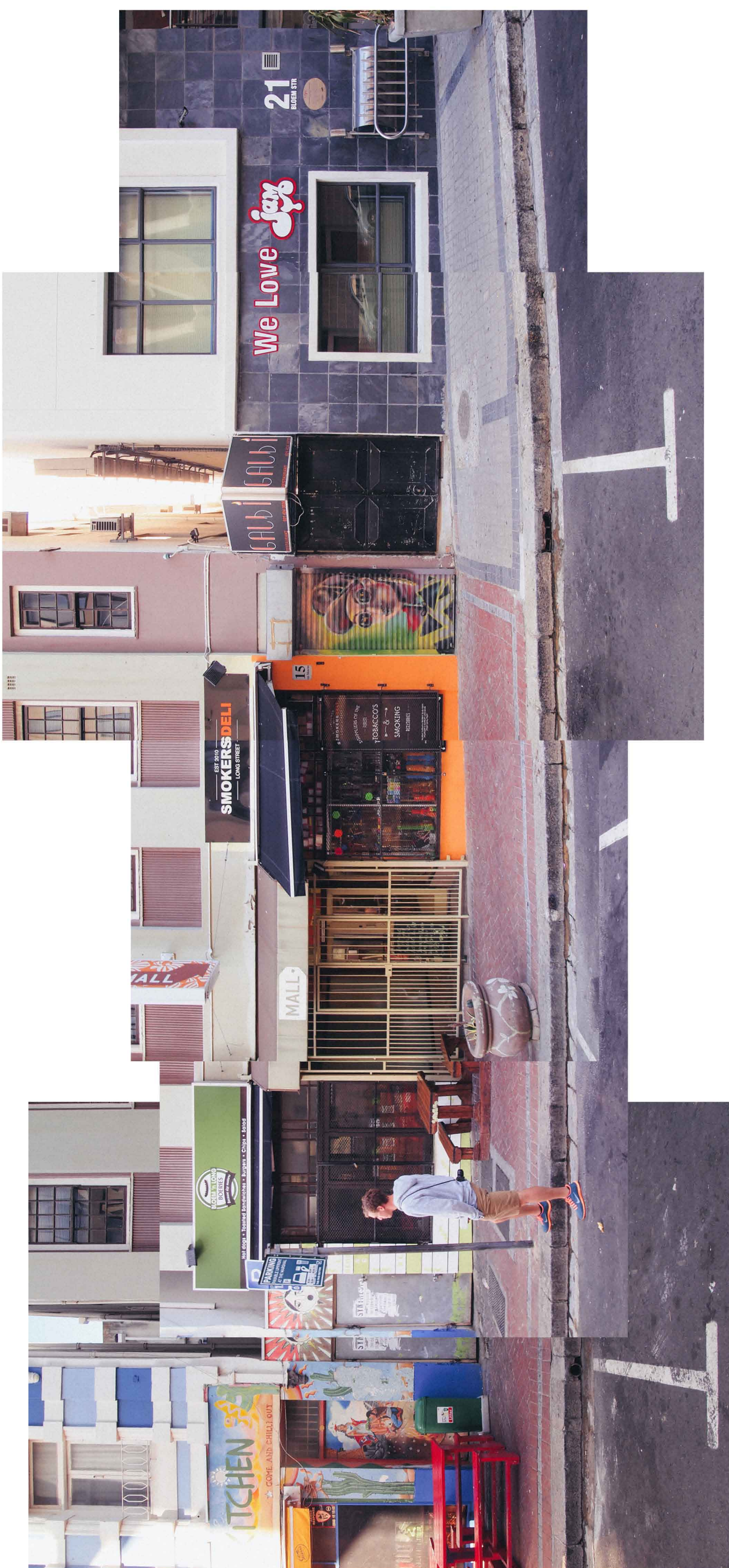
parkade fifth



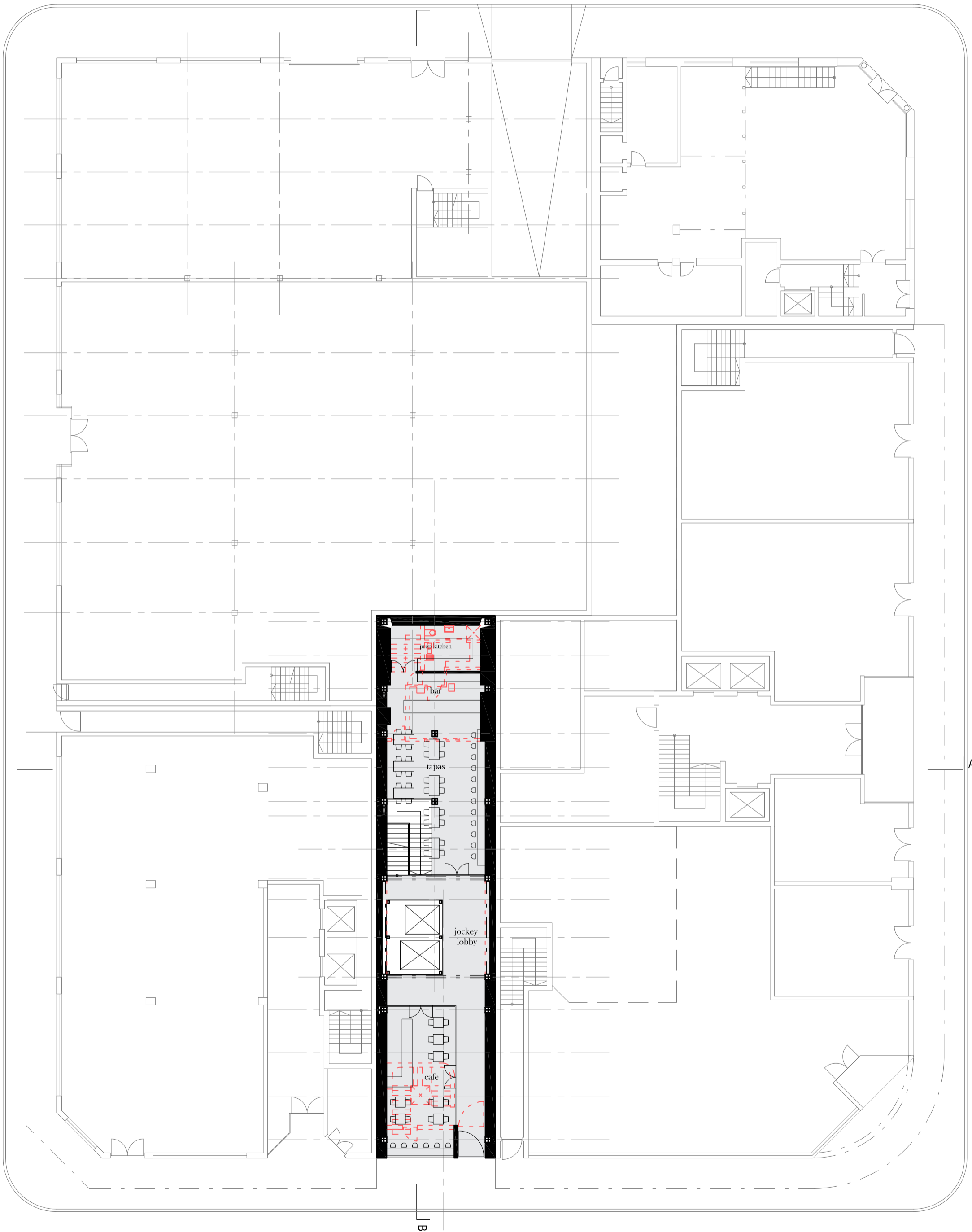




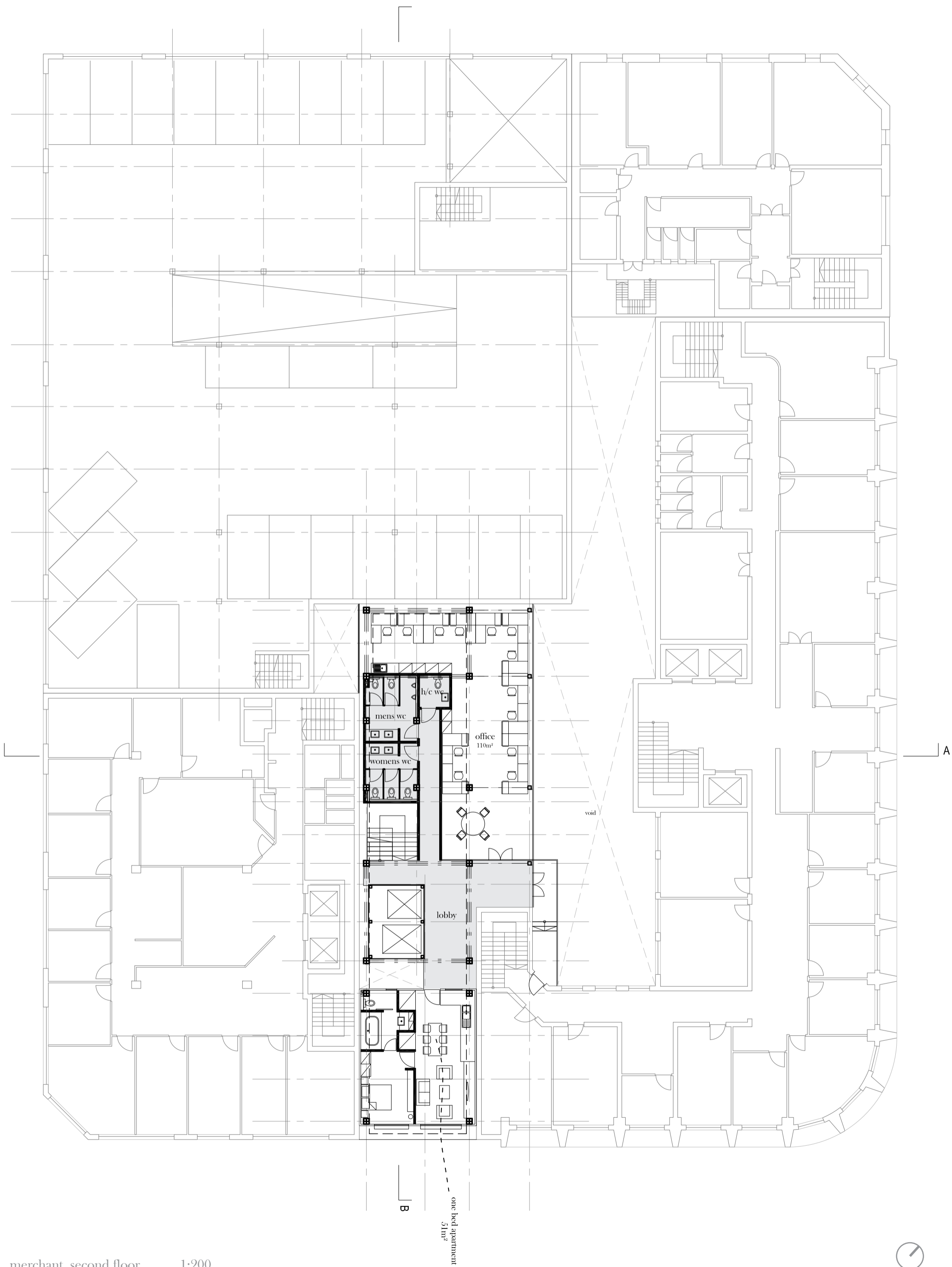


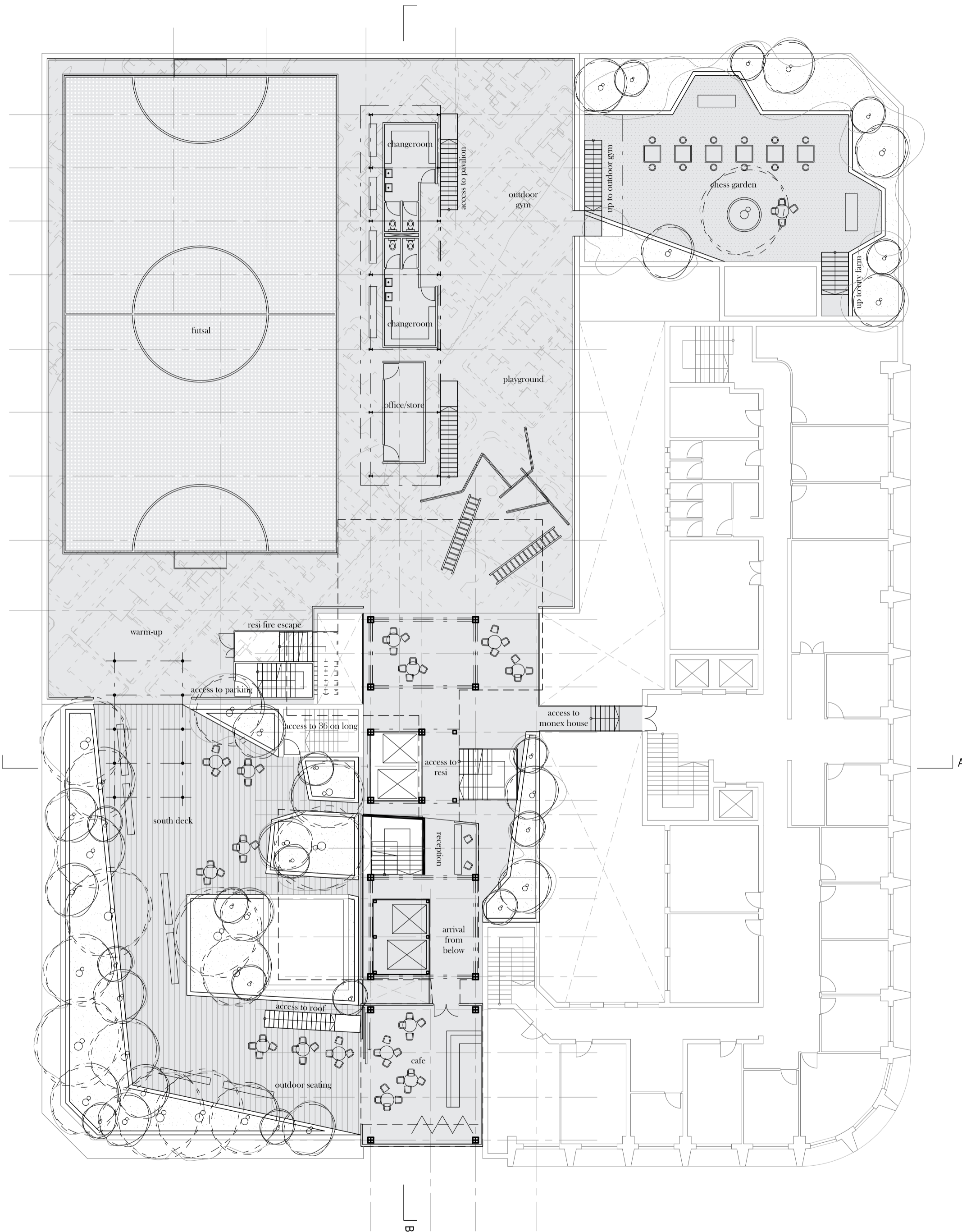


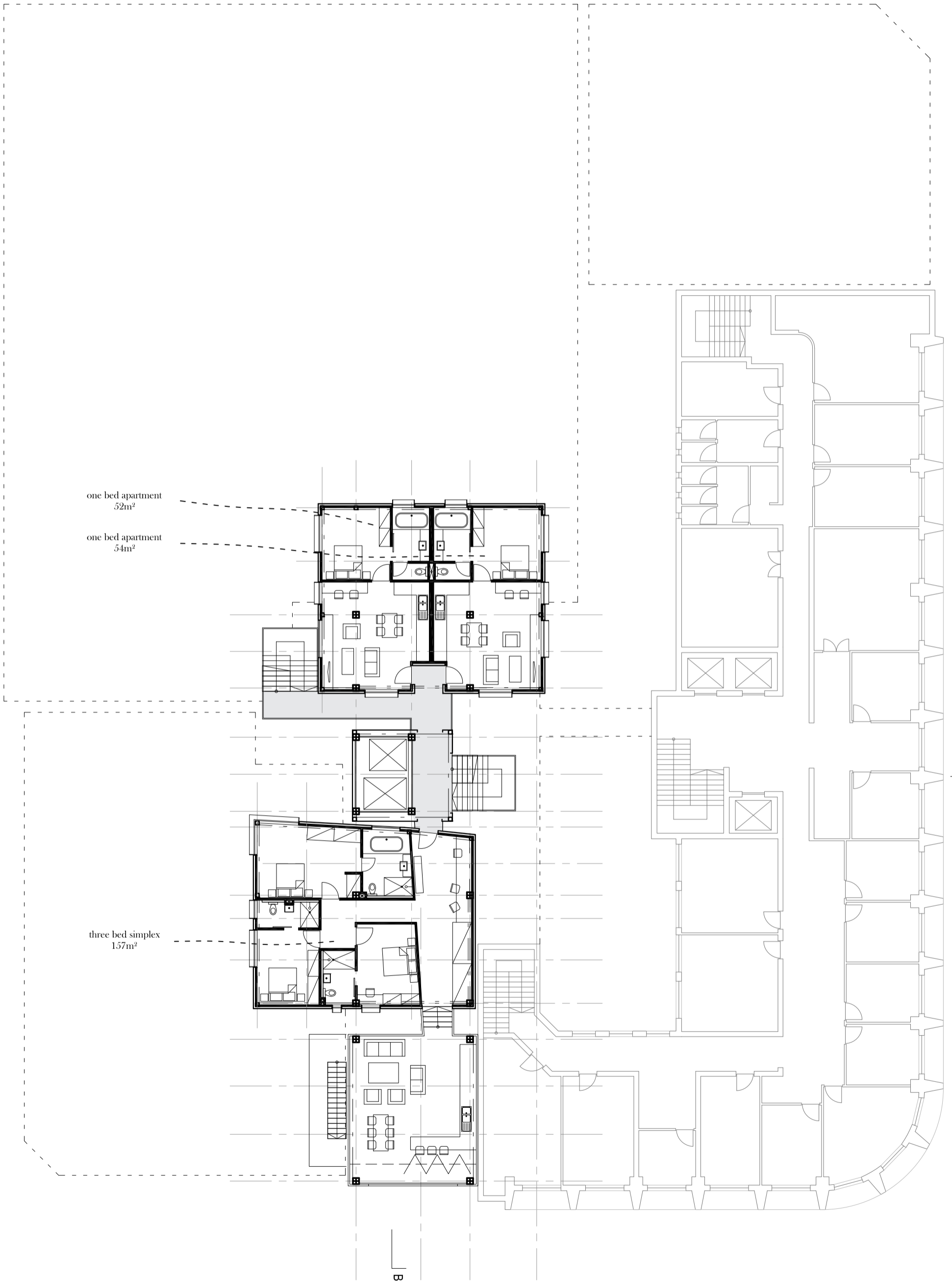












one bed apartment
52m²

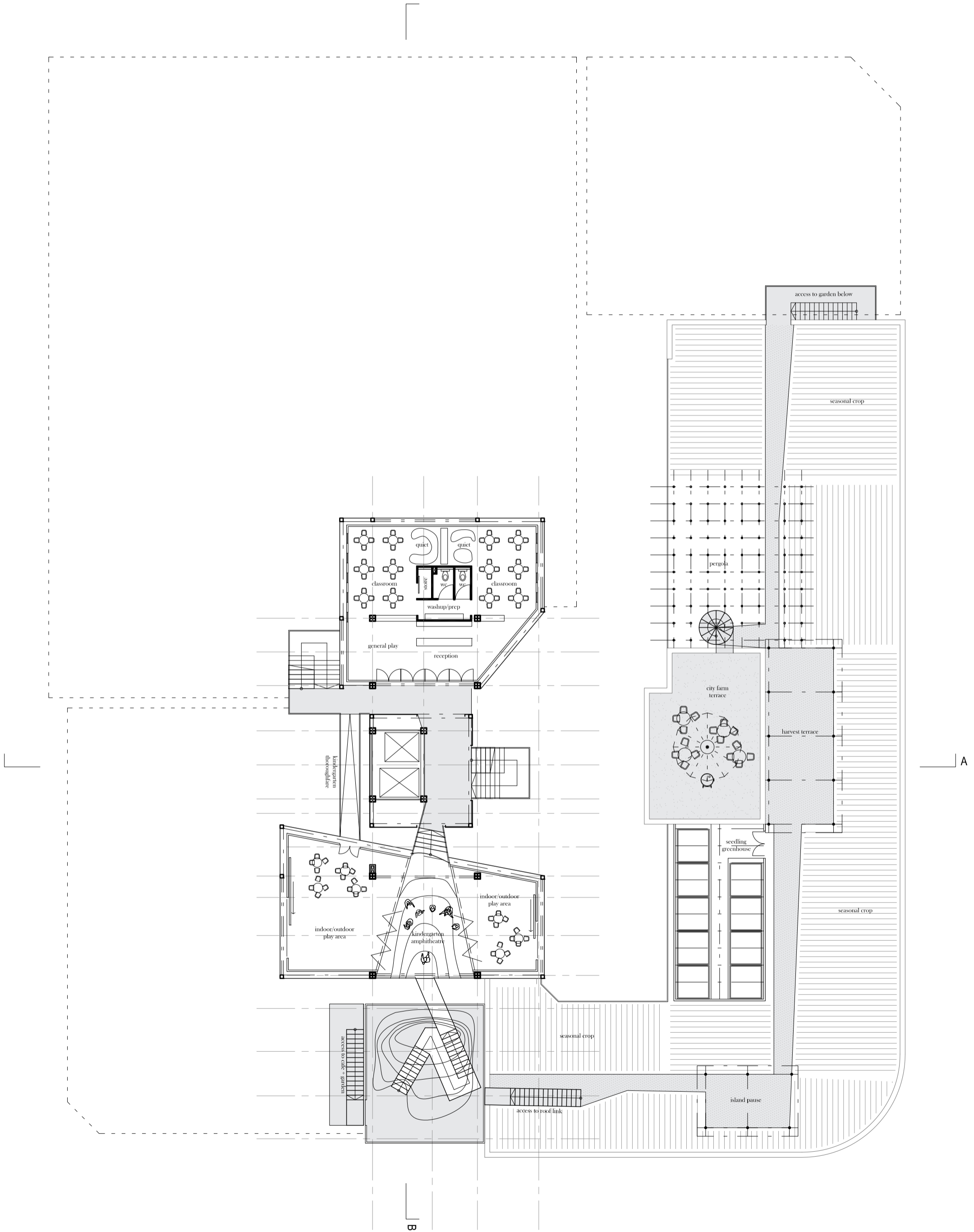
one bed apartment
54m²

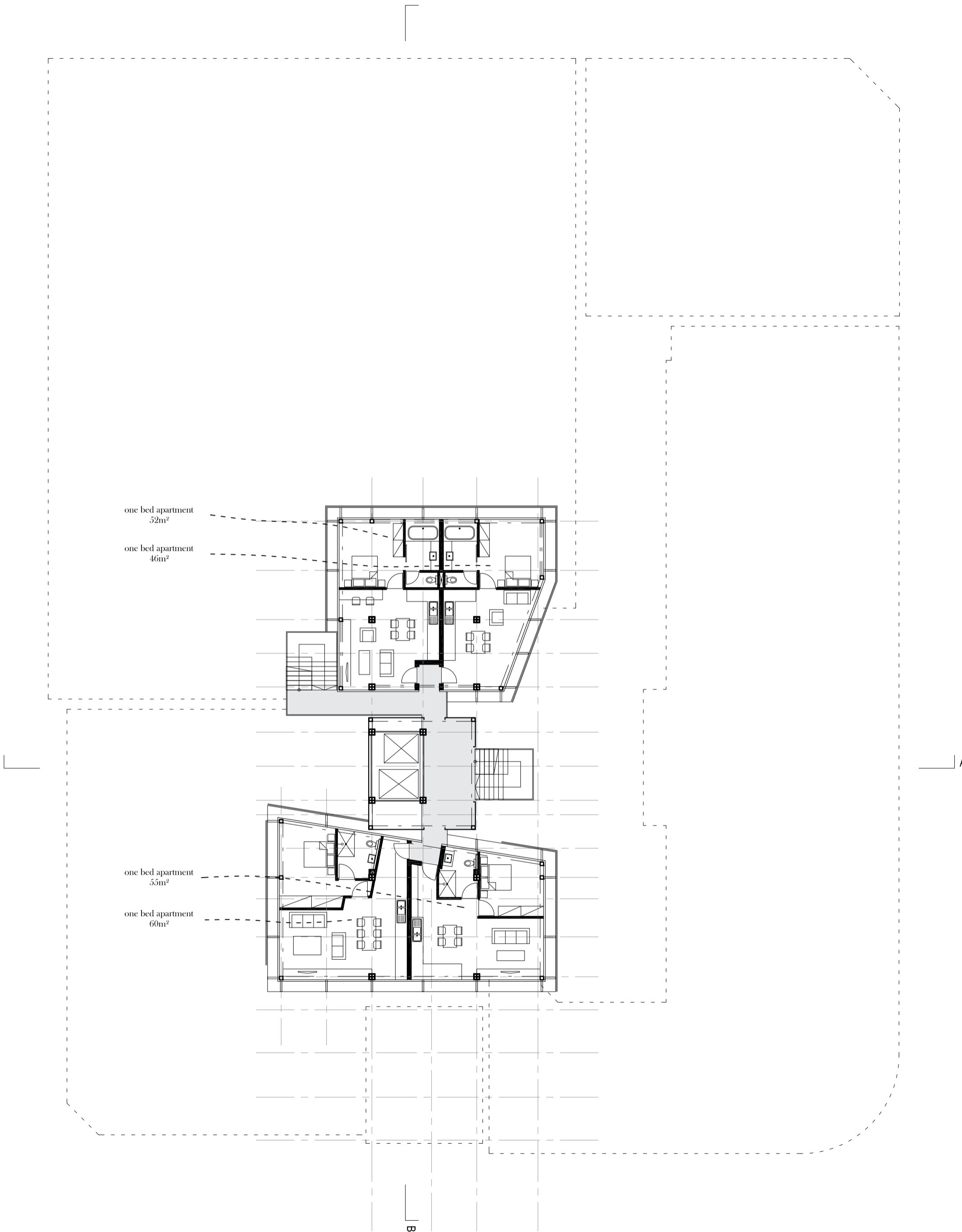
three bed simplex
157m²

A

B







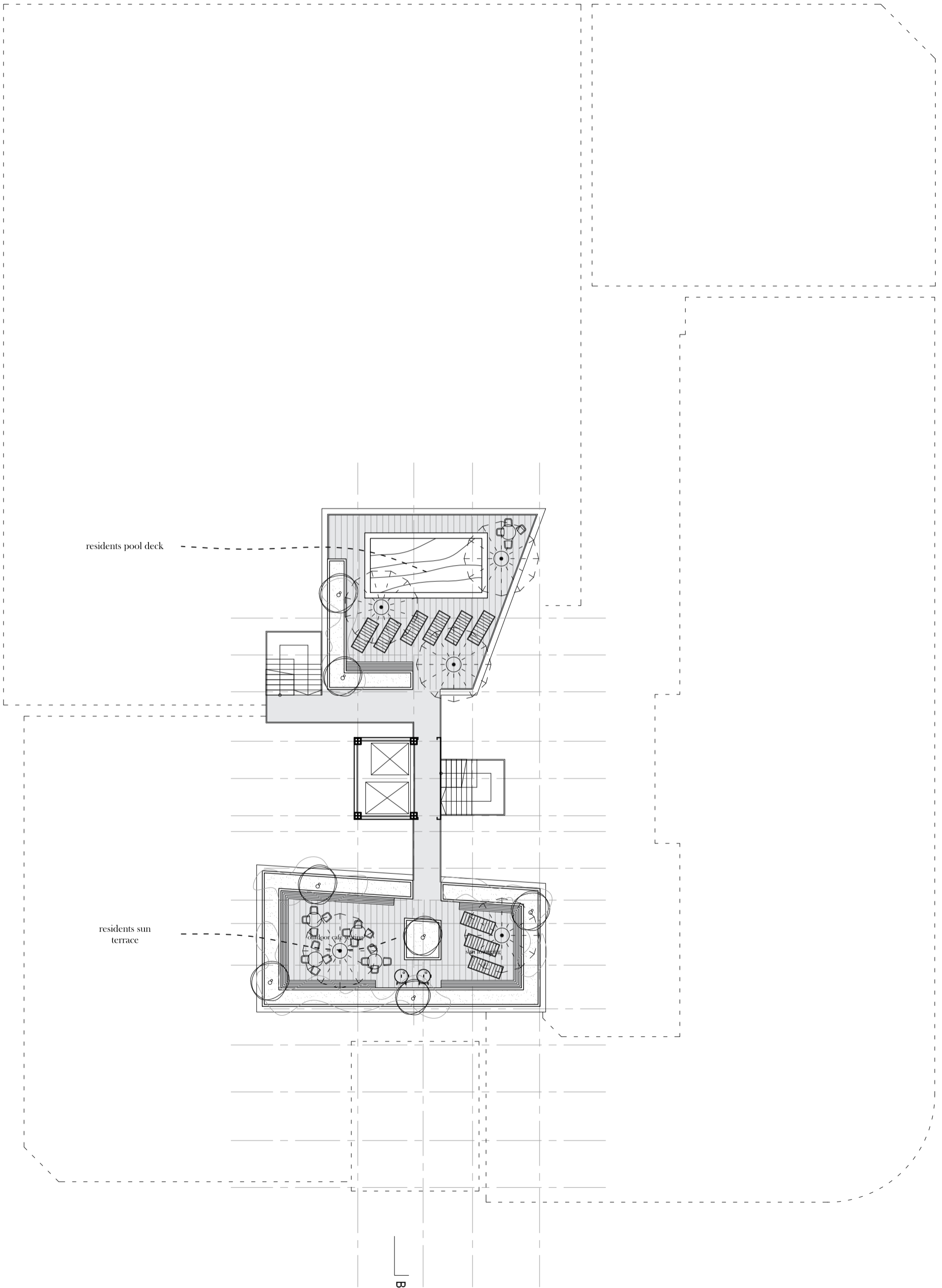
one bed apartment
52m²

one bed apartment
46m²

one bed apartment
55m²

one bed apartment
60m²



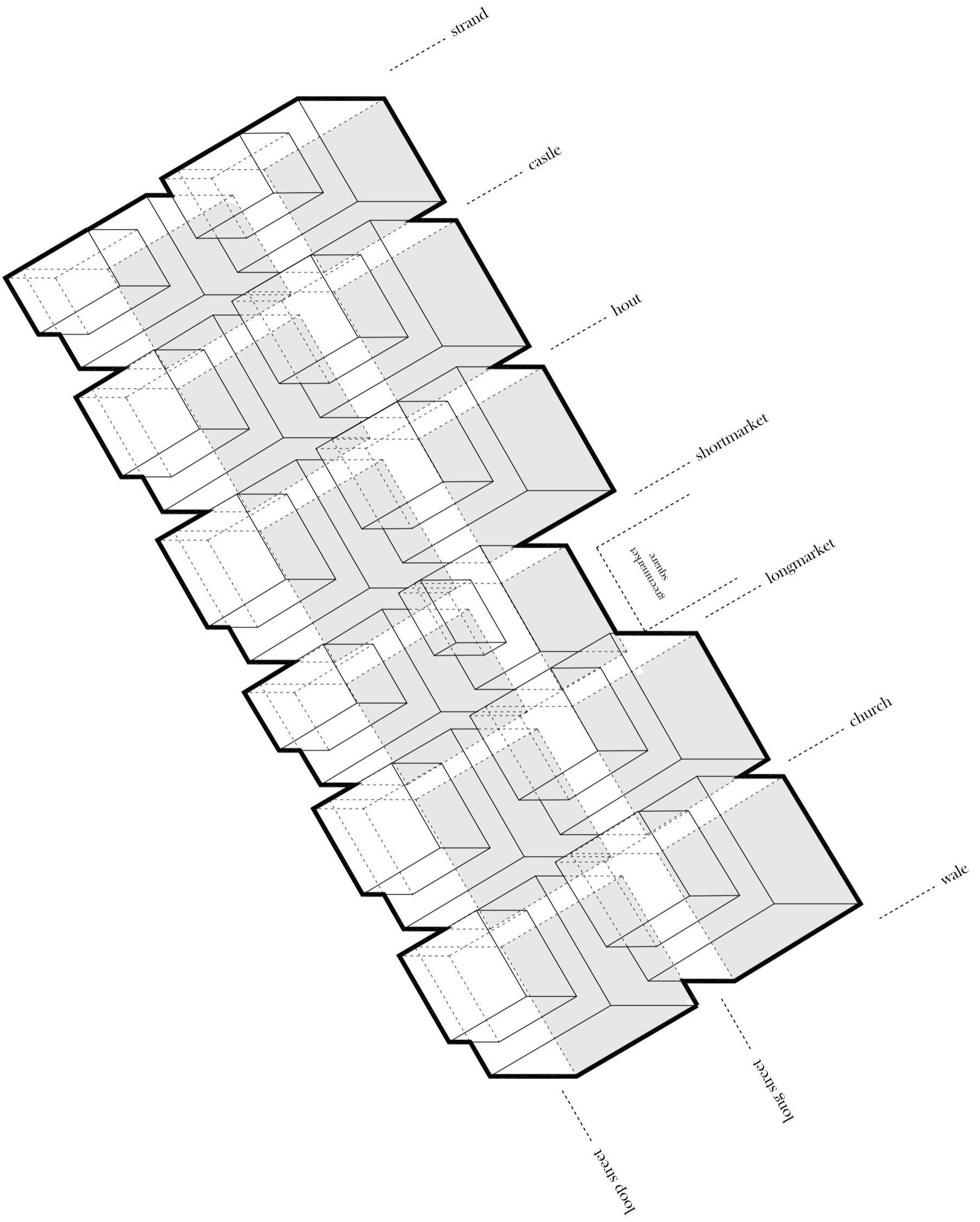


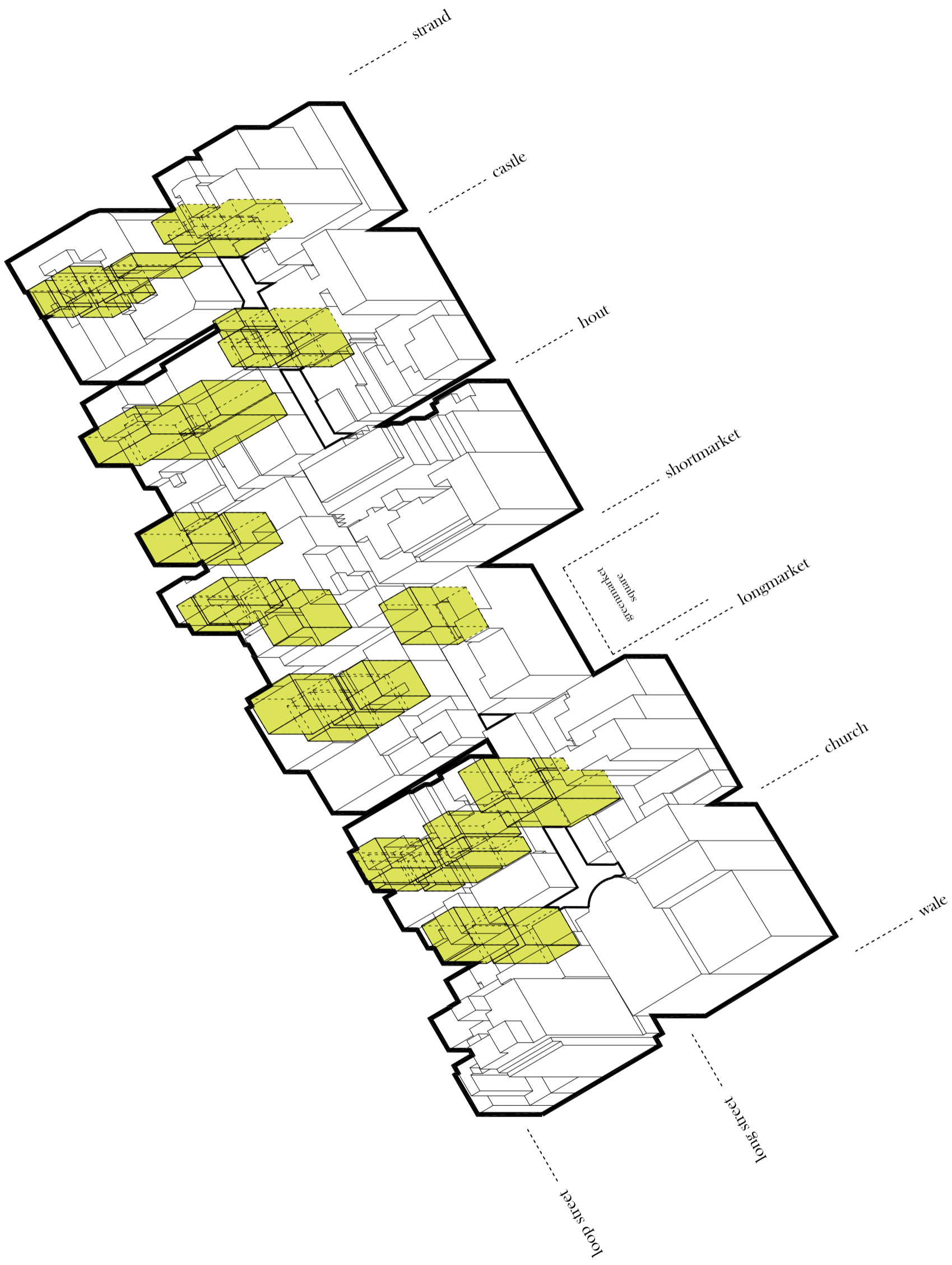
residents pool deck

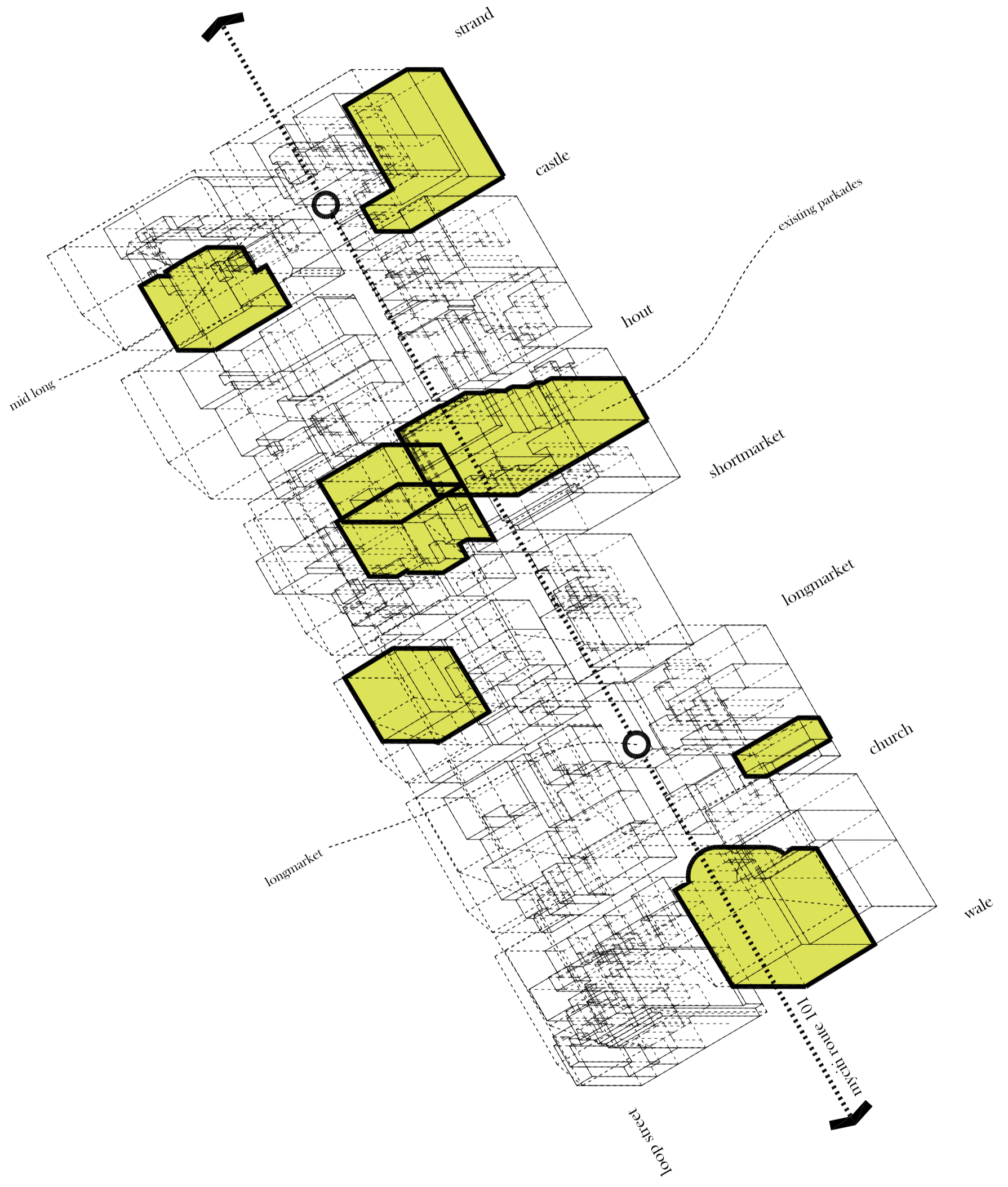
residents sun terrace



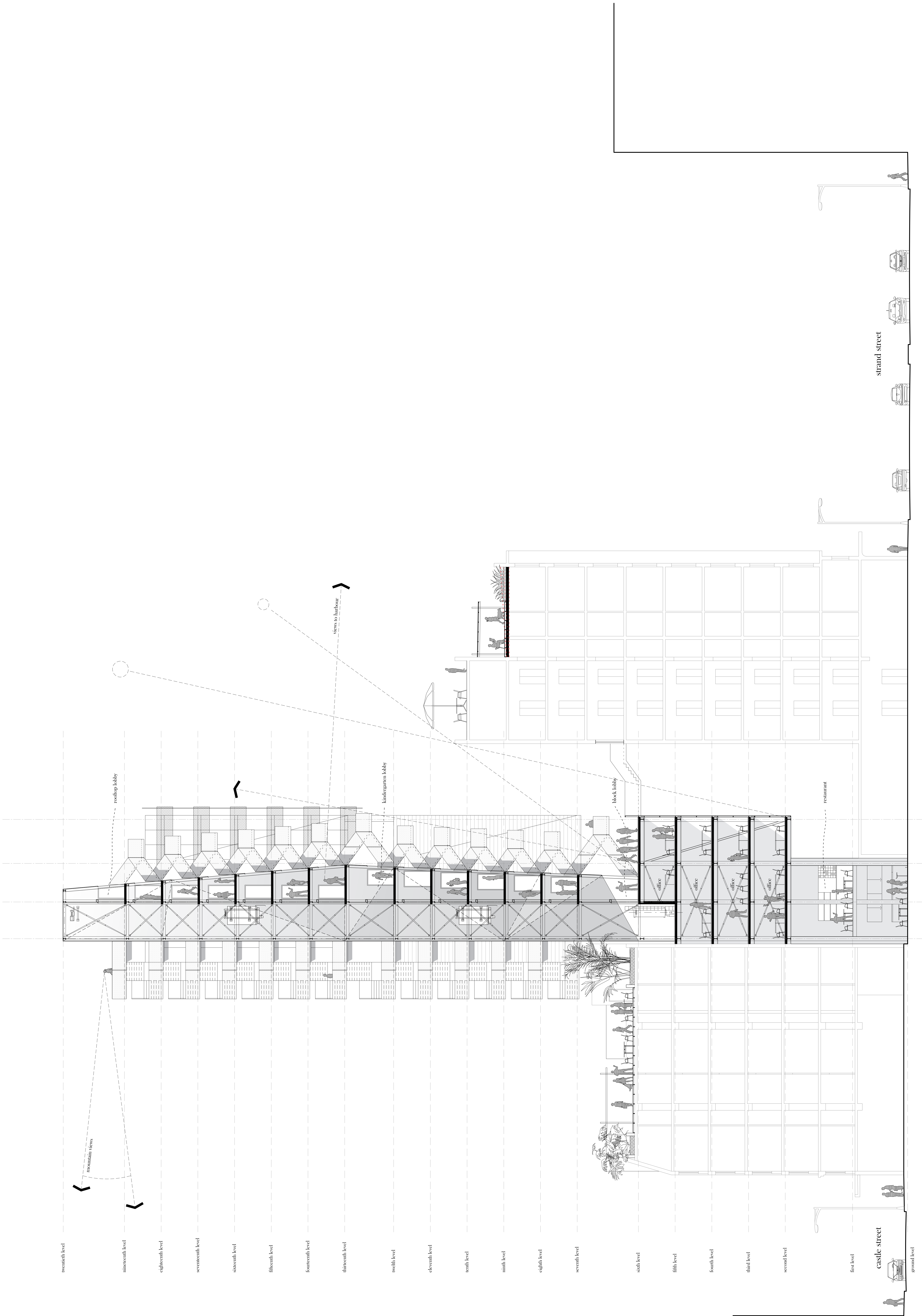












twentieth level_27 000

nineteenth level_22 000

eighteenth level_20 000

seventeenth level_16 000

sixteenth level_13 000

fifteenth level_10 000

fourteenth level_7 000

thirteenth level_4 000

twelfth level_30 300

tenth level_34 000

ninth level_33 000

ninth level_32 000

eighth level_30 000

eighth level_29 000

seventh level_27 000

seventh level_26 000

sixth level_22 000

fifth level_19 000

fourth level_16 000

third level_13 000

second level_10 000

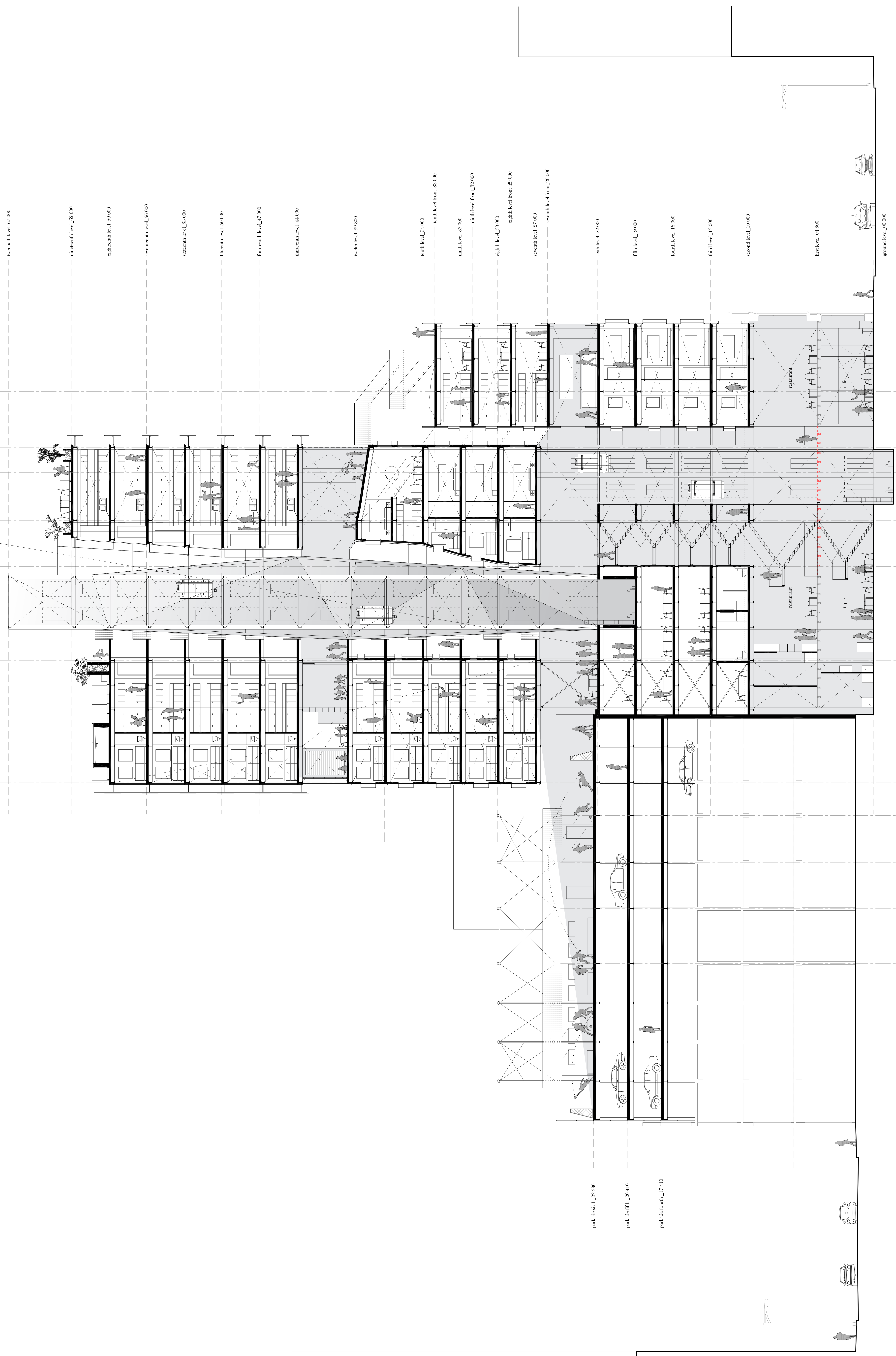
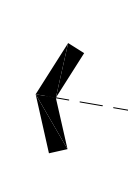
first level_04 500

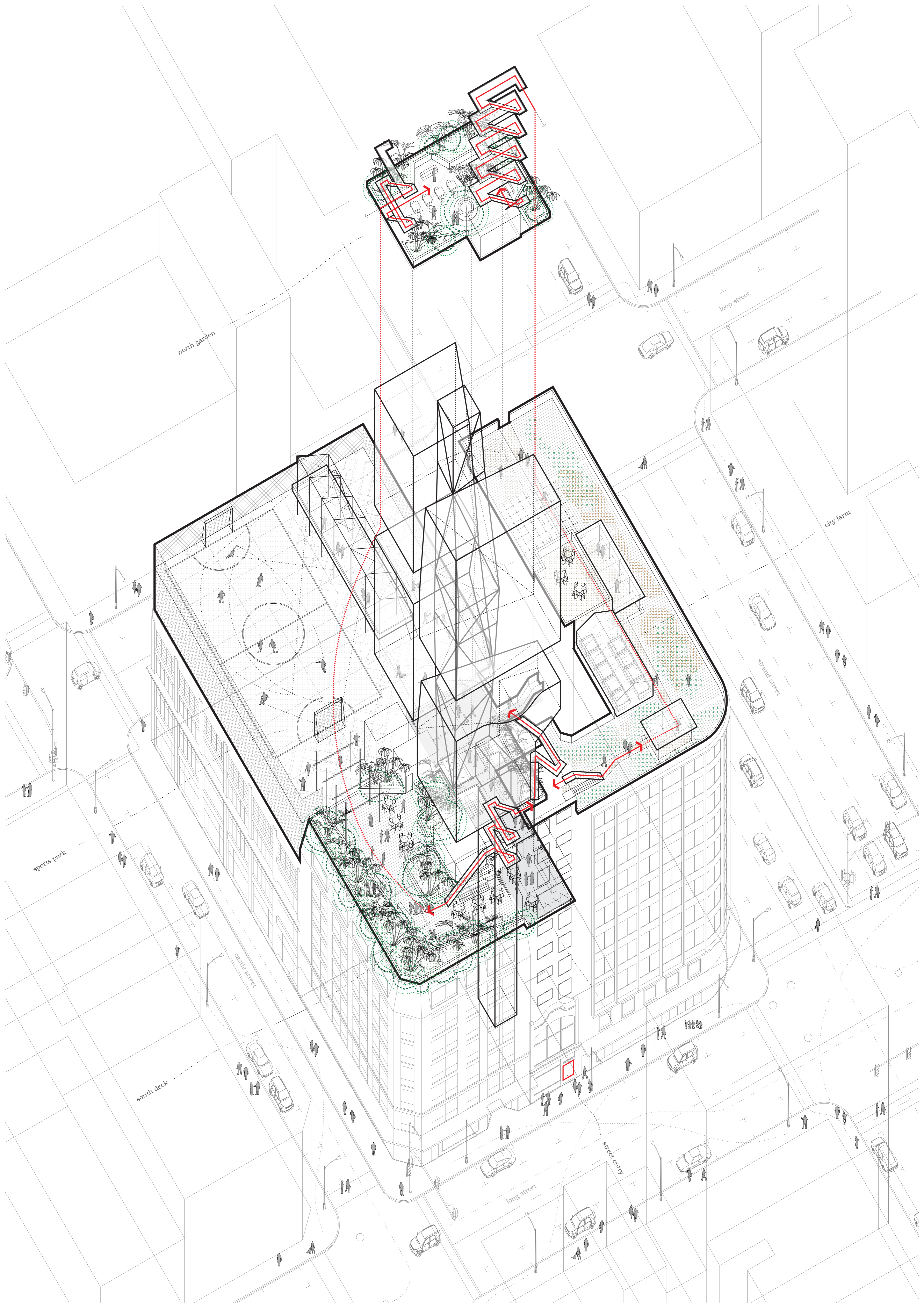
ground level_00 000

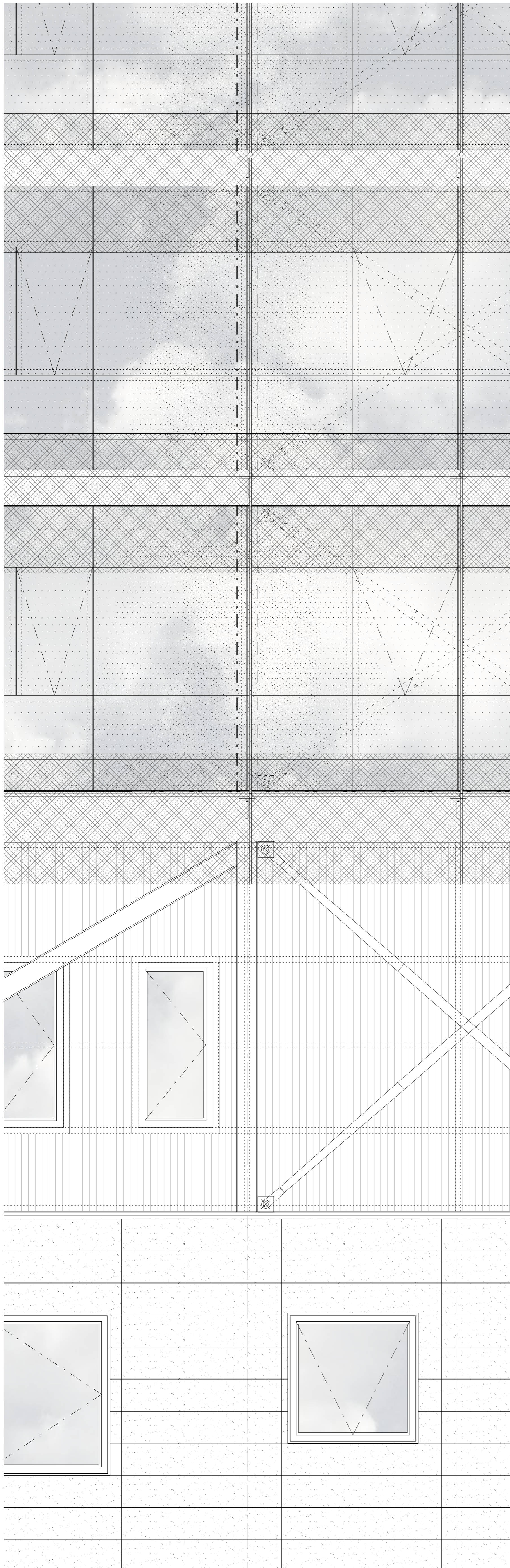
parkade sixth_22 300

parkade fifth_20 110

parkade fourth_17 110







aluminium channel as safety rail with track and slider

expanded aluminium mesh solar shading panels

custom fixing connecting vertical running rods and expanded mesh panels

20mm steel rod bolted through outrigger

aluminium checkerboard walkway bolted to outriggers

aluminium outrigger bolted to capping

steel end plate welded to primary steel structure

100mm tapered steel tube cross-bracing bolted to steel end plate

fritted glazing fixed to aluminium frame with structural silicon manufactured off site

opening panel

aluminium frame fixed to packer plate

packer plate between steel capping and aluminium frame

custom GMS capping channel bolted to primary steel structure

305x165 steel universal beam

203x203 steel universal column

gypsum ceiling board

fireproof insulation

aluminium window frame side-hung

aluminium capping window surround

translucent danpatherm insulation filling

20mm multicell danpalon polycarbonate panels fixed to aluminium studs

aluminium stud system

150mm lightweight concrete powerfloated to finish

bondek steel permanent shuttering

drywall stud system

insulation

greenboard drywall exterior surface waterproofed

aluminium window surround

aluminium window frame side-hung

terracotta tile exterior wall cladding system

aluminium horizontal off-centre T channel to support tiles

aluminium vertical L channel

aluminium L cleat fixed to beam

