



‘The Missing Cog’
Stage 3 Design Document

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I. Project members

Project Team

Thomas Bale:	Project Manager
Adrianna Marciniak:	Architect & Construction Manager
Kubra Taskiran:	Architect & Structural Engineer
Zhi Bin Cheah:	Architect & Structural Engineer
Rory Flatt:	Architect & Sustainability Manager
Darya Berg:	Landscape Designer
Zhen Wan:	Urban Designer
Sonya Borlykova:	Facilities Manager & Interior Designer
Szymon Smyk:	Cost Manager



The proposed building.

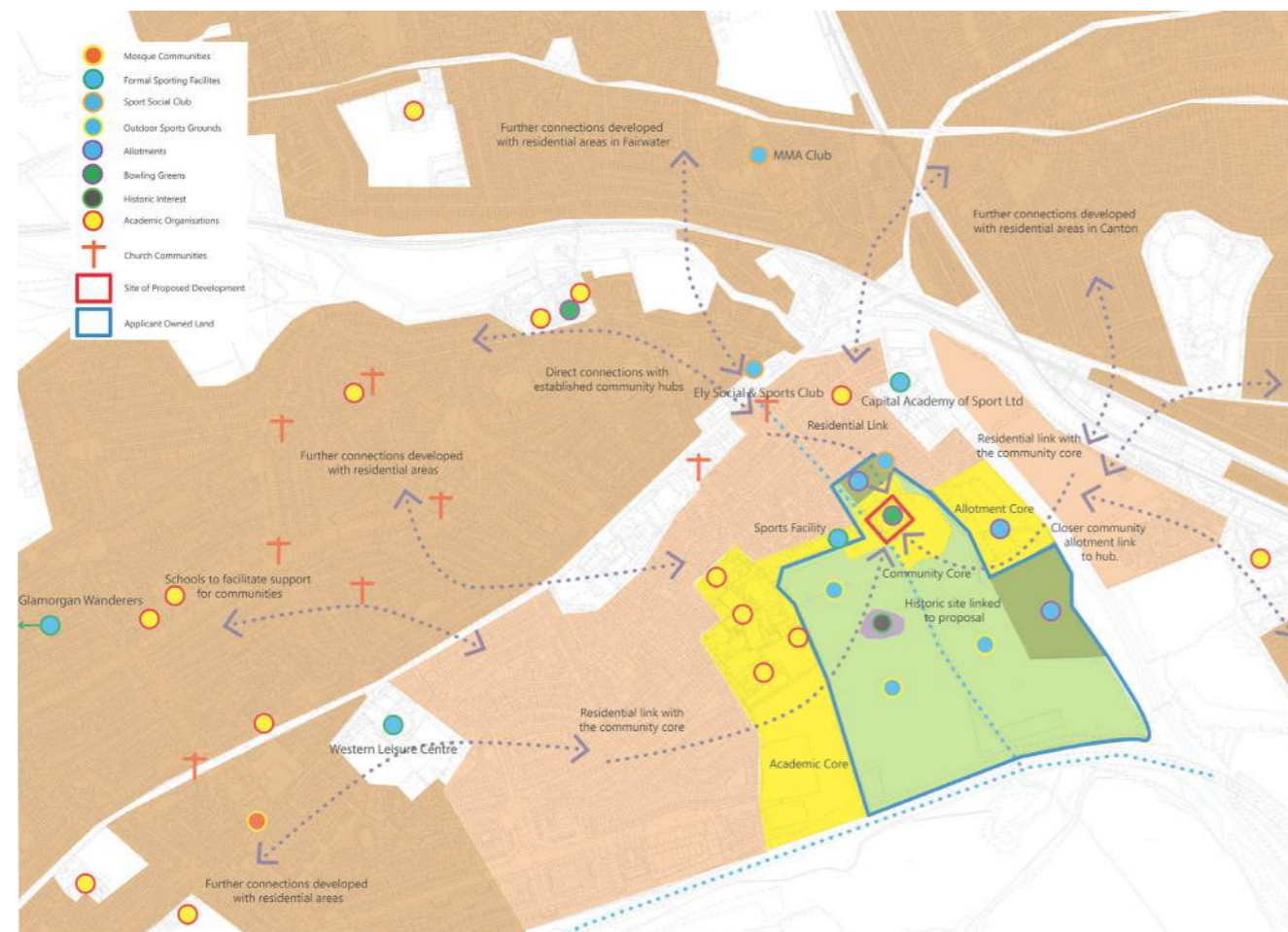
2. Executive summary

Vision for development

'The Missing Cog'

Our concept is to provide a space that acts as the 'missing hub' of a **service-based support network**. Through intelligently designed, **multi-functional spaces**, we will integrate different groups and activities and ensure that essential services already provided will be sustained. The core focuses will be upon **wellbeing and social interaction** with **food** being something physical that connects them. In conceptualizing our intervention, we have developed some **Core Principles**:

- **Cross-generational Care** - integrating the nursery with a day facility for older people
- **Healthy Living** - building upon the existing sport network in providing a space where all sports can come together, encouraging the wider community to get involved and become more active
- **Healthy Eating** - a Grow, Cook, Eat scheme which will teach the community about healthy eating and utilize the neighbouring allotments
- **Multi-functionality** - clever spaces that not only provide for a number of community uses/ services but can generate further revenue from external groups renting spaces or from social enterprise



A map of the surrounding area illustrating all the facilities on offer which our building will help support and elevate.

3. Client's brief

Client vision

'Why should it just be a tin shed? - it should be a thing of beauty' - Carl Meredith

The Caerau and Ely Sports Trust is a charity working to **promote the health and wellbeing** of the community of Caerau and Ely. They provide buildings, facilities and **open space for the community**, focusing particularly on children, young people and the elderly.

Trust's mission is to ultimately diminish the burden on essential services such as the NHS, police spending, etc. by **alleviating health and social issues** as well as **supporting families in the area**. They aim to make a positive impact on children's **future prospects** and instil a stronger **sense of community belonging and pride**. They want to install a **sense of self-worth** and **increase the confidence** in all community members. Furthermore, they aim to improve the image of the area.

Trust has ambitious plans to achieve their goals. Primarily, they have a **proactive** drive to register all local children in sport and other active programmes. They wish to increase **the awareness of the benefits of the sports** among people from the local area. The Trust also believes that regular participation in sports will help children from single-parent families find male role models and create a **sense of camaraderie** and mutual support. Through mentorship and other forms of support, the Trust aims to work both proactively and reactively to combat and alleviate feelings of social isolation. Moreover, the Trust wants to provide **healthy meals** for the children from the less fortunate families, especially during the summer months when the schools are closed. Furthermore, they wish to provide **rooms for health professionals** in order to actively help the members of the community who require their assistance.

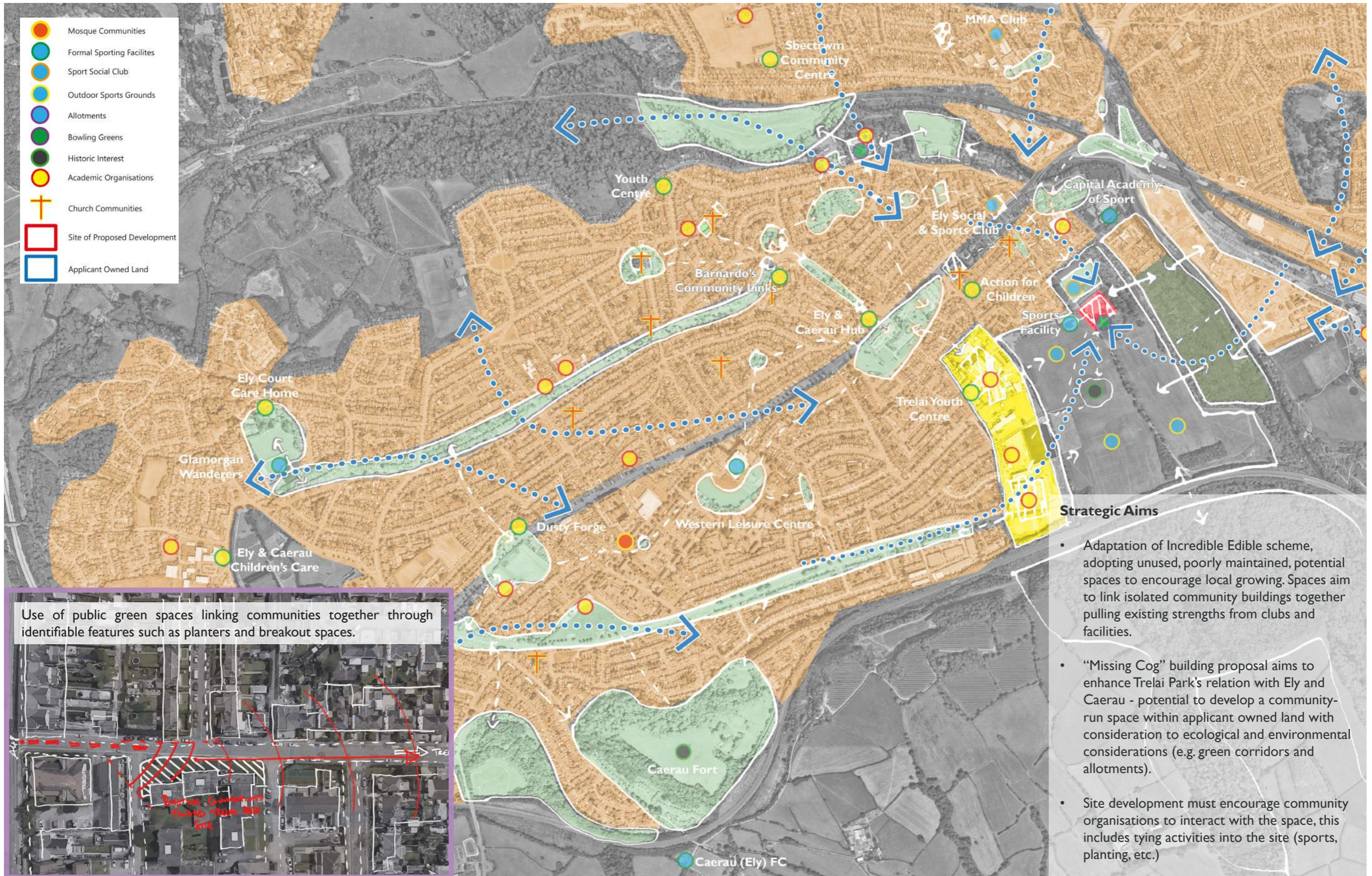
Trust has require a former bowling green and pavilion for a 35-year lease through a Community Asset Transfer from Cardiff Council. They intend to extend this to 99 year with the support of proposal for a **new 500m2 community centre by 2021**.

Trust wants the proposed building to help promoting their Vision. They recognise a need to provide a **locatable base** to administer these activities and provide a **range of community facilities**. Also, they want to **raise awareness to the facilities already available for the community in the area**.



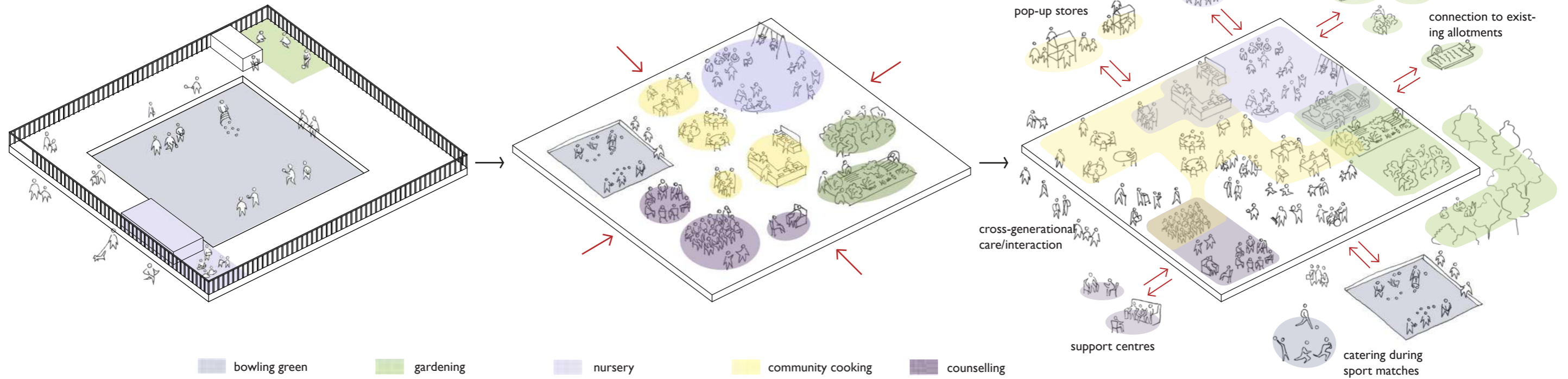
The Missing Cog Feasibility Drawing.

4. Site description and site analysis



5. Response to the brief

Programme of activities

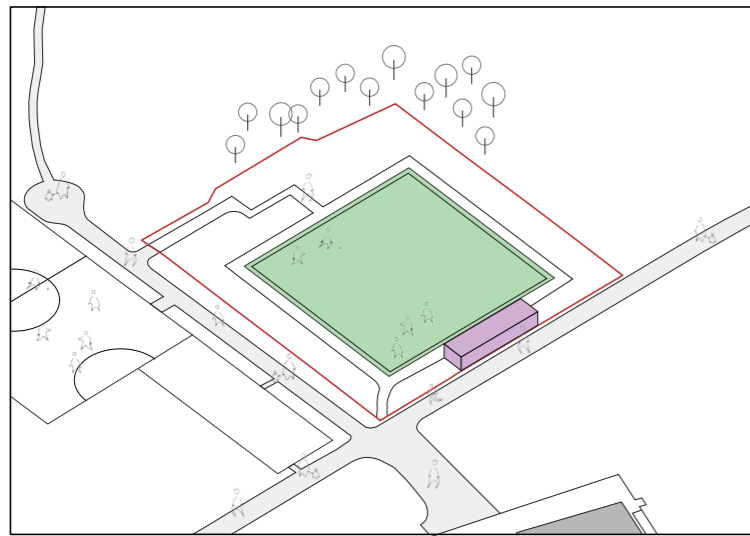


Schedule of activities

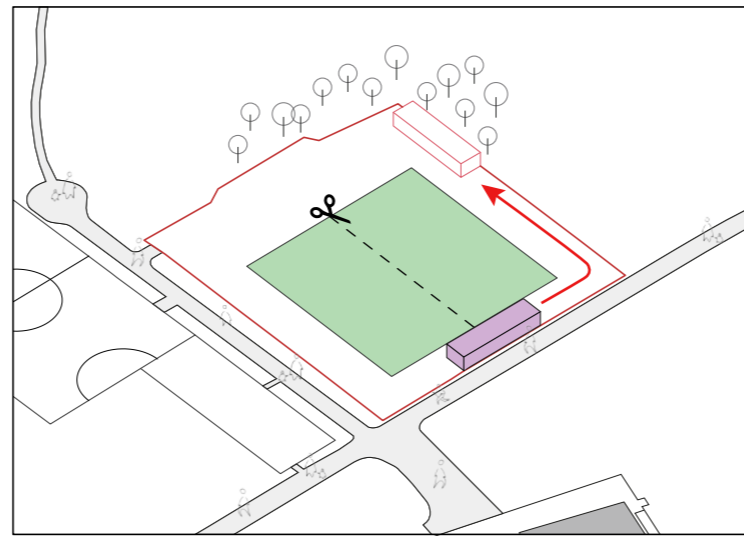
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
8AM-3PM	nursery individual counselling	nursery individual counselling	nursery nursery gardening	nursery group counselling	nursery community cooking	nursery sports	nursery bowling green
3PM-9PM	group counselling counselling	group counselling gardening	gardening community cooking	community cooking pop-up stores	pop-up stores community dining	community dining catering during sport matches	community dining catering during sport matches

6. The site construction restrictions

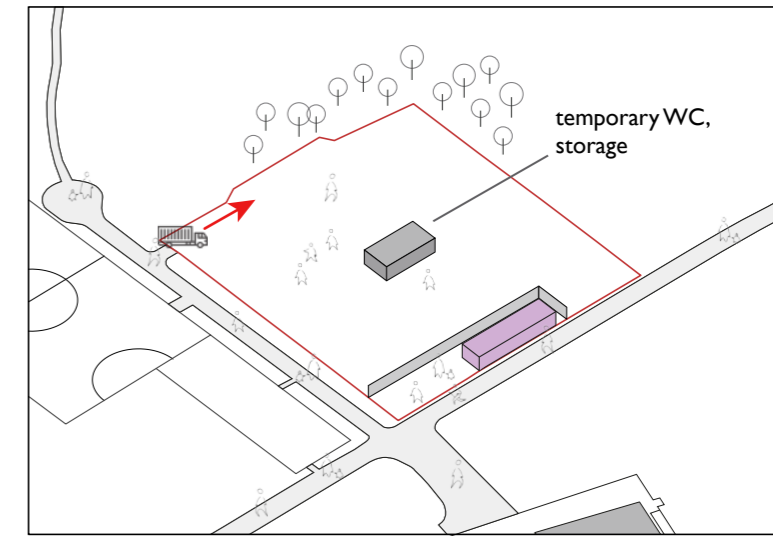
Nursery and bowling green strategy/ construction phasing of the site



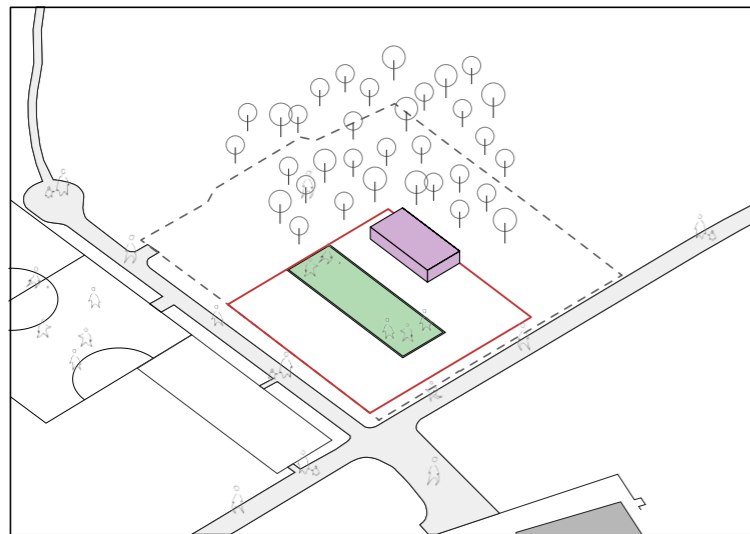
- nursery
- bowling green
- plot line
- greenery



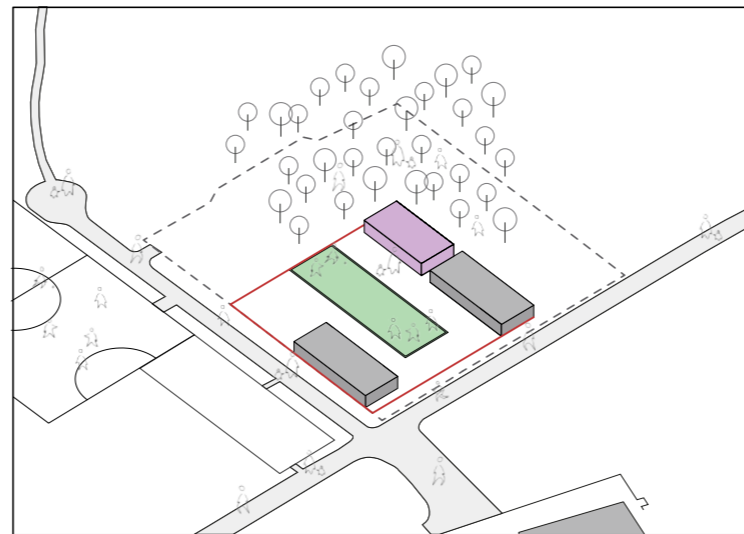
- Relocating the nursery
- Splitting up the bowling green in two levels



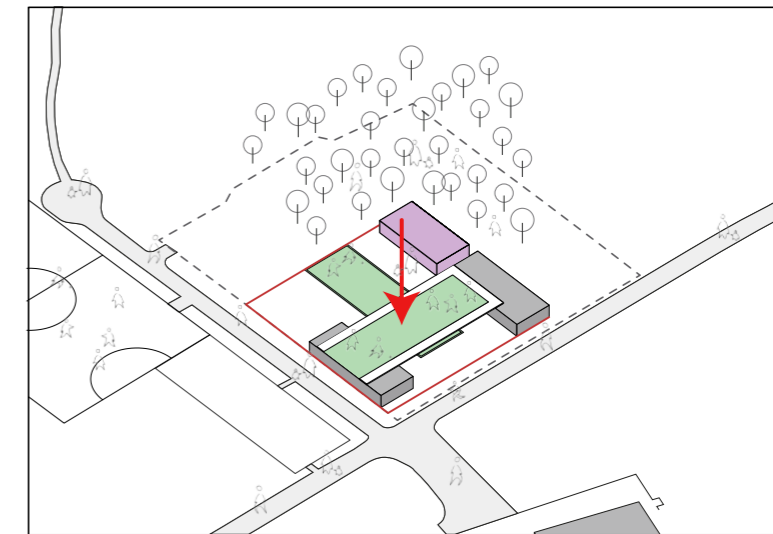
- Nursery is still operating and is secured from the construction site with a building screen
- Setting up a portable toilet and temporary storage for builders



- Building new nursery's building from prefabricated elements
- Nursery is moved to the new building
- 32x8 m bowling green is constructed on the ground level
- Planting landscaping elements

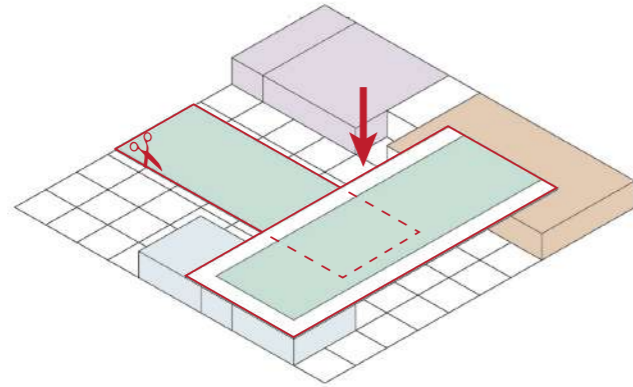


- The rest of the building is built

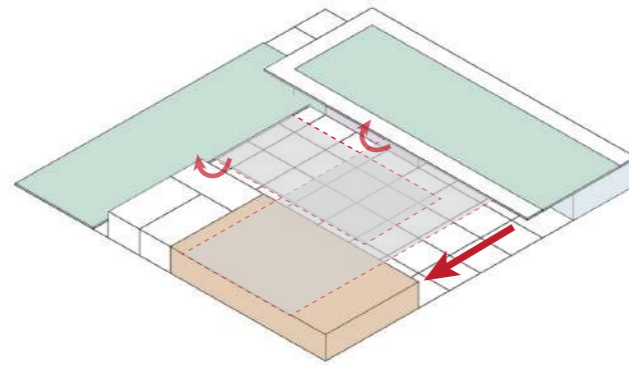


- Construction of roof connecting the building together
- Placing bowling green on the roof

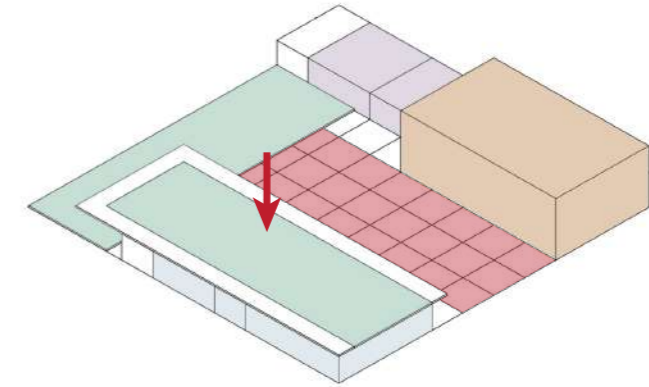
7. Massing formations



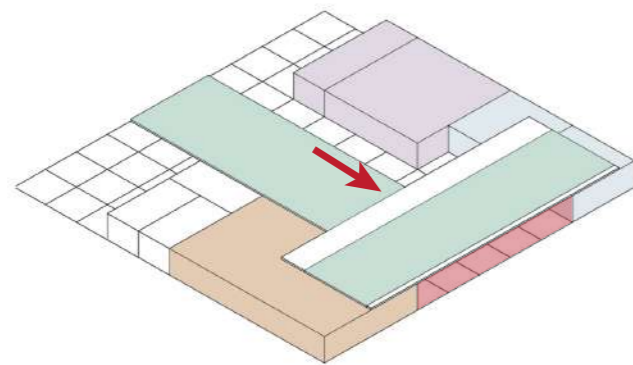
1) Setting out Principles- Splitting the bowling green into two rectangular lanes on different levels.



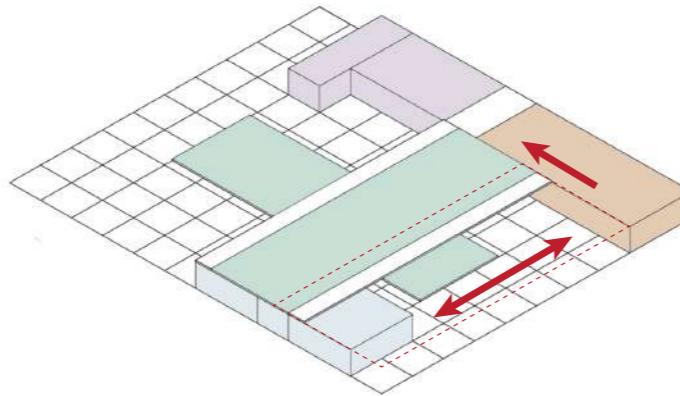
2) Placing multi-purpose hall on South-West corner to highlight key approach to the scheme and changing orientation of bowling greens.



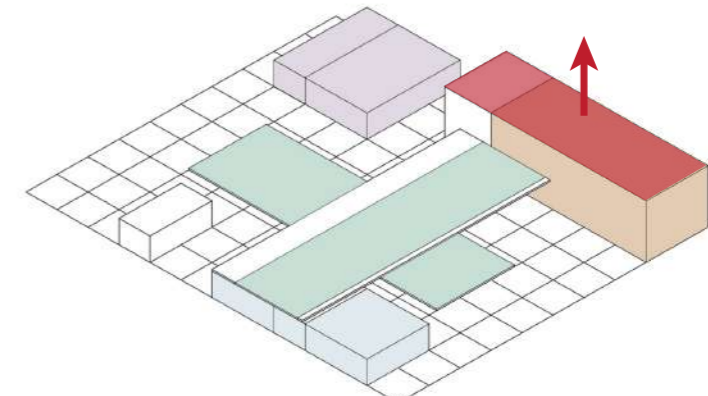
3) Bowling green placed above cafe creating open courtyard.



4) Placing upper Bowling green at the front of the scheme to create distinct entrance/ opening.



5) Moving hall back to original position and recessing the bowling green roof from the front edge.



6) Showing hall as double height- providing internal access to the bowling green roof.

8. Internal spatial requirements

Multifunctionality throughout the scheme

Accommodation:

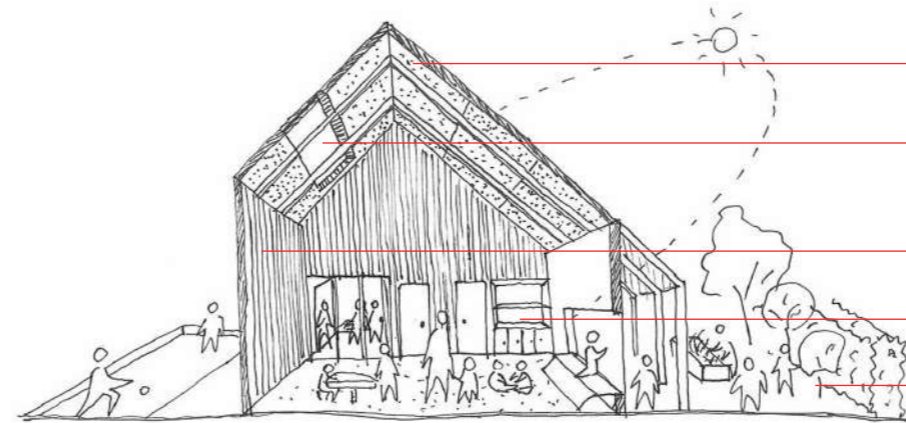
- nursery - 152 sqm
- community kitchen - 75 sqm
- cafe - 83 sqm
- cafe kitchen - 46 sqm
- reception - 24 sqm

- storage - 20 sqm
- small meeting room - 26 sqm
- WV&changing room - 2x34 sqm
- office/staff room - 15 sqm
- counselling rooms - 30 sqm
- Total - 760 sqm



Nursery

- indoor space:
 - under 2 years - 3.5 sqm per child
 - 2 to 5 years - 2.5 sqm per child
- separate base for children under 2 years
- quiet areas for varied sleep patterns
- flexible plan - arrangement varies according to needs
- staff room for breaks
- sufficient storage space: 7 sqm per playroom (28 kids)
- small kitchen to provide meals
- 1 toilet and 1 washbasin for every 10 pupils
- sufficient levels of balanced glare-free daylight
- temperature 19-21 C
- 1.5-3 air changes per hour
- secure access
- low window seating for kids
- easy to clean surfaces
- wet play area

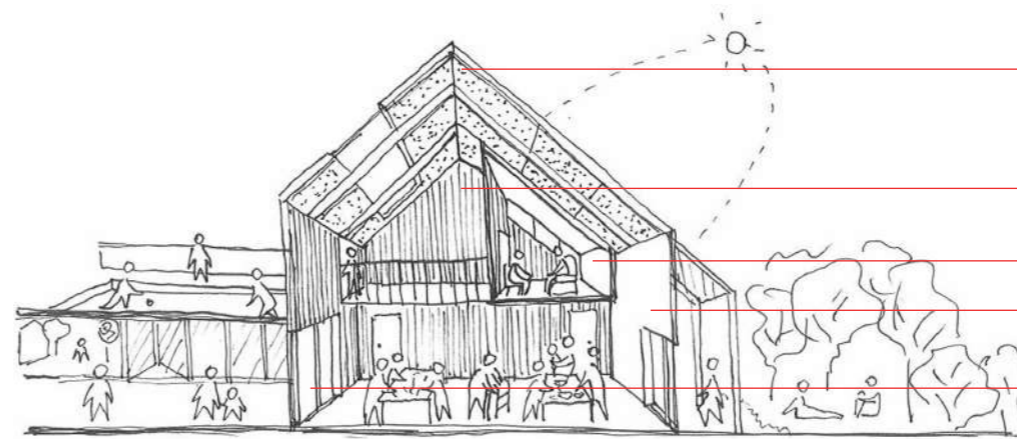


- Sound absorbing panels on the ceiling for improved acoustics
- North-oriented rooflights to allow for constant northern light and cross-ventilation
- White walls and timber elements to achieve a warm and light atmosphere
- Maximising transparency in the interior to encourage collaboration and create an inviting and inclusive environment
- Safe and secure playground



Community hall

- temperature 21-23 C
- 1.5-3 air changes per hour
- balance between acoustically hard and soft areas
- adequate storage space - several rooms, 40sqm
- WC:
 - male - 1 toilet, 1 washbasin per 15-20 users;
 - female - 1 toilet, 1 washbasin per 7-10 users
- combination of natural and mechanical ventilation
- acoustics: sound absorbent materials integrated into ceiling or walls

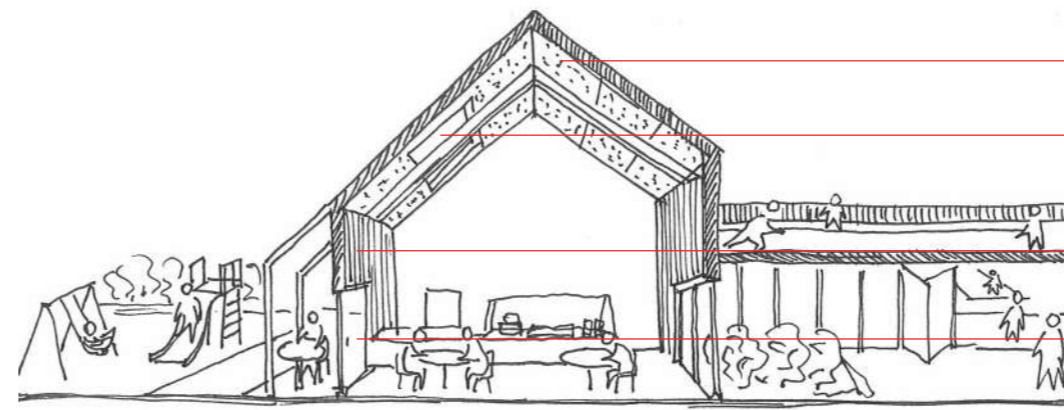


- Sound absorbing panels on the ceiling for improved acoustics
- Slatted timber wall finish for improved acoustics
- Maximising transparency in the interior to encourage collaboration and create an inviting and inclusive environment
- White-painted walls
- Large windows to enhance the relationship between the outside and inside; Also provides good observation point as overlooks the playground - good visual connection to all user groups



Cafe

- temperature: 19-21 C
- combination of mechanical and natural ventilation
- kitchen provision
- flexible plan arrangement
- acoustics: sound-absorbent materials integrated into ceiling or walls

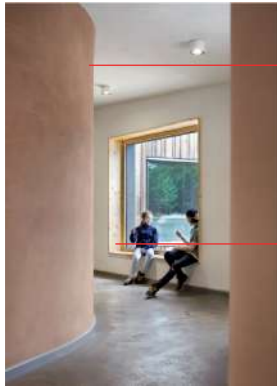


- Sound absorbing panels on the ceiling for improved acoustics
- North-oriented rooflights to allow for constant northern light and cross-ventilation
- Slatted timber wall finish for improved acoustics
- Large windows to enhance the relationship between the outside and inside; Also provides good observation point as overlooks the playground - good visual connection to all user groups

9. Construction and structural development

Construction and structural thoughts

Case study - Children's day-care centre in Berlin / Mono Architekten



Clay finish gives homely, warm feeling to the interior. Naturally coloured interior is calming and brings nature to the inside.

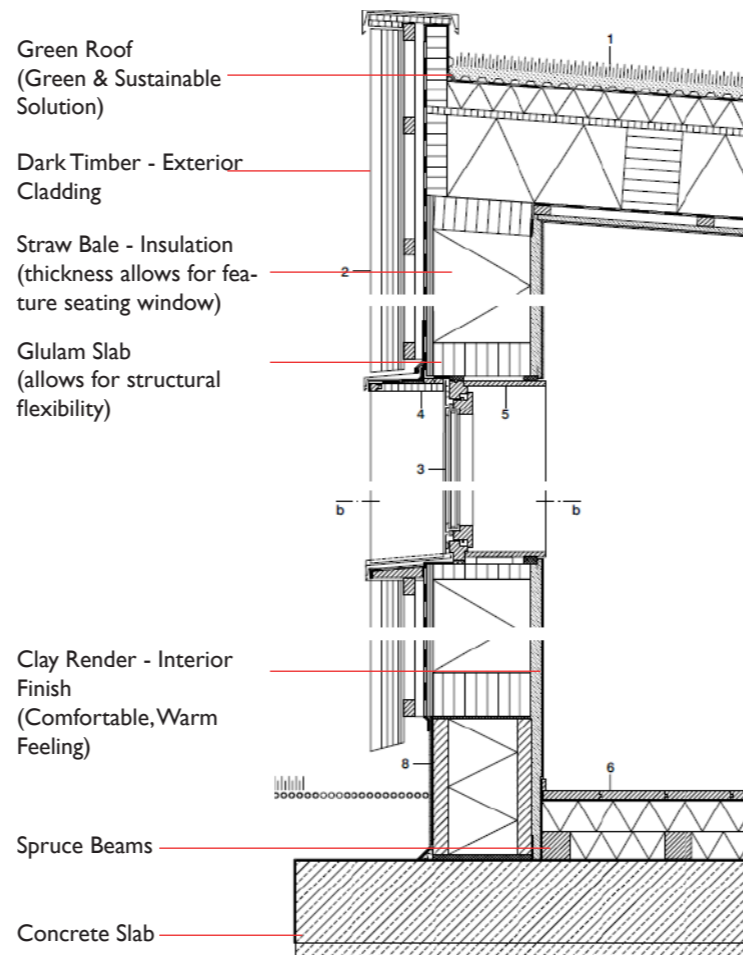
Thick wall construction method allows for feature seating window (Straw Bale Insulation is the most cost-effective way of achieving this effect).



Functional Green Roof

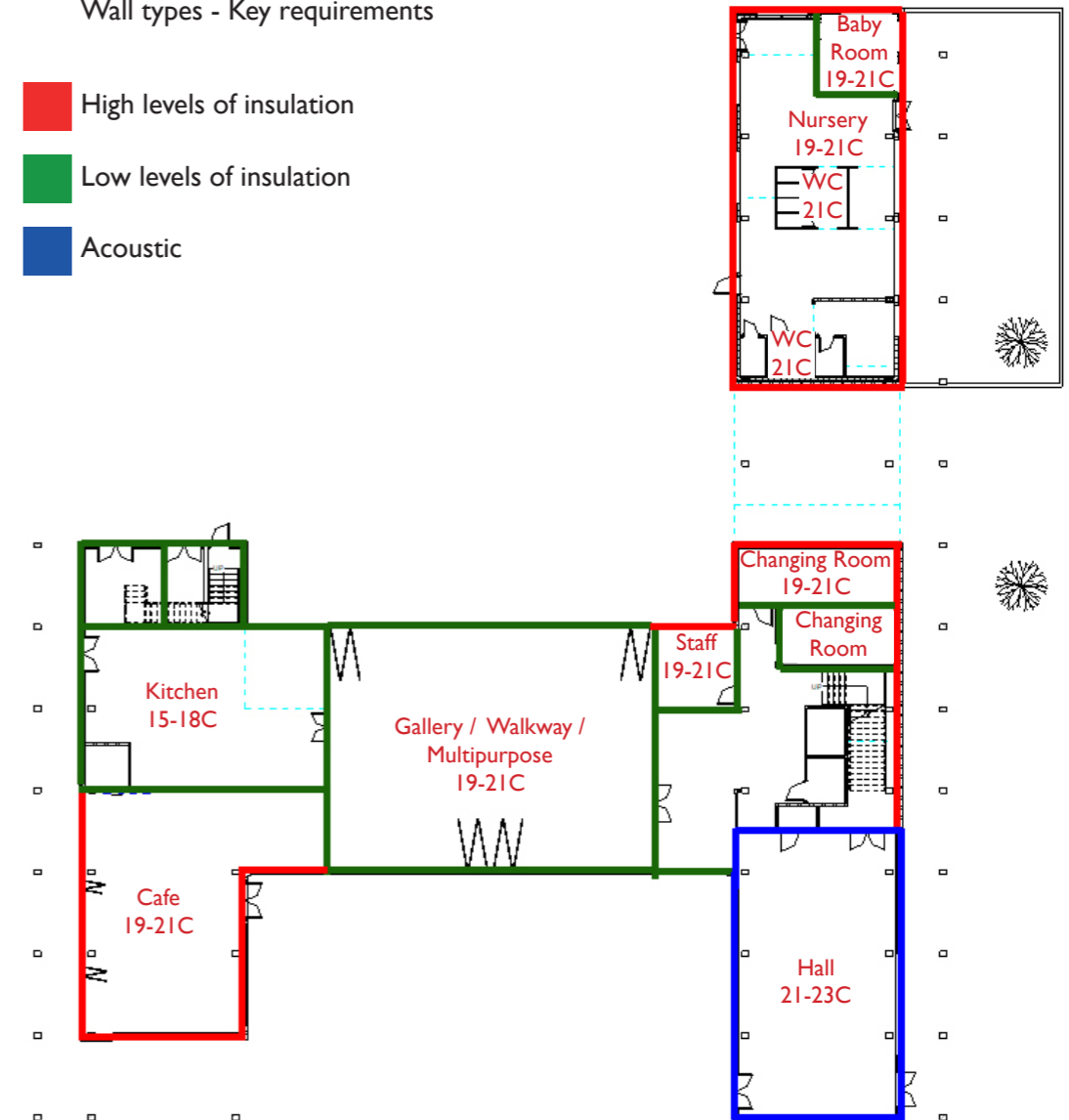
Functional yet allowing for Privacy Windows

Dark Timber Cladding allows for the building to blend with its context

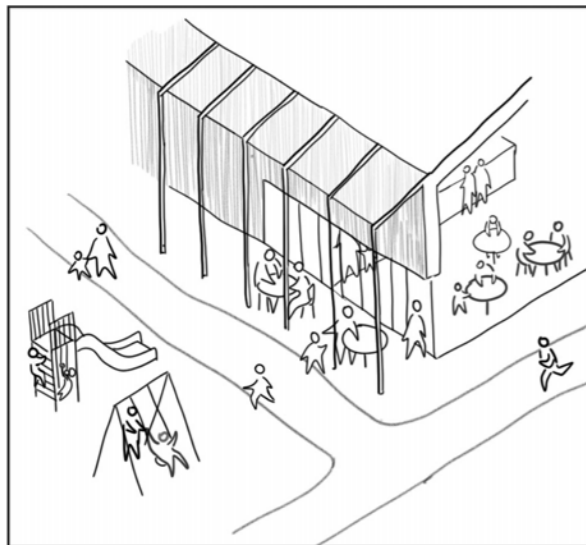


Wall types - Key requirements

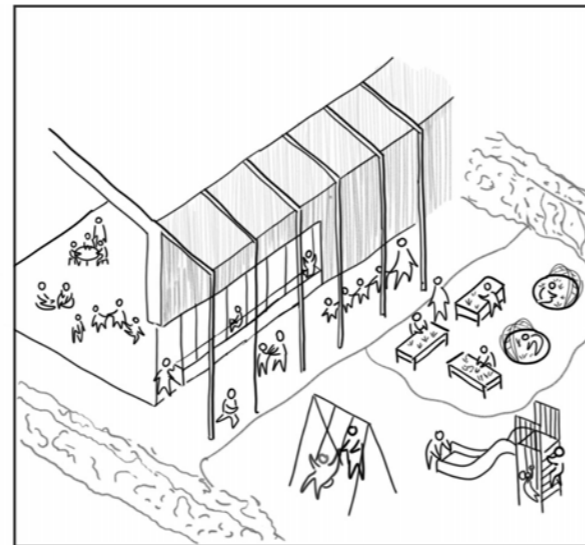
- High levels of insulation
- Low levels of insulation
- Acoustic



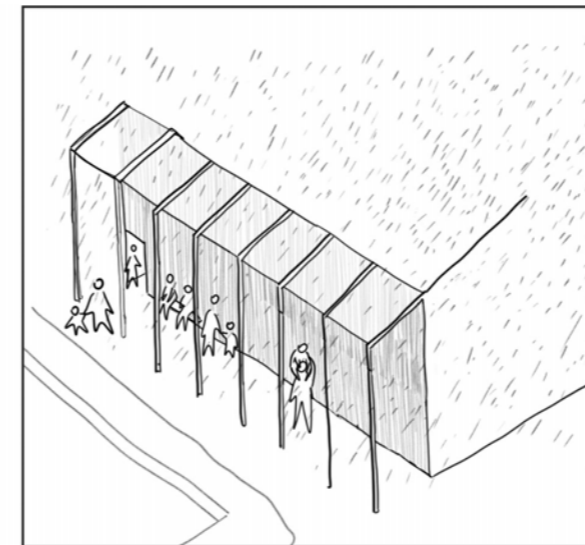
Exploration - Threshold concept



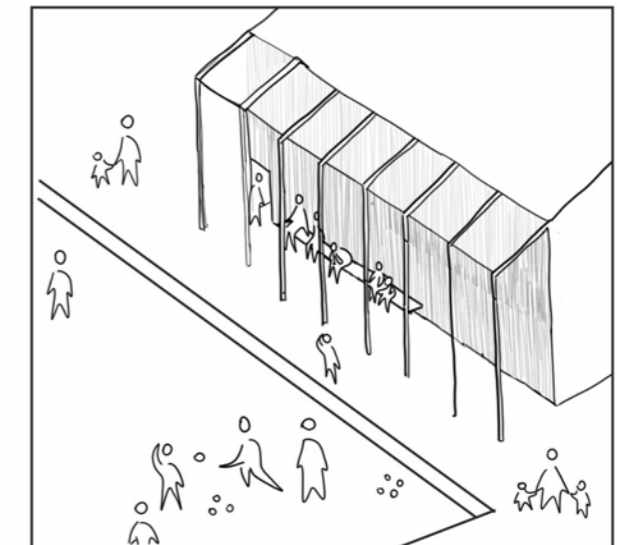
Cafe - threshold - existing playground



Nursery - threshold - playground and garden



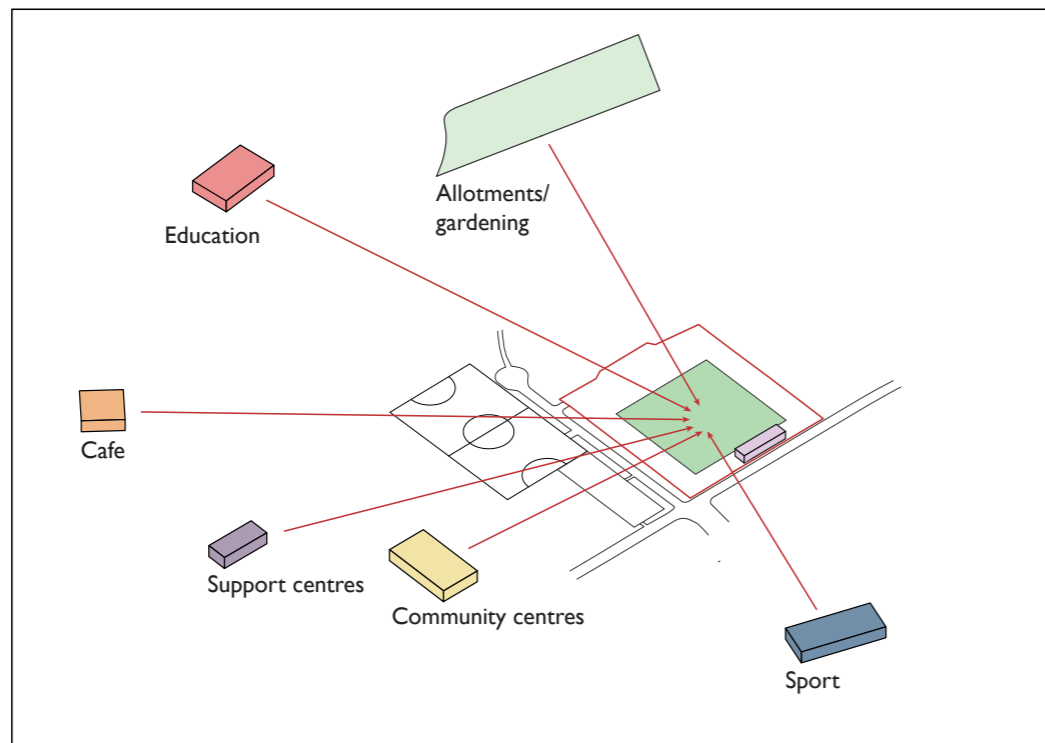
Nursery - threshold - covered waiting area - courtyard



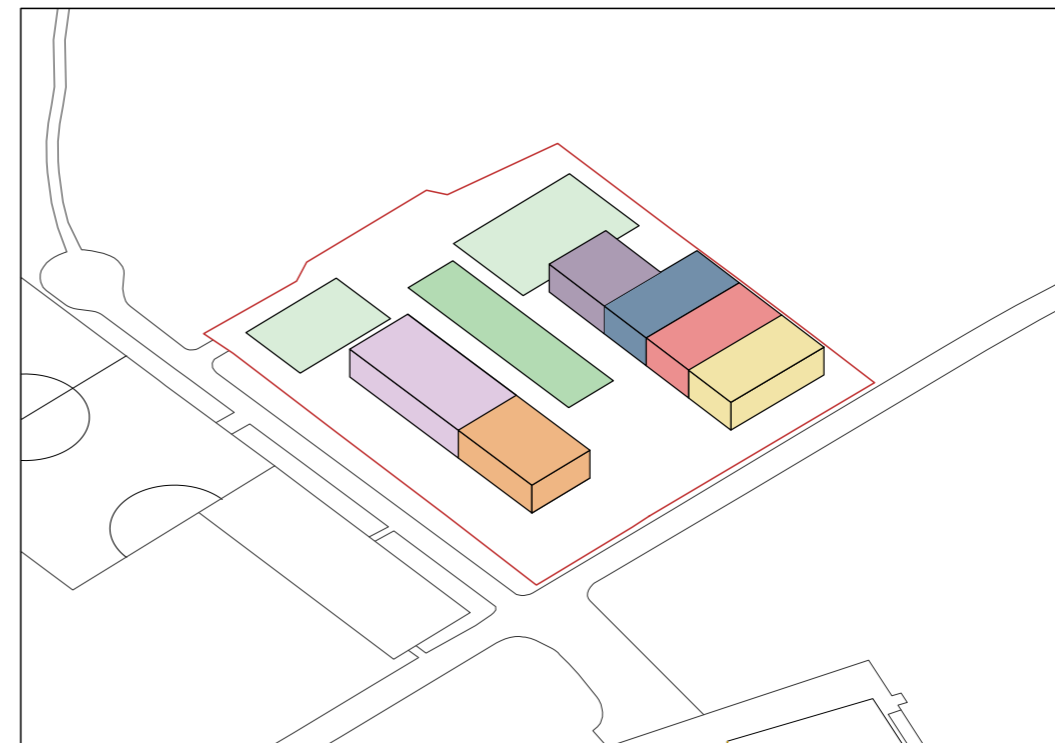
Threshold - seating area for bowlers - bowling green

10. Developing spaces for the community

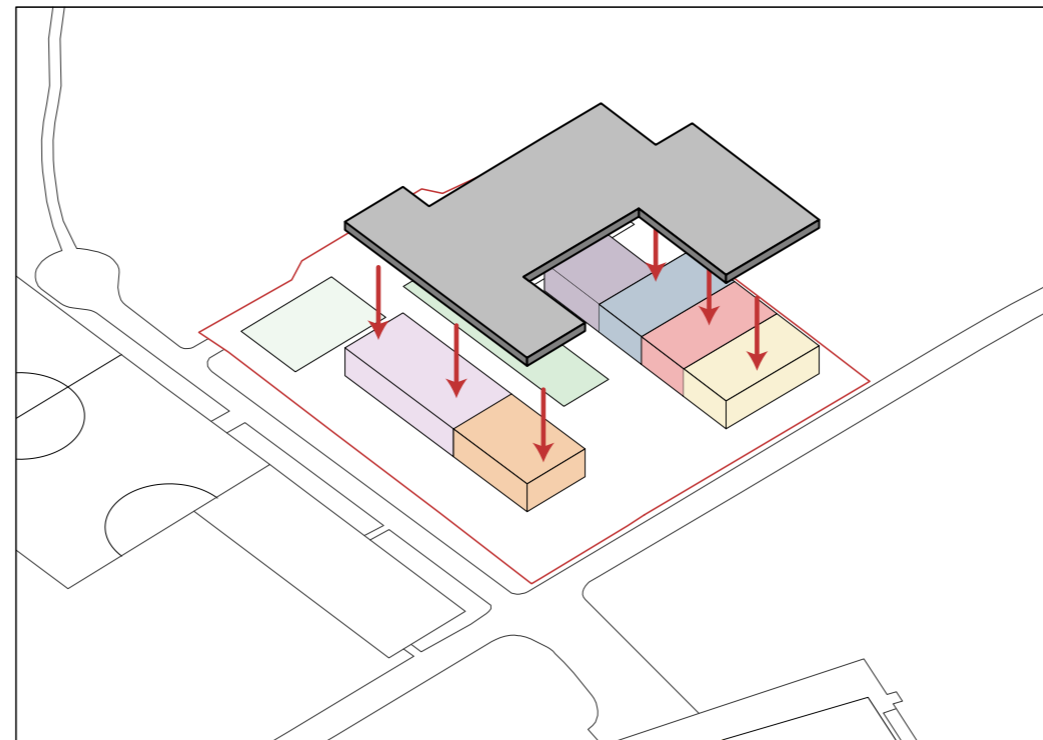
"The Missing Cog" concept



1. Identifying valuable community assets in the neighborhood.

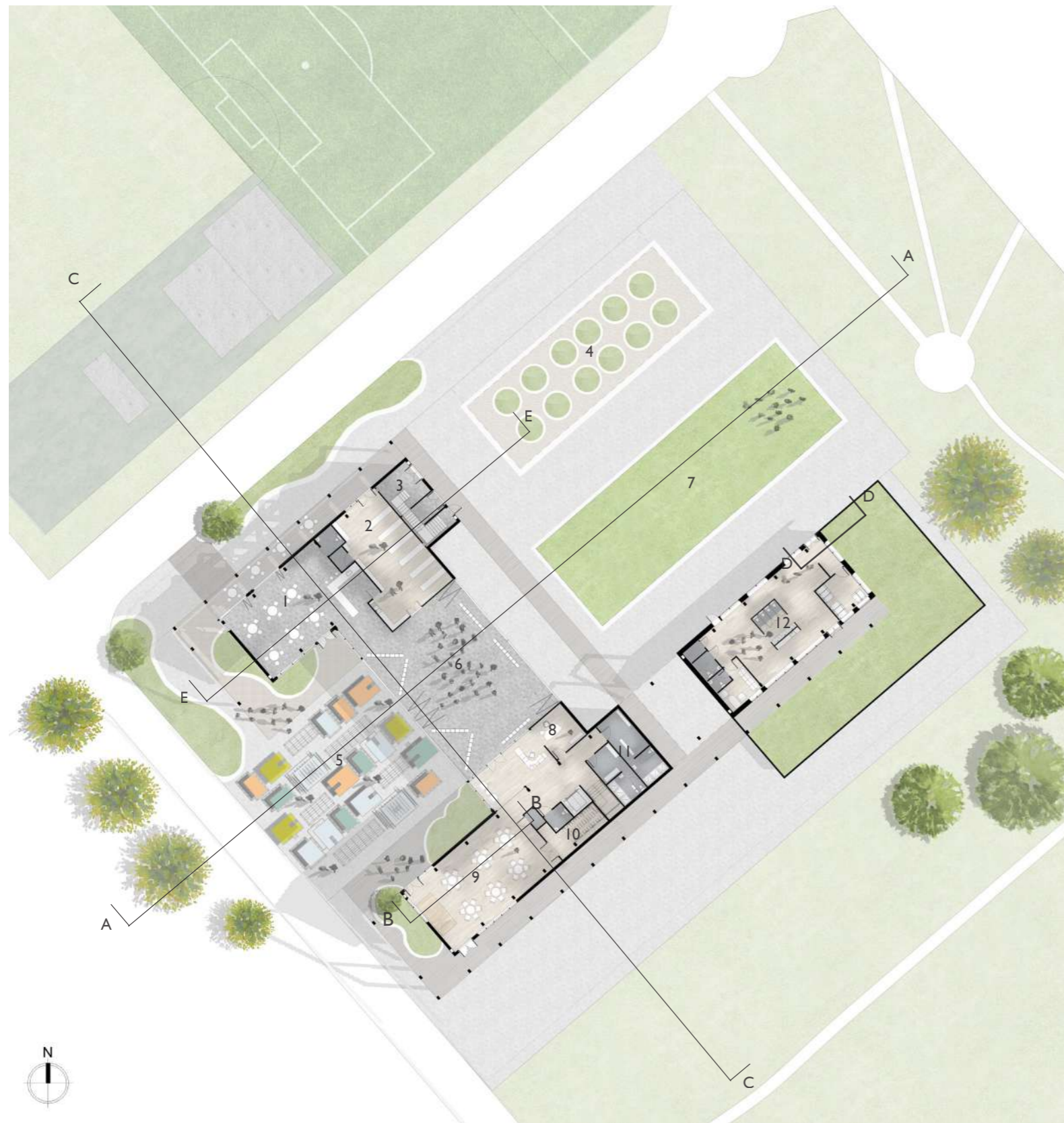


2. Placing community facilities on the site that would link existing assets in one place and bring together different user groups.



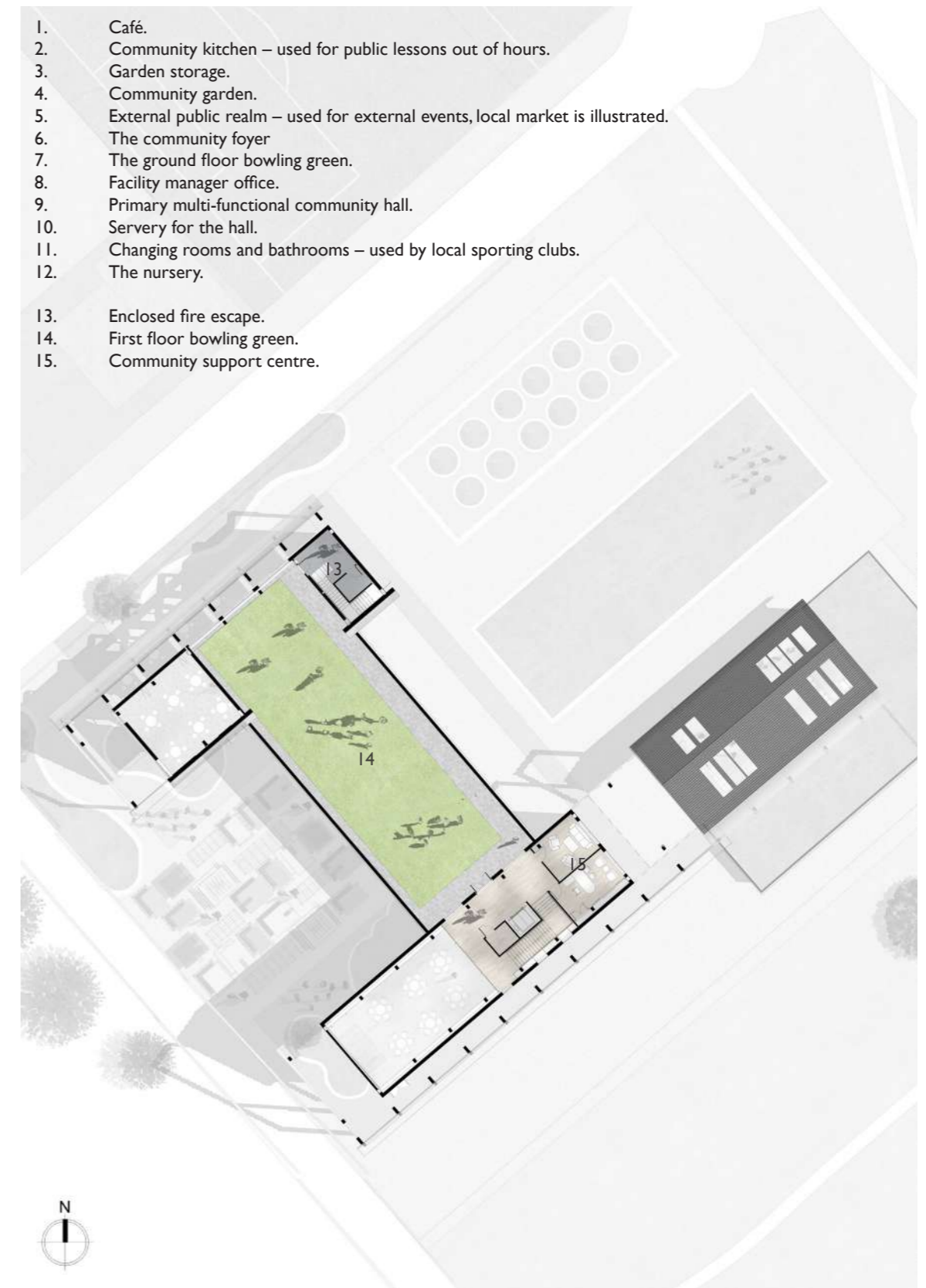
3. Connecting different usages under one roof.

11. The Proposal - Y Cog floor plans



Ground floor plan.

Scale 1 : 500.



First floor plan.

Scale 1 : 500.

1. Café.
2. Community kitchen – used for public lessons out of hours.
3. Garden storage.
4. Community garden.
5. External public realm – used for external events, local market is illustrated.
6. The community foyer
7. The ground floor bowling green.
8. Facility manager office.
9. Primary multi-functional community hall.
10. Servery for the hall.
11. Changing rooms and bathrooms – used by local sporting clubs.
12. The nursery.
13. Enclosed fire escape.
14. First floor bowling green.
15. Community support centre.

12. The proposed building within the wider context of Trelai Park



An isometric drawing illustrating the building within the wider site landscape and how it seeks to invite people through the site.

13. The two "half" bowling greens



A.A Perspective section through the upper bowling green and the multi-functional spaces below.



The first floor bowling green in use..



A view across the ground floor bowling green and the surrounding landscape it blends into.

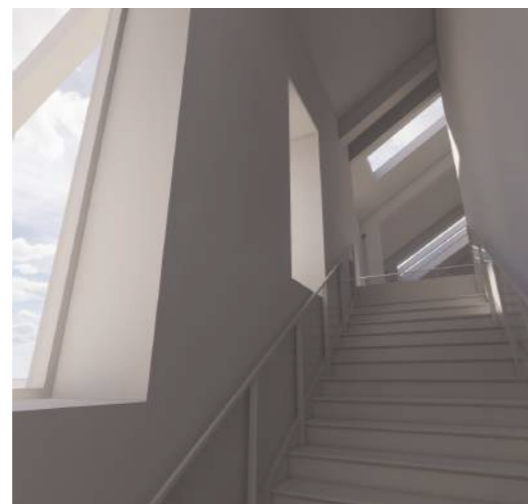
14. The spaces for the community



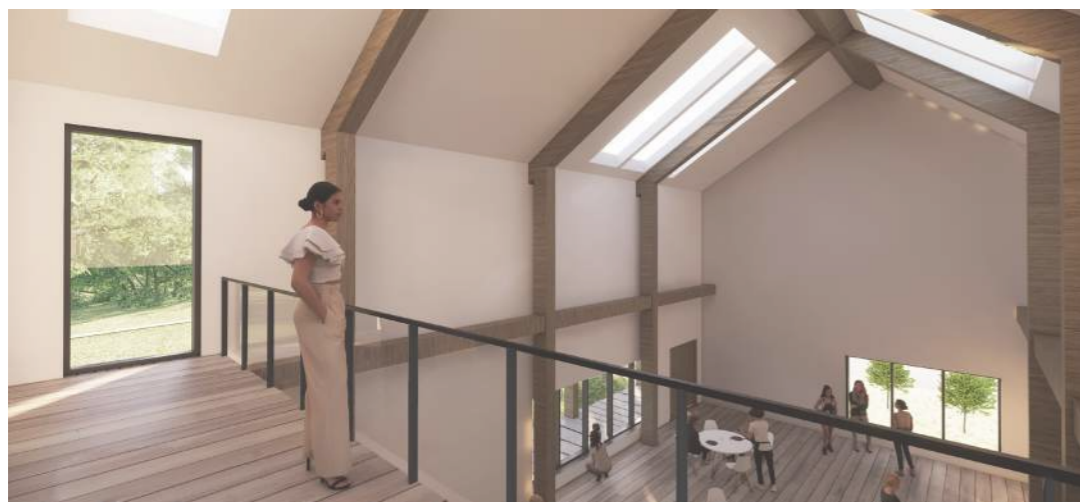
Community support room 2.



The circulation space providing great natural sunlight and views outwards.



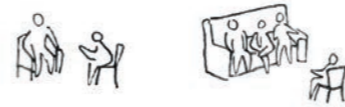
The staircase which draws light down into the building.



The mezzanine providing views to the community hall below.

Counselling Rooms:

Double height of the hall building allowed for an introduction of two bright, quiet and yet still approachable counselling rooms that can be used for advice, therapy or community meetings.



Circulation Space:

Two-meter-wide staircase leading to the mezzanine level and a generous landing ensure a safe circulation space that can meet the high capacities of users. Moreover, the landing allows for an impromptu meeting space and is private enough to serve as a waiting area to the counselling rooms.

The Mezzanine:

The landing opens into a mezzanine overlooking the hall, which makes the whole building more open, allows more light in and can be useful during specific activities – e.g. during a theatre night or sports events.



First floor plan of the community support rooms.

Scale 1 : 100.

15. Interior quality

Spatial atmosphere and materiality

In developing the interior feel and material choice for this scheme we drew upon precedents of other community building's in Cardiff such as the Chaper Art's Centre. The aim was to create spaces that were reflective of the local vernacular, honest to structure and considerate of the relationship between floor and wall, and wall and ceiling. In keeping with our concept of multi-functional and adaptable spaces, we have selected a pared back, simple interior treatment that allows the community to leave their own mark upon each space.



Flagstone flooring



Timber frame



Laminate wood flooring



Plain painted finish



Interior view of kitchen.

Multiple working areas allow for the kitchen to be used by the community and have a range of activities such as cooking classes which will take place throughout the day and evening.



Interior view of main hall.

Large windows and a mezzanine allow for a brightly-lit, multipurpose space that will serve the community in multiple ways. On weekends the space will become a community club house for local sporting events



Interior view of cafe.

The modern and elegant café will be enticing not only to the community but also casual visitors and tourists, producing revenue in the process.



Interior view of entrance hall.

The multipurpose space that can be closed off to allow for additional activities or opened up to act as a main gateway to the scheme.



16. The adaptability of the hall, providing a space for the community



B.B Section through the multi-functional hall at different times of the day.

Scale 1 : 50.



Community sports clubhouse.
9am - 12pm.



Community painting class.
1pm - 3pm.



Community festive dining.
4pm - 6pm.



Hall hire - Dance rehearsal.
7pm - 9pm.

17.The threshold of the building



C.C Perspective section through the various thresholds of the site and the community foyer where exhibitions can take place, or which can be hired for a private event.



A.The primary entrance of the building, through Trelai Park.



B.The threshold between the cafe and the playground.



C.The entrance to the allotments.



D.The extended threshold of the hall.

18. The nursery



D.D Partial section through the nursery and playground.

Scale 1 : 50.



A. Partial elevation of the nursery and playground.

Scale 1 : 50.

The Nursery:

Following the Community Guidance Forum the counselling space and rooms for the community have been moved to the hall building, which increased the nursery's foothold. This in turn allowed for an addition of the generously sized staff and baby rooms, a waiting area/cloakroom for parents bringing kids to the nursery and two separate play areas with equal access to toilets, storage and a kitchenette. Overall, this expansion should allow for the nursery to grow its capacity up to around forty pupils.

Moreover, in order to allow for kids' uninterrupted and safe play, the nursery can not only use the public spaces (e.g. allotments and landscaping features) but also its own private playground, inaccessible by the general public.



The nursery ground floor plan.

Scale 1 : 100.

19. The proposal's landscaping

Solving and providing

Site analysis has highlighted issues:

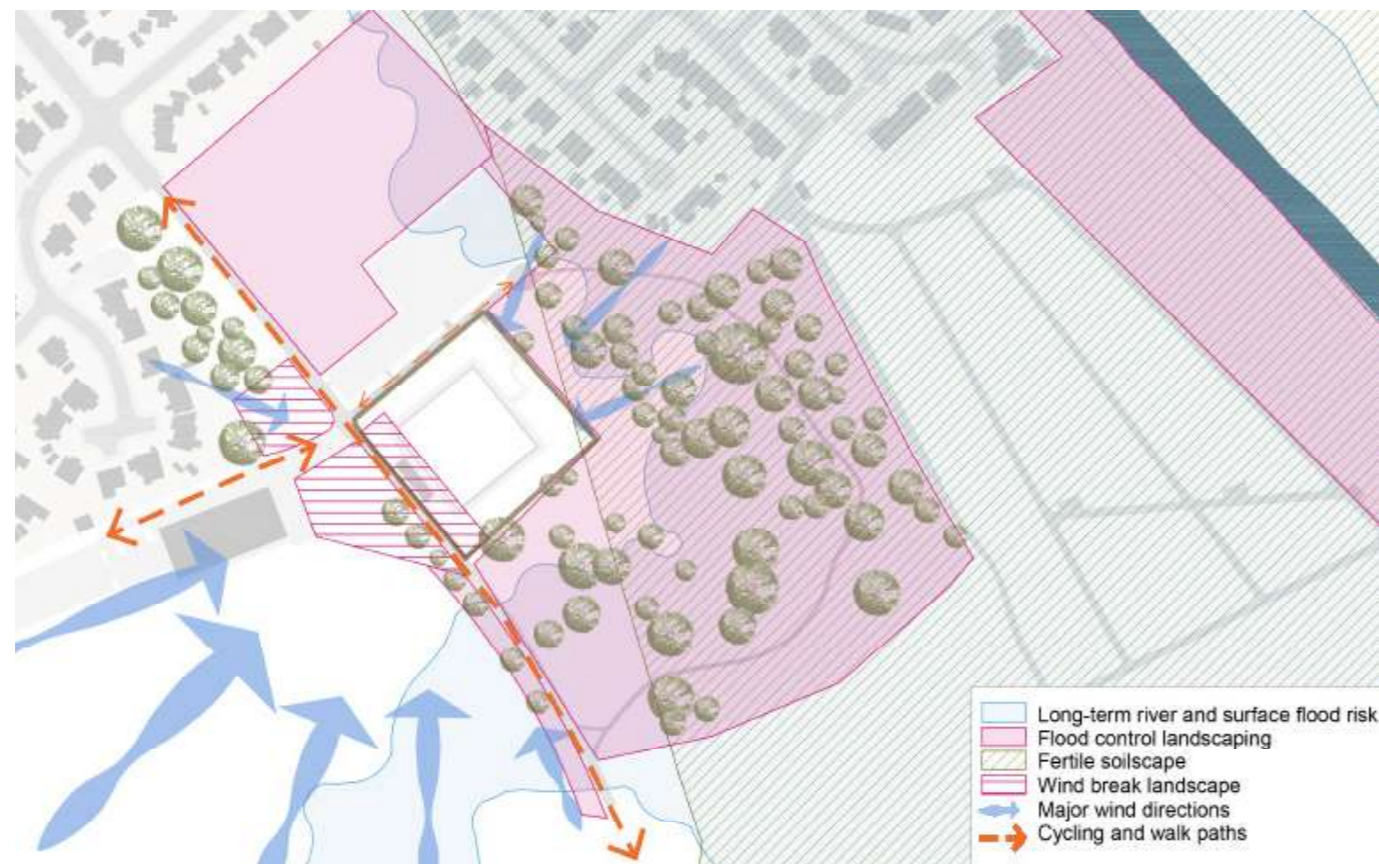
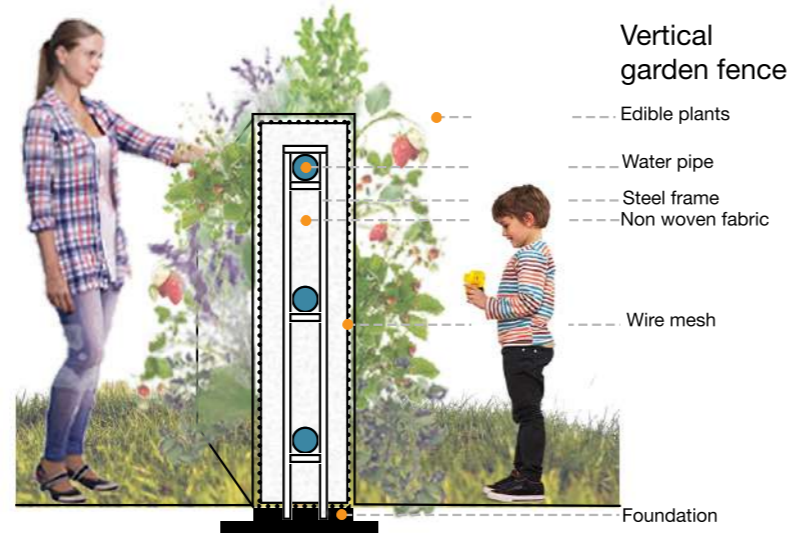
- common surface floods
- strong winds
- hostile fencing
- abundance of green areas

Green fences are low-tech and low-budget adjustment to decrease the hostility of the barriers and fences and allow for food-growing and increased biodiversity.

Areas around the site are proposed to be turned into wild environments for educational, aesthetic and biodiversity enhancement reasons.

Site landscaping includes all the above-mentioned elements solving privacy, climate, aesthetic and functional issues.

Vertical gardening: proposed soft boundary-making, including food production and community engagement.



20. The importance of the kitchen and edible landscaping

Case study: education-community-business

Incredible edible inspiration

IncredibleEdible (<https://www.incredibleedible.org.uk/>) was taken as an inspiration for creation of edible landscape details like vertical fence gardens.

The scheme highlights connection between food growing, cooking and communication.

Zoning of the landscaping corresponds to the type and function of planting.

Plant diversity promoted biodiversity and soil enrichment with microelements.

The path network is established to promote public connection with the new landscaping.

Landscaping played the key role in design formation. Priority was given to the bowling green and public gardens.



Landscape zoning.



E.E Section illustrating the spatial connection between the cafe, kitchen and community gardens.

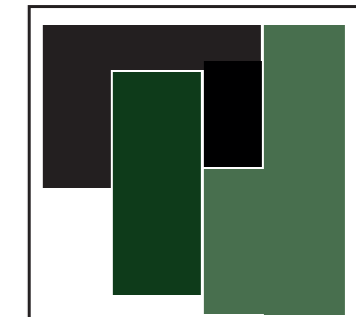
Landscaping influencing the design



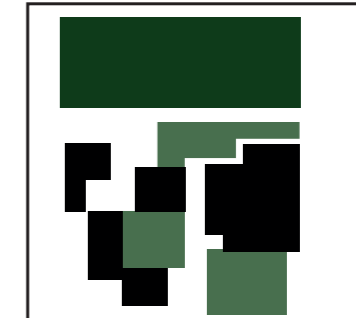
Centered U-shape building.



Separated centred building.



Wrapping around the bowling green.



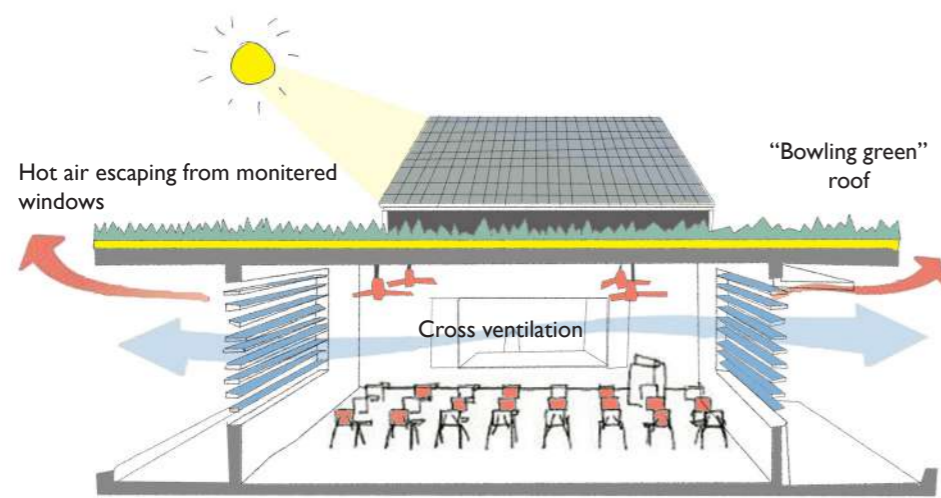
Series of buildings and courtyards.



Bowling green on the roof.

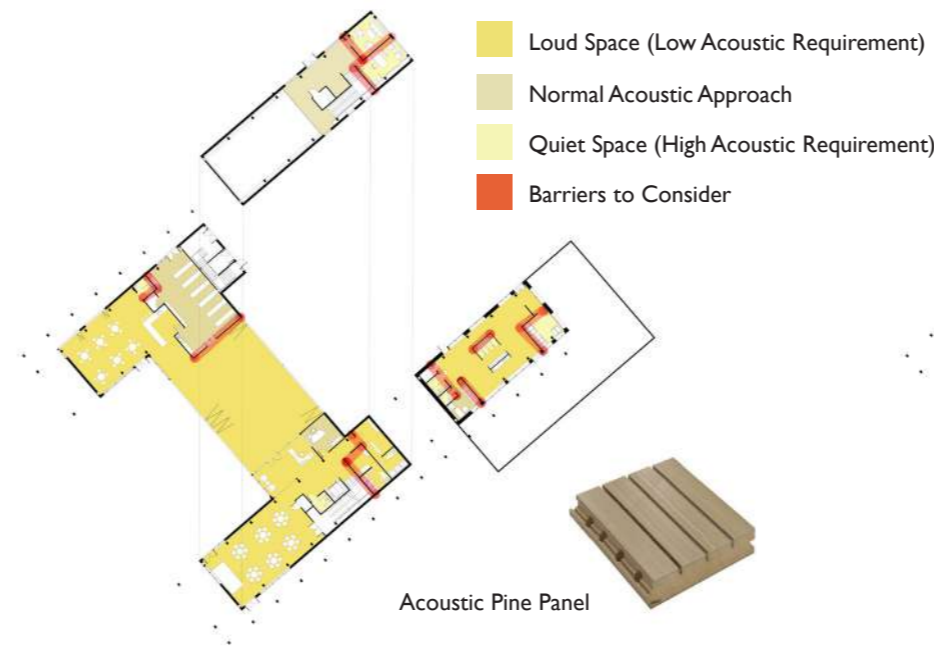
21. Technical considerations

Environment & services strategy



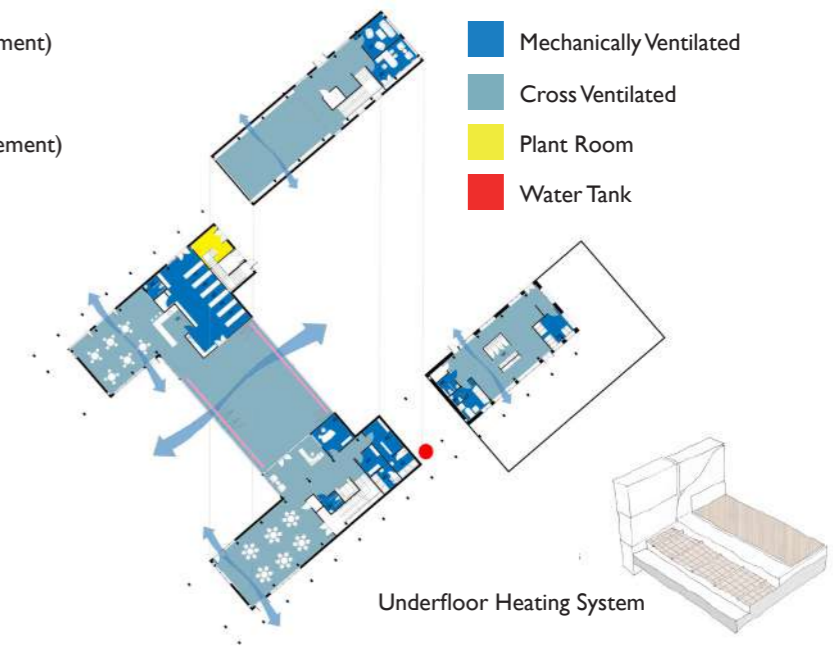
Conceptual section illustration environmental approach

This diagram shows the overall services concept: a low energy building designed to minimize reliance upon mechanical systems, with the potential to generate it's own renewable energy. A natural approach to heating and ventilation will be used to save money and energy.



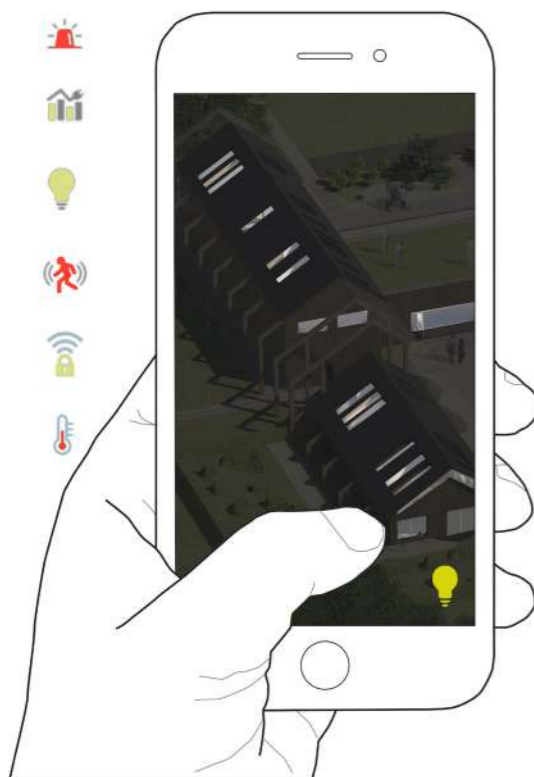
Acoustic strategy

This acoustic plan shows the different acoustic conditions of each space ranging from quiet to loud spaces. Where a quiet and loud space meet, the acoustic barrier has been indicated, showing a need for specific acoustic treatment for the interior make-up. This will be achieved through the use of materials such as Acoustic Pine Panelling which, through it's form, increases the diffraction of soundwaves hence minimizing reverberation.



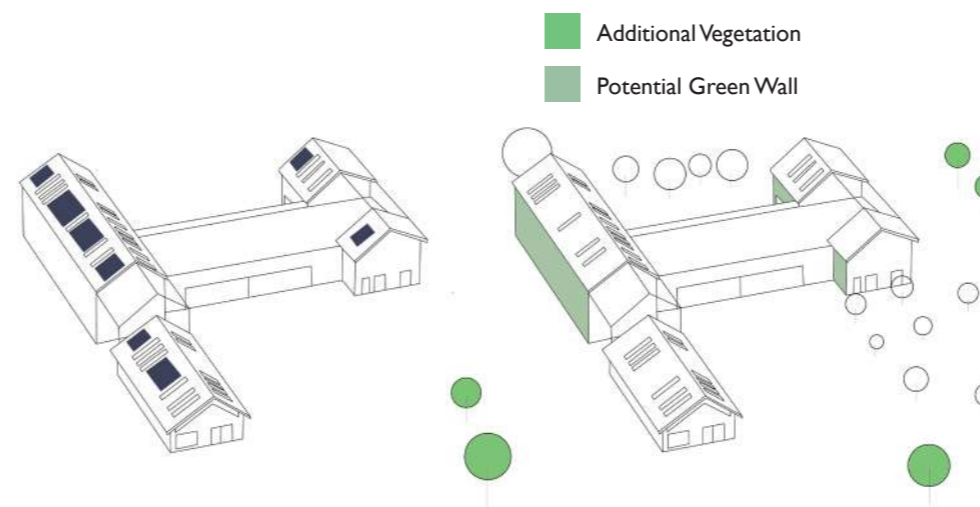
Heating and ventilation strategy

The heating and ventilation strategy is key to the overall environmental aim for the scheme. Mechanical systems will be kept to a minimum through the use of cross ventilation, underfloor heating, and a heat recovery system. Hot air will be filtered and recycled in the scheme through air curtain fans which will heat the main entrance.



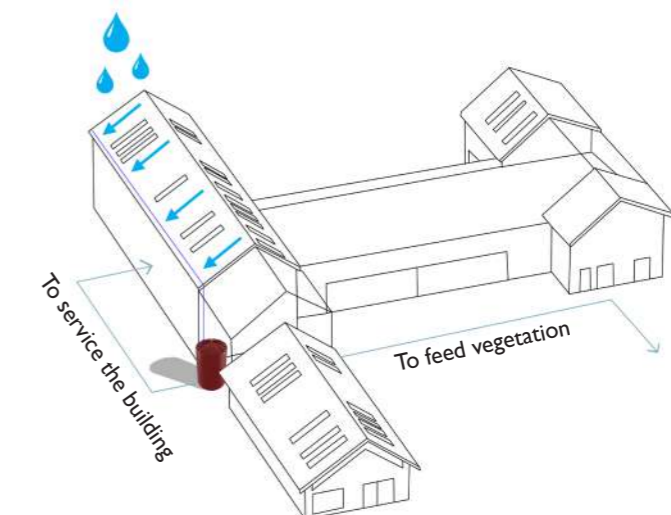
A connected hub for a connected community

The Cog will have the infrastructure for a 'Smart App' giving the community control over the building. The app will enable different groups to book and unlock rooms and give the users the ability to control temperature and lighting conditions. A smart building will also allow those in charge of the building to monitor energy use and ensure security more easily through an intelligent alarm and detection system.



Adaptability of the Cog over time

The Cog has been designed in a way in which it can be adapted over time and can develop in line with our sustainability values. This includes the addition of solar PV's to make the building carbon neutral, and an increase in vegetation over time to ensure a biodiversity net gain.



Rainwater harvesting

There is an intention to use rainwater harvesting within the scheme as a way of reducing water wastage. Rainwater will be collected and used in the watering of surrounding vegetation and in the allotments, with the potential to use the water as part of a recycled flush system for the toilets.

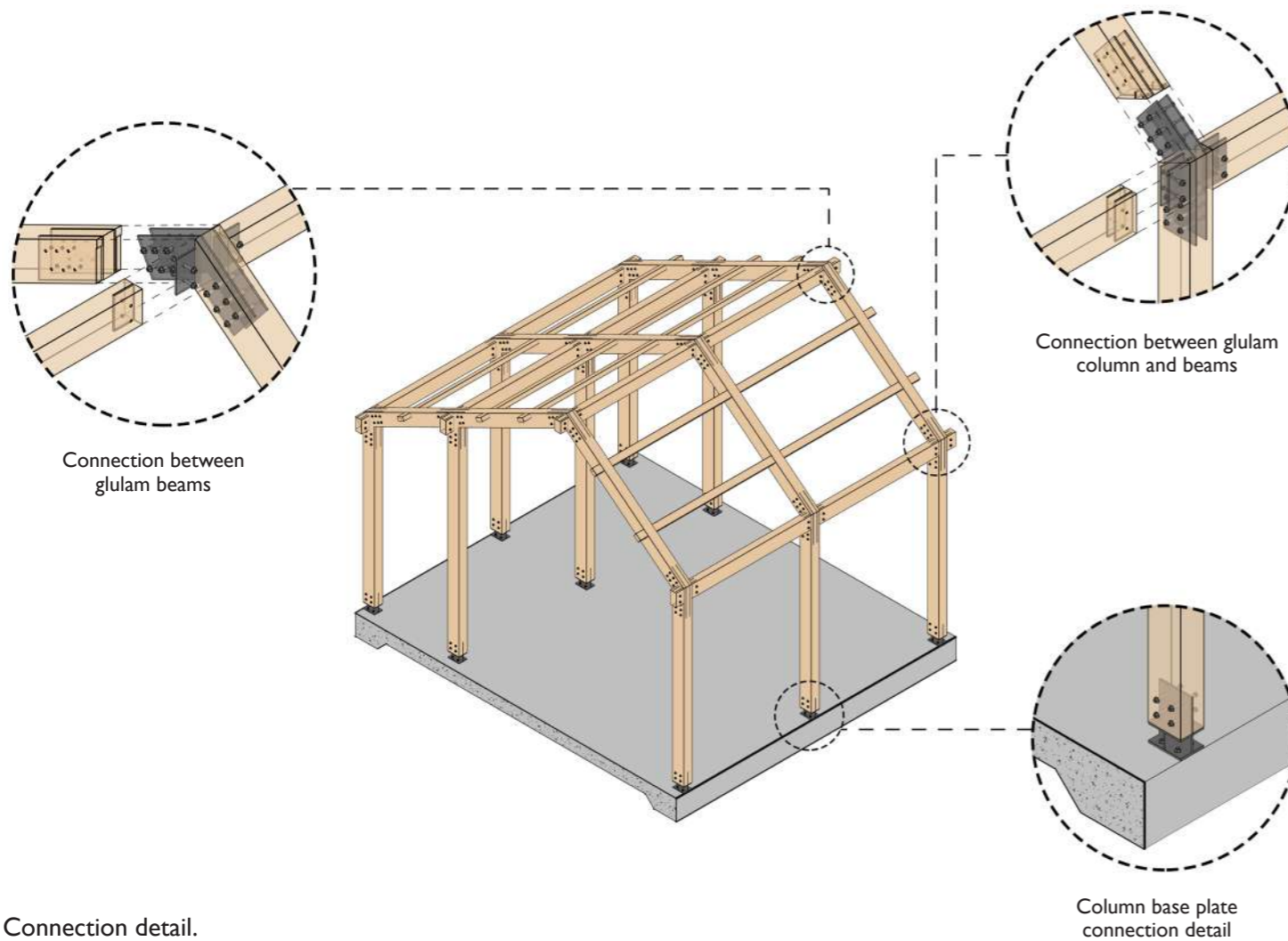
22. The structural strategy

Structural considerations

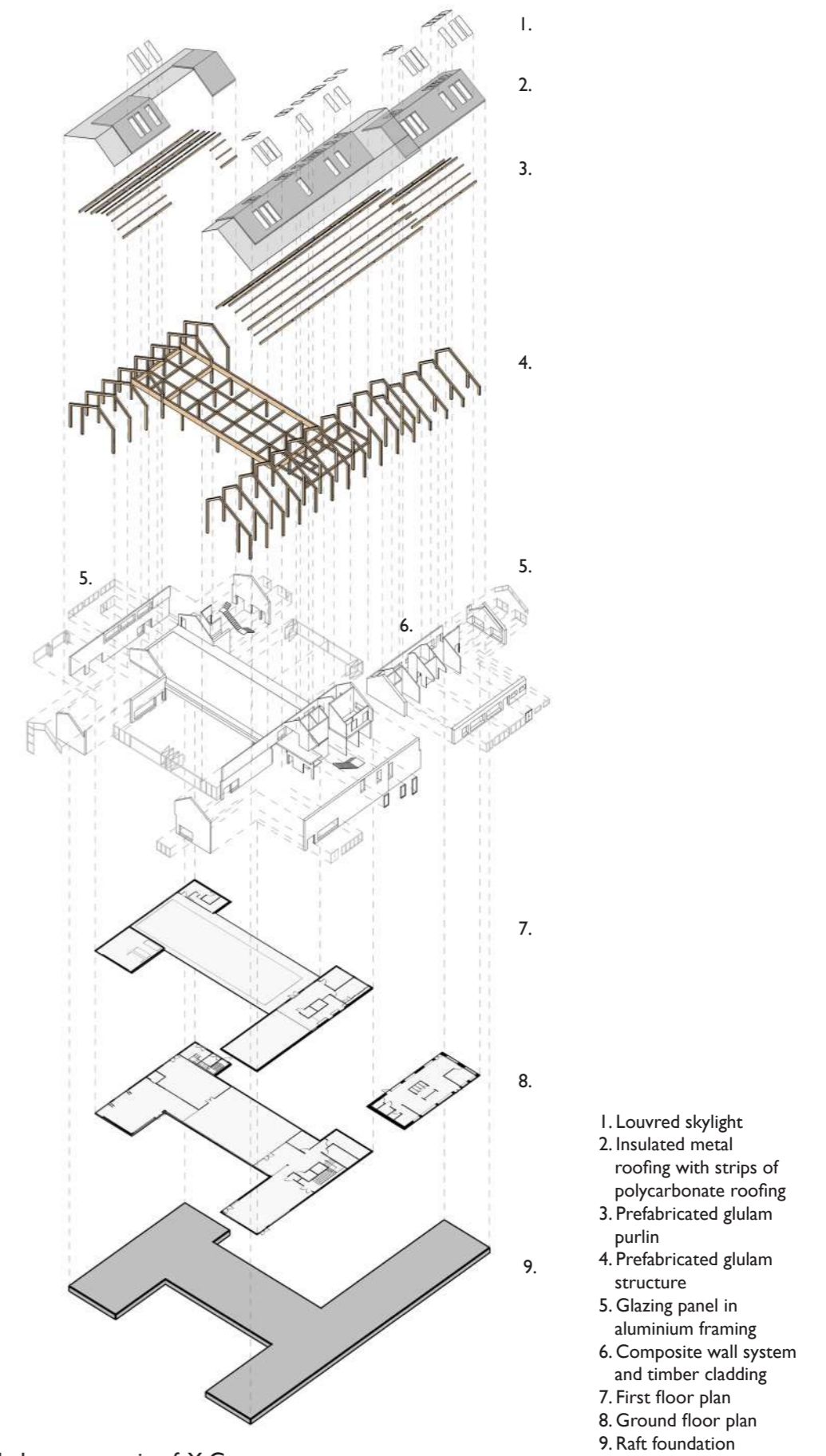
Sustainability is approached from a structural perspective through the choice of material and design efficiency, both resulting in efficient use of materials.

Glued laminated timber (Glulam) makes a strong case for sustainability for these reasons:

- Timber, the main constituent of glulam, is an environmentally sustainable material and **locally available**.
- Glulam is very **efficient** to produce, and the energy required is a fraction of the energy needed to produce steel or concrete.
- Glulam has about 1.5 times the strength to weight ratio of steel. Its **high strength to weight ratio** enables reduced use of material, resulting in lighter structures with smaller foundations.
- Glulam structure is **safer** than unprotected steel in **fire**. This is because of a carbonized layer that forms around the glulam's core, decreasing oxygen consumption and retarding combustion. Additional fire protection finishes can be used to further increase the fire performance.
- Building with glulam structure is much **faster** compared to that of reinforced concrete. Glulam members are prefabricated offsite and mounted directly on the construction site using **slotted-in steel plates and bolts**.



Exploded axonometric of Y Cog.

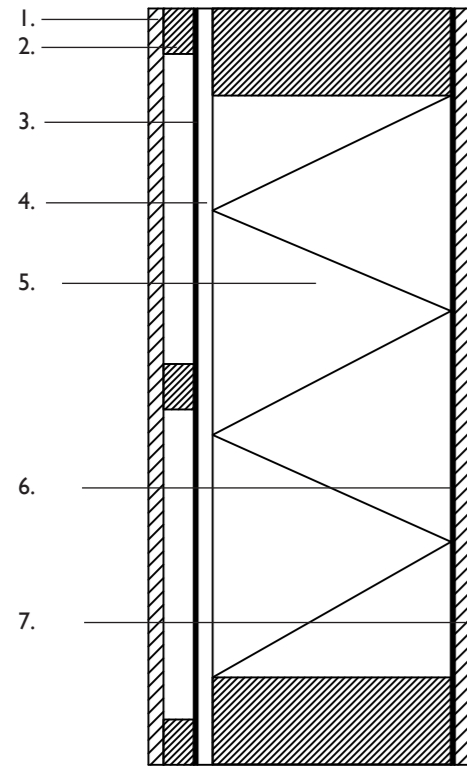


23. Typical wall build ups

Construction and materials

The cafe:

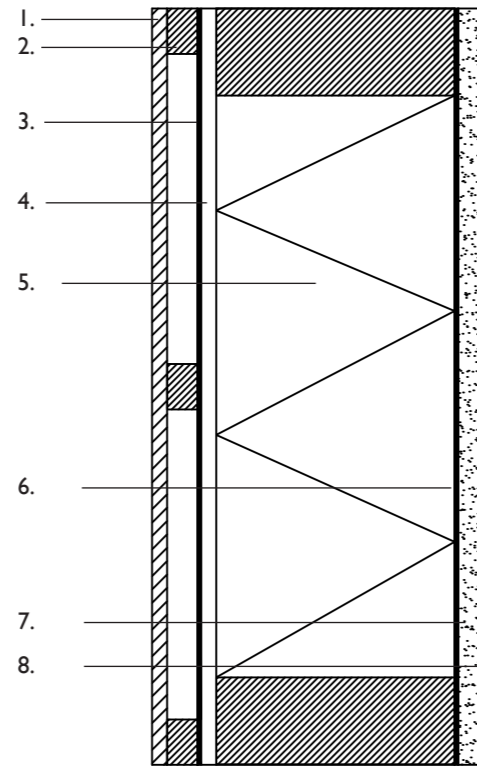
Wall 01 highly insulated, basic.



Scale 1 : 10.

The nursery:

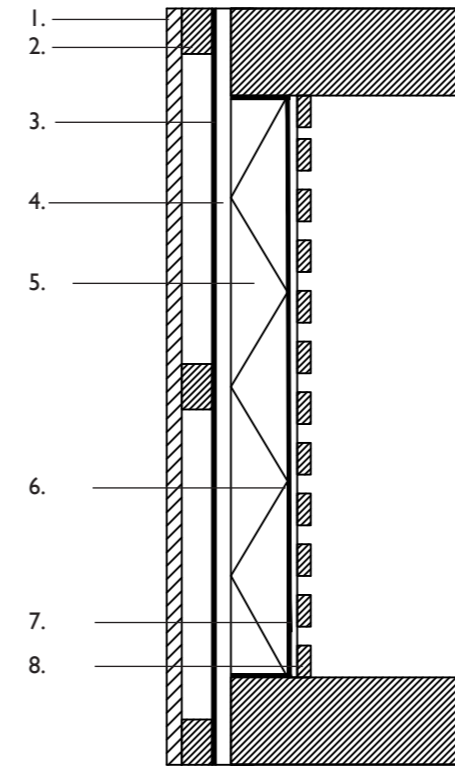
Wall 02 highly insulated, white interior.



Scale 1 : 10.

The hall:

Wall 03 low insulation, acoustic.



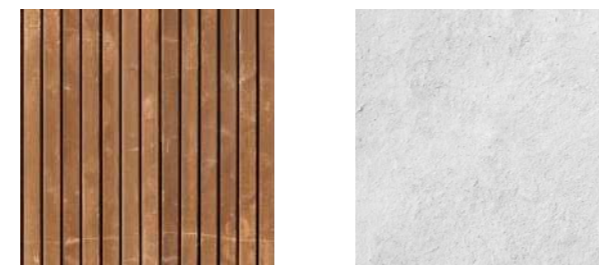
Scale 1 : 10.



Exterior finish Interior finish

External dark timber cladding,
internal exposed CLT

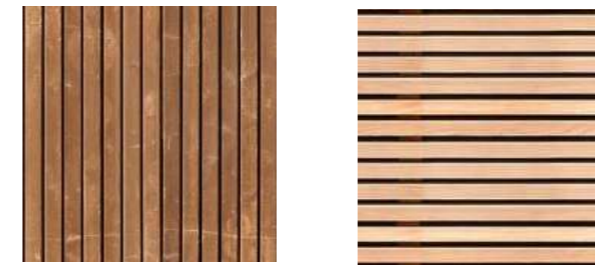
1. 20 mm Dark timber cladding (locally sourced larch)
2. 40/60 mm Battens/ counter-battens
3. PP-fleece glued windproof TEEE-membrane
4. 20 mm Spaced boarding
5. 315 x 115 mm Glulam beams with straw bale Insulation in between
6. Vapour retarder
7. 20 mm Light timber cladding (locally sourced larch)



Exterior finish Interior finish

External dark timber cladding, internal fine white
clay

1. 20 mm Timber cladding (locally sourced larch)
2. 40/60 mm Battens/ counter-battens
3. PP-fleece glued windproof TEEE-membrane
4. 20 mm Spaced boarding
5. 315 x 115 mm Glulam beams with straw bale insulation in between
6. Vapour retarder
7. 30 mm double layer clay render
8. 5 mm double layer fine clay render



Exterior finish Interior finish

External dark timber cladding,
internal light slatted timber

1. 20 mm Timber cladding (locally sourced larch)
2. 40/60 mm Battens/ counter-battens
3. PP-fleece glued windproof TEEE-membrane
4. 20 mm Spaced boarding
5. 315 x 115 mm Glulam beams with 50 mm cellulose insulation panel
6. Vapour retarder
7. 10 mm OSB board
8. 18/42 Slatted timber panels

Glulam panels - Main advantages

- Available locally
- Environmentally sustainable
- Warm and comfortable appearance
- Long durability with minimum of maintenance
- Excellent fire performance
- High strength and dimensional stability
- Good value for money
- Easy to work with (can involve low skilled workers in the construction process)
- Clean construction process
- Can import prefabricated materials on the site (quick construction process; allows for the nursery to operate on site)

Clay render finish - Main advantages

- The texture of clay reflects and refracts light differently (provides a softer, more even and more natural light)
- Raw textural quality
- Coating is breathing, actively controlling humidity and cleaning the air
- does not offgas nor releases any toxins into the indoor air
- remarkable moisture management properties (will not support the growth of mould)
- excellent insulator

Straw bale insulation - Advantages

- Made from waste product (Sustainable)
- Insulation values of R-30 to R-35 and more
- Aesthical value (inexpensive way to achieve thick walls)
- Easy construction (reduced cost on labour, can involve community members)
- 100% biodegradable, long lifespan (over 100 years)
- Sustainable solution
- No disposal problems (eliminated cost of utilization)

Cellulose insulation panel - Advantages

- Cost-effective
- High Thermal Mass
- Resistant to mould and mildew
- Environmentally responsible
- Superior Thermal Insulator
- Excellent acoustic insulation properties
- Achieves an airtight building envelope

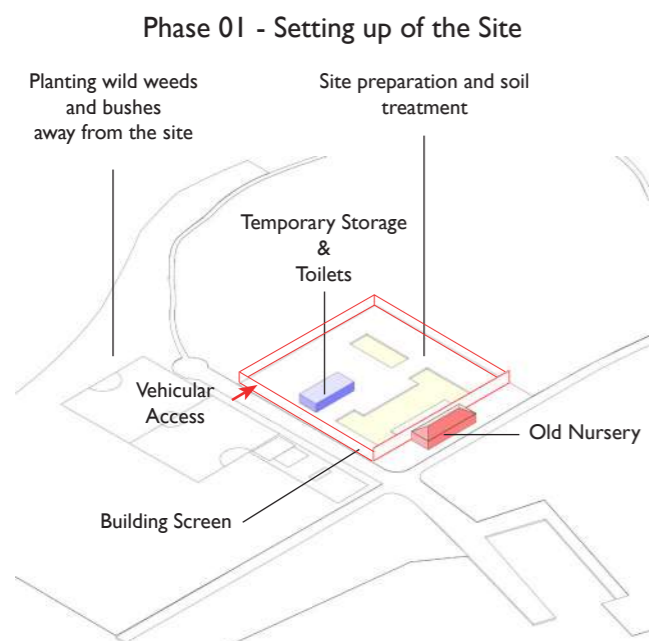
24. The construction process

Safety methods

- Ensuring construction site security by restricting site access
- Nursery will be protected by the large building screen from visual, noise and physical impact from construction site
- Following strict safety and security protocols
- Vehicle access will be only from the opposite side of the site (far from the nursery)
- Ensuring no crane overhangs in the proximity of the nursery (phased construction process)

- Ensuring proper material handling and storage (temporary storage provided on site)
- Provision of welfare facilities and sanitary conveniences on site
- Fall protection system
- Importing of prefabricated elements to reduce the dust and pollution on site
- Ensuring proper emergency procedures

Phasing of construction

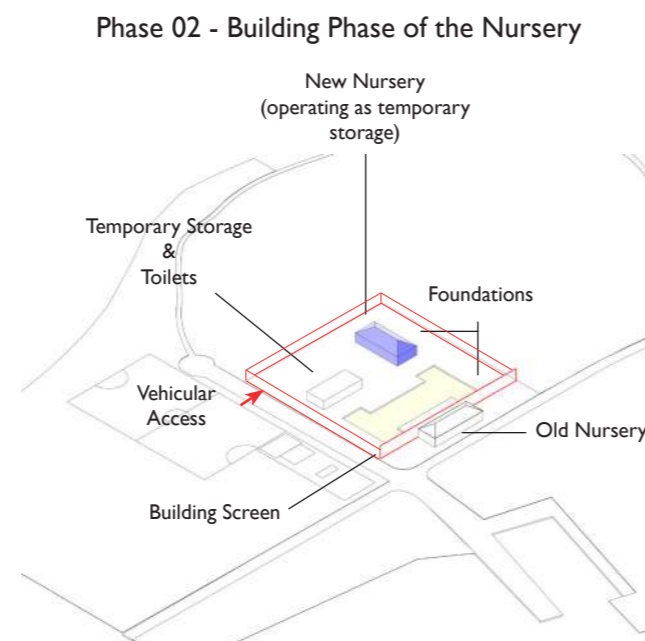


Phase 01 starts with obtaining the Site Survey as it's required for all new constructions. The site is tested for harmful matters before any building process can be started. Then, the site is prepared and soil treated.

The only landscaping taking place in this phase is planting wilds weeds and bushes away from the site for regeneration of the wider area.

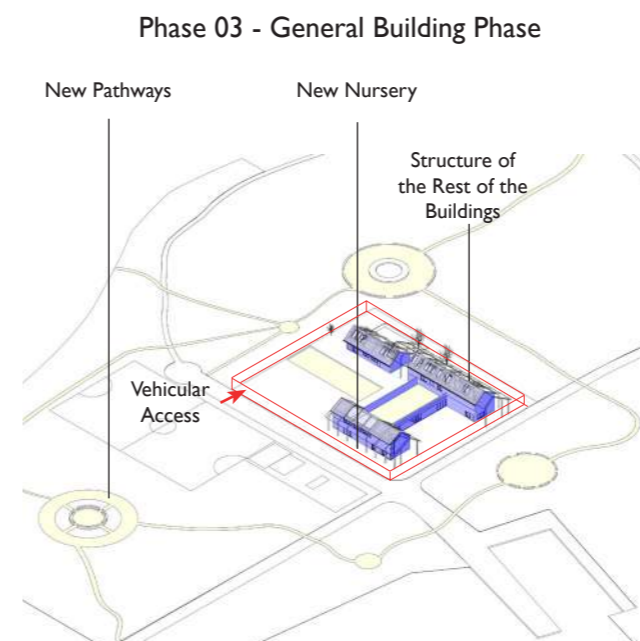
The temporary construction fence is set around the site. New pathways around the site are created to enable vehicular access to the site. The largest building screen protects the Old Nursery from the construction site. Due to the construction methods used it can still operate as most of the elements are prefabricated and imported on site.

Temporary storage as well as a portable toilet for the workers are set up on site. Temporary electrical services are secured to the site.



Phase 02 focuses on laying the foundations and building the New Nursery Building. The old nursery is still operating on site due to the need of the nursery to be open. Also, this way it avoids the costs of relocation of nursery as well as inconvenience for all parties involved.

Nursery's building structure consists of mostly prefabricated elements which allows for clean construction process. After setting up the building's structure, the window and door modules are installed.



Phase 03 starts with the transition of the old nursery into new building. Then, the old nursery is getting demolished. This process has to be done with the careful consideration of the physical impact on the people nearby (including the danger of construction dust being created).

Structure of the rest of the buildings is getting set up mostly from prefabricated elements imported on site. The temporary storage is getting demolished and the hall is being used temporarily as a storage for minor equipment and resources.

New pathways are being set up on site and preparation for landscaping begins.

Window and Door Modules are being installed on site (without the large glazing panels for the building under the bowling green).

The sites for bowling green are being prepared.



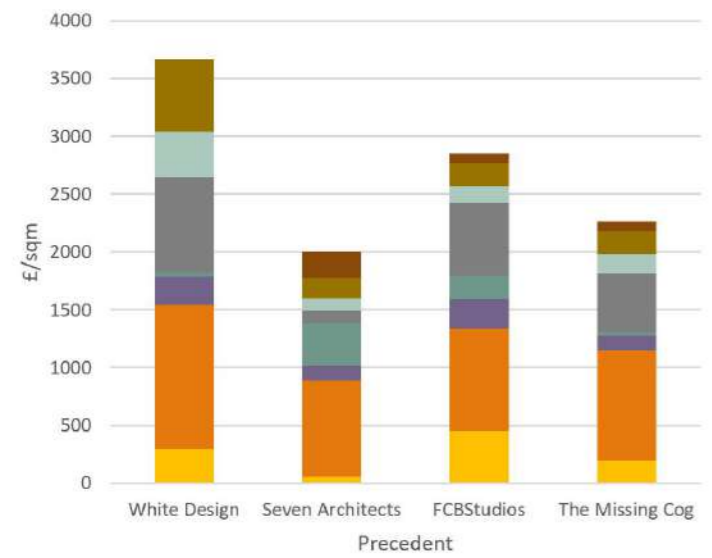
Once the building is complete, the site is cleared out of construction matter.

The process of planting of vegetation on site and in the wider urban scale by community members takes place mostly during Phase 04. It allows for active engagement of all from the community in the building process of their new community centre.

25. Costing analysis in comparison to precedents

Precedent studies

Hall and relevant multifunctional space precedent studies.



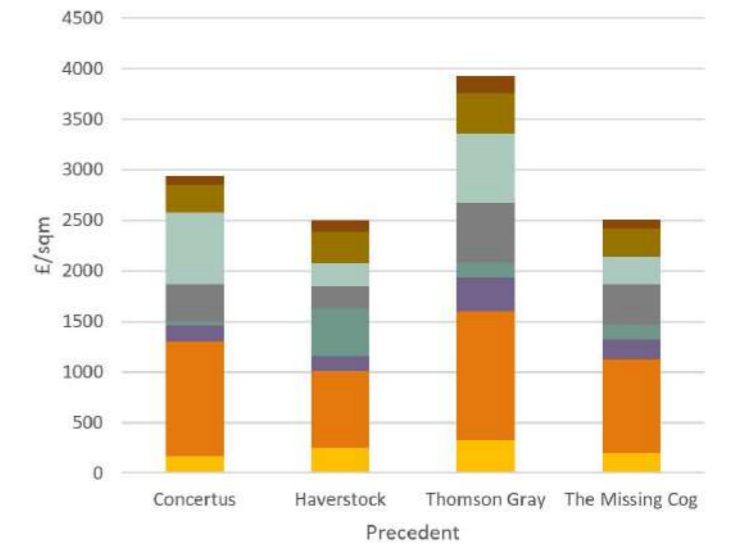
	WD	SA	FCBS	Y Cog
1 Substructure	293	54	453	200
2 Superstructure	1250	831	883	947
3 Finishes	243	129	258	130
4 Fittings and furnishings	32	122	199	32
5 Services	833	373	631	500
6 External work	386	107	149	174
7 Preliminaries	632	175	195	195
8 Contingencies	0	227	82	82
TOTAL	3669	2018	2850	2240

£2240/sqm X 556sqm = £1.25M



Scale 1 : 500.

Nursery and school precedent studies.



	C	H	TG	Y Cog
1 Substructure	70	249	327	200
2 Superstructure	1130	757	1272	925
3 Finishes	162	146	334	198
4 Fittings and furnishings	39	32	147	147
5 Services	369	474	592	396
6 External work	703	225	684	275
7 Preliminaries	277	312	405	277
8 Contingencies	87	114	167	82
TOTAL	2937	2309	3927	2500

£2500/sqm X 148sqm = £0.37M



hall precedents
(left to right)

1. Hardy's Birthplace Visitor Centre, White Design, £3669/sqm (rebased),
2. Harrogate Cricket Club Pavilion, Seven Architects, £2018/sqm (rebased),
3. Painshill Park Visitor Centre, FCBSTudios £2850/sqm (rebased)

nursery precedents
(left to right)

4. St Christopher's Primary School, Concertus, £2937/sqm (rebased),
5. Agar Community Nursery, Haverstock, £2309/sqm (rebased),
6. Arcadia Day Nursery, Thomson Gray, £3927/sqm (rebased)



26. Balancing the budget

The budget

The initial brief called for a building of the floor area up to 500sqm and set the budget to £1.25M, which averages to £2,500/sqm. While the scheme outlined in Stage 1 document for the scheme almost met the required foothold (reaching 591sqm), the estimated construction cost reached £1.7M. Since then, the scheme was revised to decrease the cost/sqm, allowing for an increase in the area to 750sqm while maintaining the budget set in Stage 1 document. With the subsequent revisions of the floor plan and its decrease to 660sqm the projected construction cost decreased to £1.38M, which allowed for an implementation of community-approved bowling green deck.

However, the subsequent meetings with the clients and open community forums made it clear that there is a benefit in aiming to increase the floor plan to allow for more activities, better circulation and improved navigation of the space, as well as making the form more exciting and inviting. The subsequent revisions brought the foothold to 704sqm, which allowed for the finalised budget to be set at £1.62M. While this figure is higher than the one set in a brief, it can be justified by several factors. Use of the timber structure and innovative and energy-saving services allowed for both more ecologically-conscious construction and lower maintenance and occupancy costs in the future, while large amount of funds allocated to external work and structure provide an interesting architectural form asked for by community members and its subsequent integration into wider strategy for the immediate surroundings.

In order to bring this vision to reality, several alternative avenues of financing were proposed to allow for the budget this high:

	hall	nursery	
Big Lottery fundraising	£770,000	£230,000	<i>included in the initial brief</i>
Welsh Government	£25,000	£0	<i>to be spent on external work</i>
Section 106 - 15/02847/MJR	£0	£90,000	<i>to be spent on education</i>
Section 106 - 18/01598/MJR	£25,000	£0	<i>to be spent on community buildings</i>
People and Places	£300,000	£0	<i>to be spent on community buildings</i>
TOTAL	£1.25M	£370,000	£1.62M total



Additional sources of funding

Whilst the sources above cover the estimated construction cost of the scheme, in case of any complications secondary means of funding can be pursued:

	minimum	average	maximum	sector
Comic Relief	£100,000	£142,053	£400,000	community
The Triangle Trust	£15,000	£75,659	£120,000	community
Tesco Bags of Help	£10,000	£15,000	£25,000	community
Subway Healthy Hearts	£8,000	£9,265	£10,000	health
Track 2000	£5,000	£26,495	£35,000	community
Later Life Inclusion Grant	£10,000	£40,000	£80,000	elderly
Community Funding Resources Ltd.	£15,000	£32,500	£50,000	community
Sport Wales	£1,500	£13,250	£25,000	sport
Polden-Puckham	£5,000	£13,300	£20,000	community
TOTAL	£169,500	£367,522	£765,000	

Potential revenue

In order to justify the high initial costs of the construction, the potential annual profits were calculated. The maintenance costs figures were devised from *Occupancy costs of community centres* (BCIS, 2012) and *Occupancy costs of primary schools* (BCIS, 2009) and were further rebased to 2020 and adjusted to the modern, energy saving solutions planned thorough. The turnovers of café, community hall and nursery were calculated using multiple precedents, average figures and governmental guidances.



Scale 1 : 500.

SUMMARY

café/community hall	nursery
maintenance costs	maintenance costs
£57,841	£15,521
running costs	running costs
£105,609	£184,615
projected turnover	projected turnover
£217,000	£228,920
TOTAL - CAFÉ	TOTAL - NURSERY
£53,550	£28,783

TOTAL BALANCE OF THE SCHEME
£82,333

The nursery's turnover was calculated using the Wales' average figure of **£92/week** per child. However, assuming that the nursery should be run as a non-profit, this price could be as low as **£78/week**. If the profits from the café were to be channeled into running the nursery as well, effectively rendering the whole scheme a non-profit, this price could be further lowered to around **£51/week**.