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MYANMAR

SHELTER DESIGN CATALOGUE

VERSION 1 - December, 2023



Shelter Cluster Myanmar
ShelterCluster.org
Coordinating Humanitarian Shelter



CCCM CLUSTER
SUPPORTING DISPLACED COMMUNITIES

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Acknowledgements

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Introduction

The shelter design is contextual considering the response phase, cultural and specific aspects of geographical area and users. It is fundamental that shelter programs consider the use of local materials, skills and building techniques, as well involve the affected communities from the initial stages.

Considering the diversity of Myanmar and complexity of context, the cluster together with partners developed this catalogue compiling in a single document the shelter designs across the country for quick consultation, comparative analysis and support decision making within shelter programs. It was designed for use by cluster partners, nonetheless the information may be relevant to partners that are supporting shelter programmes.

Future revision should be consider for upgraded and new designs, thus this catalogue should be consider as a ‘live’ document.

The designs in this catalogue follow three sessions as the response phase and hubs covered:



NOTE

The cluster coordination structure is divide among national cluster and sub-national clusters (hubs) as below:

1. **NE - Northeast hub** covering Kachin State and Northern Shan State.
2. **NW - Northwest hub** covering Sagaing Region, Magway Region and Chin State except Paletwa.
3. **RK - Rakhine hub** covering Rakhine State and Paletwa township in Chin State.
4. **SE - Southeast hub** covering Southern Shan State, Kayah State, Kayin State, Bago Region, Mon State and Tanintharyi Region.

Makeshift Shelter - Northeast hub

with different claddings

SHELTER DESCRIPTION:

A “makeshift shelter” is an emergency unit design which can be expanded up to five interconnected units according to the available land space. This design was developed for displaced population that potentially will return to the area of origin within six months. It is made of bamboo, which varies in roof material.

LOCATION:
Kachin State

NORTHEAST HUB



METHOD OF IMPLEMENTATION:

Delivery of construction material together with shelter toolkits and hire skill labor from existing IDP settlements.

FOR HOW MANY PEOPLE: (1HH = 5people)
1 to 5 households

COST PER SHELTER:

Depending on the size between \$240 to \$1.200usd

DIMENSIONS & FOOTPRINT:

5 units: 50'x16' 800 ft² | 74.30m²

LIFESPAN:

6 months to 1 year

TIME TO BUILD:

5 units: 7 days

ADVANTAGES:

The shelter material are locally available, it is relatively light allowing transportation of some items for those facing new displacement.

DISADVANTAGES:

The bamboo is not treated which can significantly reduce the lifespan of the shelter, no protection from the ultraviolet rays is offered by locally purchased tarpaulins.

DESIGN OPTIONS

SIZE OPTION:

10'x16' per HH
(160ft² | 14.90M² per family)

FOOTING OPTION:

Bamboo post directly applied and buried to the ground.

STRUCTURE OPTION:

Bamboo

FLOOR MATERIAL OPTION:

Bamboo

WALL MATERIAL OPTION:

Bamboo mat

ROOF MATERIAL OPTION:

Bamboo frame and tarpaulin or
Bamboo frame and CGI

PRIVACY (PARTITION)

One partition


VENTILATION & NATURAL LIGHT

One Window, two doors and
open space between wall and
roof.

COOKING

6'x10' internal cooking space

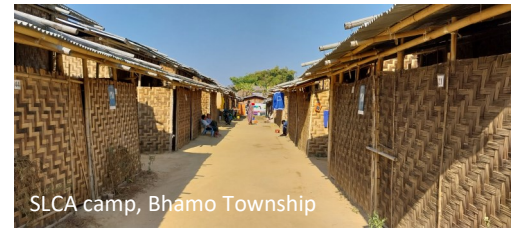
ENVIRONMENT ACTIONS APPLIED:

 **Carbon Emission - ACTION 3:**
Prioritize materials that are locally available to reduce transportation-related emissions.

Consult Cluster [Initial Environmental Action Plan](#)

KEY TAKEAWAYS:

- Promote shelter construction trainings during implementation of the program to enhance capacity and resilience mechanisms of communities.
- Local material and techniques are taking into consideration.



Technical drawings - Northeast hub

This shelter design has two options varying the roof material.

For the technical drawings and bill of quantities for each option, please access the code below.

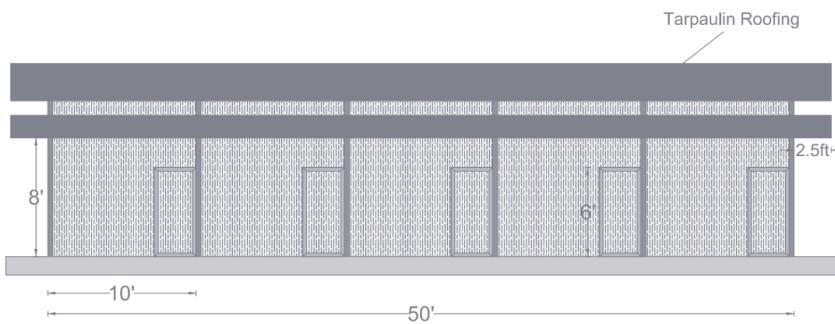
The drawings below refers to the five units tarp roof option.



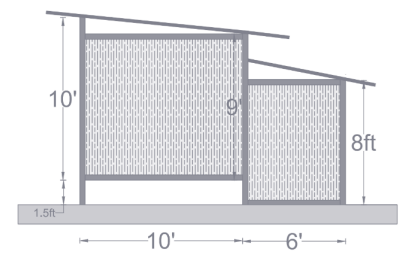
Scan or click pressing "Ctrl" in the QR code to access the full package of technical drawings and BoQ.



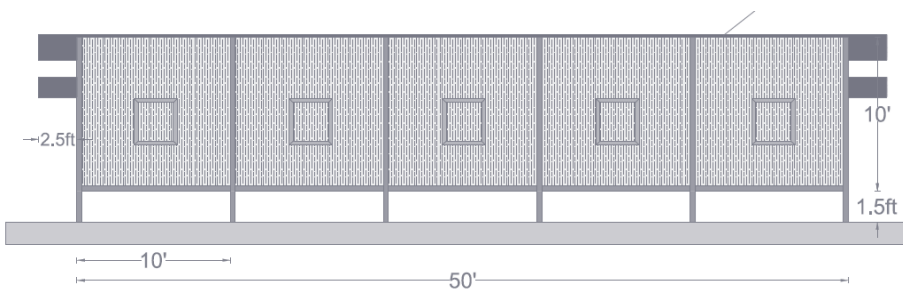
FLOOR PLAN



FRONT ELEVATION



SIDE ELEVATION



BACK ELEVATION

Makeshift Shelter - Northwest hub

SHELTER DESCRIPTION:

This shelter was designed for displacement settlements in Chin state to host displaced population. The shelters are made of jungle wood structure, walling and roofing with tarpaulin.

LOCATION:
Chin State

METHOD OF IMPLEMENTATION:

Construction contract with community leaders, and regular monitoring for quality control.

FOR HOW MANY PEOPLE: (1HH = 5people)
1 household

COST PER SHELTER:
\$368 usd

DIMENSIONS & FOOTPRINT:
24'x16' 384ft² | 35.70m²

LIFESPAN:
6 months to 1 year

TIME TO BUILD:
15 days

ADVANTAGES:

Provide privacy and dignity for the family following the minimum space standards. Community engagement to build the unit.

DISADVANTAGES:

Local tarpaulin available has shorter lifespan that can compromise walling shortly. The design do not provide privacy for the family members.

DESIGN OPTIONS

SIZE OPTION:
24'x16' per HH
(384ft² | 35.70m² per family)

FOOTING OPTION:
No footing design

STRUCTURE OPTION:
Jungle wood

FLOOR MATERIAL OPTION:
6"x1" jungle wood plank

WALL MATERIAL OPTION:
Jungle wood frame and tarpaulin walling


ROOF MATERIAL OPTION:
Jungle wood frame and tarpaulin walling

PRIVACY (PARTITION)
One partition

VENTILATION & NATURAL LIGHT
Seven windows, one main door

COOKING
16'x6' internal cooking space

ENVIRONMENT ACTIONS APPLIED:

 **Carbon Emission - ACTION 3:**
Prioritize materials that are locally available to reduce transportation-related emissions.

Consult Cluster [Initial Environmental Action Plan](#)



KEY TAKEAWAYS:

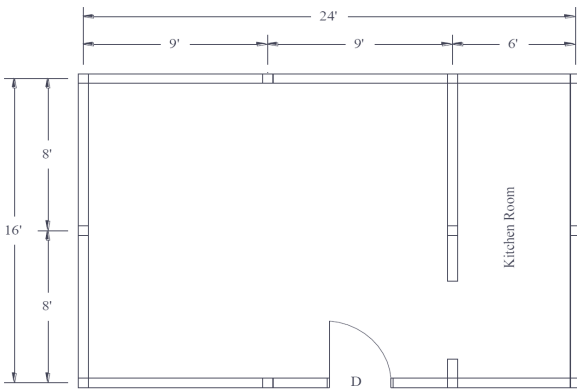
- Community engagement for the construction phase.
- Easy to replicate within community.
- Local material availability.

Technical drawings - Northwest hub

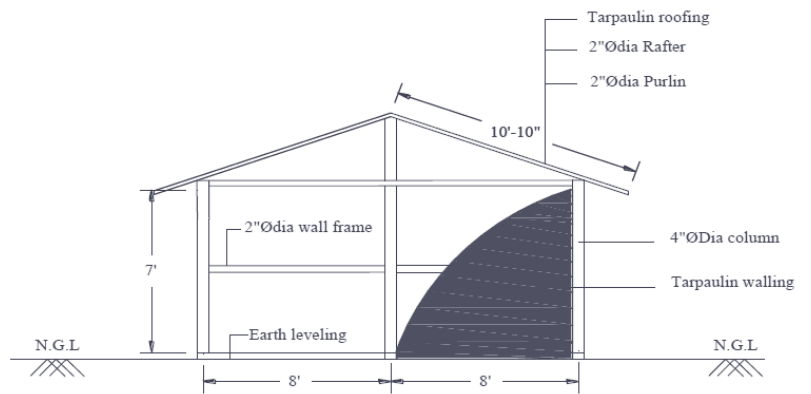
For the technical drawings and bill of quantities, please access the code below.



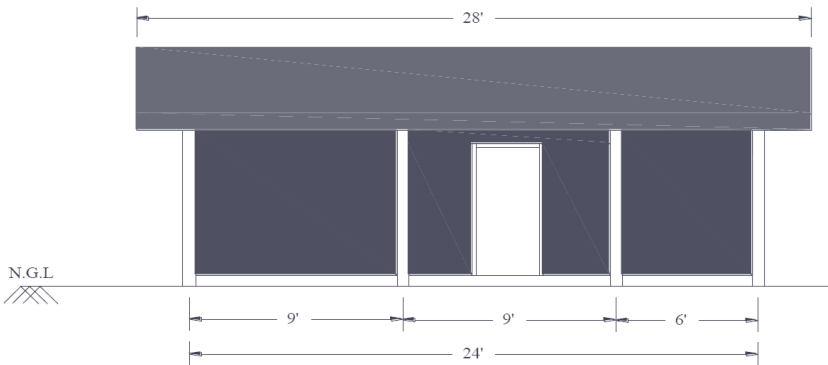
Scan or click pressing "Ctrl" in the QR code to access the full package of technical drawings and BoQ.



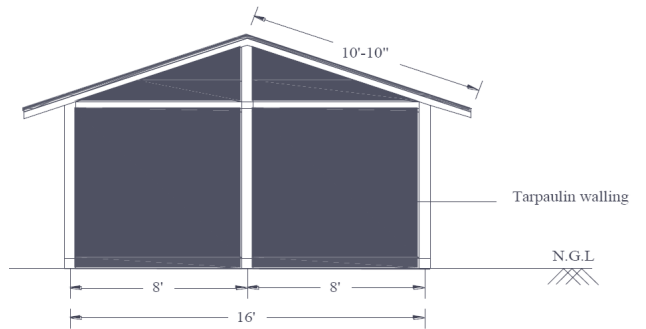
FLOOR PLAN



SECTION A-A'



FRONT ELEVATION



SIDE ELEVATION

Bamboo Shelter - Rakhine hub

with different sizes

SHELTER DESCRIPTION:

The “bamboo shelter” was designed for displaced people in displacement sites in land such as monetary, religious building in central Rakhine State. It can be a single unit or multiple units according to the space available. Both structures are comprised with myaw post (local wood), bamboo wall cladding and roof variation among tarpaulin and nipa palm.

RAKHINE HUB

LOCATION:

Central Rakhine

METHOD OF IMPLEMENTATION:

Provision of materials

FOR HOW MANY PEOPLE: (1HH = 5 people)

1 household | 4 households

COST PER SHELTER:

Depending on the type, varying between 290 to 572 usd

DIMENSIONS & FOOTPRINT:

Single unit: 12'x16' 192 ft² | 17.85m²

Four Units: 40'x16' 640 ft² | 59.45m²

LIFESPAN:

Up to 2 years

TIME TO BUILD:

15 days

ADVANTAGES:

The material used are locally procured and climate appropriate, with construction technique based on traditional methods, making it easier for beneficiaries to build, maintain and repair.

DISADVANTAGES:

There is limited space, lack of privacy and it is a solution for a limited period of time.

KEY TAKEAWAYS:

- Local techniques using local materials making it easier for beneficiaries to maintain and repair.
- Easy to replicate as the communities already have the technical skills.

DESIGN OPTIONS

SIZE OPTION:

Single unit: 12'x16'x7' per HH
(192ft² | 17.85m²)

4 units - 10'x16'x7' per HH
(160ft² | 14.85m² per family)

FOOTING OPTION:

No footing design

STRUCTURE OPTION:

Myaw post and bamboo

FLOOR MATERIAL OPTION:

Bamboo

WALL MATERIAL OPTION:

Bamboo mat

ROOF MATERIAL OPTION:

Bamboo frame and tarpaulin

PRIVACY (PARTITION)

One partition

VENTILATION & NATURAL LIGHT

One window and door

COOKING

Not specified cooking area

ENVIRONMENT ACTIONS APPLIED:



Carbon Emission - **ACTION 3:**

Prioritize materials that are locally available to reduce transportation-related emissions.



Design - **ACTION 8:**

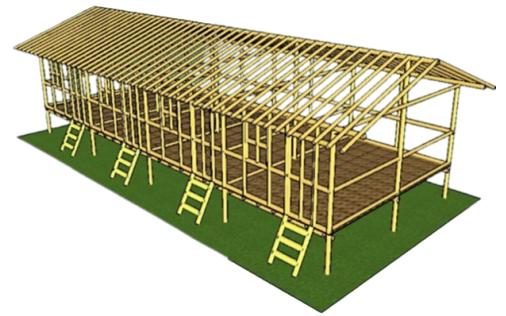
Design strategies to enhance natural ventilation and lighting.

Consult Cluster [Initial Environmental Action Plan](#)



Technical drawings - Rakhine hub

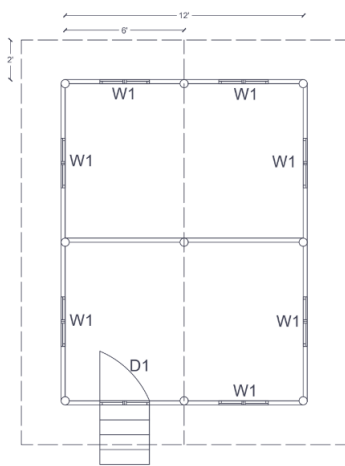
This shelter design has two options varying only on the size (1 or 4 HH).
For the technical drawings and bill of quantities for each option, please access the code below.



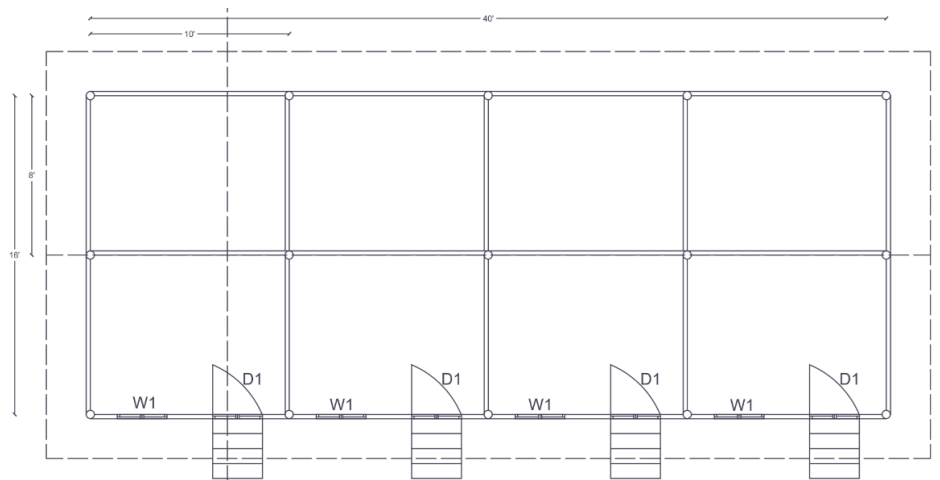
THE LUTHERAN WORLD FEDERATION



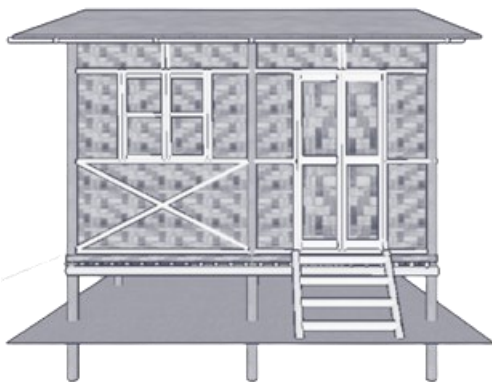
Scan or click pressing "Ctrl" in the QR code to access the full package of technical drawings and BoQ.



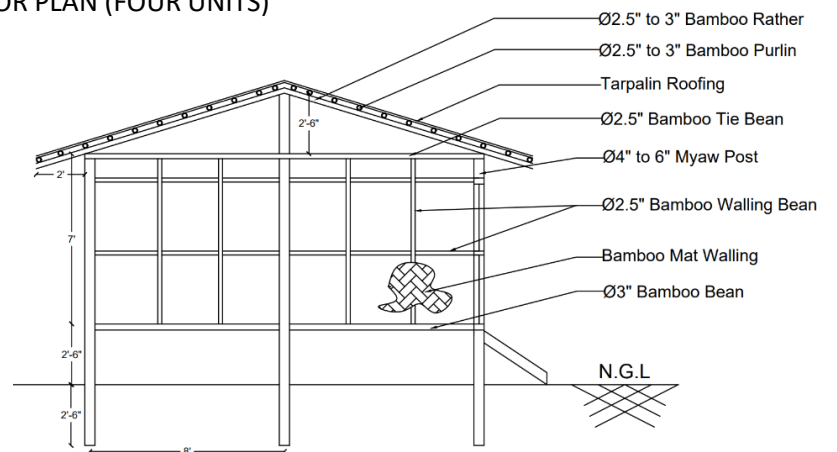
FLOOR PLAN (SINGLE UNIT)



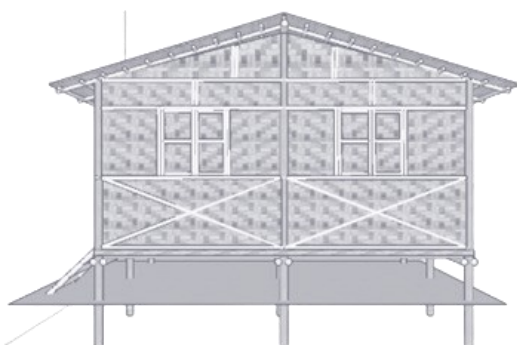
FLOOR PLAN (FOUR UNITS)



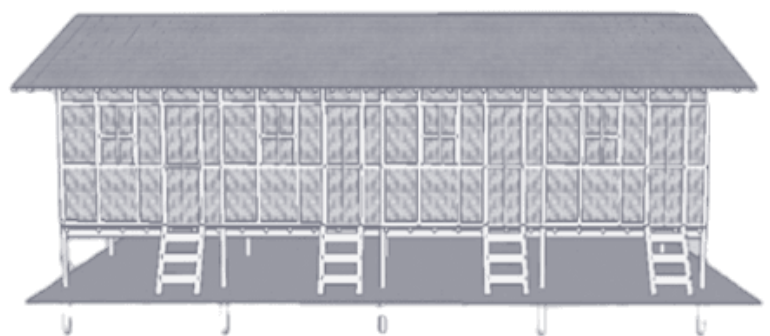
FRONT ELEVATION (SINGLE UNIT)



SECTION A-A' (FOUR UNITS)



SIDE ELEVATION (SINGLE UNIT)



FRONT ELEVATION (FOUR UNITS)

Longhouse Shelter - Northeast hub

with different claddings

SHELTER DESCRIPTION:

The “longhouse shelter” also known as “barrack shelter” at Northeast region was designed to shelter displaced people in 115 formal settlements/protected camp, it can be a single unit shelter or multiple units. Different from Rakhine, the “longhouse” in Northeast has two bedrooms, one kitchen, an attic for storage and lining to increase the thermic comfort. The main structure can vary depending on market availability among timber and metal.

LOCATION:

Kachin and
Northern Shan

NORTHEAST HUB



METHOD OF IMPLEMENTATION:

Skilled labor through local construction company. Before the tendering process start, the Implementing Partners provide an orientation session to beneficiaries and construction company separately.

FOR HOW MANY PEOPLE: (1HH = 5-7people)

1 household | 5 households | 7 households

COST PER SHELTER:

5 units: Depending on the material, varying between \$1,720 to \$2,620 usd

DIMENSIONS & FOOTPRINT:

5 units: 55'x26' 1,430 ft² | 132.85m²

LIFESPAN:

Depending on the material 2-4 years

TIME TO BUILD:

5 units: 60 days

ADVANTAGES:

The design promote safety to the families, use of local material in the timber version.

DISADVANTAGES:

Compromised ventilation and natural light in dense settlements. Lack of natural light and ventilation on the second bedroom for multiple units option.

KEY TAKEAWAYS:

- This transitional solution provide minimum space for families, it considers one unit for families of 1-7 members and two units for 8-14 members.
- Local techniques using local materials.

DESIGN OPTIONS

SIZE OPTION:

26'x11' per HH
(286 ft² | 26.57m²)

FOOTING OPTION:

12"x 12" x 2' concrete footing

STRUCTURE OPTION:

Timber or
Metal

FLOOR MATERIAL OPTION:

6"x1" timber plank

WALL MATERIAL OPTION:

Timber structure with bamboo mat walling
Metal structure with 4 angle Aluzinc exterior wall and Plywood interior wall

ROOF MATERIAL OPTION:

4 angle Aluzinc

PRIVACY (PARTITION)

Two bedrooms


VENTILATION & NATURAL LIGHT


One window per bedroom and half wall hollow element in the kitchen space

COOKING

8'x11' internal cooking space

ENVIRONMENT ACTIONS APPLIED:

 Carbon Emission - **ACTION 3:**
Prioritize materials that are locally available to reduce transportation-related emissions.

 Design - **ACTION 9:**
Improve structural systems to minimize material use while maintaining technical performance.

Consult Cluster [Initial Environmental Action Plan](#)



Technical drawings - Northeast hub

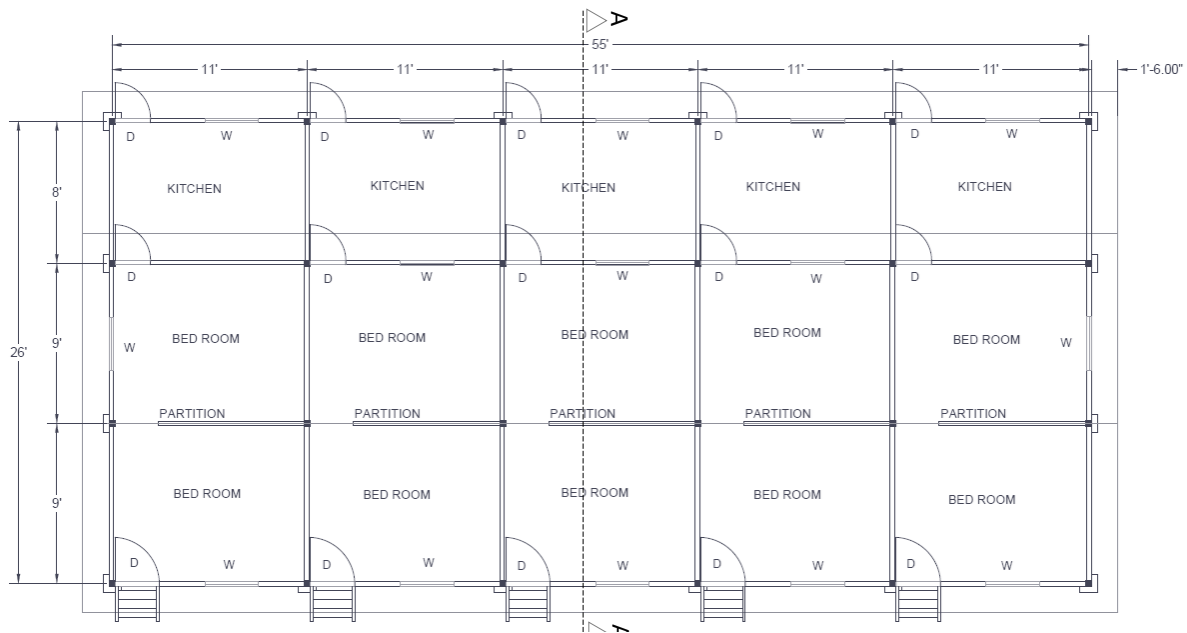
This shelter design has two structure options and varied sizes.

Technical drawings and bill of quantities for single unit and five units options will be given here, please access the code below.

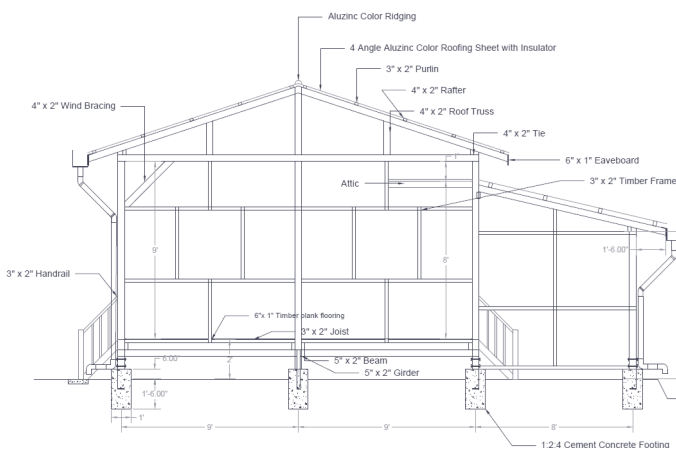
The drawings below refers to the five units timber option.



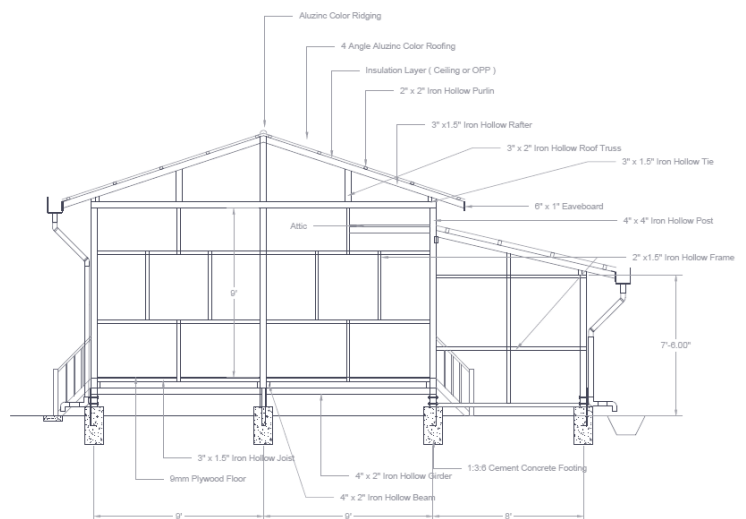
Scan or click pressing "Ctrl" in the QR code to access the full package of technical drawings and BoQ.



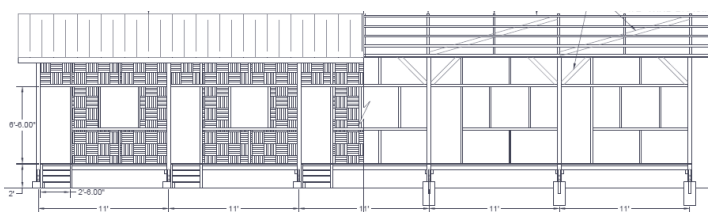
FLOOR PLAN



SECTION A-A' (TIMBER)



SECTION A-A' (METAL)



FRONT ELEVATION (TIMBER)



FRONT ELEVATION (METAL)

Longhouse Shelter - Rakhine hub

with different claddings

SHELTER DESCRIPTION:

The “longhouse shelter” was designed for camps in central Rakhine state to host Rohingya and Kaman displaced population. In central Rakhine there are 16 camps with 2,206 longhouse shelters. The longhouses are made of hardwood structure with bamboo wall cladding and zinc roof to maximize privacy and protect against the weather conditions. The design must be approved by local authorities.

LOCATION:

Central Rakhine

RAKHINE HUB



METHOD OF IMPLEMENTATION:

Demolish and reconstruction with skilled labors through a local construction company. During the reconstruction phase the families are relocated to a makeshift shelter located nearby the reconstruction site.

FOR HOW MANY PEOPLE: (1HH = 5people)
8 households | 10 households

COST PER SHELTER:

Depending on the type, varying between \$7,800.00 to \$8,900.00 usd

DIMENSIONS & FOOTPRINT:

45'x30'x7'-6" 1,350 ft² | 125.5m²

LIFESPAN:

Up to 5 years

TIME TO BUILD:

45 days

ADVANTAGES:

Local materials, livelihood opportunities as people engaged in making the bamboo mats for walls and floor as well in the construction process.

DISADVANTAGES:

The design is lacking in adequate space, internal privacy and natural light. HLP issues to increase the units size.

KEY TAKEAWAYS:

- Community engagement during the program implementation.
- Local techniques using local materials.

DESIGN OPTIONS

SIZE OPTION:

8HH: 15'x11'-3" per HH
(165 ft² | 15.30m²)

10HH: 15'x9' per HH
(135 ft² | 12.55m²)

FOOTING OPTION:

12"x12"x3'-0" concrete footing

STRUCTURE OPTION:

Hardwood

FLOOR MATERIAL OPTION:

6"x1" hardwood plank

WALL MATERIAL OPTION:

Exterior: Bamboo mat walling

Interior: Plywood

ROOF MATERIAL OPTION:

Timber frame and CGI shingles

PRIVACY (PARTITION)

One partition


VENTILATION & NATURAL LIGHT


One window, hollow element above the main door


COOKING

Internal area

ENVIRONMENT ACTIONS APPLIED:

 Carbon Emission - **ACTION 3:**
Prioritize materials that are locally available to reduce transportation-related emissions.

 Waste Management - **ACTION 5:**
Improve structural systems to minimize material use while maintaining technical performance.

 Design - **ACTION 9:**
Improve structural systems to minimize material use while maintaining technical performance.

Consult Cluster [Initial Environmental Action Plan](#)

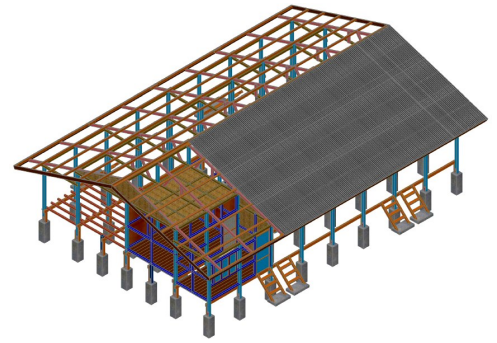


Technical drawings - Rakhine hub

This shelter design has three different options, each of them is in agreement with the local authorities and adjusted according to the terrain.

For the technical drawings and bill of quantities of each option, please access the code below.

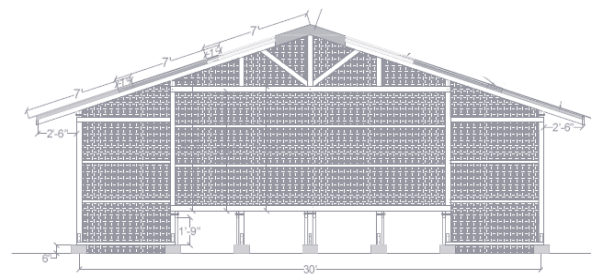
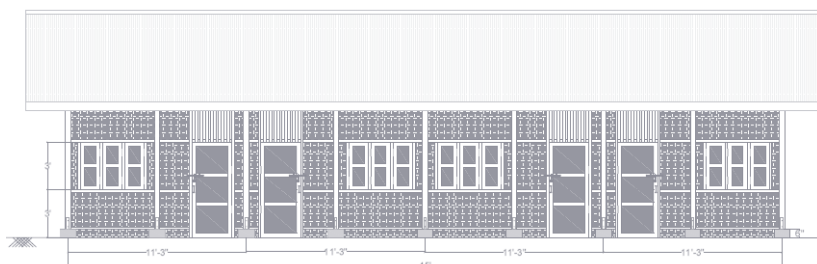
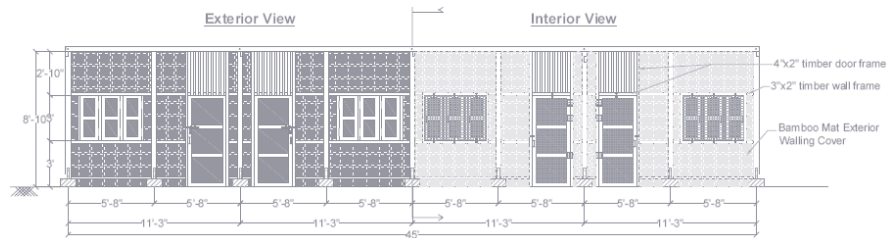
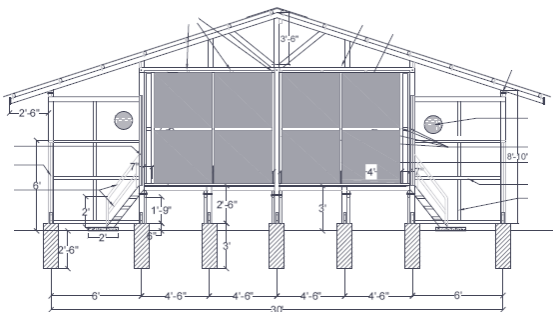
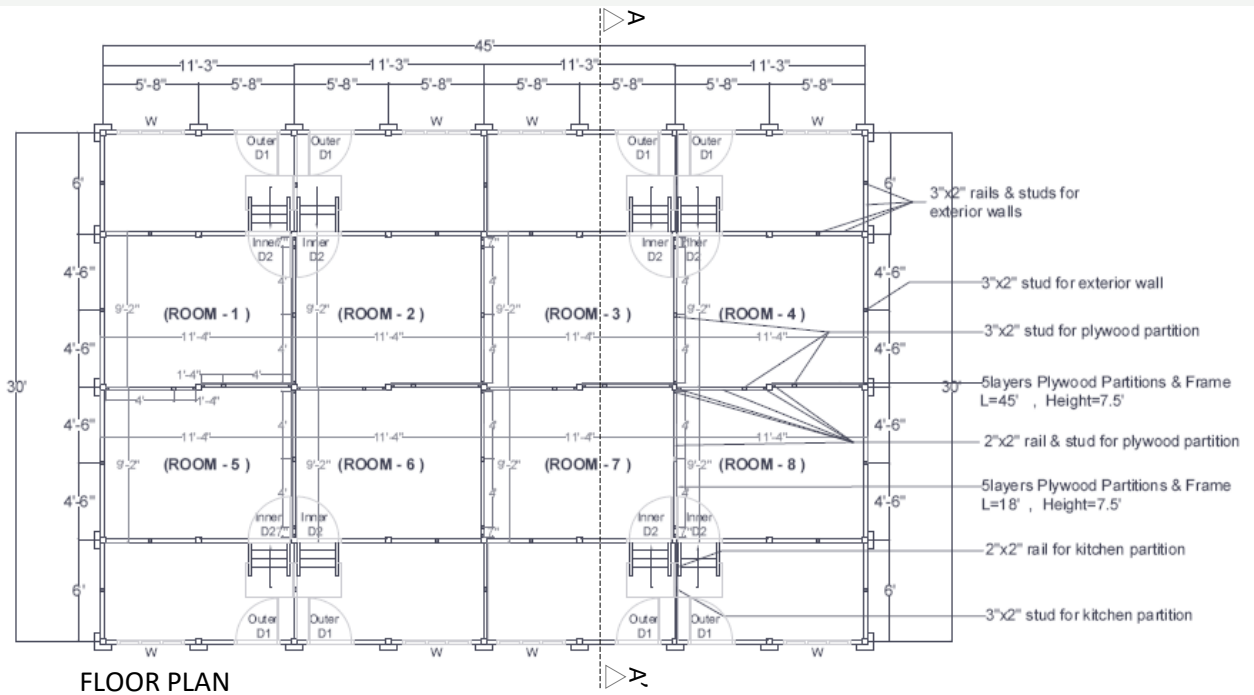
The drawings below refer to the Option A as the majority of long-houses in Rakhine State.



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Scan or click pressing "Ctrl" in the QR code to access the full package of technical drawings and BoQ.



Transitional Shelter - Northwest hub

SHELTER DESCRIPTION:

The “transitional shelter” was designed for displacement in Chin state to host displaced populations. It is made of jungle wood or local hardwood structure with bamboo or CGI sheet wall cladding and CGI roof. The design maximize privacy and protect against the weather conditions.

LOCATION:
Chin State

METHOD OF IMPLEMENTATION:
Construction contract with community leaders, and regular monitoring for quality control.

FOR HOW MANY PEOPLE: (1HH = 5people)
1 household

COST PER SHELTER:
Depending on the material, varying between \$1,780 to \$2,013 usd

DIMENSIONS & FOOTPRINT:
24'x16' 384ft² | 35.70m²

LIFESPAN:
3-5 years

TIME TO BUILD:
15 days

ADVANTAGES:
Provide privacy and dignity for the family following the minimum space standards. Community engagement to build the unit and the use the local building technics.

DISADVANTAGES:
Lack of improved foundation that can compromise the structure in a shorter period of time

KEY TAKEAWAYS:

- Community engagement for the construction phase.
- Local material and techniques are taking into consideration.

DESIGN OPTIONS

SIZE OPTION:
24'x16' per HH
(384ft² | 35.70m² per family)

FOOTING OPTION:
No footing design

STRUCTURE OPTION:
Ø 3" Jungle wooden or
5"x5" local hardwood

FLOOR MATERIAL OPTION:
6"x1" jungle wood plank

WALL MATERIAL OPTION:
Bamboo mat or
CGI sheet


ROOF MATERIAL OPTION:
CGI sheet


PRIVACY (PARTITION)
Two partition


VENTILATION & NATURAL LIGHT
Six windows, one main door

COOKING
16'x6' internal cooking space

ENVIRONMENT ACTIONS APPLIED:

 **Carbon Emission - ACTION 3:**
Prioritize materials that are locally available to reduce transportation-related emissions.

 **Design - ACTION 8:**
Design strategies to enhance natural ventilation and lighting.

 **Design - ACTION 9:**
Improve structural systems to minimize material use while maintaining technical performance.

Consult Cluster [Initial Environmental Action Plan](#)

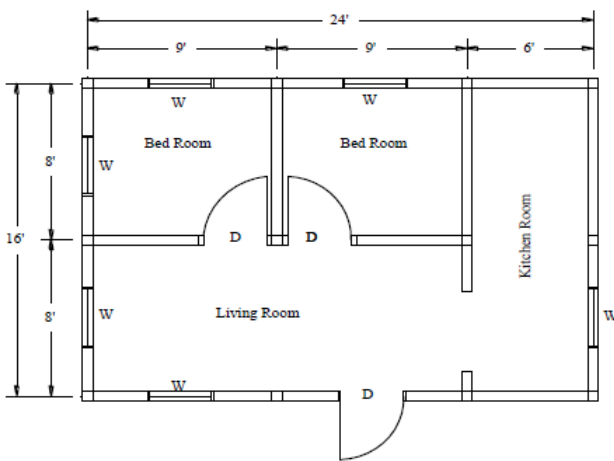


Technical drawings - Northwest hub

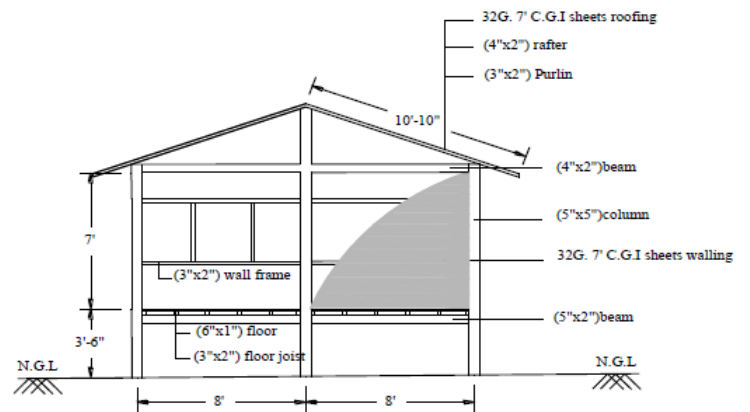
For the technical drawings and bill of quantities, please access the code below.



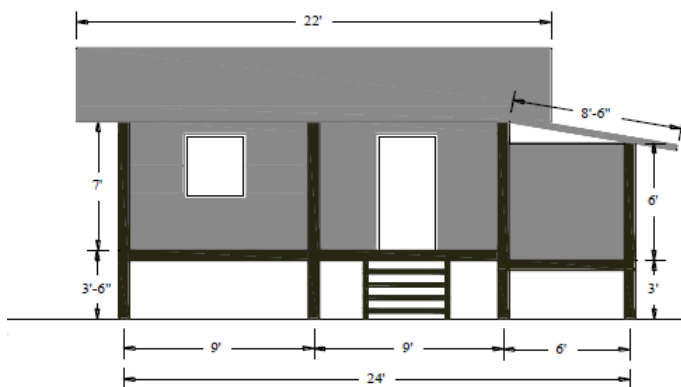
Scan or click pressing "Ctrl" in the QR code to access the full package of technical drawings and BoQ.



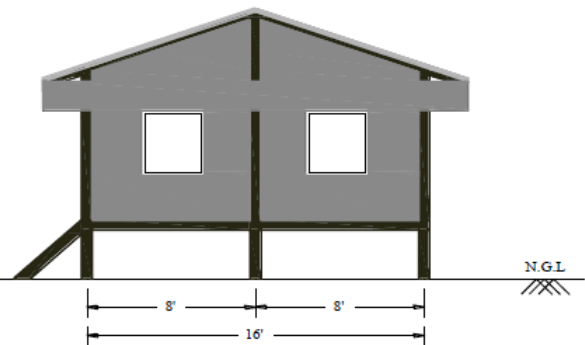
FLOOR PLAN



SECTION A-A'



FRONT ELEVATION



SIDE ELEVATION

Semi-Permanent Shelter - Northeast hub

SHELTER DESCRIPTION:

The “semi-permanent shelter” also known as “transitional solution shelter” was designed for return, resettled, and local integrated population in Kachin and Northern Shan State. Consists of a living room, two bedrooms with lining to improve thermal comfort, a kitchen and a frontal balcony railing.

NORTHEAST HUB

LOCATION:

Kachin and Northern Shan



METHOD OF IMPLEMENTATION:

Skilled labor through local construction company and regular construction monitoring.

FOR HOW MANY PEOPLE: (1HH = 1-7people)

1 household

COST PER SHELTER:

Depending on the size and material, varying between 4,050 to 4,290 usd

DIMENSIONS & FOOTPRINT:

18'x27' + 4'x9' 522 ft² | 48.50m²

LIFESPAN:

5-10 years

TIME TO BUILD:

60 days

ADVANTAGES:

The design is a long-term solution with appropriate space for the families, great ventilation and local techniques. Families with big number of members contribute for extra cost for long leg shelter to create more room at the ground floor.

DISADVANTAGES:

Families still want to customize the design during the construction phase what became a challenge for different organization implementing the project.

DESIGN OPTIONS

SIZE OPTION:

18'x27' + 4'x9' per HH
(522 ft² | 48.50m²)

FOOTING OPTION:

12"x 12" x 2' concrete footing

STRUCTURE OPTION:

Timber

FLOOR MATERIAL OPTION:

6"x1" timber plank

WALL MATERIAL OPTION:

Bamboo mat walling

ROOF MATERIAL OPTION:

4 angle Aluzinc

PRIVACY (PARTITION)

Two bedrooms


VENTILATION & NATURAL LIGHT

One window per bedroom and half wall hollow element in the kitchen space.

COOKING

9'x18' internal cooking space


ENVIRONMENT ACTIONS APPLIED:

 Carbon Emission - **ACTION 3:**

Prioritize materials that are locally available to reduce transportation-related emissions.

 Waste Management - **ACTION 5:**

Improve structural systems to minimize material use while maintaining technical performance.

 Design - **ACTION 8:**

Design strategies to enhance natural ventilation and lighting.

 Design - **ACTION 9:**

Improve structural systems to minimize material use while maintaining technical performance.

Consult Cluster [Initial Environmental Action Plan](#)



KEY TAKEAWAYS:

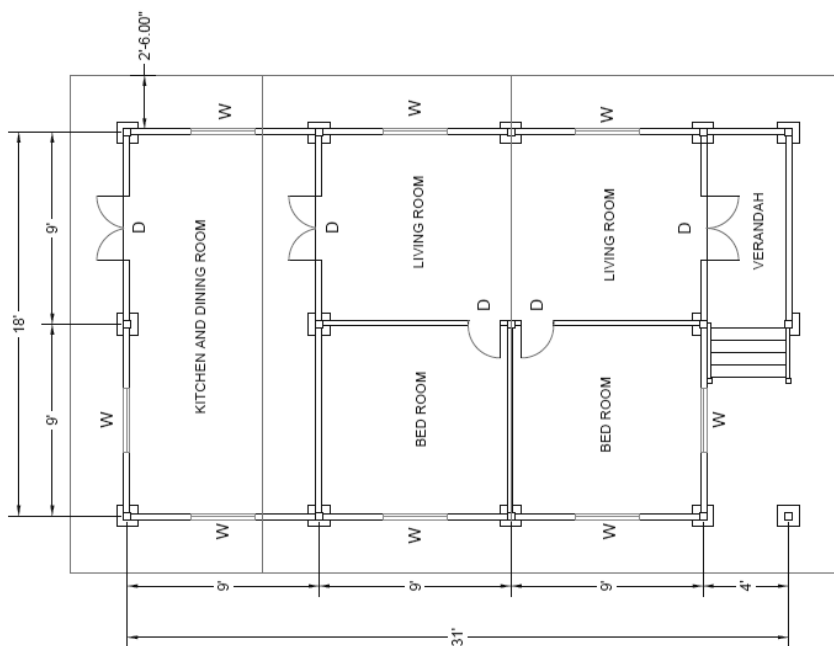
- The design provide a more long-term solution that can be expanded and easily replicated by community with appropriate training and orientation.
- Local techniques using local materials.

Technical drawings - Northeast hub

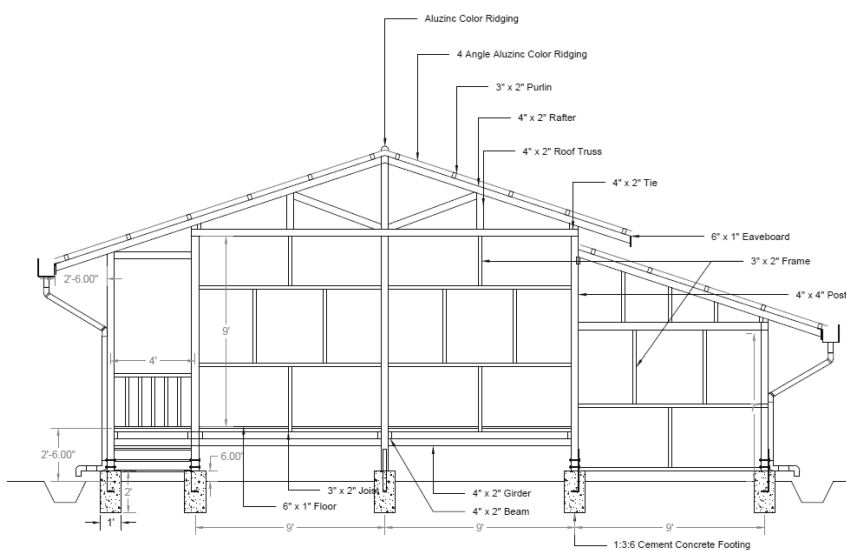
For the technical drawings and bill of quantities, please access the code below.



Scan or click pressing "Ctrl" in the QR code to access the full package of technical drawings and BoQ.



FLOOR PLAN



SECTION A-A'



FRONT ELEVATION

Permanent Shelter - Rakhine hub

SHELTER DESCRIPTION:

The “permanent shelter” was designed in 2020 when local authorities confirmed some Rohingya displacement population in northern townships of Rakhine State since 2017 return to their land of origin. The design was conceived through community consultation taking in consideration traditions and cultural aspects. However, majority of families wished their original house design. The design process supported to develop the BoQ for costing. In the implementation phase the project needed to be adjusted to the families need at that time according to the late TA (travel authorization issued by *de facto*) received.

RAKHINE HUB

LOCATION:

Maungdaw Township in Northern Rakhine State



METHOD OF IMPLEMENTATION:

Provision of skill labor and construction materials based on the proposed design followed by regular monitoring.

FOR HOW MANY PEOPLE: (1HH = 5people)

1 household

COST PER SHELTER:

\$6,691 usd (labor included)

DIMENSIONS & FOOTPRINT:

23.2'x15.2' + 7.6'x5' 390.65ft² | 36.30m²

LIFESPAN:

5-10 years

TIME TO BUILD:

15 days

ADVANTAGES:

Not measurable as the design was not implemented.

DISADVANTAGES:

Not measurable as the design was not implemented.

KEY TAKEAWAYS:

This is a specific situation where the planned design were not implemented as the project design due to a late TA approval and change of needs. Where flexibility of all involved in the project is needed to be able to adjust the new scenario and provide the necessary support.

DESIGN OPTIONS

SIZE OPTION:

23.2'x15.2' + 7.6'x5' per HH
(390.65 ft² | 36.30m²)

FOOTING OPTION:

1.5'x1.5'x2.5' concrete footing

STRUCTURE OPTION:

Timber

FLOOR MATERIAL OPTION:

6"x1" timber plank

WALL MATERIAL OPTION:

Interior and exterior bamboo mat

ROOF MATERIAL OPTION:

Timber frame with CGI shingles

PRIVACY (PARTITION)

Two bedrooms

VENTILATION & NATURAL LIGHT

At least one window per bedroom and five windows in the common areas

COOKING

7.6'x5' internal cooking space

ENVIRONMENT ACTIONS CONSIDERED:

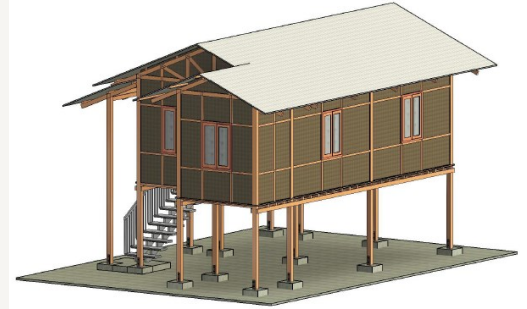
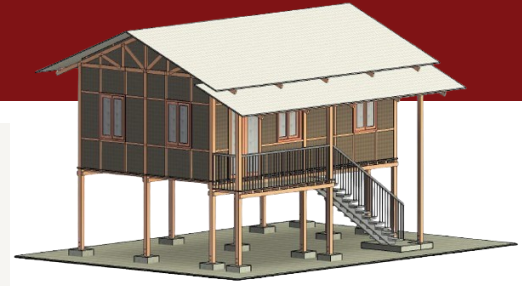
Carbon Emission - ACTION 3:

Prioritize materials that are locally available to reduce transportation-related emissions.

Design - ACTION 8:

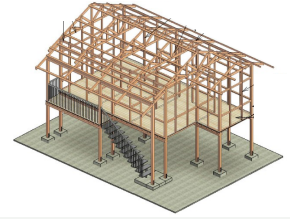
Design strategies to enhance natural ventilation and lighting.

Consult Cluster [Initial Environmental Action Plan](#)

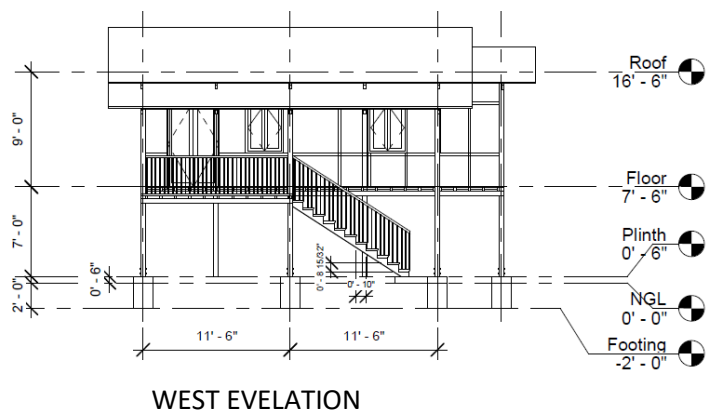
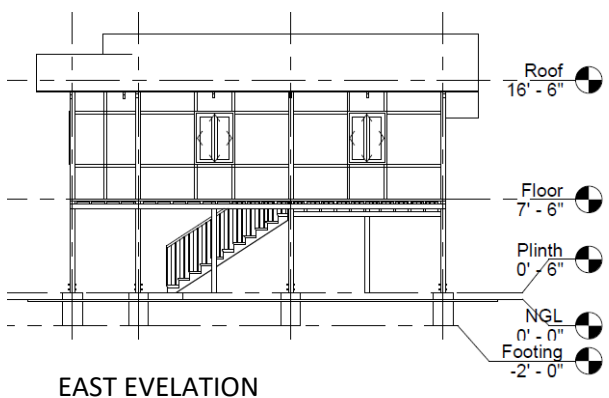
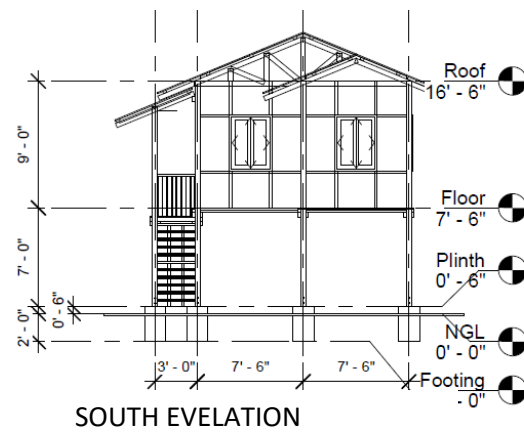
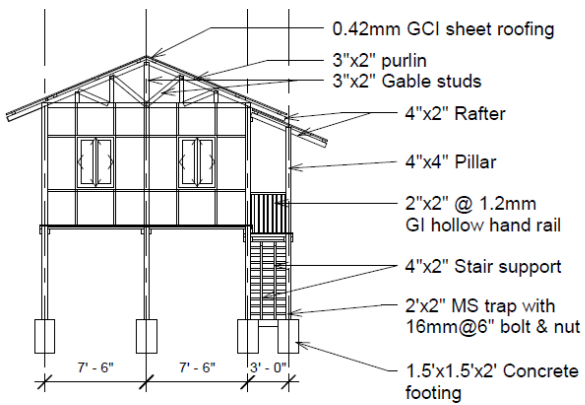
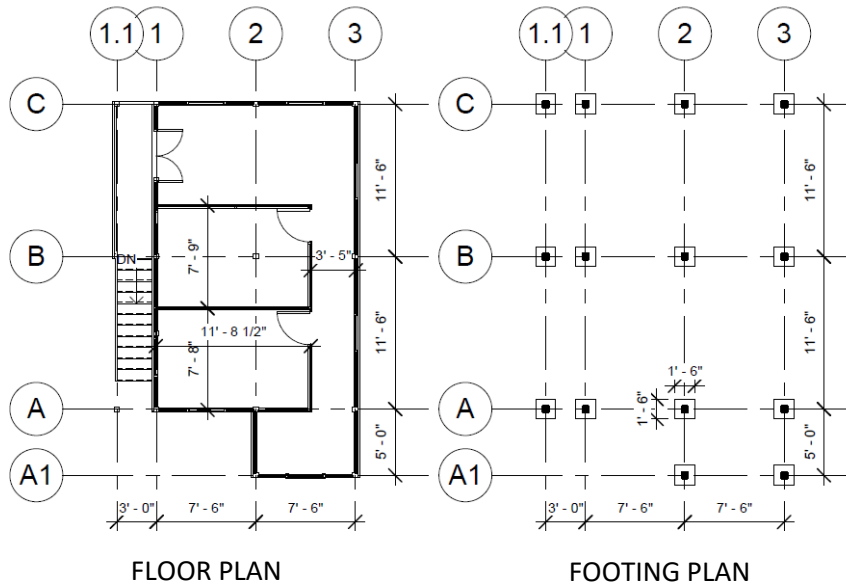


Technical drawings - Rakhine hub

For the technical drawings and bill of quantities, please access the code below.



Scan or click pressing "Ctrl" in the QR code to access the full package of technical drawings and BoQ.



Community Center - Rakhine hub

DESCRIPTION:

The community center is originally an innovative negative carbon footprint shelter solution with bamboo-based structures of interlocking small-diameter bundled bamboo counting on an innovational construction approach such as prefabrication and structural optimization. 2 units option were donated to an IDP camp in Rakhine and built to be used as a community center.

LOCATION:

Rakhine State

METHOD OF IMPLEMENTATION:

Donation of an innovative shelter (2 units) to be used as a community center. The *Wa gout* bamboo were treated and transported to the construction site. Structural bamboo frame were assembled in loco with support of a custom metal formwork. Half of the labor needed were hired and trained in the camp.

FOR HOW MANY PEOPLE:

2 units shelter as community center for 15 people

COST PER UNIT:

Depending on the size, varying between \$1,000 to \$4,000 usd

DIMENSIONS & FOOTPRINT:

Varying from 129ft² | 12m² to 840ft² | 78m²

LIFESPAN:

6 years

TIME TO BUILD:

Varying from 5 days to 14 days

ADVANTAGES:

Prefabrication construction methodology reduces to a week the construction time. Community engagement during the construction phase. Low cost construction considering lifespan.

DISADVANTAGES:

Applying as shelter: Flexibility to adapt the design to the families need in a long-term period.

KEY TAKEAWAYS:

- The design provide a more long-term solution that can be expanded and easily replicated by community with appropriate training and orientation.
- Community engagement for the construction phase.

DESIGN OPTIONS

SIZE OPTION:

1 unit 129ft² | 12m²
 2units 344ft² | 32m²
 4units 840ft² | 78m²

FOOTING OPTION:

Prefabricated concrete footing

STRUCTURE OPTION:

Bamboo

FLOOR MATERIAL OPTION:

Bamboo shingles or
 Plywood sheets

WALL MATERIAL OPTION:

Interior and exterior bamboo
 mat

ROOF MATERIAL OPTION:

Corrugated steel roofing sheets

PRIVACY (PARTITION)

Up to the community to decide


VENTILATION & NATURAL LIGHT


Up to the community to decide


COOKING


N/A for community center

ENVIRONMENT ACTIONS APPLIED:

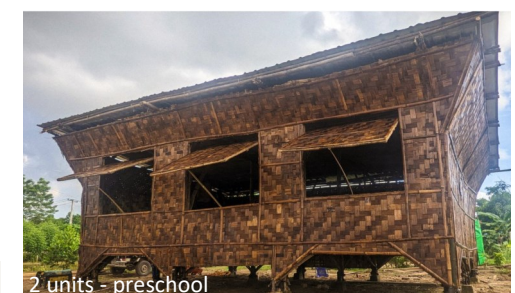
 Carbon Emission - **ACTION 3:**
 Prioritize materials that are locally available to reduce transportation-related emissions.

 Waste Management - **ACTION 6:**
 Develop a plan to increase lifespan of materials.

 Design - **ACTION 8:**
 Design strategies to enhance natural ventilation and lighting.

 Design - **ACTION 9:**
 Improve structural systems to minimize material use while maintaining technical performance.

Consult Cluster [Initial Environmental Action Plan](#)

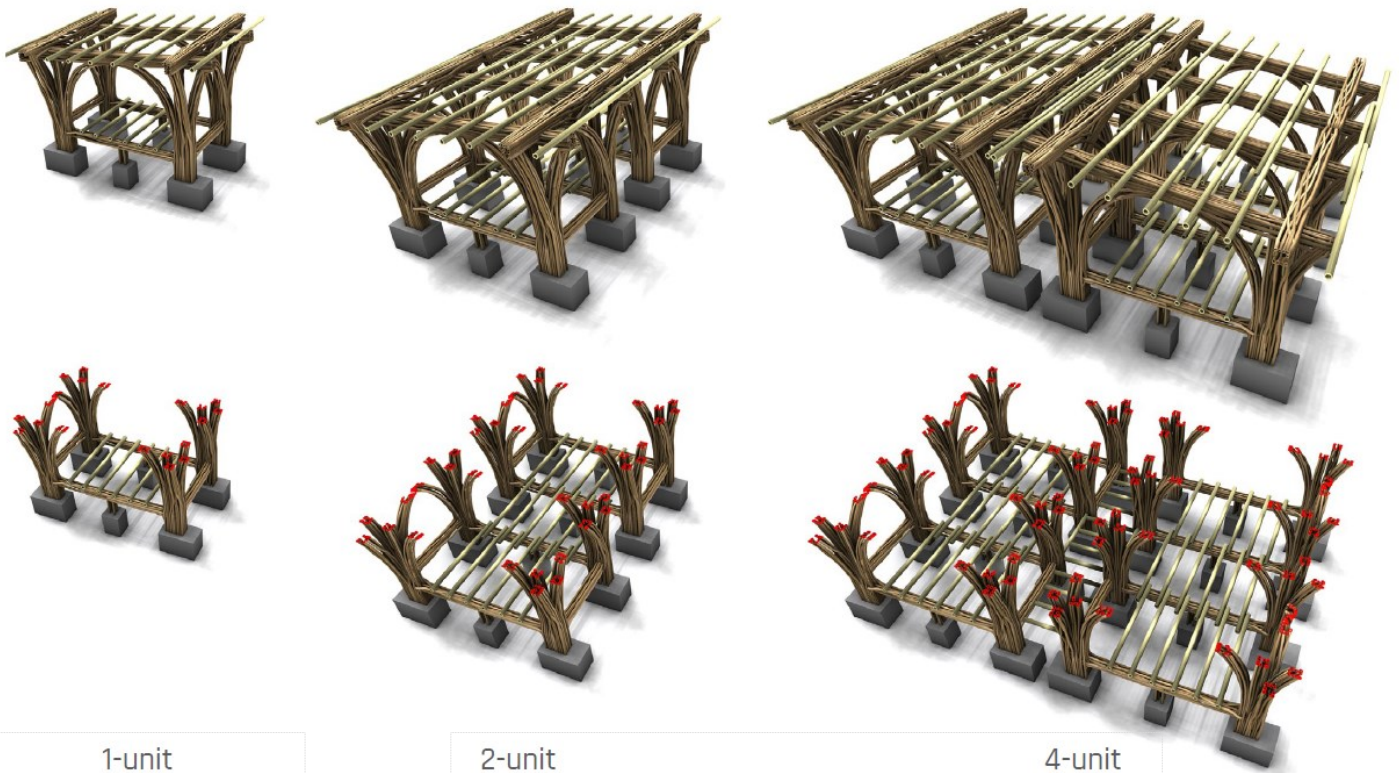


Technical drawings Rakhine hub

For more information about the social enterprise project, please access the code below.



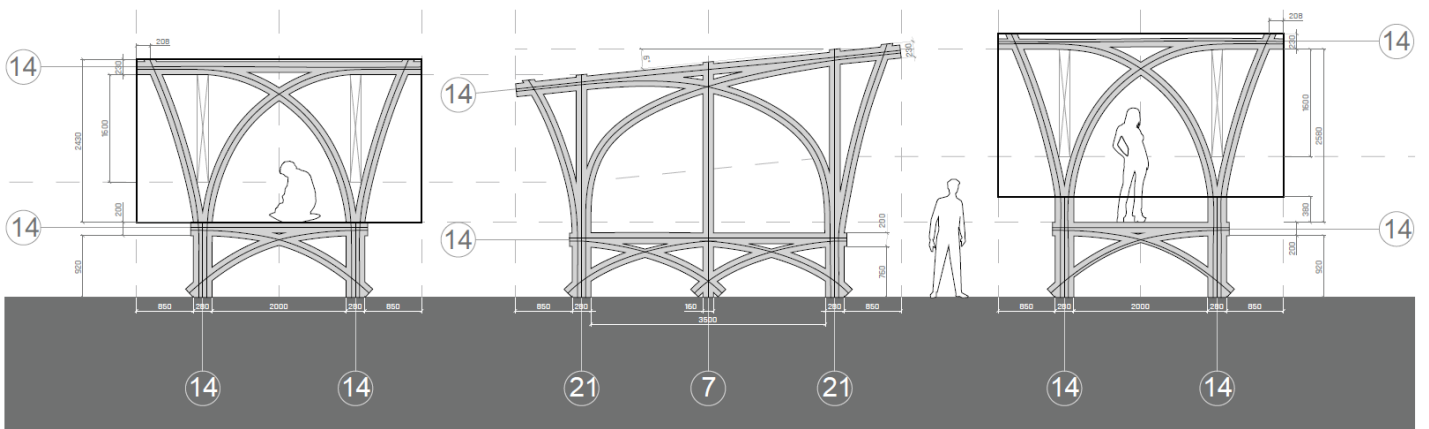
Scan or click pressing "Ctrl" in the QR code to access more information



1-unit
Applicable for shelter

2-unit
Applicable for shelter and communal spaces

4-unit



References

[Division of Programme Support and Management, Shelter and Settlement Section - Shelter Design Catalogue](#) - UNHCR, 2016

[Initial Environment Action Plan](#) - Myanmar Shelter-NFI-CCCM Cluster, 2023

[Shelter Designs in the Northern of Mozambique](#) - Mozambique Shelter Cluster, 2021

[Shelter and Sustainability / GHG Emission Calculator tool](#) - UNHCR