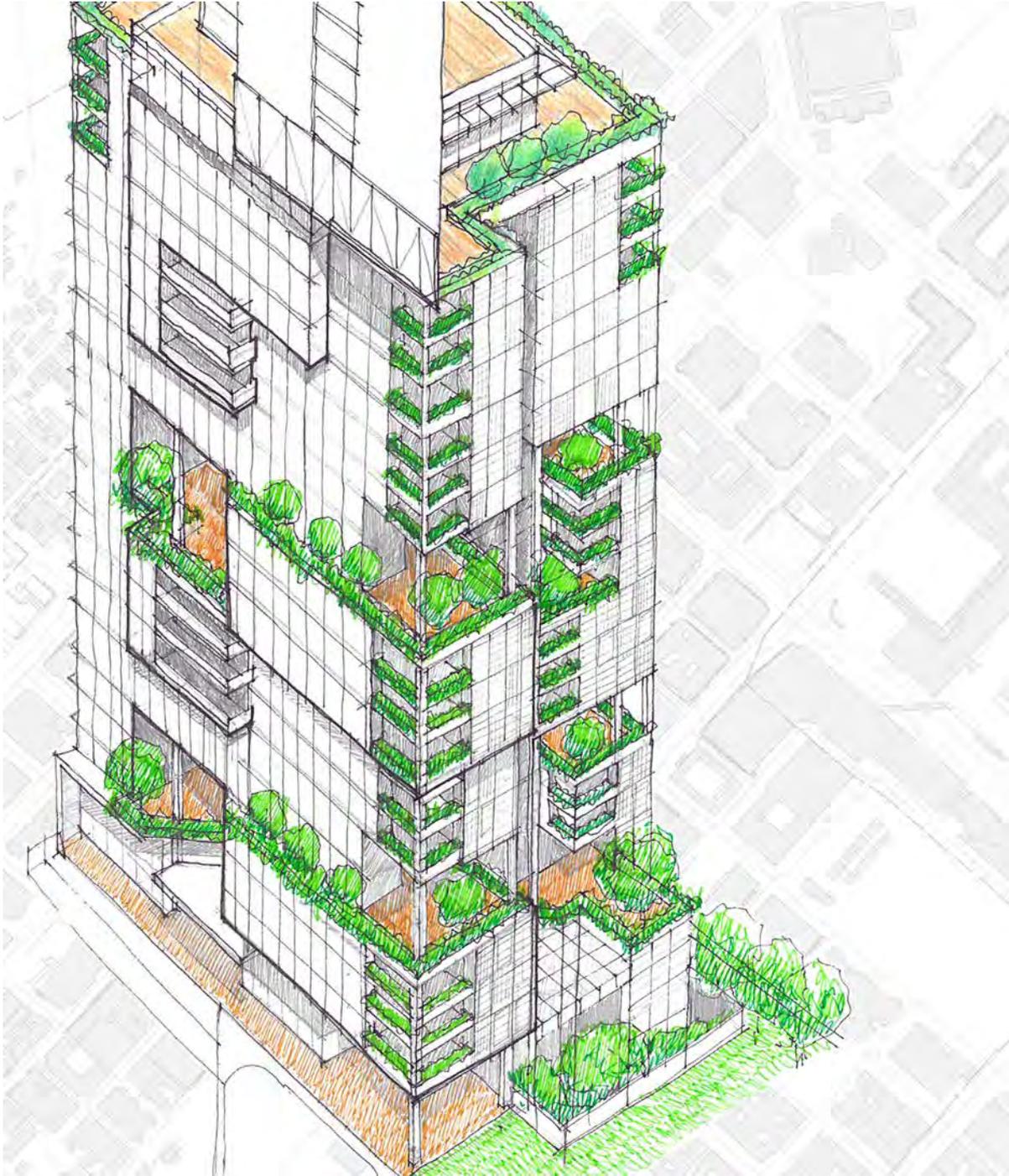


ERASURE LAYERING

SNEHA JHUPSEE



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ERASURE LAYERING

SNEHA JHUPSEE

MArch [Prof] 2017
Design Research Project
APG5079W

SUPERVISORS:

Stella Papanicolaou
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6 November 2017

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ACKNOWLEDGEMENTS

This dissertation is dedicated to my parents for their continuous moral and financial support, boundless love and encouragement throughout my life.

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INTRODUCTION

This dissertation developed from an interest around sustainability and the current housing crisis within the inner-city of Cape Town. The evolution of the city has played a role in developing a layered but fragmented space that lacks a favourable density. New housing developments within the city are developer-led and market driven schemes that more often than not do not consider the rich urban and social contexts provided by the city. These schemes remove vast portions of rich urban fabric to profit from maximising bulk. While these developments do indeed add density, they lack diversity and equity. This dissertation challenges the contradiction of the positive addition of density and the negative impact of inequitable and unsustainable architecture.

From a sustainable point of view the idea of continued reuse and transformation of vacant existing buildings is explored. Many existing buildings within the inner-city are not fit for their intended purpose and seen as impediments that generate unsafe spaces. These buildings have become targets for inequitable developer-led schemes as they are located on prime positioned land. This dissertation explores layering the existing by providing different layers of public and private function. The sustainability of retaining an existing building is interrogated through the lens of the value of its structure. Essentially, there is an immense amount of building stock that is underutilised and underdeveloped within the inner-city that may provide an opportunity to layer the urban fabric.

This dissertation endeavours to explore a new typology that embraces density for an inclusive city through sustainable practices. The ideas of reuse, density of the city and expanding its capacity in a sensitive manner and adding to the character and rich existing urban fabric of the city are pertinent to the dissertation design. Realistic ideals such as bulk and parking as well as idealistic ideas such as how to create an equitable building in a market driven era, and everything in between, will be explored.

STRUCTURE

This document serves as a design informant for the final dissertation design project and forms an integral and large part of the overall design project's process. While this document comprises of different sections, the design process as a whole is not a linear process fundamentally. Each section condenses a critical portion of the design project's development and lends itself to the final design. The report documents the process in three parts from the theoretical underpinnings and explorations to the contextual enquiry at various scales and finally the design experiment and its evolution. This process will conclude in a responsive design idea.

The first section explores the interests that the dissertation stemmed from. Broad theoretical and research aspects such as the case for sustainability and the reuse of existing buildings as well as an insight to the current housing market are examined.

The second section seeks to document the process of choosing a suitable site and interrogating this site at different scales. Within the Enquiry different scales are examined: the city, the precinct, the site and the existing. This leads to an understanding of both the physical and intangible components of the scales and spaces. The "found" site and building are interrogated and valued. As a response to this contextual analysis of the site an enquiry into programmatic requirements is interrogated. The programmatic approach also deals with incorporating the theoretical ideas explored in section one to inspire a contextual response.

The final section, Experiment, begins with a set of ideas that develop strategies for the chosen site. The strategies identify structural solutions, form, exploratory design and development of culminating various ideas to produce a sensitive design solution. A new site-specific typology embracing practical and theoretical ideas emerges from these experiments and explorations as the "move".

FOCUS

The world today has become a complex arrangement of ever-changing needs that require humans and their surroundings to adapt to changing contexts. Cities are rapidly becoming denser due to urbanisation (the process of people moving toward larger cities from rural or outlying areas) thus requiring new functions and amenities to accommodate an influx of people. Many cities face the challenge of housing these people and often the only viable solutions are located outside the inner-city. The South African city can be identified as a city that has gone through many shifts and changes. The idea of the inner-city differs in many parts of the world. However, it is generally accepted that the inner-city areas tend to have a higher density with most of the population residing in multifloored townhouses or apartment blocks.

In the USA, the inner-city is associated with crime and lower-income residents while in some parts of Brazil and Europe, the inverse is true – the wealthy live within the inner-city. Cape Town can be seen as a hybrid of these, where there are pockets of unsafe areas in the city as well as on the peripheries. The inner-city has suffered a long period of change and gradual decline driven by the process of decentralisation. Many factors contributed to this: the apartheid policies that wrongfully moved people to peripheral areas, high land values and rentals, congestion, lack of parking, the restructuring of office environments that required larger “office parks” as well as the development of suburban shopping malls. In turn, this caused problems of urban decay with vacant and dilapidated buildings, squatting, unregulated trading and poorly managed public areas. Inner-city spaces have become unsafe and abandoned due to these economic and social shifts. Cape Town can be seen as one of these cities where places of work and living occur in separated areas. Despite various changes and shifts in the urban fabric, it lacks the density of many other global cities.

Figure 1: [opposite page] “Settlers” by Egle Girskaitė. “Where do you settle, when you don’t fit in anywhere?”



HOUSING in the inner-city

A solution to these problems could be to bring people back into the city to create more active and diverse spaces. Densification describes the process of increasing the density of people living in urban areas. Density is not the panacea to poverty mitigation and economic development but it is a key factor in a list of things that could culminate into a liveable and vibrant city. Despite many attempts to address poignant issues such as the unmaking of the apartheid spatial planning legacy and desegregation of Cape Town's spaces, there are many factors that slow the process or continue to create these spaces. Bureaucracy, restrictive planning structures as well as the failure to formalize the informal continue to drive segregation and exclusivity. Currently, most of the new housing developments within the city are developer-led and market driven schemes. While these developments do indeed add density, they lack diversity and equity. These market driven developments do not provide opportunities to undo the apartheid spatial planning.

The housing crisis in Cape Town is multifaceted. The key issues are that there is a substantial backlog in the supply of units, houses are more often than not built at densities that are too low to support city functions and are poorly located in terms of access to amenities. These problems are further complicated by the costs associated with well-located land such as that found in the inner-city, where it is particularly expensive. The city of Cape Town, being locked between Table Mountain and the ocean, has minimal greenfield sites that are able to reach certain densities for a thriving fabric. Due to these factors, urban developments, often informal settlements, have spread to the outskirts and this "urban sprawl" tends to exist in pockets away from the city. The lack of more-affordable housing units in well-located parts of the city reduces people's access to the majority of economic, social and cultural amenities available. It has been observed that central Cape Town becomes a "ghost-town" in the evenings and there are pockets of dead and unwelcoming space. This is caused by people leaving the city, where they work, to go back to their homes in the suburbs and on the periphery. This leads to monofunctional pockets of land that are isolated from other functions.

A mixed-income housing scheme typically includes a variation of housing units for a range of people with different income levels. The

scheme seeks to reduce concentrated poverty and revitalize deteriorating neighborhoods. In many cities around the world, mixed-income housing is used as a tool to eliminate areas of concentrated poverty and crime and to combat residential segregation to create diverse and rich urban fabrics. The scheme could comprise of different percentages of subsidized, affordable as well as market rate housing. Social housing is housing provided for low income groups, sometimes with particular needs, by government agencies or non-profit organisation. In the housing sector in South Africa there are different levels of income. The people falling in the lower end of the income bracket, who earn less than R3500 per month, require the government to provide forms of subsidized housing. Affordable housing is defined as households earning between R3500 and R7500 per month and is often referred to as the “gap” market. The private sector provides for those at the higher end of the income bracket – those earning more than R30,000 per month. However, there is a limited stock of land and housing and sellers decide the cost of land which creates pressure on the pricing of these. In turn, the housing sector cannot provide adequate stock at the scale and rate that is required and at the same time it is not addressing different levels of affordability.

The middle-income bracket, who earn around R10,000 to R30,000 per month, are facing huge pressure in trying to access housing opportunities in well situated areas of the city. This bracket falls outside the subsidized and gap housing market and therefore cannot apply for government funding or support. They are forced to rent or reside in outer suburbs that are far away from shared public facilities as well as work and education opportunities. Transport to and from these opportunities also becomes costly. This market is comprised mostly of key service workers (such as teachers, nurses, police personnel and firefighters), small families, first time buyers and young professionals. Cities such as New York, Denver, Toronto and Bogota have implemented sets of incentives to make mixed income housing possible within the inner-city areas. In South Africa, very few incentives exist where the private sector is encouraged to reserve a portion of developments for lower income groups while the overall development still remains financially viable.



Figure 2: Park Hill in the UK was once a council housing development that fell into a state of disrepair. Phase 1 of the redevelopment of Park Hill stripped the building to its concrete frame and provided a mixed-income housing solution.

Charles Correa's principles and architecture were based around sensitivity to people and climate. His design for the low-income community of Belapur is focused around different scales of "open-to-sky" spaces. These spaces become an important socio-cultural space where people gather and meet. Belapur's spatial hierarchy ranges from the private world of the individual dwelling, through the 'doorstep', to the communal court (which traditionally contains the well or common tap), to the greater public space. Space is treated as a design component and not something that exists after a structural intervention. Given the tightness of the sheltered units, these in-between areas and courts are seen as extensions of the living space: 'outdoor rooms' that compliment and create diversity within the overall planning scheme. This development highlighted his first principles such as equity, inclusivity, identity, pluralism, incrementality and income generation.

Correa further translates this vernacular idea into a high-rise in the Kanchanjunga Apartments in Mumbai. In the inner-city apartment block, every alternate floor features a double volume terrace that applies the vernacular to vertical living. Despite the western construction method of a concrete structure and its strong resemblance to the modern apartment buildings of the time, the garden terraces are a modern interpretation of a facet of the vernacular Indian bungalow: the veranda, or what South Africans would call a "stoep". In the traditional bungalow, verandas were wrapped around the space to mitigate heat gain and were regarded as the social space of the private home. This veranda within the high-rise gives a spatial complexity to the private home and responds to the climatic conditions.

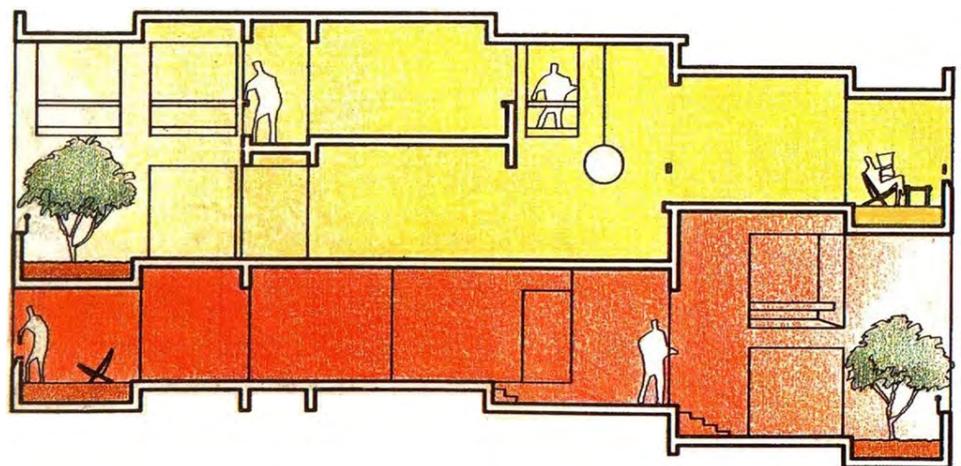


Figure 3: Section of Correa's Kanchanjunga showing apartments opening up into a double volume veranda space.

SUSTAINABILITY

The case for adaptive reuse

Due to the constant changing fabric of the city, many buildings are vacant. These buildings are more often than not office buildings that do not fulfil their intended purpose. Many growing firms opt for larger office spaces or complexes. This leaves the city with building stock that is vacant and underutilised. Many of these existing buildings are mundane concrete frame buildings. A quick-fix to this problem has been a developer-led solution whereby the existing fabric of the city is removed in large portions. Entire buildings are being demolished with similar footprints or structures reconstructed in their place. However, this practice is unsustainable and more often than not, takes away from a rich and layered urban fabric. According to the United Nations Environment Programme, the environmental (including carbon) footprint of the built environment is made of: 50 – 70% of electricity use, 40% of global energy use, 30% of raw material use, 15% of water use, 25% of solid waste and 12% of land use [Balcomb, 1998]. However, it is also noted that greenhouse emissions continue to rise at a yearly rate of 1.5%. The construction and deconstruction of the built environment also contributes up to 50% of the waste in landfills. These effects have detrimental effects on an already strained environment at a global scale.

During a building's life span, there are two categories of energy that are accounted for: embodied energy and operational energy. The embodied energy is the energy used while constructing the building and includes the procurement of raw materials, processing, manufacturing, transportation and construction. Recurring embodied energy refers to the repair and replacement of materials or systems during the building's life. It is important to note that embodied energy can also include the deconstruction and disposal of buildings that no longer fulfill their intended function. The operational energy is the energy used to reach optimal comfort conditions for the occupants within the building. These systems operate by processes such as heating, cooling, lighting, ventilation as well as providing appliances. These factors depend on the occupancy of the building. Depending on factors such as climate, materiality and the age of buildings, it is estimated that the embodied energy of a building can account for approximately 30% of its lifespan energy. This percentage was much lower in the past but emphasis has now been placed on integrating and reducing operational energy thus raising the embodied energy at the beginning of a building's lifespan.

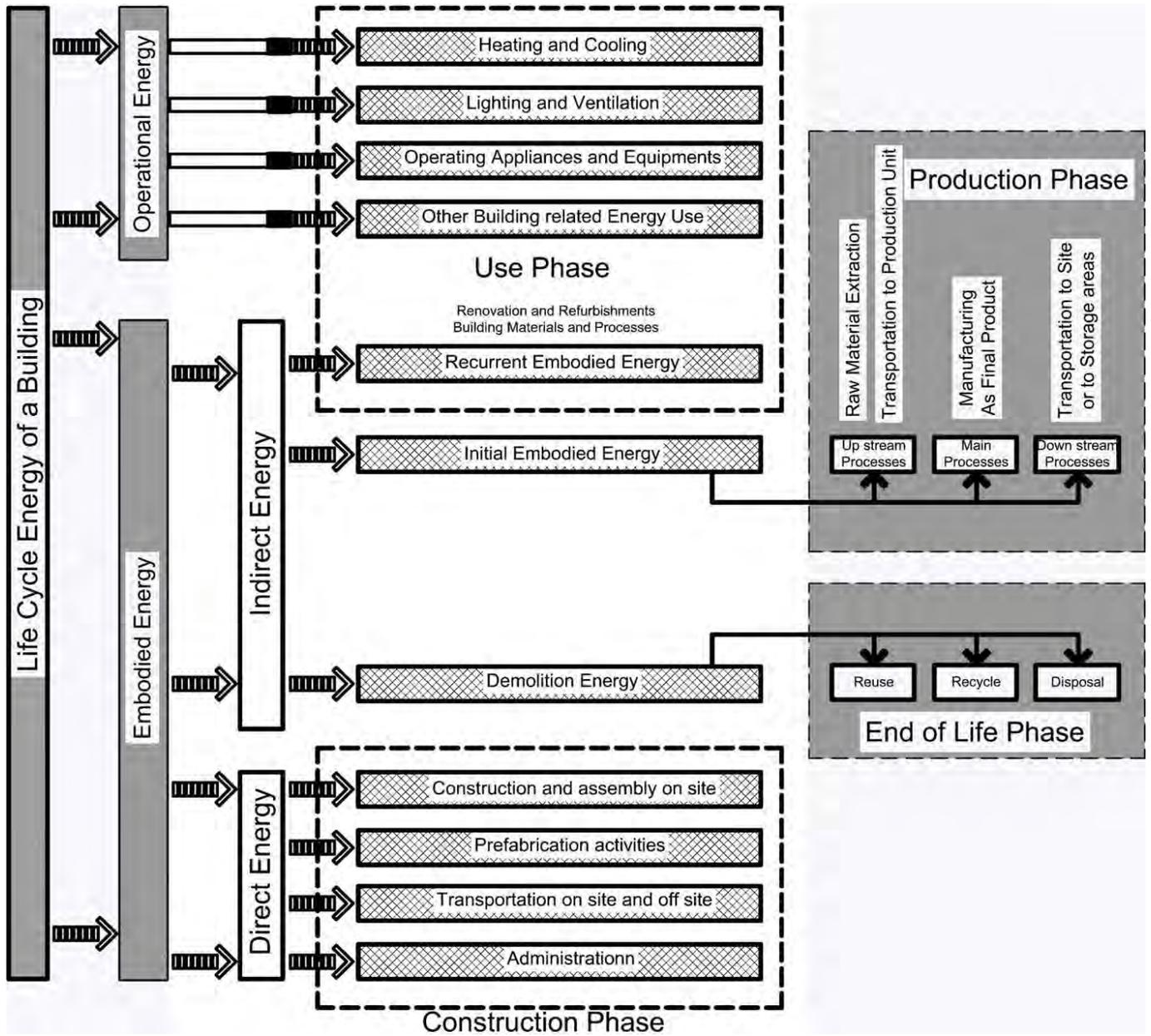


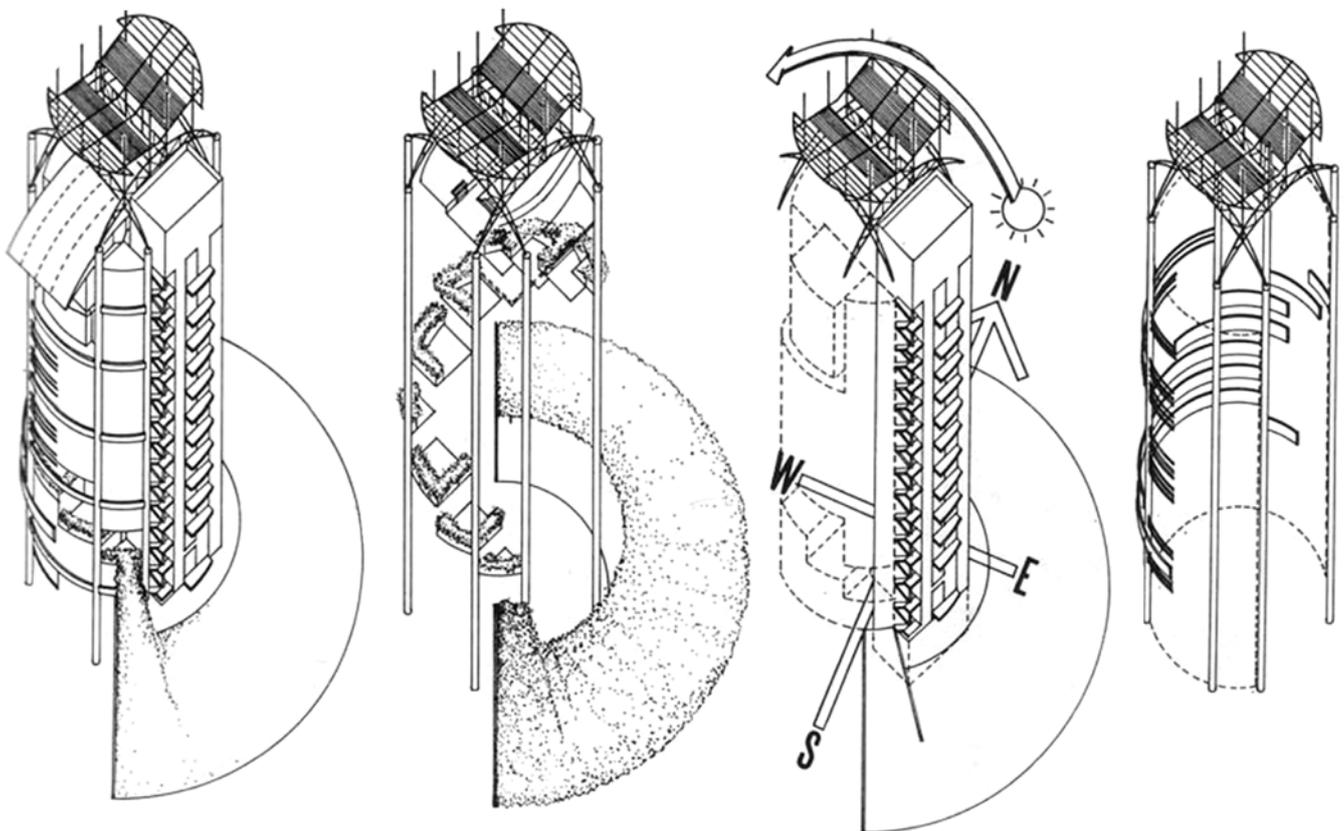
Figure 4: Life Cycle Energy of a Building.

Concrete structures are designed for a service life of 50 – 200 years and can recover this initial unsustainable practice during its lifespan. The production of concrete serves as a major part of the embodied energy and by extending a building's lifespan, the impact of the initial embodied energy decreases with time. Thus, by reusing a concrete structure, embodied energy is mitigated. The advantages of concrete structures are its high load bearing capacity combined with a long span capability. Sound insulation, inherent fire resistance as well as a high thermal mass are also other important qualities of concrete. This durability means less durable parts, such as windows or services, may be replaced while retaining the structure. Concrete construction in South Africa is an embraced technique as it is the material most of the skill labor force is familiar with. Concrete can also be locally sourced and requires less maintenance than other construction materials. However, steel construction has been growing in popularity and hybrids of the two materials have been derived. Many buildings combine steel and concrete in different ways to provide sustainable but practical solutions.

Further into the topic of sustainability, the principles of architect Ken Yeang were examined. Yeang specializes in bioclimatic skyscrapers that use environmentally, climatically and contextually-appropriate sensitive forms and means of construction. Key strategies used in his bioclimatic design are continuous ventilation based on wind and air flow as well as the modulation of facades to allow air into the building. The ventilation is further enhanced by use of multistory voids and atriums within the building. These spaces aim to bring air into the building and channel it upward. Louvers and forms of solar-shading are implemented to block sunlight but allow air in. The orientation of the building is considered to reduce solar gain in some instance while still allowing for natural light. Yeang prefers to use materials that reflect radiation and in turn keep the building cool. However, he has emphasized that these tools should be considered in their context. Another signature design move by Yeang are his sky gardens and vertical landscaping techniques. Recesses in the buildings form provide shading and planted areas that connect to the natural environment often surrounding his schemes. The implementation of these principles of design can lower the operational energy and costs by up to 40% over the buildings life cycle, according to Yeang.

Figure 5: [opposite page] Axonometrics left to right: Built form, planting and sky gardens, solar orientation, shading devices.

The Menara Mesiniaga building in Malaysia fully realizes his bioclimatic design principles and provides a vernacular response to the context and climate enhanced by technologies. Mesiniaga's built form allows exposure to the elements and strategically places the core services on the exterior to allow for ventilation. The ventilation is enhanced by large multistory transitional spaces that provide airflow and the circulation of hot air out of the building. The permeable external walls provide cross ventilation. Yeang integrates sky garden insets on the north and south sides that reduce solar gain and enhance thermal comfort. Recessed windows are found on the east and west sides to respond to the tropical sun path. The planted areas and cantilevered rooftop pool serves as reprieve spaces for the users of the 16-storey office building. The building reduces energy consumption, emission of waste and lowers the heat gain while assimilating itself into its contextual space.



The dissertation is framed around varying and sometimes contrasting focuses. The dissertation seeks to explore ways in bringing together an understanding of these underpinnings. The process of the rehabilitation of an inner city building in order to retain its embodied energy and apply energy efficient solutions is explored. How can a new typology, that combines the practical and the idealistic form an architectural response for inner-city sustainable housing, be defined?

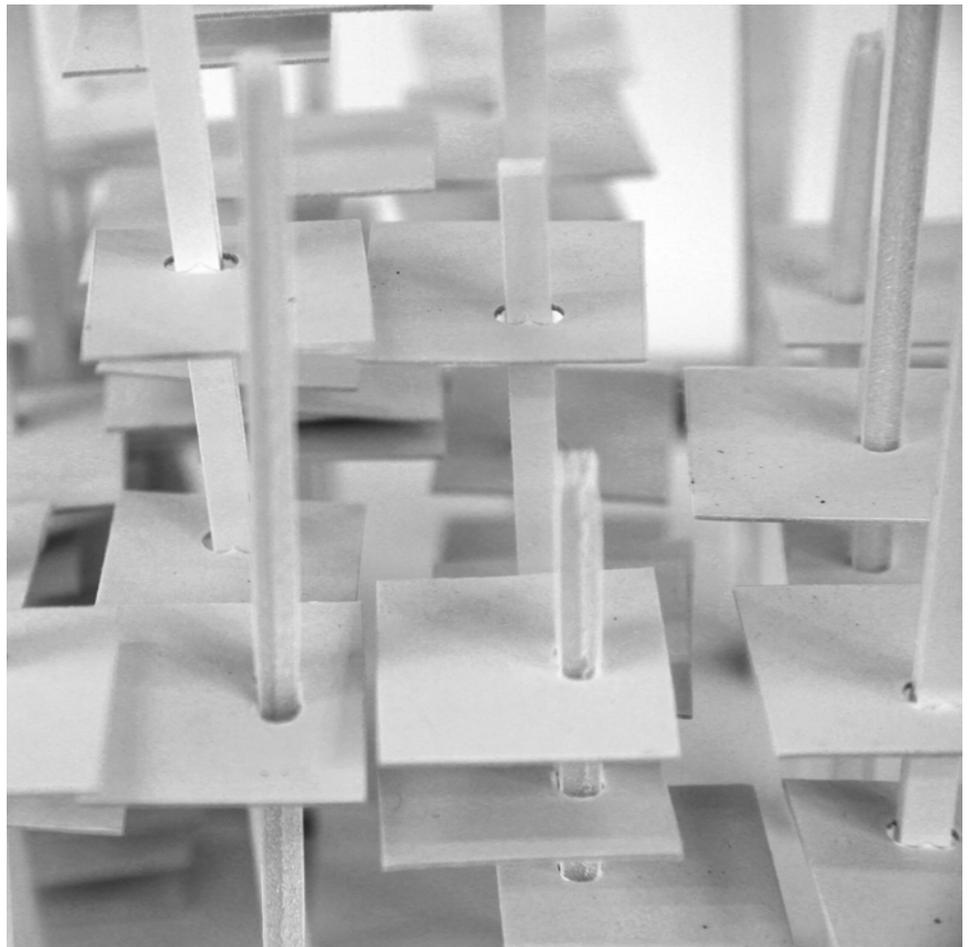


Figure 6: Abstract model experiment playing with density by stacking pieces of cardboard. The pieces are representative of the densities that could be possible within a scheme.



Figure 7: "Dispatchwork" by Jan Vormann. An urban art installation movement brings attention to the natural wear and tear to structures and streets of a city. The process of infill of holes and missing parts via the use of bright LEGO blocks highlights the dilapidation or non-use of buildings. This movement lends itself directly to the reuse of materials in the adaption of existing buildings.



ENQUIRY

CONTEXTUAL ANALYSIS

The first point of departure was to focus on promoting sustainability while providing densification opportunities within the inner city of Cape Town. Sites were examined through the lens of location and existing structure. The location of the site should add value to the surrounding context and layer the urban fabric by the process of reuse.

The three main sites examined are the Alfred Street Complex [1], Customs House [2] and Old Mutual Centre [3]. The three sites are all located within the city precinct and are close to or on major transport routes. The Alfred Street Complex is seen as a project that is likely to be renovated to accommodate a new programme. The building also currently has many various tenants that are uncertain about leaving the building. It also has limited access to the building as well as plans due to the ownership being that of the Western Cape Government. Customs House currently serves a purpose and is well located for this purpose. It may not be viable to reuse for the programme of housing. The chosen site is Old Mutual Centre within the CBD of Cape Town.

The site is examined through different scales in the city and highlights elements that could inform the design. Through the lens of city, precinct and site, the contextual mapping brings together layers of information and observations. On each mapping is the outline of the circulation passages of the subterranean concourse, Strand Street Concourse.



Figure 8: [opposite page] Location mapping of three sites.

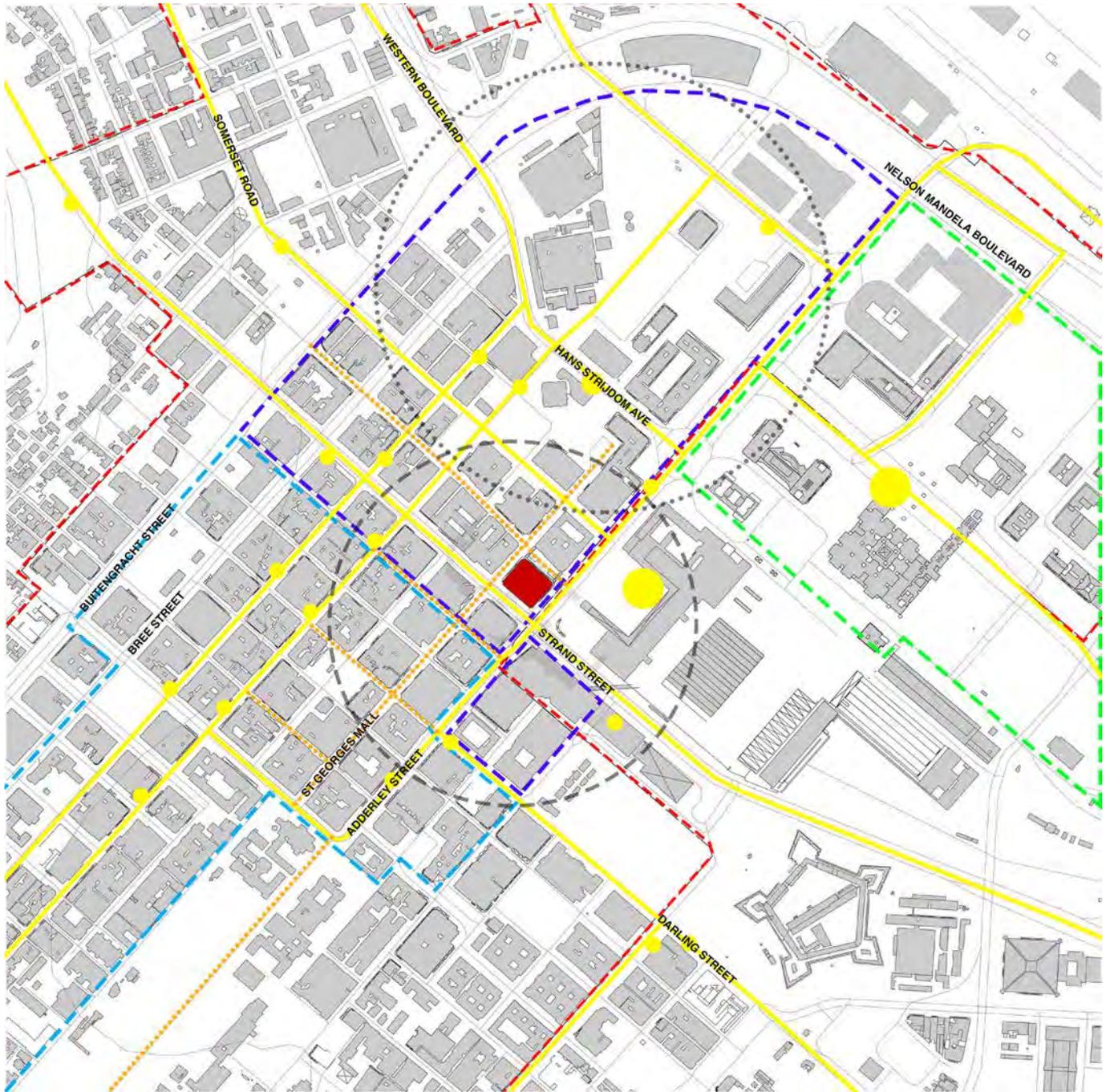
CITY SCALE

Beginning at the large scale of the city, the site and the city were interrogated through mapping of built area as well as major transport routes. The site is strategically located within the city on the axes of Strand and Adderley Streets. These are two historical access routes into the city centre. The intersection of these routes forms the symbolic centre or heart of the city. Cape Town Station and its public spaces, located directly opposite the site, forms a public anchor within this node of the city. This positions the site in a very well located public transport perspective. It is 500 meters distances from the public transport interchange [Cape Town Station], 3 higher order MyCiti bus stations as well as several kerb side stops. These factors define the site within a PT2 zone where there is a 0-parking requirement and public transport is promoted.

Old Mutual Centre is located within an existing cluster of historical tall buildings (above 100 metres high). It should be noted that limited new large scale private investment has occurred in this cluster for several decades. The last notable development in close proximity to the site is the Mandela Rhodes development which has been a catalyst for regeneration in the upper sections of St Georges Mall. Within the study area, three notable character precincts have been identified. Old Mutual Centre is located on the edge of two of these precincts. One of the two precinct areas is characterized by tower blocks and mixed-use land uses and the other is defined by its fine grain and heritage development. The site is located within the transition zone between these two character precincts. The last precinct is defined by coarse grained, tall buildings with limited ground floor activity. These buildings are mostly new or have been considered for demolition and new built areas.

Figure 9: Mapping of the City





PRECINCT SCALE

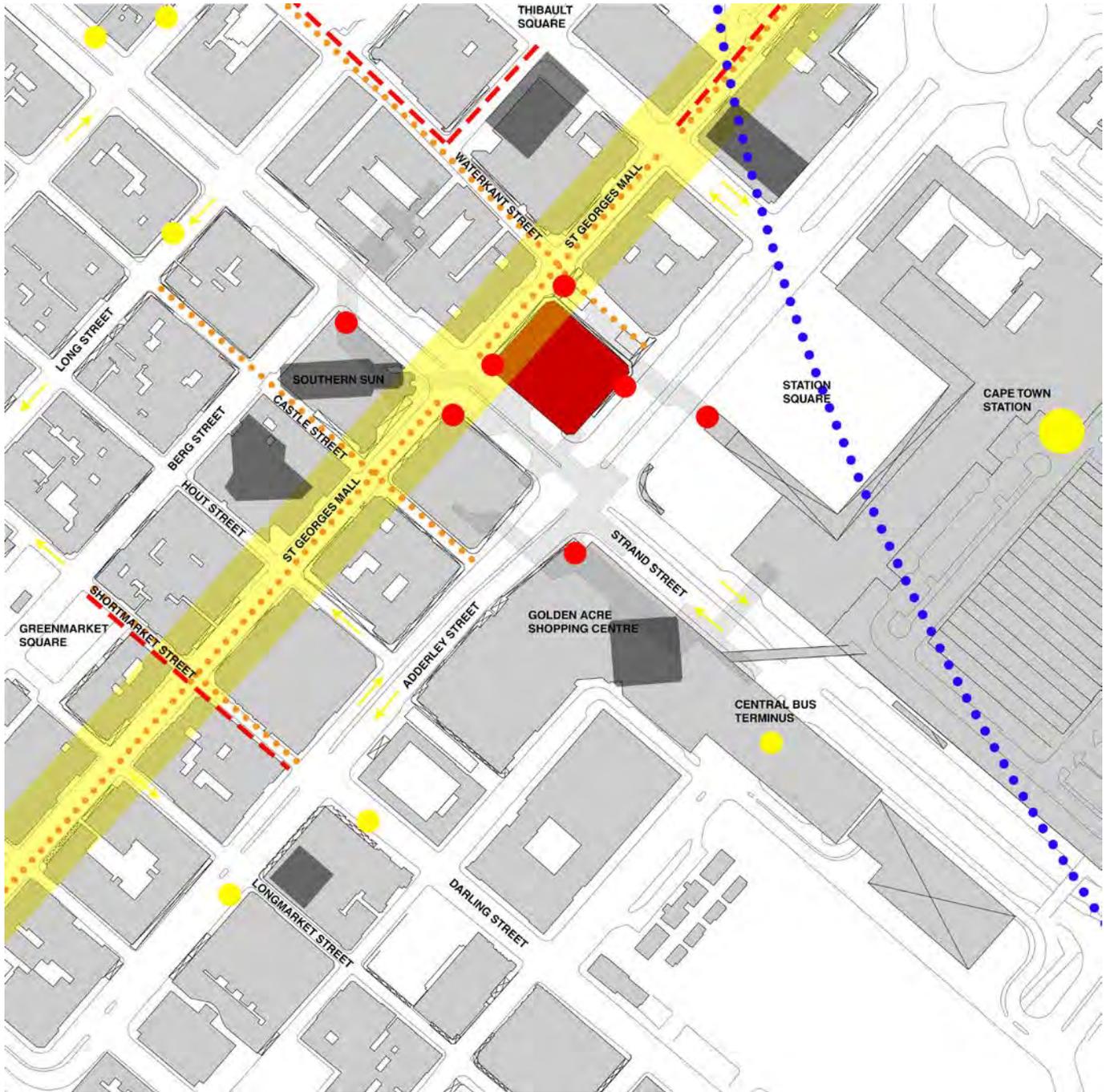
Zooming into the site, the immediate area was examined as the precinct scale. Adderley Street (formerly Heerengracht) was established as part of the “City Beautiful” Foreshore Plan in 1947. The monumental space of the boulevard is comprised of a sequence of urban rooms connecting back to the Company Gardens. Spaces are created by the buildings that edge the route and these buildings are all of a similar height and location along the edge. The boulevard intended to be a visual axis providing views and connecting the placemaking elements of mountain and sea. The progressive reclamation of land in Table Bay took place over 1870 to 1945 and fundamentally changed the way the historical city related to the coastline. It defined a new coastline that separated the CBD from Table Bay. Historically, the original coastline was in close proximity to the site.

Old Mutual Centre is located within a well-established network of public spaces and routes. It is on the cross axis of two primary pedestrian routes within the city, namely, St Georges Mall and Waterkant Street. In turn, this provides a high degree of pedestrian movement around the site. The public spaces in close proximity to the site are the Station Square, the Grand Parade, Thibault Square as well as Greenmarket Square. The Station Square is directly adjacent to the site and is the most significant public space within the immediate area. However, it should be noted that a potential new development over a part of the Station Square could reduce the extend of available public and recreational space.

Located beneath the site is a subterranean concourse that comprises of a labyrinth of underground streets and shops. This network connects the Cape Town Station to the Golden Acre Shopping Centre, St Georges Mall as well as an array of other buildings on the surface of the city. The Strand Street Concourse has 6 entrances around the precinct with 3 entrances on the immediate site. Other entrances along St Georges Mall and 1 entrance on the Woolworths building site have been closed due to the lack of use and crime. Two of the entrances located in Old Mutual Centre, along Strand and Adderley Streets, are underutilized and degraded and have been closed. The entrance on Waterkant Street is used and provides an underground route to the Station. The concourse was designed to separate pedestrian and vehicular movement. This was further reinforced by barriers and entrances into the concourse that impede pedestrian flow. These entrances replace the pavement space and are to encourage pedestrians to walk below ground. At the street level, there is little to no space for pedestrians at the Adderley and Strand Street intersection.

Figure 10: Mapping of the Precinct





SITE SCALE

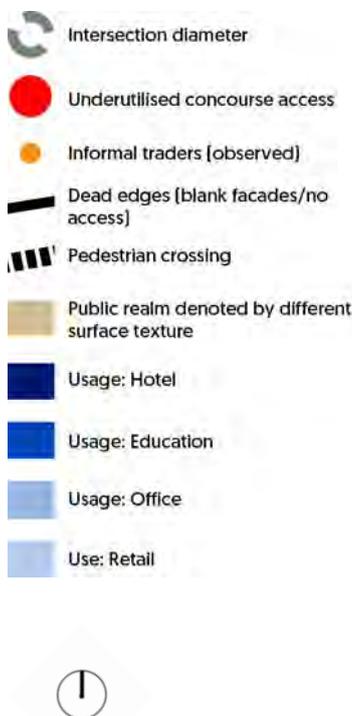
At the immediate site scale, Old Mutual Centre was found to create almost an impediment within the city. This is noticeable in the blank edges and facades with retail activity limited to the St Georges Mall edge. Delivery entrances to the site are located along Strand Street and limit pedestrian movement. This edge also has a hard edge with roller garage doors and black tile that offers no relief to pedestrian movement. St Georges Mall and Waterkant Street are priority pedestrian routes and their edges response to the pedestrian scale even though building heights vary along these routes. The response to the pedestrian routes is seen at the ground level with sheltered edges. This is directly related to the St Georges Mall sub-area codes that state that all buildings in this area must include a projection over the street comprising of a colonnade, canopy, balcony or awnings that contribute to the pedestrian scale. Existing trees provide shade and shelter as well as a sense of scale. However, tree planter boxes and light boxes into the concourse along Waterkant Street create a cluttered and dated public space. These urban fixtures cut off the edge of the site and impede movement as well as activity and space for traders on the street.

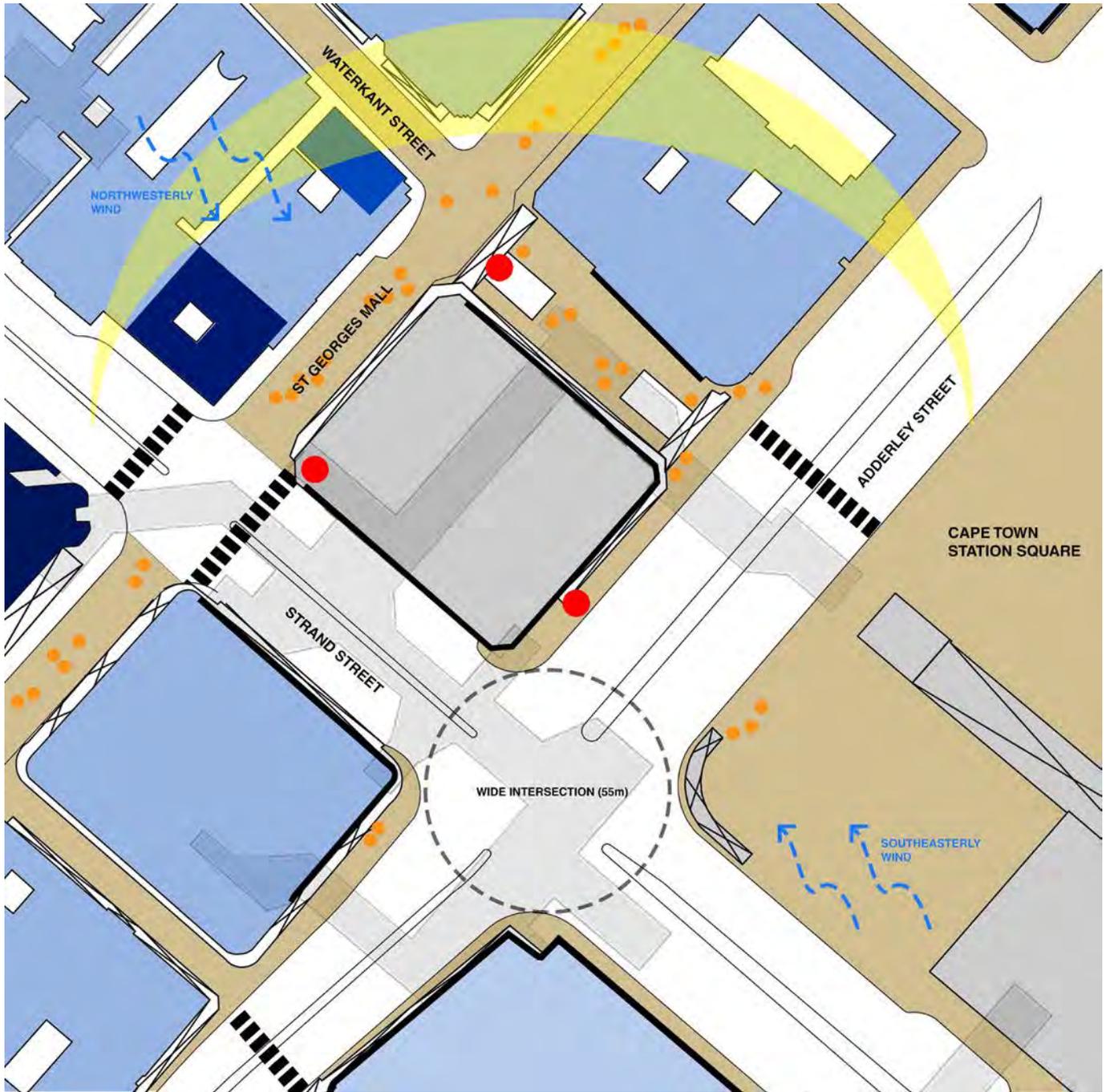
The character and quality of the public environment is adequate but still poor. Informal trade and other activities provide a richness to the area but are hindered by impediments. The area suffers from a lack of maintenance and investment as it is mostly used during the day. The active street frontages of buildings surrounding Old Mutual Centre use solid roller shutter doors in the evening and create an unsafe space once pedestrians and traders vacate the area. These areas are also shady, dark and cold at times but this relates to the width of St Georges Mall and Waterkant Street as well as the orientation of buildings and canopies of overgrown trees.

Adderley and Strand Street's sections and character contrasts significantly to the pedestrian orientated routes. These two streets are very wide and hostile to pedestrian use. At the Strand-Adderley intersection the street widths range between 7 and 8 lanes with pedestrian crossings near the intersection. The pedestrian crossings are located away from the intersection and align with the two pedestrian routes to encourage use of the underground concourse. Pedestrians were observed trying to cross at the intersection and navigating around big impediments even though no sidewalks are provided.

Around the site, the range of land uses varies extensively and predominantly relates to retail and office usage. There is no residential development surrounding the building even though it is directly opposite a major transport hub. There is no spill out retail activity on the ground level. However, informal trade along St Georges Mall and Waterkant Street is well established and relates to the significant pedestrian movement around the Cape Town Station.

Figure 11: Mapping of the Site





BUILDING SCALE

“THE FOUND OBJECT”

The chosen site, Old Mutual Centre, is located at the corner of Strand and Adderley Streets. It was once just meters away from the original shoreline before the reclamation. Historically, the site was home to the astronomer, L'Abbede La Caille in 1751 and 1752, who laid the foundations for astronomy in the southern hemisphere. Due to this, the site is graded at a 3A Heritage Grading with intangible significance.

The building was developed in 1974 and designed by Louis Karol as an Edgars department store. Its consolidated ERF number is 117665 and is an amalgamation of many small sites. At the time, it was a well-used and traversed building by many of the city dwellers and resided between the Woolworths and Garlicks buildings. As the times moved forward the building was momentarily used as an office space and eventually became redundant due to its introverted nature. Currently, the building is predominantly vacant with the exception of a few small retail stores on the ground floor as well as African Bank, who are planning to vacate the premises during the course of 2017.

Opposing the two-main vehicular thoroughfares [Strand and Adderley Streets] that edge the building, are two main pedestrian routes within the city. St Georges Mall and Waterkant Street are two very busy pedestrianised urban armatures. These routes are vibrant and have an array of informal traders that surround Old Mutual Centre.

The subterranean concourse is a network of passages built in the 1960s. This pedestrian concourse links the building to the Station as well as Golden Acre shopping centre which ironically once housed an Edgars store. However, the concourse has been noted to be extremely underutilised and is undergoing minor refurbishments with 3 of the 6 entrances closed due to safety concerns. 3 of the entrances are located on the site, with only 1 being open. Although the concourse exists as a safe way to get to amenities, pedestrians were seen trying to cross the intersection or walking along the edge of the building where there is no pavement.

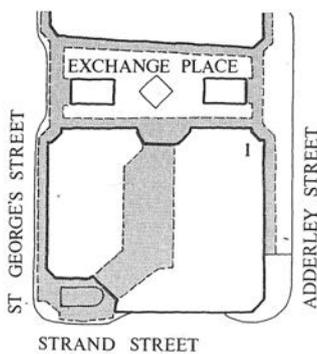
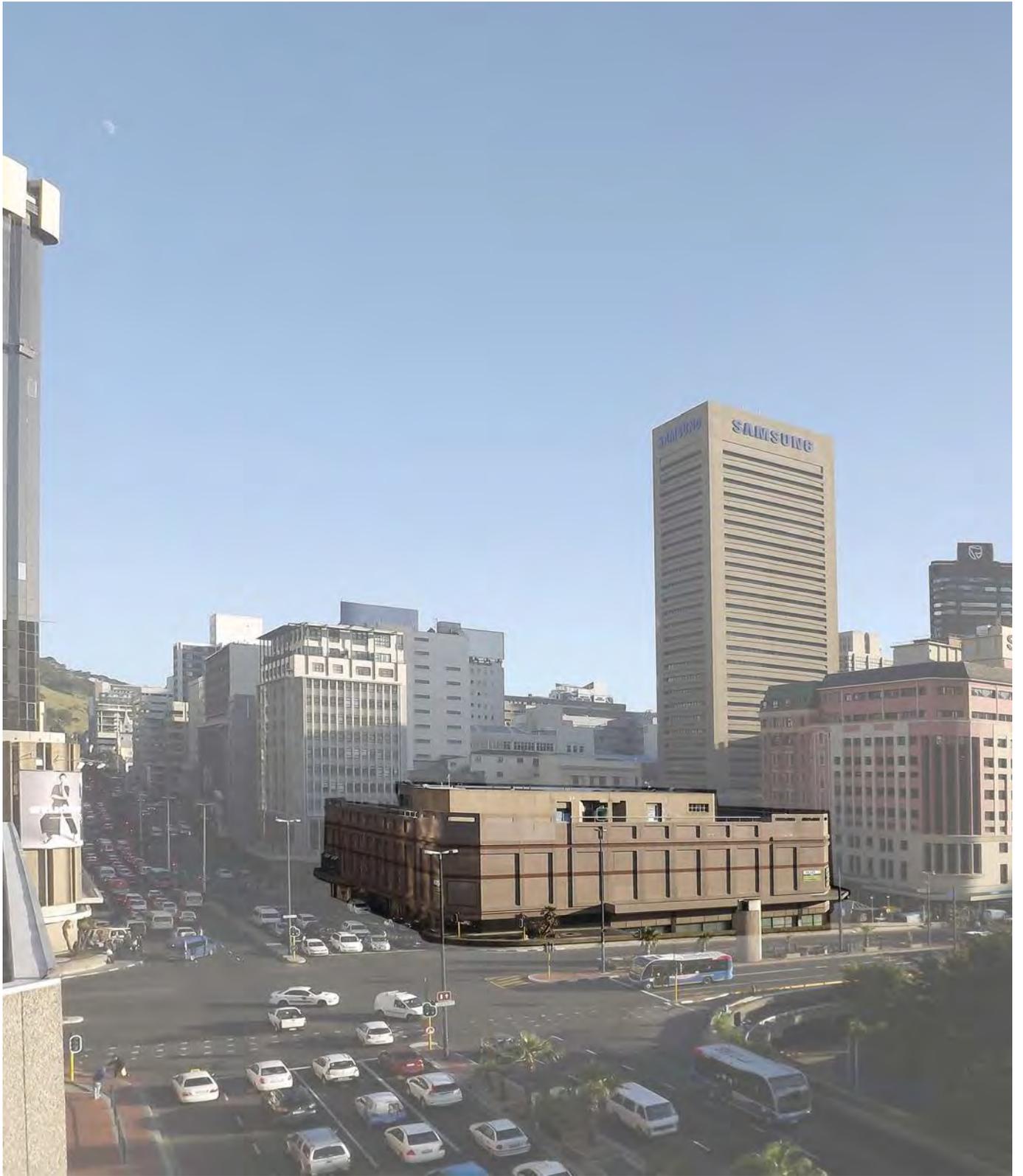


Figure 12: [opposite page] Survey diagram of site by John Rennie 1979.

Figure 13: [opposite page] Old Mutual Centre in Cape Town.

The proximity of the site to a public transport interchange as well as main pedestrian networks gives impetus that this is a prime site for development but most importantly for housing. Currently the site comprises

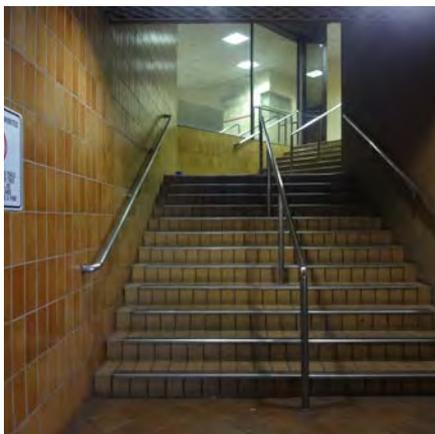
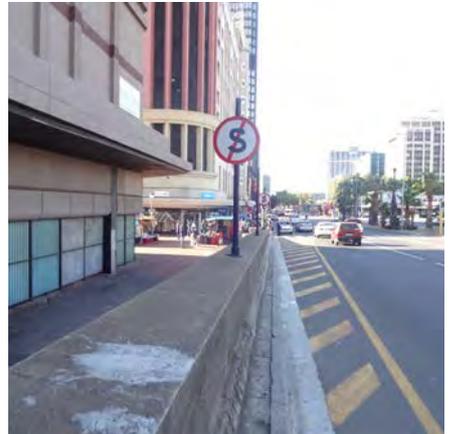


of the ground floor with small stores, 3 vacant floors above and a mechanical room on the roof. The mechanical systems as well as the 3 lifts are unused and out of date. The building relies solely on artificial lighting in the interior as there are no openings or lightwells. The structure, however, is still in great condition and comprises of 600 x 600-millimetre columns on an 8 x 8-meter grid. The façades are built up and stay true to its post-modern aesthetic with false decorative elements painted in shades of pink. The facades have no windows or openings. The materials used in the building also comprise of bronze anodised aluminium cladding, black marble, stainless steel, plate glass, reflective glass, and extensive split tile finishings. The circulation is varied around the building with 3 sets of staircases and 2 escalators that provided the necessary access required for a department store.

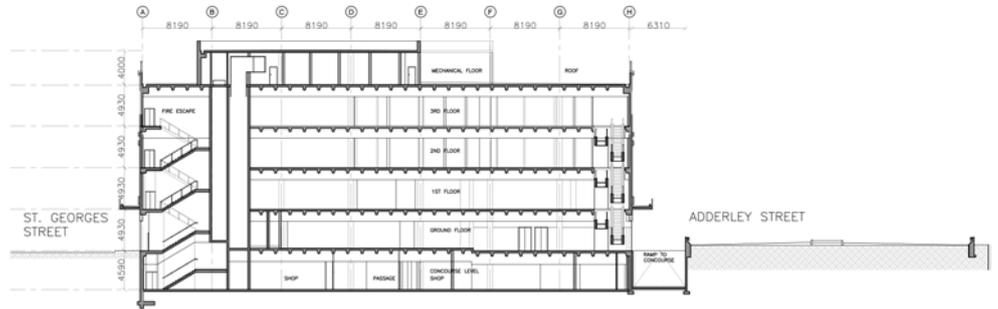
The existing concrete structure of the building is valuable to the dissertation design. Retaining this structure fulfills the desire of producing a sustainable building where the embodied energy is mitigated. However, during the enquiry into the building's structure it was noted by Brian Richardson, a structural engineer, that the existing frame can be reused but cannot be extended to create a tower. At the time the building was designed there was no seismic building code to adhere to. To strengthen the building, jacketing the existing columns was considered. This however, would only support two to three more floors. In order to create a suitable density via a tower, a shifted grid could be inserted into the existing building. This essentially adds a new volume within the existing, which in turn becomes a podium. The building's site and positioning within the city as well as the connection to the Strand Street Concourse is also valued. The 8 x 8 metre grid is a suitable condition for housing and should be embraced. Retail and pedestrian frontage at the ground level is valuable but must be further enhanced.

The following pages examine the existing building through photo documentation as well as worked over plans based on plans provided by Louis Karol Architects. The original plans are located in Appendix A.

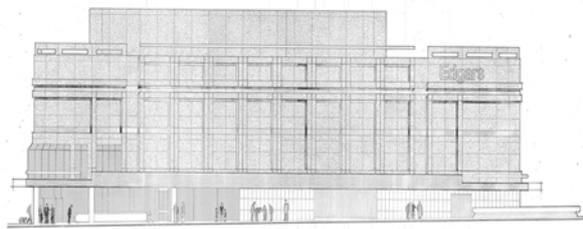
Figures 14 - 23: [opposite page, top from left]
Existing building and its surrounding edge conditions.
St Georges Mall informal traders.
Blank facades along the pedestrian routes.
Underutilised entrance ramp into the concourse.
Unwelcoming facades at ground level.
Outdated lightwells on Waterkant Street.
Pedestrian barriers along Adderley Street.
View down Strand Street with old delivery entrance on the left.
Corner of Old Mutual Centre.
Internal main access stair.
Closed off entrances at ground floor.



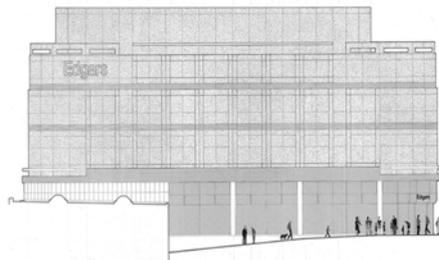
SECTION
1:750



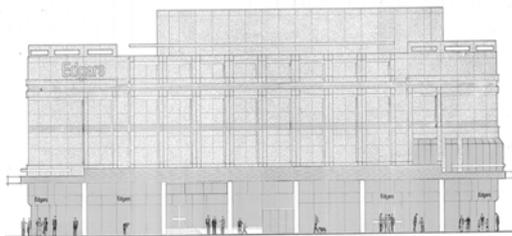
STRAND STREET ELEVATION
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[DRAWING BY LOUIS KAROL ARCHITECTS]



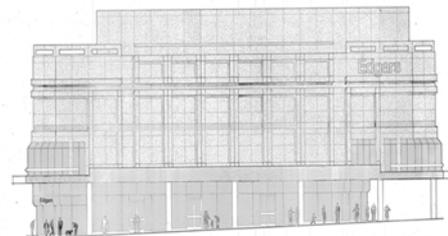
ADDERLEY STREET ELEVATION
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[DRAWING BY LOUIS KAROL ARCHITECTS]

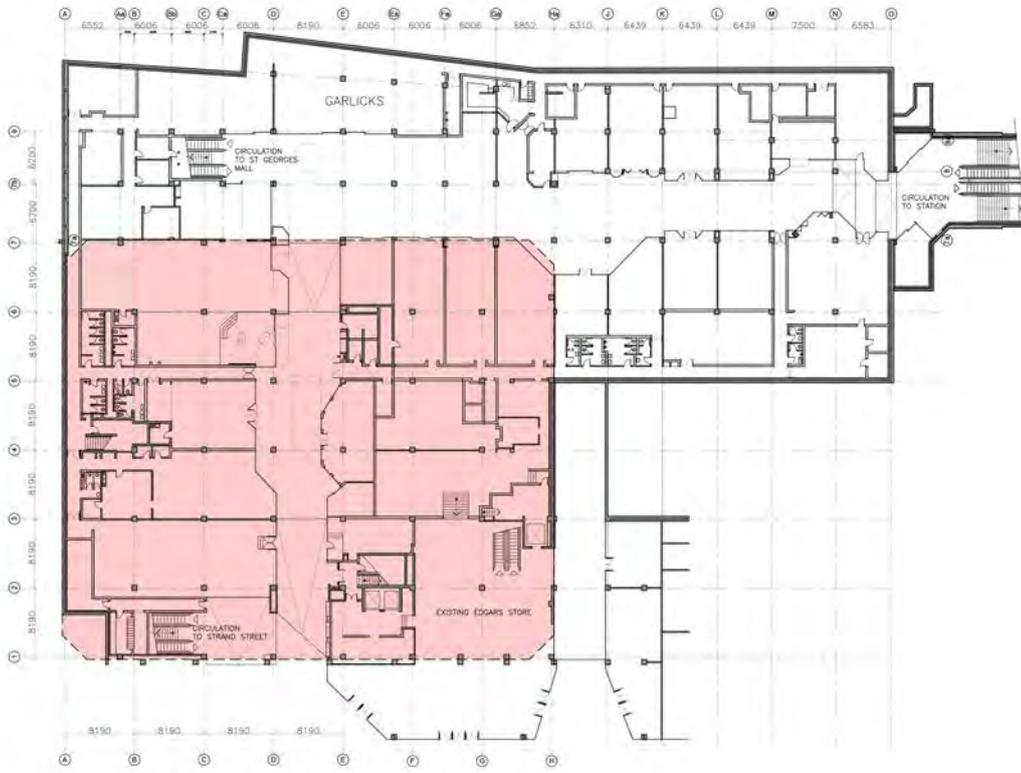


WATERKANT STREET ELEVATION
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[DRAWING BY LOUIS KAROL ARCHITECTS]

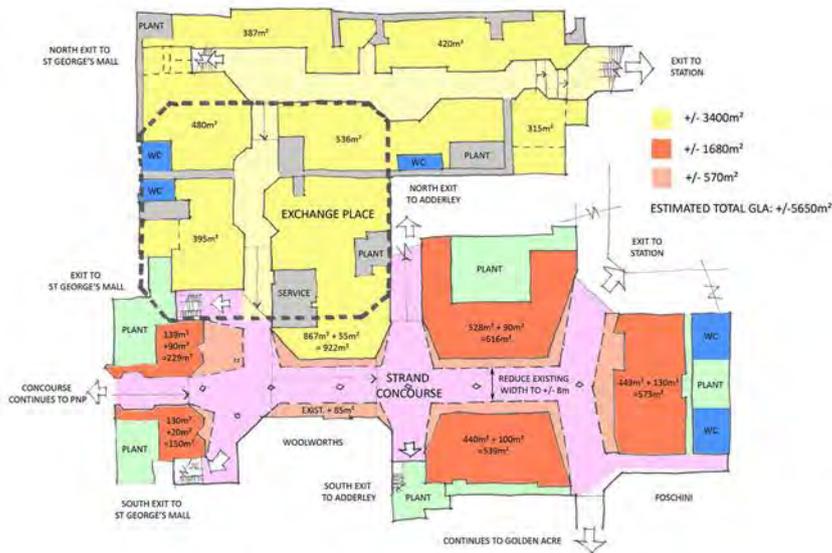


ST GEORGES MALL ELEVATION
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[DRAWING BY LOUIS KAROL ARCHITECTS]



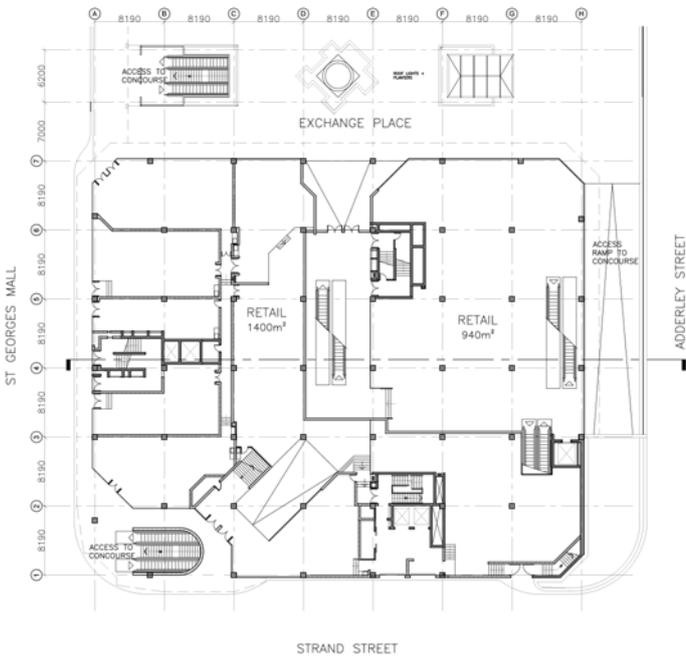


CONCOURSE LEVEL
1:750

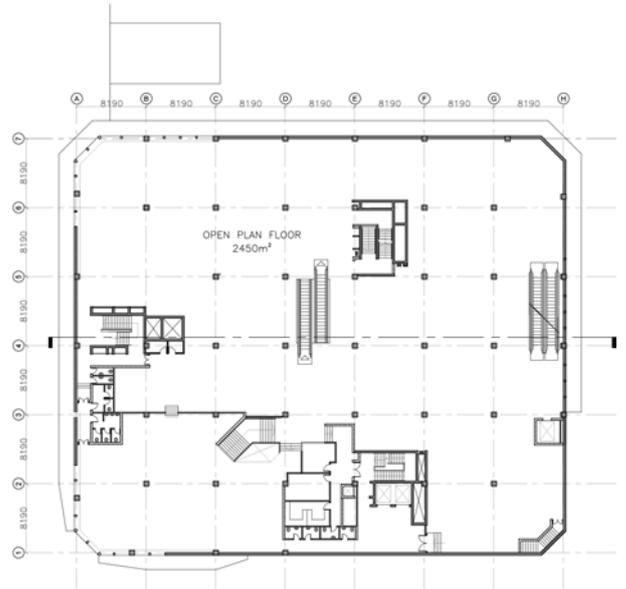


CONCOURSE LEVEL DIAGRAM
not to scale
drawing by MLH architects for proposal
for renovation of concourse

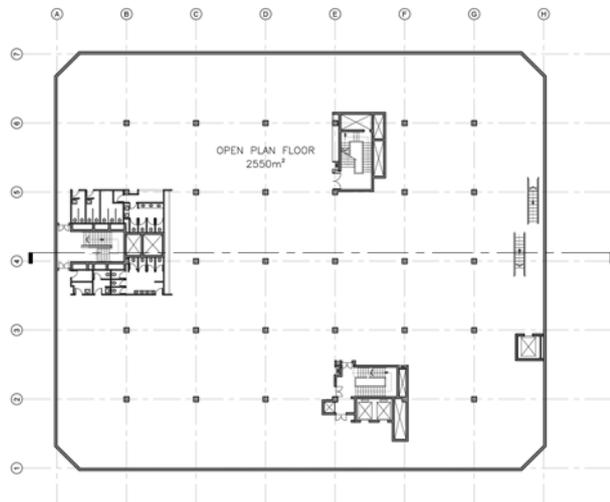




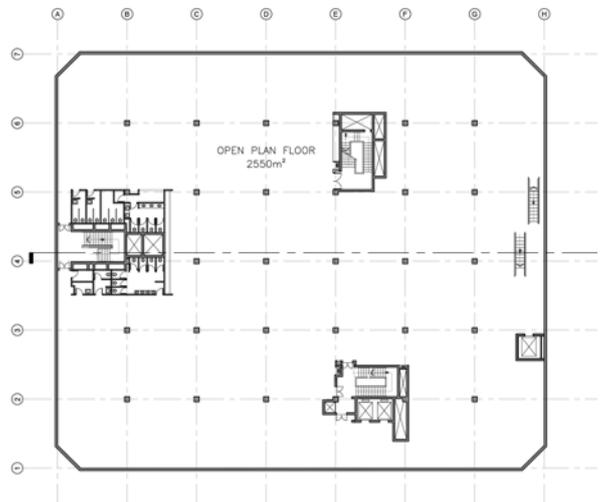
GROUND FLOOR
1:750



FIRST FLOOR
1:750

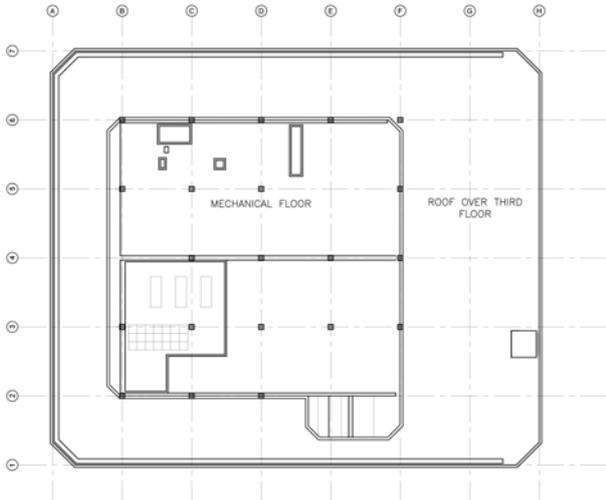


SECOND FLOOR
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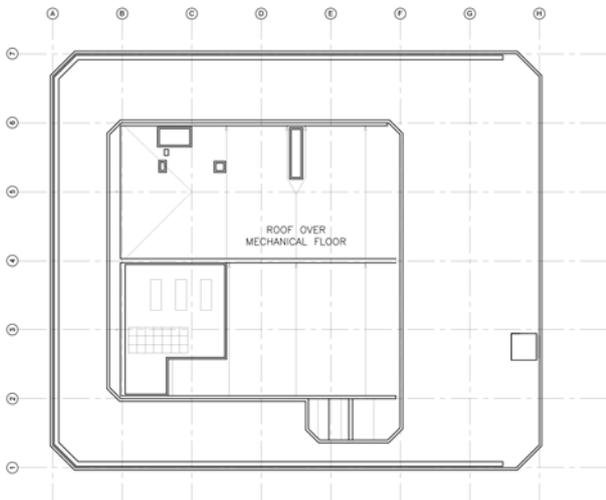


THIRD FLOOR
1:750





MECHANICAL FLOOR
1:750



ROOF PLAN
1:750



PROPOSAL BY FWJK

Currently, a proposal by FWJK for the tallest building in Cape Town exists for the site. The scheme has over 600 luxury apartments, around 800 parking bays and 5000sqm of luxury retail space. The developers, the Land Equity Group, are well known for their luxury developments in Cape Town and purchased the site from Old Mutual in 2016. The Zero-2-One tower is still in design stage and it is unclear as to when construction may commence or how the scheme interacts with the concourse or surrounding public amenities, however, it should be noted that the existing building shall be demolished to make way for the tower.

The design and building has become a controversial conversation within Cape Town. Activist groups, Reclaim the City and Ndifuna Ukwazi, have been vocal about the housing crisis within Cape Town and how the development does not respond to it. The groups argue that even though the city needs to be densified desperately, who will benefit from it and at what price? The proposal has requested a 50% bulk increase over what the current zoning scheme allows. FWJK have countered with a proposal to provide around 100 apartments at R800,000 per unit. This is definitely cheaper than the current market but still very unaffordable. A household would have to earn around R25,000 per month to afford an apartment. Housing subsidies are applicable only below earning R15,000 per month and Cape Town's median monthly household income is R6,400, according to Reclaim the City. This further highlights the fact that the proposal is still unaffordable.

Ideally, Julian Sendin from Ndifuna Ukwazi, argues that a portion of apartments could be owned and managed by a non-profit social housing company. This would in turn rent to households that earn between the R3500 and R15,000 per month. This would provide some form of equity and while not solving the entire problem, should inspire other developers to set aside portions of developments for lower income housing. Many cities around the world, such as Vancouver and parts of Scandinavia, are implementing this as a non-negotiable facet of new developments. Johannesburg is also beginning to implement similar schemes.

An article surrounding the new development is located in Appendix B.

Figure 24: [opposite page] Render impression of the Zero-2-One proposal by FWJK.



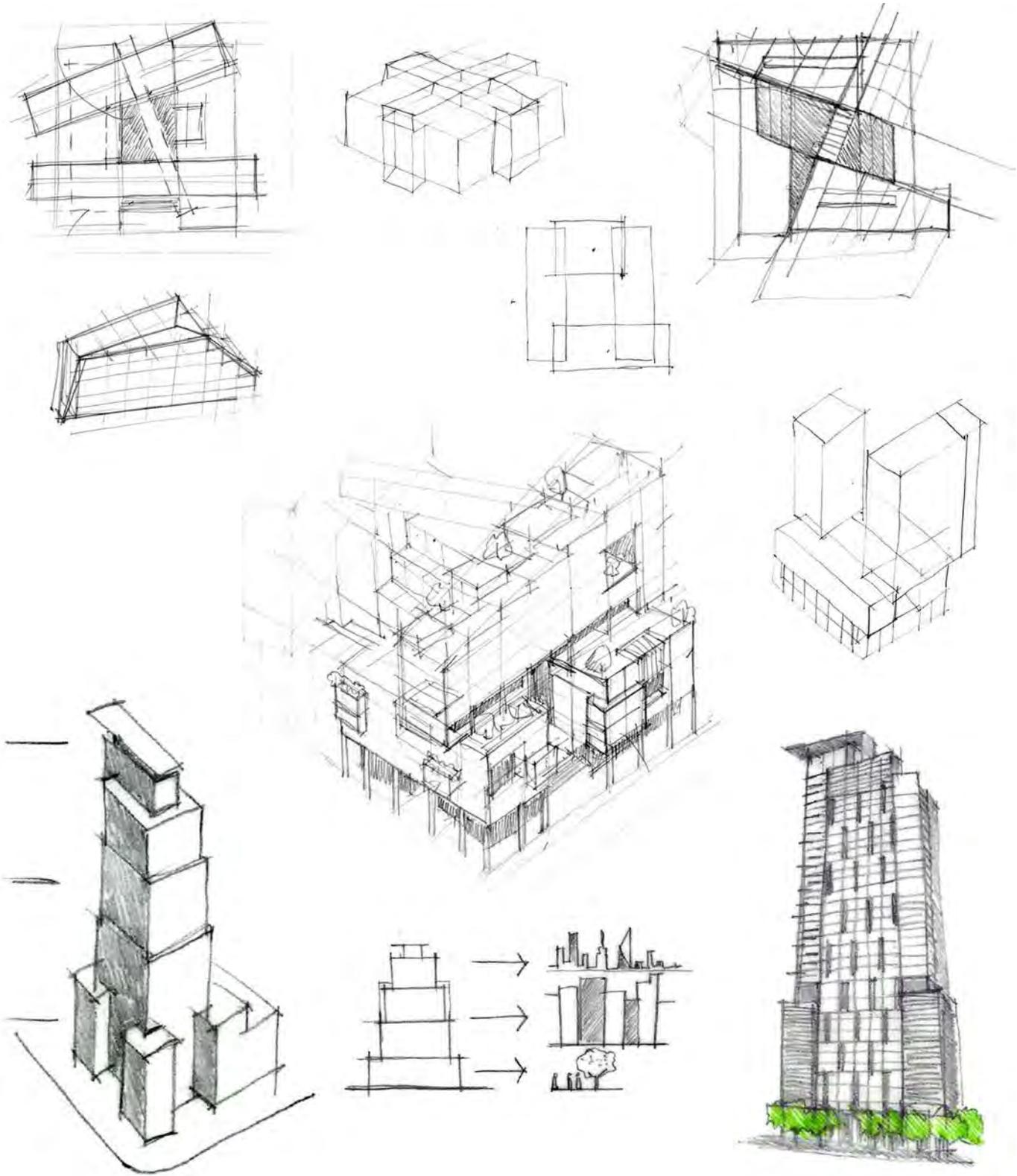
ENQUIRY

PROGRAMMATIC APPROACH

Further into the enquiry is realising a contextual response in terms of programme. The entry point is to create a list of needs for the site and the architectural response. These needs become an almost manifesto for the building. The response seeks to introduce a significant portion of equitable new housing within the inner-city. This optimizes the site's central and accessible position by an increased density where public transport is prioritised while private vehicle dependency is reduced. Certain pedestrian facilities are improved upon and encourage users to traverse the site. The design supports the crafting of safe and active streets by upgrading the immediate surrounding public space by activating the ground plane by use of active facades and transparency. The concourse is reactivated and uplifted through connections in the building and to the ground plane. It becomes a visible part of the city and attaches itself to the building above. The proposal further provides a mix of land uses that in turn encourage extended city life. The new scheme demonstrates confidence in the precinct by initiating urban renewal and regeneration at the scale of the city.

The needs outlined produce a range of responsive uses for the site. The primary use is mixed-income housing and is "inserted" within the city, possibly in the form of a tower block. The scheme proposes a range of units of differing sizes with portions set aside for affordable housing. To activate the ground floor, the concourse, ground and first floors are "given back" to the city with retail spaces, spill out activities, consideration for pedestrians and informal trade as well as other public functions, such as a gym and/or creche. The building should have a significant departure from the existing which has predominantly blank facades and interfaces. Active and positive interfaces on all four sides of the building should be accessible and in turn creates a response with no "back" of the building.

The design proposal seeks to interrogate the existing structure as way into the building. The existing building is seen as an impediment in a pertinent part of the city and the approach is somewhat violent with a new intervention "carving" and "crashing" into it. Due to the existing being unable to carry a greater load, a shifted structural grid is "inserted" into the existing and should allow opportunity for natural light and ventilation in the old and new. These opportunities in turn visually separate the old and new facets. An exaggerated "transition floor" is explored as an emphasized way to create this visual separation. This floor is envisioned as a way to create a space of relief between the old and new as well as allowing another public

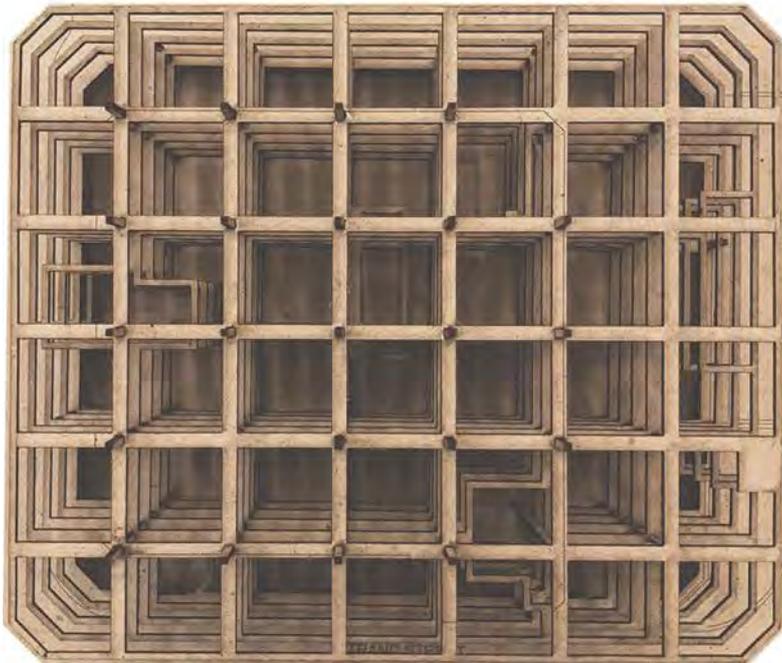
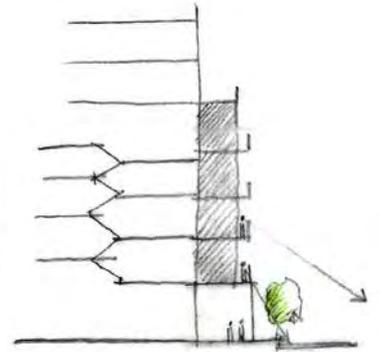
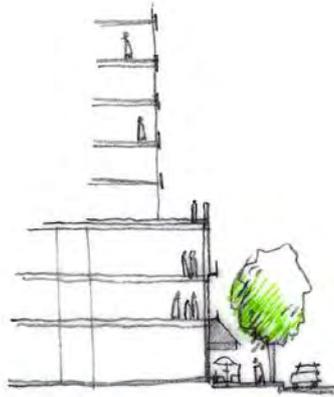
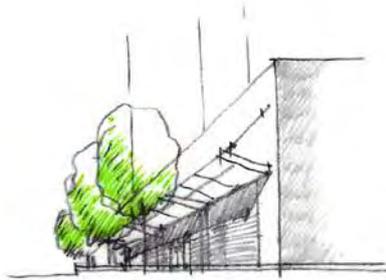


function such as a creche or day-care facility.

The mixed-income housing function provides a strategy of “integrated housing” where there are opportunities for lower income units as well as market rate units. Integrated housing typically refers to projects developed by housing developers who partner with other developers to dedicate portions (usually 10 to 25%) of units of development for lower income brackets. Programmatically, this idea can be translated into the proposal by using parts of the existing structure for some unit types, such as live-work units. The new tower holds a mix of unit types and relief spaces that become extensions of the living space. The range of unit types are vertically and horizontally distributed and integrated in the tower and hold no hierarchy. This emphasizes the idea of equity within the building.

The underground concourse serves as an inspiration for the project where the circulatory networks and discreet destinations are brought into the building. At the culmination of the building, an observatory museum and restaurant are implemented. This is a reference to the historic nature of the site and creates a vertical distribution of public and private spaces within the building. Poetically, this observation deck is bringing light through the building into the once dark concourse. These top floors are an elevated public platform and destination space within the inner city and could generate a form of revenue.

The existing building is seen as a malfunctioning whole piece of the city. It is a “crack” in the fabric of the city or the “hole” in a high-rise inner-city. It seals off the network of underground routes and provides no richness to its surrounding area. It has the problem of deep, dark space and an insufficient structure to support functions at a higher level. The existing structure and its embodied energy is valued, embraced and used as a reference to the materiality of the new. The new structure is a new concrete shifted grid inset into the existing. The problem of light is addressed by creating voids that connect the old and new. The public functions such as retail space, gym, creche, observatory deck and restaurant should be highlighted by the use of contrasting materials. In essence, the programme derives a multifunctional or mixed-use building with residential, retail, public facility, recreation and cultural activities. It seeks to revive the inner city through the multiplicity of function and bring different people together in different activities.





EXPERIMENT

EXPLORATIONS

The focal challenge of the dissertation design is the necessity to satisfy contrasting conditions. In many architectural responses today, the focus is on maximising bulk and essentially increasing profit returns. These responses often ignore the unique inner-city context and the impact buildings have on the urban environment. However, it is necessary to engage with physical constraints and demands such as density and parking. This in turn should also reflect the theoretical underpinnings explored within the dissertation and produce a responsive design in both a realistic and sensitive sense. In its essence the dissertation is investigation a new typology that looks to combine contrasting conditions.

While many theoretical underpinnings and studies of the existing have been explored, the next step would be to investigate a “move” i.e. the architectural response. This chapter focuses on a series of design ideas and approaches that range over different scales within the existing building. Discreet moves, housing units and large interventions were explored. These explorations are examined through hand-drawn diagrams that assist with spatial logic, structure, circulation and enclosure. The diagrams are rigorously worked over the existing building plans.

25: [opposite page] Mixed media collage combining contextual analysis and programmatic approach to inspire a design “move”.

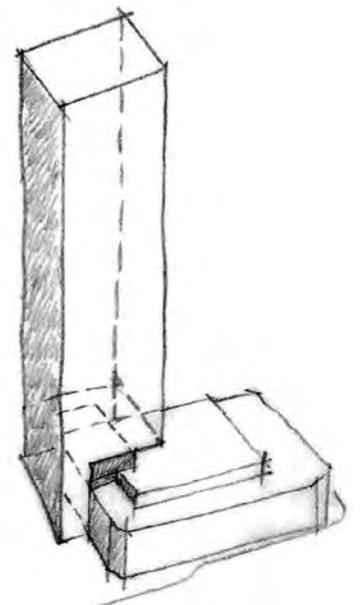
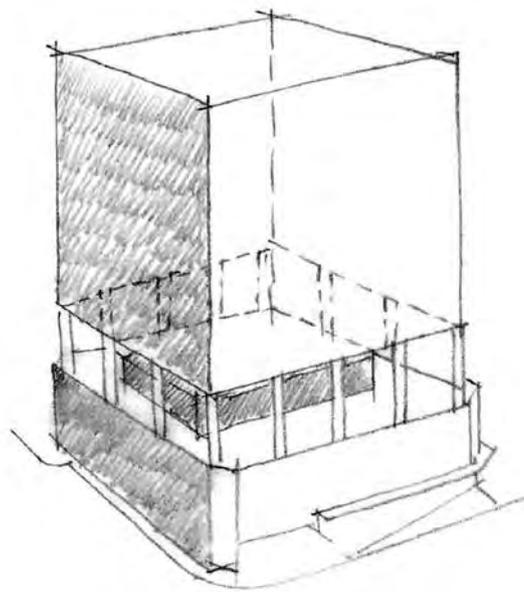
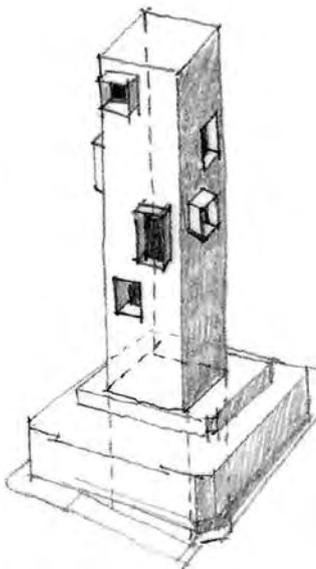
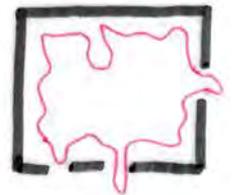
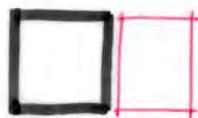
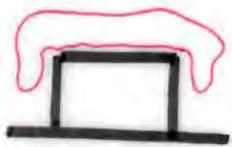
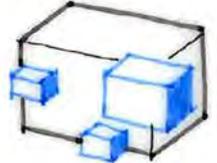
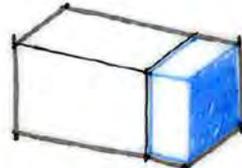
EXPLORATION

DESIGN IDEAS AND APPROACHES

The design started as an exploration of a simple cube form, similar to that of the existing. Spontaneous design ideas and moves were sketched as the main entry point into the design “move”. The diagrams highlight the “move” in blue. Hollowing out, lifting the façade up, inserting into horizontally, various methods of cutting out blocks and slits, juxtaposition and addition were looked into.

These moves are inspired by Françoise Bollack’s book “Old Buildings, New Forms”. In the book, she describes and explores different methods of adaptive reuse. The key “moves” are the wrap, weavings, juxtapositions, parasitic elements and insertions. These are represented by diagrams showing the old form in black and the new form in red.

Three explorations were further sketched in massing form with structure and lighting considered. These form the basis of the next step in the architectural inquiry.



EXPLORATION

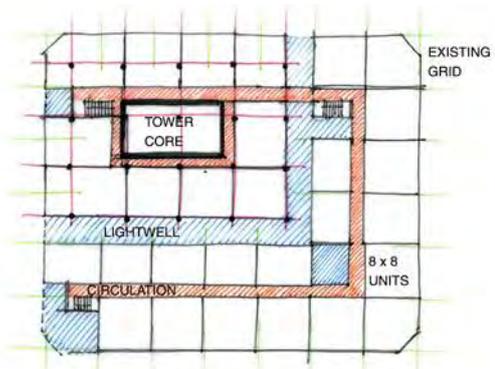
THE SHIFTED GRID

The first approach explores a method of inserting a new shifted or offset grid. The new grid is set on central points of the existing grid. The intervention implements slits that are carved into the existing allowing for natural light and ventilation opportunities as well as visual separation between old and new. The design proposes eroded corners as a response to busy edges and as an ode to the existing building's corners.

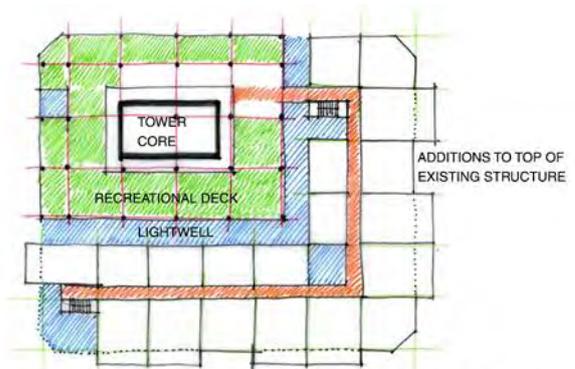
The transition level, on the roof of the existing, seeks to create a clear break between the old and new with relief space in the form of planted areas and clip-on modular units along the edges of the existing. The existing building is seen as a podium for the inserted tower structure.

The tower position is set back to create a dialogue with adjacent towers and mitigate the bulk over Adderley Street and the Cape Town Station. The eroded corner of the tower provides a visual connection to the roof garden at the podium level.

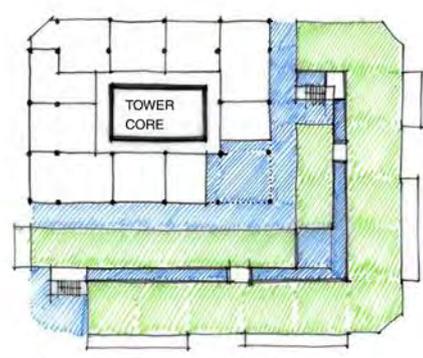




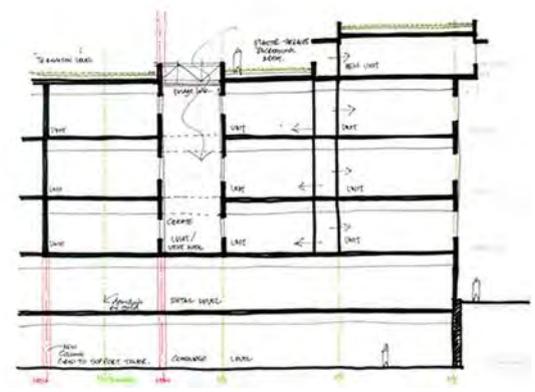
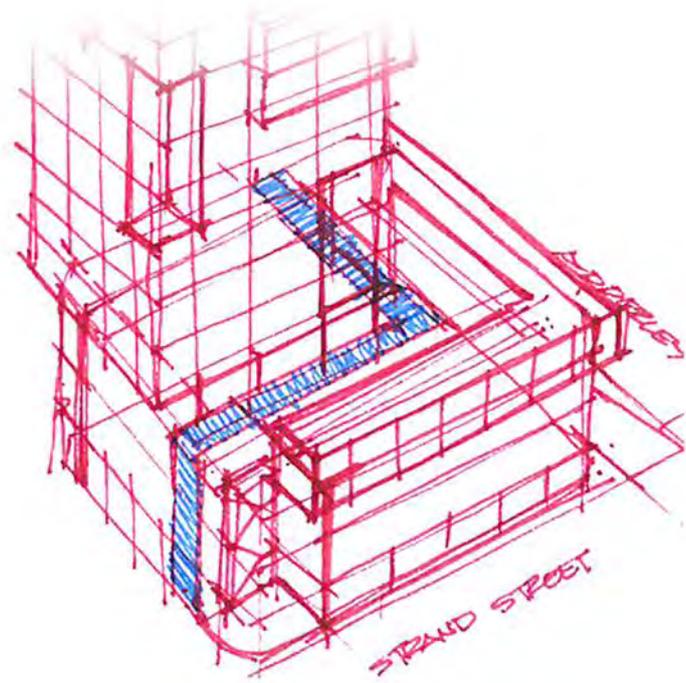
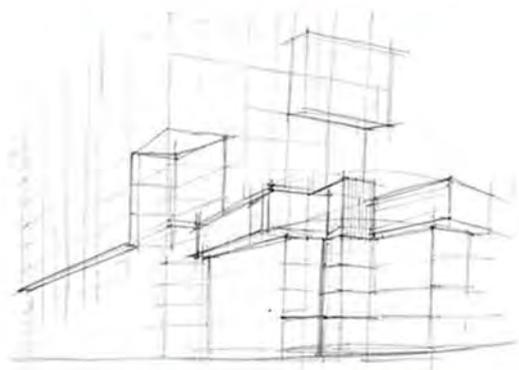
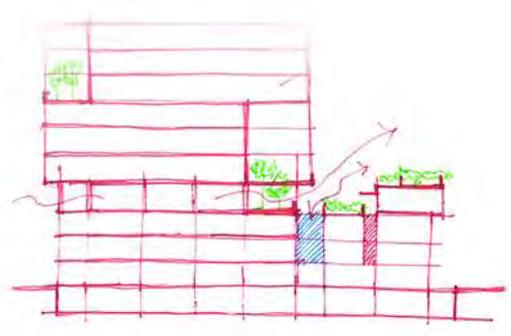
TYPICAL FLOOR WITHIN EXISTING



TRANSITION FLOOR BETWEEN EXISTING AND NEW



FIRST FLOOR OF TOWER INSERTION



EXPLORATION

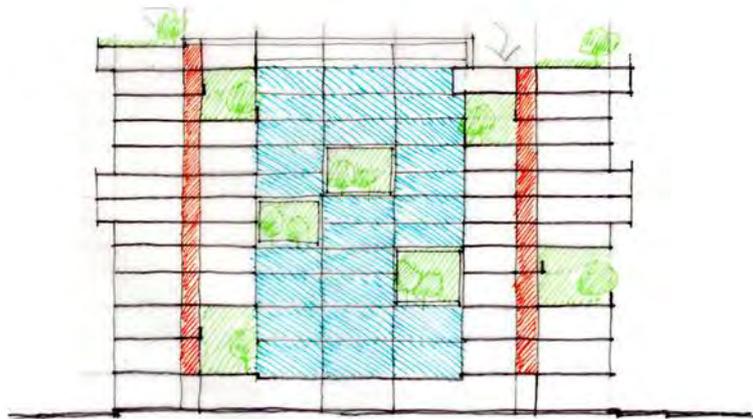
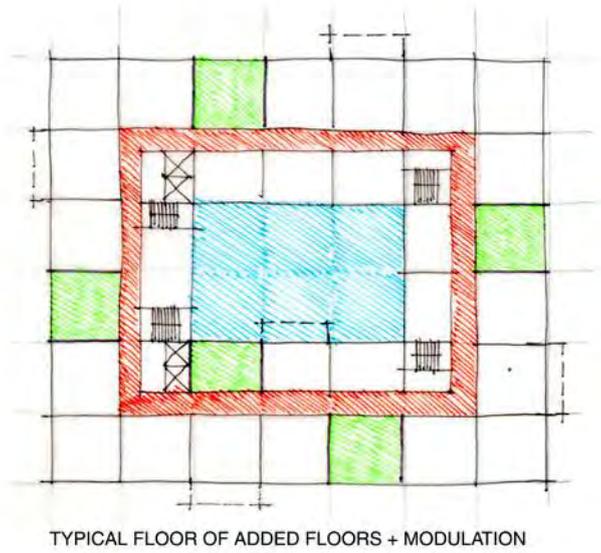
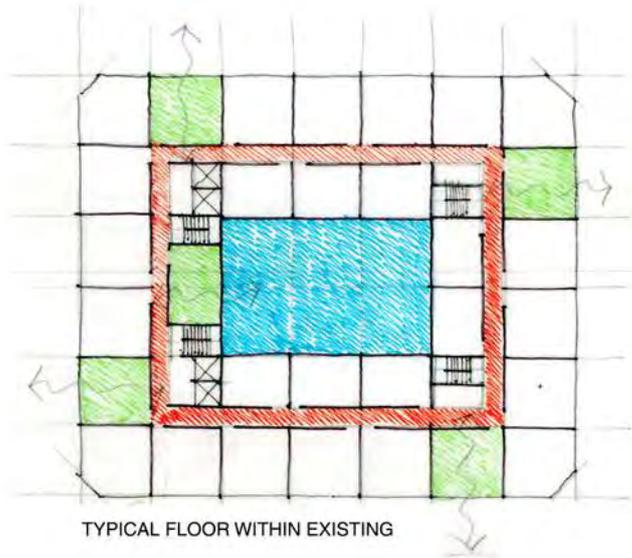
THE PERIMETER BLOCK

The perimeter block typology is largely used in developments that seek to provide high-density in medium to high-rise buildings on small sites. It derives from the city block and the built form is along the edge of the site. This creates an internal void space that becomes a semi-private space for the inhabitants of the building. These blocks are a key facet of many European cities and allow for privatised space within busy cities.

The block was examined as an approach to create a central void that carves through the existing and eventually the concourse. This satisfies the need to bring light down into the dark space. Smaller garden spaces are integrated within the scheme to create social space and relief in the building.

This proposal uses the 8 x 8 metre grid and uses it as a basis for design, integrating circulation and cores within this constraint. The scheme seeks to modulate certain components and push and pull space out and into the building.





EXPLORATION

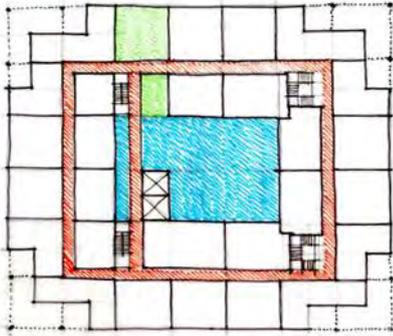
THE PODIUM-TOWER BLOCK

The podium-tower block explores the traditional podium and tower typology. The modulated form suggests a multifunctionality within the building. The podium became a key facet of the classical skyscraper during the technological advancements of the century. The podium, shaft and crown are the elements that make up the whole and can be seen as a translation to interactions with the street, city and sky respectively.

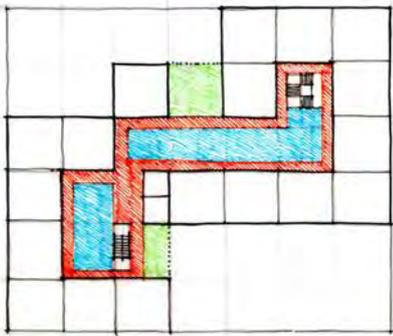
When the shaft of a building has a significant setback that makes it look as if it is placed on top of a base, this base is referred to as a podium. Podiums are a good way to incorporate uses that require horizontal space or space that has a distinct connection to the street such as public amenities. In many cases, the podium allows for public function while the tower becomes a private elevated structure.

The existing building is seen as a podium structure for a taller tower. The tower and podium are connected via a vertical void that changes through the building. Circulation spaces attach to this centrally located void and seek to create views through the building. Garden spaces are integrated in the tower and podium and allow for modulation, similar to the perimeter block.

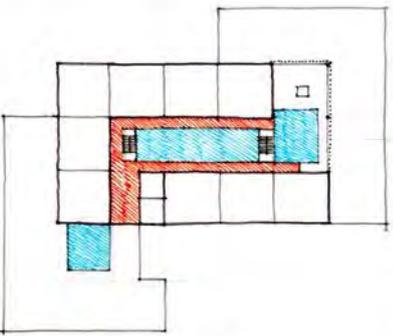




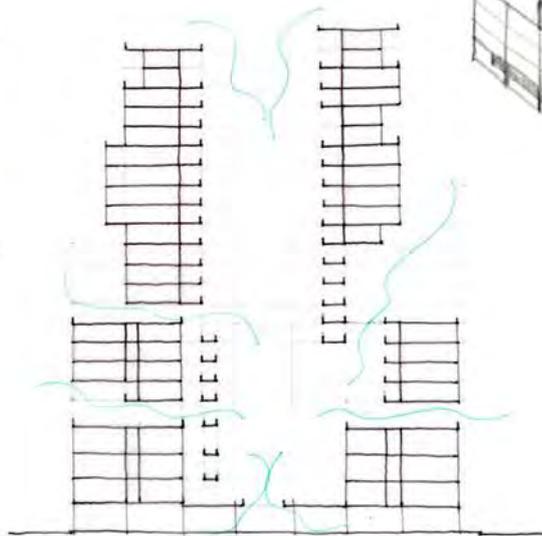
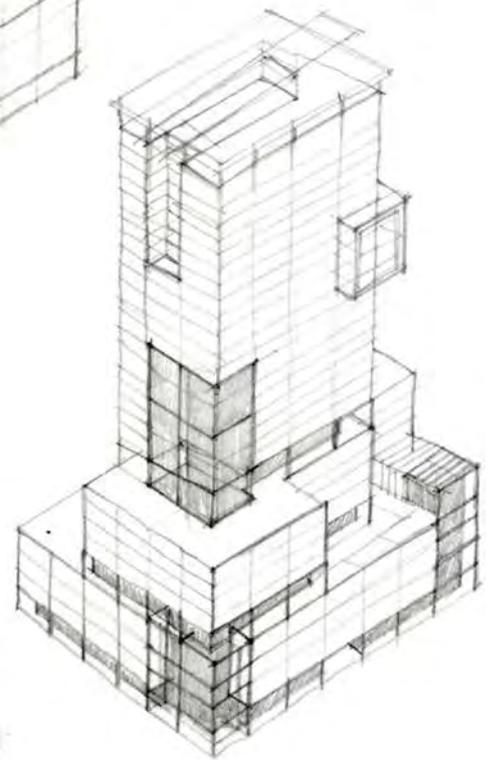
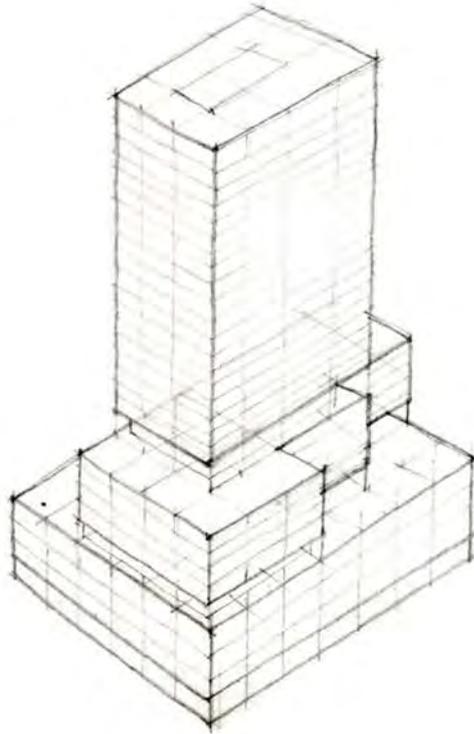
TYPICAL PLAN WITHIN EXISTING



TRANSITION FLOOR / BASE OF TOWER



TYPICAL TOWER FLOOR



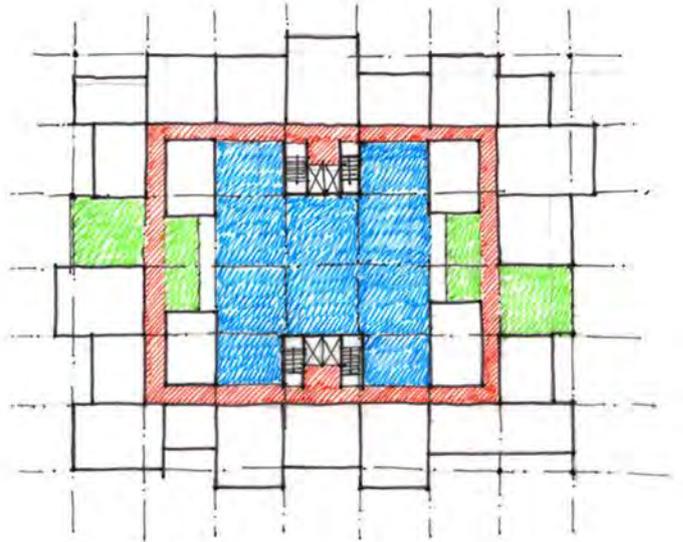
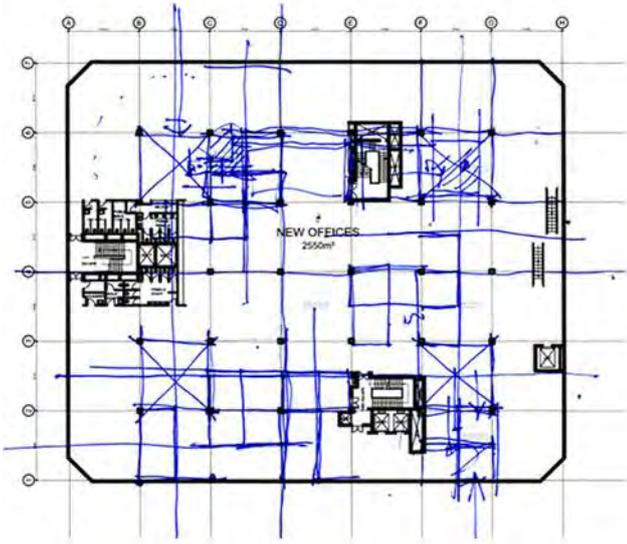
EXPLORATION

LEGO / TETRIS MODULATION

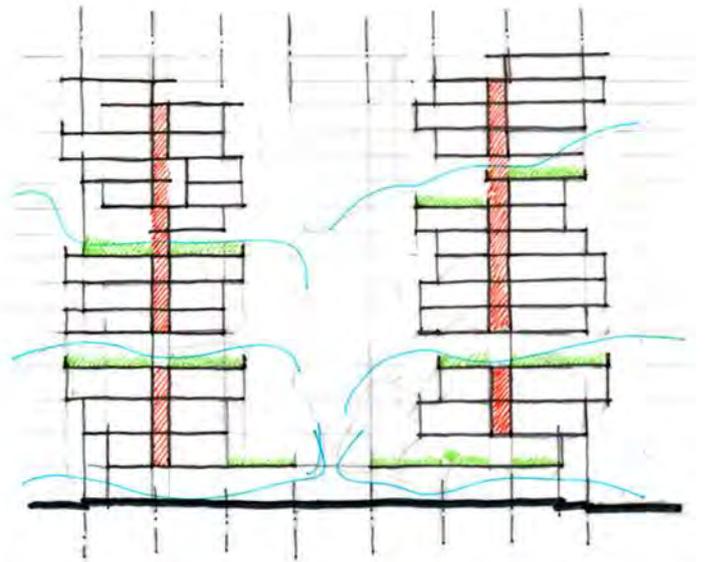
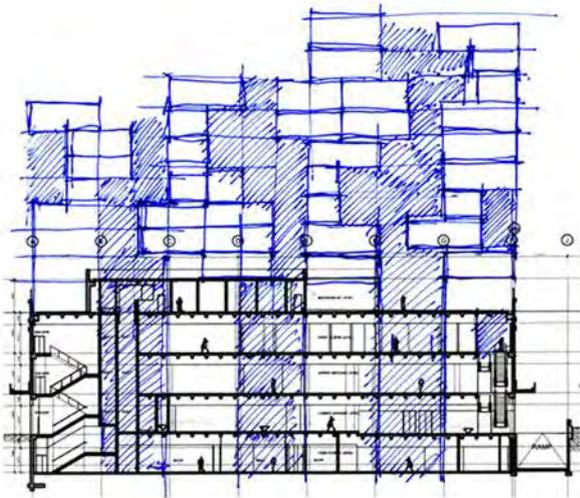
This scheme purely seeks to create dynamism and modulation in the form of the building. Inspired by the stacking of Lego bricks and the video game Tetris, the form is explored through a modular lens. The exploration is also inspired by the Nakagin Capsule Tower in Tokyo by Kisho Kurokawa where capsules for living are plugged into a central core.

Creating multiple voids between stacked housing called for multiple cores. The design also generates more northern exposure and creates areas sheltered from the southwesterly wind. The form quickly developed into a form of a more heavily modulated perimeter block. This exploration would be suited to a modular construction technique.





TYPICAL PLAN

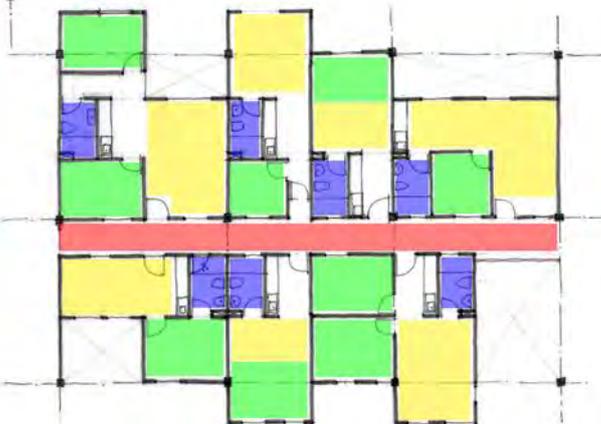
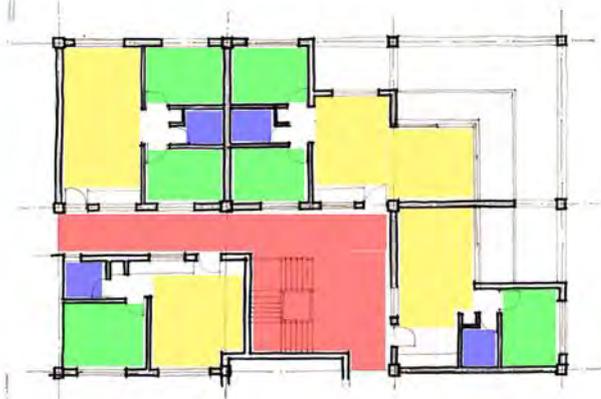
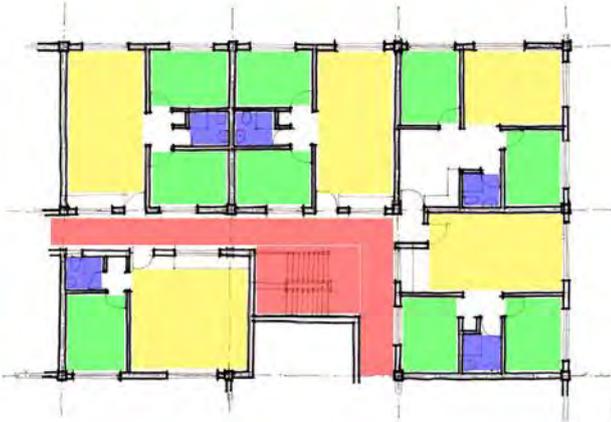


"MODULATED" SECTION

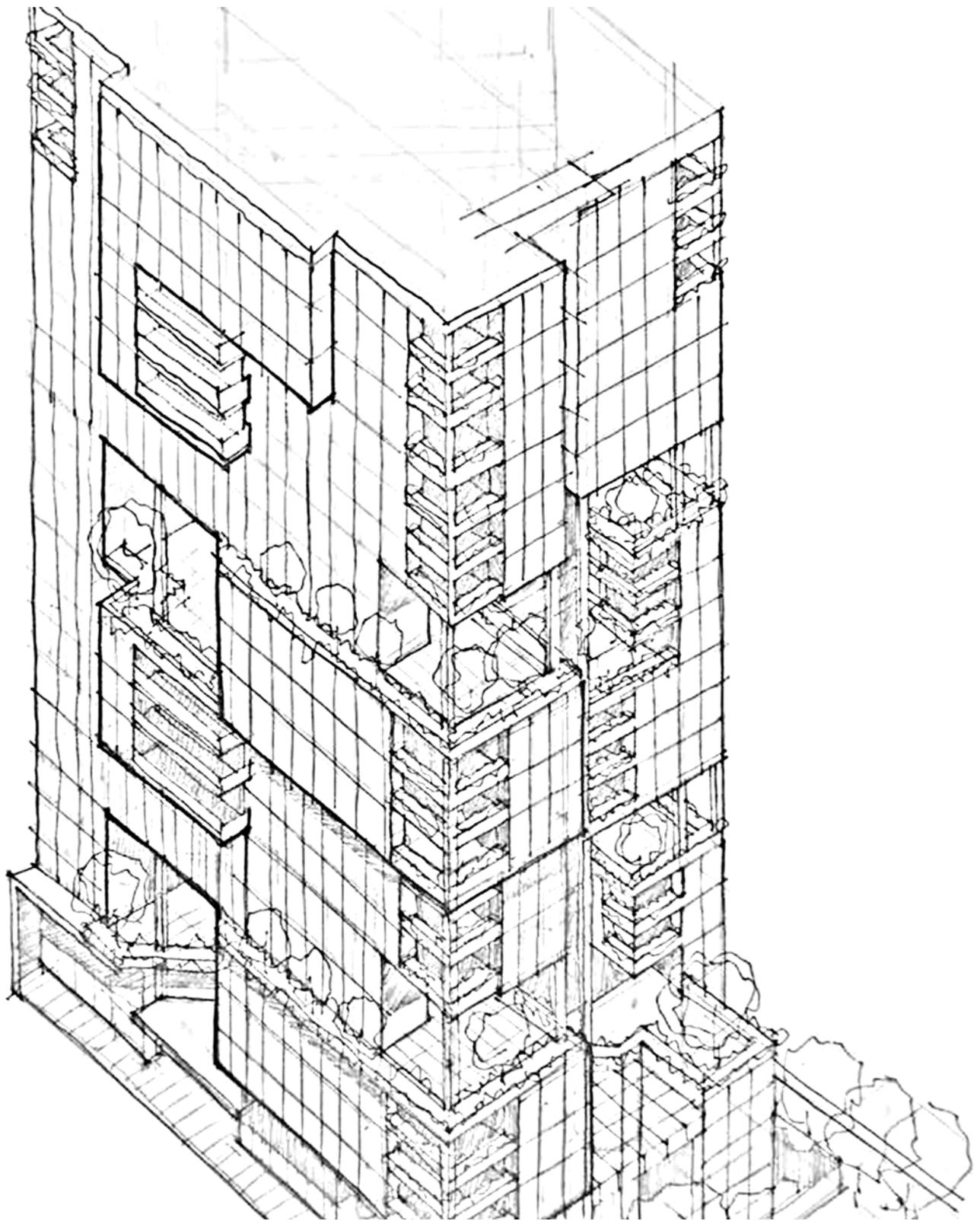
EXPLORATION

UNITS

At a smaller scale, units are interrogated through the lens of the existing structure. The 8 x 8-metre grid is embraced and used to create modulated studio, 1-bedroom and 2-bedroom apartments. A standard circulation passage was taken as a basis to provide access to each apartment.



- SLEEPING SPACE
- SANITARY SPACE
- CIRCULATION SPACE
- LIVING SPACE



EXPERIMENT

THE “MOVE”

After exploring different methods of adapting the existing building, components of the explorations are valued and culminate in a final design intervention. The design emerges as a shifted grid within the existing building. The existing building becomes the podium that is “given back” to the city with some public functions such as a creche and gym. The shifted grid forms a tower that includes equitable mixed-income housing and culminates in the public function of the observatory museum and restaurant at the top floors.

The subterranean concourse serves as a source of inspiration as it comprises of a network of circulation routes that culminate in many discreet functions. The building’s design seeks to bring this hidden and underutilised space up into the building via different design moves. The existing and new components of the design are connected by a fluid and continuous circulation route. This route is enhanced by void spaces that bring light into the once dark and spatially unattractive concourse. The circulation route and void spaces create dynamism and fluidity within a rigid structural grid.

The design comprises of different sizes of units within the tower. Between these apartments are sky-gardens that create social meeting spaces and become an extension of living space. The tower also takes inspiration from the contextual skybridges in Cape Town’s city, especially around the site. Smaller bridge links are used in the tower as part of the circulation and access to apartments. These bridges offer views out of the building and into different garden spaces.

In essence, the design seeks to bring the vernacular to the high-rise typology and integrate the city into the scheme and vice versa. The idea of the vertical garden extends through the building. The sky gardens aim to create small communities within the larger building community, reminiscent of Correa’s Belapur. These gardens take direct inspiration from his veranda or “stoeps” in Kanchanjunga. This continuous “greening” creates changing facades in different seasons, filters of sunlight and wind and creates microclimates within the structure. The scheme goes further to bring the concourse up into the building and provide amenity for the city, making it

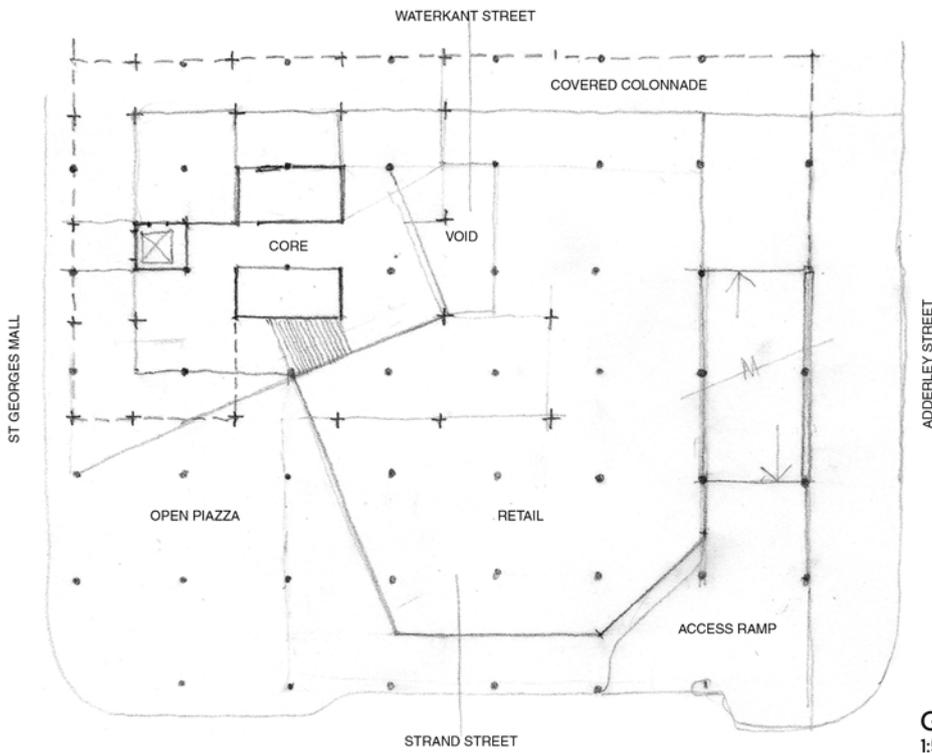
a little neighbourhood within the city. The vertical garden city becomes a breathing and living organism within the city while filling a “crack” within the city’s urban fabric.

THE “MOVE”

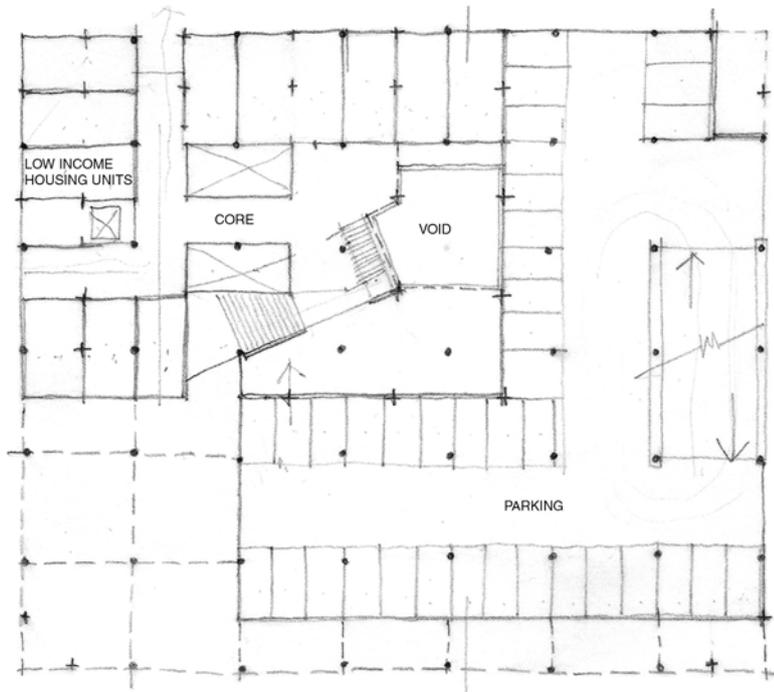
EN-LOGE

A quick experimental design is undertaken to understand structure, spatial logic, circulation and enclosure.

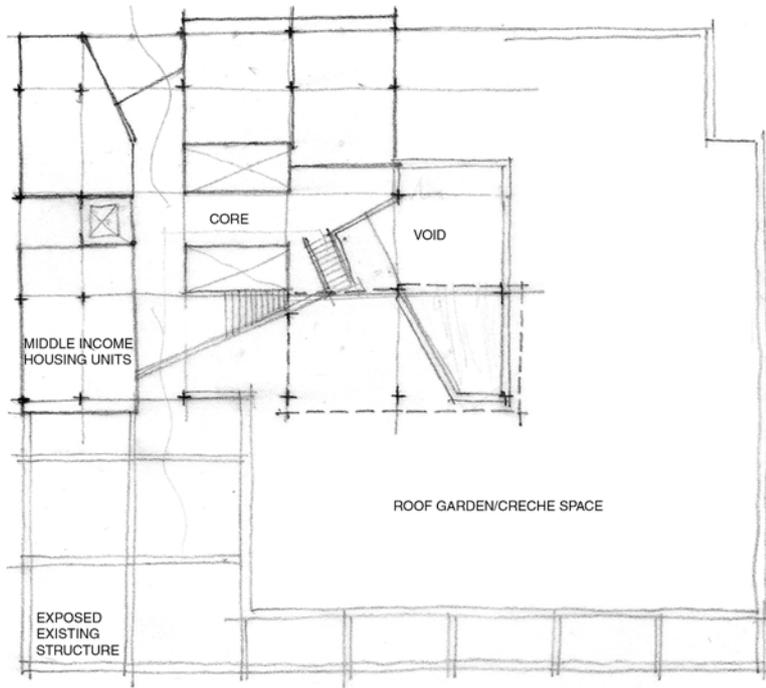




GROUND PLAN
1:500

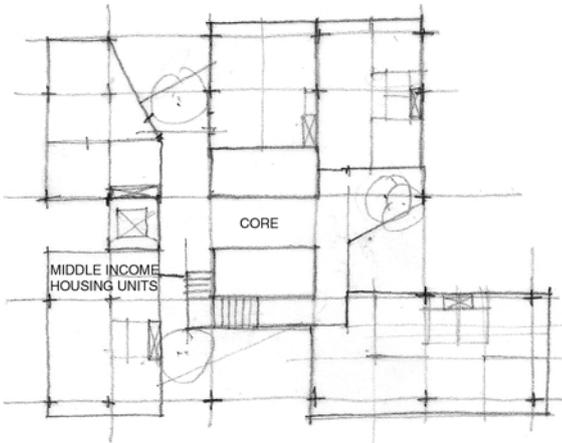


FIRST, SECOND, THIRD FLOOR PLAN
OF EXISTING
1:500

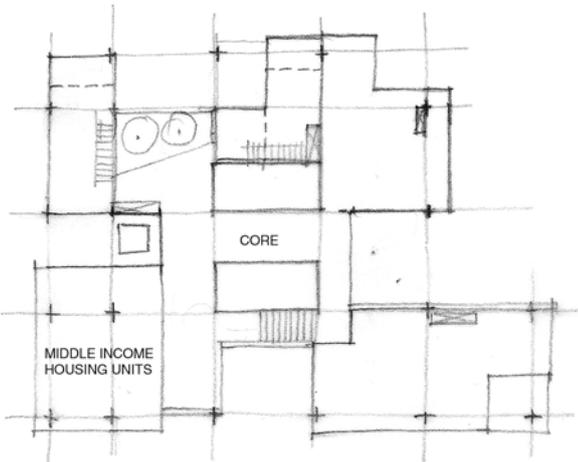


**INTERMEDIATE LEVEL PLAN
(ROOF OF EXISTING)**
1:500

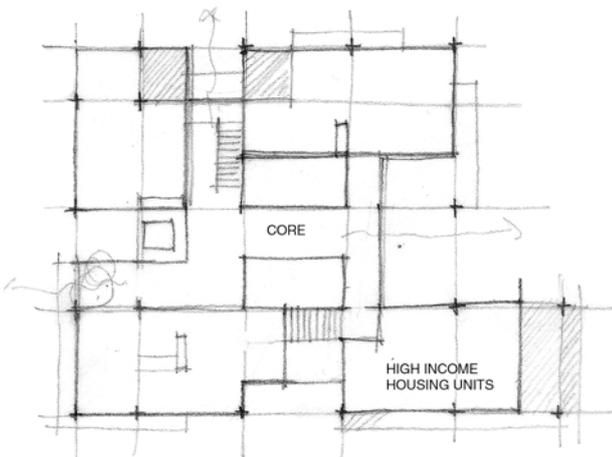




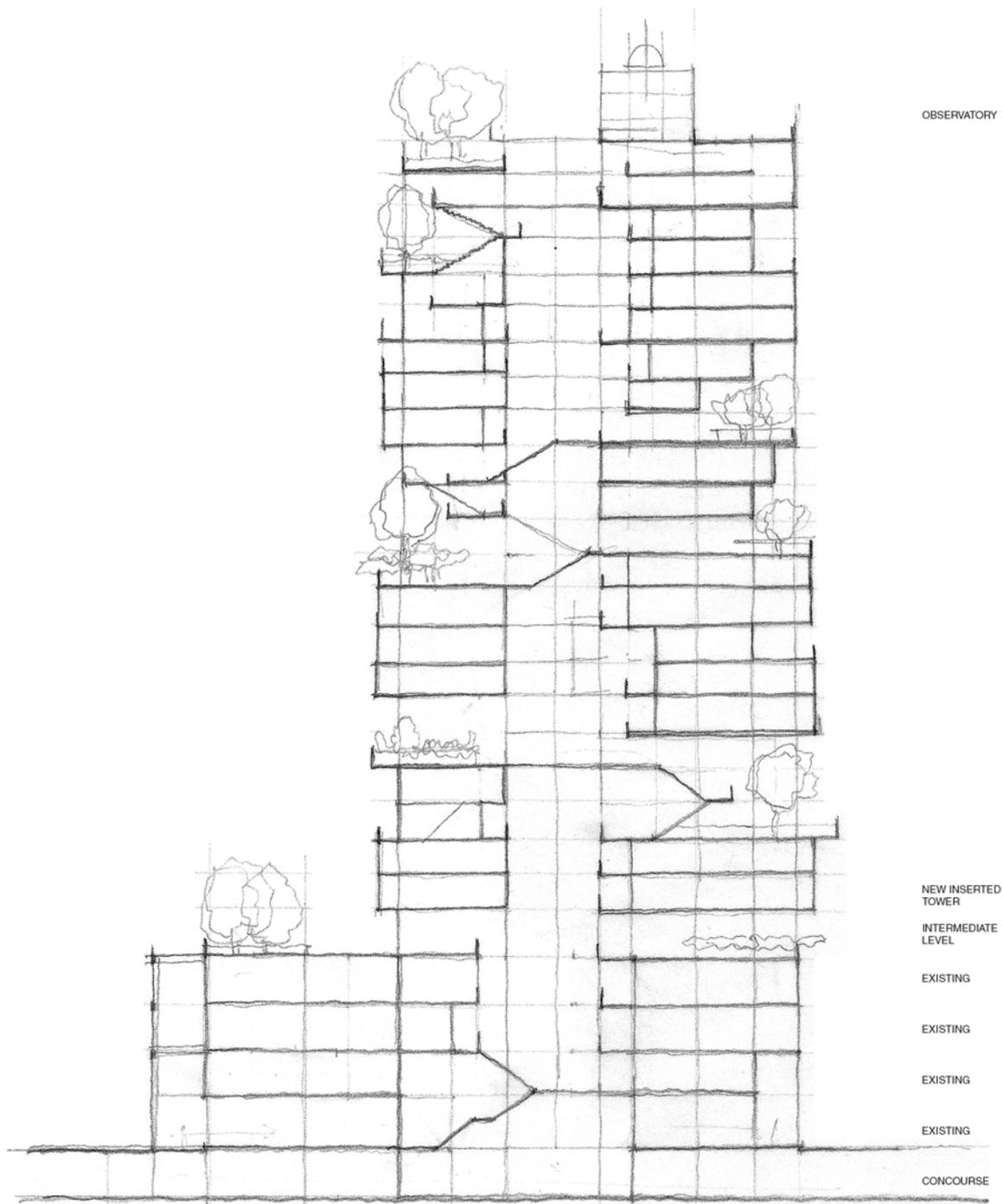
TOWER LEVEL 1, 2, 3 (NEW)
1:500

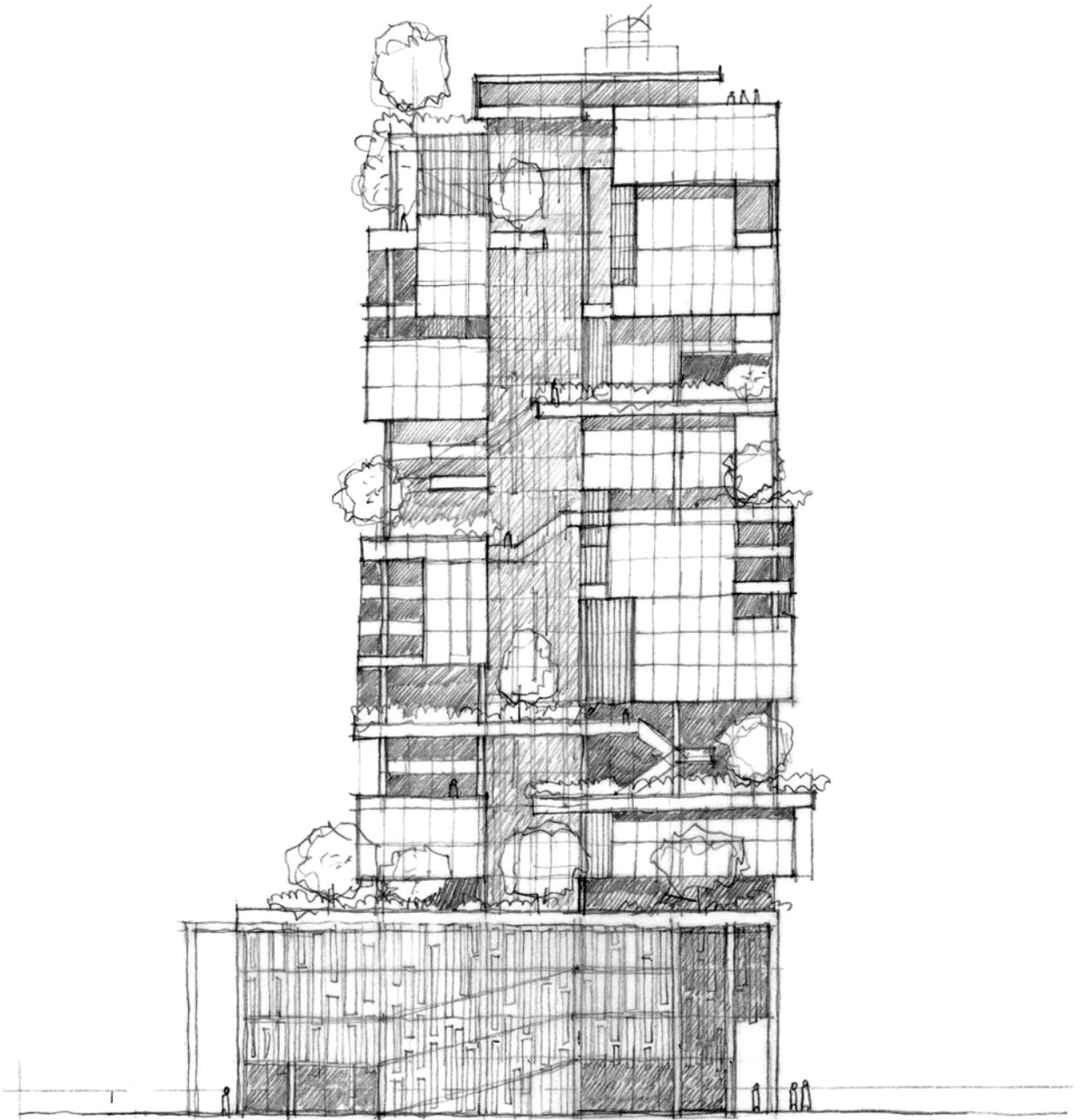


TOWER LEVEL 4, 5, 6 (NEW)
1:500



TOWER LEVEL 7, 8, 9 (NEW)
1:500





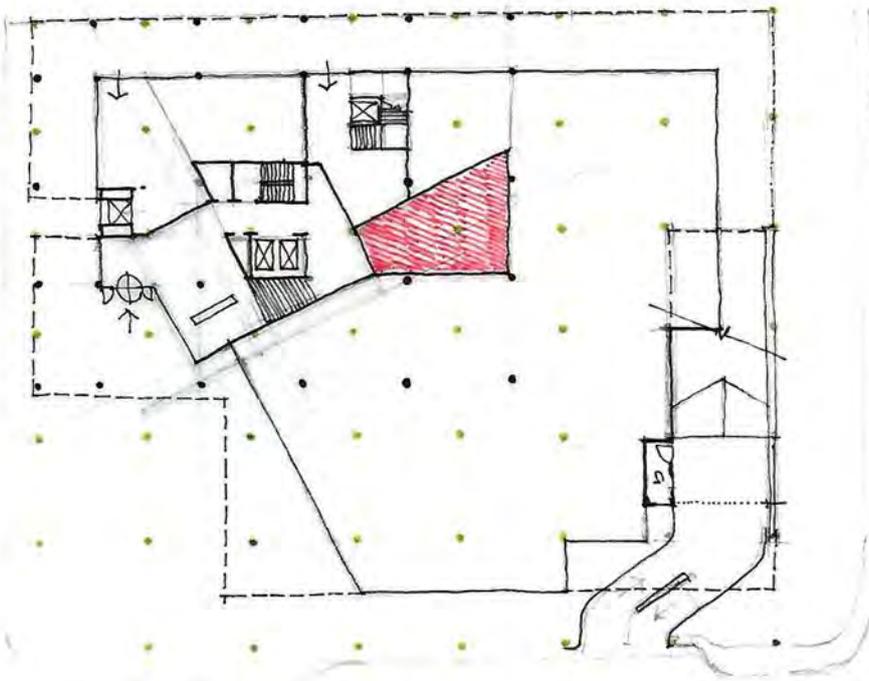
ELEVATION (ADDERLEY STREET)
1:500

THE “MOVE”

REDESIGN

The design is further developed by further articulating spaces and examining the modulation of the tower in more detail. Drawings highlight voids and natural lighting methods as well as structural cores and social garden space.





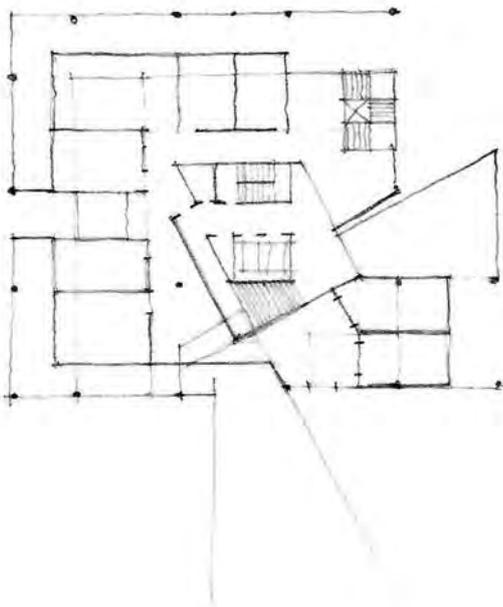
GROUND PLAN
1:500



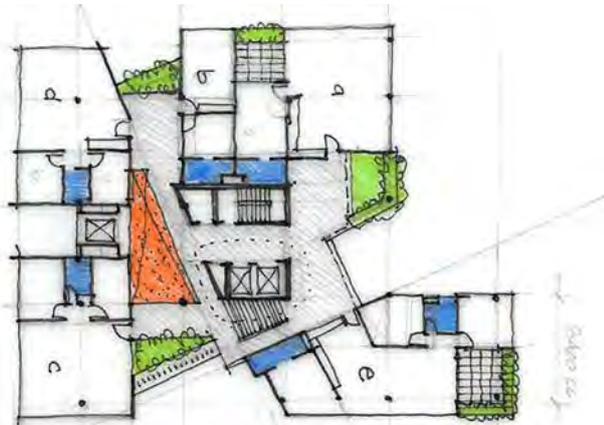
FIRST, SECOND, THIRD FLOOR PLAN
OF EXISTING
1:500



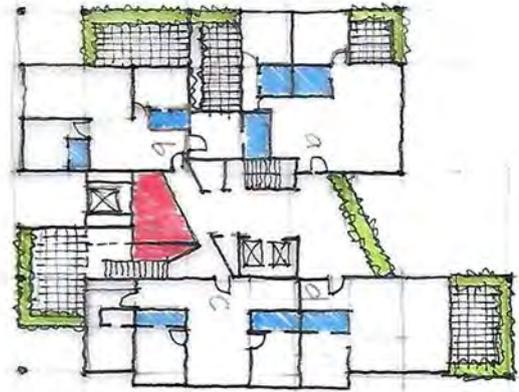
INTERMEDIATE/PODIUM ROOF LEVEL
1:500



RESOLVED CRECHE + CORE
1:500



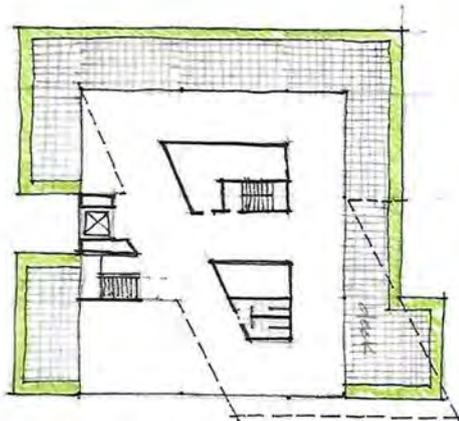
TOWER LEVEL 1, 2, 3 (NEW)
1:500



TOWER LEVEL 17, 18 (NEW)
1:500



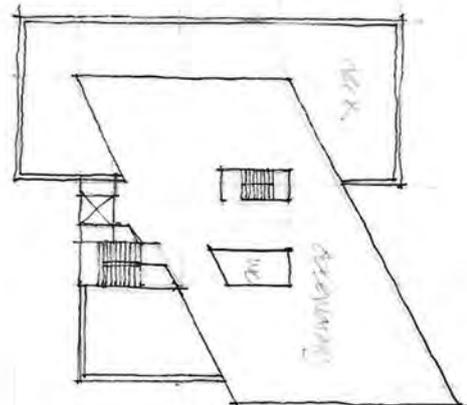
TOWER LEVEL 4, 5, 6 (NEW)
1:500



TOWER LEVEL 19 (Penultimate)
1:500



TOWER LEVEL 7, 8, 9 (NEW)
1:500



TOWER LEVEL 20 (Final Level)
1:500

THE “MOVE”

MOCK REVIEW

The design develops further by creating 3-dimensional models that enhance the scheme. The modulation, shading and textures can be viewed in greater detail. These leave the building as a work in progress until the final dissertation review.

Figure 26 + 27: [opposite page]
Top: View from corner of Strand and St Georges Mall, looking up.
Bottom: View from corner of Adderley Street and Waterkant Street.



Figure 28 (top): View from the corner of St Georges Mall and Waterkant Street.

Figure 29 (bottom left): Strand Street elevation (conceptual).

Figure 30 (bottom right): Looking down onto building from north.

Figure 31 (opposite page, top): Approach from Strand Street.

Figure 32 (opposite page, middle): View from Station Square.

Figure 33 (opposite page, bottom): View from the podium of Golden Acre Shopping Centre.





CONCLUSION

The dissertation design centers around developing an architectural response to the research findings. It was established that a contextually focused design based on sensitive responses to people and their environment was required. Focusing on the current housing crisis faced by the citizens of Cape Town as well as vacant building stock within the city, the task was to combine these challenges. This was achieved by an understanding of the two problems, enquiries into a chosen site and defining a new typology, that combines the practical, idealistic and poetic, for inner-city sustainable housing.

During the writing of the dissertation, it was found that there are many principles that could contribute to the design. The site proved to be pertinent to design and various spaces were created to respond to it in a social and ecological manner. Traditional vernacular principles combined with new technologies are implemented to provide a contextual response to the site positively. Not only was the physical site emphasized as contextually important, but also the users of the site and their history and lifestyles. When considering housing it became evident that the spaces were designed for the future inhabitants.

Gaining critical anthropological information about the site and context would inspire spaces that respond to these. Within this hierarchy of spaces, one should create a balance of public and private. In public space, interactions are fostered within communities. In dense communities, these public spaces become pertinent and areas of reprieve and recreation. Dense environments should be holistic and encapsulate different uses that encourage new users to traverse the space. Multifunctional spaces offer connections to the city and to other users creating an integrated society.

When creating spaces within the city it is important to allow these spaces to develop incrementally and in the process not intrude negatively in city life. The built environment continuously contributes to the consumption of energy and destroys the environment in many ways. By way of embracing the existing, some of this energy use is mitigated. The process of reusing an existing structure adds incremental layers to the city giving a dense history of what was and what is to eventually be, thus continuing a process of layering.

This dissertation seeks to contribute to the knowledge of reusing existing buildings for the purpose of housing, the importance of the sustainable practice as well as equitable housing for cities. The chosen site for the dissertation design benefits from vernacular principles, integrated social spaces that follow a hierarchy within the city, a production of multifunctionality and connections to the city. The design for Old Mutual Centre encourages the improvement of existing spaces, seeing value in the mundane and considering bringing beauty to the forgotten and abandoned spaces of the city.

The dissertation design should not be viewed in isolation or as a finished form. It should be seen as a moment or catalytic form within the city and a contributor to the density, character and multifunctionality of the city space. This thesis should form the basis of understanding and a preamble for the produced design.

TABLE OF FIGURES

Note: all images are by the author unless noted otherwise.

- Page 11: Figure 1: Egle Girskaitė. (2017). *“Settlers”*. [online] Available at: <https://project1324.com/projects/YuaW2>
- Page 14: Figure 2: Hanson, R; Collie, K; Hopkinson, D. [n.d.]. *Park Hill, Sheffield*. [online] Available at: <http://www.bbc.com/news/magazine-24054185>
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- Page 30: Figure 12: Rennie, J. [1979] *The Buildings of Central Cape Town, 1978. Volume two: Catalogue*. Cape Town, Cape Provincial Institute of Architects, 1979.
- Page 31: Figure 13: *Base Image of Old Mutual Centre in the CBD*. [2016]. Courtesy of FWJK.
- Page 39: Figure 24: FWJK. [2017]. *Render impression of the Zero-2-One proposal by FWJK*. [online] Available at: <https://www.iol.co.za/capeargus/plea-for-affordable-housing-in-zero2one-10917365>

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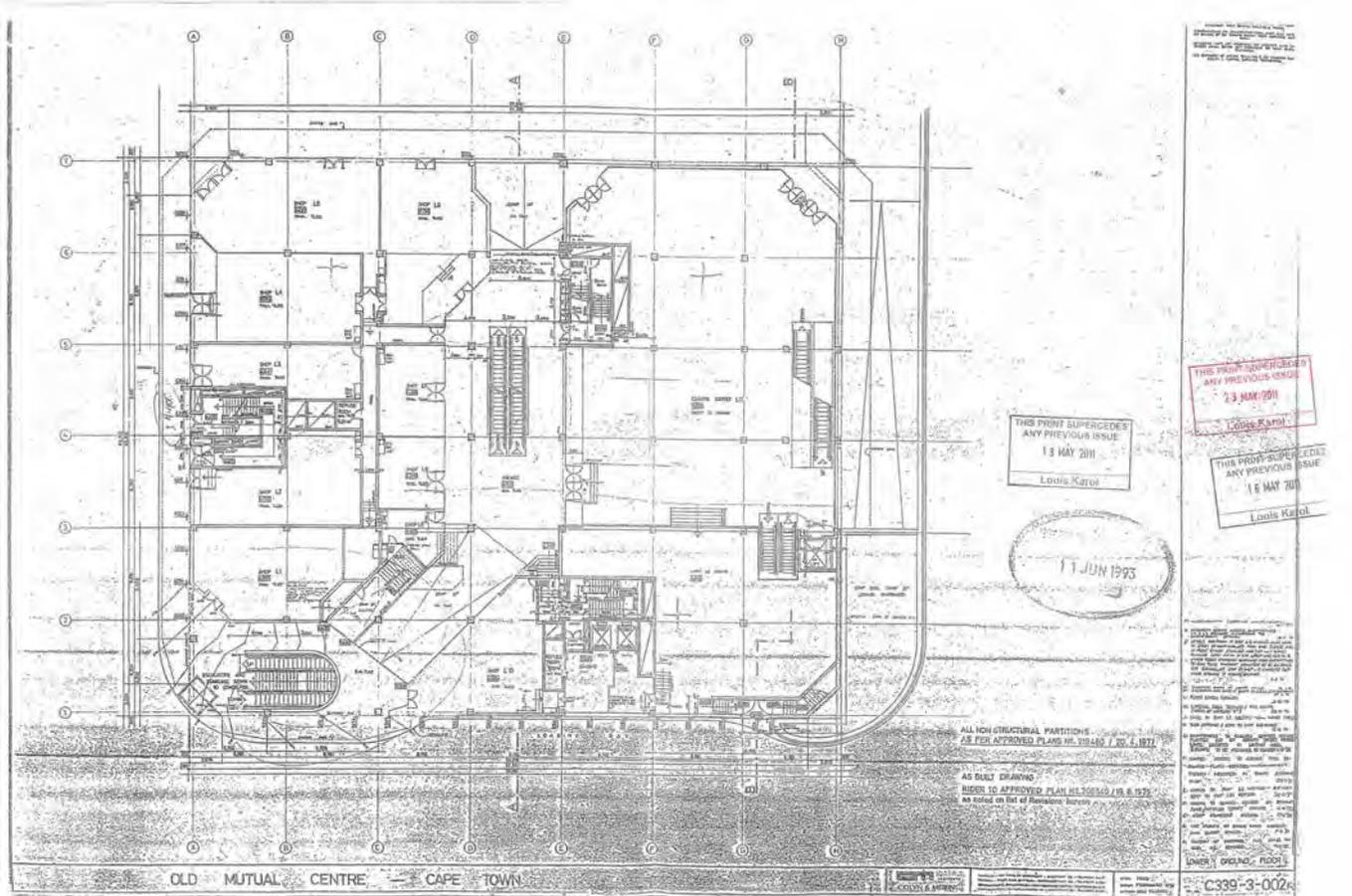
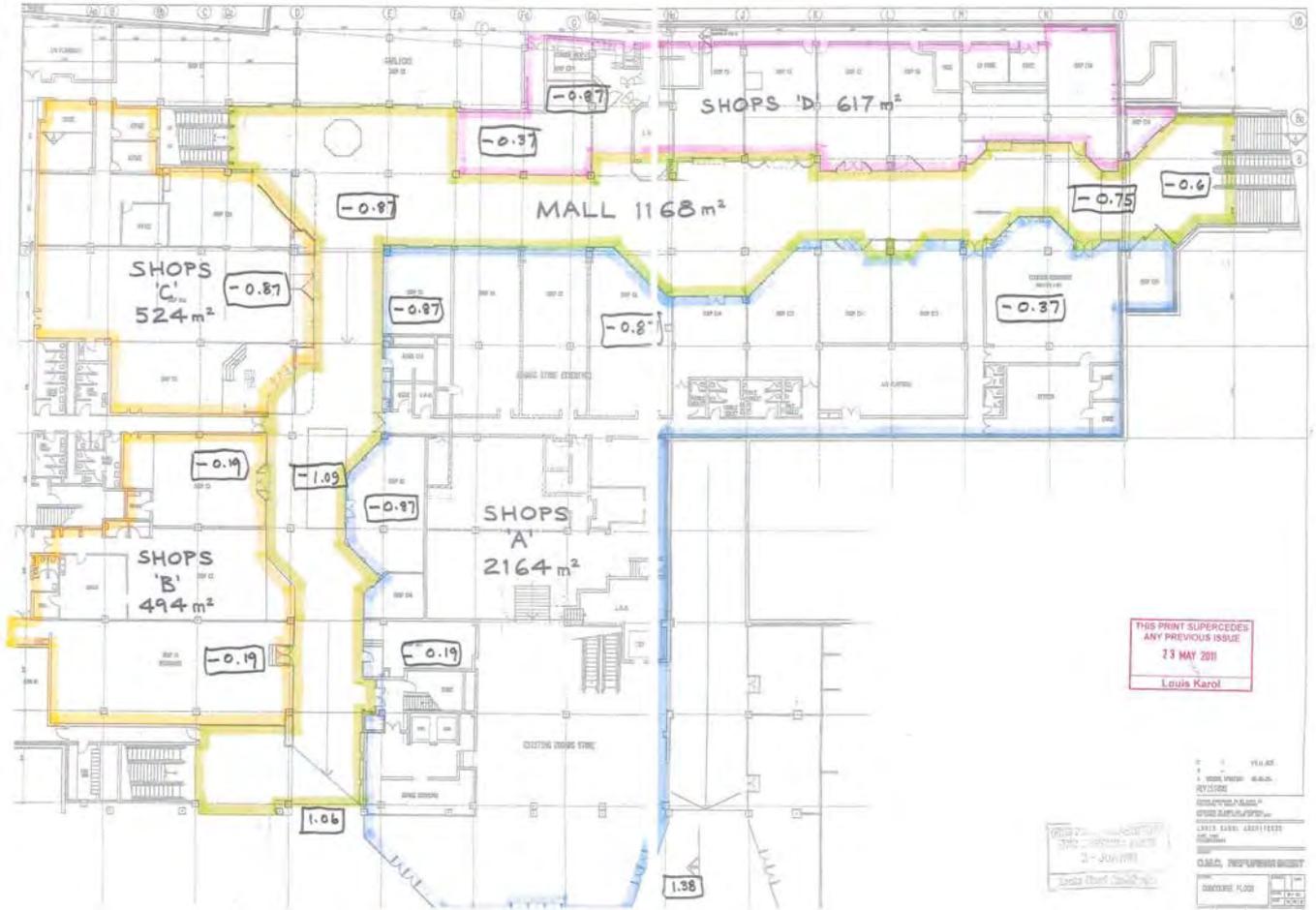
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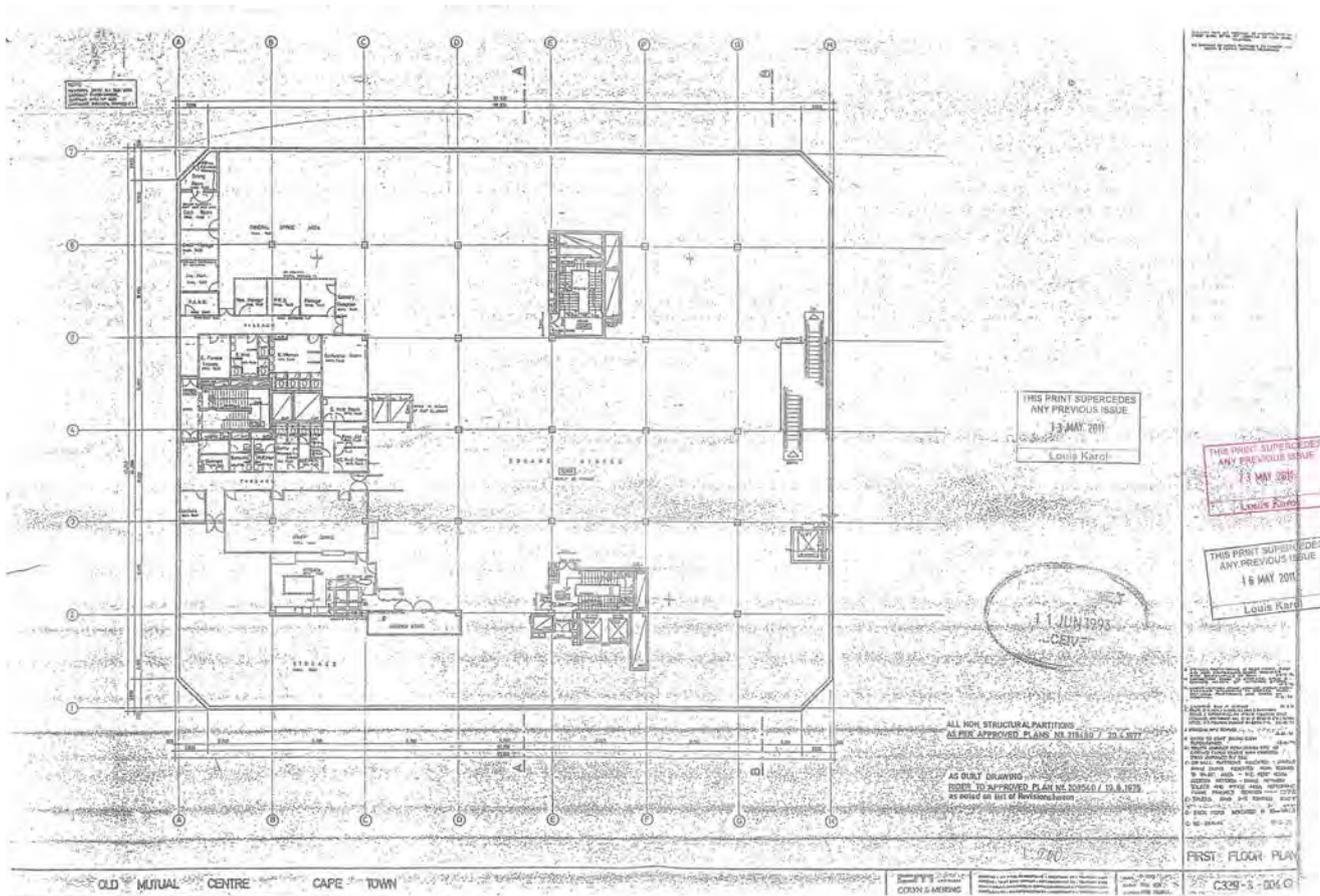
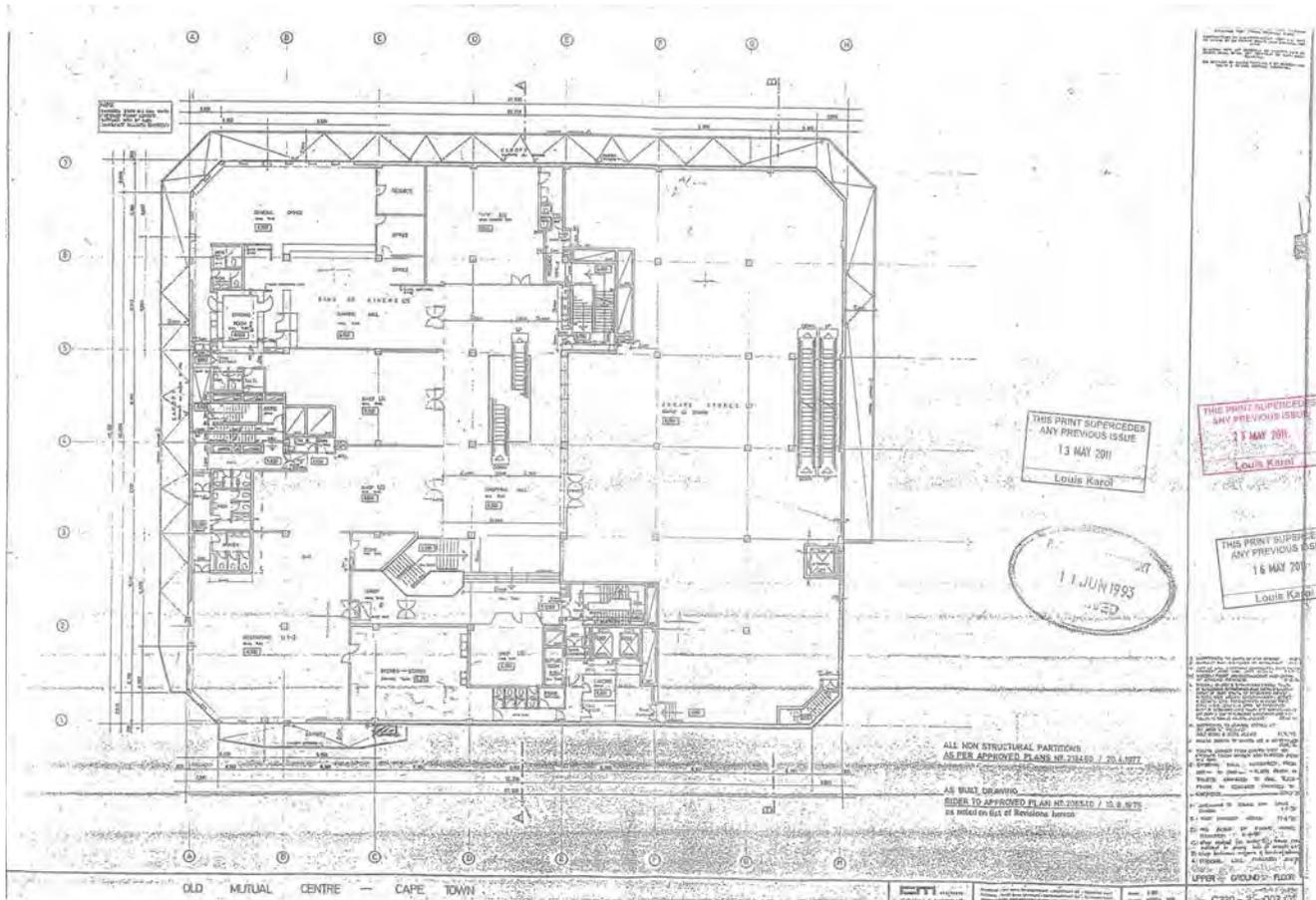
APPENDIXES

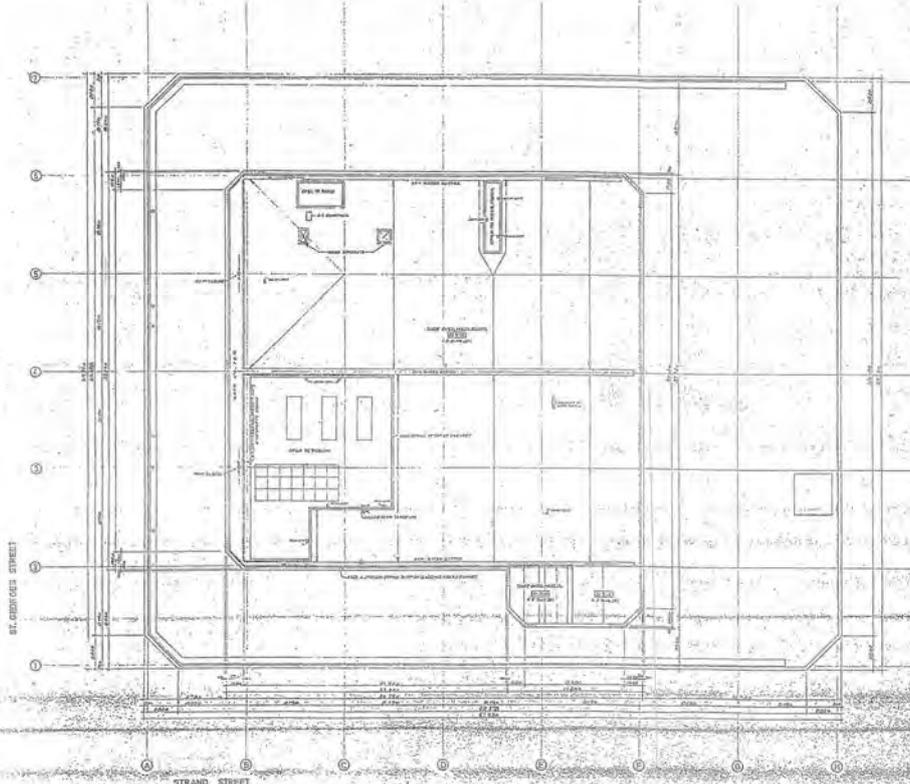
The following documents support the works or documents pertinent to the exploration within the dissertation.

Sourced plans of the existing building are included as well as a critical article surrounding the proposal by FWJK for the Zero-2-One Tower.

APPENDIX A







ST. GEORGES STREET

STRAND STREET

THIS PRINT SUPERCEDES ANY PREVIOUS ISSUE
13 MAY 2011
Louis Karol

THIS PRINT SUPERCEDES ANY PREVIOUS ISSUE
23 MAY 2011
Louis Karol

THIS PRINT SUPERCEDES ANY PREVIOUS ISSUE
16 MAY 2011
Louis Karol

DEVELOPMENT
MUTUAL PARK
11 JUN 1993
RECEIVED

REFER TO APPROVED PLAN H/200540 / 10.8.1975

ROOF PLAN
AS BUILT DRAWING

OLD MUTUAL CENTRE — CAPE TOWN

COLEMAN & MERINO

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Cape Town CBD reaches new heights

A 44-storey skyscraper will see Portside lose its title as the city's tallest building

SARAH-JANE BOSCH

TWO NEW developments in the Cape Town CBD are set to rival the tallest building in the city, the 32-storey Portside in Bree Street.

Before Portside, the title of tallest building was held for more than 40 years by 1 Thibault, which was formerly the BP Centre.

Portside is a joint initiative between Old Mutual and FirstRand Bank, and houses the provincial headquarters for FirstRand's three divisions - FNB, RMB and Wesbank. Old Mutual offers additional prime office space for leasing to corporate and retail tenants.

Development of Zero-2-One Tower - the working name for the soon-to-be tallest building in Cape Town - is scheduled to begin in April. In addition, 16 on Bree in Bree Street will soon be the tallest residential development in the central city.

Both buildings are being co-developed by FWJK Developments, which has been involved in a number of CBD developments in the past few years.

These include the redevelopment of Touchstone House in Bree Street and the new KPMG Office Tower on the Foreshore, which has the deepest basement excavation yet undertaken in Cape Town's reclaimed Foreshore precinct.

"When complete, the Zero-2-One Tower will be the same height as the Reserve Bank building in Pretoria and will be Cape Town's tallest building," says Stuart Chait, head of the Land Equity Group, co-developer of the new CBD landmark along with FWJK.

Land Equity has secured another two strategic blocks in the Cape Town CBD and plans to develop further mixed-use projects in the bustling node.

"We have raised significant funding for a R10bn pipeline of development projects across sub-Saharan Africa, and including South Africa," says Chait.

"The new 16 on Bree forms part of the latest wave



Top left, Portside, at 32 storeys it is currently the tallest building in Cape Town. Above, an artist's impression of 16 on Bree, a tall mixed-use building planned for Bree Street. Right, an artist's impression of Zero-2-One, the 44-storey redevelopment of the Old Mutual Centre and Exchange Place in the Cape Town CBD.

of development and redevelopment sweeping the central node, helping place Cape Town on a par with cities such as New York, London and Hong Kong," says Dr Andrew Golding, chief

executive of the Pam Golding Property group, which is marketing the luxury 36-storey retail and residential project.

Meanwhile, 16 On Bree is also within the urban

development zone (UDZ), which entitles buyers who let their apartments to claim the UDZ-accelerated depreciation benefits, says Laurie Werner, Pam Golding Properties senior

executive for developments in the Cape region.

She says this is an attractive benefit for investors who are, in effect, getting interest-free loans from SARS over an

Building	Height	Floors	Completed
Portside Tower (Mixed Use)	142 m	32	2014
1 Thibault Square (Office)	128 m	32	1972
Mutlife Centre (Office)	119 m	28	1993
Atterbury House (Office)	119 m	29	1976
ABSA Centre Cape Town (Office)	117 m	34	1970
Golden Acre (Office)	108 m	28	1979
Cape Sun Southern Sun (Office)	106 m	33	1992
Triangle House (Residential)	104 m	26	1993
Western Cape Provincial Administration Building (Office)	101 m	26	1976
Civic Centre (Residential)	98 m	25	1978
2 Long Street (Hotel)	93 m	24	1970

Graphic: Devon Daniels, Independent Media

11-year period for repayment from the proceeds of the resale of the apartment.

The development will consist of studios, one-, two-, three- and four-bedroom apartments, priced from R1.5 million to R13.9m for penthouses.

"In keeping with the heritage grading of the HHO and Felderman buildings on the site, the development has been designed to include historical elements in the facade.

"The street-level design will reflect the urban landscape elsewhere on Bree Street and the double-volume colonnade along Prestwich Street will be for pedestrian access only," says Werner.

"We can no longer afford the urban sprawl that moves people further and further from their place of work and study," says Rob Kane, chairperson of the Cape Town Central City Improvement District.

"Sustainability is absolutely key to the growth and ongoing success of downtowns as well as the metropolises in which they are situated.

"We therefore need good design that looks at densification, particularly of residential development, with mixed-use functionality and innovative strategies and structures that will conserve resources."

Long and short of The Tower

ZERO-2-ONE Tower is the redevelopment of the Old Mutual Centre and Exchange Place on the corner of Adderley and Strand streets, across the road from Cape Town Central Station.

- **The buildings will be redeveloped into:** A 44-storey tower, which will have 44 000m² of space.

- **Sold:** 60% of the space is already sold, according to Stuart Chait, head of the Land Equity Group, co-developer of the new CBD landmark, along with FWJK.

- **Construction starts:** April.

- **Start to completion:** 30 months.

- **Cost:** R1.5 billion

- **The development will have:** 624 apartments, 760 parking bays, 5 000m² of retail space and a 360° viewing deck and restaurant at roof level, which will be open to the public.

ETHICS DECLARATION Accepted on 10/11/2017.

The following document was downloaded from <https://manager.submittable.com/user/submissions/8280849>

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ACCEPTED
✓ 10/11/2017

ERASURE LAYERING

Submitted to UCT Ethics in Research - EBE APG (Architecture) Submissions 2016/2017 on 8/2/2017 (2 months, 16 days ago)

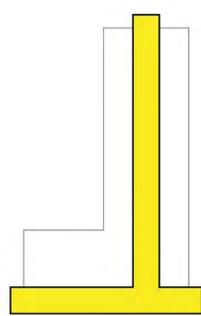
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Design by Sneha Jhupsee
2017.

ERASURE LAYERING

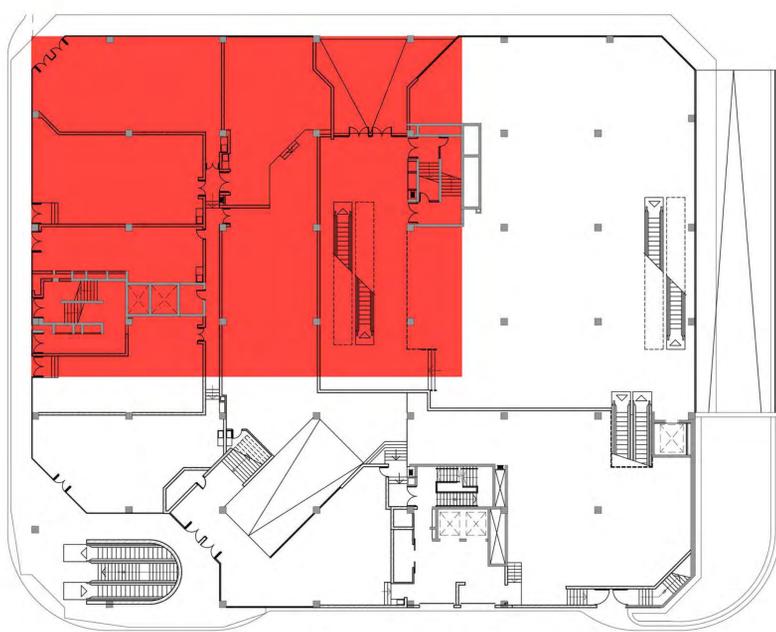


SNEHA JHUPSEE

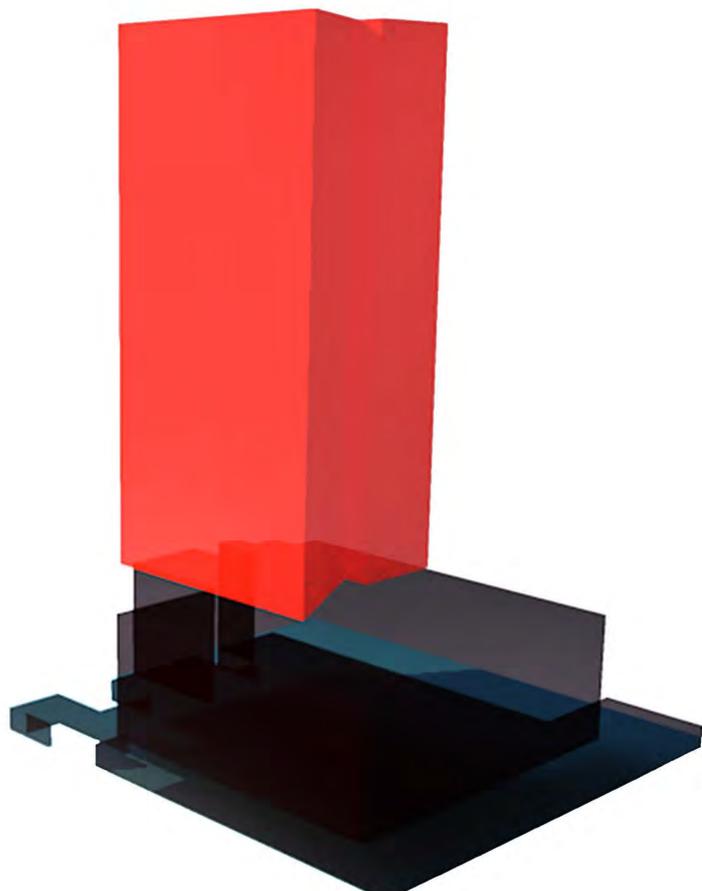
Erasure Layering is an investigation into a new typology that seeks to combine contrasting conditions. The architectural response is based on the reuse of existing, unused concrete structures within the inner city for the primary function of equitable mixed-income housing. The theoretical underpinnings inspired a design that engages with a unique inner-city context, densification and sustainable practice. By bringing different income groups together, letting light in by carving and considering requirements such as parking and access, the design encapsulates idealistic, poetic and pragmatic ideals to create a contextual response.

The site, Old Mutual Centre, is located at the corner of Strand and Adderley Streets and sits above the Strand Street Concourse. The existing building is an ordinary introverted box with an intangible significance as it was once home to the astronomer La Caille's observatory. Old Mutual Centre was developed in 1974 by Louis Karol Architects as an Edgars department store. It was then used as an office space and eventually became redundant due to its introverted nature. Two main pedestrian routes within the city also edge the building: St Georges Mall and Waterkant Street. These routes have an array of informal traders and a vibrant urban fabric. The underutilised subterranean pedestrian concourse links the building to the Cape Town Station as well as Golden Acre Shopping Centre.

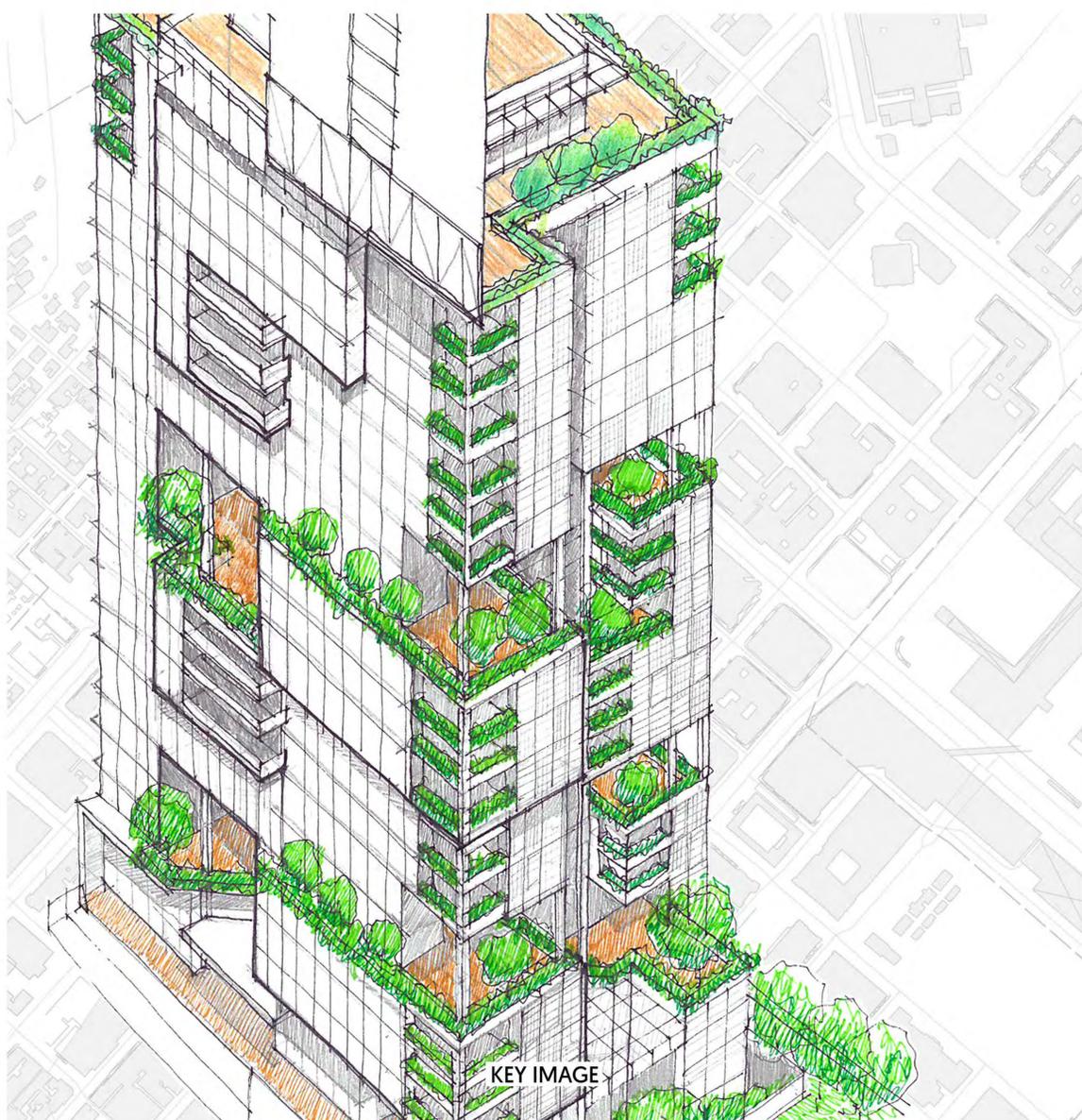
The intent of the dissertation is to turn the existing, a harsh impediment within the city offering no value to the surrounding fabric, into a fluid, multifunctional space that offers the city and its users amenity. The strategy aims to bring the existing concourse up into the building and use its circulatory and discreet destination spaces as inspiration for the new intervention. The brief seeks to introduce a mix of uses to the site complementing the mixed-income housing such as a creche, gym and public function. The design intends to fuse social purpose and architectural form into a mutually satisfying set of relationships. In an idealistic sense, this scheme aims to be a multifunctional building close to a mini vertical city that caters for all strata of today's society.



PLAN
1:250

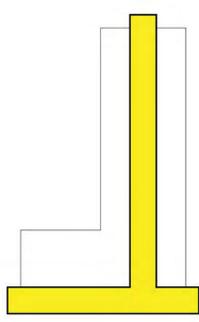


AXONOMETRIC



KEY IMAGE

ENQUIRY FOCUS



"Settlers" by Egle Girskaitė. "Where do you settle, when you don't fit in anywhere?"

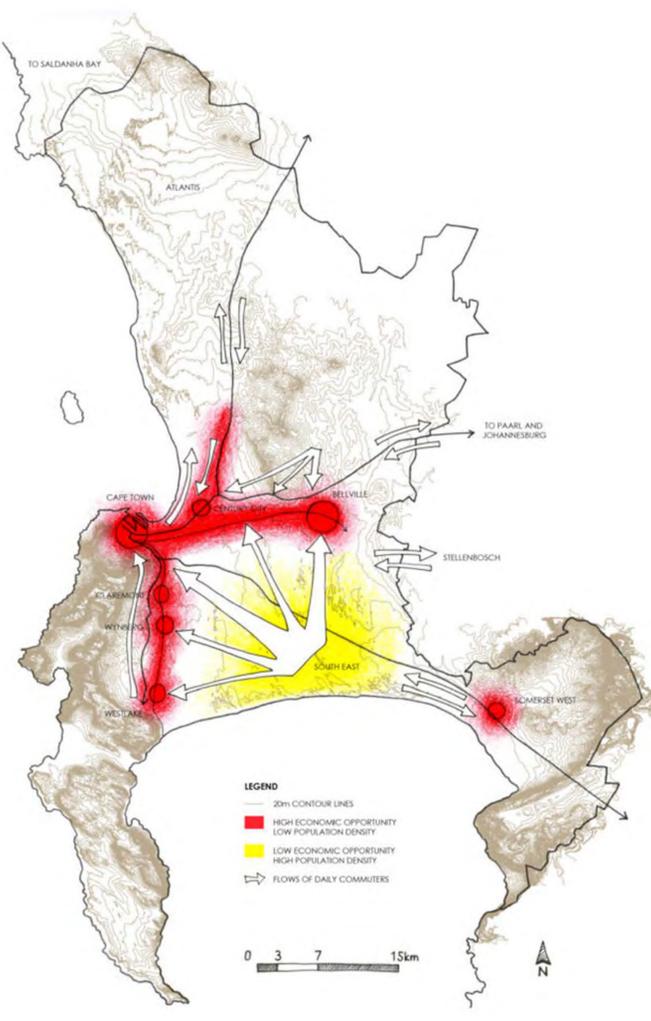


Charles Correa's Kachanjunga translates the vernacular idea of the veranda or "stoep" into a high-rise in the inner-city apartment block. Every alternate floor features a double volume terrace that applies the vernacular or historic space to vertical living.

HOUSING

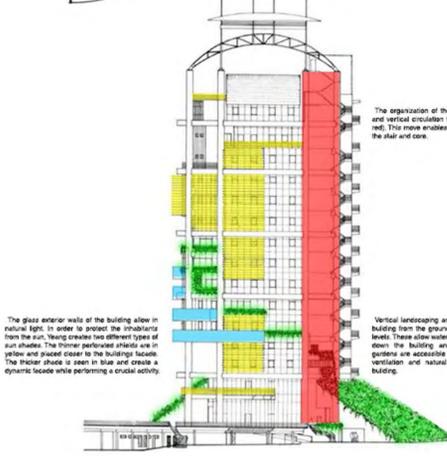
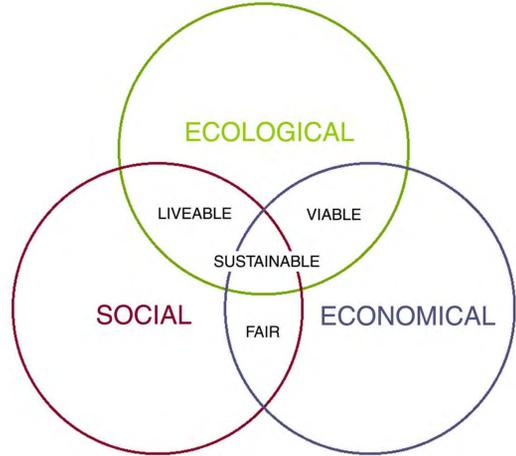
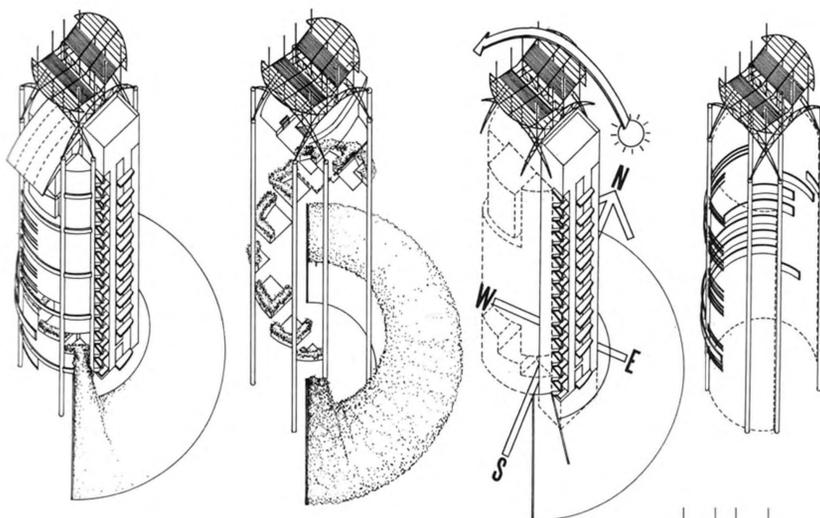


Cape Town's inner city is facing a housing crisis that makes the city exclusive and excludes many people. People travel from peripheral areas to work in town. Many developer led developments such as the proposal by FWJK (above) enforce this exclusivity. The Brickfields development in Johannesburg provides a precedent for affordable inner city housing.



People travel distances from far out peripheral areas to get to work and the city.

THE INNER CITY



Ken Yeang's Mesiniaga makes use of his sustainable architectural practices. The key diagrams on top highlight (from left): built form; planting & sky gardens; solar orientation; shading devices.

SUSTAINABILITY



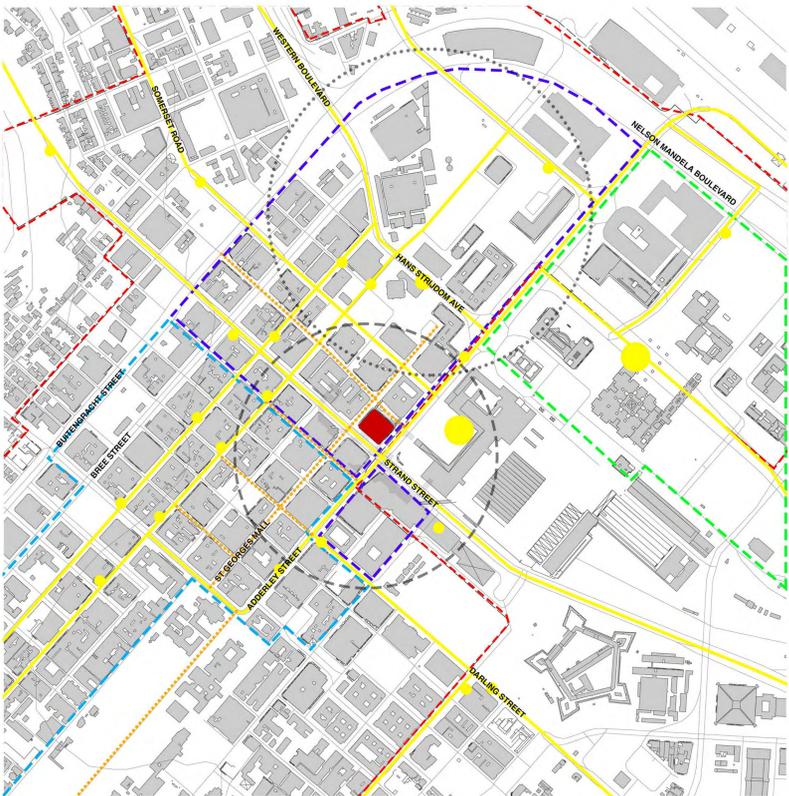
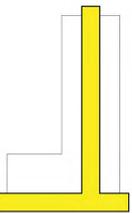
"Dispatchwork" by Jan Vormann. An urban art installation movement brings attention to the natural wear and tear to structures and streets of a city. The process of infill of holes and missing parts via the use of bright LEGO blocks highlights the dilapidation or non-use of buildings. This movement lends itself directly to the reuse of materials in the adaptation of existing buildings.



The reuse of Park Hill in Sheffield in the UK was once a council housing development that fell into a state of disrepair. Phase 1 of the redevelopment of Park Hill stripped the building to its concrete frame and provided a mixed-income housing solution.

ADAPTIVE REUSE

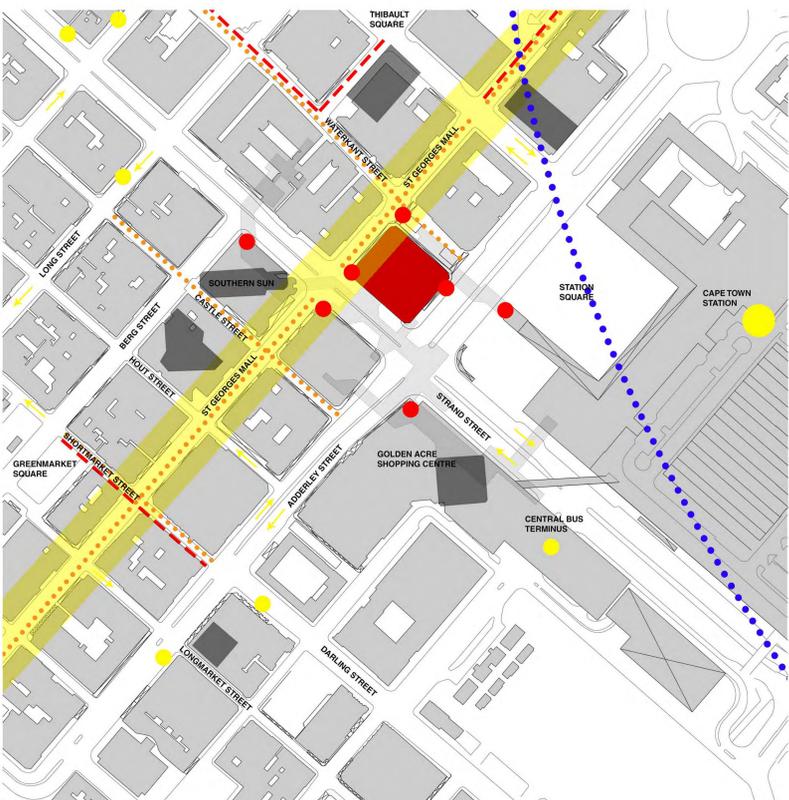
ENQUIRY CONTEXT



- New tall building cluster
- Historical tall building cluster
- Boundary of Cape Town CBD
- Busy pedestrian routes
- Main transit routes
- Public transport interchange
- Tall buildings, coarse grained, limited ground floor activity
- Tall buildings within city grid, mixed-use, often with parking
- Mixed use older buildings, fine grain with heritage buildings



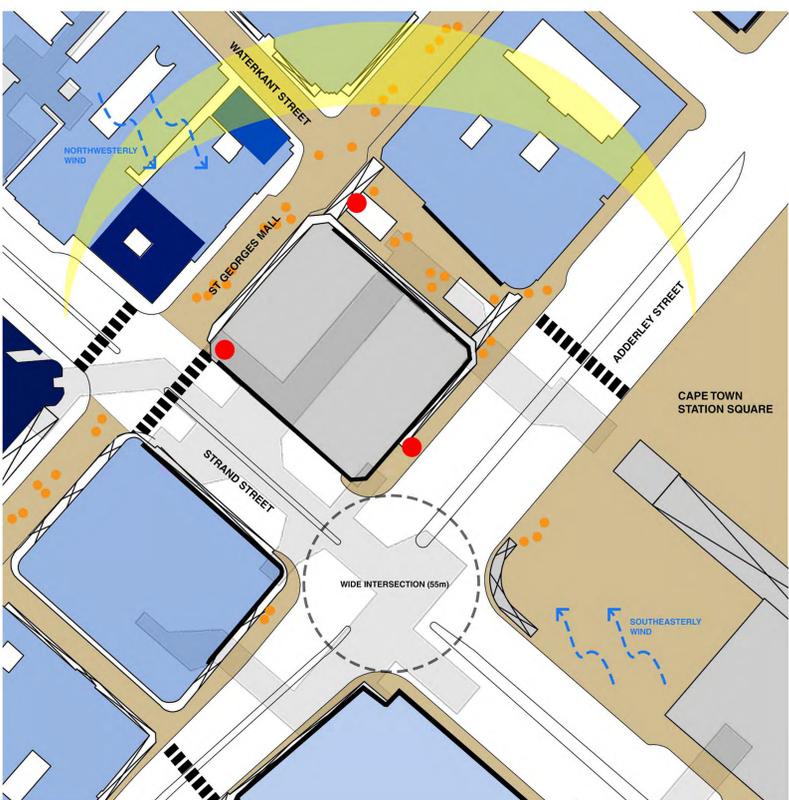
CITY SCALE



- Concourse access
- Historical coastline
- Busy pedestrian routes
- Pedestrian priority routes with vehicular access
- Public transport interchange
- Tall buildings over 80m
- St Georges Mall sub-area



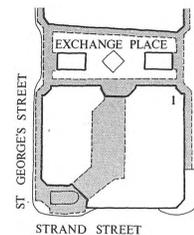
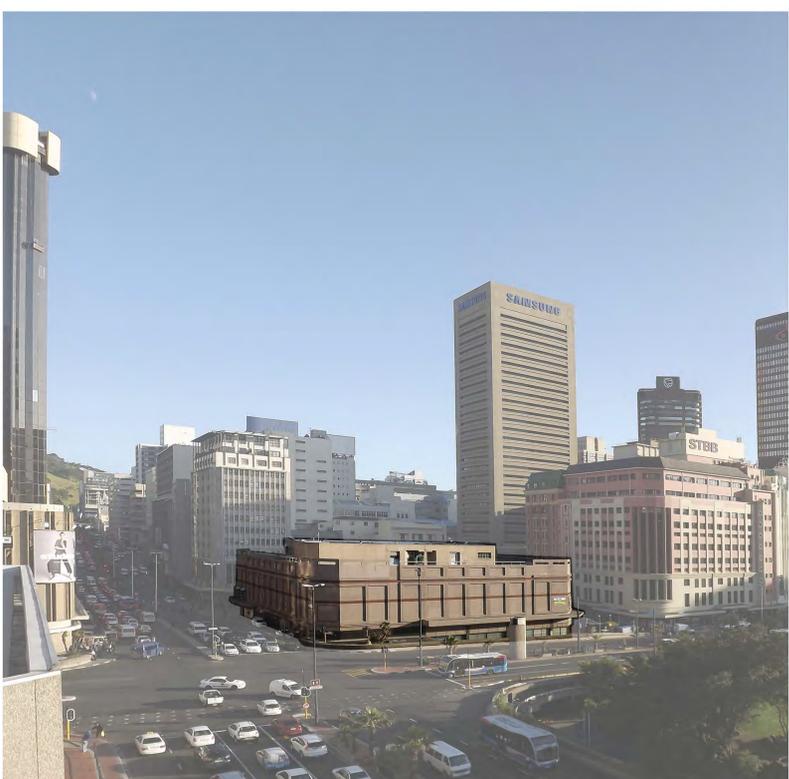
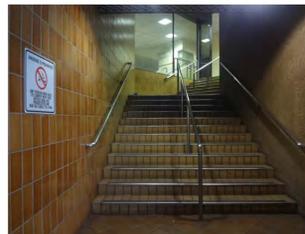
PRECINCT SCALE



- Intersection diameter
- Underserved concourse access
- Informal traders (observed)
- Dead edges (blank facades/no access)
- Pedestrian crossing
- Public realm denoted by different surface texture
- Usage: Hotel
- Usage: Education
- Usage: Office
- Usage: Retail



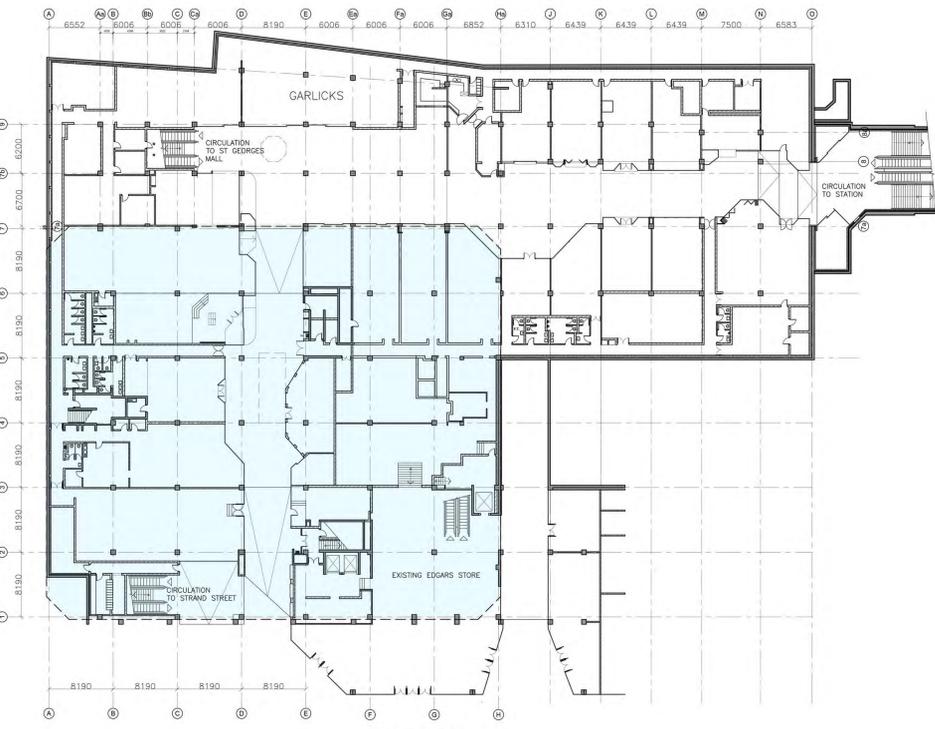
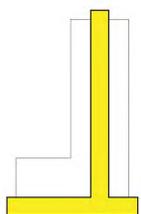
SITE SCALE



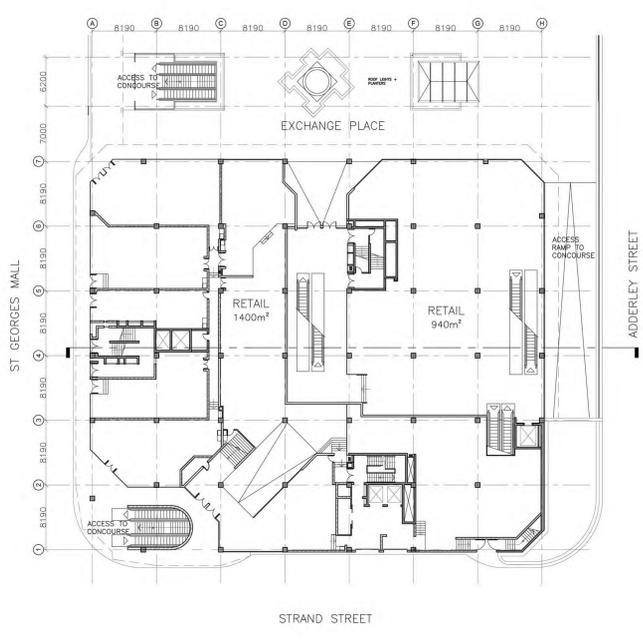
THE "FOUND"



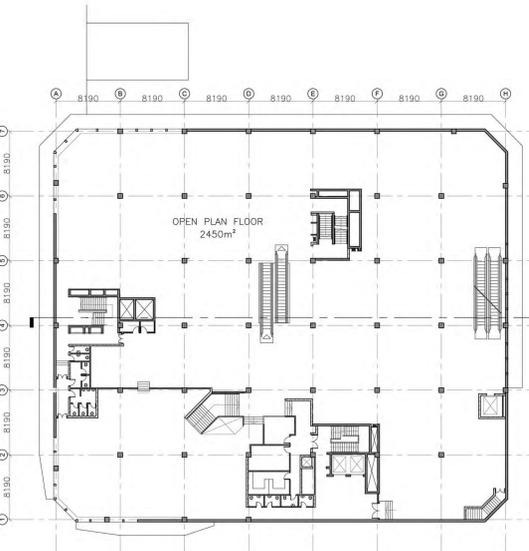
ENQUIRY THE FOUND



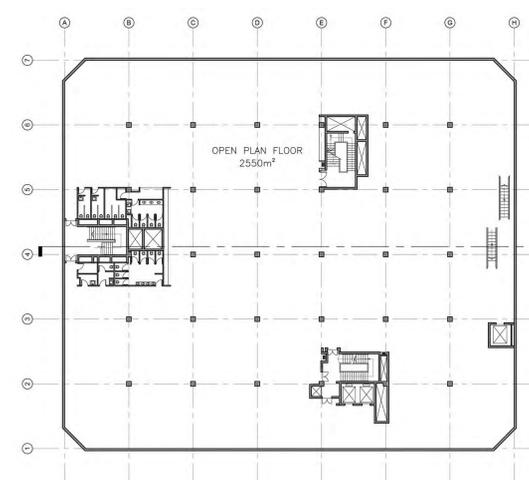
CONCOURSE PLAN
1:250



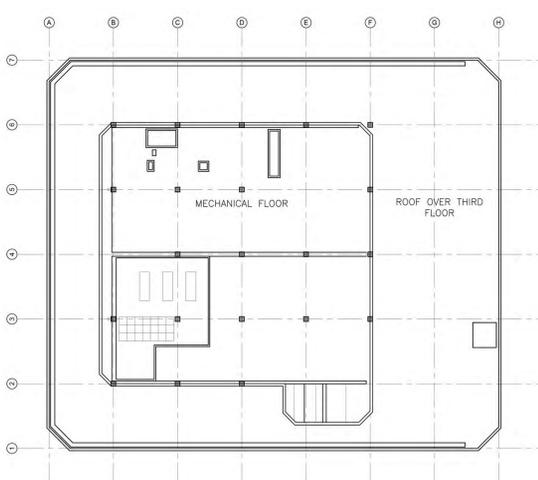
GROUND FLOOR PLAN
1:250



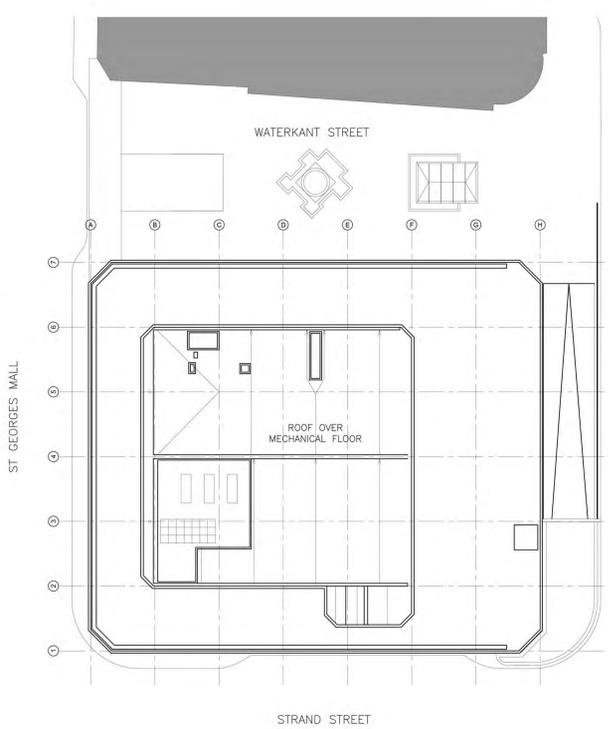
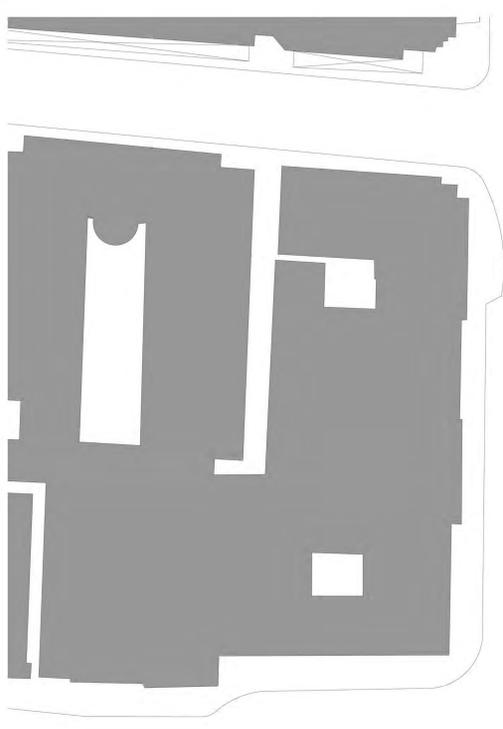
FIRST FLOOR PLAN
1:250



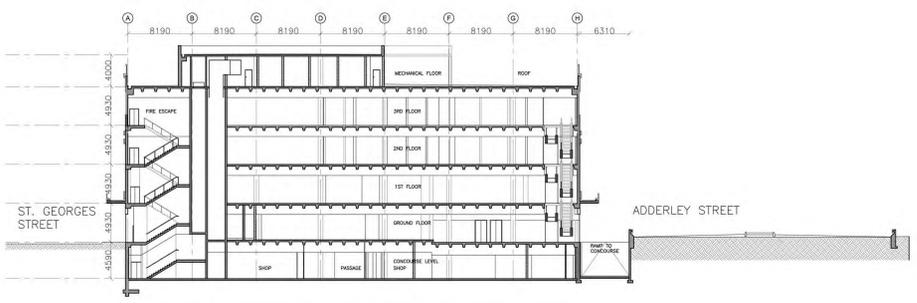
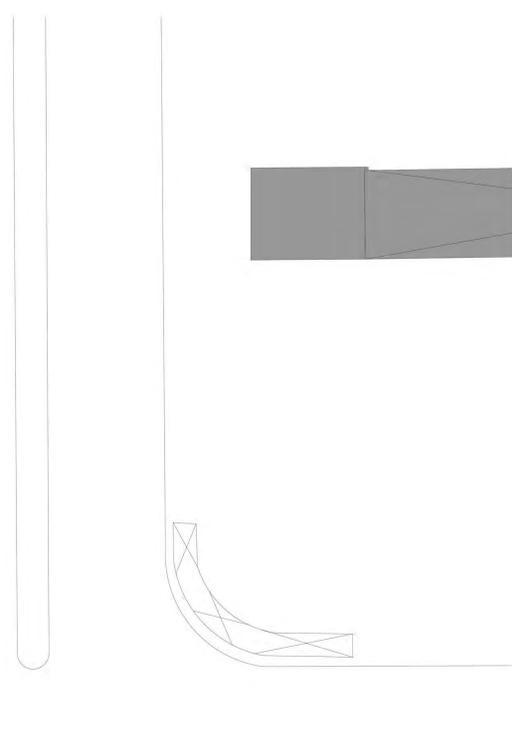
SECOND / THIRD FLOOR PLAN
1:250



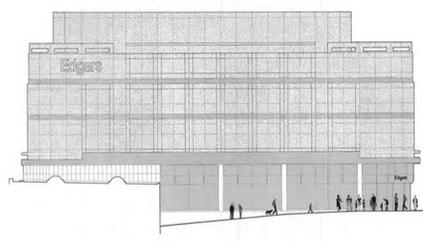
MECHANICAL FLOOR PLAN
1:250



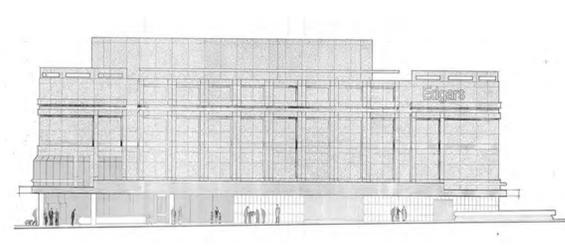
ROOF PLAN
1:250



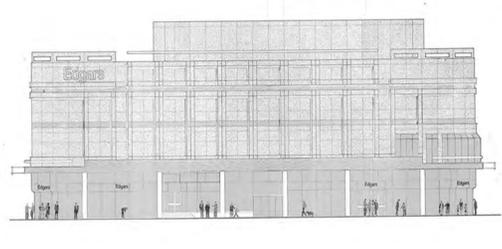
SECTION
1:250



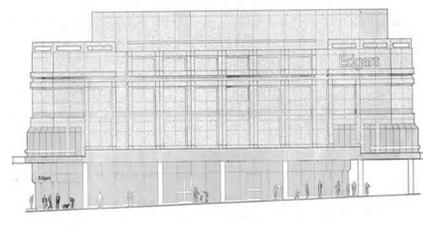
ADDERLEY STREET ELEVATION
1:250



STRAND STREET ELEVATION
1:250

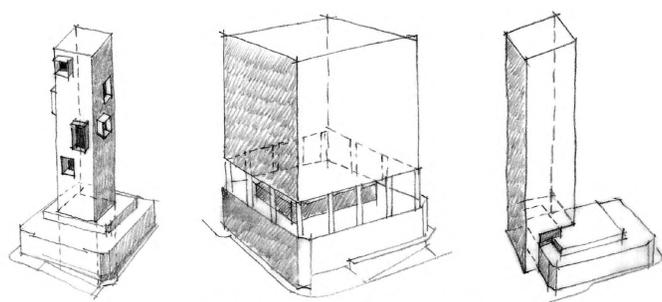
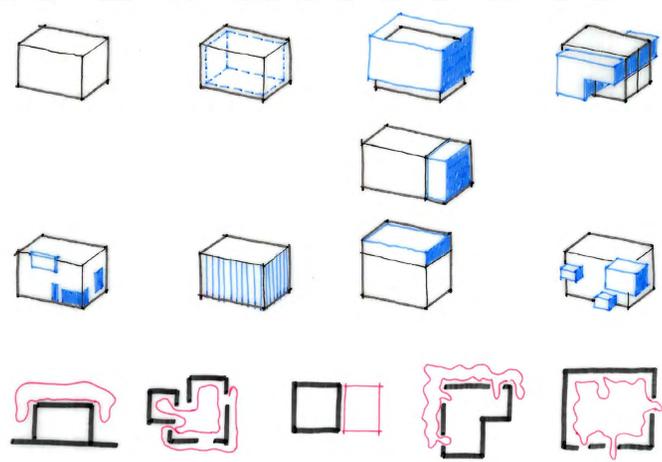
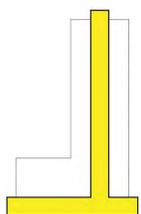


WATERKANT STREET ELEVATION
1:250

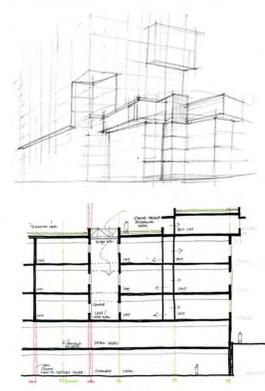
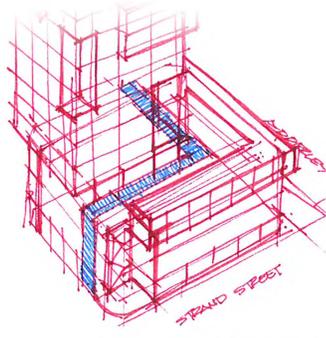
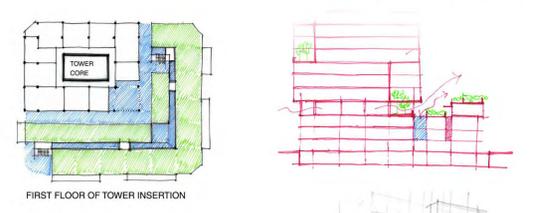
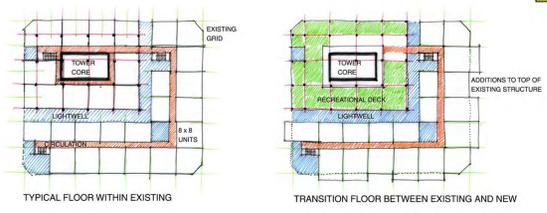


ST GEORGES MALL ELEVATION
1:250

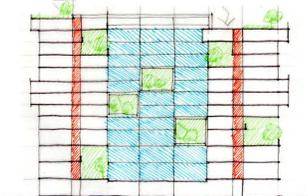
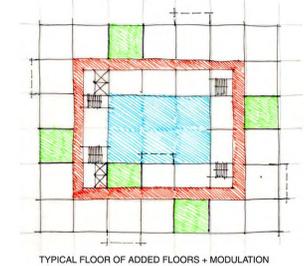
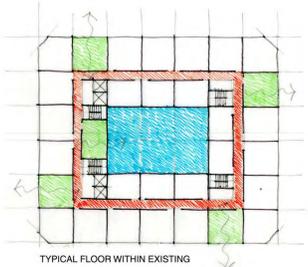
EXPERIMENT EXPLORATION



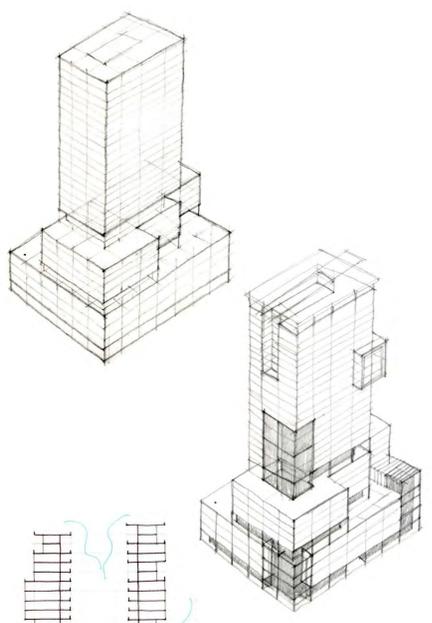
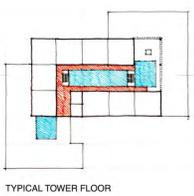
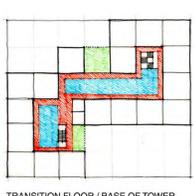
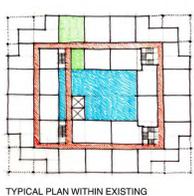
IDEAS + APPROACHES



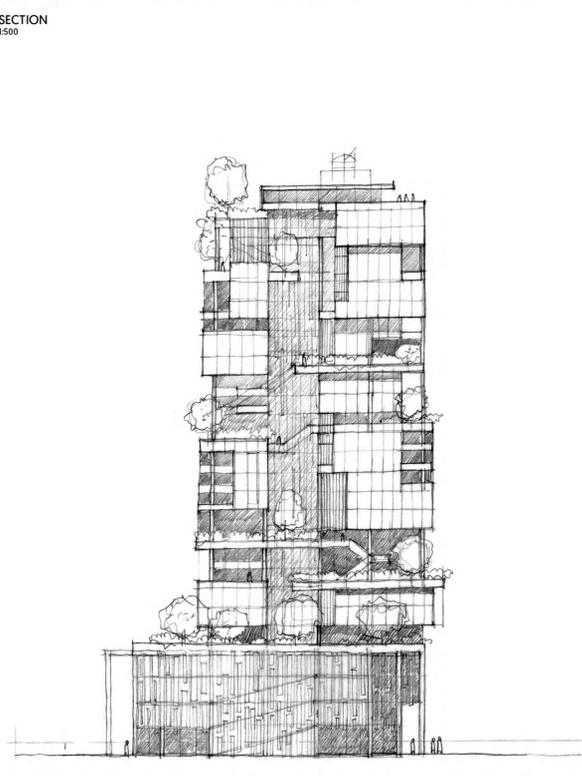
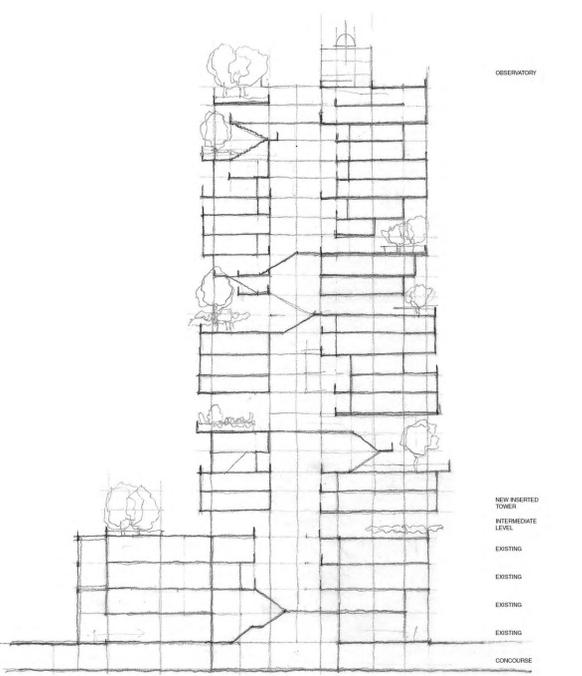
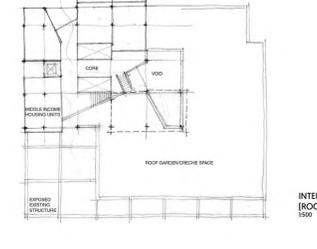
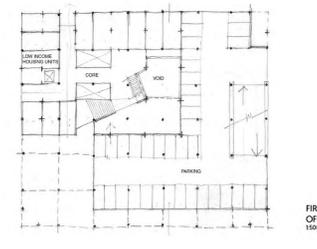
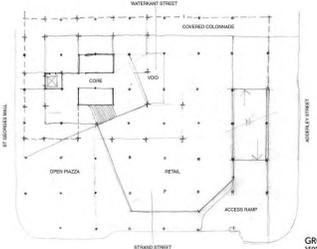
SHIFTED GRID



PERIMETER BLOCK

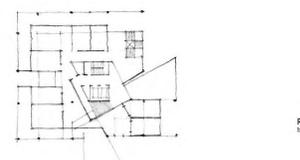
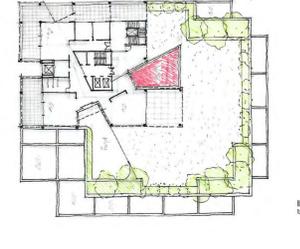
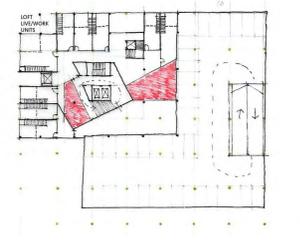
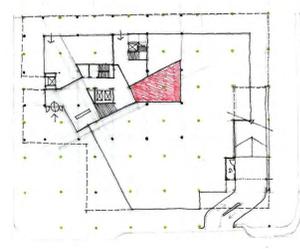


PODIUM - TOWER BLOCK



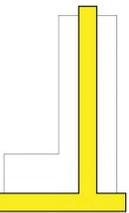
ELEVATION (ADDERLEY STREET) 1500

EN LOGE

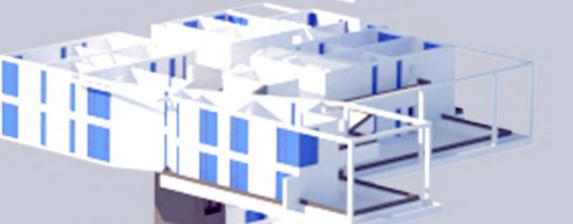
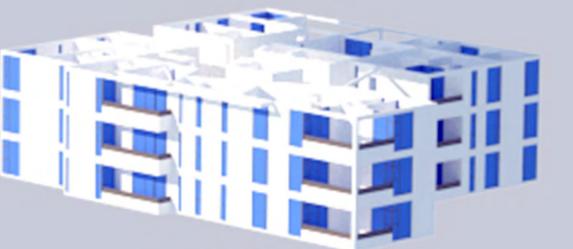
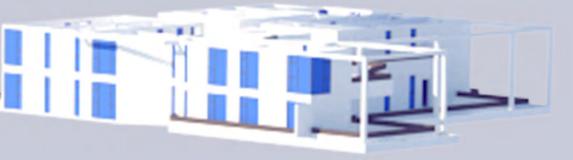
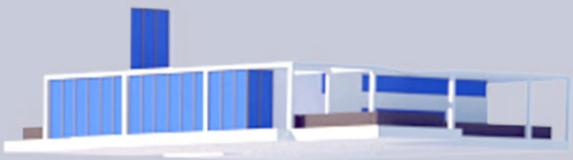
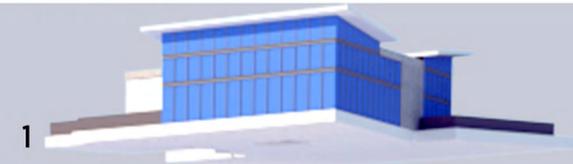


REDESIGN

EXPERIMENT THE MOVE



1



2

3

4

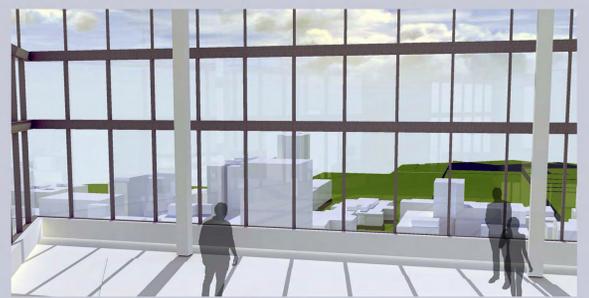
5

6

7

8

AXONOMETRIC



1. OBSERVATORY MUSEUM



2. TOWER GARDEN



3. TOWER MODULATION



4. CRECHE PLAY AREA



5. LOFT APARTMENTS



6. CARVED VOID IN EXISTING

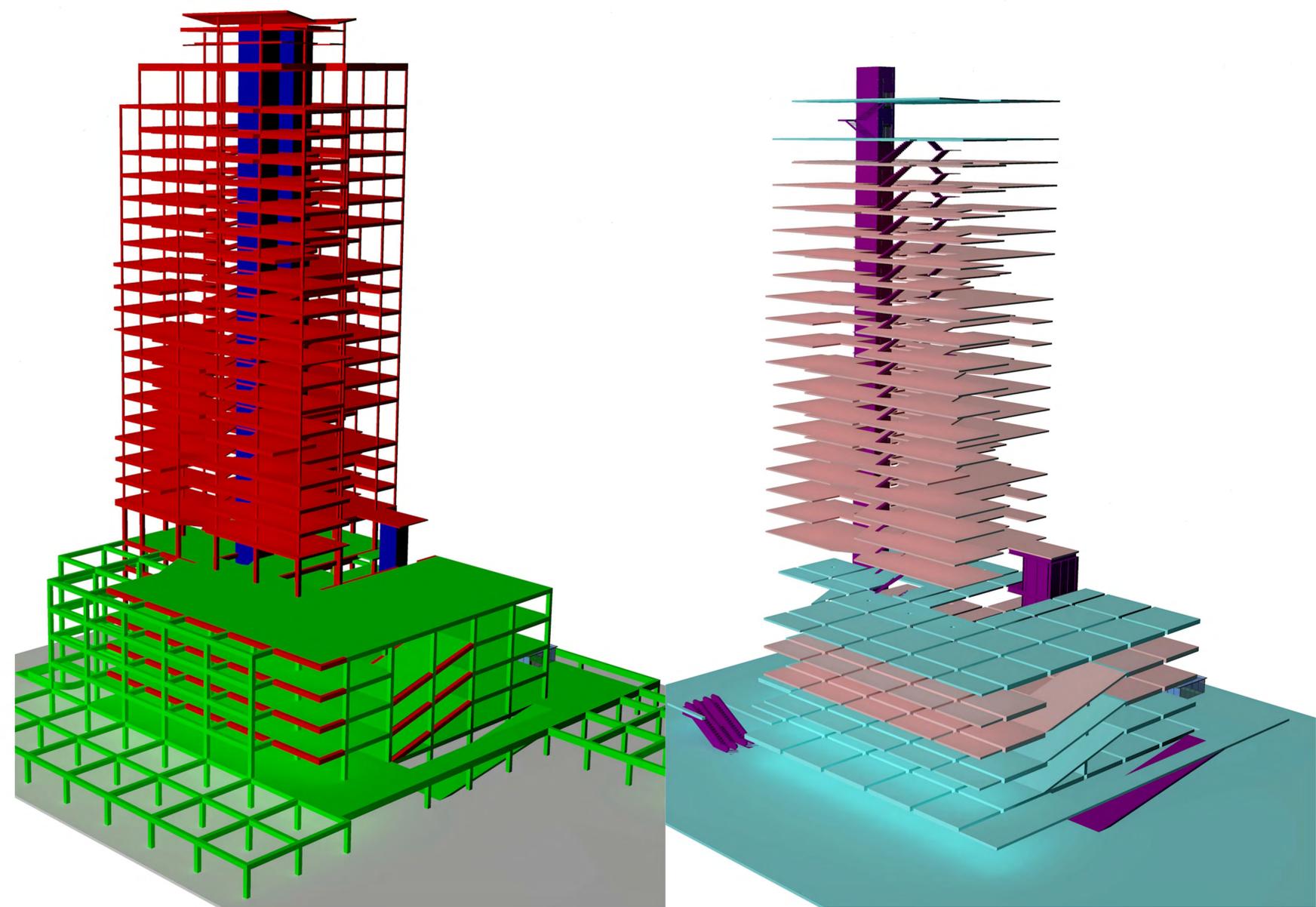
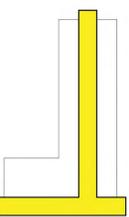


7. GROUND FLOOR PIAZZA



8. CONCOURSE MARKET SPACE

EXPERIMENT ANALYTICAL DIAGRAMS

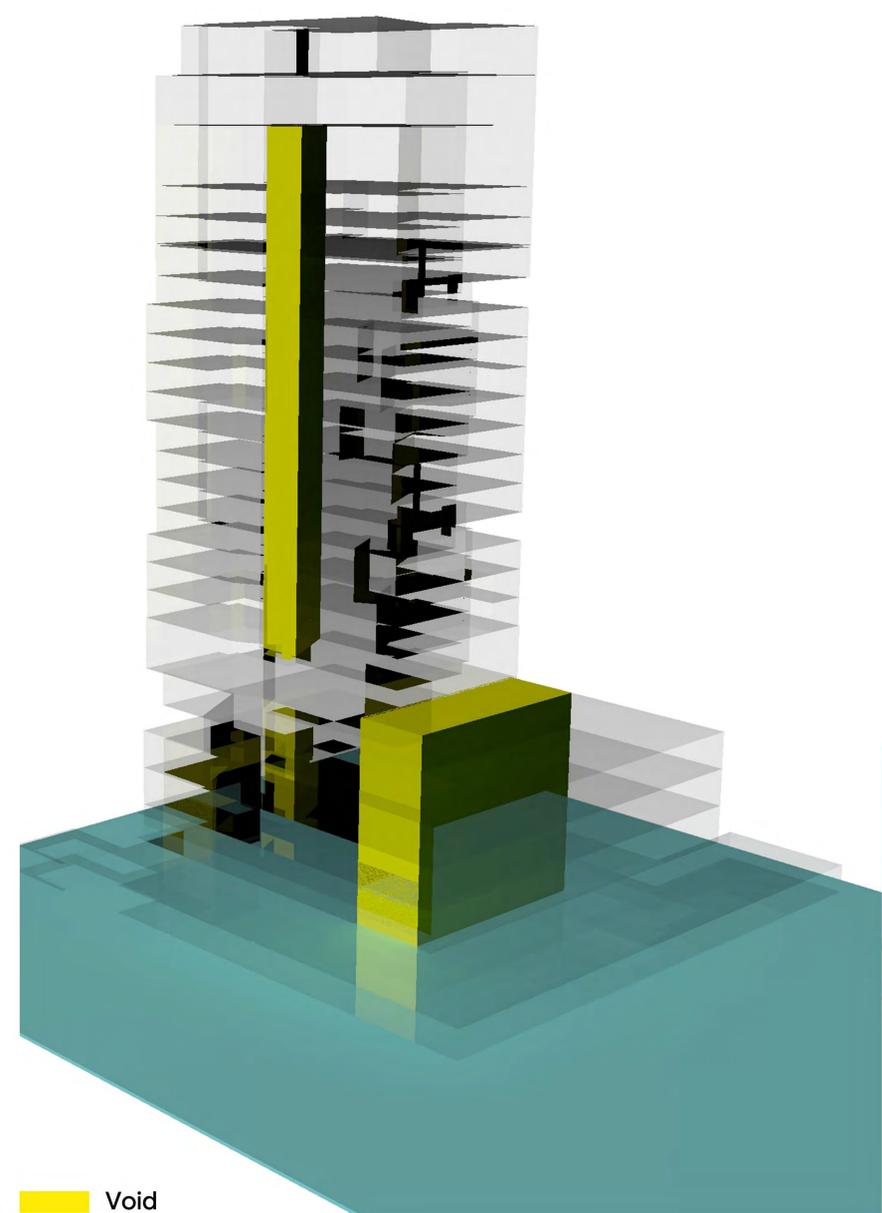


- Core
- New Structure
- Existing Structure

- Circulation
- Private
- Public

STRUCTURE

CIRCULATION + HIERARCHY



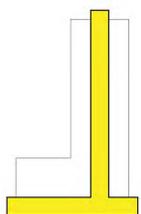
- Void



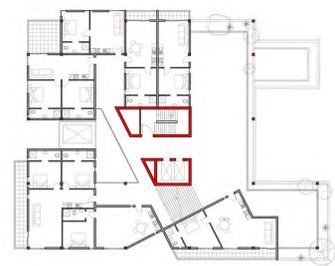
LIGHT + CARVING

ENCLOSURE

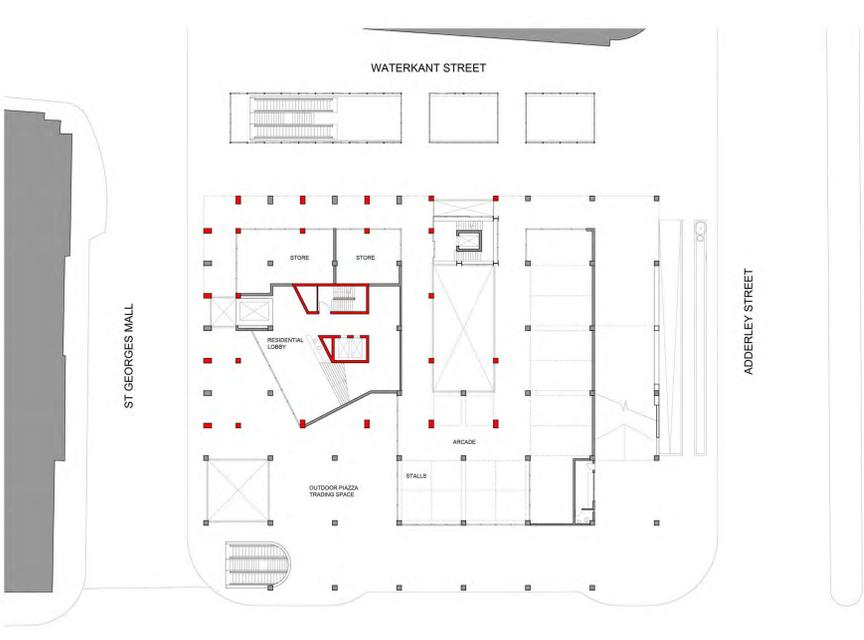
EXPERIMENT KEY PLANS



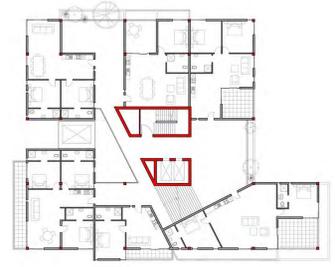
CONCOURSE PLAN (EXISTING)
1:250



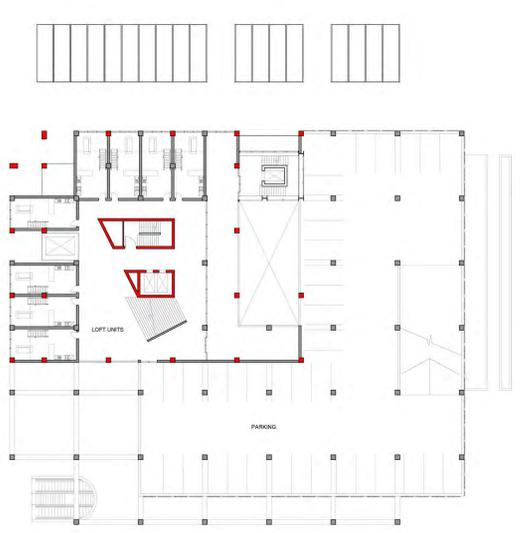
8TH FLOOR PLAN (TOWER 4)
1:250



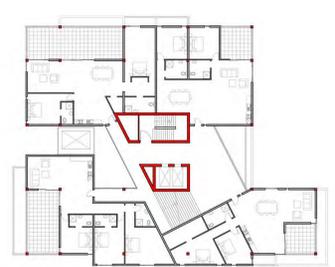
GROUND FLOOR PLAN (EXISTING)
1:250



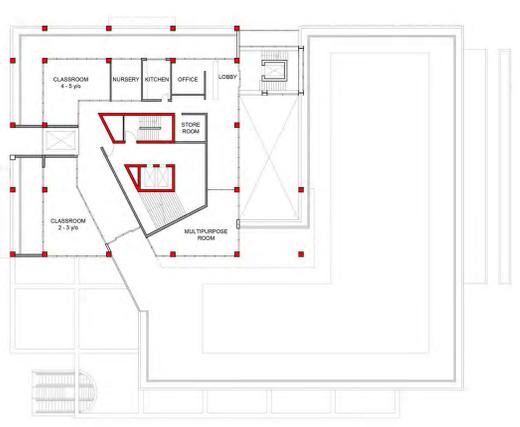
10TH FLOOR PLAN (TOWER 6)
1:250



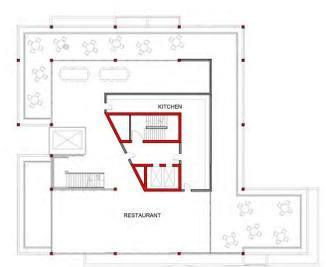
2ND FLOOR PLAN (EXISTING)
1:250



21ST FLOOR PLAN (TOWER 17)
1:250



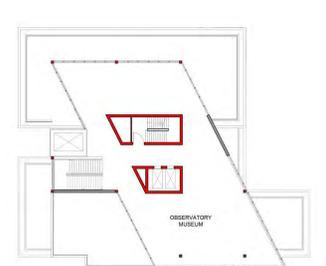
4TH FLOOR PLAN (CRECHE)
1:250



23RD FLOOR PLAN (RESTAURANT)
1:250

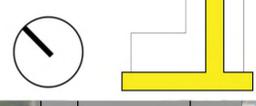


5TH FLOOR PLAN (TOWER 1)
1:250



24TH FLOOR PLAN (OBSERVATORY MUSEUM)
1:250

EXPERIMENT SITE+SECTIONS



SITE PLAN
1:500



SECTION FROM ADDERLEY STREET
1:250



SECTION FROM WATERKANT STREET
1:250



VIEW FROM STATION SQUARE



VIEW FROM ATTERBURY HOUSE

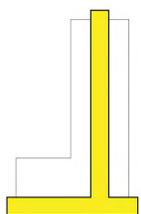


VIEW FROM GOLDEN ACRE



VIEW FROM STRAND STREET

EXPERIMENT ELEVATIONS



ADDERLEY STREET ELEVATION
1:250



WATERKANT STREET ELEVATION
1:250



STRAND STREET ELEVATION
1:250



ST GEORGES MALL ELEVATION
1:250

