UNHCR
The UN Refugee Agency

UNHCR Innovation | DPSM

PROTOTYPES - R&D

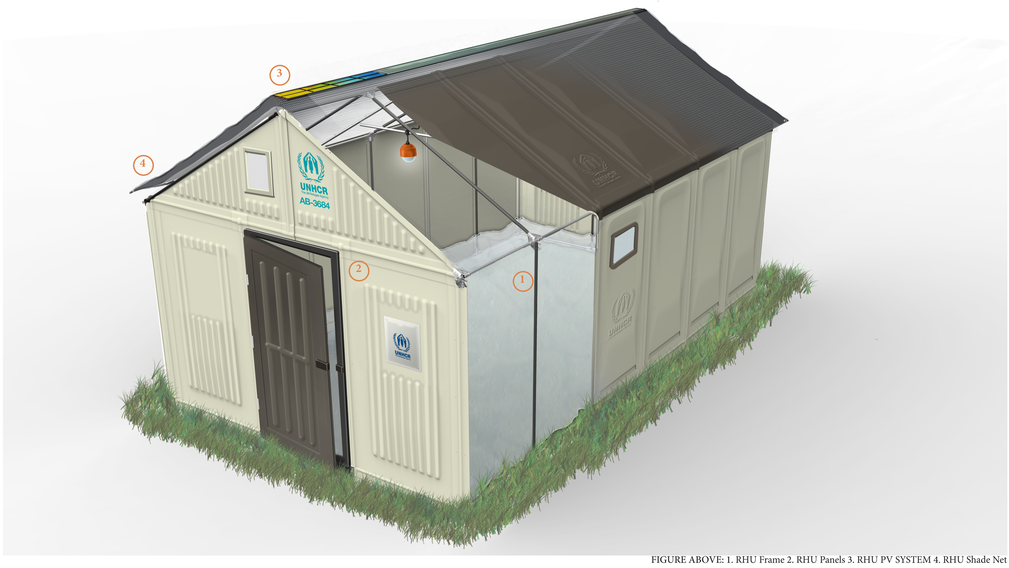


FIGURE ABOVE: 1. RHU Frame 2. RHU Panels 3. RHU PV SYSTEM 4. RHU Shade Net

CONCEPT:
A BETTER HOME FOR EMERGENCY RELIEF AND BEYOND

UNHCR's initial focus was on the concept and design for a shelter (frame and covering) that would serve as an alternative to the shelter option in use – the Family Tent – with enhanced performance and an expanded lifespan of up to 5 years. UNHCR developed a set of technical requirements providing that the new shelter solution should be modular, light-weight, easily extendable in term of size and reusable when a family returns to their place of origin.

Dimensions(LWH):	5,14 x 3,15 x 2,74m
Area:	17,5 m²
Height:	3,14
5 people/Unit	3,5m²/person (Sphere Standard)

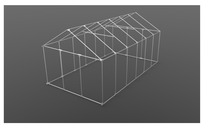
MODULAR DESIGN
A modular design makes the RHU a viable solution in the most variable contexts. The basic RHU Frame together with plastic sheeting creates a temporary shelter with the option to upgrade with local building materials or pre-manufactured RHU Panels, RHU Photo Voltaic and/or an RHU Shade Net.

BETTER LIVING COMFORT
The Refugee Housing Unit provides significantly higher living comfort and safety compared to emergency tents. The spatial volume is more than double that of the UNHCR family tent and the RHU Panels and RHU Shade net provide higher thermal comfort.

COST EFFECTIVE
The shelter is designed to meet the high volume production conditions and flat pack logistic demands required to be cost efficient. Production is not limited to being placed in low-cost countries, which makes it an ideal candidate for global production.

STATUS QUO:

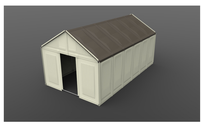
FRAME



THE RHU FRAME is a modular and expandable self-supported frame designed to be used with RHU Panels, plastic sheeting or locally sourced building materials in order to build an adequate shelter.

Weight:	30 kg
Volume:	0,1 m³
Units/Pallet:	24 / 720 kg / 210x80x120 cm
Assembly:	1 hour / 2 people
Lifespan:	10+ years

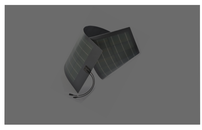
PANELS



THE RHU PANELS are modular wall and ceiling panels to be built on to the RHU Frame in order to quickly achieve a complete, durable shelter intended to last up to three years.The Panels can be fitted onto a RHU Frame in any size and be used to build shelters, warehouses, clinics and schools.

Weight:	85 kg
Volume:	0,8 m³
Units/Pallet:	1 / 85 kg / 210x80x120 cm
Assembly:	3 hours / 2 people
Lifespan:	3 years

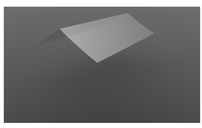
PV-SYSTEM



THE RHU PHOTOVOLTAIC (PV) SYSTEM consists of a solar panel and a portable LED light including battery and USB power output. The solar panel can be integrated into the RHU Panel or the RHU Shade Net.

Weight:	0,75 kg
Volume:	0,01m³
Units/Pallet:	312 / 234kg / 210x80x120 cm
Assembly:	0 hour / 2 people
Lifespan:	3 years

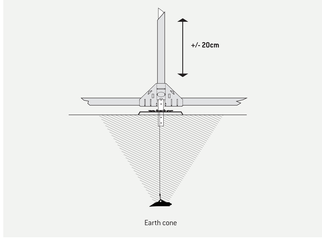
SHADE NET



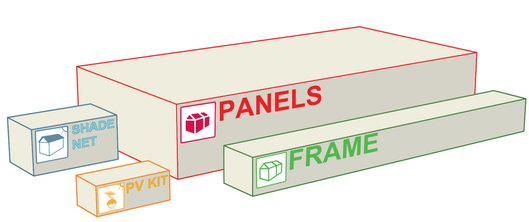
THE RHU SHADE NET is an external screen, which significantly improves indoor thermal comfort. During the day, the Shade Net´s open structure provides 70% solar reflection and cooling. At night and in cold climates, the Shade Net helps reduce radiated heat loss.

Weight:	8.0kg
Volume:	0.02 m³
Units/Pallet:	72 / 576kg / 210x80x120 cm
Assembly:	1 hours / 2 people
Lifespan:	3 years

PROPOSED SOLUTIONS:



THE GROUND ANCHORING SYSTEM is design to fit various ground conditions, from grabble and sand and clay to asphalt. The anchor is height adjustable, which allows the shelter to be built on uneven grounds or in slopes of up to 7 degrees. The concept involves a specially designed anchor which is driven and locked into the ground with a driver - no digging is required to lock it into position.



PACKING The Refugee Housing Unit is packaged in four separate packages which can be combined or used indecently in order to respond to the shifting needs and budgets of relief operations. The total target weigh of the Shelter is 98 KG and the packing volume is 1.5 cubic meters. All packages can be carried by two people.

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IKEA FOUNDATION

REFUGEE HOUSING UNIT