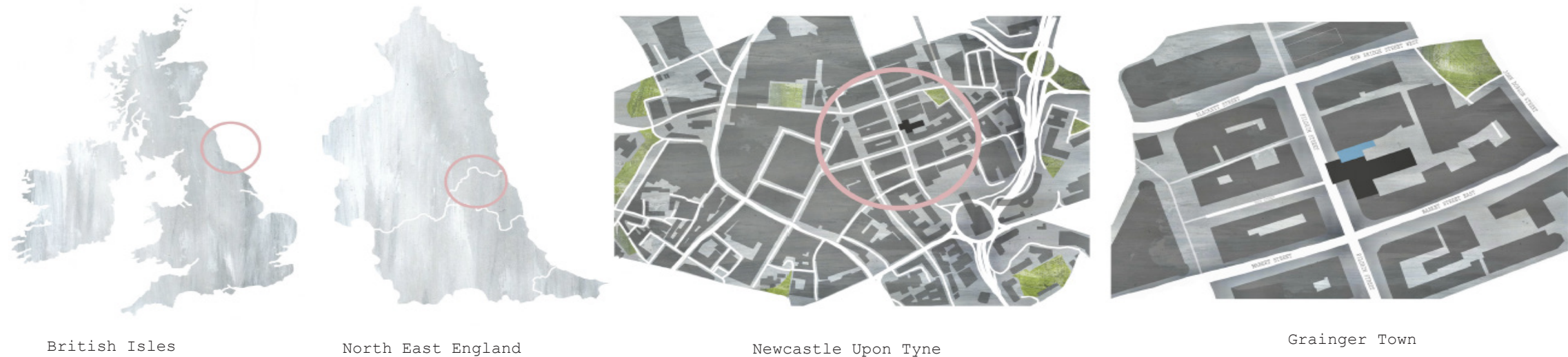


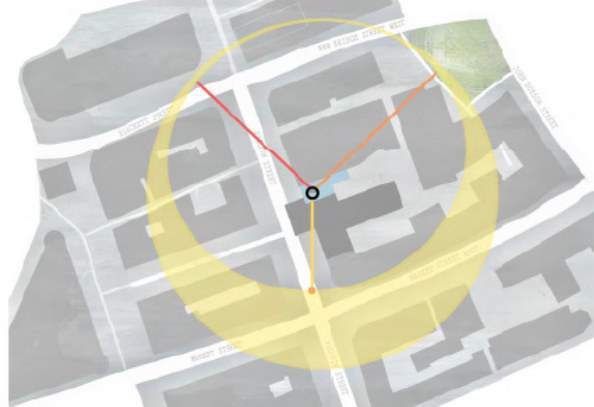
# THE YMCA – RE – DEFINE

## WILL GRIEVE



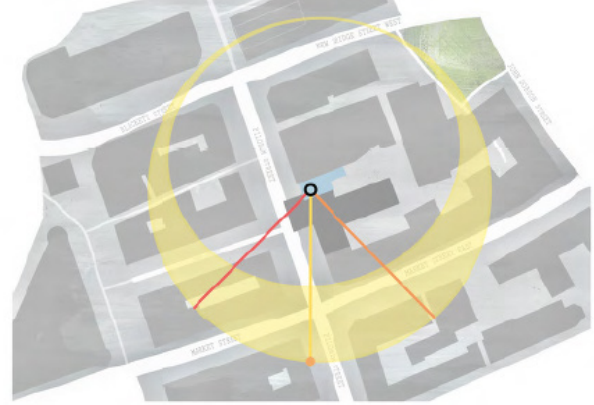
SWOT ANALYSIS	
<b>Strengths</b> <ul style="list-style-type: none"><li>• Large site and building volume.</li><li>• Flat roof and outside space.</li><li>• Site located in centre of town.</li><li>• Solid steel reinforced concrete frame.</li><li>• Entrances on both ground and lower ground floor.</li><li>• Many transport links to suit serval bus routes near site and monument metro station 1 minute walk away.</li></ul>	<b>Weaknesses</b> <ul style="list-style-type: none"><li>• Building in disrepair. Lots of graffiti and cosmetic damage which might get worse if left untreated.</li><li>• Lack of natural light in building.</li><li>• Windows only on 2 sides and extremely limited on front facade due to overhang.</li><li>• Poor air quality (humidity) due to poor ventilation creating damp and mould.</li><li>• Long narrow footprint – will be hard to re-configure.</li><li>• Located on busy road – leading to both air and noise pollution.</li><li>• Severe building pathology leading to heat loss and ventilation issues.</li></ul>
<b>Opportunities</b> <ul style="list-style-type: none"><li>• Outdoor space our the rear of the site. Potential to add garden area/outdoor activity area.</li><li>• Flat roof. Potential to add green roof or skylights.</li><li>• Clear building grid – good proportioned spaces which will be able to remove floor/ add walls easily</li><li>• Centre of town and good transport links so there will be lots of passing trade.</li></ul>	<b>Threats</b> <ul style="list-style-type: none"><li>• Building decay might be more than just cosmetic – there might be bigger structural issues with rot, damp etc.</li><li>• Overhang from building limits signage that could be added and blocks out good views to the site due to large columns.</li><li>• Rundown buildings surrounding site- dark and dingy – unattractive view for potential outside area. Also lack of CCTV on back road leading to site could lead to criminal activity.</li></ul>

Summer solstice 21st June

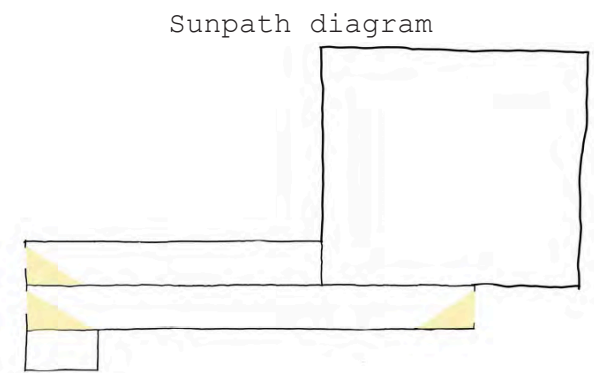


- DAWN: 03:29:08
- SUNRISE: 04:26:41
- SUNPEAK: 13:08:21
- SUNSET: 21:49:59
- DUSK: 22:47:32
- DAYLIGHT DURATION: 17h23m18s

Winter solstice 21st December



- DAWN: 07:44:00
- SUNRISE: 08:28:59
- SUNPEAK: 12:04:45
- SUNSET: 15:40:30
- DUSK: 16:25:30
- DAYLIGHT DURATION: 7h11m31s



Due to the buildings orientation and the over hand from commercial union house, the site receives little direct sunlight. Currently, the floor plans of the building mean only the front and back get some access to sunlight due to the amount of internal walls in the site.

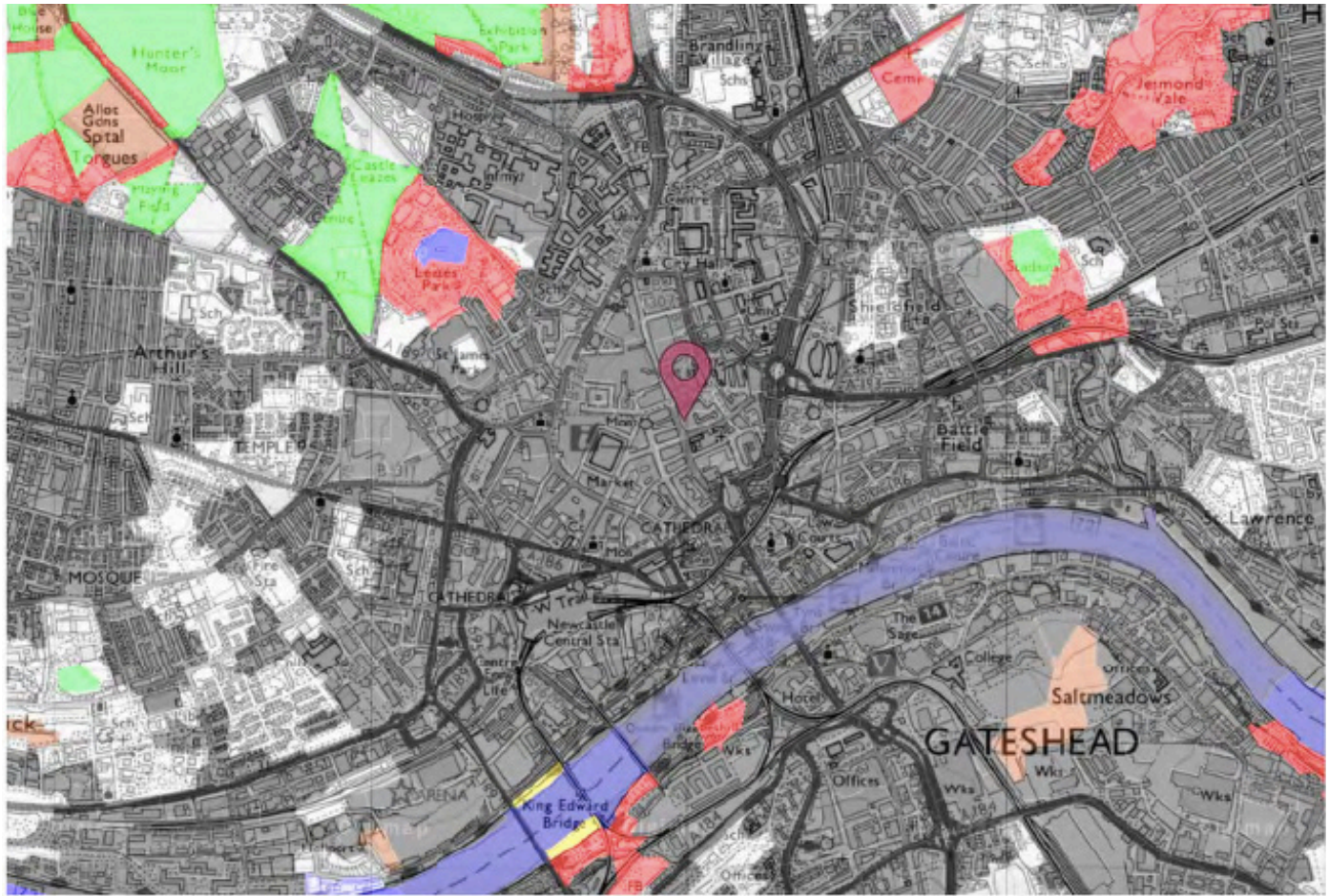
The lack of light is also very prominent in the middle of the site due to the buildings deep plan, meaning that even if all interior walls are removed, it would receive very little natural light.



COMMERICAL UNION HOUSE



EXISTING STAIRCASE



- Broadleaf woodland
- Acid grassland
- Marsh and swamp
- Supra-literal rock
- Improved grassland
- Bog
- Natural grassland
- Freshwater
- Saltwater
- Salt marsh
- Suburban
- Urban

The environment around the site is mostly urban, with areas of suburban housing towards Jesmond, Sheildfield, Benwell, Byker and Heaton. There is very little green space around the site, with the only places being Leazes park (1.5 km away), Jesmond Dene (2.7 km away) and City Stadium Park (1.8 km away).

ENVIRONMENTAL ANALYSIS

### EXISTING CONDITIONS



Current: Damp and mould throughout the building due to poor ventilation, humidity and a leaky roof causing decay to the internal walls.

Proposal: Fix leaks in roof and improve ventilation therefore reducing humidity and mould.



Current: Poor insulation throughout the building creating damp on the walls leading to peeling paintwork.

Proposal: Provide better insulation throughout the building to stop damp in future.



Current: The building has a dropped ceiling throughout with a lay in grid in which panels can be added to cover utilities. Many of these are damaged or missing showing the ceiling above it.

Proposal: Remove dropped ceiling to expose utilities in building.



Current: The rear of the building is in disrepair. There is graffiti, overgrown weeds and signs of decay.

Proposal: Remove weeds and graffiti, paint wall and tidy up outside area. Create extension at rear of building.



Current: Marble stone work on front facade, very unusual of brutalist building. However, covered in graffiti.

Proposal: Clean off graffiti and remove marble stonework from facade and use elsewhere in the building.



Current: The exterior of the building is clad in pebble dash, typical of brutalist buildings

Proposal: Jet wash building to remove dirt and grime.



Current: Old kitchen cabinets ripped out before abandoning the space leaving old cracked tiles and debris.

Proposal: Remove tiles and debris and create new interior



Current: The windows that are there are the original 1970s wooden framed single glazed windows which let lots of heat escape the building, effecting how heat efficient it is.

Proposal: Replace windows with energy efficient triple glazing to reduce need for central heating.

- Daylighting - the building has limited daylight due to the ground floor only having windows on 2 sides (1 being particularly blocked by the overhang) and the first floor only having 1 window at the back. There is a maximum of 3000 lux coming in the building. To create better lighting I will introduce sky lights throughout the flat roof to improve natural daylighting.

- Air quality - the humidity in the building is too high - often over 70% in some areas leading to mould and damp due to poor ventilation methods. To improve the air quality I will use automated roof lights which allow fresh air into the space and a better HVAC system.

- Pollution - to minimise the buildings carbon footprint, a green roof will be added. This will absorb the CO2 the building produces and turn it into oxygen. It will also provide better insulation in the roof which will make the building more energy efficient, thus decreasing the summer heating demand by up to 75% and reducing green house emissions.

- Operational energy - to power the building, green renewable energy should be used. This can be done by using a Biofuel boiler which will burn unusable donated wood, meaning there is limited waste and the heat source is renewable.

- Noise levels - Due to the site being on a busy main road, noise levels at the front of the building are extremely high (average 65db +). Due to this, the site could benefit from better acoustic sound proofing in the form of panels which can be installed in the walls and floor or even installing triple glazed windows to stop sound entering through the glazing. A small porch could be added at the main entrance which will act as an extra barrier against sound when visitors enter and exit the building.

- Thermal comfort - due to indoor air pollutants such as visitors, people cooking in the kitchens and the mushroom store room, the air in the building is stale throughout the building and suffers from humidity and damp. To fix this, new ventilation will be installed to remove warm stale air from the interior and taking in cool fresh air from the outside and heating it up. A small entry room will be added at the main entrance fitted with a heat curtain which will act as an extra barrier against cold air when visitors enter and exit the building.



The new YMCA. A blend of youth support, employment opportunity and enterprise. The building will be transformed with new spaces, enabling the YMCA to feature a new ground floor charity shop, filled with upcycled bespoke pieces of furniture made in the workshops on the first floor by 'live in' designers and graduates who work hard to turn donations of discarded furniture and materials into useable household items. These items will be displayed in room settings in the charity shop while the larger items such as tables and chairs will be used in the new 'coffee and cake' zone as seating which can be purchased. The new YMCA will also feature meeting and support zones for vulnerable youth who can also be trained in furniture upcycling and gain employment in the workshop or as an assistant in the cafe's kitchen.

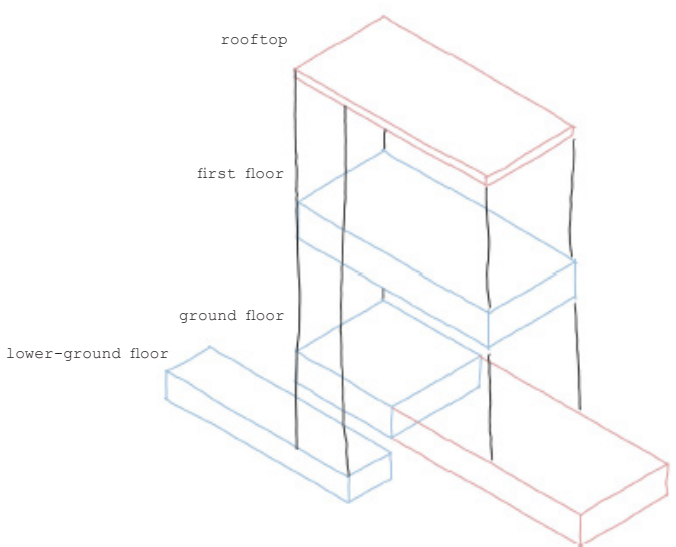
BUBBLE DIAGRAM



BLOCK PLAN

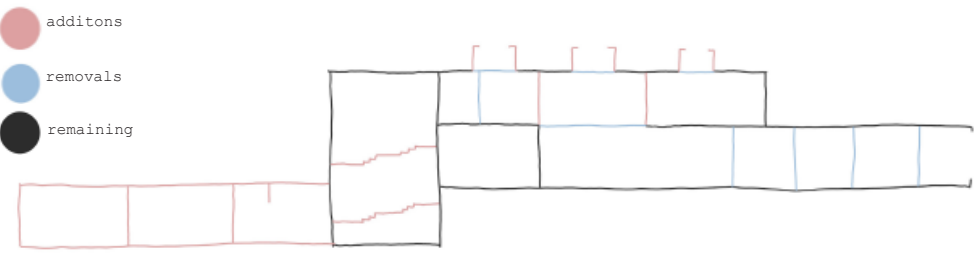


ZONING DIAGRAM

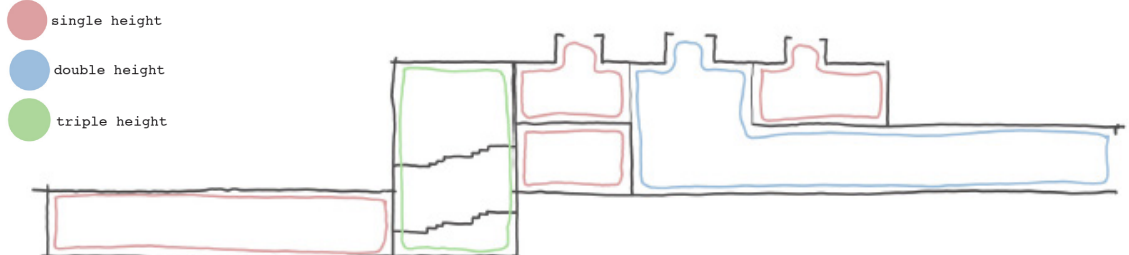


The space will feel very open and will have a clear flow throughout the building. Entering the space, visitors will be immediately see the retail areas which links seamlessly to a double height cafe area. There is also a clear site line to the youth support zones at the back of the building. These meeting and support areas can easily transformed from public to private areas depending on the vulnerability of the visitor by the flick of a switch, turning the smart glass wall dividing the meeting rooms from the cafe allowing privacy and dignity. Within this support space there will be a 'chill zone', meeting pods and an IT space where trained professionals can help young people create CV's and apply for jobs.

ARCHITECTUAL STRATEGY

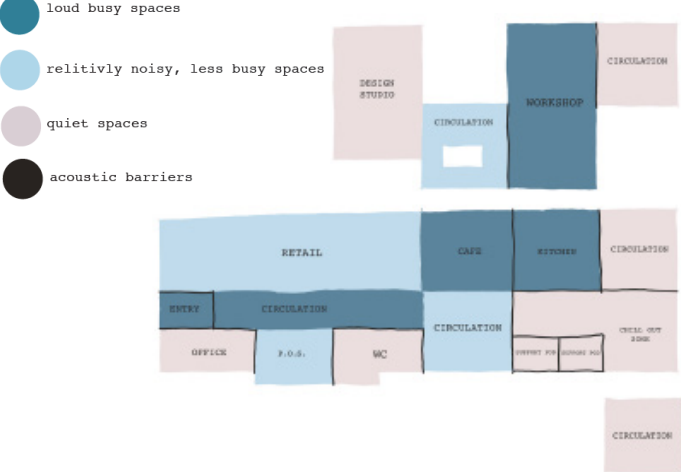


MASSING DIAGRAM

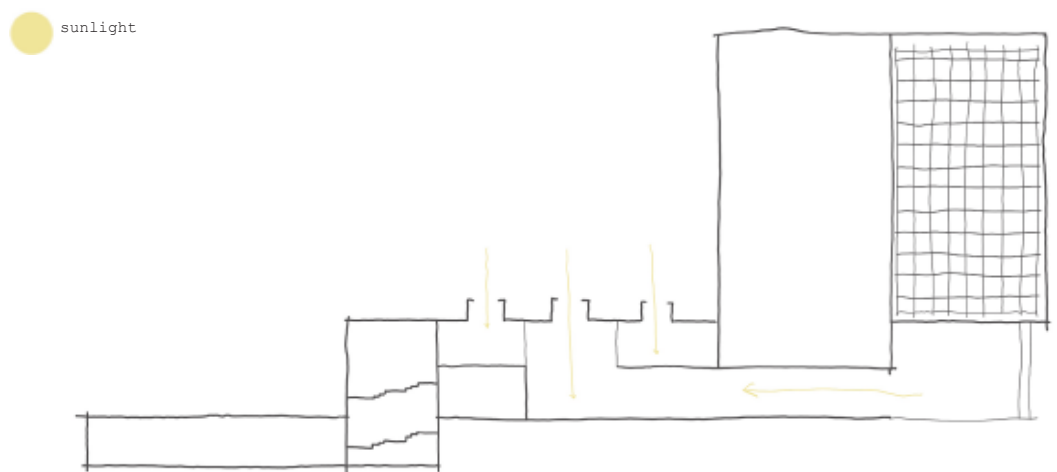


An oversized staircase will be positioned opposite the cafe which will lead unto the design studio and workshop on the first floor which will feature both textile and woodwork workshops enabling furniture to be transformed. The studio and textile areas will be open plan however, siding tried glazed doors will be added between the woodwork workshop and the rest of the space due to noise however these can easily be opened. The textile and workshop areas will also double up as training centres in which young people can learn the skill of upcycling furniture. Visitors will be able to see the designers at work from the ground floor as large glass walls will be used in the double height cafe area, essentially turning the workshops into a glass viewing box. The staircase will also lead to the rooftop where there will be a public garden, providing a much needed green space in the city in which people can relax. The delivery of new materials will be done on the lower ground floor, where a new extension will be built to house the large plant room with biomass boiler and all the donated furniture. When staff require the materials and furniture to upcycle it, all they have to do is collect it and bring it up in the lift to the first floor workshops where it can be transformed.

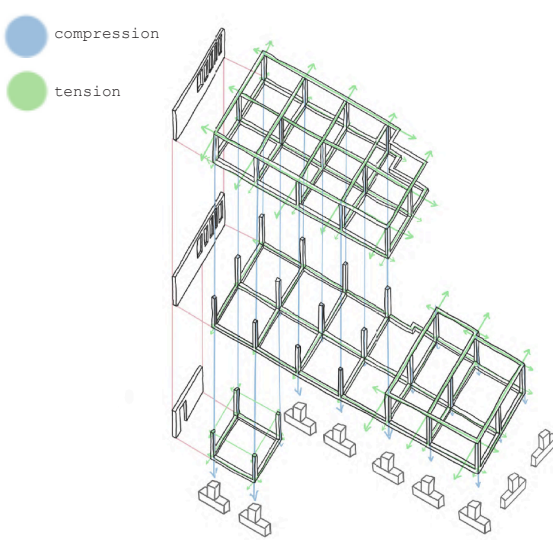
ACOUSTIC STRATEGY



DAYLIGHT STRATEGY

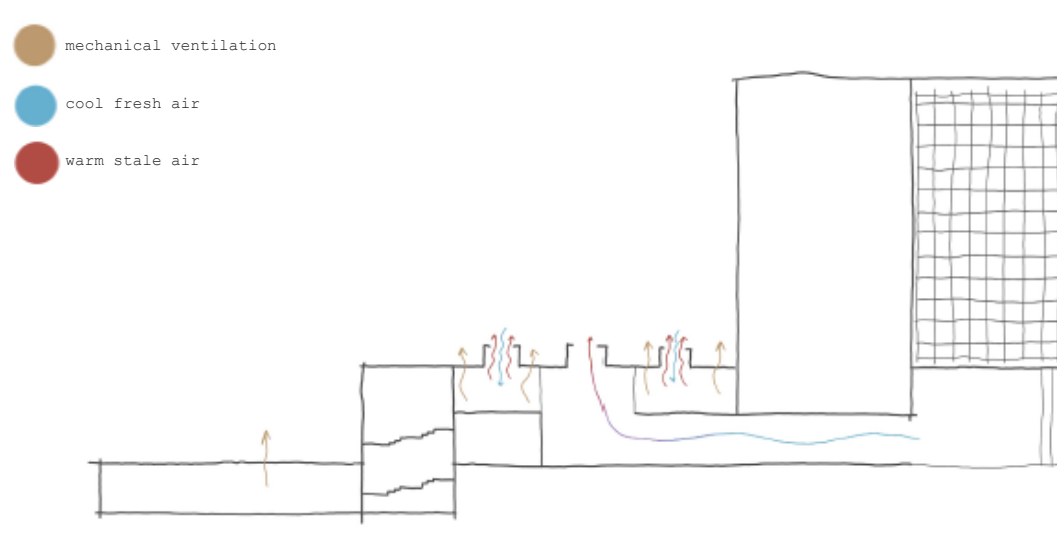


STRUCTURAL LOAD

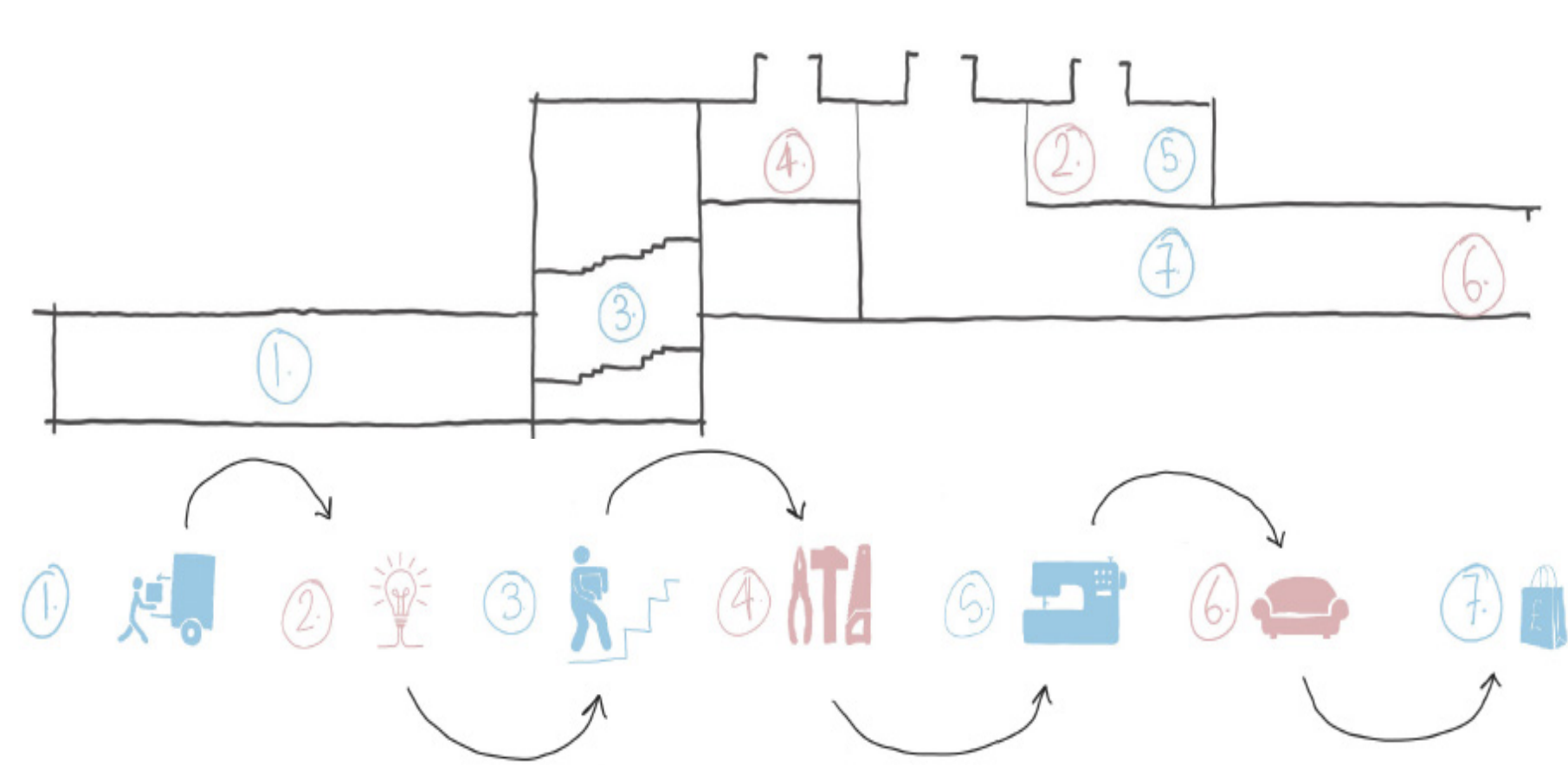


Commercial union house is typical of brutalist design. It is made from concrete columns and beams, with double leaf walls with cavity in between for insulation. However insulation at the time of construction in the early 70s was rare so it is uncertain as to whether the building has insulation inside the cavity until tests are done. T beams are typical of this era as they are constructed within the walls and allow hollow pre-cast concrete floor plates sit on above.

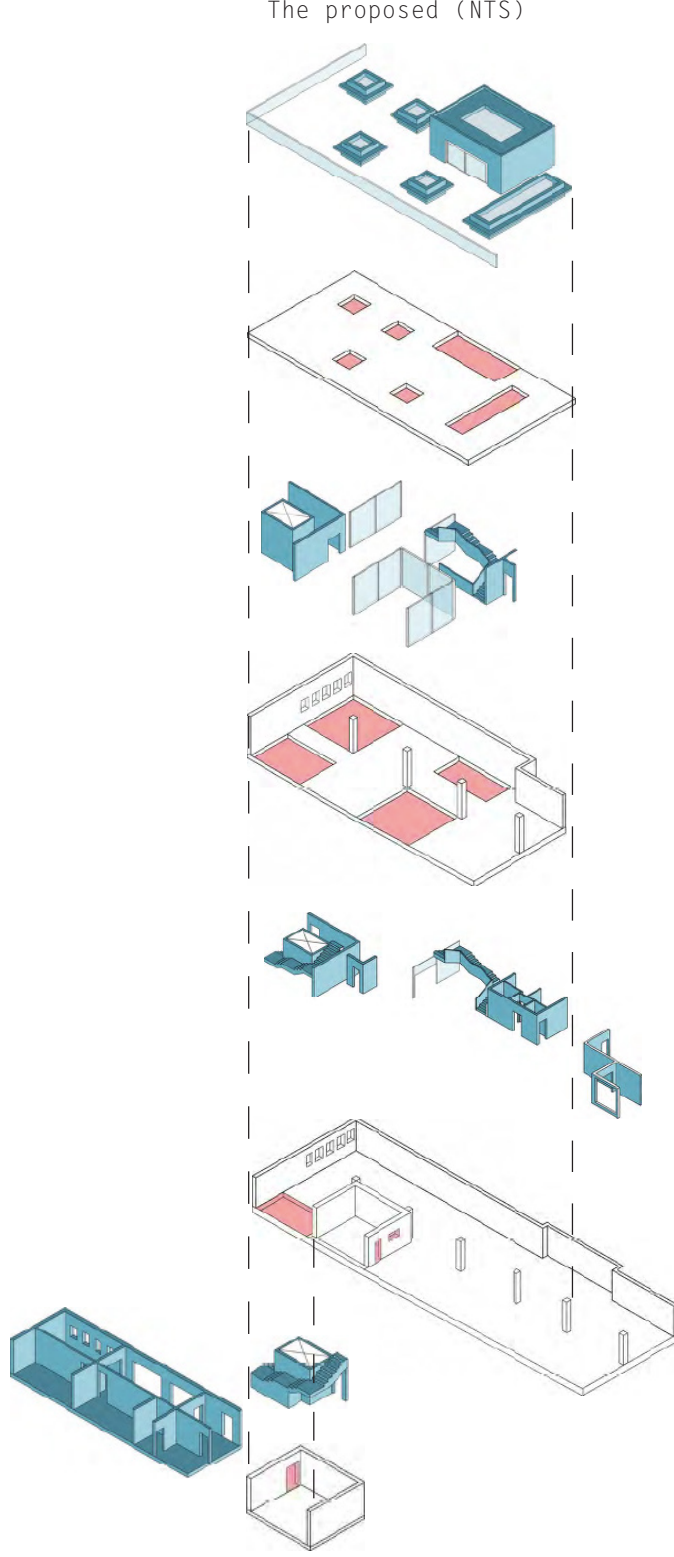
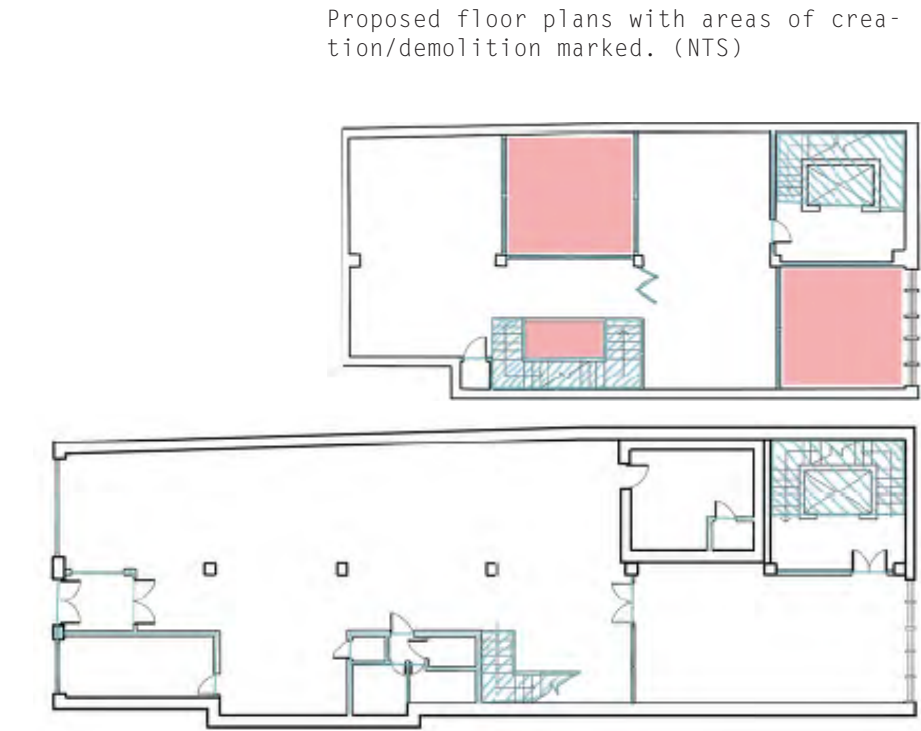
VENTILATION STRATEGY



THE UPCYCLING PROCESS

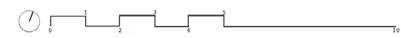


1. Old furniture and materials are donated to charity shop via the drop off on lower ground floor.
2. Donations are brought up to the first floor where they are sorted into useable and unusable items. They are further sorted by category.
3. Trained designers will study the items and think of new creative ways to re-purpose/upcycle the items in their studio.
4. Once a design has been agreed on, they use the woodwork workshop to disassemble the item/attach new parts/create anew item from existing parts.
5. The textile workshop will be used for more material based items such as the re-upholstery of chairs.
6. Finishing touches such as painting, glossing etc will be added to the item.
7. The finished item will be presented in the ground floor retail space or used in the ground floor cafe space where they can be purchased by visitors.

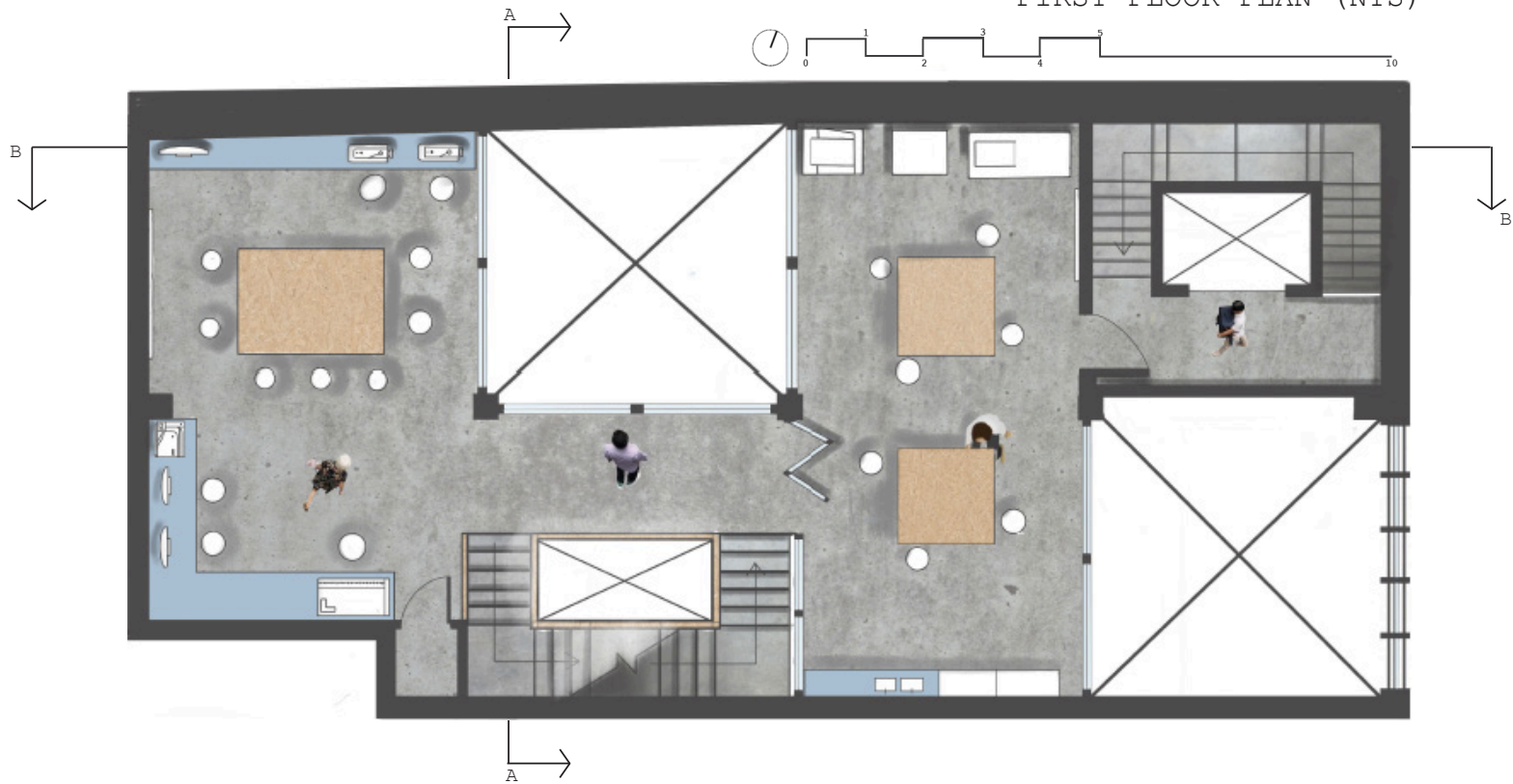




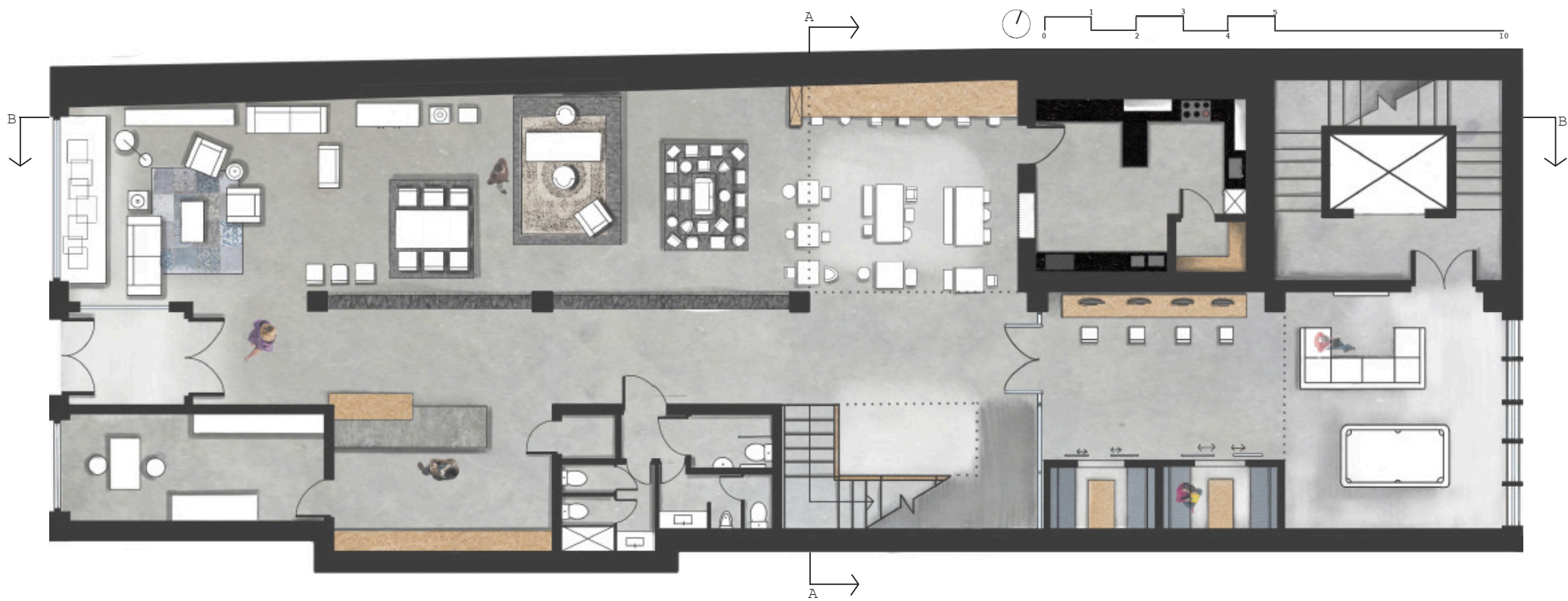
AXONOMETRIC (NTS)



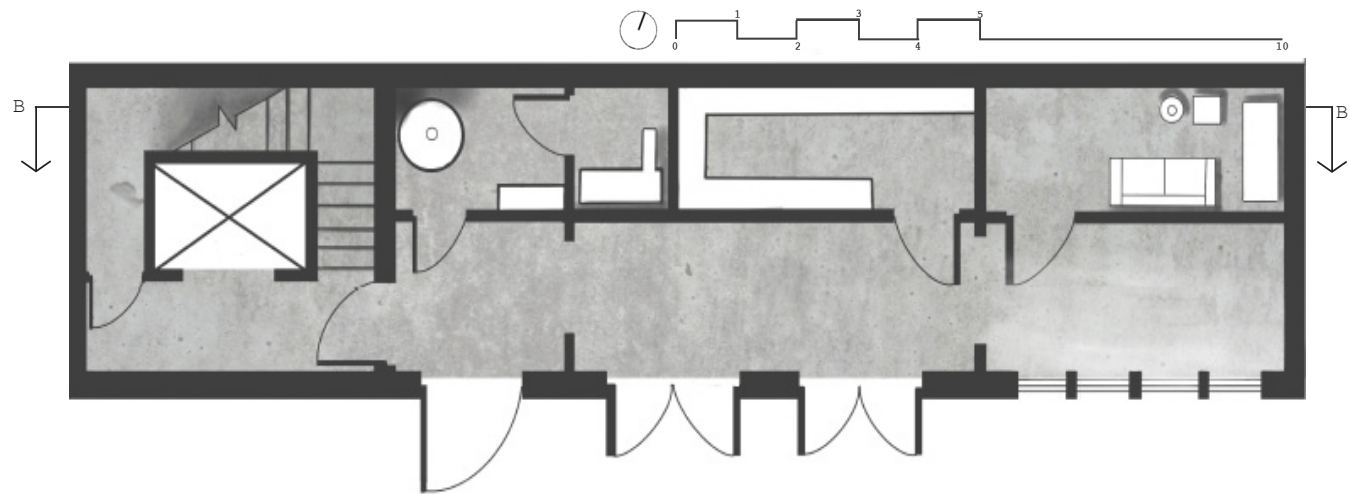
FIRST FLOOR PLAN (NTS)



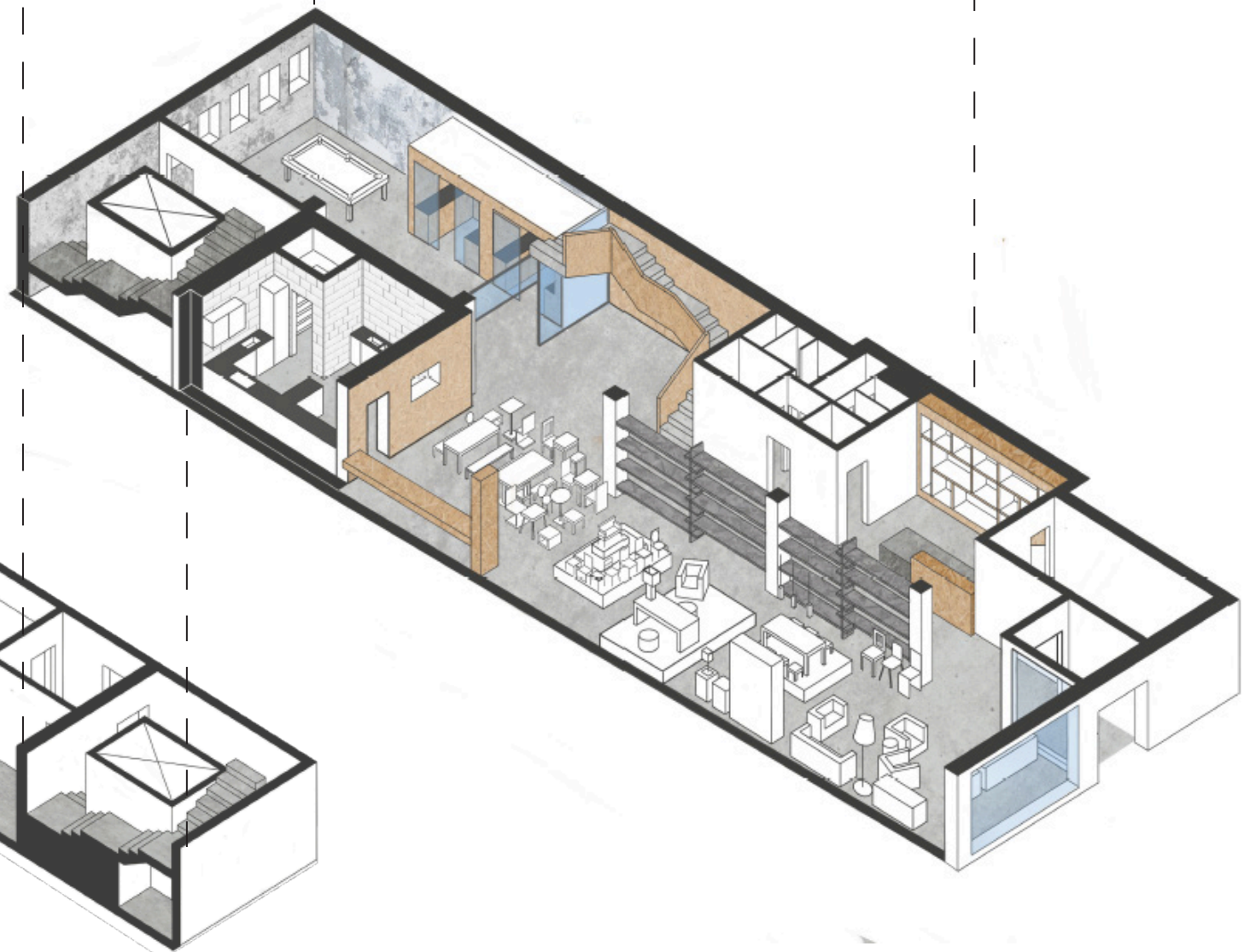
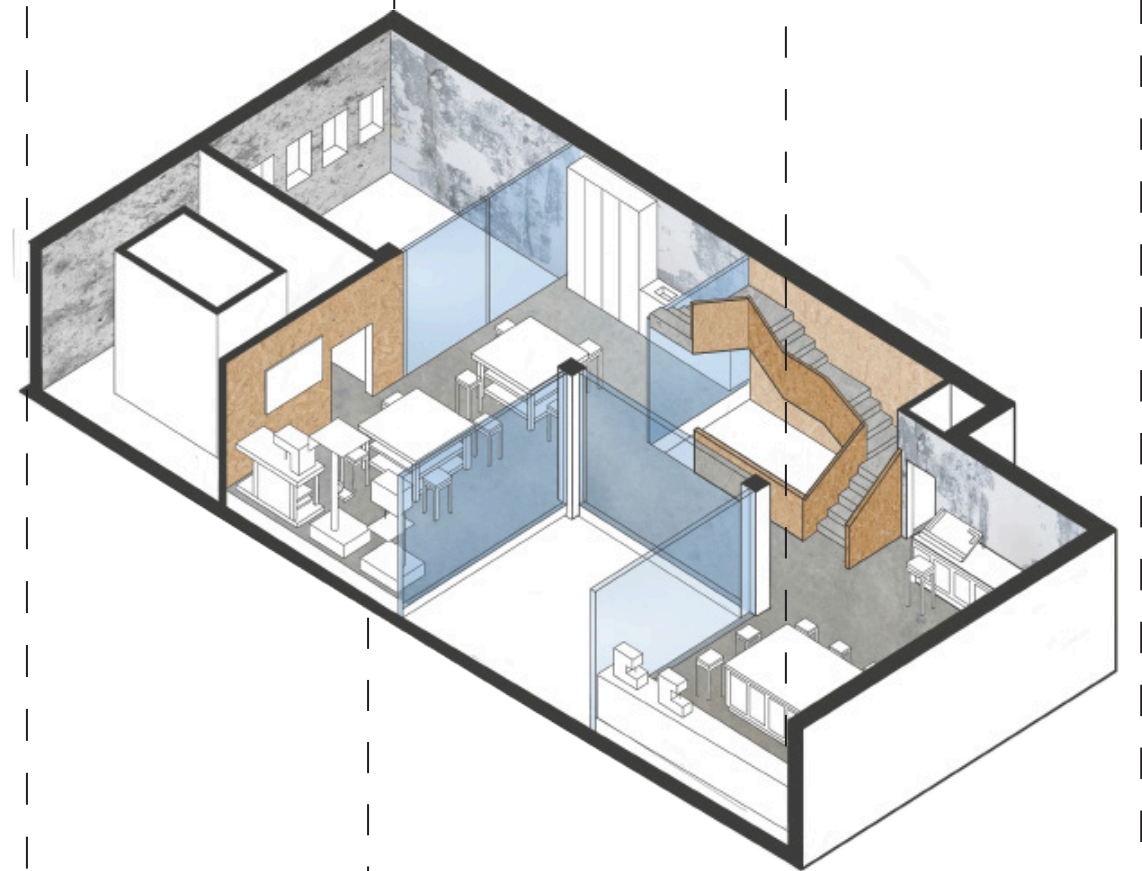
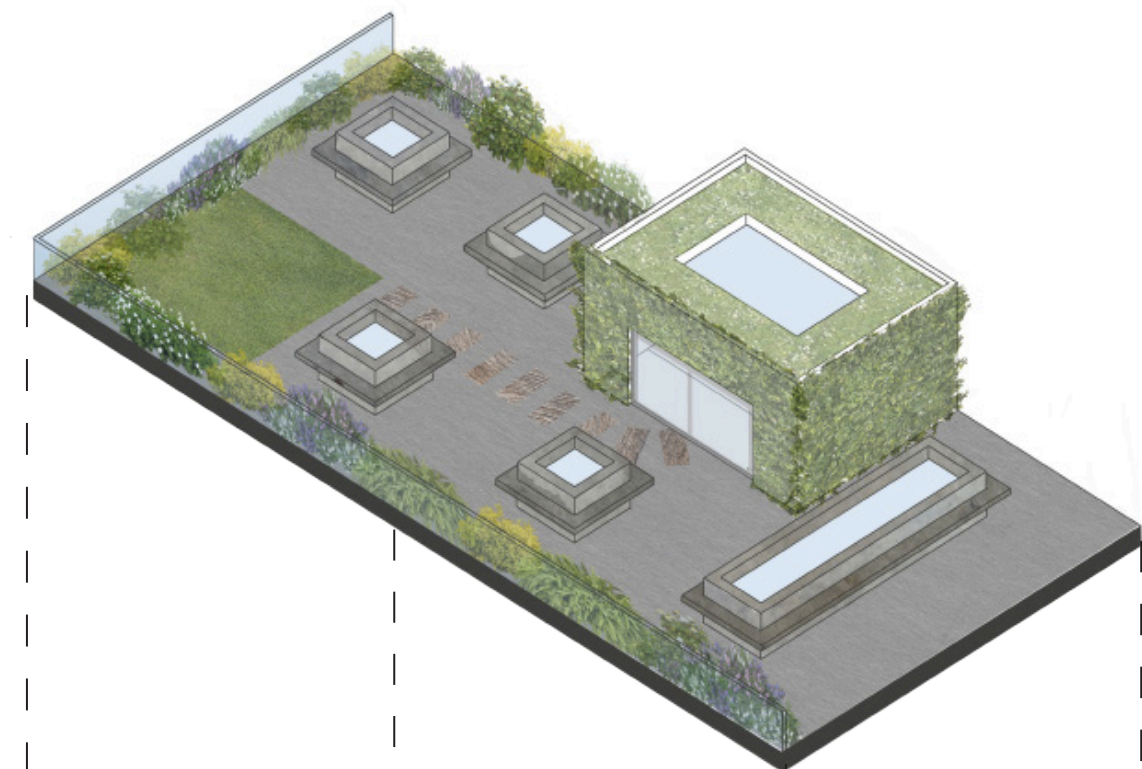
GROUND FLOOR PLAN (NTS)



LOWER-GROUND FLOOR PLAN (NTS)



- |                          |                    |
|--------------------------|--------------------|
| 1. fire exit             | 17. cupboard       |
| 2. donation drop off     | 18. disabled WC    |
| 3. donation sorting area | 19. male WC        |
| 4. donation storage      | 20. female WC      |
| 5. material storage      | 21. PC zone        |
| 6. bio-mass boiler room  | 22. support pod    |
| 7. plant room            | 23. chill zone     |
| 8. circulation           | 24. circulation    |
| 9. cleaning cupboard     | 25. kitchen        |
| 10. lift                 | 26. pantry         |
| 11. entry                | 27. landing        |
| 12. retail zone          | 28. design area    |
| 13. cafe                 | 29. textile area   |
| 14. circulation          | 30. training space |
| 15. office               | 31. workshop       |
| 16. P.O.S.               |                    |





MATERIALTY & FINISHES



Black steel - 6mm thick

This will be used as a finish on door Handels, window and door frames and the stair handrail. This material will add to the industrial aesthetic of the retro-fit.



OSB/2 - 18mm thick (black painted)

Used in shelving in the retail space as durable, load boarding and has industrial aesthetic.



Polished concrete

This will be used to create the floors and bespoke sale desk. Recycled concrete can be used as aggregates which will utilises waste materials. It is also very hard wearing and requires little maintenance.



Exposed concrete

This will be seen in the structural elements of the building after the existing plasterwork has been stripped away. This will add to the industrial, upcycled aesthetic of the project.



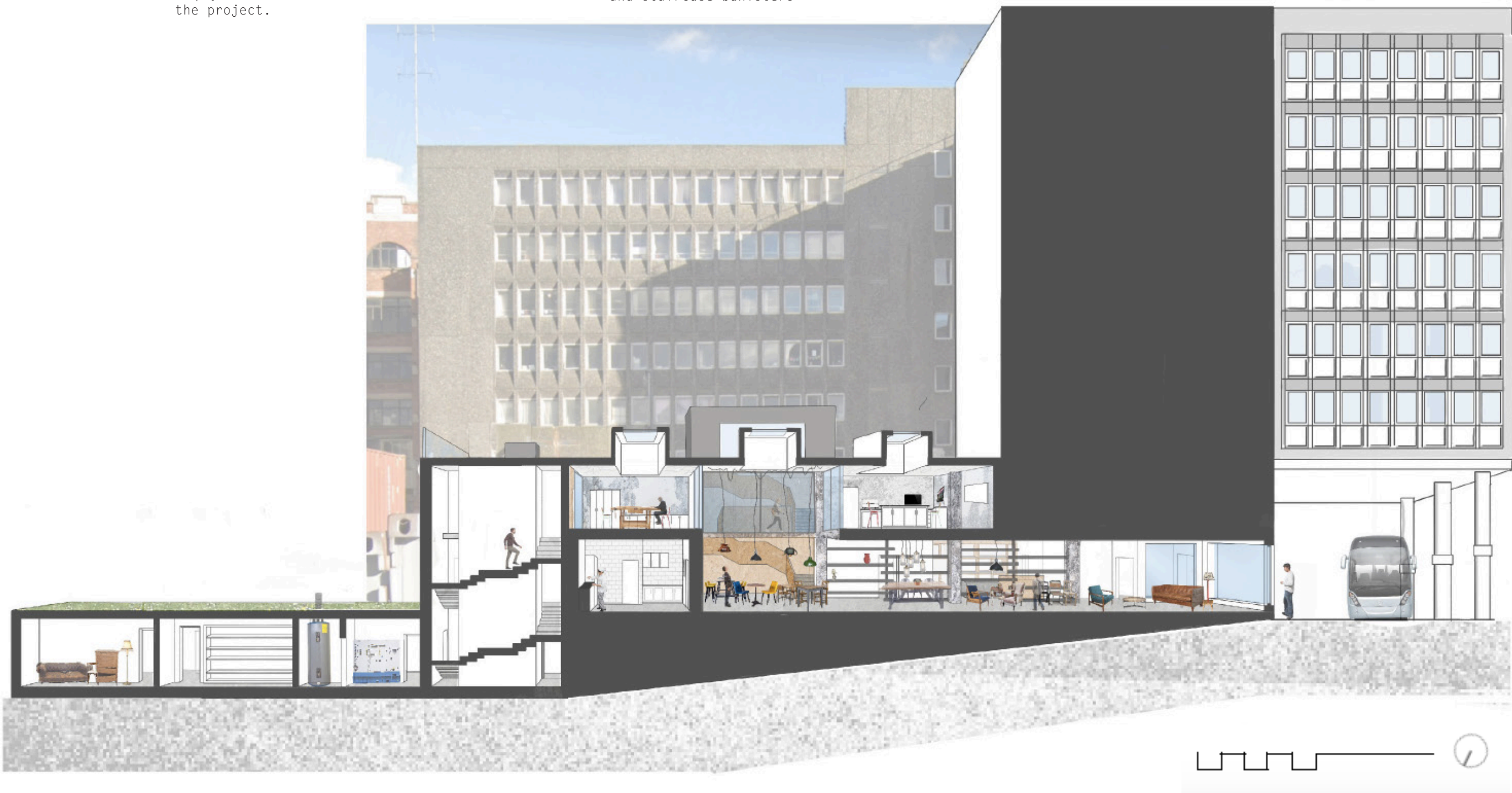
OSB/2 - 18mm thick

To be used as one of main materials as durable, load boarding and has industrial aesthetic. Will be used to clad walls, construct shelving and staircase banisters



Exposed plaster

This will be created after the paint is stripped off the existing walls.



The retail space/reception



The workshop



The YMCA space





SUSTAINABILITY APPROACH

- Biomass boiler - As mentioned before, a biomass boiler will be the main way of heating the building. This will be done by using non salvageable pieces of wooden furniture, chopping them up on site using a wood chipper into pellets and using them as fuel in the boiler. This is a sustainable way of heating the building as it disposes of waste and means the building won't rely on fossil fuels, making it more environmentally friendly. There will also be a constant supply of fuel due to the large amount of donations the YMCA receives.
- Green roof/green wall/roof garden - Due to the lack of green space surrounding the site, the introduction of a roof garden will be a welcomed addition. This also has environmental benefits as it allows wildlife and insects to have a place to live. The addition of a green roof and walls will help the buildings carbon footprint by slightly offsetting the carbon it produces in upcycling the furniture and the general running of the building.
- Stack ventilation - The use of stack ventilation in the majority of the building will reduce the need for mechanical ventilation which will reduce the buildings energy consumption.
- Upcycled loose furniture for sale and in cafe - As the new building will house a furniture workshop, all loose furniture and bespoke furniture will be made in on site from donated items from the general public. This will reduce the need to buy in new items and will reuse existing materials, making the YMCA more sustainable.
- Component sizes - All bespoke furniture to be made will be designed to mm precision in order to minimise waste.
- Deconstruction - The prosed demotion of existing concrete floor plates and facades will be done sympathetically so that the materials can be used elsewhere in the building (such as the concrete sale counter).
- Materiality - The majority of the materials used in the building will be reclaimed. This will mean a minimum amount of items will be bought in and make the most of reusing existing materials. The timber used in the building will be from renewable sources in order to stop de-forestation.
- Sale of items in cafe - Consumer items such as coffee, tea, cakes etc will be made using fair-trade products. Fair trade items ensure the products are from sustainable sources, which in the long term will help wildlife conservation, reduce de-forestation and reduce water consumption to grow the items.
- Using green energy suppliers - Due to the buildings orientation, it would be un-economical to add solar panels or wind turbines to generate energy on site. However, it is possible to use green energy suppliers such as ESB energy who provide energy from 100% renewable sources (mostly in the form of solar and wind).

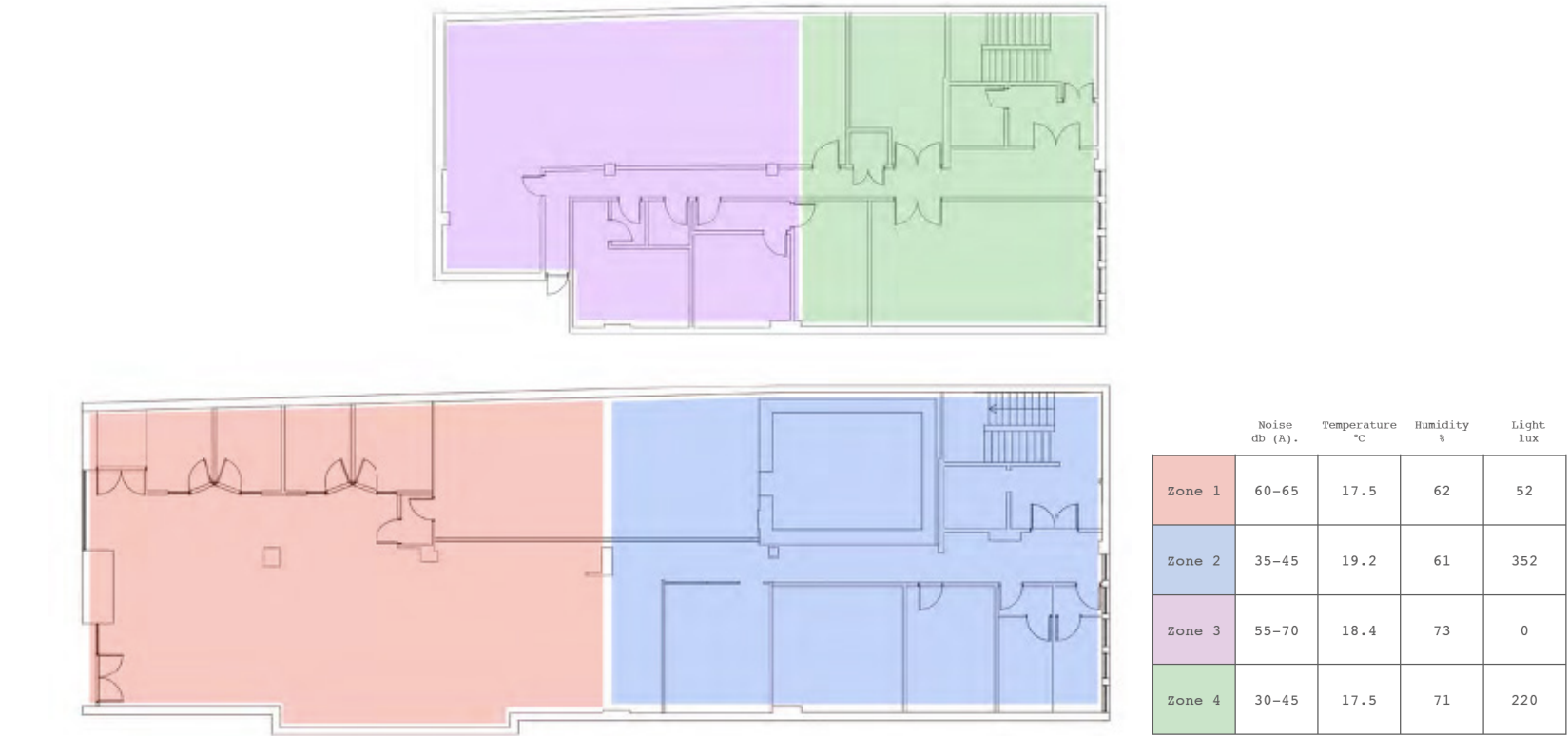


The biomass bolier



An example of the green roof

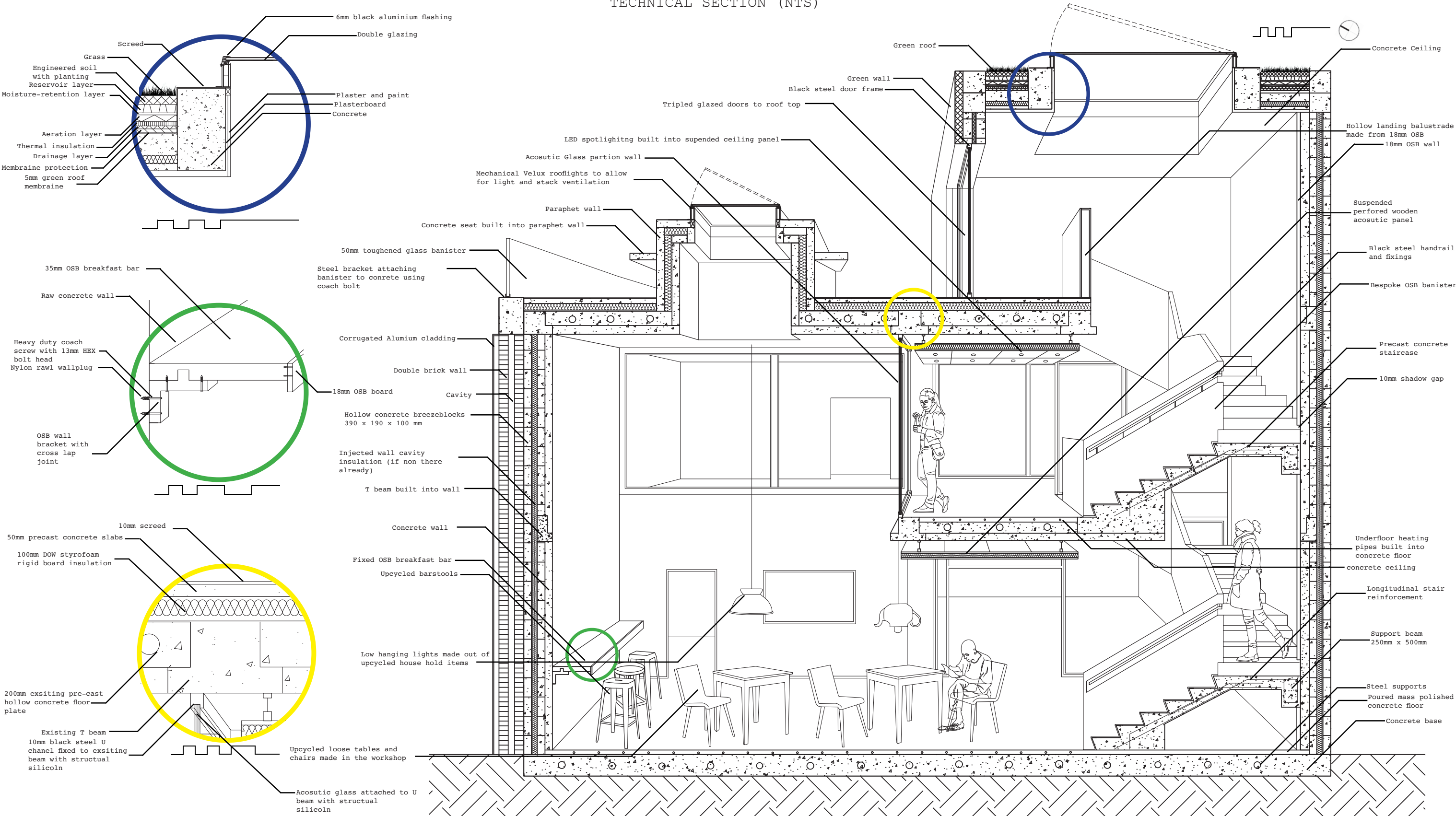
Existing site



Influences:

- Noise - Zone 1 and 3 are at the front of the building meaning they face the main road which is a heavily used bus route and is close to the city centre. The nose is typically louder in zone 1 as it is right on the street.
- Temperature - This is relatively low due to the lack of insulation in the building. There are few windows in the building so little solar gains meaning little heat gain. The site is also located in the North East of England which is colder than the rest of the UK. Thereis also a cold wind coming from the North East.
- Humidity - This is high on the first floor due to poor ventilation and insulation in the building. This leads to mould and damp growing.
- Light - There is little light entering the space due to the orientation, the long building plan, the over hand from commercial union house and the overshadowing from other nearby buildings, leading to little direct sunlight.

TECHNICAL SECTION (NTS)



Proposal

Room/space	Summer temperature °C	Winter temperature °C	Air change rate Per hour	Noise level Db. (A.)	Lighting Lux
Workshop	16	16	10	55	500
General spaces:					
- Entry	21-23	19-21	6	45	150
- Circulation	21-23	19-21	6	45	100
- Toilets	21-23	19-21	10	45	200
- Reception	21-23	19-21	6	45	200
Office	20-22	20-22	6	40	300
Kitchen	18-21	15-18	25	55	500
Cafe	24-25	21-23	12	45	200
Retail	22-24	20-22	10	45	250
Training	21-23	19-21	5	35	300
YMCA area	20-22	19-21	7	40	300

- Temperature: The new heating system of underfloor heating will allow each space to the temperature it needs to be. This can easily be changed in different areas as a thermometer will be used to turn the heat up or down if needed. This can be done on a room by room basis.
- Ventilation: The proposed scheme will use stacked ventilation with areas such as the workshop and kitchen having extra purge mechanical ventilation to get rid of debris, fumes and kitchen smells.
- Light: The addition of skylights will allow more natural light into the space whilst more artificial light will be added to ensure spaces that need extra light will get it.
- Humidity: Due to extra stack ventilation, there will be a lower level of humidity meaning less mould. The added insulation will stop the building becoming damp.
- Noise: Acoustic barriers such as panels in the walls or acoustic glass on the first floor will reduce the amount of noise in the building.