



THE COLLECTIVE EXCHANGE

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MARCH 1 USE

PS1

MANCHESTER SCHOOL OF ARCHITECTURE

INTRODUCTION AND PERSONAL REFLECTION

APPROACH TO PS1 AND ATELIER ETHOS

The USE atelier ethos encourages thorough spatial analysis of both the city and the site where opportunities and constraints are considered and used to generate and guide the concept development process. Experimentation is an underlying principle of pushing the boundaries, methodologies and thinking of an architectural approach. It can be used as a powerful design tool that reinforces the concept without compromising the technical and functional aspects of a project.

The PS1 atelier brief is to explore a specific type of housing that will be increasingly important in the future due to the changing way in which we are living and working. The project focuses on Urban Nomads - characters that only stay in a city for short periods and that are inclined to live together in an integrative model.

USE also promotes a collaborative working environment where working in groups reflects the real life architectural practice, and creates an opportunity to learn and creatively thrive from each other.

This was initiated during the intensive week in Berlin where I had the opportunity to meet and work with international architecture students from Chile and Germany, as well as getting to know MSA peers from the 5th and 6th year.

During the intensive week I was working with Magdalena Plonka, where we developed an interest in exploring the nomadic squatting culture, that is very unique to the city of Berlin. Following the intensive week we conducted research about the specifics of these users, in order to define a brief that will also consider the characteristics of the site and the city. We elaborated an architectural model that enables the users to experience the private comfort and security of a home even for a short period of time, which at the same time is integrated with shared spaces that encourage collaboration and a sense of a collective. The celebration of creativity and exchange of skills amongst the users but also the public was considered as the key of the scheme concept, and providing tailored spaces that elaborate this were developed throughout the design process.

Working in a pair rather than individually has enriched the overall design process as we were able to share and critique ideas and reflect on the most suitable solutions and spatial representations.



INTENSIVE WORKSHOP WEEK – THE CITY

BERLIN, TEMPELHOF AND THE SUBCULTURAL CREATIVE COLLECTIVES

"BERLIN'S SQUATS ARE AT YOUR SERVICE"

The squatting culture in Berlin was born after the war when West Berlin was seeing vast and rapid development, and former buildings had to be vacated and demolished to make way for the Capitalist dream.

A movement of squatting emerged as political protest against the Capitalist vision. By inhabiting the vacant buildings, squatters explored new ways of living, by developing **socio-cultural centres of life, work and leisure under one roof.**

After the fall of the wall in 1989 a vast number of squats arose in the East amongst the number of political uncertainty of the unification. This period created a fruitful scene for the development of the underground and bohemian art and music subculture.

The squat creative collectives all over Berlin (shown on the adjacent map) still form an integral part of the city and its identity. German and international vagabond artists seek Berlin as refuge for the spirit and freedom of creativity, and engage in the collectives, while many Berliners and tourists visit and support the 'one of a kind' creations, experiences and initiatives.

Squatters and collectives in Berlin offer services from bike repair workshops and welding classes to underground cinemas which are usually **provided free of charge or on the basis of an informal barter/ exchange system.**

(USE Students (2016) Berlin Compendium, Ausgang, Manchester School of Architecture: USE)

(White, J.A.(2014) 'Berlin's squats are at your service'. [Online] The Local. Available at <https://www.thelocal.de/20140404/berlin-squats-at-your-service>. [Accessed: 16. October 2018])



Location Plan indicating Tempelhof in relation Berlin's creative collectives

PUBLIC TAKE OWNERSHIP OF THE TEMPELHOF

Since it was turned over to the public in May 2010, the site has been immensely popular with families, joggers, rollerbladers, kite-flyers, wind-karters, urban gardeners, yoga enthusiasts, hipsters and layabouts.

It has also become a public ground for festival and outdoor events where thousands attend. Meanwhile, inside more than 100 businesses and institutions call the former airport home.

Berliners are serious about their fun spaces. They want cheap housing, but they do not necessarily see a connection between that and more flats. So they put a ban on all construction at Tempelhof on the ballot, alongside the government's proposal. In the referendum on May 25th 2014 they decided resoundingly to keep the field bare.

The approach Berliners have towards claiming not only the Tempelhof Feld but also the implications of this on the main building are a significant factor in any proposed intervention. **Therefore any new proposal must consider the public integration and control, as well as creating a space which truly reflects the culture of Berlin in an engaging manner.**

(The Economist. (2014) 'Don't touch Tempelhof; Berlin's airports.' p. 44. [Online]. Academic OneFile. Available at: <http://link.galegroup.com.ezproxy.mmu.ac.uk/apps/doc/A369560405/AONE?u=mmucal5&sid=AONE&xid=efcfe6bb>. [Accessed 20 October 2018.])

KUNSTHAUS TACHELES – THE BEGINNING OF THE END?

Tacheles welcomed artists of various backgrounds and nationalities, regardless of their working mediums and styles. The building contained studios and workshops, a nightclub, and a cinema.

For 22 years, Tacheles was the icon of the squatters collective. In 1995, the collective lost its battle with capitalism when the city sold the building to the real estate Fundus Group, who gave the artists a 10-year lease in 1998.

Numerous protests with the bank officials and petitions didn't help, and the last crowd of Tacheles creative was evicted on September 4th, 2012. The closure of Kunsthaus Tacheles, Berlin's landmark for independent art and culture, brought that sour feeling that the city is no longer a bohemian hub for alternative culture and lifestyles.

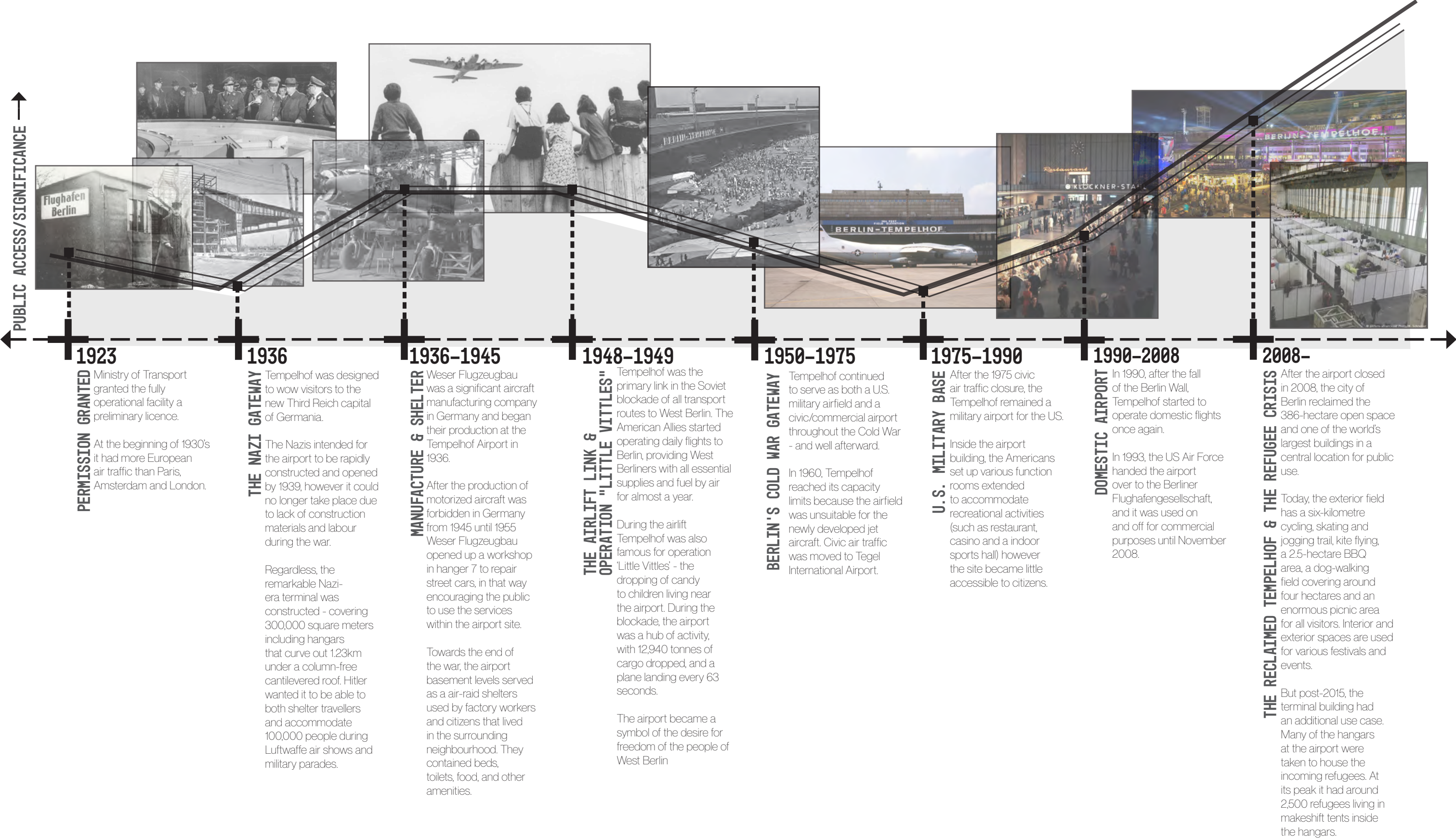
The closure of Tacheles sets the question of **how the vulnerability of less significant collectives may increase over the years in correlation with gentrification?**

In attempt to answer this, we will explore the temporary, urban interventions for a live, work and leisure dynamic that can provide a safer and more acceptable environment for the public and the inhabitants.

(Troin. G (2016) 'The story and story of Kunsthaus Tacheles - The Home and Spirit of art'. [Online]. BerlinSteetArt. Available at <https://berlinstreetart.com/w/>. [Accessed:16 October 2018])

INTENSIVE WORKSHOP WEEK – THE SITE

PUBLIC ACCESSIBILITY AT THE TEMPELHOF THROUGH THE YEARS



(Flughafen Berlin Brandenburg GmbH. (2018). Tempelhof airport. [Online]. Available at: <https://www.berlin-airport.de/en/press/media-centre/photos/2008/tempelhof/index.php>. [Accessed: 21 October 2018])
(Blason, J., Cummings, B., Fahey, C. (2015). Nazis and candy drops: Tempelhof airport through history – in pictures. The Guardian. [Online]. Available at: <https://www.theguardian.com/cities/gallery/2015/mar/05/tempelhof-airport-berlin-history-nazis-candy-drops-in-pictures>. [Accessed: 21 October 2018])

INTENSIVE WORKSHOP WEEK – FORMING THE CONCEPT

ANCB STUDIO SESSIONS

The ANCB held a collaborative network of students from Manchester School of Architecture, Technische Universität Braunschweig and Universidad Diego Portales, in order to develop a ‘Living on the top of the Tempelhof’ concept.

The week consisted of an initial site visit where we were able to understand the context of the former Nazi airport. After we have been delegated into international groups, we completed a 1:100 sectional model study of a specific area of the Tempelhof roof.

As a group we started to develop an initial concept around the theme of urban nomads and freethinkers which acknowledged the specifics of the site.

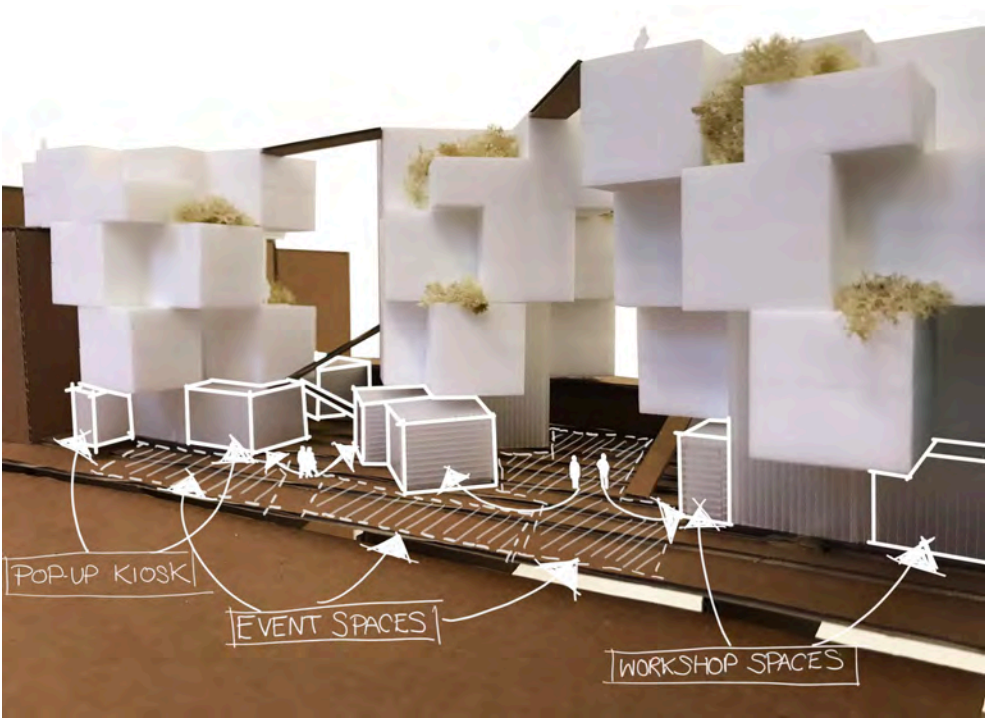
A series of massing models were tested on the base site model in order to gain a relationship between the scale and a appropriateness of the form.



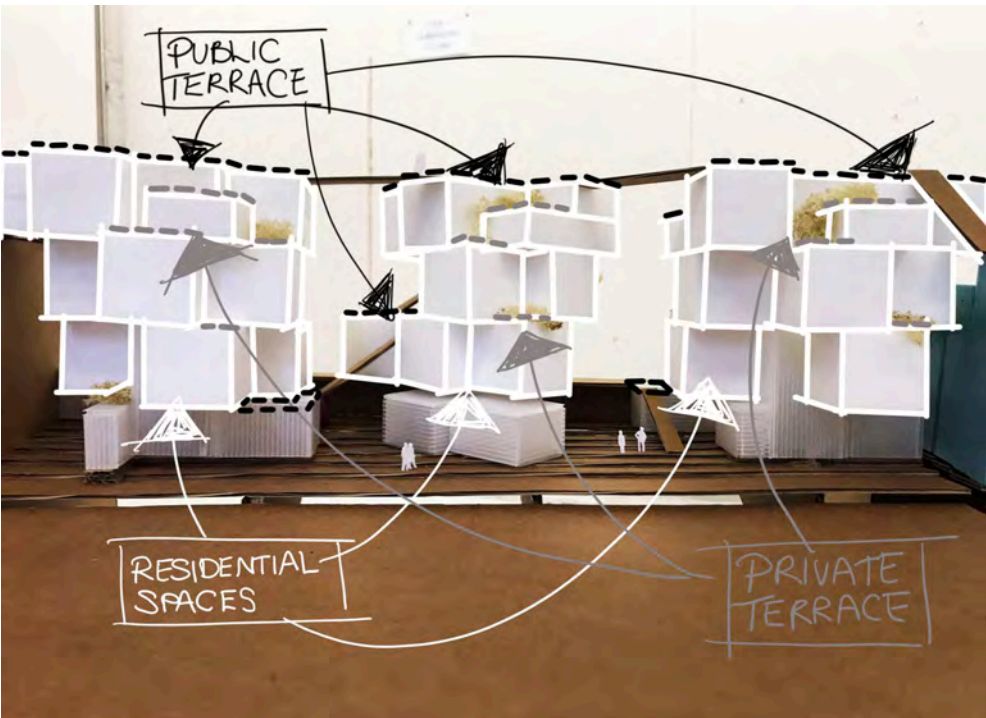
Initial 1:100 massing model experimentation



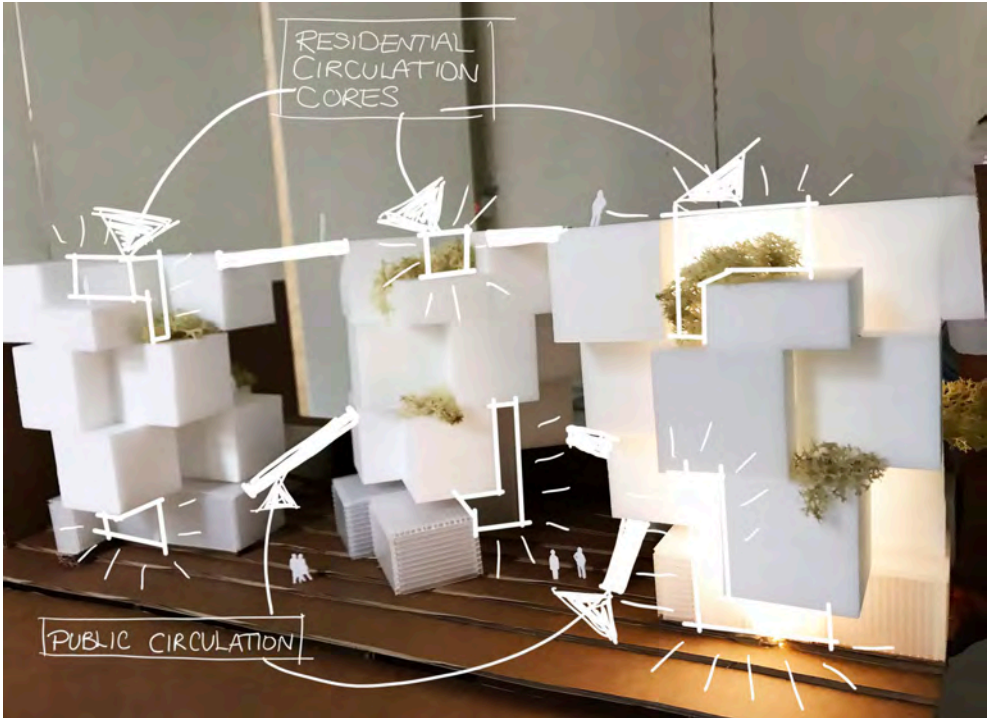
ANCB Workshop tutorial and the complete 1:100 Tempelhof model with proposals



PUBLIC GROUND FLOOR PROGRAMME



RESIDENTIAL FLOORS AND PUBLIC SPACE ARRANGEMENT



RESIDENTIAL CORES AND PUBLIC BRIDGE LINKS

INTENSIVE WORKSHOP WEEK – FORMING THE CONCEPT

ANCB STUDIO SESSIONS

From various, tutorials and reviews we were able build on the comments and establish a strong concept which was then evoked in our initial design. We began to imagine the possible sequences of public and private space and how that may be expressed architecturally.

Further analysis and the impressions of the city formed a nomadic “collaborative exchange” concept which was then explored in spatial terms and tectonics.



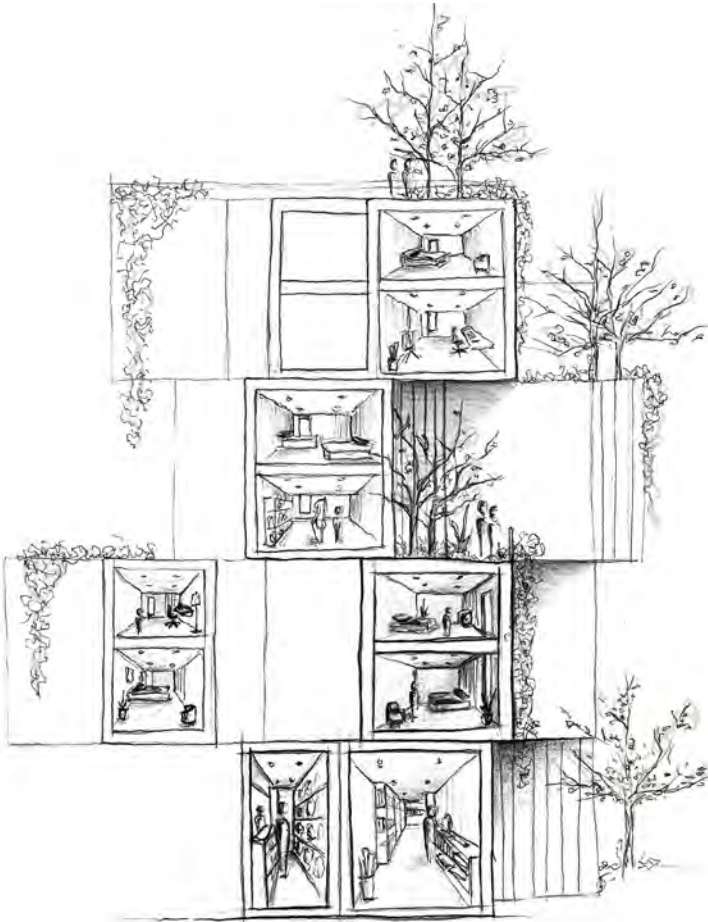
Ground floor trading/exchange kiosk



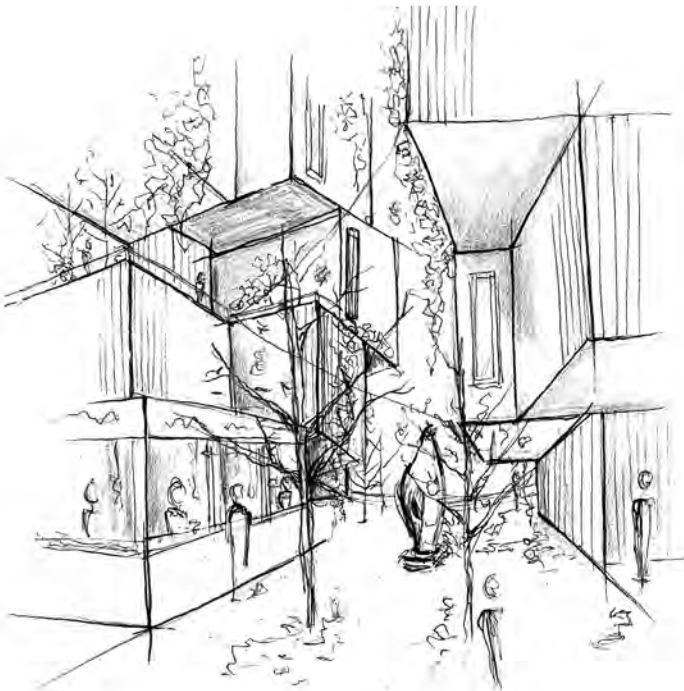
Ground floor trading/exchange kiosk



Ground floor with residential units above



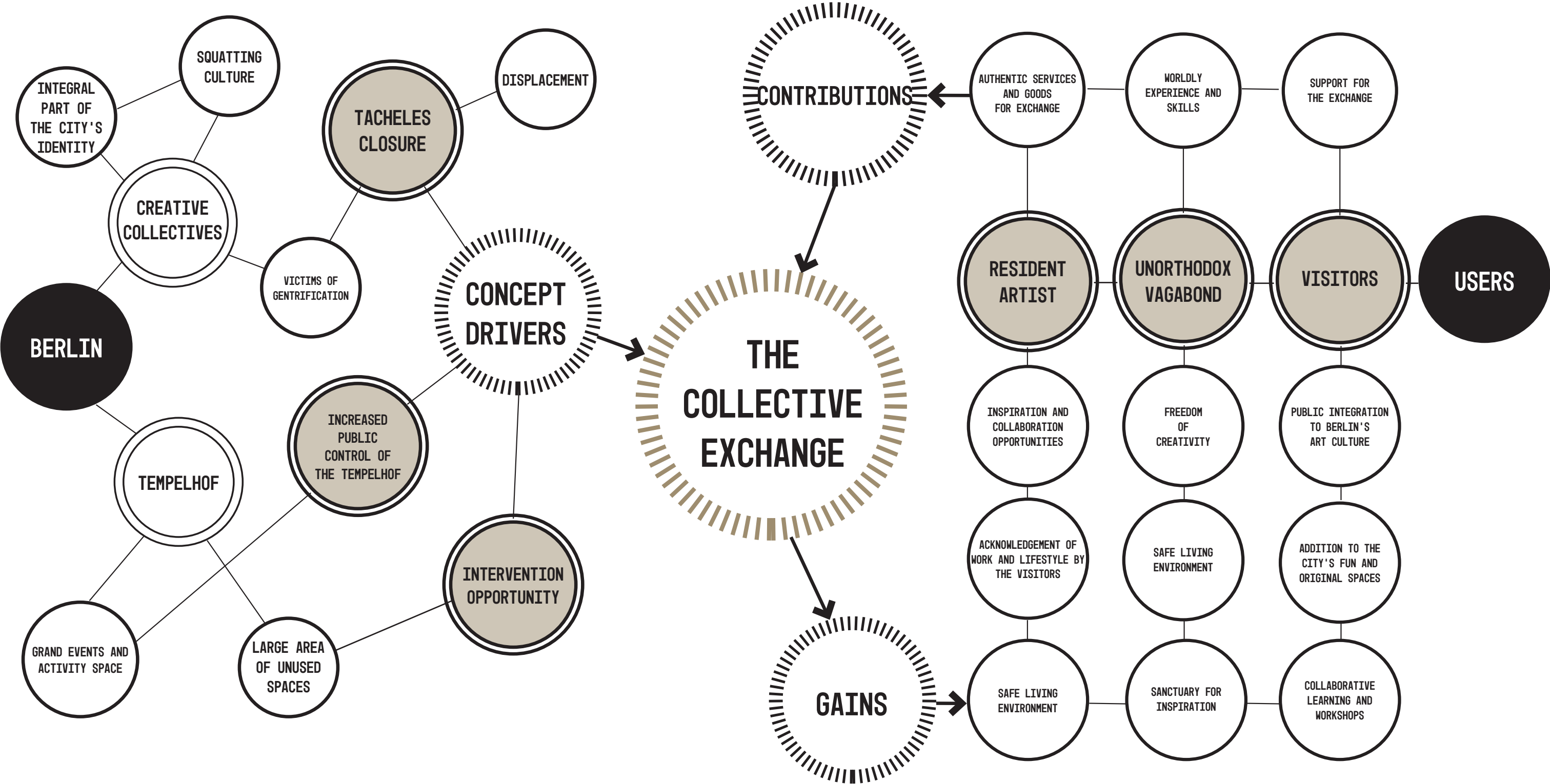
Section into residential units and workshops/kiosks on the ground floor



Leading pedestrian paths through the scheme

CONCEPT STRATEGY

THE "COLLECTIVE EXCHANGE" CONCEPT PRINCIPLES



STRATEGY

DEFINING THE USERS

UNORTHODOX VAGABOND

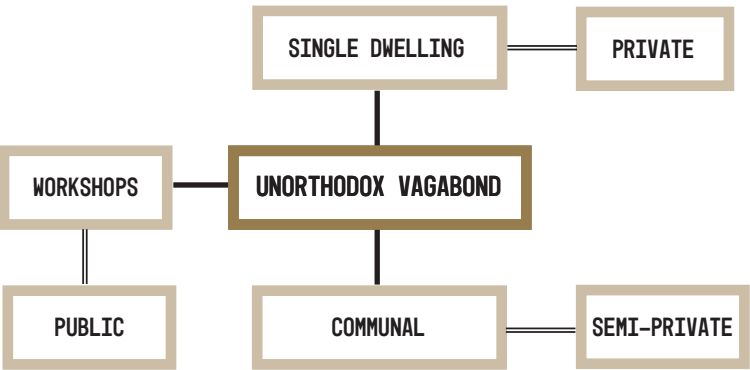
‘Spiritual growth and conservation of energy are my drive’

Defined as capable of conforming to any situation, these nomads travel the world in search of freedom and self exploration.

They have faced the realities of life head on; embracing its beauty and ugliness equally. The unorthodox nomad is most happy when seizing the moment and actualizing his ideas into finished projects.

They are able to feel at home in all kinds of given spheres. Freedom is defined as being able to do anything at whatever given time in all sorts of worlds. ‘Access all Areas’ is a term that defines this.

(Cramer, N. (2013). ‘Nomad’. Freunde von Freunden. [Online]. Available at: <https://www.freunde von freunden.com/interviews/nomad/>. [Accessed: 21 October 2018])



VISITORS

‘Germans are wondering with increasing urgency where they really come from and where they belong’

As the public ‘ownership’ of the Tempelhof becomes more evident, visitors will become one of the most crucial users. The nomads will be partially reliant on the public’s interaction on an informal barter and exchange system.

The idea is to make it easier for people living outside of the mainstream economy. The selfless giving of ones unique talents for the enjoyment of all is a theme that is carried throughout.

Negative preconceptions are often associated with people who are displaced from society and do not have a home. Creating a safe place for these people where they are able to be celebrated and flourish will give the public an insight to how these people really live and work.



TACHELES RESIDENT/ CREATIVE COMMON

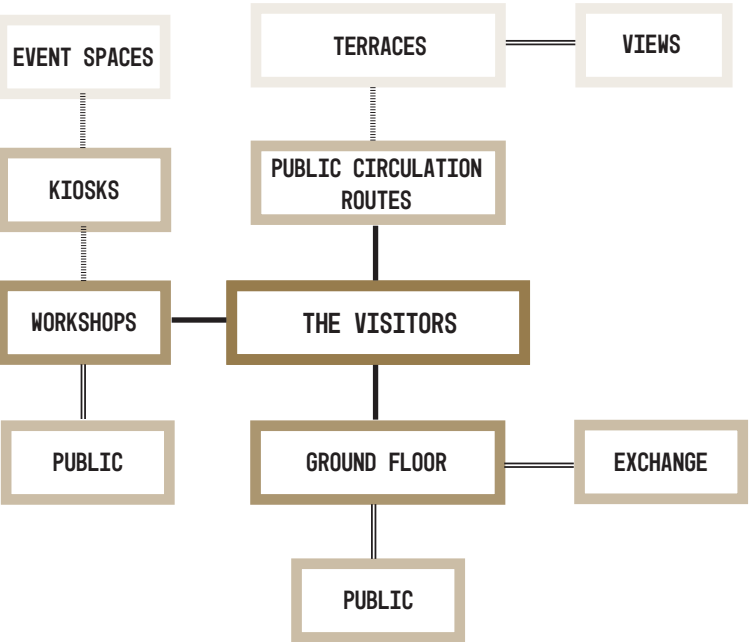
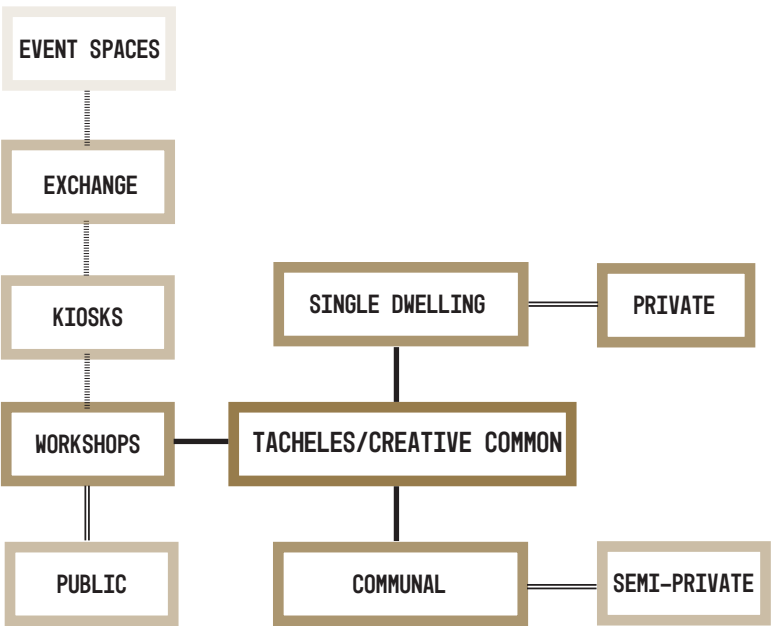
‘Tacheles is part war ruin, part artists’ colony, part anarchic wonderland, and wholly Berlin...’

Kunsthau Tacheles has shared the fate of many historical and cultural venues that became victim of gentrification and merciless capitalism.

It was the home to free-spirited artistic expression. Tacheles best embodies the euphoria of an artistic boom that came after the fall of the wall. It was a venue for all art enthusiasts, regardless of preference.

These group of individuals challenged the notion of limited artistic freedom. These misplaced artists have become synonymous with uninhabited and experimental production as well as alternative lifestyles formed around the notion of newly reclaimed social freedom.

(Troin, G (2016) ‘The story and story of Kunsthau Tacheles - The Home and Spirit of art’. [Online]. BerlinSteetArt. Available at <https://berlinstreetart.com/kunsthau-tacheles-berlin/>. [Accessed:16 October.2018])



THE SITE

VISUAL AND PHYSICAL CONNECTIONS

By visiting the site during the study trip we had the opportunity to grasp the elevated perspective from the rooftop of the Tempelhof. This made us aware that throughout the development of the concept we should always consider the vantage points towards not only the city skyline but also the uncommon vast green space of the Tempelhofer Feld and its activities.

Despite being on the outskirts of Berlin, Tempelhof airport is within a 5min walking distance to the nearest U-Bahn Network station - Platz Der Luftbrücke and a 20min walk to the Bahnhof Tempelhof and the S-Bahn Network, which connects it back to the city centre within 20min. The site also sits at an intersection of two main artery roads, making it easily accessible by car.

This established connectivity to the city centre, makes it easy for Berliners to frequently visit the grounds of the Tempelhofer Feld for various recreational and sport activities. Some of the most common events held at Tempelhof include the Berlin Music Festival and the Kite Festival



PANORAMIC VIEW TOWARDS THE CITY



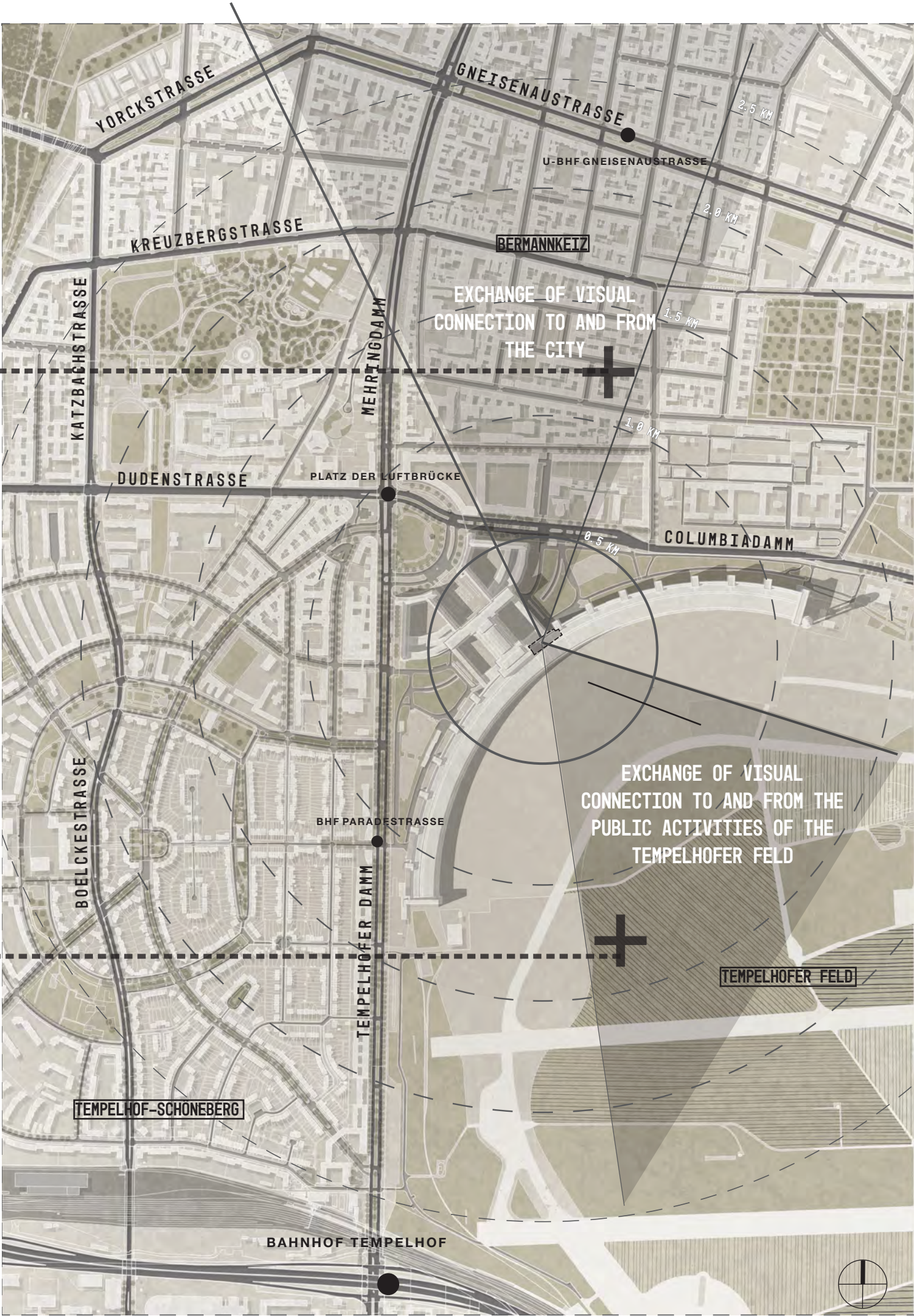
TEMPELHOF KITE FESTIVAL



PANORAMIC VIEW TOWARDS TEMPELHOFER FELD



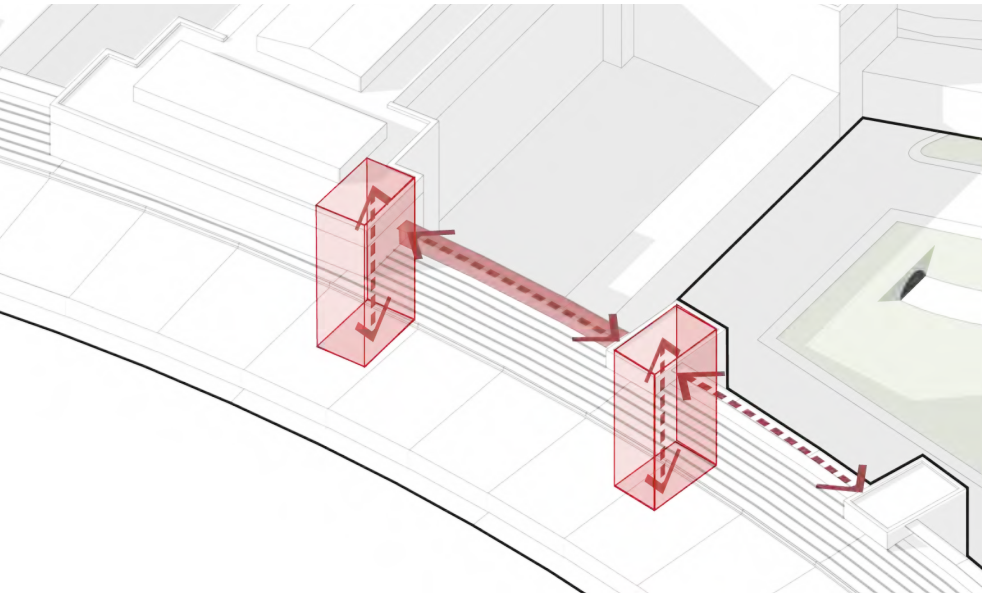
PUBLIC FESTIVALS/EVENTS AT TEMPELHOF GROUND



Site Map in wider context - 1:5000 at A3

THE SITE

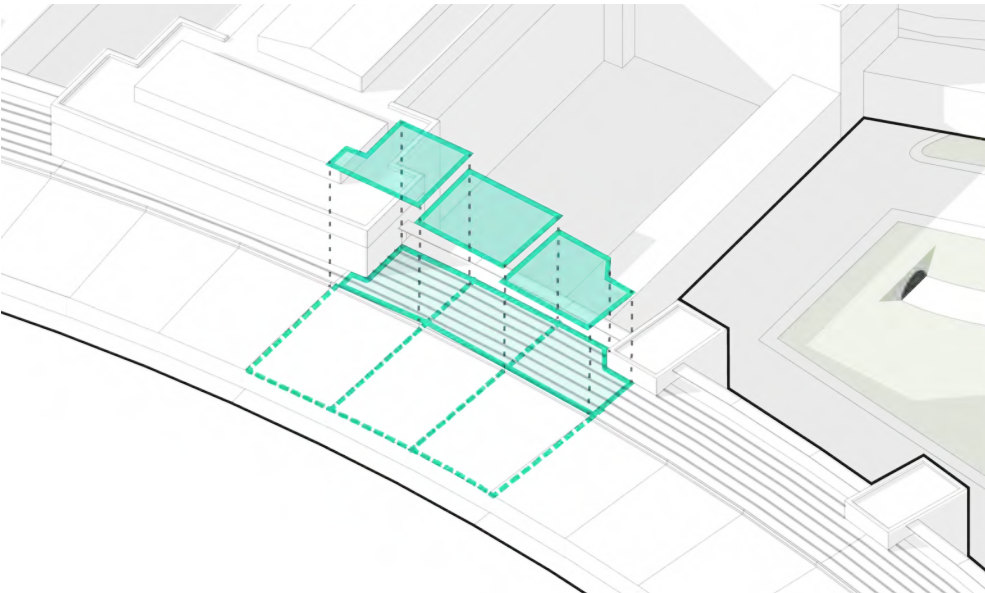
CONSTRAINTS AND OPPORTUNITIES



ACCESS TO THE TEMPELHOF ROOF

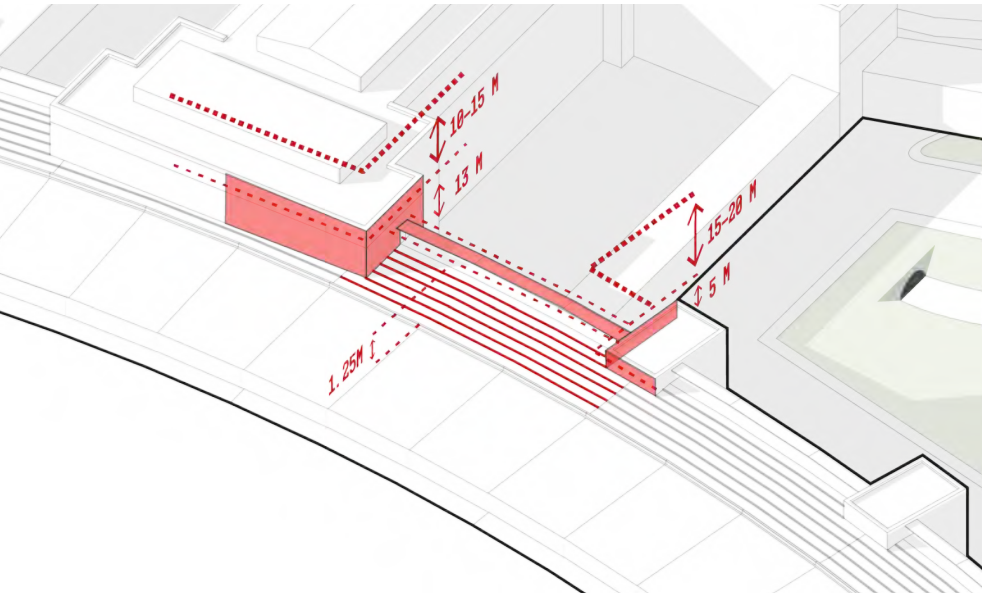
The two existing volumes containing the site are used for the main vertical circulation access, which must form a relationship with the proposal.

The public path at the back must remain without intervention to allow fluid passage throughout the entire Tempelhof roof.



TRIPARTITE DIVISION

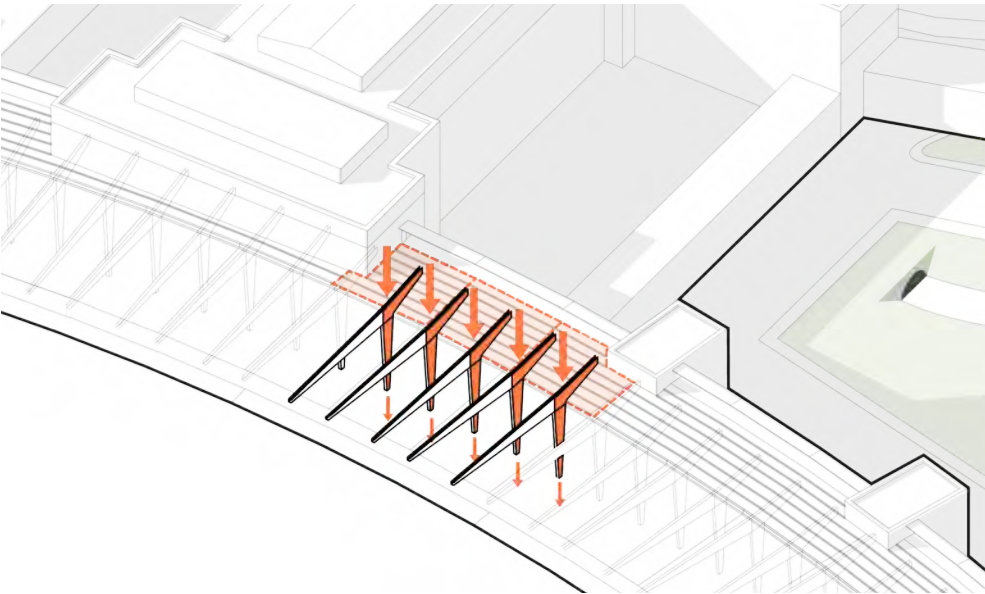
The geometry of the existing structure of the site lends itself into the division into three segments. It is logical for the form of the proposal to follow the relationship with the existing structure



RELATIONSHIP WITH THE EXISTING VOLUMES AND THE STEPPING SITE

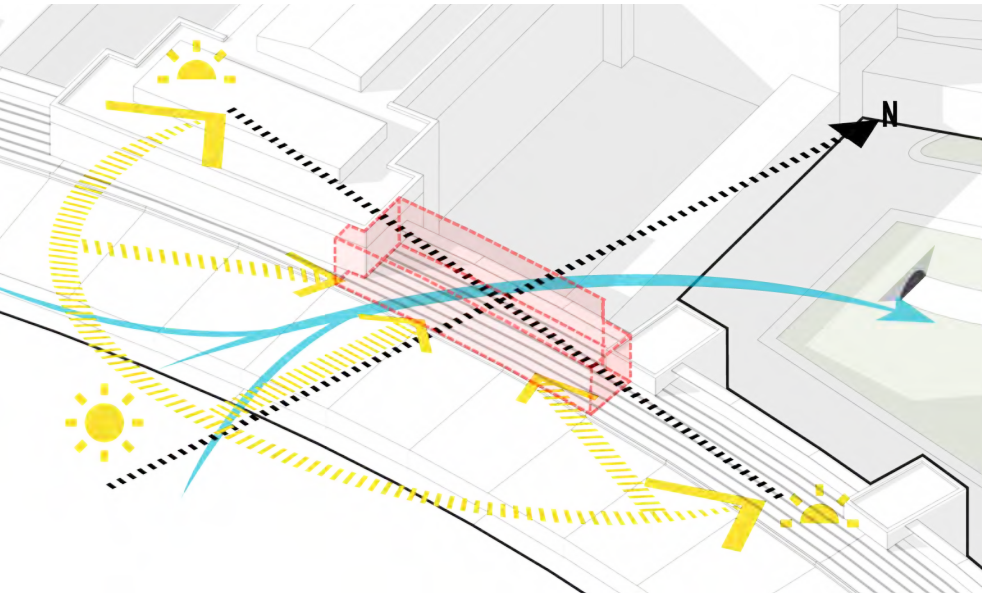
Although there is not strict height restriction, the proposal must respect the relationship of the existing building volumes as well as correspond adequately to the scale of the existing.

The nature of the site also presents a 1.25m height difference from the public path towards the opposite edge, by a series of step intervals. The proposal must consider the stepping conditions and adapt to the site.



POINT LOADS AND EXISTING STRUCTURE

The superstructure of the Tempelhof roof needs to be considered as a means of transferring the loads onto the ground. The point-loads of the proposal should therefore concentrate on the existing columns.

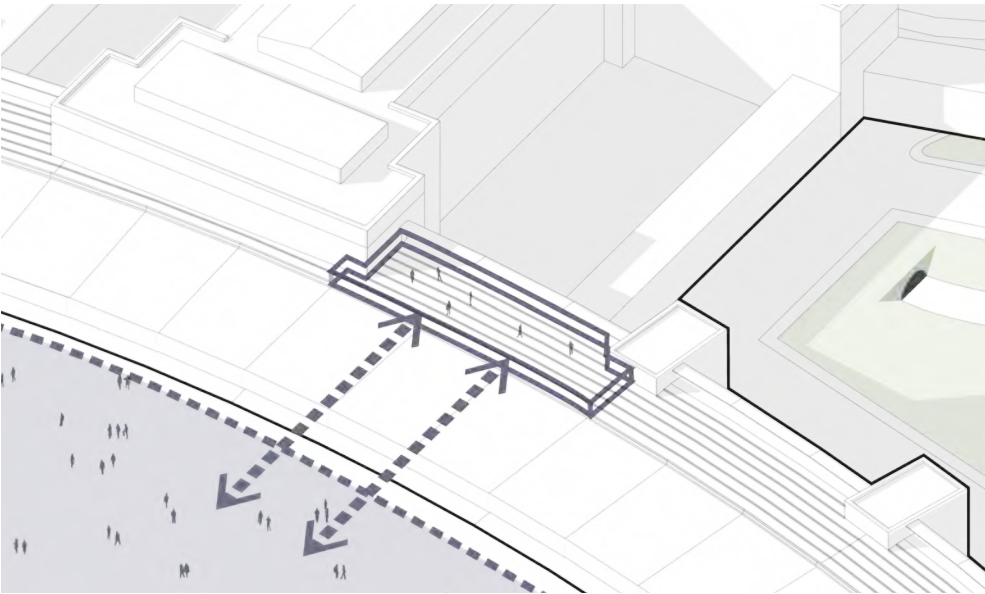


SOLAR ORIENTATION AND WIND CONDITIONS

The side of the site facing the Tempelhofer Feld will benefit from natural daylight through most of the day.

However through its orientation the proposal should consider the materiality variations to ensure sufficient daylighting into units which face towards the northern part of the site.

The north-east prevailing winds have to be considered, and therefore the structure of the proposal needs to be respond adequately to transfer the lateral loads onto the structure of the Tempelhof.



PHYSICAL AND VISUAL CONNECTION TO THE GROUND FLOOR ACTIVITIES

As many festivals and public events take place on the Tempelhof grounds, it is important that the proposal includes a publicly engaging ground floor space that visitors will be intrigued and engaged with, not only physically but also visually.

MATERIALITY AND FORM PRECEDENT STUDIES

HOUSE IN TOUSUIEN // SUPPOSE DESIGN OFFICE



POLYCARBONATE SKIN AND EXPOSED STEEL STRUCTURE

In house of Tousuien the regular exterior walls have been replaced, so that the natural light can be maximized in the interior space, while dealing with privacy issues. This material also creates a visual effect of the volume to be a solid mass throughout the day, where as in the evening the interior lighting provides glimpses of the activities taking place inside.

The high U-value of the polycarbonate allows the steel structure to remain internally exposed without any additional insulation throughout the interiors. At the same time timber casework elements compliment the minimalistic backdrop of the material and give warmth to the interiors.

Similar materials such as translucent U-Profile channel glass can be adapted for this effect with additional fire rating and insulation benefits compared to polycarbonate.

(Archdaily (2013). 'House in Tousuien / Suppose Design Office' [Online]. Available at: <https://www.archdaily.com/458511/house-in-tousuien-suppose-design-office>. [Accessed: 4 November 2018])

HOUSES FOR ELDERLY PEOPLE // AIRES MATEUS



VOIDS BETWEEN VOLUMES

The rigid geometry of the project suggests geometric modular masses with partial intersections which result in the creation of the in-between void spaces.

This effect creates interesting relationships between the inside and outside as well as an opportunity for exterior entrance points. During the evening the interior illumination transform the voids into elevational 'lanterns' and emphasises the solid parts of the mass.

We intend to clad our residential volumes in white render as shown in the precedent so that when shifted, the volumes will create this exterior void effect against the translucent channel glass materiality of the core.

(Archdaily. (2013). 'Houses for Eldery People in Alcácer do Sal / Aires Mateus'. Available at: <https://www.archdaily.com/328516/alcacer-do-sal-residences-aires-mateus>. [Accessed: 4 November 2018])

MIDTOWN CENTER // SHOP ARCHITECTS



ELEVATED BRIDGE LINKS AND PUBLIC GROUND FLOOR

The midtown centre office building incorporates and elevates its surrounding floor plate wings to create an expansive ground-level public plaza. The ground floor plane is defined by a series of landscaped gathering spaces which cut the corners to adjoin the most direct and natural pedestrian routes. Stretching high above the plaza are three bridges, which act as sculptural elements that animate and provide views to the courtyard below.

We decided the approach of geometrically landscaping the ground floor will work well for our concept to break away from the proposed modular massing above and will lead visitors to most prominent gathering spaces of the site.

The sky-bridges are also a concept which we want to incorporate into our design to evoke a sense of elevated connectivity throughout the scheme.

(Dezeen. (2018). 'Sky bridges criss-cross SHoP's Midtown Center in Washington DC'. Available at: <https://www.dezeen.com/2018/10/02/midtown-center-fannie-mae-shop-architects-washington-dc/>. [Accessed: 4 November 2018])

MATERIALITY AND FORM

TOWER TYPOLOGIES DEVELOPMENT

ITERATION 1 - development from intensive week with larger core for central communal area and separate unit for communal kitchens

- Stairs unsuitable for escape
- Stairs too small for height changes



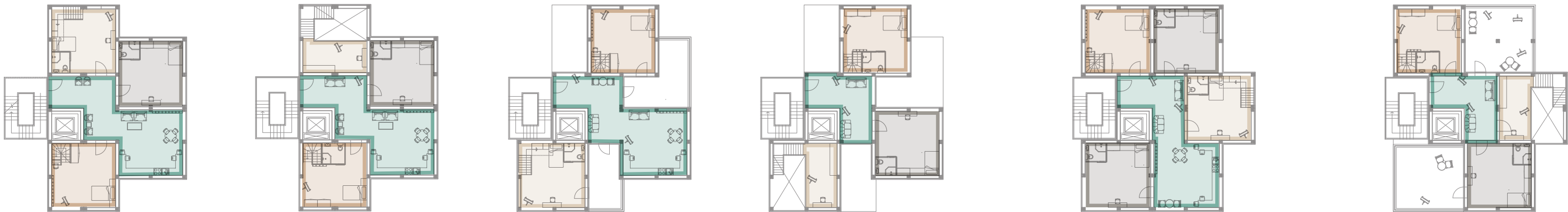
ITERATION 2 - Steel, central fire protected core with surrounding timber construction, stacked modular units

- Inefficient core with dead-space corridors
- Takes too much ground floor space
- Disproportional massing of the central volume



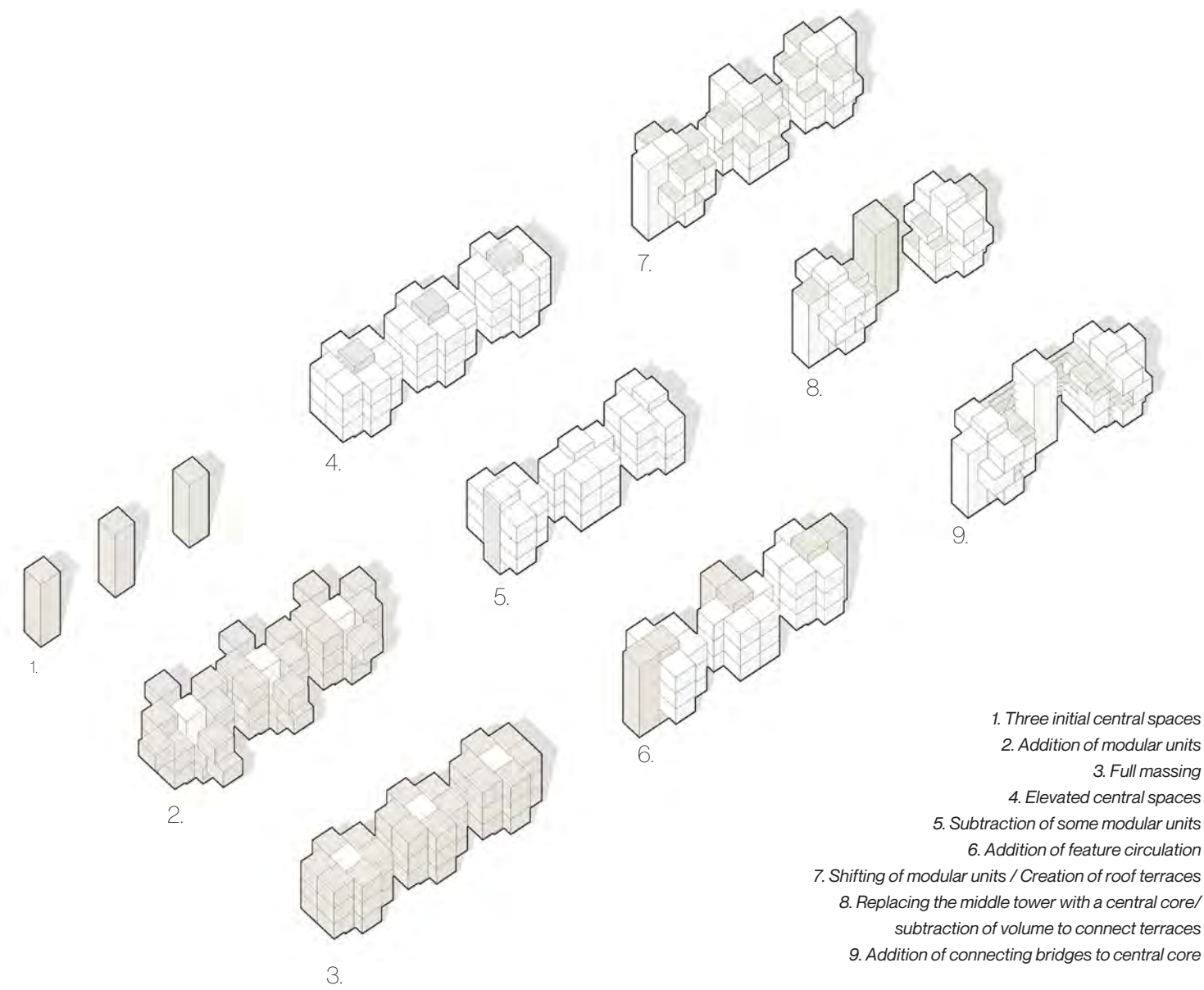
- Modular timber unit limits the module size and cantilever tolerance

ITERATION 3 - Steel frame construction with cantilevering modular units and an exterior staircase



MATERIALITY AND FORM

MASSING RELATIONSHIPS AND FORMING THE CIRCULATION



To test the relationship between the proposed towers we considered several massing iterations that begin to spatialise the intended sequence of users as well as challenge the rationale between the masses on site.

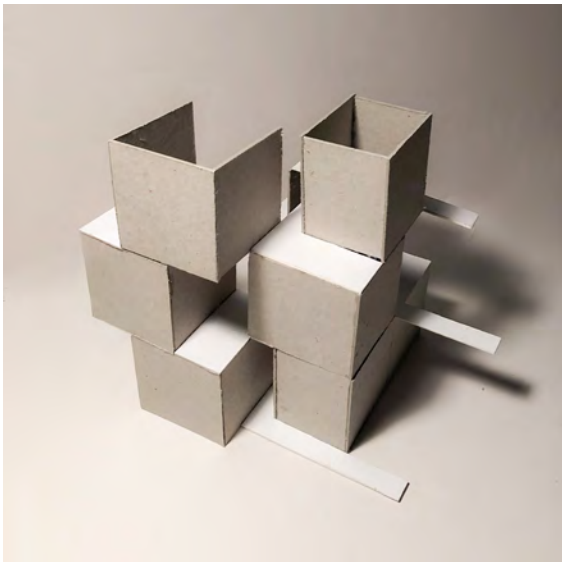
We concluded that the density of three blocks was unsuitable for the reason of residential unit overlooking as well as natural daylighting issues.

We experimented with physical models to create a unique type of exterior circulation by working with a hybrid of terrace, deck access and bridge connections to a main central core which connects both towers together.

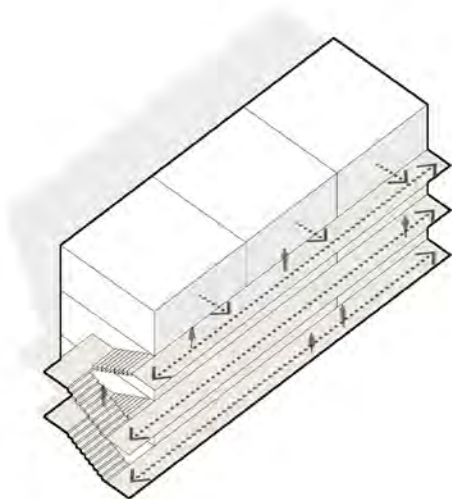
This was achieved by subtracting volume from some of the units to connect the roof terraces together to then span additional bridges to the central core. This strategy not only suggests a more varied and unique circulation that offers great views towards the surroundings but also forms the main fire evacuation strategy.



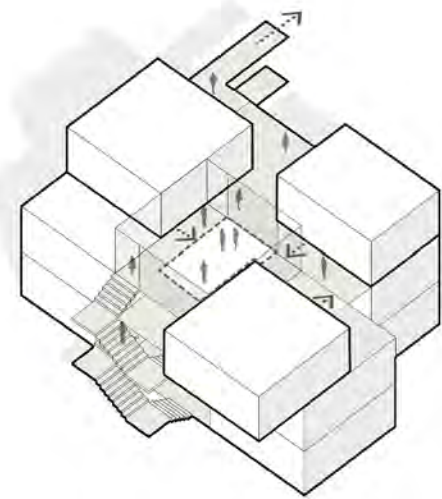
1:100 concept model - Shifted residential volumes to create accessible roof terraces (white)



1:100 concept model - Subtracting from some of the volumes to connect the terraces and incorporate bridge circulation links (white)



Traditional building circulation arrangement



Proposed circulation through central communal space via feature atrium staircase, external terraces/deck access and elevated bridges.

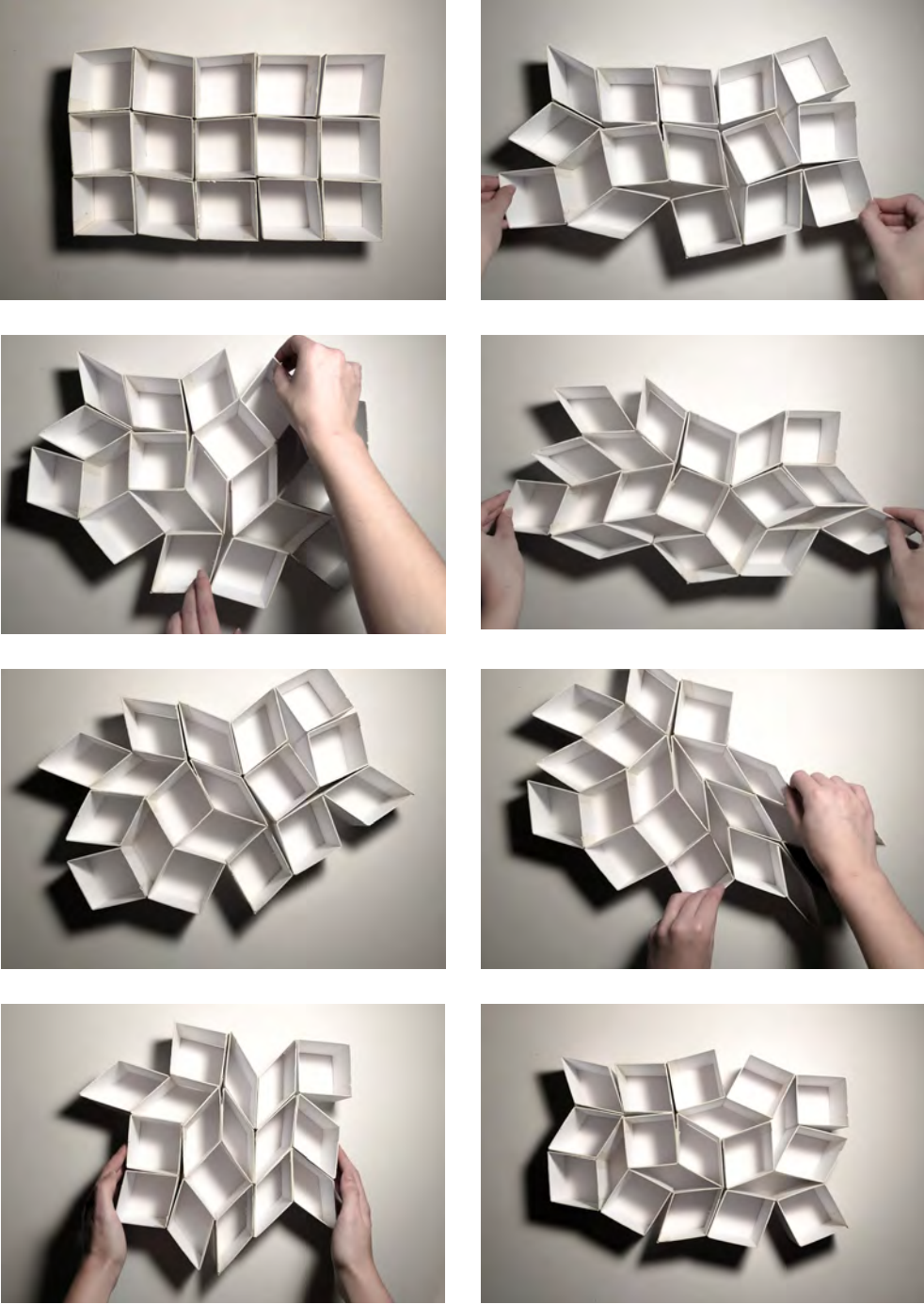
MATERIALITY AND FORM

PUBLIC GROUND FLOOR APPROACH

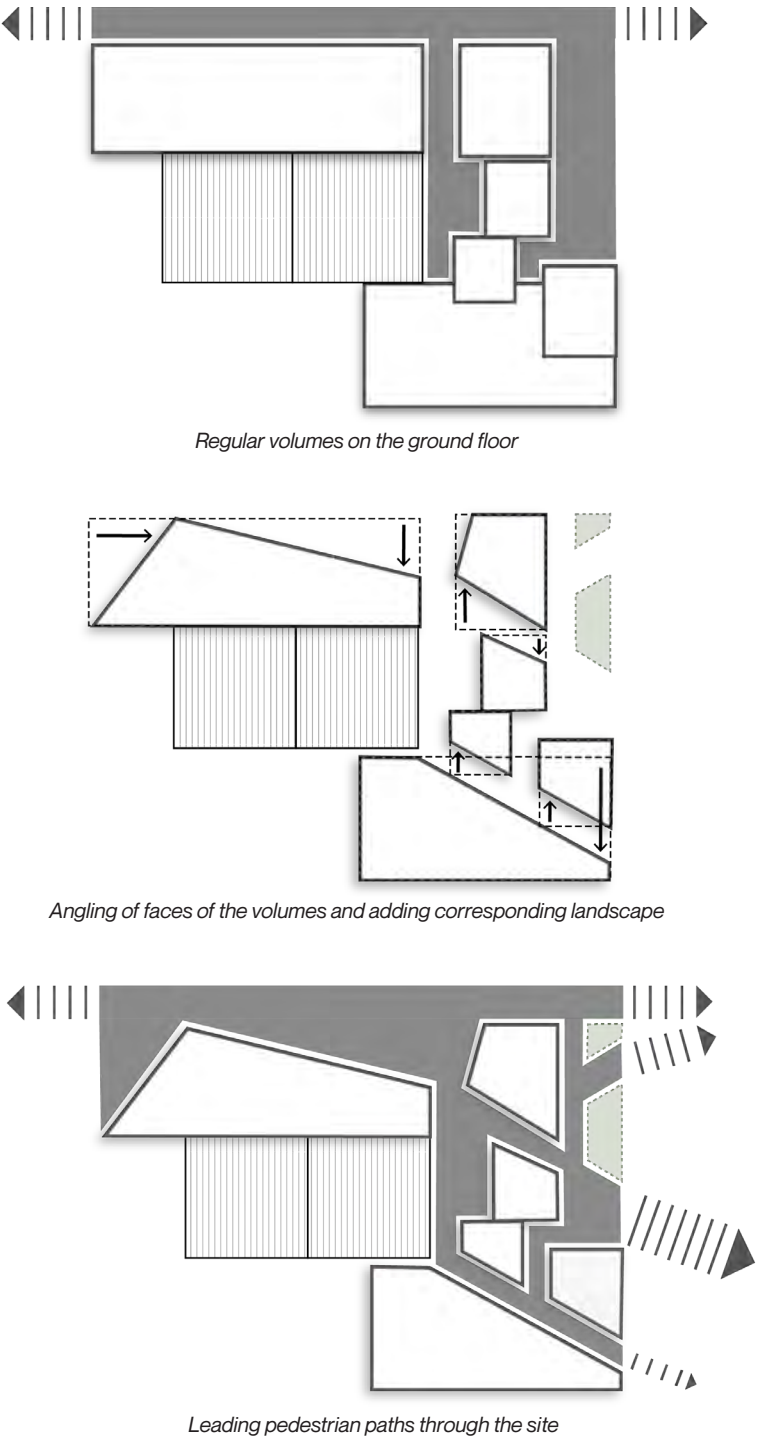
As we have started to visualise the regular masses of the residential units, we decided it would be critical to create a differentiation and a tension between the public ground floor spaces and the private spaces above.

The concept model sequence demonstrates a modular approach which is tensed to create more informal and leading spaces suitable for the intened dynamic of the ground floor.

The angled edges will not only aid in funnelling the public through the site but also encourage oblique views and a feel of informality.



Experimental concept model to test the ground floor forms



MATERIALITY AND FORM

BUILDING TECTONICS AND ATMOSPHERES

SEMI PRIVATE COMMUNAL SPACE AND ATRIUM STAIRS

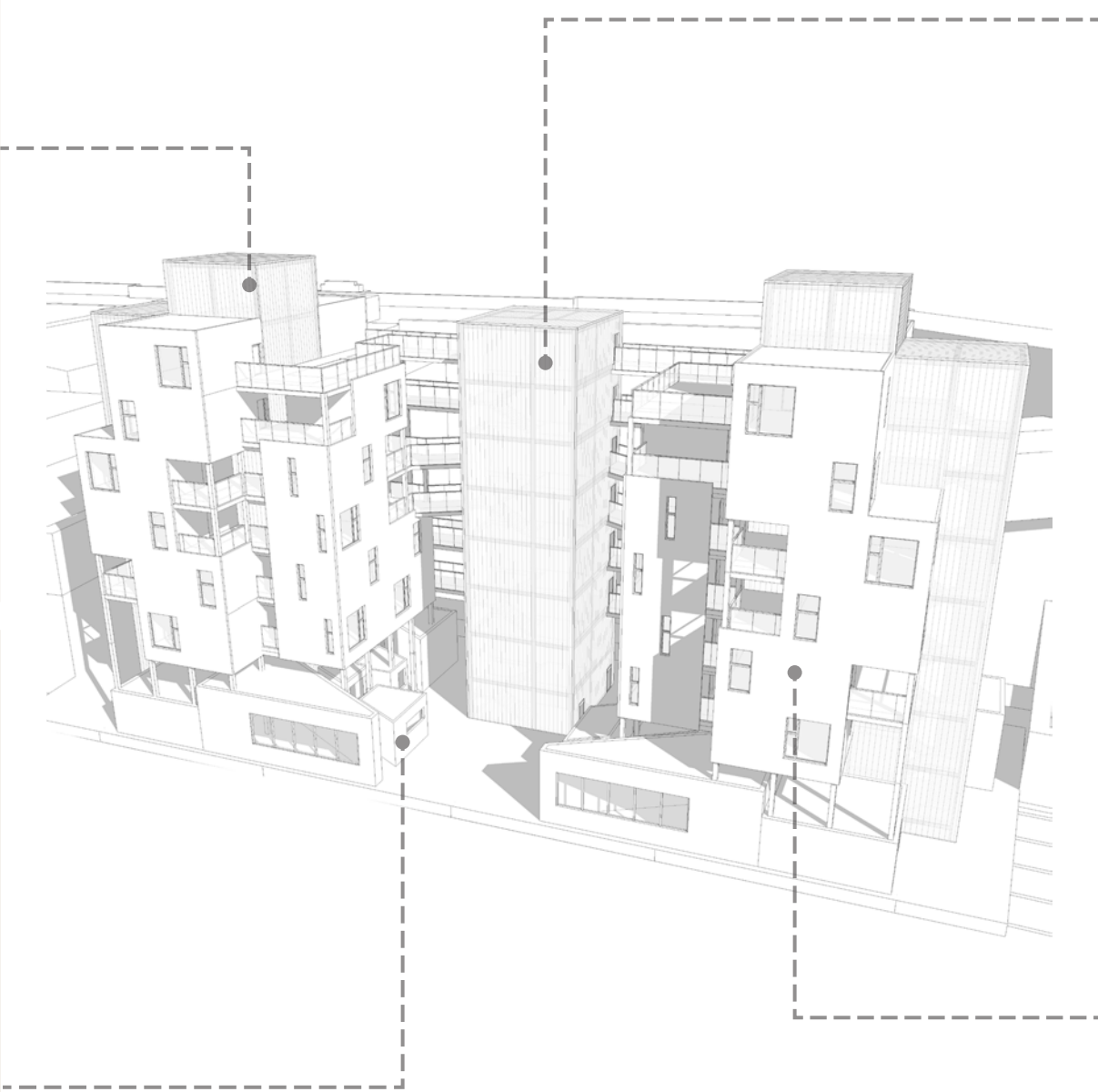


- A sense of openness and lightness through translucencies of the **U-Profiled channel glass** partitions
- Exposed steel columns** for an industrial feel
- Warm **timber parquet flooring** for a homely atmosphere
- White warm plaster walls** and white casework fitting or a simple and modest interior

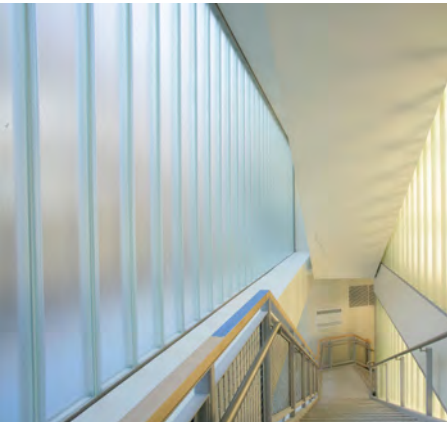
PUBLIC GROUND FLOOR KIOSKS AND WORKSHOPS



- Informal interiors achieved with the **exposed SIPS panels**
- Temporary/Pop-Up feel through **white corrugated metal cladding**
- Hard-wearing polished **concrete screed floors** for durability and rigidity

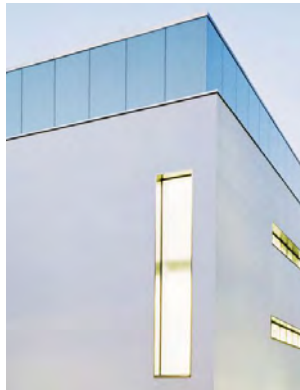


PUBLIC TRANSLUCENT CIRCULATION CORE

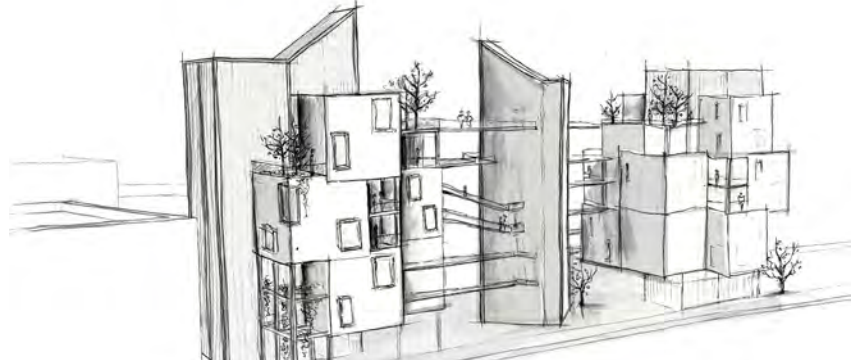


- A sense of openness and lightness through translucencies of the **U-Profiled channel glass** cladding
- Glowing effect during the night outlining the solid white render volumes and creating a 'landmark' effect on the site
- Pre-cast concrete** floors and walls within the central core for an industrial feel

PRIVATE RESIDENTIAL UNITS



- Warm **timber parquet flooring** for a homely atmosphere
- White warm plaster walls** and white casework fitting or a simple and modest interior
- White render exterior cladding** to outline the massing of the units against the light and translucent channel glass cladding



CONCEPT TRANSLATION

SPATIAL SEQUENCE



1. TEMPELHOF PATH ACCESS AND GALLERY ACTIVE FRONTAGES

Visitors and residents access the tempelhof roof via vertical circulation of the main building.

The curved path at the back of the scheme is enhanced by active frontages of the proposed gallery and workshop spaces making an instant connection between the artists, their work and the public.



2. ANGLED GEOMETRIES AND KIOSKS

The angled geometry of the landscape and the volumes encourages movement through the ground floor passages.

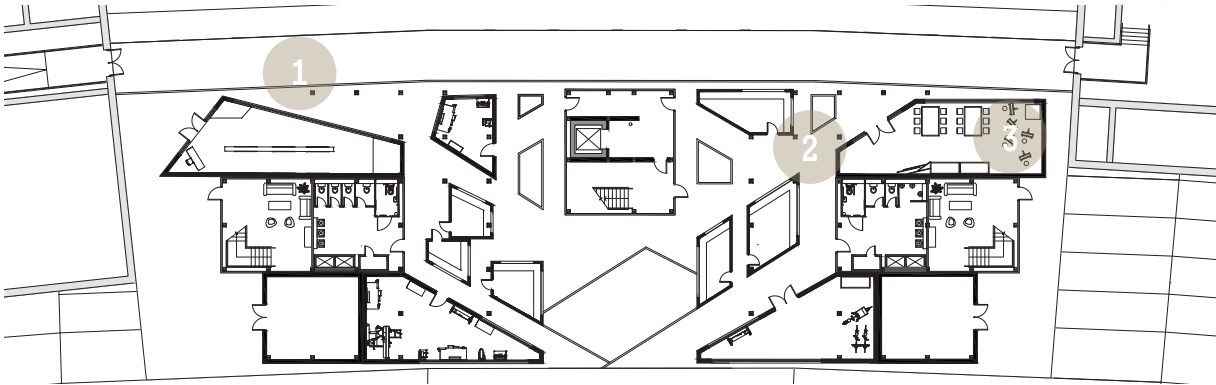
Here, the public can buy goods and services from the residents and support their work and crafts.



3. PUBLIC WORKSHOPS AND EXCHANGE OF SKILLS

The workshop and studio spaces allow for artists to work during their time spent at the collective exchange.

The spaces also allow public visitors to attend studio sessions run by the artists to celebrate the exchange of skills.



CONCEPT TRANSLATION

SPATIAL SEQUENCE



4. OPEN EVENTS SPACE

Surrounded by kiosks, the defined open space at the front edge of the scheme provides an opportunity for open air events and installation of additional pop up stalls.

An open view towards the Tempelhofer Feld is also emphasised through this space.



5. BRIDGE LINKS

The bridge links between the central core enhance the connectivity of the two residential towers.

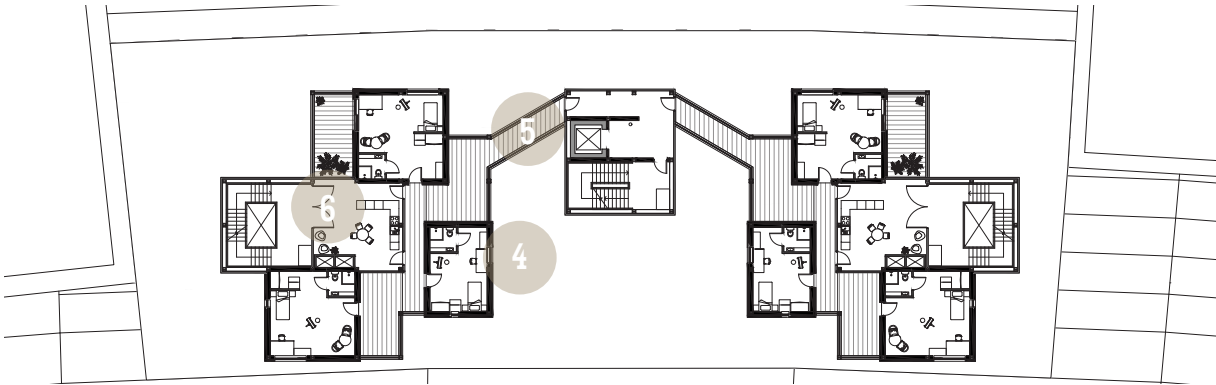
Their elevated positioning enables users to look back to the city and the Tempelhofer Feld as well as the downstairs events space.

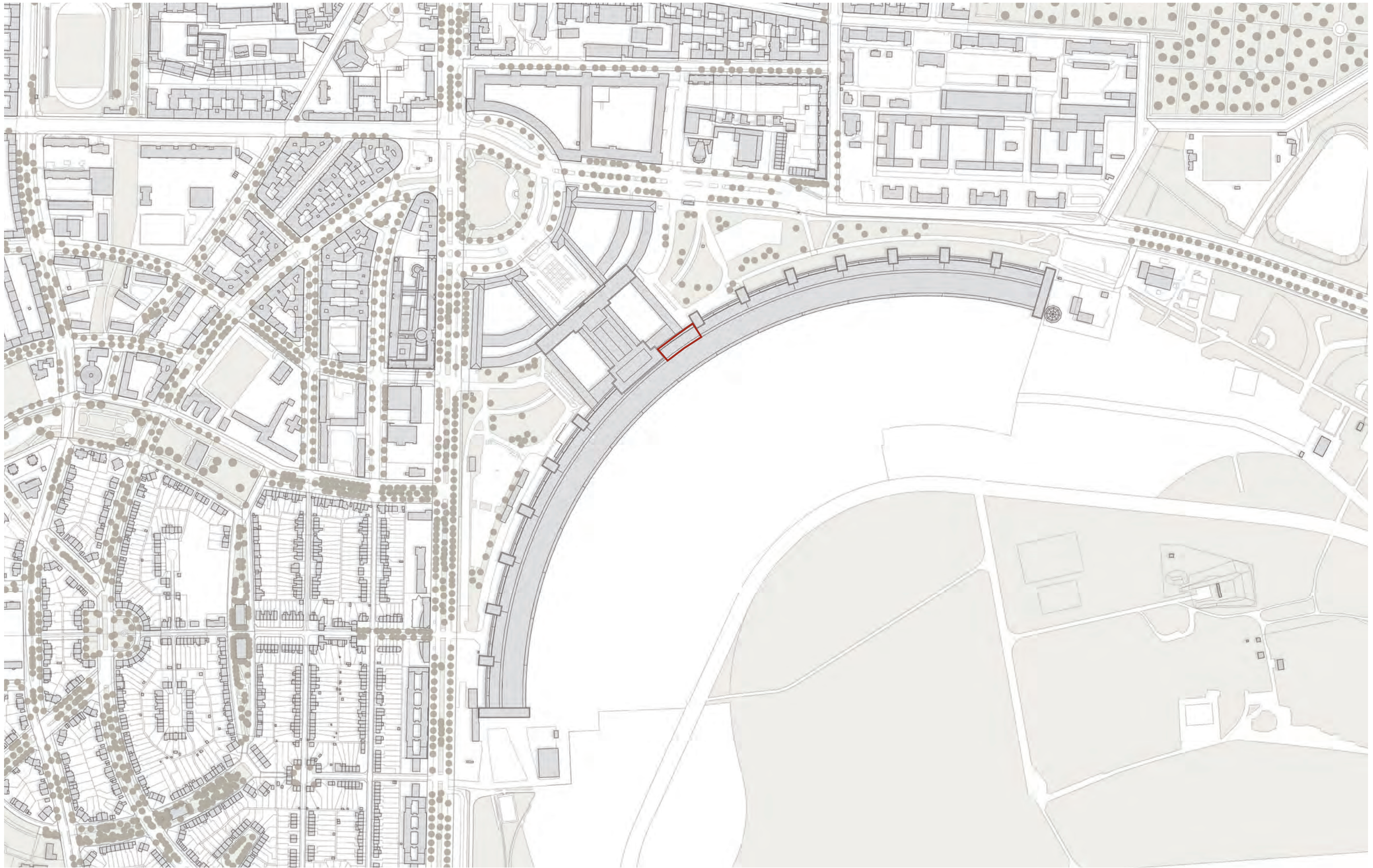


6. RESIDENTS COMMUNAL SPACE

While the residents can experience security and personal privacy within the individual residential units, exchange is also encouraged between themselves.

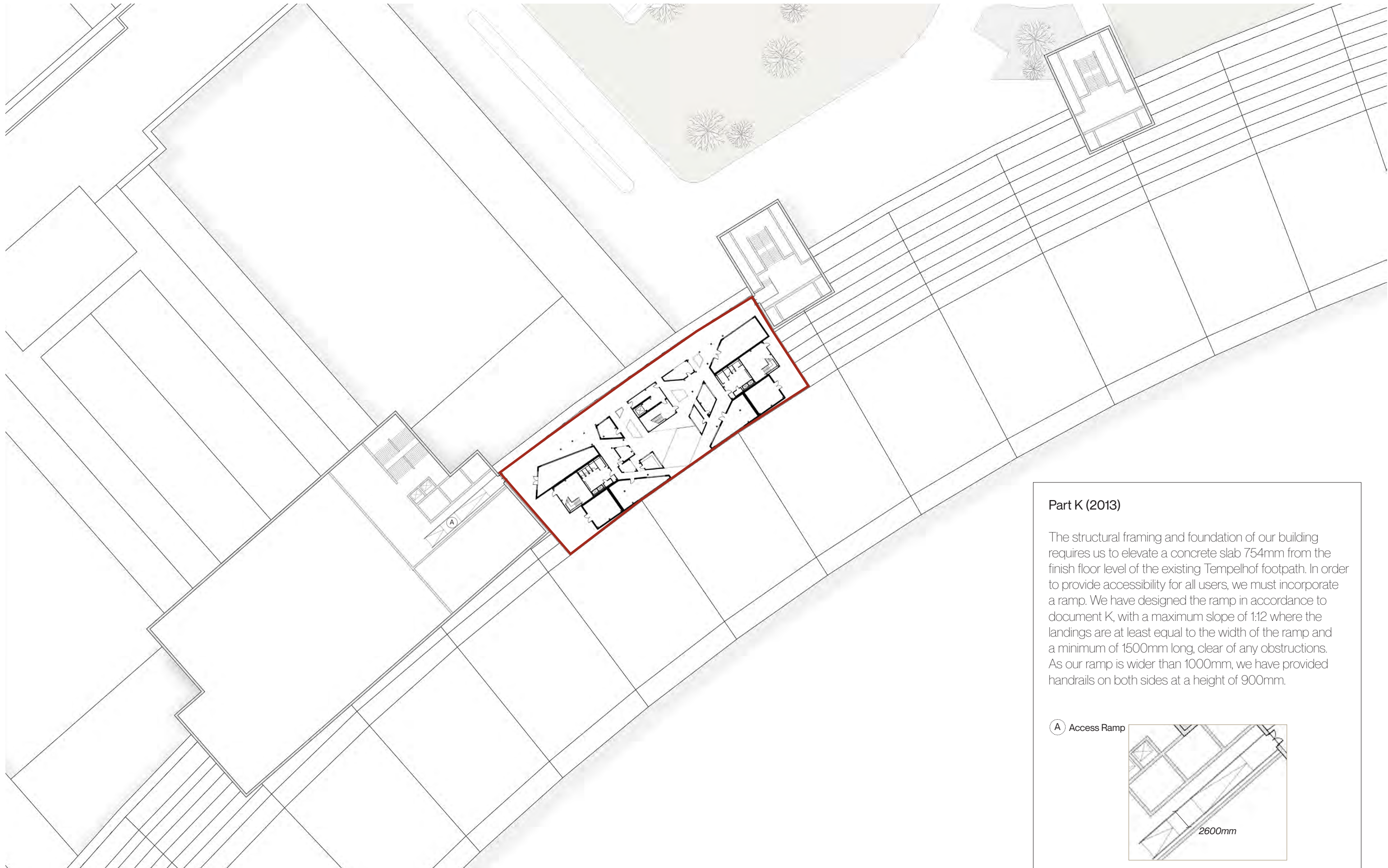
Open and airy communal kitchen and breakout spaces are provided on each floor and are adjacent to the vertical atrium circulation, further enhancing the collective feel of the building programme.



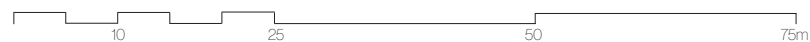


Location Plan
1:2500 at A1





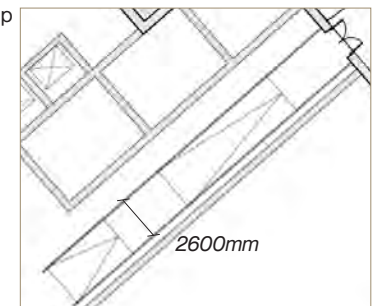
Site Plan
1:500 at A2



Part K (2013)

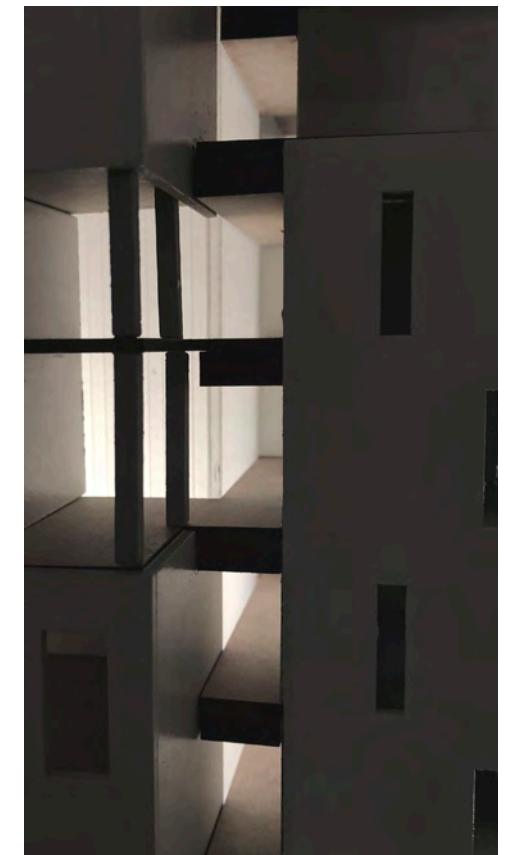
The structural framing and foundation of our building requires us to elevate a concrete slab 754mm from the finish floor level of the existing Tempelhof footpath. In order to provide accessibility for all users, we must incorporate a ramp. We have designed the ramp in accordance to document K, with a maximum slope of 1:12 where the landings are at least equal to the width of the ramp and a minimum of 1500mm long, clear of any obstructions. As our ramp is wider than 1000mm, we have provided handrails on both sides at a height of 900mm.

(A) Access Ramp



Building Regulations



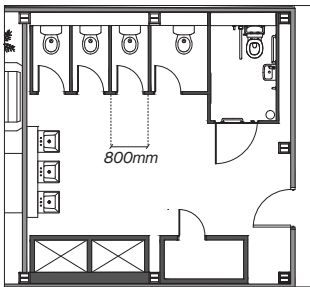


Model in context
1:100

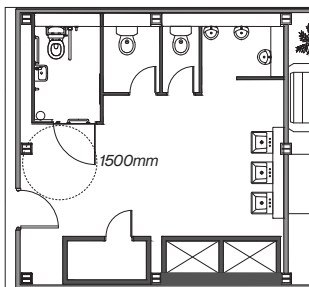
BS 6465-4 (2010) and Part M Vol.2 (2010)

Based on the assumption that the ground floor spaces can hold around 60 people at a time, we calculated for the provision of 5 female WCs (1 accessible) with 3 washbasins as well as 3 Male WCs (1 accessible) and 3 urinals. The layouts consider and follow the dimensions set out by document BS 6465-4 as well as comply with Part M Vol. 2 for the adequate accessible cubicle, turning spaces and access from the outside.

B Sanitary Installations



Female

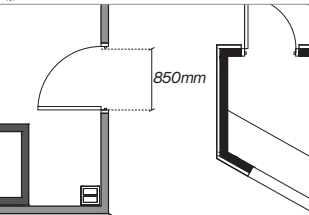


Male

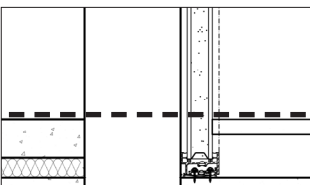
Part M Vol.2 (2010)

All public space openings are level with the ground and have a minimum opening width of 850mm.

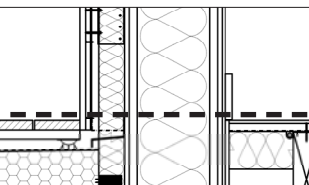
C Clear Opening Width



D Level Access



Ground Floor

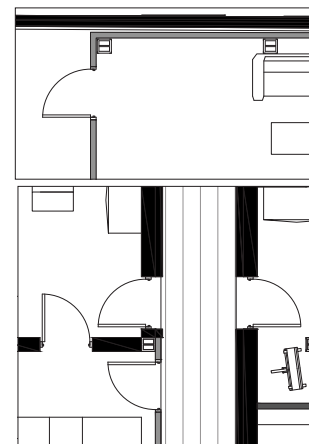


Upper Floors

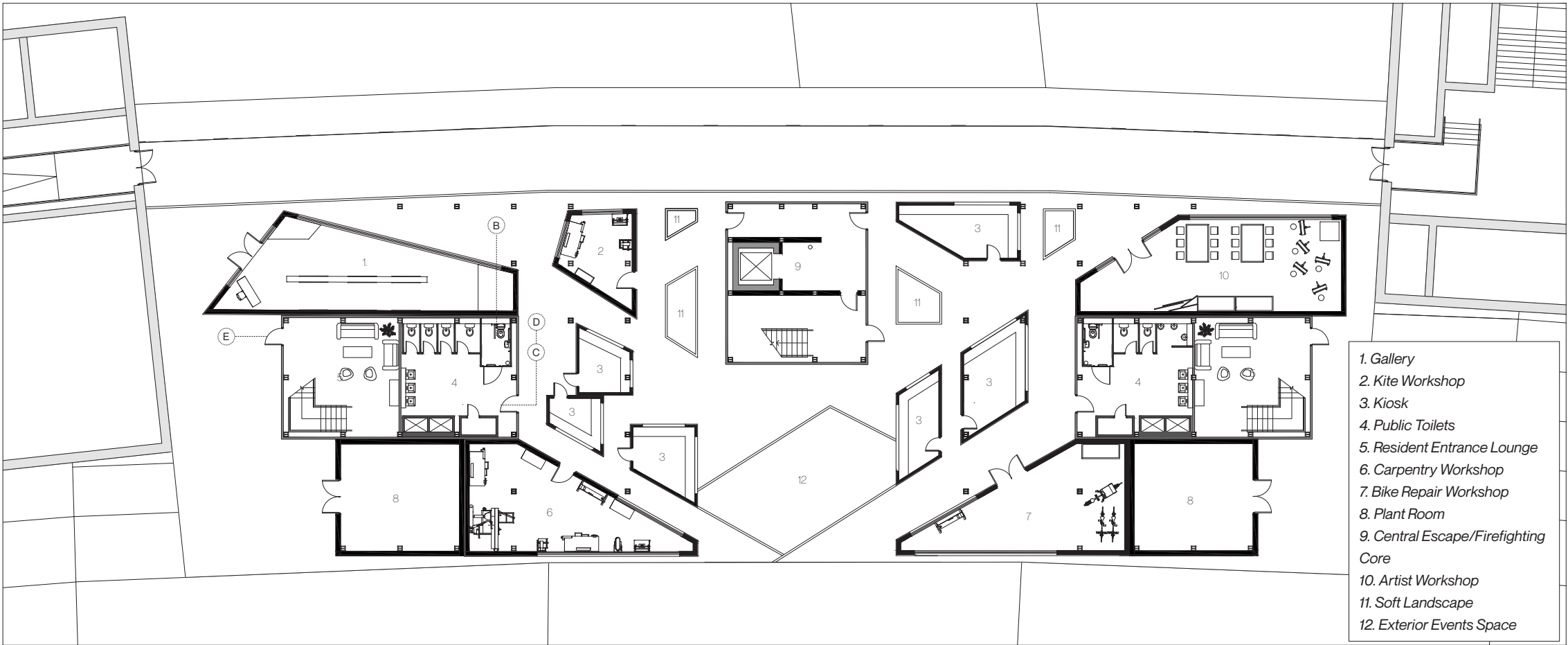
Part Q (2010)

To comply with the security of dwellings requirements the ground floor as well as deck access residential thresholds are specified as bespoke door sets incorporating security features and adequate locking systems to reduce trespassing and crime.

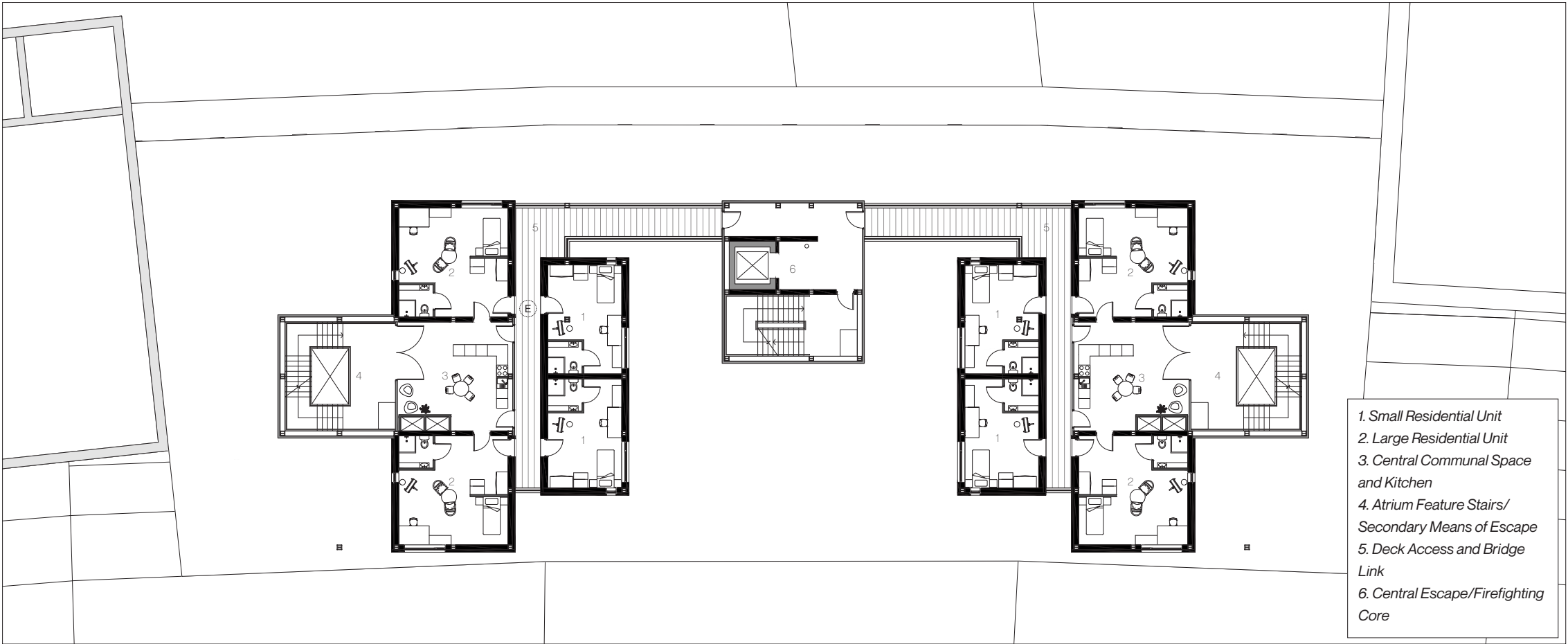
E Secure Doorsets



Building Regulations

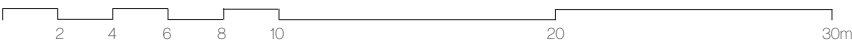


Ground Floor Plan



First Floor Plan

Proposed GA Plans
1:100 at A1



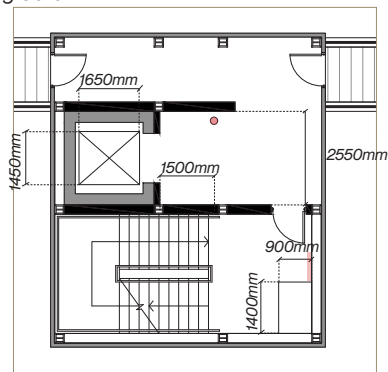
Part B Vol. 2 (2007)

The primary escape stair core will be constructed out of concrete, a virtually non-combustible material. All steel work is to be coated with 120 minute intumescent paint. All doors giving access to this stair will be fire resistant and self closing as will the doors in the secondary means of escape and escape in the atriums.

A clear width of 1500mm is maintained from the fire fighting lift shaft. A fire main outlet is no more than 60m away from the furthest part of the residential units measured on a route suitable for laying a hose.

Refuge points are located on each protected stairway and provide an area accessible to a wheelchair of at least 900 x 1400mm in which a wheelchair user can wait for assistance. Evacuation chairs are located next to the refuge points

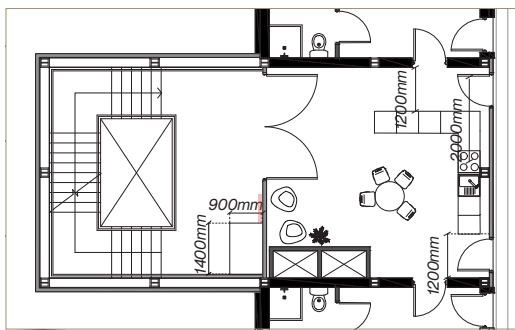
F Fire Fighting Core



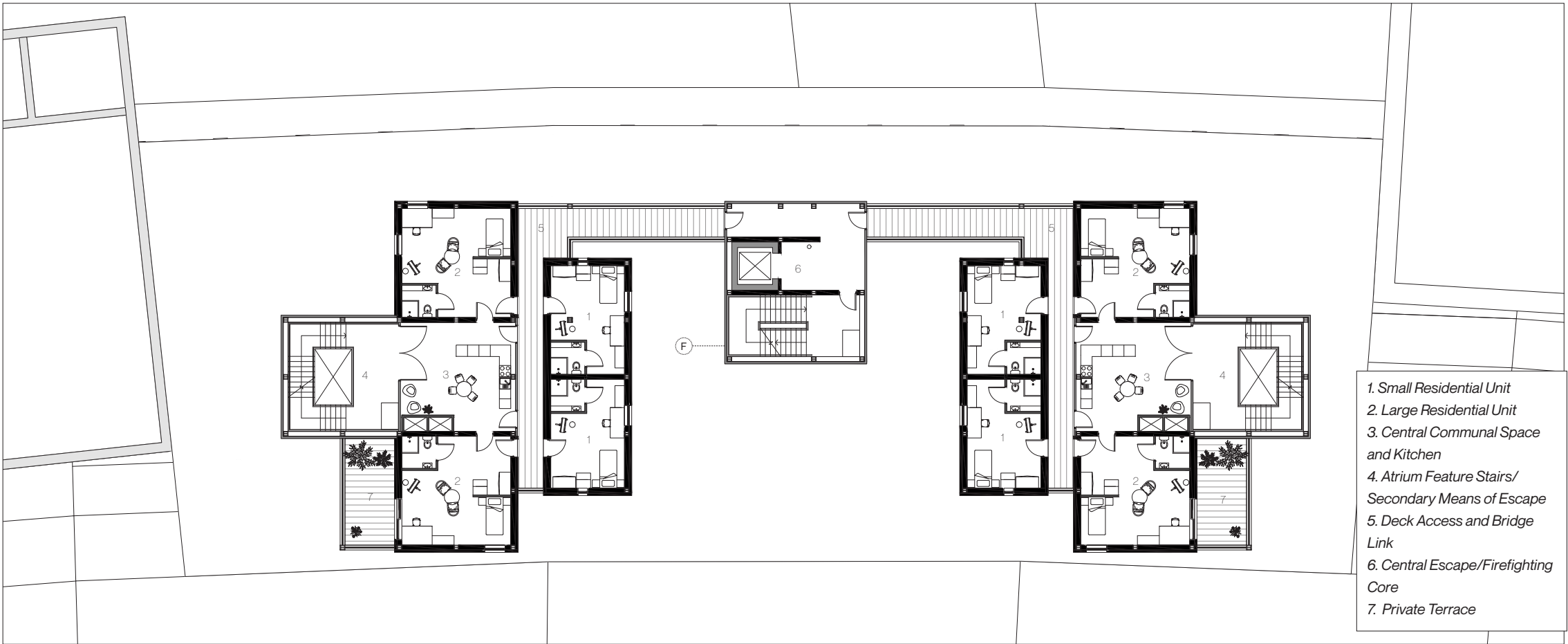
A sprinkler system is provided in the central communal area of each tower block as per fire engineers recommendations.

A minimum clear width of 1200mm is also satisfied to avoid any obstructions in case of a fire. A minimum distance of 2000mm from the cooker (fire hazard) to the escape routes is also maintained.

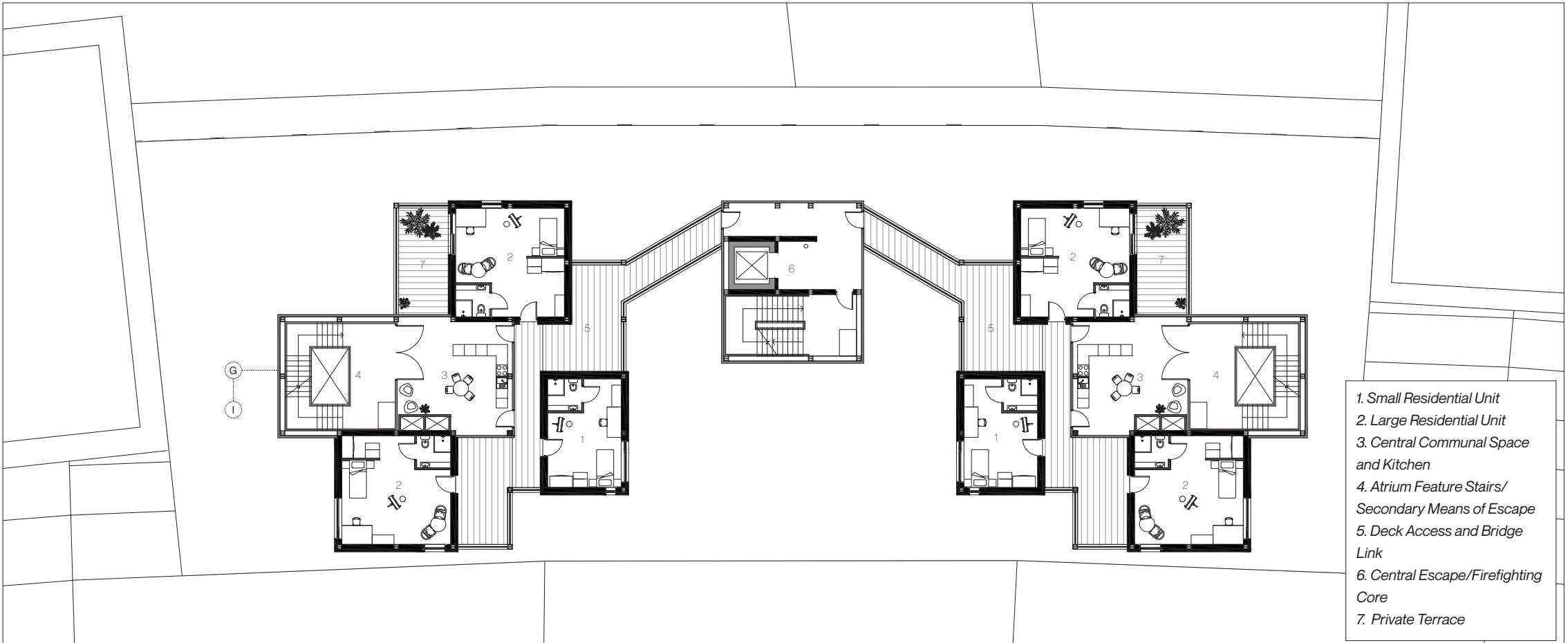
G Clear Escape Widths



Building Regulations

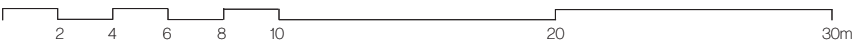


Second Floor Plan



Third & Fourth Floor Plan

Proposed GA Plans
1:100 at A1



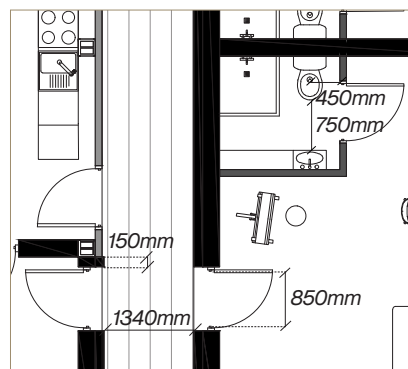
Part M Vol.1 (2010)

In response to visitable dwellings, all doors have a clear opening width of 850mm and an accessible threshold. A minimum 300mm nib is provided to the leading edge of the door and a minimum 150mm nib is provided to the hinge side of the door.

All the WCs are located 450mm minimum from the centre to the edge of the interior wall and 750mm from the edge of the WC to the sink, meeting the provisions stated in Part M section 3.

To provide adequate access in compliance with Part M, the corridors exceed the 900mm minimum depth.

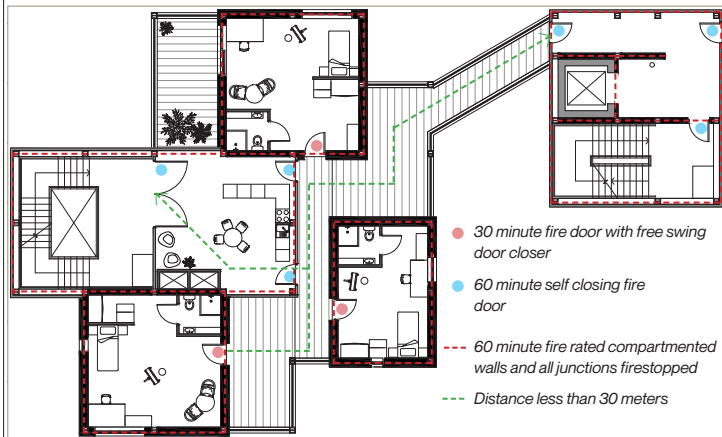
H Visitable Dwellings



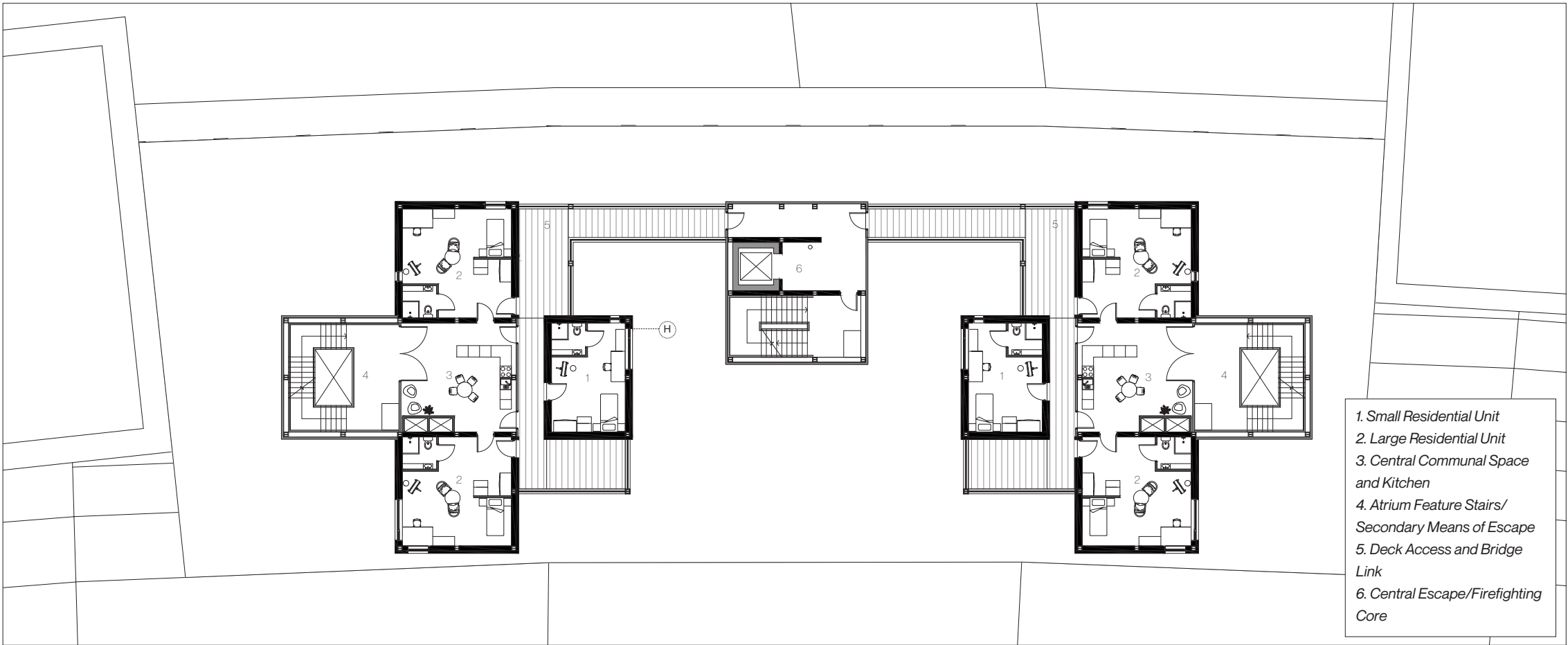
Part B Vol. 2 (2007)

As the primary means of escape is considered external, the furthest residential unit is 25 meters away and complies with the 30 meter maximum travel distance to the nearest escape. The secondary means of escape is 15 meters away from the furthest unit and also complies with the 30 metre travel distance. Fire rated doors and walls are specified in the diagram below.

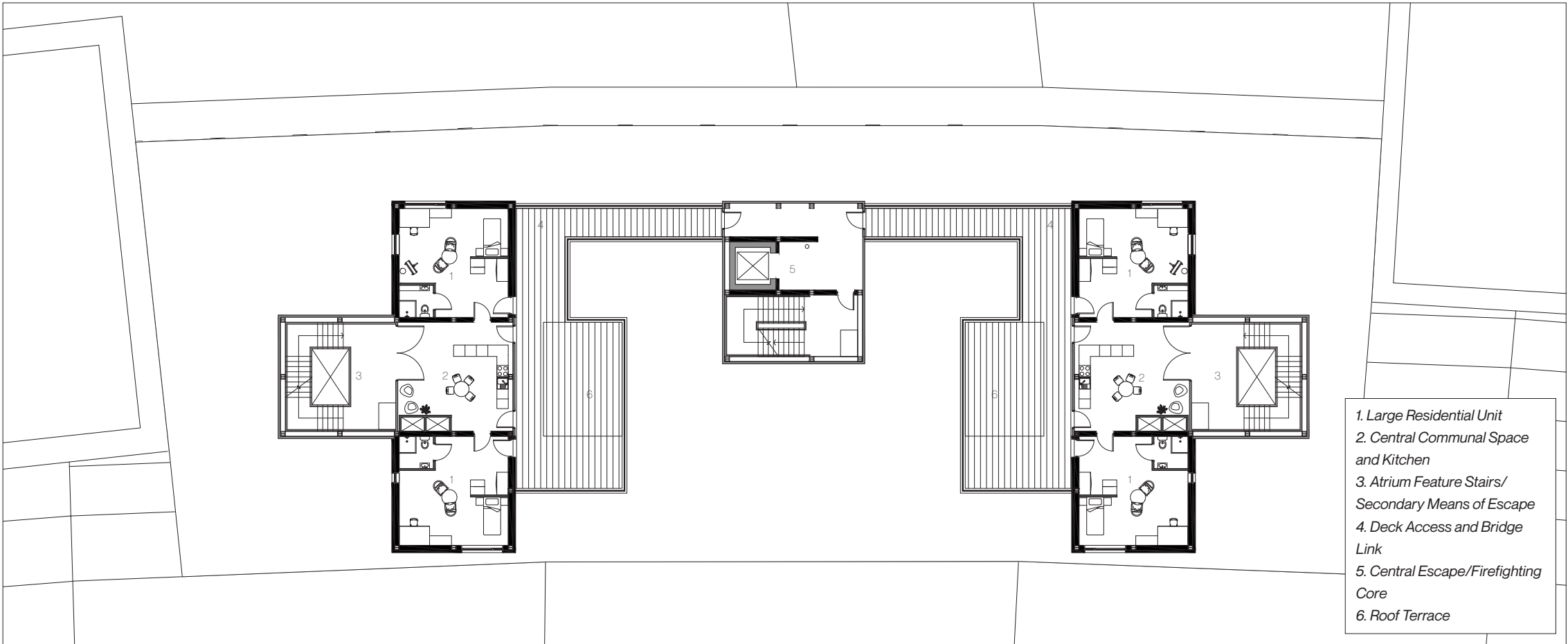
I Fire Escape Distances



Building Regulations



Fifth Floor Plan



Sixth Floor Plan

Proposed GA Plans
1:100 at A1



PROPOSED VISUALS

INTERNAL AND EXTERNAL VIEWS



Exterior night view from the roof of the Tempelhof



Interior of a private residential unit with views towards the Tempelhofer Feld



External public ground floor and kiosks



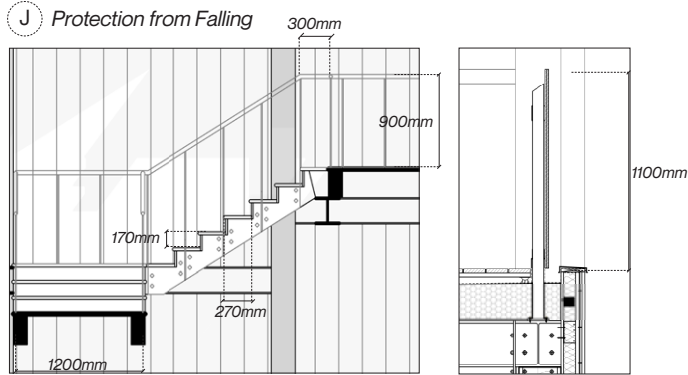
Interior of a central communal space with channel glass partitions

Part K (2013)

To comply with document K, protection from falling, section 1, the stair risers do not exceed 170mm with a going of 270mm and do not exceed 12 risers for flights between landings. In addition, the landings are at least the depth of the 1200mm stair widths.

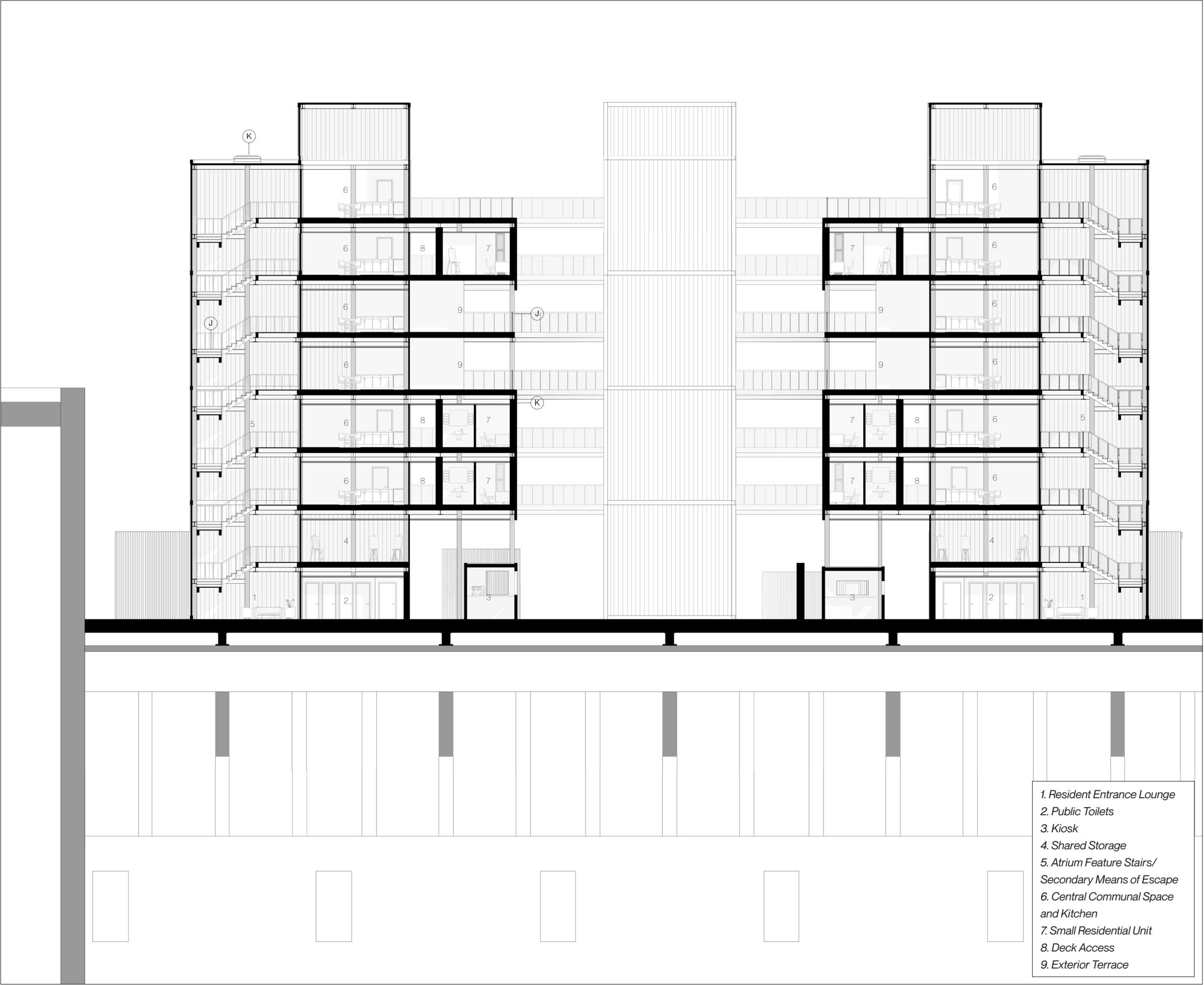
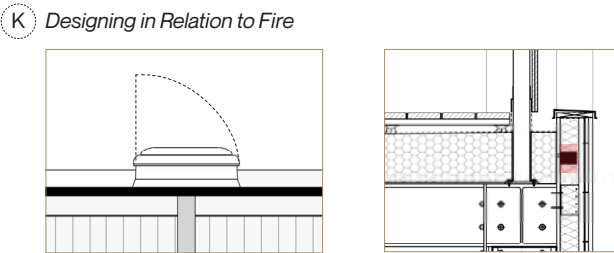
In accordance for the provision of handrails in section 1.34, the position of the top of the handrail does not exceed 1000mm from the pitch line or the floor. As our stairs are 1200mm wide handrail to handrail, the provision of handrails on both sides is required and does not exceed a 50mm diameter. A 300mm extension is also provided at the top and bottom of the stair.

To comply with section 3.2, the exterior guarding meets the 1100mm height requirement and does not exceed the 100mm opening within the guarding.



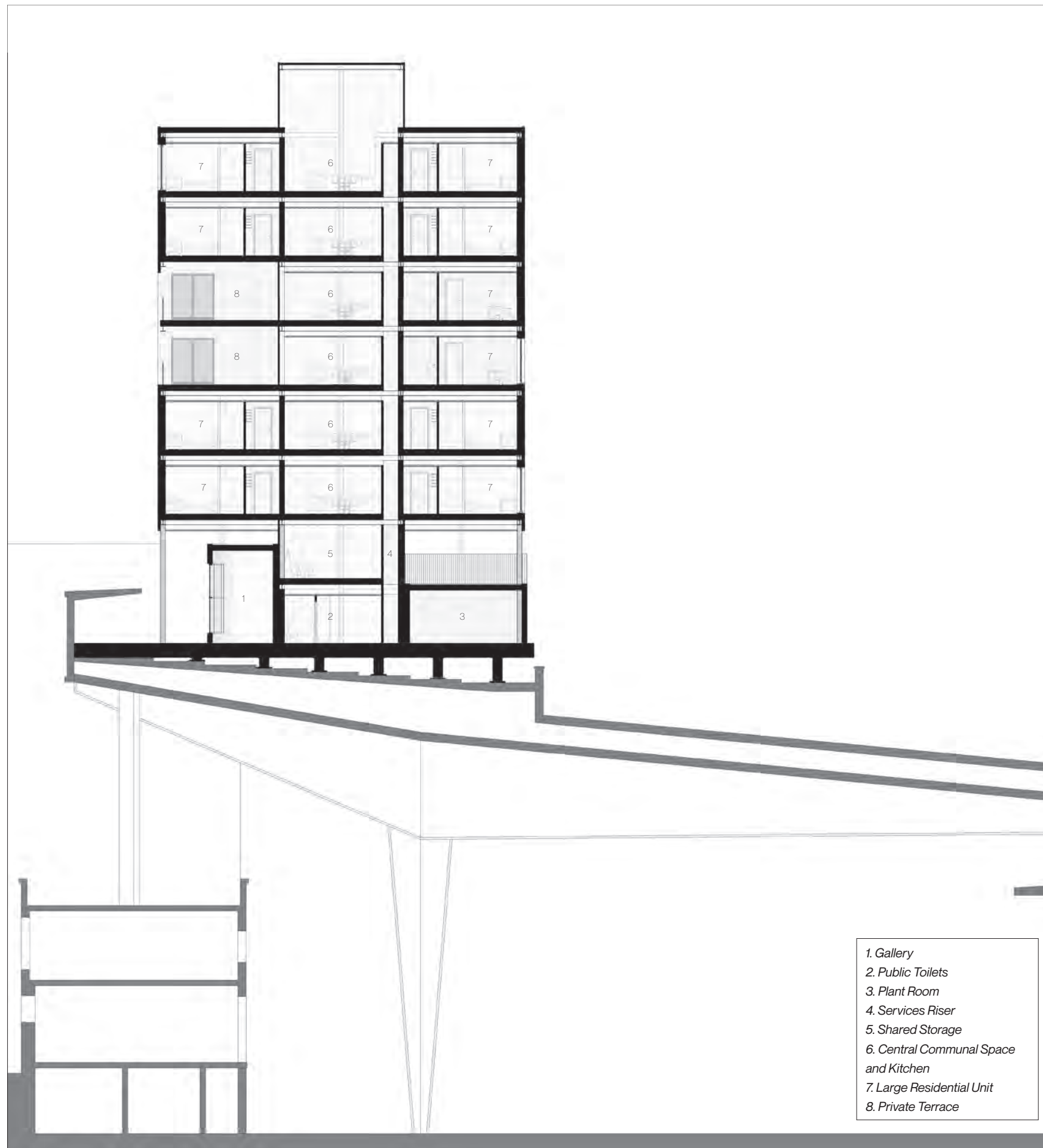
Part B Vol. 2 (2007)

As our building is above 18 meters, it is recommended to have a secondary means of escape where one includes a fire fighting shaft. Two protected stairs are provided, the primary means of escape through a fire fighting core and a secondary means of escape through the atrium, both in-line with Part B and exceeding the minimum clear width of 800mm as the stairs serve an area of less than 50 people. The stair maintains a constant width and does not exceed 1400mm. Two automatic opening vent hatches are located on the atrium roofs to ventilate and reduce smoke accumulation in case of fire. Ventilated cavity fire barriers and fire-stopping have also been provided as per the specified locations stated in Part B section 9.



Proposed Long Section
1:100 at A1



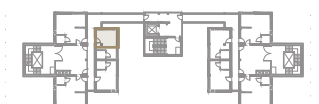
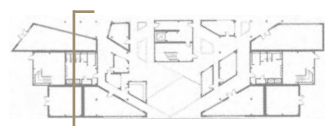


1. Gallery
2. Public Toilets
3. Plant Room
4. Services Riser
5. Shared Storage
6. Central Communal Space and Kitchen
7. Large Residential Unit
8. Private Terrace

Proposed Short Section
1:100

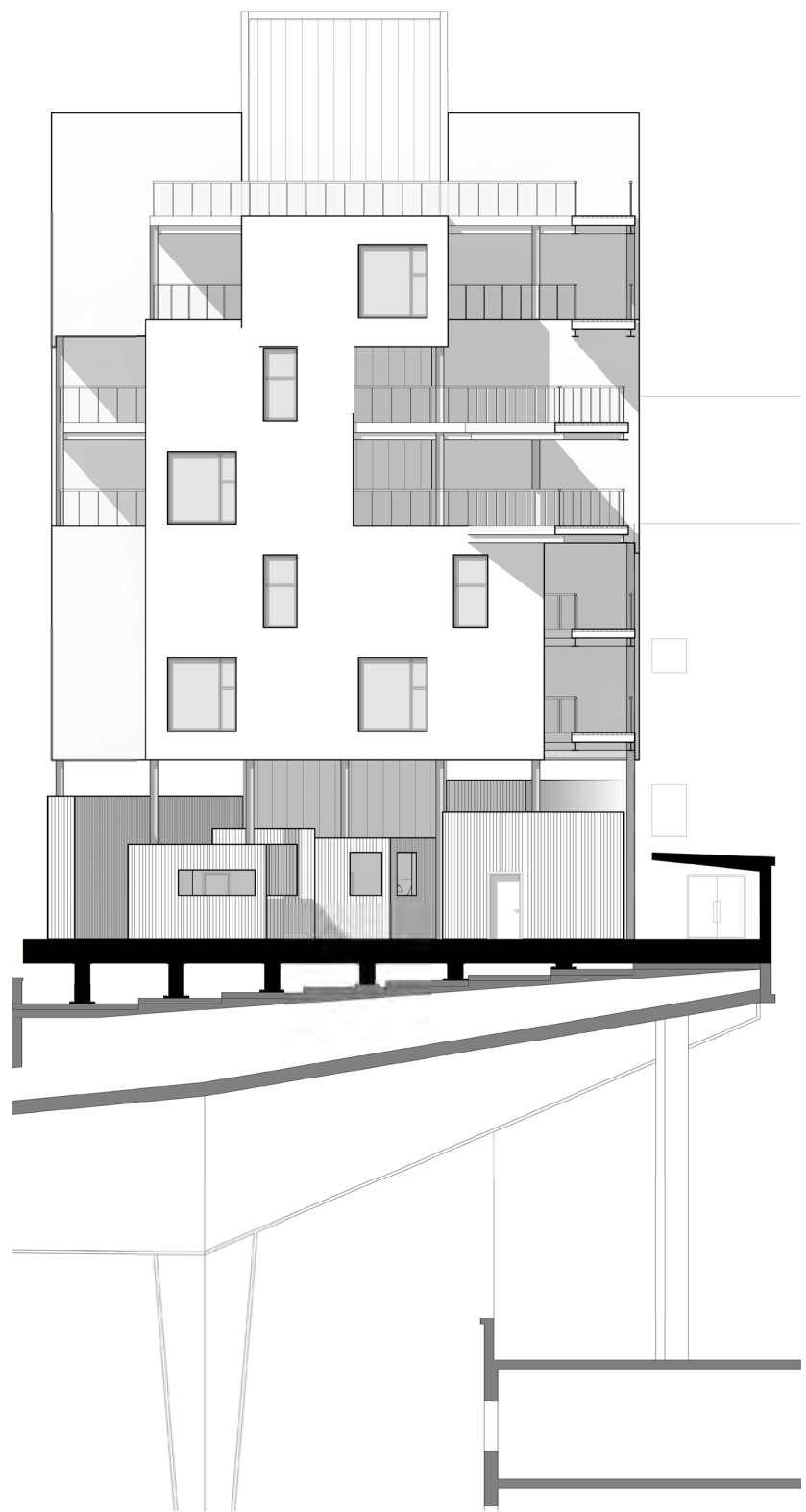


Detail Sectional Model
1:20

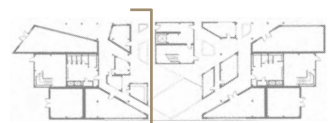


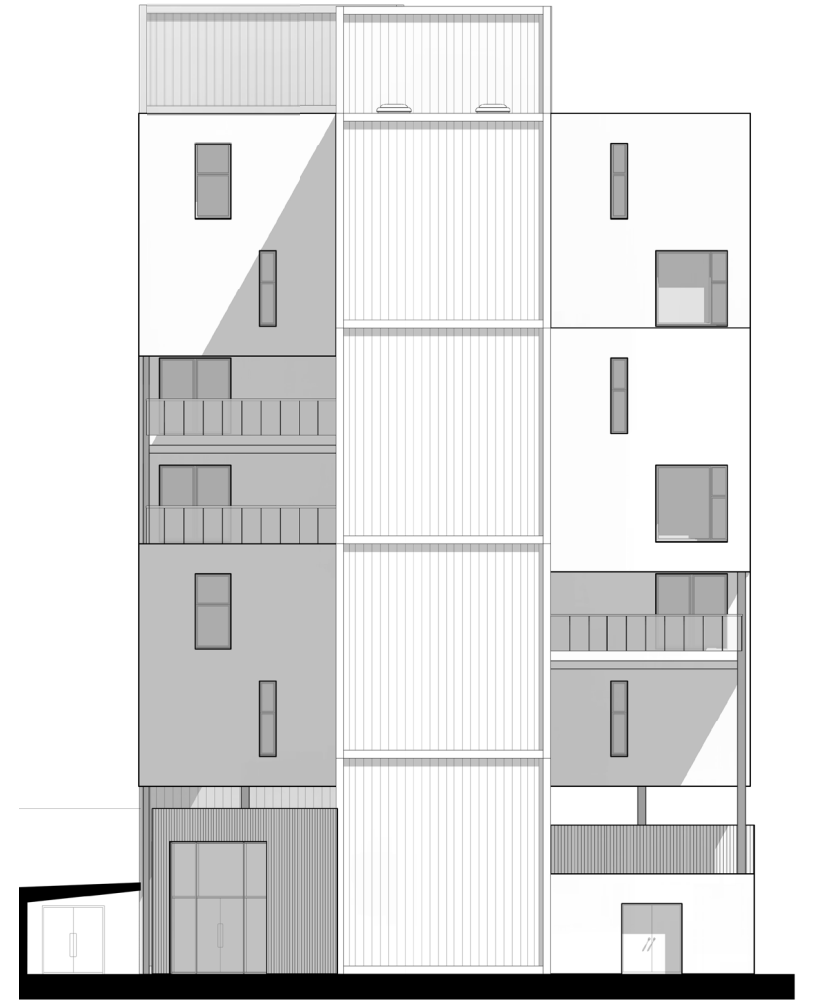


Proposed South-East Elevation
1:100 at A1

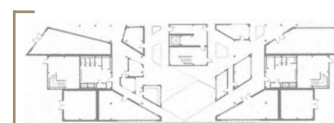


Proposed North-East Elevation
1:100 at A1





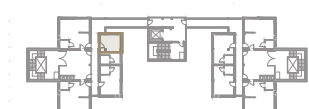
Proposed North-West Elevation
1:100 at A1



Proposed South-West Elevation
1:100 at A1



Detail Sectional Model
1:20



Detail Callouts (See following page
for details and annotation)

Detail A. Channel glass partition and
external terrace

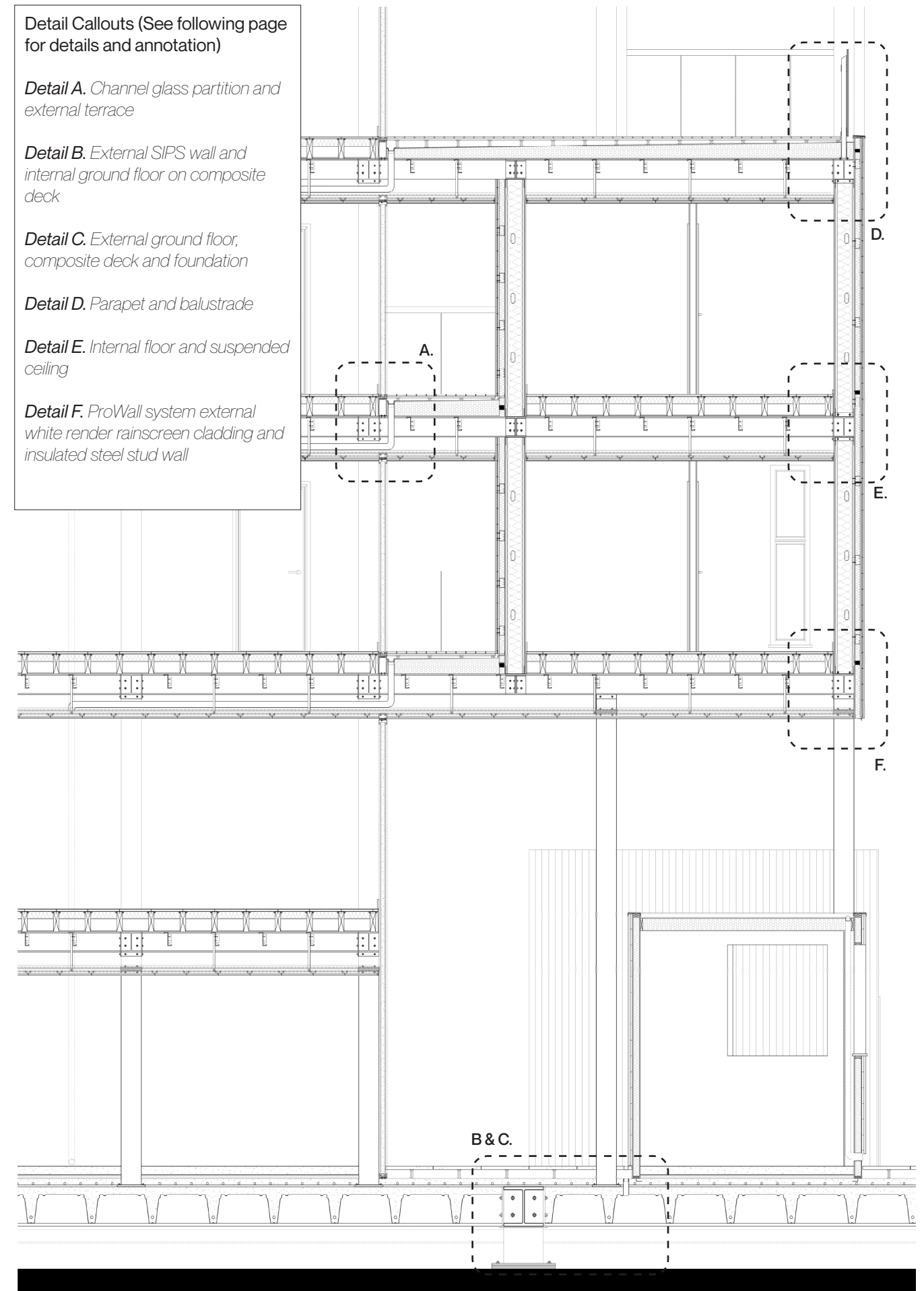
Detail B. External SIPS wall and
internal ground floor on composite
deck

Detail C. External ground floor,
composite deck and foundation

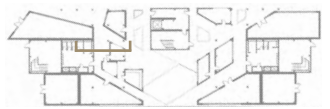
Detail D. Parapet and balustrade

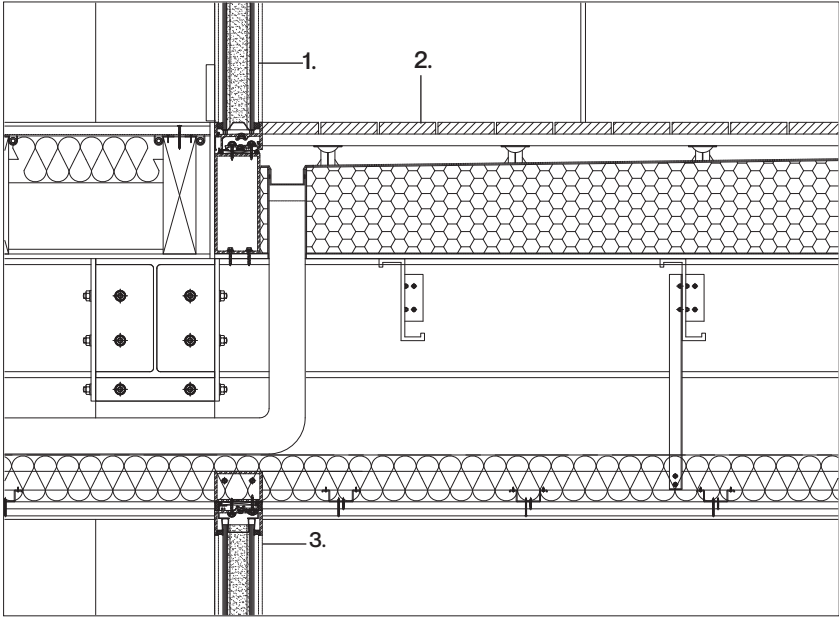
Detail E. Internal floor and suspended
ceiling

Detail F. ProWall system external
white render rainscreen cladding and
insulated steel stud wall

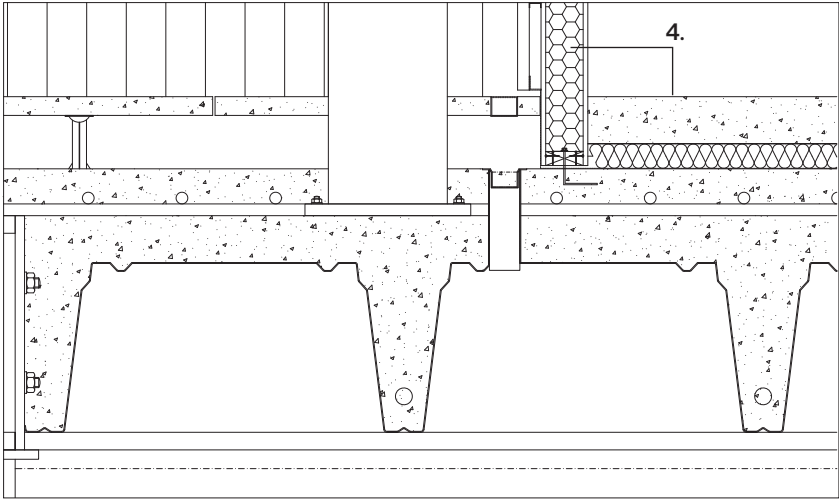


Detail Section
1:20 at A1

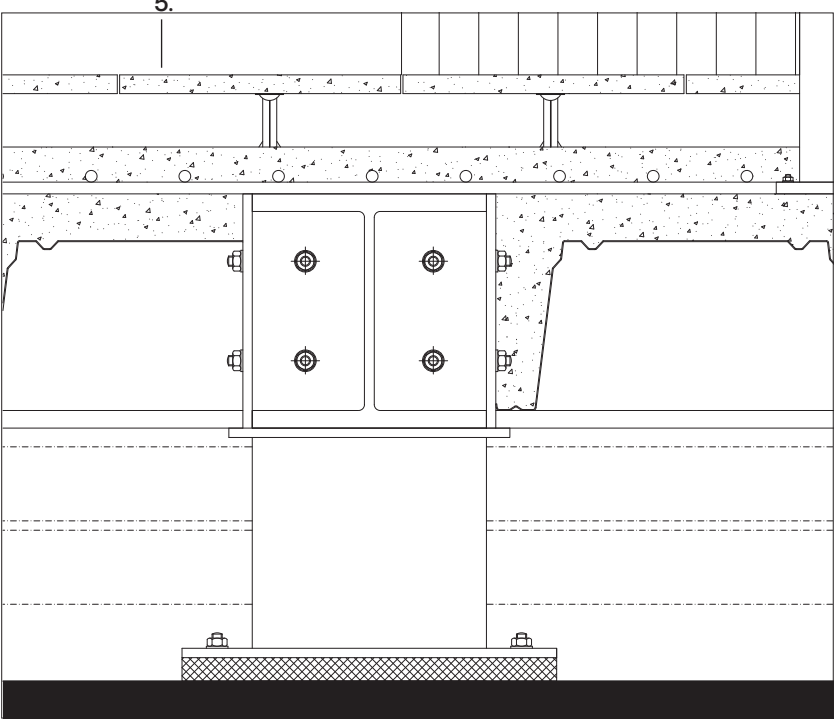




Detail A. Channel glass partition and external terrace



Detail B. External SIPS wall and internal ground floor on composite deck*



Detail C. External ground floor, composite deck and foundation*

1. Channel glass sill

Jamb cover beyond
Channel glass flange line
Low-E, double-glazed U-profile channel glass
panels filled with 54mm WacotechTIMax Nano
Insulation
Sill plastic insert
Silicone
Weep hole with foam baffle
Urethane compatible sealant
Bead over thermal break
Sill extrusion
Non curing sealant
Sub-sill extrusion
Shims-insert foam backer rod
between shims at sealant
Shims-insert foam backer rod
between shims at sealant
65mm x101mmSteel tube fixed to primary beam

3. Channel glass head

65x 101mm Steel tube fixed to Gypframe
primary support channel
Shims insert foam backer rod between shims
at sealant
Urethane compatible sealant bead over thermal
break
Head plastic insert
Silicone
Jamb cover beyond

4. External SIPS wall clad in white corrugated metal
and internal ground floor on composite deck

Ventilated corrugated steel sheet with white
paint finish bolted to channel horizontal rails
100mm SIPS panel
Field installed bottom plate
Continuous sealant each side of framing as
recommended by manufacturer
Nails into sill plate and both sides
Treated sill plate
Sill sealer
13mm diameter anchor bolts
100mm Polished concrete screed
Damp proof membrane
50mm Mineral wool insulation
Damp proof course
Cast-in-situ concrete
Welded wire reinforcing mesh
Steel rebar
360x 500mm Steel profiled decking

5. External ground floor, composite deck
and foundation

40mm Permeable pavers at 600mm
centres
114mm Paver pedestals at 600mm centres
with adjustable height
Cast-in-situ concrete
Welded wire reinforcing mesh
Steel rebar
360x 500mm Steel profiled decking
500x500 mm Steel universal I beam
500 x 500mm Steel column
50mm Neoprene rubber foundation pad

2. External terrace

25mm Timber balcony decking
25 x 15mm Timber battens fixed to height
adjustable pedestals to support timber balcony
decking
Paver pedestals with self levelling head and
height adjuster
Excel HRS detail membrane
Vap AL vapour barrier
Hyranger SPOT under-layer
200mm Hytherm ADH tapered board insulation
with a 1:80 fall (thickness to achieve U-Value of
0.20W/m2K)
10mm liner panel
Water outlet tray
Axter safety overflow pipe

6. Parapet and balustrade

1100mm Glass balustrade fixed to steel posts
and bolted to primary beam to specialist
manufacturers design and detail
Weathering cowl by specialist contractor
35py Angle strip
Damp proof membrane
3mm Sloped aluminium coping
Excel HRS detail membrane
Timber fixing blocks at 400mm centres splayed
as required
2mm ProWall aluminium ventilated base bead
cavity ventilation tray mechanically fixed to
helping handrails

7. Internal floor

18x 120mm Skirting board
Perimeter seal
10mm Flanking Strip
10mm Acoustic sealant
8mm Laminate wood flooring
18mm Moisture resistant chipboard fixed to
timber floor joists
Vapour barrier
2mm Aluminium conducting sheet
2mm Pipe clips
Underfloor heating pipe
70 x 200mm Timber floor joists
100mm Glass fiber insulation between floor
joists
10mm Dense sound check layer
10mm Inner liner panel
Steel z purlins bolted to primary beams
sitting at 600 centres

8. Suspended ceiling

Gypframe FEA 1 steel angle hangers at
1200mm centres fixed to steel z purlins and
fixed to primary support channels
100mm Isover spacesaver ready-cut
insulation in cavity
Gypframe MF7 primary support channels
at 1200mm centres
2mm Gypframe MF5 ceiling sections at
450mm centres fixed to the MF7 primary
support channels
2mm Perimeter channel suitably fixed to
wall at 600mm centres closed with sealant
for optimum sound insulation
Two layers of 15mm Fireline plasterboard
fixed onto the ceiling sections
7.5mm Plasterboard skim with white paint
finish

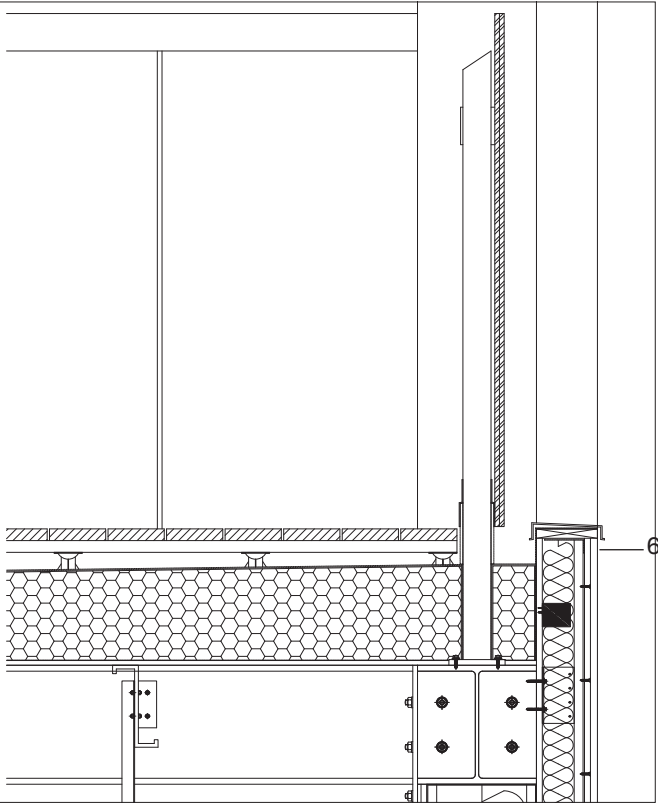
10. Thermal Break

254 x 254 mm Welded box section column
stub bolted to primary I beam
30mm Thermal Break Plate
100mm Insulation zone
254 x 254 mm Welded box section column

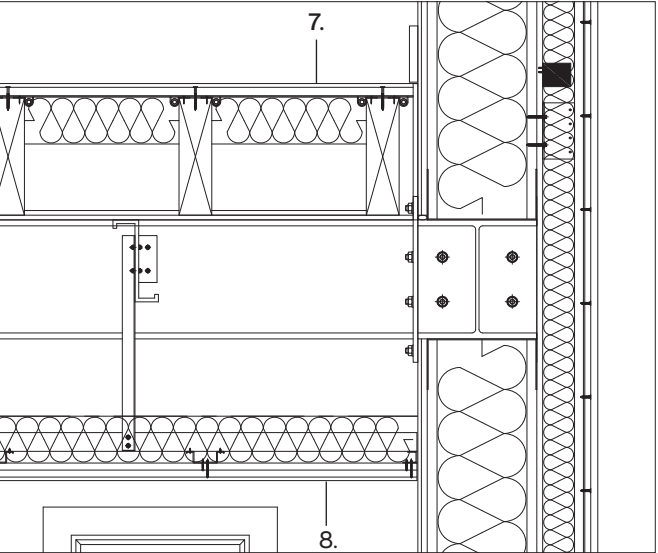
NB. All steel to be coated with 120
minute fire rated intumescent paint.

9. ProWall system white render rain-
screen cladding and insulated steel
stud wall

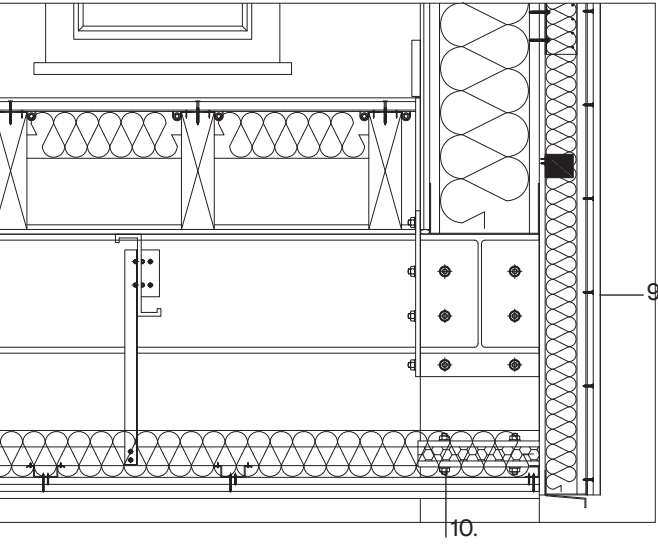
2mm Steel flashing
2mm ProWall aluminium ventilated base
Bead cavity ventilation tray mechanically
to helping hand rails
15mm White render system with mesh and
finishes
12.7mm Pro-board attached to vertical rail
sections
20mm Air gap
70mm Rigid board insulation
Ventilated cavity fire barrier fixed to
sheathing board with a steel support
bracket. 120 minute fire rating
Breather Membrane
2.5mm Non- combustible sheathing board
2mm C channel track
230 x 108mm C channel studs
230mm Glass Mineral wool insulation
12.5mm 60 minute fire rated internal
gypsum fire board
7.5mm Plasterboard skim with white paint
finish



Detail D. Parapet and balustrade



Detail E. Internal floor and suspended ceiling

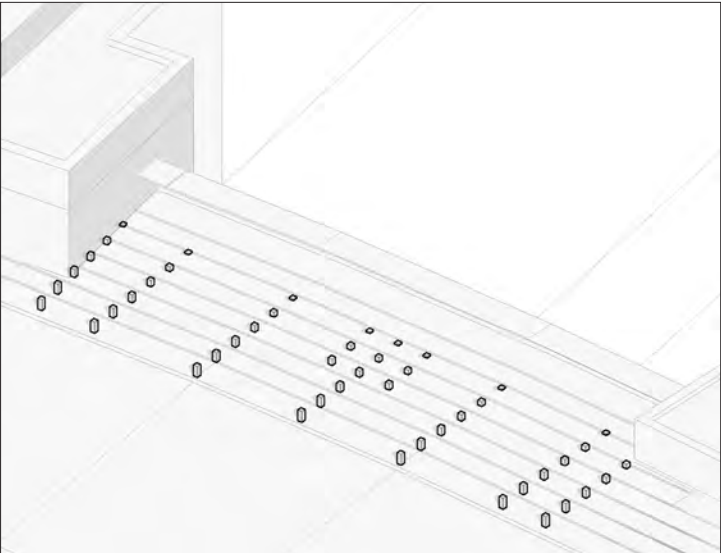


Detail F. ProWall system external white render
rainscreen cladding and insulated steel stud wall

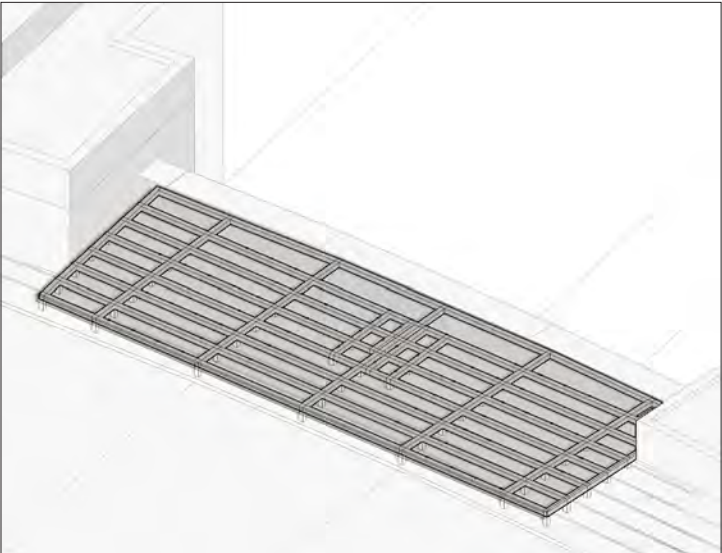
Detail Callouts

1:5 at A3 (*at A2)

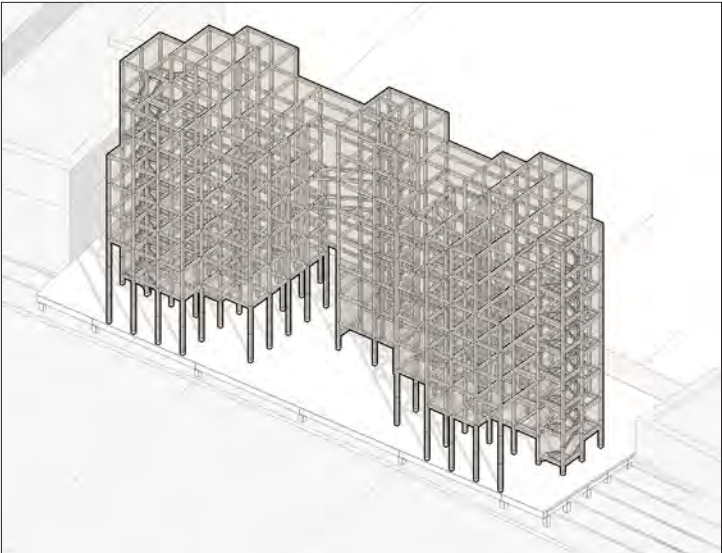
TECHNICAL RESOLUTION CONSTRUCTION SEQUENCE



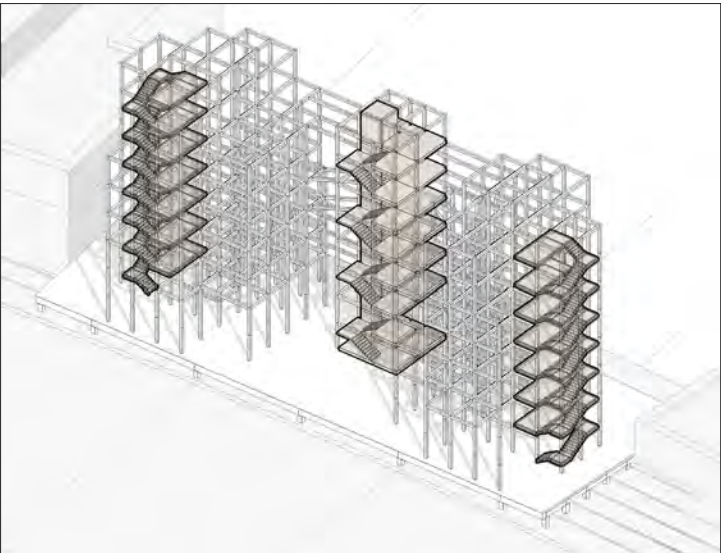
1.



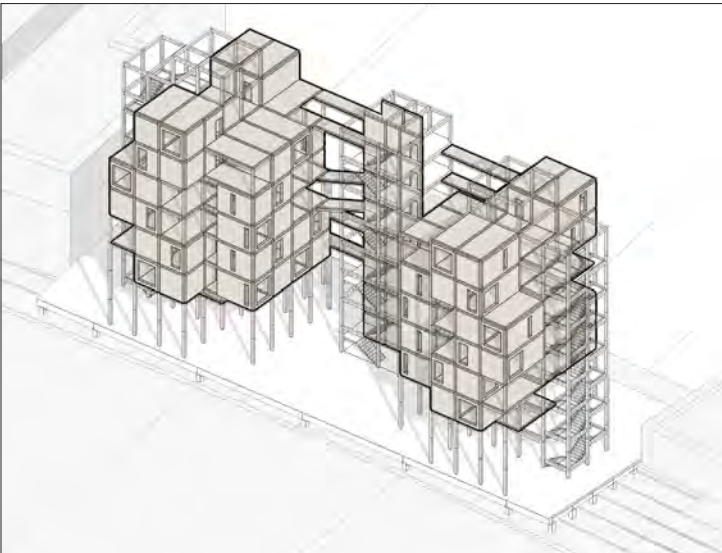
2.



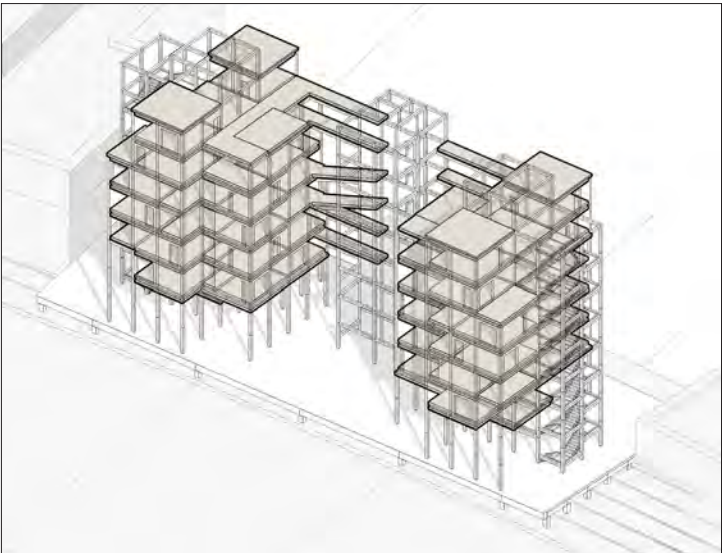
3.



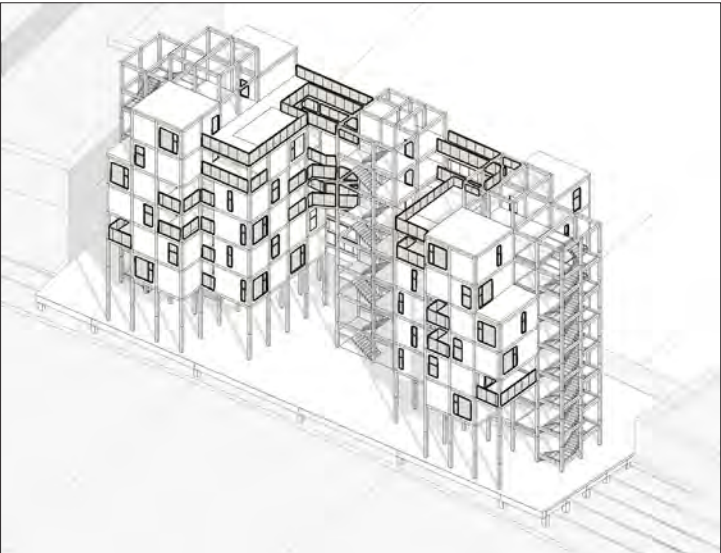
4.



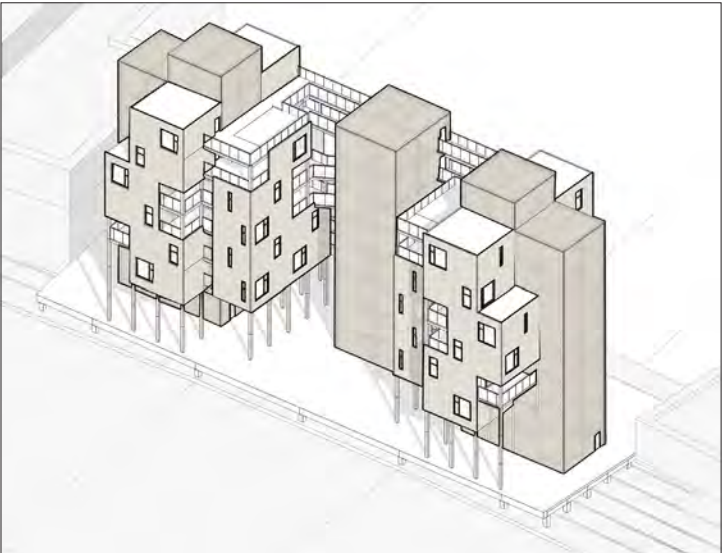
5.



6.



7.



8.



9.

1. Stub columns with neoprene pads and various heights are bolted to concrete steps of the Tempelhof and positioned in line with the existing superstructure to transfer point loads of the proposed build.

2. An ultra shallow beam steel grid framework is laid out and bolted to the stub columns. A steel composite deck is rested and bolted between the profiles of the beams. In-situ concrete is poured out over the deck. Cut-outs in the concrete are left to bolt proposed steel columns onto the steel of the foundation beams

3. All structure is constructed floor by floor. Primary steel columns are bolted to the ultra shallow floor beams of the foundations steel grid in 3-6m centre to centre. Primary and secondary beams are bolted to the columns
Steel stair structure is installed.

4. Pre-cast concrete slabs, lift shaft and stairs are installed in the protected central core
Stair landings and treads are installed on the stringers of the steel stairs in the atriums

5. Insulated steel floor purlins are laid out floor by floor. Prefabricated off-site, light gauge steel frame insulated walls are installed between primary structure. Pre-cast concrete walls are installed in the protected core

6. Internal floors and external decking build up is installed simultaneously on each floor. Services including plumbing and electricity are installed and connected to the central risers. Suspended ceilings are constructed concealing the services within their cavity.

7. Internal stud and channel glass partitions, windows, doors and balustrades are installed simultaneously on each floor.

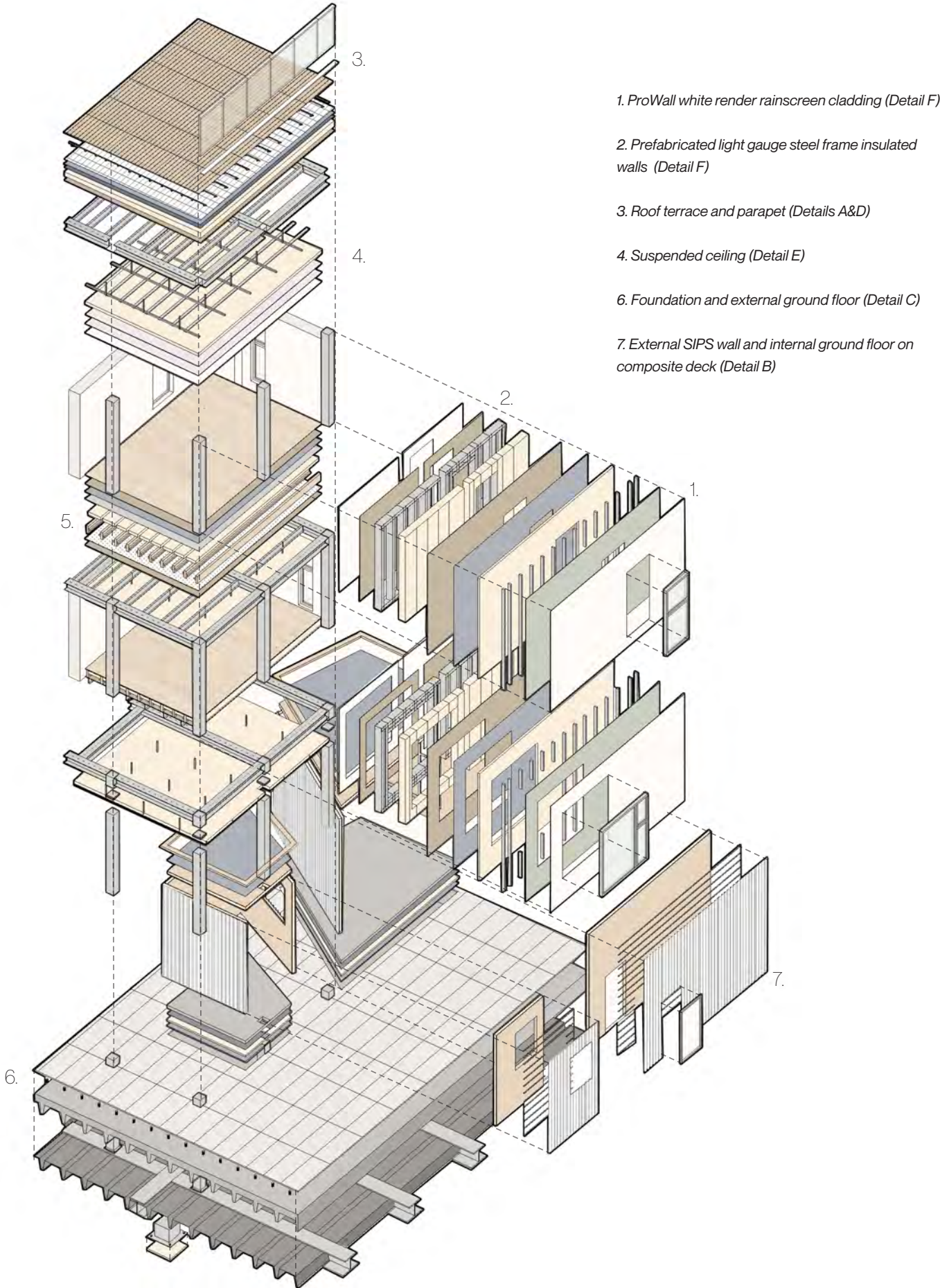
8. White render rainscreen cladding system is installed directly onto the already existing prefabricated light gauge steel frame insulated walls. Translucent channel glass cladding is fixed onto L-Sections running along the faces of the primary structure of the protected core and central spaces.

9. Semi-permanent kiosks and workshops on the ground floor are erected using pre-fabricated SIPS panels and clad in white corrugated metal. The ground floor is levelled with raised exterior paving and hard-wearing polished screed concrete floors inside.

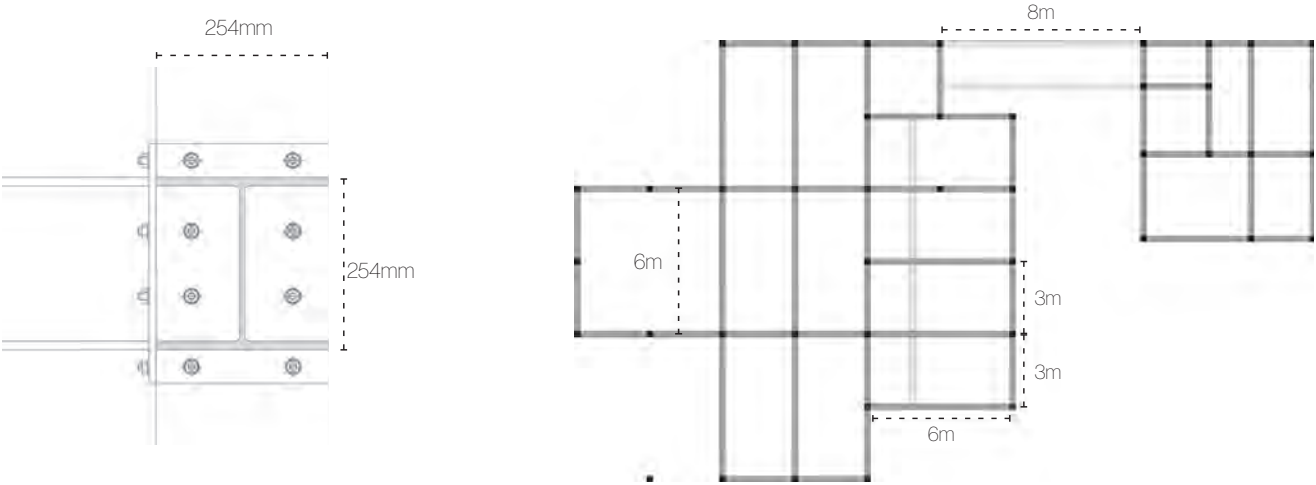
10. Internal finishes, decorations and fit-out prior to handover.

TECHNICAL RESOLUTION

CONSTRUCTION ISOMETRIC AND STRUCTURAL LAYOUT



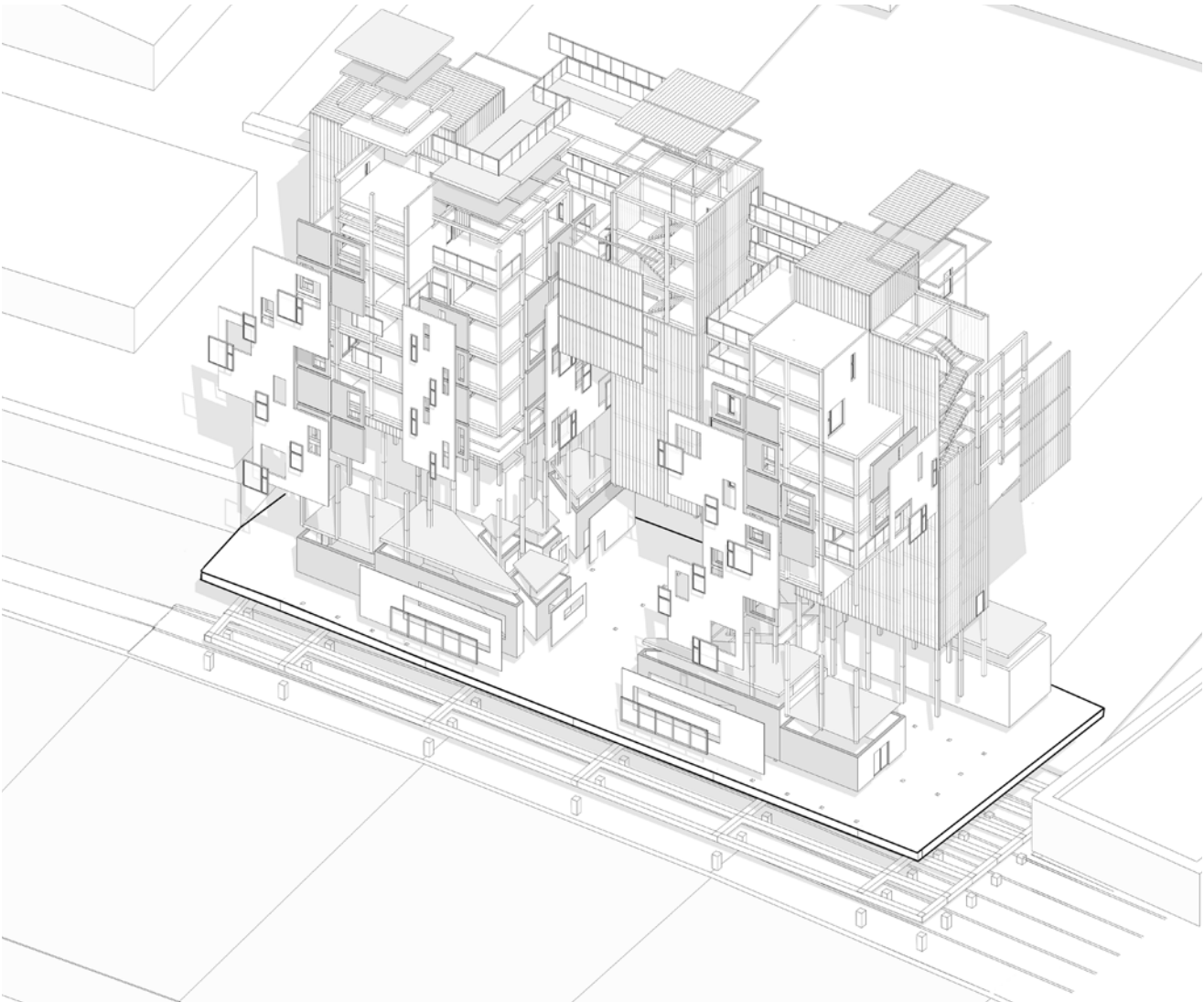
Foundation to parapet exploded sectional construction isometric (See 1:20/1:5 section and details for annotation)



Primary Steel Connection and Sizes

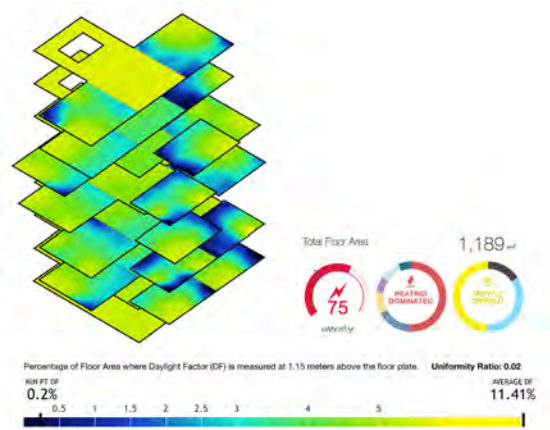
Primary (Grey) and Secondary (Beige) Structural Layout

Steel has been chosen for our proposed structure as it allows for wide spans where structure does not interfere with the interior living spaces. This was important in our design as units shift on the various levels. The 254x254mm box section columns and I beams allow for spans up to 8.5m which have not been exceeded within our structural strategy. All structure has been bolted rather than welded for easier deconstruction.



Construction isometric of entire scheme

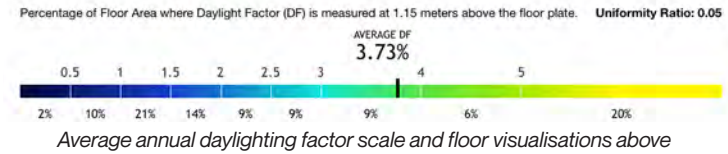
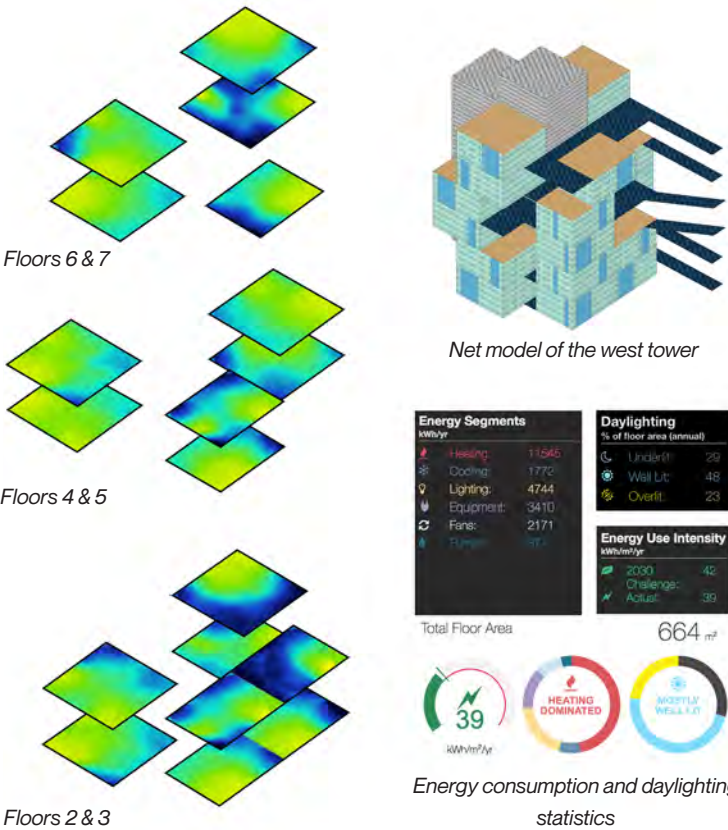
TECHNICAL RESOLUTION ENVIRONMENTAL PERFORMANCE



Sefaira Daylighting analysis of residential units, atrium and central communal space



Bronx Library Center.
Richard Dattner and Partners -
New York, NY



RESIDENTIAL UNITS

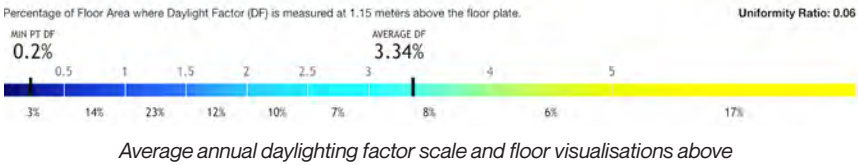
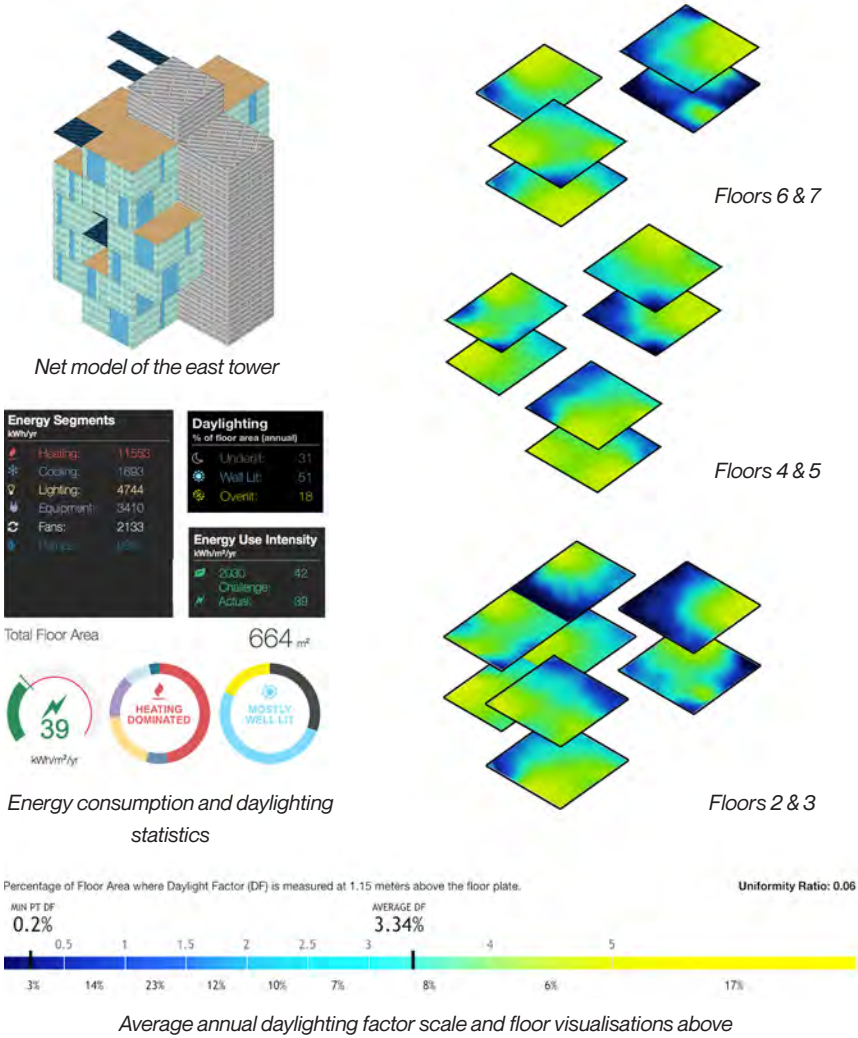
We positioned the model to the correct solar orientation on site, and incorporated a dual aspect window arrangement for each of the residential units so that daylighting is maximised. As expected and shown in the analysis, the north-west facing units receive less daylight due to their positioning however they are not under-lit because at least one of their window openings faces the east or west. **The south-west facing units receive plenty of daylight throughout the year, minimising the necessity for artificial lighting in at least half of the residential units.** The analysis also shows that our building is well within the desired range for energy consumption however it will be **heating dominated**. To maximise the efficiency of heating we have used an **underfloor heating system**. Although informative for the testing of elevation studies and window openings, the results should be approached with caution because the analysis does not include any contextual elements of the site and the energy results were generated from a very simple model.

ATRIUM AND COMMUNAL SPACE

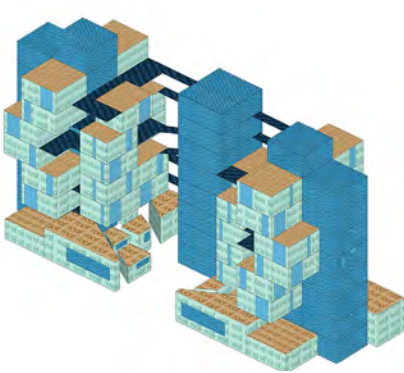
In order to quantitatively analyse our scheme in terms of environmental performance and daylighting, we used Sefaira plug in for sketch-up. The software requires a very simplified net model of the proposed design where elements can be assigned.

We wanted our results to be as accurate as possible and therefore modelled our residential towers including the translucent U profile channel glass atrium and the central communal space.

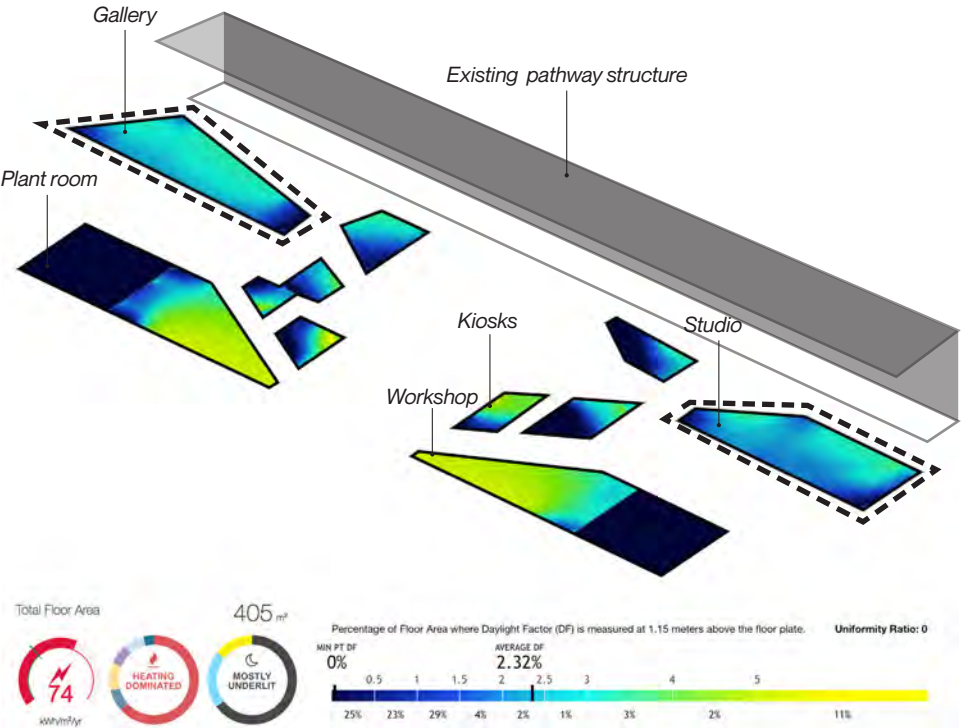
The software however does not include material properties which can be analysed and therefore the assigned glazing was calculated as clear. As observed from precedents, when **translucent channel glass is insulated and treated to partially reflect light - glare and over-lighting problems are eliminated.** This material is proved to be suitable for covering large surface areas of building faces. We therefore decided to take away the channel glass elements from the analysis as they distorted our results for the residential units which we felt were the most important to analyse accurately.



Sefaira error message when trying to analyse the entire scheme



Simplified model of the entire scheme



GROUND FLOOR

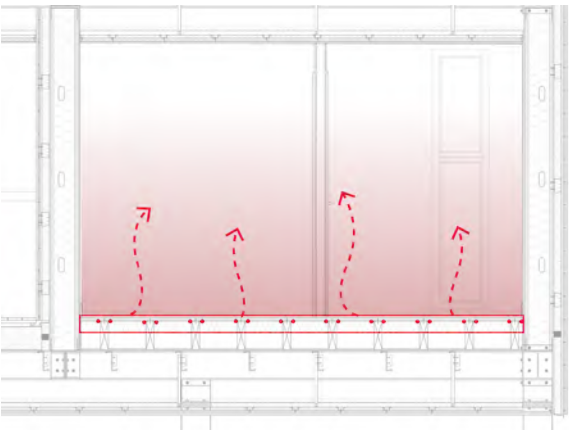
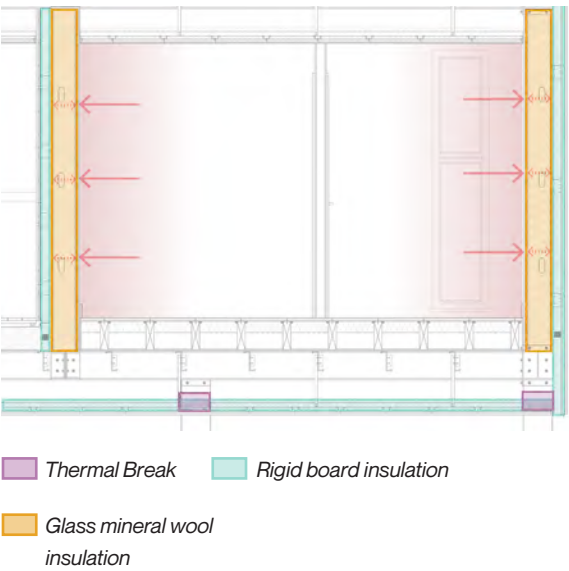
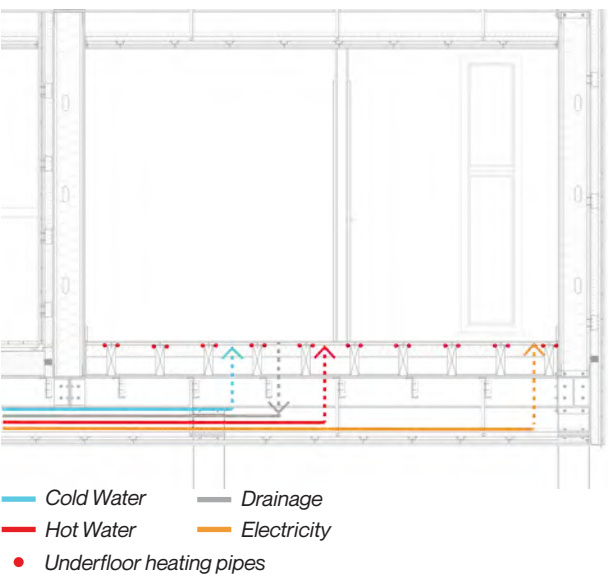
We thought that it would be important to test and analyse all of the spaces (including ground floor) together to gain an understanding of the scheme as a whole in terms of daylighting. Although a series of very simple models was produced, the software was unable to process the information of both towers, cores and the ground floor spaces together. We disconnected the ground floor spaces and analysed them separately. From the results we can see that the **south facing workshop spaces and most of the kiosks benefit from sufficient daylighting.** We were aware that the gallery and studio spaces towards the back of the site will be under-lit due to their close proximity to the existing Tempelhof path structure. This was considered in the original programming of the site, as galleries and art studios are most likely to use artificial lighting throughout most of the day, where as the workshops do not necessarily need specialist lighting and can utilise the provided daylighting more flexibly. Again, the results of this analysis should be approached cautiously because the elements have been disconnected from the entire scheme and to gain more accurate results the scheme should be analysed through a more sophisticated software.

TECHNICAL RESOLUTION

ENVIRONMENTAL SYSTEMS AND SERVICING STRATEGY



Diagrammatic building servicing strategy
Ground floor plant room services are connected to main power and water supply through insulated duct pipes underneath the foundation slab to the main Tempelhof building.



SUSPENDED CEILINGS

Services distributed run through the suspended ceiling cavity from and to the risers located within the central space .

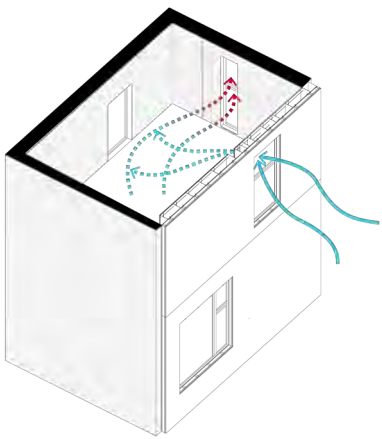
The ground floor plant room is connected to main water and electricity supply from the main Tempelhof building through ductwork pipes running underneath the foundation structure.

EXTERNAL WALL INSULATION

The 230mm glass mineral wool insulation between metal studs in combination with 70mm rigid board insulation within the cladding cavity satisfy the wall insulation recommended U-Values of 0.16W/ m2k for new residential build. Where the primary structure is exposed, thermal breaks have been built in within the 100mm ceiling insulation zone to reduce the thermal bridging between the interior and exterior.

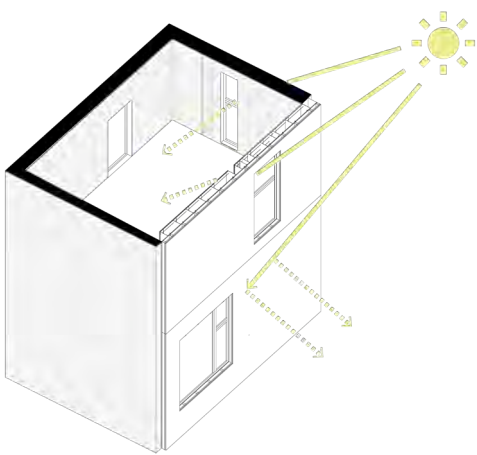
UNDERFLOOR HEATING

In response to Berlin's climate and the Sefaira environmental analysis, which showed that our building will be heating dominated we implemented underfloor heating as it is one of the most efficient systems for providing user thermal comfort.



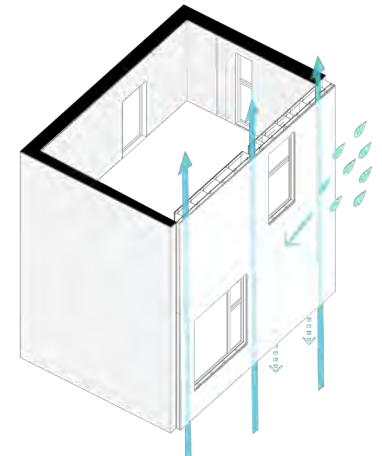
OPERABLE AWNING WINDOWS AND NATURAL VENTILATION

The size of each residential unit allows for full natural ventilation. To improve the resident air quality, 2 operable awning windows within each unit allow passive ventilation currents through the space and allow effective escape of stale air.



NATURAL DAYLIGHTING

Natural lighting is maximised within the residential units by positioning the widows in a double aspect layout. This reduces the need for artificial lighting within most parts of the building as shown through the Sefaira environmental analysis. The white render facade also partially reflects sunlight off its surface to diffuse light into the ground floor spaces.

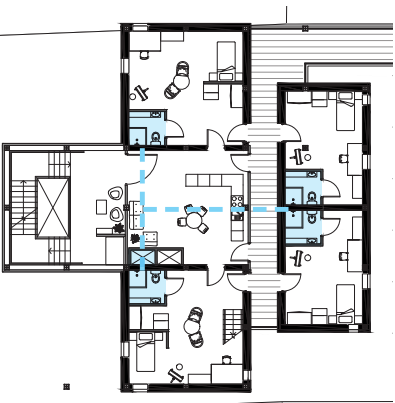


VENTILATED RAIN-SCREEN CLADDING

The ventilated rain-screen cladding system used allows for the desired white render aesthetic while incorporating several environmental benefits. The integrated ventilated cavity between the render boards and insulation allows any water to be partially removed by the 'stack effect' and by running down the rear face of the panels and minimising condensation and thermal bridging. The ventilated facade also reduces heat gain during the warmer summer months.

WET ROOM DISTRIBUTION

Due to the massing nature of the building, several wet rooms could not be stacked. This has been however considered in the layout where the bathrooms are in the closest proximity to the central space and the situated building risers. Water and sloped drainage pipes run within the ceiling service cavity towards and from the main risers.





RIBA
Plan of
Work
2013

RIBA

The RIBA Plan of Work 2013 organises the process of briefing, designing, constructing, maintaining, operating and using building projects into a number of key stages. The content of stages may vary or overlap to suit specific project requirements. The RIBA Plan of Work 2013 should be used solely as guidance for the preparation of detailed professional services contracts and building contracts.

www.ribaplanofwork.com

	<div> <div>Stages</div> <div>0</div> <div>1</div> <div>2</div> <div>3</div> <div>4</div> <div>5</div> <div>6</div> <div>7</div> </div>							
	<div> <div>Tasks</div> <div>Strategic Definition</div> <div>Preparation and Brief</div> <div>Concept Design</div> <div>Developed Design</div> <div>Technical Design</div> <div>Construction</div> <div>Handover and Close Out</div> <div>In Use</div> </div>							
Core Objectives	Identify client's Business Case and Strategic Brief and other core project requirements.	Develop Project Objectives , including Quality Objectives and Project Outcomes , Sustainability Aspirations , Project Budget , other parameters or constraints and develop Initial Project Brief . Undertake Feasibility Studies and review of Site Information .	Prepare Concept Design , including outline proposals for structural design, building services systems, outline specifications and preliminary Cost Information along with relevant Project Strategies in accordance with Design Programme . Agree alterations to brief and issue Final Project Brief .	Prepare Developed Design , including coordinated and updated proposals for structural design, building services systems, outline specifications, Cost Information and Project Strategies in accordance with Design Programme .	Prepare Technical Design in accordance with Design Responsibility Matrix and Project Strategies to include all architectural, structural and building services information, specialist subcontractor design and specifications, in accordance with Design Programme .	Offsite manufacturing and onsite Construction in accordance with Construction Programme and resolution of Design Queries from site as they arise.	Handover of building and conclusion of Building Contract .	Undertake In Use services in accordance with Schedule of Services .
Procurement <small>*Variable task bar</small>	Initial considerations for assembling the project team.	Prepare Project Roles Table and Contractual Tree and continue assembling the project team.	<div> <div>←</div> <div> The procurement strategy does not fundamentally alter the progression of the design or the level of detail prepared at a given stage. However, Information Exchanges will vary depending on the selected procurement route and Building Contract. A bespoke RIBA Plan of Work 2013 will set out the specific tendering and procurement activities that will occur at each stage in relation to the chosen procurement route. </div> <div>→</div> </div>			Administration of Building Contract , including regular site inspections and review of progress.	Conclude administration of Building Contract .	
Programme <small>*Variable task bar</small>	Establish Project Programme .	Review Project Programme .	Review Project Programme .	<div> <div>←</div> <div> The procurement route may dictate the Project Programme and may result in certain stages overlapping or being undertaken concurrently. A bespoke RIBA Plan of Work 2013 will clarify the stage overlaps. The Project Programme will set out the specific stage dates and detailed programme durations. </div> <div>→</div> </div>				
(Town) Planning <small>*Variable task bar</small>	Pre-application discussions.	Pre-application discussions.	<div> <div>←</div> <div> Planning applications are typically made using the Stage 3 output. A bespoke RIBA Plan of Work 2013 will identify when the planning application is to be made. </div> <div>→</div> </div>					
Key	Establish the project team and assess core programme requirements. Identify a business strategy through discussions with the client 	Review site information assessing key parameters and constraints. Undertake feasibility studies and develop initial project brief. Continue to assemble your project team. 	Preparation of concept design in conjunction with relevant structural design and building services outline proposals. Agree and issue Final Project Brief. 	Coordinated developed design including updated structural and building services proposals. Provision of cost information and project strategies. 	Preparation of technical design package providing detailed construction information to include all architectural, structural and services information alongside subcontractor specifications 	Realisation of building construction on site including off-site manufacturing and on-site construction in accordance with the agreed construction programme 	Conclusion of the building contract and handover of the building to the client. 	Review of project performance including post-occupancy evaluation.
Information Exchanges <small>(at stage completion)</small>	Strategic Brief.	Initial Project Brief.	Concept Design including outline structural and building services design, associated Project Strategies , preliminary Cost Information and Final Project Brief .	Developed Design, including the coordinated architectural, structural and building services design and updated Cost Information .	Completed Technical Design of the project.	'As-constructed' Information.	Updated 'As-constructed' Information.	'As-constructed' Information updated in response to ongoing client Feedback and maintenance or operational developments.
UK Government Information Exchanges	Not required.	Required.	Required.	Required.	Not required.	Not required.	Required.	As required.

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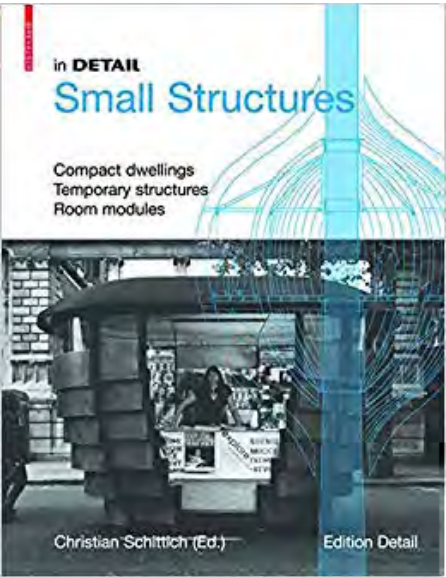
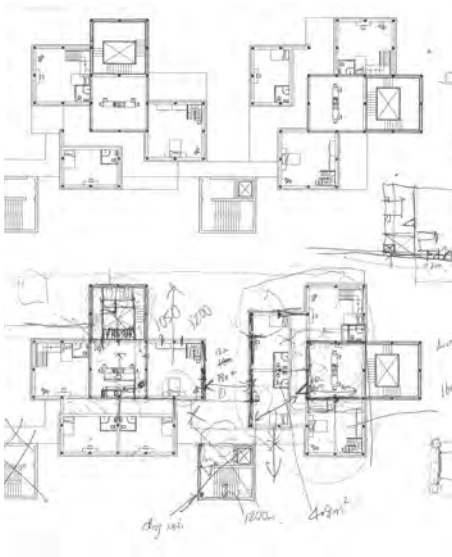
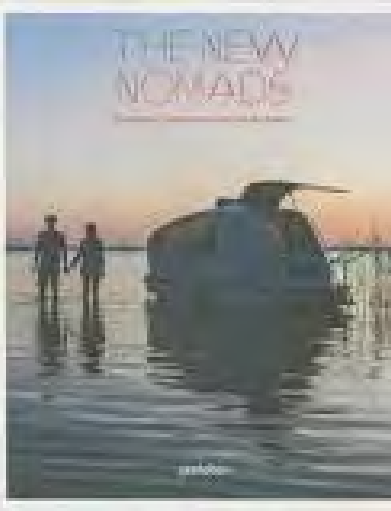
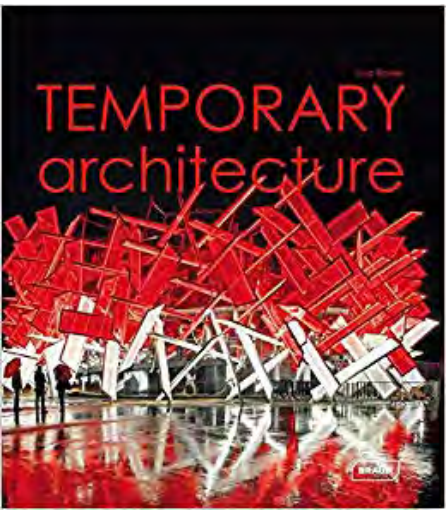
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Fire escape strategy review with a senior architect



Abstract group image of all designs 'Living on top of the Tempelhof'



All School Project - Group 5