

Industrial Reuse

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Dublin School of Architecture

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INDUSTRIAL REUSE
DONAL BROPHY



SECTION A-A

INDUSTRIAL REUSE

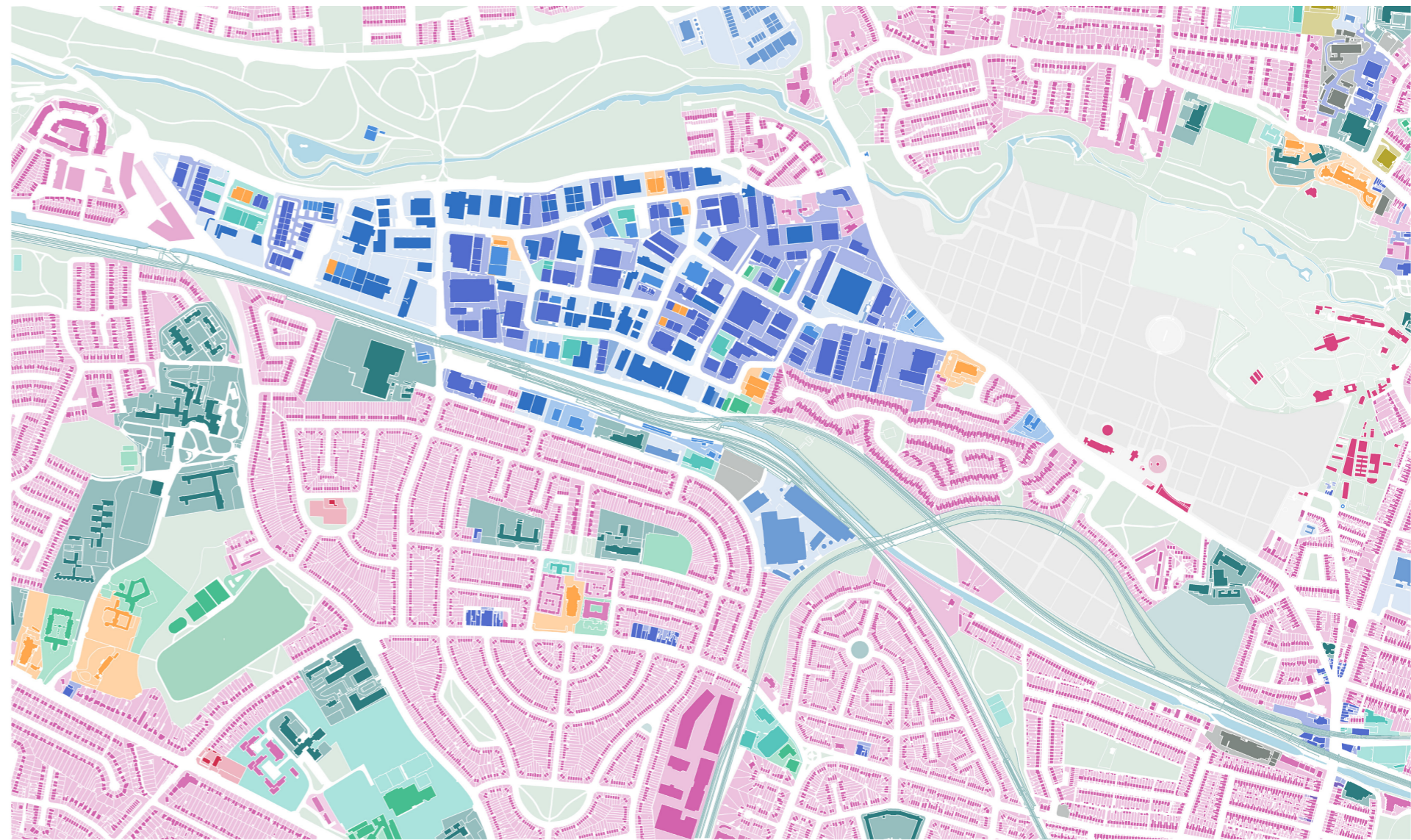
INTRODUCTION

Dublin is facing a housing crisis and the obvious solution may be to build more houses. However, from the point of view of the architect, urban designer, and sociologist it is not as simple as build more houses. Tarbatt breaks down the three-core points to a sustainable community, suggesting that it must have vibrant local community, a prosperous local economy, and a sense of character and identity in a healthy environment (Tarbatt, 2012, p.34). The goal of this investigation is to identify a way to succeed in achieving these criteria while battling the secondary issue of urban sprawl and the overarching issue of the climate crisis. This thesis will be an investigation into more passive solutions that can be made in order to attract people back to places that have existing infrastructure.

The importance of the role 'the community' has to play on the success of a neighbourhood is paramount. This section will look at the sociology of the community and the effect the place has on a community. Miles Glendinning stated that "there is the overwhelming importance of the time factor: a community needs time to 'mature'." (Glendinning, 1994, p.103) Like an organism it takes time to develop, and like an ecosystem it creates its own metabolism, setting up symbiotic relationships and becoming resilient with permanence. Communities are also like an ecosystem in the sense that they are also extremely fragile, a slight change in the environment and it may cause the community to fail.

BUILDING USE MAP

There are a variety of business types within Dublin Industrial Estate. The majority being in manufacturing, commercial, a sufficient number of services and cultural areas. The industrial estate acts a commercial centre to the residential area surrounding it, offering great services and job opportunities to anyone living close by.

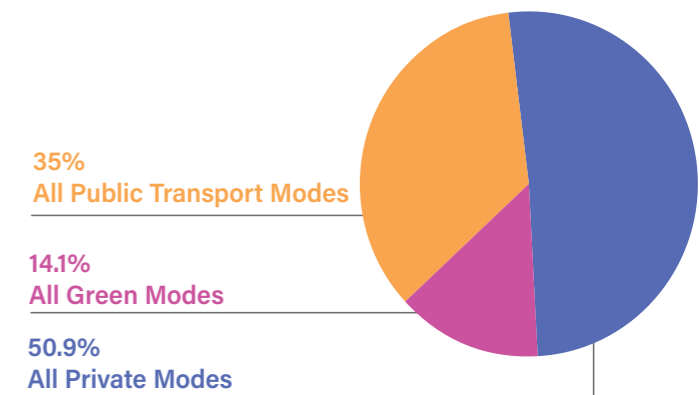
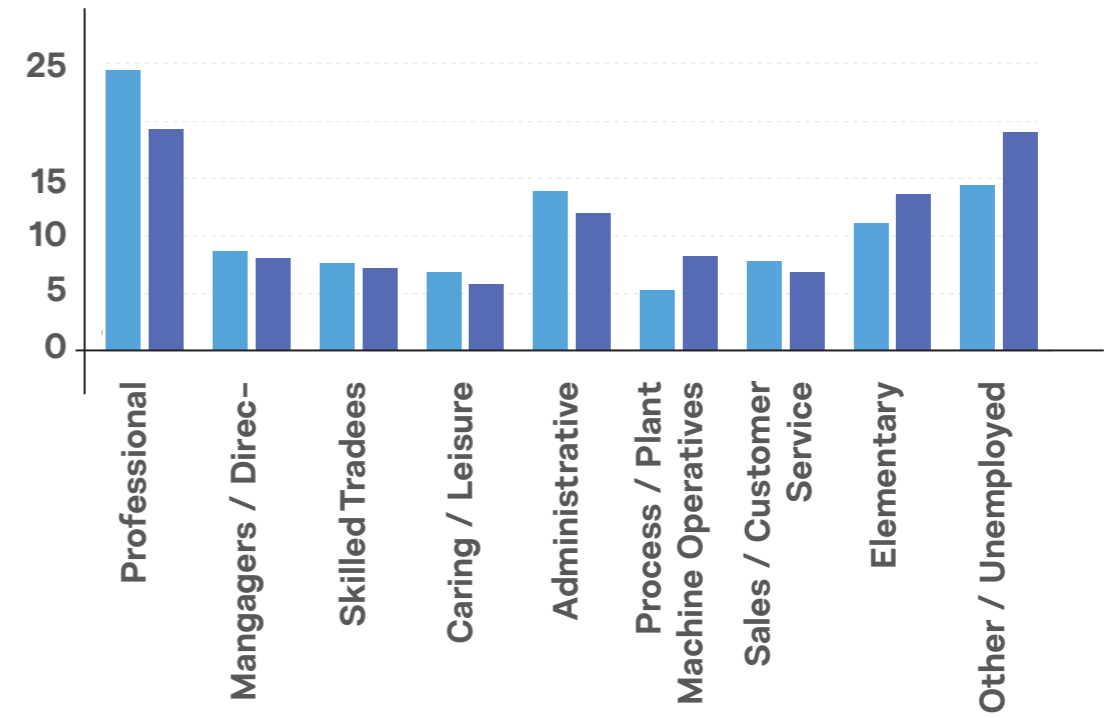


Employment studies

This sparked an interest for the demographic who lives here relying on an industrial estate as the centre of commercial activity. Do the residents use the industrial estate as a place of employment? The information gathered shows that the only employment types in which this chosen study area has a higher portion of its population employed in are Process / Plant / Machine operatives, Elementary and also unemployed / Other. This shows there is a clear work force close to the industrial estate. However, the area in which the locals are furthest behind the rest of Dublin is under Professional occupation and with a high rate in other / unemployed it is clear that a more diverse group of residents may begin to fill the gaps and create a more prosperous economy bring wealth and investment to the area.

The only sectors of employment had a higher average percent than Dublin was in Plant / Process / Machine Operatives, Elementary or Other / Unemployed. The average person in the area work in lower skilled, physical labour jobs than the rest of Dublin. The other noticable large gap is in Professional occupations. This information is an average of the residential locations marked in the map below

KEY
Dublin
Ashtown



HISTORIC INVESTIGATION





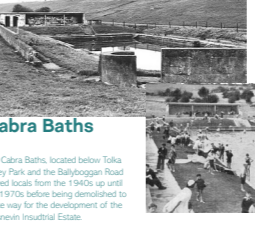




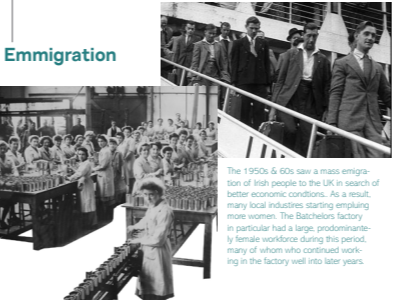


WIDER AREA ECONOMIC EVALUATION COLLABORATIVE WORK

Historic investigation

There is a long standing working class community that has developed around the industrial estate with the development of the rail and canal transport routes and large industrial manufacturers such as the batchelors factory employing from 2000 - 3000 local people.

The modern planner cannot design community ab initio. There is the overwhelming importance of the time factor: a community needs time to 'mature'. What is more, it had been proved that the very Modernism of the houses in the new suburb, low-density layout and self-contained, worked against community, whereas the commonplace look of the old urban fabric did not seem to matter; it could even function as a positive factor (Glendinning, 1994, p. 103).

With this there is a great opportunity to allow the existing community to flourish by improving the density and creating new places for the community to break the self-contained homstead and help develop the diverse long established community

<p>1840</p> <p>Cattle Market</p>  <p>"An original 'Drive-thru' at Phibsborough and the famous corner. Cattle on the way to the B + I Line ferry at east wall. From the market at Harlons corner. Most cattle were sent to Liverpool for slaughtering at the time. The market at Prussia street was one of the biggest on these isles and traded for 90 years. The gates were closed after the last market in May 1973. On quiet nights like these you can clearly hear the drovers calling the cattle."</p>	<p>1931</p> <p>Herbert Simms Housing</p>  <p>In response to the 'slum-like' conditions present in Tenament Dublin city, architect Herbert Simms is appointed 'housing architect' by the Dublin Corporation and oversees the creation of suburban schemes such as Drumcondra and Cabra's Fassaugh Lane. Simms was a firm believer in the value of regenerating the centre, rather than simply moving the population to the suburbs en masse. Meanwhile, satellite towns with their own industry should be used to avoid endless sprawl. (BIE)</p> 	<p>1947</p> <p>Batchelor's Factory</p>  <p>Batchelor's arrives on Barrow Road in 1947, providing an abundance of local employment in the Tokia Valley / Cabra West area, at its peak employing between 2000-3000 people. Batchelor's boosted the local economy of the working class area and provided the community with a new sense of area. The factory was also a social hub with strong friendships and relationships emerging from the factory.</p>	<p>Expansion</p>  <p>During the planning of the Cabra West area and the arrival of new housing schemes, land had been set aside for economic and industrial use well before its arrival on site. During the planning of the Cabra West area and the arrival of new housing schemes, land had been set aside for economic and industrial use well before its arrival on site. The 1960s saw the beginnings of the new industrial estate with an extension also added to Batchelors in 1965.</p>	<p>1970s</p> <p>Cabra Baths</p>  <p>The Cabra Baths, located below Tokia Valley Park and the Ballybogan Road served locals from the 1940s up until the 1970s before being demolished to make way for the development of the Glasnevin Industrial Estate.</p>	<p>ReZoning</p>  <p>As it currently stands, the Glasnevin Industrial Estate stands with many units in disrepair and derelict. The occupied units provide mostly Secondary industry (building supplies, materials, etc. ...) The large industrial hub only accounts for a small portion of the local economy. The Batchelors factory now employs approx. 150 people, many of whom have immigrated to Ireland from foreign countries. Due to its close proximity to the city centre, Glasnevin Industrial estate has been deemed appropriate for rezoning from industrial to residential use.</p>
<p>1789</p> <p>The Royal Canal</p>  <p>The Royal Canal was first opened at the 5th lock at the Cross Guns Bridge in 1789. The local import and export of materials and goods were transported along the Royal Canal with the use of barges with Cross Guns Quay being a docking point for barges.</p>	<p>1925</p> <p>The Great Southern Railway</p>  <p>The rise in rail use and services saw the creation of the Great Southern Railway which was used to transport goods. This became a preferred method transport and led to a downturn in the use of the Royal Canal. The North City Flour Mills was connected to the rail line which proved quick access to an import of wheat and export of flour.</p>	<p>1937</p> <p>Liffey Junction Railway Station</p>  <p>The station stops taking passengers in 1937 and becomes predominately used for cattle trade and transport. Western line services were instead diverted over the Liffey 13 to Amiens St line (near Connolly). Meanwhile the Broadstone line remained in use to access the former steam sheds there, but by 1977 the line was disused and was eventually lifted, having only been used simply for oil trains serving the bus depot. (Eire Trans)</p>	<p>1950/60s</p> <p>Emmigration</p>  <p>The 1950s & 60s saw a mass emigration of Irish people to the UK in search of better economic conditions. As a result, many local industries starting employing more women. The Batchelors factory in particular had a large, predominantly female workforce during this period, many of whom who continued working in the factory well into later years.</p>	<p>Glasnevin Industrial Estate</p>  <p>The second stage of industrial development occurred in the 70s with the rapid development of the Glasnevin Industrial Estate in the place of what was mostly agricultural land underneath the royal canal. Sites along the canal, including the playing fields by the 7th lock, the 'Silver Spoon', the 'Broken Arch' and the 'Bend', which once served as social spots for locals, were replaced with large industrial units.</p>	<p>2022</p> <p>Local Industry</p>  <p>Aligning with the agricultural heritage of the area, much of the local industry is revolved around food production. This includes informal traders, such as Nensia, who sells honey from her dovecote along the Royal canal, and more formal trading such as the Hovest2Goodness foodmarket, which occupies one of the units in the industrial estates and provides a space for local businesses to sell their produce.</p>

Employment studies

Uhel argues that roads attract urban sprawl and that farmers can make “much more money selling the land than they would make if they worked the rest of their lives” (McDonald 2006). With the majority of land surrounding villages, towns, and cities in Irelands in private ownership for agricultural use (Agriculture accounts for 67.6% of the national land cover (EPA,2023)) and the private mode of transport being the preferred (see fig.2), nothing can stop the markets decision to continue to sprawl. This makes it needless to say that we need a drastic change in the way we think about our housing stock.

By Design list seven key mutually reinforcing characteristics of successful places and diversity is one of which listed. They explain that “to promote diversity and choice through a mix of compatible developments and uses that work together to create viable places that respond to local needs (By Design, 2000, p.15).” In the Irish context by promoting diversity of cultures it may help cure the aversion to high rise. By improving the economic growth of an area, it would attract people from other cultures and demographic to work and live in close proximity, meaning potential occupants from cultures where apartment living is much more common would use the vacant spaces creating a closer community in an area.

The image to the right depicts the miss placed churches in industrial units showing the diversity that already exists. By improving the gathering spaces the existing diverse community has opportunity to come together and help develop the area and promote economic great.The Cabra baths was an open flexible space that was a great amenity to the community which no longer exists.



Site Selection

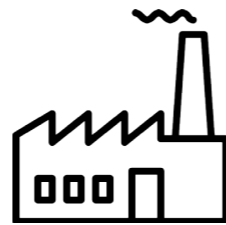
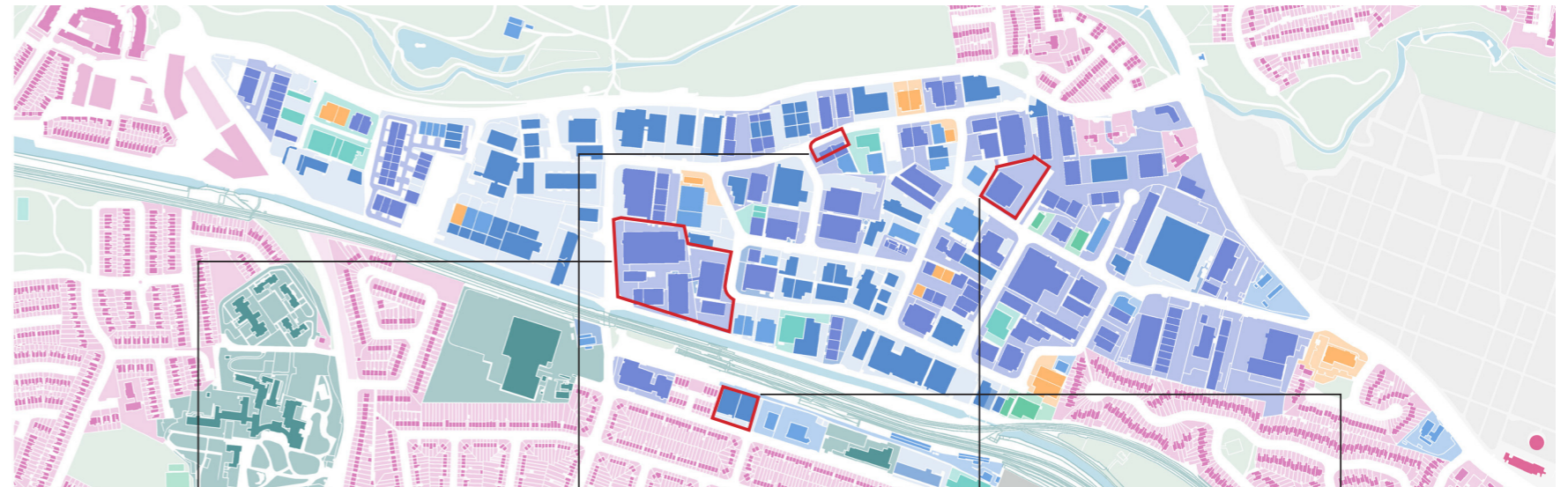
There are a number of planning applications pending in the industrial estate. With the redevelopment plan to use four key industrial estates around the Dublin suburbs to be zoned for housing. A site across from Broombridge Luas / Bus / Train terminal became an obvious location for a housing project to take place. The proposed housing development consists of a high-rise and high-density development which shows no regard for the surrounding scale or community.

When compared to the rest of the EU states it is clear Ireland has a particular aversion to high rise. With the EU average being 46% of the EU population living in flats, whereas in Ireland it is only 8% that reside in flats.

Ronan Uhel, who heads the EEA’s spatial analysis unit, said Ireland was “very much on the map in relation to urban sprawl - not just in Dublin, but also around towns and villages throughout the country”

With a push to use brownfield sites in existing developed areas to supply high density apartment blocks closer to the city, it has attracted more first-time buyers and young adults who rely on the city centre for their facilities and less on the local amenities. However, this does not transcend for older buyers and families who rely more heavily on local amenities. This pushes for a demand for low density, self-contained housing, which pushes urban sprawl to the limits in search of land to develop the housing. (Tarbatt, 2012, p.62)

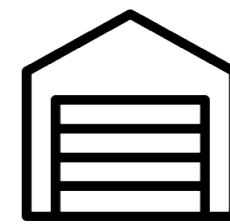
A development such as this in a historic community may further spread the issue of urban sprawl rather than solve it by pushing the community further away.



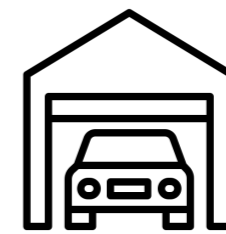
Proposal for a mixed-use development, commercial units, a hotel, a creche, co-working space and apartments.



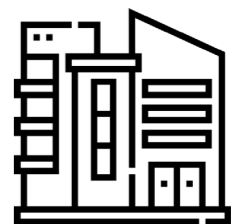
Proposal for offices, design studio, goods display area, trade counter and stock room areas.



The proposed development will consist of amendments and additions to the existing building.

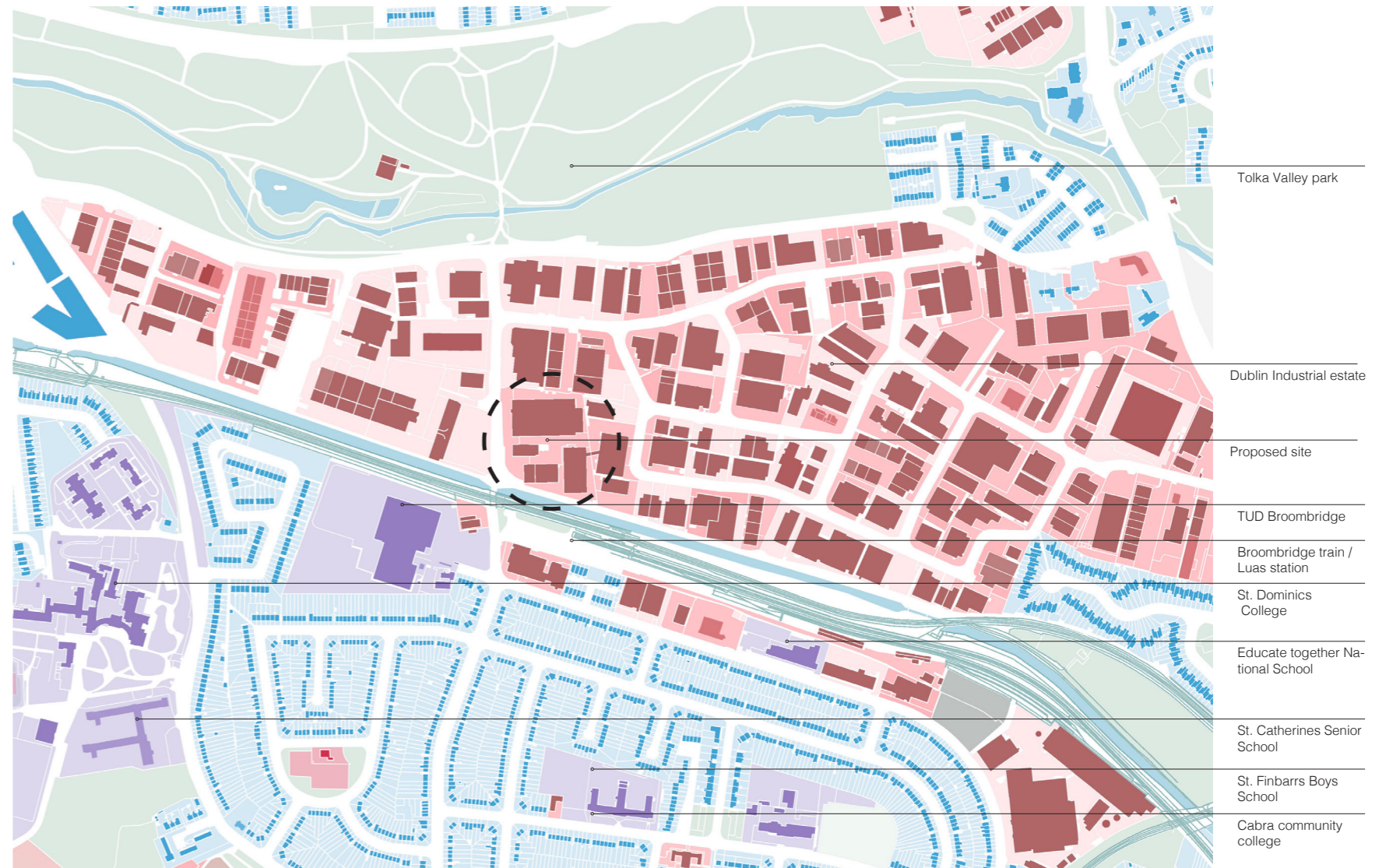


The development will consist of proposed modification to the previously permitted Build to Rent residential development.



Site Location

To further investigate this site across from Broombridge station it is also a centre to surrounding amenities such as primary, secondary, and third level education (purple) opening the opportunity for growth in the community as well as allowing families to avoid the use of private modes of transport.



Site Context map

Transportation

To further focus on transportation, only 34% of commuters use public transport and 14% use green forms of transport. For this reason the chosen investigation site is an ideal location for promoting holistic health and better use of public transport.

For viable local economy and services in a sustainable community we must provide the rationale and underpinning for community development and survival; e.g. loss of manufacturing has made many traditional urban communities unviable and requires a major economic shift and new uses for existing infrastructure if they are to flourish again. They also require transport links to wider job markets, and education and training for new skills. (Power, 2004, p.5)

Not only is the site located surrounded by economic opportunity it is also allowing easy transport to a wider job market in the city centre.



Transport map

Green and Blue areas

A healthy environment: Having space to walk, relax, meet, exercise, and enjoy fresh air contributes to the physical and mental health of the people in the community (Power, 2004,p.5). Parallel to this it allows space for biodiversity too thrive, helping people gain an ecological consciousness. Tolka valley park is covered by three hundred acres of parkland alongside the river Tolka (12. FCC) making it the perfect space for people to get away.

The site also sits between two bodies of water which attracts wild-life and offers walking and cycling routes to people, thus promoting a healthier lifestyle.



Blue and Green zones

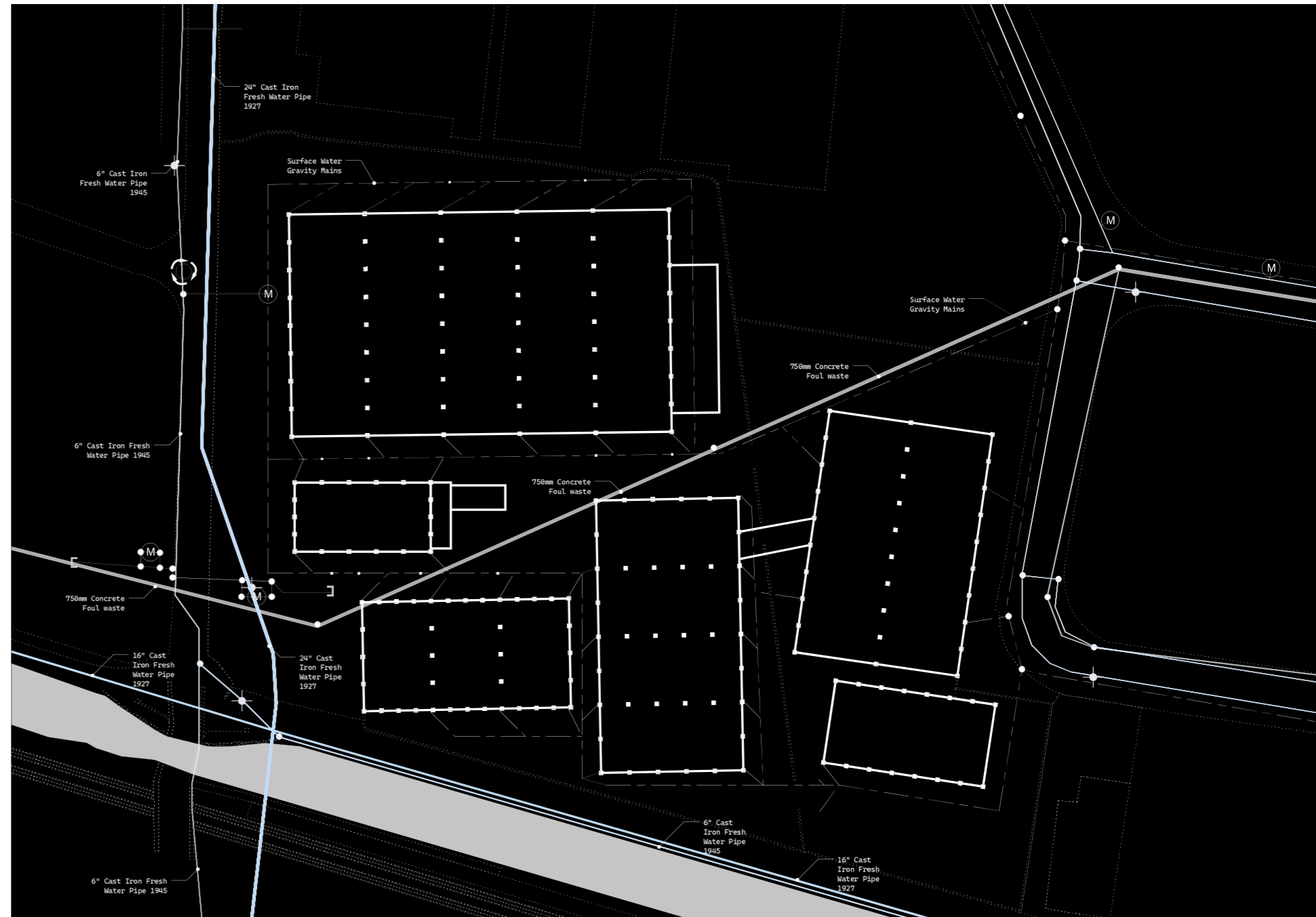
Existing site condition

Brownfeild sites have been the central focus to 'sustainable development'. However there is a whole world of carbon intensive and useful infrastructure lying below the ground in the "Hidden Landscape".

On site there are fresh water supply, surface water systems, waste water systems, water meters, water caps, aswell as public fresh water mains and foul waste main taking path through the site.

These are all services that are needed for a proposed development so reduces the the need of making any ground works allowing all of the carbon intensive concrete to remain undisturbed.

The Industrial estates is designed to optimize the process of goods and services in and out. It is also designed to deal with considerable amounts of waste and to use a substantial amount of energy, as far as they are made up of various natural, built, socioeconomic, cultural, and technical layers and subsystems that interact with one another, such complexes can therefore be seen as analogues to natural ecosystems (Kirovova, 2014).

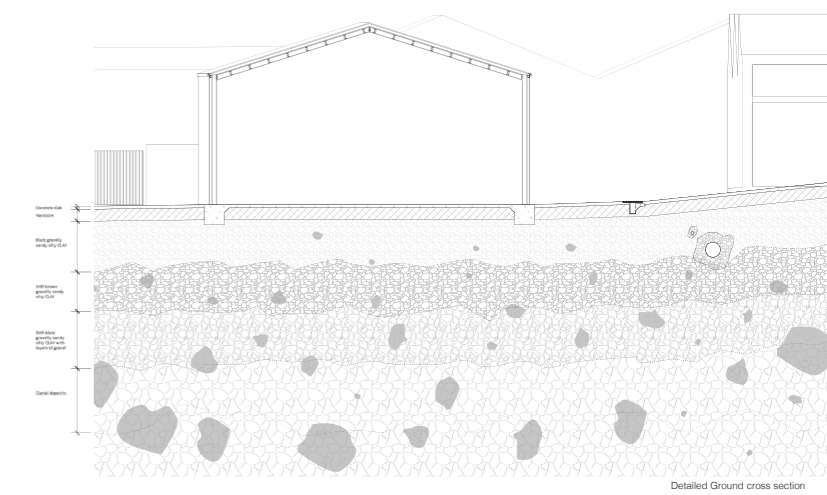
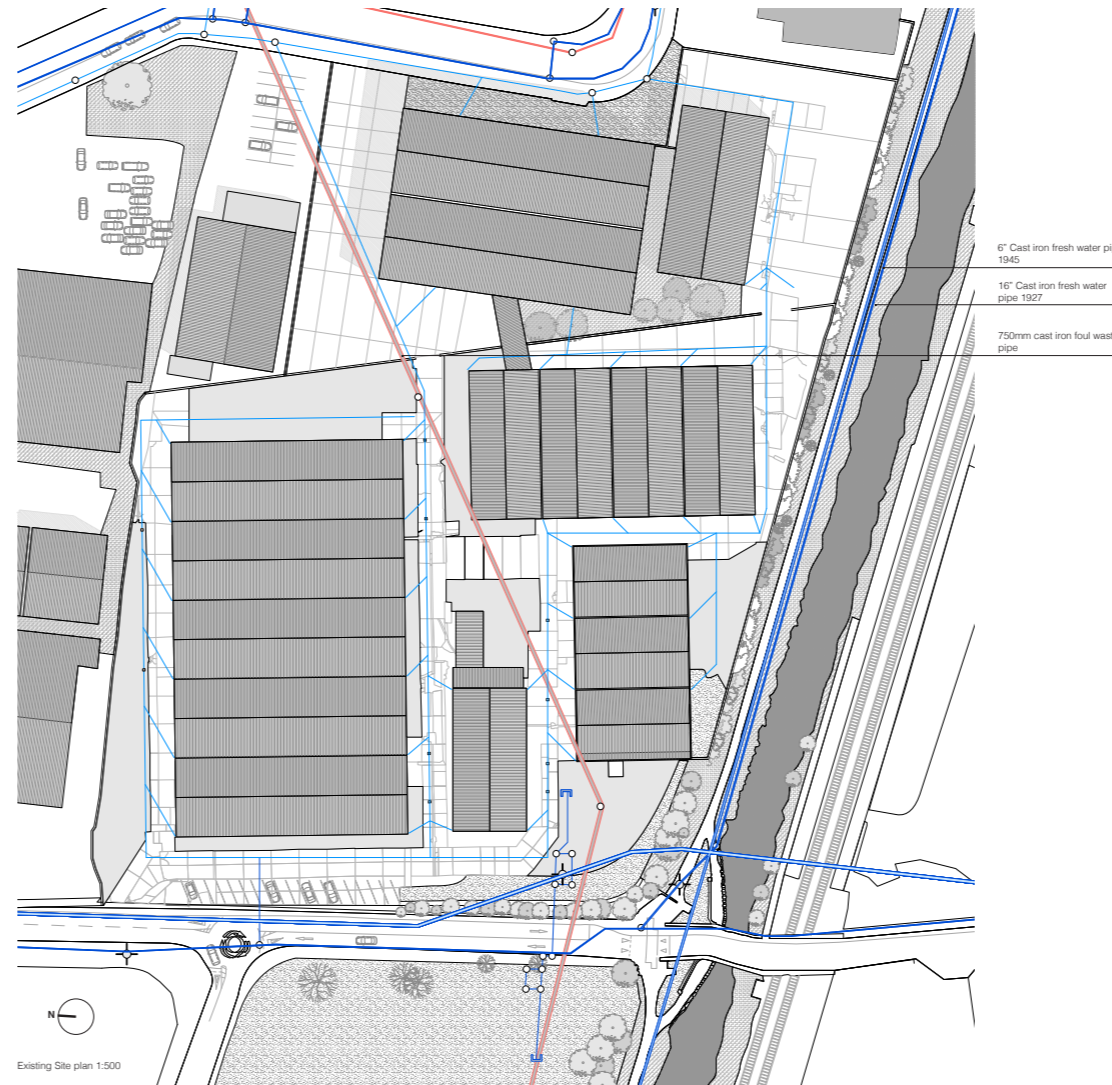


Existing site condition

Without the need to disturb the subterranean world for services an opportunity arises from the ground to use the carbon intensive concrete that has been there since the 70s when it was poured. Because of the previous industrial use the concrete slabs are 300mm thick to support the heavy loads and the consistent traffic of HGVs, which have the ability to support lightweight timber frame structures independent of additional structure.

Simultaneous to these slabs are 1x1x1m³ concrete pad foundations which support the steel portal frames within the industrial sheds.

The breaking and the adjustments made to the concrete over time have created an interesting mosaic which is specific to the wear and tear of industrial work which is something to value and a part of the grain of time.



Morphology

There is a stark difference in the morphology of the industrial estate and the existing housing. This acts a clear divide between the pre-existing community and the potential zoned residential land of industrial estate.

The tpastry of the industrial units shows an interesting growth of developments and is something that could be lost to history forever however with making use of the existing infrastructure and taking reference from the residential layout and scales a connected new and old growing community can be successfully created.



Morphology Map

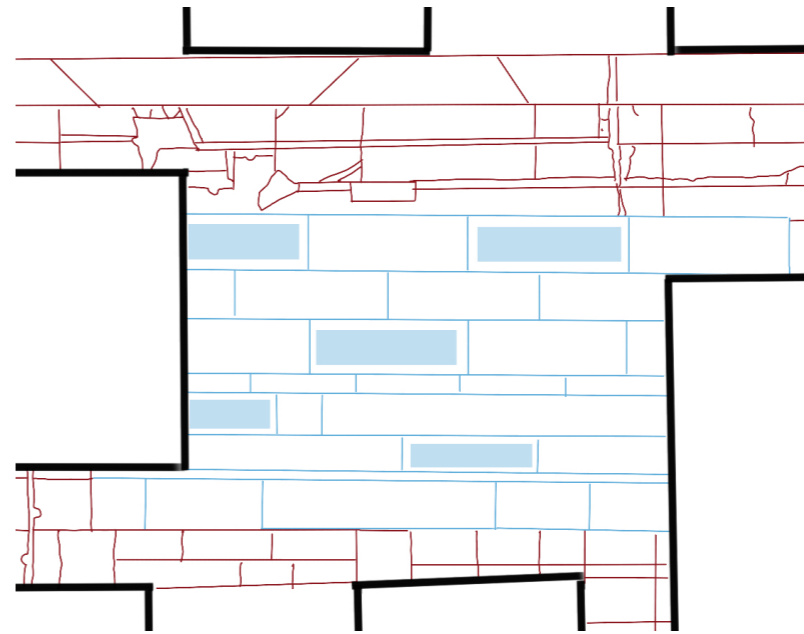
Morphology

On the face of the site lies grids within the sheds where the portal frames are situated. The bays stay a consistent 6m in width and the spans vary from 16.5m to 18.5m. These dimensions are much more commonly found in Georgian and Victorian terrace town-houses.

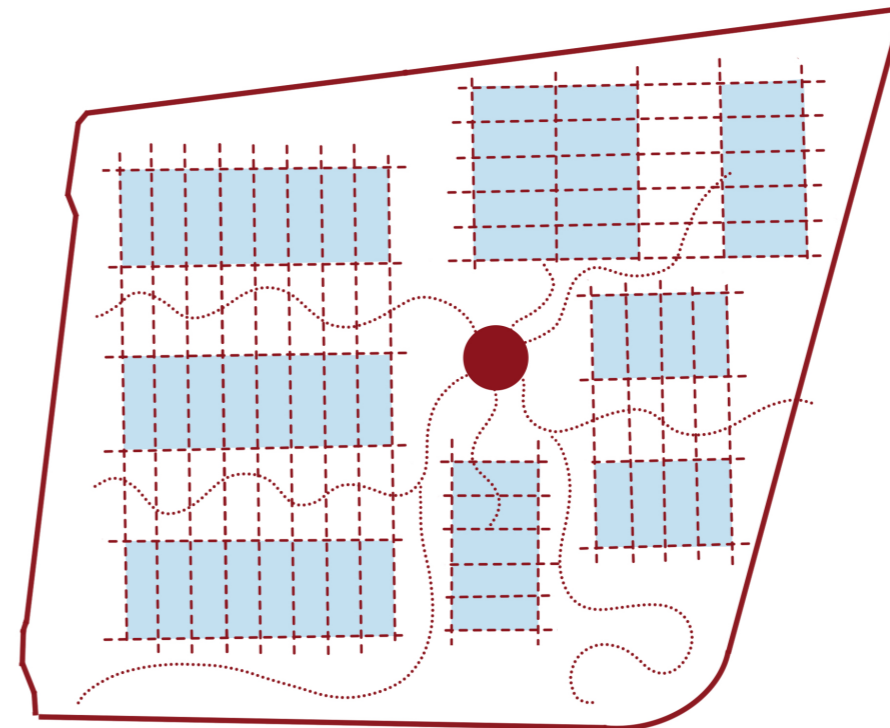
The terraced row encloses and activates a space rather than being a mere conduit for movement. Inspiring the community to interact with each other and with the place.

The open spaces allows for flexible adaptable space for community meeting, activities and events, something which is not currently possible without amenities such as the Cabra Baths no longer existing.

This layout offers a human scale architecture whilst maintaining the morphology of the pre existing industrial estate.



Red outlines the existing concrete grain. Blue outlines the proposed public plaza. The varying grid is reflective of the cast in situ slabs. The narrow proposed slabs resemble the alteration that have been made to the hidden landscape



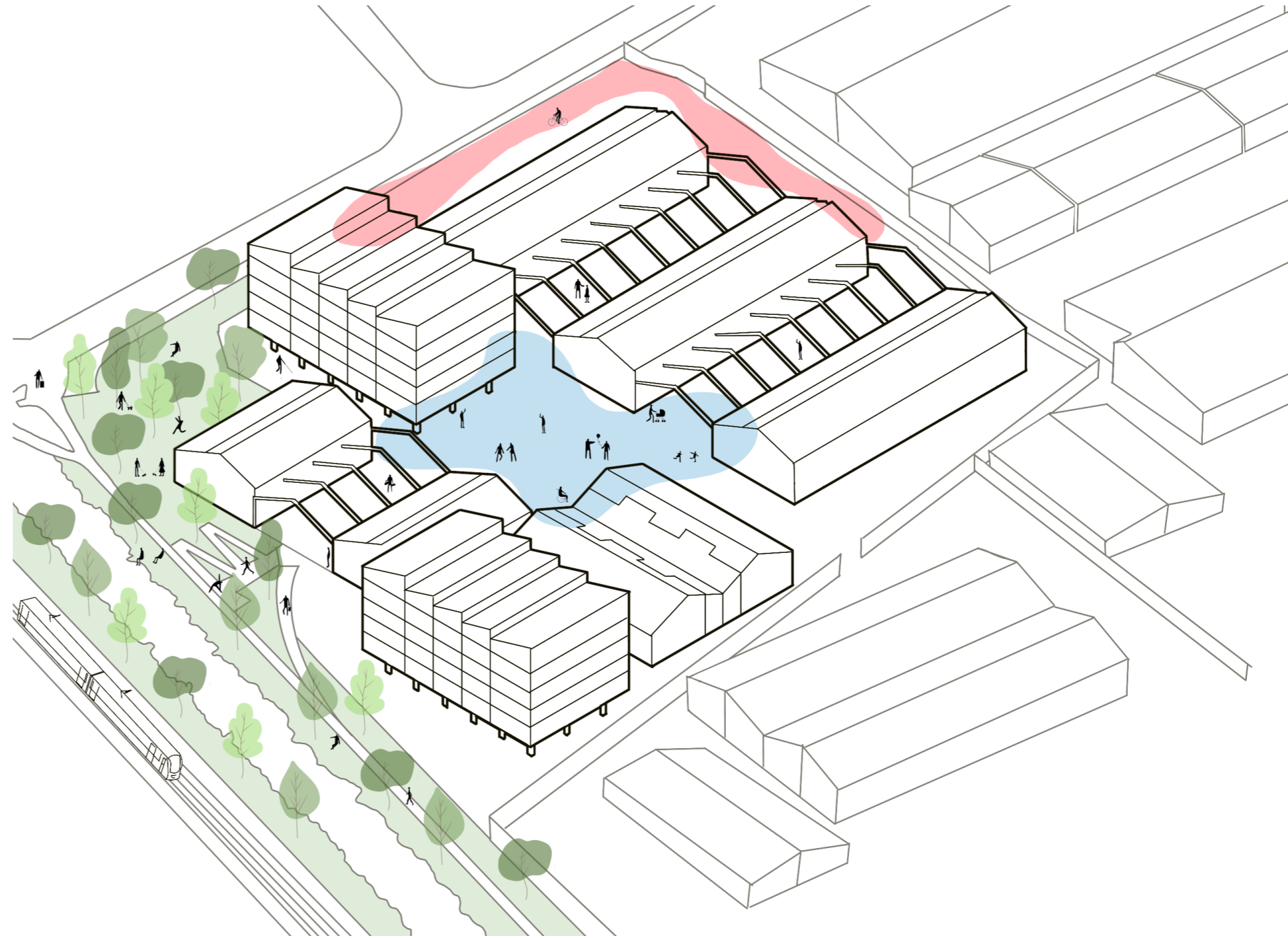
The Grid outlines the location of the existing portal frame. The blue is where the housing is slotted in. The central plaza is left open as a flexible public space and a central node to the community

Site zoning

Assuring holistic health as a design parameter is important to the success of the community.

Relocating the main entrance to the canal promotes people to use the canal as a key route to the city centre and also as a more direct connection to the transport hub at Broombridge station. A central public plaza (blue) is the community hub and sorting zone for the different homes located on site. It is an open flexible area which will be useful for the new community as well as the existing community which does not have a safe public gathering space in easy walking distance.

The red zone outlines the extents of the vehicular impact on the site. This is tactically located close to the family homes and to the street exit. This allows the rest of the site to be a safe place for activities.



Green zone

The pre existing green / blue corridor of the canal deserves emphasis. to try achieve this an area is given over to nature connected to the canal.

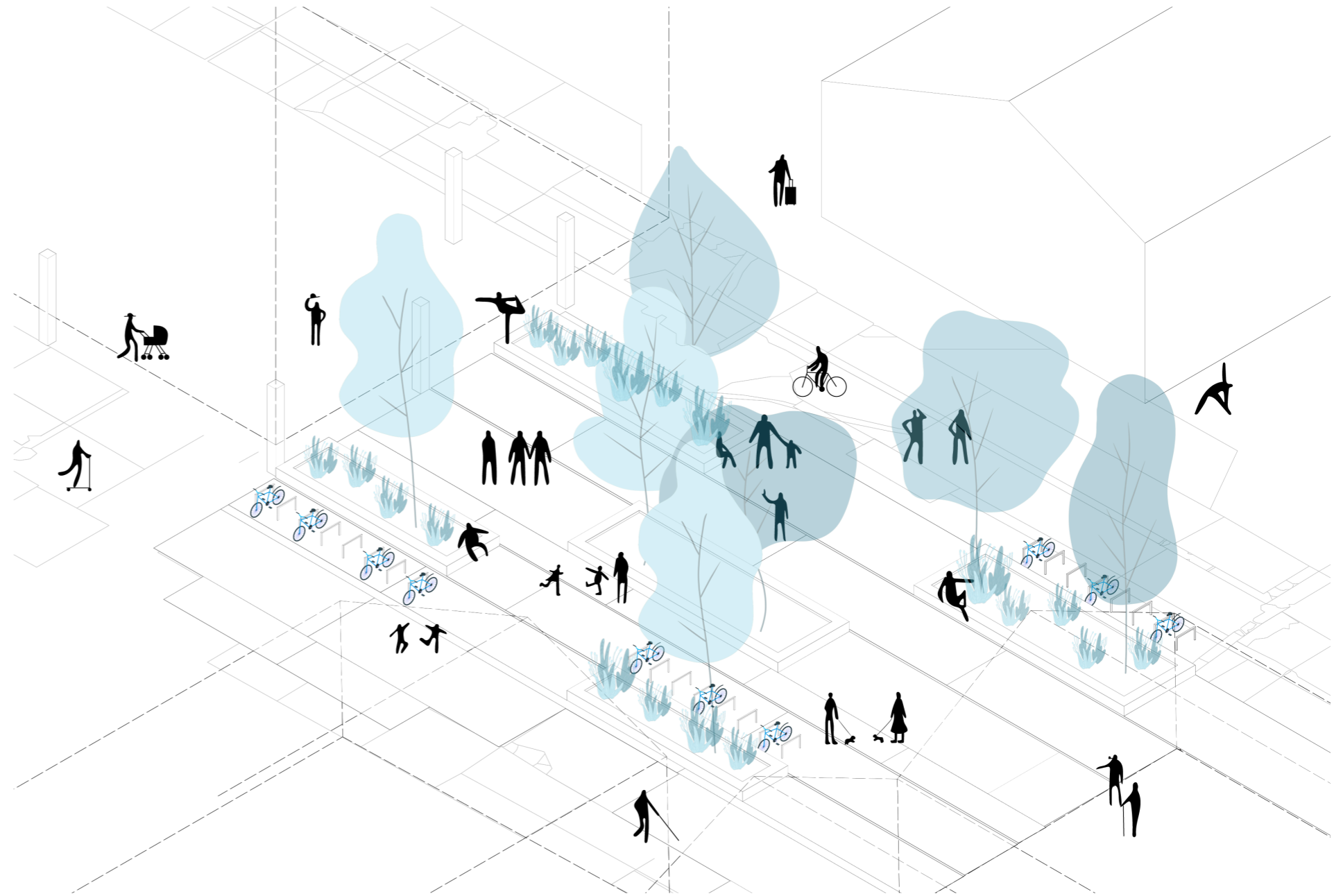
This is a green escape for the residents to create a healthy environment for their mental and physical well-being.

Located in the South-West and highest point on site, the green zone also as protection from prevailing winds, allowing the public open areas to be better sheltered from wind and traffic noise.



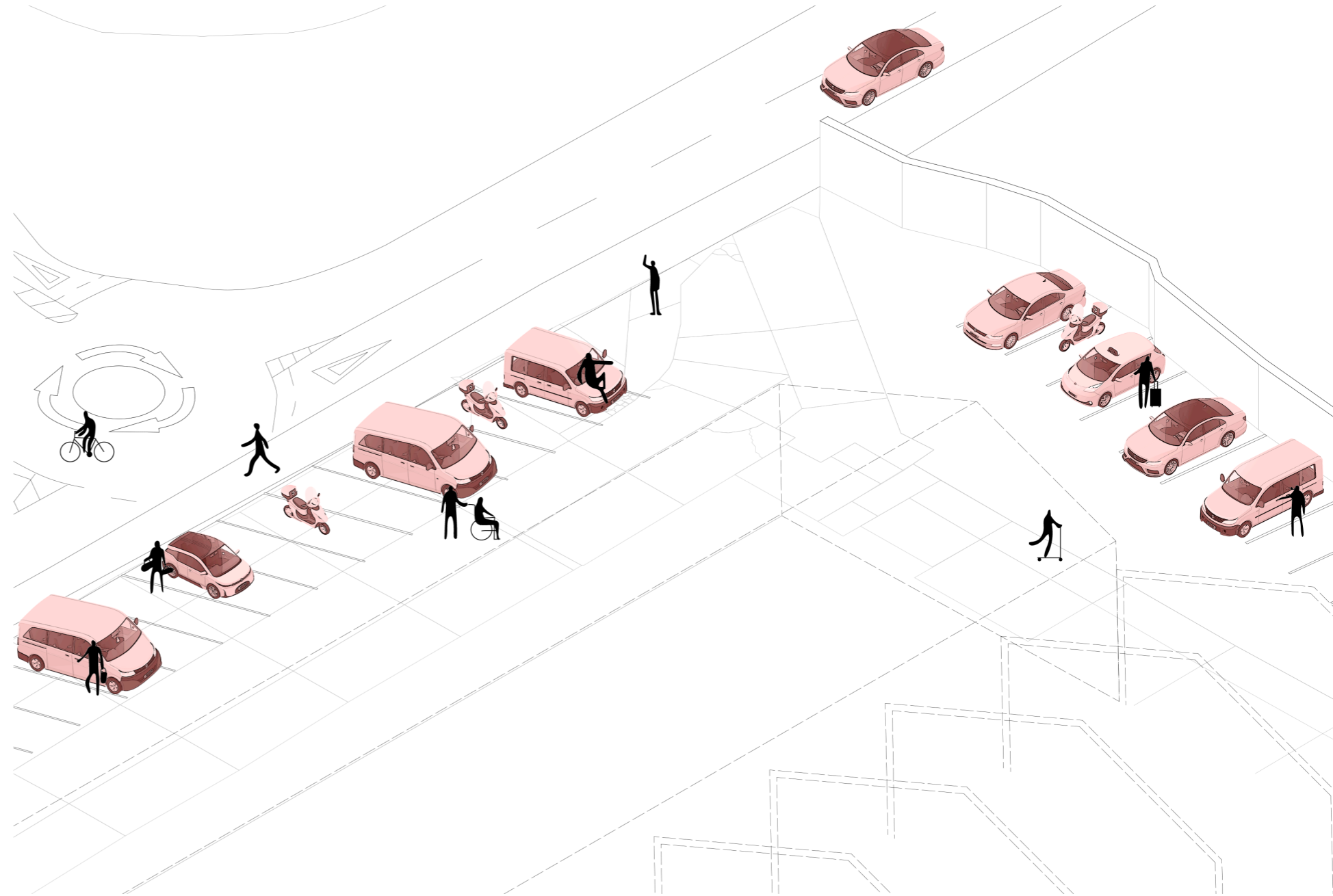
Public Zone

The community is the core to the project, offering an area for community organisation and neighbourhood management is essential to social networks and urban viability. Ensuring well maintained, secure conditions which are the prerequisite of stable, long-term, participative and cohesive communities; e.g. regeneration companies, local housing companies and neighbourhood management organisations can transform basic street conditions, community safety and security, social contact and youth engagement, by acting as a local conduit for decisions, co-ordinating supervision and frontline service delivery. (Power, 2004, p.5)



Mobility zone

Existing car parking is located to the top of the site and requires no change to the surface and marking. 62 car parking places are available which supports all of the 3 bedroom homes. By restricting the number of parking to the family homes, it promotes the apartment dwellers to use sustainable forms of transport whilst creating a healthier environment.



PROPOSAL

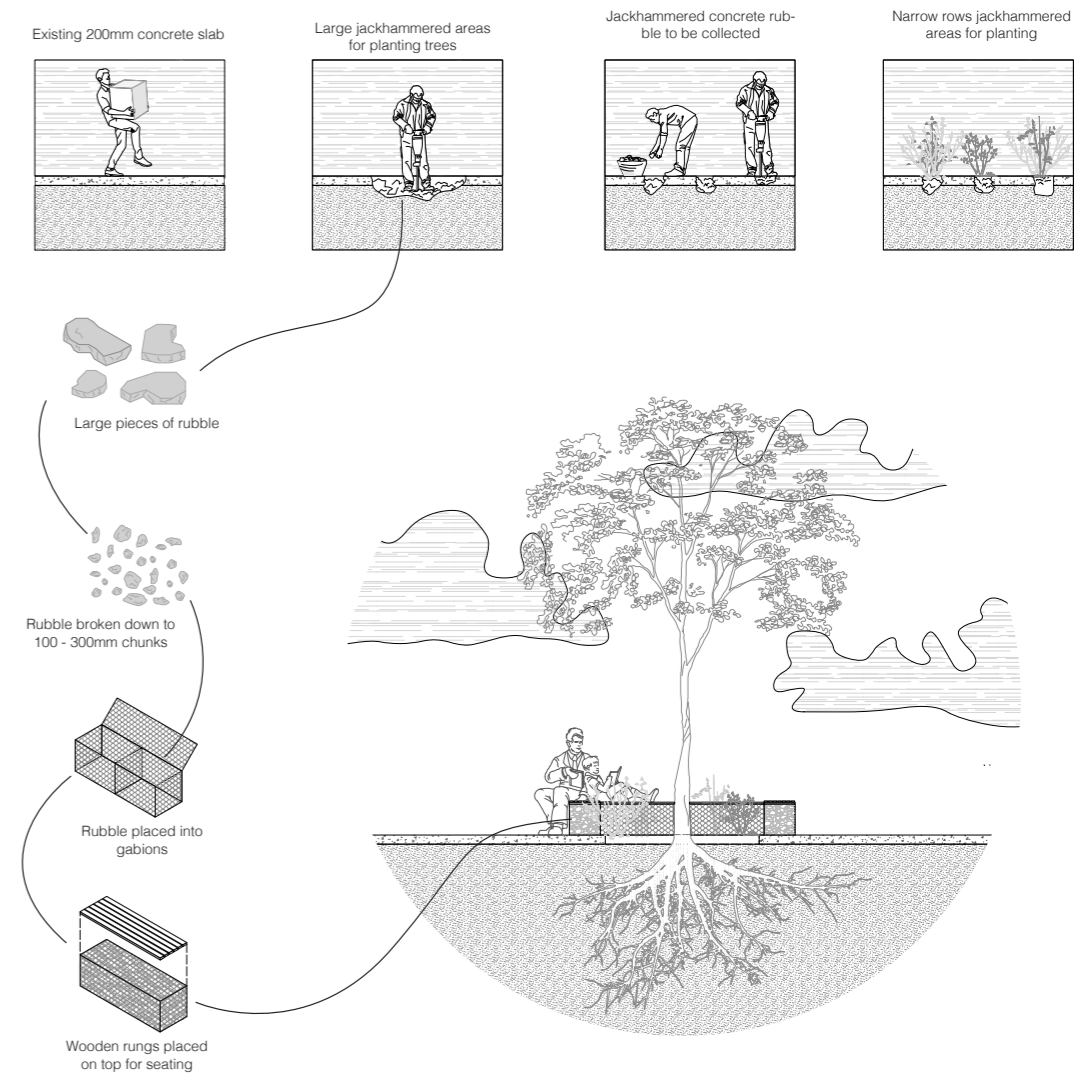
SITE PLAN

Proposed Site plan



The Crack Garden

The industrial scale has irregular gaps between units, some large and some human scale. Beneath the concrete lies an untouched biome full of energy, lacking oxygen. By breaking ground and using the concrete to be put into gabions areas can begin to be defined throughout the large open areas bringing life into the industrial scale. In the bordering areas no longer in use creeping tyme, mint and other creeper plants will be allowed to take over. Desire lines wil develop throughout the years parallel to the communities wants and needs.

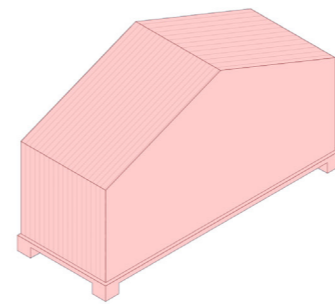


Outline Design

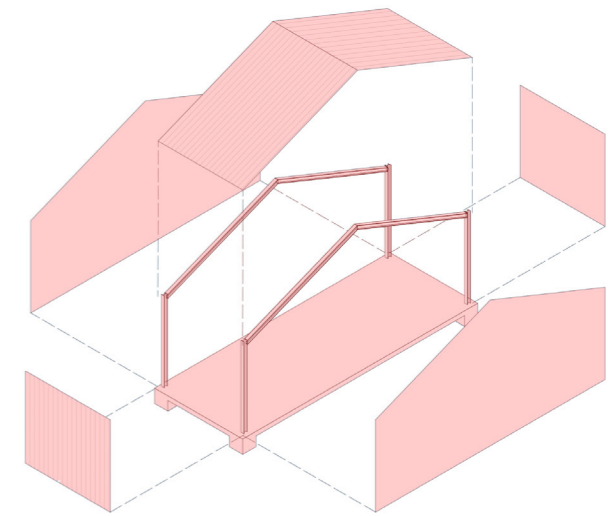
The process of creating the family home removes the clad from the industrial unit then makes use of kingspan SIP panels to be efficiently inserted to create a high performing home which reduces on site waste with the use of pre fabrication.

The portal frame supports a weather seal using the roof cladding and steel purlins which were previously dismantled from the structure.

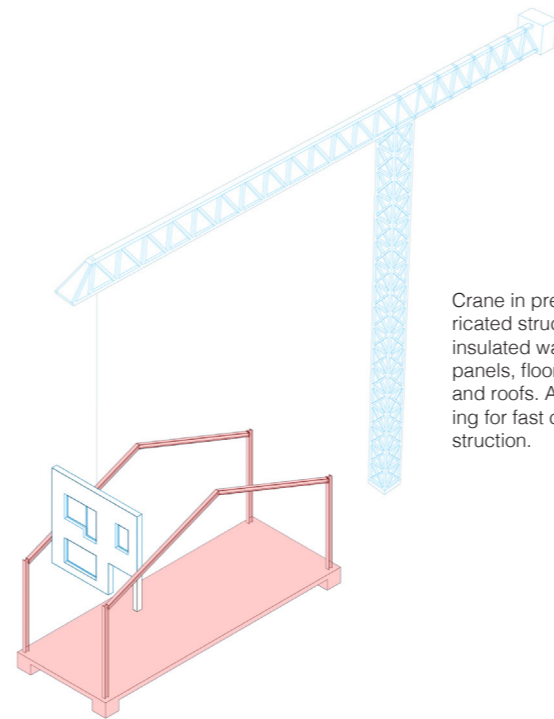
The portal frame also supports the balcony using ties so the SIP panel envelope inside can remain consistent throughout varying spans in units.



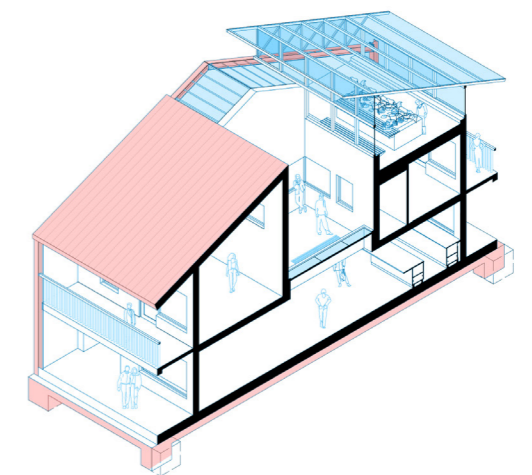
Existing portal frame industrial shed with span of 6x18.5m, concrete foundation pads of 1x1x1m and an industrial spec concrete floor slab 300mm deep.



Existing cladding, blockwork and fitting to be removed and recycled. Steel portal frames to be kept in situ and temporarily propped.



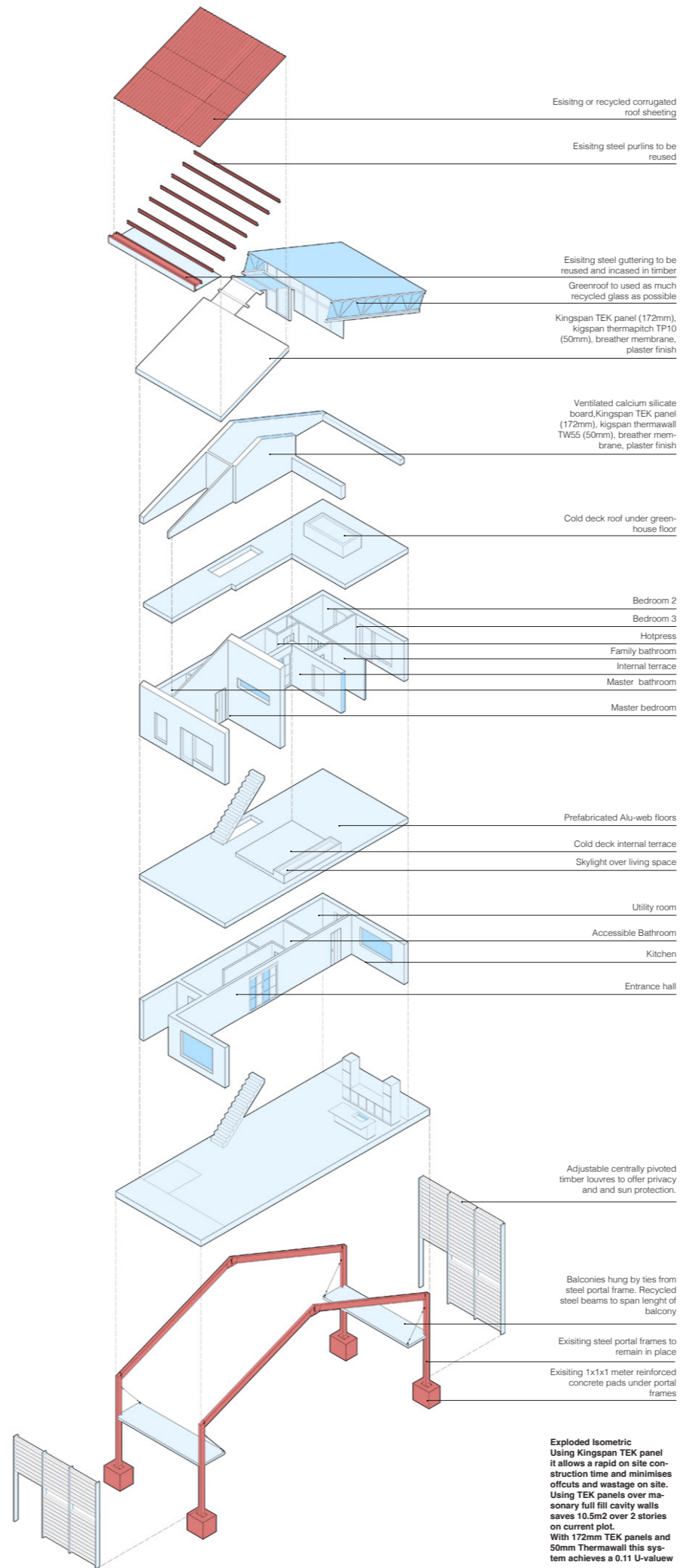
Crane in prefabricated structural insulated wall panels, floor plates and roofs. Allowing for fast construction.



Each unit is tied back to the portal frame structure by the floor plates and roof panels. Structural insulated wall panels sit directly on the existing slab.

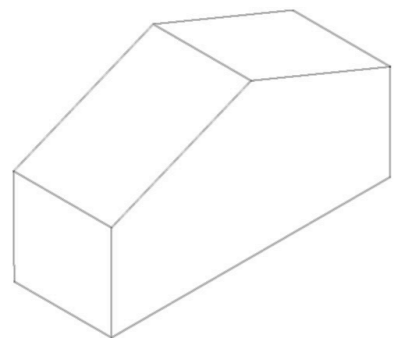
PROPOSAL

FAMILY HOME

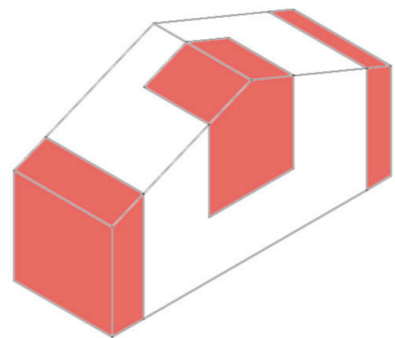


PROPOSAL

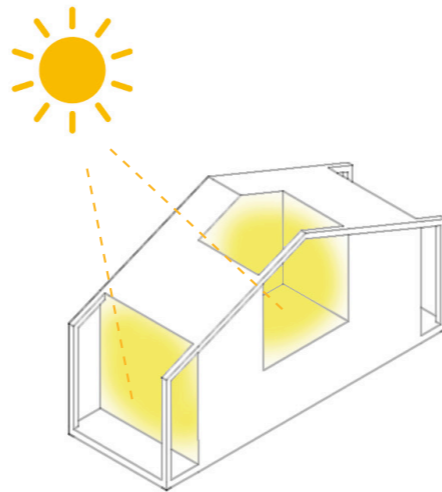
FAMILY HOMES



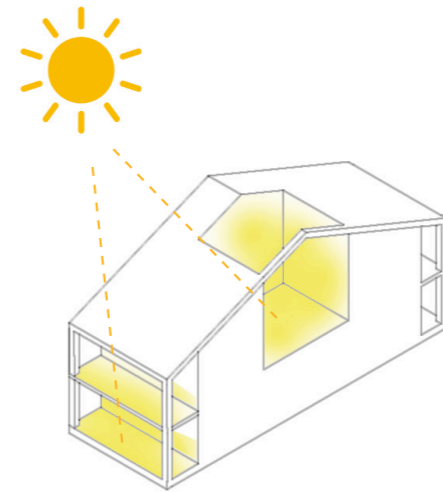
No light or air can penetrate the deep existing building



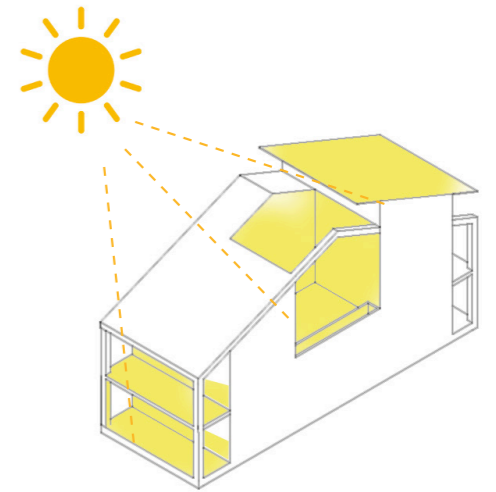
Reduce the length of the original mass allows a threshold space either side and better utilizes the height.



A central courtyard which is rendered in light colours allows light to bounce into the circulation space in the centre while creating a private area



Overhangs reduces the direct sunlight in the summer. Allows the unit to be tied into the structure and creates more private outdoor space



The addition of a roof garden and light wells allows for places for growing food and better quality of light in the center of the long plan

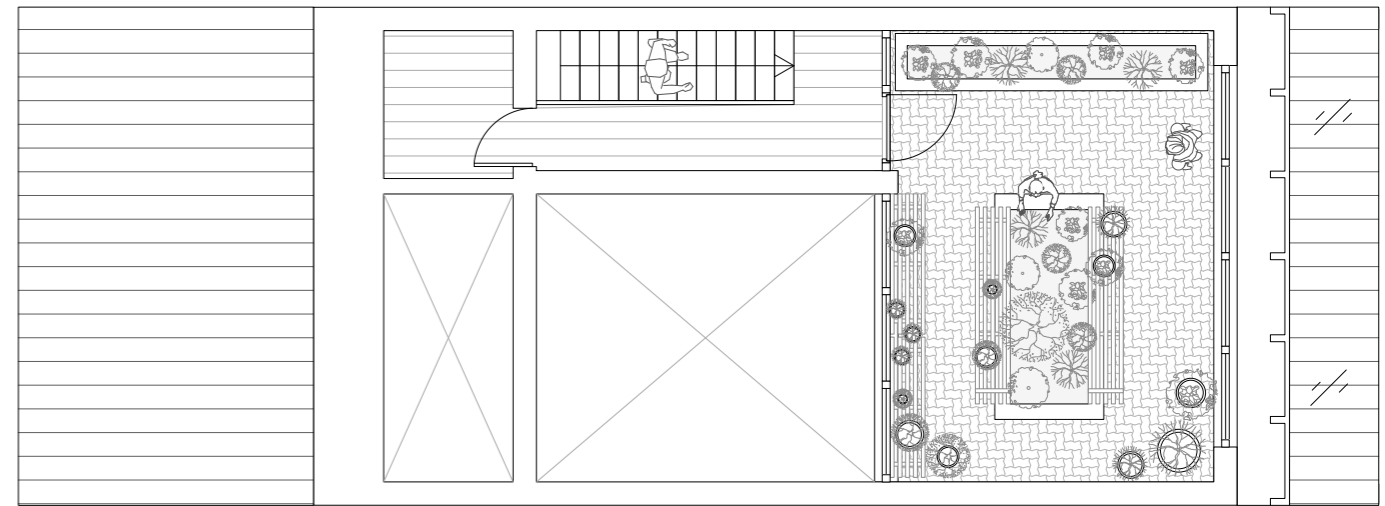
Floor plans

The plan offers a connection with the outdoors on every level. On the exterior the pivoted louvres offer the occupant the option of privacy and light control allowing public space to flow freely around the terrace houses.

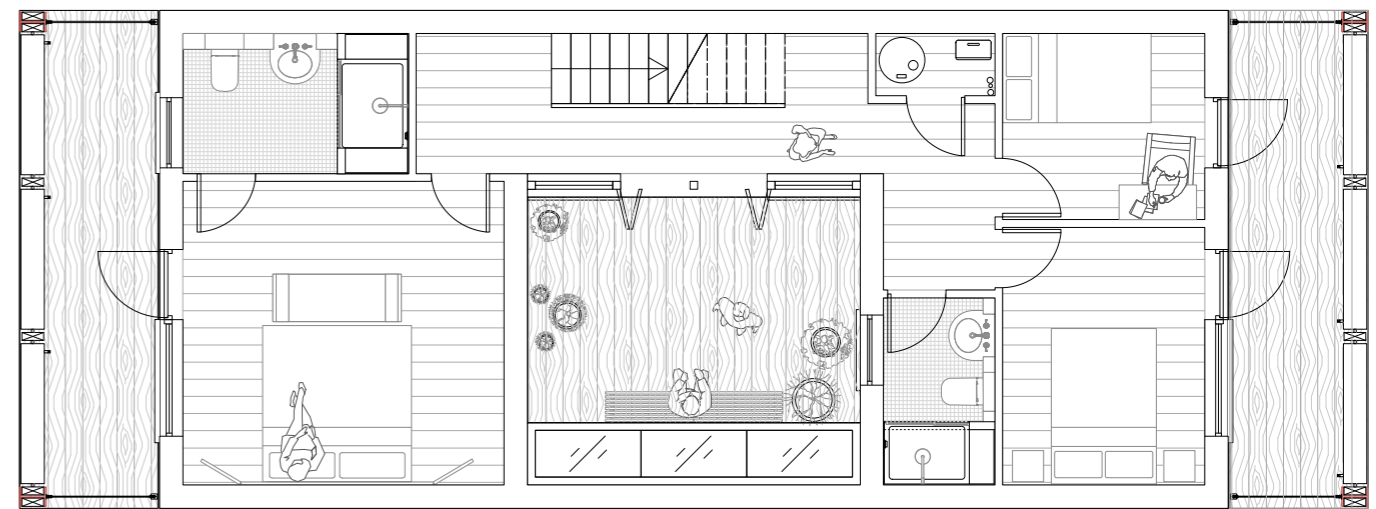
Central to the plan on the first floor is a completely private courtyard which bounces light into the circulation space and gives light to the deep plan living / kitchen space below.

A greenhouse is on the second floor of every family home to make the traditional use of food production for a large back garden redundant by concentrating it into a smaller glass house.

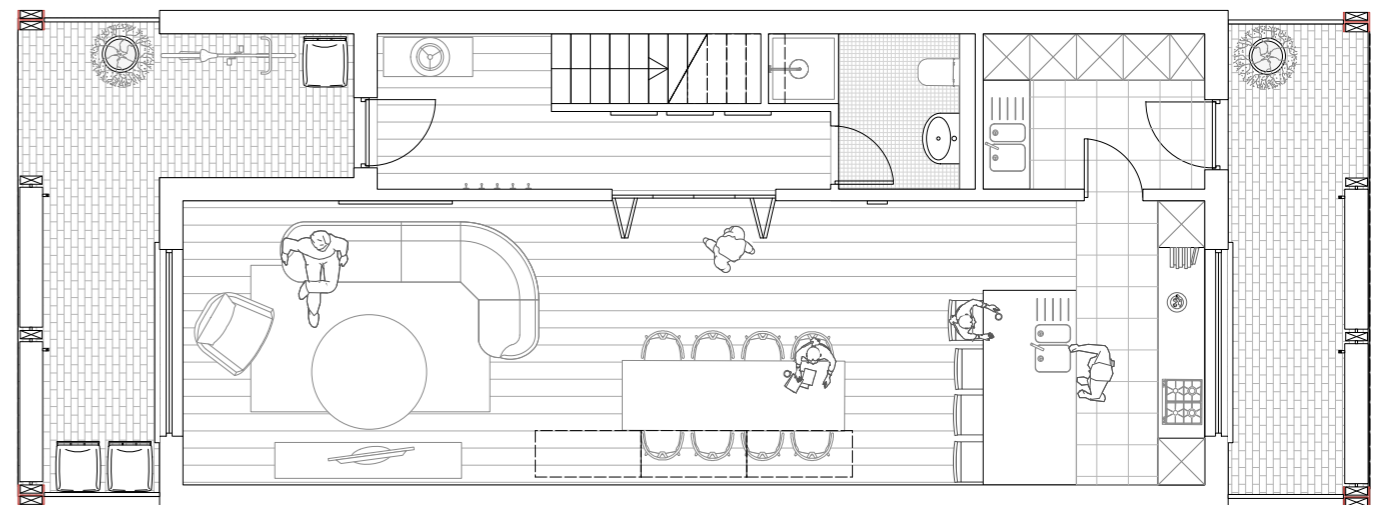
This extruding element also makes a hint to the home owner that there is vertical opportunity for growth as a family grows.



SECOND FLOOR PLAN



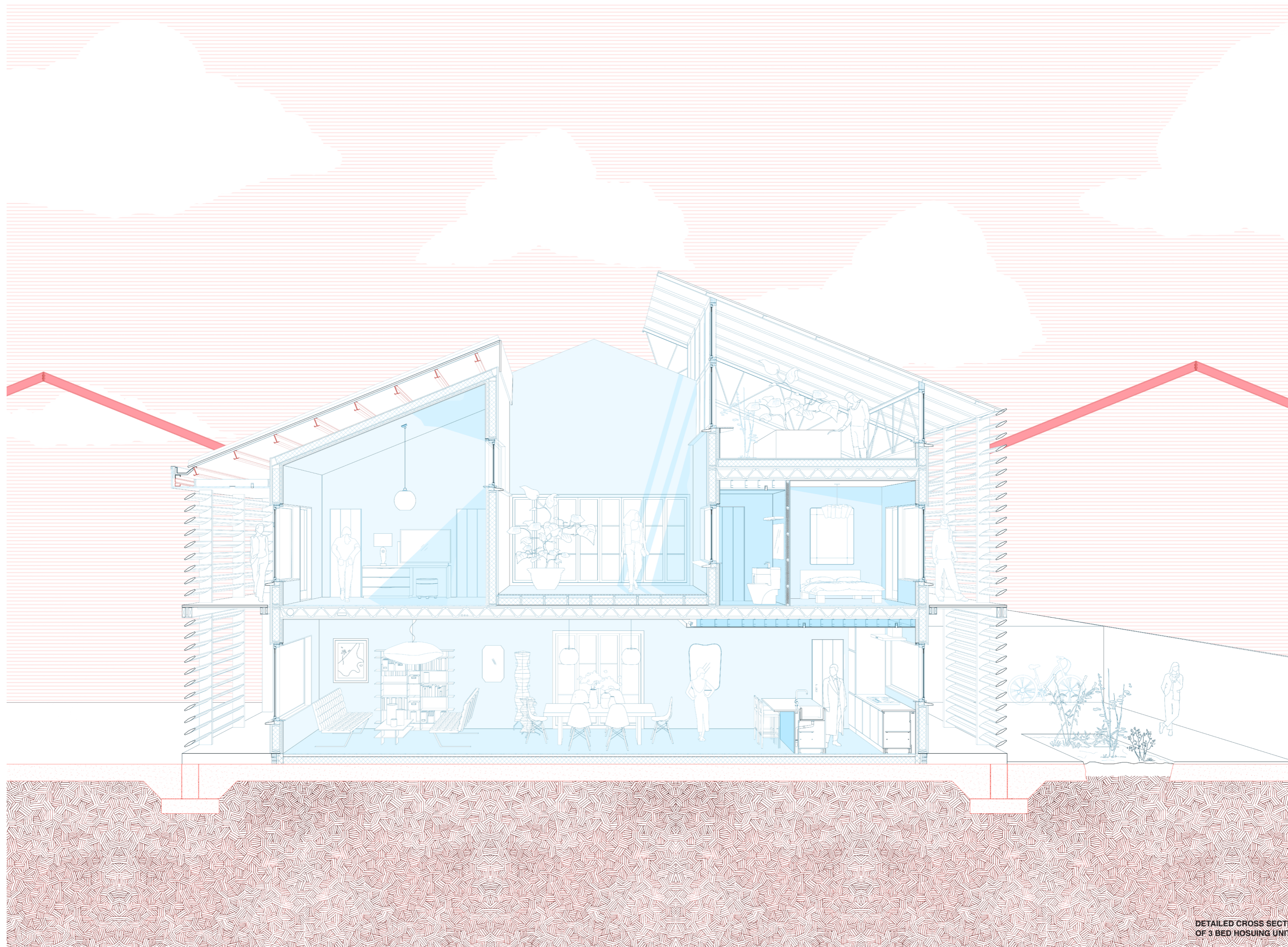
FIRST FLOOR PLAN



GROUND FLOOR PLAN

PROPOSAL

FAMILY HOMES



DETAILED CROSS SECTION
OF 3 BED HOUSING UNIT

Central Courtyard - First floor



Open living space - Ground floor



Green house - Second floor



Stair well

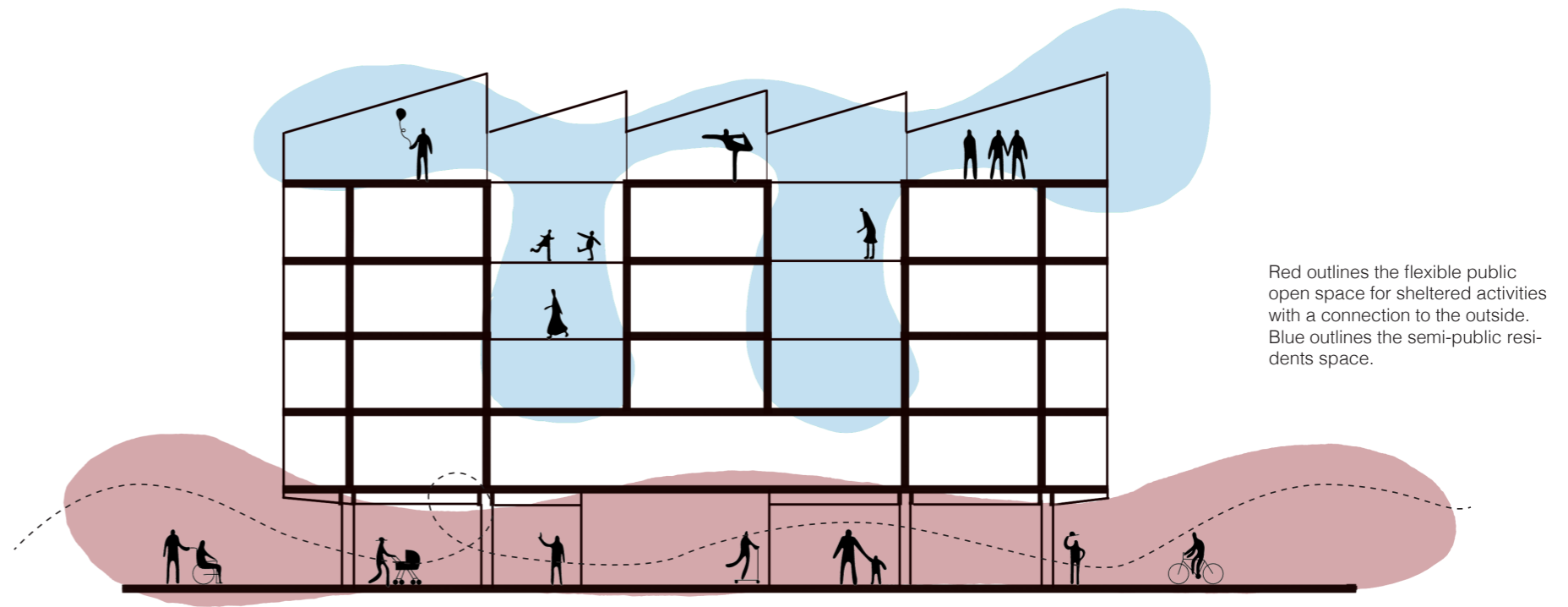


PROPOSAL

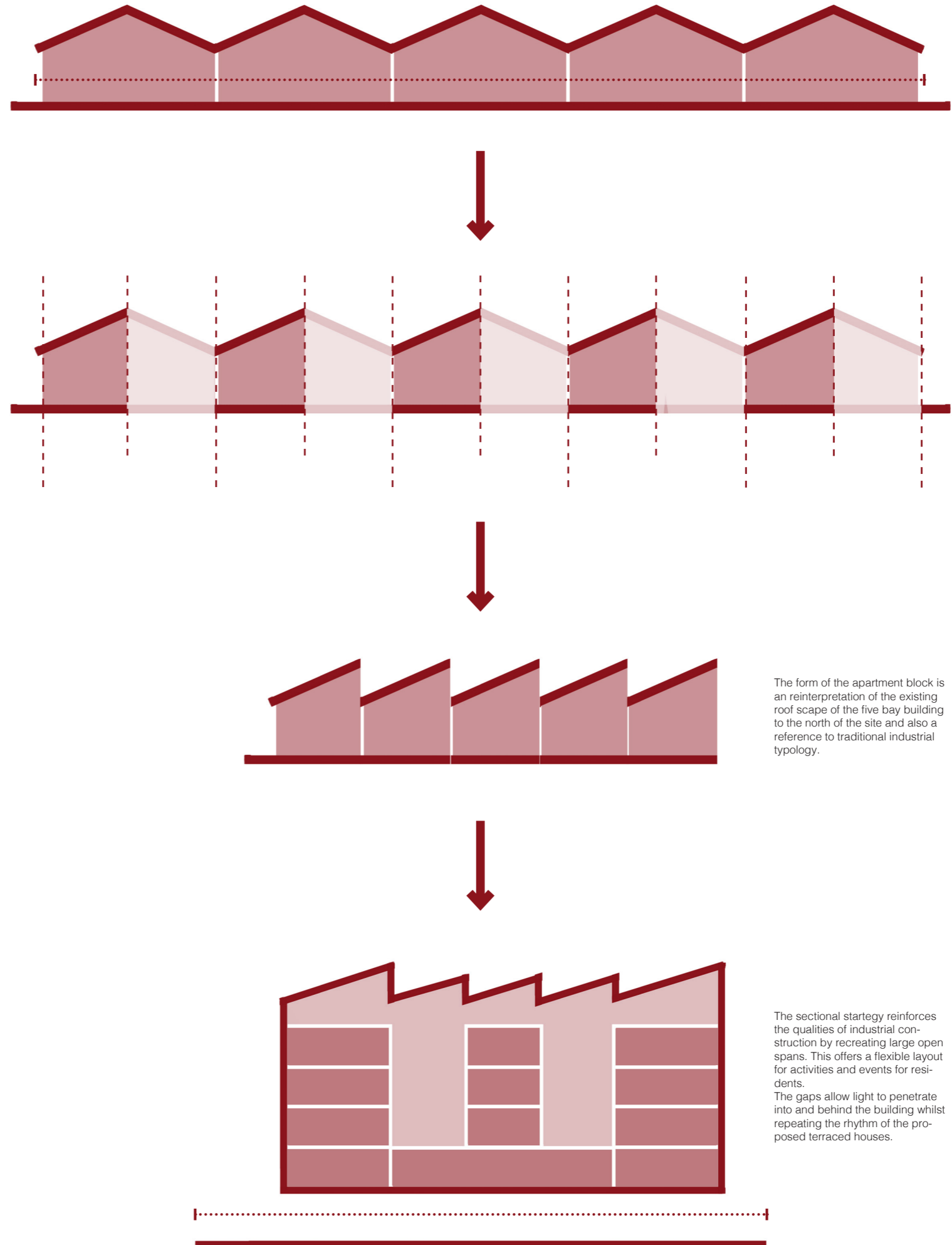
APARTMENT BLOCK

Public engagement

The ethos of the site masterplan transcends into the ideology of the inbetween spaces in the apartment block. Spaces for serendipitous interaction and conversation aims to improve the sense of community within the apartment block.



Sectional Strategy



The form of the apartment block is an reinterpretation of the existing roof scape of the five bay building to the north of the site and also a reference to traditional industrial typology.

The sectional strategy reinforces the qualities of industrial construction by recreating large open spans. This offers a flexible layout for activities and events for residents. The gaps allow light to penetrate into and behind the building whilst repeating the rhythm of the proposed terraced houses.

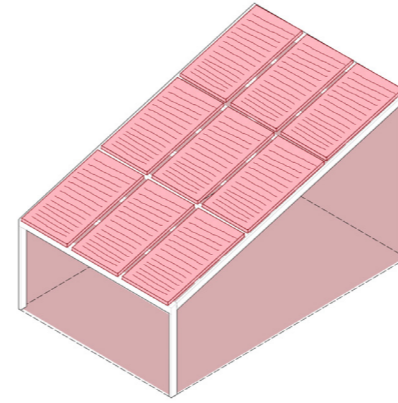
Public engagement

The gaps between on the upper floors allows a better quality of light for the developments behind the apartment block and also within the apartment block. This aims to create a healthy environment throughout all aspects of the neighbourhood

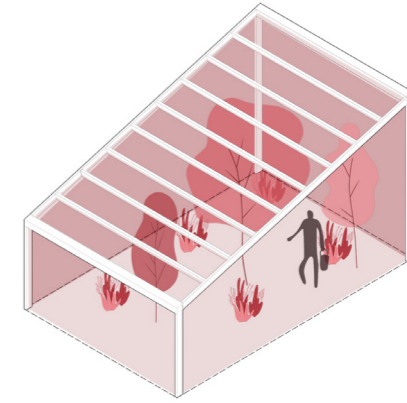


Public engagement

The roof area allows a variety of uses and like the public plaza it remains an adaptable space for the residents.



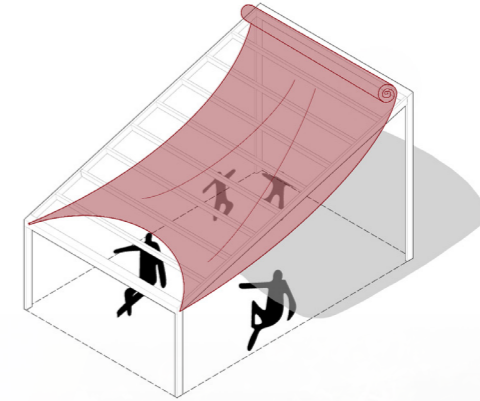
Solar panels



Greenhouse



Green roof

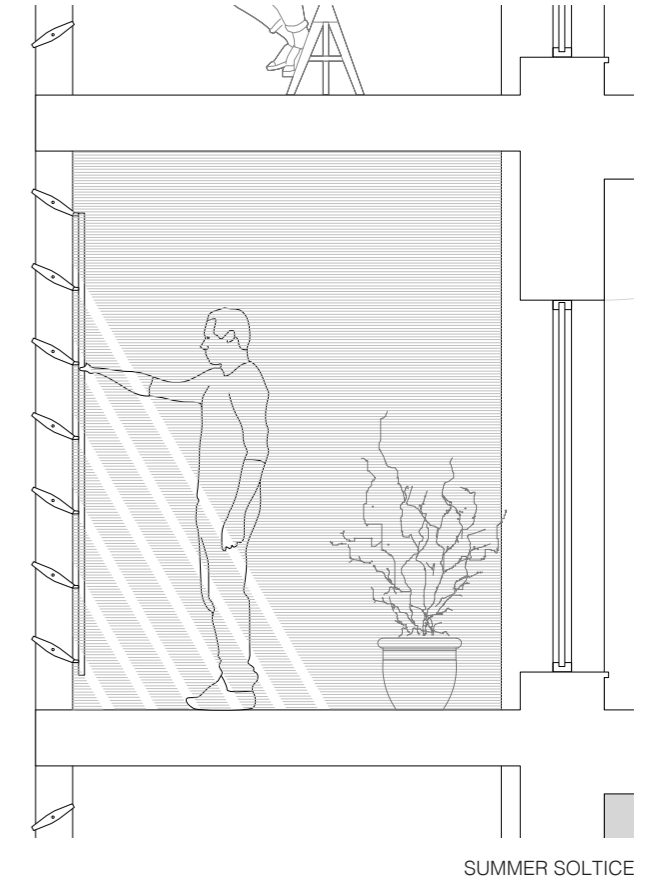
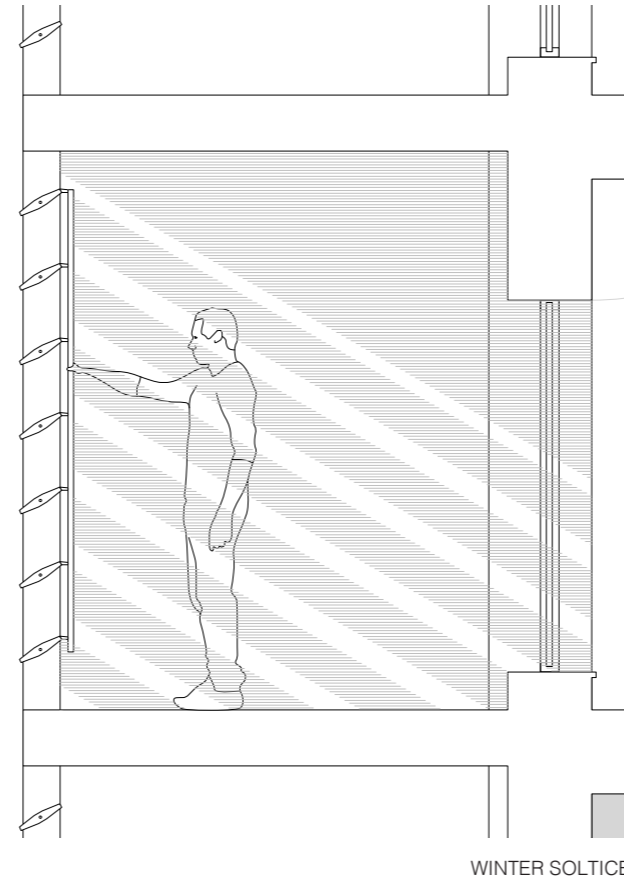


Sheltered roof



Light and Privacy Management

The Louvres make a bond between the Terrace homes and the Apartment Block creating a coherent aesthetic between the two. With the rising issues of climate change properly protecting our homes from the sun prevents the need of retrofitting air conditioning units in the future.

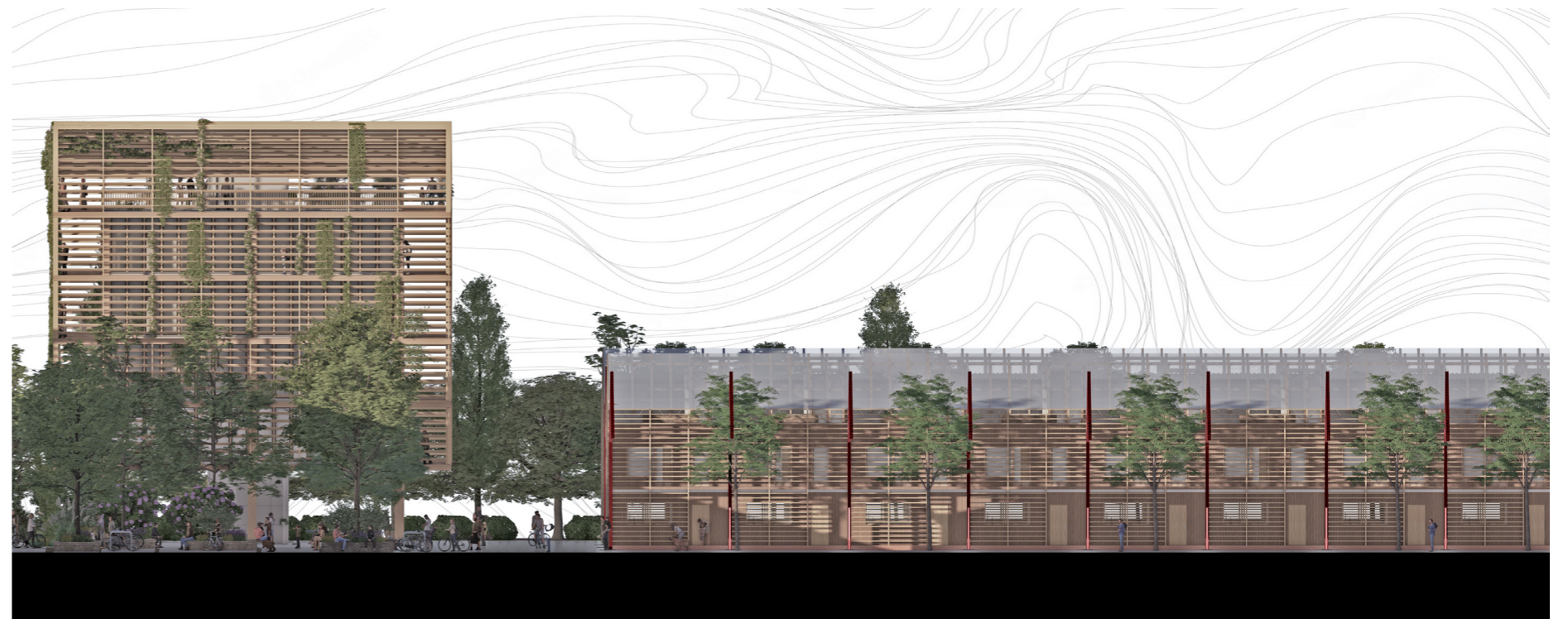


Site Elevations

On the south facade vertical fixed louvres allows climber plants to grow up the facade. This allows a 1-2 degree drop in the air temperature whilst regulating the amount of light in that passes through in the summer time. In opposite effect, in the winter when the foliage dies off it allows the light and air temperature through.



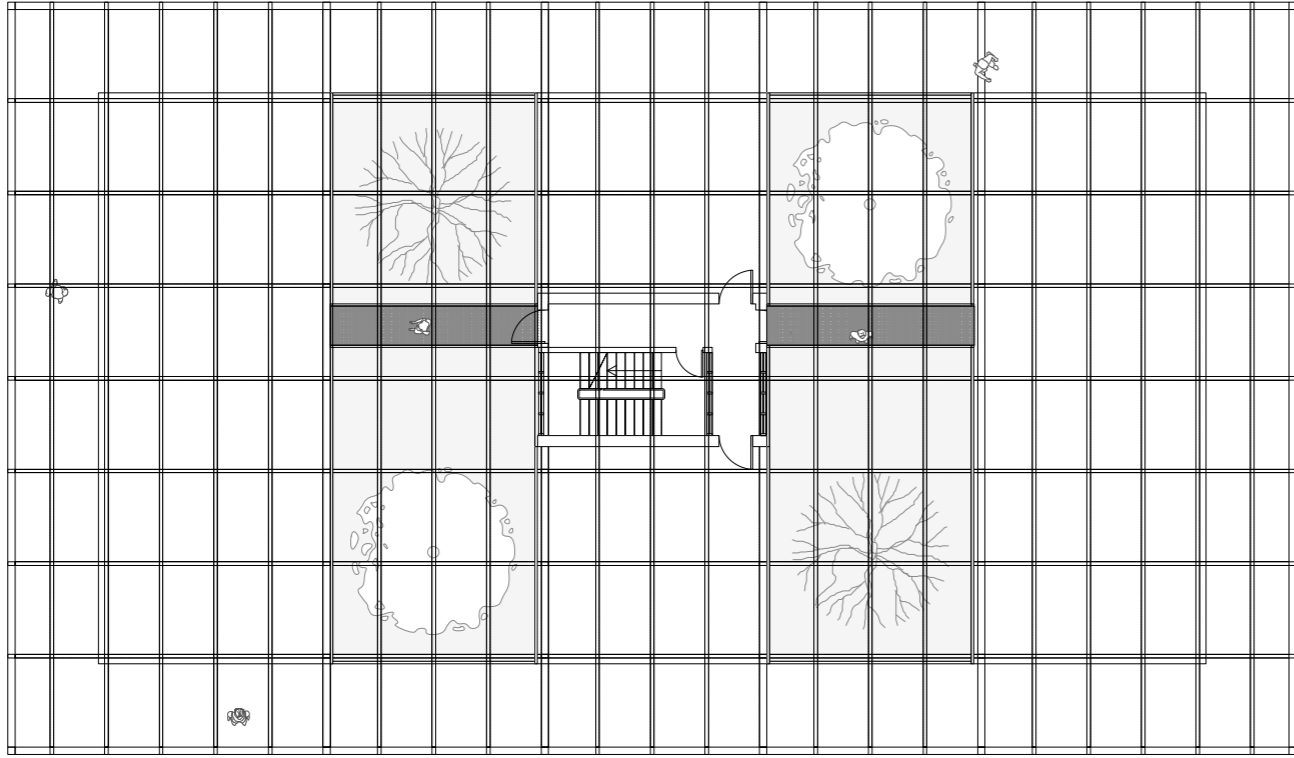
SOUTH ELEVATION



EAST ELEVATION

PROPOSAL

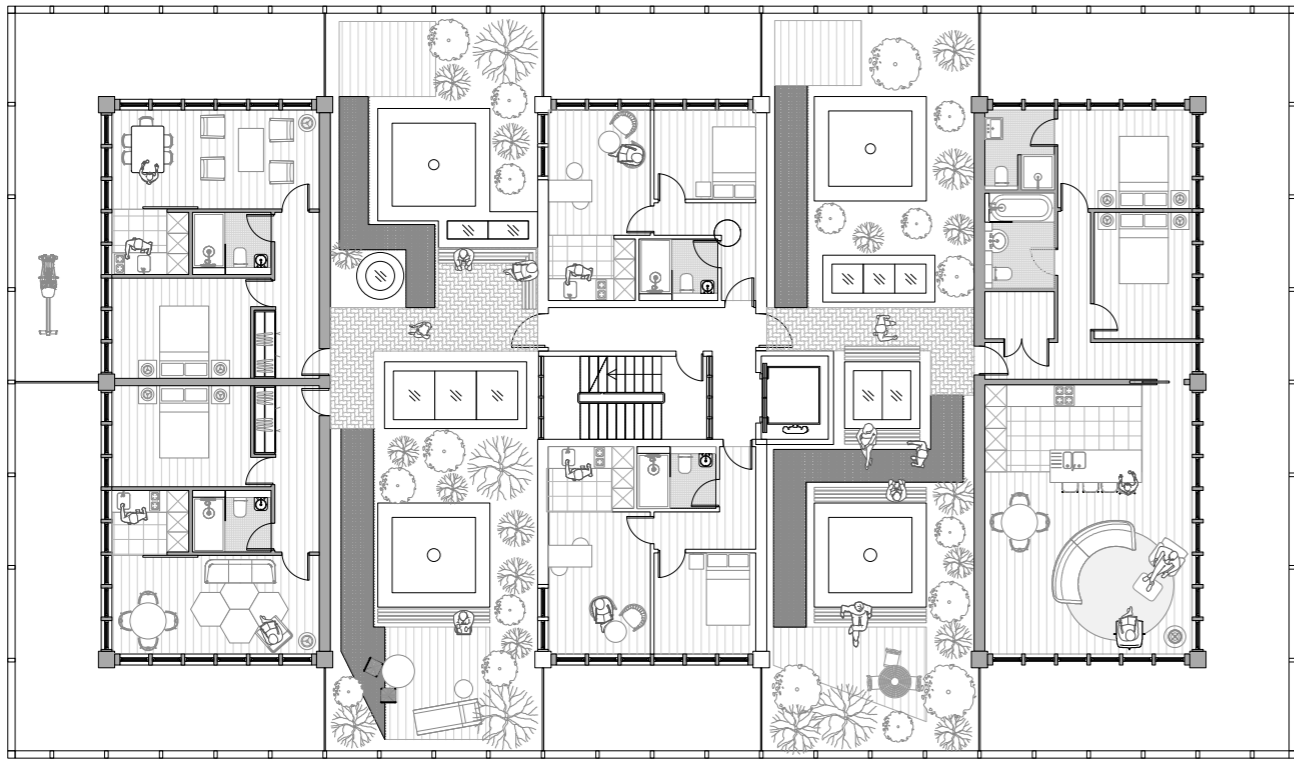
APARTMENT BLOCK FLOOR PLANS



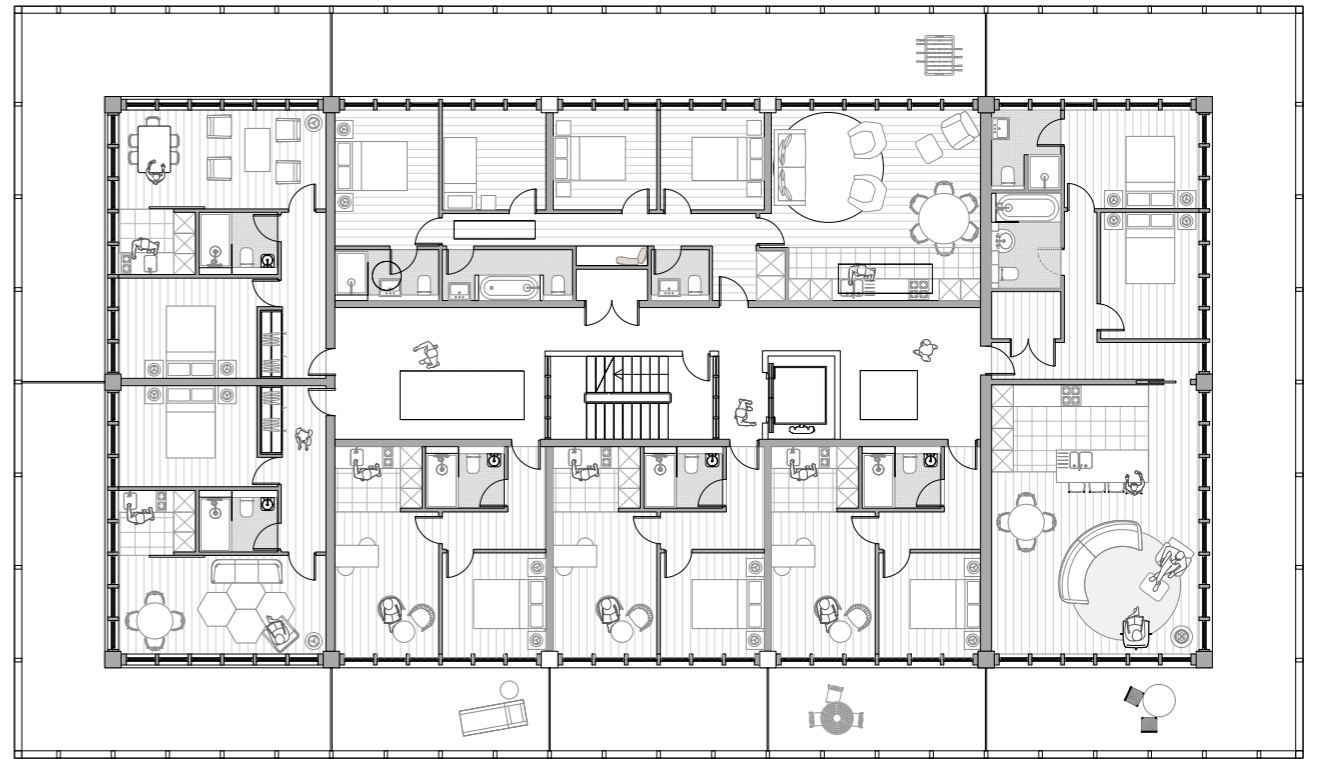
5TH FLOOR - ROOF TERRACE



4TH / 3RD FLOOR



2ND FLOOR - RESIDENTS SOCIAL SPACE



1ST FLOOR

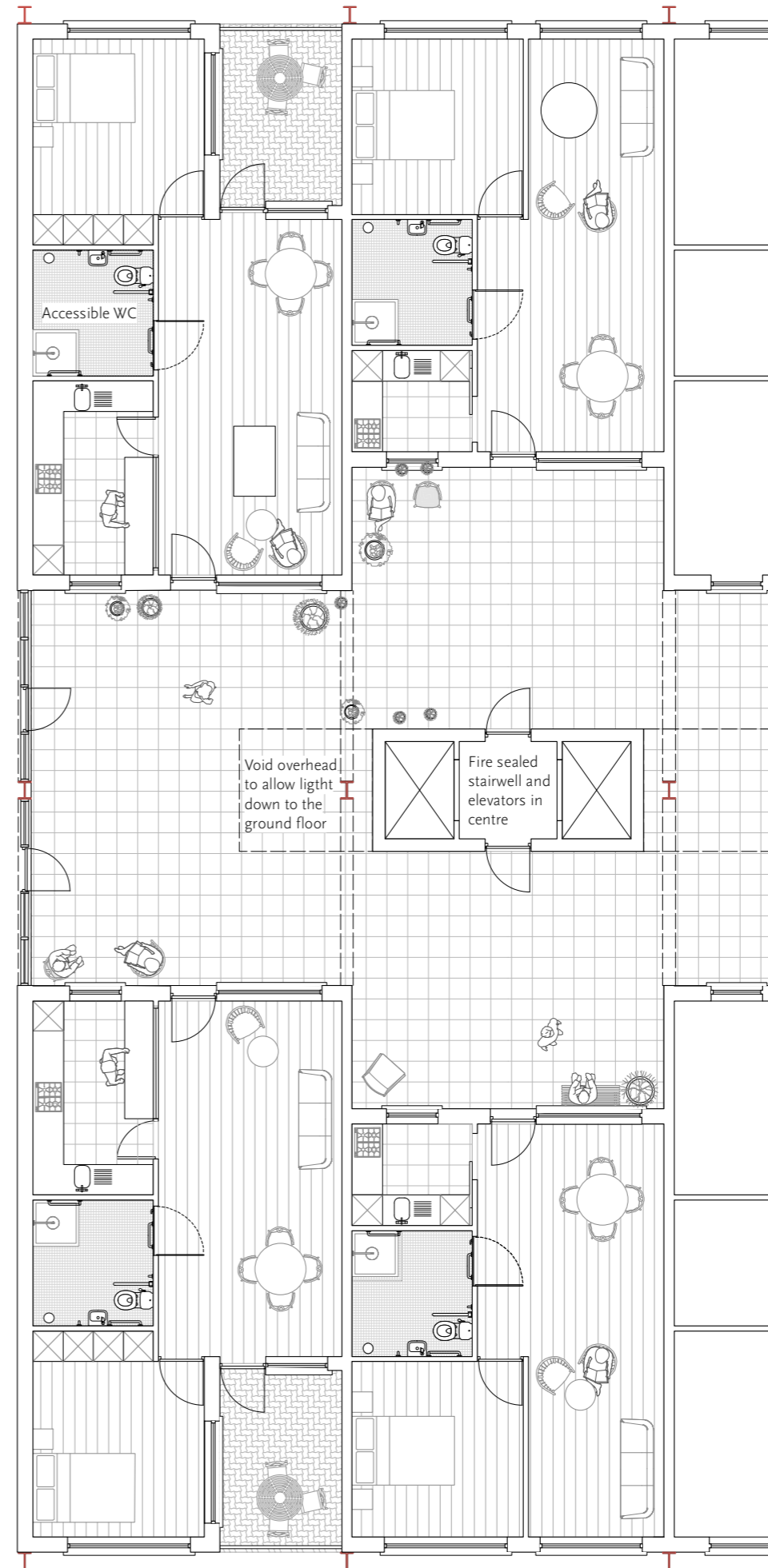
PROPOSAL

PUBLIC PLAZA RENDER



Sheltered living

Elderly care and creating an environment with a sense of permanence is integral to a sustainable community. Joining two portal frames allows a covered central circulation zone that also acts as a winter garden overlooking the public plaza for the elderly residents. This allows the residents to feel better connected with an active community rather than being isolated.



Ground / First Floor plan

PROPOSAL

PUBLIC PLAZA RENDER



PROPOSAL

SOUTH VIEW



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