

# **Better Shelter** Refugee Housing Unit (RHU)

## Main innovative aspects

#### **Modularity**

- Temporary structure with extended life span
- Envelope is made of panels while entire structure is composed of interchangeable components
- The structure is freely extendable and can be adjusted to different needs, including accommodation, temporary health care clinic, office, NFI distribution centre
- The steel frame can be combined with local materials; reusable and sustainable

#### Sustainability

- Mounted with ground anchors leaves no damage after disassembly
- Can be assembled, moved and reassembled multiple times
- Does not contribute to deforestation
- Flat packed: cost- and shipping efficient with minimised environmental impact

#### **Comfort**

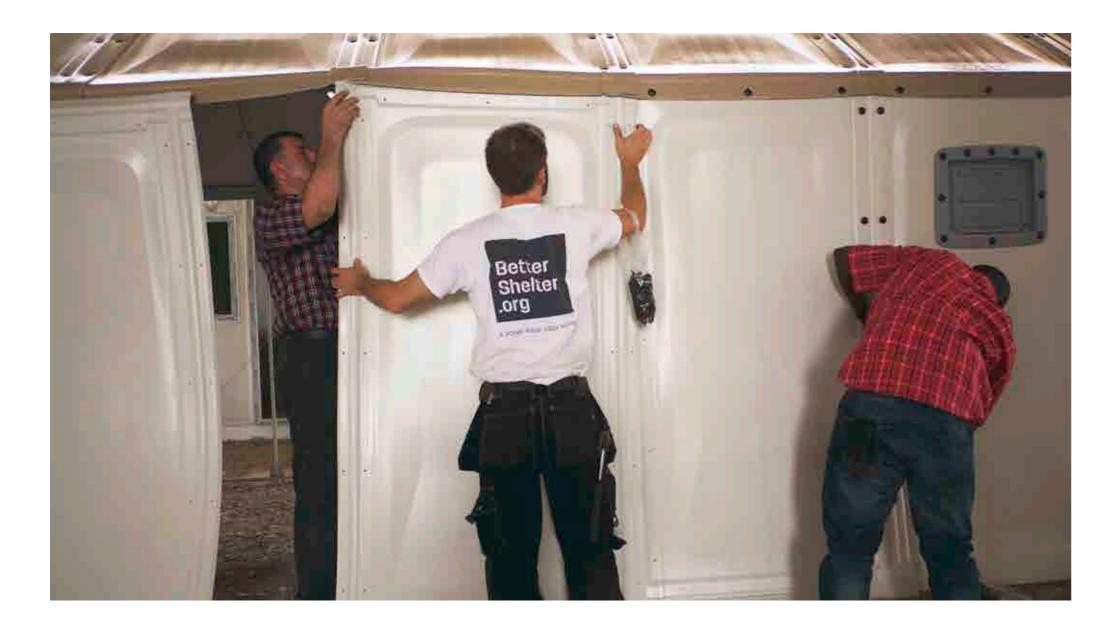
- Full standing height and vertical walls
- Silent and robust
- Solar powered light and USB port
- Safe lockable door, semi-hard walls and small windows

#### Scalability

- Can be assembled and efficiently scaled up in teams
- The shelter can be assembled by beneficiaries themselves; empowers and contributes to feeling of ownership of the shelter as well as motivates maintenance of it.
- Flat packed: no additional tools required with everything included in the kit
- Automated production chain

#### **Process**

- End user focus to ensure that the innovation is embraced by its beneficiaries.
- Collaborative, cross disciplinary development process, in which expertise is brought in from the humanitarian industry and combined with private sector design and engineering industry.



## **Key information**

Cost \$1250 per unit 169 kg Weight Volume (flat-packed) 1.13 m<sup>3</sup> 17.5 m<sup>2</sup> Floor area Eave height 1.85 m Maximum height 2.85 m Expected life span 3 years Sphere compliant

4 hours/day or USB power PV system

Yes



### **Needs met**

Better shelter is a global post emergency family shelter.

Cost efficiency - small shipping volume, light weight Customers

No reliance on local materials

Operational efficiency - limited training required and all compo-

nents, tools and manuals are included in the shelter kit

Accommodation - activities of basic living, for privacy, dignity, Beneficiaries

security, familiarity and the need for a higher level of comfort.



## Performance evaluation

During the development of the Better Shelter, requirements were set, together with UNHCR, in regards to weight, price, volume, UV resistance and rain resistance as well as more general requirements such as safety, security and health.

As there are limited standards available to evaluate the performance of this type of structure, standards from the permanent building industry were used to set certain performance criteria. These include;

- the strength of the frame (wind and snow) which was calculated according to Eurocode
- the fire safety performance of the panels which have been tested and approved according to EN and ISO at SP Technical Institue of Sweden
- water tightness, tested according to an ISO standard used for tents

Parallel to calculations and laboratory tests, the product has been tested and evaluated extensively in the field together with UNHCR and with end users.