

### Mobile modular unit

Citation for published version (APA):

Hendriks, E. (2015). Mobile modular unit. Poster session presented at Aidex, Brussels, Belgium.

Document status and date: Published: 14/11/2015

### Document Version:

Publisher's PDF, also known as Version of Record (includes final page, issue and volume numbers)

### Please check the document version of this publication:

• A submitted manuscript is the version of the article upon submission and before peer-review. There can be important differences between the submitted version and the official published version of record. People interested in the research are advised to contact the author for the final version of the publication, or visit the DOI to the publisher's website.

• The final author version and the galley proof are versions of the publication after peer review.

• The final published version features the final layout of the paper including the volume, issue and page numbers.

Link to publication

### General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- · Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
  You may freely distribute the URL identifying the publication in the public portal.

If the publication is distributed under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license above, please follow below link for the End User Agreement:

www.tue.nl/taverne

### Take down policy

If you believe that this document breaches copyright please contact us at:

openaccess@tue.nl

providing details and we will investigate your claim.

### Mobile Modular 120m2 Unit



Jos Lichtenberg | University of Technology Eindhoven | Faculty of Architecture building and planning | Shelter Research Group | Den Dolech | Groene Loper 6 | 5612 AZ Eindhoven | THE NETHERLANDS | j.n.n.lichtenberg@tue.nl Roel Gijsbers | Wijnroemer Relief Goods | Torenstraat 28 | NL-5438 AP Gassel | THE NETHERLANDS | R.gijsbers@wrg.nl Vincent Virgo | IFRC-SRU | Cité Henri Dunant 10 | 8095 Bertrange | LUXEMBOURG | http://ifrc-sru.org | Vincent.Virgo@croix-rouge.lu

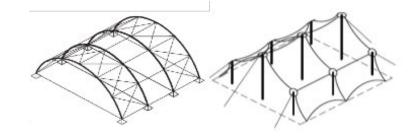


EMERGENCIES OCCUR IN DIFFERENT CLIMATE CONDITIONS, HUMANITARIAN ORGANISATIONS ARE DEMANDING MULTIFUNCTIONAL SHELTERS ADAPTED TO CLIMATE CONDITIONS.



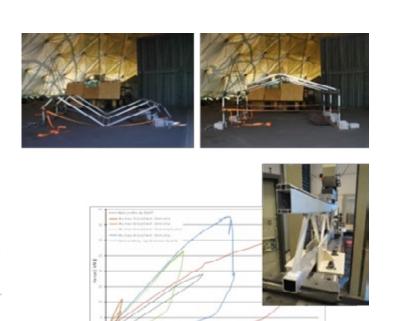
The European S(P)EEDKITS project responded to this demand. Therefore, the University of Techonology Eindhoven (shelter research group), IFRC-SRU (NGO) and WRG (industrial partner) designed and produced a prototype of a multifunctional tent adaptable to the climate conditions which is tested in the field.

RESEARCH of requirements for concept design



SOTA Analysis of lightweight membrane structures





## CONCEPT design with adaptability

Structural safety & Reliability

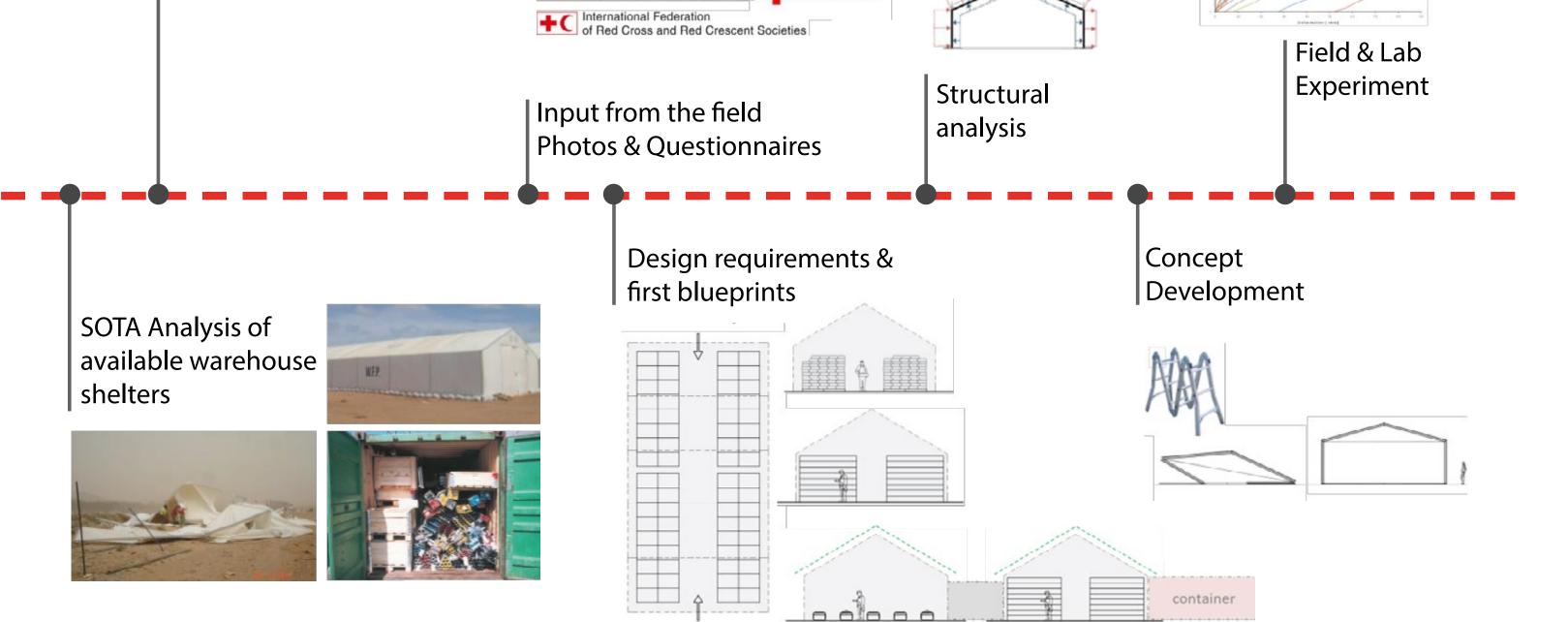
Setting a new structural safety standard

3 months safe use (EN 13782) Temporary tents:

MMU120:

10 years safe use (EN 1990/1991)





Personal safety & ease of assembly

Manual assembly method without climbing or power tools

Versatility & compatibility

BASIC KIT

10 year lifespan, low wind, no snow

PLUS KITS

Structural upgrades for heavy wind & snow loads

ADD-ON KITS

For extended functionality and connectivity

**FIELD TESTING** 

November 2015: Senegal deployment of MMU120 Procurement through WRG (Wijnroemer Relief Goods)

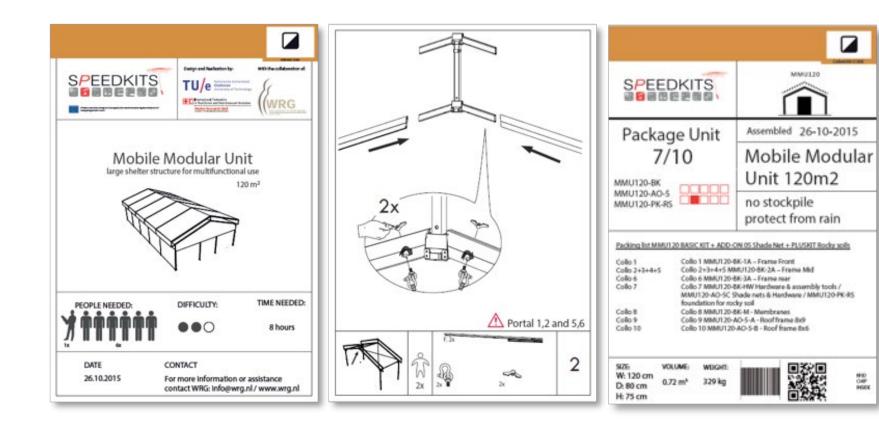
Manufacturing 

# RESULTS

Modular lay-out, quick assembly and multiple configurations possible, competitive pricing

- Logistic handling
- Assembly manual •







8m span x 15m length (+3m extensions) • Dimensions: 2.8m side wall height PLUS KITS for structural upgrades • Reliability 2 Wind classes: W1 - 20 m/s | W2- 31 m/s 2 Snow classes: S0- no snow | S1 – 50 kg/m2 | S2 – 100 kg/m2 Positive –> Upgrade and modification of a proven system • Acceptance (MSF used WRG system in Sudan & in Ebola campaign) Functional ADD-ONS to increase possibilities for size, connec- Modularity tivity, acclimatization and use

