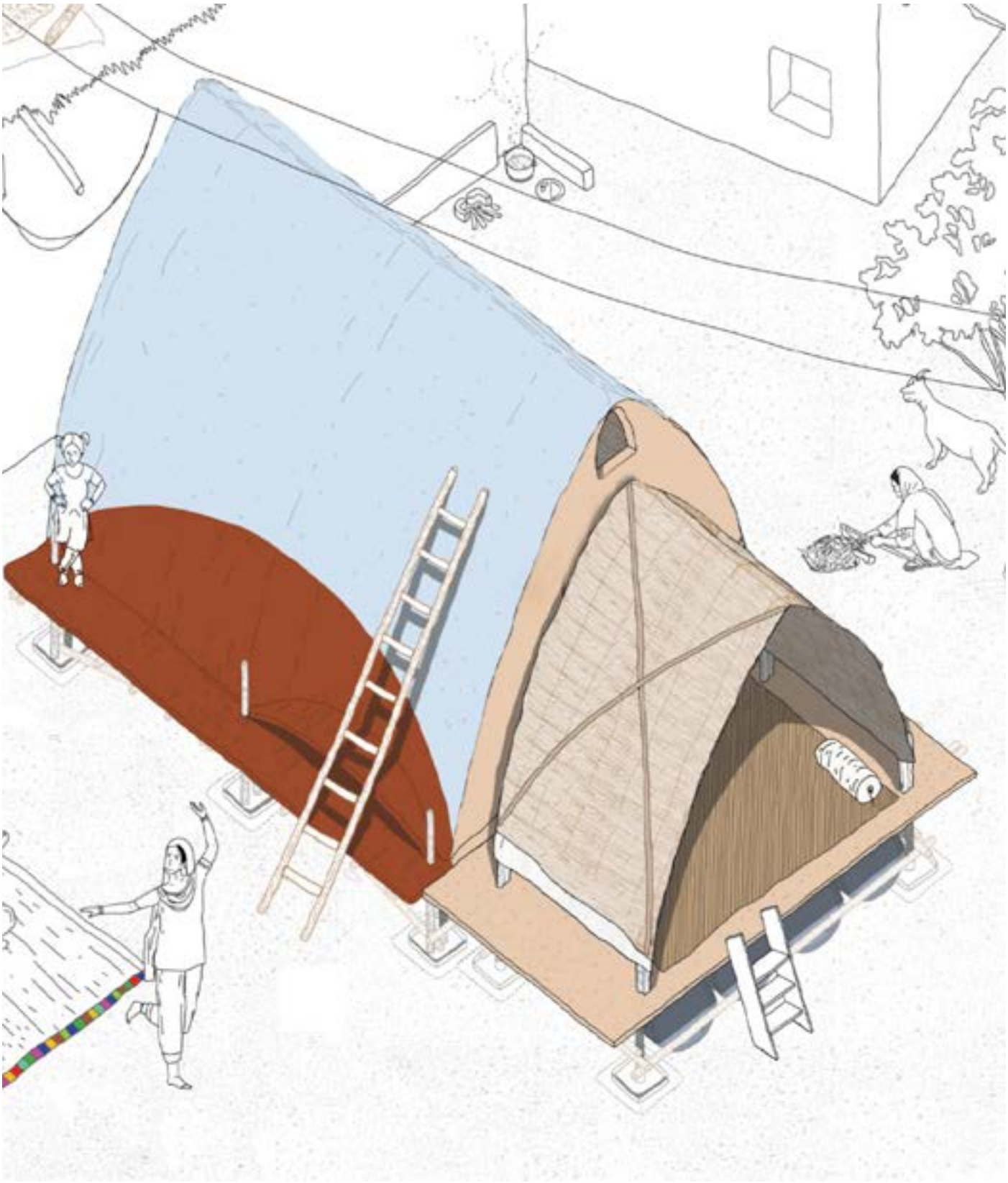

Darul Qiyam-Flood Resilient Habitat: Empowering Communities
ARCASIA –Ar. Barry Will Award 2023

Creative Studio
R E L A B

arcasia
Architects Regional Council Asia

Ar. Barry Will Award

Acknowledgement

We‘ve been forever grateful to Almighty God for blessing us with work that serves a higher purpose.

We would like to thank Ar. Barry Will’s family for financing and supporting socially responsive ideas, enabling their realization, and to ARCASIA for creating platforms like the Ar. Barry Will Award, which recognizes architects internationally and encourages them to play a responsible role in society. We are also humbly thankful to the honorable jurors for believing in our project.

Our gratitude extends to Franky Choi for keeping our spirits up all the way.

We are especially thankful to Ar. Shahab Ghani for recommending us to participate in this competition. We feel indebted to have a senior like him, whose support for young peers instills confidence and deepens our respect for the IAP body.

We are also truly blessed to have a mentor and technical Advisor, Ar. Abbas Reza Jaffery; his vast experience and in-depth knowledge illuminate our way to success. Having him as a Coordinator of the Architecture Program at the University of Karachi, we were able to conduct the Design Workshop for flood-resilient habitat in 2022, paving the way for faculty and students in making a real and lasting impact.

A token of thanks to the Social Youth Organization. We pay tribute to Late Masroor Anwer, who contributed significantly to various social work initiatives, notably in providing clean drinking water in remote areas. His mission to serve disaster-struck communities helped us bridge the gap with the community through compassion and a kindled spirit, creating a lasting bond.

Many thanks to Ar. Sadia Siddiqui, in narrating our efforts noticeably, and to the motion graphic artist, Waqaruddin Khan for creating a compelling video.

Special thanks to Engr. Hur Muzaffar for providing insightful recommendations for the project.

Without a doubt, an amazing team of students from the University of Karachi deserves heartfelt appreciation. They worked diligently- day and night, in scorching heat & rainstorm, with loads of sweat and a drop of blood, from bamboo splinters to a sting of a wasp; they never stopped. Mariam, Yashfeen, Rayyan, Zahra, Muneeza, Huzaifa, Ali, & Shaheer. We thank not just them but their parents as well, who let their children leave the comfort of their home for the greater good.

Province Sindh has its distinctiveness when it comes to hospitality, and our host was the proud son of Sindh, Shoaib Reza Thaheem, who never said no to anything we needed. We are forever indebted to his surmountable effort in helping us realize Darul Qiyam.

With Shoaib’s help, our immense thanks also go to Hafeez & Azam, who ensured we were never thirsty or hungry at any time of the day, and to Ismail whose lively humor kept our morale high. But hands down to Hafeez, who, from treating bamboo to floating the prototype and even till the finishing of the house, was there and provided invaluable help in every way possible.

This has been, by far, the best Community participation we have ever witnessed, by the people of Thaheem Goth and Palejo Goth. Men, Women, Elders, or Kids, contributed in building this house. From the School Head Master Noor Hasan to the daily wage labor Nawaz, or from housewife Zahra to an independent farmer Lady Karamsa, they gave all their hearts to this project. They have become our second home.

Credits

Report Writing & Compilation

Ar. Wajiha Siddiqui, Ar. Sadia Siddiqui & Ar. Muhammad Mehdi.

Structure Recommendation

Engr. Hur Muzaffar.

Media, Animation, & Editing

Muhammad Mehdi, Muhammad Nafeel Qureshi, Zahra Khan, Sudeer, & Waqaruddin Khan

Student Research Team

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Student Volunteers

Maryam Ilyas, Yashfeen Ayub, Rayyan Umer, Zahra Khan, Muneeza Farooqui, Ali Arshad, Huzaifa Jabbar, & Shaheer Ahmed - University of Karachi

Social Youth NGO

Late Masroor Anwer, Shoaib Raza Thaheem, Ali Fahad, & Athar Usmani.

Community

Shoaib Raza Thaheem, Hafeez, Ismail, Azam, Khamisa and her daughter, Zahra, Noor Hasan And his Sons, Nawaz & her wife, Manthar & her wife, Karamsa and her Mother, Ahmed, Sudeer, Aqsa, Hakim zadi, Nawab zadi, and loads of other kids.

WM Creative Studio Relab

Associate Architect & Team Lead-	**Wajiha Siddiqui Mehdi,**
Principal Architect-	**Muhammad Mehdi,**
Associate Architect & Researcher-	**Muhammad Nafeel Qureshi,**
Ethnographer Researcher & Manager-	**Mahrukh Siddiqui, &**
Advisor-	**Ar. Abbas Reza Jaffery**

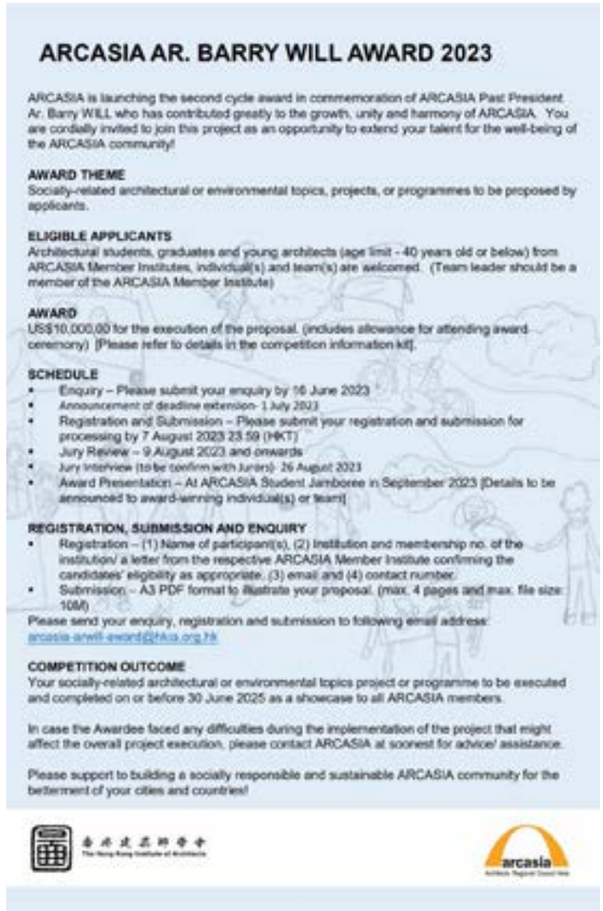
Founded by academicians in 2014, WM Creative Studio-Relab emerged from a deep awareness of the gap between academic theory and architectural practice. In Pakistan, the construction industry contributes approximately 14–15% to the national GDP. Yet, the environmental damage caused by this sector is often overlooked due to its economic importance. This imbalance troubled the architect duo behind WM Creative Studio - Relab, prompting them to challenge the status quo through four fundamental questions:

These questions may seem simple, but only a handful of practices actually embody these principles. Despite frequent discussions about sustainability in architectural and urban planning circles, genuine implementation remains rare.

In 2023, WM Creative Studio had the opportunity to participate in the Ar. Barry Will Award—an opportunity for which the studio will always remain grateful to ARCASIA and the Ar. Barry Will Award team. ARCASIA was founded with the intent to promote ethical design practices that prioritize the wellbeing of people and the built environment. It encourages democratic discourse within the architectural and design fraternity of the Asian region by offering platforms and opportunities for radical ideas, ethical design solutions, and challenges to conventional thinking.

WM Creative Studio used the platform provided by the Ar. Barry Will Award to explore viable habitat solutions aligned with Pakistan's changing climate. Although Pakistan contributes minimally to global climate change, it remains one of the most vulnerable regions. In 2024 alone, around 550 homes were damaged due to flash floods, resulting in 108 deaths and 216 injuries (Global Climate Risk Platform).

With climate events becoming the new normal, architects and urban planners must think beyond aesthetics. Darul Qiyam, a flood-resilient habitat, is a humble attempt to explore alternative design and construction techniques that respond to the environmental and climatic realities of today.



ARCASIA AR. BARRY WILL AWARD 2023

ARCASIA is launching the second cycle award in commemoration of ARCASIA Past President Ar. Barry WILL who has contributed greatly to the growth, unity and harmony of ARCASIA. You are cordially invited to join this project as an opportunity to extend your talent for the well-being of the ARCASIA community!

AWARD THEME
Socially-related architectural or environmental topics, projects, or programmes to be proposed by applicants.

ELIGIBLE APPLICANTS
Architectural students, graduates and young architects (age limit - 40 years old or below) from ARCASIA Member Institutes, individual(s) and team(s) are welcomed. (Team leader should be a member of the ARCASIA Member Institute)

AWARD
US$10,000.00 for the execution of the proposal. (includes allowance for attending award ceremony) [Please refer to details in the competition information kit].

SCHEDULE
- Enquiry – Please submit your enquiry by 16 June 2023
- Announcement of deadline extension- 1 July 2023
- Registration and Submission – Please submit your registration and submission for processing by 7 August 2023 23:59 (HKT)
- Jury Review – 9 August 2023 and onwards
- Jury Interview (to be confirm with Jurors)- 26 August 2023
- Award Presentation – At ARCASIA Student Jamboree in September 2023 [Details to be announced to award-winning individual(s) or team]

REGISTRATION, SUBMISSION AND ENQUIRY
- Registration – (1) Name of participant(s), (2) Institution and membership no. of the institution/ a letter from the respective ARCASIA Member Institute confirming the candidates' eligibility as appropriate, (3) email and (4) contact number.
- Submission – A3 PDF format to illustrate your proposal. (max. 4 pages and max. file size: 10M)

Please send your enquiry, registration and submission to following email address:
arcasia-arwill-award@hkia.org.hk

COMPETITION OUTCOME
Your socially-related architectural or environmental topics project or programme to be executed and completed on or before 30 June 2025 as a showcase to all ARCASIA members.

In case the Awardee faced any difficulties during the implementation of the project that might affect the overall project execution, please contact ARCASIA at soonest for advice/ assistance.

Please support to building a socially responsible and sustainable ARCASIA community for the betterment of your cities and countries!

Zahra

Index

1. Background

1.1 Climate Change and Pakistan

Climate change is inevitable. Pakistan has been experiencing its devastating consequences for over a decade. From the catastrophic floods of 2010 that affected 20 million people, to the 2015 heatwave that hospitalized over 65,000 due to heatstroke, the country continues to face unavoidable climate-related challenges. According to the UN-Habitat 2023 report, Pakistan ranks as the 5th most vulnerable country to climate disasters.

While Pakistan's contribution to global greenhouse gas emissions is minimal, it is widely acknowledged that rapid and unplanned urbanization within the country is a significant driver of its internal climate vulnerabilities. As per the 2023 report by the Pakistan Bureau of Statistics, approximately 38.82% of the population now lives in cities. This urban densification has triggered a real estate boom—but often without regard for the environment, ecology, or biodiversity of the region.

Many who migrate to urban areas in search of better livelihoods are forced to live in dire conditions within informal settlements. Today, over 40.1% of Pakistan's urban population resides in slums or informal housing. Unplanned urban sprawl, unauthorized land encroachments, and unchecked development have compromised access to basic needs for a large portion of the population. On top of this, recurring climate disasters—such as urban flooding, now a regular feature of every monsoon season—have made these challenges even more severe.

Fida Hussain / AFP via Getty Images

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1.2 Flooding: The Recurrent Climate Tragedy

In Pakistan, around 128,000 people lose their lives each year due to the impacts of climate change (ReliefWeb–OCHA). As devastating as this may sound, it is a stark reality that demands urgent and sustained emergency measures to address the needs of vulnerable populations. Among the many natural calamities that Pakistan faces, flooding remains one of the most frequent and destructive.

In 2022, the country experienced one of the worst floods in its history, resulting in the deaths of over 1,700 people. Beyond the tragic loss of life, more than 33 million people were internally displaced, and the total economic damage was estimated at $14.9 billion. While 15% of the population was directly impacted by the torrential rains, nearly one-third of the country was submerged. This led to the loss of around 2 million acres of crops and the death of approximately 794,000 livestock.

Pakistan, like most South Asian countries, is up to 15 times more susceptible to climate-related calamities. Ranked as the 5th most vulnerable country to climate change according to the Global Climate Risk Index, it is imperative that climate-resilient urban planning and development become mandatory requirements for future projects.

In response to this urgent need, the architects of WM Creative Studio, in collaboration with faculty members from the Architecture Department, initiated a flood relief workshop in 2022.

Faseeh Mangi, Copyright 2025 Bloomberg.

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1.3 Flood Rehabilitation Workshop – Darul Qiyam

Climate change demands a more responsible and thoughtful approach to architecture and design. Beyond aesthetic value, design has the power to transform lives. Architecture is inherently social and communal, requiring future architects to understand the social, cultural, environmental, and political implications of their work.

In recognition of this complex nature of architecture, the Flood Rehabilitation Design Workshop was organized. The aim was to instill in young minds a sense of responsibility and highlight the true purpose of architecture that is to find empathetic, human-centered solutions for real-world problems through design.

Named Darul Qiyam, the workshop challenged students to propose socially sustainable, environmentally appropriate, and ethically conscious habitat solutions for flood-affected communities. With over 2.1 million homes damaged and 8 million people displaced by the 2022 floods, there was an urgent need for empathetic shelter solutions that not only provided safety but also respected the cultural identity of the victims, avoiding further distress and disconnection.

Architecture students from all years participated in 10 groups during the two-week workshop. This structure encouraged collaboration and fostered a strong sense of community among peers.

The workshop resulted in ten unique habitat designs, each tailored to a specific flood-affected region of Pakistan. Developing proposals that were both climate-responsive and culturally sensitive was a significant challenge, yet students rose to the occasion. They employed bio-based building materials and innovative thinking to create meaningful, contextually grounded solutions.

This workshop was a humble yet impactful attempt to demonstrate that design studios are not only about form and function — they hold the potential to raise awareness and shape architects who are socially conscious and responsive to real-world challenges.


UoK faculty &Students


UoK faculty &Students

1.4 Tranquil Abode : Disaster Resilient Dwelling

The two-week workshop sparked important conversations around the use of bio-based materials, the role of nature in architectural design, and the importance of designing for people—where socio-cultural dynamics are central to the process. The workshop exhibitions gave participants from urban areas a chance to better understand the ground realities of climate change and the growing vulnerability of Pakistan.

This exposure led to interest from several government bodies and NGOs, some of whom chose to further explore the student-led design proposals. One such outcome was the construction of Tranquil Abode, a flood-resilient habitat built in Balochistan—marking the first prototype selected for implementation. Supported and funded by the Bait-us-Salam Welfare Foundation, the structure was constructed using regionally available natural materials such as stone, lime, mud plaster, and bamboo.

This collaborative effort—between students, WM Creative Studio architects, the local community, and the Bait-us-Salam team—provided students with valuable hands-on experience. Community participation not only facilitated knowledge-sharing but also fostered a sense of ownership and empowerment within the community.

The provinces of Sindh and Balochistan were among the hardest hit by the torrential flooding of 2022. In many areas of Sindh, it took more than six months for floodwaters to fully recede. The prolonged stagnation devastated communities, cutting off access and leaving large swathes of agricultural land submerged compounding the crisis for already vulnerable population. While short-term relief solutions were possible, what people needed were long-term, ethical, and climate-resilient alternatives. This is where Tranquil Abode proved to be a vital intervention.

Tranquil Abode served as a powerful example that it is possible to create meaningful, climate-responsive habitats using regionally available materials. Bait-us-Salam, the NGO that supported the original project in Balochistan, applied the learning from Tranquil Abode across several other regions in the country. The same design strategy was replicated in Punjab, where 24 homes were built, and in Jacobabad as well. The project has since received national and international recognitions, including the UIA 2030 Award, UN-habitat & World Urban Forum and the Green Apple Award, affirming its impact for sustainable and inclusive architecture.


WM Creative Studio-Relab

2. Ar. Barry Will Award Grant Proposal and Implementation

2.1 Proposal

The aim of this project is to nurture empathetic design, sensitive of the trauma & cultural significance, to use vernacular materials & reduce environmental impact. It seeks also to revive the old vernacular building construction techniques that the community can adapt and become independent when it comes to designing and building their own shelter in a severe climate crisis.

This housing prototype design is the result of a week-long intensive design workshop, with students and academics, at the University of Karachi that focused on finding ways to mitigate housing insecurity created in the devastating aftermath of the 2022 floods in Pakistan, which wrecked over 2 million homes affecting 9,182,616 people.

Most homes in the rural regions of Pakistan are built using concrete. These homes are not climate responsive. During heat waves, the inside temperature rises exponentially. With unregulated building laws, these homes are not constructed raised from the natural ground level, making them even more vulnerable when flooding occurs. The homes that were destroyed were due to the lack of structural integrity.

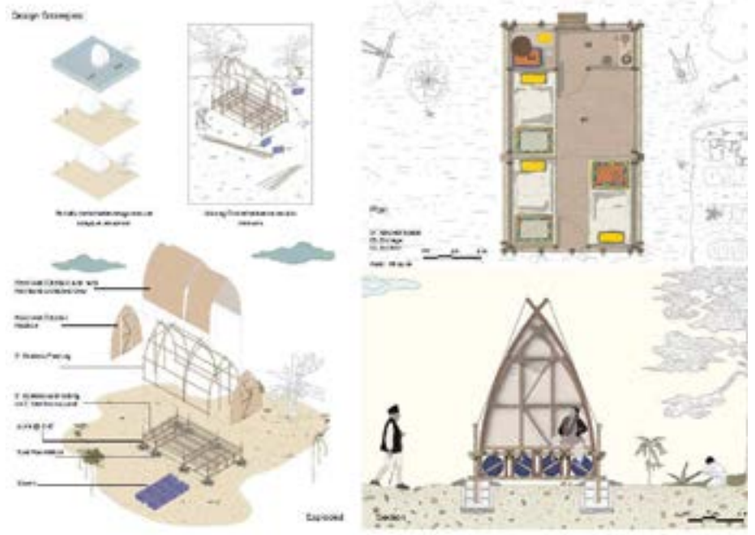
Fida Hussain / AFP via Getty Images

This prototype has been designed to be sustainable, lightweight and structurally sound. It features a unique roof design that transitions into walls, utilizing an arch structure that serves as both wall and roof to reduce construction costs. The construction materials used include bamboo and palm tree matting, creating a strong framework that encloses the structure. To make it waterproof, a layer of polythene sheet is added. Moreover, locally available thatch provides insulation and additional covering.

To ensure the house's resilience during floods, it is ingeniously designed to float. Bamboo columns join the walls, resting on a footing made of lime and concrete. Below the flooring, recycled drums are attached with bamboo frames to stabilize and enable the house to float when necessary.

The housing prototype is thoughtfully divided into three areas. The first area is the detachable and floating section, comprising the living and storage spaces. The second area contains the kitchen and living space, with its floor designed to detach and float during floods. The third area remains stabilized in place and houses the toilet and bath.

Photo by AFP



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Goals

Shelter

The homes will be built to actively respond to challenges presented in the event of severe flooding. The design does not conform to the usual building practice of using only concrete as the primary material. This design will enable the locals to use the resources used in the building of their homes as temporary refuge, till helps gets to them.

Equal Opportunity

Building of this low cost prototype will create jobs and also make building a home affordable in the aftermath of loss suffered due to flash floods.

Mitigating Climate Change

The current prevalent practice of using concrete as the only construction material with no regulation has resulted in millions of homes getting destroyed. Introducing Neo-vernacular building methods to the locals would help them reduce carbon impact and make climate responsive homes.

Community Expansion

Building once & letting the community have agency on how they'd like to make more homes using the same methods:

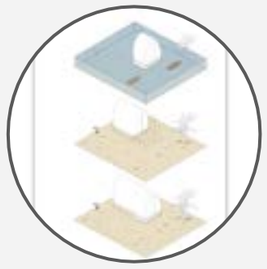
In the rural regions of Sindh and Punjab, homes are built in clusters with a central courtyard - the first home being the home of the family patriarch and all the homes built after it are those of his children and their families.

Skill Transfer

Thought of less as labor and more as trainees, the locals will be taught novel building techniques. This skill transfer would give them independence, economic growth, and better chances against future climate emergencies.

Ensure Adaptive Resilence

The home will be responding to climatic conditions in each of the two regions depending on weather extremities faced by each community all year. It will also spread awareness regarding the benefits of using low cost sustainable materials.



Actors

Students & Academics	To help in construction and design - instilling social responsibility & learning from real life building experience	Design Development
Local Community	Empowering the local communities by creating employment for both men & women so they can become self sufficient	Training & Workshop
Local NGOs	To help with financial assistance and provide support	Construction & Empowerment

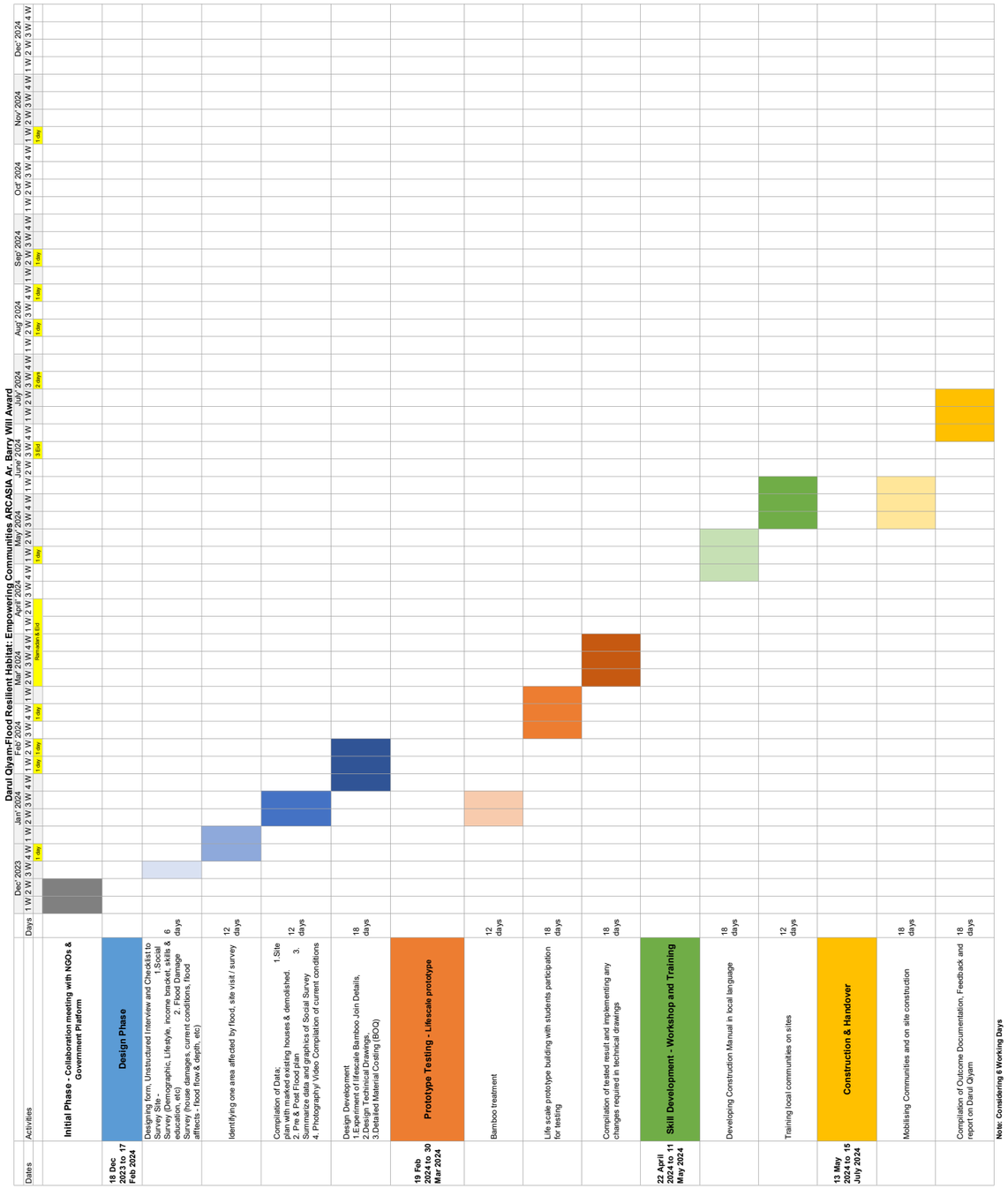
Fund Allocation Breakdown

Seed fund for Mapping in the most flood affected regions	Seed fund for material study & prototype testing	Seed fund for training & workshops	Seed fund for volunteer support & overhead operational cost	Seed fund for prototype construction
$1000	$2000	$2000	$2500	$2500

Project Timeline

- **December 2023** — Design Development: Mapping + Technical Drawings
- **March 2024** — Prototype Development
- **May 2024** — Skill Development: Training & Workshop
- **July 2024** — Construction
- **December 2024** — Handover (Activation of Cluster Development)

2.2 Implementation plan



2.3 MOU between Ar. Barry Will Award, ARCASIA, IAP & WM Creative Studio-Relab

ARCASIA (Architects Regional Council Asia) is a body comprising Presidents of National Institutes of Architects in Asia. It acts as an extension of the regional programmes of its member institutes and represents architectural professionals across Asia.

WM Creative Studio Re-Lab is a socially driven design studio based in Pakistan, focused on enhancing human and environmental wellbeing through architecture and design. The Institute of Architects Pakistan (IAP) is a registered organization that works to regulate the architectural profession in Pakistan and safeguard both public and professional interests in the field.

An MoU was signed between ARCASIA, IAP, and WM Creative Studio Re-Lab assigning the following responsibilities:

ARCASIA will award a grant of $10,000 to WM Creative Studio Re-Lab, disbursed in two installments of $5,000 each, and will issue a certification upon successful project completion. ARCASIA will also issue formal letters to relevant governments, NGOs, and institutions outlining the project details.

WM Creative Studio Re-Lab will be responsible for designing and constructing Darul Qiyam within one year. They are also responsible for submitting a comprehensive report of the process, including full pictorial and video documentation of the construction phase.

IAP will also provide assistance to WM Re-Lab if required and will be responsible for promoting the completed project through a seminar. The design of Darul Qiyam will remain the sole property of WM Creative Studio Re-Lab and shall not be shared or used without their formal consent.

2.4 MOU between Social Youth Welfare and WM Creative Studio-Relab

Besides financial support, social welfare projects require collaboration with local bodies active in the area, as such organizations have longstanding presence and the trust of the local community. WM Creative Studio Re-Lab has partnered with Social Youth Welfare (SYW), an NGO working to alleviate poverty and promote self-sufficiency among communities.

The shared goals of WM Re-Lab and SYW led to a formal collaboration, resulting in a Memorandum of Understanding (MoU) between the two parties. According to the MoU, WM Re-Lab will provide design and construction services for Darul Qiyam and will assist SYW with design consultancy.

SYW, in turn, will identify a suitable location for the construction of the prototype, ensure security of materials, facilitate community engagement, arrange accommodation for WM Re-Lab, acknowledge WM Re-Lab as the design partner, and highlight WM Re-Lab’s contribution in all print and electronic media.

Furthermore, SYW agreed that WM Creative Studio Re-Lab retains exclusive ownership of the designs, and these shall not be shared with any third party without their explicit consent.

3. Design Phase I

Milestone:

- Developing flood assessment document and compilation.
- Visiting flood effected sites.
  Deliverables: 48 days
- Site selected for implementation
- Bamboo Details
- Technical drawing with BOQ

3.1 Understanding the Site: Why Gharo?

Karachi, Pakistan's largest metropolis, sources much of its water from Gharo, a small town located near the Gharo Creek. Despite its strategic importance, Gharo frequently suffers from flooding, exposing the harsh consequences of administrative neglect and infrastructural shortcomings.

The 2022 floods were one of many such incidents that forced residents to abandon their homes in search of safety. Flooding in Gharo is often triggered by a combination of factors: heavy monsoon rains, breaches in protective dykes along the creek, tidal surges, and strong coastal winds. While the region urgently requires long-term infrastructural reform, for the purposes of this project, Gharo presented itself as a site with both pressing need and contextual relevance making it a suitable choice for the Darul Qiyam prototype.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3.2 Collaboration for the Right Reasons

Projects of this nature rely on meaningful partnerships with like-minded individuals and organizations. For Darul Qiyam – Gharo, WM Creative Studio-Relab collaborated with an NGOs Social Youth Welfare, Shoaib Thaheem, Late Masroor sharing the same mission: to serve communities impacted by climate-induced displacement.

The participating teams conducted multiple site visits to evaluate Gharo for its suitability as the location for the Darul Qiyam prototype. Several factors played a critical role in selecting the specific site within Gharo. The site was jointly assessed by NGO workers, students, and WM Creative Studio-Relab team. Some of the key factors considered were:

Topography: The site is prone to flooding, with water levels rising to approximately 2 feet during flood events, primarily due to its proximity to nearby mountainous terrain.

Accessibility: While constructing a prototype was the immediate goal, the broader objective was to empower the local community to replicate the model independently. Therefore, accessibility to basic amenities such as water and electricity was essential. Proximity to main roads was also a key consideration to ensure easy transportation of construction materials and facilitate future scaling of the project.

Materials: All the natural materials required for the prototype were readily available on-site, facilitating smooth implementation. Moreover, the construction techniques employed in the prototype were familiar to the local context and not foreign to the community.

Community: The community demonstrated a strong willingness to work collaboratively, actively supporting one another without relying on external assistance, making it an ideal site for intervention.

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WM Creative Studio-Relab

WM Creative Studio-Relab

3.3 Getting to Know the Community

To design appropriately for the local context, students, architects, and organization members conducted multiple visits to the region. These visits aimed to develop a deep understanding of the cultural setting, daily routines, and living preferences of the community. Designing for people means prioritizing their voices especially in socially responsive projects where the role of the architect is to listen and facilitate rather than dictate.
In this initiative, students closely observed and documented the daily life of the residents to better understand their social norms, living conditions, and home-related preferences.

Key Observations

Strong Sense of Community
The community displayed a strong bond among its members. People actively cared for one another and took collective responsibility for communal well-being. Contributions to community development were shared and collaborative.

Home Preferences
Contrary to urban norms, the community preferred not to have attached kitchens or bathrooms. Instead, they favoured open kitchens and completely separate bathroom facilities, reflecting both cultural values and practical needs.

Role of Women
Women played a central role in the community. They were actively involved in various aspects of life from construction tasks like plastering homes to labouring in agricultural fields. Their voices were respected and held significant weight in decision-making processes.


WM Creative Studio-Relab


WM Creative Studio-Relab


WM Creative Studio-Relab


WM Creative Studio-Relab

3.4 Identifying the Client

For the prototype, it was necessary to select a client. Initially, WM Creative Studio proposed building the home for a large family with many children, based on perceived need. However, instead of finalizing the decision themselves, the team chose to hand over this responsibility to the community, ensuring the process remained participatory and community-led.

After discussions and mutual agreement, the community collectively decided that the home, Darul Qiyam should be built for an elderly man who lives with his differently-abled daughter. They felt this family was the most deserving due to their vulnerability and unique circumstances, and should therefore be the first to benefit from the flood-relief housing initiative.

This shift from an external to a community-led decision reflects the values of empathy, inclusivity, and empowerment that guided the project.

WM Creative Studio-Relab

WM Creative Studio-Relab

WM Creative Studio-Relab

WM Creative Studio-Relab

3.5 Material Selection and Sourcing

Sindh has a diverse culture of its own. People from different ethnic and religious backgrounds live in harmony, and their homes reflect this cultural plurality as well. With modernization replacing vernacularism and the identity of regions, Sindh too suffers from the dilemma of being seen as old-fashioned. This has led many to abandon traditional building methods and instead turn to concrete construction.

In Gharo, the basic building materials commonly used are mud, precast column, reeds, log and bamboo. Given the region's extreme temperatures and minimal rainfall, it makes sense to rely on bio-based materials that are naturally adapted to the climate. Unlike concrete, these materials do not disrupt thermal comfort. With floods now becoming a regular threat, concrete is often favoured for its structural stability. However, it became necessary to show that traditional materials still hold value in the face of changing conditions and that flooding can be addressed without resorting to concrete as the main material.

A traditional and widely accepted practice in the region involves using a mixture of mud, cow dung, and rice husk for constructing walls. This method continues to be relevant for good reason: mud offers thermal comfort, rice husk acts as a natural binder, and cow dung, with its antibacterial properties, aids in waterproofing. In this case, the mud was sourced from the nearby riverbed, ensuring minimal transportation and alignment with local practices.

The initial plan considered using thatch for roofing. However, thatch was not readily available in Gharo. Instead, chattai, a woven mat made by locals, was adopted. This material not only proved practical but also carried cultural significance, reinforcing the identity and participation of the community in the building process.

For the structural framework, bamboo were selected. Both materials are locally sourced and have long been part of the building tradition in the region, offering strength, sustainability, and familiarity.


WM Creative Studio-Relab


WM Creative Studio-Relab


WM Creative Studio-Relab

3.6 Design Process and Spatial Configuration

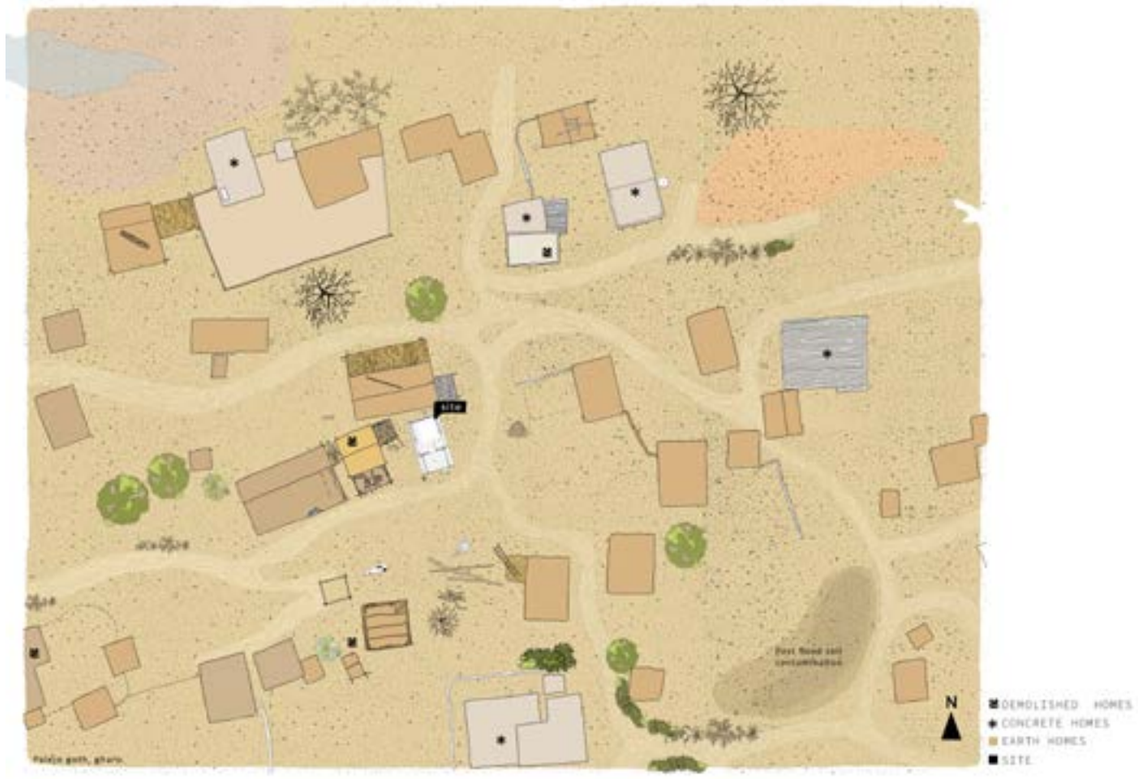
In Gharo, houses are shaped more by climate and necessity than by formal architectural trends. Built mainly with mud and topped with pitched roof, these homes respond directly to the region's environmental conditions. The roof isn't simply a stylistic feature; its shape and materiality are rooted in traditional knowledge that understands how to mitigate the effects of strong winds, harsh sunlight, and seasonal rainfall. This is wisdom passed down over generations, a practical design solution shaped by lived experience.

From making the construction mixture to building and plastering the walls, the entire process is a collective effort. Construction is not outsourced to specialists it's a shared task among community members. This not only fosters a strong sense of ownership but also reinforces the value of communal knowledge and labour. The design of these homes is guided by function rather than form, and by need rather than desire. For the people of Gharo, a home isn't seen as a commodity it's a necessity. That's why the layout avoids unnecessary segmentation; there are no separate rooms for each individual. Instead, spaces are flexible and shared.

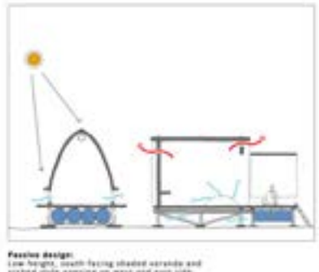
The verandah, often shaded and open to the outside, is central to this way of living. In the extreme heat, families often prefer to sleep here rather than in enclosed rooms. These outdoor spaces are more than just climatic solutions; they hold cultural significance too. The verandah often leads directly into the room, creating a transition space that is both functional and symbolic. One enters the room by ducking under a low lintel, a small but meaningful gesture of humility and respect toward the people inside. This architectural detail might seem subtle, but it reflects the deep cultural values that shape how space is experienced.

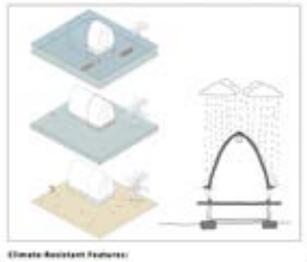
Homes in Gharo are not about privacy or personal space in the way modern housing often is. They are about sharing, adaptability, and resilience. There's no room for extravagance, because everything is built with purpose. The spatial configuration is simple, rooted in what's essential, and shaped by generations of lived adaptation to climate, culture, and community life.

Design intent to initiate Darul Qiyam Flood Resilient Habitat:

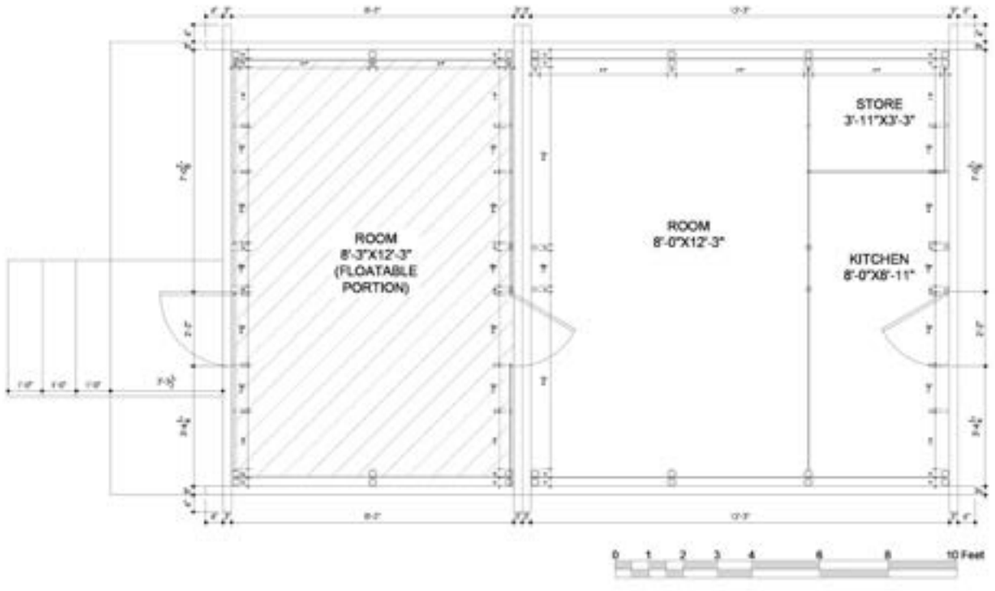


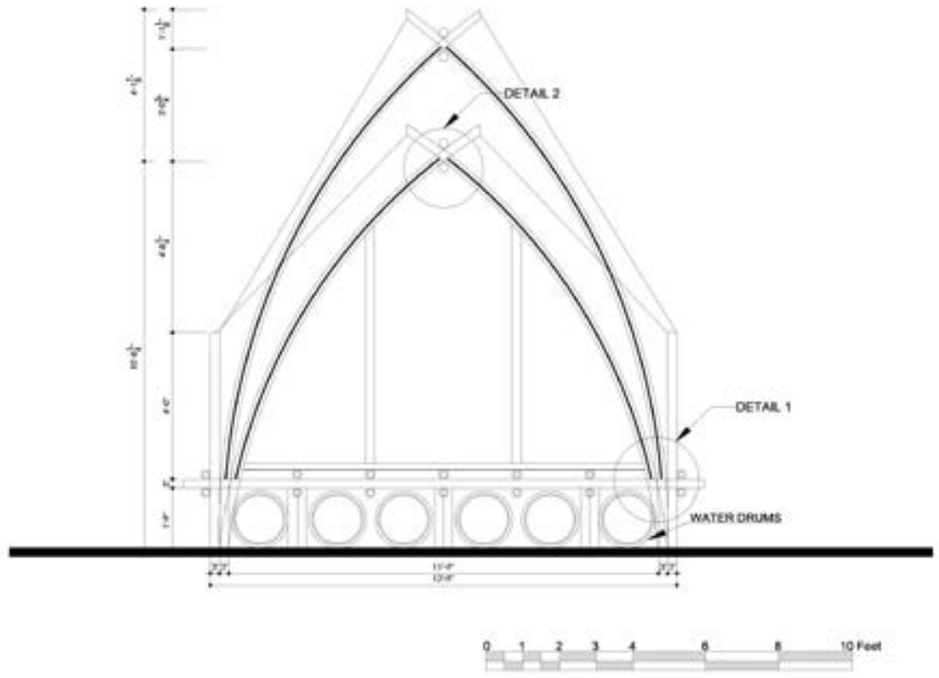
Design Strategies:



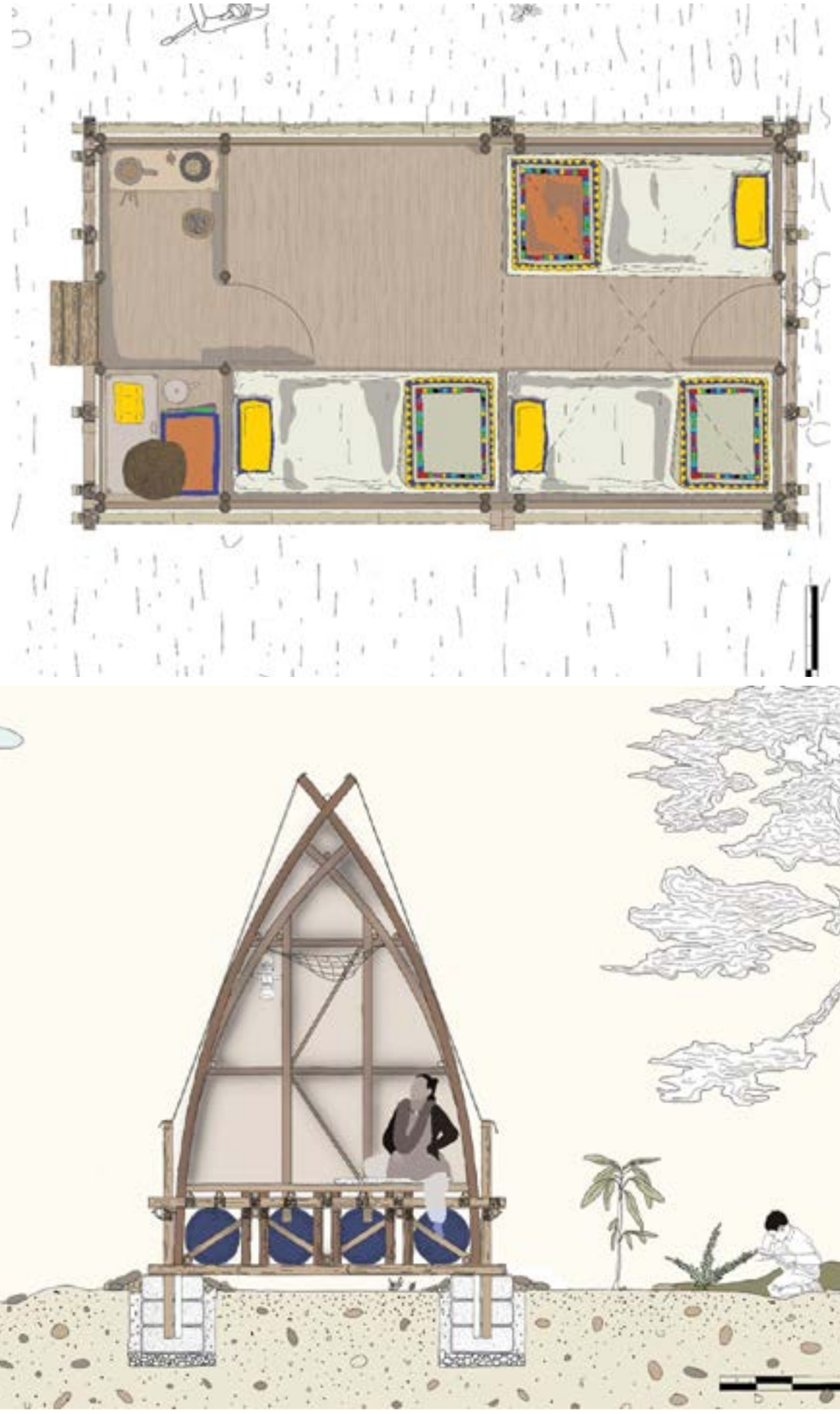


Design Development Stage 1

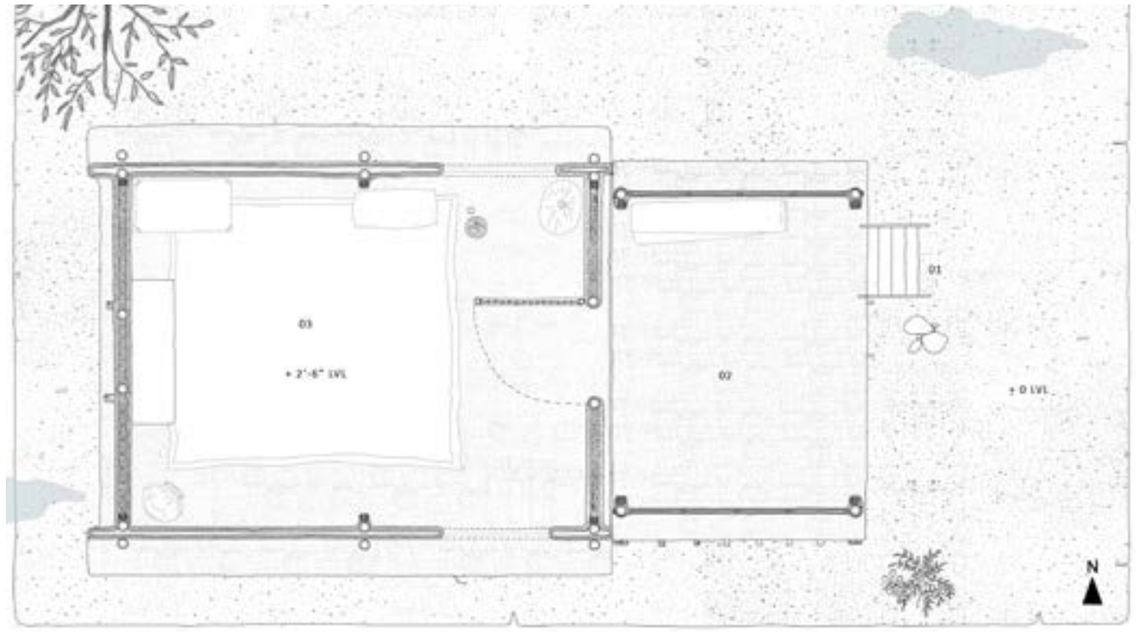


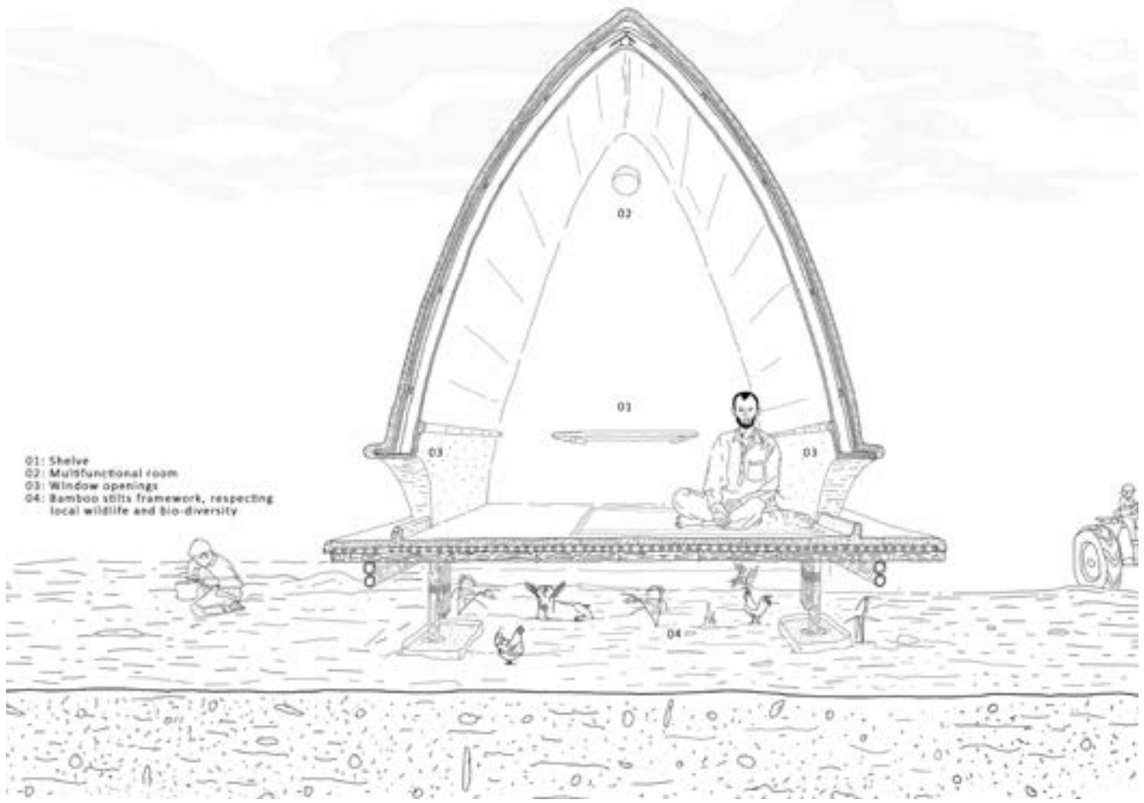


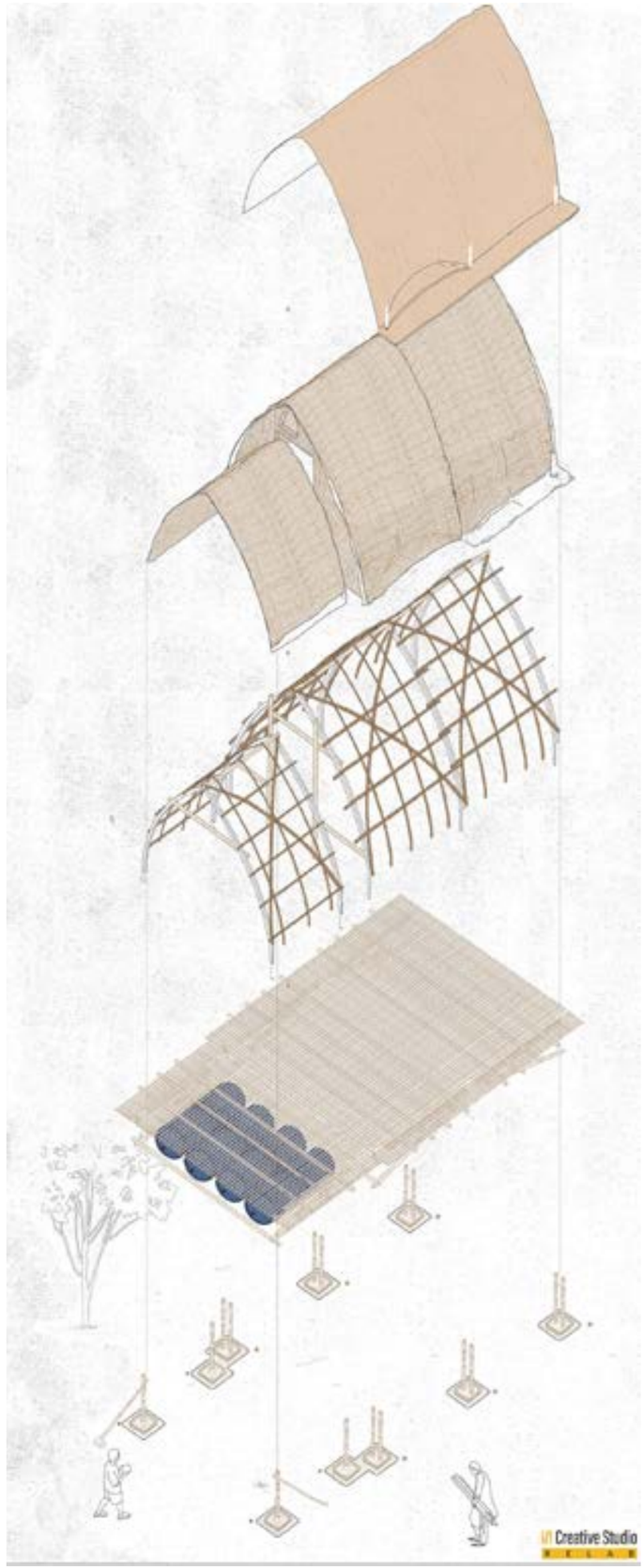
Design Development Stage 2



Design Finalization After Prototype Development



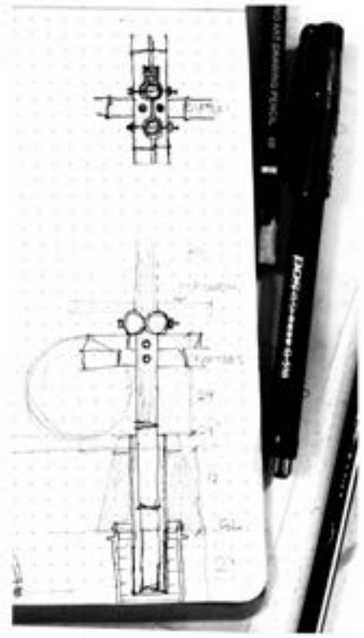


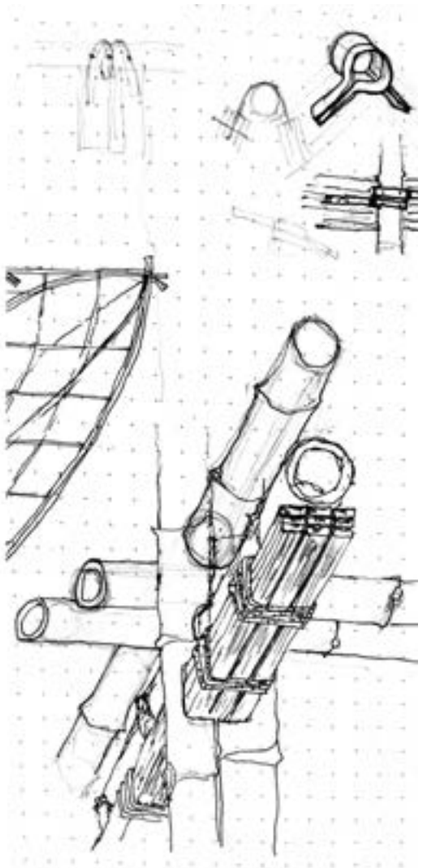


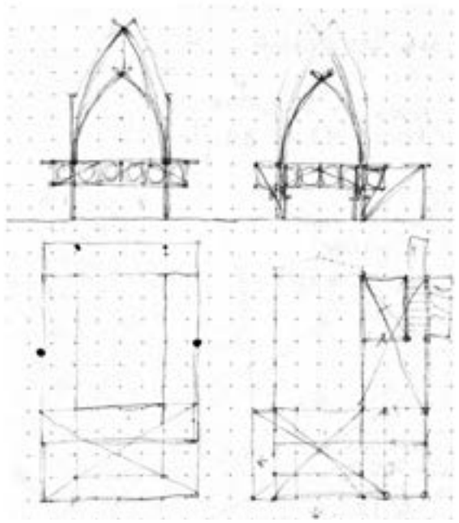
3.7 From Design Iteration to Model Making

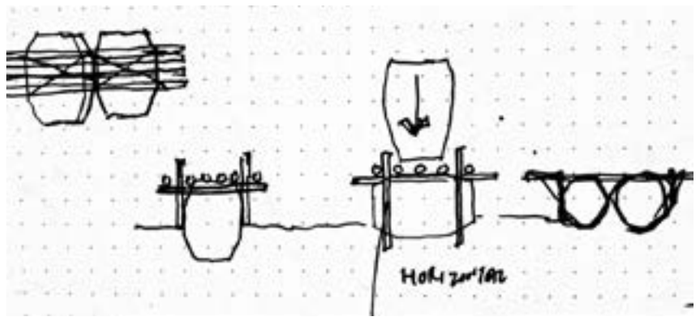
Drawing inspiration from traditional building techniques and the environmental challenges of the region, the design for Darul Qiyam is conceived as a simple, resilient home. It incorporates a structural system of bamboo reinforced with layers of chattai/matt and a cob mixture. Small openings are carefully carved out to ensure ventilation without compromising thermal comfort. The vaulted roof form echoes the pitched commonly seen in Gharo, subtly grounding the design in local architectural language.

One of the defining features of the design is the incorporation of a detachable, floatable verandah, an adaptive response to seasonal flooding. This element ensures that during periods of intense rainfall or flood, part of the home remains functional and safe. However, the design process goes far beyond drawings and ideas. In the absence of a physical model, it's easy to overlook crucial spatial and structural realities. To truly test the viability of the concept and identify possible shortcomings, a maquette was constructed.

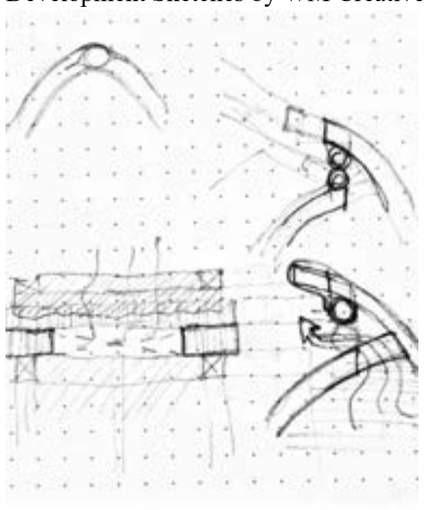


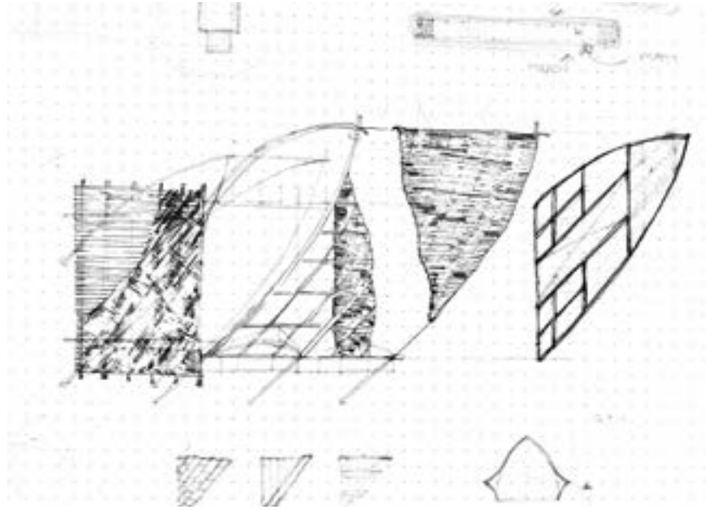


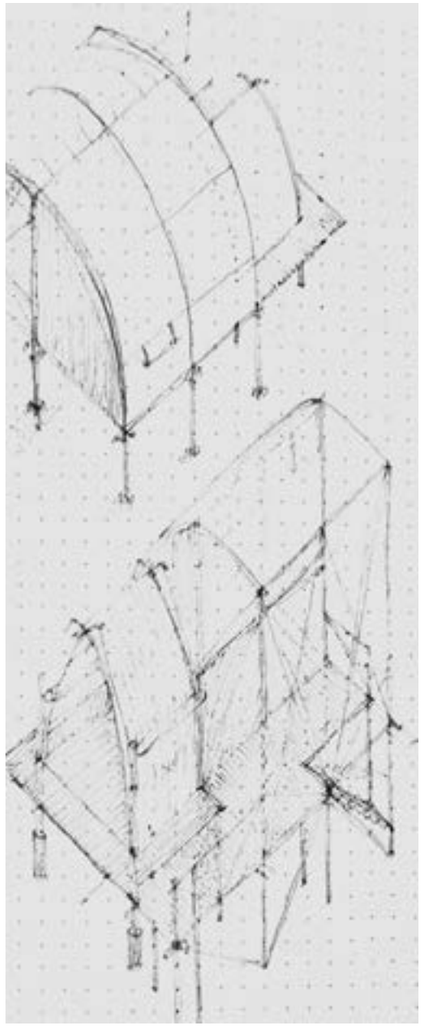


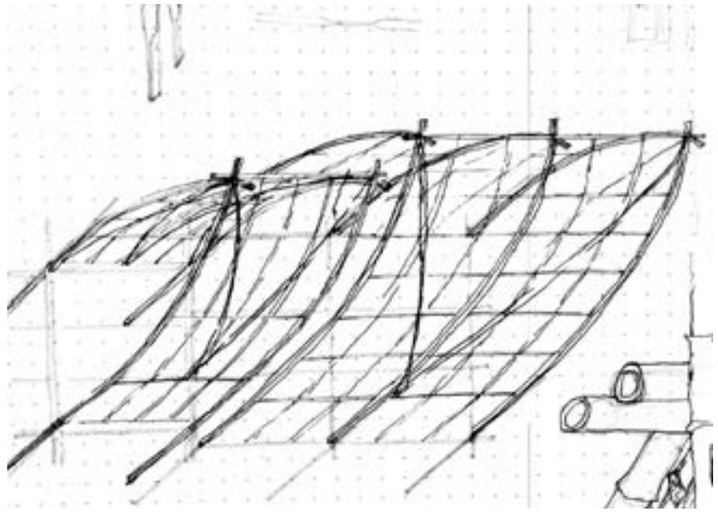


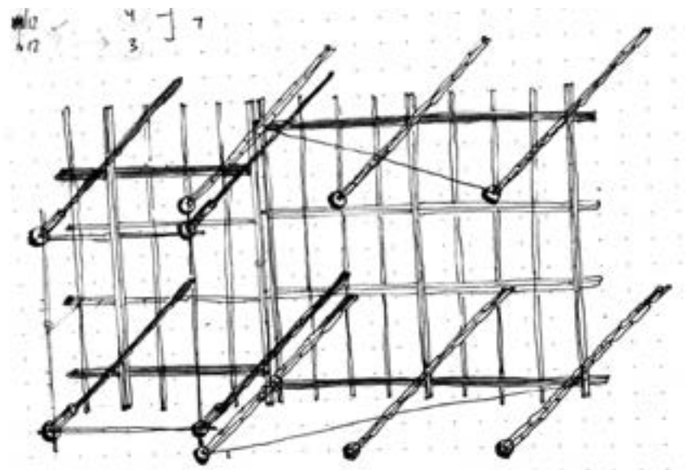
Development Sketches by WM Creative Studio-Relab











3.8 Learning from the Physical Model

The physical model became an essential tool in refining the design. It offered insights that were difficult to fully grasp on paper. One of the key realizations that came out of the model-making process was the need to raise the entire structure on stilts rather than relying solely on a floating verandah. Initially, the verandah was designed as the only buoyant component, assuming it could sustain livability during floods. However, floods in the region typically cause water levels to rise two to three feet. Keeping only the verandah afloat while the rest of the house remained submerged proved illogical. Instead, the model helped establish that raising the full structure on stilts would be a more consistent and durable solution, while still allowing the verandah to float in cases of extreme flooding.

The model also highlighted concerns related to structural load and the instability of the original concept. The floating veranda was constructed using only a double layer of chattai, with reused panaflex serving as a protective covering, and without any additional mud layer for reinforcement, to reduce the weight of the structure. However, the extended edges on both sides—measuring approximately 1 foot 6 inches—contributed to the structure's stability while floating, enhancing its resistance to environmental stresses.


UoK faculty &Students


UoK faculty &Students

Development Model by Design Research Team, Students of University of Karachi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Development Model Stage 1 by WM Creative Studio-Relab Team

Study Model after receiving Ar. Barry Will Award, 2023

1. Discussion with students on-site
2. Designing framework
3. Explaining design to Social Youth Team
4. Testing and understanding buoyancy


1. WM Creative Studio-Relab


2. WM Creative Studio-Relab


3. WM Creative Studio-Relab


4. WM Creative Studio-Relab

Disscussion on Study Model with team and NGO representative

4. Prototype Testing Phase II

4.1 Bamboo Stocking and Treatment

For the initial framework of Darul Qiyam, a structural skeleton was constructed using bamboo. The bamboo was locally sourced from the Gharo bamboo market to ensure accessibility and reduce transportation-related environmental impact.

Three different sizes of bamboo were utilized based on their function. 2 to 3-inch and 3 to 4-inch diameter bamboos were used for the primary structural framework while 1 to 2-inch bamboos were used for infill elements.

Bamboo was selected not only for its tensile strength and lightweight nature, which adds resilience in case of structural stress or adversity, but also due to its cultural familiarity among the local population, making it an approachable and practical material for both construction and future maintenance.

Bamboo requires proper treatment before it can be safely used in construction, mainly to prevent damage caused by fungi and termites. As part of the preparation process, WM team marked and cut the bamboo into specific sizes according to the structural requirements. Once cut, the bamboo was sorted into groups based on its intended use. To ensure that the treatment solution could effectively reach the interior of the bamboo, small holes were drilled along the length of each node in the bamboo.

The project took place in Gharo, a town with limited resources, and one of the primary intentions behind this effort was to demonstrate to the local community that sustainable building practices are possible using materials readily available in their environment. The team wanted to showcase that thoughtful design and resourceful planning could lead to effective construction solutions within the community's means.

A used water tank, donated by a local community member who also helped establish the team's connection with the town, was repurposed for the treatment process. After repairing the tank to eliminate any leakage, a treatment mixture was prepared using water, borax, boric acid, and lime. The bamboo was fully submerged in this solution for a period ranging from fourteen to twenty days, allowing the mixture to seep through the drilled holes and thoroughly treat the interior surfaces.

After soaking, the bamboo was removed and stacked vertically to dry. This drying process lasted approximately ten days and was a critical step. If the bamboo is not completely dried, moisture retained inside can lead to the growth of mold, ultimately weakening the structure. Proper treatment and drying ensured that the bamboo was preserved and structurally sound for construction use.

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4.2 Making Most of What is Available

In line with the core value of sustainability, minimizing the environmental impact of our actions, several thoughtful decisions were made throughout the process. Initially, the team considered using thatch for the roofing. However, due to its limited availability in the local region, sourcing it from elsewhere was deemed unsustainable.

Instead, chattai (woven reed mats) were chosen as an alternative. This decision was driven by two main factors: the local availability of materials and the cultural familiarity of the community with the craft of chattai weaving. Three distinct types of chattai were used in the structure. Two types were of a vertically woven reed mat, one with smooth cane and the other is rough grass reed good for mud laying. The third is tightly knotted, cross-patterned mat, designed specifically to prevent rainwater from seeping through the roof. To further reinforce the waterproofing of the roof, panaflex sheets were repurposed and layered beneath the chattai. This not only ensured additional protection against water ingress but also exemplified a creative reuse of waste materials, enhancing the sustainability of the entire construction.

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4.3 Floating Prototype Development

4.3.1 The Raft Test

The prototyping process began with the construction of a raft. Rather than testing it directly in the pond, the team opted to conduct initial trials in a more controlled environment to minimize material waste and eliminate any risk to human safety. As a result, the first round of testing was carried out inside an open tank previously used for bamboo treatment.

For the purpose of testing, only two drums were used, both tied tightly with ropes to form the base of the raft. To evaluate buoyancy and flotation, only one person was made to sit on the raft during the trial.

This test revealed several issues:

Drum Surface: The drums used had bulge in the middle, which created instability when the raft was afloat. It was concluded that drums with smooth, uninterrupted round surfaces would be more suitable for maintaining balance.

Structural Support: It became evident that ropes were insufficient for securing the drums. Therefore it was concluded that a rigid frame structure had to be designed to fit in the drums. This would help evenly distribute the load and internal pressure, preventing lid failures and ensuring more reliable flotation.

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4.3.2 The Arch Experiment

With the earlier issues addressed, the floating base performed well, but a new challenge emerged, the roof stability. Gharo experiences strong wind pressures, especially during the monsoon season. While the overall structure remained light and buoyant, the roof failed to withstand the wind load.

It became evident that the roof required significant reinforcement. To solve this, a new strategy was adopted: a bundle of 8 to 12 split bamboos was stacked and tightly tied together to form a single, stronger beam. These bundled beams were then used to construct the arches. For additional strength and durability, the beams were further secured using nut and bolt connections.

This process led to another important discovery, split bamboo proved to be a better construction material. It was not only lighter than whole bamboo but also more flexible, making it easier to bend and secure into desired forms. This flexibility enhanced the structural integrity of the roof without adding unnecessary weight. Another joinery technique was also explored. In this method, bamboo was partially cut but not completely split, allowing it to retain its original round form while introducing some flexibility. However, this approach proved impractical. It required a complete redesign of the structure, was too heavy for the lightweight floating system, and was difficult to bend with the available tools and resources.

Ropes were also used in selective areas mainly to tie the bamboo used in the flooring and walls. However, wherever structural strength was essential, especially at load-bearing joints and connections, nut and bolt joinery became the primary method. This combination allowed for both flexibility and stability where needed

4.3.3 The Floating Verandah

After identifying flaws in the initial raft prototype, a full-scale version was constructed to test the complete structure. This phase of testing included not only the raft base but also the architectural components built over it. Various types of bamboo arches were explored using different forms and joinery methods, particularly experimenting with stacked bamboo strips.

To test the load-bearing capacity and flotation of the entire structure, eight drums were used—two on each side in different direction. The bamboo arches were covered with Panaflex and chattai to simulate the final roofing design. Once again, the testing was conducted inside the bamboo treatment tank, rather than a pond, to reduce material waste and avoid damage in case of failure. Following are the results from the testing:

The overall structure remained lightweight and was easy to move. However, when placed in water, the combined weight of the structure with people on it and the upward buoyant force caused pressure build-up against the drum lids. As a result, some drum lids either popped open or their sealants split, leading to water ingress and compromising buoyancy.

To resolve this issue, it was concluded that drums should not only have smooth, groove-free surfaces but also smaller outlet openings, to reduce the risk of leakage and allow more secure sealing. Unfortunately, a number of drums had already been procured, with wider openings, the team decided to reinforce these by tightly sealing and screwing the lids in place. This helped prevent the lids from bursting under pressure and allowed the drums to be safely used in the final structure.

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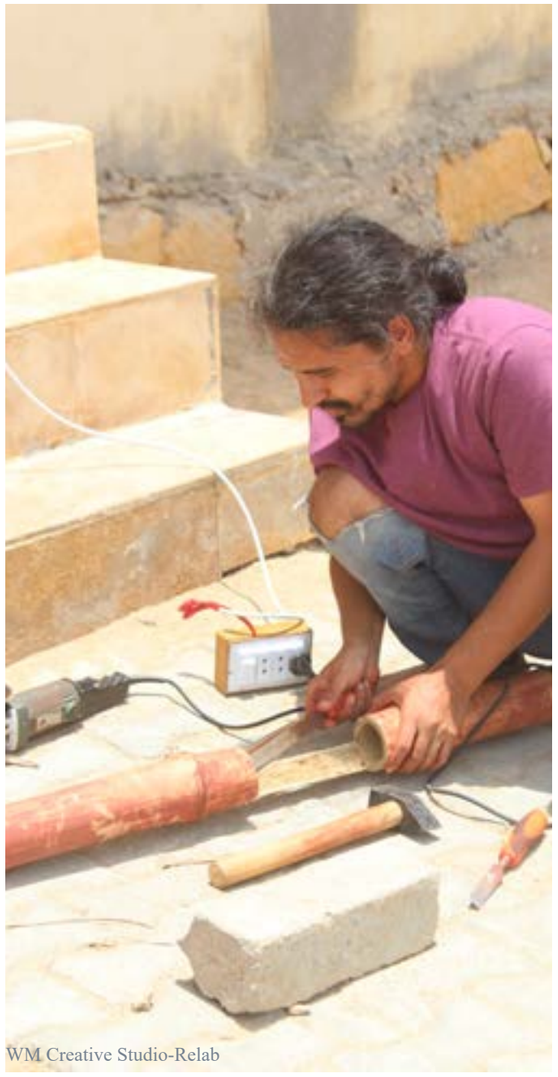
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4.3.4 The Team Efforts

The prototype measured approximately 6 feet wide, 8 feet long, and 8 feet high, with a 2-foot-tall base designed for buoyancy. Construction was carried out by a small group of four individuals—two members from the core team and two from the local community. Initially, five people were involved, but the work was ultimately completed by four, including one individual who continued to contribute despite sustaining a leg injury. His commitment, even in the face of discomfort, reflected the strong interest and enthusiasm within the group to learn and engage with the building process.

The timing of the prototype testing was intentional. Conducting trials during the monsoon season allowed the team to evaluate the floating capacity and structural strength of the design under real, challenging weather conditions. This deliberate choice ensured that Darul Qiyam could withstand Gharo's seasonal extremes before moving forward with final implementation.


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4.4 Structure Consultant Recommendations

TOP
ENGINEERING
Consulting Structural Engineer

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Commercial Area-A
Phase-II, DHA,
Karachi.
Tel : 021-37440693

Darul Qiyam-Flood Resilient Habitat: Empowering Communities

Thank you for sharing the design details and site conditions. Below are my observations and structural recommendations.

1. Lateral Stability & Guidance

- **Horizontal Bracing:**
  Install horizontal bracing in beams and roof, to resist wind and current loads.
- **Bearing Plates in Pipes:**
  Fit a small steel or HDPE plate under each bamboo leg inside its pipe. This spreads the leg's load over the concrete footing and prevents the bamboo from cutting into the pipe base.
- **Pipe Covers:**
  Cap each open pipe with a removable lid or grate. This keeps debris, silt, and small animals out of the sleeve.
- **Adhesive Bonding:**
  Prior to bolting, apply a waterproof structural adhesive (e.g., marine epoxy) edge to edge on all split bamboo laths. This creates continuous shear transfer and prevents the arch from "opening up" under compression or bending.

2. Corrosion & Decay Protection

- **Marine-Grade Hardware:**
  Use only 316-grade stainless steel or hot-dip galvanized bolts, nuts, and washers.
- **Membrane & Sealant:**
  Wrap all cut ends, splices, and bolt penetrations with a UV-resistant, elastomeric waterproof membrane. It is recommended to inspect and renew this coating every 6 months.
- **Bamboo Preservation:**
  Your existing boric-acid + lime treatment is appropriate. Re-treat any exposed or end-grain surfaces every 2 years with a fresh borate solution, then apply a breathable, UV-resistant wood sealer.

TOP
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Consulting Structural Engineer

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3. Periodic Maintenance & Inspection

- Verify free sliding of all bamboo legs in their sleeves.
- Check for loose bolts, corroded hardware, and frayed lashings.
- Reapply sealant to all exposed bamboo and membrane tape at joints if required.
- Inspect for cracking or rot; repair as needed.
- Pressure-test each barrel for leaks; replace any drum showing deformation or air loss.

Based on the barrel dimensions (3 ft height, 2 ft diameter), each unit can support approximately **200 kg of buoyant load**. With 8 barrels, the system can safely bear **up to 1,600 kg** total—sufficient for a small family, lightweight belongings, and emergency occupancy during flood events.

These recommendations are intended to enhance the safety, durability, and functionality of the shelter system. Should you require further technical input during execution, I remain available for support.

Eng. Hur Hasan
Structural Engineer
Top Engineering

Consultant Engr. Hur Hasan and Advisor Ar. Abbas Reza Jaffery visiting the site

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Hur Hasan

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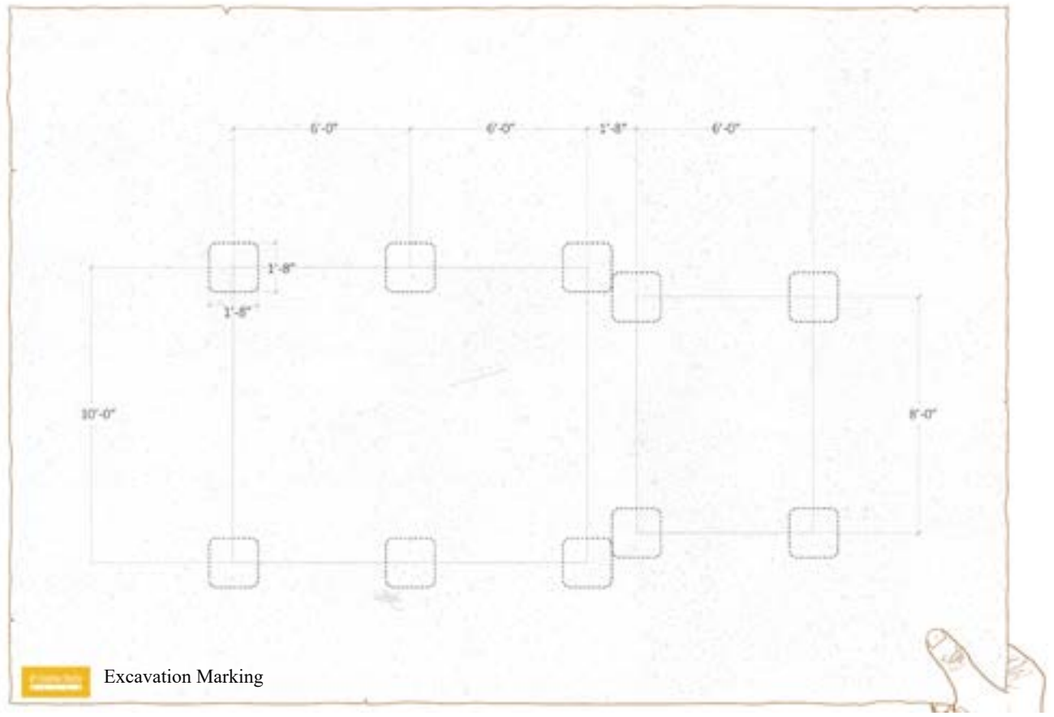
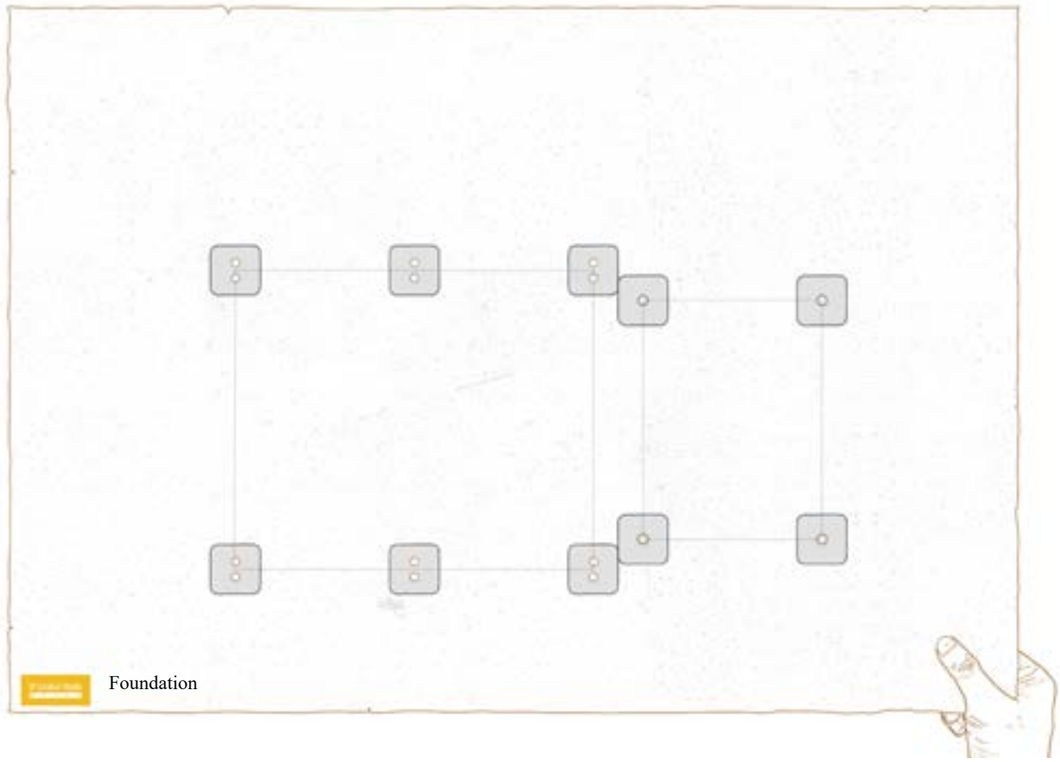
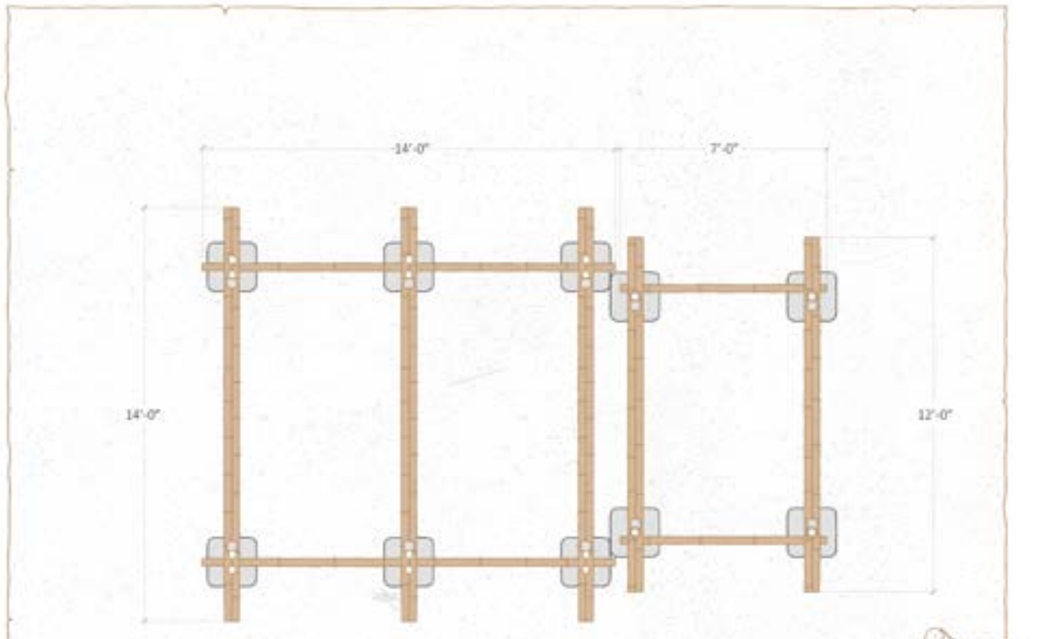
4.5 Finalization of Drawings & Technical Drawings



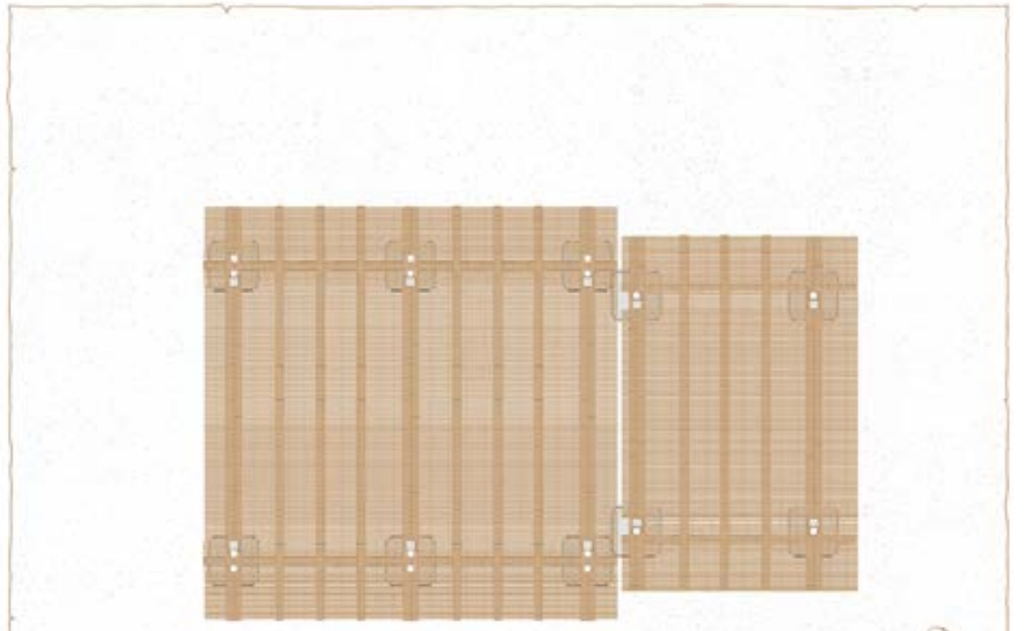
Excavation Marking



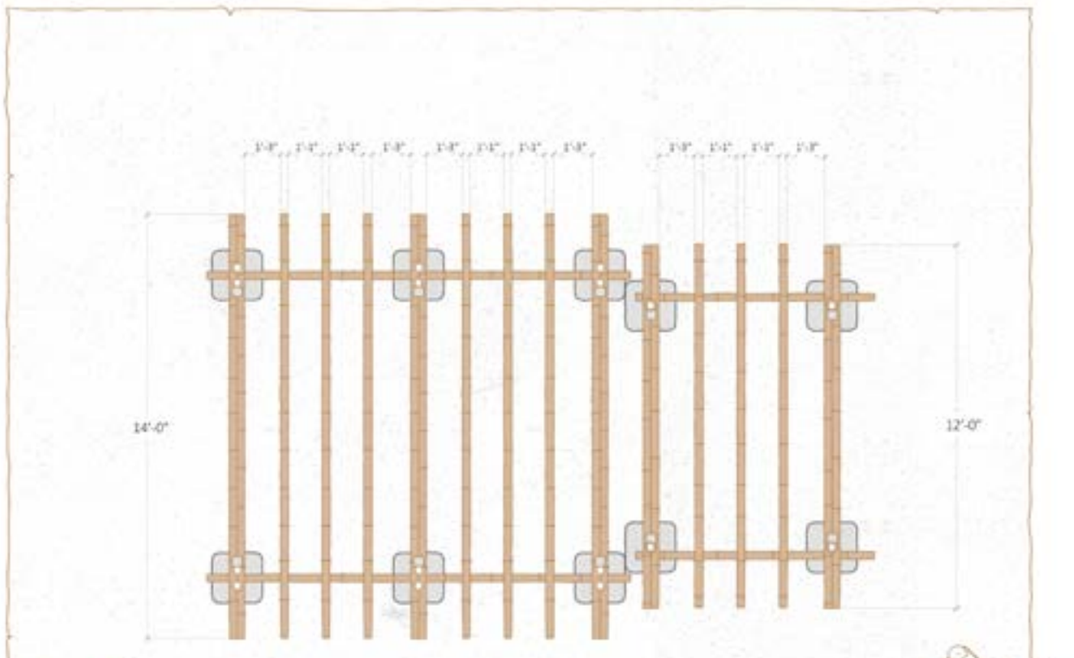
Foundation



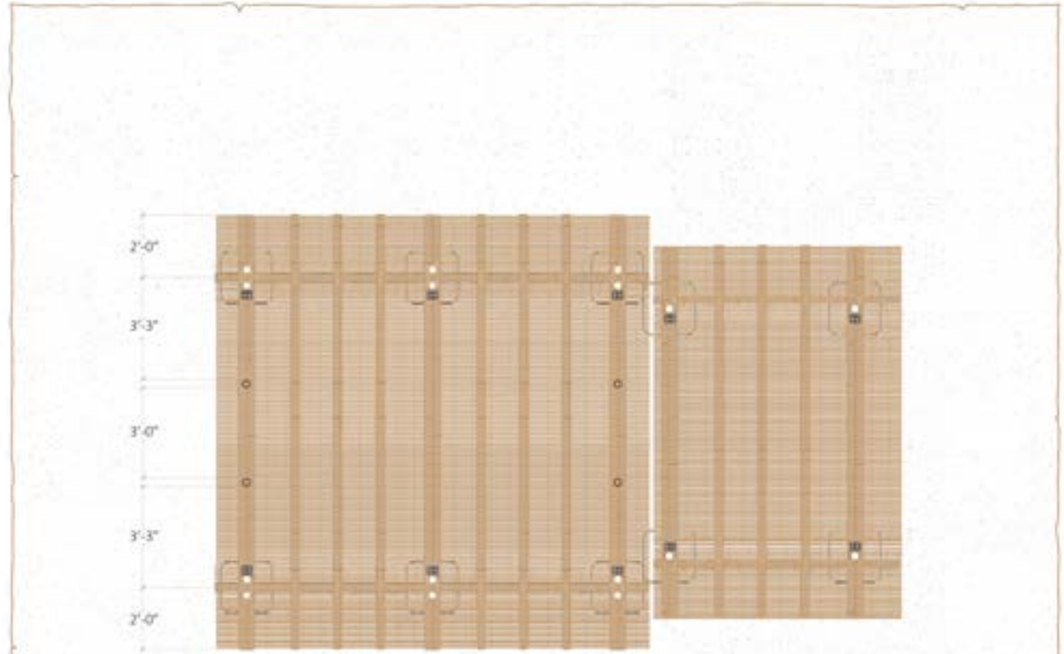
Floor Beams



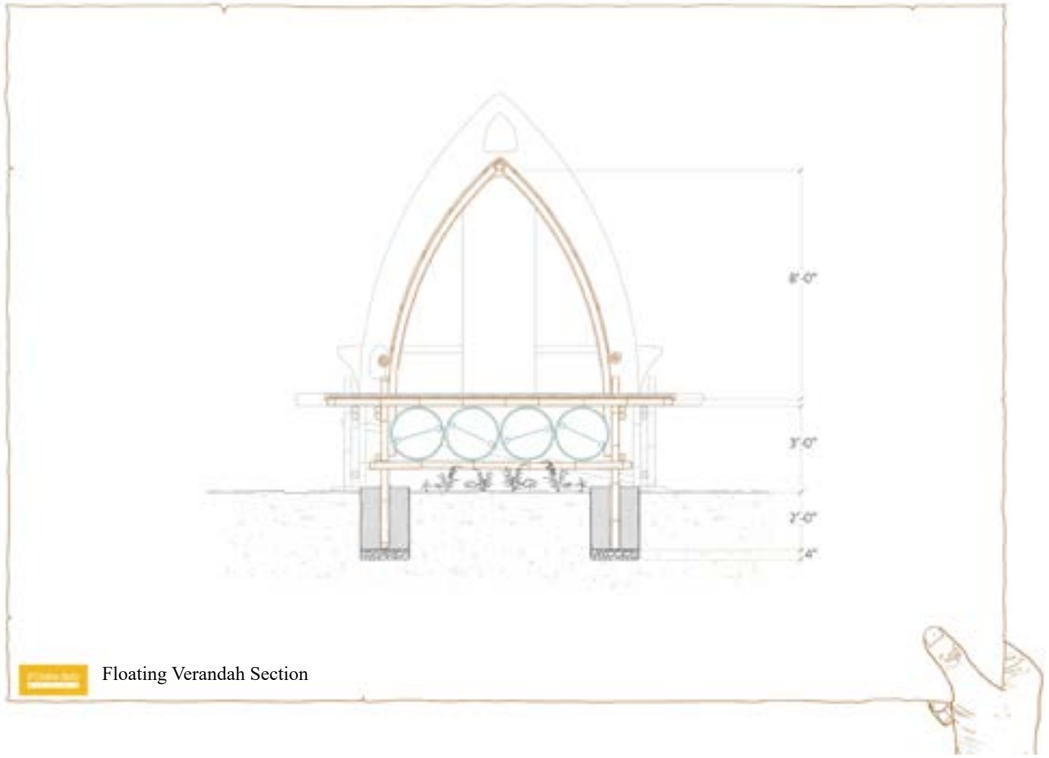
Flooring



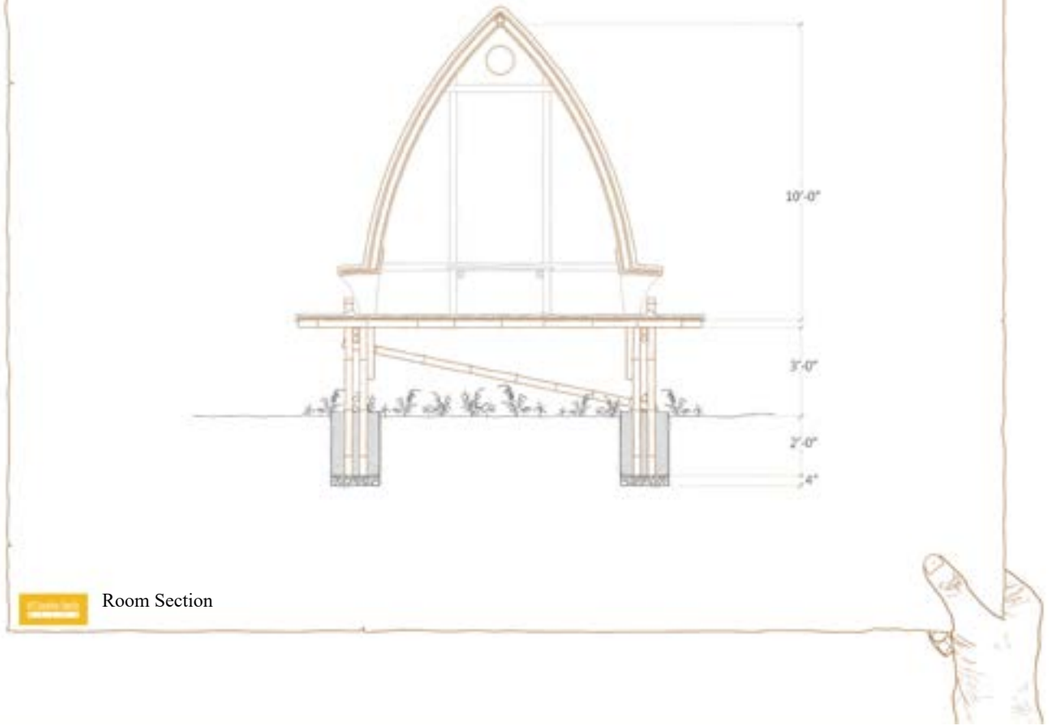
Floor Secondary Beams



Arch Split Beam Installation

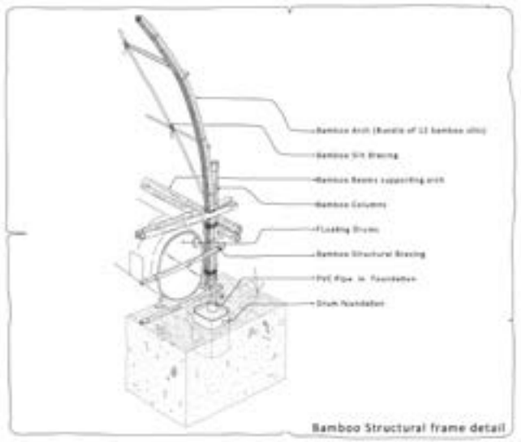


Floating Verandah Section

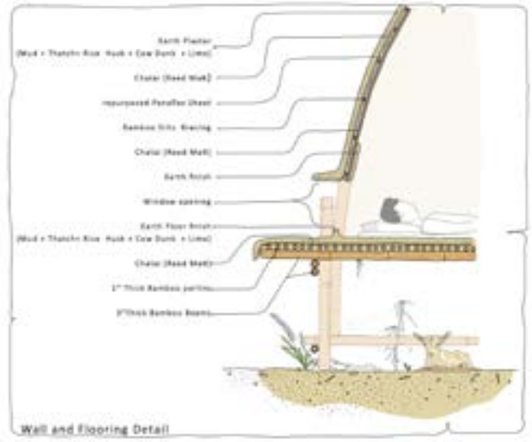


Room Section

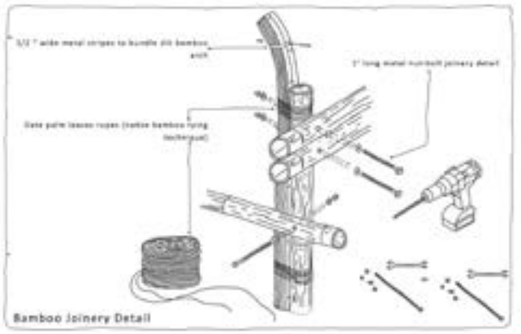
Technical Details:



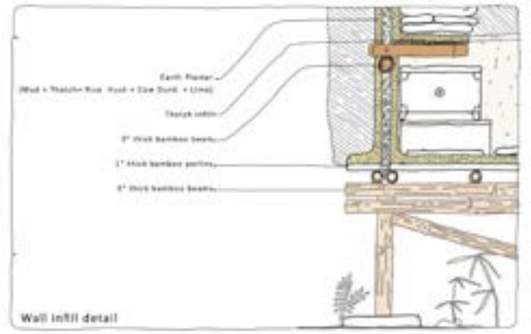
Bamboo Structural frame detail



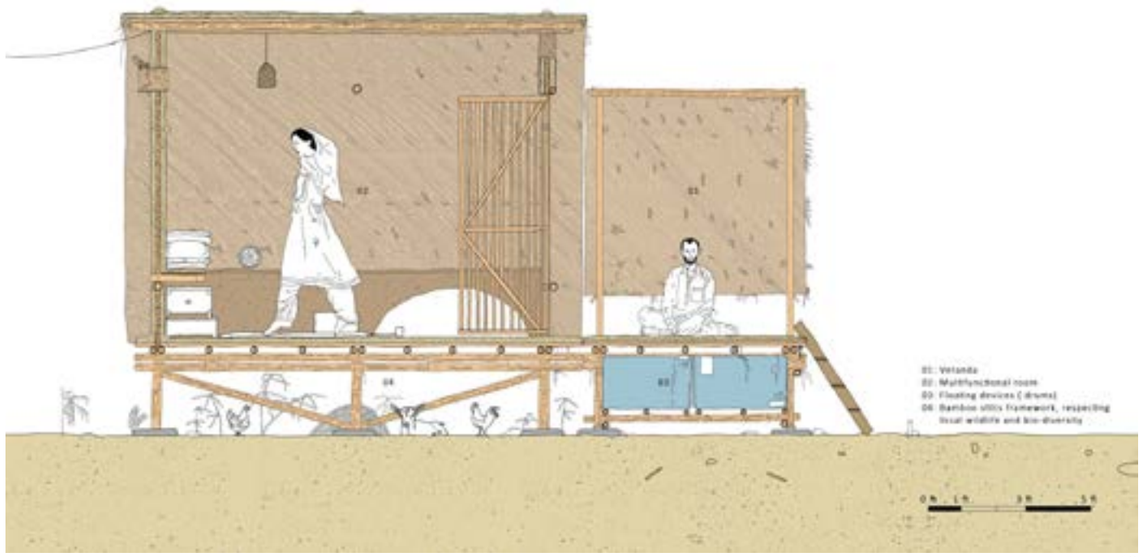
Wall and Flooring Detail



Bamboo Joinery Detail



Wall infill detail



5 Skill Development Workshop & Training and Construction Phase III & IV

5.1 Mobilising students & community

At the heart of this project was a desire to instill a sense of responsibility, ownership, and collaboration among students or future architects as well as the local community. To foster this, students were encouraged to participate directly in the design-build process and engage with the community in a hands-on manner.

Initially, four female students volunteered to be part of the workshop. They were later joined by three male students and another female student. Because the training involved travel and an extended stay in Gharo, all participants were required to obtain consent from their parents before joining.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5.2 Pre-Assembly Process

The work was divided between two main locations. The off-site location, where the team was staying, served as the preparatory area. There, tasks such as bamboo splitting, sorting, and stacking were carried out in preparation for use on-site. Students worked actively alongside two local community members, making this an early opportunity for cross-learning. It is to be noted that the site had power issues, therefore, the use of machines were not a possibility on site. This is one reason why bamboo splitting, drilling, beams construction was carried out on the offsite location. From using saws to sanding the bamboo, from drilling to tightening nut bolts, every student immersed themselves fully in the construction process.

At the construction site itself, excavation was carried out primarily by community members, with men taking the lead on this physically intensive task. Notably, participation was inclusive; people from across social standings and backgrounds joined the effort. When it came to mud plastering, local women naturally took charge. In this region, it is a long-standing tradition for women to prepare mud and collaboratively build homes, and their expertise proved invaluable.

The entire process was not just a construction exercise but a rich exchange of skills and knowledge. While the students and team shared their understanding of architectural design, arches, and structural techniques, the community offered deep insights into the preparation of mud, earthen construction methods, and plastering practices rooted in tradition.

The atmosphere throughout was one of enthusiasm, respect, and shared purpose. Every participant, student, team member, and local resident gained something from the experience. It was, in every sense, a collective learning journey.

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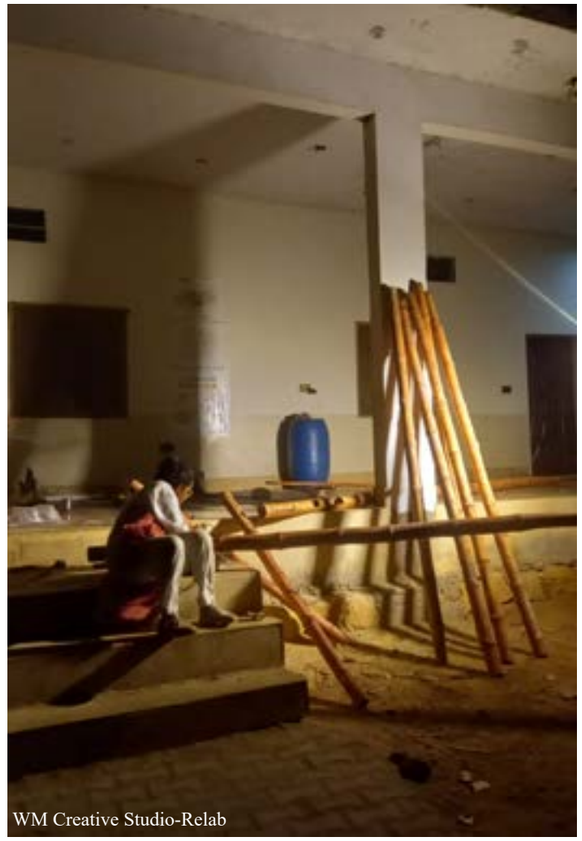
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5.3 From excavation to setting the structural support

The community had their share of participation as well. While the men had their jobs to attend to, they would consistently contribute part-time after returning from work. This level of dedication was evident throughout the process. Both students and community members took a keen interest in learning how to mark and check levels during the excavation phase.

A day before excavation, a small exercise was conducted for the students, where they learned how to check levels using a water pipe. Four girls participated in it. Later on site excavating and then levelling, the community also remained actively involved, some members were already familiar with construction work and assisted at the site with their prior knowledge and experience. Although the excavation work for the foundation was mainly carried out by men, it was important that the students gain hands-on familiarity with the process. That's why the WM team leads encouraged female students to participate equally in the excavation, concrete mixing, and pouring activities.

Bamboo footings were also installed during this phase of foundation work. It was crucial for the concrete to cure properly along with the bamboo beams and pillars to ensure strong structural support. For the floating structure of the project, pipes were reinforced with concrete.

Everyone, students and community members alike participated with full zeal reagardless of rainstorm, thoroughly enjoying both the process and the monsoon weather of Gharo.


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5.4 From Foundation to Floor

It took four days for the concrete in the foundation to cure completely. Once this stage was completed, the next task was the flooring, which was primarily constructed by the community. Community members took the initiative to tie the bamboo for the floor themselves. Following this, arches were installed and framed to provide structural stability.

While the community was already familiar with bamboo construction, foundation excavation, and bamboo tying, the technique of installing arches using slit bamboos fastened with nuts and bolts was new to them. This unfamiliar method piqued their curiosity, and they showed a strong interest in learning it so they could apply it in their own future construction efforts.

Since chattai weaving was part of their traditional craft and use, the men from community, enthusiastically assisted in the tying of panaflex, laying of chattai, while the cob layering and plastering processes was done especially by the women.

The cob mixture was made using mud sourced from the riverbed, rice husk and grass reeds collected from nearby fields, cow dung, and lime. Cow dung was included for its antibacterial and insect-repellent properties. The materials were thoroughly kneaded with water and then set aside for a day to allow the components to bind properly. This entire process of cob preparation and wall layering was handled by the women, who brought deep familiarity and skill to the task. For the second layer, they added extra cow dung to the mixture, believing it would provide additional protection against insects.

To finish the walls, a natural plaster was applied, made from lime, mud, and pigment. Since the resident requested a rust-coloured finish, red pigment was added to the mix. Before finalizing the colour, a total of seven samples were prepared to offer a range of options for the inhabitants. Initially, mud was not considered as a finishing material for the walls, but given the extreme climatic conditions of the region, it proved to be the most contextually appropriate choice.

For the bamboo finishing, a protective coating made from raw lacquer and turpentine oil was used. Raw lacquer, or natural wood resin, was extracted and then mixed with spirit or turpentine oil. This mixture was applied to the bamboo to enhance its durability, especially during the intense monsoon season. The coating not only increased the longevity of the bamboo but also helped maintain the structural integrity of the building over time.

The interior spaces were finished with a layer of mud, followed by an overlay of chattai, adding both insulation and a traditional aesthetic to the space.


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5.5 The Walls

Darul Qiyaam features two distinct types of wall construction. The walls formed through the arching structure were covered with a mixture of chattai and mud, providing texture and insulation. In contrast, the front and back walls were constructed using a bamboo framework, filled with locally available dry grass, and then layered with the same mud mixture, just the way the vcommunity build their home.

The floatable verandah, on the other hand, was intentionally kept lighter in weight. Instead of being coated in mud, it was defined by its materiality. The interior surface was shaped with closely-knit, cross-woven chattai, while the exterior was made using vertically-woven chattai, fastened to a bamboo frame with panaflex sandwiched in between. This not only added structural support but also made it water-resistant. The variation in material finish clearly distinguishes the lightweight, floatable verandah from the main living space.

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5.6 The Finishing

One particularly notable aspect of the design was the placement of windows and they were designed in a organic form, rather as conventional openings. This method reflected a cultural sensitivity, openings were placed near the floor rather than at the top, acknowledging that people in the region traditionally sit on the floor while working, eating, or performing household chores. Given this lifestyle, higher window openings were not necessary.

Keeping this in mind, two window openings were carved out. One of them became a favourite perch for children, so it was reinforced with a bamboo support to prevent damage in the future. As for the door opening, privacy was not a major concern in this community. Most residents were familiar with one another and did not prefer fully enclosed doors. As a result, simple bamboo doors were used. Furthermore, since the interiors were typically dark, visibility from the outside was low, further minimizing privacy concerns.

The interior walls were adorned with minimal geometric patterns. Although wall ornamentation is not a norm in the region, this subtle decoration added character without disrupting the cultural sensibility. For the flooring, the residents proudly laid out their ralli quilts, a traditional form of textile art used as an alternative to carpets. The static part of the structure was larger than the detachable verandah, which allowed the team to create arched openings for improved ventilation within the interior spaces. A small reed chattai lamp was also handcrafted, serving both an aesthetic and functional purpose. Fortunately, the residents had salvaged wood from their old home, which had been damaged by flooding. This reclaimed wood was used to construct the staircase originally planned to be built with bamboo. Not only did this reduce material waste, but it also provided a sturdier and safer alternative.


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6 Lesson Learned & Way Forward

6.1 The Mutual Learning

As initially understood, the entire process was never just about providing a shelter or teaching the community how to build one. Rather, it was centered around developing a strong communal bond that fostered mutual learning between the community, the students, and the architects involved. Architecture and construction are continuous learning processes, while institutions may provide foundational knowledge, it is within society and communities that some of the most valuable lessons are learned.

The community, through this experience, learned how to build arches, gained a deeper technical understanding of the many ways bamboo can be utilized in construction, and came to understand how shifting climatic realities require new methods such as elevating the entire structure rather than building directly on the ground. At the same time, the team and students learned equally meaningful lessons. They explored the technical aspects of using mud as a holistic building material for walls, floor, and roof. The specific proportions of water, mud, cow dung, rice husk and lime in the cob mixture, and how slight variations in these ratios could impact the construction process and final outcome, were all insights learned from the community's experience and intuition. Women were the masters in this case specially Karamsa baaji, a respected community member who taught the team the intricacies of working with mud.

One particularly interesting moment of exchange was witnessing the community's fascination with the use of pigments for painting the walls. Though this was something they had never experimented with before, it sparked a genuine curiosity and a desire to explore it further in their future work.


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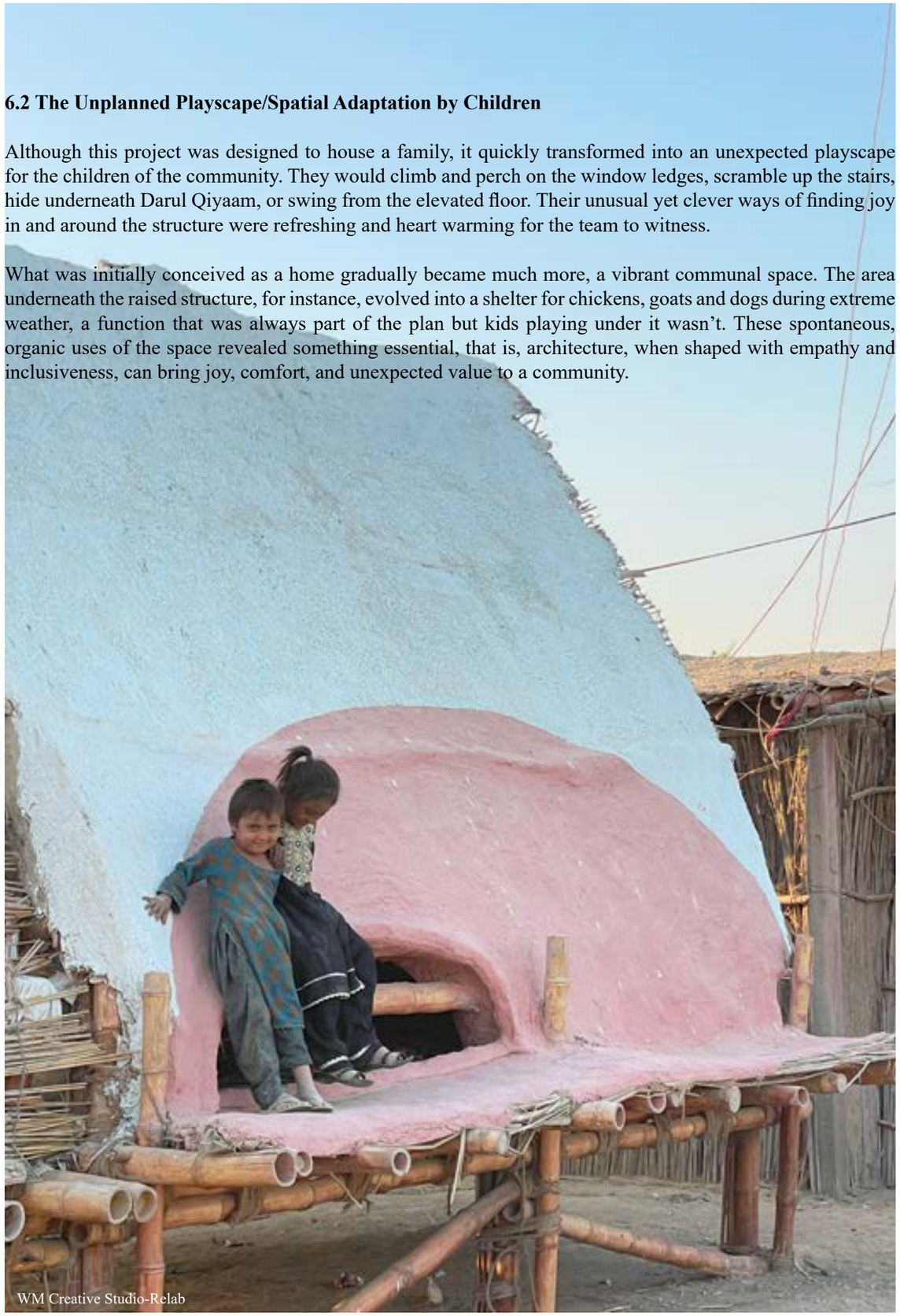
6.2 The Unplanned Playscape/Spatial Adaptation by Children

Although this project was designed to house a family, it quickly transformed into an unexpected playscape for the children of the community. They would climb and perch on the window ledges, scramble up the stairs, hide underneath Darul Qiyaam, or swing from the elevated floor. Their unusual yet clever ways of finding joy in and around the structure were refreshing and heart warming for the team to witness.

What was initially conceived as a home gradually became much more, a vibrant communal space. The area underneath the raised structure, for instance, evolved into a shelter for chickens, goats and dogs during extreme weather, a function that was always part of the plan but kids playing under it wasn't. These spontaneous, organic uses of the space revealed something essential, that is, architecture, when shaped with empathy and inclusiveness, can bring joy, comfort, and unexpected value to a community.



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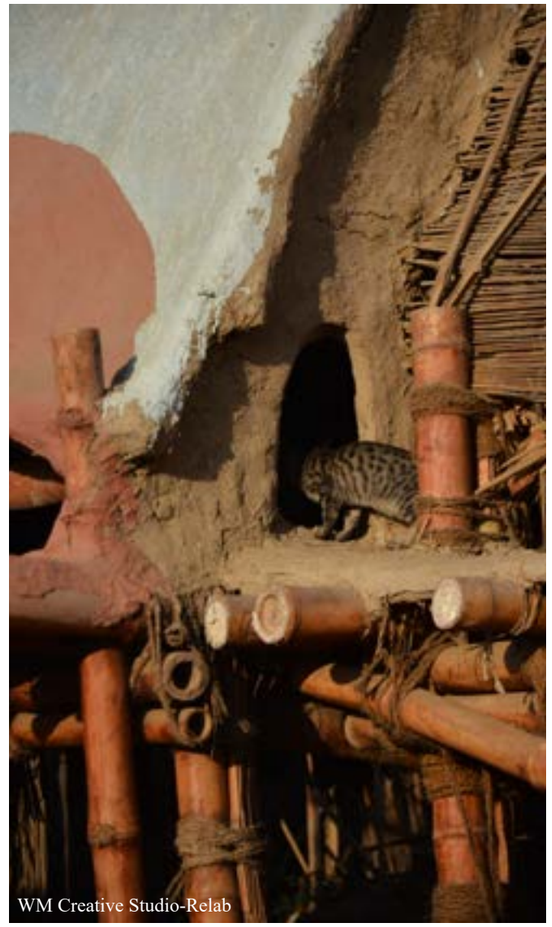

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6.3 From Doubt to Trust

As designers, it's easy to forget that while drawings, diagrams, or maquettes may seem perfectly logical to us, they can often be confusing or even overwhelming to someone unfamiliar with architectural language. This was made clear when the community first encountered the design. The concept of arches, the unusual forms, and the large number of drums being brought in raised eyebrows and questions. There was a clear disconnect between what was envisioned and what they could initially understand.

However, once the structure began to take form, and mainly after it was completed and tested, the community began to see its purpose, and logic. Slowly, doubt turned into trust. This transformation reminded us that trust is not automatic; it must be earned through transparency, patience, and a willingness to see things from the community's perspective.

This whole process reaffirmed that building is not just about constructing structures but about building relationships, understanding limitations, and learning together. Architecture, at its best, is not just about creating spaces but about being empathetic towards the needs of the people.

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6.4The Learning

Building with mud was not part of the initial plan. However, the cultural affinity with the material and environmental considerations convinced the team to trust the process and integrate mud into the construction. While the choice itself seemed straightforward, its implementation raised structural concerns. The weight of the mud posed a risk of bending the bamboo arches inward over time. Through this, the team learned that for future iterations of the design, the number of arches would need to be increased to better distribute the load.
The use of hardware also brought several technical challenges to light. When joining multiple slit bamboos, the pre-drilled holes made off-site often did not align perfectly during on-site assembly, revealing how machine precision does not always translate well to handcrafted materials and required further training to achieve precision. The joinery details further revealed that not all connections could be secured with nuts and bolts. While metal worked in some instances, it was not ideal for all. To prevent rusting, nuts and bolts were galvanized or hand-painted by the team. We have done the pre-framing of opening in organic form, later we learned from them they could carved out organically from the walls.

While the entire community participated enthusiastically throughout the construction process, mud mixing and layering remained a task traditionally carried out by women. When male members of the team attempted to help, many community members found it amusing, as mud work was considered exclusively "women's work." This dynamic was a unique experience for the WM Creative team and the students, who came from contexts where construction is usually male-dominated.

Children were equally enthusiastic about the process. From experimenting with tools to assisting different team members, they remained actively engaged throughout. Although there were moments where their curiosity posed safety concerns, the team chose not to discourage them. Instead, they focused on nurturing their interest with patience, ensuring the children could learn and explore with confidence.

The construction of Darul Qiyam was not just an exchange of architectural or construction knowledge but a shared journey of mutual growth. One of the most warming examples of this was a young man named Sudeer, who took interest in photography. Under the guidance of the team lead, he learned to operate the camera. Remarkably, more than 60% of the photographs documenting the process were taken by him.


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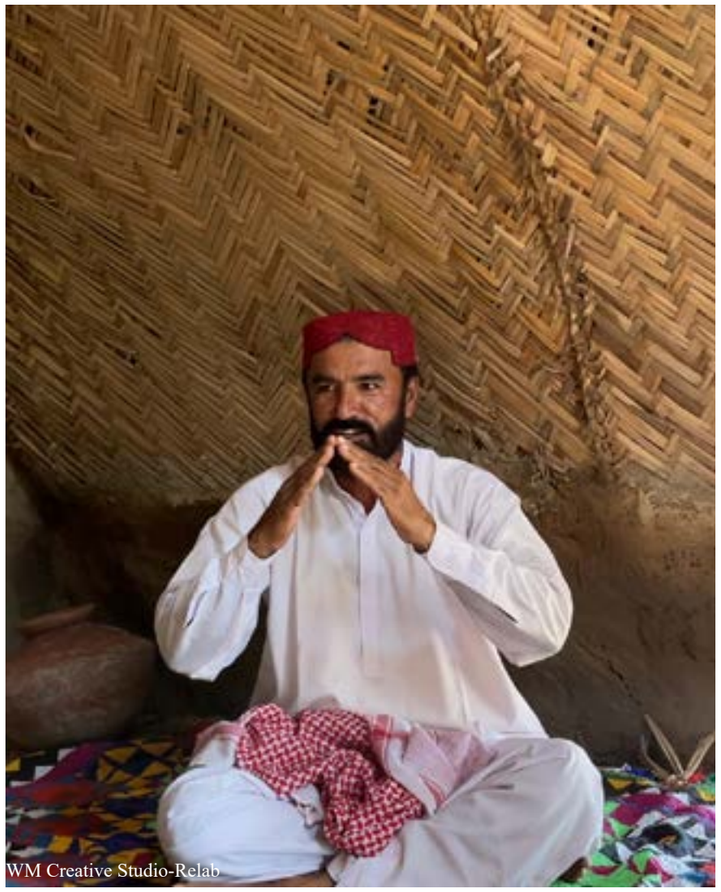
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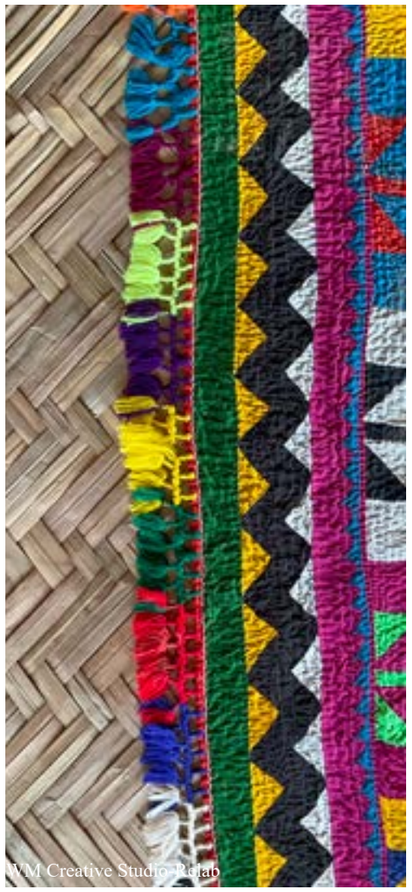
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