A k o e

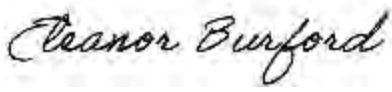
A connective well-being space for the deaf and hard of hearing community.

Eleanor Burford

1. How can interior architecture elements through biophilia design principles support the wellbeing and interior experience of the hard of hearing, deaf community, and their relatives/friends/carer?

1.1. How can interior architecture elements contribute to interior experience within the leisure and learning environment?

1.2. How do the hard of hearing and deaf community experience interiors?



Eleanor Burford
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Abstract

Deaf individuals struggle in the built environment. Most public buildings are designed by hearing architects, unaware of the specific requirements of the deaf community, as they would with a physical disability. (Youde, 2020)

This document aims to analyse, in-depth, the necessities for deaf individuals in the built environment. The following chapters will explore the issues deaf individuals face and strategies that can be used to overcome the design problem.

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1. Introduction

There are more than 50,000 deaf children in the UK. Half of these are born deaf, half become deaf during childhood. As a child being deaf has a serious impact on their educational and social development. Across the UK deaf children struggle due to a lack of support, 78% of deaf children attend mainstream school where only 6% of these receive specialist support. This has an impact later in life with deaf people being twice as likely to be out of work compared to hearing individuals. (National deaf children's society)

Akoe aims to create a connective well-being space which will provide a place for deaf children to receive the support they lack whilst attending mainstream school. (See figure 1) Through in-depth research, a design intervention will be generated, responding to the issues that deaf individuals face in the built environment as well as enhancing mental well-being through strategies discussed in the literature review and precedent studies.

Figure 1
Conceptual collage of design proposal
(Burford, 2022)

2. Literature Review

2.1 Introduction

This chapter analyses different texts to aid and generate a strong design proposal. Deaf individuals focus heavily on their vision and touch as a sense, using visual cues for wayfinding and spatial orientation. They also have a heightened awareness in their peripheral field of vision, meaning over stimulation/use of colour and interior finishes can be a distraction when communicating through sign language.

This literature review table provides an in-depth analysis into the importance of vision and senses in architecture, as-well as the importance of lighting and nature within interiors to enhance the well-being of the user.

Source	Dependant Variables	Results
Channon, 2018 (1)	Buildings and well-being.	Joy should be the core of the design, this is often lost over the focus on carbon emissions, safety, and profits. The quality of the design of buildings we spend our time in can significantly impact our happiness.
(17)	Natural light.	**Increased** natural light within a building is known to have a **positive impact** on people's mental wellbeing. Spaces with no access to natural daylight give individuals no reference to the outside world. This can be disorienting and distressing. This is especially important for the deaf as they can't hear what is going on around them, visual becomes more important. High level windows should be used where privacy is needed e.g., bathroom – this allows for natural light without effecting privacy.
(23)	Artificial light, considering light temperature.	Studies have shown a lower light temperature triggers production and release of melanin – resulting in relaxation. **Soft white light** = cosy and warm, resulting in **relaxing** environment. Bright and cool whites = energetic and help give a better contrast between colours, these colours can feel sterile – avoid in relaxation spaces.
(29)	Touch, importance of tactile materials.	Touch is our **core sense**, it is closely linked with our emotions. Touch helps us to focus on the moment (on the present) – fundamental for mental well-being. Touch can be utilised within design using tactile materials such as exposed brick and timber rather than plain man-made finishes. Touch important to connect us to nature.
Scott, 2008	Process of intervention, re-purposing existing buildings	The process of re-purposing a building is to not damage the existing fabric but to **celebrate it's past** and allow it to survive through a new purpose. 3 stages to altering an existing building - **1. Stripping back** - understanding the host building. **2. Making good** - repairing and replacing any existing fabric that is possible. **3. Enabling works** - demolishing/removing any existing elements which prevent the progression of new work - justification needed. - understand the grid system and relevance within Thorpes Warehouse.
(53, 55, 63)	Nature and its importance to wellbeing – how to incorporate into interiors.	Spending time in nature is proven to improve **happiness** and mental well-being. Improves stress, **memory** and makes us kinder and more creative. Emotional rewards are associated with caring and nurturing for living things, such as plants. Biophilic design proven to **reduce stress** and increase the sense of being home. Brought into interiors through **green walls**, integrating existing trees, providing **views** of the outside. Integrating or giving views of **water** = massive positive. Water = calming influence. (Link water to the touch)

Pallasmaa, 2012 (55)	Architecture and silence – the importance.	"a powerful architectural experience **silences all external noise**; it focuses our attention on our very existence" – deaf individuals should not have a different architectural experience to hearing individuals. If the design is strong enough, the experience should come from the visual and how the building emotionally makes you feel. "Architecture presents the drama of construction silenced into matter, space and light"
(27, 28)	Vision and touch	Visual experience = confirmed by touch. Confirms the need for tangible aspects within design. Vision and touch work together to create a **whole experience**. "Vision separates us from the world whereas the other senses unite us with it" Tangible aspects working with the visual will **connect** user to building. Touch is seen as the primary sense; other senses are an extension of this – vision being the most important.
(21)	Importance of vision	Vision is seen as an extension of touch – touch then visualise. Regarded as one of the most important senses but needs to be supported by the other senses to be maximised. We don't just walk through a building and experience it through the eye, when other senses are stimulated it becomes a whole **experience**. Touch **integrates** our experiences within us.
Bauman, 2011	Space configuration, Shapes	It's important to have enough open space to allow deaf people to communicate through sign, open space also allows for deaf people to see more of what's going on. Using transparent materials to separate spaces or allowing glimpse of what's going on = bonus. Too much open space can create negative effect, as noise/vibrations may travel creating interference (less comfortable space for deaf). Try to configure spaces in circles or arcs, allows for optimal views. Allows for optimal **connection** to other individuals and encourages communication. Configure space so that views of all other spaces incorporated. Linear configuration = bad
Calligeros, 2015	Colour green and education/learning	The colour **green** helps to improve **concentration** and **boost attention**. The colour is easy on the eye and promotes restfulness and calm, improving efficiency and **focus** as well as being beneficial to mental wellbeing.
Strang, 2005, 92–120	Water, society, connection	Water has a powerful religious link, due to its 'purity'. The ability for water to 'flow' has metaphorical links to **inclusion** and **absorption** – supports concept of connectivity and inclusion into the wider society. Allowing the 'flowing together' of different individuals, **merging** separate worlds into one. Water links communities topographically – (links to the river Trent beside chosen building.)
92–120	Water, wellbeing, senses	Water is vital to human life, perhaps that is why people feel 'at one' with water, it's an innate feeling of **connection**, knowing it's vital for life. Physical contact with water = important **sensory experience** – it must provide thermal equilibrium to be pleasurable. "Water is visually compelling", can be described as hypnotic. Historically, water was used as a mirror for people to see themselves, a time for reflection, water provides a strong sense of being to an individual when looking over calm / still water.
Nevzati et al., 2021	Water, wellbeing, interiors, educational environments, biophilic design	Water elements = one of the most effective biophilic design elements to decrease stress and increase mood. Direct access to nature within an interior makes users feel more **connected** with the space. Physical contact with water and plants = reduce stress and anxiety. Biophilic interiors increase concentration, creativity, and motivation – needed within the space I intend to create. **Encourages enriched social interaction**. Studies have shown that individuals feel less stressed within an **educational** environment when subjected to water environments. Favoured water features included interior water walls, fountains, and waterfalls. (As opposed to aquariums, photos of water / water themed paintings.) Biophilia = innate need for humans to be in contact with nature. Individuals feel most connected to nature when they have a **direct view** to it (views of the river from Thorpe's Warehouse to be maximised.)

Hunt & Boyd, 2018	Altering existing buildings for a new purpose	New work should mould to the old rather than the old being adapted to cater for the new. New and old should not compete – the new should not replicate or pretend to be historic. Historical evolution and core must be understood to **appreciate the building's significance.**
Shalev et al., 2020	Importance of vision in deaf individuals	Deaf individuals have an increased awareness in the peripheral visual field compared to hearing individuals. This means that they are more easily distracted from visual stimuli compared to hearing individuals. This can be detrimental when trying to communicate through sign language. – Design must be focused and have few visual distractions.

Figure 2
Literature Review Table
(Burford, 2022)

2.2 Synthesis

This literature can be categorised into 4 common themes: Biophilic design, senses in architecture, colour theory and spatial configuration. These themes work together and support each other in terms of design.

Channon, 2018 states the importance of nature and its positive effects on mental wellbeing, highlighting the key importance of providing views to the outside, even better, integrating green spaces within the interior. The key importance of water and its calming properties is also noted. Nevzati et al., 2021 supports this idea of water being a powerful biophilic design strategy conveying the importance of physical contact with water and plants in reducing stress and anxiety thus, creating a strong connection between the user and the interior.

Strang, 2005 expresses the importance of physical contact with water on the sensory experience of a user. It allows the user to feel a sense of being and connect with the surroundings. This is supported by Channon, 2018, who states that touch is our core sense. It is fundamental for mental wellbeing as well as providing a physical connection between the user and interior. Tactile materials such as exposed brick and timber can be utilised to connect the user with nature. It can be argued sight is one of the most important senses in architecture, however, is most powerful when confirmed by touch. The user of the building does not need to hear to encounter a powerful interior experience; "a powerful architectural experience silences all external noise; it focuses our attention on our very existence" (Pallasmaa, 2012).

A powerful interior space must be designed with repetitive visual cues, especially when designing for the deaf or individuals with non-visible disabilities. An example of this would be the repetitive use of colour. For example, if all entrances to spaces were signed with the colour green, users can understand that green is a visual cue for entry. (Bauman, 2011) It has also been proven that the colour green helps to boost concentration and reduce stress/improve mental wellbeing, due to its associations with nature (Calligeros, 2015).

2.3 Conclusion

The literature from these sources have been influential in guiding my research into the key elements for designing for the deaf community and how well-being can be impacted through the design of interior space. Collated, this research will help to aid a rich and successful design intervention.

Akoe aims to resolve the widespread lack of sympathetically designed public buildings for the deaf community.

The design intervention, designed for deaf children and their families, within the east midlands, will provide a sense of well-being and connectivity using conceptual design strategies such as biophilic design and colour theory. This will initiate better communication; breaking barriers deaf children face every day. Thus, enhancing mental well-being, self-esteem, and educational outcomes.

3. Contextual analysis

3.1 Introduction

When designing a public building for deaf, it is important to consider locational factors such as noise levels and transport links. A site and context analysis was conducted to investigate these factors and draw attention to any problems the location may bring to the design. Research has also been conducted into the user and client to ensure all design criteria can be met.

3.2 Site Location

Thorpes Warehouse (image 1) is in the historic market town of Newark on Trent in the East Midlands. The site is situated on Millgate, Southwest of the town centre. The Northwest elevation of the building sits beside the river Trent basin (Image 2) (Figure 3). Research into water and its positive impacts on mental well-being proves the location of the building on the river is perfect for the proposed use. The surrounding area is mainly of residential use with some offices and leisure.

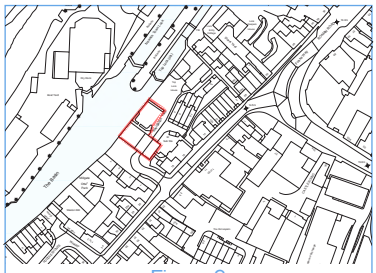

Figure 3
Site Location (NOT TO SCALE)
(Info from digimap, Burford, 2022)

Image 1
Thorpes Warehouse, Front Elevation
(Burford, 2022)

Image 2
Location of Thorpes Warehouse in relation to River Trent basin (Burford, 2022)

Figure 4
Newark on Trent transportation links (NOT TO SCALE)
(Burford, 2022)

3.3 Transportation Links

Newark is an easily accessible town, whether it be by train, bus, or car. It has two train stations and a bus station all of which are in walking distance to Thorpes Warehouse. Newark also has direct links to major road links such as the A46, A1 and A17 (Figure 4) making it easily accessible by car, there are 15 parking spaces on site.

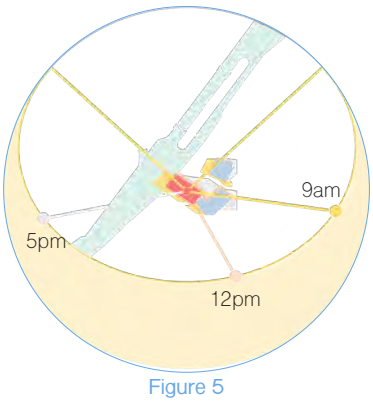

Figure 5
Thorpes Warehouse sun map (NOT TO SCALE)
(Suncalc - Burford, 2022)

3.4 Sun analysis

Natural light within a building is vital for positive mental well-being (Channon 2018). As my design intervention will be a well-being space, natural light will need to be maximised. The building has 71 openings which will maximise the light entering the interior space. Figure 5 Displays how the sun moves around the building throughout the day.

In the summer months the sun hits the Northeast elevation in the morning and the Northwest elevation in the evening. At midday the sun hits the Southeast elevation which currently possesses no window openings and is sheltered by a neighbouring building. During the winter months (November, December, and January) artificial light would be needed from 4pm onwards as natural light is limited from this point. As for the interior, the ground and first floor will require more artificial lighting consideration than the upper floors as there are more obstructions from the natural light, including the archway which disconnects the Southwest side of the building from the Northwest side at ground floor and first floor level. (See appendix for in – depth sun analysis)

3.5 Noise Analysis

It is important, when designing for the deaf and hard of hearing community that background noise and vibrations are kept to a minimum (Youde, 2020). A noise survey has been conducted which can be seen in figure 6 displaying where the main sources of noise would occur. Thorpes Warehouse sits in a quiet location away from the central busy hub but within walking distance to all amenities. Millgate is a relatively quiet area, with little road and foot traffic running through. Thorpes Warehouse sits on a dead-end street meaning there will be no passing road traffic. To the Northwest of the building sits the River Trent Basin, this is a very quiet and peaceful area of Newark on Trent.

Figure 6
Thorpes Warehouse noise map (NOT TO SCALE)
(Burford, 2022)

3.6 Site and Building History

Newark is rich in medieval historical importance, the location being particularly significant. The development of the River Trent and the Great North Road (A1) were the main driving forces for the evolution of the market town. In 1772 Newark became a busy inland port, using the river to transport cargo such as wool, coal, grain and timber to warehouses located along the millgate area for storage. (Figure 7) (The Nottinghamshire heritage gateway)

Figure 7
Site History Collage
(Burford, 2022)

Thorpes Warehouse was originally built in 1872 as a malt and barley store, storing and processing malt and barley, which arrived via the river Trent, ready to be transported by horse and cart once processed. (Figure 8) Thorpes Warehouse is a 5-storey building featuring a combination of small and large openings, originally used for lifting and dropping goods in and out of the working warehouse.

Figure 8
Building History Collage
(Burford, 2022)

Internally, the building is open plan, constructed of timber floor levels and iron columns. The most dramatic alteration to the existing building is the archway through the structure, this was constructed in the early 1980's to connect the Navigation yard on the North to the road on the South. The building is Grade II listed as of 13th August 1992. (Historic England) (See appendix for survey drawings/ photos.)

3.7 User Analysis

Newark on Trent is in Nottinghamshire, East Midlands (Figure 9). Nottinghamshire is home to Queens Medical Centre housing a specialist ENT (ear nose and throat) department. This is where young children with hearing issues in Newark and the surrounding area would be referred to. The deaf population of the East Midlands is 21, 614. (UK deaf sport)

The British Deaf Association states that 90% of deaf babies are born into hearing families, over 75% of these attend mainstream schools (Figure 10).

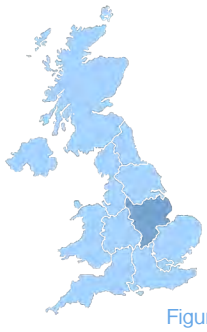

Figure 9
Location of East Midlands in the UK
(Burford, 2022)

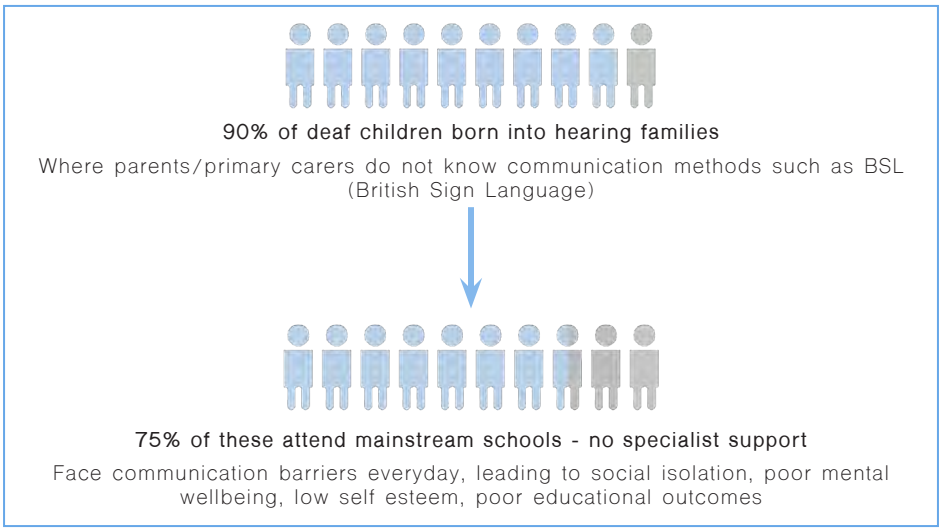

Figure 10
Deaf children born into hearing families
(British Deaf Association – Burford, 2022)

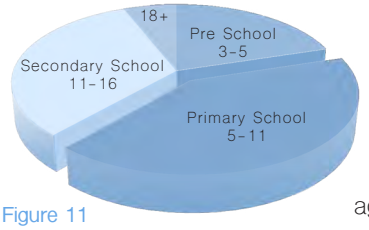

Figure 11
Deaf child population in the East Midlands – UK deaf sport
(Burford, 2022)

The highest proportion of school children in the East Midlands with hearing loss is of primary school age (5–11) (Figure 11)

This is a key educational and social development age where a well-being / connective communication space would be beneficial for helping lessen these issues.

As identified in Figure 11 the largest proportion of deaf children in the East Midlands are aged between 5-11. This will be the target user for my design intervention. (See figure 12)

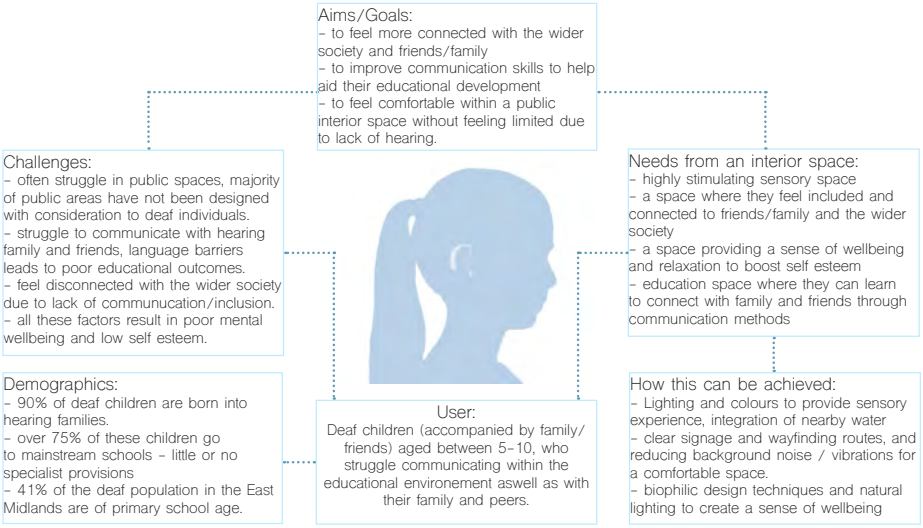

Figure 12
Primary user profile
(Burford, 2022)

There will be two secondary users to my space; the parent/carer and family of the deaf child, and the staff who support the users' experience. (See figures 13 and 14).

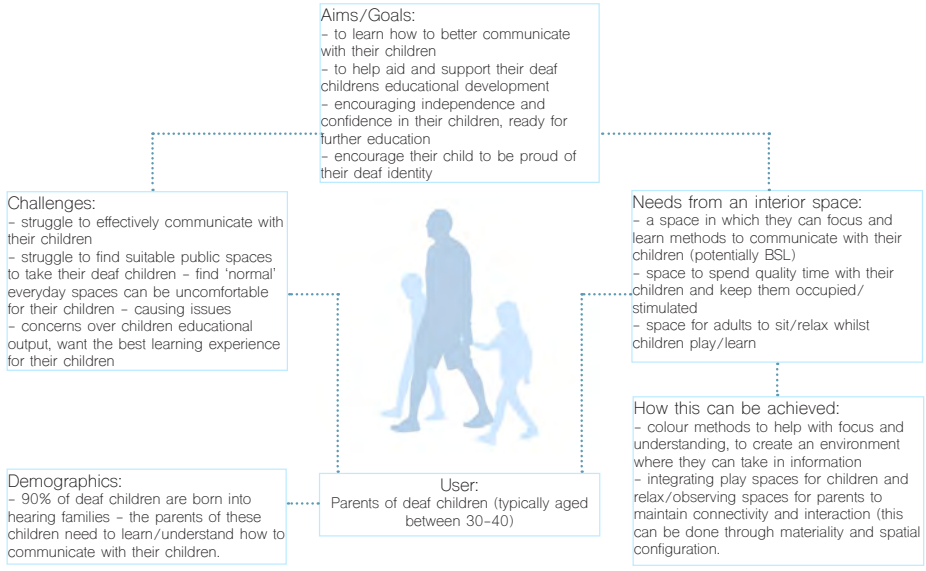

Figure 13
Secondary user profile - Child's carer
(Burford, 2022)

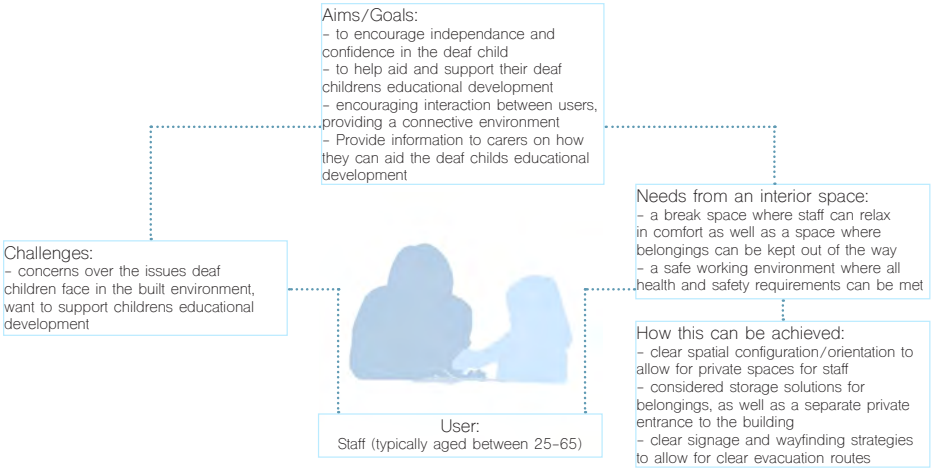

Figure 14
Secondary user profile - Staff (Burford, 2022)

3.8 Client Analysis

The client for this project will be the RNID (Royal National Institute for the Deaf). Their aim is to make life inclusive for people who are deaf, have hearing loss or tinnitus.

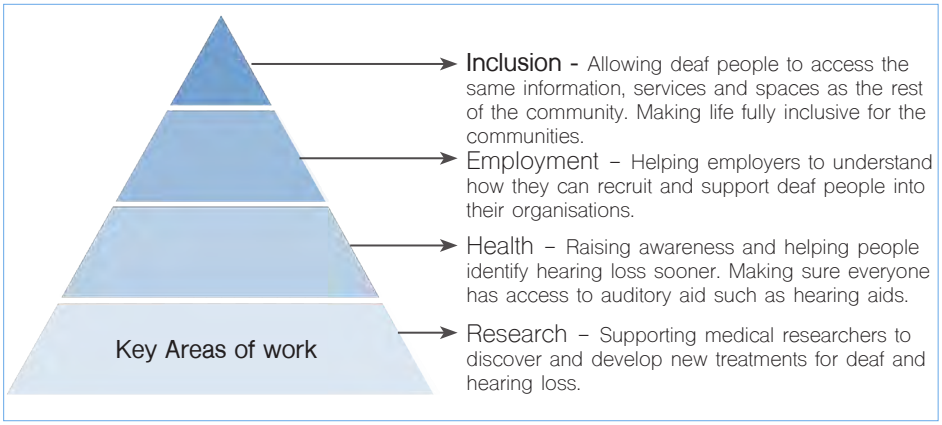

Figure 15
RNID 4 key areas of work - info from RNID website (Burford, 2022)

The RNID have 4 key areas of work (See figure 15). I will be focusing on the area of inclusion; creating a space in which deaf children can feel less socially isolated from their family and friends and more connected with the wider society.

3.9 Conclusion

To summarise, Thorpes Warehouse is an ideal location for a deaf well-being centre. With the building being located within a quiet area away from external vibrations but close enough to all transport routes (Figure 4). The location of the river beside the building is perfect for incorporating a water feature within the building, supporting the well-being properties of water and the sensory experience for deaf children.

This space is easily accessible to all users within the East Midlands and wider and has all the facilities to cater to the primary user (deaf child aged between 5-11). Challenges and needs have been identified within the user analysis, as well as interior strategies to fulfil the needs of the user; this will be the driver for the strategic approach to my design intervention.

4. Case Study Review

4.1 Introduction

When designing a well-being space for deaf individuals it is important to analyse existing precedents to gain a deeper understanding of spatial arrangements and what elements are needed to create a comfortable environment and successful design intervention. The case studies relevant to the host building and design problem, provide valuable information to inform design decisions within this project. (see appendix c for case study table and recordings)

List of case studies:

4.2 The Deaf Academy
(Stride Treglown)

4.3 Playful Roaming Nursery
(Philippe Gibert Architecte)

4.4 London Design Museum
(Allies & Morrison, John Pawson, OMA)

4.5 WeGrow Nursery
(Bjarke Ingels Group)

4.6 Salk Institute
(Louis Kahn)

4.7 Thistle
(3D Reid)

4.8 Northampton International Academy
(Architecture Initiative)

4.2 The Deaf Academy

Architecture practice: Stride Treglown
Location: Exmouth, UK
Year: 2020
Function: School campus, with spaces bespoke to deaf individuals (teaching space)
Approach: 'Reverse Inclusion' philosophy and principles of 'DeafSpace'

The brief for this project was to design a bespoke learning space for young deaf individuals.
The driving force behind this was 'reverse inclusion' focusing primarily on the needs of deaf individuals, then altering the final design to make inclusive for hearing individuals.

Design Strategies:

Unobstructed Sightlines - Spaces designed to be large enough to be flexible and provide space for furniture to be arranged in circular/semi-circular arrangements, allowing optimum visual connection between users. (Figure 16)

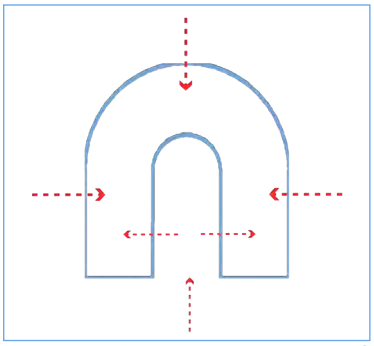

Figure 16
Diagram showing visual connection in horseshoe configuration (Bauman, 2011) - drawn by (Burford, 2023)

Considered Lighting - Anti-glare glazing controls sunlight entering the building, as well as hoods on the exterior of the windows. When designing for the deaf, shadows and silhouettes need to be controlled for users to see clearly for communication through sign language.

Circulation and Spatial Configuration -
Corridors and circulation space has been designed to be wide enough to allow at least two signers to communicate side by side whilst another person passes by. The space has been kept open, using glazing where possible for door/ openings to provide views between rooms. (Figure 17)

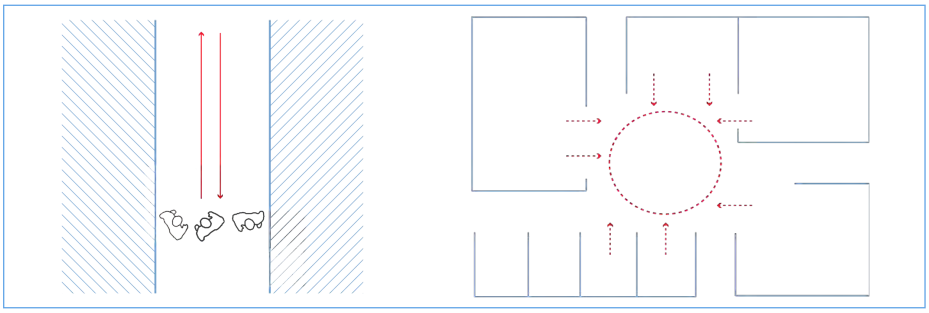

Figure 17
Diagram displaying corridor spaces and 'central hub' circulation design.
(Bauman, 2011) - drawn by (Burford 2023)

Use of colours - Neutral tones to not distract the eye with the contrast of colours for zoning and visual cues. (See Image 6)

Material choice - Cladding absorbs and baffles sound reverberations. This is important to reduce unwanted vibrations that may affect any hearing aid devices.

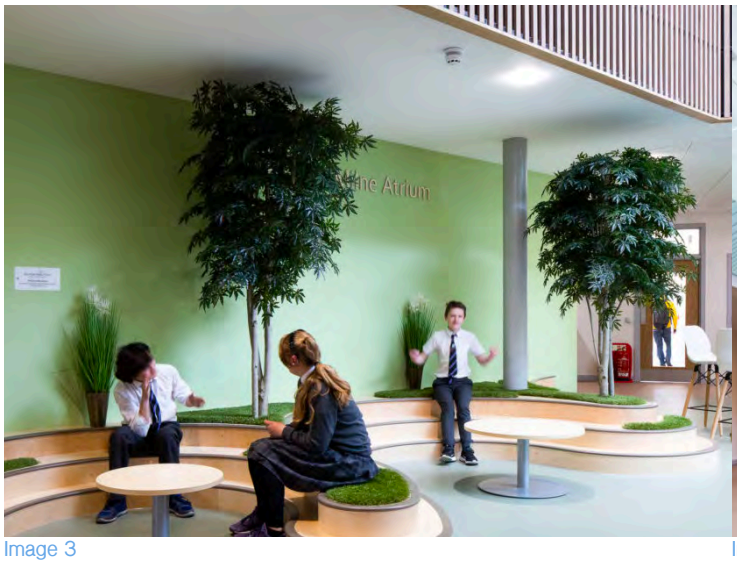

Image 3
Curved seating areas to provide better views for communication through sign. Transparent doors to provide views between rooms.
(Astbury, 2023)

Image 4
Open plan spaces with few visual barriers - balconies providing visul connection between floors.
(Astbury, 2023)

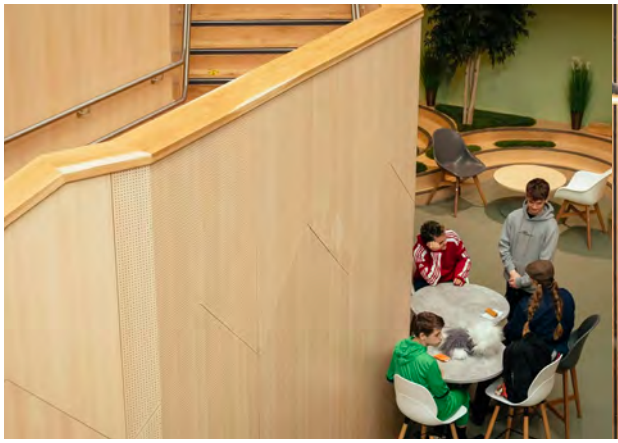

Image 5
Moveable seating areas to allow flexibility/change in arrangement to suit needs (arranged in circular shape).
(Astbury, 2023)

Image 6
Wooden cladding to control acoustics (eliminate unwated vibrations) - semi-private self study pods still providing views.
(Astbury, 2023)

Similarities to my project:
- Design aimed specifically at deaf individuals
- Educational / learning space
- Application of deafspace design guidelines

Applications for my project:
- Use of Colours
- Use of timber cladding
- Use of curved and moveable furniture
- Lighting consideration

Astbury, J. (2023) Stride treglown completes site for the Deaf Academy in Exmouth, Dezeen. Available at: https://www.dezeen.com/2023/01/11/stride-treglown-deaf-academy-school-exmouth-uk/ (Accessed: January 20, 2023).

S.T. (2023) The Deaf Academy, Stride Treglown. Available at: https://stridetreglown.com/projects/the-deaf-academy/ (Accessed: January 20, 2023).

4.3 Playful Roaming Nursery

Architecture practice: Philippe Gibert Architecte
Location: Tinqueux, France
Year: 2022
Function: Child play centre/nursery
Approach: Bringing the outside inside (integrating the two).

The concept behind this design was 'the roaming ribbon' integrating 3 main principles: free movement of children, creation of playful universe and the child being the author of their own game. (Valentina, 2022)
The central glass enclosure provides an integration between the inside and the outside.

Design Strategies:

Unobstructed views - The use of glass and low height furniture provides unobstructed views to the main focal point (highlighted in figure 19) Views to the outside also enhance well-being. (Image 7)

Bespoke storage design - The storage element has been designed to follow the roaming ribbon concept within its form. (Figure 18) It fits with the open plan design and is at the correct height for children to reach.

Colour scheme - Keeping a neutral colour scheme throughout with bold colours for zoning to create clear visual cues. Also provides a clear definition between the floor and coloured toys/ play elements. (Image 8/10)

Views to the outside – Transparent facades to provide views to outside to support the outside inside approach. Supports the integration of children with nature. (Image 7/8)

Circulation - Circular circulation allows for optimum visual connection, the use of curves within the design reduce the number of sharp corners, making the environment safer for young children running around.

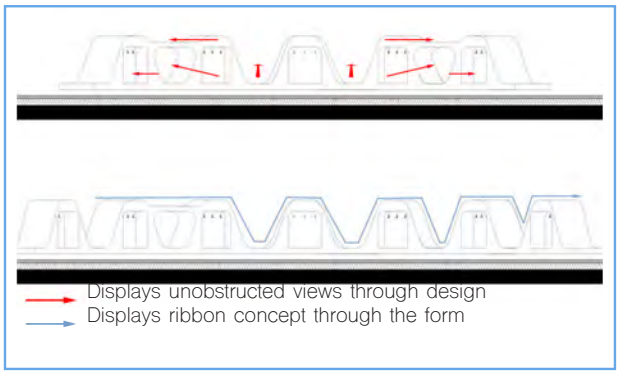

Figure 18
Edited CAD detailing displaying the storage design following the concept.
(Valentina, 2022) (edited by author)

Figure 19
Edited CAD plan highlighting central focal point (Valentina, 2022) (edited by author)

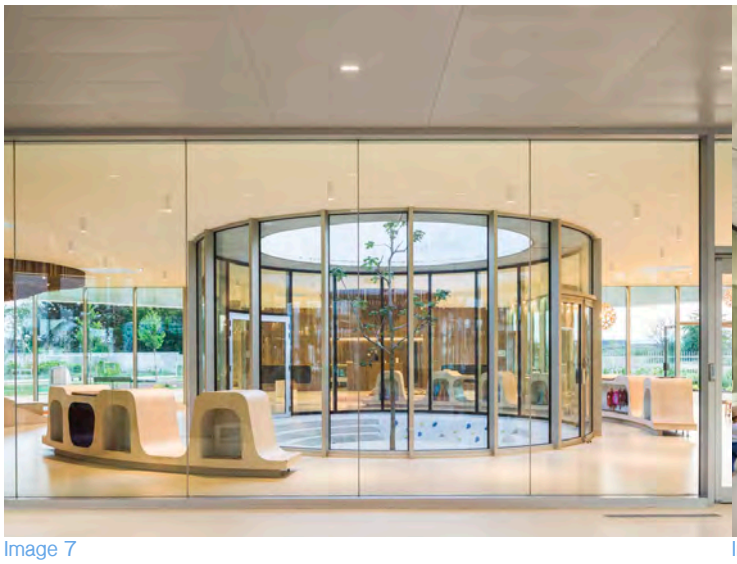

Image 7
Central glass focal point, transparency provides integreation between inside and outside without being within the area.
(Valentina, 2022)

Image 8
Image displaying interior of central focal point. Gives the feeling of being outside yet enclosed and safe.
(Valentina, 2022)

Image 9
Displays ribbon effect concept through storage furniture, effective for open plan area. (Valentina, 2022)

Image 10
Displays the relationship between focus of design and the rest of the building (transparency). Shows the contrast between the main neutral palette and colour to create zoning. (Valentina, 2022)

Similarities to my project:
- Educational space aimed at children
- Play led learning
- Sensory stimulating
- Connections to the outside

Applications for my project:
- Unobstructed views
- Focal points
- Storage solutions
- Colour scheme

Valentina, B. (2022) Playful roaming nursery / philippe Gibert Architecte, ArchDaily. ArchDaily. Available at: https://www.archdaily.com/990509/playful-roaming-nursery-philippe-gibert-architecte?ad_source=search&ad_medium=projects_tab (Accessed: January 5, 2023).

Grazia, S. Playful roaming crèche with 65 cradles in Tinqueux: Philippe Gibert, Archello. Available at: https://archello.com/project/playful-roaming-creche-with-65-cradles-in-tinqueux (Accessed: January 5, 2023).

4.4 London Design Museum

Architects: Allies and Morrison, John Pawson, OMA
Location: London, UK
Year: 2016
Function: Design Museum, exhibition space
Approach: Adaptive re-use project of grade II listed building.

The idea was to save the vacant grade II listed building, injecting life back into the modernist building whilst retaining the curved copper roof structure.
The staircases within the building provide wayfinding, directing the flow of users in a circular flow – allowing views of all displays.

Design Strategies:

Connectivity / visual connection - Large open straight staircases have been used, this allows for views / glimpses of the design work displayed ahead. Glass balustrading has been used throughout the building, providing transparency between floor levels and views through the space. (Image 13)
Seating areas have also been incorporated into the stair design to allow people to stop and observe/chat without disrupting the flow of other users. (Image 15) (See figures 20 and 21)

Circulation/wayfinding - The spaces have been designed to unconsciously force the user to walk around the outside of the building, where the design pieces are displayed, providing a user journey around the building. The glass balustrading allows for views of the central atrium from all points of the journey. (See images 11 and 12)
Clear signage has been used throughout the building to allow for wayfinding. (Image 14)

Lighting - Due to the solid roof structure and the private rooms around the outside of the building, there is limited natural light entering the main circulation space. Artificial lighting has been implemented along the handrails of the stairs and around the balustrading of the walkways to highlight the circulation space. Downlighting has also been used along the back walls to highlight the pieces on display. (Image 11 and 12)

Colours/materiality - Neutral colours and natural materials such as timber have been used throughout. Colour has been introduced into the displays to provide a contrast and draw attention to the pieces on display. (Image 11)

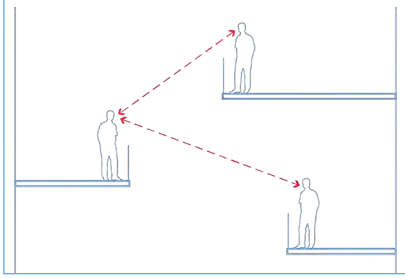

Figure 20
Diagram displaying visual connection between floors.
(Bauman, 2011) (drawn by author)

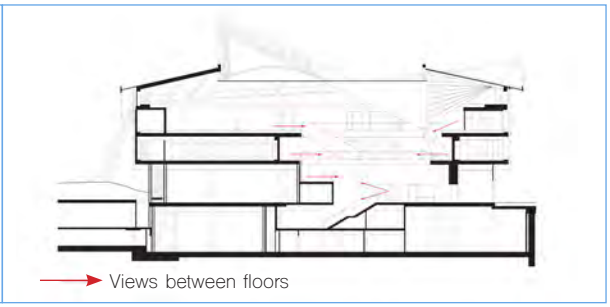

Figure 21
Edited CAD section to show the visual connection between floors in the building
(Merrick, 2022) (edited by author)

Image 11
Image displaying main circulation space and glass balustrading providing visual connection between floors.
(Burford, 2023)

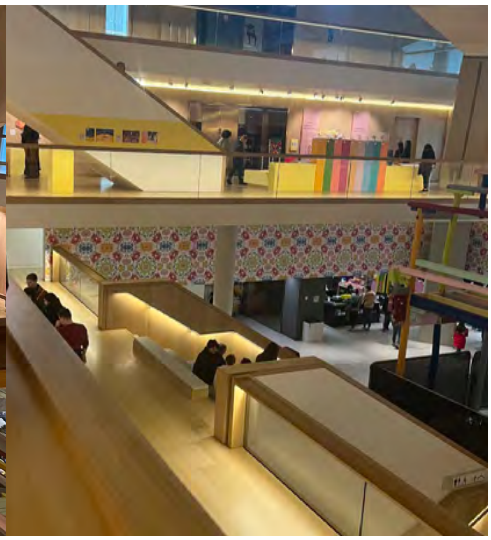

Image 12
Views of downlighting over display pieces and lighting within handrail and balustrading.
(Burford, 2023)

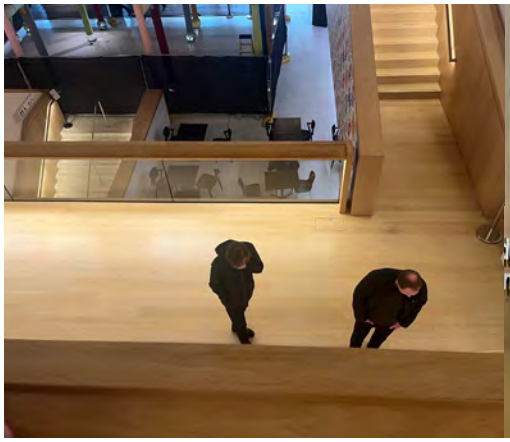

Image 13
Image to show the recess of the floor at higher level providing views to lower floor.
(Burford, 2023)

Image 14
Example of signage within the building.
(Burford, 2023)

Image 15
Main central staircase with seating detail, the large staircase allows for views of whats ahead.
(Burford, 2023)

Similarities to my project:
- Adaptive re-use of grade II listed building
- Multiple floor levels with viewing space
- Large circulation space
- Visual connection between floors

Applications for my project:
- Staircase design with seating areas
- Lighting design for wayfinding
- Colour application
- Use of signage

MODERNi (2016) Design Museum of London: Oma + allies and Morrison + John Pawson, Modern Design. Available at: https://moderni.co/design-museum-of-london-oma-allies-and-morrison-john-pawson/ (Accessed: February 2, 2023).

Castro, F. (2016) The Design Museum of London / OMA + allies and Morrison + John Pawson, ArchDaily. ArchDaily. Available at: https://www.archdaily.com/799642/the-design-museum-of-london-oma-plus-allies-and-morrison (Accessed: February 2, 2023).

4.5 WeGrow Nursery

Architecture practice: Bjarke Ingels Group
Location: New York, US
Year: 2018
Function: Multi-age children's educational space
Approach: Montessori style design approach, child led play etc. - encouraging collaboration.

The concept behind this educational space is a flexi, multi-age space.
The design is made to fit the Montessori teaching approach - learning through play and interacting with the environment.
Aimed at children aged 3-9, the space was designed to not separate children by age.

Design Strategies:

Integrated storage to reduce obstructions - Storage integrated into furniture and walls to keep belongings away from children running around. Half height storage to reduce visual obstructions, and to be the correct height for children. (Image 17) - this is especially important for deaf individuals, who's sight is the most important sense for wayfinding.

Circulation and flow - Open plan space, ensuring maximum views and connectivity. Transparent materials used and curvaceous forms to allow circular flow, encouraging collaborative learning and interaction. (See figure 22)

Neutral colour tones - Neutral colours have been used for the main areas, with a contrast of bold colour to define zones children can play on. The green coloured cushions refer to the natural environment along with the grey pebble shaped cushions.

Biophilic approach - Natural analogues of nature used in forms and colours of cushioned areas (Lilypad's and pebbles). Natural materials have been used throughout and kept in their raw forms; the wooden 'pods' which children can climb in and out of. Openings in the slatted walls allow glimpses to the outside.

Flexible Spaces - Transparent and multi-functional spaces to encourage collaboration and spaces for all ages to enjoy. Interlocking moveable furniture (image 18) creates an interactive element, providing seating and sensory stimulation.

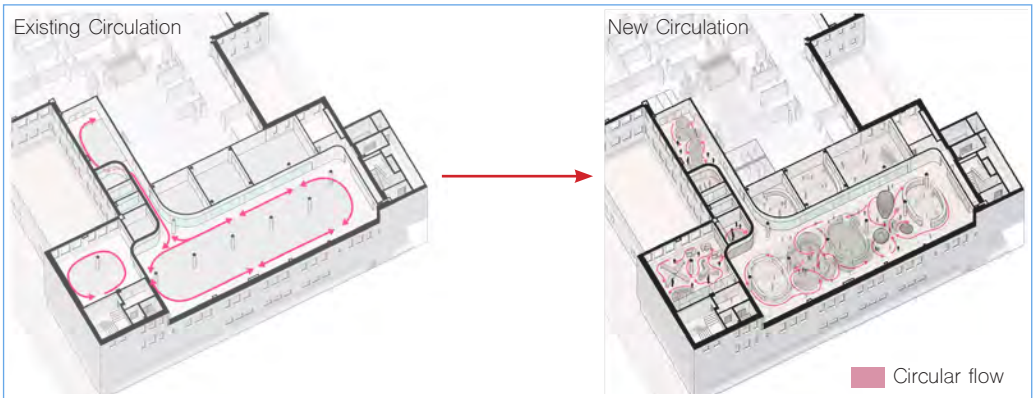

Figure 22
Edited CAD detailing showing circular circulation. (Bjarke Ingels Group) (Edited by author)

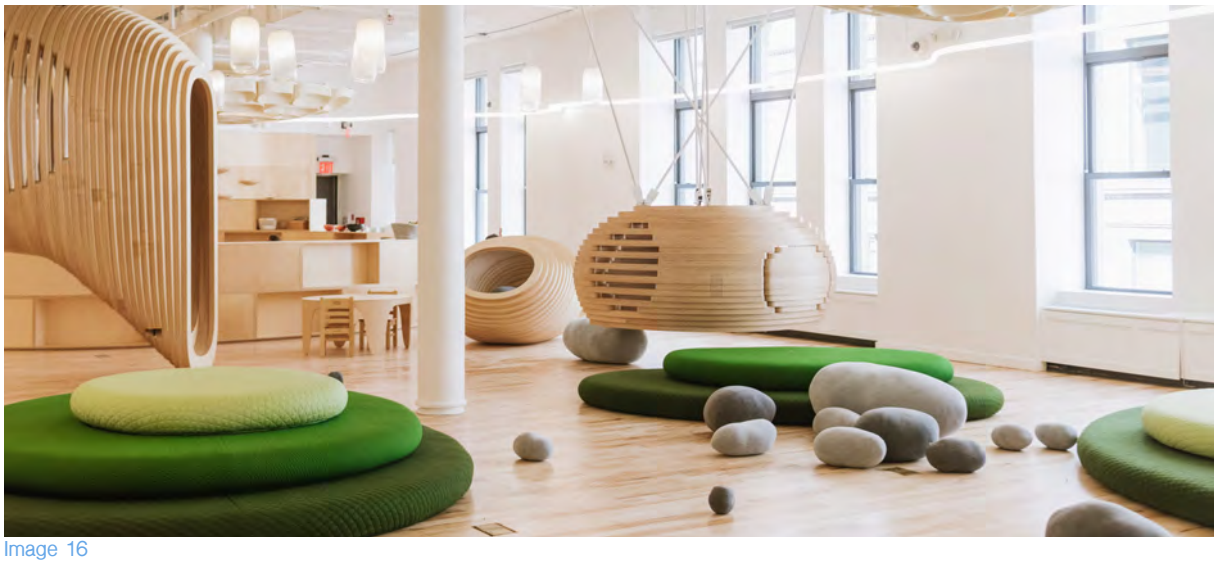

Image 16
Image displaying multi functional play/learn space - lilypad green cushions and grey pebble cushions. (reflecting nature)
(Gonzalez, 2018)

Image 17
Image displaying low height and back wall storage solutions
(Gibson, 2018)

Image 18
Image to show interlocking moveable furniture
(Gonzalez, 2018)

Image 19
Image displaying climbable 'pods' and open plan circulation space
(Gonzalez, 2018)

Similarities to my project:
- Educational space aimed at children
- Multi-age space
- Focus on connection and interaction
- Connections to nature

Applications for my project:
- Colour application
- Biophilic design strategies
- Flexible spaces
- Circular circulation

Gibson, E. (2018) Big's New York City School for wework encourages interaction and play, Dezeen. Available at: https://www.dezeen.com/2018/09/12/wegrow-big-wework-elementary-school-new-york-city/ (Accessed: February 5, 2023).

Gonzalez, M. (2018) WeGrow / Bjarke Ingels Group, ArchDaily. ArchDaily. Available at: https://www.archdaily.com/904957/wegrow-big (Accessed: February 5, 2023).

4.6 Salk Institute

Architect: Louis Kahn
Location: San Diego, USA
Year: 1956
Function: Biological research centre
Approach: Flexible design, to be easily adapted as science advances – a space to promote collaborative working

The space has been designed in a similar way to a monastery, all areas of the design to be facing the ocean. A strip of water through the concrete floor separates the two parallel blocks like a mirror.
The space was designed to encourage connection between users (community).

Design Strategies:

Biophilic design - the use of water within this design has a powerful impact on the user. One simple slither has been used through the centre of the design (see image 20) to separate the perfectly symmetrical buildings and draw the eye towards the view of the ocean. The idea is to focus all attention to the ocean as the pinnacle. (See figure 23) Water has also been used as a way of connecting the users of the space. Seating has been placed around the relaxing water feature (image 21 and 22) to encourage users to gather and communicate.

All spaces possess large openings maintaining a relationship between the inside and outside spaces, creating a connection between the two and maintaining the views to the water. (See figure 24)

Open plan space - no walls have been used in the interior of the laboratories to provide views between separate spaces, to encourage collaborative working and connectivity between users. This was also designed to allow for easy adaptation of space as science and technology advances, making the building withstand the test of time.

Lighting - the narrow openings within the structure allow for warm light to enter the building as a representation of the spark leading to discovery.

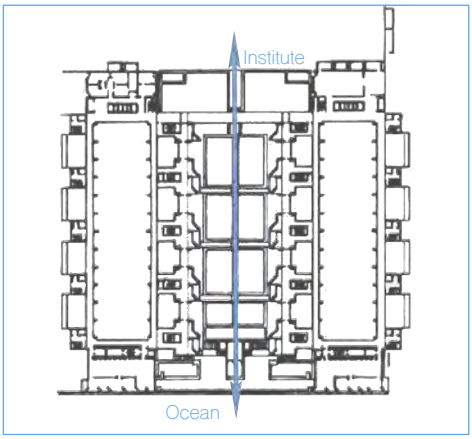

Figure 23
Diagram displaying perfect symmetry in salk institute and unobstructed visual connection between institute and the ocean
(Fiederer, 2019 – edited by author)

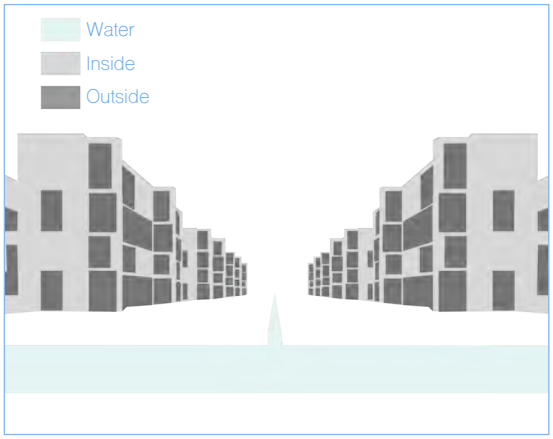

Figure 24
Diagram displaying perfect symmetry in salk institute relationship between inside and outside (views to water)
(Burford, 2023)

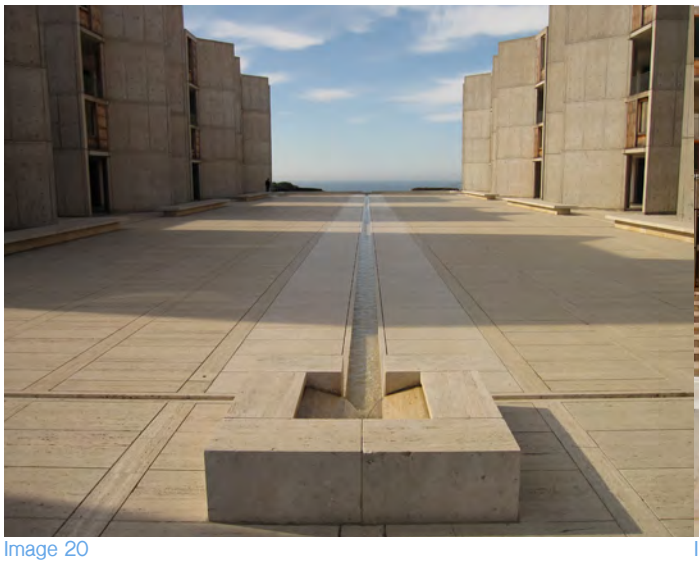

Image 20
Image to show symmetry either side of the water strip.
The strip of water directs the eye to the ocean (main focal point)
(Kolnaar)

Image 21
Image of external water feature with integrated seating – integration of water for mental wellbeing
(Mindel, 2016)

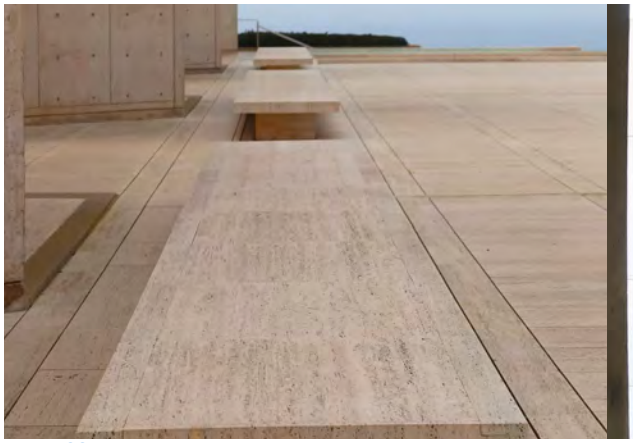

Image 22
Outdoor benches to provide space for reflection and views of the ocean
(Mindel, 2016)

Image 23
Full length windows between walkways and labs to provide maximum light and views
(Mindel, 2016)

Similarities to my project:
- Water being the main focal point
- Open plan design
- Natural lighting techniques
- Views to the outside

Applications for my project:
- Using water to separate and distinguish spaces
- Creating collaborative spaces
- Use of transparent surfaces to maintain visual connection

Kolnaar, T. Salk Institute: Archello classics, Archello. Available at: https://archello.com/project/salk-institute (Accessed: February 10, 2023).

Fiederer, L. (2019) Ad classics: Salk institute / Louis Kahn, ArchDaily. ArchDaily. Available at: https://www.archdaily.com/61288/ad-classics-salk-institute-louis-kahn (Accessed: February 10, 2023).

4.7 Thistle

Architect: 3D Reid
Location: Edinburgh, UK
Year: 2016
Function: Health & wellbeing centre
Approach: Adaptive re-use, making the old good again. Design aimed for charity who support individuals with disabilities.

The concept behind this adaptive re-use design is to create a wellbeing space which doesn't resemble an institutional building. Plenty of views to the outside and the use of natural materials (indirect biophilia). Soft and inviting interior spaces have been created to generate a calming environment for anxious individuals.

Design Strategies:

Biophilic design strategies - neutral colours and natural materials used throughout creating a calming and warm environment. The continuation of the timber cladding from the outside in invites the user into the building.
Numerous glazed openings have been used throughout maximising natural light entering the building; connecting the inside to the natural environment (beneficial for mental wellbeing) (See figure 25). Extended fins have been incorporated on the East and West facades, reducing solar glare creating a comfortable environment internally.

Connectivity - the footprint of the original building has been rotated by 90 degrees creating a freer flowing external space around the site (see figure 26).
Hinged moveable walls have been used within the central hub space (see image 27) this allows for semi transparency and choice between level of privacy.

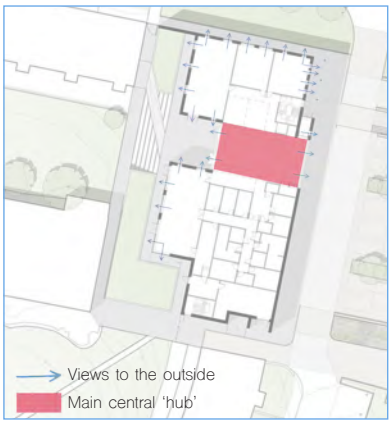

Figure 25
Diagram displaying views to the outside (inside outside concept)
(Cardenas, 2016 – altered by author)

Signage - Image 24 shows the integrated exterior signage within the timber cladding clearly displaying the entrance aiding wayfinding. Coloured signage has been used throughout to clearly differentiate different rooms etc (image 25)

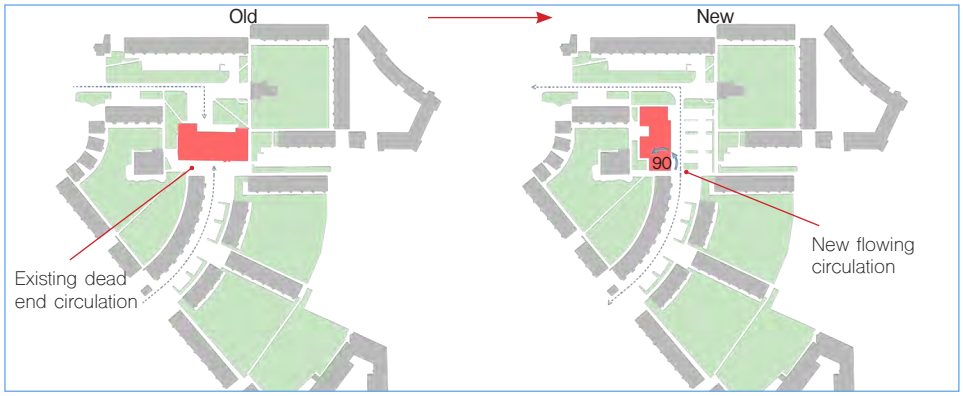

Figure 26
Diagram displaying new building location – creating new circulation route
(Cardenas, 2016 – altered by author)

Image 24
Image displaying clear signage integrated into external timber cladding - clearly defining entrance of the building
(Cardenas, 2016)

Image 25
Displays semi private seating areas with unobstructed views to the outside, clear signage / wayfinding
(Cardenas, 2016)

Image 26
Image showing how natural light enters the main double height 'hub' space and the views to the outside.
(Cardenas, 2016)

Image 27
Image to display flexible semi-private spaces through hinged moveable walls and semi transparent glazing
(Cardenas, 2016)

Similarities to my project:
- wellbeing space
- links to nature
- adaptive re-use project

Applications for my project:
- semi-transparent private spaces (connectivity)
- timber cladding application (embedded signage)
- views to nature and material choice
- coloured signage/zoning

Cardenas, D. (2016) Thistle / 3DReid, ArchDaily. ArchDaily. Available at: https://www.archdaily.com/791717/thistle-3dreid?ad_source=search&ad_medium=projects_tab (Accessed: February 11, 2023).

4.8 Northampton International Academy

Architect: Architecture Initiative
Location: Northampton, UK
Year: 2019, (host building 1970's)
Function: Educational building
Approach: Adaptive re-use of industrial, utilitarian building into vibrant educational hub filled with natural light.

The motive behind the design was to motivate and inspire. To restore a rather depressing feeling building into a busy inspiring space for education. Whilst changing the feel and use of the building, the idea was to retain and celebrate its best features and incorporate these into the design.

Design Strategies:

Introducing natural light - New window openings have been inserted into existing external walls, lightwells have been punctured through existing waffle slab structure and roof lights have been added to maximise natural light entering the building - creating a light and airy open circulation space throughout the design. Vertical voids have also been inserted throughout the design to aid this. (See image 30)

Visual connectivity - Glazing and low-level balconies have been used throughout to maintain visual links and lightwells. (Image 31)

Working with the old and the new - The old and the new work with each other within this building. Image 28 showcases the new facade; a mirrored material has been used which reflects the building surroundings as you approach. Two illuminated signage boxes have been placed on the front facade, clearly indicating the two different entrances to the building.

As much of the existing structure of the building has been retained and respected, allowing the new design to work around it. The existing modular grid has informed the new spatial arrangement of the design (see figure 27). New partitions have been plastered and painted white in contrast to the exposed concrete shell (image 29) - providing a clear contrast between the old and new.

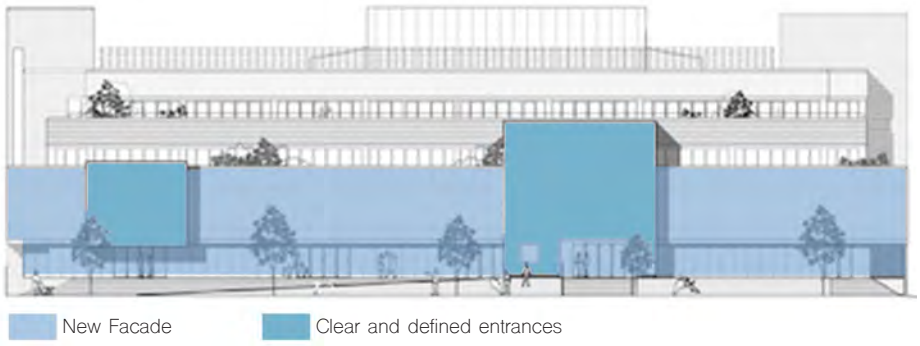

Figure 27
Diagram displaying new facade in contrast
(Tapia, 2019 - altered by author)

Image 28
Image displaying the clear difference between the old and the new (existing building and new facade)
(Tapia, 2019)

Image 29
Exposed existing waffle slab integrated within the new design
(Tapia, 2019)

Image 30
Image showing example of void used throughout the design to provide views between floors and maximise natural light.
(Tapia, 2019)

Image 31
Displays the use of glazing and balconys to provide open views (visual connectivity) throughout the building
(Tapia, 2019)

Similarities to my project:
- adaptive re-use project (industrial style building to educational facility)
- function (educational)
- primary user (children aged 4-18)

Applications for my project:
- working with existing structural grid
- defining the difference between the old and the new
- open circulation

Tapia, D. (2019) Northampton International Academy / Architecture initiative, ArchDaily. ArchDaily. Available at: https://www.archdaily.com/917720/northampton-international-academy-architecture-initiative?ad_source=search&ad_medium=projects_tab (Accessed: March 25, 2023).

4.9 Conclusion

The case studies analysed in this chapter have provided the building blocks for the design strategies implemented into the design intervention. They provide justification for design decisions made; solidified with research conducted in the literature review chapter.

The main design strategies taken from these studies to implement into the design intervetion are:

- Defining the difference between the old and the new / working with the existing building

- Creating open circulation through the use of voids, large openings and minimal partition walls, transparency through material choice

- Use of colour for wayfinding and zoning

- Visual connection through and between floors through material choice and spatial configuration

- Use of indirect and direct biophilia (water in particular)

5.0 Strategic Approach

5.1 Introduction

As a project Akoe aims to resolve the widespread lack of sympathetically designed public buildings for the deaf and hard of hearing community. The statistics and research gathered from resources such as the RNID (Royal National Institute for Deaf people) and the BDA (British Deaf Association) highlights the communication and well-being issues that deaf children, of primary school age in the East Midlands, face daily. Emphasising the need for a connective well-being space for these individuals.

This chapter will discuss, in detail, the reasoning behind the concept for this design and how chosen design strategies will be used to resolve the design proposal for this project.

5.2 Conceptual Approach

The concept for this project originates from the user of the design. Deaf individuals have faster saccadic eye movements and a heightened awareness in their peripheral field of vision meaning they can get visually more distracted than hearing individuals. This information led to the research on focal points and the focusing eye. (Figure 28)

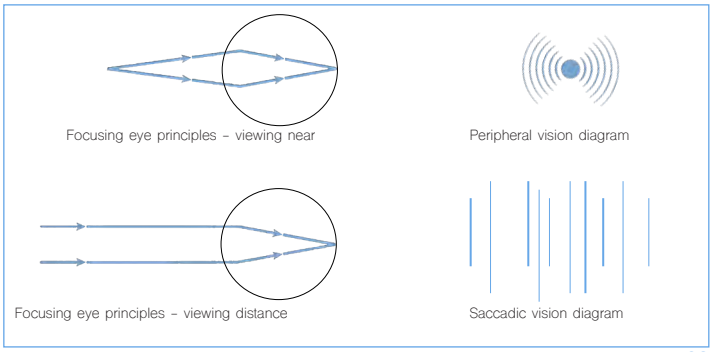

Figure 28
Authors interpretations of vision and focal points
(Burford, 2023)

The priority when designing for deaf individuals is the elimination of visual barriers and creating optimal visual connectivity (see figure 29). These principles have been applied through the series of floor levels in Thorpes Warehouse. The higher the floor level, results in an increased transparency and views. The idea being there will be one main focal point, which can be seen from all floor levels. (Figure 30)

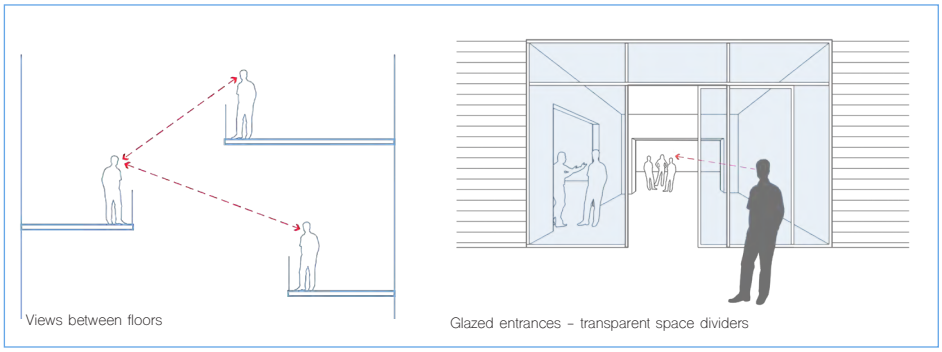

Figure 29
Diagrams displaying visual conneciton
(info from deafspace design guidelines)
(Drawn by Burford, 2023)

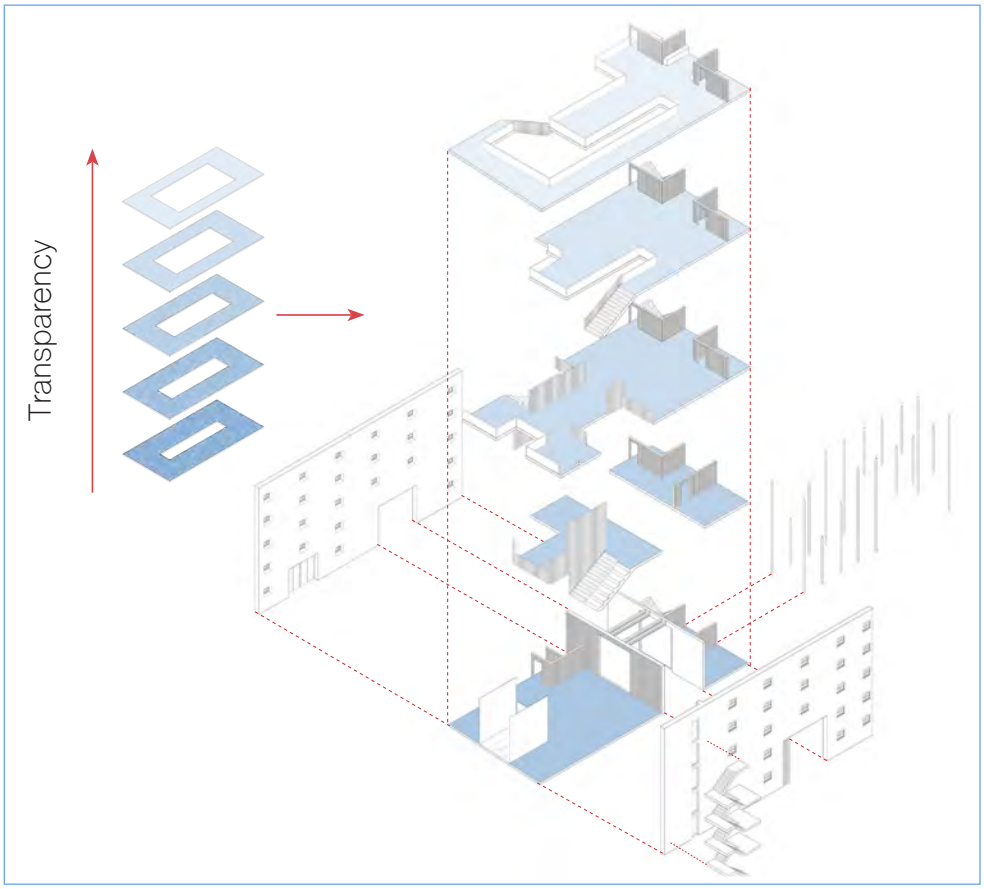

Figure 30
Exploded axonometric to display the increase in transparency as floor levels increase.
(Burford, 2023)

5.3 Concept Model

To display the concept in 3D form the increasing transparency and floor levels was extracted and displayed using wooden dowels. (image 32)
The dowels represent the wooden slats to be used as screens and balustrading throughout the design, maintaining transparency throughout.

As shown in the image, there are 5 layers, representing the 5 floor levels in Thorpes Warehouse. The longer the dowel represents the higher the floor level.

As the layers increase on the model, the distance between the dowels increases representing the level of transparency increasing as the floor level increases.

Image 32
Final Concept Model
(Burford, 2023)

5.4 Design Strategies

To implement the conceptual approach into the design a series of design strategies were researched and confirmed through precedent studies (figure 31/32). These strategies have also been applied to resolve the design problem of deaf individuals struggling in public buildings. (see figures 33-36)

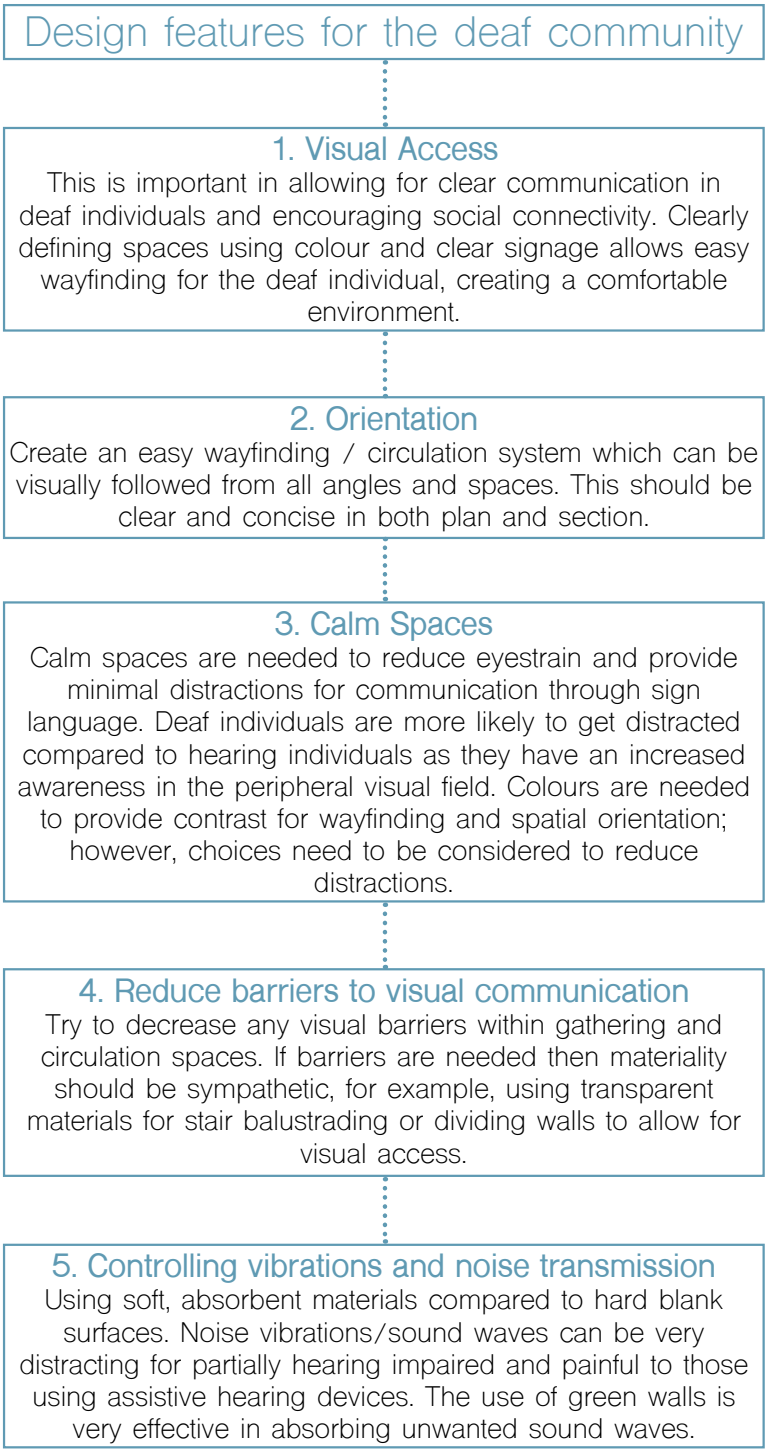

Figure 31
5 areas of consideration when designing for the deaf
(Information from Youde, 2020) (Drawn by Burford, 2022)

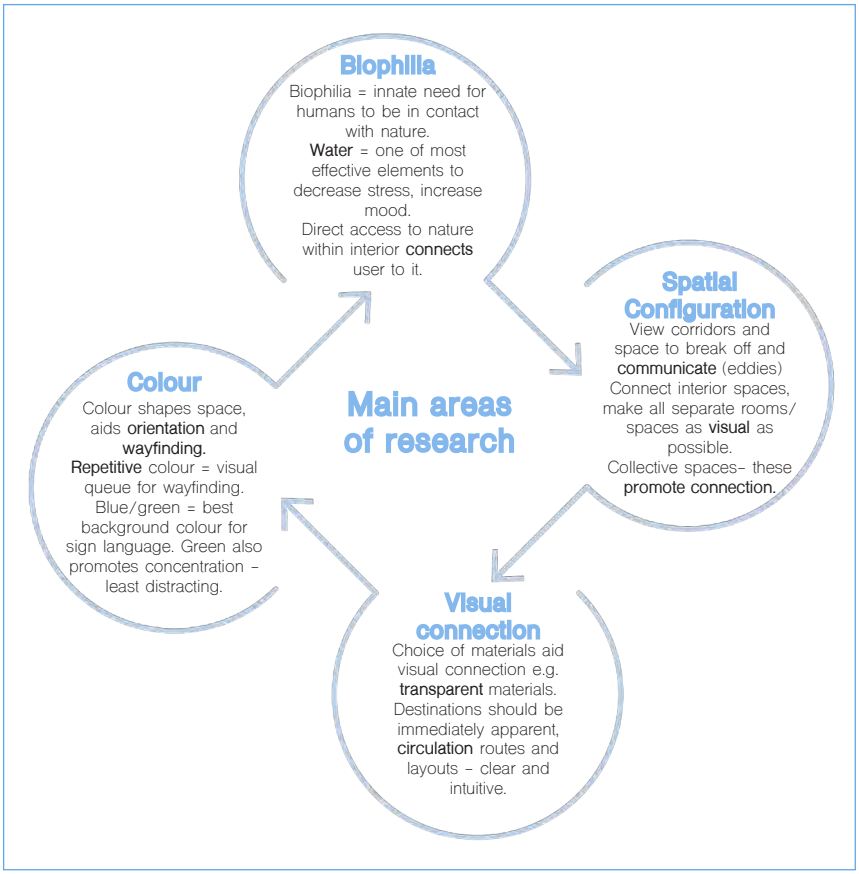

Figure 32
Design Strategies
(Burford, 2023)

Spatial Configuration/Circulation

When designing for the deaf community visual aspects of the design are of significance. This includes visual wayfinding, signage, circulation, and visual connection (through material choice and configuration of spaces.)

The deafspace design guidelines (Bauman, 2011) states that wide corridors and collective space are important to allow space for users to communicate through sign, eddies can be used in narrow corridors to allow for users to branch off and converse (see figure 33). See precedent 4.2 The deaf academy for application of deafspace guidelines.

These principles have been implemented using wide staircases (image 33) open plan arrangement and lack of corridors (See appendix for floorplans)

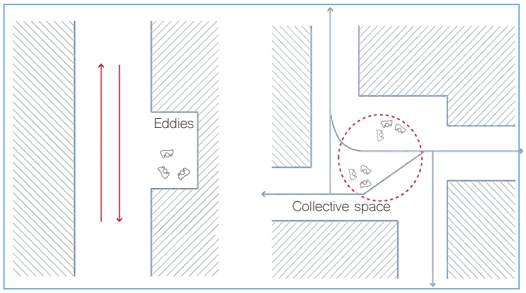

Figure 33
Diagrams displyaing deafspace principles
(Bauman, 2011 - Drawn by author)

Image 33
Staircase design with integrated seating for conversing
(Burford, 2023)

Visual connection between floors and through floors is another important strategy to consider when designing for the deaf community. This is the most heavily applied strategy in the design. (see figures 34–35). Each floor within the design has been carefully considered to provide views across and between each floor.

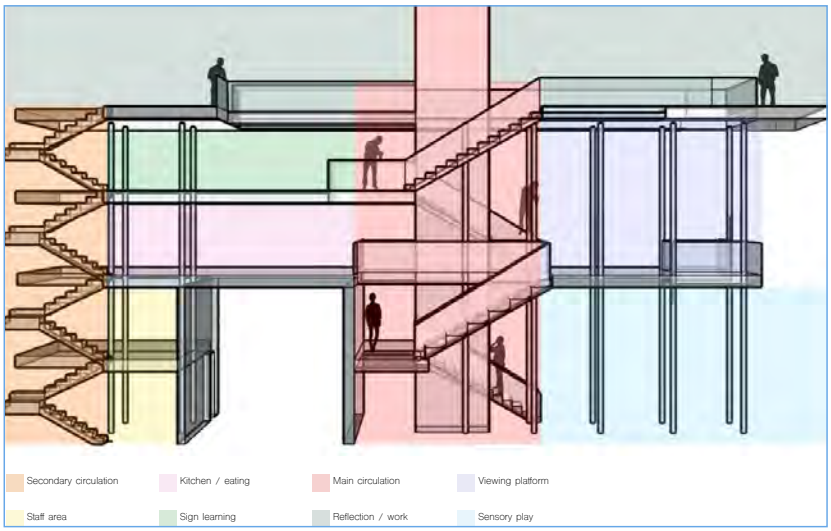

Figure 34
Diagram displaying zones within the building and visual connection between floors (Burford, 2023)

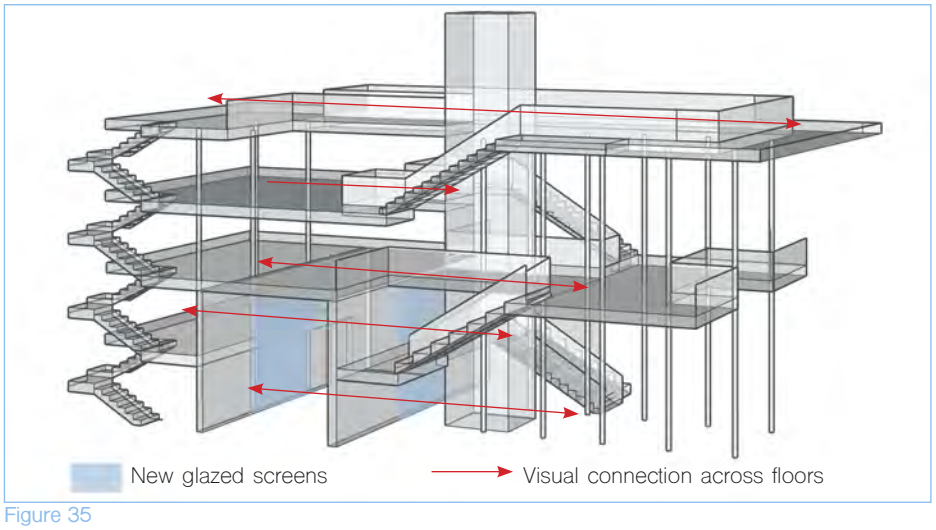

Figure 35
Diagram displaying visual connection across floors (Burford, 2023)

New glass screens have been inserted each side of the archway to provide visual connection from the outside in and to connect to two sides of the building at ground and first floor. (See figure 35)

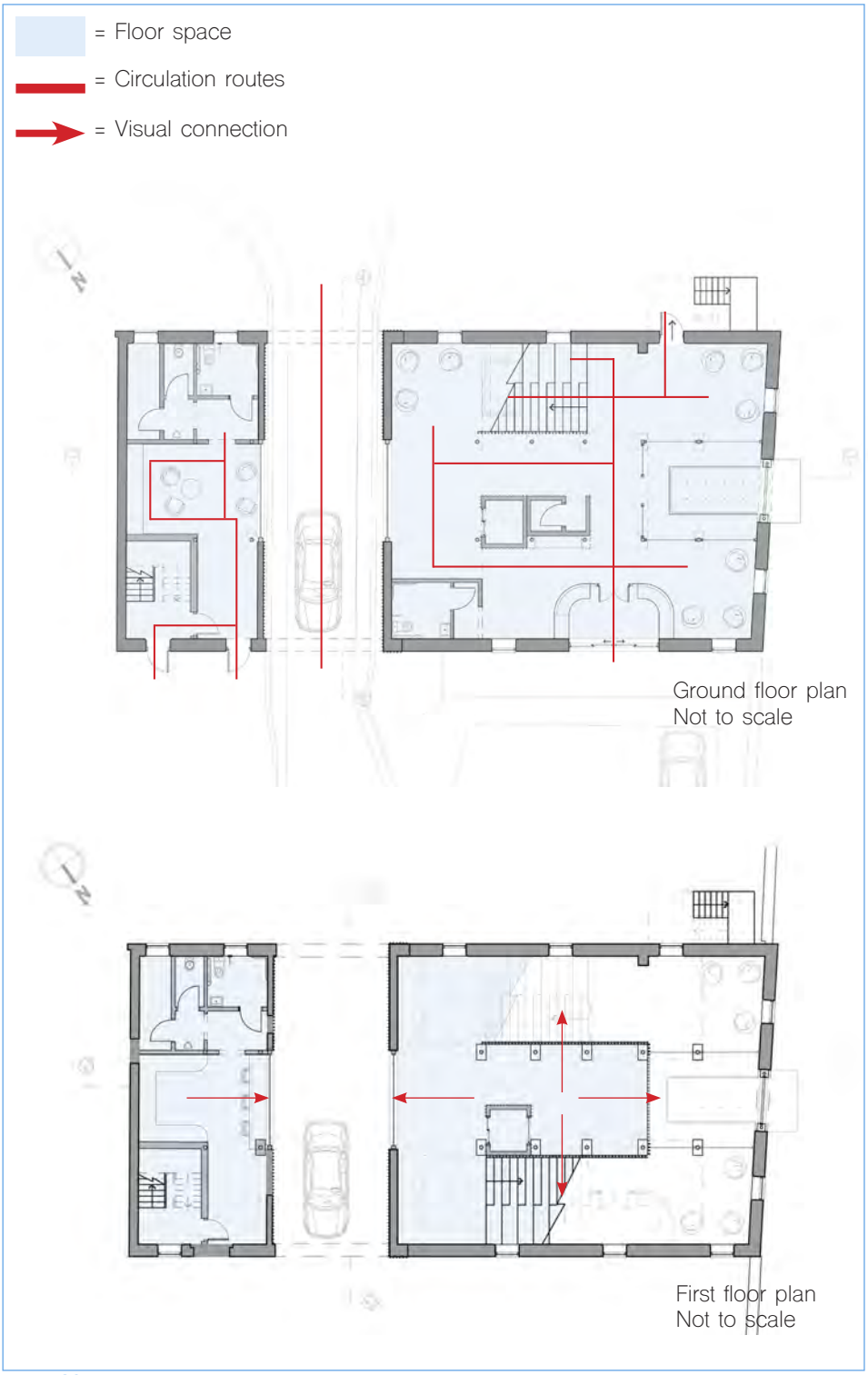

Figure 36
Floor plans to display main circulation space and example of visual connection between floors (Burford, 2022)

Timber slatting has been used throughout the lower floors to provide semi-transparency throughout (see image 34). As the floor levels increase glass balustrading has been used to provide views across the floors and between the floors. (See image 35)

Image 34
Render displaying semi-transparency through use of timber slatting (Burford, 2023)

Image 35
Render displaying visual connection accross and between floors through use of glass and voids (Burford, 2023)

Deaf individuals need clear signage to help with wayfinding within a public building. This is particularly important for facilities such as toilets and fire exits. In the event of an emergency deaf and hard of hearing individuals may struggle to receive clear verbal instructions; signage must make up for this. (See precedent 4.4 the Design Museum of London for examples of clear signage)

Clear universal signage has been integrated within the interior design of thorpes warehouse embedded within the new timber panelling (figure 37) and existing brick walls. Precedent study 4.7 Thistle shows an example of this.

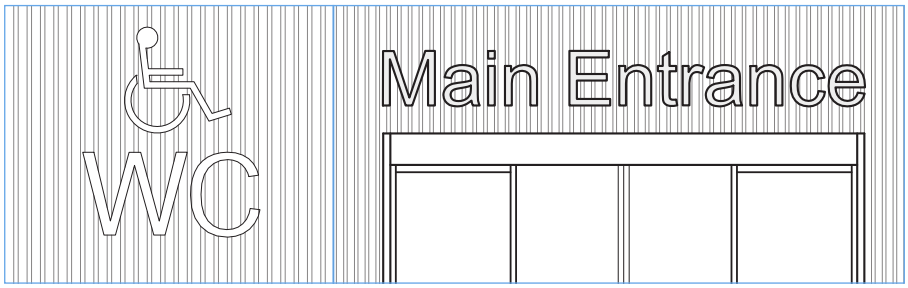

Figure 37
CAD details displaying simple visual signage embedded within new timber cladding (Burford, 2022)

Biophilic Design strategies

Channon, 2018 states that views and links to nature within a building have a powerful positive effect on mental wellbeing, reducing stress and improving memory. These are important factors to consider when designing a wellbeing space. Channon also mentions the importance of providing views to water, which has a significant calming effect to humans. (See precedent 4.6 Salk Institute for an example of water as the focal point).

Nevzati et al, 2021 supports the idea of the importance of water. Emphasising the significance of physical touch in reducing stress and improving mental wellbeing. (See literature review for in depth research on the qualities of water)

Applications of direct access to nature within Thorpes Warehouse include:
- Water fountain area
- Water wall

Applications of indirect access to nature within Thorpes Warehouse include:
- Views to the outside from each floor (specifically River Trent and park area)
- Use of natural timber material throughout the design
- Use of the colour green to provide connotations to the natural environment (See precedent 4.5 WeGrow nursery for examples of indirect connotations to nature)

Colour Theory

As deaf individuals can be easily visually distracted compared to hearing individuals a neutral colour palette has been used throughout the design.

Bright primary colours have been used, which are more appealing to children, the colour green in particular as it boosts concentration and its association with nature makes it beneficial to a well-being space. (Calligeros, 2015)

Image 36
Render displaying use of colour to define spaces (Burford, 2023)

Colour has also been used in contrast to the neutral backgrounds to clearly define specific zones (image 36), acting as visual cues for deaf individuals. (See precedent 4.3 playful Roaming Nursery and 4.5 WeGrow Nursery for examples of colour zoning)

Controlling unwanted noise reverberations

The deafspace design guidelines (Bauman, 2011) explains how general background noise such as moving chairs and furniture and footsteps can have a detrimental effect on deaf individuals with hearing assistive devices. For individuals with partial hearing the vibrations and unwanted noise can cause distraction and cause frustration when trying to communicate.

Special design considerations have been made to reduce this:
- Rubber feet added to all chairs in dining area (fixed dining tables have been designed to can't be accidently moved)
- All informal seating and viewing areas to be soft such as bean bags and cushions to reduce vibrations when moved
- Acoustic timber cladding with felt backing used on all walls to absorb sound waves
- Shock absorbers used on timber slatting used as screens and balustrading to avoid vibrations when holding and walking past
- rubber lining to be laid under timber floorboards to act as shock absorber for footsteps and any drops etc.

Adaptive re-use combining the old and the new

Hunt & Boyd, 2018 states that new work on an existing building should complement the old rather than compete with it (see literature review table).

This has been taken into consideration when designing the deaf wellbeing centre in numerous ways:
- All new elements to the external of the building have been cladded in timber, highlighting the intervention. (See figure 38) - also see precedent 4.8 Northampton International Academy for examples

- All existing window openings have been retained, maintaining the historical significance.

- Internal design intervention to be designed around existing columns (structural grid) and structural openings.

- Materials used in the new intervention to complement the existing timber windows and exposed brick walls.

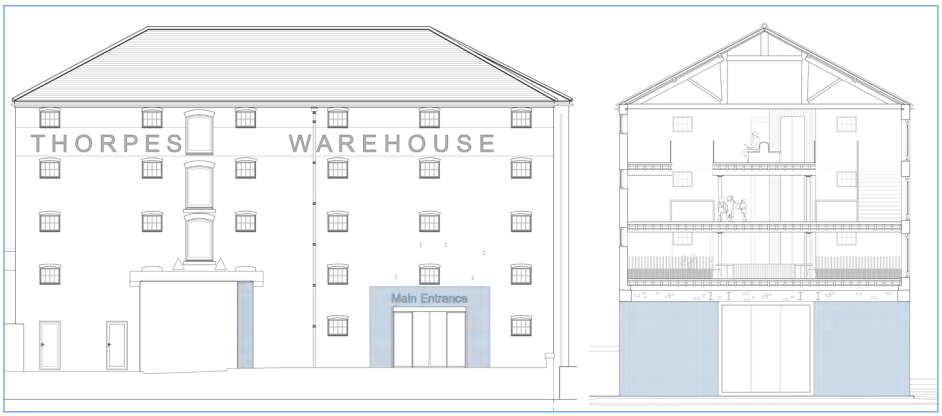

Figure 38
Edited CAD plans highlighting the areas of intervention (blue)
(Burford, 2023)

5.4 Conclusion

The expanse of research through precedent studies review of literature and user analysis has provided a solid foundation of information to help resolve the design proposal. The design strategies identified and researched have been clearly and strategically embedded within the design, following the conceptual language throughout.

6.0 Design Reflection

6.1 Introduction

Gibbs,1988 emphasises the importance of reflection to enhance the learning process and so succeed as a designer. (See figure 39) The model can be broken into two sections, the first section being the first 3 stages of the cycle (what happened and how it made you feel) and the second section being the last 3 stages (analysing the experience and understanding how it could be improved).

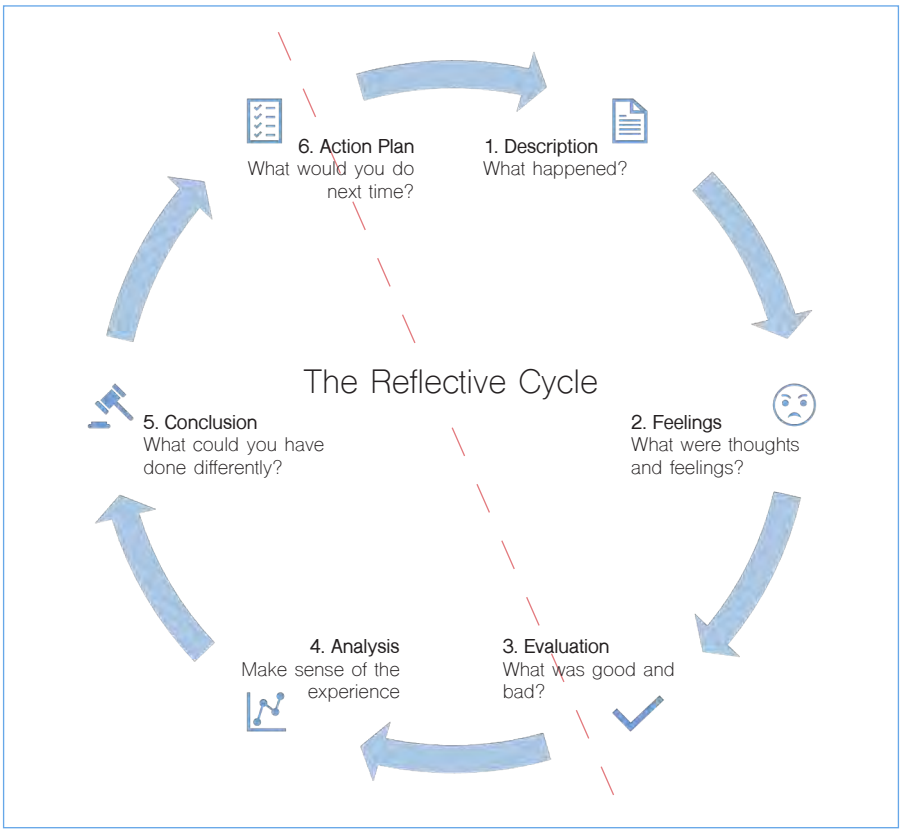

Figure 39
Diagram Gibbs Reflective Cycle
(Gibbs, 1988 drawn by Burford, 2023)

This chapter will critique the design and personal decisions I have made and analyse how I got to them. This will allow me to reflect upon myself as a designer and identify where I can improve for the future of my design career. See appendix for research log, time plans and peer review notes which support this reflective process.

During this project I used Kolb's learning inventory to identify my personal learning style (see figure 40). The results were diverging CE (creating exploration)/RO (Reflective Observation). This has allowed me to gain a deeper understanding of the way I learn best, through observation and viewing situations from several different viewpoints. I perform better in situations requiring idea generating, and group situations, responding well to personal feedback. (Eduolog, 2022)

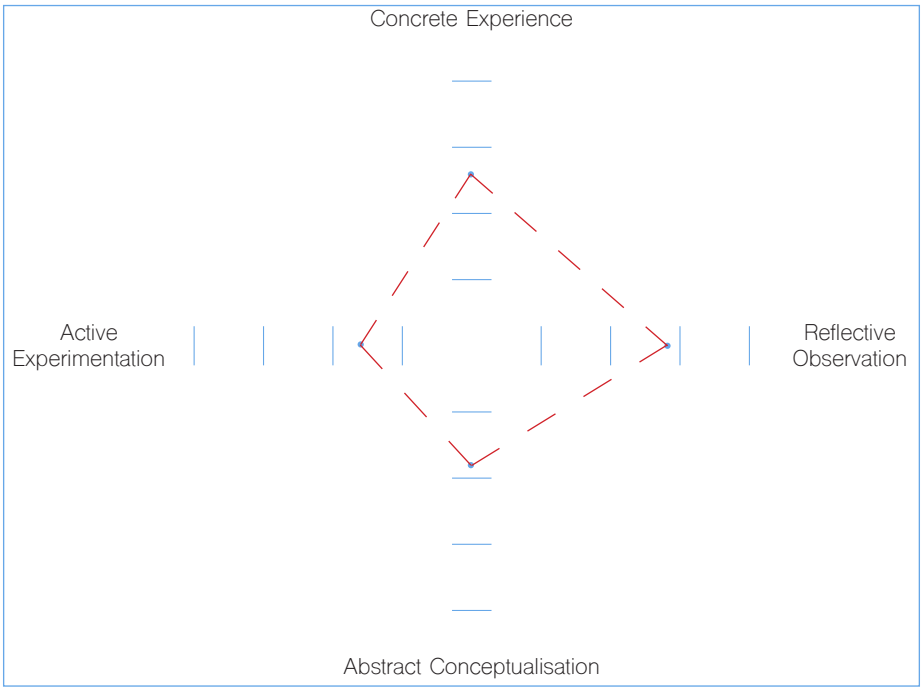

Figure 40
Kolb's learning style profile (Kolb,1984) Individual test (Eduolog, 2022)
Drawn by (Burford, 2023)

6.2 Reflection

My initial struggle with this process was finding a suitable host building for the design intervention. My initial idea was to create a well-being centre incorporating nature and water into the design. Thorpes Warehouse was the perfect building being situated beside the river and a walking distance to park area. On reflection I think I acted quite fast with the decision to use this building before conducting specific research into the user. Location of the building is perfect for the user (see chapter 3 contextual analysis) however, the links to deaf individuals and the building are quite weak. In the future I will spend longer on initial research into the host building and gather more information before coming to a decision.

During the initial stages of research, I became particularly interested in the needs of deaf individuals within the built environment. Being interested in the topic motivated me to conduct in-depth research and analysis allowing me to gain a deep understanding and connection with the user of the design. This posed as an advantage for the start of the design process and set me in a good position moving forward to concept development. I have learnt how important thorough research is at this stage of the design process to solidify a strong design proposal and concept. This is something I will ensure to repeat in the future.

Conducting regular informal peer reviews with students and tutors has been beneficial in helping support both the writing and design process. (See appendix for peer review document). I found the regular meetings with tutors each week helped to motivate me to get work completed and keep me on track. (See diary of work in appendix D). I started this work journal mid-way through the academic year. For future reference I would create a journal from the start of the project as I feel this could have kept me on track sooner and aid time planning for the rest of the project.

In hindsight, I would have conducted more regular formal peer reviews during the writing process as I think this could have helped me with time management.

Reflecting upon precedent study research I think I chose too many nursery and educational designs. Although this research has really enabled me to gain a deep understanding of the spaces needed and design strategies required, I think I narrowed the research too much, it might have been beneficial to research more adaptive re-use examples and well-being centres. This could have given me a broader range of information.

In terms of stress management, I believe I have worked well under pressure and managed my time in a manner which has allowed me to keep control of stress levels. A weakness I have identified through this academic journey is being too much of a perfectionist. Although this can be an advantage when creating layouts and visuals it can cause unnecessary stress and over working. Taking regular breaks and setting realistic targets has helped to overcome this.

6.3 Delimitations

- It is hard to quantify how successful my project is. How can you measure the improvement of someone's mental well-being? Well-being is unique to everyone; general considerations may not suit someone's unique needs.

- Some aspects of the design intervention may need to be revised in accordance to planning permission requirements, this could have an impact on the conceptual elements of the design.

- Budget may have a negative effect on the result of the design. Certain elements may need to be revised and compromises may have to be made.

6.4 Conclusion

This chapter has allowed me to reflect upon my personal and academic journey throughout this project. Understanding my specific learning style has really helped me to work to my strengths within this project; listening and engaging with peers to learn. Participating in group tutorials and observing peers' presentations has really helped with this.

I have identified areas of weakness; being too rash with decisions and being too much of a perfectionist. Moving forward I propose to follow a clear time plan to help me manage my time better and not to overwork.

7.0 Conclusion

This document clearly outlines the issues that deaf individuals (specifically children) face in day-to-day life, family life, the built environment and within an educational setting. In-depth research into these issues and their needs has allowed for the development of a strong design intervention responding to these issues.

From host building to material finish, every design decision has been carefully considered to ensure a sympathetic approach has been taken with the user as a priority. This research process has not provided an answer to the design problem but has provided information on how biophilic design strategies can support the well-being of deaf users within a public building using natural lighting, views and connotations to nature and material choice. It has also provided information on how strategies such as spatial configuration and visual connection can have a significant impact on deaf users.

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10. Definition of Terms

Akoe	Greek word meaning the act of 'truly' hearing – the inner spiritual ear.
BSL	Stands for British Sign Language, it is a visual language separate from the verbal English language. The use of hand gestures, expressions, and body language to communicate.
Decibel	A unit used to measure level of sound, the higher the decibel, the louder the sound.
Hard of hearing	People with hearing loss ranging from mild to severe.
Mild hearing loss	Individuals find it difficult following speech, especially in noisy situations. The quietest they can hear is between 25 and 39 decibels.
Moderate hearing loss	Individuals find it difficult following speech without some kind of hearing aid. The quietest they can hear is between 40 and 69 decibels.
Profound deafness	Individuals communicate through BSL, this would be their first or preferred language, they may also be able to communicate through lip reading. The quietest they can hear is 95 decibels or more.
RNID	Royal National Institute for the deaf. A charity aiming to make like more inclusive for deaf individuals.
Severe hearing loss	These individuals have extreme difficulty following speech. They rely primarily on lip reading, even with hearing aids. BSL would be their first of preferred language. The quietest they can hear is between 70 and 94 decibels.
Tinnitus	A condition where the individual hears sounds from inside the body, often described as 'ringing in the ears'.

11. List of Images

Image 34 Render displaying semi-transparency through timber slatting
(Burford, 2023)

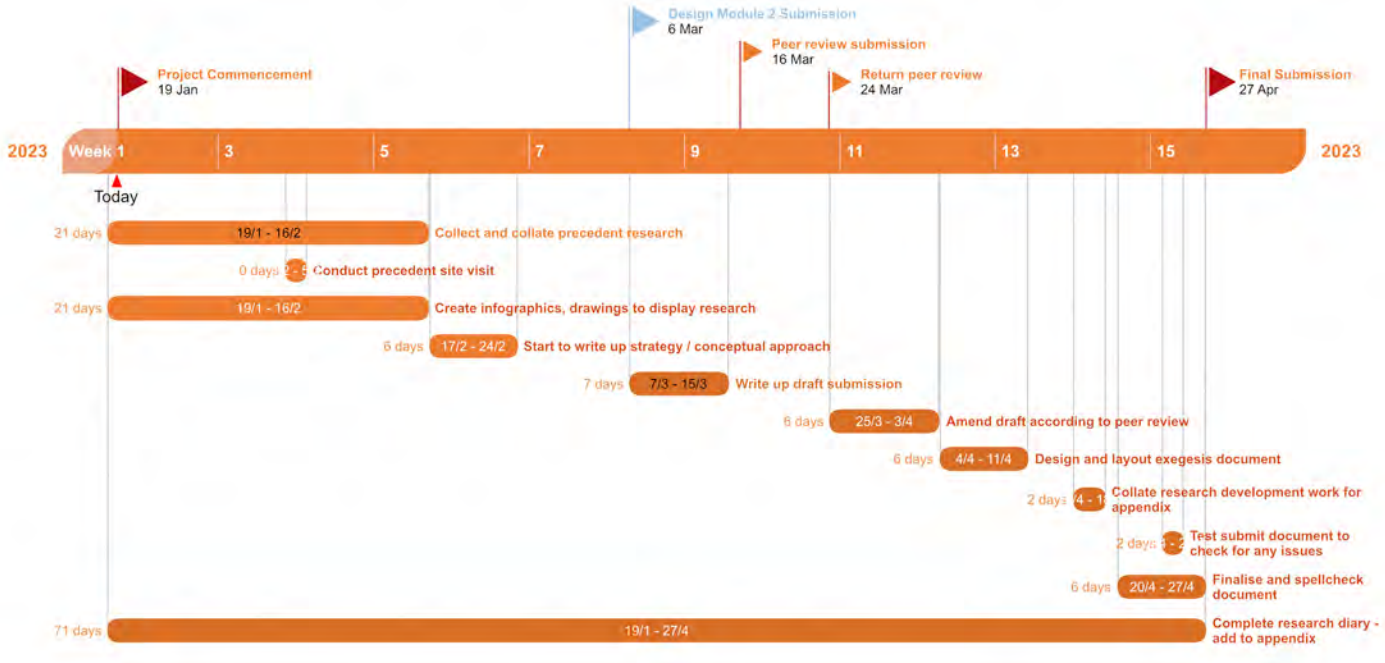
Image 35 Render displaying visual connection across and between floors using glass and voids
(Burford, 2023)

Image 36 Render displaying use of colour to define spaces
(Burford, 2023)

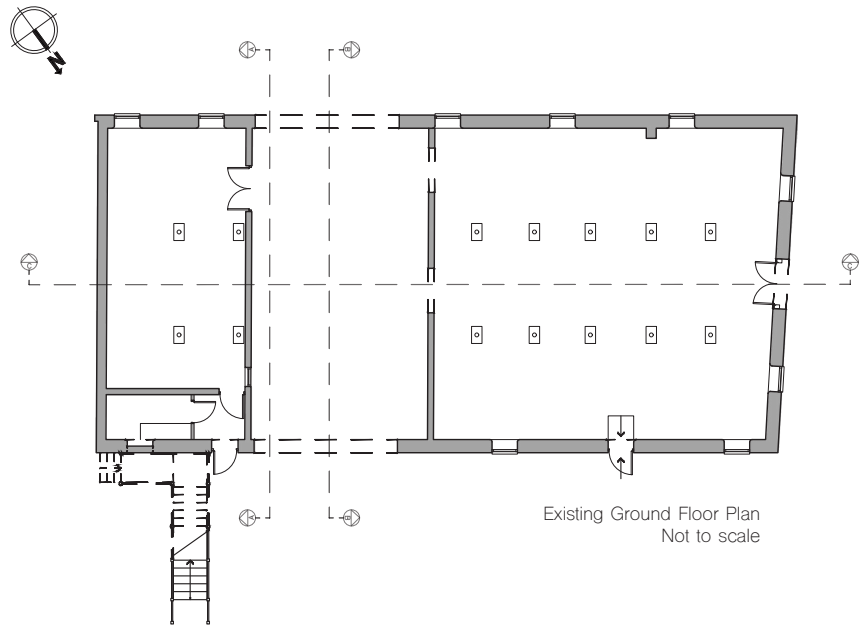
12. Appendix C

Week	1	2	3	4	5	6	7	8	9	10	Days per task
	03-Oct	10-Oct	17-Oct	24-Oct	31-Oct	07-Nov	14-Nov	21-Nov	28-Nov	05-Dec	
Underpin design problem	3	1									4
Building Research	2	1									3
Access Plans and Sections		2									2
Define client & user			1								1
Concept development			3	1	3						7
Site Analysis				2							2
Draw up on AutoCAD					1	2					3
Create Site model						2					2
Develop conceptual strategies							3	3			6
Create A1 presentation boards								1	3		4
											0
											0
											0
											0
											0
Document development work							1	1	1		3
Reading from reding list		1	1	1	1	1	1	1	1	1	0
Create card Model			1	1							2
Concept models							2	2	2		6
Planned weekly days	5	5	6	5	5	5	7	8	7	1	45 **Planned total days for the project**
Actual weekly days	5	5	5	5	5	5	5	5	5	0	45 **Actual total days for the project**

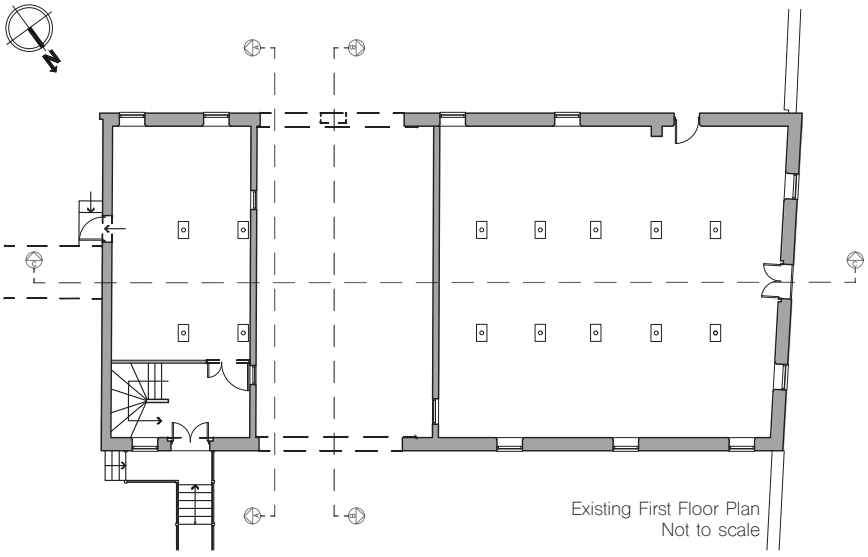
Part B - Project Plan



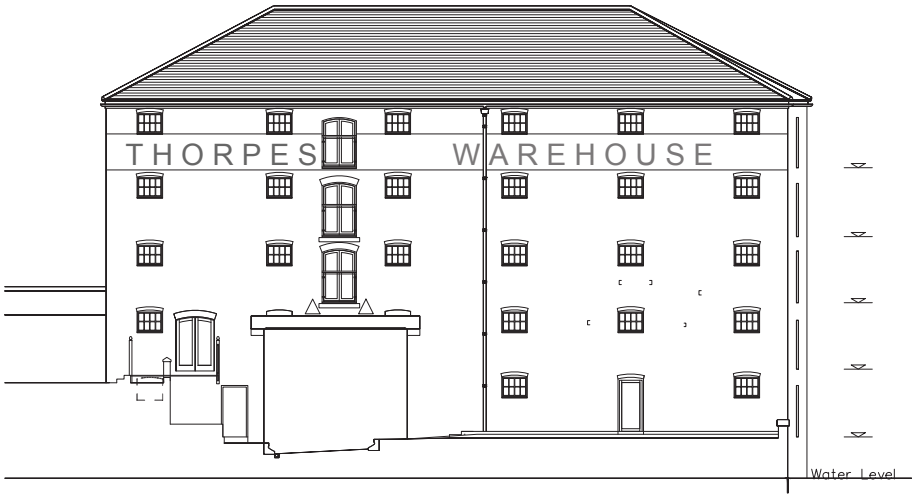
Existing plans, elevations and photos drawn from a site survey carried out by myself on 18th October 2022. These drawings demonstrate the significance of structural grid, location and historical importance of the building.



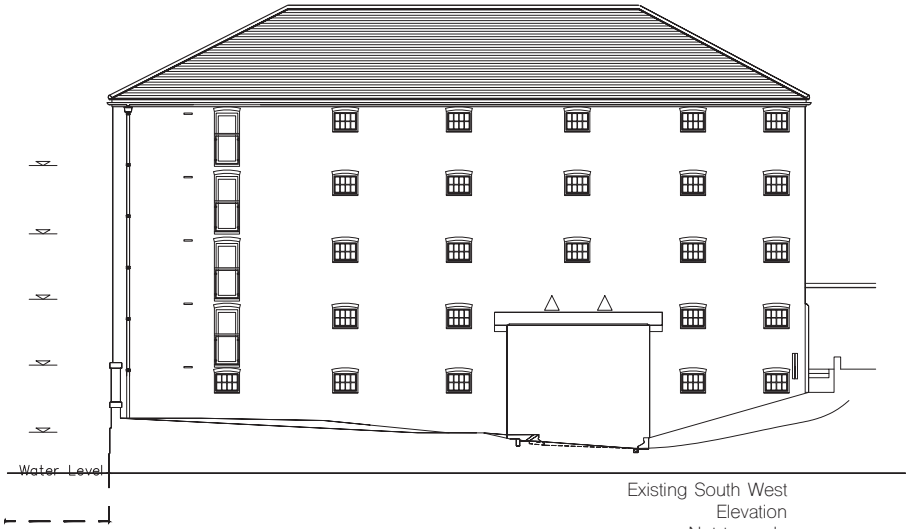
Existing Ground Floor Plan
Not to scale



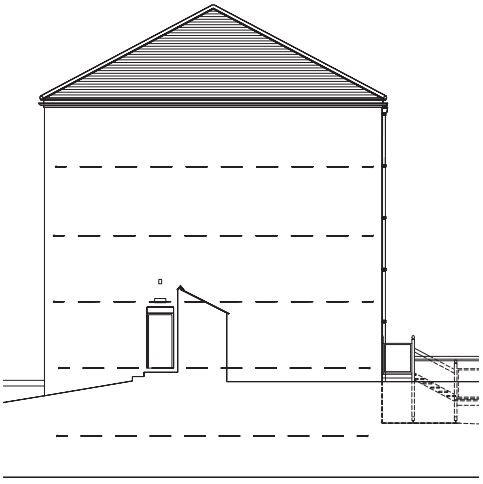
Existing First Floor Plan
Not to scale



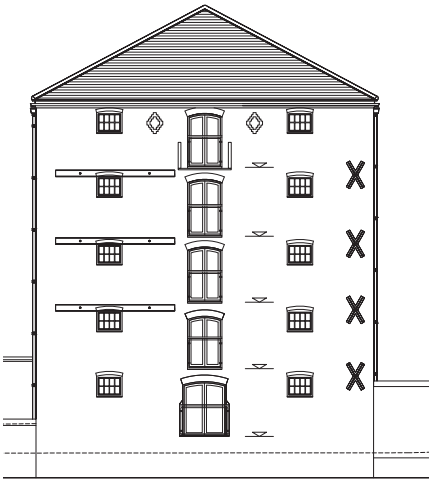
Existing North East
Elevation
Not to scale



Existing South West
Elevation
Not to scale



Existing South East
Elevation
Not to scale



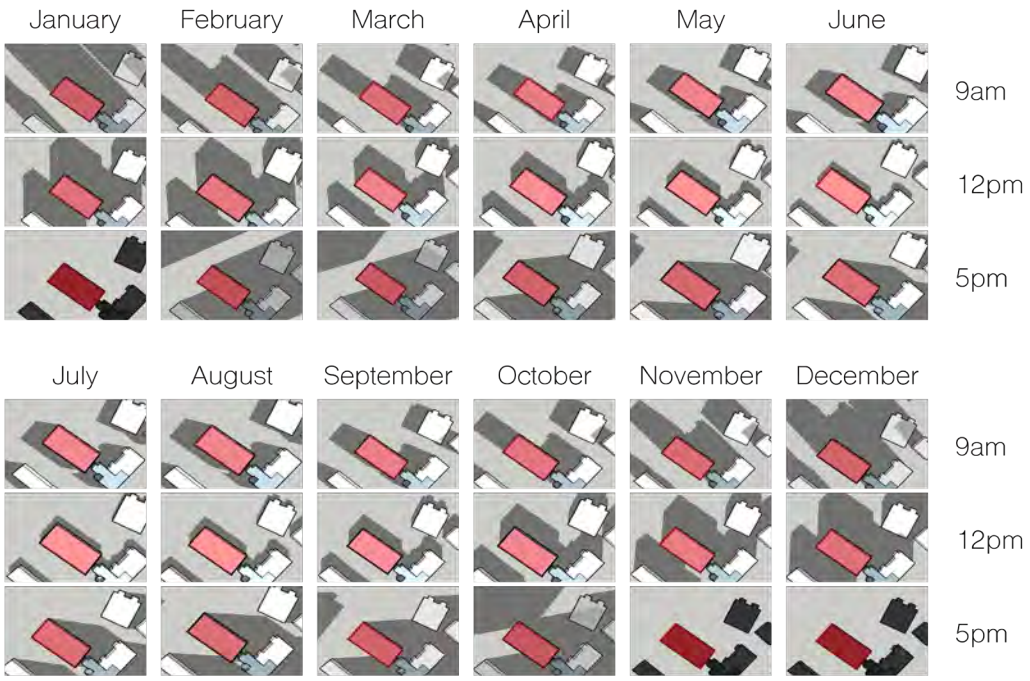
Existing North West
Elevation
Not to scale

North East Elevation

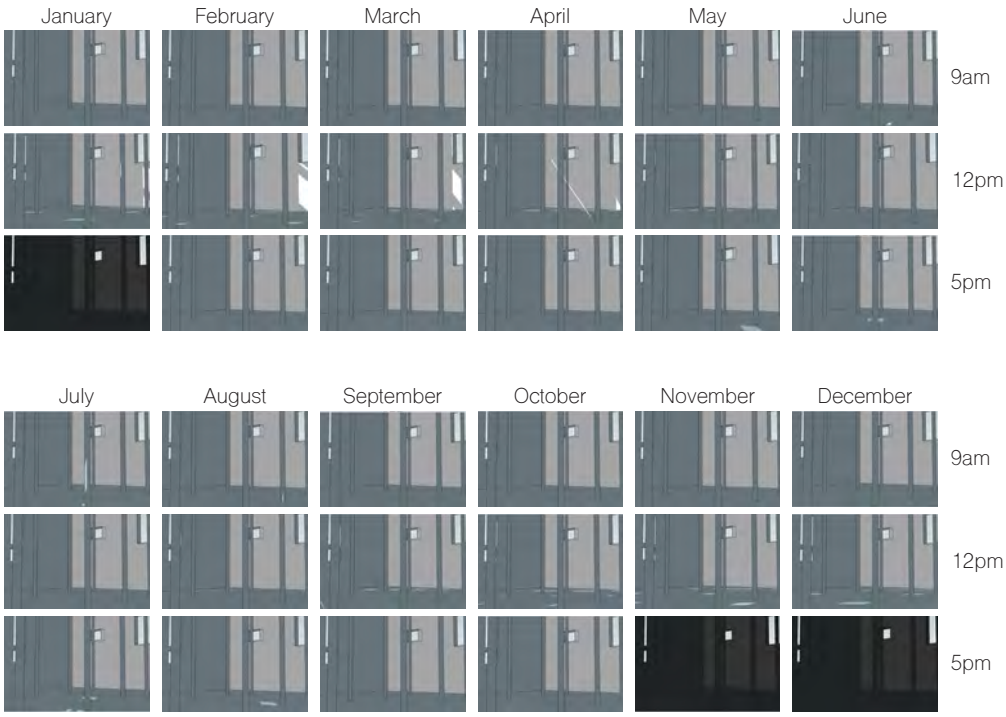
North West Elevation

Surrounding Area

Sun Analysis conducted using google sketchup and suncalc online. This exercise has helped me to understand the best naturally lit interior spaces within my building, so will help me to maximise the amount of natural lighting in my design intervention.



Exterior Sun Analysis



Interior Sun Analysis

New design for old buildings

- New work should be fitted to the old rather than the old being adapted to cater to the new.
- New should not compete with the old but also should not replicate or 'pretend' to be historic

↑

well-mannered approach.

Must understand the building's historical evolution back to the historical core → to appreciate significance

- good design in historic environment: maintain interest, scale & relationship with buildings heart.
  → retain materials

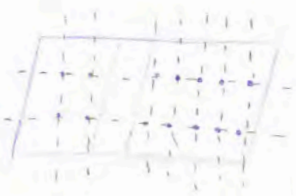
glass → old glass = natural imperfections - makes it come alive in the sun.
Light emissions through glass in the dark can be distracting from exterior
- glare & overheating = issues from inside
- reflections can be intrusive
- glass allows building to merge into landscape

finishes → natural & traditional and low impact environmentally work well alongside older structures → mellow appearance &

inclusive access is a must.

historical openings

Thorpes Warehouse



strip back to structural grid.

- iron columns
timber floors.

On altering Architecture
Fred Scott.

Process of intervention

→ designer responsibility to carry a building over from the past & through the present so it will survive another age.

→ not to damage but to elucidate its essential nature.

justification need

stripping out of rotten fabric (mainly plaster & wood)

understanding ha building / architectu style

1. Stripping back
2. Making good → original fabric repaired & replaced
3. Erecting works

demolition & removal of parts that prevent progression of new work

water?

What design elements should be specifically considered when designing an inclusive and connective space for the deaf?

(deaf community)

How can a building be adapted to provide a more comfortable & connective experience for the deaf?

How can specific design elements such as biophilia, spatial configuration and lighting aid a connective & comfortable wellbeing space for the deaf?

Research question

How can specific design elements such as materiality and lighting create a connective and comfortable interior experience for the deaf?

biophilic design / wellbeing

inclusive?

How can interior architecture elements through biophilia aid a connective & comfortable wellbeing space for the deaf?

How can biophilic design elements, such as the use of water in interiors provide a wellbeing space for the deaf?

→ sensory experience

- → colour
- → lighting
- → biophilia (water)
- → materiality
- → spatial configuration
- → inclusive
- → connective

— creating comfortable interior experience for the deaf community

Biophilic design

Benefits:
Reconnects users of building with nature. It's a way to integrate natural materials within modern architecture. Other ways of doing this include introducing natural lighting, views of the outside, indoor vegetation.

An office enriched with plants makes staff happier and boosts productivity by 15%.

Workers with access to natural light and greenery reported a 13% higher level of well-being.

Visual exposure to the natural environment can reduce blood pressure and heart rate following exposure to a stressor. - good for stressful office environments. Greenery also increases feeling of connection between collegues within an office environment.

Greenery diffuses noise reducing echos and sound intensity - benefit for busy communal spaces e.g. offices and public spaces.

Provides a relaxing and calming environment.

Case Study - Indeed office Tokyo, Japan

Firm:
Specht Architects, The Design Studio K.K.

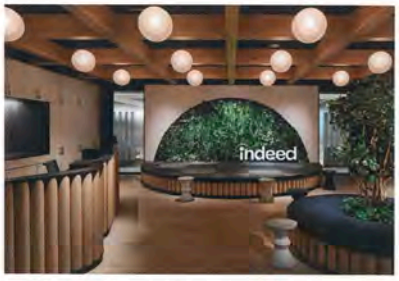
Client:
Indeed

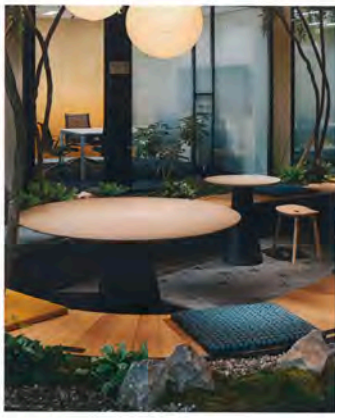
Size:
45,200 sqft

Year:
2019

Location:
Tokyo, Japan

Industry:
Technology





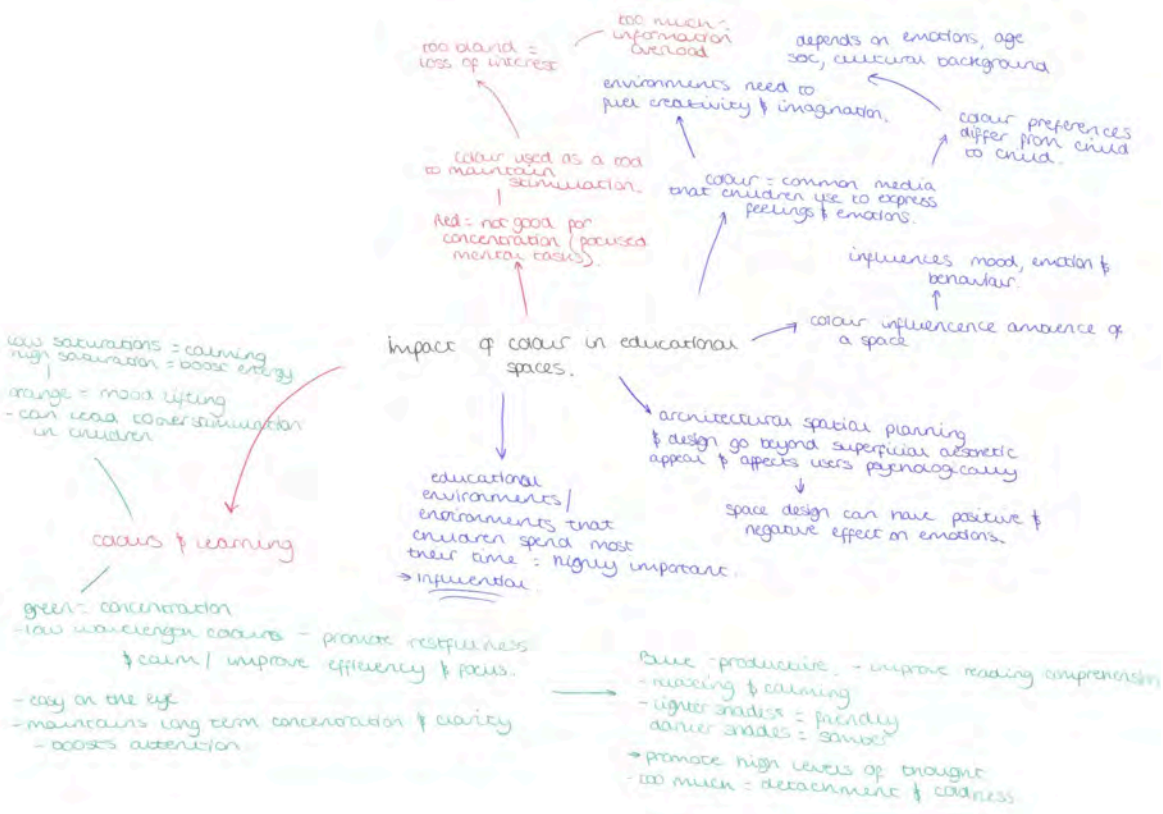
This office in Tokyo reflects the company's unique strategy—to provide work environments that incorporate the most up-to-date thinking possible, while also integrating the character of the specific place where the office is located.

The large workspace is filled with a series of "oasis" elements—small, serene work and relaxation areas defined by landscaping, gentle lighting, and color. These oasis spaces and nearby breakout areas are bounded by brightly colored custom murals that are also derived from traditional Japanese art and graphic motifs. Together they provide a linked path of bright and comfortable places that flow through the entire office.

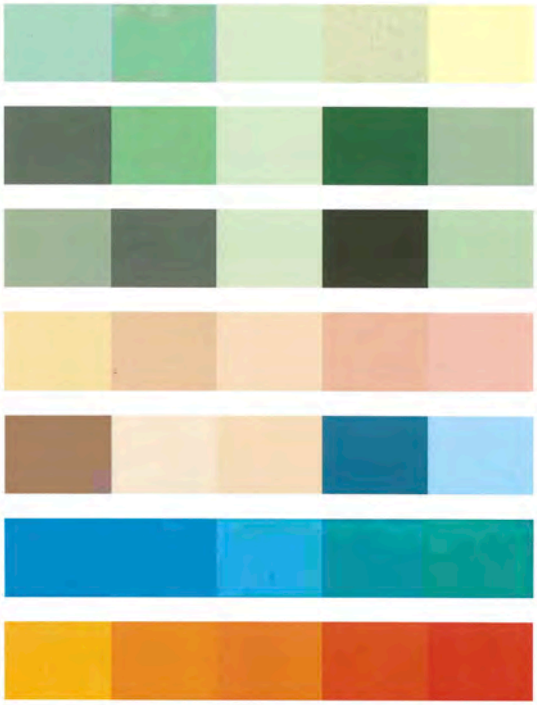
Colour theory - research

Colour / colour temperature affect the mood of interior. Colours on the warm side of the colour circle = welcoming, comforting and stimulating, cool side = calming and relaxing. Extremely cool = depressive. Neutral colours fall between warm and cool = less intense psychological impact; utilitarian atmosphere, minimal emotional content - pleasant and unobtrusive background colours. - Extremely neutral colours = bland and boring.

Generally, more textured surface, colours seem darker, less textured (glossy) surface colours seem lighter and less intense.



Colour palettes - wellbeing



→ calming & easy on the eye

→ darker = warmer

→ positive health & mental wellbeing

→ good for concentration when learning

→ tints of orange
- neutral colours

→ cool colours, restful & calm

→ links to water & outside views

→ purity

→ encourages deep thought productive & friendly

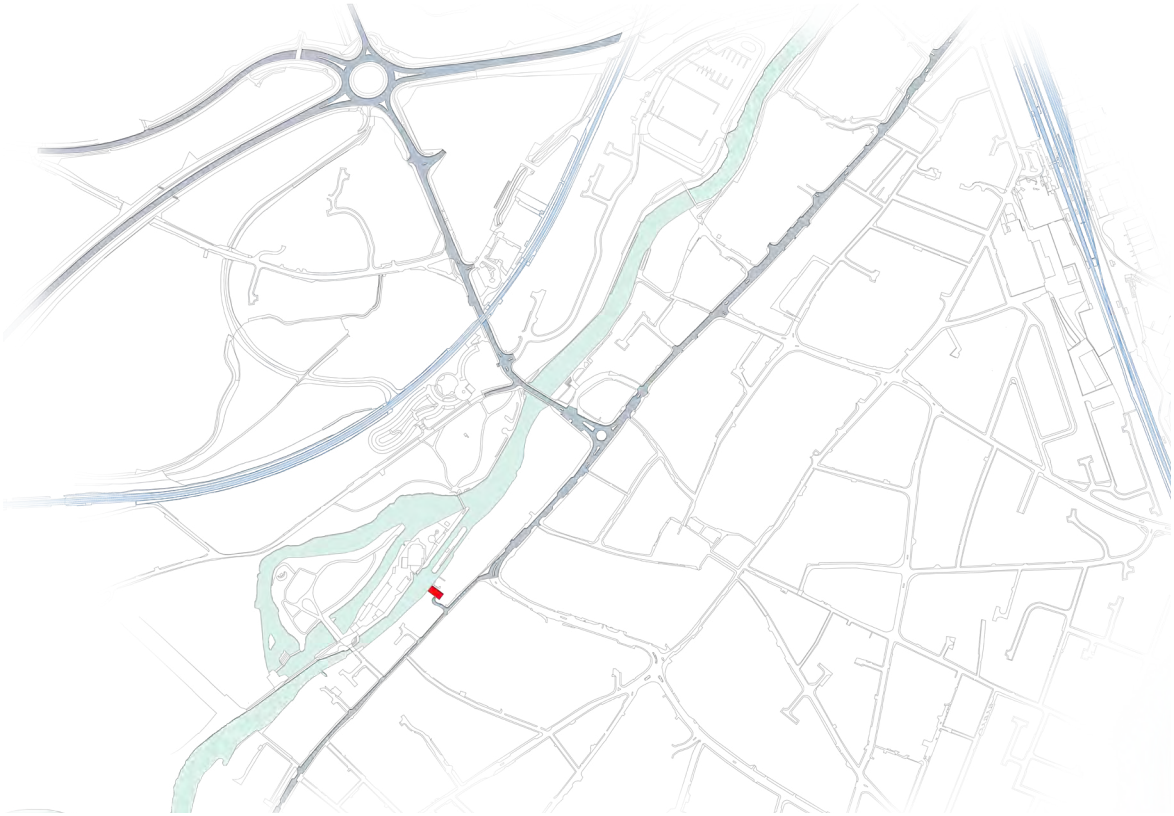
can make space feel cold. - not too much.

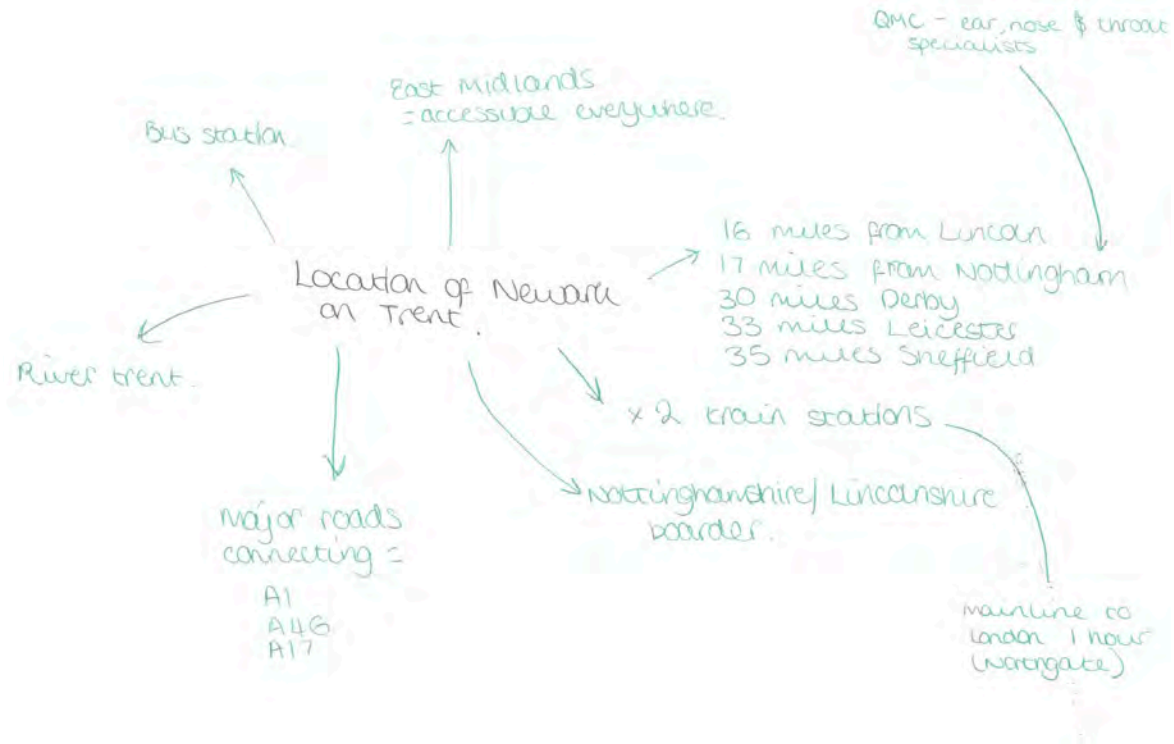
- keep shades lighter

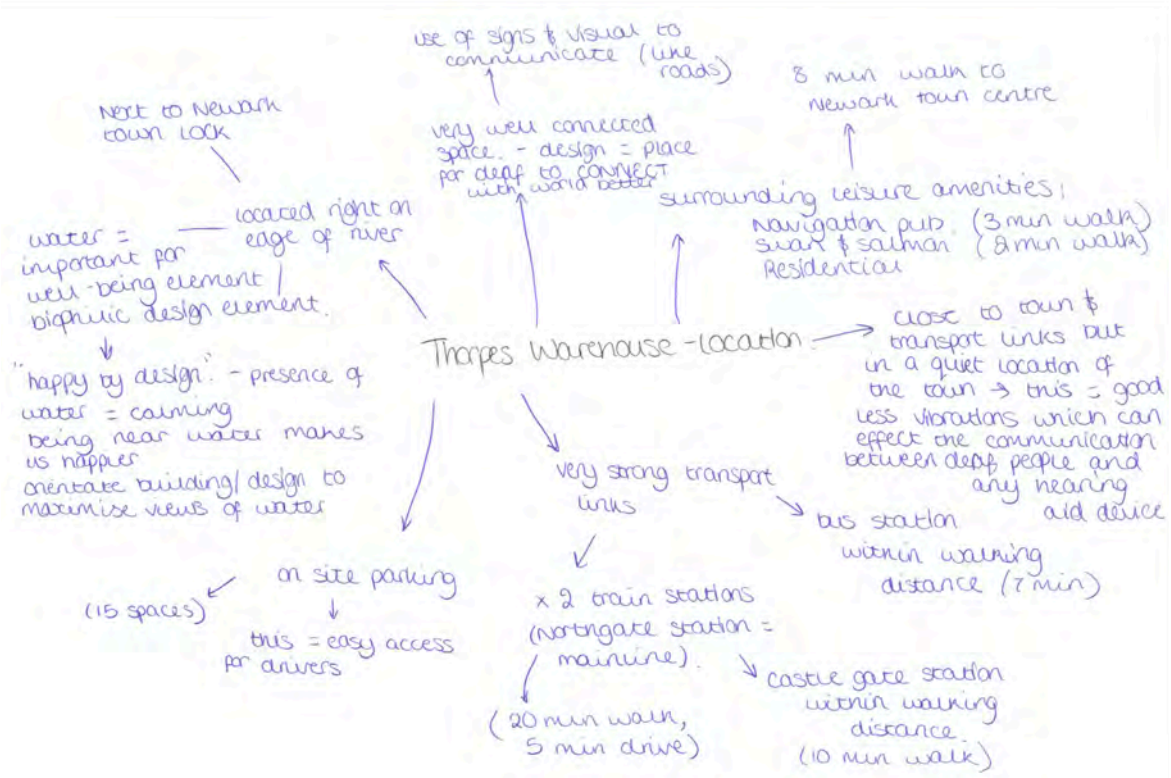
→ cheerful & happy
- warm colours
- happiness & stimulating
- keeps interest. (use in small quantities)

↳ too red (not good for concentration)

Colour palettes – interior spaces




QMC - ear, nose & throat specialists
East Midlands = accessible everywhere.
Bus station
Location of Newark on Trent.
16 miles from Lincoln
17 miles from Nottingham
30 miles Derby
33 miles Leicester
35 miles Sheffield
River trent.
x 2 train stations
Major roads connecting =
A1
A46
A17
Nottinghamshire/ Lincolnshire boarder.
mainline to London 1 hour (Norongate)



History of the deaf and BSL

British Sign Language = visual language separate from the verbal English language. It uses hand gestures, facial expressions and body language to communicate. Each country has it's own sign language.

In 2016 the BDA stated that over 151,000 people in the UK use BSL. Sign language is not only used by deaf individuals, it is also used within air traffic control, life guards and the army. It is also used unconsciously in every day life. e.g. in a loud bar, telling someone to wind their car window down, waving, giving a thumbs up.
BSL is not currently included in the national curriculum in schools, therefore not taught in many schools. There are many online courses where BSL can be learnt. - create a centre where it can be physically learnt.

673 - 735
First use of fingers to create an alphabet.

1428 - 1486
Princess Joanna of Scotland – communicated using sign language and interpretors.

1576
Earliest documented use of sign language. From registry records of the marriage between Thomas Tilsye and Ursula Russel.

1649 - 1708
Alexander Popham = first deaf person in the UK recorded to have been taught by oral methods (first taught with fingerspelling)

1639 - 1708
Sir John Gaudy and Framlingham Gaudy = first deaf people in the UK to have been reported to have been educated using the manual alphabet and signs.

1698
Publication of Digiti Lingua, by an anonymous deaf author, containing manual alphabet charts that laid the foundation for British Sign Language two - handed alphabet.

1760
Thomas Braidwood's Academy for the Deaf in Edinburgh opens. - The first school for the deaf.

1792 - 1855
John Creasy = first deaf teacher of the deaf in England - employed at the school.

1792
The first public deaf school in Britian opened: London Asylum for the Education of the Deaf and Dumb Poor.

1809
Author 'RR' publishes the Invited Alphabet – illustrations of the manual alphabet, intended for hearing children.

1880
The Second International Congress on Education of the Deaf, held in Milan, declare that sign language = inferior to Oralism, and ought to be banned. Leading to the widespread suppression of sign language in many Deaf schools throughout the world.

1911
The forerunner of action on hearing loss organisation is launched (RNID).

1944
The national Deaf Children's society is formed - coincides with new Education act.

1977 - 1979
Research into British Sign language are set up at the University of Edinburgh, Newcastle and Bristol.

1971
The British Deaf and Dumb Association re-brands itself as the British Deaf Association (BDA).

1979
Warnock Report published - advocating the integration of Deaf and disabled children into mainstream education. This eventually led to the closure of many residential schools for the Deaf.

1995
Disability discrimination act passed.

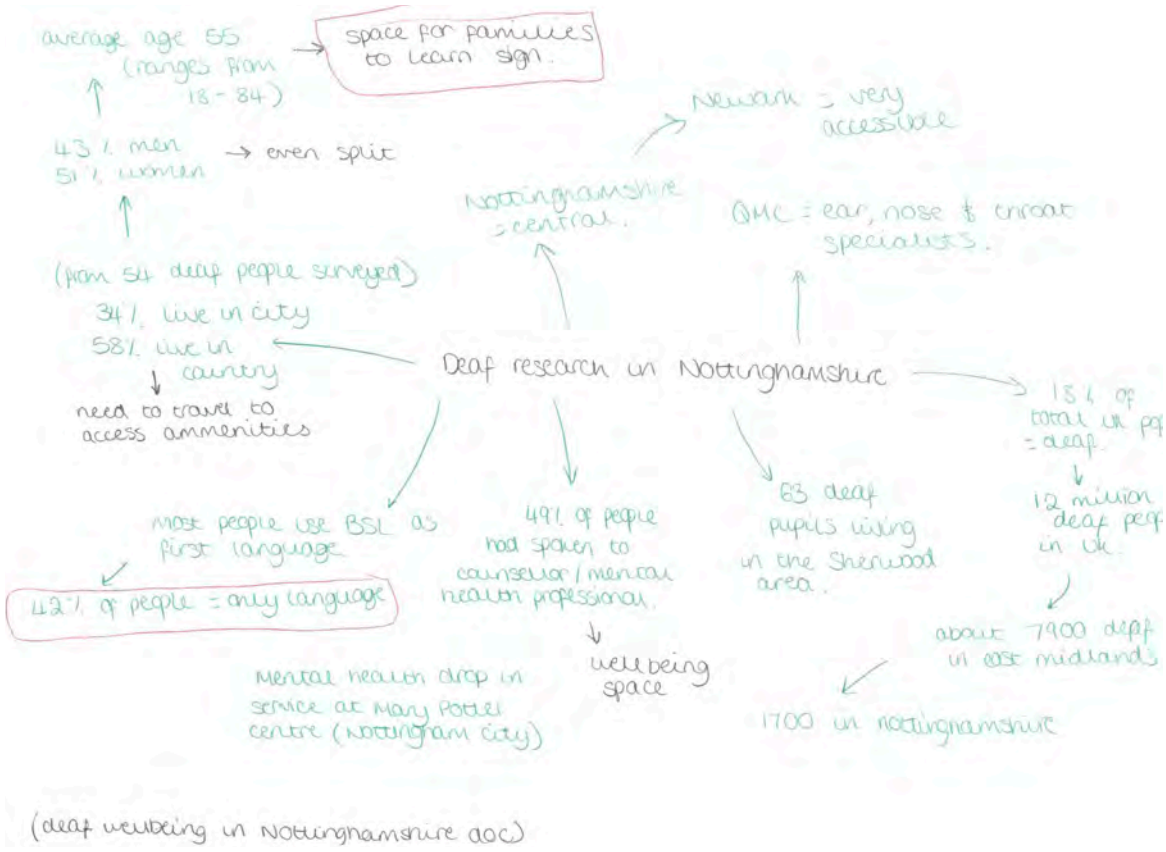
1990
Deaf studies programmes established at University of central Lancashire to encourage studies into British Sign Language related subjects.

1999
First British Sign Language march for campaign to make recognition of BSL takes place in London.

2003
BSL officially recognised by the British Government.

2010
21st international congress on the Education of the Deaf passes resolution that rejects motions passed in Milan 1880.

2006
DCAL established by university college London.

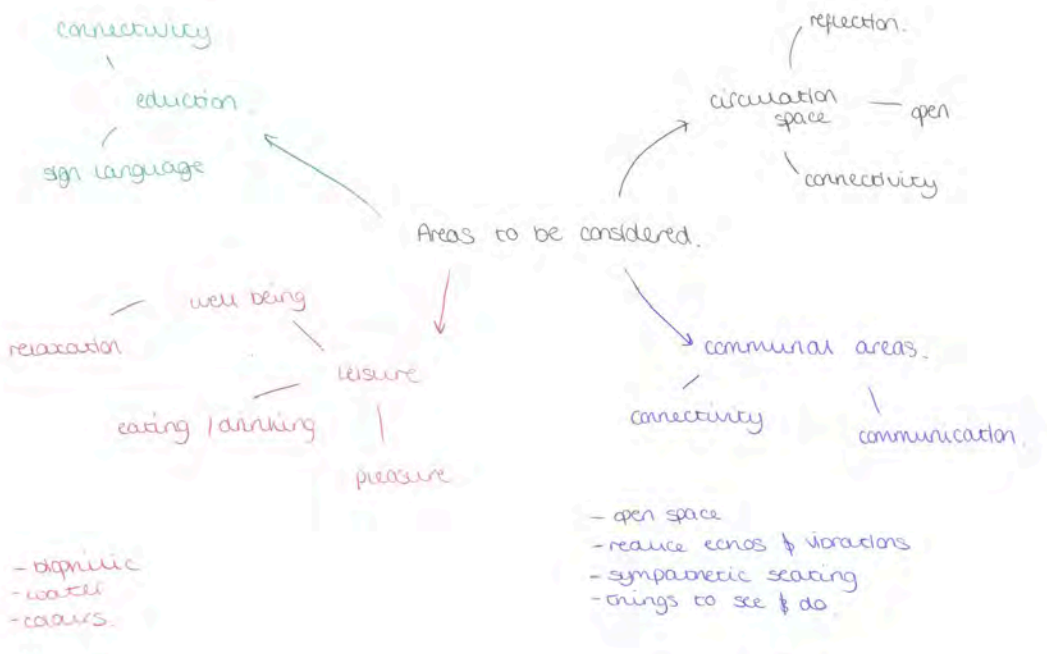


(deaf wellbeing in Nottinghamshire doc)


Vision & Architecture
"Architecture develops existential and lived metaphors through space, structure, matter, gravity and light. (the thinking hand)(114)
"vision is regarded as the most noble of the senses, and the loss of eyesight as the ultimate physical loss" (21)
vision = extension of touch
- walk through a forest is invigorating & healing due to the constant interaction of all senses & modalities (44)
* the eye collaborates with the body & the other senses
→ Architecture is essentially an extension of nature into the man-made realm
"visual observation is often confirmed by our touch" (the eyes of the skin) (27)
* tangible aspects needed.
"vision separates us from the world whereas the other senses unite us with it" - (the eyes of the skin) (28)
focuses our attention on our very existance
Architecture & silence
→ architecture presents the drama of construction silenced into matter, space & light. (55)


Designing for the deaf
SENSES
VISUAL
one of most important senses in design
taste
smell
touch
Light - one of the most fundamental human needs
avoid harsh bright artificial lights
high level windows = light & privacy
Thorpe warehouse = lots of windows
noise (vibrations) - make feel aggravated / unsafe
open plan building create issues regarding noise
Noise / vibrations from roads & railways should be reduc
-should have a range of spac for activity
& High ceilings create a sense o freedom & improve happiness
Reducing vibrations
Calming & visually appealing / stimulating
Tactile materials
exposed brick / real timbers floor boards = texture - beneficial to mental wellbeing.
TEMPERATURE - too hot / too cold = instantly unhappy
biophilic design
diffuses noise & reduces echos
IMPORTANT
reduces stress & increases sense of being 'home'
introducing natural lighting
- views of nature should be maximised (view of river & surrounding greenery)
- internal fountains should be as simple as possible & require little maintenance
Integrate or give views of water
- good for mental wellbeing & calming
- good supply of fresh air
- boosts energy levels & direct connection to outdoor world
sensation of breeze against skin = psychologically calming
& cross or stack ventilation good quality air outside ?

- private space, still open



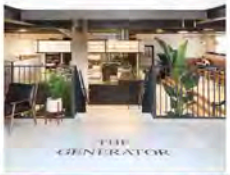
Project	Image	Similarity	Questions	Category	Sources
The deaf academy, Exmouth, UK, 2020, Stride Treglown		**Approach** Designed primarily for deaf individuals – using deafspace	Which strategies have they implemented? What educational spaces have they required?	Contemporary precedent	https://www.dezeen.com/2023/01/11/stride-treglown-deaf-academy-school-exmouth-uk/ https://stridetreglown.com/projects/the-deaf-academy/
Playful roaming nursery, Tinqueux, France, 2022, Phillippe Gibert Architecte		**Use** Designed for children, a play centre/ educational development.	How successful is an open plan child space? How are the spaces defined? What types of material are used?	Contemporary precedent	https://www.archdaily.com/990509/playful-roaming-nursery-philippe-gibert-architecte?ad_source=search&ad_medium=projects_tab https://archello.com/project/playful-roaming-creche-with-65-cradles-in-tinqueux
Silk Tree deaf friendly urban park, Tehran, Iran, 2020, Ashrafi & Zad		**Approach** Space designed primarily for deaf community	What principles were implemented to provide a deaf friendly environment?	Contemporary precedent	https://www.archdaily.com/966515/silk-tree-park-deaf-friendly-urban-park-ashrafi-and-zad
Design museum of London, London, UK, 2016, Allies and Morrison, John Pawson, OMA		**Approach** Adaptive re-use of a grade II listed building **Form** Large circulation space	How has the design responded to the historical context? How successful is the circulation space in terms of wayfinding and providing views to other floors?	Contemporary precedent Can visit	https://moderni.co/design-museum-of-london-oma-allies-and-morrison-john-pawson/ https://www.archdaily.com/799642/the-design-museum-of-london-oma-plus-allies-and-morrison
Polak building, Woudestein Campus, Rotterdam, 2014, Paul de Ruiter architects		**Use** Multifunctional education building **Form** Multiple floors with core circulation space	How do all the floors work off the core circulation space?	Contemporary precedent	https://paulderuiter.nl/en/projects/polak-building-slash-erasmus-university-rotterdam/
WeGrow, New York, US, 2018, Bjarke Ingels Group		**Use** Child development/ education through play and interaction **Materiality/colour** Neutral tones with child friendly colours to define spaces	How have spaces been designed through colour? How have multi – functional and multi – age spaces been devised?	Contemporary precedent	https://www.dezeen.com/2018/09/12/wegrow-big-wework-elementary-school-new-york-city/ https://www.archdaily.com/904957/wegrow-big

Coal drops yard, London, UK, 2018, Heatherwick Studio		**Approach** Adaptive re-use of industrial working building	How has the design emphasised the original use of the building, what new materials have been used to compliment the old?	Historic precedent Can visit	https://www.archdaily.com/904676/coal-drops-yard-heatherwick-studio https://thespaces.com/londons-coal-drops-yard-is-reborn-a-retail-destination/
Battersea power station, London, UK, 2022, WilkinsonEyre		**Approach** Adaptive re-use of historic building **Materiality** Retaining existing materials and using new materials to compliment	How does the new design work with the existing window openings? What materials have been used in the new design to continue the language of the building.	Historic precedent Can visit	https://www.archdaily.com/990615/battersea-power-station-wilkinsoneyre/6349afcb52a40846a757582c-battersea-power-station-wilkinsoneyre-photo?next_project=no
Thistle, Edinburgh, UK, 2016, 3DReid		**Use** Well-being centre	What materials / colours have been used to enhance well-being? How has timber cladding been used to introduce new elements to the existing building?	Contemporary precedent	https://www.archdaily.com/791717/thistle-3dreid?ad_source=search&ad_medium=projects_tab

Medieval mile museum, Kilkenny, Ireland, 2017, Mccullough Mulvin Architects		**Approach** Adaptive re-use, preserving buildings heritage	How have the old and new successfully merged?	Historic precedent	https://www.archdaily.com/875457/medieval-mile-museum-kilkenny-ireland-mccullough-mulvin-architects?ad_source=search&ad_medium=projects_tab
Jewel Changi airport, Singapore, 2019, Safdie Architects		**Materiality** Use of water within the interior **Concept** Connectivity	How does the interior water feature work?	Contemporary precedent	https://www.archdaily.com/915688/jewel-changi-airport-safdie-architects https://www.changiairport.com/corporate/media-centre/changijourneys/the-airport-never-sleeps/behind-the-rain-vortex.html
Salk Institute, San Diego, US, 1956, Louis Kahn		**Materiality** Use of water **Approach** Open plan, collaborative space	How are separate spaces divided within the open plan space? How does this build impact well-being?	Historic Precedent	https://archello.com/project/salk-institute https://www.archdaily.com/61288/ad-classics-salk-institute-louis-kahn

ICONE, Beval, Luxemburg, 2023, Foster + Partners		**Approach / strategies** Biophilic design, well-being Building structure /grid	How has the design worked around the building's grid? What design strategies have been used to improve well-being?	Contemporary precedent	https://www.archdaily.com/995519/icone-collaborative-office-complex-foster-plus-partners?ad_source=search&ad_medium=projects_tab https://www.fosterandpartners.com/news/archive/2020/06/icone-breaks-ground-in-belval/
Diana, Princess of Wales Memorial Fountain, London, UK, 2004, Gustafson Porter + Bowman		**Conceptual idea** Inclusivity and accessibility	How does the memorial make users feel? What features of this design draw people in?	Contemporary precedent Can visit	https://www.archdaily.com/803509/diana-princess-of-wales-memorial-fountain-gustafson-porter-plus-bowman?ad_source=search&ad_medium=projects_tab
Light in Water, Paris, France, 2011, DGT Architects		**Experience** Immersive and emotional, sensory – incorporating water	How did the instillation make users feel? How did the users interact with the instillation?	Contemporary precedent	https://archello.com/project/light-in-water

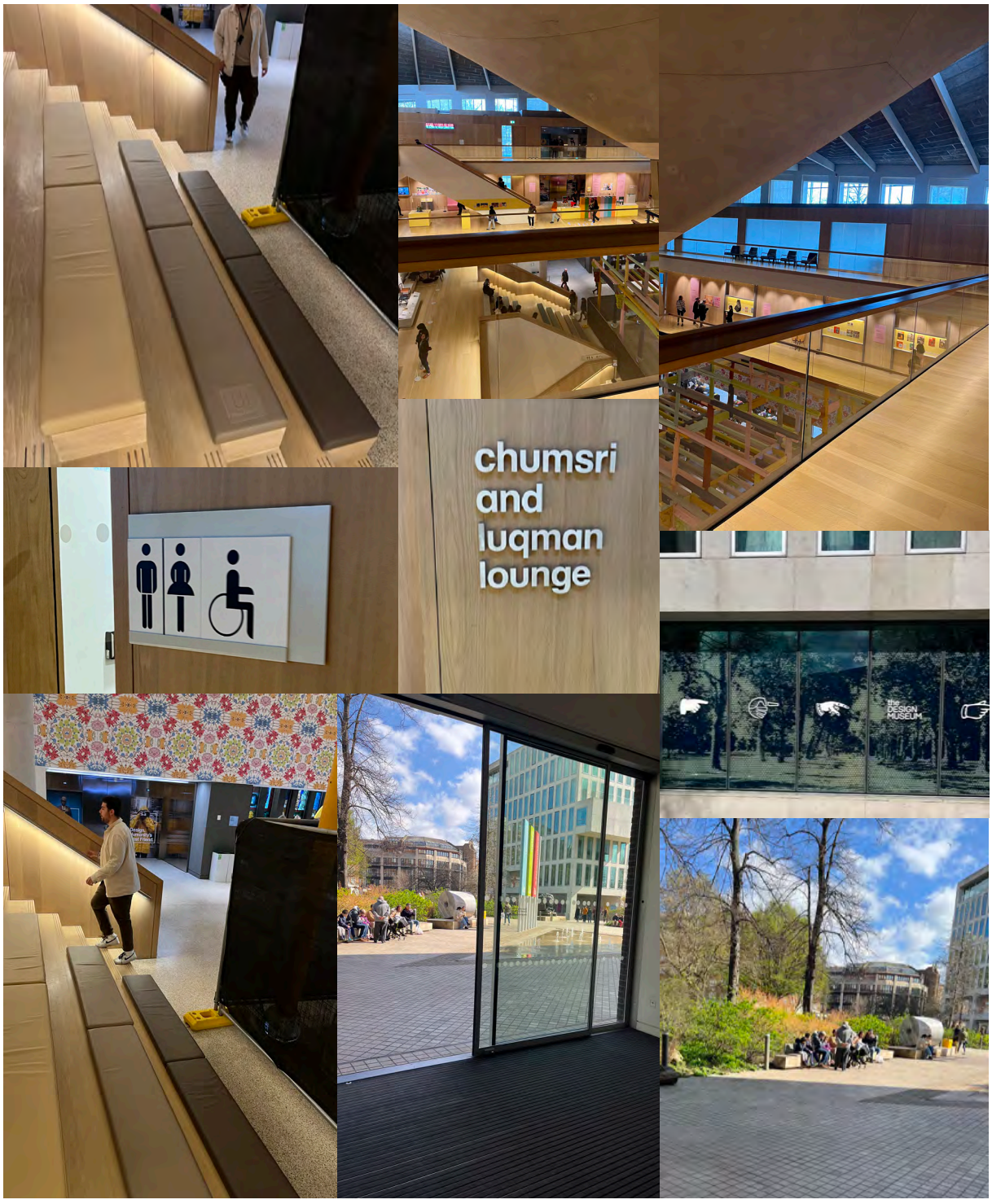
Fallingwater House, Mill Run, US, 1939, Frank Lloyd Wright		**Approach** Biophilic design approach, connecting humans with nature Integrating water within the design	How could this concept be brought into the interior?	Historical precedent	https://www.archdaily.com/60022/ad-classics-fallingwater-frank-lloyd-wright?ad_source=search&ad_medium=projects_tab https://www.dezeen.com/2017/06/07/fallingwater-frank-lloyd-wright-pennsylvania-house-usa-150th-birthday/
Northampton International Academy, Northampton, UK, 2019, Architecture Initiative		**Approach** Adaptive re-use, working with existing structural grid	How was the design worked around the existing structural grid?	Contemporary precedent (historic host building)	https://www.archdaily.com/917720/northampton-international-academy-architecture-initiative?ad_source=search&ad_medium=projects_tab
The Learning Tree Nursery, London, UK, 2019, Delve		**Approach** Open plan, unstructured, child led learning space	What materials are used and how is colour incorporated into the design? How are spaces multifunctional?	Contemporary precedent	https://www.archdaily.com/989868/the-learning-tree-nursery-delve?ad_source=search&ad_medium=projects_tab

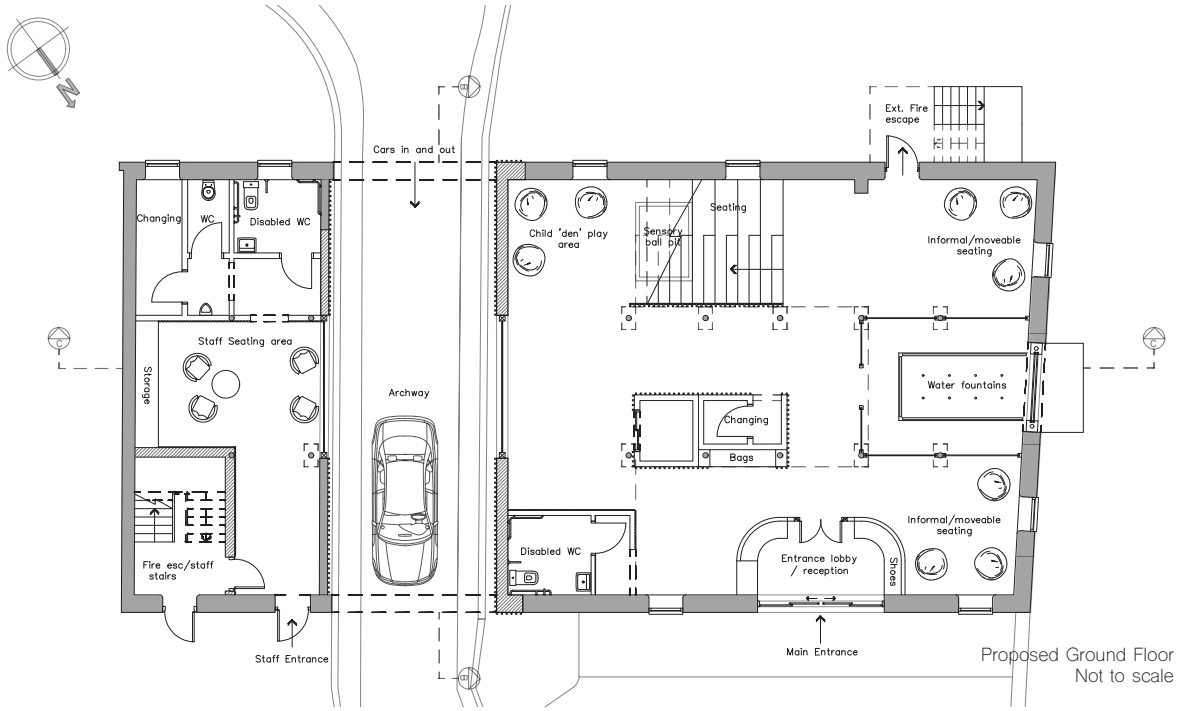
Generator Building, Bristol, UK, 2022, MoreySmith	 	**Approach** Design prioritising well-being and reflecting the history of the building Adaptive re-use	What design strategies have been implemented to improve well-being What materials have been used to reflect the history of the building?	Contemporary precedent	https://www.archdaily.com/985329/generator-building-moreysmith?ad_source=search&ad_medium=projects_tab
Prestwood infant school dining hall, Buckinghamshire, UK, 2015, De Rosee Sa		**Use** User = children, childcare setting, eating space.	How has colour been implemented into the design? How have the toilets been concealed in an open plan area?	Contemporary precedent	https://www.archdaily.com/780656/prestwood-infant-school-dining-hall-de-rosee-sa?ad_source=search&ad_medium=projects_tab

Site visit - London design museum

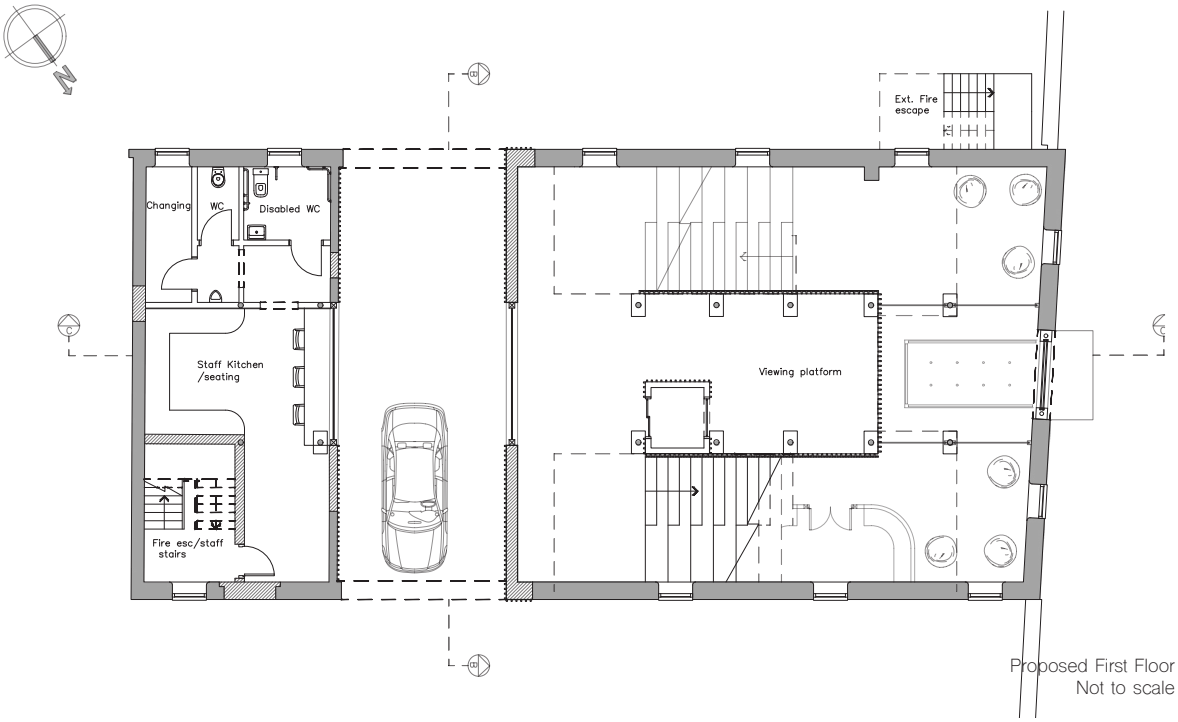
Name and Type of Interior	Activities	Environment	Interactions	Objects	Users
Entrance	Queuing for tickets, Observing, wayfinding	Reception Shop area Seating and circulation area	Visitor - signage Visitor - visitor Visitor – seating Visitor – stairs / lifts	Sales counter Seats Staircases Signage	Visitors Receptionists Cleaners Shop Assistants
First Floor	Wayfinding, Observing, Working individuals	Exhibitions Seating/study space circulation	Visitor – exhibitions Visitor – signage Visitor – seating Visitor – visitor Visitor – toilets Visitor – stairs / lifts	Artwork Interactive exhibitions Seats Tables	Visitors Workers
Second Floor	Wayfinding Observing Interacting with displays reading	Exhibitions Seating area Circulation	Visitor – exhibitions Visitor – signage Visitor – stairs / lifts	Exhibitions Tables Seating	Visitors Workers
Meeting Rooms	Meetings Working Private space	N/A – couldn't enter	N/A – couldn't enter	N/A – couldn't enter	Private visitors Workers
		Building Name	London Design Museum	Date 05/02/2023	

Site visit – London design museum – photos

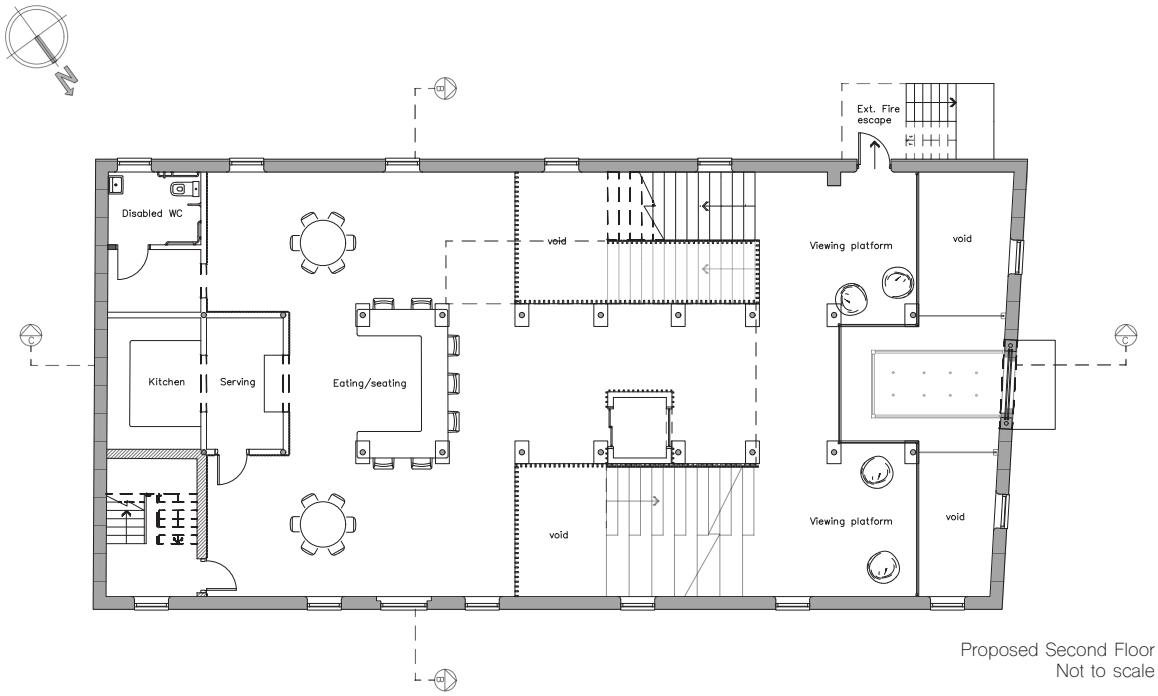




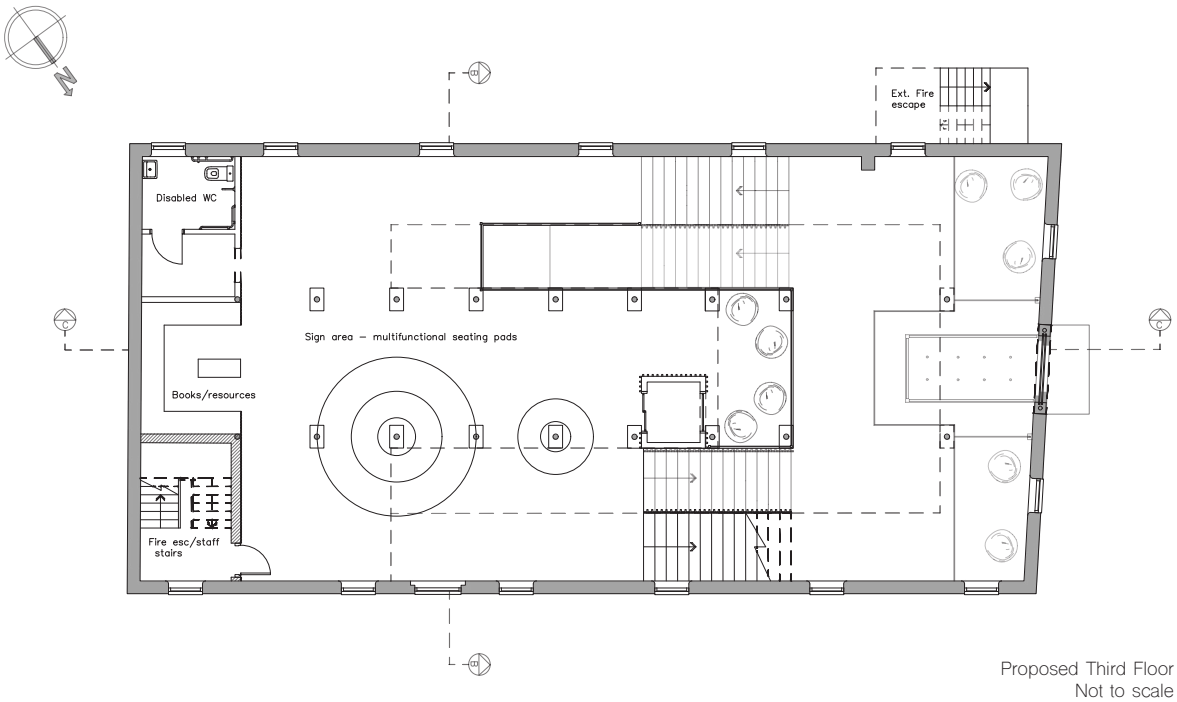
Proposed Ground Floor
Not to scale



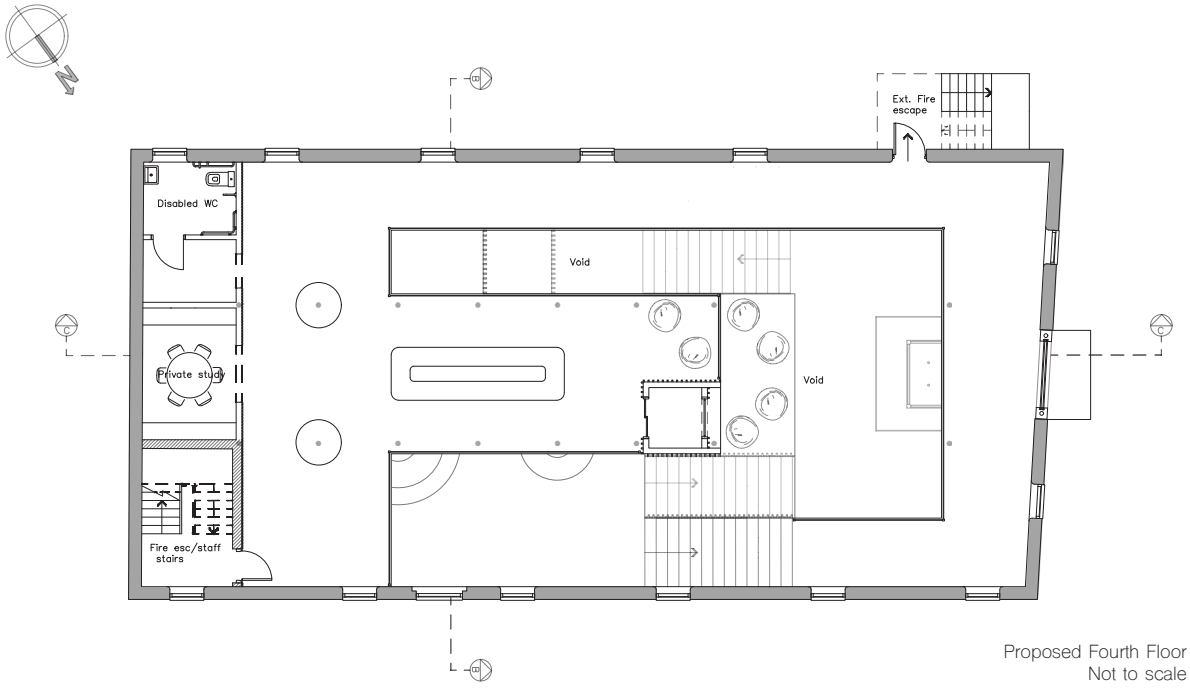
Proposed First Floor
Not to scale



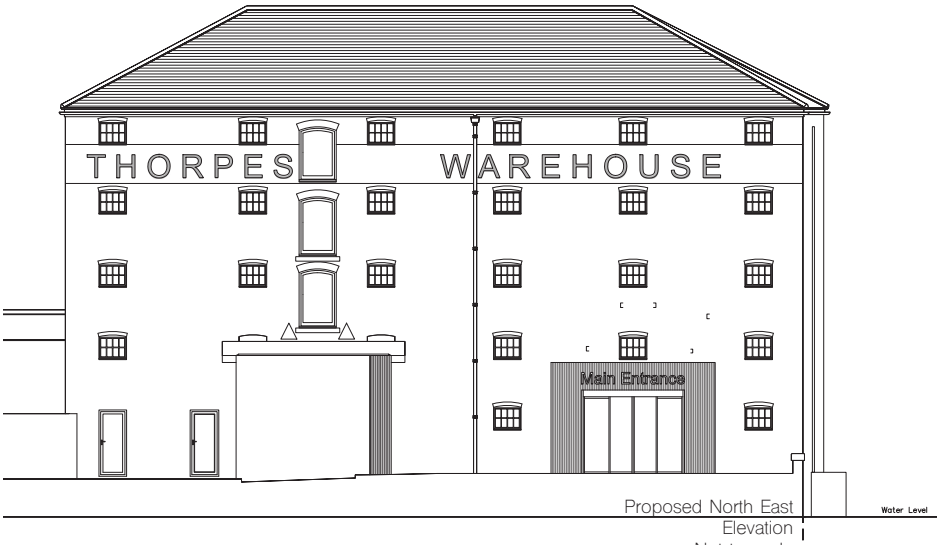
Proposed Second Floor
Not to scale



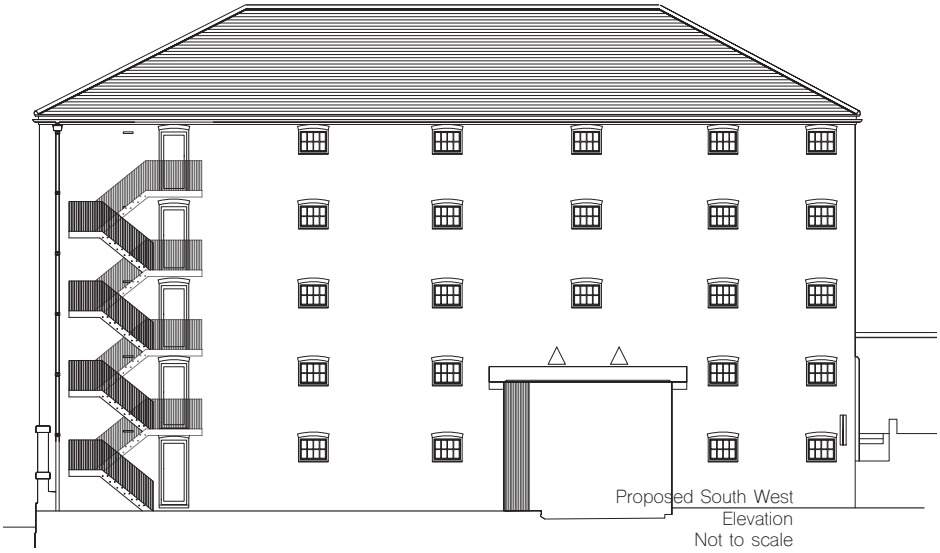
Proposed Third Floor
Not to scale



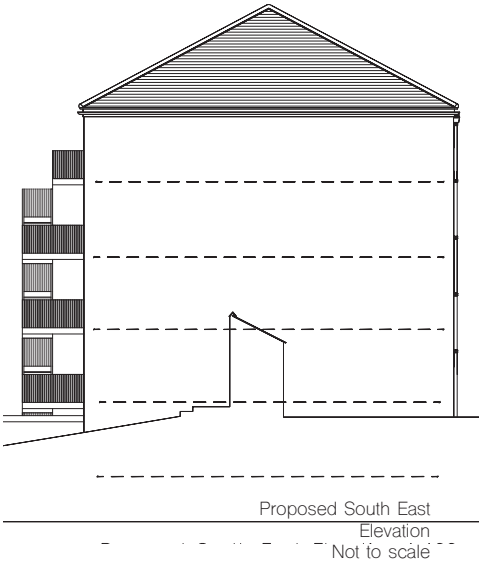
Proposed Fourth Floor
Not to scale



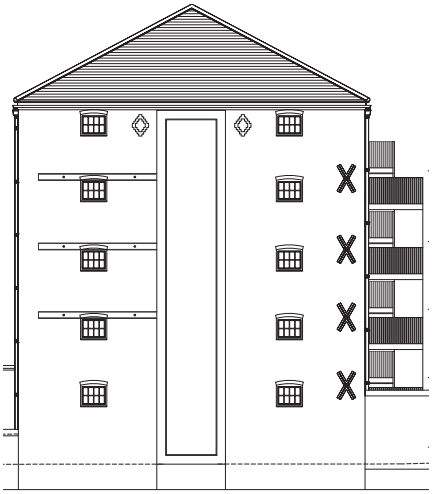
Proposed North East
Elevation
Not to scale



Proposed South West
Elevation
Not to scale

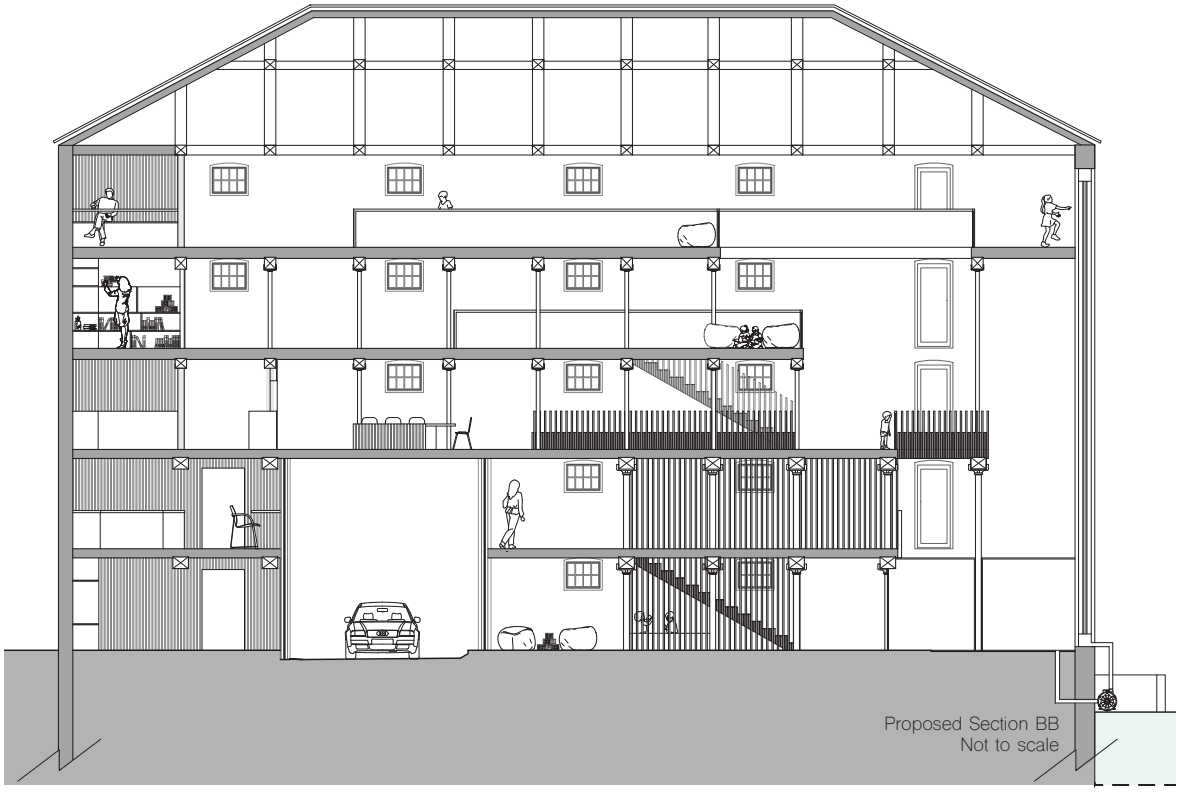


Proposed South East
Elevation
Not to scale



Proposed North West
Elevation
Not to scale

Proposed Section BB
Not to scale



Proposed Section BB
Not to scale

13. Appendix D

Week 16		
Date	Time Spent	Description
Thursday 19th Jan	2hrs	Lecture – introduction to Part B exegesis brief.
	1hr	Gannt chart – project planner creation.
Friday 20th Jan	4hrs	Initial research into potential precedent studies.
Total hours - 7		
Week 17		
Tuesday 24th Jan	2hrs	Research into public stair design – specifically stairs for children – gathering spaces on stairs.
Wednesday 25th Jan	1hr	Research into public toilet regulations, stair regulations and regulations on spaces for children.
Thursday 26th Jan	2hrs	Precedent studies lecture – continued research into potential precedent studies.
Friday 27th Jan	3hrs	Table of potential precedent studies created and partially filled in.
Total hours - 8		
Week 18		
Tuesday 31st Jan	4hrs	Researching potential precedent studies, adding to precedent table.
Wednesday 1st Feb	1hr	Continuing with precedent table
Thursday 2nd Feb	2hrs	Seminar
Sunday 5th Feb	2hrs	Precedent study site visit (London design museum)
Total hours - 9		
Week 19		
Tuesday 7th feb	4hrs	In-depth precedent study sheets created
Thursday 9th feb	2hrs	Infographics/drawings completed to display research
Total hours - 6		
Week 20		
Tuesday 14th Feb	3hrs	Conceptual statement drafted; conceptual diagrams drawn
Wednesday 15th Feb	2hrs	Precedent studies researched x1 in depth study completed
Thursday 16th Feb	2hrs	Seminar
Total hours - 7		
Week 21		
Tuesday 21st Feb	3hrs	Design strategies noted – draft notes made
Wednesday 22nd Feb	1hr	Design strategy infographics made

Total hours – 4		
Week 22 – All time spent on presentation boards in preparation for presentation		
Thursday 2nd March	1hr	1 to 1 tutorial
Week 23		
Wednesday 8th March	4hrs	Part A document amended; precedent studies added – start of strategic approach
Total hours – 4		
Week 24		
Tuesday 14th March	5hrs	Draft document continued – precedent pages laid out
Wednesday 15th March	2hrs	Draft chapters written up – some figures drawn up
Thursday 16th March	2hrs	Seminar
	1hr	Meeting with peer, drafts exchanged
Week 25		
Tuesday 21st march	2hrs	Peer document reviewed
Thursday 24th March	1hr	Peer meeting and feedback exchanged
Total hours – 3		
Week 26		
Tuesday 28th March	3hrs	Continued working on part B document, made amendments according to peer feedback
Thursday 30th March	2hrs	Seminar
	1hr	Started draft introduction
Total hours – 6		
Week 27 / 28 – easter break – continued working on final document		
Week 29		
Tuesday 18th April	4hrs	Continued working on final document – writing up chapters
Wednesday 19th April	3hrs	Finalising chapters and drawing up figures
Thursday 20th April	1hr	Personal tutorials
Total hours – 8		
Week 30		
Tuesday 25th April	8hrs	Finalising document – organising layout
Wednesday 26th April	8hrs	Organising supportive documents, contents table etc.
Thursday 26th April	3hrs	Finalising part B document and submitting

Peer review notes (24th March 2023):

- Spelling and grammar checked some amendments to make - amended accordingly.
- Mentioned adding more figures into the document in general, specifically within the precedent studies section – additional drawings generated for precedent studies, more figures added within the strategic approach section to strengthen the writing.
- Figure numbers amended as highlighted within the peer review.
- Citations added as highlighted in peer review.
- All supportive documents will be added as discussed in peer review.

General discussions about what to include in the document, check lists made, worked together to work through the brief.