

Transitional Shelter Standards

Draft
December 2008



“Agreeing common standards and indicators for transitional shelters that can be stockpiled and airlifted or shipped into humanitarian operations, both in order to improve the quality and consistency of response, and to engage research and development capacities of shelter manufacturers.”

shelter centre

Draft

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Project booklets

The projects of Shelter Centre supporting transitional shelter comprises three complementary booklets:



Transitional Shelter Guidelines

A handbook of practical guidelines that can be used in the field to facilitate the implementation of more effective transitional shelter programmes. Includes sector consensus on planning and implementation best practices.



Transitional Shelter Standards

Common standards and indicators, consistent with Transitional Shelter Guidelines, for both locally produced and stockpiled, airlifted family transitional shelters, developed and agreed upon by a multi-agency Project Consortium.



Transitional Shelter Prototypes

A record of information on prototypes that meet the Transitional Shelter Standards, including only examples of stockpiled, airlifted family transitional shelters. Includes designs by participating private manufacturers.

Transitional Shelter Standards

Preliminary draft

December 2008

Draft

Acronyms and abbreviations

| | |
|--------------|--|
| AMURT | Ananda Marga Universal Relief Team |
| CAFOD | Catholic Agency for Overseas Development |
| COHRE | Centre On Housing Rights and Evictions |
| CRS | Catholic Relief Services |
| DFID | Department for International Development |
| DFID CHAD-OT | DFID Conflict and Humanitarian Affairs Department Operations Team |
| ECHO | European Commission Humanitarian Aid Office |
| ICRC | International Committee of the Red Cross |
| IFRC | International Federation of Red Cross and Red Crescent Societies |
| IOM | International Organization for Migration |
| JICA | Japanese International Co-operation Agency |
| MSF-B | Médecins Sans Frontières – Belgium |
| MSF-Int | Médecins Sans Frontières – International |
| NRC | Norwegian Refugee Council |
| OCHA | Office for the Coordination of Humanitarian Affairs |
| ODI | Overseas Development Institute |
| RedR | Registered Engineers for Disaster Relief |
| SDC/HA | Swiss Agency for Development and Cooperation/ Swiss Humanitarian Aid Unit |
| UN-Habitat | United Nations Human Settlements Programme |
| UNDP | United Nations Development Programme |
| UNEP | United Nations Environment Programme |
| UNHCR | United Nations High Commissioner for Refugees |
| UN/OCHA | United Nations Office for the Coordination of Humanitarian Affairs |
| USAID | United States Agency for International Development |
| USAID/OFDA | USAID Office of Foreign Disaster Assistance |
| WVI | World Vision International |

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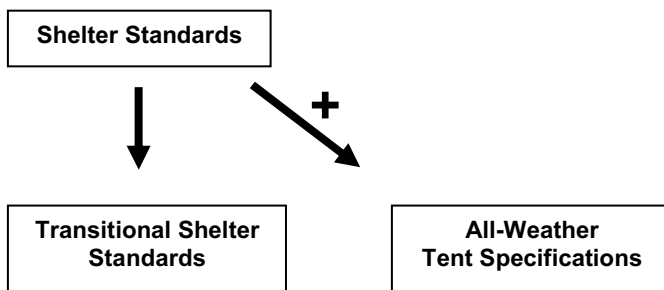
1 Summary of amendments

On Thursday, November 20th, 2008, members of the Shelter Standards Consortium met in Brussels, Belgium. Attendees at this Consortium meeting included:

| | | |
|--------------------|----------------------|----------|
| CARE International | HFHI | Oxfam GB |
| CHF | IFRC | RICS |
| Cordaid | Medair International | UN/OCHA |
| DFID | MSF-B | WVI |
| German RC | NRC | |

1.1 Shelter Standards document change of scope

Consortium members agreed that to further clarify the difference between emergency and transitional shelter, this booklet should be renamed *Transitional Shelter Standards*, and will serve as a complement to a new document, to be published by UNHCR and the Red Cross Movement, titled *All-Weather Tent Specifications*.



Transitional shelter is a shelter built from either local materials or stockpiled and airlifted which provides a habitable, secure, private living space during the period between a conflict or natural disaster and the achievement of a durable shelter solution. Tents are not included in this.

As tents are not included in this definition (and therefore not considered by these Standards), they will be covered in a new specification for all-weather tents.

1.2 Technical standard amendments

A discussion on various technical standards was also had, and the following changes and considerations were approved by Consortium members present. All section and standard numbers refer to this current document (December 2008 revision).

Section 3.2.1, standard 4:

The point was raised that if tent poles are in a single piece, a maximum length of 220 cm is possible. As one international standard claims the maximum dimension of any item to be 228 cm, this standard is currently being investigated to determine the most accurate value.

Section 3.3.1, standard 18:

Value reduced from 1,500 N/m² to 300 N/m², as the value of 1500 was sourced from an inappropriate standard.

Section 3.3.1, standard 19:

The point was raised that hydrostatic pressure is a trade-off of breathability. It was proposed that 1500mm is an appropriate value for synthetics, due to their inherent lack of breathability, but that natural fibres might only require a value of 300-400mm due to their breathability. Currently being investigated.

Section 3.3.1, standard 23:

It was agreed that the cost implications for a 12-, 18-, or 24-month liner lifespan needed to be further investigated.

Section 3.3.8, standard 52:

In order to not prevent the use of copper naphthenate, which produces a light green material color (difficult to confuse with military greens), the categorical prohibition on green and beige was removed. Removed white from list of prohibited colors to not prevent the use of natural fabrics.

Section 3.4.3, standard 62 and 63:

Formerly a single standard, "The frame shall be strong enough to take the weight of sheet roofing and of hanging family objects from it." Now split into two standards due to different load types with appropriate technical values to be determined.



Specifications that have been amended or are currently under consideration are marked with a grey box and asterisk.

2 Project outline

The Shelter Standards Project was initiated in 2006 and has since generated a Consortium of Project partners as well as a Working Group. Further details on these two reviewing mechanism can be found on p 3-5.

The Shelter Standards project is one of ten deliverables, identified and prioritised by participants of the twice-yearly Shelter Meeting, that are funded by DFID 2006-2011. USAID has provided additional funding for the Shelter Standards project.

2.1 Shelter Standards project aims

The initial aims of the project in 2006 were:

"... to improve the appropriateness and coordination of response to transitional shelter needs following conflicts and natural disasters. It seeks to achieve this aim through supporting consensus within the humanitarian community and amongst manufacturers and suppliers on standards and indicators for family transitional shelter, including emergency tents."

In the original project proposal these aims were further qualified with the following areas that the Standards should seek to maximise:

- adaptation by the user to local conditions and cultural norms;
- repair and maintenance, improvement and extension by the user using local materials;
- local fabrication options for spare and additional components;
- global fabrication options using standard low-cost techniques;
- protection from solar gain, using a double roof and vented cavity;
- control of infiltration, or draughts, with options for cross venting;
- external space use and surface water drainage options;
- the integration of vector control, including mosquito netting;
- the structural system life and flexibility, and cover reparability ;
- a single hot and cold climate shelter, with climatic adaptation; and
- incremental climatic adaptation using imported and local options.

2.2 Shelter Standards objectives

In order to meet the project aims, the following objectives were initially set for the Standards project:

- bring together in a Consortium the mandated and experienced donors, UN bodies and implementing agencies that constitute a global stockpiled hot and cold family shelter capacity;
- achieve consensus within the Consortium for standards and indicators for stockpiled hot and cold family shelter; and
- finalise and publish consensus standards and indicators.

2.3 Shelter Standards background

Although local solutions are preferred, the urgent and large-scale need following major conflicts and disasters can often overwhelm local construction and materials capacities, creating the necessity for a family shelter solution that can be stockpiled and airlifted. In the humanitarian community, this need has so far been met largely by canvas tents.

This current stockpiled hot and cold family shelter capacity presents challenges for procurement, stockpiling and logistics, especially given the weight of tents and their susceptibility to degradation resulting from rotting and ultraviolet light, both in storage and when deployed.

Numerous alternative designs available present innovations, based upon varying awareness of field conditions.

Suppliers have requested clear standards and indicators from the international community of shelter requirements, so that they may engage productively in research and development.

2.4 Review mechanisms for Shelter Standards

This booklet was circulated at a specialist meeting of the Project Consortium on Thursday 20th November 2008, hosted by MSF at its headquarters in Brussels. Subsequently, this booklet may be downloaded and reviewed from:

www.sheltercentre.org/standards/shelter+standards

Humanitarian agencies may participate in the Project Consortium.

Manufacturers of shelters may participate by developing prototypes to the Shelter Standards, as part of a process agreed by the Project Consortium.

Joining the Project Consortium

Humanitarian agencies may join the Project Consortium by emailing standards@sheltercentre.org. A list of current Consortium members may be found on the rear cover of this booklet.

Members of the Project Consortium are not obliged in any way to procure shelters manufactured to the Shelter Standards, or to use the Shelter Standards in preference to or in replace of existing consensus or internal standards on family shelter.

Members of the Project Consortium review drafts of the Standards and prototypes of shelters manufactured to meet those Standards.

Manufacturers

Manufacturers and suppliers of humanitarian shelter may apply to exhibit prototypes which they attest meet the Shelter Standards agreed by emailing standards@sheltercentre.org with a letter headed statement confirming that the manufacturer or supplier:

- will bear all of the costs associated with the research, development, fabrication, transport and exhibition of prototypes over the duration of their involvement in the project;
- understands that neither Shelter Centre nor the Project Consortium are under any obligation to purchase shelters, regardless of whether or not they meet the Standards agreed;
- understand that it is the role of the Project Consortium to agree its requirements as Standards, however manufacturers and suppliers may be offered the opportunity to comment upon these Standards later in the project; and
- understand that the project is not an opportunity to display existing shelters, or prototypes that do not meet the Standards agreed.

The objective of this project is for a group of humanitarian agencies to agree achievable standards for one type of emergency family shelter – a 'transitional shelter' that may be stockpiled and airlifted – and not to define all emergency family shelter.

Shelter Centre considers that the involvement of manufacturers and suppliers over the project will be critical to its success, through developing a common understanding of requirements and opportunities.

Shelter Centre reserves the right at all stages of the project to refuse participation by any manufacturer or supplier, regardless of work undertaken by the manufacturer or supplier, and without warning or justification.

2.4.1 Consortium for review and agreement

The Shelter Standards Consortium is for donor governments and implementing humanitarian organisations to collaborate in the development of standards and indicators for emergency family transitional shelter, for use in response to both conflicts and natural disasters.

The purpose of the Consortium is to bring key stakeholders to agreement regarding common standards and indicators for transitional family shelter following conflict and natural disasters. Consortium members are not obliged in any way to procure shelters manufactured to the Shelter Standards, or to use the Shelter Standards in preference to or in replace of existing consensus or internal standards on family shelter. Consortium members may wish to collaborate in joint purchases to agreed specifications at a later date.

The following members of the Consortium have expressed interest in adopting the standards, and a number have attended project meetings:

| | | |
|--------------------|------------------------|------------|
| CARE International | MSF-B | SDC/HA |
| DFID | Nederlands Red Cross | UN-Habitat |
| ECHO | Muslim Aid | UNHCR |
| IOM | Oxfam GB | UN/OCHA |
| IFRC | Save The Children Fund | USAID/ODFA |
| JICA | | |

The following members of the Consortium met on the 5th of October, 2007 and agreed on the preliminary draft standards listed in this booklet:

| | | |
|--------------------|----------------------|---------|
| CARE International | MSF-B | SDC/HA |
| DFID | Nederlands Red Cross | UNHCR |
| IFRC | Oxfam GB | UN/OCHA |
| JICA | | |

The Consortium also reviews the prototypes produced which reflect the Standards under development. Organisations wishing to join the Consortium should email consortium@sheltercentre.org.

2.4.2 Working group for review

The prototypes produced meeting the Shelter Standards will be reviewed by a Working Group and the Standards Consortium, however unlike the Consortium, the Working Group will not be able to determine the final standards or indicators.

The Working Group currently includes:

| | | |
|--------------------|-----------------------|--------------------|
| CARE International | MSF-International | The Sphere Project |
| CARITAS Austria | ProVention Consortium | World Vision Int |
| CRS | | |

Humanitarian organisations wishing to join the Working Group should email standards@sheltercentre.org.

2.4.3 Shelter Meetings

The Shelter Standards project will be reviewed at the twice-yearly Shelter Meeting, organised by Shelter Centre as a sector forum service.

The purpose of the Shelter Meeting is to facilitate discussion among participant organisations, coordinate and agree upon initiatives, policy, good practice and technical specifications relating to the transitional settlement and shelter needs of populations affected by conflict and natural disasters, such as for the Shelter Standards. See www.sheltermeeting.org for further information.

2.5 Activities and timeline for Shelter Standards

Supported by USAID/OFDA in 2006, these standards will constitute performance standards, based upon those developed through the Shelter Meeting as part of a project initiated by Shelter Centre and published as Annex C of 'Tents: A guide to the use and logistics of family tents in humanitarian relief' (OCHA, 2004).

Supported by DFID 2006 - 2009, the Shelter Standards Consortium will develop and agree indicators for the technical quantifiers of the degree of compliance with the standards, the performance requirements for transitional family shelter.

Supported by DFID 2006 - 2011, the Consortium will develop and agree winterisation components for Shelter Standards.

Winterisation will consider the incremental addition of flooring, stoves and insulation, integrating options for local adaptation, but will not look at calorific intake, bedding, or mattresses.

Further steps agreed for the project will be postponed until comments on the preliminary draft Standards included in this booklet are received.

3 Preliminary draft Shelter Standards

Presented in this chapter are the preliminary draft Shelter Standards for stockpiled hot and cold family shelter, agreed and developed by the Consortium, distributed to the manufacturing community for comment.

These Standards are a preliminary draft and the intention is for humanitarian professionals and manufacturers to optimise these Standards over the course of the project. These Standards will be revised to incorporate comments made by manufacturers and suppliers, as well as the participants of the twice-yearly Shelter Meeting, a sector forum open to humanitarian organisations, organised and run by Shelter Centre.

The structure of the Standards has been made consistent with the structure presented at Shelter Meeting 06b, as requested by Consortium members at the Project meeting on the 5th of October 2007.



Specifications that have been amended or are currently under consideration are marked with a grey box and asterisk.

3.1 Introduction to the Shelter Standards

The Shelter Standards will provide manufacturers with a manufacturing standard from which their individual designs can be derived. Though the designs may differ, and although the Standards do not constitute any obligation of Project members to procure, all designs meeting this Standard will be eligible to be deployed by Project members and other interested agencies.

Each of the requirements listed in the Shelter Standards is prefaced with some context to the operating environment of the humanitarian shelter sector. These prefaces are consistent with the relevant 'minimum standards', 'key indicators' and 'guidance notes' from the *Humanitarian Charter and Minimum Standards for Disaster Response* (The Sphere Project, 2004).

Many of the standards and tests developed by the International Standards Organization are relevant to this project, though they will require revising in order to reflect the operating environment of these shelters. Relevant ISO standards and tests have been included in the bibliography, and are referenced, where appropriate, throughout the requirements.

The Shelter Standards are comprised of requirements and these requirements are divided by the categories of logistics, physical and social.

The requirements are further divided into relevant sub-headings. Each sub-heading is prefaced by the importance of that particular area to the Shelter Standards. The actual requirements are listed beneath the sub-headings.

3.2 Preliminary draft logistics requirements


The shelter shall minimise logistics requirements and costs while maximising the logistics options for their transport.

The following logistical requirements will prove useful to humanitarian staff defining and implementing a strategy involving stockpiled transitional family shelters. This will also provide the commercial sector with a further understanding of the humanitarian community logistics chain.

3.2.1 Total weight and packed size

The shelter will need to be handled by both the intended beneficiaries, and agency staff. Beneficiaries may have limited access to transportation, making it difficult to move the shelter long distances. Agency staff will be looking to make the most effective and efficient use of their supply chains.

Requirements

- 1 A complete shelter package shall have a mass between 40kg and 80kg.
- 2 The total shelter shall be in one package which contains smaller packages broken down into parcels of weights suitable for transport by two people.
- 3 A complete shelter package shall have a packed volume between 0.3m^3 and 0.5m^3 .
-  4 The longest dimension of a packed shelter shall be no more than 200 cm (*perhaps 220 or 228 cm, currently under revision*).
- 5 It shall be possible to fit at least four packed shelters onto a 120 x 80cm Euro pallet.
- 6 It shall be possible to stack the packed shelters vertically onto a 120 x 80cm Euro pallet.

3.2.2 Storage

It is unknown when the shelters will be needed, and it is therefore important that agencies are able to stockpile shelters with confidence in advance of a response.

Requirements

7 It shall be possible to keep shelters in storage for at least five years without damage or changes reducing the functional capacity.

3.2.3 Marking

Shelters will be handled by many actors, and it is important for logistics and programme staff to understand the type and performance of the shelters, including where they were made, who they were made by, their size, their thermal performance, what components they have, whether they have already been deployed, and how long they've been in storage.

Requirements

8 Shelters shall have space to mark which particular design it is, how large the useable area of the shelter is, as well as how many people it can accommodate.

9 Shelters shall have space to mark means of transport, time in storage, and conditions of storage.ⁱ

10 Shelters shall be marked with the name or trademark of the manufacturer, and the date of manufacture.ⁱⁱ

11 The shelter shall indicate that it is or isn't mosquito proofed.

12 These instructions shall be in English, French, and any other appropriate language.ⁱⁱⁱ

13 It shall be easy to print the humanitarian organisation/donor logo on the outer fly and door of the shelter.

3.2.4 Availability

Not all organisations stockpile shelters, and rapid-onset disasters require that shelters are able to be procured in a quick and timely fashion by implementing agencies within weeks, if not days, of an emergency.

Requirements

14 The shelter shall be easy to obtain from different manufacturers under competitive bidding.

- 15 The shelter shall be capable of being produced fast enough to respond suitably to a humanitarian crisis.

3.3 Preliminary draft physical requirements

Recipients of stockpiled hot and cold family shelter shall have sufficient covered space to provide dignified accommodation. Essential household activities can be satisfactorily undertaken, and livelihood support activities can be pursued as required.^{iv}

The design of the shelter shall be acceptable to the affected population and provide them with sufficient thermal comfort, fresh air and protection from the climate to ensure their dignity, health, safety and well-being.^v

The following physical requirements will prove useful to humanitarian staff defining and implementing a strategy involving stockpiled transitional family shelters. This will also provide the commercial sector with a further understanding of the constraints and opportunities facing humanitarian shelter programmes.

3.3.1 Integrity

The shelter, including the covering, liner, frame and floor shall be consistent with known climatic conditions, be capable of withstanding appropriate wind-loading, rain-loading and accommodate snow-loading in cold climates.

Requirements

16 The structure shall have sufficient redundancy so that if the covering or one fixing fails, the shelter will remain upright.

17 The erected shelter, with all doors and windows closed shall be able to withstand a wind speed of 18m/s in any direction. After application of the load, the tent shall return to its original shape and position without damage.



18 The shelter shall withstand 300 N/m² of snow loading without damage or changes reducing the functional capacity (*reduced from 1,500 N/m² due to inappropriate source*).

19 The cover shall withstand 1500mm water column minimum (*may need separate values for synthetics/natural fibres, to be confirmed*).

20 The ground sheet shall withstand 1500mm water column minimum.

21 In warm, humid climates the roof shall have a reasonable slope for rain water drainage.

22 There shall be provision to trench the sod cloths into the ground to increase the stability of the shelter.

3.3.2 Durability

Often in an emergency, a household will have to make do with what they are initially distributed in the emergency phase for some time after. It is therefore important that the shelter design is durable enough to withstand well beyond the typical emergency phase.

Requirements



23 From moment of deployment, the structure shall last for a minimum of 36 months, the covering and liner shall last for a minimum of 18 months (*additional investigation undertaken to determine cost burden of 12-, 18-, or 24-month liner lifetime*).

24 The shelter shall withstand temperatures between -30°C to +55°C without damage or changes reducing the functional capacity.

25 All outer fabrics shall provide a minimum resistance to natural sunlight. This requirement is deemed to be met if, after artificial weathering in accordance with ISO 4892-2 and applying the test parameters specified in Table 8, the breaking strength and the resistance to penetration by rain is not more than 30% below the minimum value applicable to the shelter.^{vi}

26 Inner fabrics shall have a minimum breaking strength of 30 daN for warp and weft when tested in accordance with ISO 13934-1 or ISO 1421.^{vii}

3.3.3 Useable area

Space within the shelter, and immediately surrounding it, shall provide for sleeping, washing and dressing; care of children and elderly; the storage of food, water, household possessions; and cooking and eating indoors when required.^{viii}

Requirements

27 The shelter shall be large enough for a family of five and have between 3.5m² and 4.5m² of covered living area.

28 The standing height for the covered space shall be a minimum of 180cm over at least 60% of the covered floor area.

29 The design shall allow for the introduction of fuel burning stoves, including a fireproof and waterproof flue manifold.

30 It shall be possible to insulate the floor, walls and roof of the shelter.

- 31 Provision will be made for semi-enclosed and shaded cooking areas and provision for fixed minimum ventilation of the interior, to reduce cases of Acute Respiratory Infections (ARIs).
- 32 Storage pockets shall be integrated into the inner liner of the shelter.
- 33 There shall be no guy ropes, or other trip hazards around the shelter.

3.3.4 Ventilation

Adequate ventilation shall be provided within the shelter design to maintain a healthy internal environment and to limit the risk of transmission of diseases, such as tuberculosis spread by droplet infection.^x

Ventilation should be maximised in hot-climates to reduce inside temperature, and minimised in cold-climates to retain heat within the shelter.

Requirements

- 34 Minimum ventilation shall be achieved through an unobstructed aperture with a total area equivalent to 0.01m².
- 35 Design shall allow for maximum and minimum air changes per hour to avoid discomfort of occupants, air changes per hour should be not less than 7, but not more than 14.
- 36 Shelters shall have a ceiling to provide an adjustable air gap for insulation and ventilation.
- 37 All doors and openings shall be adjustable to control light and heat gain or loss.
- 38 In hot, dry climates the shelter should have a double-skinned roof with ventilation between the layers to reduce radiant heat gain. The distance between the layers should be at least 100mm.
- 39 In warm, humid climates the shelter design shall maximise air flow.
- 40 In cold climates, air flow through the shelter shall be kept to a minimum, while also providing adequate ventilation for space heaters, or cooking stoves.
- 41 In cold climates, the shelter shall have internal compartments in order to minimise heat loss through infiltration.

3.3.5 Fire safety

Fire is of tremendous concern with a population living in tents. Safe shelter, appropriate heat and light emitting NFIs, and public information campaigns are all of critical importance to mitigate injury and damage resulting from fire.

Requirements

- 42 The shelter shall have two opposite doors to facilitate escape in the event of fire.
- 43 It shall be possible to exit the shelter within 30 seconds when all doors are fully closed.
- 44 The shelter shall not ignite when tested in accordance with ISO 6940 and exposed to a test flame for 10 seconds, in the new condition and also after artificial weathering in accordance with ISO 4892-2.^x

3.3.6 Vector control

The patterns of shelter used by beneficiaries should inform the shelter design and subsequent vector control measures. Typical risks are posed by mosquitoes, rats and flies and pests such as snakes, scorpions and termites.^{xi}

Requirements

- 45 All doors and openings shall be protected against insects.
- 46 The shelter shall have a 10cm vertical edge around the base of entry points in order to impede the entry of insects.
- 47 The shelter must be mosquito proofed in an area long and broad enough for the intended occupancy to sleep in .
- 48 There shall be fixings for additional or replacement mosquito nets to be hung.

3.3.7 Environmental toxicity

Shelters will be modified, passed on, and ultimately disposed of. At no point in this process can the shelter cause harm to the user, or the environment.

Requirements

- 49 Shelters shall not involve materials that are toxic to humans, even when cut or modified for later re-use.
- 50 The environmental impact resulting from the manufacturing or disposal of shelters shall be minimised.

51 Shelters shall not involve materials that are toxic by burning or burying, and shall not pollute the ground water table or enter the food chain.

3.3.8 Colour

Not all colours have the same meaning to all people, and care must be taken to ensure the colours used in shelters are culturally appropriate.

Requirements



52 Military or camouflage colours shall not be used (*categorical restriction on green, beige and white removed*).

53 Cultural and political sensitivities shall be taken into account, for example in the use of colours used in national or factional flags.

3.4 Preliminary draft social requirements

The design of the shelter shall be acceptable to the affected population and provide them with an adaptable, repairable and dignified living space.

The following social requirements will prove useful to humanitarian staff defining and implementing a strategy involving culturally appropriate stockpiled hot and cold family shelter. This will also provide the commercial sector with a further understanding of the variety of cultures to which these shelter will be deployed.

3.4.1 Privacy

Existing local practices in the use of covered living area, for example sleeping arrangements and the accommodation of extended family members, should inform the covered area required.^{xii}

Requirements

54 It shall be possible to sub-divide the internal volume in order to increase visual privacy, whilst maintaining cross-ventilation.

55 A fully closed shelter shall allow sufficient light to enter without compromising privacy.

56 At night, it shall be possible to use artificial lighting within the shelter without compromising privacy.

3.4.2 Buildability

Shelter materials and design may often be unfamiliar to the recipients. It is important that the design, where possible, be familiar and that the method of erection straight forward.

Requirements

- 57 It shall be possible for two untrained adults to assemble the shelter without expert supervision.
- 58 The shelter shall be distributed complete, ready to put up, with all components included and all appropriate tools.
- 59 Each shelter shall be accompanied by instructions for use with explanatory sketches or drawings, suitable for multi-cultural and multi-lingual use in a variety of climatic and physical contexts, including on different topographies and ground conditions. In particular, these instructions shall ensure that erection and maintenance are well understood by an untrained adult. Shelters shall also be accompanied with instructions for the safe disposal of the components.^{xiii}

3.4.3 Adaptability and reparability

As emergency shelter response typically provides only a minimum level of enclosed space and materials assistance. Affected families will need to seek alternative means of increasing the extent or quality of the enclosed space provided.

The design and materials shall enable individuals to incrementally adapt or upgrade the shelter or aspects of the design to meet their needs and to undertake repairs using locally available tools and materials.^{xiv}

Requirements

- 60 It shall be possible to connect the shelter to another of the same type to increase the covered area.
- 61 The design shall facilitate the local adaptation of wall and roofing materials, such as mud brick side walls, local matting, or thatch.
- 62 The frame shall be strong enough to support the dead load of sheet roofing materials (*value to be determined*).
- * 63 The frame shall be strong enough to support 6-8 30kg hanging live loads (*currently under investigation by Losberger*).
- 64 The number of different types of components shall be kept to a minimum.
- 65 The total number of components shall be kept to a minimum.

- 66 Components shall be interchangeable where possible.
- 67 Components shall be available globally, or appropriate materials, tools and skills should be available for their local manufacture and repair.
- 68 Insulating materials shall be incorporated into the shelter when temperatures fall below a comfortable level
- 69 The design shall maximise the number of components and materials that can be maintained and repaired with non-specialist skills and equipment.
- 70 The shelter shall include a repair kit, with appropriate tools, spare components and material.
- 71 The design shall maximise the number of component materials that are suitable for later re-use, upgrading, modification or reconstruction on return.
- 72 Use of zippers and fixing methods such as proprietary clips and Velcro shall be minimised for use in functions that must be used frequently, such as doors and windows.

4 References

- ⁱ Consistent with 'International standard 5912 - Camping tents' (ISO, 2003)
- ⁱⁱ Consistent with 'International standard 5912 - Camping tents' (ISO, 2003)
- ⁱⁱⁱ Consistent with 'International standard 5912 - Camping tents' (ISO, 2003)
- ^{iv} Consistent with shelter and settlement standard 3: covered living space' (The Sphere Project, 2004)
- ^v Consistent with shelter and settlement standard 4: design (The Sphere Project, 2004)
- ^{vi} Consistent with 'International standard 10966 - Sports and recreational equipment - Fabrics for awnings and camping tents - specification' (ISO, 2005). A more appropriate requirement may need to be developed.
- ^{vii} Consistent with 'International standard 10966 - Sports and recreational equipment - Fabrics for awnings and camping tents - specification' (ISO, 2005). A more appropriate requirement may need to be developed.
- ^{viii} Consistent with guidance note 6 of shelter and settlement standard 3: covered living space' (The Sphere Project, 2004)
- ^{i^x} Consistent with guidance note 7 of shelter and settlement standard 4: covered living space (The Sphere Project, 2004)
- ^x Consistent with 'International standard 10966 - Sports and recreational equipment - Fabrics for awnings and camping tents - specification' (ISO, 2005). A more rigorous requirement may need to be developed.
- ^{xi} Consistent with guidance note 7 of shelter and settlement standard 4: design (The Sphere Project, 2004)
- ^{xii} Consistent with guidance note 4 and 5 of shelter and settlement standard 3: covered living space (The Sphere Project, 2004)
- ^{xiii} Consistent with 'International standard 5912 - Camping tents' (ISO, 2003)

5 Selected bibliography

Corcellis, T. and Vitale, A. (eds) (2005). *Transitional settlement: displaced populations*. Oxfam Publishing, Oxford, UK.

Davis, J and Lambert R. (eds) (2002). *Engineering in Emergencies: A Practical Guide for Relief Workers*. 2nd Edition, RedR /ITDG, London, UK.

Howard, J. and Spice, R. (1989). *Plastic Sheeting: Its Use for Emergency Shelter and Other Purposes*. Oxfam Technical Guide, Oxfam GB, Oxford, UK.

IFRC & Oxfam (2007). *Plastic Sheeting*. IFRC & Oxfam, Geneva, Switzerland.

ISO (2000). *ISO 8397 - Caravan awnings - functional requirements and test methods*. International Standards Organization, Geneva, Switzerland

ISO (2003). *ISO 5912 - Camping Tents*. International Standards Organization, Geneva, Switzerland

ISO (2005). *ISO 10966 - Sports and recreational equipment - fabrics for awnings and camping tents- specification*. International Standards Organization, Geneva, Switzerland

MSF (1997). *Refugee Health*. Macmillan, London, UK.

MSF (1998). *Temporary and Semi Permanent Buildings for Health Infrastructures in Refugee Camps*, Médecins sans Frontières Building Department, Brussels, Belgium.

The Sphere Project (2004). *Humanitarian Charter and Minimum Standards in Disaster Response*. Oxfam Publishing, Oxford, UK.

UN (2008). *Transitional Settlement and Reconstruction after Natural Disasters*. United Nations (UN), Geneva, Switzerland.

UNHCR (2002). *Cooking Options in Refugee Situations*. UNHCR, Geneva, Switzerland.

UNHCR (2007). *Handbook for Emergencies*. UNHCR, Geneva, Switzerland.

UN/OCHA (2004). *Tents: A Guide to the Use and Logistics of Tents in Humanitarian Relief*. UN/OCHA, Geneva, Switzerland.

Project schedule

Timeline

year 06 07 08 09 10 11

Draft performance standards, informed by ongoing prototype development (completed 2004)

Publication of version 1 of the performance standards as part C of 'Tents: A guide to the use and logistics of family tents in humanitarian relief' (OCHA, 2004)

Form Project Consortium and review draft standards for version 2

Finalise and publish cold and hot climate performance standards

Shelter Standards presented to manufacturers at 'Aid and Trade' event, 29-30 January 2008

Draft of Shelter Standards launched at SM08a

Identify manufacturers to display prototypes at SM08b

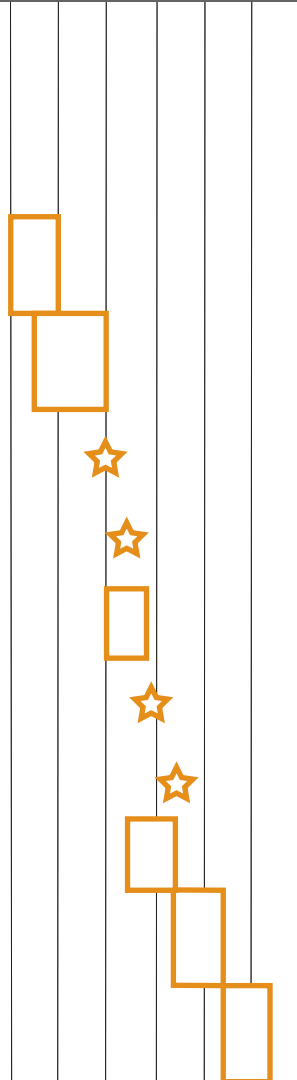
Project Consortium members and manufacturers to agree the development of the first prototypes

Manufacturers to develop prototypes for review at SM09a

More manufacturers to be identified

Further development and revision of prototypes by manufacturers for SM10a

Winterisation techniques to be developed by manufacturers for review at SM11a

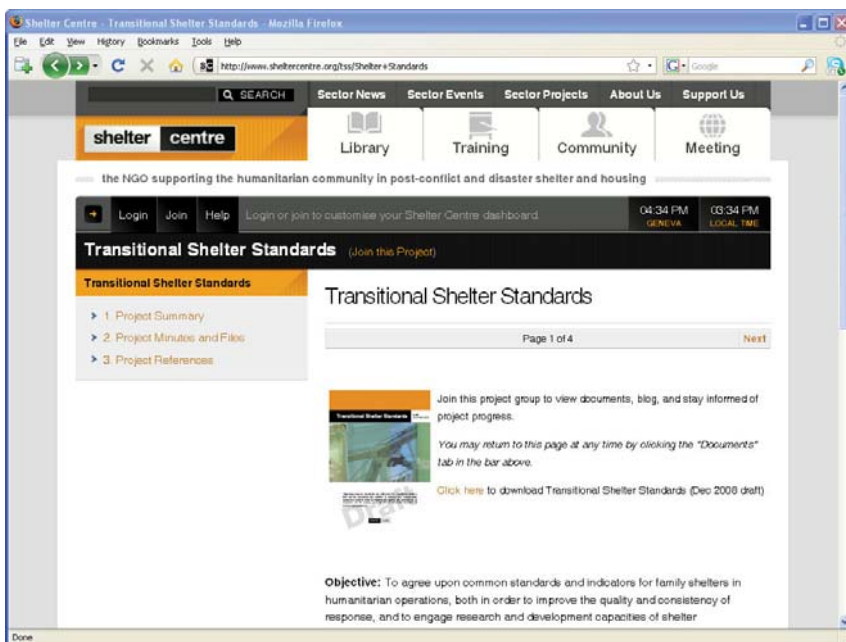


Online project review

All Shelter Centre projects are available for free viewing online at:

www.sheltercentre.org/projects

If you are a member of the Shelter Community, you may also leave discussion comments pertaining to each sector project. Eligible to join the Shelter Community include: employees of humanitarian and development NGOs, IOs, and UN bodies, independent humanitarian consultants, donors, and some government ministries. To apply for membership, visit www.sheltercentre.org/membership



The screenshot displays a web browser window with the URL <http://www.sheltercentre.org/tss/Shelter+Standards>. The page features a navigation menu with 'Sector News', 'Sector Events', 'Sector Projects', 'About Us', and 'Support Us'. Below this is a secondary menu with 'Library', 'Training', 'Community', and 'Meeting'. The main content area is titled 'Transitional Shelter Standards' and includes a 'Join this Project' button. A sidebar on the left lists '1. Project Summary', '2. Project Minutes and Files', and '3. Project References'. The main text area contains a 'Documents' tab, a 'Join this project group' section, and a link to download the 'Transitional Shelter Standards (Dec 2008 draft)'. The objective is stated as: 'To agree upon common standards and indicators for family shelters in humanitarian operations, both in order to improve the quality and consistency of response, and to engage research and development capacities of shelter.'

For more information on the Transitional Shelter Prototypes project, visit www.sheltercentre.org/tsp/transitional+shelter+prototypes

Transitional Shelter Standards

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The Transitional Shelter Standards booklet was circulated at a specialist meeting of the Project Consortium on Thursday 20th November 2008, hosted by MSF at its headquarters in Brussels.

For the humanitarian shelter community:

This document is made available for commenting from members of the humanitarian community. The contents of Transitional Shelter Standards have been developed cooperatively among members of the Project Consortium, which is explained in detail in section 2.4 of this booklet.

For more information, to provide feedback, or to join the Consortium, please email us at standards@sheltercentre.org.

For interested manufacturers:

These guidelines are not a mechanism by which to promote pre-existing designs, unless they already meet all of the guidelines contained within. Manufacturers participating in the Transitional Shelter Standards project commit to covering their own costs of R&D to produce a prototype for exhibit at a Consortium Meeting held in conjunction with Shelter Meeting 09a (7-8 May, 2009).

Manufacturers may apply to exhibit prototypes which they attest meet the Standards by emailing standards@sheltercentre.org.

To download the current draft of this document, please visit the Transitional Shelter Standards sector project page at:

www.sheltercentre.org/tss/transitional+shelter+standards

