

CRYO—

Ancient Greek (krýos)
/involving or producing cold, especially extreme cold./

Danielle Woodman

'How can the adaptive reuse of a bath house contribute to the physical and psychological development of the GB Rowing Team, through the process of activating their body and mind.'

I declare that this is my own work and has not previously been submitted for assessment.

A handwritten signature in black ink that reads "D. Woodman". The signature is written in a cursive style with a long horizontal line extending to the right from the end of the name.

Danielle Woodman
26th April 2023

Abstract

The headquarters for the GB Rowing Team in Caversham, Reading, is a small and under equipped space for high level athletes to train and progress within the sport. Therefore, finding a unique and innovative training facility for the most successful GB Olympic team is an issue across the UK. The intention of this treatise is to provide in-depth research of the context, conceptual approach and design application to create a space for these rowers to reach their full athletic potential, mentally and physically. To do this, the question of how the adaptive reuse of a bath house can contribute to the physical and psychological development of the GB Rowing Team, through the process of activating their body and mind will be explored through the architectural adaptation of the Wim Hof Method, using strategies such as biophilic design.

Table of Contents

0	List of Figures	7	6	Stratigic Approach	32
1	Introduction	8	6.1	Introduction	32
2	Literature Review	8	6.2	Forming a Conceptual Language	34
2.1	Introduction	8	6.3	Concept Model	35
2.2	Literature Review Table	9	6.4	Design Language & Circulation	35
2.3	Synthesis	10	6.5	Design Strategies	36
2.4	Conclusion	10	6.6	Material Consideration	38
3	Objectives	10	6.7	Conclusion	38
3.1	The Wim Hof Method	11	7	Design Reflection	39
3.2	Breathing	11	7.1	Introduction	39
3.3	Cold Therapy	11	7.2	Initial Ideas	39
3.4	The Mind	11	7.3	Concept	40
3.5	Biophilic Design	12	7.4	Concept Application	40
4	Context Analysis	12	7.5	Delimitations	41
4.1	Introduction	12	7.6	Conclusion	41
4.2	Historical Context	13	8	Conclusion	41
4.3	Sun Path	13	9	List of Images	42-43
4.4	Wind	14	10	Terminology	44
4.5	Air Quality	14	11	Reference List	45
4.6	User	14	12	Bibliography	46
4.7	Client	15	13	Addendum A	
4.8	Conclusion	16		- Ethics review	
5	President Study Review	17		-Learning agreement	
5.1	Introduction	17	14	Appendix A	
5.2	Ashton Old Baths	18-19		-Original Technical Drawings	
5.3	La Esperanza School Therapeutic Pools	20-21	15	Appendix B	
5.4	Active Therapy Center R3	22-23		- Proposed Technical Drawings	
5.5	Jikka	24-25	16	Appendix C	
5.6	The British Museum	26-27		- Case Study Observations	
5.7	Grange Hall	28-29	17	Appendix D	
5.8	Canadian Museum of Nature	30-31		- Research Diary/ Time Plan	
5.9	Conclusion	32	18	Appendix E	
				- Peer Review	
			19	Appendix F	
				- President Study Table	
			20	Appendix G	
				- Spatial Planning	
			21	Appendix H	
				- Development Work	

0 List of Figures

- Figure 1. Dogma
(Woodman,2022)
- Figure 2. Literature Review
(Woodman,2022)
- Figure 3. Conceptual Section A-A
(Woodman,2022)
- Figure 4. Water in Design
(Woodman,2022)
- Figure 5. Historical Timeline
(Woodman,2022)
- Figure 6. Sun path during the day
(Woodman,2022)
- Figure 7. Team GB
(Woodman,2022)
- Figure 8. Site Map
(Woodman,2022)
- Figure 9. User Demographic
(Woodman,2022)
- Figure 10. User Persona
(Woodman,2022)
- Figure 11. Context Collage
(Woodman,2022)
- Figure 12. Conceptual Axonometric
(Woodman,2022)
- Figure 13. Concept Model
(Woodman,2022)
- Figure 14. Language
(Woodman,2022)
- Figure 15. Spiral Ramp
(Woodman,2022)
- Figure 16. Cold Pool
(Woodman,2022)
- Figure 17. Roof Garden Sketch
(Woodman,2022)
- Figure 18. Proposed Section C-C
(Woodman,2022)
- Figure 19. Proposed 2nd Floorplan
(Woodman,2022)
- Figure 20. Proposed 1st Floorplan
(Woodman,2022)
- Figure 21. Proposed Ground Floorplan
(Woodman,2022)
- Figure 22. Materials
(Woodman,2022)
- Figure 23. Proposed Section A-A
(Woodman,2022)
- Figure 24. Gibbs' Learning Cycle
(Woodman,2022)
- Figure 25. The Wim Hof Method Book
(Woodman,2022)
- Figure 26. Early Concept Diagrams
(Woodman,2022)
- Figure 27. Early Concept Sections
(Woodman,2022)

1 Introduction

With rowing being the only GB sport to have won a gold at every Olympics since 1984, it often comes with the assumption that the athletes have to maintain great amounts of determination, strength and dedication. These key characteristics within the athletes prove to be vital in achieving success in the sport. Therefore, the question of how a new innovative space for these athletes, to unlock their full potential, by allowing the methods of adaptive reuse to activate their body and mind, becomes a rich area for research. Within this treatise, the research outlined in figure 1, will seek to find the specific weaknesses seen within the GB Rowing Team training facilities and how the design intervention of an abandoned bath house, using biophilic design strategies to physically adapt the Wim Hof Method, can push the athletes to achieving not only better competitive results, but greater mental and physical health without resorting to illegal drugs.

The design problem that this intervention intends to diminish is the lack of communal, innovative training facilities for athletes in the GB Rowing Team in Reading, which specifically targets their individual psychological and physical needs depending on their position within the team. Research shows that there are currently no facilities that supports Team GB on this scale, utilising the power of the Wim Hof Method. This scheme, will intergrate the physical and psychological objectives while responding to context of the site.

Such as the human race has disconnected with nature due to modern day comforts, so has the built environment around us. Architecture and our physical bodies are stagnating at the same point, “with the trend continuing towards increased urbanisation and widespread physical and mental burnout, the need for generous architecture that reconnects people to an experience of nature becomes ever more important” (Browning & Ryan, 2020). This idea lends itself to vernacular adaptive reuse in the context of a rowing training facility, as the metaphorical and physical tools laid out can be successfully implemented through the means of biophilic alteration. These interior strategies when combined with the science behind the carefully formulated method of Wim Hoff will create a simple, effective way to stimulate these deep physiological processes. (Hof,2020)

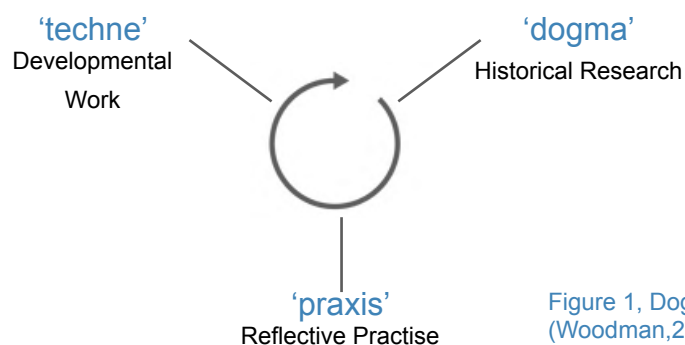


Figure 1, Dogma (Woodman,2022)

2 Literature Review

2.1 To gain an overall understanding within the research, a literature review is key in order to obtain a wide range of opinions and facts on the subjects involved. There are many important texts on biophilic design, adaptive reuse and The Wim Hof Method, these documents when used in conjunction of each other or against certain points, can create a rich overview to carry into the design strategies of the intervention process.

2.2 Literature Review

Source	Dependent Variables	Results
Hof, 2020	The Wim Hof Method	The Wim Hof Method is essentially a tool to optimise the human body and mind, connecting us back to nature and back to our primal state like our ancestors. Our modern-day comfort zones <u>has</u> made us weak, in our physical and psychological being.
Hof,2020	Breathing	Breathing with a certain technique is one of the three pillars of the Wim Hof Method. When related to athletes, flooding your brain with oxygen before training can alter your biochemistry, irradiating CO2. This helps flush out lactic acid quickly in order to recover quicker. These breathing techniques need to be done in a group setting to fully connect with people around you, a circular design will be key
Hof,2020	Cold therapy	Cold therapy is the second pillar to the Wim Hof Method, it aids with muscle recovery as well as helping your immune system. By submersing your body to the cold over time, you will be able to adapt to the stress in a positive nature. The body needs to have a proactive response not a reactive one, therefore the design of how to get into these pools will be key. A gradual increase to the cold, slowly decreasing the temperature.
Hof,2020	Commitment	The process of 'mind over matter' is the third pillar to this tool. Having a strong mind to overcome the negative thoughts while being in the cold is to enable the body to be pushed past it limits, without the mental block. When related to the design, visualisation and mediation will need to be done in a small group with minimal distraction.
Pallasmaa, 1996, p69	Architecture of the body	The eyes of the skin describe how our surroundings can influence our senses and vice versa. The architecture and interior strategies fundamentally change how we move and use a space.
Pallasmaa, 1996	The senses	Sight is a vital part of how we interact with a space, however it can also suppress our other senses. Touch can also alter how we view and move with architecture.
Hof, 2015	Science	The science that categorically backs up the intentions of the design interventions. Isobel Hof, reiterates the effects of the method, however using scientific results and studies. These studies, such as the Radboud University study shows how the use of user-centre designed cryo pools can physically change the neurological process of an athlete.
Nichols & Cousteau, 2015	Blue spaces	This literature evaluates the theory behind 'blue spaces'. The idea that the use of water within a space can affect the mood and mind-set of a person, the sound and colour of the water creates a calm and relaxing space.
Browning & Ryan, 2020	Biophilic design	This source backs up the theory of how biophilic design can mirror the urbanisation of architecture today. By taking the key principles of biophilia in this design, the effects will have a direct correlation the subsequent adaptive reuse of historical buildings.
Scott, 2008	Vernacular	Fred Scott shows how vernacular design can directly and indirectly effect the process of adaptive reuse, as well as the user's relationship with it. By using natural materials from the local area, the historical context of the building is restored.
Plevoets & Cleempoel, 2019	Adaptive reuse	Adaptive reuse, when used in the context of a locally important building, can produce positives and negatives. Some argue that the historical context of the building is lost through urbanisation whereas other state that it is key in order to progress into new ideas and theory's surrounding the iterations of structures.

Figure 2, Literature Review
(Woodman,2022)

2.3 Literature Review Synthesis

The views of Browning and Hoff show a direct correlation in freeing our ancestral burden as centuries of pollution and urbanisation has taken its toll on mankind's collective consciousness (Hof,2020). This supporting view on incorporating nature into design is backed up by the works of Nichols and Cousteau, which describes how spaces involving water can reduce stress and anxiety through its sound and touch, when linked to the cold pool therapy described by Wim Hof, it provides a starting point for the design strategies within the project. Plevoets concedes that there are two sides adaptive reuse when used with the historical context of a building, however the views of Scott highlight the positivity of using the context, such as local materials and the user's relationship.

2.4 Literature Review Conclusion

The sources within the literature review address wide social and environmental arguments, allowing for an objective discussion when answering the research question. By being able to identify the challenges seen within adaptive reuse, it opens up areas of design strategies where the gap of urbanisation and biophilic design can be filled.

3 Objectives

The criteria to be able to subjectively curate a design response is seen within the three pillars of the Wim Hof Method.

- 1) Breathing exercises
- 2) Training of mind-set/ concentration
- 3) Cold exposure

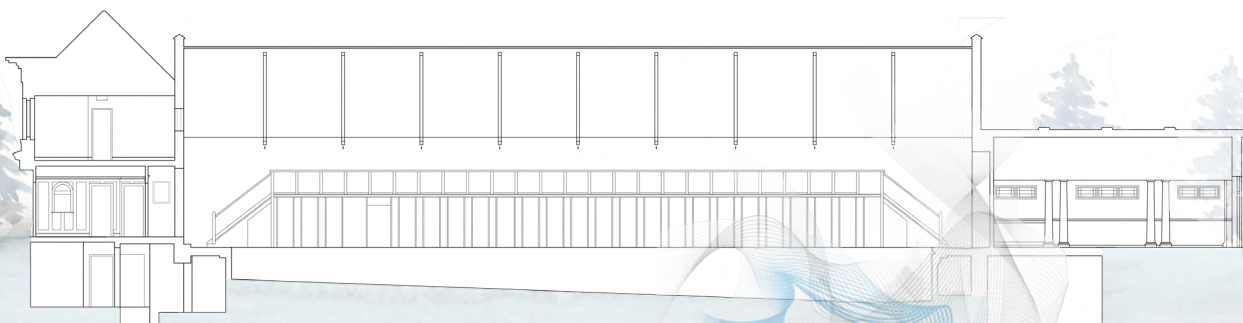


Figure 3. Conceptual Collage of Section A-A. Not to scale. (Woodman,2022)

3.1 Introduction To The Wim Hof Method

The Wim Hof Method is a program created by Dutch athlete and motivational speaker, Wim Hof, to keep your body and mind at an optimal state, by bringing the body out of our modern-day comfort zones and back to our primal state.

“Through decades of self-exploration and ground-breaking scientific studies, Wim has created a simple, effective way to stimulate these deep physiological processes and realise our full potential” (Hof,2015).

3.2 Breathing



Image 1
(Woodman,2022)

“You can change your own chemistry just by **BREATHING**, cold exposure, and mindset” (Hof,2020)

The first pillar of the method is outlined in a breathing program, by controlling your breathing, whether that being in a scientific or unconscious form, you have an extensive advantage over the competitor. The University of Radboud's endotoxin study (2014) shows the method of controlled hyperventilation influences your nervous system with short term hypoxia and eventually triggers a positive stress response which will lead the athletes to being able to control their long-term resistance to stressful situations such as racing and testing. (Hof, 2015).

3.3 Cold Therapy



Image 2
(Woodman,2022)

“Cold is a **STRESSOR**, if you are able to get into the cold and control your body's re-sponse to it, you will be able to **CONTROL** stress” (Hof,2020)

The second pillar is the use of cryotherapy, the process of immersing in extreme cold to influence the body's natural process of stress. Cold plunges or baths allow for muscle recovery, better sleep and a flow of endorphins which helps to alleviate anxiety and depression.

3.4 The Mind



Image 3
(Woodman,2022)

“Your fitness is 100% **MENTAL**. Your body won't go where your mind doesn't push it” (Hof,2020)

The final stage of the method is the idea of mind over matter. How one affectively harnesses their thoughts can implement the breathing and cold therapy, and subsequently the core fundamentals of rowing. Meditation, when done correctly can give the athletes tools that put the method to the test, practically.

3.5 Biophilic Design

In this intervention, biophilia is the direct design response to the Method, mirroring the innate instinct to connect back to nature through the physical manifestation of water, raw materials and biomimicary. Dating back 250 years, it is mankind's earliest form of adaptive reuse by transforming the natural landscape, seen in Art Deco and Japanese architecture. (Browning & Ryan, 2020) Ice water takes a scientific form in this instance, however when used in a creative aspect, a 'blue space' can become a tool to control anxiety and stress. The sound and colour of water in design, such as water features show to subconsciously relax the mind (Nichols & Cousteau, 2015). The quote, 'we behold, touch, listen and measure the world with our entire bodily existence, and the experiential world becomes organised and articulated around the centre of the body' (Pallasmaa, 1996, p69), supports the aim of the project to highlight the environment in which the building sits, linking this notion of stripped back design using raw materials such as wood and clay with the primal quality of the pillars in the Wim Hof Method, reducing the stress of the modern world. Individually, neither of these aspects are new to the area of adaptive reuse, however when used in conjunction with each other the design can mirror the science, by revoking our primal senses and connecting us to nature.

4 Context Analysis

4.1 Introduction

The context analysis is a vital part of the research for the project, the historical study of the building as well as its geographical context provide key information which in turn influences the adaptive reuse. The sun path, wind speed and air quality of Reading all play a part in developing the project for the rowing team, as well as incorporating the Wim Hof Method into that. The in depth study on the user and client show how the design of the project can be tailor made to the GB Rowing Team, incorporating the needs for the user into the conceptual and strategic approach.

WATER IN DESIGN



Water therapy can alleviate some of the symptoms of anxiety and depression.



Cryotherapy can activate regions in the brain responsible for pain and lactic acid suppression.



The sound and flow of a river when rowing emulates a sense of calm and ease.

4.2 Historical Context

Adaptive reuse can be described as the ‘alteration’ or ‘renovation’ of an existing building, by preventing the loss of the structures cultural significance (Plevoets & Cleempoel, 2019). However, due to the emergence of over urbanisation, many historical buildings have lost their identity in the bid to create ‘popular’ retail and leisure spaces, despite the context of which the building sits. This then creates a case for a vernacular transformation within the project, the Arthur Hill Bath House was built in 1911, in Reading as a public bath house and since 2016 has been an abandoned swimming pool, a suitable space to renovate (figure 5). It is Readings oldest sporting facility, after being converted into a 25-meter swimming pool in the 1940s and hosting a number of competitive galas. Due to this, a vernacular approach allows for the adaptation to take on the local materials and resources of Reading (Scott, 2008), to bring the community back to the derelict facility as it once was. This is contextualised in the site as it sits a mile south of the official Team GB rowing training centre, on the Redgrave Pinsent lake (figure 8). The building possesses a grade II listed façade where the Edwardian bath house has been heavily influenced by the presence of Roman baths, dating back to the 2nd Century B.C, through the large, communal spaces. This language, which was created through necessity of the ancient techniques of aqueducts, will be evident through the process of renovation due to the presence of water being the constant that takes this concept from the Ancient Romans to the present day.



Figure 5, Conceptual Historical Timeline (Woodman,2022)

4.3 Sun Path

The Arthur Hill Bath House is south facing, meaning the South elevation will receive a large amount of sunlight due to no additional structures blocking the path. The natural light holds a great advantage to introduce biophilic strategies into the building by having the power to positively affect the moods of the athletes and participants. However, by enabling the suns path to enter the structure through windows also will increase the temperature, which will need to be closely monitored when involving the aspect of cryotherapy.

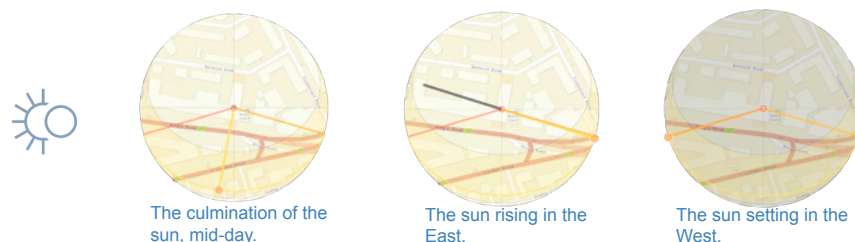


Figure 6, Sun Path (Woodman,2022)

4.4 Wind

Within rowing, the wind direction and speed can greatly affect the outcome of the race as a head or tail wind will either work as an advantage or disadvantage. With an average 14mph, South Westerly wind on the Redgrave Pinsent lake and subsequently impacting the Arthur Hill Bath House, the emulation of these conditions into the design and into their training can improve the performance on the water.

4.5 Air Quality

A large part of the Wim Hof Method and therefore part of the adaptive reuse is the air quality, the breathing practises require regulated air control to gain the full benefits. Research shows the air quality in Reading to be excellent, however the use of an external regulator may be required to keep the quality control the same throughout the building when practising the method.

Client and User

4.6 User

The CYRO- project is funded by UK Sport, since 1997 this organisation, with funds from the government and the national lottery helps UK athletes to achieve the highest goals within their sport. Aids such as strategic leadership enable the power of success, the power of connection and the power of collaboration. Rowing is currently the second most funded UK sport, with £25 million spent on the Tokyo Olympic Team.

4.7 Client

The users that will benefit from this project are within the GB rowing team, split into three user groups of the senior, the under 23 and the GB start team (Figure 9). These make up 54 people, 32 men and 22 women. Within these groups lay different challenges such as technique and strength, that the athletes will need to overcome. A communal training environment will allow for the younger athletes to learn from the more experienced athletes. A major problem that this project will be addressing and solving is the use of illegal drugs to enhance performance such as the use of steroids, which can be detrimental to the health as well as the accreditation of the sport

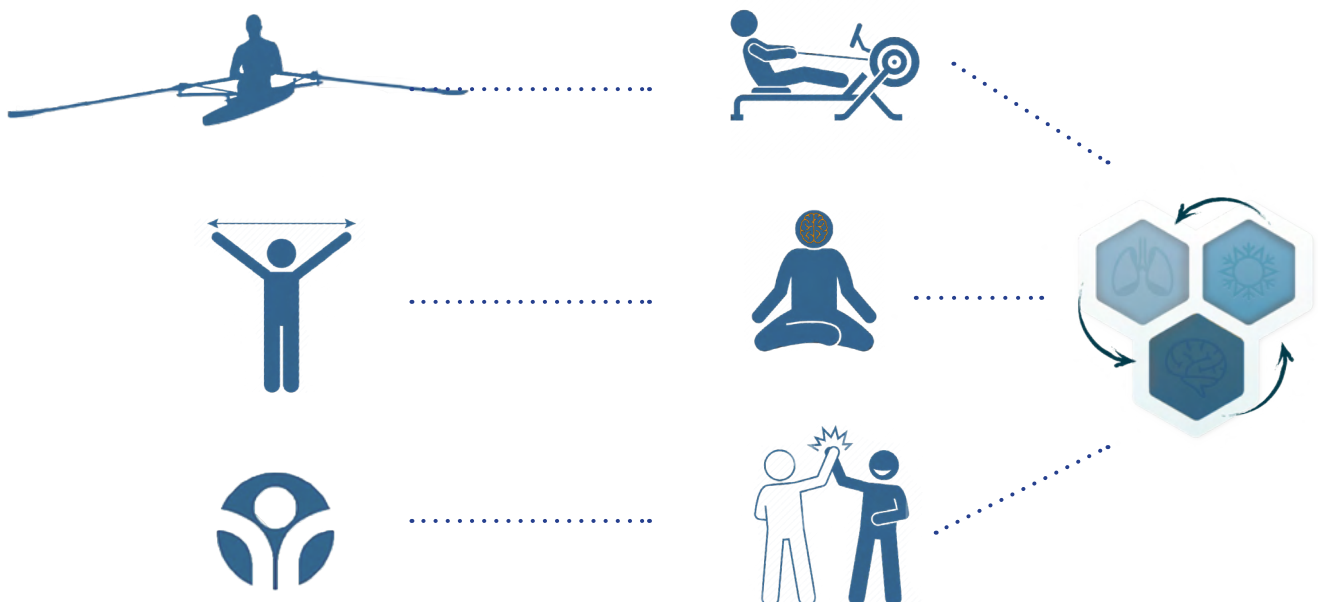


Figure 7, User Demographic (Woodman,2022)

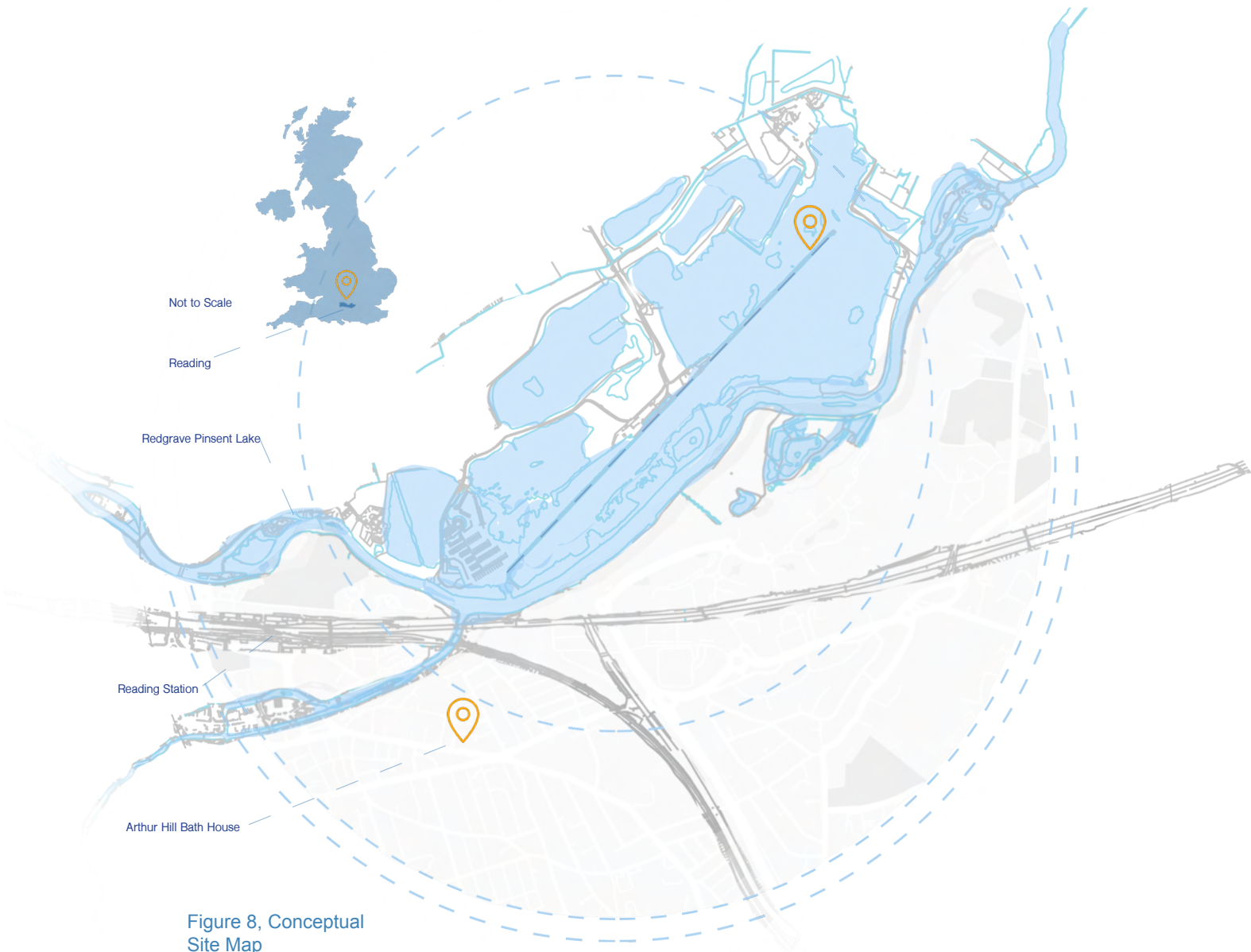


Figure 8, Conceptual Site Map (Woodman,2022)

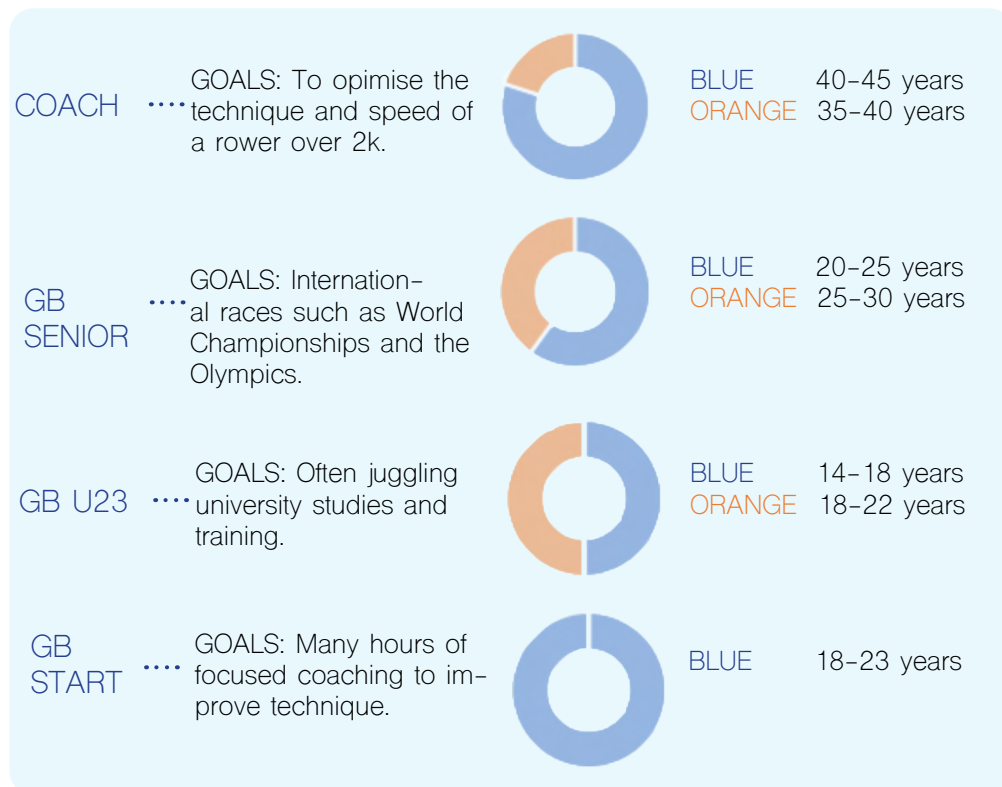


Figure 9, User Demographic (Woodan,2022)

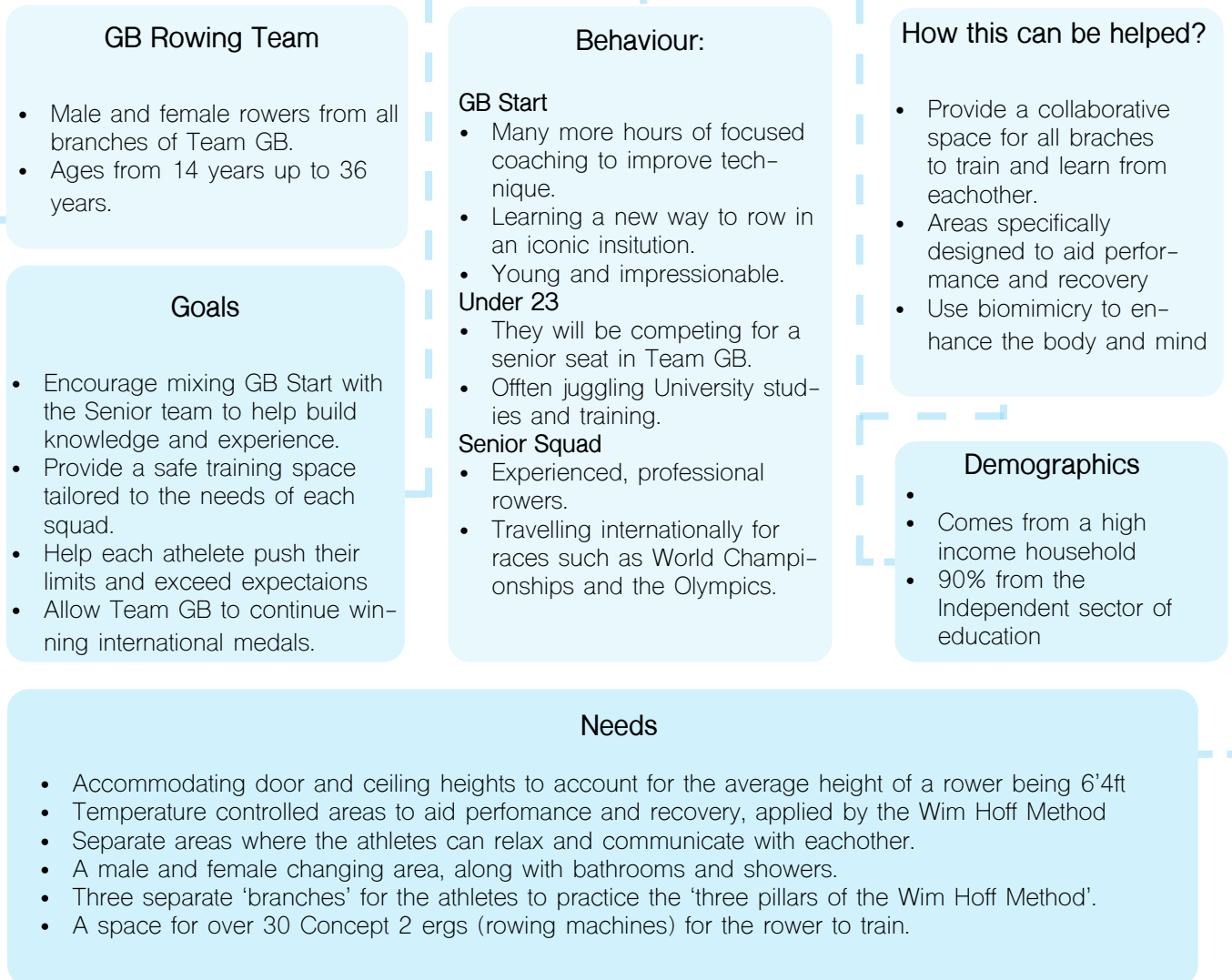


Figure 10, User Persona (Woodman,2022)

4.8 Conclusion

The research concluded for this chapter has directly informed the design strategies going forward. Taking into consideration of the historical context of the building, the strategies will be able to create a bridge between the old Bath House and the new intervention by working with the original pool structure. The demographics of the user and client, such as an above average height, will inform the core principles of the project as a user-led design.

5 President Study Review

5.1 Introduction

The seven president studies that are being discussed in this chapter have been chosen due to their similarities within the research, conceptual approach and design strategies within the Cryo- project, such as biophilic design, natural light and the use of a conceptual language. The process of engaging with previous examples of adaptive reuse allows for new and innovative applications inspired by international as well as local sites. Historical and contemporary examples have been highlighted in conjunction with varied applications to create a broad spectrum of president research.

- Ashton Old Baths
- La Esperanza School Therapeutic Pools
- Active Therapy Centre R3
- Jikka
- The British Museum
- Grange Hall
- Canadian Museum of Nature

5.2 Ashton Old Baths

- **Architects:** Modern City Architecture & Urbanism.
- **Location:** Ashton-under-Lyne.
- **Year:** 2016
- **Approach:** Blending Victorian and modern day architecture.

The Ashton Old Baths is a Grade II* listed building, built in 1870 it is one of the oldest swimming pools in the UK. After closing in the 1970s, it remained an abandoned space within the village, where the cathedral like spire and historical presence remained to be an important local landmark.



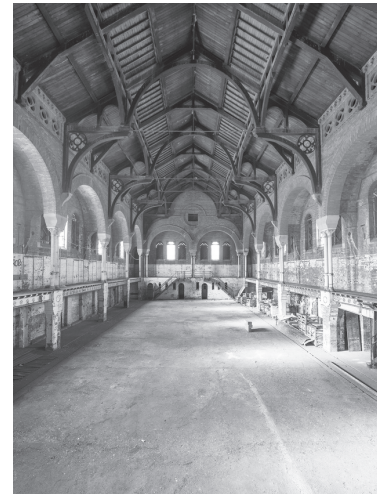
(Cardenas, 2016)
Image 4



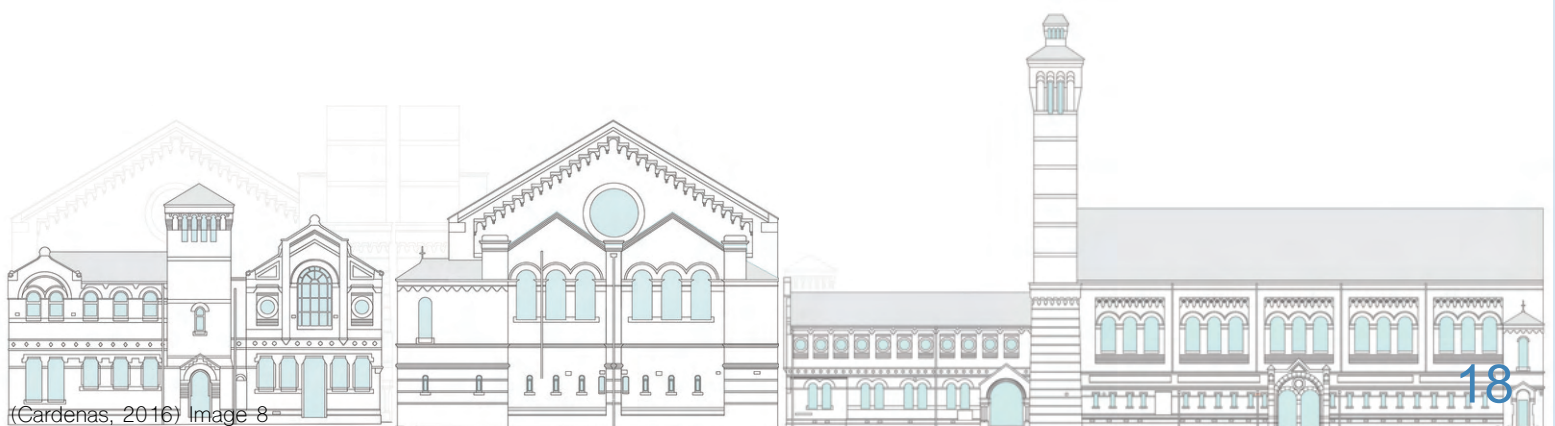
(Cardenas, 2016)
Image 5



(Cardenas, 2016)
Image 6



(Cardenas, 2016)
Image 7



(Cardenas, 2016) Image 8



(Cardenas, 2016)
Image 9



(Cardenas, 2016)
Image 10

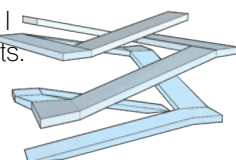
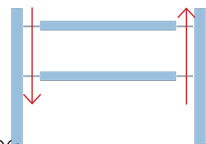
The brief saw adaptive reuse be used to preserve a great Victorian swimming bath, while also creating an innovative, new and exciting commercial office space. The concept of creating a building within a building allows the architects to sympathetically merge the existing fabric with the modern, working world.

Design Strategies

- **Material consideration-** The design allows the compatibility of the existing brick with the western red cedar boards of the office pods, while also creating a clear margin to distinguish the old and the new. The natural materials and the use of glass creates a bridge between the Victorian era and the new corporate setting within the structure.
- **Lighting-** Large windows allow natural light to be used within the building, these windows also showcase the existing architectural details that would normally be hidden from view.
- **Circulation-** The pods create a path of circulation for the visitors, separate from the original movement within the pool room. Forcing a central view of the structure.
- **Floors-** The wooden pods stand separate from the structure to create a full view up to the roof, the pods stand on a full length, glass wall. This creates a 'floating' illusion, allowing a 360 view of the full existing building.
- **Sculptural Insertions-** The wooden pods act as a functional office space, however they also take on a sculptural aspect, acting as a piece of art for the visitors to look at.

Application Within CRYO-

- **Sky Light-** I will implement large roof lights into the pitched roof between the trusses, this will flood natural light through the building, into the basement.
- **Floating Floors-** The floors will act as insertions, offset 1 meter from the existing facade, steel I beams will anchor to the wall as support. This creates a view from the basement to the roof lights.
- **Materials-** Cherry wood will be used for the central ramp, as it resists warping and shrinking.
- **Insertion-** The project will be centred around a 'sculptural' ramp, acting as a physical staircase connecting the floors, as well as a piece of art that can be enjoyed by visitor.



(Woodman,2023)

5.3 La Esperanza School Therapeutic Pools

- **Architects:** Fuster and Architects
- **Location:** San Juan, Puerto Rico
- **Year:** 2015
- **Approach:** Using water as physical recovery

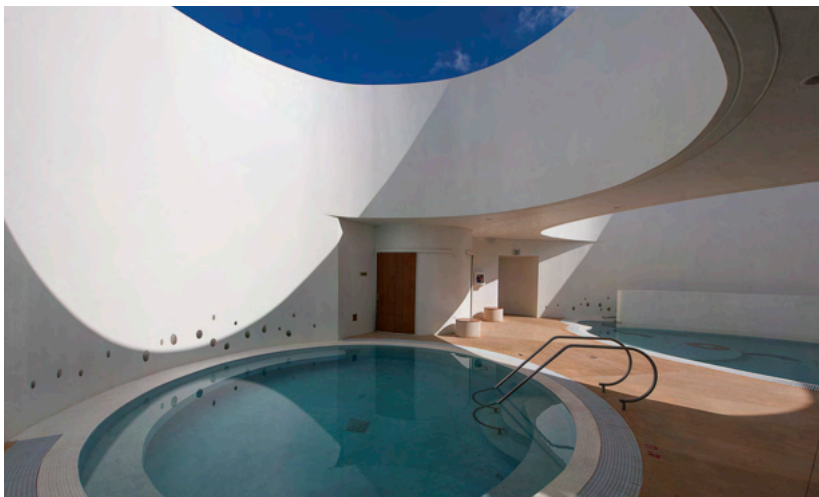
The therapy pools are used as a therapeutic facility for children between the ages of 5 and 16 years with physical disabilities. The facility is primarily used by the students by La Esperanza, however it is also open to the public. The visual connection to nature is directly formed between the user and the open sky



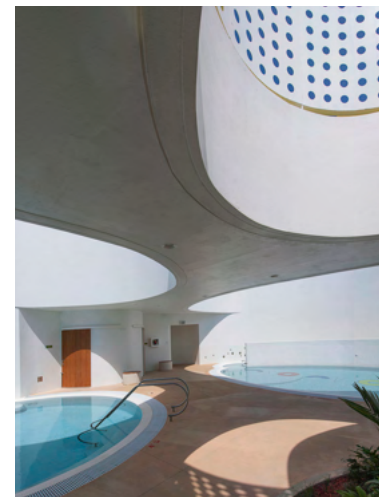
(Valenzuela, 2015)
Image 11



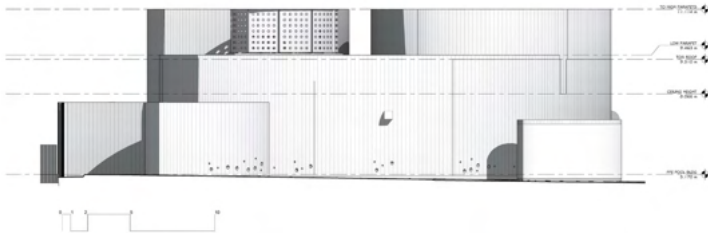
(Valenzuela, 2015)
Image 12



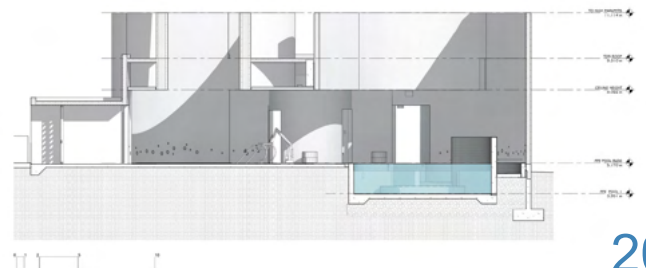
(Valenzuela, 2015)
Image 13



(Valenzuela, 2015)
Image 14



(Valenzuela, 2015) Image 15





(Valenzuela, 2015) Image 16



(Valenzuela, 2015) Image 17

Design Strategies

- **Connecting to Nature-** The sky light directly corresponds with the pool beneath, when the user is lying on their back, this connection with the sky helps the healing process.
- **Water in Design** - Water used in this context helps aid the physical and mental abilities of the user, the design of the spherical pools create an emmersive experience.
- **Connecting To The User-** The facility sits adjacent to the La Esperanza school, onnected by a path way. This easily accessible route allows for the students to gain a deeper connection to the space.
- **Materiality-** The pools are clad with a thermally insulated foam coated with concrete, this keeps the pools at a controlled temperature.

Application Within CRYO-

- **Natural Light-** In the context of supporting and aiding the mental health of athletes. The more natural light that can enter the building the more this will positively impact them.
- **Water As Therapy-** The design of the pools directly mirror the language of the spiral ramp as well as the floors above them, creating voids for natural light to flood into.
- **Materials-** The pools are clad with an impermeable concrete, treated with a Polyurethane sealant, forms a waterproof membrane
- **Client/ User Connection-** The Arthur Hill Bath House is a 10 minute walk south from the Redgrave Pincent Lake in Reading, the central hub for Team GB rowing training.

5.4 Active Therapy Center R3

- **Architects:** Gabriel Gomera Studio
- **Location:** Manresa, Spain
- **Year:** 2015
- **Approach:** Biophilic approach to a gym

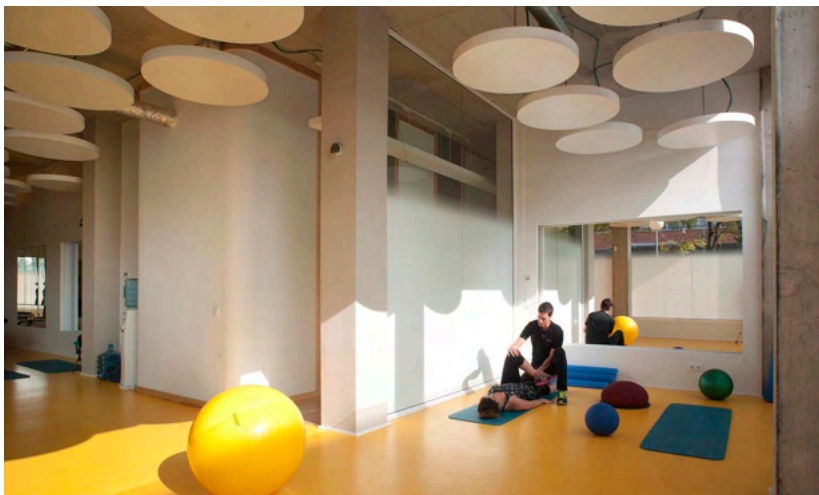
The the R3 centre is a space specifically designed for the use of athletes to provide recovery and improvement of physical health. With community areas it provides a space for athletes to not only train their physical health but also their mental health by the use of light, air and colour.



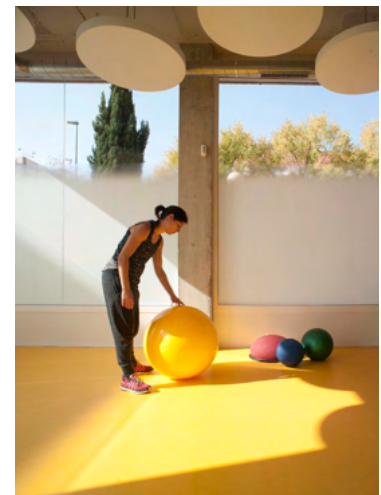
(Aguilar, 2016) Image 18



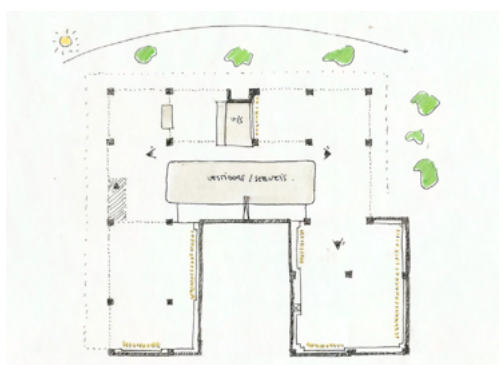
(Aguilar, 2016) Image 19



(Aguilar, 2016) Image 20



(Aguilar, 2016) Image 21



(Aguilar, 2016)
Image 22





(Aguilar, 2016) Image 23



(Aguilar, 2016) Image 24

Design Strategies

Connection With The Mind And Body- The open plan and visual connections between spaces

- allow for meditation and relaxation, 'the space is used as a transmitter and receiver' (Aguilar, 2016)

Grid Structure- The design is structured around grid of concrete pillars, defining the interior design

- strategies, creating a consistent language within the space.

Colour- Provides physical activities with a sensory experience, wood and gray are used to soften an

- enclosed space. Yellow linoleum is used on the floor where it will make physical contact with the body, creating a relaxing and stimulating experience.

Air- Fresh air used inside helps the brain to associate it with outdoor exercise, engaging in 'free and

- natural' exertion. Large windows captures the outdoors, emulating the flexible movement inside.

Light- The natural and artificial light works in a cohesive nature, emulating the sunrise and the sunset.

-

Application Within CRYO-

- **Light-** The use of light in regards to an athletes progression is key, the emulation of exercising outdoors will positively impact how they view their recovery. Transparency between floors emulates this.
- **Connection to sport-** The bath house is the oldest sporting facility in Reading, with the 25m swimming pool being mimicked through the design of the cold pools.
- **Grid-** The roof structure, floor and steel supports are conforming to the original truss grid, keeping the design language in one cohesive grid.
- **Outdoor Space-** The outdoor roof garden is the architectural manifestation of the Wim Hof Method, the air provides endorphins that are seen when exercising outdoors.

5.5 JIKKA

- **Architects:** Issei Suma.
- **Location:** Ito, Japan
- **Year:** 2015
- **Approach:** Blending nature with architecture

This wellness retreat is set in the mountains of Ito, Japan. This spa includes five wooden huts all varying in size and heights, emulating the former ridge top. The primitive design of the huts brings the space back to its primitive state, connecting the spa and the visitor's mental state to the natural environment.



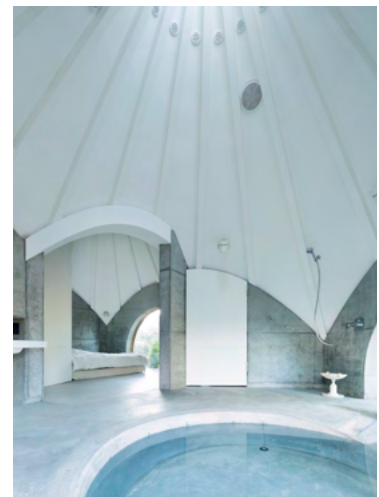
(Rojas, 2020) Image 25



(Rojas, 2020) Image 26



(Rojas, 2020) Image 27



(Rojas, 2020) Image 28



(Rojas, 2020) Image 29



(Rojas, 2020) Image 30



(Rojas, 2020) Image 31

Design Strategies

- **Material consideration-** The design incorporates the contrast shown between the natural environment of Japan and the modern environment in which to practise mindfulness. The cohesiveness of concrete and the wooden cladding enhances the approach of the architecture.
- **Lighting-** A key concept within this spa is the use of natural light in each space, this along with the natural views of the surroundings, creates a calming environment for the visitors to relax in.
- **Open Plan-** The open planned nature allows accessibility throughout the space, this creates a freeing and light atmosphere for the visitors.
- **Biomimicry-** With the heights of the structures mimicking the ridge line of the mountains in which it is situated, the wooden huts take on a natural composition which blends into its surroundings.
- **Pool Design-** The spiralled descent into the pools also mimic what is seen in nature, with the design reminiscent of a shell or taken inspiration from the Fibonacci spiral. Connecting nature and the built environment.

Application Within CRYO-

- **Pool Descent-** The pools will take on the physical and metaphorical ideas seen in biomimicry, emulating the Fibonacci sequence as well as the scientific findings within the Wim Hof Method.
- **The Use of Concrete-** When used as a base for a pool, the concrete must be impermeable to make it safe.
- **Materials-** Cherry wood will be used for the central ramp, as it resists warping and shrinking.
- **Insertion-** The project will be centred around a 'sculptural' ramp, acting a physical staircase connecting the floors, as well as a piece of art that can be enjoyed by visitor.

5.6 The British Museum

- **Architects:** Foster + Partners.
- **Location:** London
- **Year:** 1999
- **Approach:** Blurring boundaries

The Great Court at the British Museum, began as a garden and then into a a round reading room, surrounded by bookcases. The renovation by architect Foster and Partners, seeks to bridge a gap between the ancient facades and the reading room, both physically and metaphorically. This is seen in the glazed canopy that encloses the space.



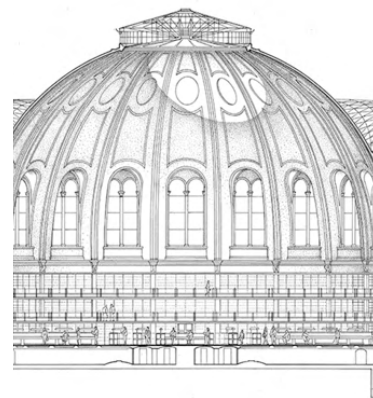
(Foster + Partners 2013) Image 32



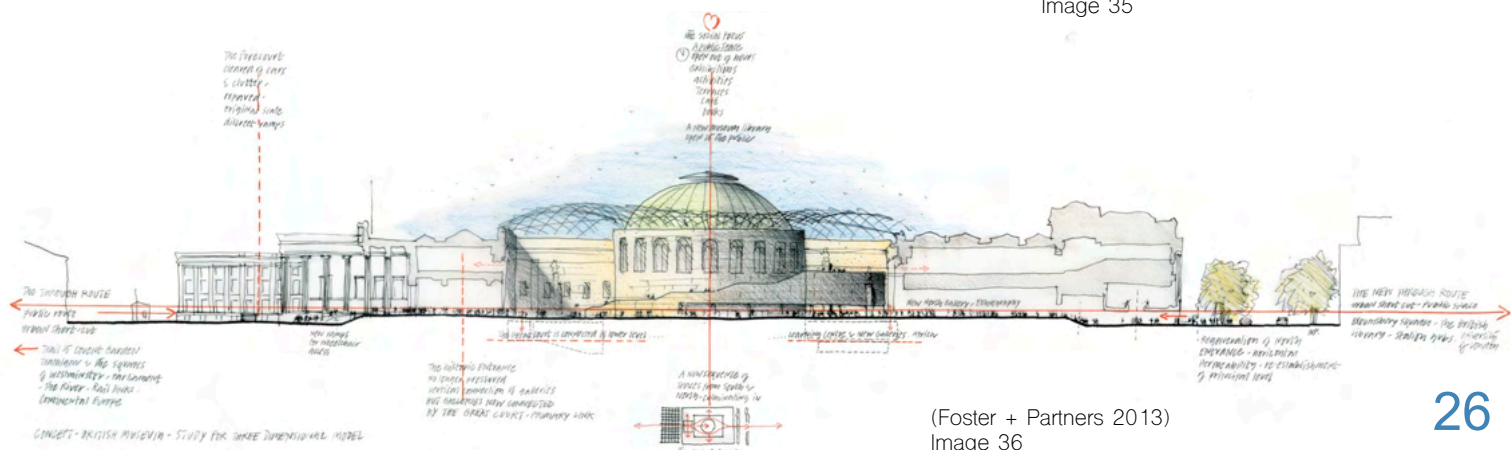
(Foster + Partners 2013) Image 33



(Foster + Partners 2013) Image 34



(Foster + Partners 2013) Image 35



(Foster + Partners 2013) Image 36



(Foster + Partners 2013)
Image 37



(Foster + Partners 2013)
Image 38

Design Strategies

- **Material consideration-** The design incorporates the contrast shown between the natural environment of Japan and the modern environment in which to practise mindfulness. The cohesiveness of concrete and the wooden cladding enhances the approach of the architecture.
- **Lighting-** A key concept within this spa is the use of natural light in each space, this along with the natural views of the surroundings, creates a calming environment for the visitors to relax in.
- **Circulation-** Foster and Partners considered how the visitors of the museum will walk around the space. Using the centre feature as a tool to direct the flow of visitors.
- **Blending architectural styles-** The museum seamlessly mixes 19th century and modern architecture together.

Application Within CRYO-

- **Natural Light-** The skylights will mirror the effect that is seen in the museum, creating a light and open space below
- **Central Circulation-** The staircase will act as the core circulation, joining the spaces and the flow of visitors to one key insertion.
- **Mixing The Old And The New-** The project aims to combine Edwardian architecture with the modern day, rooting these in raw materials and the methodology of the Wim Hoff Method
- **Open Plan Space-** The intervention will provide a 360 view from all floors with the use of glass and indented floors.

5.7 Grange Hall

- **Architects:** Nissen Richards Studio
- **Location:** London
- **Year:** 2017
- **Approach:** Combining the old and the new

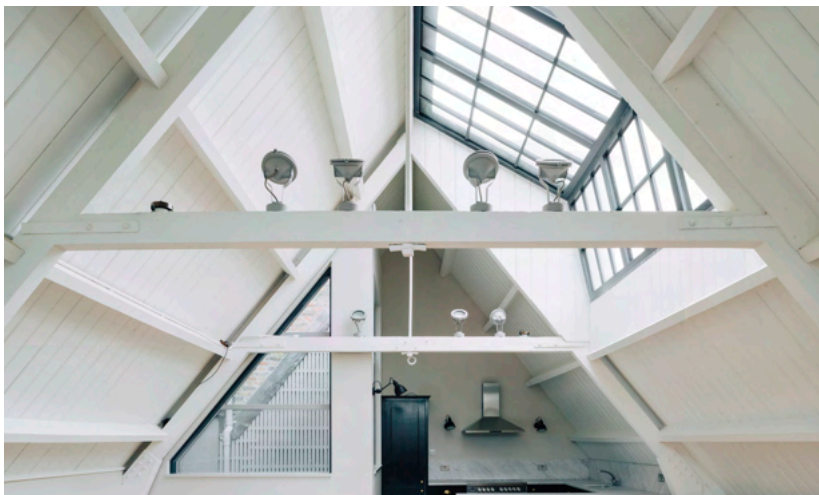
Grange Hall began as the West Hackney National School. Built in 1837, it is locally listed as its one of the only ecclesiastical buildings that still remain in the Parish of West Hackney. From 1960, the building was occupied by an engineering firm until 2013, when the restoration of the building began. Grange Hall now consists of nine private dwellings.



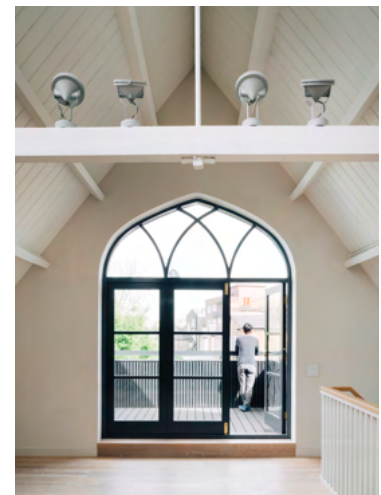
(Tapia, Grange Hall / Nissen Richards studio 2019) Image 39



(Tapia, Grange Hall / Nissen Richards studio 2019) Image 40



(Tapia, Grange Hall / Nissen Richards studio 2019) Image 41



(Tapia, Grange Hall / Nissen Richards studio 2019) Image 42

(Tapia, Grange Hall / Nissen Richards studio 2019) Image 43





(Tapia, Grange Hall / Nissen Richards studio 2019) Image 44



(Tapia, Grange Hall / Nissen Richards studio 2019) Image 45

Design Strategies

- **Material consideration-** The Georgian architecture requires careful consideration of its origins when creating a modern intervention. Using the same brick and stone, celebrating the style while also bringing it into the modern world.
- **Restoration-** The restoration consisted of making the structure watertight again, as well as structurally integral. The residential redevelopment allows for the history of the building to be preserved while also allowing its new form to have a personality of itself.
- **Use of Sky Lights-** The built in sky lights into the original structure allows for a sustainable light source in an otherwise unsustainable structure.
- **Listed Building-** The regulations surrounding locally listed buildings provides strict rules to keep the buildings character and history remaining, Grange Hall executes this well in this context.

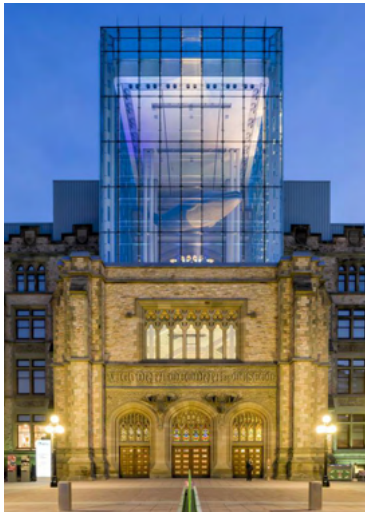
Application Within CRYO-

- **Restoration-** The Arthur Hill Bath house has been derelict since 2016, the restoration of the main building will be sympathetic with the history as well as the modern materials used.
- **Form -** The intervention uses the original context to fit the space.
- **Materials-** Mimicking the Edwardian 'style' within the renovation, while allowing the design to form its own language.
- **Listed Buildings-** Like Grange Hall, the Arthur Hill Bath House is also listed. The interventions and renovations are sympathetic to the restrictions that this causes. The extended roof does not exceed the height of the original structure, remaining hidden behind the exterior.

5.8 Canadian Museum of Nature

- **Architects:** KPMB Architects.
- **Location:** Ottawa, Canada.
- **Year:** 2010
- **Approach:** Adaptive reuse of early 20th Century architecture.

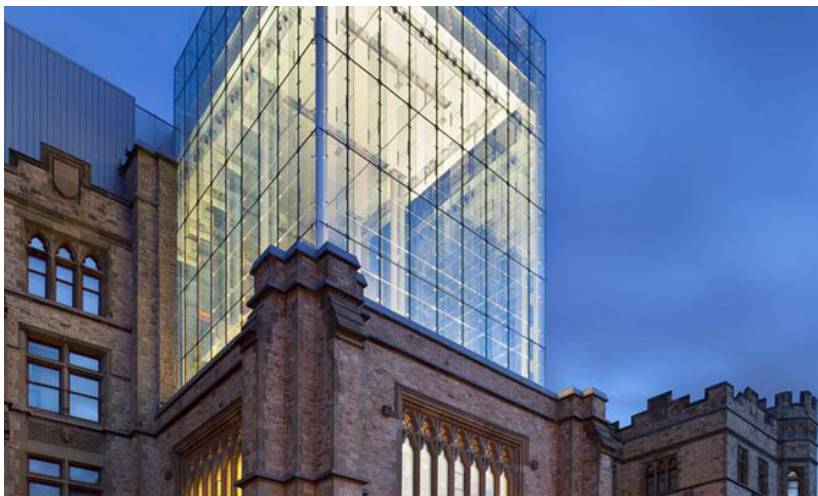
The Canadian Museum of Nature is the first purpose built museum in Canada, originally built in 1912 and designed in an Beaux-Arts Style, the upper structure was removed due to subsidence. The intervention in 2010 allowed for the historical presence of the museum to remain, while the glass insertion creates a bridge between the past and present.



(Canadian Museum of Nature: KPMB architects 2017) Image 46



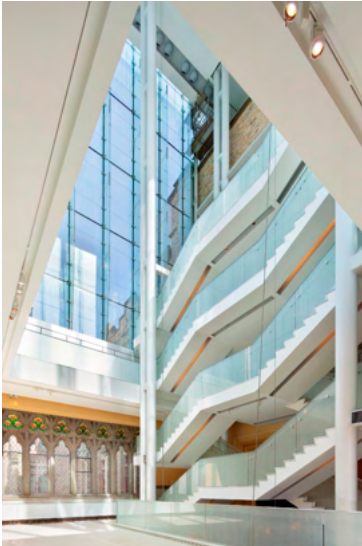
(Canadian Museum of Nature: KPMB architects 2017) Image 47



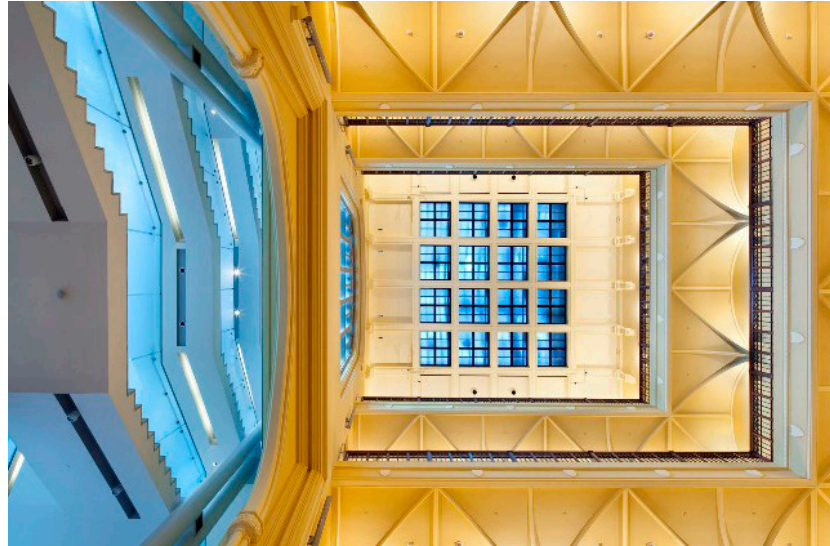
(Canadian Museum of Nature: KPMB architects 2017) Image 48



(Canadian Museum of Nature: KPMB architects 2017) Image 49



(Canadian Museum of Nature: KPMB architects 2017) Image 50



(Canadian Museum of Nature: KPMB architects 2017) Image 51

Design Strategies

- **Vertical Circulation-** The circulation within the old building was rigid and restrictive, with more visitors and larger artifacts such as dinosaurs, the renovation brought the flow of users into the 21st Century.
- **Historical Context-** The architects made sure to keep the Beaux-Arts Style prominent in the re-design, this is seen in the stained glass windows and the elaborately detailed doors. The contrast with the modern glass structure and staircase complements the two eras of design.
- **Feature Staircase-** Within the context of the original, detailed nature of the building, a modern take on a feature staircase ties in with the aesthetic over function tendencies seen in the early 20th Century.

Application Within CRYO-

- **Sky Light-** Mimicking the Museum, the use of glass in conjunction with the Edwardian style brick and flamboyant detailing will add a new dimension of the use of natural light.
- **Floating Stairs-** The spiral ramp will be based on the same premise of supporting steel beams to create the illusion of the ramps having no initial structural integrity.
- **Insertion-** The floors and stairs act as an art insertion as much as they are there to create circulation within the building.

5.9 Conclusion

After reviewing the president studies, there is a clear theme of design strategies that can be taken forward. The use of water within the presidents Jikka and La Esperanza School Therapeutic Pools show how biophilic design can connect the user back to their environment, when used in conjunction with the Wim Hof Method this links back to the athletic theme of the user. Ashton Old Baths show a direct correlation within the subject of adaptive reuse in early 20th Century Bath Houses, creating a narrative between the historical context of the Arthur Hill Bath House and the modern intervention.

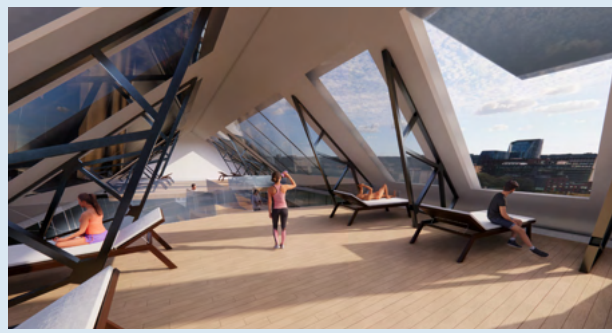
6 Strategic Approach

6.1 Introduction

The strategic approaches seen within this chapter will demonstrate how the adaptive reuse of the abandoned bath house will come to fruition. The previous chapters and the research that has been gathered will be used to inform the conceptual approach and the design decisions within the project, applying these theories into an architectural language.



Figure 11, Context Collage (Woodman,2023)



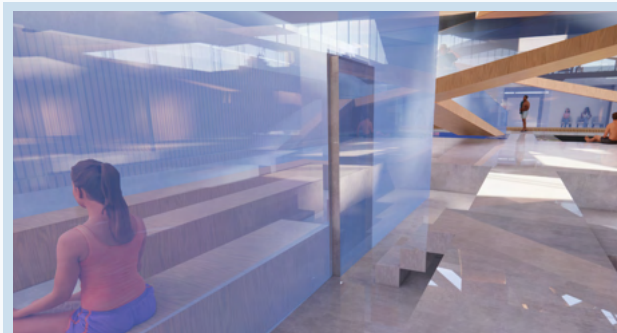
1 Meditation
ZONE 1

Image 52 (Wooman,2023)



2 Cryo Pools
ZONE 2

Image 53 (Wooman,2023)



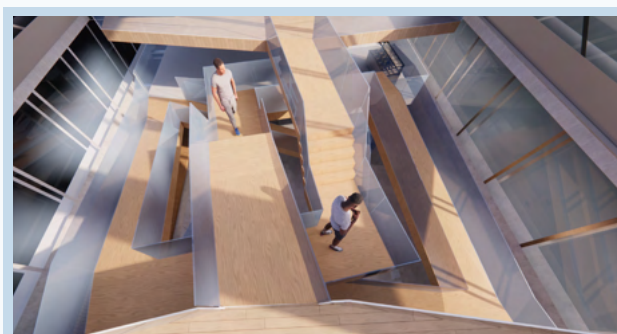
3 Breathing
ZONE 3

Image 54 (Wooman,2023)



4 Roof Garden

Image 55 (Wooman,2023)



5 Connecting,
central staircase

Image 56 (Wooman,2023)

6.2 Forming A Conceptual Language

The conceptual approach to this project underpins and directly informs the design strategies that follow. The concept allows for the design language and circulation of the space to mimic the mental and physical process seen in the athletes during the Wim Hof Method. As the Method is categorised into three pillars, so are the spaces, see figure 12 below. With zone 1 taking on the role of the meditation space, physically and metaphorically, the top of the building is flooded with natural light from the sky lights which creates a warm and inviting atmosphere. As the user gradually descends down the building, it mirrors the most mentally challenging pillar, the cold pools. Figure 12 represents this in graded depths of blue, reflecting the physical decent into the pool in zone 3. Where the mind is at its most focused, the conceptual approach and subsequent design reflects the atmosphere around you.

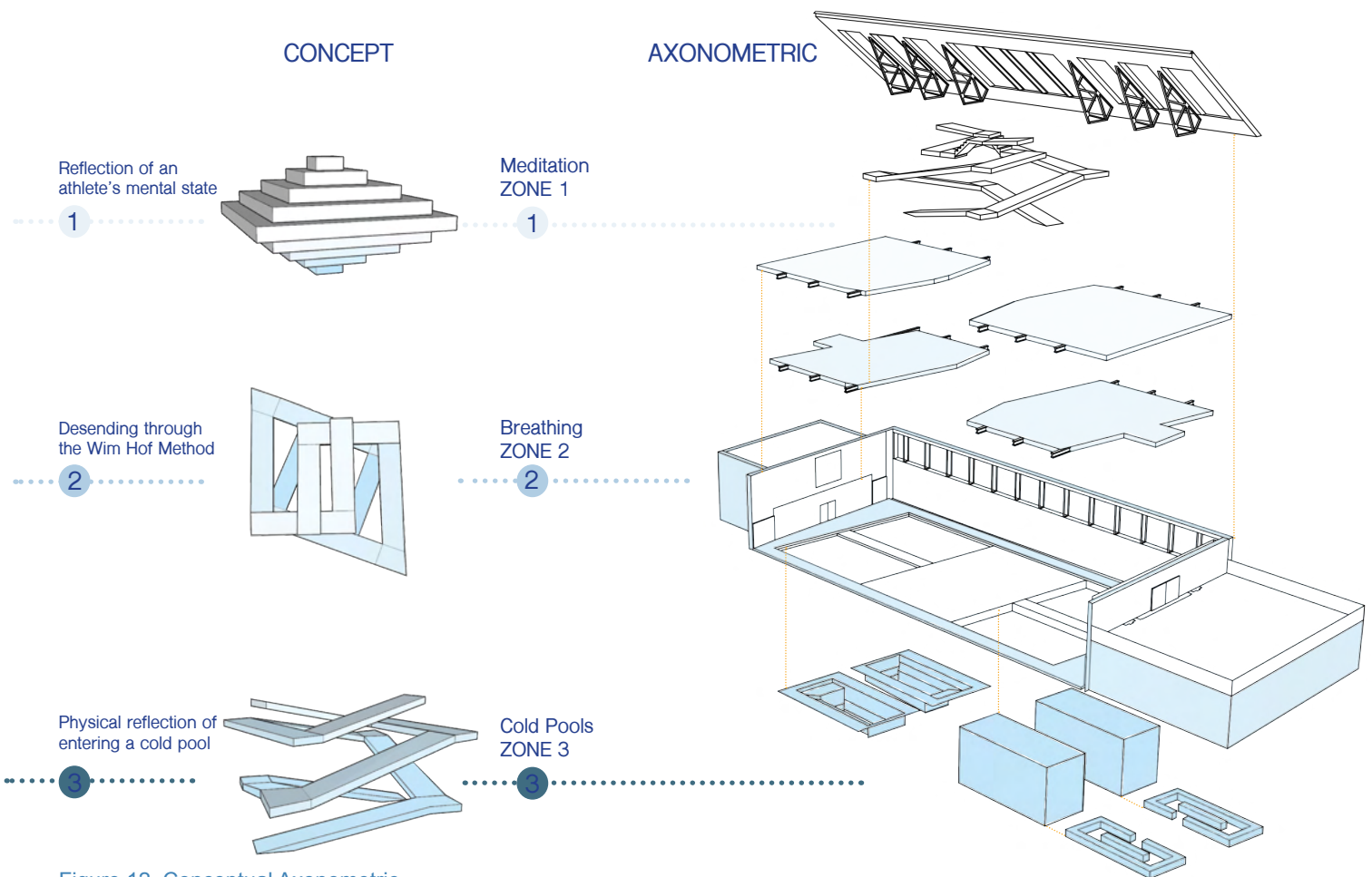


Figure 12, Conceptual Axonometric (Woodman,2023)

6.3 Concept Model

The conceptual model represents the conceptual approach in a physical, 3D form. This process allowed for the idea of using the space around you to directly reflect that of your mental and physical wellbeing. Using the tiered form to depict the shell of the original building, the concept takes its place within the materials used to demonstrate how the Wim Hof Method can be adapted into architecture. The clear acrylic is used to show the upper floors of the design, a open and freeing space in which to practise meditation by blurring the lines of an indoor and outdoor space, also conveying the optical illusion of the structure 'floating' and 'suspended'.

The mirrored acrylic depicts the architectural reflections of the space and the connections to the mind, how descending through the space echoes the connection back to nature seen in the use of cold therapy and raw materials.

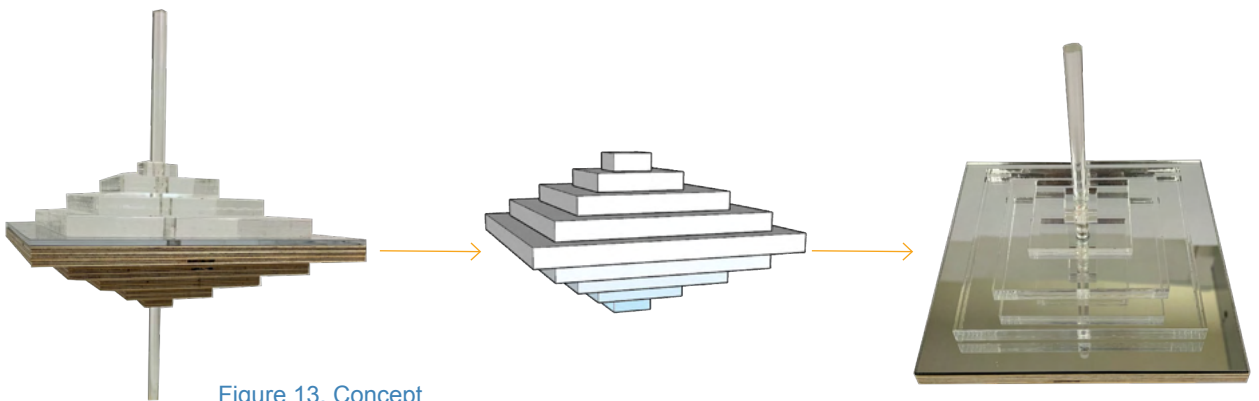


Figure 13, Concept Model (Woodman,2023)

6.4 Design Language and Circulation

The central circulation for the user aims to create a void of connectivity, the ramp which connects the ground floor to the 1st and 2nd floors enable the vertical flow to be in conjunction with the conceptual approach. The spiral ramp design is inspired by initial sketch models which set out to convey the scientific research behind the Wim Hof Method. Figure 15 shows how this has been conceived into a ramp insertion, informing the design of all the connecting floors. The swirling ramp formation is connected with a series of hidden steel beams, anchoring to the floor and to the 1st floor, giving the optical illusion that the structure is floating with no structural aid.

The intervention relies on a very prominent language that is followed throughout the building. The unique angle that this central ramp formed, provided an organic design language for the other design strategies, giving the design a cohesive and unified atmosphere. The angles seen in figure 14 relay directly into the shape of the cold pools, the breathing chambers and the two floors above, see figure 19, 20, 21 and appendix B for floorplans.

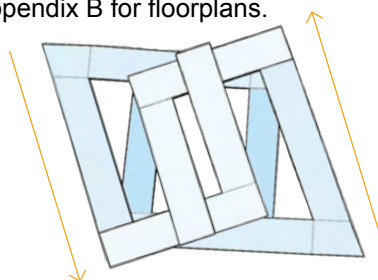


Figure 14, Language (Woodman,2023)

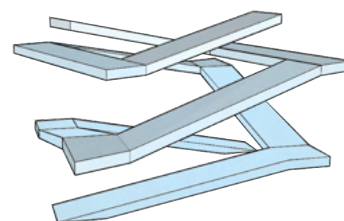


Figure 15, Spiral Ramp (Woodman,2023)

6.5 Design Strategies

1 Ground Floor

Cryo Pools and Breathing Chambers-

The buildings original footprint has been taken into careful consideration with the pools design strategy, the context of the former 25-meter swimming pool allowed for the pools to take the same 1.5-meter depth. The boundary of the swimming pool took the form of a raised walkway along the parameter of the ground floor, providing circulation from the front entrance to the back exist. A sympathetic approach to the history of the structure generates a dialogue between past and present, seen in the president study, Ikko, which helped to inform the design of the spiral decent into the pools. This connection back to nature and the environment around us (Browning & Ryan, 2020) when combined with the scientific research of cryotherapy structured the design around a gradual decent into the cold, to provide the body with a proactive response as supposed to a reactive one, see figure 16.

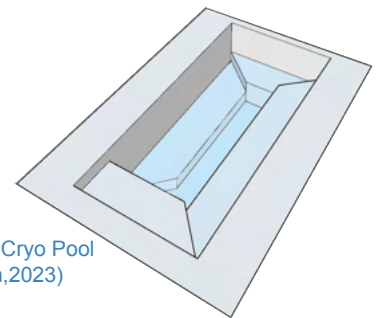


Figure 16, Cryo Pool (Woodman,2023)

2 1st Floor

Floating Floors & Biophilic Design-

Mirroring the angled design language, the added floors are indented 1.5 meters from the parameter of the original pool house. Without anchoring to the walls, the floors sit on a series of steel I beams which mirror the pattern of the original roof truss grid, see figure 18. This, such as the central ramp, creates an illusion of the floors 'floating' while also providing a 360 view of the entire space from every angle. Inspired by the present study of Ashton Old Baths, the floors standing separate from the structure will allow for natural light to reflect to the lower parts of the building. These voids throughout will enable sections of the space which would normally be shielded by a ceiling to be lit, creating a transparent space that does not sacrifice the comforting atmosphere of the interior. (Aguilar, 2016)

The strategy of a transparent space is used in the creation of a roof garden, connected to the 1st floor, see figure 17 and image 55. The research shows how connecting the athletes mind back to the environment, "as we engage in the natural setting we feel free and expansive" (Aguilar, 2016) can positivley impact sporting results.

3 2nd Floor

Blurring Boundaries-

To fully take advantage of the meditation space, the research relies on natural light to boost serotonin. Therefore, by raising the pitched roof, keeping the height below that of the original structure, it allows for a 2nd 'meditation' floor. The original roof trusses provide the grid to work within, placing large skylights within them, creating a space that provides sunlight throughout the day from both sides of the building. The skylights will also provide fresh air by opening, this acts as a fire escape to the roof as well as obtaining circular ventilation through the voided spaces, see image 52.

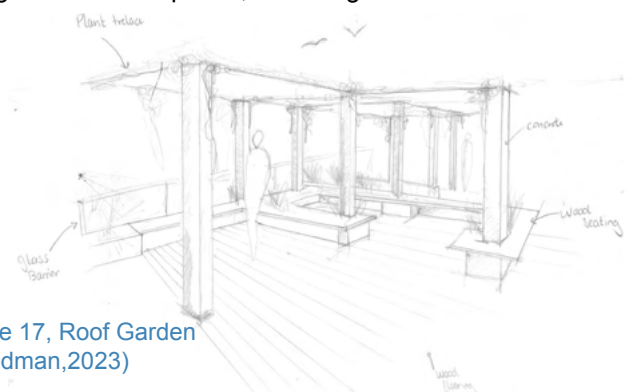
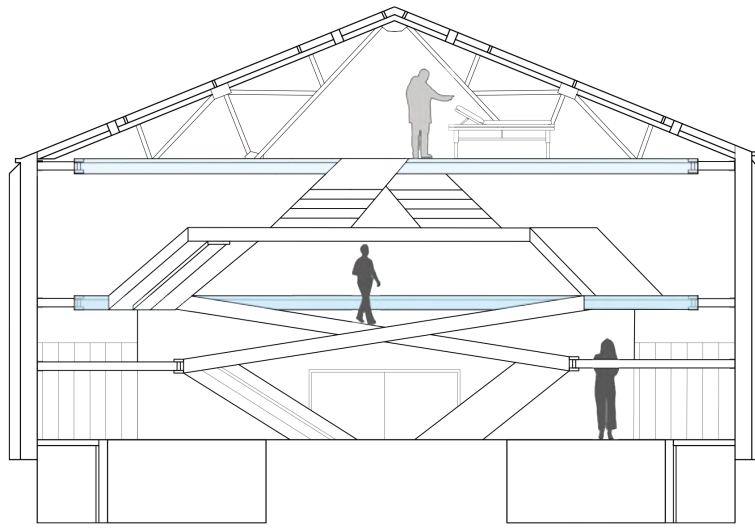
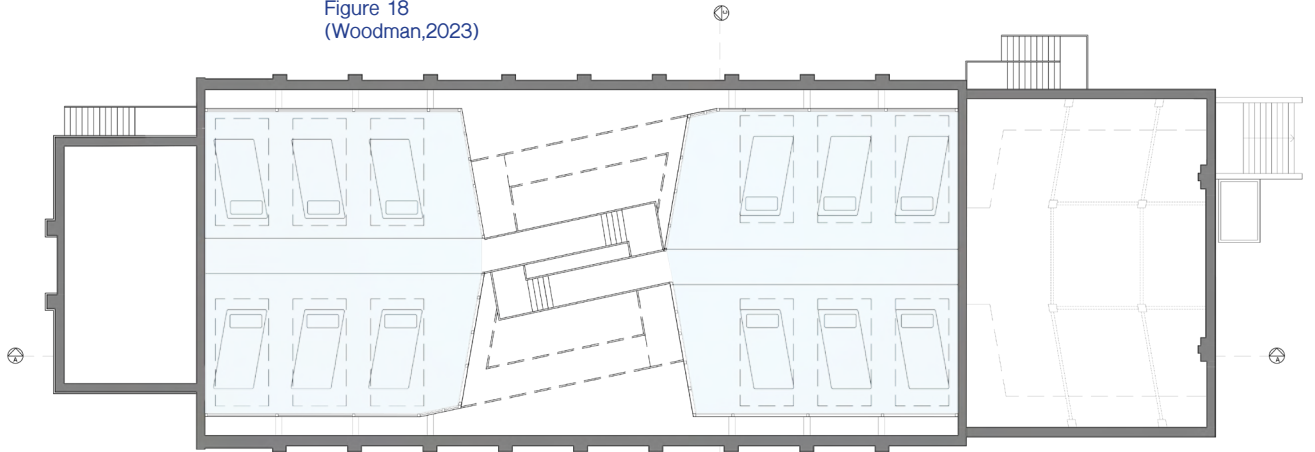


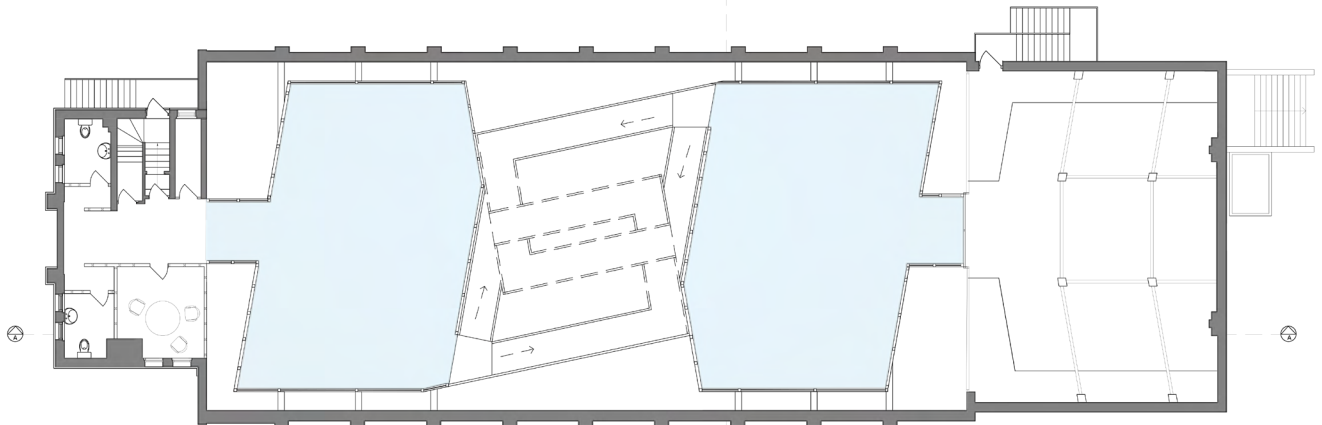
Figure 17, Roof Garden (Woodman,2023)



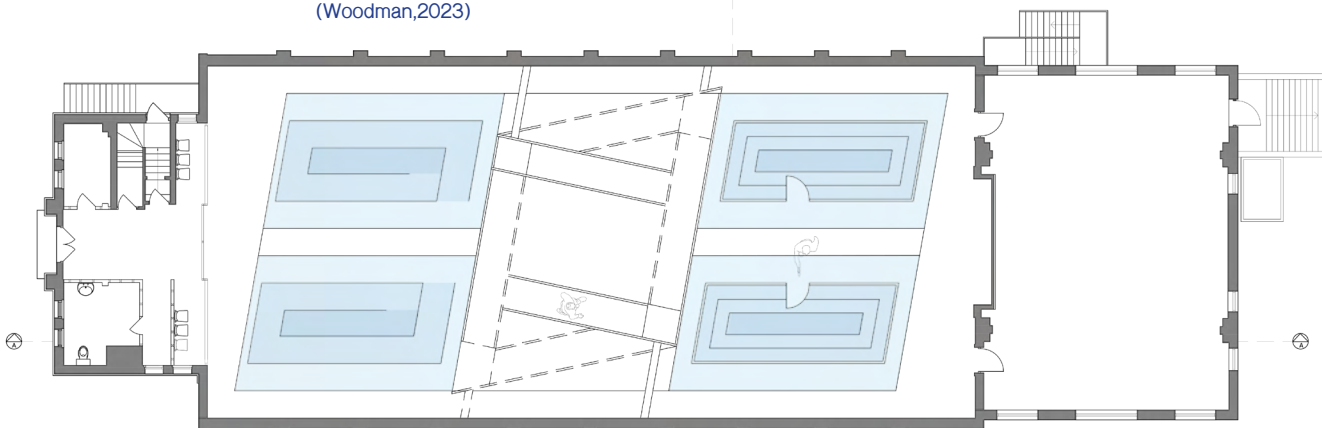
Proposed Section C-C
Not To Scale
Figure 18
(Woodman,2023)



1 Proposed Second Floorplan
Not To Scale
Figure 19
(Woodman,2023)



2 Proposed First Floorplan
Not To Scale
Figure 20
(Woodman,2023)



3 Proposed Ground Floorplan
Not To Scale
Figure 21
(Woodman,2023)

6.6 Material Consideration

- ❖ **Cherry Wood**- The ramp and wood panelling will be made of cherry wood, as a closed porous hardwood, it has a high resistance to shrinking and warping in the face of moisture, see figure 22.
- ❖ **Impermeable Concrete**- As seen in the president study, Jikka, the concrete lining the pools will be treated with a Polyurethane sealant which forms a waterproof membrane.
- ❖ **Tempered Glass**- Allows light throughout the building, designed for safety when used as handrails.

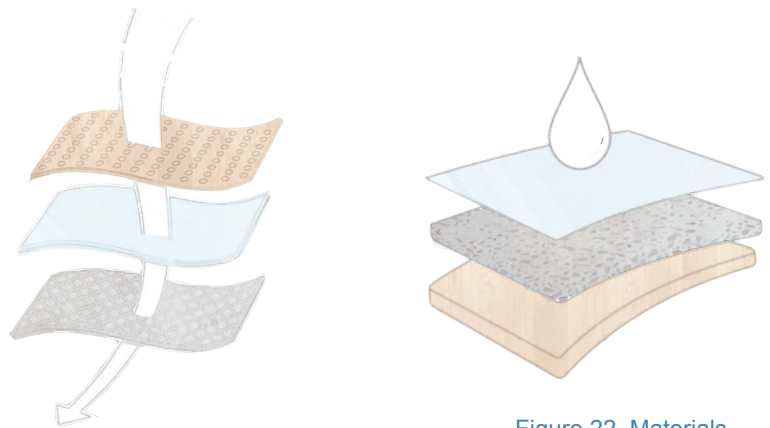


Figure 22, Materials (Woodman,2023)

6.7 Conclusion

The strategic approach and subsequent design strategies of this project, such as the use of natural light, water and fresh air, have been directly informed by the research of the Wim Hof Method, the GB Rowing Team and biophilic design. This research subsequently leads the conceptual approach and the many iterations seen in sketch models and diagrams which informed the angular language and circulation that was followed throughout. This allowed for a narrative to be formed within the restoration and developed a connection between the historic context of the Bath House and the new science led recovery space.

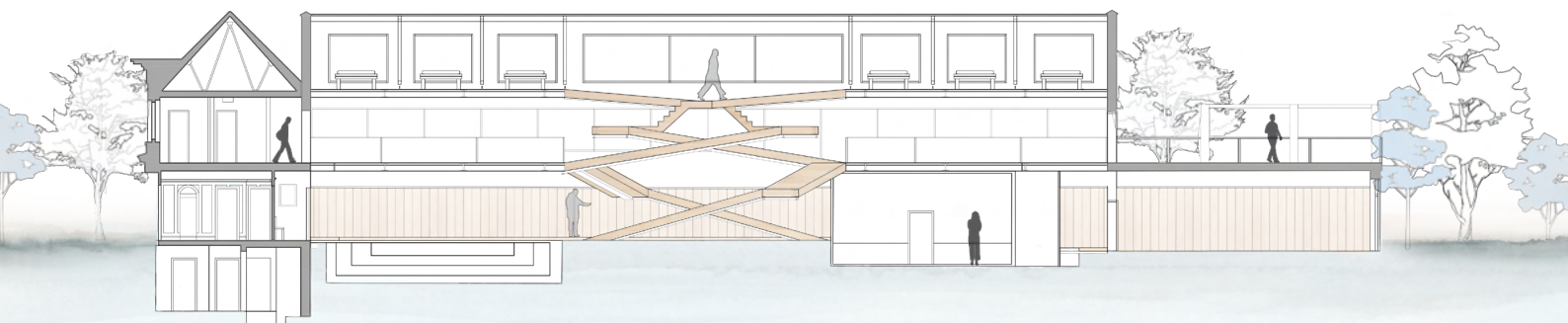


Figure 23, Proposed Section A-A (Woodman,2023)

7 Design Reflection

7.1 Introduction

This chapter will allow me to engage in reflective practice, discussing how I have progressed throughout, as well as highlighting the limitations which I have encountered throughout the design and research process. By being self-aware and reflective within my work as a designer, the project takes on a retrospective aspect which can be outlined within Gibbs' reflective cycle (1998). This criterion directs the reflection to a description, feelings, evaluation, analysis, conclusion and action plan. By assessing how I work best and evaluating these different methods, I can progress going into the future.

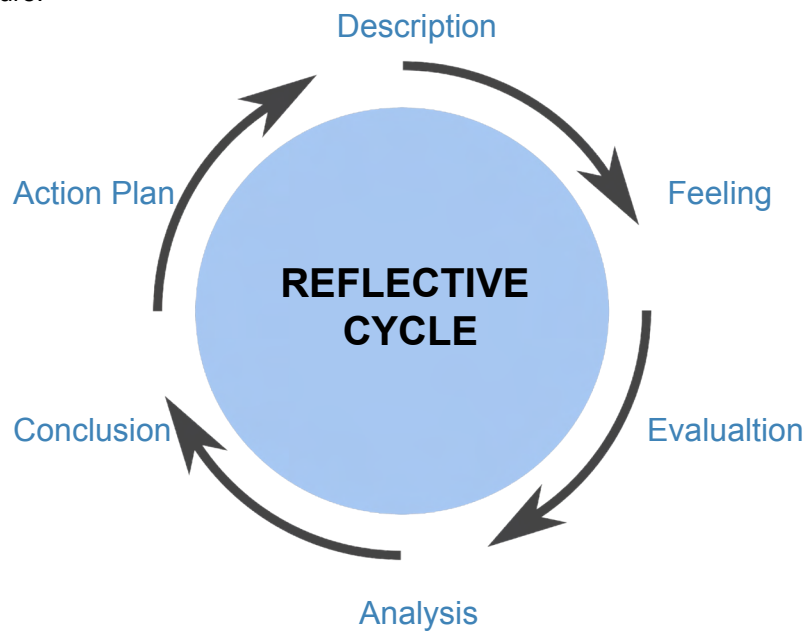
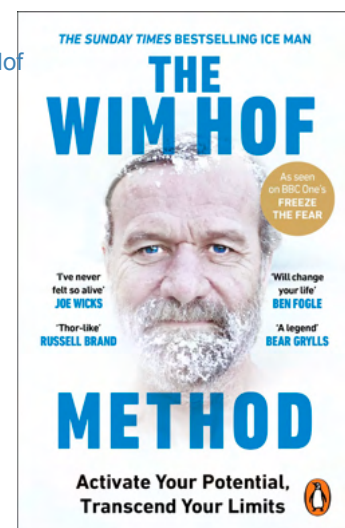


Figure 24, Gibbs' Learning Cycle (Woodman,2023)

Figure 25, The Wim Hof Method (Hof, 2020)



7.2 Initial Ideas

From the beginning my initial ideas for the project were based around my passions and hobbies as I knew going into the first phase of research that it would spark my interest. Rowing is a large part of my life at university and I found that my four years of knowledge as a competitive rower would create an interesting first-person perspective on the design. After reading 'The Wim Hof Method', I started to partake in the Wim Hof Method for my own personal recovery after exercise, this allowed me to connect the research to create a brief and project that uncovered a niche area of design that would benefit the rowing community as a whole.

7.3 Concept

Evaluating the conceptual stage, at the beginning I struggled with finding a physical conceptual language to portray what my research concluded. However after the responses and feedback during weekly crits, see diary in appendix, I found a way to develop this language through early iterations of sketch models and diagrams, see figure 26 below. After these changes, the idea of reflecting the metaphors in the Wim Hof Method to architectural applications became smoother.

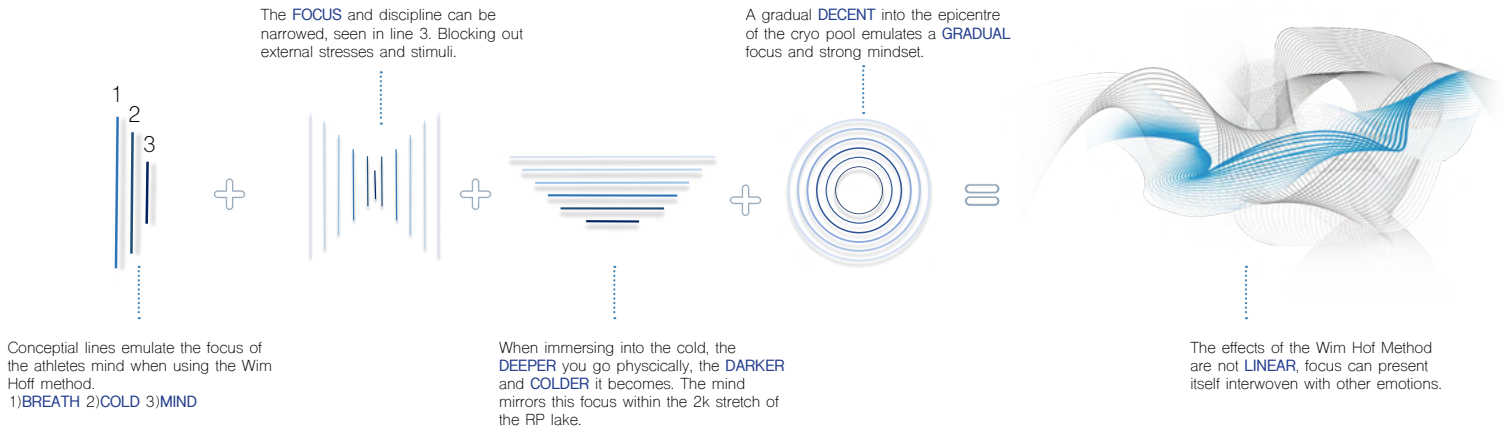


Figure 26, Early Concept Diagram (Woodman,2023)

7.4 Concept Application

The positive feedback from the first presentation allowed me to create the physical application for the three pillars of The Wim Hof Method. In reflection, the spatial planning and circulation diagrams, see appendix G, created a block for me at first due to the empty nature of the derelict swimming pool. I made a piece of origami that tied into my concept and physically inserted that into the model of the open space, after many weeks of drawing and cad plans, I created what would be the central spiral ramp which forms the main circulation of the building. After this, the language, floor and subsequent pillars of the Wim Hof Method fell into place.

Through daily reviews with my peers, I subsequently learnt to 'trust the process' as I tend to look too far into the future and can frustrate myself with not moving fast enough. However, this taught me that my early development of ideas and thinking outside the box is something that I should trust as a designer and not to forcefully rush it.



Figure 27, Early Conceptual Sections (Woodman,2023)

7.5 Delimitations

- ◉ It is important to remember when designing, that the outcome of an athlete's physical and mental well-being is not subjective and is difficult to measure in a qualitative manner. Due to the individual commitment, there is no universal scale to determine whether these design strategies have been a success as every athlete has their own unique methods which vary the outcome, therefore it would take a number of these facilities to conduct studies, with controlled variables to determine a change in wellbeing.
- ◉ The façade of the building is Grade II listed, making it difficult for any structural work to be done to the front elevation, however the history of the building proves for it not to be a major problem to the project as the design has been adapted many times over the 100-year period.

7.6 Conclusion of Reflective Writing

The reflective writing has allowed me to view the process of the entire project, while also letting me analyse myself as a designer and researcher. By highlighting my strengths and weaknesses within Gibbs' learning cycle, I now know how to adapt my working style going into industry. Throughout this, I discovered that I work best through active experimentation (Kolb, 1984). I find it easier to apply my ideas into real situations, then make changes according to those outcomes.

8 Conclusion

To conclude, the discussion that has led the research into 'how the adaptive reuse of a bath house can contribute to the physical and psychological development of the GB Rowing Team, through the process of activating their body and mind', proves that the design interventions respond to the user groups identified and incorporate biophilic design strategies, including the use of water, natural materials and natural light to ensure the theoretical approach of the Wim Hof Method is taken into fruition, helping to provide the athletes with a space to progress within rowing. The conceptual application of these strategies provides for an expansive user experience by helping to merge these scientific discoveries into applicable, architectural methods which also incorporate the historical context of the Bath House. With all of these considered into the adaptive reuse, the design outcomes also serve as a wider social/environmental conversation, addressing the issues faced in the rapid urbanisation of our environment and how that mimics the well-being of the people that inhabit that space, the two should ultimately integrate cohesively, creating a natural balance between natural environments and nature itself.

9 List of Images

- Image 1. Conceptual image of Wim Hof breathing method.
(Woodman,2022)
- Image 3. Conceptual image of Wim Hof cold therapy.
(Woodman,2022)
- Image 4. Ashton Old Baths
(Cardenas, 2016)
- Image 5. Ashton Old Baths
(Cardenas, 2016)
- Image 6. Conceptual image of Wim Hof breathing method.
(Woodman,2022)
- Image 7. Conceptual image of Wim Hof cold therapy.
(Woodman,2022)
- Image 8. Ashton Old Baths
(Cardenas, 2016)
- Image 9. Ashton Old Baths
(Cardenas, 2016)
- Image 10. Ashton Old Baths
(Cardenas, 2016)
- Image 11. La Esperanza School Therapy Pools
(Valenzuela, 2015)
- Image 12. La Esperanza School Therapy Pools
(Valenzuela, 2015)
- Image 13. La Esperanza School Therapy Pools
(Valenzuela, 2015)
- Image 14. La Esperanza School Therapy Pools
(Valenzuela, 2015)
- Image 15. La Esperanza School Therapy Pools
(Valenzuela, 2015)
- Image 16. La Esperanza School Therapy Pools
(Valenzuela, 2015)
- Image 17. La Esperanza School Therapy Pools
(Valenzuela, 2015)
- Image 18. Active Therapy Centre R3
(Aguilar, 2016)
- Image 19. Active Therapy Centre R3
(Aguilar, 2016)
- Image 20. Active Therapy Centre R3
(Aguilar, 2016)
- Image 21. Active Therapy Centre R3
(Aguilar, 2016)
- Image 22. Active Therapy Centre R3
(Aguilar, 2016)
- Image 23. Active Therapy Centre R3
(Aguilar, 2016)
- Image 24. Active Therapy Centre R3
(Aguilar, 2016)
- Image 25. Jikka
(Rojas, 2020)
- Image 26. Jikka
(Rojas, 2020)
- Image 27. Jikka
(Rojas, 2020)
- Image 28. Jikka
(Rojas, 2020)
- Image 29. Jikka
(Rojas, 2020)
- Image 30. Jikka
(Rojas, 2020)
- Image 31. Jikka
(Rojas, 2020)

9 List of Images

- Image 32. The British Museum
(Foster + Partners 2013)
- Image 33. The British Museum
(Foster + Partners 2013)
- Image 34. The British Museum
(Foster + Partners 2013)
- Image 35. The British Museum
(Foster + Partners 2013)
- Image 36. The British Museum
(Foster + Partners 2013)
- Image 37. The British Museum
(Foster + Partners 2013)
- Image 38. The British Museum
(Foster + Partners 2013)
- Image 39. Grange Hall
(Tapia, Grange Hall / Nissen Richards studio 2019)
- Image 40. Grange Hall
(Tapia, Grange Hall / Nissen Richards studio 2019)
- Image 41. Grange Hall
(Tapia, Grange Hall / Nissen Richards studio 2019)
- Image 42. Grange Hall
(Tapia, Grange Hall / Nissen Richards studio 2019)
- Image 43. Grange Hall
(Tapia, Grange Hall / Nissen Richards studio 2019)
- Image 44. Grange Hall
(Tapia, Grange Hall / Nissen Richards studio 2019)
- Image 45. Grange Hall
(Tapia, Grange Hall / Nissen Richards studio 2019)
- Image 46. Candaian Museum of Nature
(Canadian Museum of Nature: KPMB architects 2017)
- Image 47. Candaian Museum of Nature
(Canadian Museum of Nature: KPMB architects 2017)
- Image 48. Candaian Museum of Nature
(Canadian Museum of Nature: KPMB architects 2017)
- Image 49. Candaian Museum of Nature
(Canadian Museum of Nature: KPMB architects 2017)
- Image 50. Candaian Museum of Nature
(Canadian Museum of Nature: KPMB architects 2017)
- Image 51. Candaian Museum of Nature
(Canadian Museum of Nature: KPMB architects 2017)
- Image 52. Meditation zone render
(Woodman,2023)
- Image 53. Cryo Pools zone render
(Woodman,2023)
- Image 54. Breathing zone render
(Woodman,2023)
- Image 55. Garden zone render
(Woodman,2023)
- Image 56. Ramp render
(Woodman,2023)

10 Terminology

1. **Cryo**- Involving extreme cold.
2. **GB Rowing Team**- The official members, including England, Wales and Scotland.
3. **Under 23**- All members from 15-23 years old.
4. **The Wim Hof Method**- The three step, wellbeing process.
5. **Insertion**- Can be easily inserted and removed from the original structure.
6. **Installation**- New structure built to fit within original but do not depend structurally on each other.
7. **Intervention**- The new and the old structurally connect together and cannot be separated.

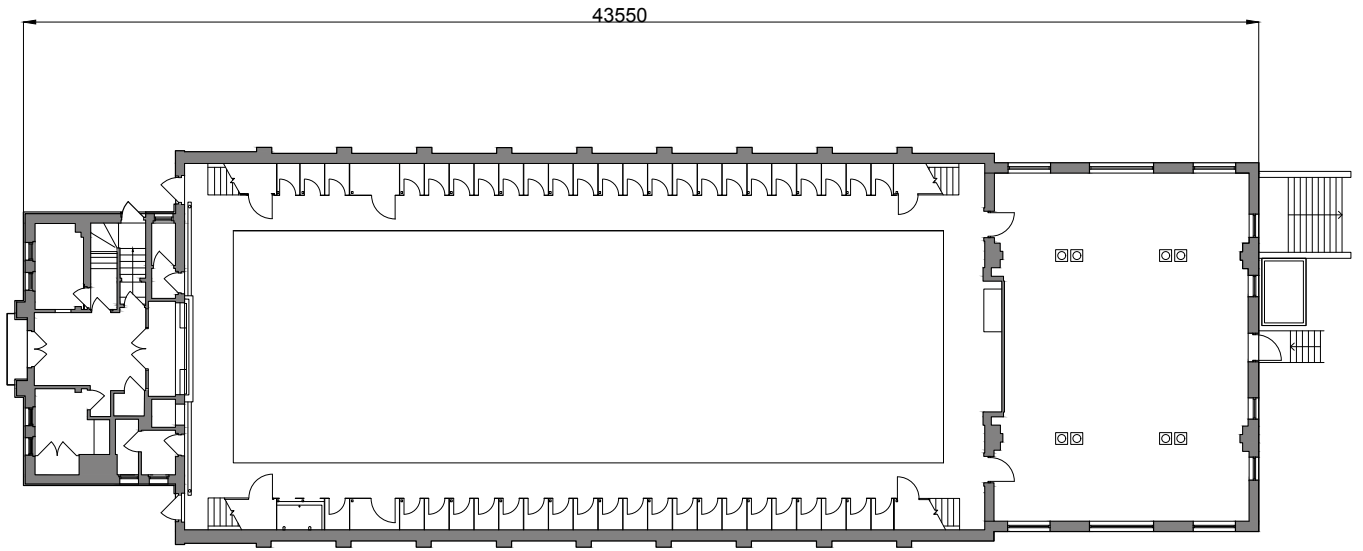
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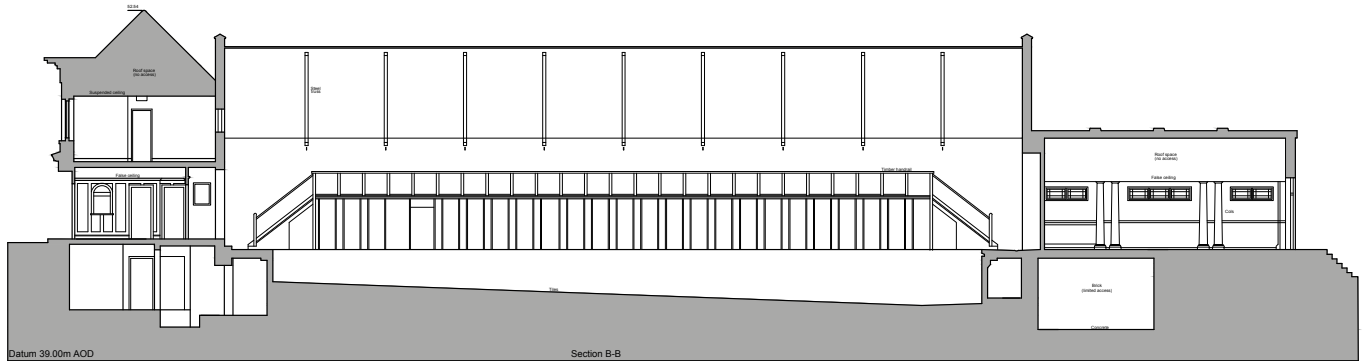
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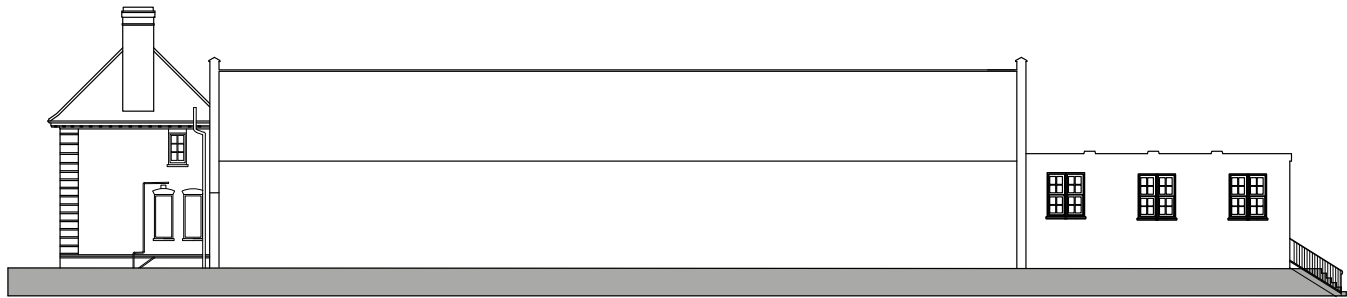
15 Appendix A- Original Technical Drawings (Not To Scale)



GROUND FLOOR PLAN



SECTION A-A POOL HALL



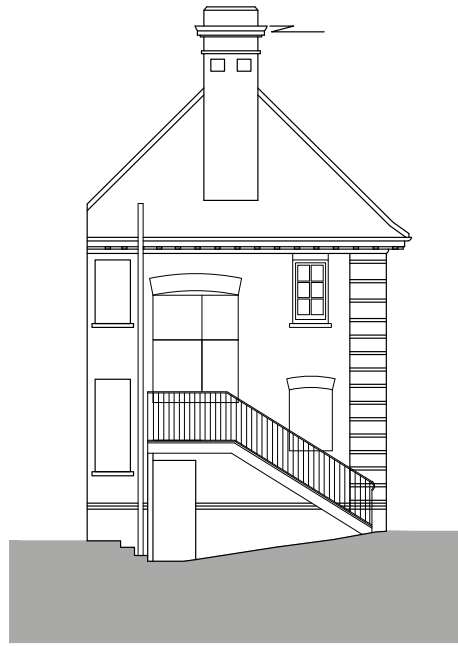
WEST ELEVATION



SOUTH ELEVATION



SECTION B-B

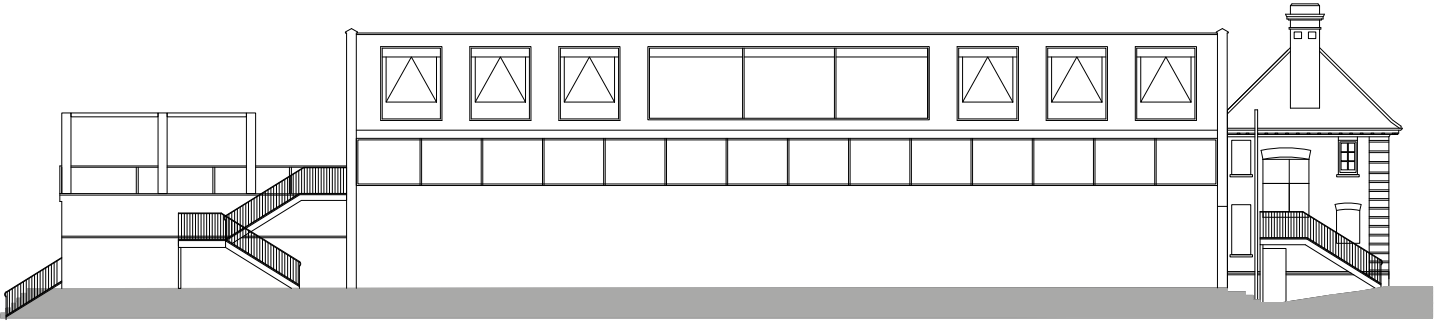


WEST ELEVATION

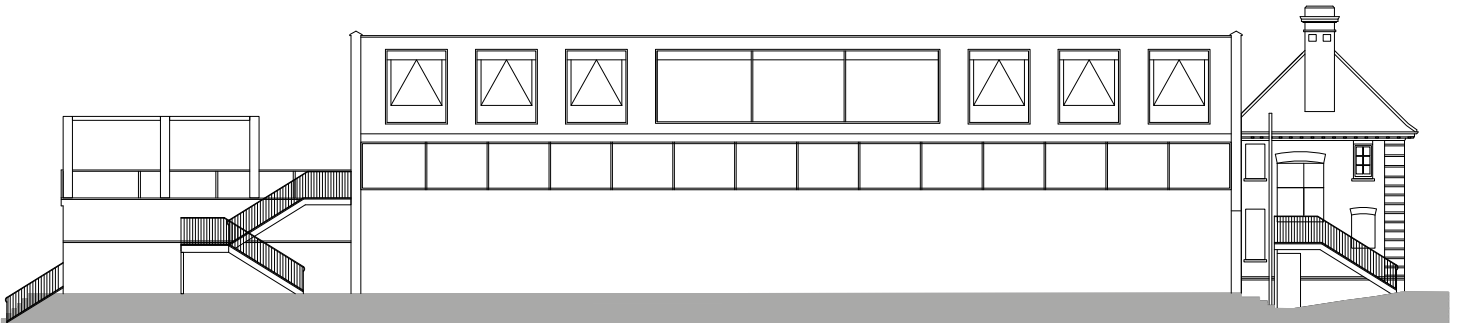


SECTION C-C SWIMMING POOL

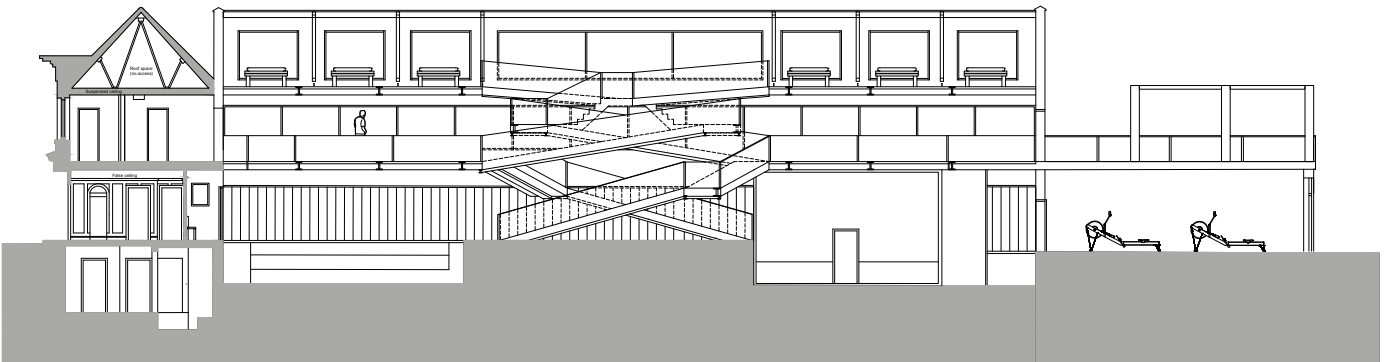
16 Appendix B- Proposed Technical Drawings (Not To Scale)



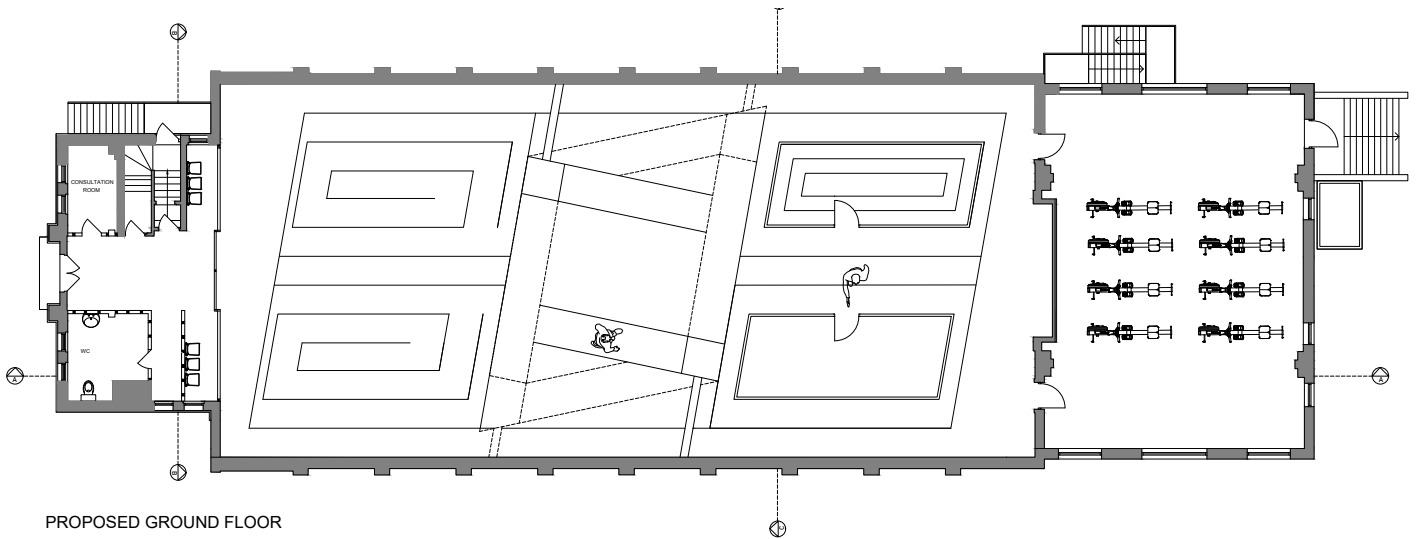
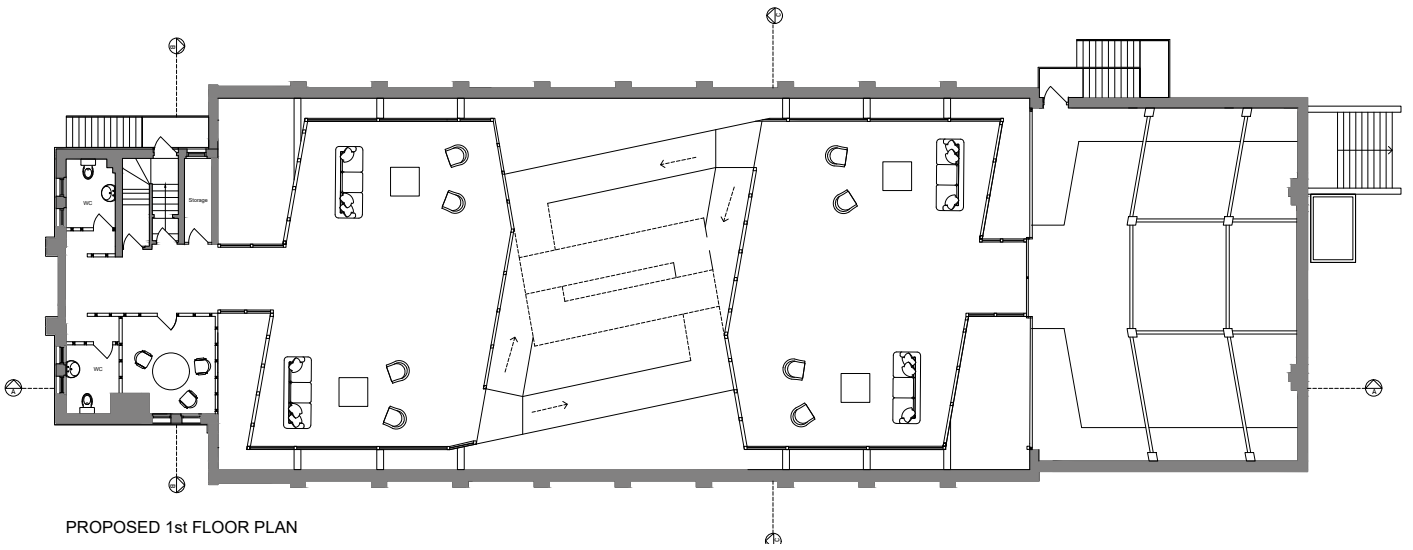
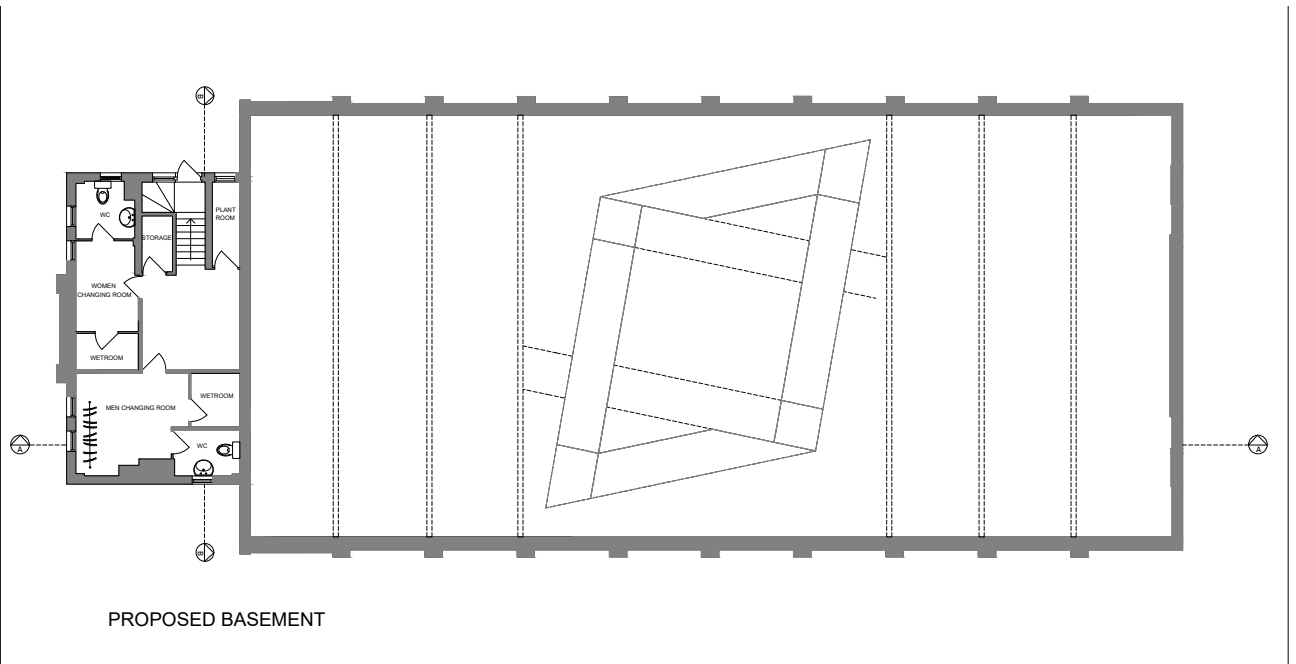
PROPOSED EAST ELEVATION

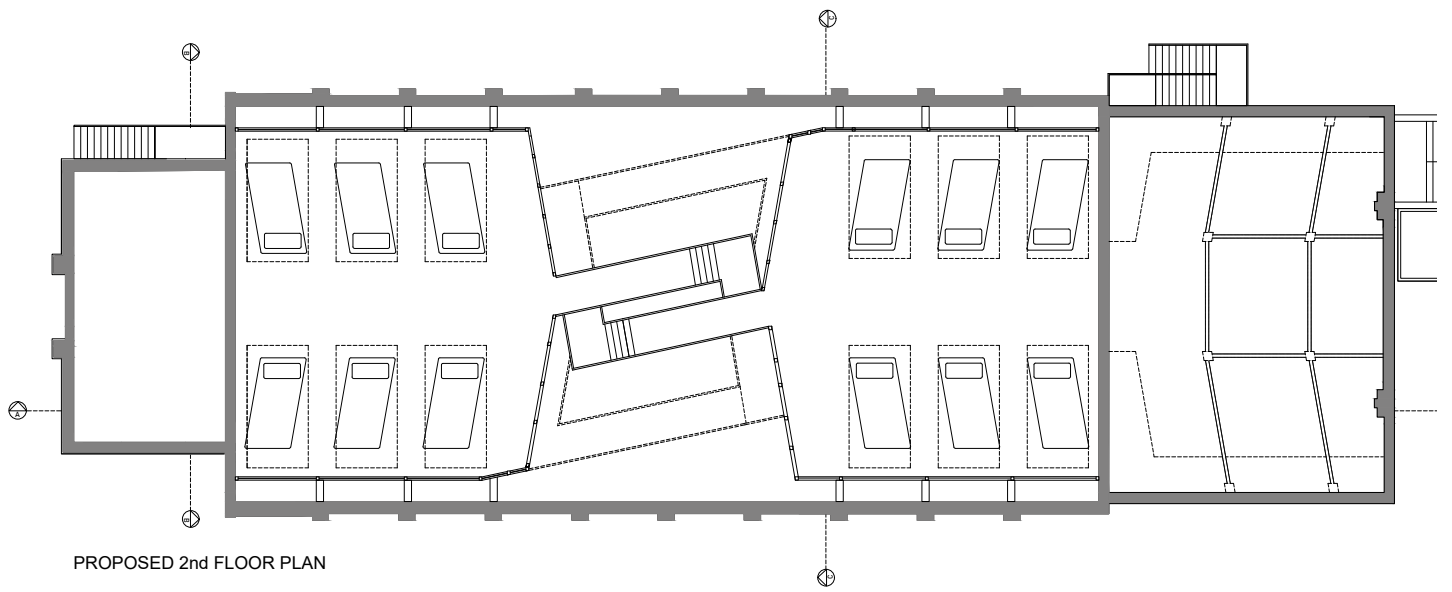


PROPOSED EAST ELEVATION

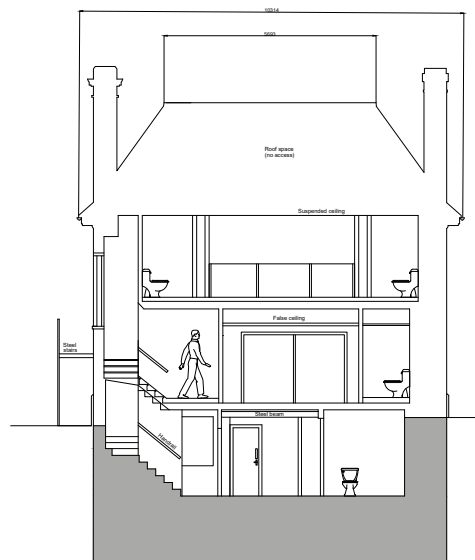
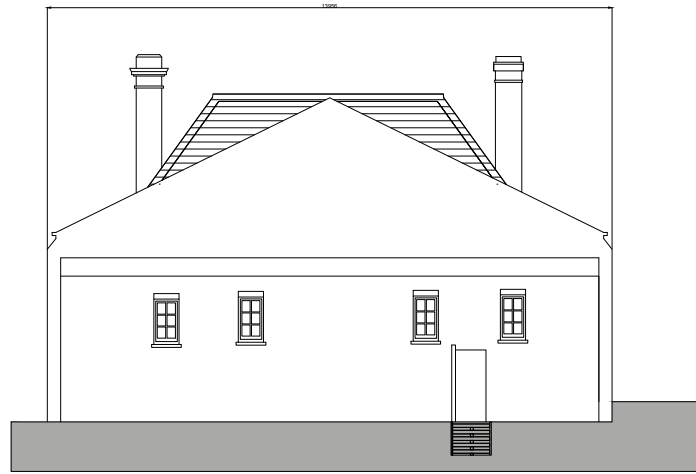


PROPOSED SECTION A-A

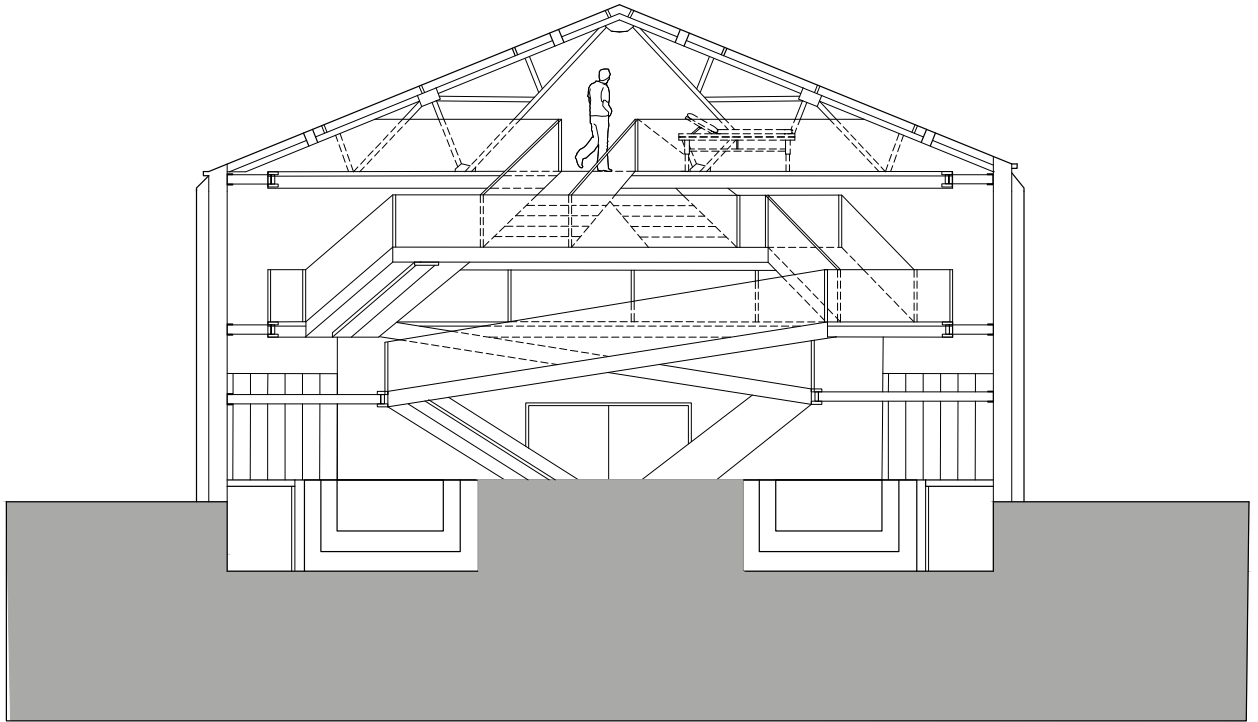




PROPOSED 2nd FLOOR PLAN



PROPOSED SECTION B-B

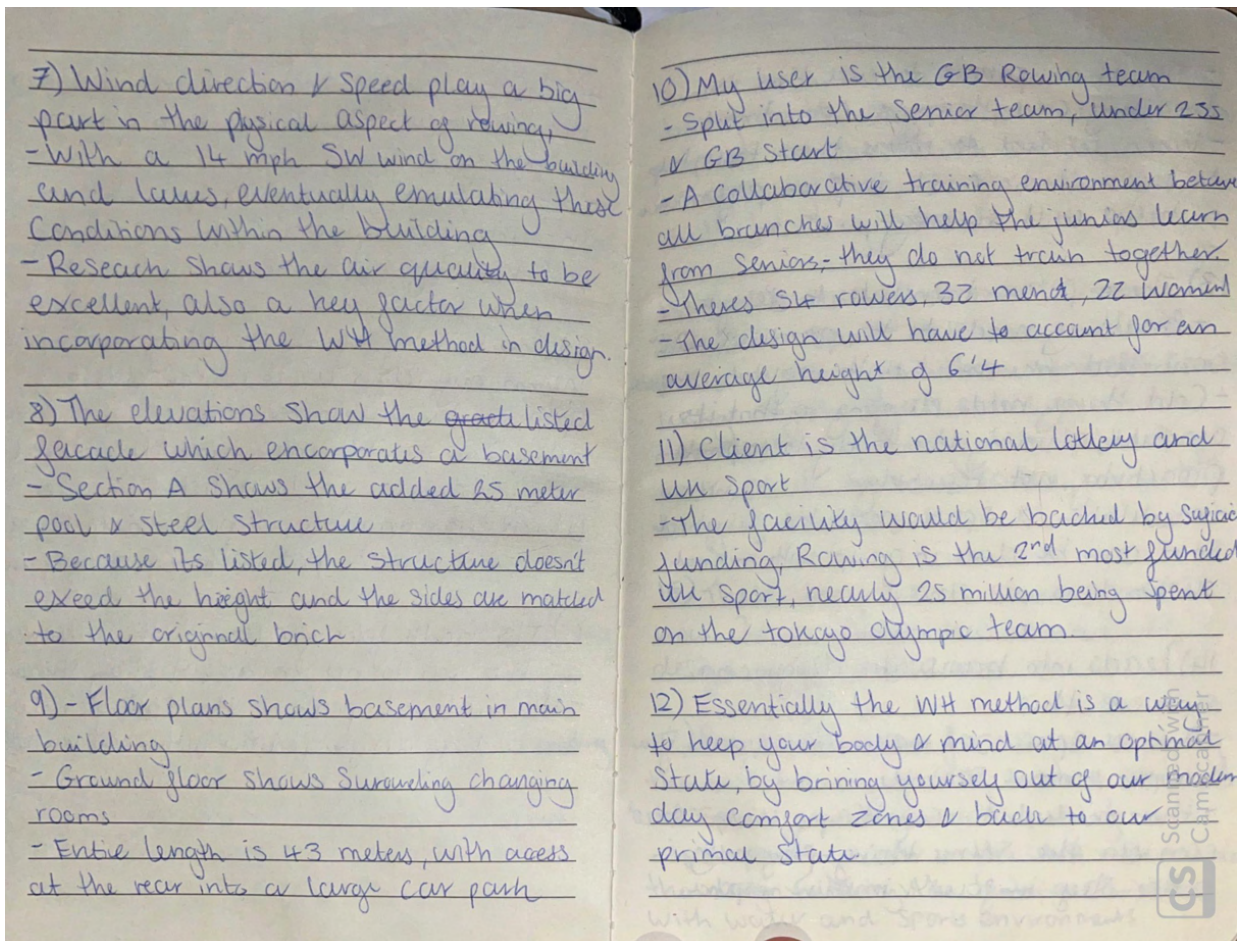
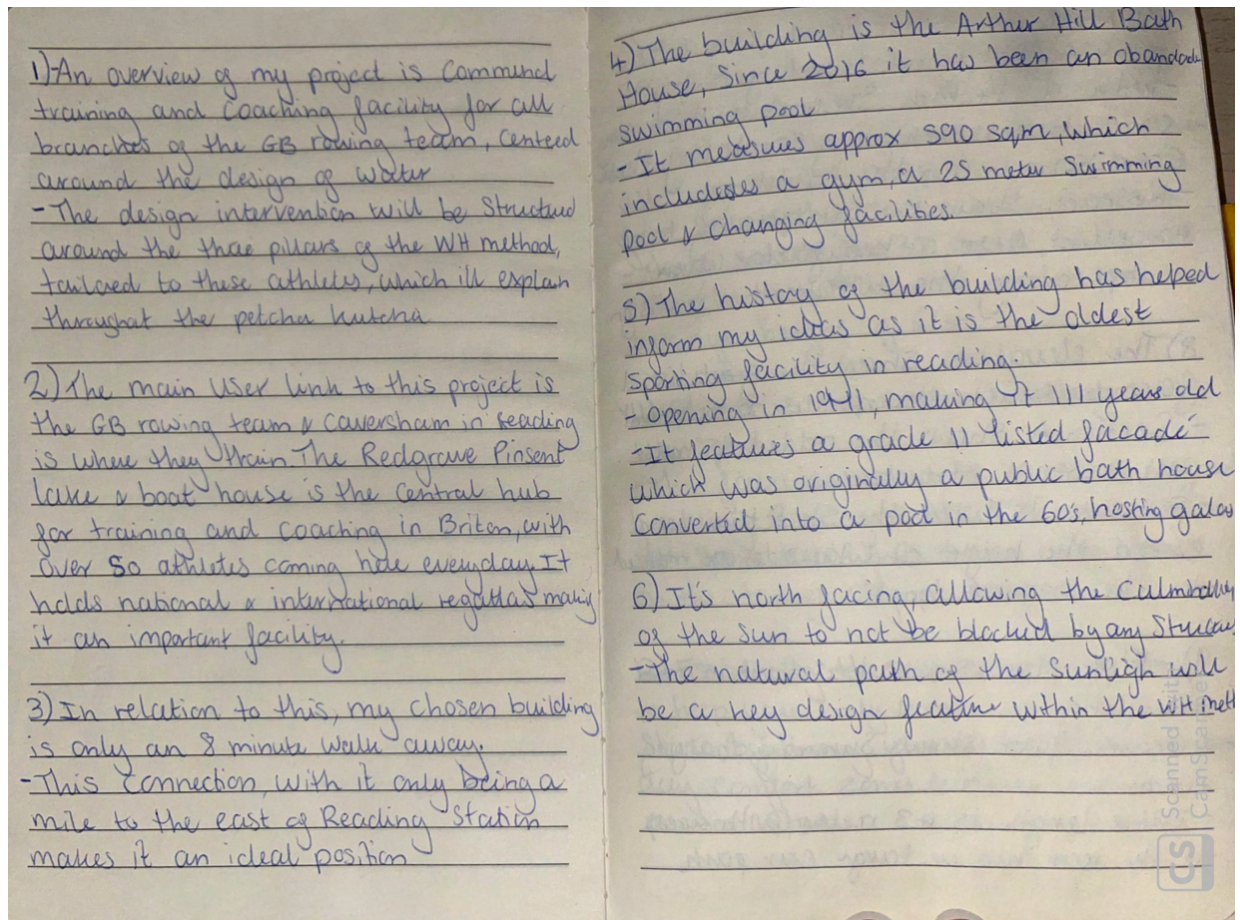


PROPOSED SECTION C-C



SOUTH ELEVATION

18 Appendix D- Research Diary/ Time Plan



- The three pillars to aid this is breathing, cold therapy & commitment
- When applied to rowers these tools help to lower lactic acid, improve performance & help with recovery.

13) These pillars translate to design

- Breathing needs to be practised in a controlled environment with regulate air quality
- Cold therapy needs designing so that its gradual, allowing the body to respond proactively, not reactively
- meditation, a space must be designed so it can be done in groups with minimal distractions

14) Leads into how water design can achieve this

- A blue space can reduce stress, make you happier & more sociable
- then linked to cryotherapy, when cooled can do the same thing physically, better sleep, focus & immune response

- linked back to rowing, research has shown being on the water & its calming sound improves mental health
- Emulating these benefits within the inter will be key

- ### 15) The building has made many iterations since 1911 involving water
- I am coming on those iterations, science using cryotherapy as a tool.
 - And allowing rowing to be aided by water, as its resistance is the main body of the sport

- ### 16) These key words show again how its evolution has mimiced its design going into 2025

- ### 17) Projects direction, focusing on designing the best training facility to aid GB rowers
- A space for communal coaching
 - incorporating water & the WH method into the design following the building connects with water and sports environments

Questions

- > What to take out of part A
- > what annotated visuals
- > full page for president studies
- > Do the rest be in a table
- > Does each sub heading need into
- > how to rewrite into?
- > Strategy? is that what i've done
- > is design reflection in 1st person
- > Should we keep part A appendix
- > Put more in addendum?
- > where does case study chart go?
 - > appendix (please see appendix)

- Strategies refer to both up & reflection

- intro - include things i've done
 - > add strategies
 - > Put dogma (content diagram)
- Put picture of concept model

cad

- 1) put red line on top of roof & side
- 2) put grid on existing structure
- 3) add price wire
- 4) render existing plans / elevations
- 5) show intention (theory) for esp

To Do Exercises

- o New Intro & conclusion
- o Intro & conclusion for each heading
- o Strategy & concept chapter
 - > forming a conceptual language
 - > Design strat
 - > Narratives within the space
- o Design reflection
- o make sketch collage
- o make dogma visual for intro
- o New visuals for design intention

Three pillars of essay

① Breathing

- WH method - the Science of it
- ↳ how it helps athletes
- ↳ how it helps before cold therapy
- Air quality & regulation
- Filtration system in design
- controlled environment
- Group setting - circular

② Cryotherapy

- WH method - what Science for athletes
- water, 'Blue Space' design
- Cit spiral pools -> gradual cold shocks
- Bath house -> pool -> cryotherapy

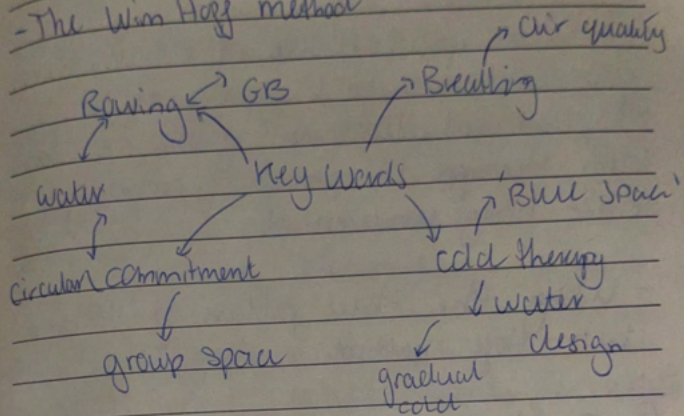
③ Mind

- communal space
- 'water' vault design to separate space

Scanned with CamScanner

Research intro 3/11/22

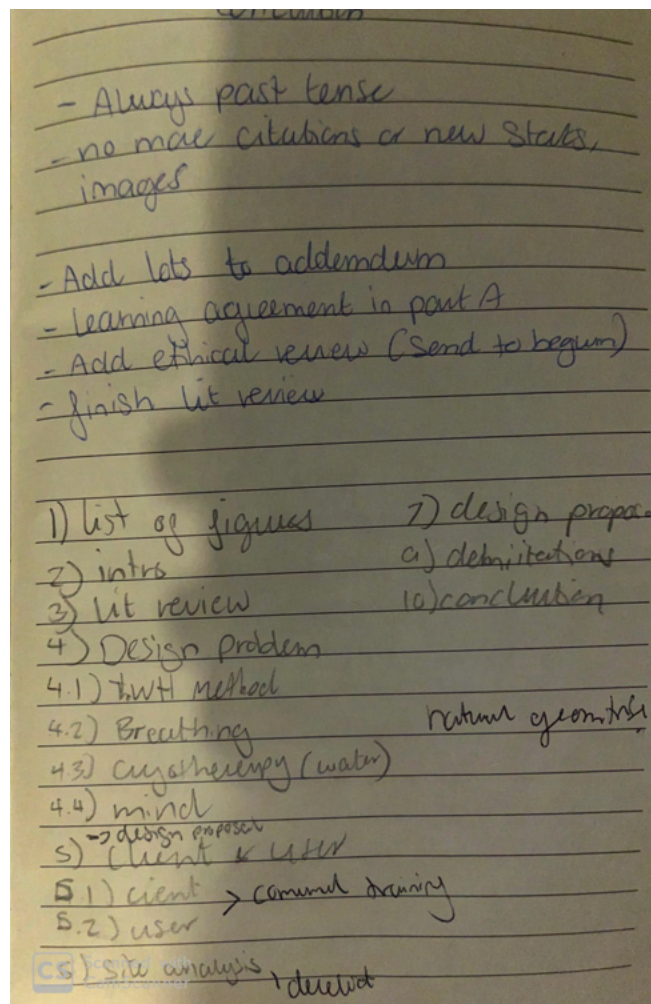
- The Wim Hoff method



Design problem

- The current training facility for GB rowing is small and only focused on erg, weight training
- Will provide a communal training & coaching facility

- Its significance is to enhance the training of a rower using the adaptive research reuse of a bath house to unlock their body & mind



Date	Hours	Task
19 th Jan	5	Start looking at president studies
26 th Jan	4	Carry on research of presidents
2 nd Feb	6	Research the design problem in more detail
9 th Feb	7	Write three pillars of the Wim Hof Method
16 th Feb	5	Outline table of contents for part B
23 rd Feb	5	Outline conclusion
2 nd March	7	Outline and write design strategies
9 th March	9	Complete president study pages
16 th March	10	Finish conceptual approach and design application
23 rd March	8	Write reflective practise
30 th March	7	Go through and re write some of the context study
6 th April	6	Write delimitations
13 th April	8	Add all images and figures
20 th April	20	Write introduction and conclusion
27 th April	15	Final proof read and adding appendix

19 Appendix E- Peer Review

Peer Review

Peer review by Ellie Burford on 19th March

Ellie suggested that I go into more detail explaining the Wim Hof Method so that each stage can be fully understood by the reader in how it can be applied into the design.

- I have separated the method into the three separate pillars of Cold therapy, Breathing techniques and mediation.

Ellie explained that more proposed floor plans would help to visually aid the text in explaining why certain strategies have been applied.




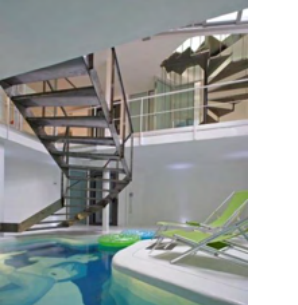
- I have added the proposed section C-C, ground floorplan, 1st floorplan and 2nd floorplan on page 37.


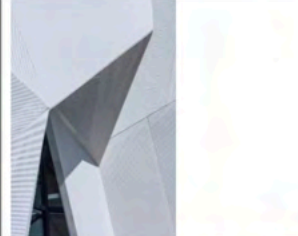
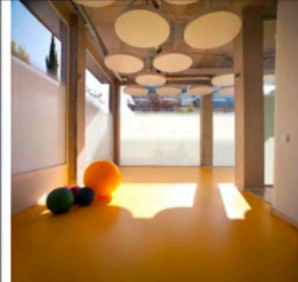
The peer review highlighted that there could be more supporting figures to explain the conceptual approach.


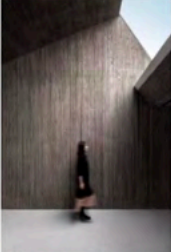

- I have added figures 13, 14 and 15 which show the conceptual approach in my concept model and the subsequent sketch up models. The conceptual language is showed in the top view of the ramp design.

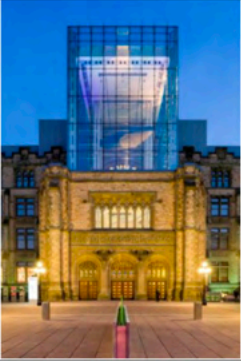


Ellie suggested that the literature review should focus less on the supporting documents of the Wim Hof method and biophilic design, however I disagree as these are key themes that run throughout the entire project, from the research to the conceptual approach and the design strategies.




20 Appendix F- President Study Table



PROJECT	IMAGE	SIMILARITY	QUESTIONS	CATEGORY	SOURCES
Reichstag Parliament Germany, Berlin 2004 Foster and Partners		Use Similar conceptual approach to the staircase.	How do the separate staircases intertwine?	Historic president	AD Classics: New German Parliament, Reichstag / Foster + Partners ArchDaily
Baltic Centre for Contemporary Art Newcastle, UK 2002 Dominic Williams		Form An optical illusion using a mirrored staircase, staircase reflects the art museum.	How do people to react the optical illusion?	Contemporary president	https://baltic.art
JIKKA Ito, Japan 2002 Issai Suma		Approach Gradual entrance into 'cryo' pool. Form Mimics the conceptual approach of staircase.	How could this concept be used to reflect the conceptual approach?	Contemporary president	JIKKA / Issei Suma ArchDaily
Rota House Madrid, Spain 2006 Manuel Ocaña		Approach Design similar to using stairs as a direct entrance to pool. Wellbeing centre	How does the pool interact with the exit of the stairs? How is the pool positioned in the building?	Contemporary president	Rota House / Manuel Ocaña ArchDaily


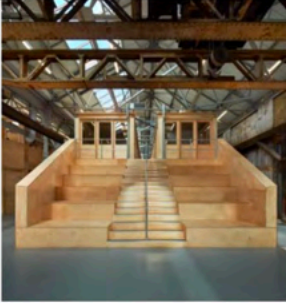
Therapeutic Pools for La Esperanza School SAN JUAN, PUERTO RICO 2015 FUSTER + Architects		Use The use of pools for physical therapy. Natural light to accentuate design.	How could cryo pools be used in this context? How else can therapy pools be used in design?	Contemporary president	Therapeutic Pools for La Esperanza School / FUSTER + Architects ArchDaily
Las Eras Sports Centre HOYO DE MANZANARES, SPAIN 2021 Enkiro		Form The exterior of the building follows the interior forms.	How can design of the exterior mimic the interior?	Contemporary president	Las Eras Sports Center / Enkiro ArchDaily
Active Therapy Centre R3 Gabriel Gomera Studio Manresa, Spain 2015		Use How the use of controlled, natural light can aid physical therapy.	How can controlled natural light influence the user? How can materials omit natural light?	Contemporary president	Active Therapy Center R3 / Gabriel Gomera Studio ArchDaily

<p>FLYT Bathing Installations Norway Rintala Eggertsson Architects 2020</p>		<p>Approach Shows how the building can have a relationship with the cold.</p> <p>Form Natural materials, wood.</p>	<p>How can the user interact with cold therapy</p>	<p>Contemporary president</p>	<p>Gallery of FLYT Bathing Installations / Rintala Eggertsson Architects - 1 (archdaily.com)</p>
<p>Waterside Buddhist Shrine TANGSHAN, CHINA Archstudio 2017</p>		<p>Form Sky light framing the natural light.</p>	<p>How can different angles of skylights direct the sun?</p> <p>How do skylights effect the way people move throughout the space?</p>	<p>Contemporary president</p>	<p>Waterside Buddist Shrine / ARCHSTUDIO ArchDaily</p>
<p>Converted Warehouse Fitzroy, Australia Andrew Simpson Architects 2014</p>		<p>Form Glass skylights in between steel trusses.</p>	<p>How big can the skylights be when bet ween trusses?</p>	<p>Contemporary president</p>	<p>Gallery of Converted Warehouse in Fitzroy / Andrew Simpson Architects - 13 (archdaily.com)</p>

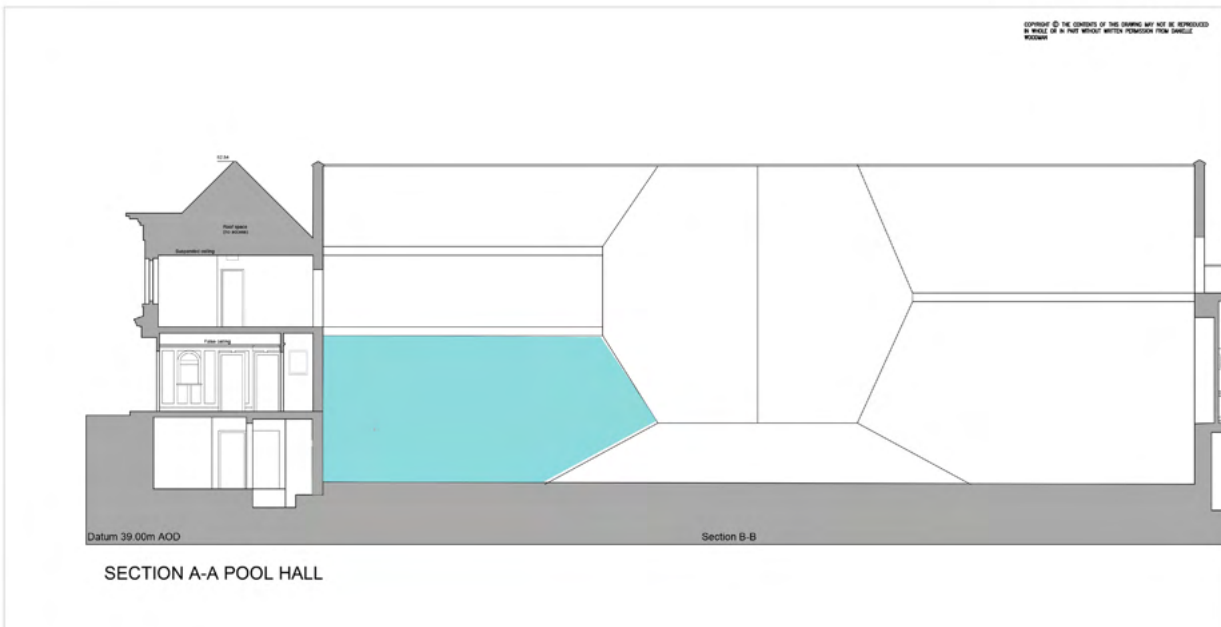
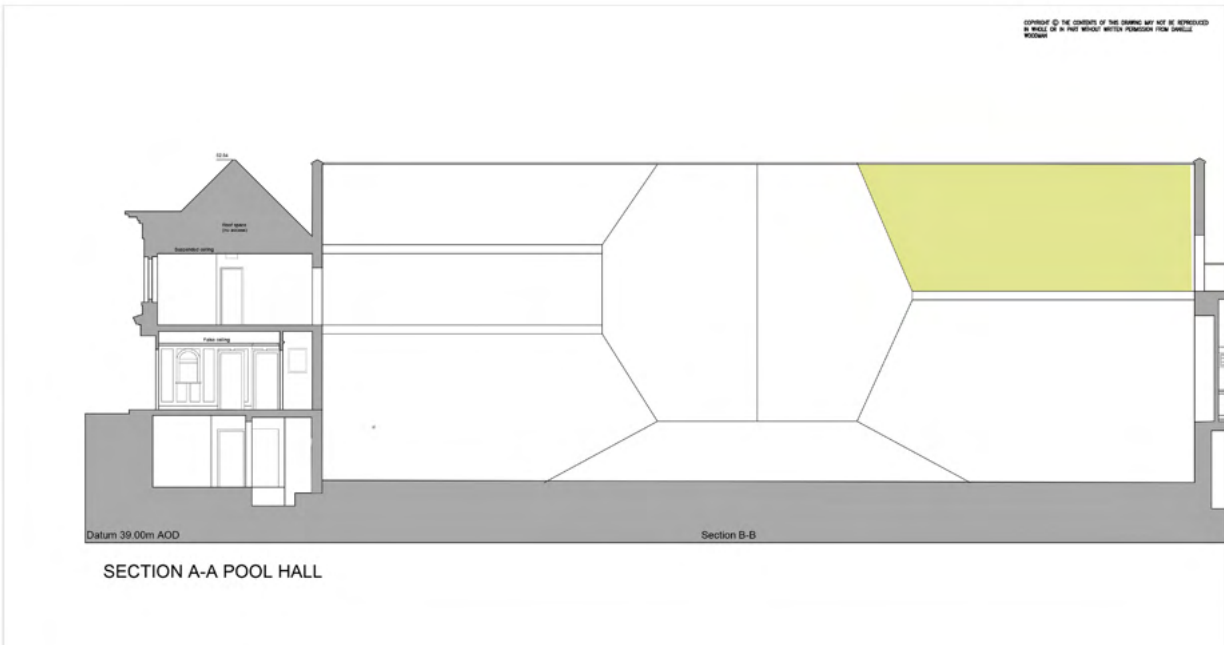
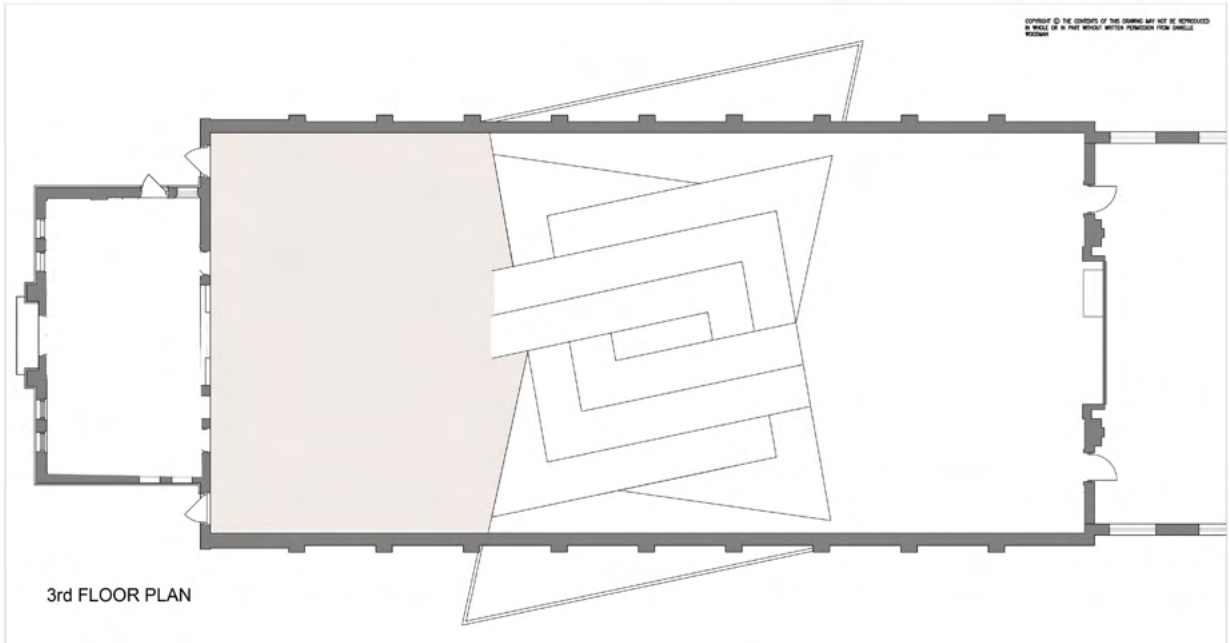
<p>Canadian Museum of Nature Canada KPMB Architects</p>		<p>Approach The mixture between glass and historic brick</p>	<p>How can glass and brick intertwine?</p> <p>How can old and modern materials mix together?</p>	<p>Historical president</p>	<p>6 Historical Buildings Topped by Contemporary Glass Extensions ArchDaily</p>
<p>British Museum London Foster and Partners</p>		<p>Approach Intertwines the old and the new, reflecting the timeline of museum pieces within.</p> <p>Form Glass roof, formed to match the 17th century architecture with modern day materials.</p>	<p>How can glass be used to match the 17th century properties of stone?</p> <p>How can steel reinforce the glass, while also adding to the design?</p>	<p>Historical/contemporary president</p>	<p>https://www.archdaily.com/tag/british-museum</p>
<p>Louviers Music School Rehabilitation and Extension ParisOpus 5 Architectes</p>		<p>Approach Creates a physical and metaphorical reflection seen in the materials</p>	<p>How can a glass or mirrored extension be used as an optical illusion?</p>	<p>Contemporary president</p>	<p>https://www.archdaily.com/359050/louviers-music-school-rehabilitation-and-extension-opus-5-architectes</p>

<p>Fahle House / KOKO architects</p> <p>Estonia</p>		<p>Form Creates a controversial response to adaptive reuse.</p>	<p>How can adaptive reuse evoke emotion?</p>	<p>Contemporary president</p>	<p>https://www.archdaily.com/780385/fahle-house-koko</p>
<p>Walker's Court Theatre / SODA</p> <p>London</p> <p>2019</p>		<p>Form Uses glass to connect the old to the new, creating a materialistic journey.</p>	<p>How can the old and new be connected through materials?</p>	<p>Contemporary president</p>	<p>"Walker's Court Theatre / SODA" 17 Dec 2019. ArchDaily. Accessed 16 Mar 2023. <https://www.archdaily.com/930239/walkers-court-theatre-soda> ISSN 0719-8884</p>
<p>Battersea Power Station / WilkinsonEyre</p> <p>London</p> <p>2022</p>		<p>Approach Allowing adaptive reuse and historical conservation to keep the cultural importance of this building to its community alive.</p>	<p>How can the historical importance of a building be preserved, while also being adapted to modern times?</p>	<p>Historical president</p>	<p>"Battersea Power Station / WilkinsonEyre" 17 Oct 2022. ArchDaily. Accessed 16 Mar 2023. <https://www.archdaily.com/990615/battersea-power-station-wilkinsoneyre> ISSN 0719-8884</p>

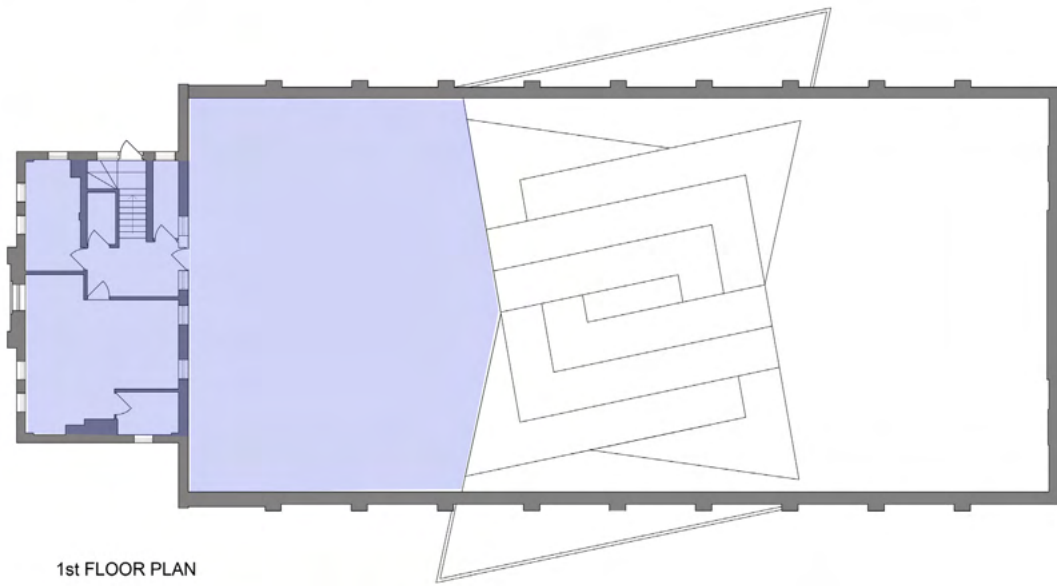
<p>King's Cross Station / John McAslan + Partners</p> <p>London</p> <p>2012</p>		<p>Use The structure has remained the same to accommodate the large crowds and trains.</p> <p>Approach The additional roof design adds structural support as well as a conceptual strategy</p>	<p>How can structural support be used to aid the conceptual language?</p>	<p>Historical president</p>	<p>"King's Cross Station / John McAslan + Partners" 21 Mar 2012. ArchDaily. Accessed 16 Mar 2023. <https://www.archdaily.com/219082/kings-cross-station-john-mcaslan-partners> ISSN 0719-8884</p>
<p>Grange Hall / Nissen Richards Studio</p> <p>London</p> <p>2017</p>		<p>Approach Showing how a locally listed building can be a subject to adaptive reuse, without losing the historical importance of the design.</p>	<p>How can a designer respect the original footprint of the building?</p>	<p>Contemporary president</p>	<p>"Grange Hall / Nissen Richards Studio" 28 Dec 2019. ArchDaily. Accessed 16 Mar 2023. <https://www.archdaily.com/930782/grange-hall-house-nissen-richards-studio> ISSN 0719-8884</p>

<p>Ashton Old Baths</p> <p>Modern City Architecture & Urbanism</p> <p>Ashton-Under-Lyne</p> <p>2016</p>		<p>Use The Victorian baths were converted into office space using inserted pods to complement the existing, grade I listed building.</p> <p>Approach The materiality allowed to enhance the historical aspects of the building, while also taking it to the contemporary working environment.</p> <p>Form Contains a central circulation space, acting as a sculpture or a piece of art.</p>	<p>How can the circulation of a building act as a piece of art, allowing the visitors to engage with the existing fabric of the building?</p>	<p>Contemporary president</p>	<p>"Ashton Old Baths / Modern City Architecture & Urbanism" 09 May 2016. ArchDaily. Accessed 20 Mar 2023. <https://www.archdaily.com/786987/ashton-old-baths-modern-city-architecture-and-urbanism> ISSN 0719-8884</p>
<p>The Forge Offices and Exhibition Space / Emrys Architects</p> <p>Tower Hamlets</p> <p>2017</p>		<p>Form The insertion consists of a wooden staircase that also acts a stand-alone sculpture.</p> <p>Approach The insertion adds to the conceptual approach</p>	<p>Can the conceptual approach be conveyed through a circulatory insertion?</p>	<p>Contemporary president</p>	<p>"The Forge Offices and Exhibition Space / Emrys Architects" 14 Aug 2019. ArchDaily. Accessed 20 Mar 2023. <https://www.archdaily.com/922922/the-forge-offices-and-exhibition-space-emrys-architects> ISSN 0719-8884</p>

21 Appendix G- Spatial Planning

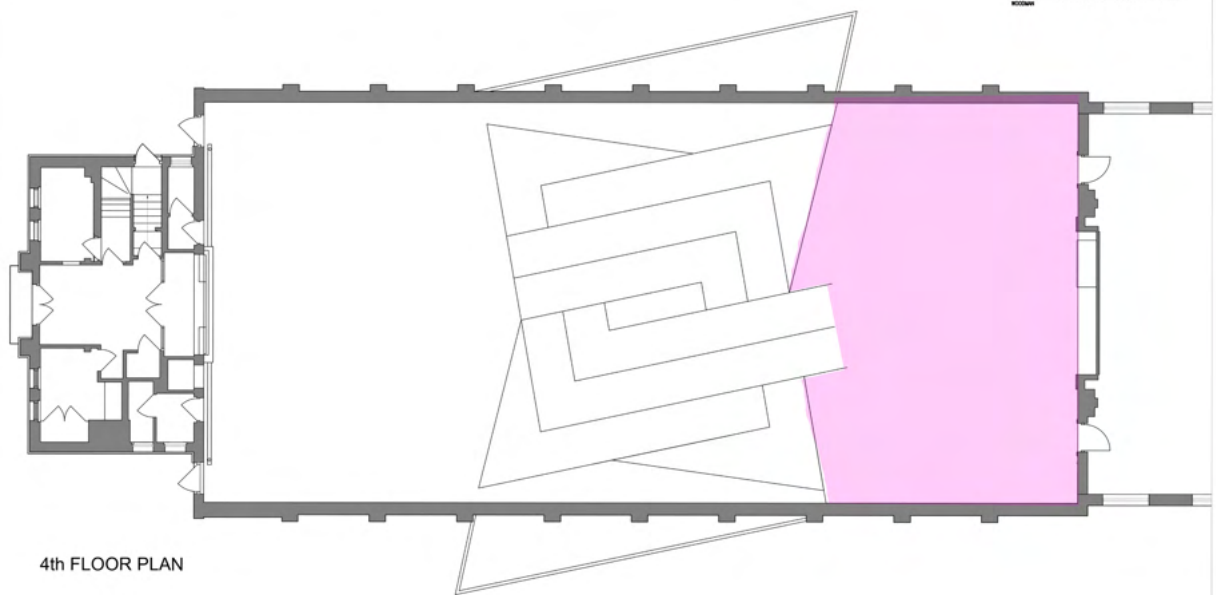


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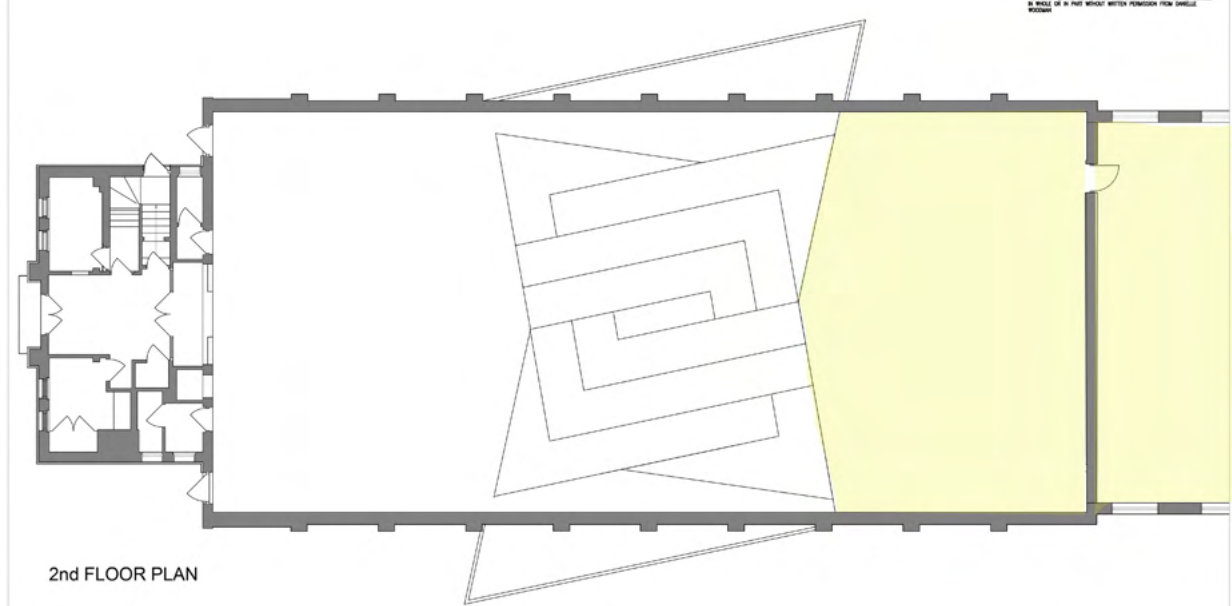
1st FLOOR PLAN

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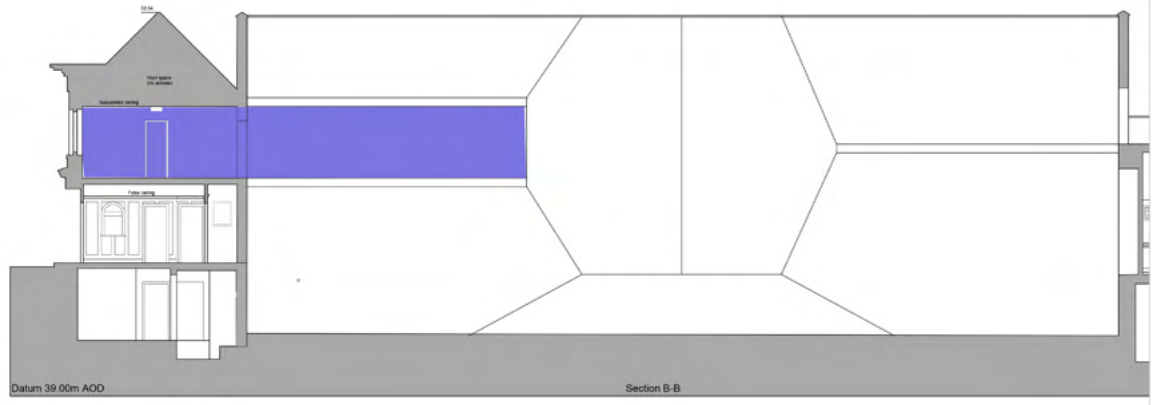
4th FLOOR PLAN

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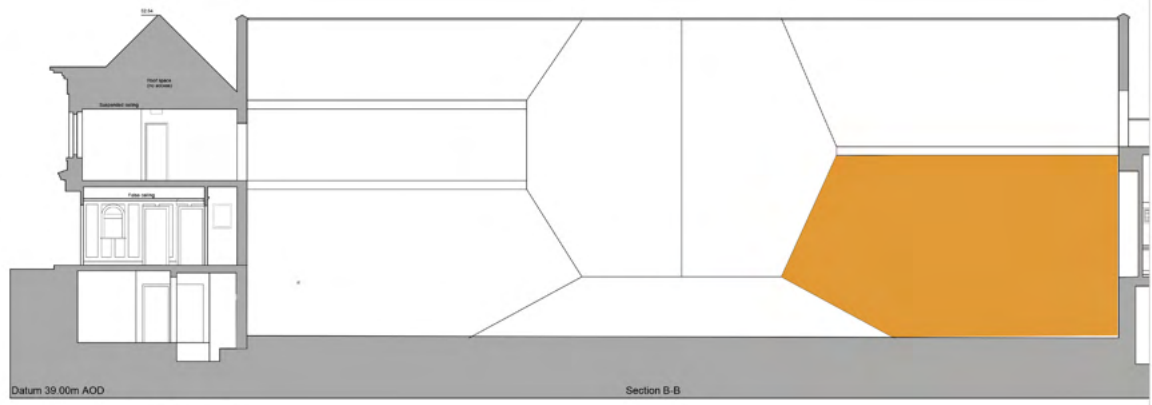
2nd FLOOR PLAN

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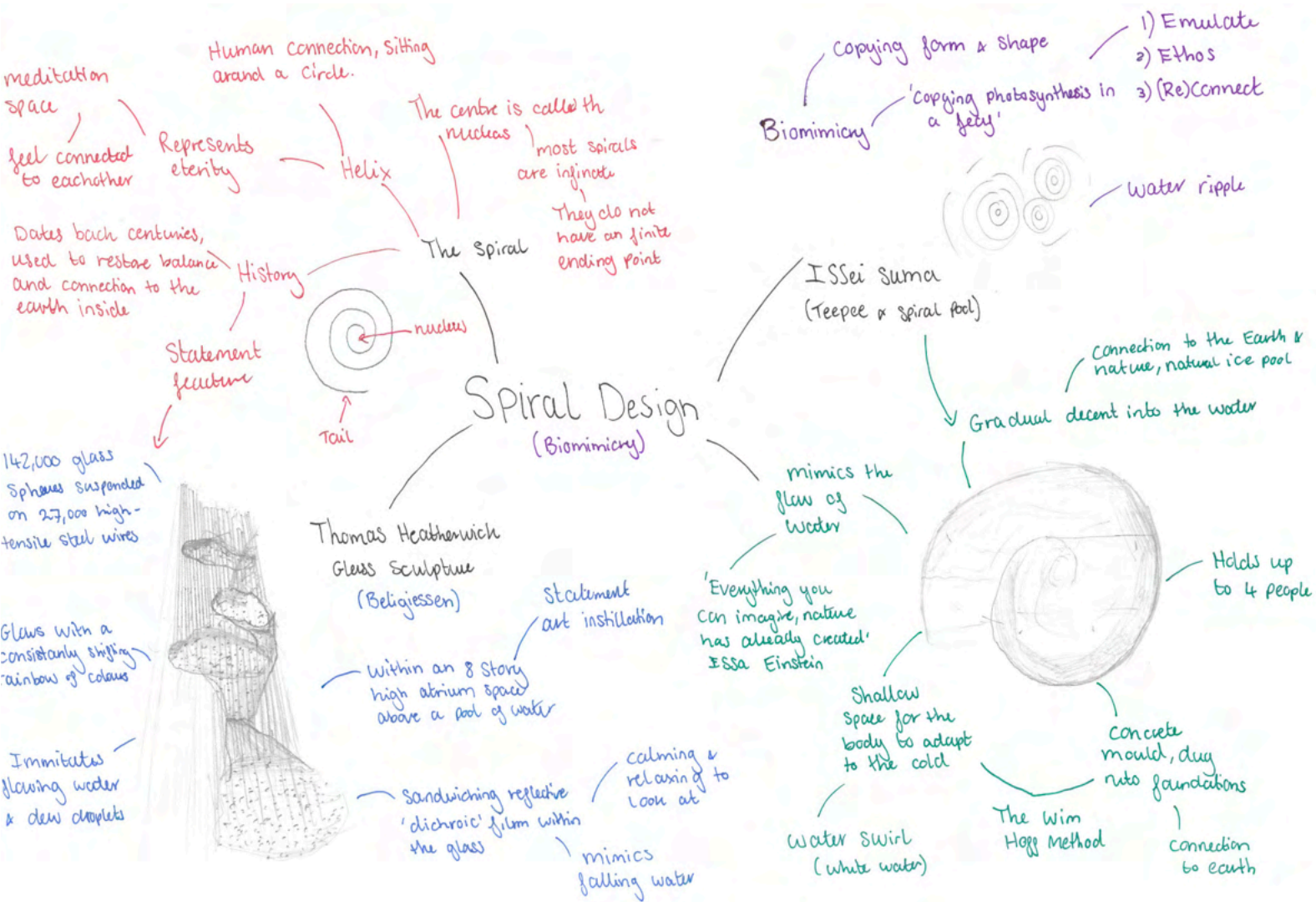
SECTION A-A POOL HALL

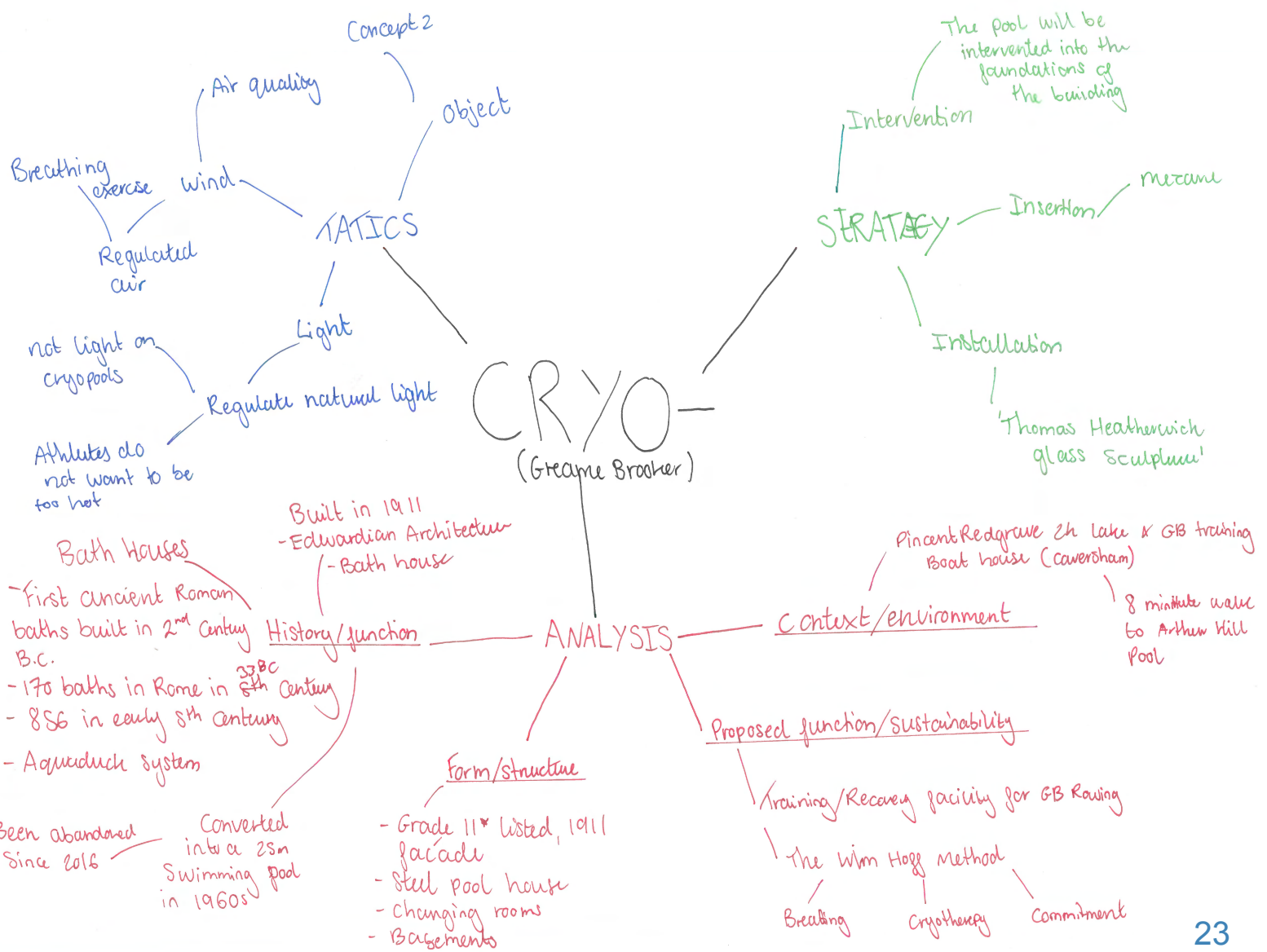
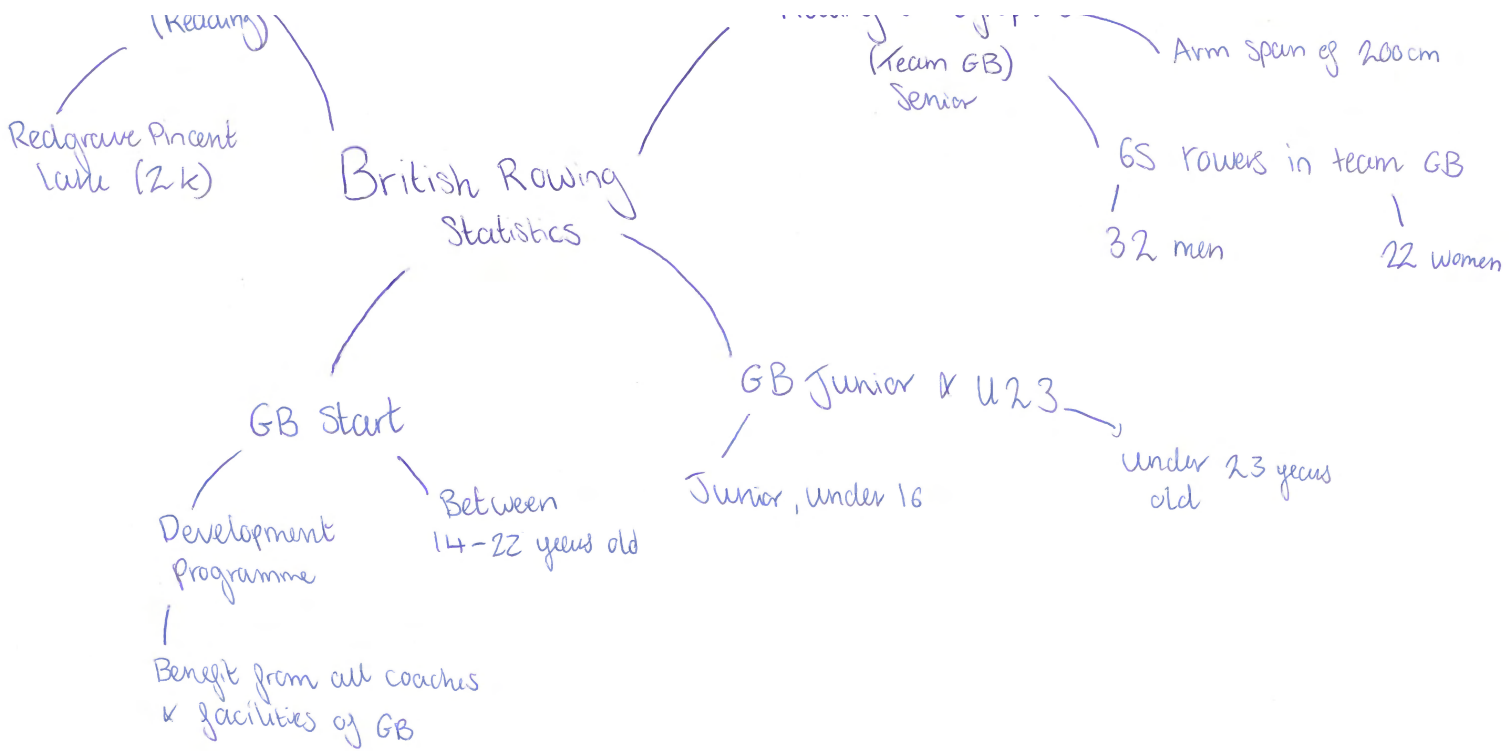
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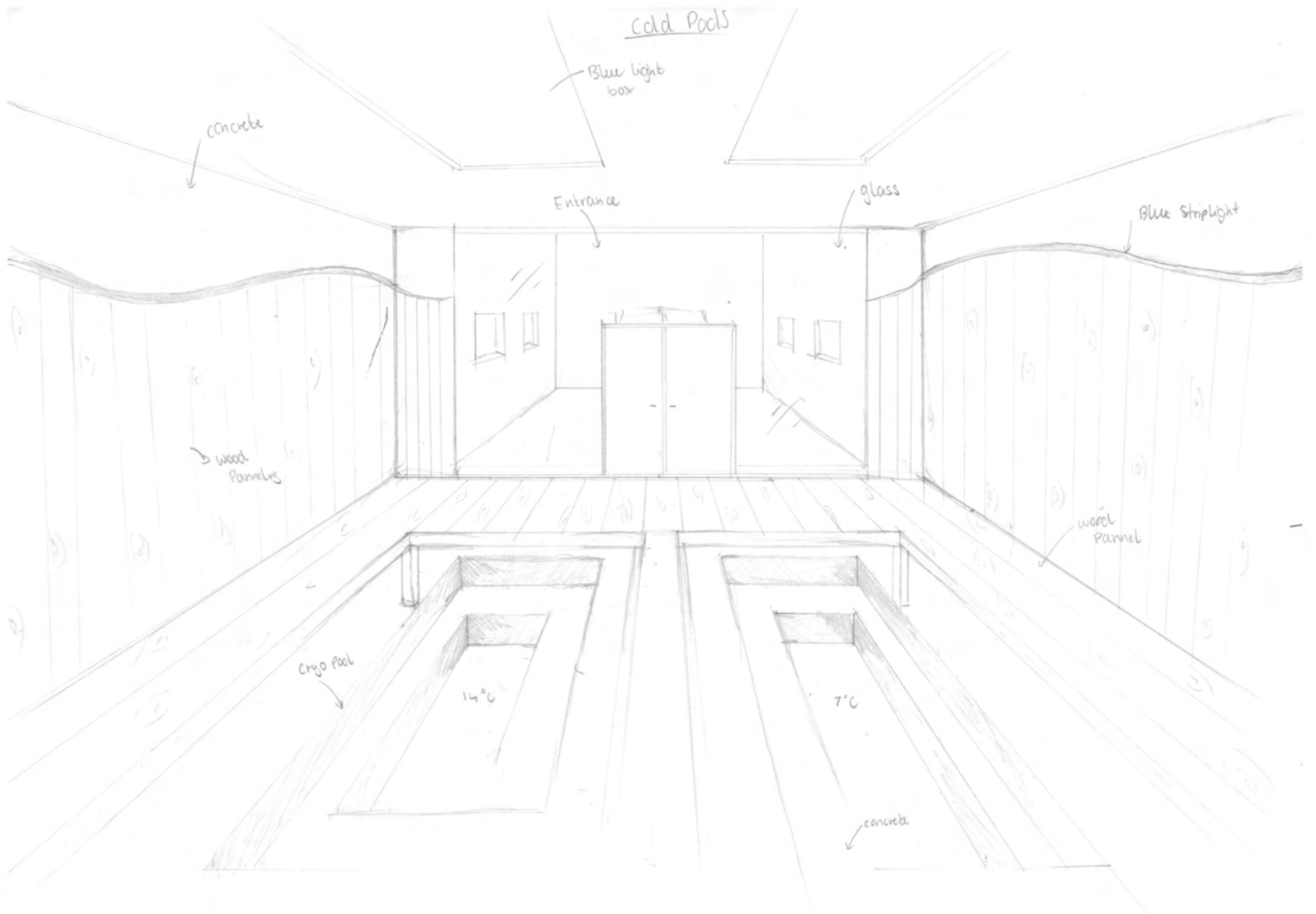


SECTION A-A POOL HALL

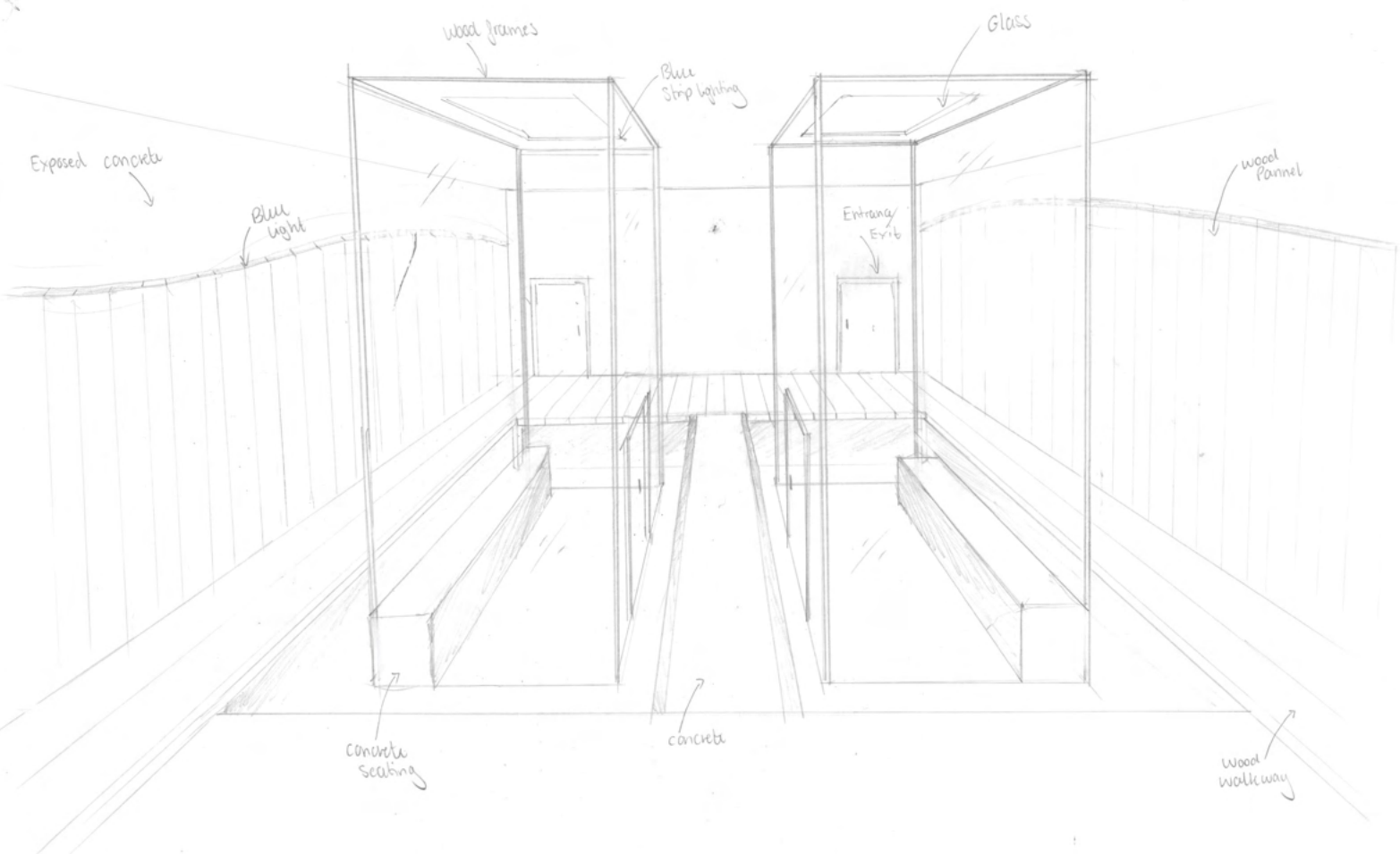
22 Appendix H- Development Work



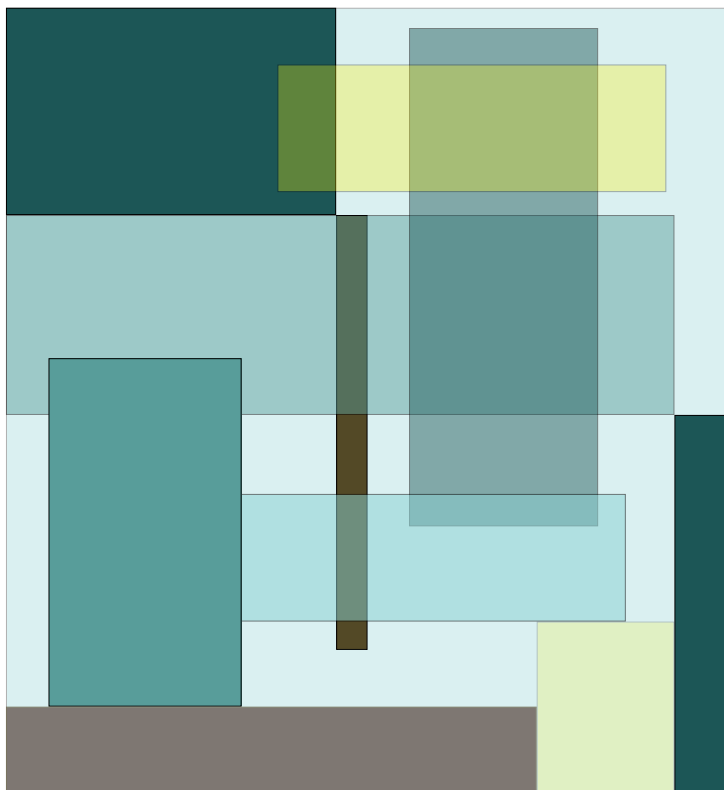
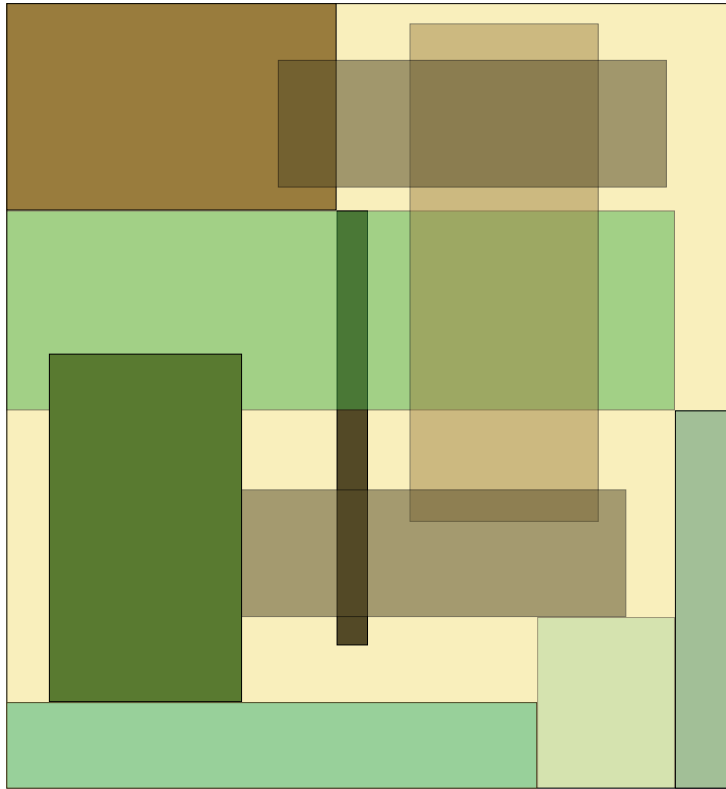




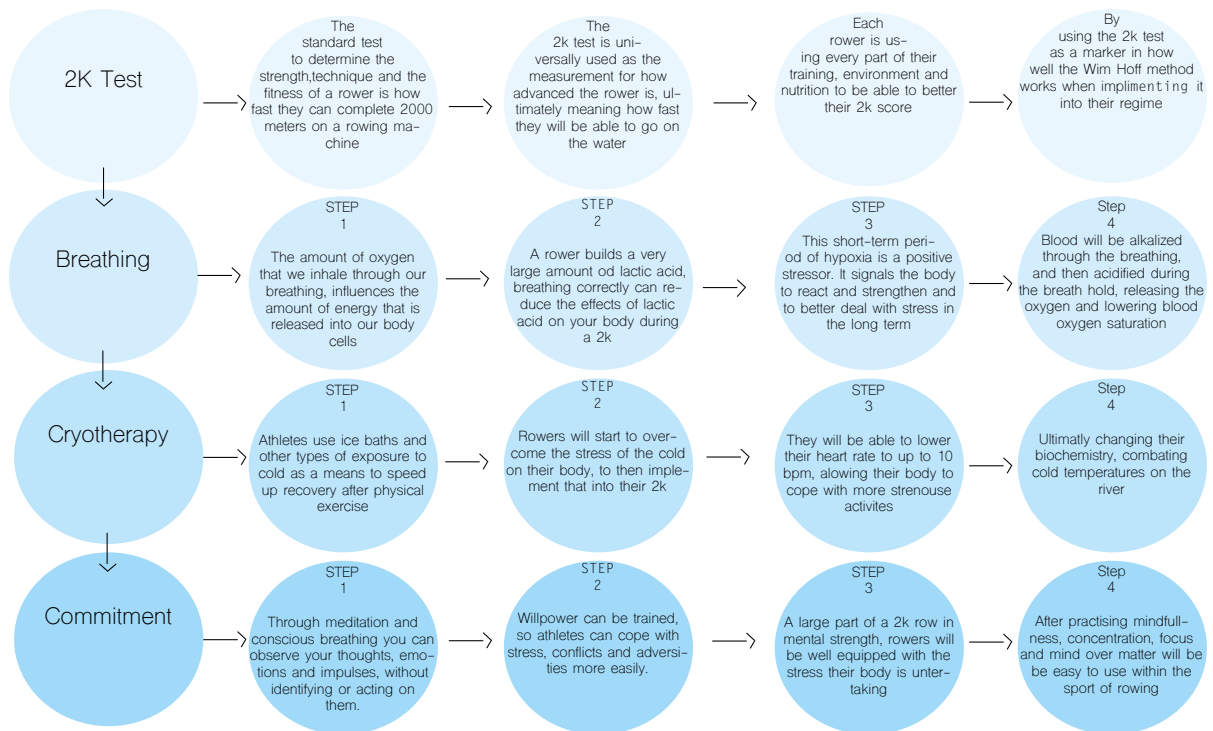
Breathing Pools







Timeline Of A Rower Using The Wim Hoff Method



<https://www.wimhofmethod.com/concentration-exercises> <https://www.wimhofmethod.com/practice-the-method>



