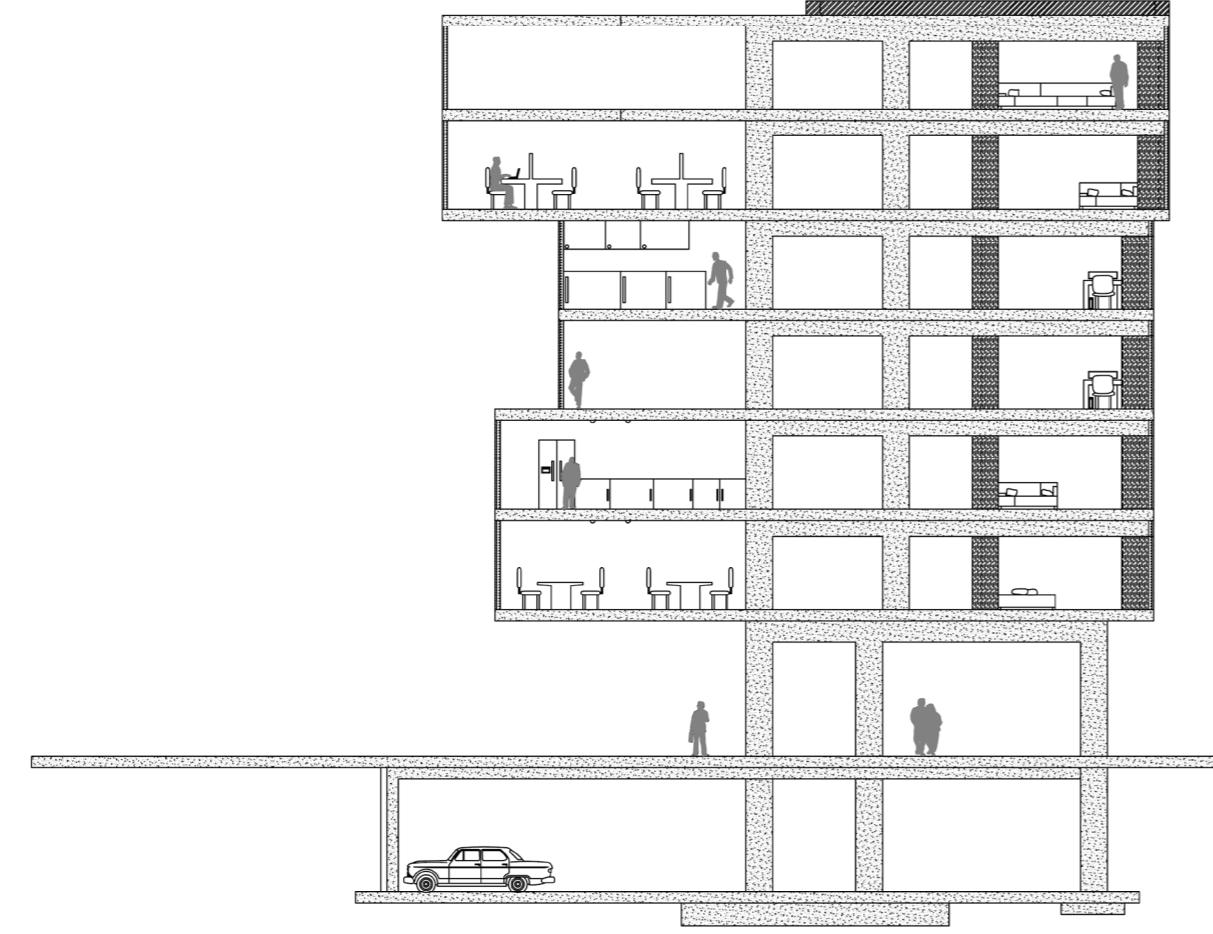
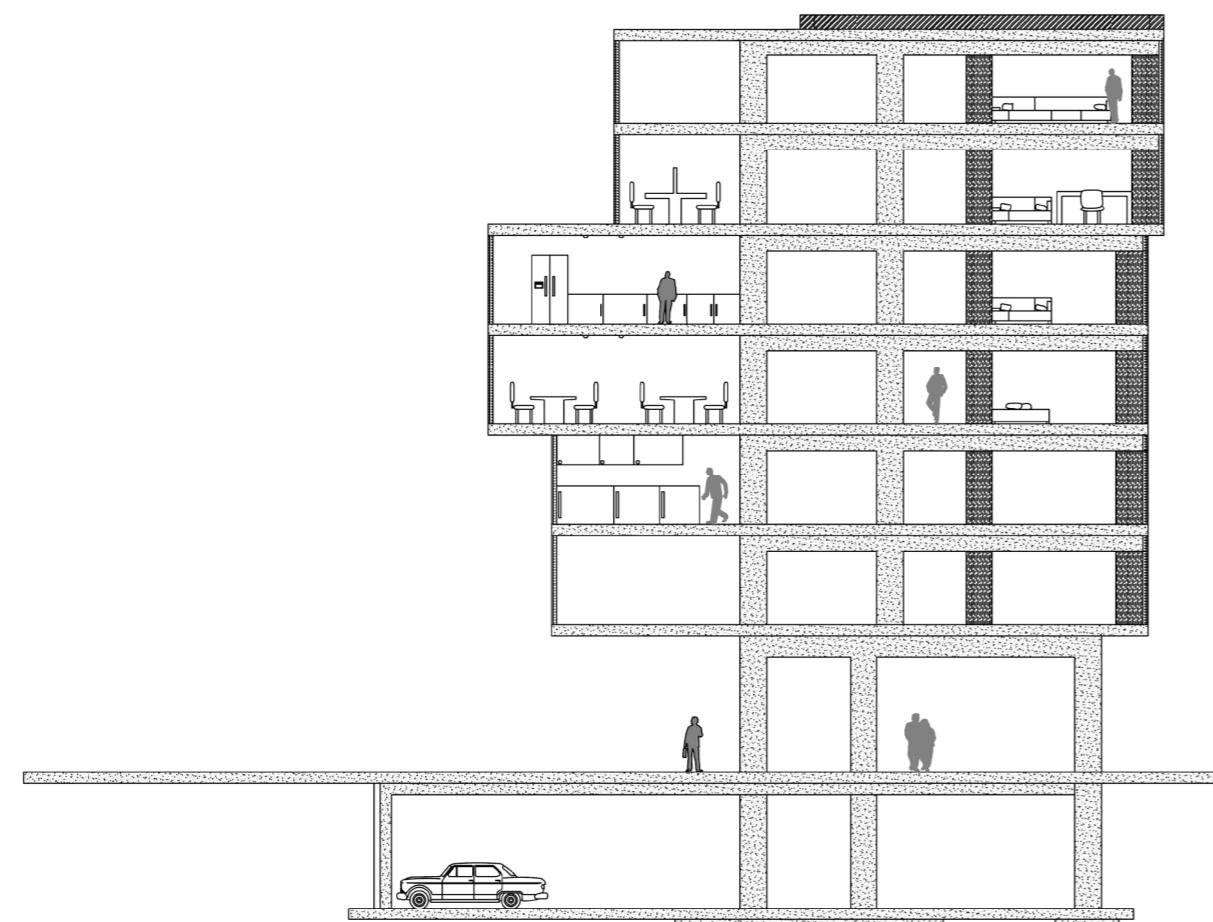
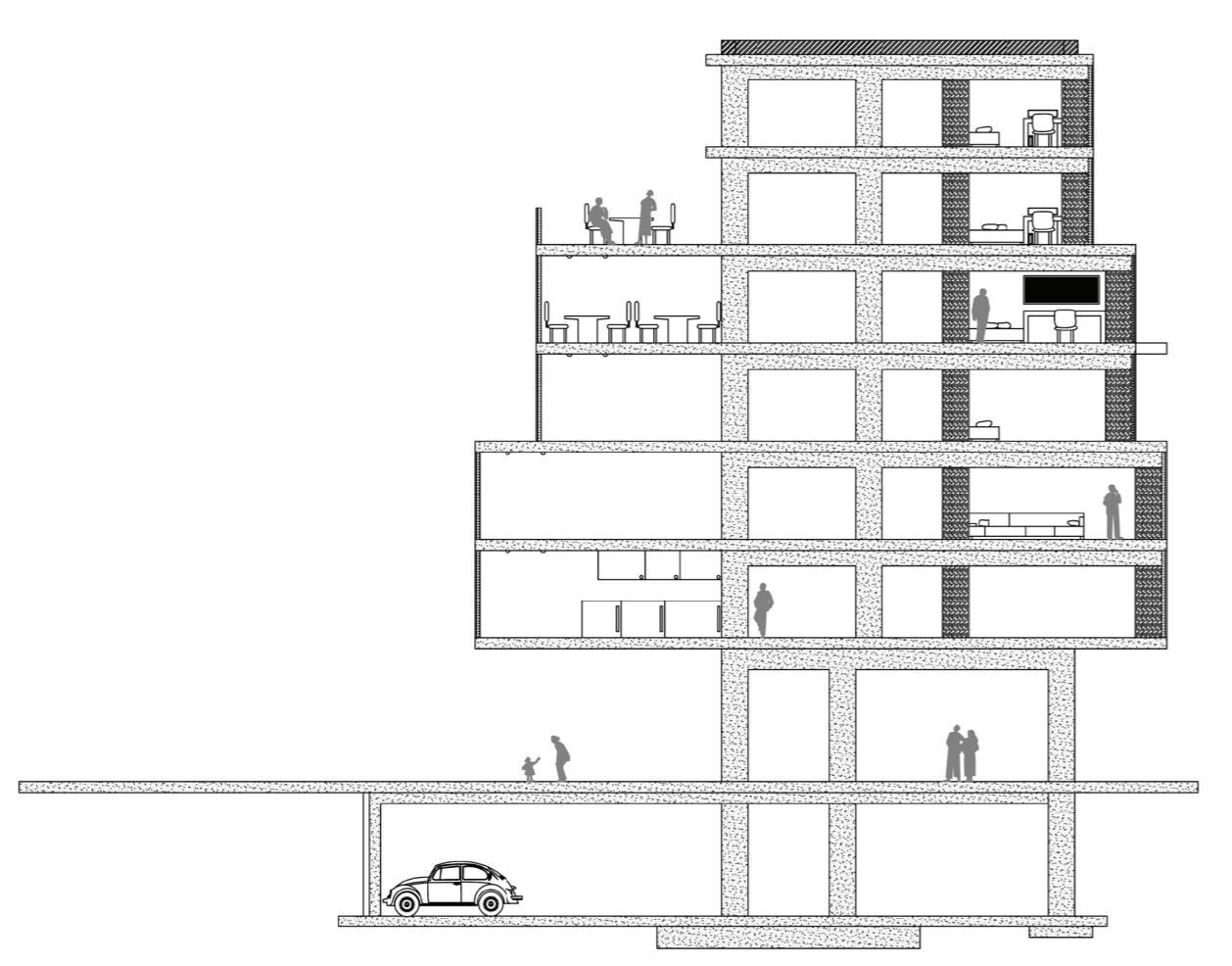
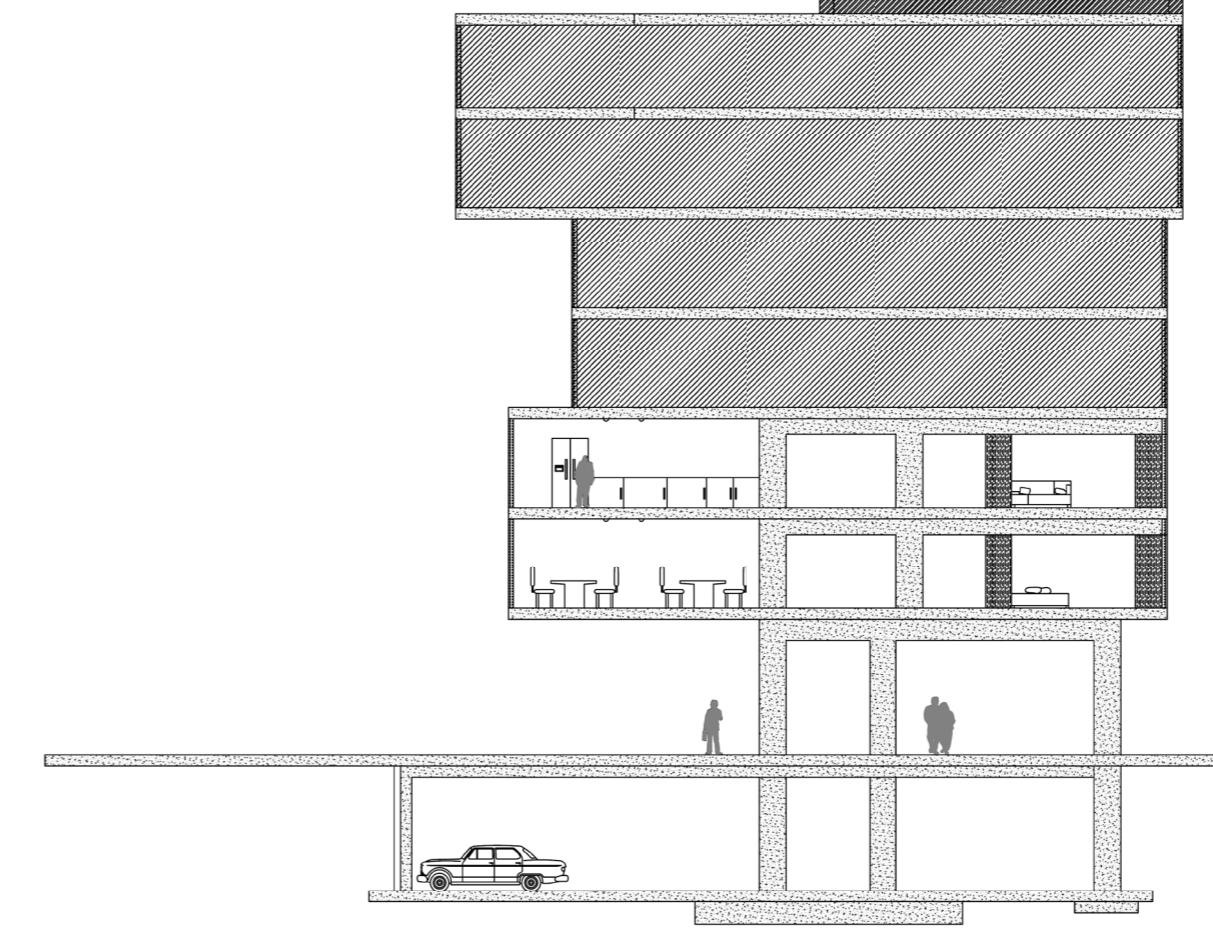
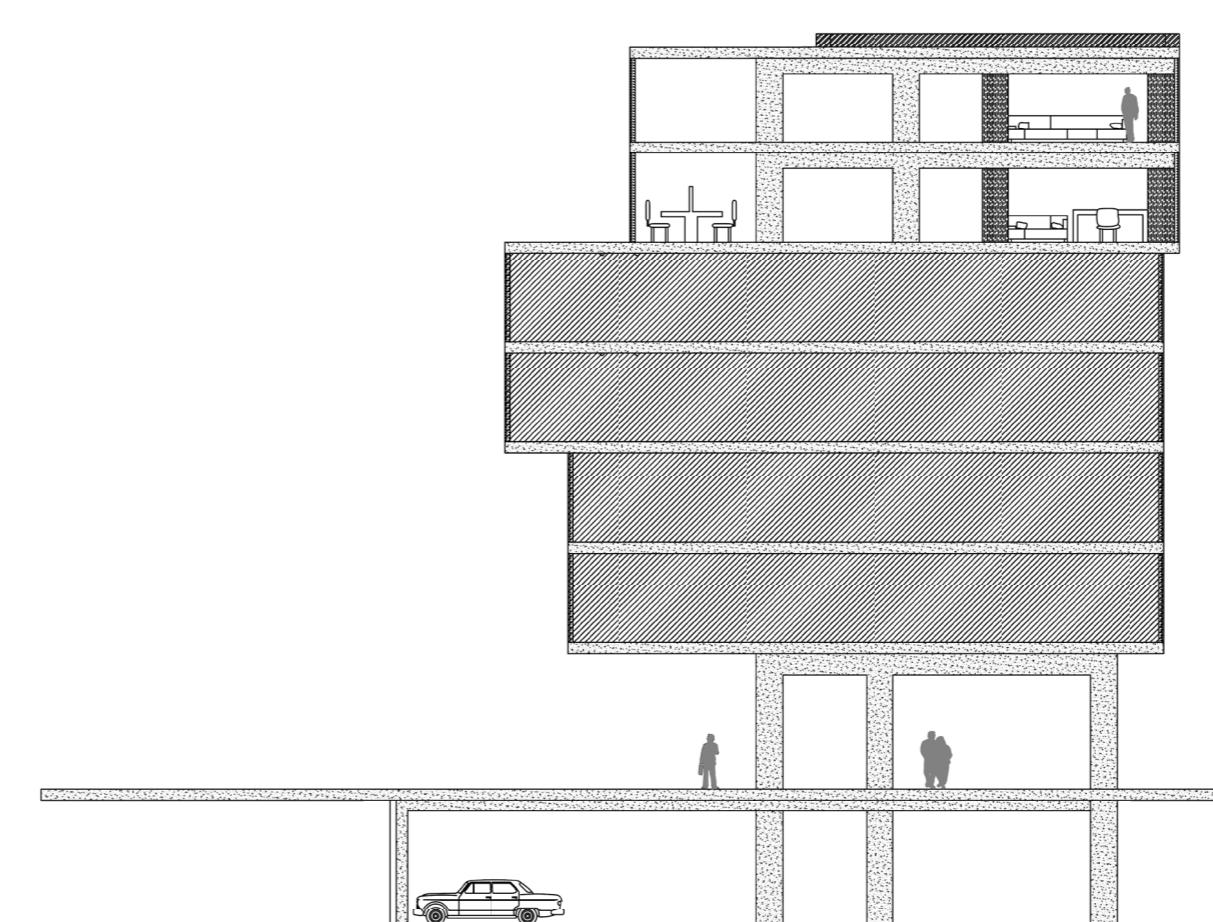
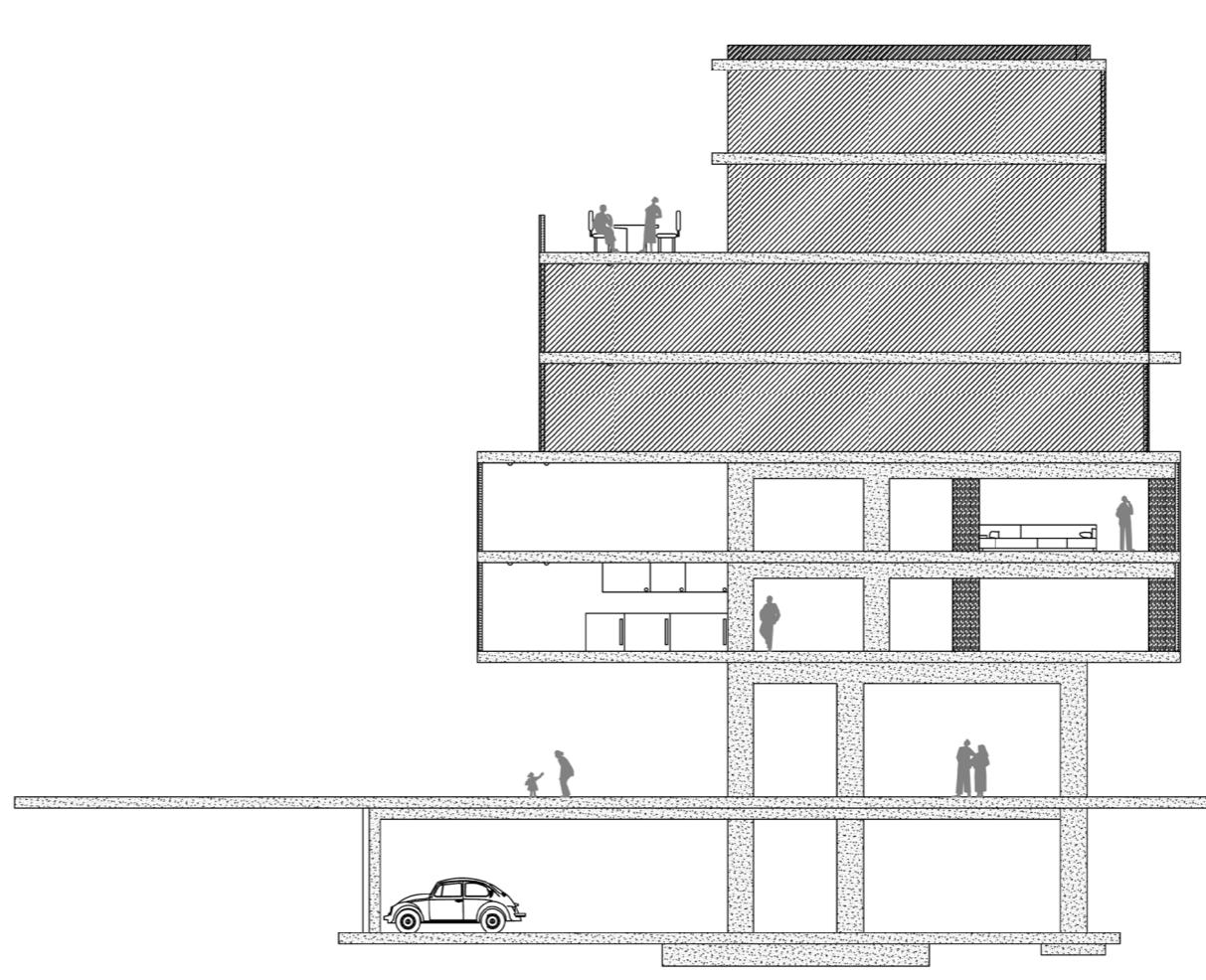


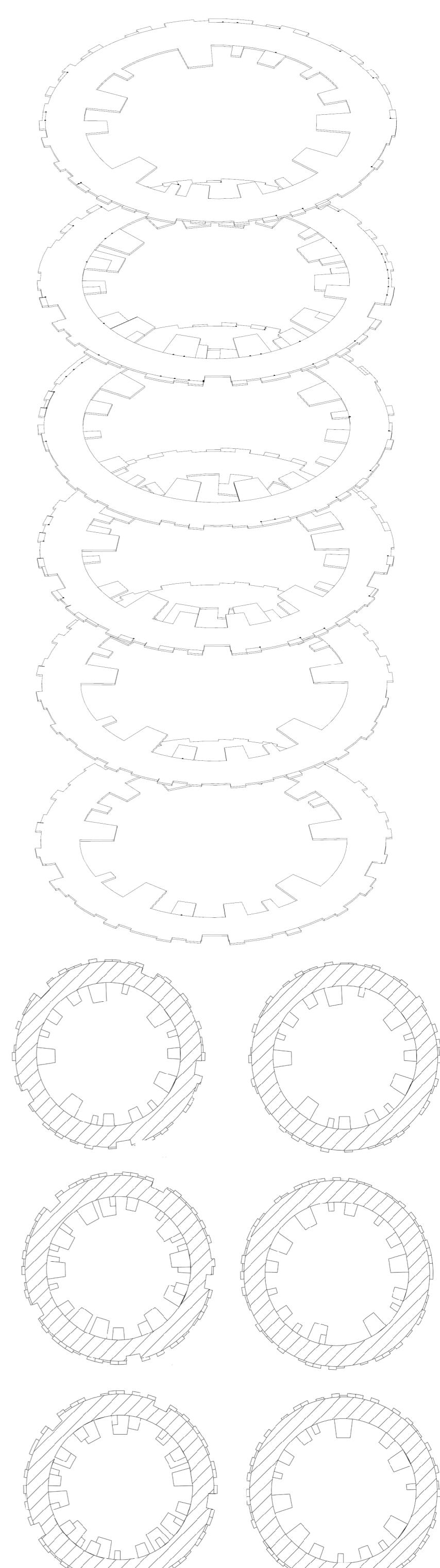
GEOMETRY



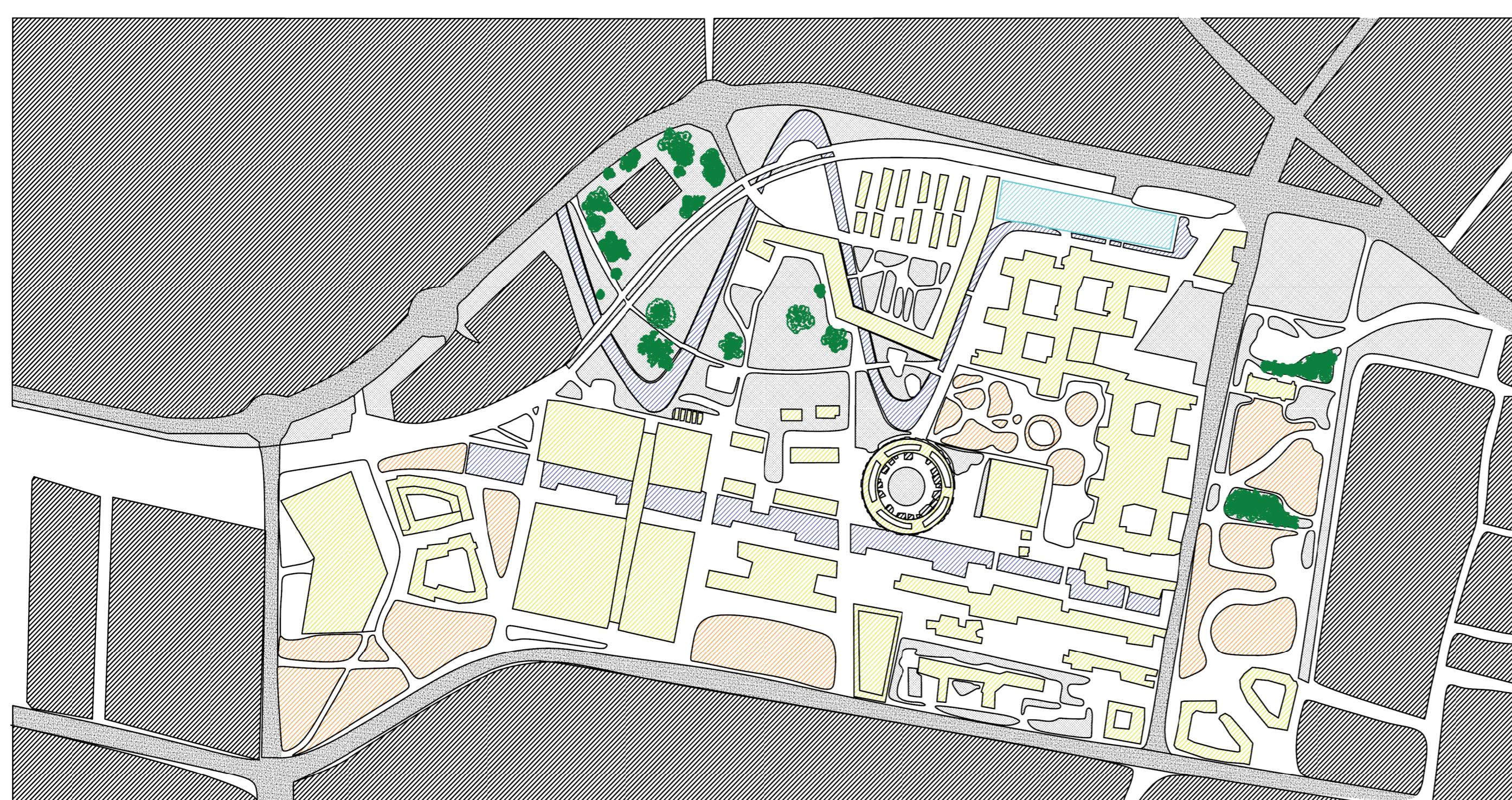
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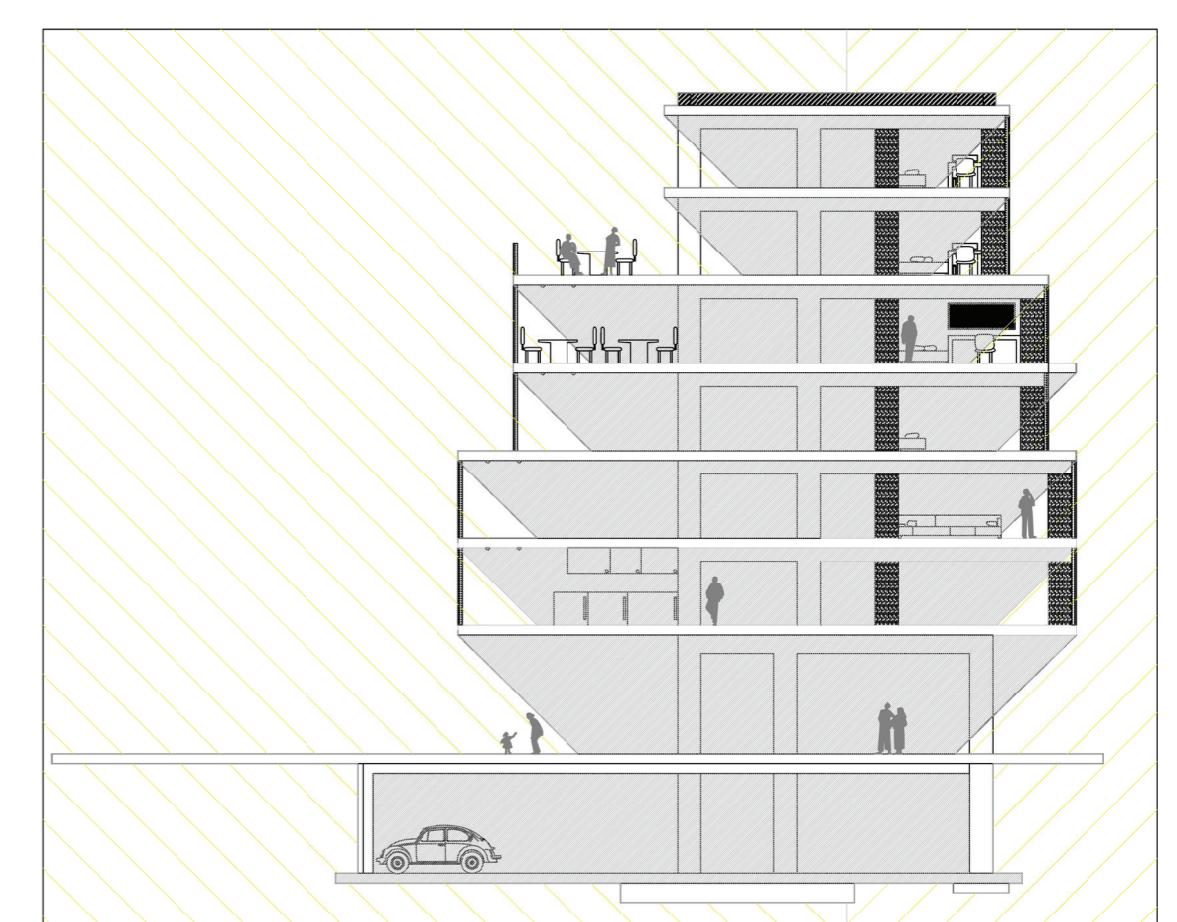
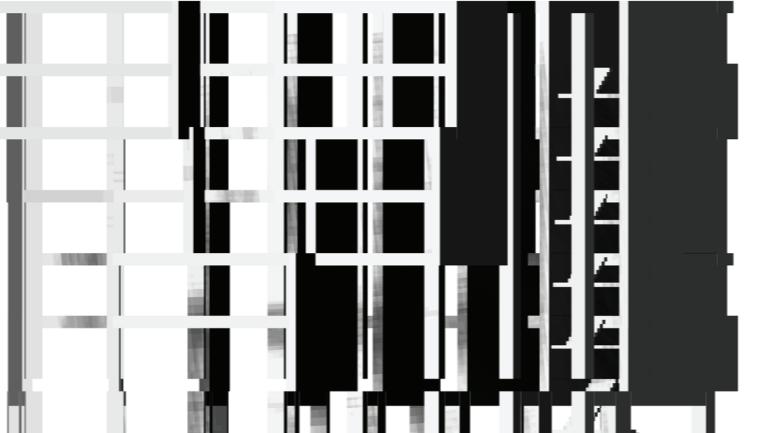
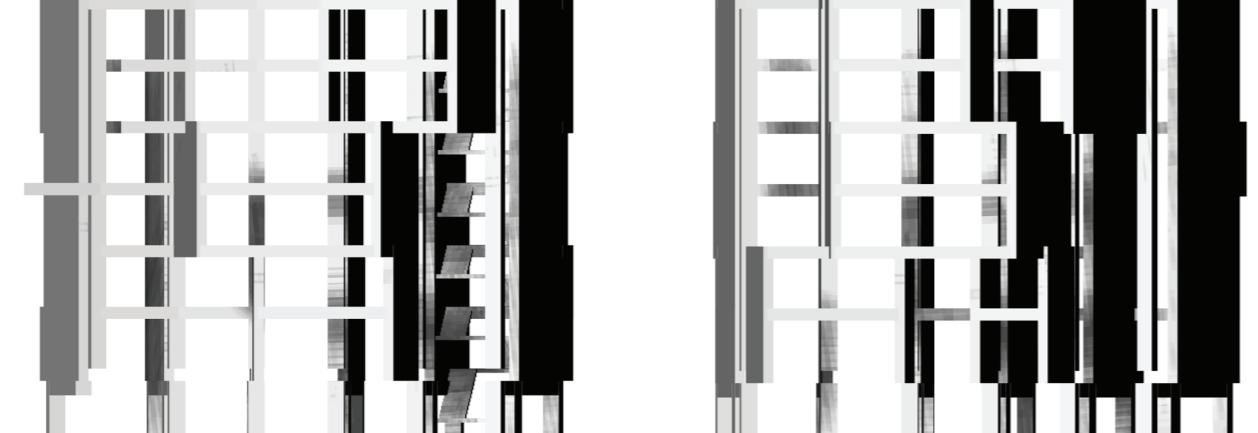
HIERARCHY



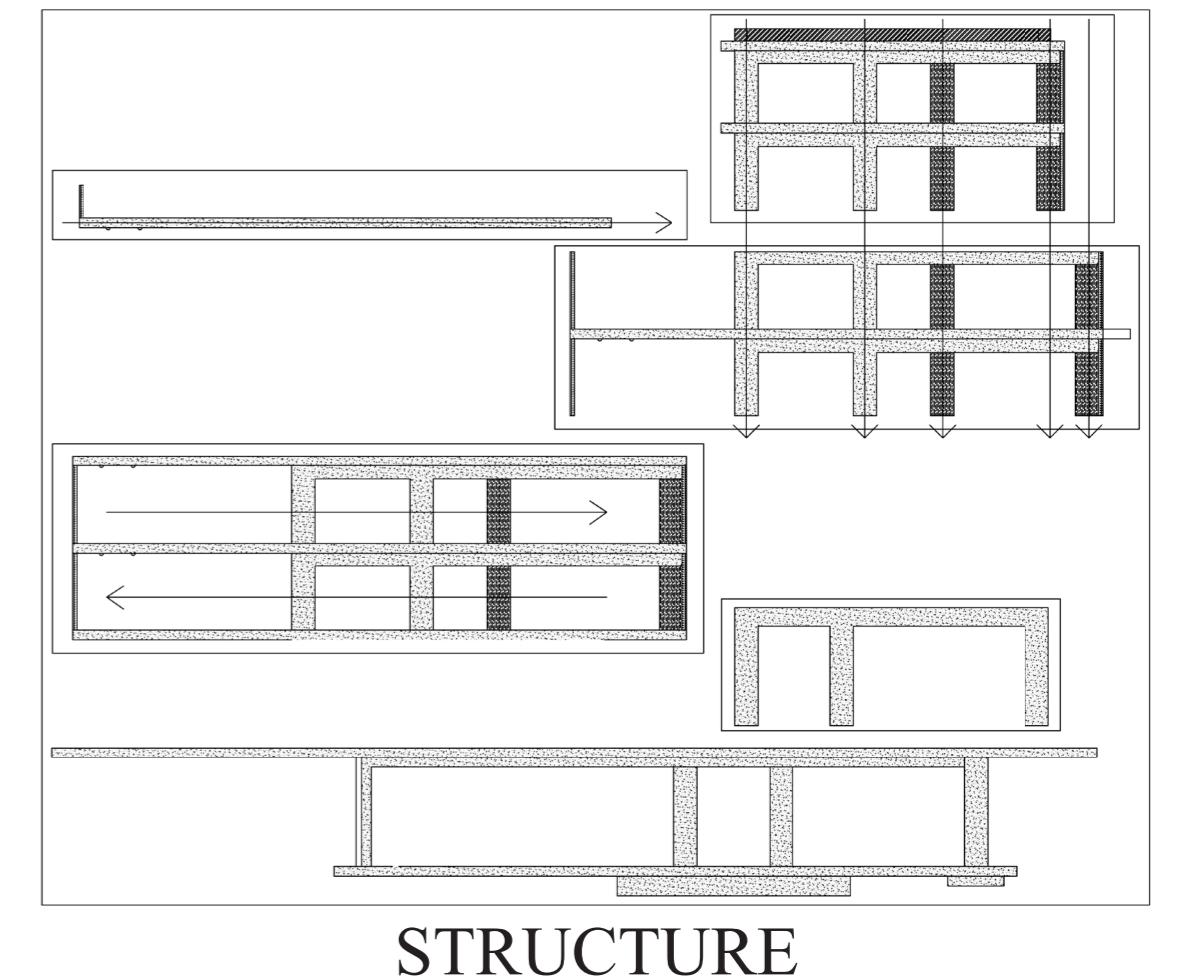
MASSING



SITE ANALYSIS / REPETITIVE TO UNIQUE



NATURAL LIGHT



STRUCTURE

TIETGENKOLLEGIET

LUNDGAARD & TRANBERG, COPENHAGEN, DENMARK, 2006

The Tietgenkollegiet symbolises the necessary reorganisation of spatial thought and development to completely express the necessity of both communal and individual residence. The projection inward within the cylindrical design through protruding pods illustrates unique structural elements that are founded upon repeated concrete fabrications within a circular formation which contributes towards the structural rigidity of the design. The application of structural concrete is complimented with the timber additions within residences and communal spaces, further reflecting the contextual significance of the developing surrounding space with unique design and natural subtlety of lowered canals and scattered parklands. The design further illustrates capability for spatial co-opt diversification, where current student residency and communal spaces are interchangeable with unique personalisation.

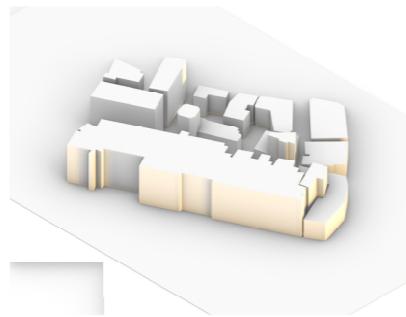
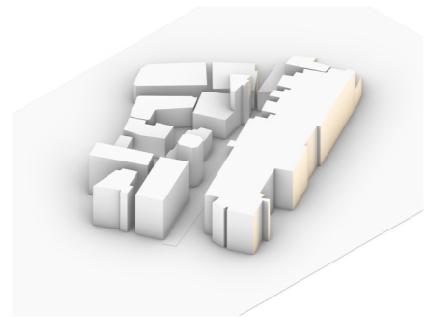
The simplicity of internal structuring combined with careful, intricate planning and development has resulted in a unique, characteristically appealing emergence of architecture.

AARON SAGGU

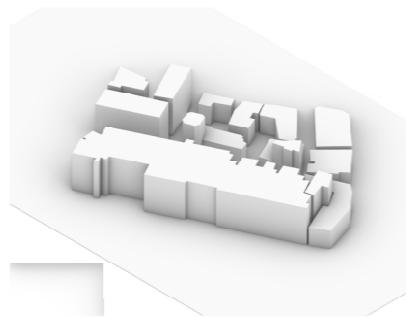
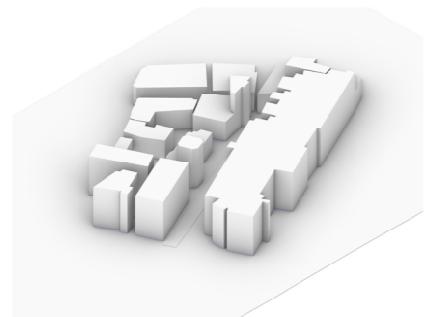
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THERMAL DESIGN AND ENVIRONMENTAL CONTROL
ASSESSMENT 1

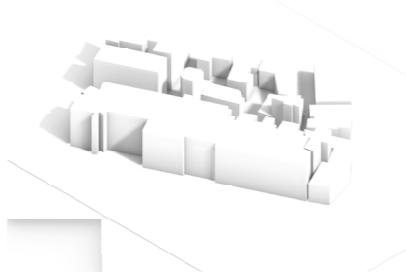
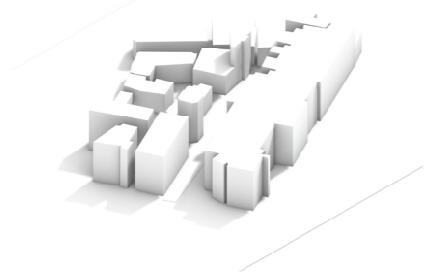
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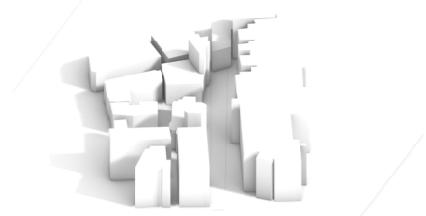
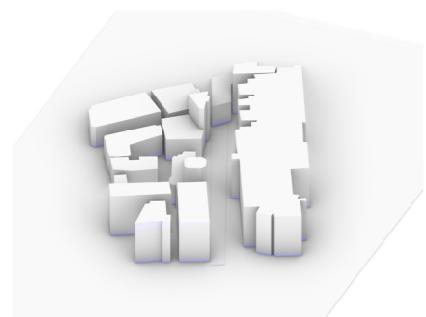
WINTER SOLSTICE



SUMMER SOLSTICE

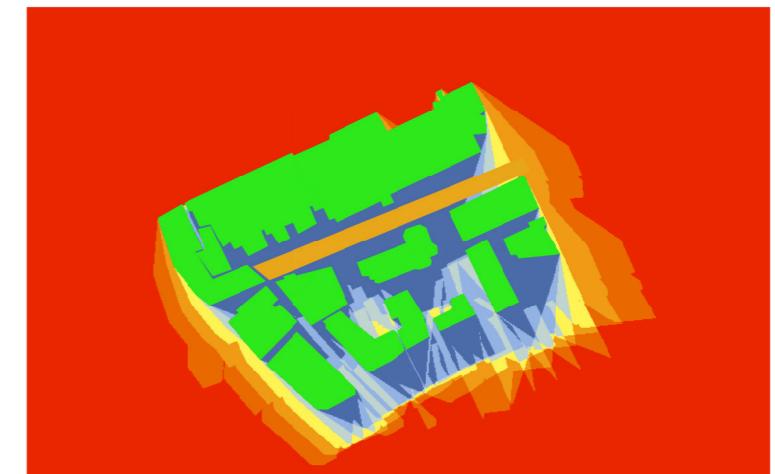


MID JULY 2019 - 6AM TILL 5PM



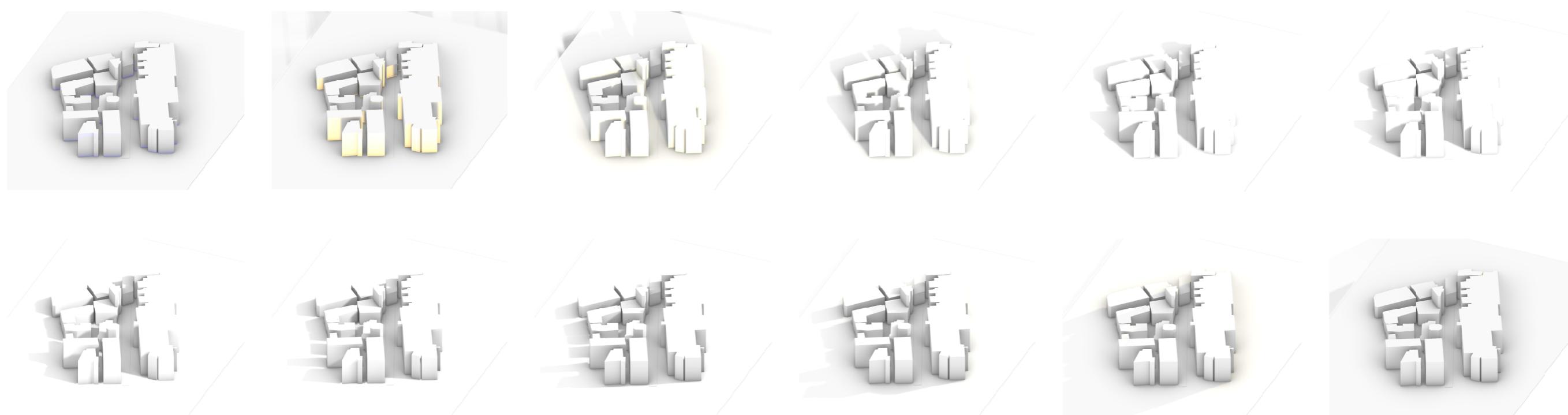
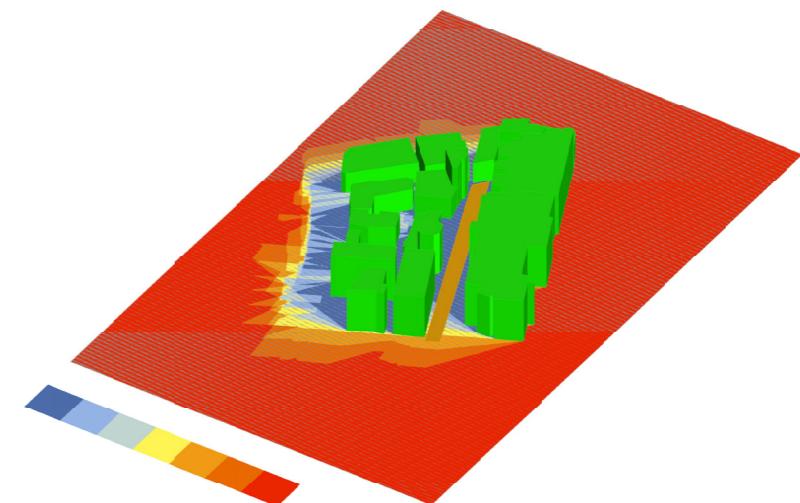
MICROCLIMATE

The height and developed envelope of surrounding structures establishes an almost constant maintenance of shadow upon the majority of the initial Goods Line. This allows for the development of unique micro-climate characteristics including temperture, prevailing wind patterns and the instance of sunlight.



SUNLIGHT

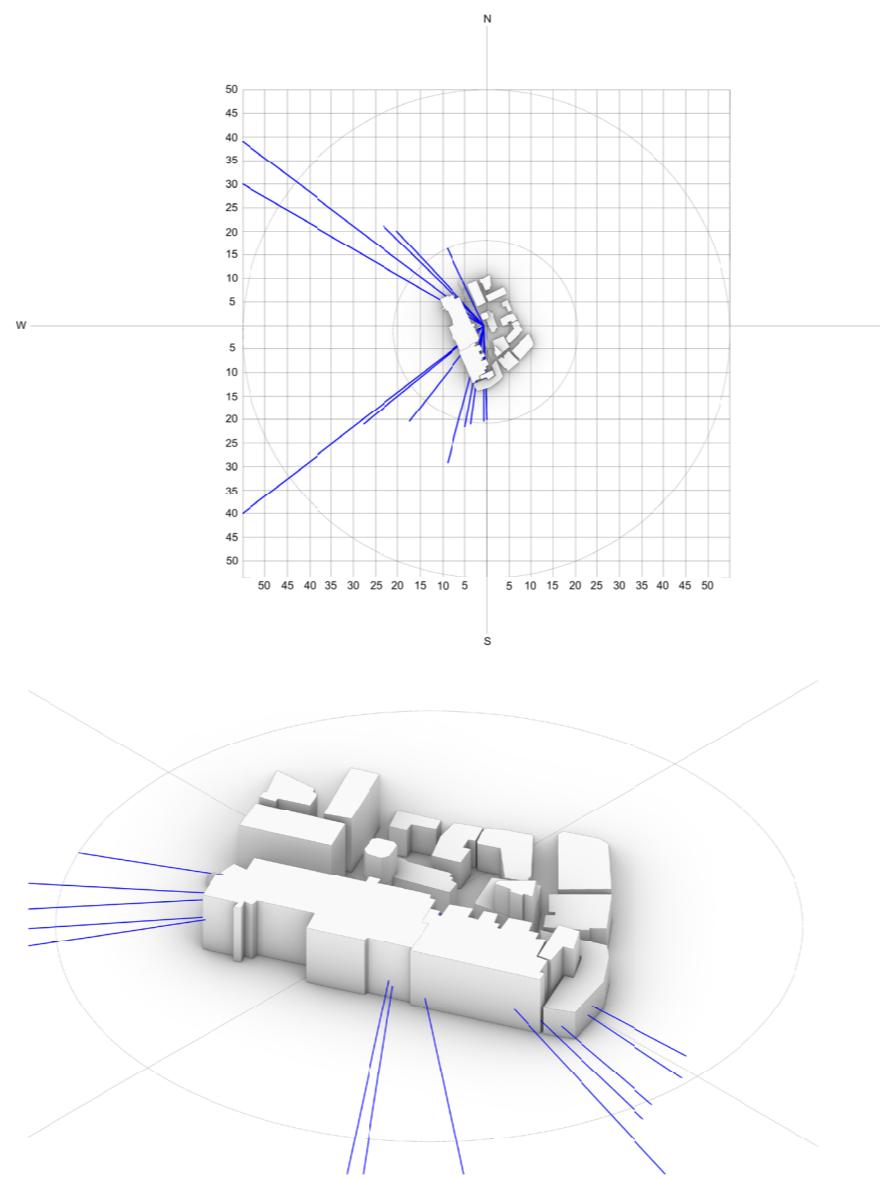
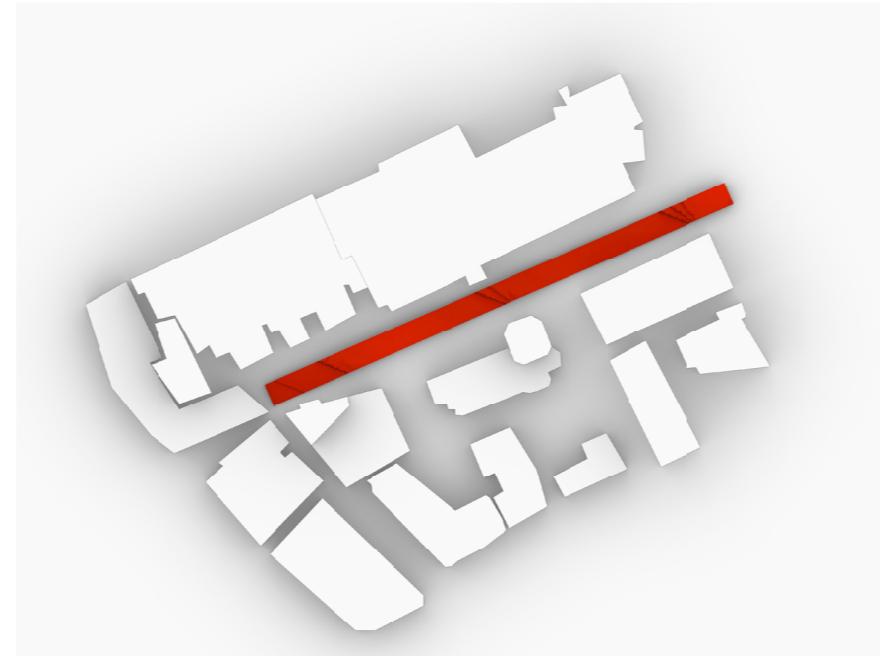
Sunlight within the surrounded building location allows for sunlight within the period of 1 - 2 hours during the winter months, whilst allowing for slightly more un-shaded, direct sunlight during the warmer summer months. When rising over the east, sunlight is most available during the morning period.





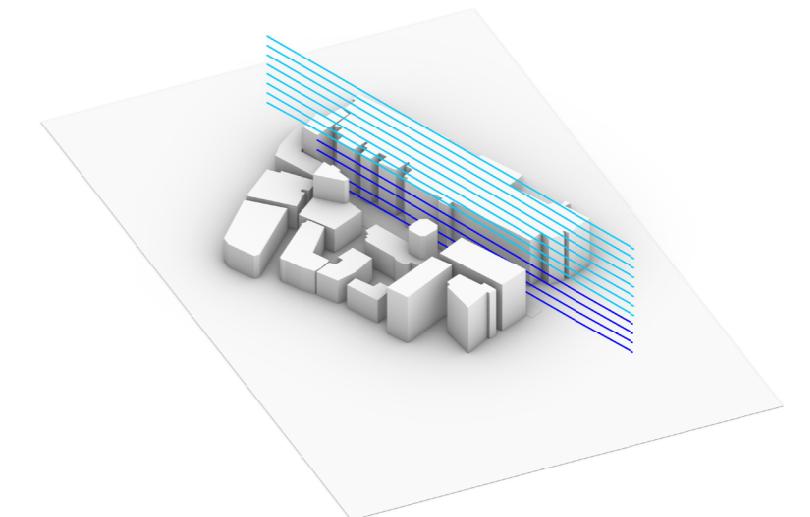
PREVAILING WINDS

The microclimate created within The Good's Line, is heavily amplified by the presence of strong northern and westernly wind patterns. The structural establishment of adjacent buildings, tree's and elongated path all amplify the existing powerful winds, which enter the tunneled valley. The entrance to The Good's Line faces the north which is where the most powerful winds are evident. The winter of 2019 displayed winds of up to 40km/h, which combined with the existing cold air and heavily shaded area, creates an uncomfortable transit and sitting space. The size and structural placement of buildings further disrupt and contour the patterns of wind that approach the site as well. The importance of the intervention is to address and provide a solution to winds that are evident within the specified Goods Line zone, whilst not inhibiting The Goods Line main functional purpose, which is pedestrian transit between different areas of the ultimo.



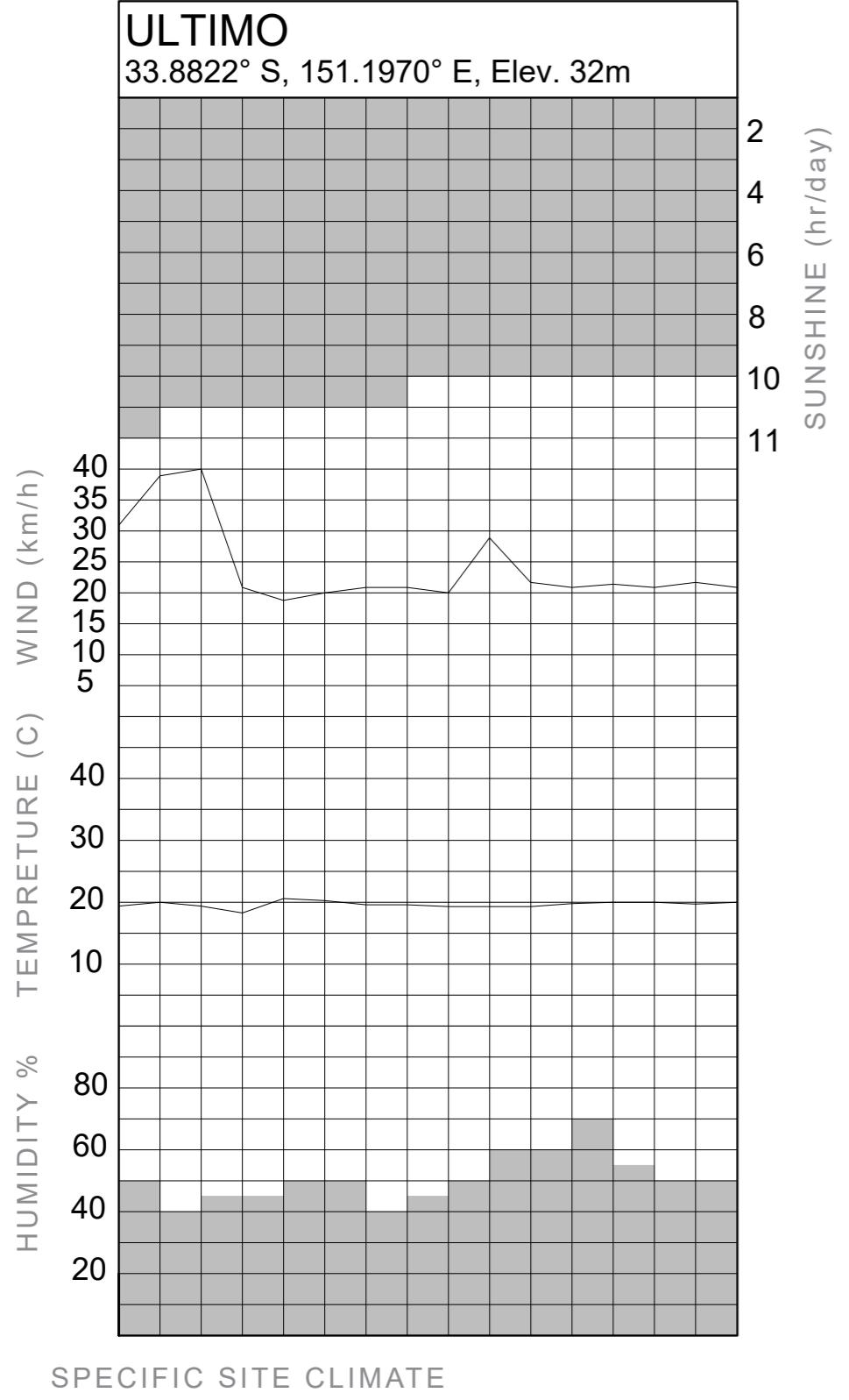
ENVELOPE

The surroundings structures within The Goods Line are mostly double envelopes with most facing the sun in order to utilise the passive capabilities of solar heating. These larger structures however, often compromise the full capability for the permanent implementation of smaller structures, as the direct rays from the sun only reach the full stretch of the line for a small, specified period of time. In order to utilise this, the creation of the intervention must account for the full utilisation of this period, whilst solving the various consequences that are applied when working within a shaded microclimate.



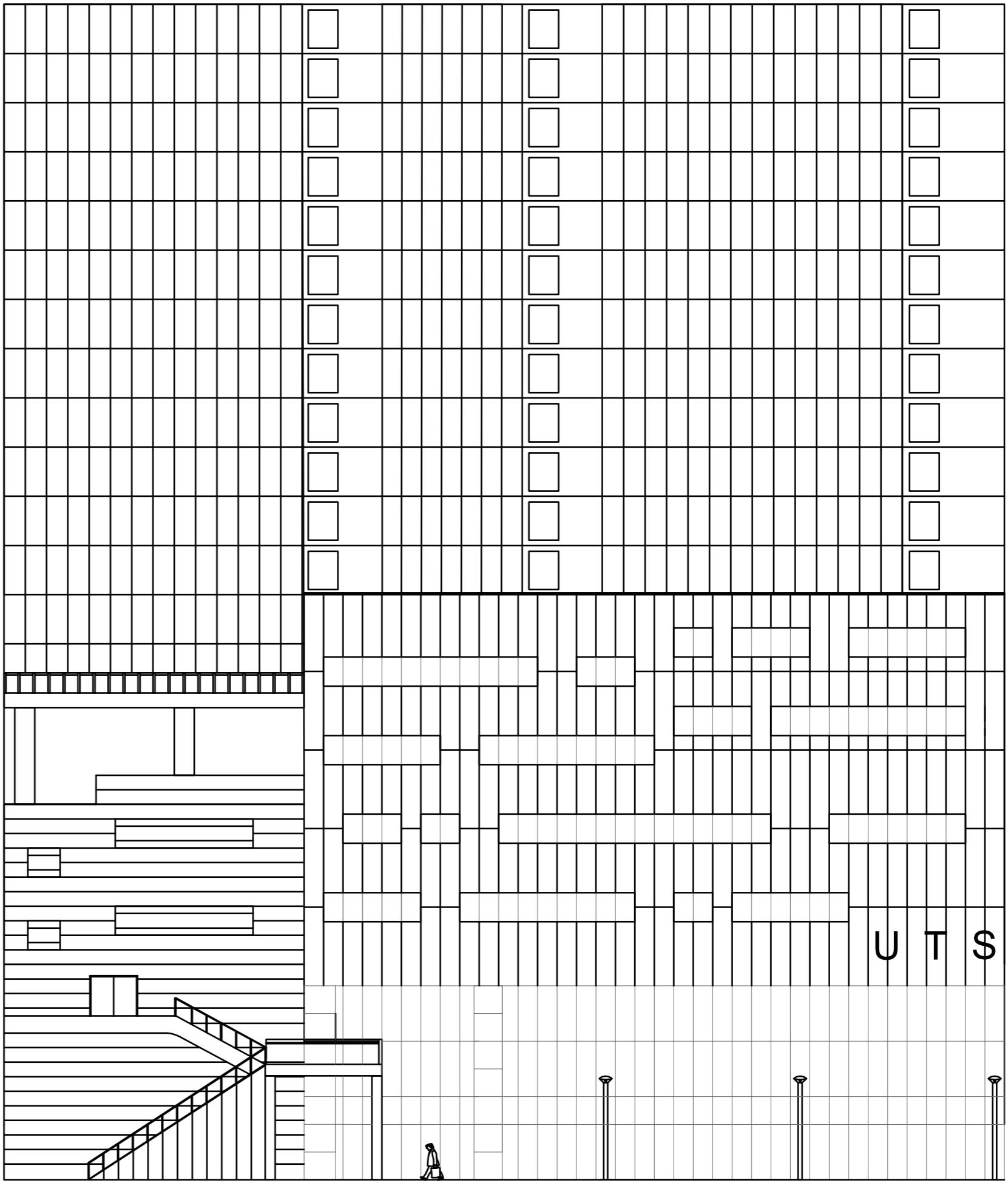
ULTIMO

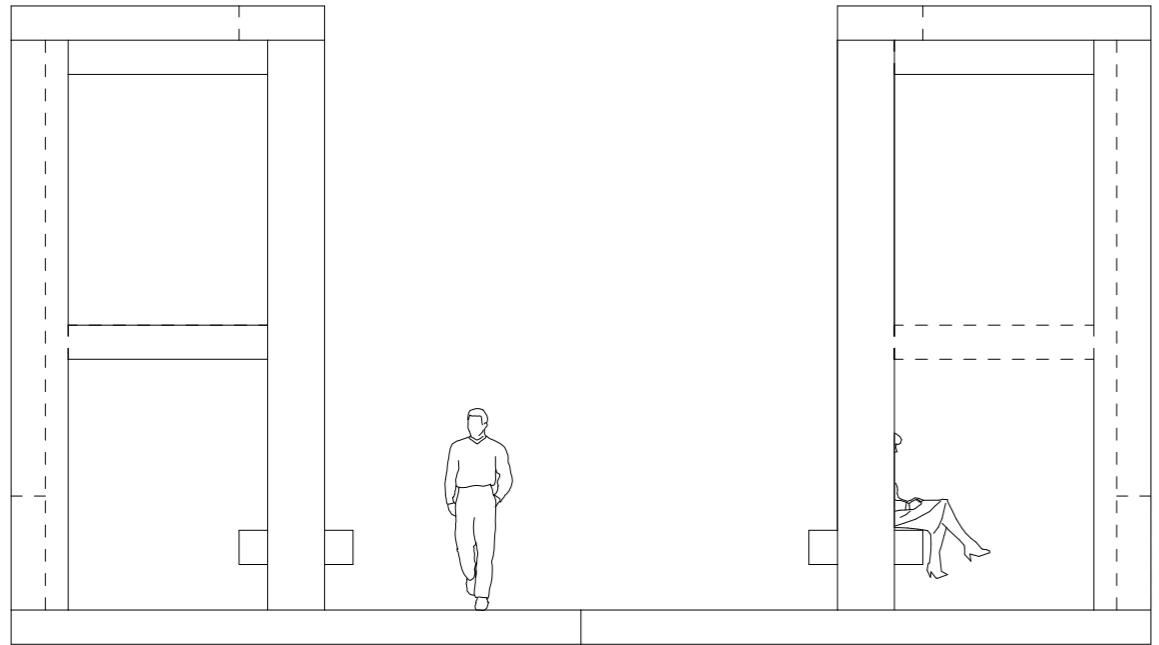
33.8822° S, 151.1970° E, Elev. 32m



SPECIFIC SITE CLIMATE

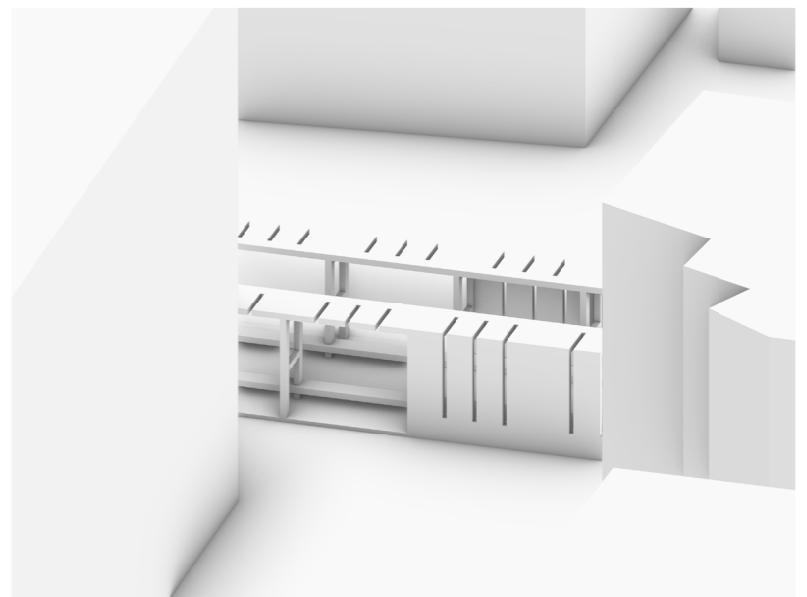
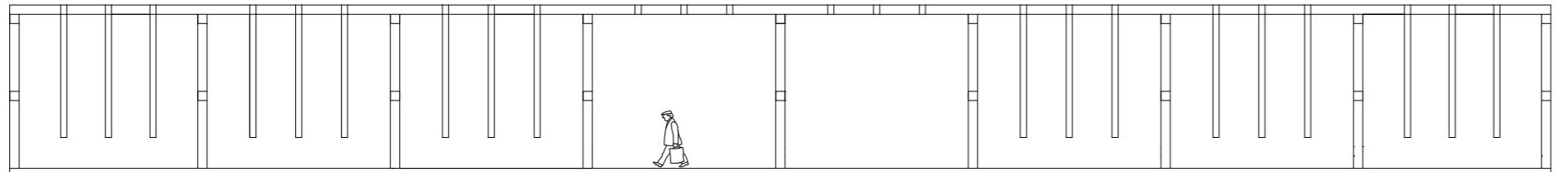
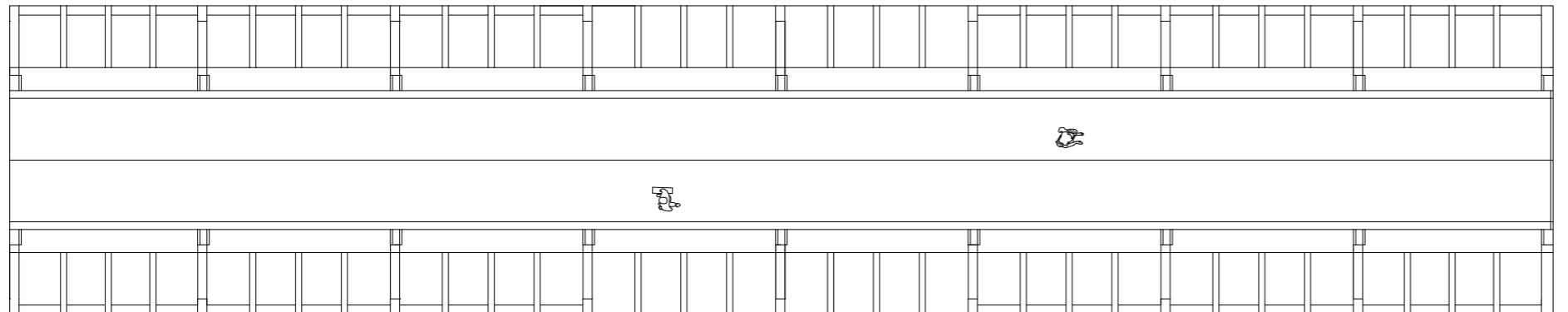
The climate within the first 100 meters of entering The Goods Line, within the months of July and August, presented low winterly temperatures, high km/h winds with mid-range humidity. The sunshine within the ultimo area was substantial, however the specific area of site received a significant amount less due to overarching structures that mitigate up to 2/3's the amount received in other surrounding areas.





INTERVENTION

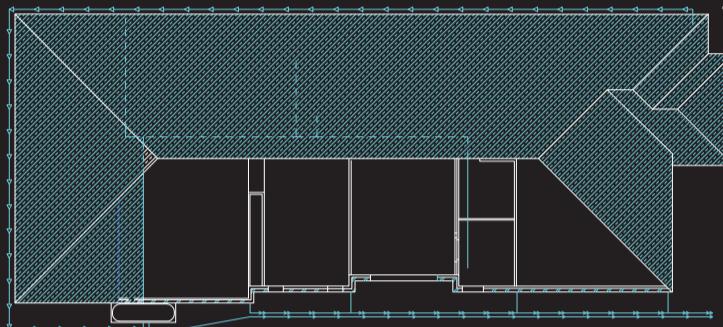
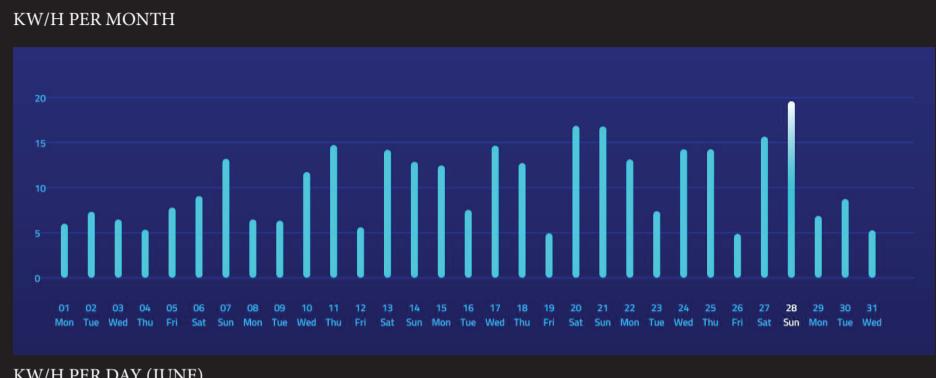
The application of the intervention within the site effectively mitigates the negative implications of the evident microclimate. The elongated gap spread throughout the structure allows for maximum sun exposure during the cooler mornings, the seated areas with structural beams stopping northerly winds allow for individuals and groups to be unaffected and the open structure design illustrates the capability to circulate air flow throughout without any immediate obstructions. The transit of individuals through The Goods Line is also respected, whilst maintaining the ability to be an experienced public domain, as opposed to surrounded structures which are corporate, commercial or educational. The shaded sidings allow for evening sun to break through, allowing strands of patterned light to create an atmosphere within the intervention itself.





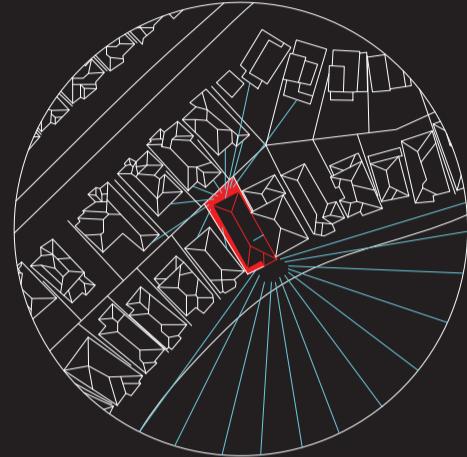
STAGE 1 TO STAGE 2

THE RECOGNITION OF ALL ASPECTS WITHIN STAGE 1 OF THE DESIGN PROPOSAL UNDERSTAND THE EXTERNAL, PASSIVE AND PERFORMATIVE ASPECTS OF CURRENT PROGRAMMATIC APPLICATION. THIS INCLUDES NOTIONS OF WATER CIRCULATION, CIRCULATION THROUGH THE EFFECTED DESIGN, UTILISATION OF THE STRUCTURE WITHIN A GRID AND PATTERNS OF WIND MOVEMENT. THE RE-INVENTION OF THE DESIGN WILL INCLUDE PROGRAMMATIC INCLUSIONS TO UTILISE THE VENTILATED CIRCULATION TO THE BEST CAPABILITY, WHILST FITTING SEAMLESSLY AND FULLY INTO THE SPECIFIED LOT. THE CIRCULATION OF WATER WILL BE FURTHER DESIGNED TO UP-SCALE PRE-EXISTING WATER STORAGE, WHILST UTILISING THE OVER-USE RUN-OFF AS STORED RECYCLED WATER OR WATER TO ATTACHED TO SYSTEMS OF VEGETATION GROWTH. THE ISSUE OF PRIVACY WITHIN SPECIFICALLY THE REAR SIGHTING OF THE STRUCTURE IS FURTHER CONSIDERED, DUE SIGNIFICANTLY TO THE RISING CONTOUR OF THE AREA. THEREFORE IT'S NECESSARY TO CONSIDER THE ARRANGEMENT OF FUTURE PLACEMENTS IN ORDER TO RESOLVE THIS ISSUE. THIS DRIVE TOWARDS FURTHER URBAN AND SOCIAL SUSTAINABILITY AN BE FURTHER DEVISED AND ADAPTED THROUGH PRIMARY ADDITIONAL RESOLUTIONS SUCH AS THE SMART LAYERING OF SOLAR PANELS IN PRIME AREAS AS WELL AS SMALLER WIND CATCHMENT PROGRAMS THAT CAN AID TOWARDS THE SUSTAINABLE GATHERING OF ENERGY. THIS PRIMARY ADDITIONAL ASPECT WILL BE SUPPLEMENTED MAINLY BY DESIGN DECISIONS THAT REFLECT THE POTENTIAL OF PASSIVE CONCEPTS, SUCH AS WIND AND LIGHT FOR EXAMPLE. THESE WILL INCLUDE THE POSITIONING OF POTENTIAL WINDOWS AND LIGHTS, MORPHING OF THE ROOF TO ADAPT SPECIFICALLY TO AID THERMAL MASSING ELEMENTS AS WELL AS ALLOWING FOR COMPLETE CIRCULATION OF AIR THROUGH THE STRUCTURE. THEREFORE THE NECESSITY FOR INTERVENTION WITHIN THIS STRUCTURE AND DESIGN DISPLAYS THE CAPABILITY TO FURTHER PUSH THE BOUNDARIES OF URBAN AND SOCIAL SUSTAINABILITY IN ORDER TO REALISE THE SPECIFIC POTENTIAL OF THIS INDIVIDUAL STRUCTURE WITHIN IT'S LOT. EACH STRUCTURE WITHIN THE GRID REQUIRES IT'S OWN APPLICATION OF THIS PROPOSITION, AS EACH IS WITHIN A DIFFERENT LOCATION ON THE GRID AND IS SUBJECT TO IT'S OWN ASPECTS OF ADAPTABILITY. THE RECOGNITION OF THIS NOTION REPRESENTS THE TRANSITION BETWEEN STAGE 1 AND STAGE 2.



WATER CIRCULATION [PERFORMATIVE INTERNAL]

THE SYSTEM OF WATER MOVEMENT IS CAUGHT WITHIN SPECIFIC WALL PIPING AS WELL AS ROOF CATCHMENTS. THE MOVEMENTS ARE THEN FILTERED INTO THE WATER TANK AND RECYCLED WITHIN COLD WATER USAGE OR INTO THE MAIN LINES. UN-USED WATER IS THEN DIRECTED OUT, AS WELL AS STORM. SYSTEMS OF IMPROVEMENT CAN BE REALISED WITHIN THE DIRECTION OF UN-USED WATER, TOWARDS ENVIRONMENTAL, VEGETATION USAGE OR DIRECTED TO MORE STORAGE.

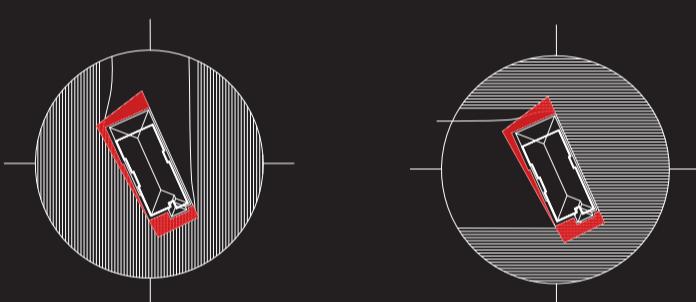


WATER CIRCULATION PLAN

SECTION CIRCULATION [PASSIVE INTERNAL]

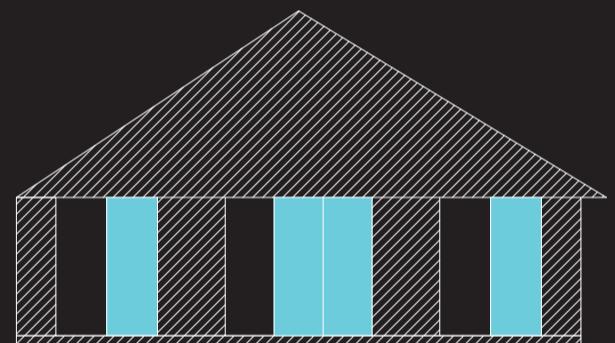
MULTIPLE POTENTIAL OPENING WITHIN THE STRUCTURE CURRENTLY ALLOW FOR CIRCULATION WITHIN MOST AREAS OF THE HOUSE. HOWEVER THESE AREAS ARE SECTIONED OFF AS SPECIFIC ROOMS WHICH LIMITS THE POTENTIAL FOR NATURAL VENTILATION TO OCCUR, AS IT WOULD WITHIN A MORE OPEN PLAN. IT FURTHER DEPENDS ON THE POSITION OF THE DOORS AS WELL.

SIGHTING RANGE



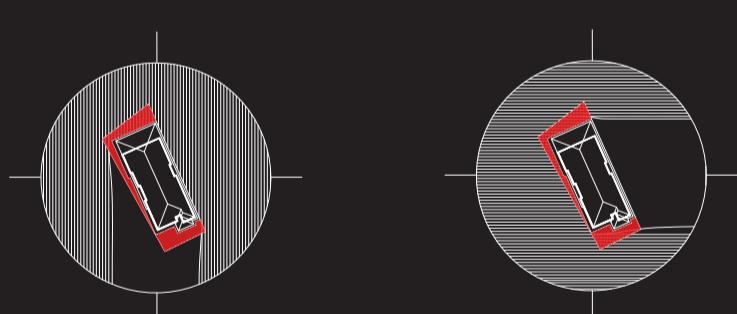
WIND BLOCKING GRID [PASSIVE EXTERNAL]

THE EXTERNAL BLOCKING OF WIND OCCURS DEPENDING ON WIND DIRECTION. THE INDIVIDUAL LOTS ARE ALL EFFECTED DIFFERENTLY, DUE TO THE ISSUE OF THE GRID LAYOUT OF STRUCTURES. THIS GRID OBSTRUCTS WIND PATTERNS IN SOME AREAS, WHILST PROVIDING IT IN AREAS WHICH ARE UNECESSARY DUE TO LACK OF PERMISSIVE WINDOWS OR DOORS.



SOUTH WIND

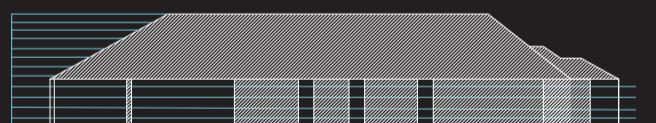
EAST WIND



SECTION CIRCULATION [PASSIVE INTERNAL]

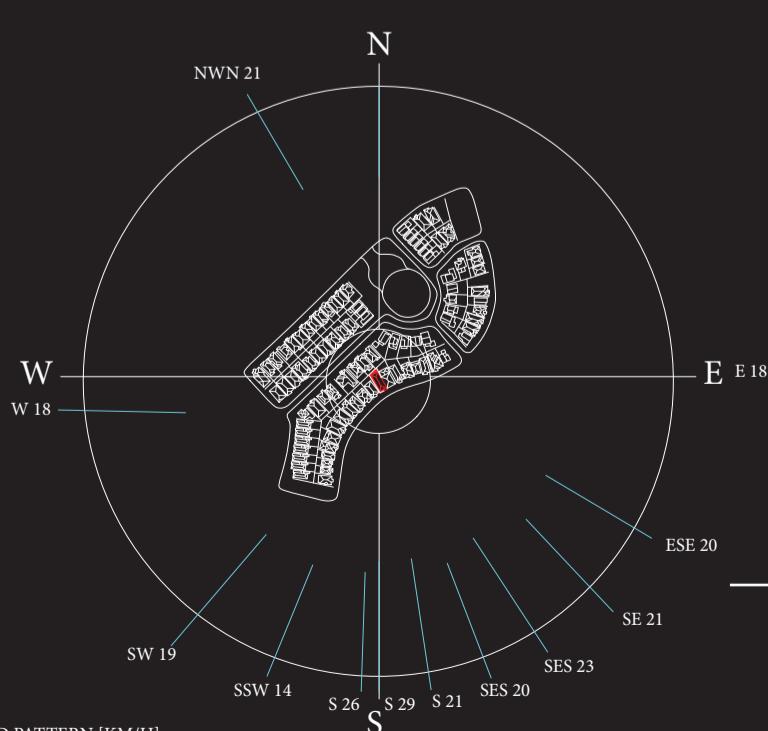
THE CIRCULATED AIR THROUGH THE MIDDLE OF THE STRUCTURE PROCEEDS WITHOUT OBSTRUCTION WHILST ALLOWING FOR UN-OBSTRUCTED MOVEMENT FROM THE ENTRANCE OF THE STRUCTURE THROUGH THE HALL. THIS SPECIFIC WIND PATTERN RELATES TO NORTH-WESTERNLY WINDS, WHICH DURING WINTER MONTHS IS PREVALENT WITHIN THE AREA.

CIRCULATION SECTION



NORTH WIND

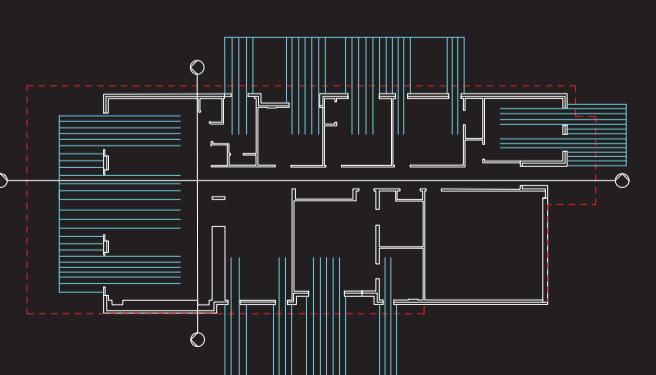
WEST WIND



PLAN CIRCULATION [PASSIVE INTERNAL]

THE EFFECTS OF SURROUNDING WIND PATTERNS PLAY A KEY ROLE IN DETERMINING THE NATURAL, VENTILATED CIRCULATION OF A SPACE. IN REGARDS TO THE POTENTIAL FOR ALL DIRECTIONS TO BE EFFECTED, MOST ROOMS ARE WELL CIRCULATED BY NATURAL BREEZE, HOWEVER THE DEPENDANCE ON THIS RELATES SPECIFICALLY TO WIND PATTERNS.

CIRCULATION SECTION

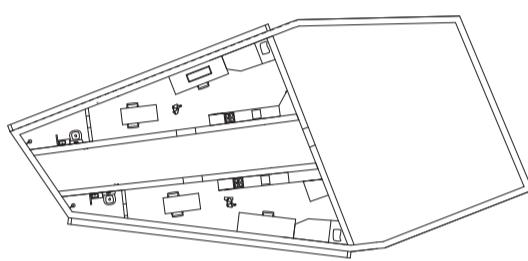
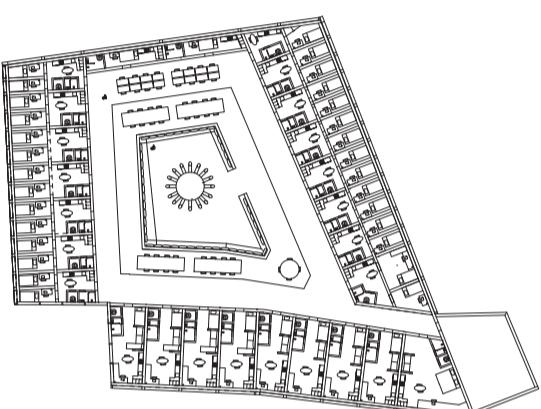
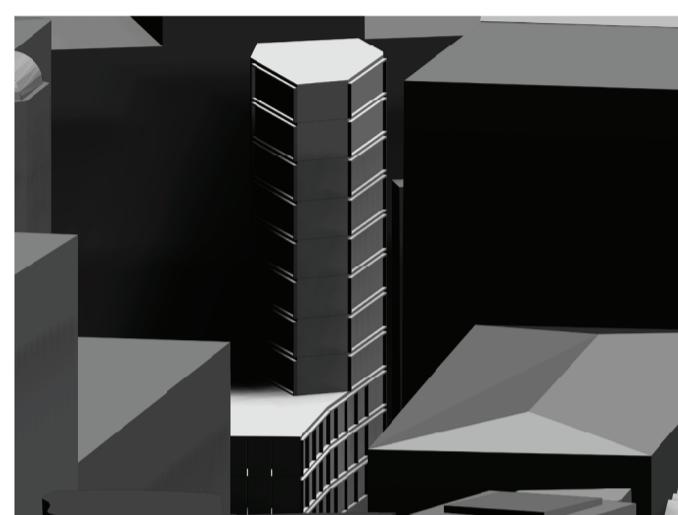
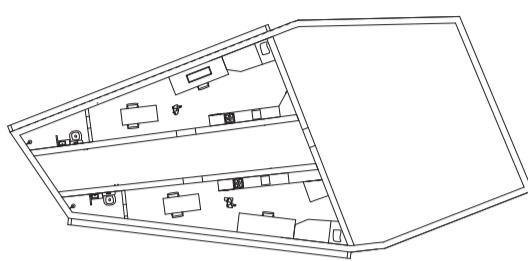
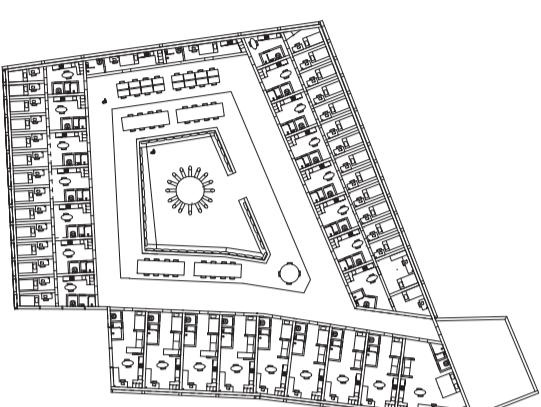
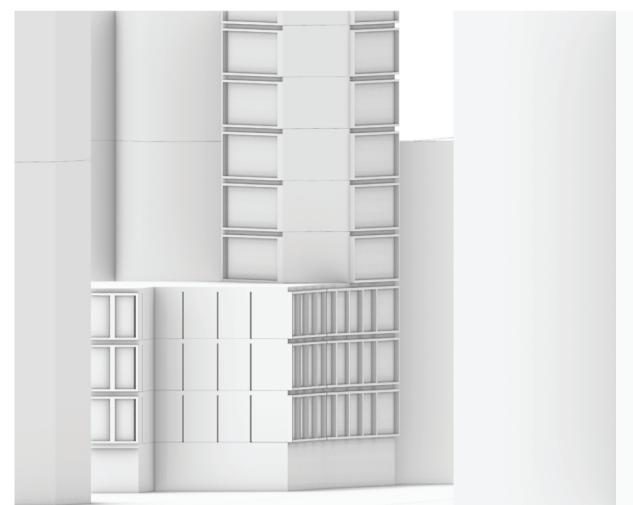
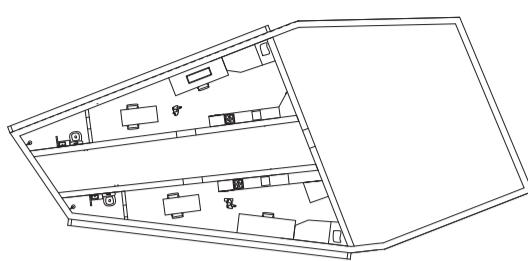
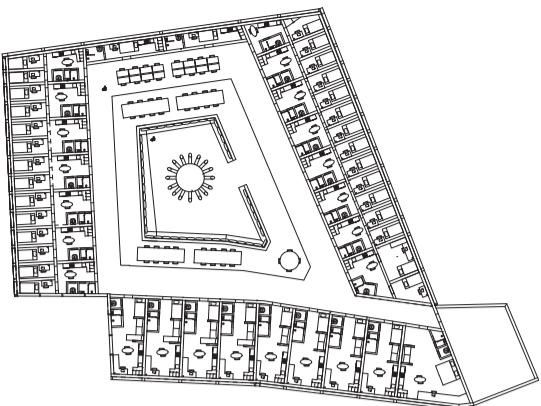


WIND PATTERN [PASSIVE EXTERNAL]

THE OCCURRING WINDS WITHIN THE GLENWOOD HILLS AREA, WERE COLLECTIVELY SOUTHERN WITH SPEEDS EXCEEDING 15 KMH. THE ABSENCE OF IMMEDIATE SOUTHERN COVERING ALLOWS FOR THE STRUCTURE TO RECEIVE WINDS FACING THE ENTRY, WHILST UTILISING AIR CIRCULATION WITHIN THE STRUCTURE ITSELF.

CIRCULATION PLAN

WIND PATTERN [KM/H]



Plan

Tower Plan



Left



Front

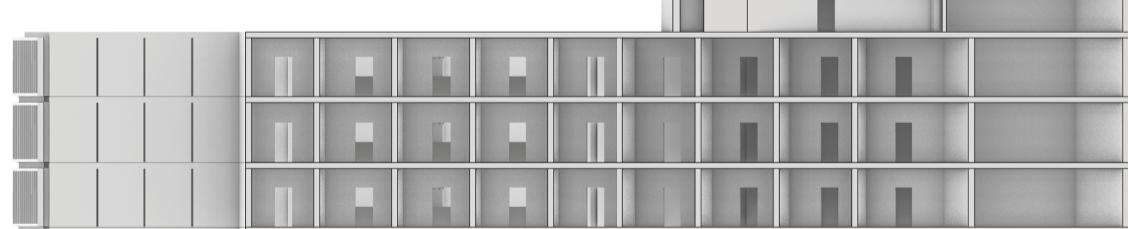


Right

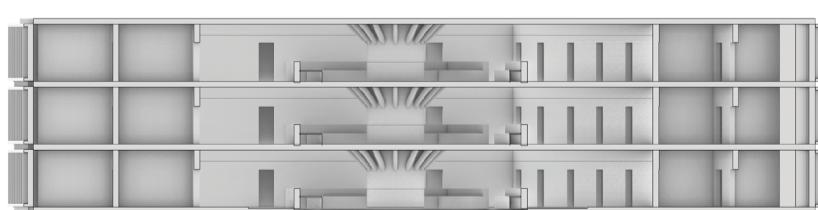
"Architecture is a monument of understanding the necessity for optimal comfortability and livibility within it's environmental, spatial domain".

Marcus Clark's Building

The Marcus Clark's Building is set within a peculiar dimension of space, where the potential naturally emitted light hits within specific area's at specific times. In order to successfully achieve a co-opt result, it's necessary to understand the developed and contemporary importance of communally integrated space and individual private sections. Recognition of these, whilst transforming a space into student housing is fundamental, as well as designing based off the surrounding contextual immediate and indirect influences. Architecture is therefore characterised by it's ability to satisfy optimal comfortability and livibility, whilst providing the ability to be a powerful, visual monument that fits seamlessly into it's environmental and spatial square.

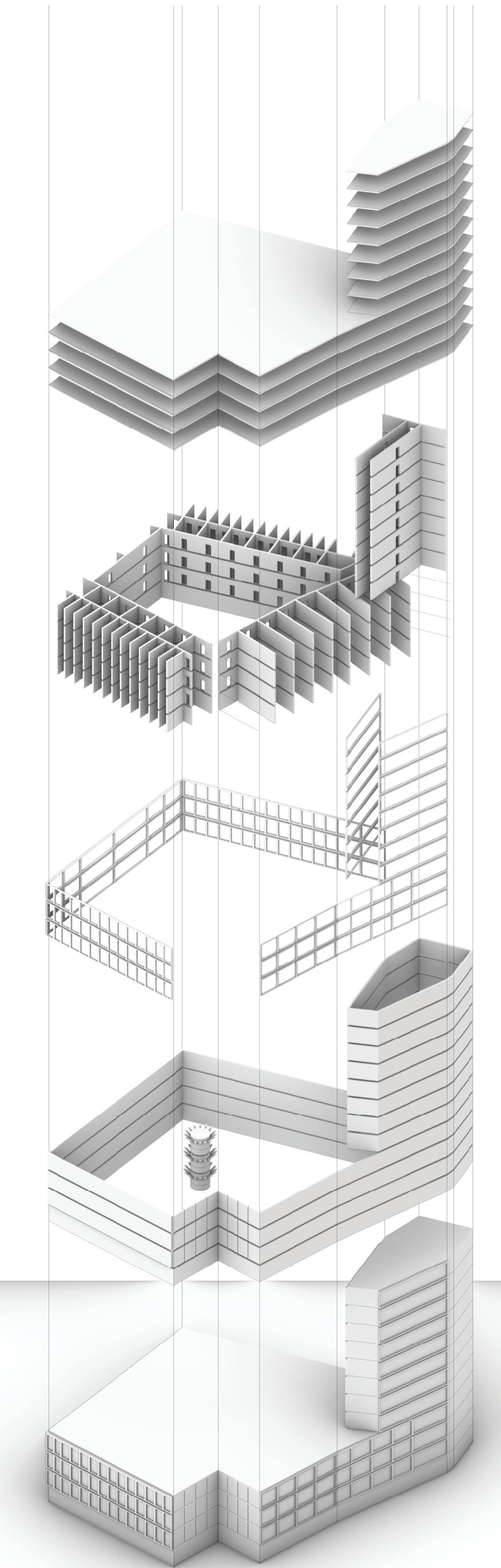


Quarter Front Section



Half Front Section

Exploded Isometric

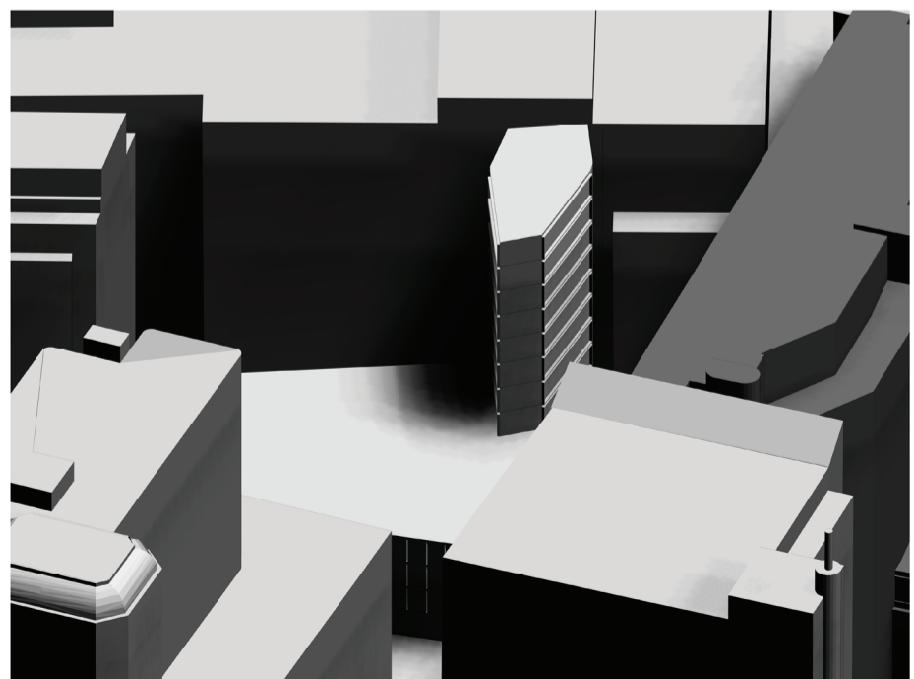


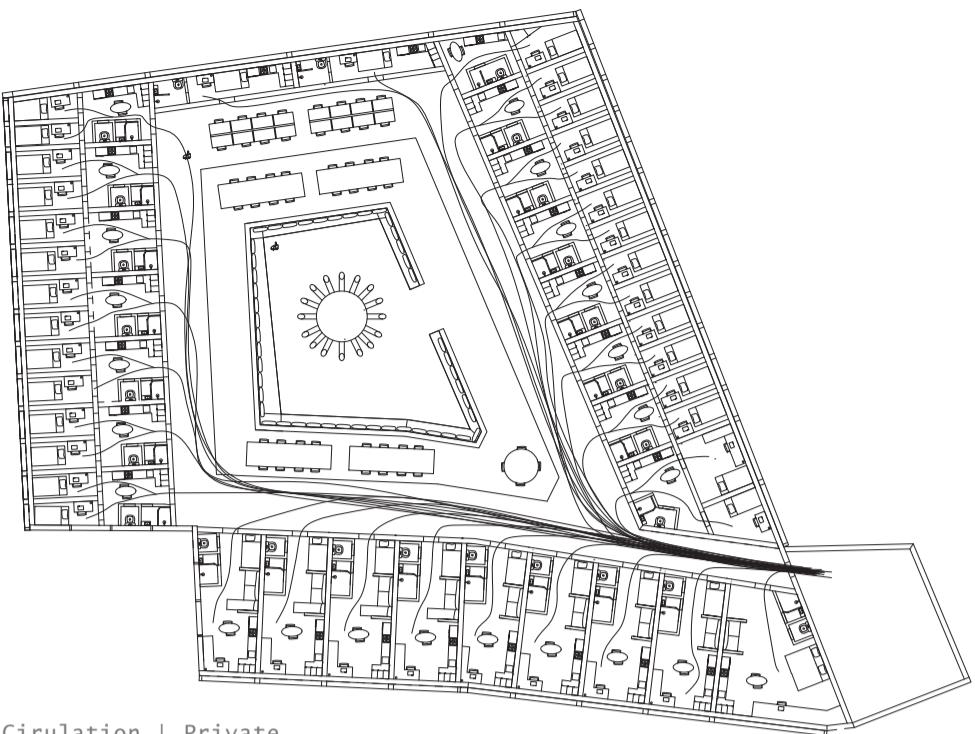
Layered levels follow the pre-existing layout of the structure allowing for continuity throughout the experience of student housing. These levels become the foundational basis for further structural development of the internal walls as well as subtly differentiating the communal and individual spaces. This aspect becomes the catalyst for co-opting.

The positioning and placement of internal walls provides the multi bedroom and single bedroom units with natural light within each unit. The uniformity of developed design allows for equitable space between students, whilst allowing for sufficient interior communal space. Equal compartmentalisation effectively contributes to overall design.

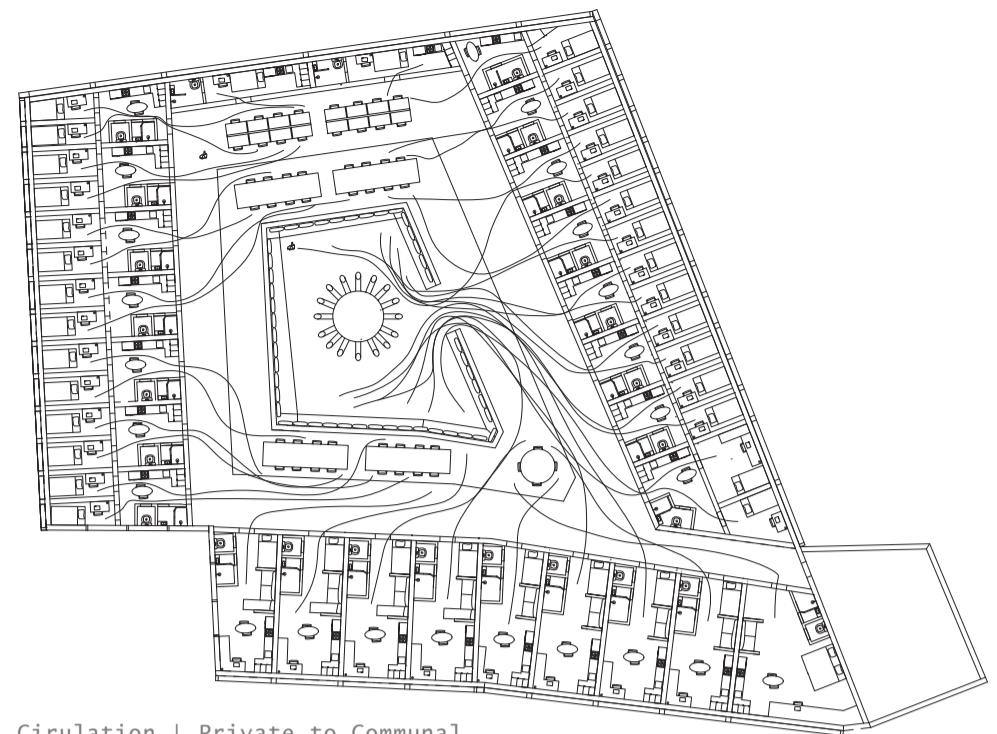
The exterior covering encompassing the structure works to incase and individualise the glazed walls that lay beneath, whilst providing a further exterior layer of insulation upon the design. The layer follows the pattern of each room to ensure the maximum coverage of emerging natural light and adding an extra environmentally protective layer to the exterior of the structure.

The design of the exterior walls are critical in ensuring the necessary placements of natural light to ensure the comfortability and maximum livability of space. The combination of expanded, tinted glass with purposeful placed exterior walls allows for seamless co-option into an inviting space. The interior pillar provides structural and load bearing support, whilst being the epicenter of the communal expanse.

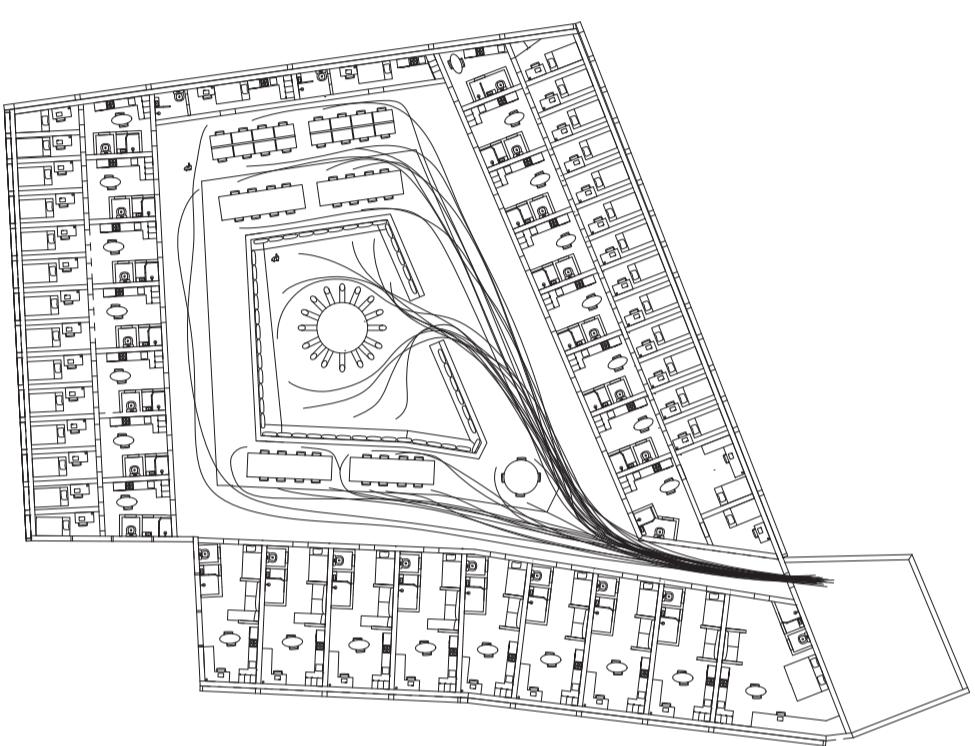




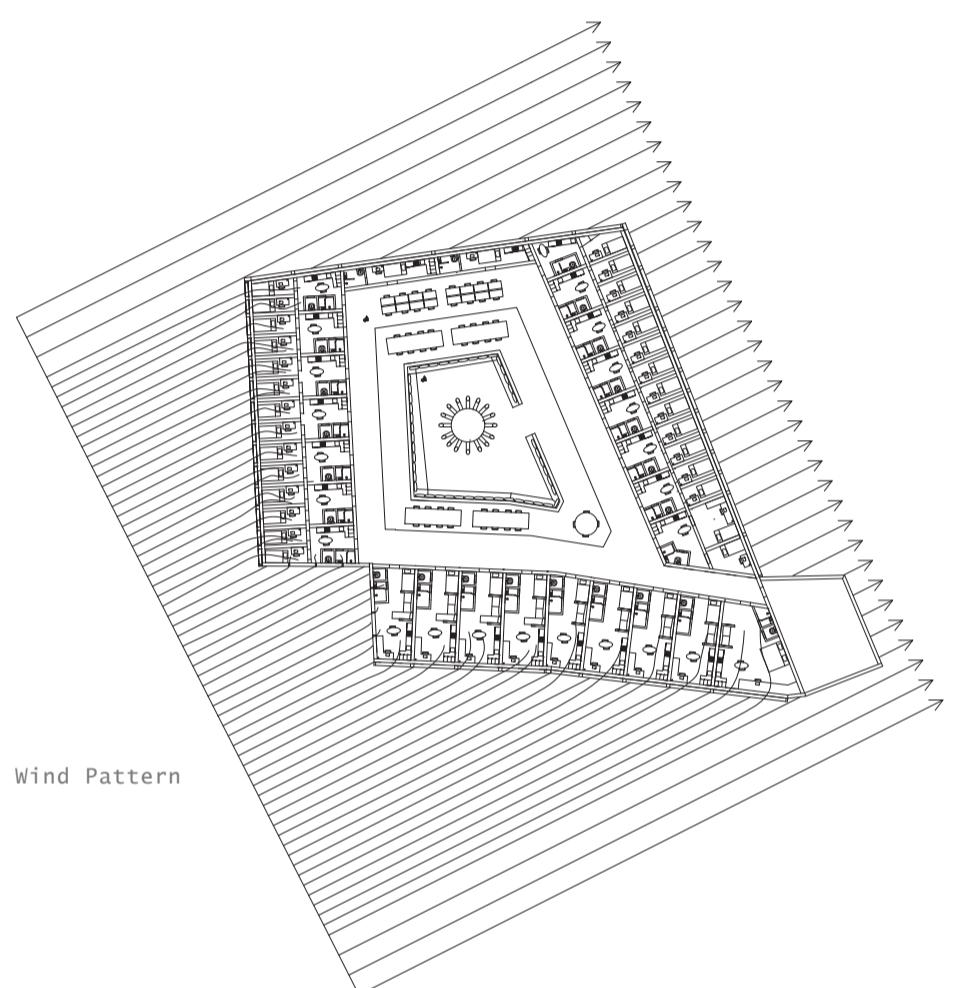
Circulation | Private



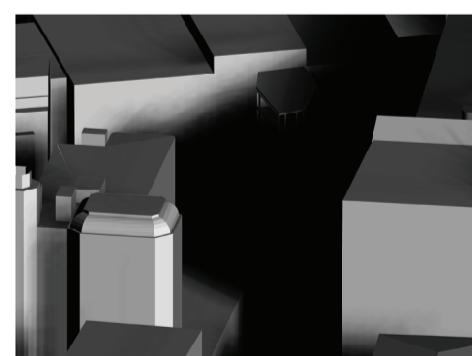
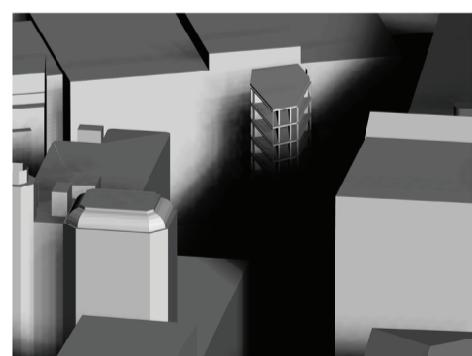
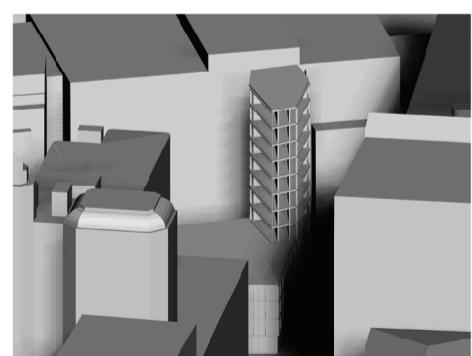
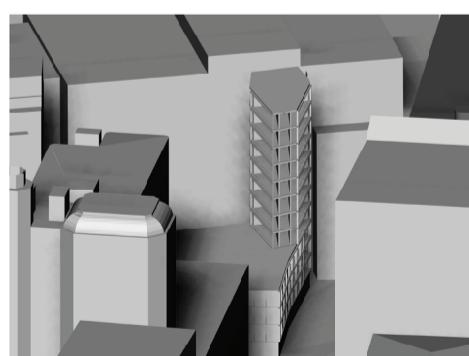
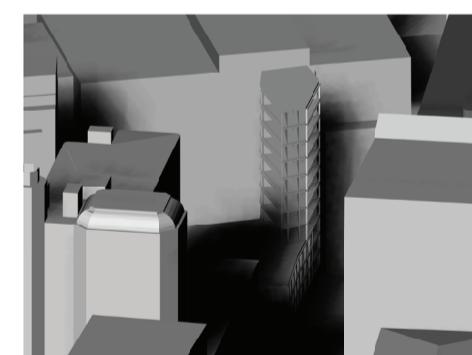
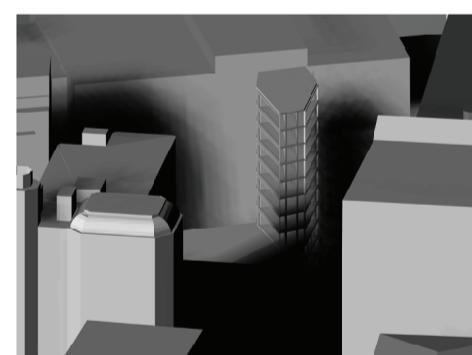
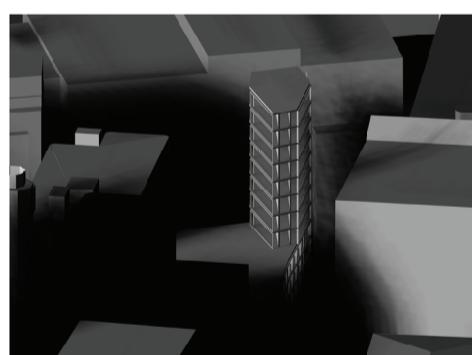
Circulation | Private to Communal



Circulation | Communal



NW Wind Pattern



Daylight Hours
Sun Analysis
Between 8am till 5pm
Mid - July
Winter Month