



Structure: a modular shelter that lasts throughout the duration of displacement

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STRUCTURE

A MODULAR SHELTER THAT LASTS THROUGHOUT
THE DURATION OF DISPLACEMENT

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THE PROCESS INCREMENTALLY UPGRADED EMERGENCY SHELTER



Better Shelter Frame	Local upgrade
Weight 69kg / Volume 0,14 m3 Lifespan: 10 years	Thatch, plaster, CGI, mudbrick, concrete hollow block, reed mats, timber or bamboo etc.
Tarpaulin	Better Shelter Panels
Weight 20kg / Volume 0,03 m3 Lifespan: 1-2 years	Roof and wall panels, door, window and ventilation.










- ✓ A Structure Better Shelter Frame with 4 sheets of tarpaulin can make a emergency shelter at a **cost / weight / volume less than a tent.**
- ✓ Can be **upgraded locally** over time to extend the life span and cultural fit.
- ✓ Enables **incremental approach** through upgrades with local materials to provide lifespan up to 10 years.
- ✓ **Significantly lower cost.**
- ✓ The elongated lifespan of the shelter lowers the **Carbon footprint** of the shelter approach.

THE PRODUCT SPECIFICATION

STRUCTURE	
	
KEY FEATURES	
Assembly time	1-2 hours (by 4 people)
Expected Lifespan	Steel frame: 10 years
Walls and roof	-
Openings	-
Energy	-
SIZE AND WEIGHT	
Covered flooring space	17.5 m ² (188 ft ²)
Dimensions (LWH)	5,67 x 3.32 x 2.82 m (223 x 131 x 111 in)
Weight	69 kg (152 lbs.)
Packed volume	0.14 m ³ (4.95 ft ³)
Units/ 40ft HC Container	288
PERFORMANCE	
Wind	28 m/s (with tarpaulin cover)
Fire	Noncombustible materials
Rain	Withstands heavy rain (with tarpaulin cover)
Snow	10.5 kg/m ² (Eurocode 1 - EN 1991 - calculations)



THE KNOWLEDGE AMPLIFY AND COMMUNICATE LOCAL KNOW-HOW

Picture:									
Location:	KERALA, INDIA	KERALA, INDIA	KERALA, INDIA	KERALA, INDIA	AFGHANISTAN	AFGHANISTAN	RVANDA	RVANDA	RVANDA
Foundation:	Raised Soil Plinth	Raised Soil Plinth	Raised Soil Plinth	Raised Soil Plinth	Cement, stone and compacted soil Slab	Cement, stone and compacted soil Slab	Compacted Soil	Compacted Soil	Compacted Soil
Roof Material:	Tarpaulin (provided by Better Shelter)	Corrugated Galvanized Steel Sheets	Corrugated Galvanized Steel Sheets	Corrugated Galvanized Steel Sheets	Corrugated Galvanized Steel Sheets	Corrugated Galvanized Steel Sheets	Corrugated Galvanized Steel Sheets	Corrugated Galvanized Steel Sheets	Corrugated Galvanized Steel Sheets
Beams for Roof:	N/A	Wood planks	Wood planks	Wood planks	Wood planks	Wood planks	Wood planks	Eucalyptus purlins	Wood planks
Fasteners for Beams and Roof:	Better Shelter Fasteners (nuts, bolts and brackets)	Galvanized Steel wire and self threading screws	Galvanized Steel wire and self threading screws	Galvanized Steel wire and self threading screws	Screws, Metal brackets and steel wire	Screws, Metal brackets and steel wire	Galvanized Steel wire and Roof Nails	Galvanized Steel wire and Roof Nails	Galvanized Steel wire and Roof Nails
Insulation Material:	N/A	N/A	N/A	N/A	Rock Wool	Rock Wool	N/A	N/A	N/A
Inside Material:	N/A	N/A	N/A	N/A	Steel Mesh (chicken net)	Steel Mesh (chicken net)	N/A	N/A	N/A
Wall Material:	Tarpaulin (provided by Better Shelter)	Split bamboo (Bambusa Vulgaris)	Local Tarpaulin	Areca Nut Palm (Areca Catechu) planks	Weather treated plywood	Flat Board	Bamboo	Eucalyptus purlins	Sorghum
Beams for Walls:	N/A	Wood planks	N/A	Vertical Areca Nut Trunks	Wood planks	Wood planks	Wood planks	Split bamboo	Vertical eucalyptus purlins and horizontal split bamboo
Fasteners for Walls:	Better Shelter Fasteners (nuts, bolts and brackets)	Galvanized Steel wire	Better Shelter Fasteners (nuts, bolts and brackets)	Galvanized Steel wire and Nails	Screws and metal brackets	Screws and metal brackets	Galvanized Steel wire (thick for beams, thin for bamboo)	Natural fibre rope	Steel wire
Plaster Material:	N/A	Mud and paddy husk mixture	N/A	Mud and paddy husk mixture	N/A	N/A	N/A	Daub (mud, clay and fibre plaster)	N/A
Insulation Material:	N/A	N/A	N/A	N/A	Polystyrene	Polystyrene	N/A	N/A	N/A
Inside Material:	Plaster	Plaster	N/A	Plaster	Weather treated plywood	Flat Board	N/A	N/A	N/A
Doors:	Wood frame, Hinges, Local Tarpaulin, nails, hinges and	Wood frame, Hinges, Local Tarpaulin, nails, hinges and	Wood frame, Hinges, Local Tarpaulin, nails, hinges and	Wood frame, Hinges, Local Tarpaulin, nails, hinges and	Locally procured doory system (PVC frame and	Locally procured doory system (PVC frame and	Wood frame with wood plank door (nails and hinges)	Wood plank frame with Plywood door (hinges and	Wood frame with bamboo door (hinges, nails and wire)
Windows:	Tarpaulin cover	Wood frame, hinges, local tarpaulin and lock	Wood frame, hinges, local tarpaulin and lock	Wood frame, hinges, local tarpaulin and lock	Locally procured window system (PVC frame and	Locally procured window system (PVC frame and	Wood Frame attached with steel wire.	Wood frame with plywood shutter	N/A
Floor:	Tarpaulin (provided by Better Shelter)	Cow dung, mud and ash mixture	Cow dung, mud and ash mixture	Cow dung, mud and ash mixture	Cement Floor	Cement Floor	Compacted Soil	Compacted Soil	Compacted Soil

Structure is based on knowledge sharing and open-source data to be shared in the humanitarian community.

PROOF OF CONCEPT INTERNAL R&D



More than 60 000 frames have been distributed with the Better Shelter. The solution is well tested for durability



Artificial Wind and Rain test conducted, together with structural calculations to inform design decisions.



First field test done in Gaziantep in January 2020. The Structure is still up and temperature data is still being recorded

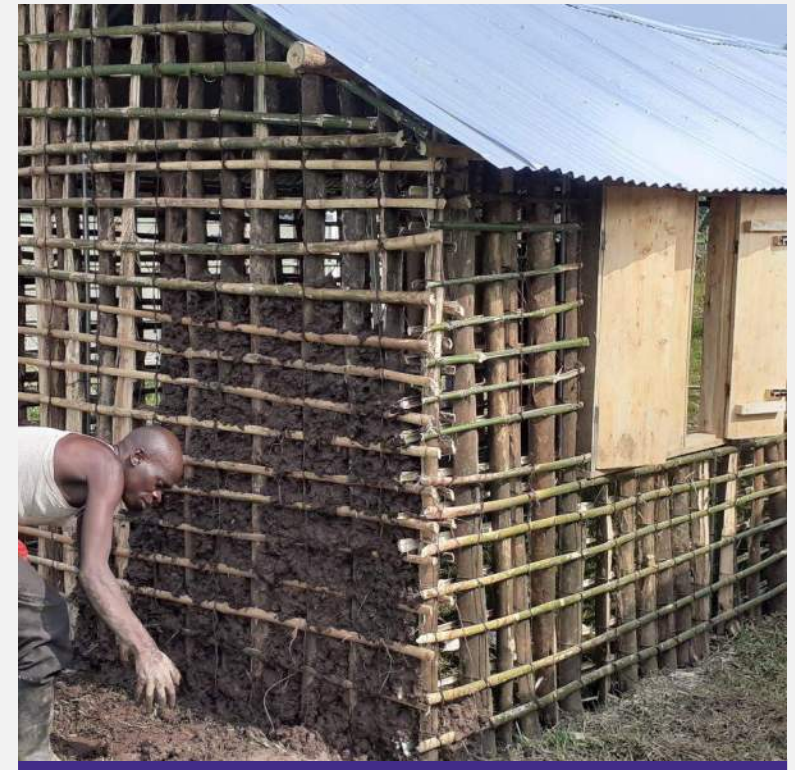
PROOF OF CONCEPT RWANDA



Evaluation of various materials suitability and availability



Identification of suitable attachment techniques



Collection of initial BoQs and technical feedback

PILOT WITH AGA KHAN AGENCY FOR HABITAT **TAJIKISTAN**



Triaging double unit outside main hospital in Khorogh to assist in the C-19 response.



Assembly in Siponj village in Bartange Valley of Rushan district



8 months after implementation the units has withstood intense sun and harsh winter

PILOT WITH AGA KHAN AGENCY FOR HABITAT AFGHANISTAN



Used as office/changing room for nurses and doctors at a Better Shelter field hospital for covid patients in northern Afghanistan



Upgraded with locally available materials and used as a shelter for relatives to patients admitted to the local hospital in Badakhshan



In Pul-e Khumri a shelter was built using wood planks and insulation

PILOT WITH SEEDS INDIA



Design evaluation and selection of materials



On site build process and site preparation



Community involvement

