Makeshift Architecture for Interim Flood Assistance

by Genevieve Quinn
10.06.23

Aerial image of Brisbane/ Meanjin
(Google Maps)

Contents

Part 1: Research

Introduction

This research is for the purpose of a final update to the board of the Paul Pholeros Foundation in relation to research being undertaken under the Paul Pholeros Foundation Architecture Scholarship. This research will outline the progress and morphology of the research project so far as well as project the expected outputs of the research.

The support of the PPF was the catalyst for this project, yet it is the first step on a long path of ongoing research. While this report marks the end of the program associated with the foundation, it also initiated the beginning of a new phase of research. This report should not be considered a final solution or complete piece, instead it is a suggestion of a future ideology for flood resilience.

I wish to acknowledge that I am undertaking this research piece on the lands of the Turrbal and Jagera people. I pay my respects to their Elders past, present and emerging and wish to recognise the custodianship, knowledge and care for the land and seas that First Nations communities have given immemorial. My research revolves around the unprecedented damage that natural disasters such as floods are causing in our communities. This conversation cannot be had without acknowledging that this is a colonial issue, exacerbated by settlement and colonial neglect of the land. I hope that we will see a future where First Nations' culture and knowledge of land care is respected and celebrated so that we may live harmoniously with our environment.

1858 colonial map of Brisbane/Meanjin showing flowing water systems on the periphery of the Brisbane River (QLD Government, Open Data Portal)

Current aerial view of the same area of Brisbane/ Meanjin. Natural water systems are covered over, replaced by roads and infrastructure (Google Maps)

Background Information

The hypothesis for this research began with the premise that 'building back better' can be unattainable for most people affected by floods. This may be due to property ownership status (renters), financial status or emotional trauma caused by a natural disaster. My proposal stipulated that 'makeshift' or temporary architectural elements could ease some of the struggle that these communities are going through by providing simple, easily constructed ideas using readily available materials to assist with re-inhabiting a home damaged by floods.

The first stage of my research focused on assessing some of the assumptions made in this hypothesis. Some of these assumptions include:

>That poorer or 'vulnerable' people are impacted more than wealthy people
>That there is a need for short term or interim solutions

Next, research into the two major pillars of this research was undertaken. These are temporary architecture and flood resilience. This research was conducted through analysis of websites, books, journal articles and news pieces as well as typical architectural mapping studies.

After an adequate amount of desktop research was completed, a phase of interviews with experts was conducted. These interviews were intended to gain a better understanding of aspects of the floods and architectural ideas that have been raised by various people across many disciplines.

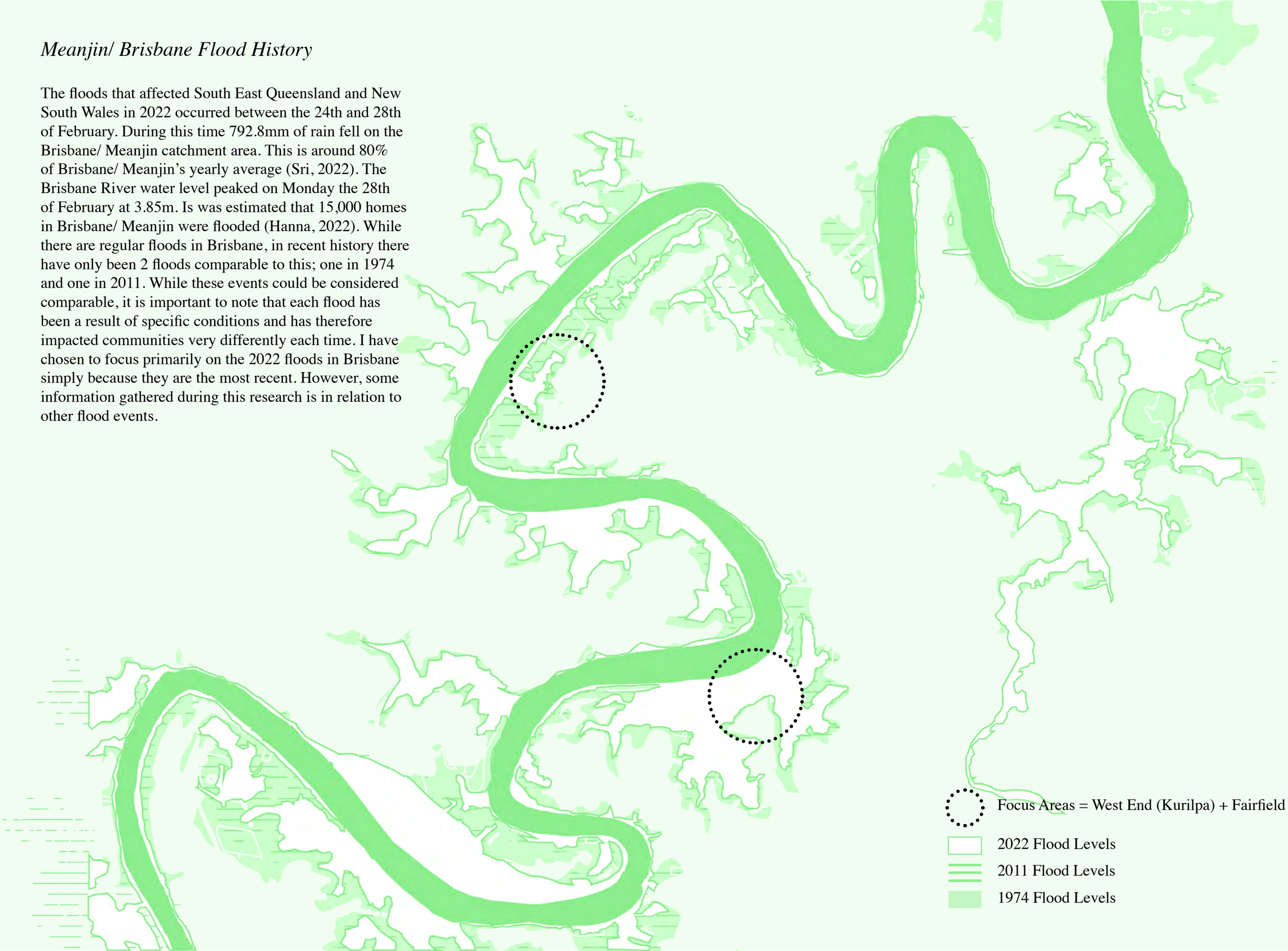
The penultimate phase of research involved community engagement. This was the most time consuming and valuable. This included reaching out to community members who were affected by the floods in order to understand their specific needs and issues they encountered after the floods.

Throughout this process, many suggestion were given and stories told. The value of this phase lies in the connections and networks made in the community of South Brisbane. Some of the lessons learnt are explained in this report.

Finally, the catalogue of ideas was formulated. Driven by research, industry input and community suggestions and conversations, this catalogue is a series of suggestions of architectural interventions. This part of the research was created with the intention of sharing developing with the community.

Meanjin/ Brisbane Flood History

The floods that affected South East Queensland and New South Wales in 2022 occurred between the 24th and 28th of February. During this time 792.8mm of rain fell on the Brisbane/ Meanjin catchment area. This is around 80% of Brisbane/ Meanjin's yearly average (Sri, 2022). The Brisbane River water level peaked on Monday the 28th of February at 3.85m. Is was estimated that 15,000 homes in Brisbane/ Meanjin were flooded (Hanna, 2022). While there are regular floods in Brisbane, in recent history there have only been 2 floods comparable to this; one in 1974 and one in 2011. While these events could be considered comparable, it is important to note that each flood has been a result of specific conditions and has therefore impacted communities very differently each time. I have chosen to focus primarily on the 2022 floods in Brisbane simply because they are the most recent. However, some information gathered during this research is in relation to other flood events.



Assumptions

As mentioned above, some assumptions were made when proposing this research piece. At the commencement of this work, confirming these assumptions was prioritised. This ensured that the research I was completing was relevant, accurate and practical. Some of these assumptions and their confirmations are listed below.

Poorer or 'vulnerable' persons are impacted by natural disasters more than wealthy persons

This assumption is a keystone in this research piece. Therefore it was crucial to establish this as a fact rather than an idea. The impact of natural disasters on all communities is evident in news articles, video footage and the views I have seen walking around my suburb of West End (Kurilpa) after a flood event. However, the impact on different socio-economic communities is less obvious. However, there have been many studies on this around the world and in Brisbane/ Meanjin.

Jonathan Sri, Councillor for the Gabba Ward of Brisbane, an area greatly impacted by the floods speaks of his experience of the 2022 floods confirming that the "poor were hit hardest" (Sri, 2022). He speaks of the many scenarios in which people can be financially impacted by the floods. While initially my hypothesis considered re-building costs to be the main factor in financial impacts, Sri's reflections highlight how varied the experience of the floods was and how many different avenues can detrimentally impact lower socio-economic communities. Firstly, rebuilding is often too expensive, meaning families and home-owners are forced to sell, often at a below-market value. This results in people unable to re-buy in areas not vulnerable to flooding, resulting in a path that exacerbates financial strain. Another scenario Sri observed was the influence of insurance on financial strain. For instance, when rebuilding, wealthier people are able to raise their house and continue with a reasonable insurance policy. However, people who are unable to finance a major renovation are still required to repair their homes to a lesser extent and usually require a much more expensive insurance policy that is either unaffordable (forcing people to sell their homes) or putting huge financial stress onto people. Sri also raises many questions surrounding the status of renters and investment properties, people with disabilities, unable to live in raised homes, and people who speak English as a second language. He draws attention to the vulnerability that all of these people possess in terms of their ability to access government assistance as well as community care (Sri, 2022).

The idea of vulnerability is also discussed in various global flooding or natural disaster resilience studies. Rufat, Tate, Burton and Maroof speak about "social vulnerability" as an index of many factors. This includes aspects of a persons life such as age, race and ethnicity, family structure, gender, health, awareness and experience of past disasters, income, occupation, land tenure, population density and many more (Rufat, Tate, Burton and Maroof, 2015). While they discuss that many of these conditions are conflicting (using the example of age they suggest an elderly person might be considered more vulnerable, however, if they have a lot of experience with past events, they will be quite prepared and adept to cope with a flood), generally, vulnerability factors such as socio-economic status do impact the ability for a person to cope with a disaster. In the context of Brisbane, where many people often note that wealthy suburbs are in high impact zones (riverside suburbs) this analysis of vulnerability alongside Jonathan Sri's observations paint a picture of inequality being exacerbated by natural disasters.

There is a practical need for short term or interim architectural solutions

This assumption could be simply confirmed by observing flood affected areas. In the suburbs of West End and Fairfield, both highly flood affected, many houses are still unoccupied or under construction, almost a year on from the floods (see next page). This could be due to many reasons, however, from discussions from the community, the long insurance and Resilience Program wait times are well-known. While the wait times for government and private assistance are likely causes for this delay, the reason is not necessarily important. The fact is that people are still not living in their homes, a year after the floods. Therefore, there is a need for short term or interim solutions.

Typical Flood-Affected Homes

The images shown above and on the right show a snapshot of the typical flood-affected homes found in the Fairfield area of Brisbane/Meanjin. These images were taken in December of 2022. One can observe that these houses remain unoccupied. These homes are typical Queenslander style homes that have been raised. This is a very common renovation for Queenslander homes so it is unknown if this is due to flooding or simply for space gain. While this is unclear, the potential of the space below the house which is currently left open can be seen.

The image above shows a home that is near completion of a renovation. The lower level of this home is dominated by concrete construction and features a very steep incline to reach the house. While it has not been confirmed by the owners, this house appears to be design with flooding in mind. This image was taken in January of 2023. This appears to be the first house in the area to have reached near-completion renovations post-2022 floods. This is a good indicator for the minimum time in which temporary interventions are needed, at least over a year, if not more.

2 Pillars: Temporality and Flood Resilience

Temporality in Architecture

The etymology of the word temporary traces back to the phrase "lasting only for a time" and Latin roots meaning "of seasonal character". These phrases are important when considering temporary architecture. Authors such as Cate St Hill speak of the negative connotation of temporary architecture. These being that it is "flimsy" or "avoiding long term solutions" (Hill, 2016). This could be due to temporary architecture's presence in capitalistic ventures such as pop up shops (Bose, 2016).

However, when considering temporary architecture in accordance with its etymology, temporary architecture is seasonal, implying a connection with the cycles and fluidity of society and enduring for a time undefined. This does not mean it has to be short lived or fragile, only that it is not permanent. This fits well with the current schools of thought around flood resilience. Flood resilient architecture in Queensland is often defined by durability, it is water resistant and unable to be eroded. However, these structures cannot be built or designed quickly. So, an architecture to last for a time before this permanent solution is achieved, is required.

In addition to the practical benefits of temporary architecture, St Hill also describes some of the social impacts temporary architecture can have on a community. Firstly, she mentions temporary architecture often being participatory and community led. She claims "participatory practice and collective engagement fosters open ended discussions…to get to the root of the problem". She follows saying "the temporary lets the community try it out and listens to their opinions" (Hill, 2016). This point is incredibly relevant to the flooding in Brisbane/ Meanjin. While there are many guides to building flood resilient homes and an abundance of design information, how each person occupies their house is personal and unique.

While these guides can be practical and informative, they do not necessarily consider the unique lifestyles and requirements of each household. Providing elements that can be tested and edited can ensure the longevity of the future permanent solutions. Hill also highlights the importance of community engagement and the ability for temporary architecture to catalyze engagement and provoke conversations in a community. This idea is crucial and deeply intertwined with disaster resilience.

Chrisp Street Radio by The Decorators
This small structure was an intervention in a local market in London. The pavilion-like design was a catalyst for new activities in the market and reinvigorate the community.

HyFi by The Living
A temporary structure in an art gallery courtyard, this project is made of mycellium bricks. The innovative use of materials sparks imagination and awareness of material innovations.

The Umbrellas by Christo and Jeanne-Claude
Two parallel installations, The Umbrellas sparks observations of different cultures' occupation of space and landscapes.

Paleys upon Pilers by Studio Weave
This project evokes history and highlights traditional building techniques. In a modern context this sparks interest in construction typologies.

MPavilion by All(Zone)
This pavilion made of various material layers demonstrates how temporary architecture can test and proliferate new ideas in architecture, in this case material fabrication.

Poster House by Lacoste + Stevenson
This project, conceived in 1997 as a response to 'cookie cutter' housing developments shows the way in which temporary architecture can be used to personalise and soften architecture

Resilience

Disaster and flood resilience is a monumental issue and topic to study. There are many schools of thought and approaches. Locally, we have witnessed various approaches when confronted with flooding. Actions range from sandbagging doorways to relocating entire towns out of flood zones. While the practicalities of flood resilience are complex and varied, this research is particularly focused on community and resilience.

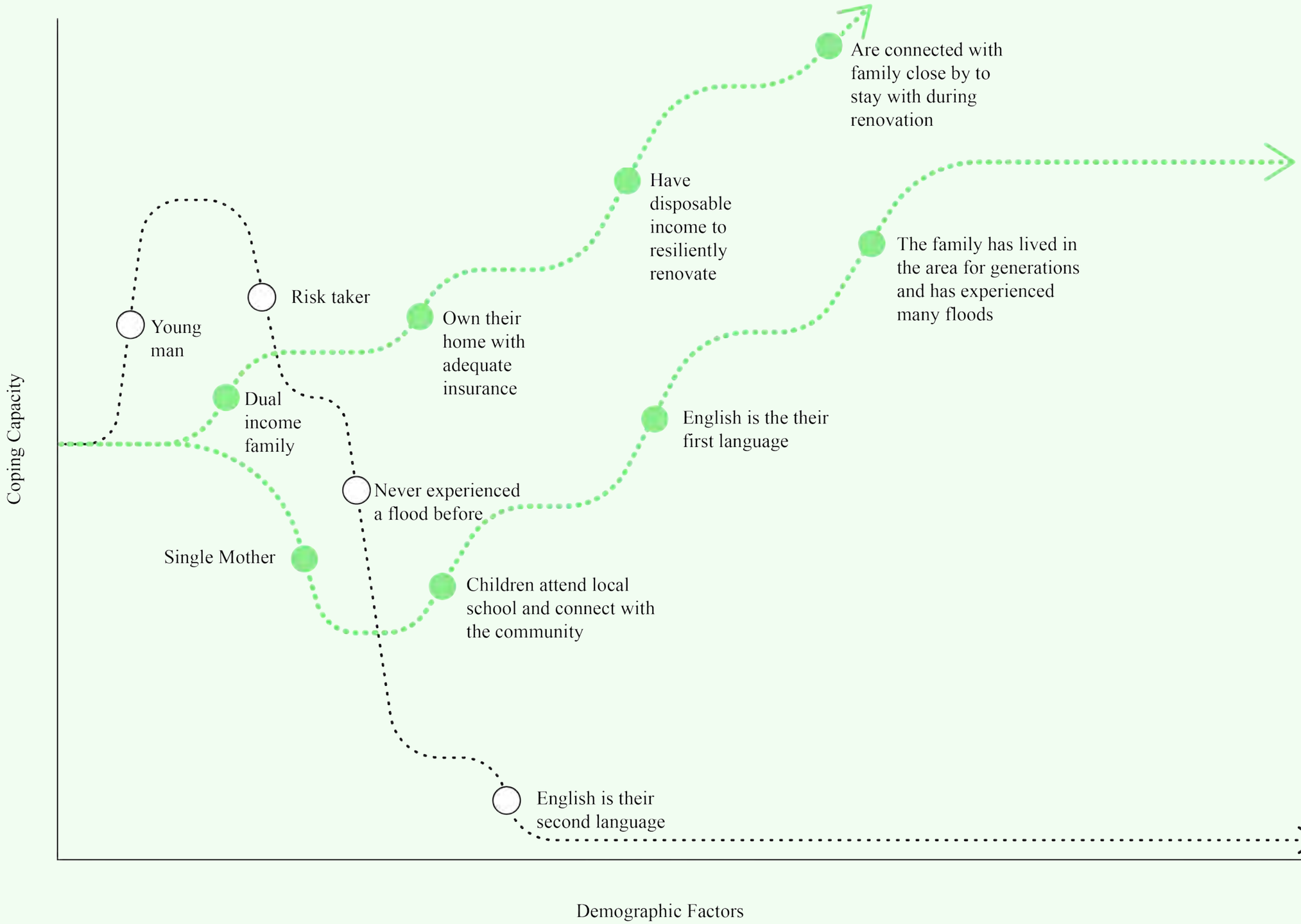
Across disciplines, the importance of community in flood resilience has been documented. Sri, in his reflections discusses the shortfalls of large scale volunteer coordination highlighting a neglect of local community members in the orchestration of volunteers. He claims this slowed down volunteer responses and diminished their effectivity. The importance of community is theoretically corroborated by Rufat et al. who analysed many writings documenting flooding and found that communities with “close social ties and shared resources help with a quick recovery” (Rufat et al. 2015). Nunn and Kumar concur speaking about the failings of top-down approaches to disaster relief in Fiji. Nunn and Kumar claim that “culturally grounded autonomous coping capacity has been overlooked”(Nunn, Kumar, 2019) in typical disaster relief programs leading to their failing. They suggest that sustainability after a disaster requires community support and recognition that each community has unique goals and connections (Nunn, Kumar, 2019).

Locally, Madeline Mead, a hydraulic engineer working in Lismore during the 2022 flood recovery has seen these ideas come to fruition. She observed that community members who had friends or family in the construction industry were able to rebuild much quicker than those disconnected and re-inhabit their homes. She also notes that many families now live together in order to rebuild a home that is no longer habitable. An ongoing message she heard from the community is that they want to stay in Lismore. Their community is strong, they are sharing resources and know what they want to achieve.

This diagram presents 3 individuals and graphs their theoretical coping capacity based on certain demographic factors. This graph can be used to highlight the nuance surrounding natural disasters and vulnerability. While generally, one can assume that people with less material wealth will be impacted more than those who are financially wealthy, this graph shows how demographic characteristics such as age or gender could also impact vulnerability to natural disasters.

For example, a presumption could be made that a single mother would be vulnerable to impacts of a natural disaster. However, if this individual has experience with floods or is highly connected with their community, then their coping capacity is increased.

These examples are ficticious and should be used only to understand the concept of coping capacity and its relation to various demographic factors, many of which are not mapped on this graph.



Expert Consultation

Throughout the research process, various experts or industry members were consulted. These experts work across engineering and architecture. The key lessons and perspectives of these experts is documented below.

Madeline Mead:

2018- Bachelor of Civil and Environmental Engineering, The University of Queensland

Madeline Mead is a Project Engineer and PhD Candidate at RMIT. Her current role at Water Modelling Solutions has involved inspecting homes in the Lismore region to assess the flood damage. This experience has provided great insight into the living situation of people affected by floods a year on from the event. In an interview setting, she provided first hand observations as well as technical information surrounding insurance procedures and flood types.

Some key points outlined by Madeline are presented below.

> Communities want to stay in place. Madeline spoke of the general feeling of community members and their desire to stay in place.

> Many people are living in rough conditions waiting for materials, payouts or construction skills.

> There is a sense of shame among community members having to show their homes to varying government or insurance officials when it has faced a disaster. Many people apologized for the state of their living conditions and would express feeling embarrassed.

Jed Long:

Architect at Cave Urban

Jed Long is an architect and bamboo construction expert. He is currently undertaking renovation work in the Lismore area and provided many valuable insights into constructing post-flood. Jed's work primarily revolves around the use of sustainable, natural materials, such as bamboo, in architecture. From a flood resilience perspective, Jed provided some very useful points.

> Building to accept floods can be functional and sustainable. Rather than approaching natural disasters in a purely defensive manner, Jed spoke about designing with the acceptance that floods will happen again and we can live with the environment.

Paul Jones:

Architect and Director at OMA

Paul Jones is an architect at renowned international practice OMA. He has been personally in contact with the local community that was impacted by the 2022 floods and generously provided his ideas and thought surrounding designing in Brisbane/Meanjin post-flood. Some of his key points include:

>The importance of thinking creatively about a new style of architecture for flood affected communities.

>The importance of sharing high quality architectural ideas to community members who may not have access to architectural publications or know how to find them.

>Providing alternative visions for the built environment can give community more agency over their environment.

Sam Bowstead

Associate at JDA Co.

JDA Co is a leading architecture practice in the field of flood resilience. Their work and research has formed most of the resilient homes guidelines for Queensland homes and they continue to work in the flood resilience field. Sam graciously offered his time to discuss his role in flood-resilient architecture.

Some key points from Sam include:

> Successful processes such as the Flood Resilience program take time. There is a need for interim interventions as community members wait for important assesments and designs.

Flow Installation by Cave Urban

Chelmer Flood House by JDA Co

Community Consultation

When discussing the importance of community in flood resilience, it is crucial to include the community in the conversation. Across 3 months, letters were written to residents in streets affected by the floods. This letter can be seen on the following page. While there has been limited responses, the conversations and engagement that has been conducted has been incredibly valuable and insightful. From these conversations I have learnt that many of the houses I have written to remain unoccupied or the owners traumatised, explaining the small amount of responses. The letter written is clear in intention and does not aim to re-traumatise community members. So, for the few conversations I have had, I am very grateful. In order to ensure anonymity, the 3 conversations with 4 community members (one couple) that I have had, have been summarised and learnings combined. In the future, I will continue to consult with these community members and further details or studies may be completed. However, for this report, the findings will be general. Key learnings from my discussions are listed below:

-

> Insurance companies require tedious labour to claim and do not engage in resilient design when supplying remediation.

> Government assistance is a slow and complex process. 2 participants noted that the Resilient Homes Program was overly complex and difficult to navigate leaving them feeling isolated.

> All three households in January of 2022 had not yet been able to act on their Resilient Homes recommendations or found the recommendations inappropriate for their individual lifestyles.

> 2 participants discussed the importance of their neighbourhood community or their network of friends and family in their recovery.

>2 participants suggested there wasn't enough knowledge surrounding immediate care requirements for homes after floods or safe procedures during the floods.

>All participants reflected on the loss of community after a flood

> All participants felt that the resources available were confusing and inaccessible to people not versed in institutional or architectural language.

> 2 participants discussed feeling dismayed and uninspired by the part of their home that was flood affected. 1 participant had experienced two of the major floods in Brisbane/Meanjin and felt that there weren't any appropriate solutions for their house.

> Another participant also noted that they felt disappointed with the prospects of their rebuilt home having to concede many ideas to insurance and government assistance regulations.

> Both participants thought a place to be inspired would allow them to feel excited for the future of their home.

> One noted a physical display of flood resilient materials would be more accessible than online resources and writings.

> Participants were generally accepting that their lifestyle would have to change due to the change in their homes.

Community Consultation- Ethics

Throughout this process, the ethics of community consultation has been a constant topic for enquiry and discussion. It was crucial to understand that consulting with a community that had faced trauma must be approached with respect and empathy.

Some actions were taken to ensure community members felt safe, respected, valued and heard. These include:

> Writing a hardcopy letter to ensure technology was not a barrier for community members.

> Using clear language and easy to understand phrases in the letter.

> Ensuring all communication was transparent. The original letter was clear about the outcome and scope of this research. It was important to me to be sure that community members did not get their hopes up regarding my ability to tangibly assist with the reconstruction of their home.

> Compensation was provided to those who accepted. The letter did not include specifics about compensation, however, upon meeting, community members were offered $50 for a meeting of approximately half an hour. This fee is comparable to government community engagement fees. Some community members accepted this compensation and others didn't.

>All meetings were dictated by the community members. Locations, modes of communication and times were all flexible to ensure people felt comfortable.

The letter delivered to comunity members is presented to the right.

Paul Pholeros
FOUNDATION

Paul Pholeros Foundation
ABN 25 625 347 882
PO Box 495 Newport Beach NSW 2106
www.ppfoundation.com.au

Dear Neighbour,

I hope this letter finds you well. My name is Genevieve Quinn. I am a graduate of architecture, graduating from the University of Queensland in 2019. I work in the field of community architecture and research.

I am writing to you as a neighbour and researcher. In July of this year, with the support of the Paul Pholeros Foundation, I began a research project based on the flooding we experienced in February. My research surrounds the idea of short-term architectural solutions for those affected by the floods in our city. I am looking at this topic through the lens of affordability.

As we all know, re-building or renovating a house is incredibly expensive and can take a long time to organise. On top of this, after experiencing a great loss or negative event, it can be very emotionally difficult to make large decisions regarding home ownership or living conditions. So, I am investigating ways to help in the meantime through small and potentially temporary interventions.

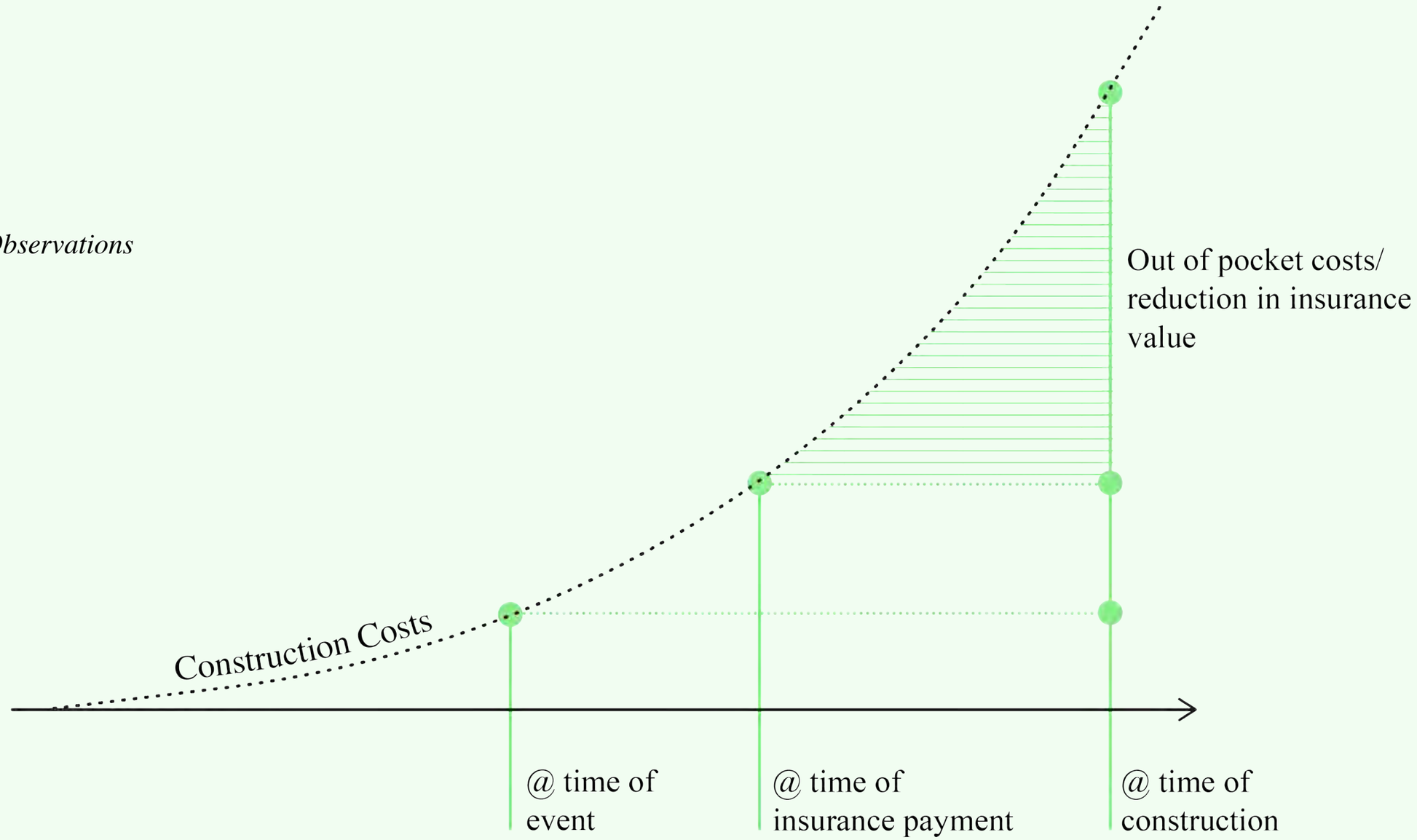
As a part of my studies, I am hoping to gain some insight from people who were directly impacted by the floods. From my research I have discovered that your street was impacted by the floods. If this is the case, I would really appreciate gaining an understanding of how the floods impacted your home or living situation. While your input and experience would be beneficial to my study, I am aware that the events of February 2022 might not be a topic you wish to discuss and that my study cannot provide you with material help at this point in time.

For this reason, I aim to use your time efficiently, whether this be through a short one-on-one meeting, small group conversations or written correspondence, whatever you feel comfortable with. I am interested in speaking to anyone who was affected by the floods, irrespective of home-ownership status or income status. All information provided to me, of course, will only be published with consent and will be anonymous.

If this might be something you are interested in, please feel free to send me an email at genevieve_quinn@hotmail.com. I look forward to hearing from you.

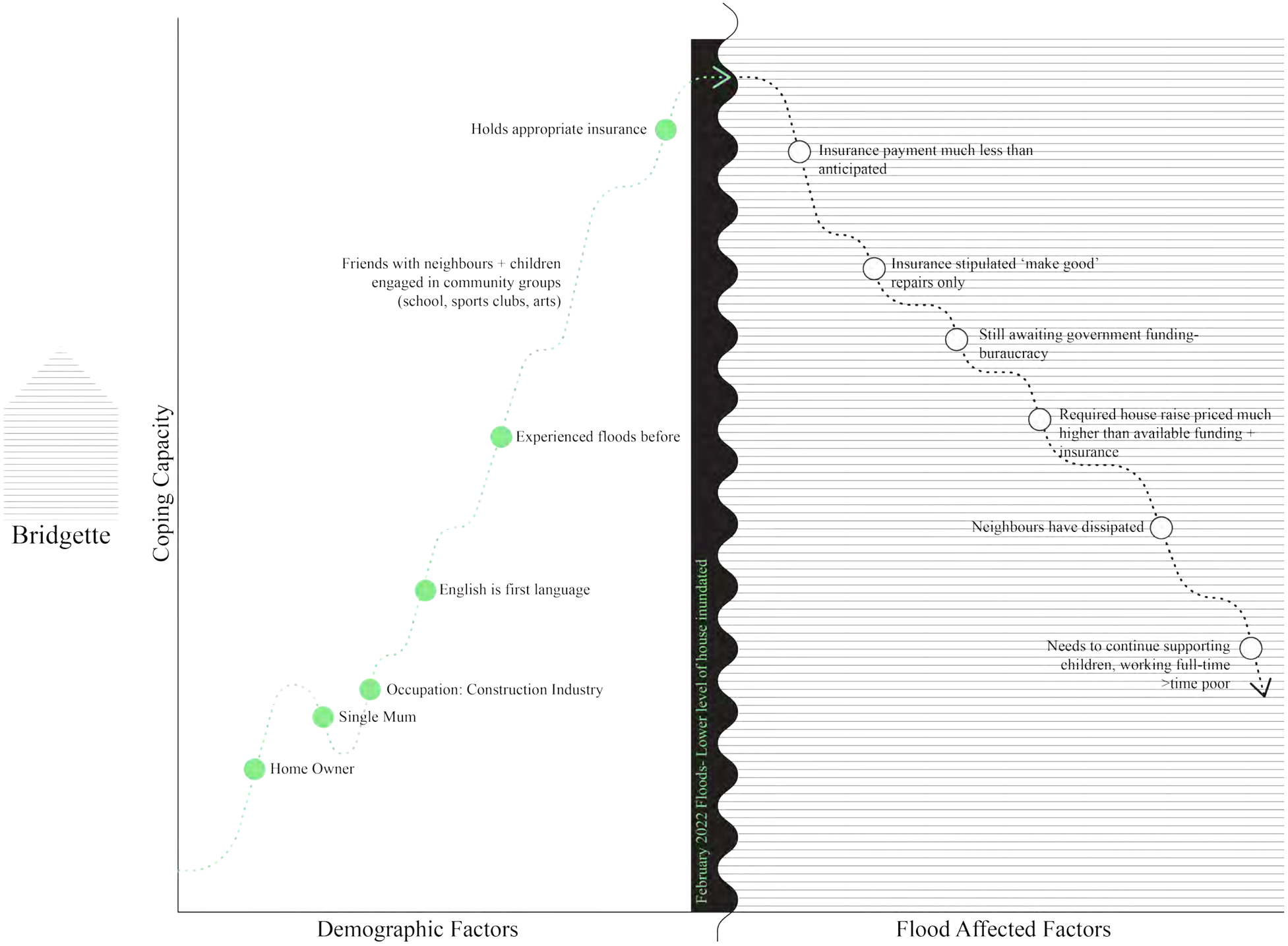
Kind regards,

Genevieve Quinn
21 October 2022



Construction Costs and Reconstruction

This diagram illsutrates a common theme that was discussed among community members. The impact of rising construction costs and material scarcity is huge and continues to undermine quality reconstruction.
The diagram depicts the devaluing of insurance payouts due to the increase in costs. For instance, prior to the floods, a $20,000 insurance payout could afford much more than it does now. This has resulted in individuals having to rethink their living situations or timeline for reconstruction.



Coping Capacity Case Study

This is a case study of one of the community members spoken to in consultation. The name of this community member has been changed to Bridgette and specific details have been removed for privacy reasons.
The diagram highlights the way in which natural disasters such as floods can have a heavy impact on those who might be considered resilient.

Legend

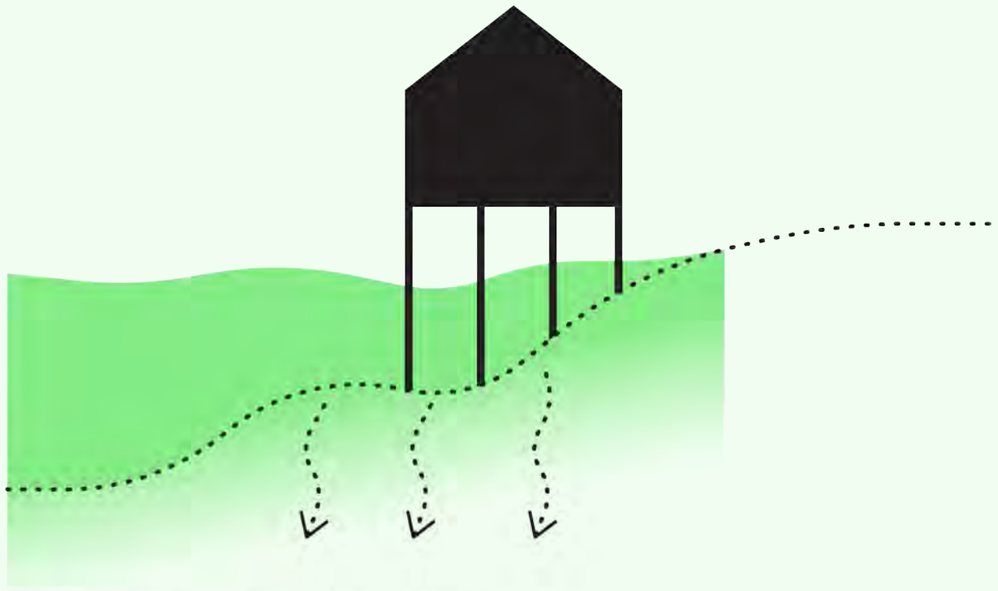
2023 impervious ground

2009 impervious ground

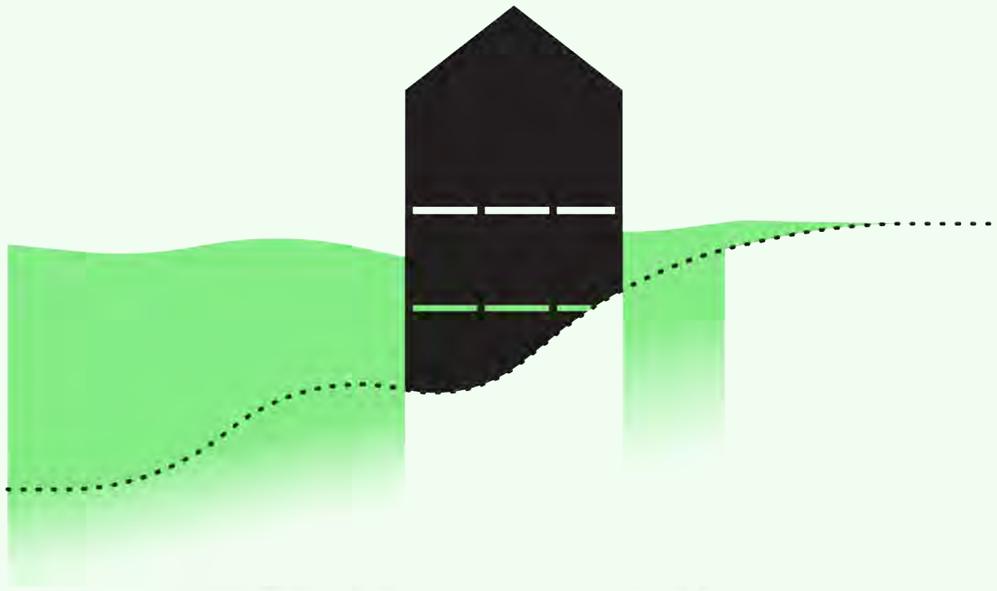
Impervious Surfaces and South Brisbane

This map shows the increase of impervious surfaces in riverside suburbs of Brisbane. The map specifically highlights West End.

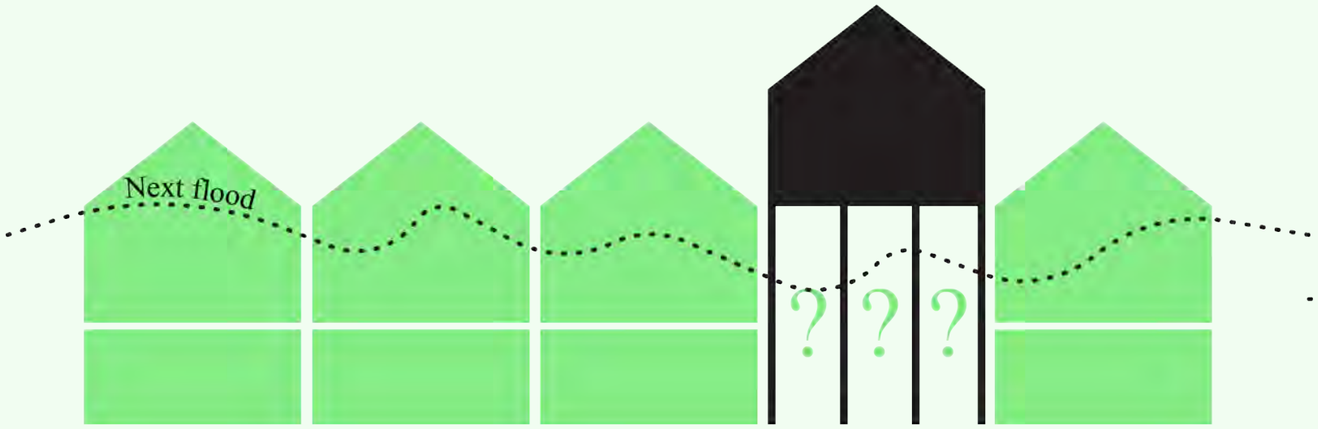
The diagrams presented below show the impact of this trend on flood resileince.



Traditional raised Queenslanders allow water to absorb into the ground, reducing flood waterm

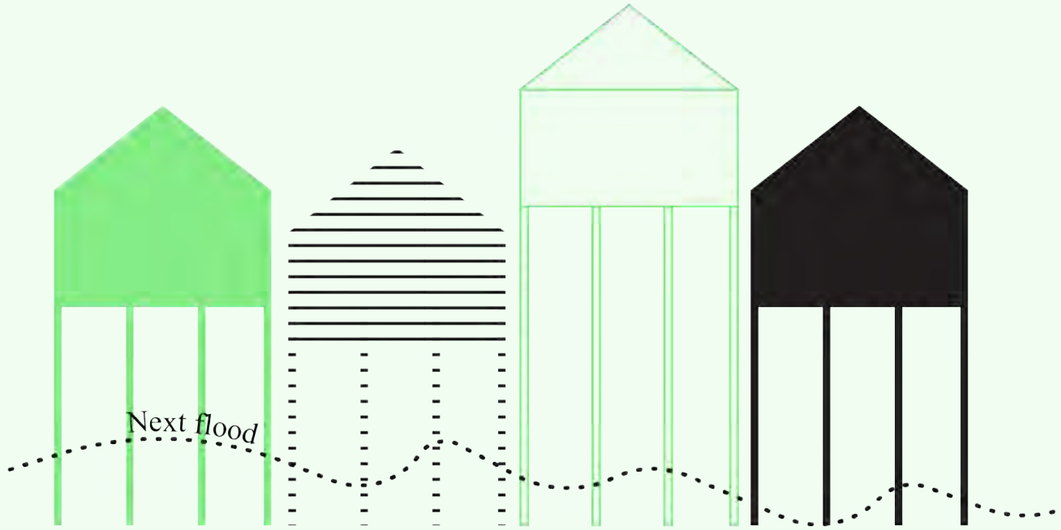


Building underneath Queenslanders reduces the amount of ground area available for water to absorb into, this increases the amount of water sitting on top of the ground.



If everyone else is doing the same thing, why should I change?

Breaking the norm can be scary and unappealing

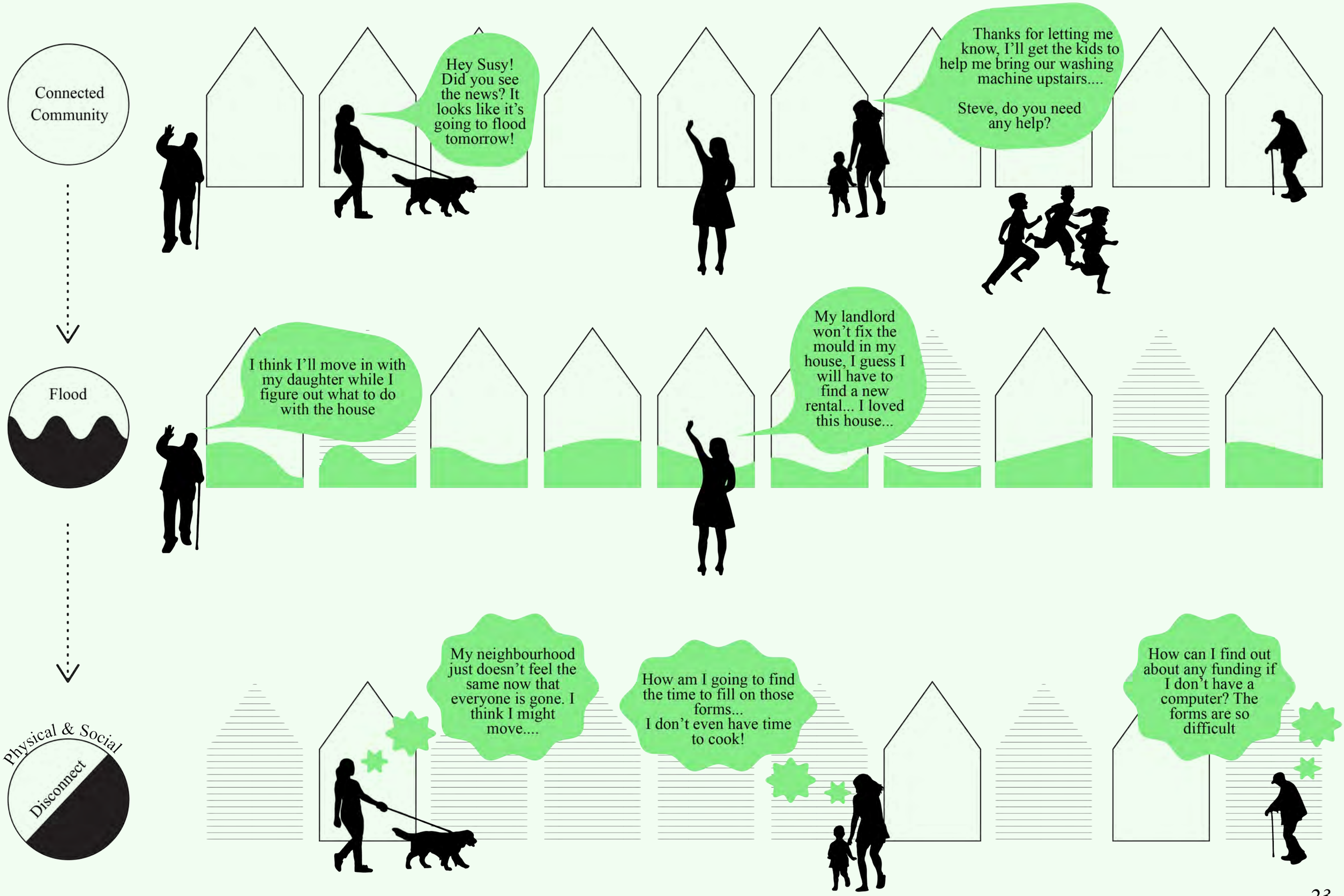


We can discover a new vernacular to assist absorption and help the whole community

Community meeting after 2022 floods, West End.
Photo by Nic Davies, sourced from The Westendender

Community Fragmentation

The diagram set presented below illustrates the impact of flooding on community connection. As discussed above, connection to neighbours and the surrounding community can assist in building coping capacity for individuals and neighbourhoods. However, when natural disasters occur, community connection is often threatened.


Connected Community
Hey Susy! Did you see the news? It looks like it's going to flood tomorrow!
Thanks for letting me know, I'll get the kids to help me bring our washing machine upstairs....
Steve, do you need any help?
Flood
I think I'll move in with my daughter while I figure out what to do with the house
My landlord won't fix the mould in my house, I guess I will have to find a new rental... I loved this house...
Physical & Social Disconnect
My neighbourhood just doesn't feel the same now that everyone is gone. I think I might move....
How am I going to find the time to fill on those forms...
I don't even have time to cook!
How can I find out about any funding if I don't have a computer? The forms are so difficult

KURILPA FUTURES
Planning For People

Friends of West End
weca
West End Community Association

RESILIENT KURILPA

Community Organizations in West End

West End is home to many thriving community groups and charitable organizations. During this research, my attention was drawn to Kurilpa Futures, WECA and Resilient Kurilpa. These three community groups have been intergral in the flood clean up and preparation for future events. Resilient Kurilpa is an organization initiated specifically to prepare the area for future floods.

During this research, I have had conversations with members of Resilient Kurilpa to understand the challenges of flood resilience for the suburb. Some issues include, rapid development with increased impervious surfaces and basement carparks increasing flood severity, and lack of knowledge sharing.

One initiative to combat this is the Kurilpa Flood Library.

Kuripla Flood Library

THE KURILPA COMMUNITY SHARES ITS KNOWLEDGE AND FLOOD CONCERNS.

by Mary Maher Aug 23, 2022 | Brisbane Floods, Community News, Environment and Climate | 0 |

LOCAL RESIDENTS RALLY AROUND RESILIENCE.

by Mary Maher Jun 28, 2022 | Brisbane Floods, Community News, Environment and Climate | 0 |

The suburbs of West End, South Brisbane and Highgate Hill, particularly the apartment blocks west...

The Kurilpa Flood Library is a proposed website resource aiming to share community knowledge about floods. The Flood Library is a collaboration between Resilient Kurilpa and Griffith University. Paula Hardie, a PhD candidate at Griffith University is studying design and the proliferation of information. She is the leader of this initiative.

Currently, the flood library is providing surveys to local residents to gauge interest and share knowledge. As discussed in PPF check ins, it is intended for this research to be provided to the Flood Library in the spirit of sharing and building stronger communities. The catalogue presented below aims to easily integrate with a variety of mediums (web or print) and be easy to read and understand. This is in coherence with the work and ethos of Paula Hardie and Resilient Kurilpa.

Part 2: The Ideas Catalogue

The second part of this research is the ideas catalogue. This collection of design ideas aims to spark interest and excitement from community members for the future of flood impacted suburbs. The architectural interventions suggested are small and achieveable on a tight budget, and can be easily dismantled or demolished. While they are easy to remove, they are designed to be hardy and flexible, providing functional assistance for however long they are needed.

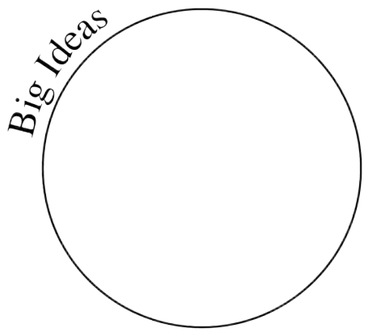
Each item in the cataglogue is illustrated through a collage and technical drawing, accompanied by relevant resources and inspirational projects. It is intended for viewers to find an element they find useful and be easily guided to helpful resources and points of inspiration to gain more understanding of the options available for resilient living.

I have chosen to focus primarily on the undercroft for this catalogue. From my research and consultation, this part of the house in Queensland is the primary palce of impact for floods. For this reason, it is a good place to begin for temporary interventions.

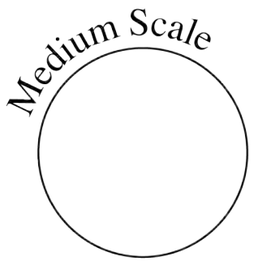
Below, a map has been created to help understand the catalogue system. Each element has been categorised to help users easily navigate the catalogue.

How to navigate the catalogue:

Are you looking for a big idea or small?



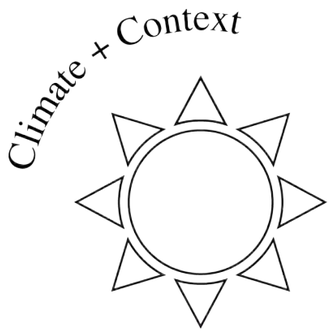
1 >Flood resilient housing concepts
>Community scale



2 >Scale of the house: walls, openings, shading

3 >Scale of the person: furniture, storage

What do you need inspiration for?



A

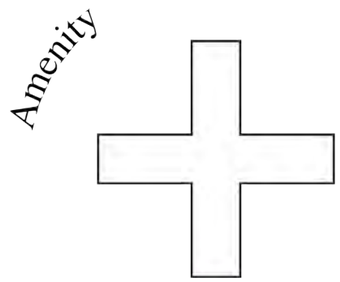
>Shading, rain protection, sun protection

B

>Fostering neighbourhoods and relationships

C

>Ideas to help you feel proud of your home



D

>Functional items you may have lost due to flooding

Each idea is coded to match these qualities
Some examples are below:

A **3C** idea relates to a small scale element or idea that can help with making you feel proud and confident in your home.

A **1B** idea relates to a large scale, or 'big picture' idea that can help foster community spirit or relationships

This library contains a variety of ideas that require different skillsets to build. They are categorized into 4 skill levels:

1. *DIY Novice*
2. *Experience DIY-er*
3. *Handyman Required*
4. *Talk to a builder*
5. *Talk to an architect*

Brickwork Groundplane

Examples and Explanation


Beck Street House, Lineburg Wang


Village Collective Housing, No10-Architects

Element Codes:
3B, 3C, 3D

Construction level:
2, 3

Use:
Bricks are a great material for water resistance and flexibility. Simple brick laying techniques can be used to create small seats, planter boxes and short walls.

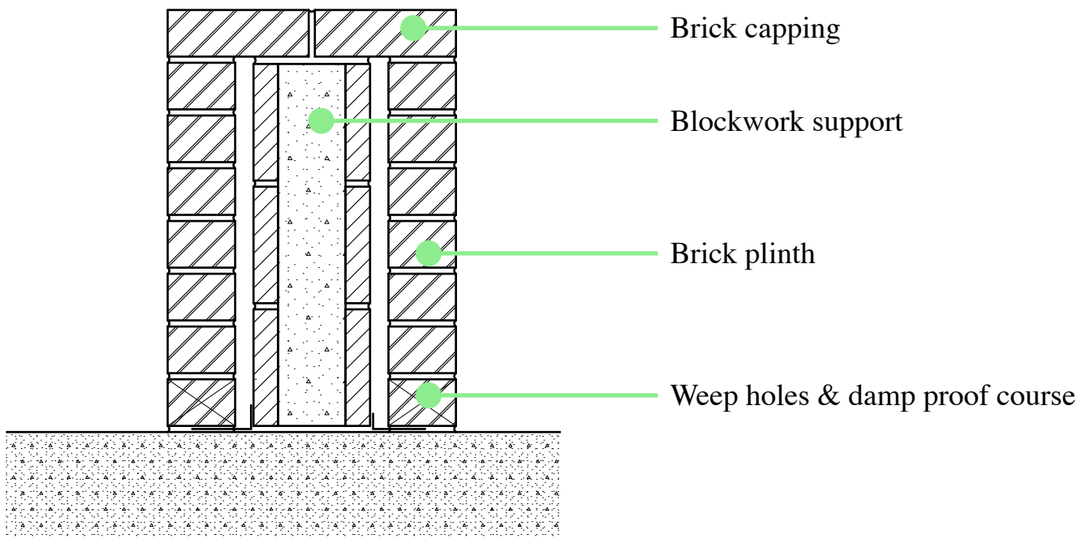
Sources + Inspiration Wesbites

Lineburg Wang- Beck Street House
https://www.lineburgwang.com/beckstreet

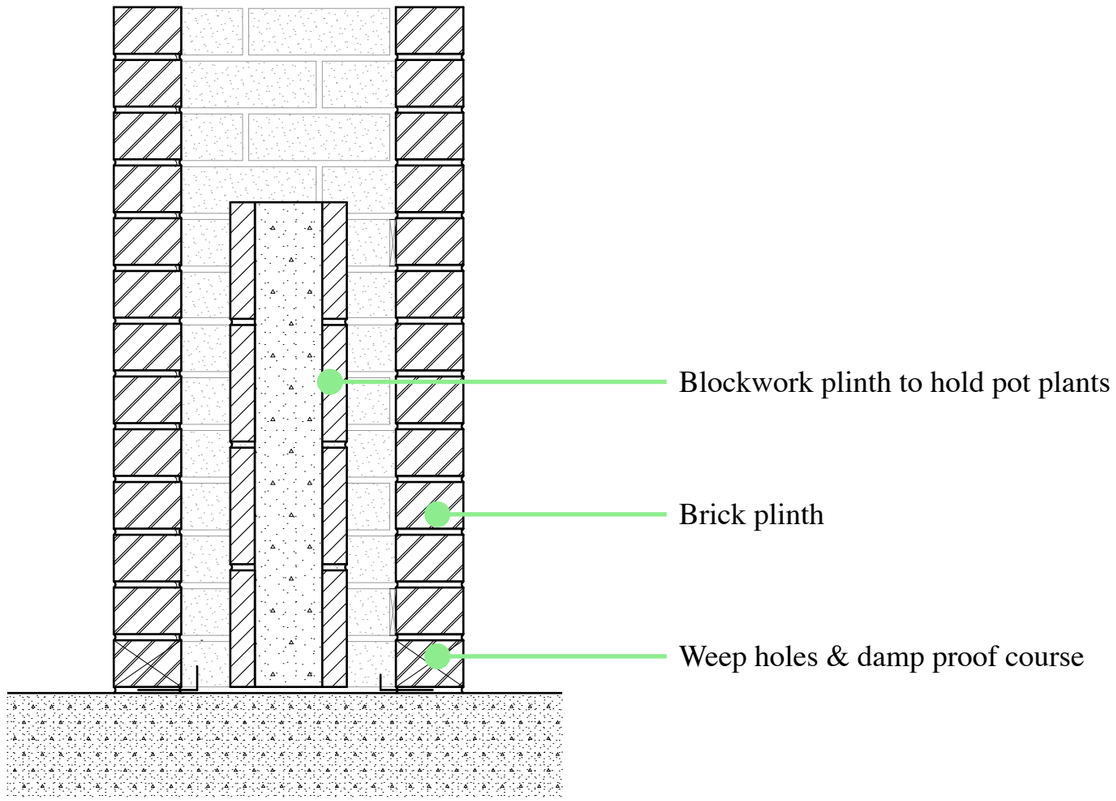
No10 Architects - Village Collective Housing
https://www.archdaily.com/999787/village-collective-housing-no10-architects?ww=search&ad_medium=projects_tab

Note: These details are indicative only.

Details



Brick Seat Section
1:10



Brick Planter Box Section
1:10

Moveable Laundry

Examples and Explanation

Dornoch Terrace House, James Russell

Element Codes:
3D

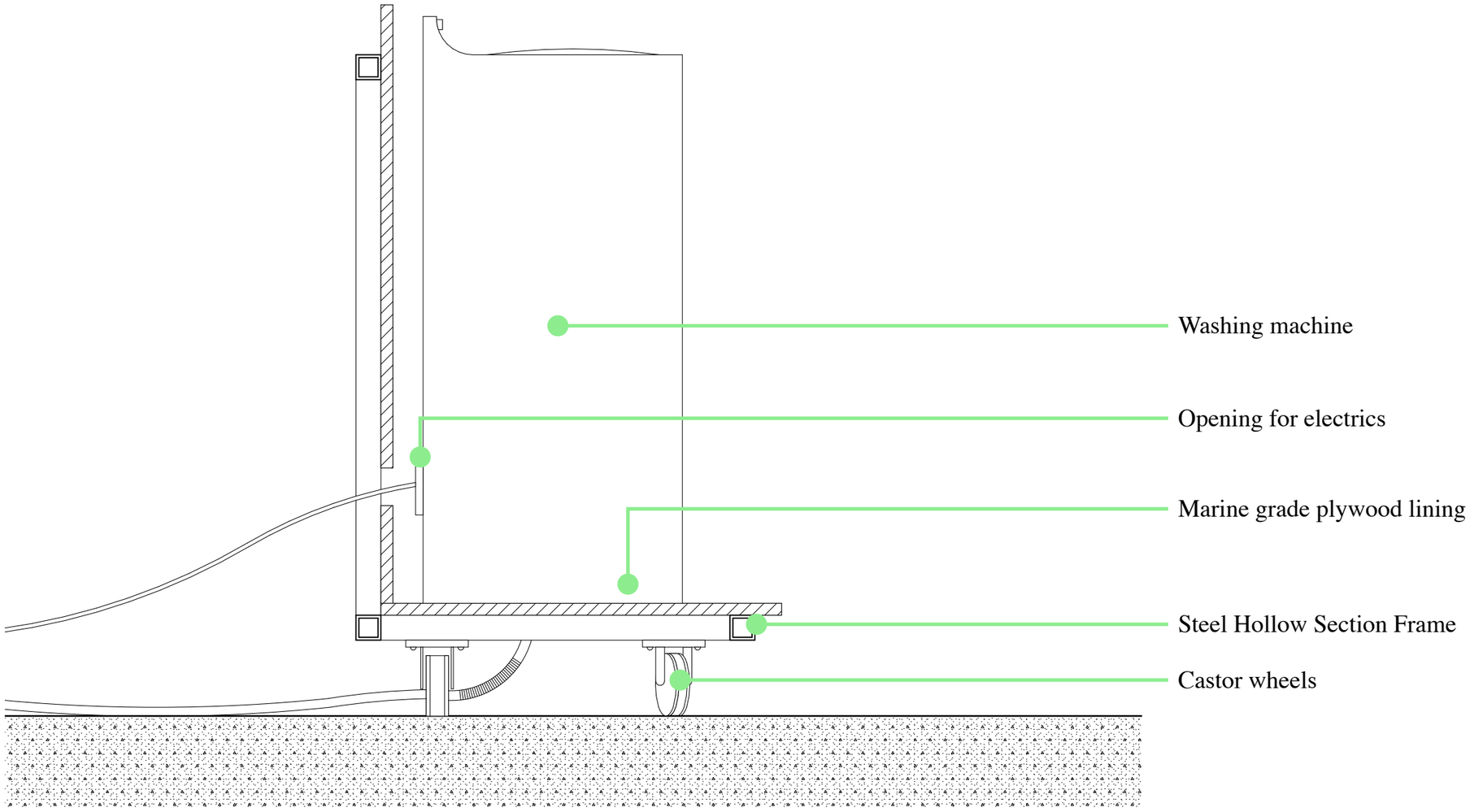
Construction level:
3

Use:
In the South East Queensland climate, we are lucky to have great weather for laundry. This should be taken advantage of. By building a simple modular frame, you can create a laundry area that can be easily moved when flood season arrives.

Sources + Inspiration Wesbites
James Russel, Dornoch Terrace House
https://architectureau.com/articles/dornoch-terrace-house/

Note: These details are indicative only.

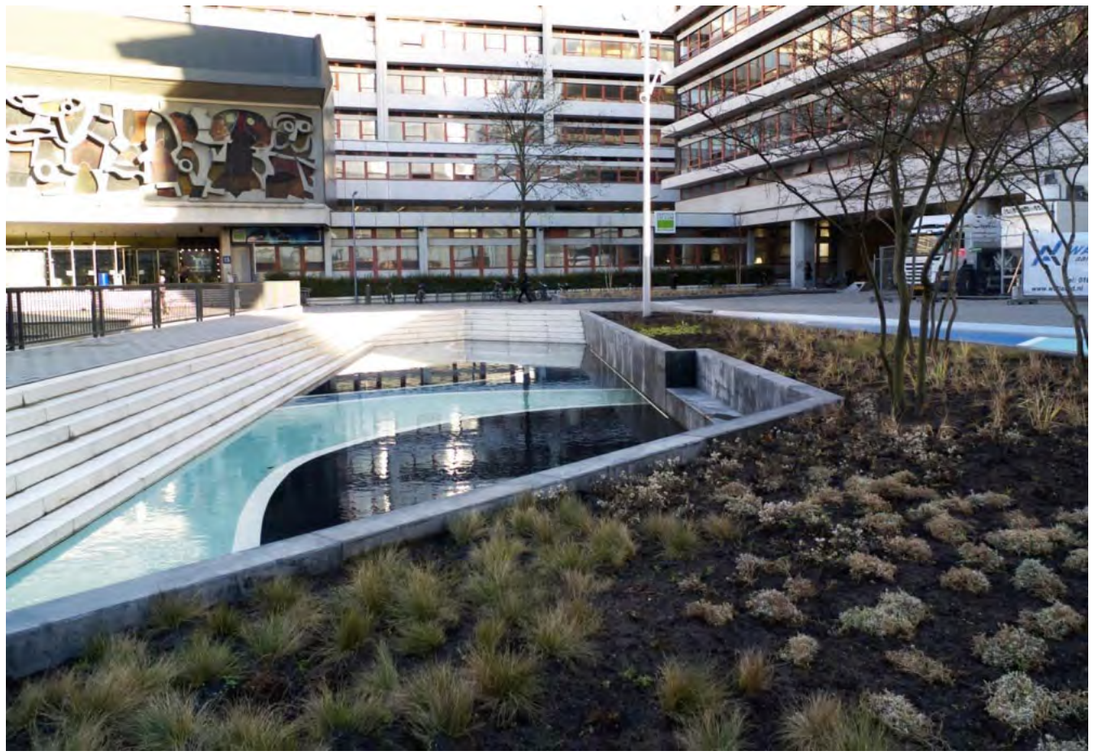
Details



Moveable Laundry Section
1:10

Porous Ground

Examples and Explanation



Water Sqare, De Urbanisten

Berlin Green Rooftops

Element Codes:

3B, 3C, 3D

Construction level:

Experience DIY/ Handyman

Use:

The most simple way for communities to reduced the impact of floods, is to create more porous groundplanes. While it is important to note that this action needs to take place on a large scale (with roads and big construction projects), each house can also consider this. By reducing the amount of concrete on the groundplane, more water can absorb into the ground.

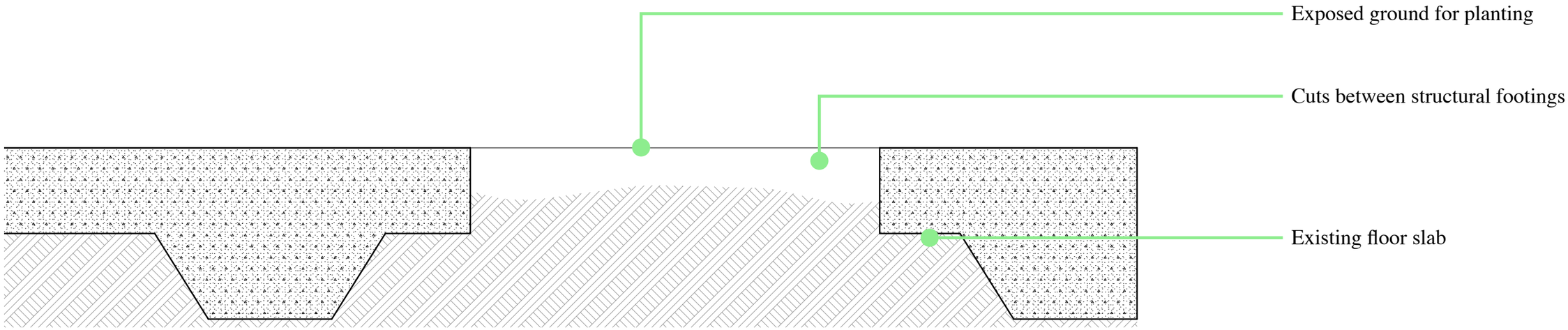
Sources + Inspiration Wesbites

Many European cities have been attempting to increase their water absorption. A few articles about this can be found below:

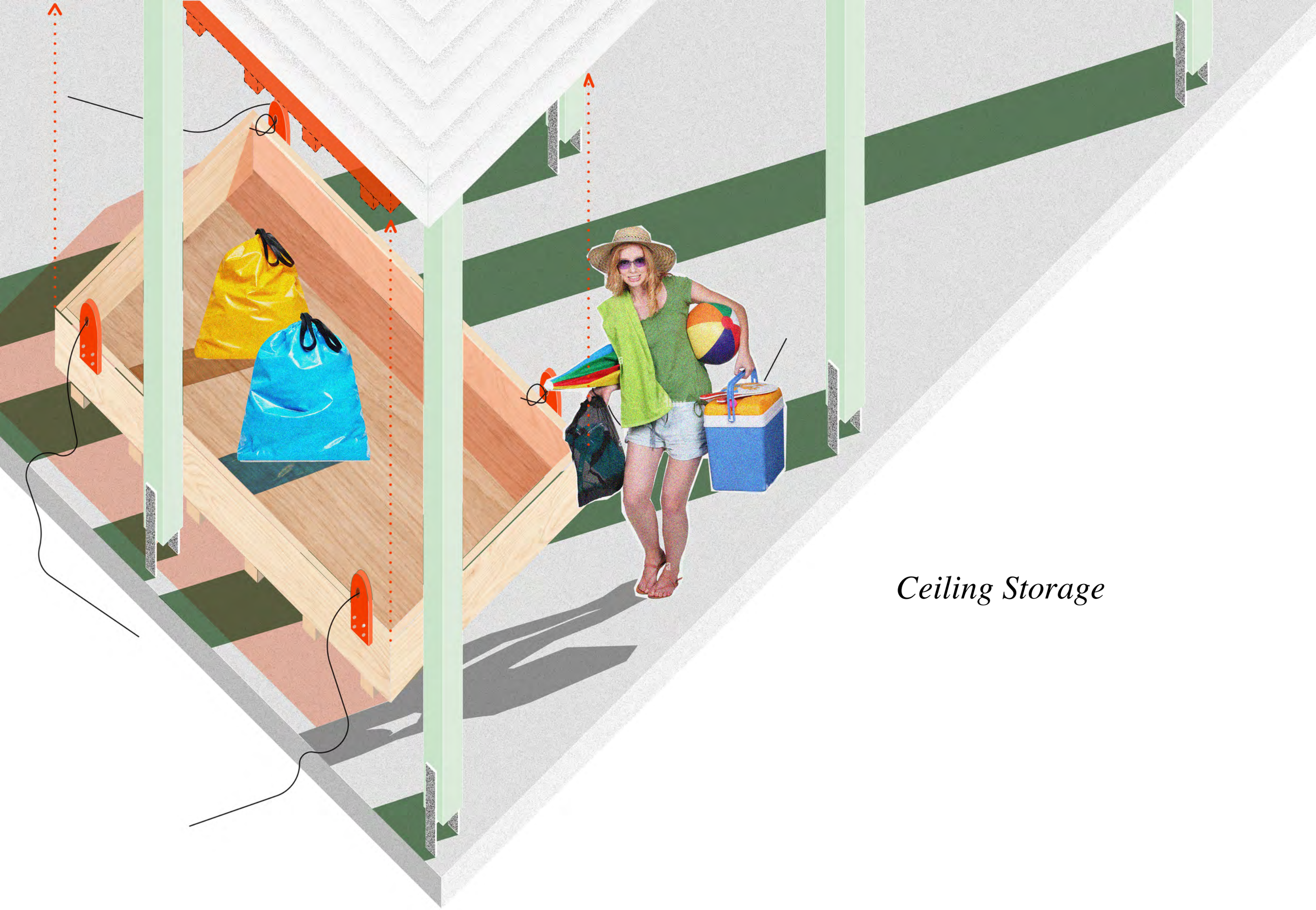
Rotterdam Water Square, De Urbanisten
https://www.urbanisten.nl/work/benthemplein

About Berlin's 'Sponge City' approach:
https://www.oecd.org/climate-action/ipac/practices/germany-s-sponge-cities-to-tackle-heat-and-flooding-7b6caa58/

Note: These details are indicative only.



Porour Ground Slab Section
1:10



Ceiling Storage

Examples and Explanation

Pragmatic storage solutions

Element Codes:
3C, 3D

Construction level:
3

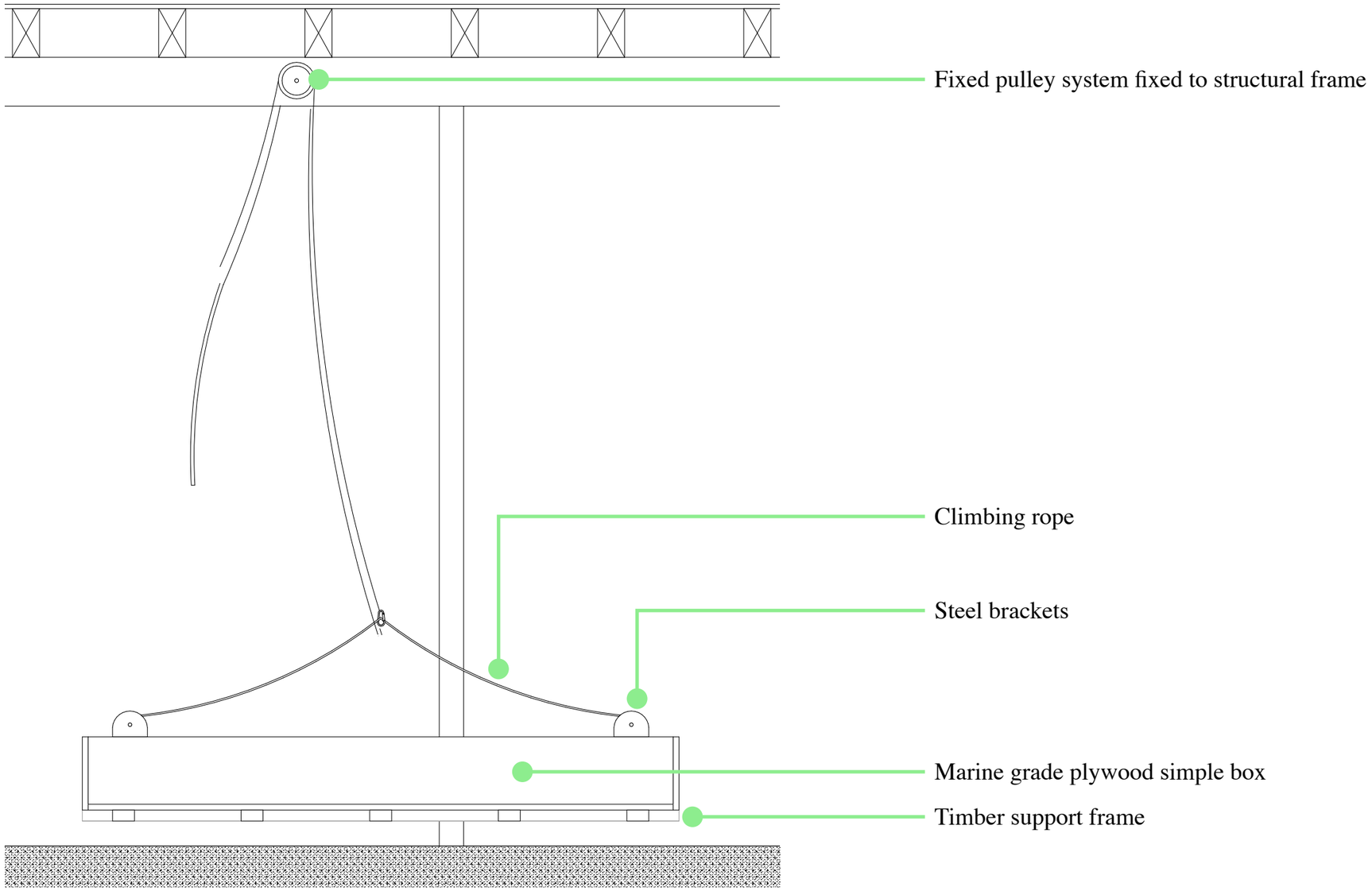
Use:
Loss of storage can impact a household more than expected. Lower levels of houses often hold garages and storage rooms which are inundated during the flood season. Ceiling mounted storage solutions can assist with creating functional storage that also returns the groundplane to the residents. Combining the tactile architecture of Richard Leplastrier with hyper-functional storage solutions can result in a beautiful undercroft that is safe from flood damage and functional.

Sources + Inspiration Wesbites

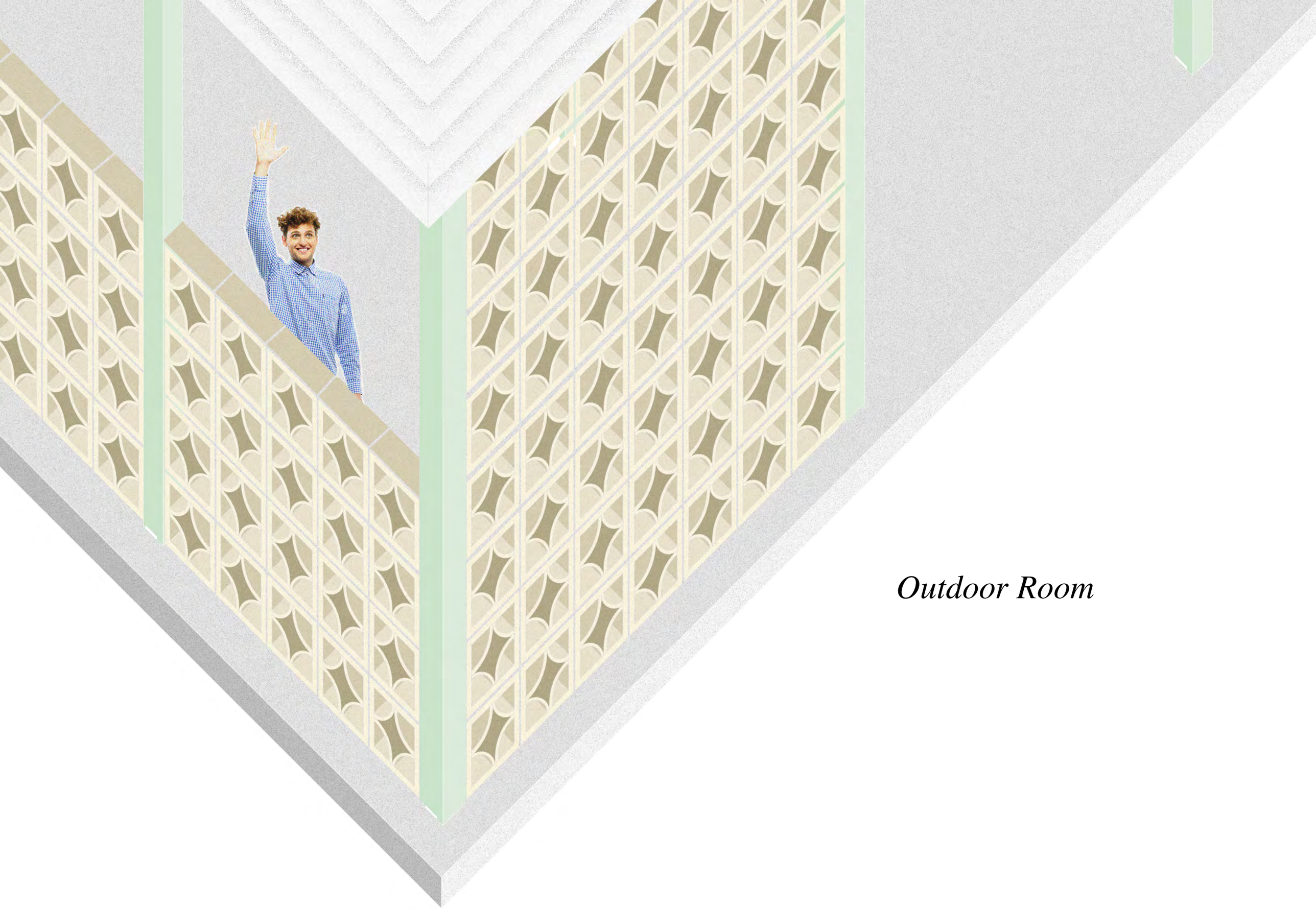
Architecture of Richard Leplastrier, particularly his use of moveable and operable elements:
https://www.ozetecture.org/richard-leplastrier-projects

Palm Garden House, Richard Leplastrier

Note: These details are indicative only.
Please consider safety when operating and installing



Porour Ground Slab Section
1:20



Outdoor Room

Examples and Explanation

Pilotis in the Forest, Go Hasegawa

Naranga Avenue House, James Russell

Element Codes:
2A

Construction level:
5

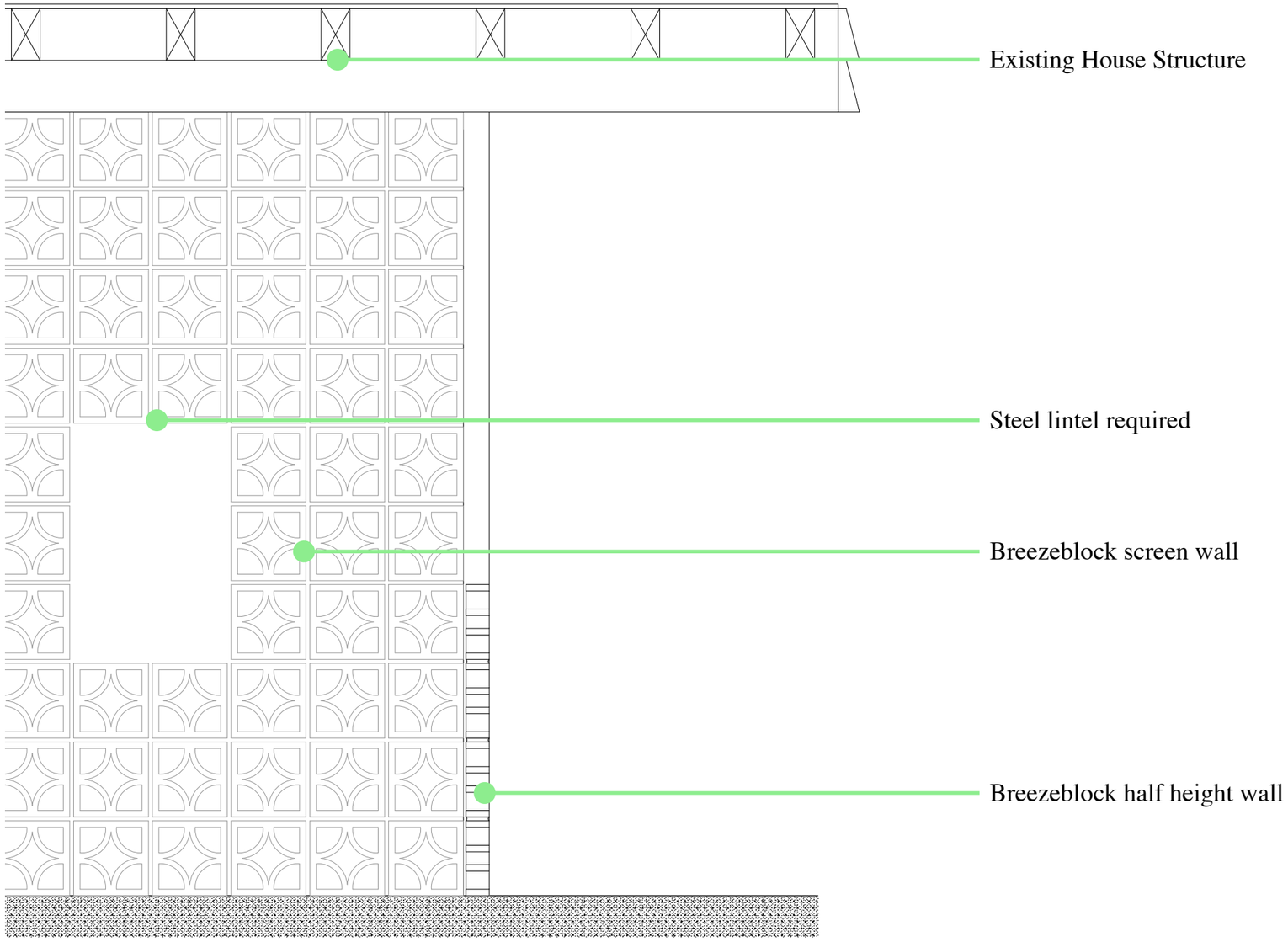
Use:
Rethinking the undercroft space to be a functional outdoor space can provide endless opportunities. Using lightweight screens such as breezeblocks provides some screening for privacy and shading while being easy to clean and allowing water to flow through during a flood.

Sources + Inspiration Wesbites

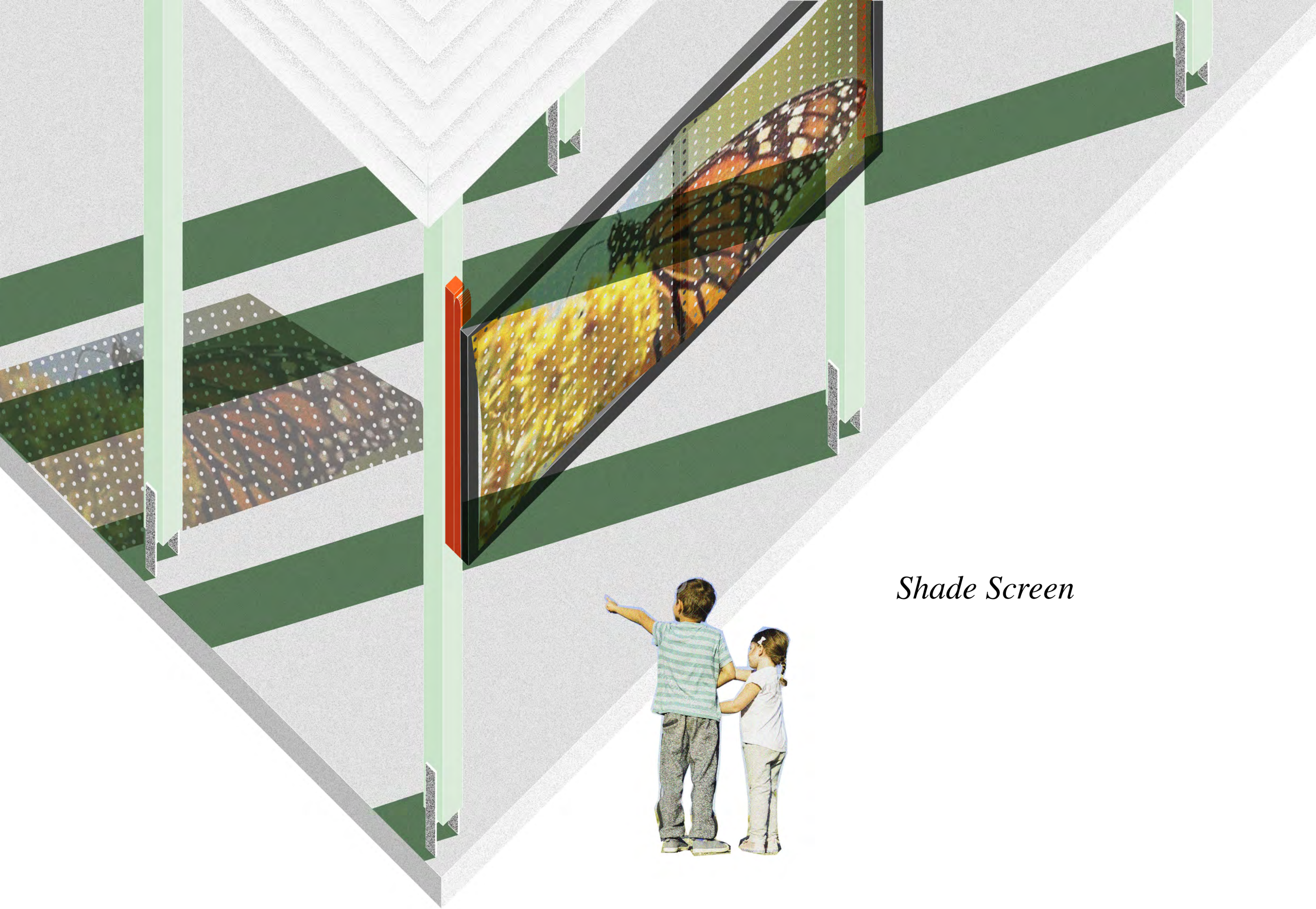
James Russels Naranga Avenue House:
https://www.archdaily.com/877186/naranga-avenue-house-james-russell-architect

Pilotis in the Forest, Go Hasegawa and Associates
https://ghaa.co.jp/works/pilotis-in-a-forest/

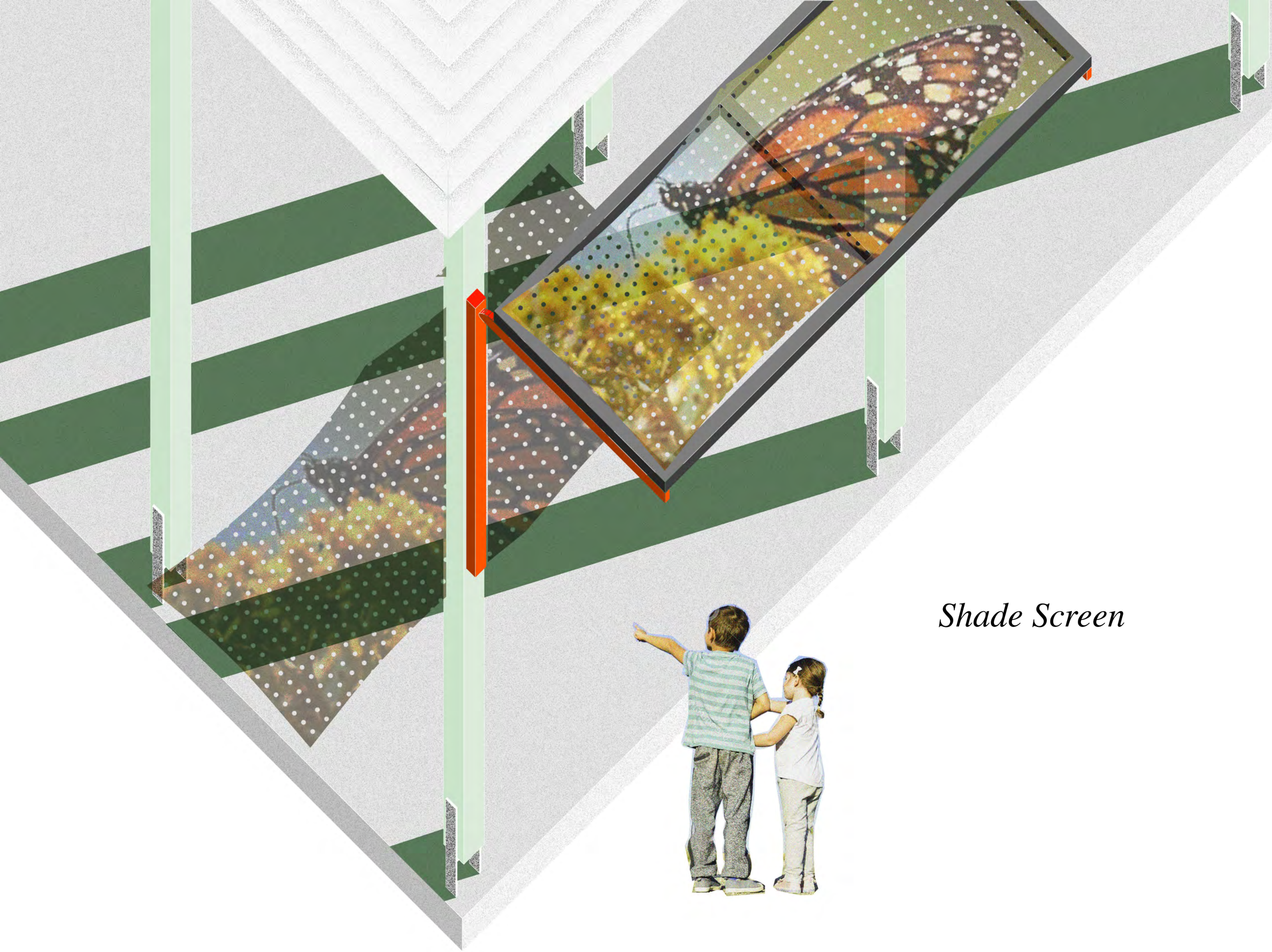
Note: These details are indicative only.
Please consider safety when operating and installing



Breezeblock Screen Section
1:20



Shade Screen



Shade Screen

Examples and Explanation

Poster House, Lacoste and Stevenson

Common Operable Shade Awnings

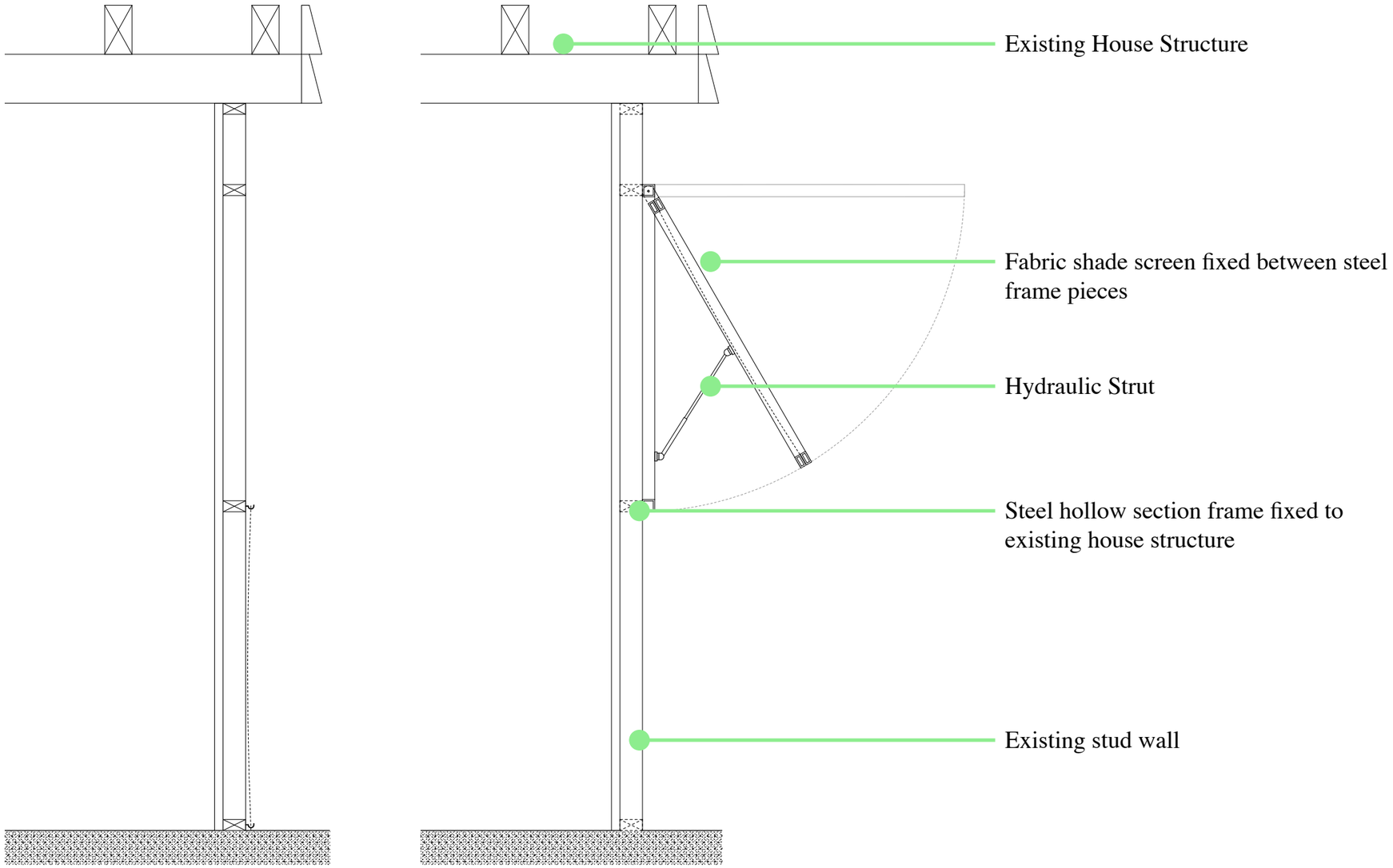
Element Codes:
2A, 2C

Construction level:
2

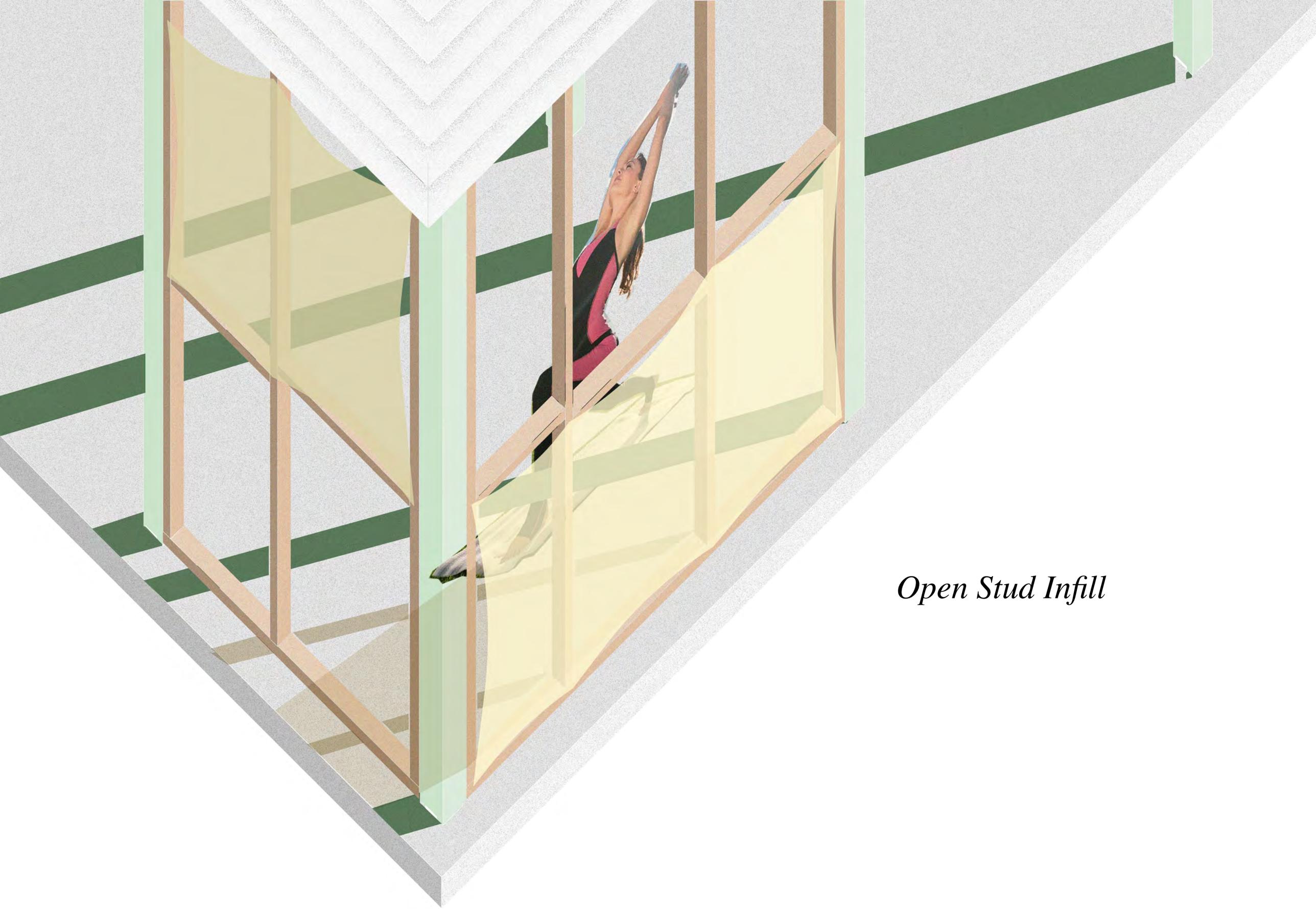
Use:
Smal architectural elements can have a huge impact on an undercroft. Take a simple operable shade sail. These, when used in a different context, can provide shading, privacy, rain protection and and sense of enclosure to an undercroft. These shades are also highly customisable and can be an outlet for expression and fun for a resident.

Sources + Inspiration Wesbites
Poster House, Lacoste and Stevenson
https://l-s.com.au/mies_portfolio/poster-house/

Note: These details are indicative only.
Please consider safety when operating and installing



Shade Screen Section
1:20



Open Stud Infill

Examples and Explanation

The North Rhine-Westphalia Textile Academy, SOP Architekten

MPavilion, AllZone

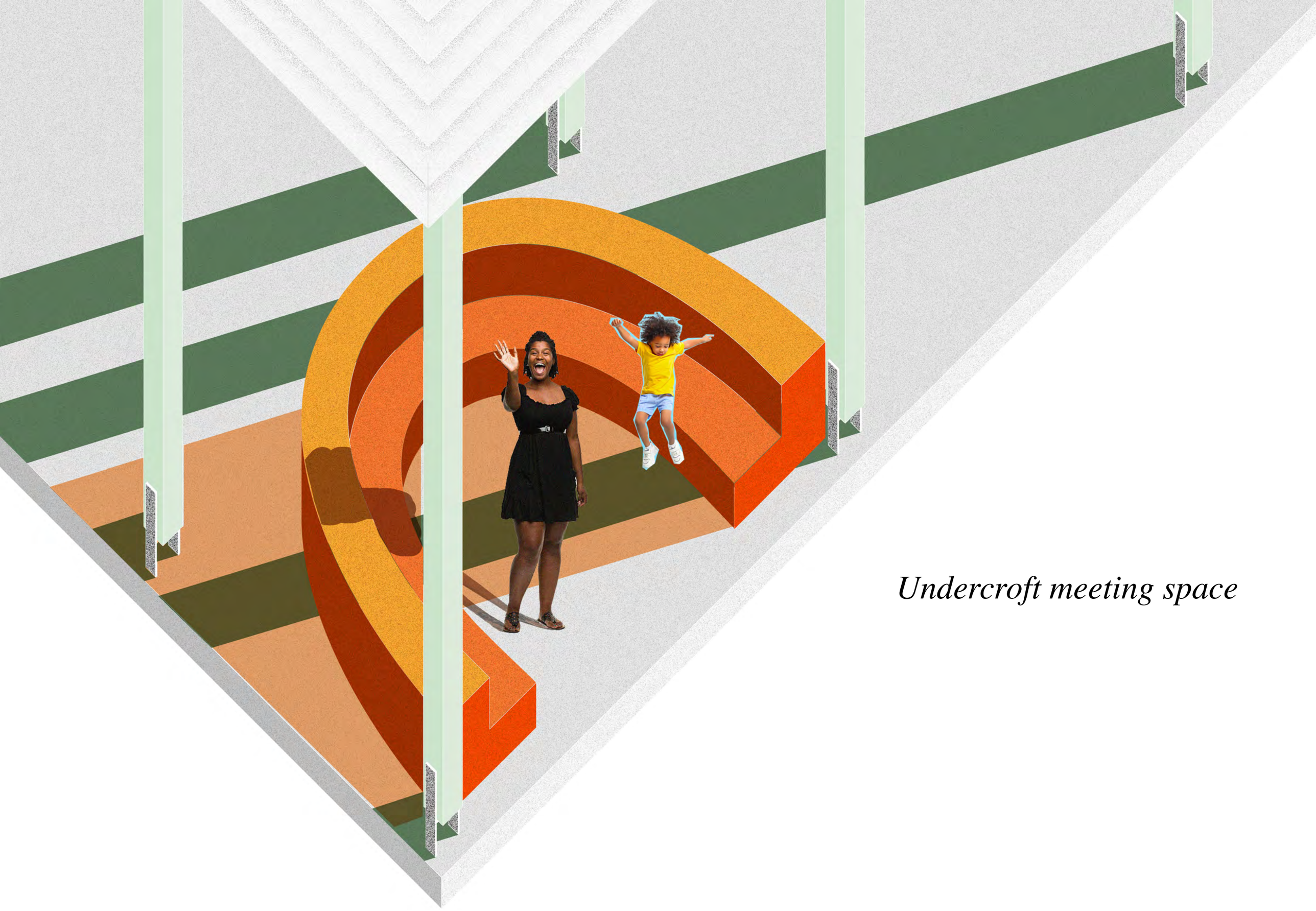
Element Codes:
2A, 2D

Construction level:
1

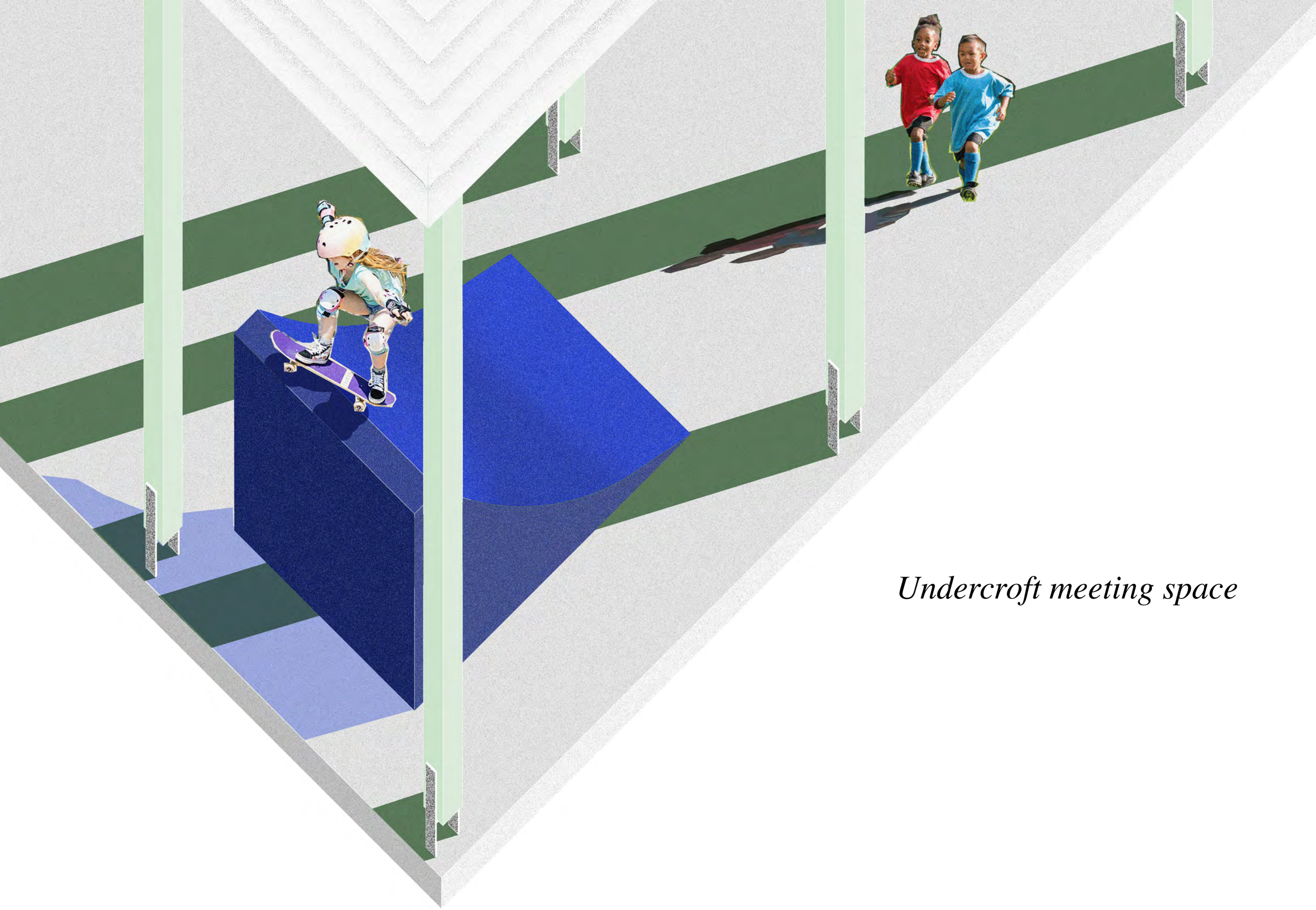
Use:
Many homes that are impacted by floods are left with basic, unlined, stud frames. Material lead times, construction costs and contractor waiting times means these are often left sitting for months. Rather than ignore the issue, one could utilise the studs to host screens, shades and battens. These can create privacy and shading as well as a sense of enclosure. Fabrics such as canvas are an easy option for this type of construction.

Sources + Inspiration Wesbites
The North Rhine-Westphalia Textile Academy by SOP Architekten
https://www.architecturalrecord.com/articles/14319-the-north-rhine-westphalia-textile-academy-by-sop-architekten

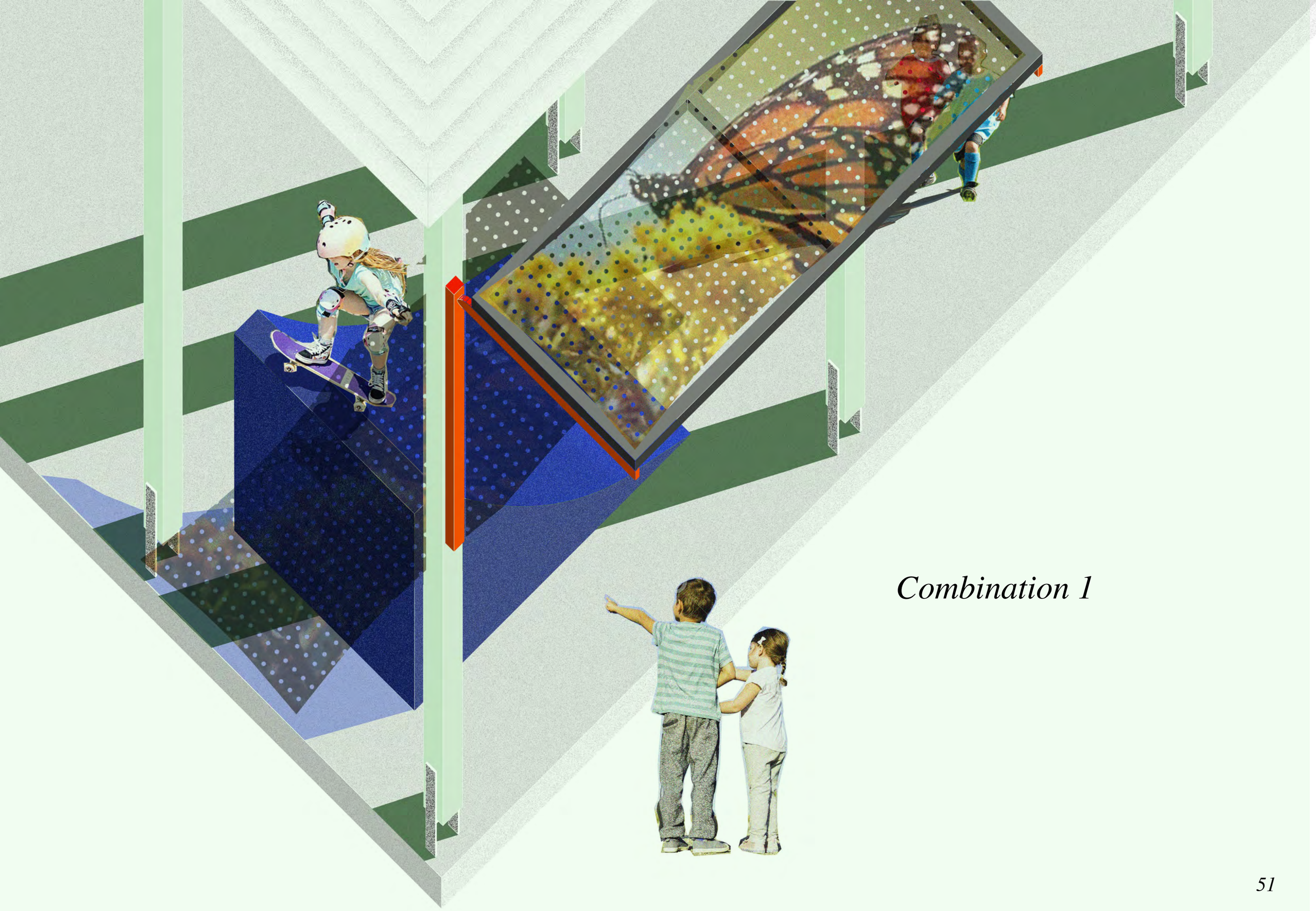
Fabric Architecture and the MPavilion:
https://architectureau.com/articles/mpavilion-2022-experiments-with-fabric-based-architecture/



Undercroft meeting space



Undercroft meeting space



Combination 1

Combination 2

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